

**SONY®**

HD COLOR CAMERA

**HDC2500**

**HDC2400**

**HDC2550**

***Digital HDVS***

OPERATION MANUAL  
1st Edition (Revised 2)

English



4413599030

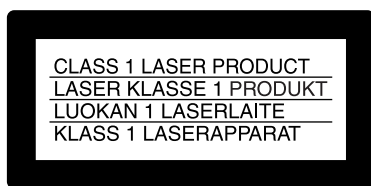
Before operating the unit, please read this manual thoroughly and retain it for future reference.

## **WARNING**

**To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.**

**To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.**

### **For laser-related devices (HDC2500/2400/Option HKC-FB20 installed)**



This HD Color Camera is classified as a CLASS 1 LASER PRODUCT.

Diese HD-Farbkamera ist als LASERPRODUKT DER KLASSE 1 eingestuft.

Tämä HD-värikamera on luokiteltu 1. LUOKAN LASERTUOTTEEKSI.

Den här HD-färgkameran klassificeras som en LASERPRODUKT AV KLAS 1.

### **CAUTION**

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

### **CAUTION**

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

### **For the customers in the U.S.A.**

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

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

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.

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 Canada**

This Class A digital apparatus complies with Canadian ICES-003.

### **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, 108-0075 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.

### **For the customers in Taiwan only**



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## **AVERTISSEMENT**

**Afin de réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.**

**Afin d'écartier tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.**

### **Pour les clients au Canada**

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

### **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, 108-0075 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 l'assurance, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

## **WARNUNG**

**Um die Gefahr von Bränden oder elektrischen Schlägen zu verringern, darf dieses Gerät nicht Regen oder Feuchtigkeit ausgesetzt werden.**

**Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.**

### **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 (Stadtgebiet im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, 108-0075 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

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# Overview

The HDC2500, HDC2400 and HDC2550 are 2/3-type high-definition portable video cameras equipped with CCD for 2,200,000 pixels.

The differences among the models are shown below:

|                       | HDC2500                                                                                                                                                                     | HDC2400                                                                                              | HDC2550                                                                                                                                       |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| CCD                   | Progressive IT                                                                                                                                                              | Progressive IT                                                                                       | Progressive IT                                                                                                                                |
| Video format coverage | 1080/50i, 1080/59.94i, 1080/23.98PsF, 1080/24PsF, 1080/25PsF, 1080/29.97PsF, 1080/50P, 1080/59.94P, 720/59.94P, 720/50P, 1080/100i*, 1080/119.88i*, 720/100P*, 720/119.88P* | 1080/59.94i, 720/59.94P, 1080/50i, 720/50P                                                           | 1080/59.94i, 720/59.94P, 1080/50i, 720/50P                                                                                                    |
| Built-in filters      | Optical ND filters (clear, 1/4ND, 1/8ND, 1/16ND, 1/64ND)<br>Optical CC filters (cross, 3200K, 4300K, 6300K, 8000K)<br>Electric filter (5600K)                               | Optical ND filters (clear, 1/4ND, 1/16ND, 1/64ND)<br>Optical cross filter<br>Electric filter (5600K) | Optical ND filters (clear, 1/4ND, 1/8ND, 1/16ND, 1/64ND)<br>Optical CC filters (cross, 3200K, 4300K, 6300K, 8000K)<br>Electric filter (5600K) |

\* 2× slow motion format.

## Features

### High picture quality and high performance

HDC2400/2500/2550 features a 2/3-type wide progressive IT CCD for 2,200,000 pixels and a signal processing LSI, both newly developed to help achieve a high level of image quality via improved S/N, high resolution, and low smear compared to previous models. A 16-bit AD converter allows for optimal picture quality and enhanced black reproduction.

### Slow motion via 2× speed recording

1080/50i-59.94i and 720/50P-59.94P formats are supported, as well as 1080/23.98PsF-24PsF-25PsF-29.97PsF and 1080/50P-59.94P progressive formats, and 1080/100i-119.88i and 720/100P-119.88P slow-motion 2× speed recording formats.

*For the models that do not support this function by default, use optional accessories to use this function. For details, see "Optional Accessories" (page 7).*

### Digital extender function

The central part of the viewfinder picture is digitally magnified to twice its size.

The digital extender function prevents the decrease in sensitivity (F-drop) that occurs when the lens extender function is used.

#### Note

This function does not operate when a 2x slow motion format is selected.

This function also reduces the resolution of images to one-half.

### Aberration correction function

This camera features ALAC 2.0 (Auto Lens Aberration Compensation).

When an achromatic lens is used, this function reduces chromatic aberration of magnification automatically.

*For details on achromatic lenses, contact a Sony sales representative or Sony service representative.*

### Standard 3G optical digital transmission unit (HDC2500/2400)

3G optical digital transmission of signals between the camera and camera control unit (CCU) is included, and allows the following kinds of video signal transmission and system configurations:

- 1080/50P-59.94P progressive video signal transmission
- Transmission of 2× speed recording signals such as 1080/100i-119.88i for production of slow-motion video
- Transmission of HD prompter, HD TRUNK, and network TRUNK signals that utilize empty bands during 1080/50i-59.94i and 720/50P-59.94P operation
- Dual camera system for transmitting video signals from two HDC2500/2400 cameras to two CCUs using just one optical fiber/multi-cable
- Subcamera system for transmitting video signals from both an HDC2500/2400 and another subcamera-such as the HDC-P1-using just one optical fiber/multi-cable and outputting their signals from one CCU

### Triax transmission (HDC2550)

HDC2550 utilizes a triax transmission system and supports 1080/50i-59.94i and 720/50P-59.94P formats.

## Various color-reproduction functions

### Adaptive-matrix function

This function accurately controls calculation factors for performing accurate color conversion when shooting. This makes precise color conversion possible even when shooting under conditions that would otherwise exceed the color conversion range of traditional matrix functions, such as under strong monochromatic blue light sources.

### Multimatrix color correction

In addition to the standard 6-axis matrix function, the camera has a multimatrix function that permits you to adjust the hue and chroma for color components in 16-axis directions independently. This is quite useful in color matching among multiple cameras.

### Knee saturation

Change of hue and decrease in chroma that occur in highlighted areas can be compensated. This enables reproduction of natural skin tones under strong lighting.

### Low key saturation

Saturation in low-key zones can be compensated. Thus, compensation for color reproduction in all zones is enabled in combination with matrix color compensation and knee saturation functions.

### Selection of multiple gamma tables

Seven types of standard and 4 types of hyper gamma tables are provided with this camera. The hyper gamma values enable cinematic image creations with wide dynamic range, which are different from those achieved with conventional video gamma.

### User gamma

Gamma tables created with CvpFileEditor™ can be saved to a "Memory Stick," or registered to HDC2500/2400 from the MSU-1000/1500 or RCP-1500 series.

## Versatile detail control functions

### Skin-tone detail function/Natural skin detail function

Like HDC1500R/1400R/1550R, this function allows control (emphasis or suppression) of the detail level for just a certain hue or chroma area in the image, by creating a detail gate signal from color components of your specified hue, such as skin tones. The detail levels of three hues can be adjusted independently at the same time.

HDC2500/2400/2550 features the natural skin detail function, which allows for adjustment of the detail gate signal, allowing even more vivid distinction of areas like skin that you want to make smooth while selectively keeping areas like eyebrows that don't require smoothing.

### Detail boost-frequency control

The boost frequency can be adjusted from 20 to 30 MHz. This allows the thickness of the detail signal to be set appropriately for the subject, thus enabling high-definition image expression.

### H/V ratio control

The ratio between horizontal and vertical detail can be adjusted.

### White/black limiter

The white and black details can be limited independently.

### Focus assist functions

The VF detail function and focus assist indicator function facilitate focusing.

### VF detail

Various functions are provided for the VF detail signal, which can be added only on images on the viewfinder screen in order to facilitate focusing in various situations: Functions for coloring the VF detail signal, flickering the VF detail signal by adding modulation, thickening the VF detail signal, and changing the VF detail level according to the zoom position.

### Focus assist indicator

The focusing level indicator on the viewfinder screen provides a guide for focusing. The best focus setting can be easily determined by observing fluctuation of the level indicator as a guide.

## Numerous viewfinder functions

### Wide variety of viewfinder display options

Along with items such as operation messages, a zebra pattern, a safety-zone marker, and a center marker, camera settings may also be displayed on the viewfinder screen. Furthermore, there are other indicators arranged above and below the viewfinder, such as a tally lamp, battery warning indicator, and an indicator to tell you that one or more settings are other than standard. This makes it simple to check the status of the camera.

### Menu-based setting operation function

Selections and settings for viewfinder display items, a safety-zone marker or center marker, screen size marker, etc. can be made quickly and easily using setup menus displayed on the viewfinder screen or an external monitor.

### PinP function

The return video signal can be displayed on the viewfinder in picture-in-picture mode.

#### Note

The PinP function cannot be used during stand-alone operation, and cannot be used with the HD TRUNK FRAME SYNCHRO function simultaneously.

### Wide variety of input/output interfaces (HDC2500/2400)

In addition to 3G/HD/SD-SDI output and HD/SD-SDI input, HDC2500/2400 features a wide variety of input/output interfaces, including the following:

### Network TRUNK function (HDC2500/2400)

The network TRUNK function (LAN port) allows for data transmission between the camera and CCU at speeds of up to

1 Gbps. This allows for a multitude of new system configurations, such as connecting several IP transmission cameras as subcameras.

#### Note

The network TRUNK transfer rate differs depending on the video format. Jumbo frames are not supported.

### HD TRUNK function (HDC2500/2400)

The new HD TRUNK function uses 3G optical transmission supports sending HD-SDI-equivalent digital data (not an HD-SDI video signal) from the HDC2500/2400 to an HDCU2000/2500.

#### Note

The HD TRUNK function can only be used when a single format is selected and the network TRUNK function is set to OFF.

### HD prompter function (HDC2500/2400)

The new HD prompter function on HDC2500/2400 supports sending HD-SDI-equivalent digital data (not an HD-SDI signal) separate from the return video signal from an HDCU2000/2500 to the HDC2500/2400.

#### Note

The HD prompter function can only be used when a single format is selected and the network TRUNK function is set to OFF.

## User-friendly operation

### Spirit level display function

HDC2500/2400/2550 features a spirit level function, which enables you to display the amount of camera roll on the viewfinder screen and monitor. By checking the level of the camera, more stable shooting can be achieved.

### Carbon-graphite outer cover

The HDC2500/2400/2550 outer cover is made of carbon graphite. Much lighter and stronger than plastic, it can easily withstand intense movement under the toughest shooting conditions.

### Unit-body with low center of gravity

HDC2500/2400/2550, like the previous HDC1500 series, adopts a stylish appearance with low-slung design. When used in combination with the HDLA1500-series Large Lens Adaptor, it permits the viewfinder to be mounted at a low position, making the viewfinder position closer to the optical axis of the lens.

### Swing handle and VF slide mechanism

A slight protrusion of the upper front part of the handle enables stable holding of the camera while you are shooting, by holding the front part of the handle. Furthermore, the movable range of a front-rear slide mechanism for the viewfinder attachment has been widened to provide the best balance for shooting with the camera on your shoulder. The swing handle mechanism allows for mounting and usage on the HDLA1500 series, making forward shifting with a large-scale viewfinder

possible. This enables the same total longitudinal size as a standard studio-use camera, for operability equivalent to that of a standard studio-use camera.

### Position-adjustable shoulder pad

The position of the shoulder pad can be adjusted for stable shooting according to the build of the camera operator, the type of lens in use, or the shooting style.

A low-repulsion shoulder pad (position fixed) is available as an option (Part No.: A-8286-346-A).

### Function-assignable switches

The function-assignable switches on the side panel can be assigned to your desired function, such as electronic color-temperature conversion.

These switches can be synchronized with the assignable switches on viewfinder models such as HDVF-EL75 and HDVF-C550W, and can be used to operate the viewfinder functions such as MAGNIFICATION, etc.

Also, two function-assignable switches are on the upper part of the handle, and can be used to set the viewfinder functions such as MAGNIFICATION, etc.

### USB connector

Connect a USB drive to the USB connector to record and read data. Setup menu settings can also be saved to and loaded from the USB drive.

### Prevention of electrical shock

When the power connection is unsafe, the power supply from the connected Camera Control Unit will be shut off.

## Optional accessories

You can add new functions and compatibility with other video formats by embedding the following optional accessories.

*For details on optional accessories, contact a Sony sales representative or Sony service representative.*

*For specifications or more detailed information on optional accessories, refer to the Operation Manual of each accessory.*

### HKC-DF20 Dual Optical Filter Unit

Embedding the HKC-DF20 Dual Optical Filter Unit allows for a 2-filter (a CC filter and ND filter) configuration.

### HZC-PSF20 Support software for PsF format

Embedding HZC-PSF20 PsF format-compatible software makes creation of 1080/24PsF, 1080/23.98PsF, 1080/25PsF and 1080/29.97PsF formats possible.

### HZC-PRV20 Software for progressive support

Embedding HZC-PRV20 progressive format-compatible software makes creation of 1080/50P and 1080/59.94P formats possible.

### HZC-DFR20 Dual-speed software

By using the HZC-DFR20 dual-speed-compatible software, 1080/100i, 1080/119.88i, 720/100P and 720/119.88P 2× slow-motion recording is available.

**HKC-FB20 Optical Fiber Transmission Adaptor**

Embedding HKC-FB20 into HDC2550 makes optical transmission possible.

**HKC-TR20 Triax Transmission Adaptor**

Embedding HKC-TR20 into HDC2500/2400 makes triax transmission possible.

**HKC-CN20 Side Panel Attachment Kit**

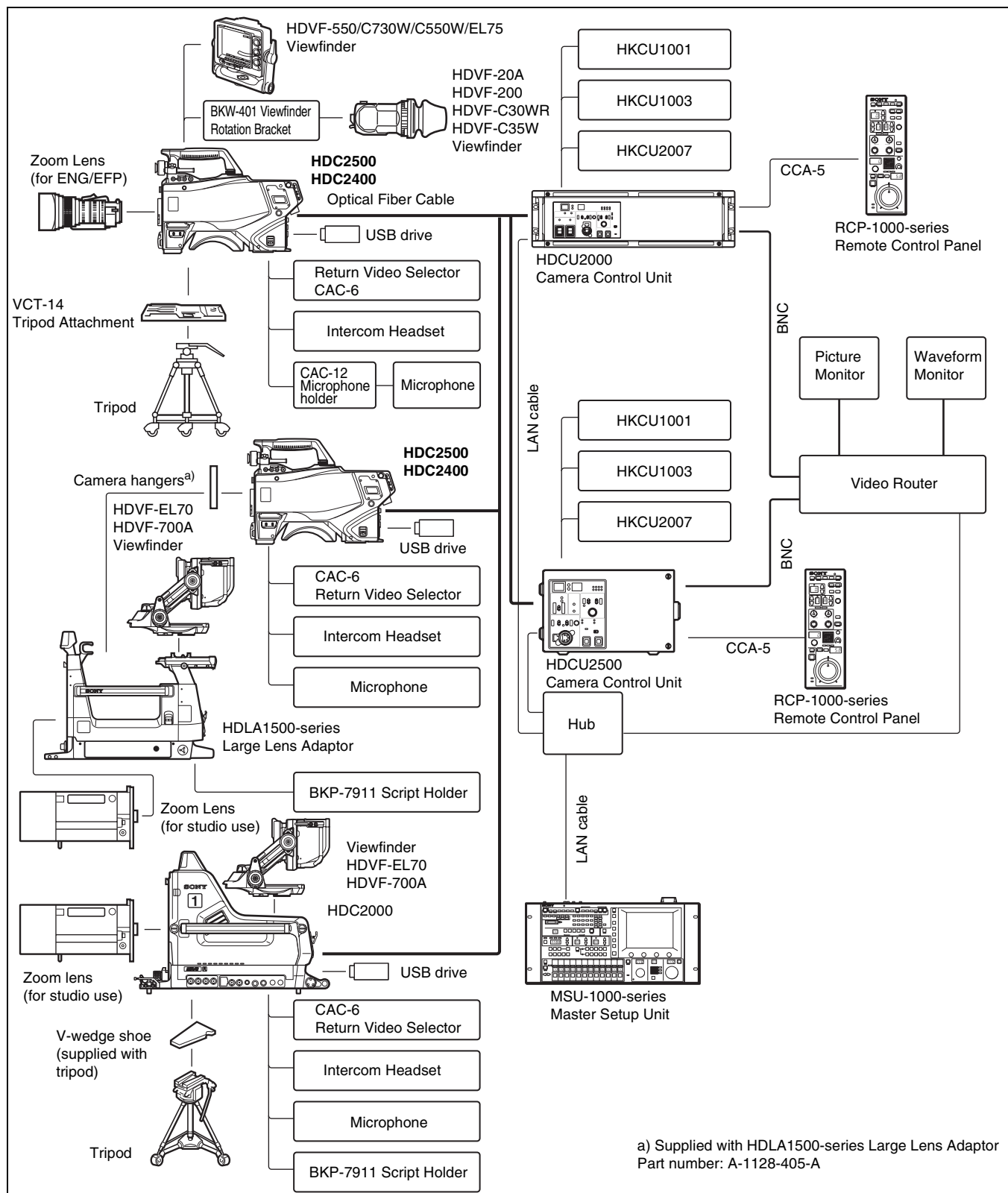
HKC-CN20 must be used to attach HKC-FB20 to HDC2550, or HKC-TR20 to HDC2500/2400.

# System Configuration

## Note

Production of some of the peripherals and related devices shown in the figures has been discontinued. For advice on choosing devices, please contact your Sony dealer or a Sony sales representative.

## Connection example



The diagram illustrates the connectivity of the HDC2550 camera system. It is divided into two main operational modes: ENG/EFP (top) and studio use (bottom).

**ENG/EFP Mode (Top):**

- Camera:** HDC2550.
- Viewfinders:** HDVF-550/C730W/C550W<sup>a)</sup>/EL75 Viewfinder (top), HDVF-20A, HDVF-200, HDVF-C30WR, HDVF-C35W<sup>a)</sup> Viewfinder (middle), and HDVF-EL70/700A Viewfinder (bottom).
- Accessories:** Zoom Lens (for ENG/EFP), BKW-401 Viewfinder Rotation Bracket, VCT-14 Tripod Attachment, Tripod, CAC-6 Return Video Selector, Intercom Headset, CAC-12 Microphone holder, Microphone, USB drive, Triax Cable<sup>b)</sup>, HAFX100 HD Triax CCU Adaptor, Optical Fiber Cable, LAN cable.
- Control Units:** HKCU1001, HKCU1003, HKCU2007, HDCU2000 HD Camera Control Unit, HDCU2500 Camera Control Unit, Hub.
- Remote Control:** RCP-1000-series Remote Control Panel (top), RCP-1000-series Remote Control Panel (bottom).
- Monitors:** Picture Monitor, Waveform Monitor, Video Router.
- Connections:** CCA-5, BNC, LAN cable.

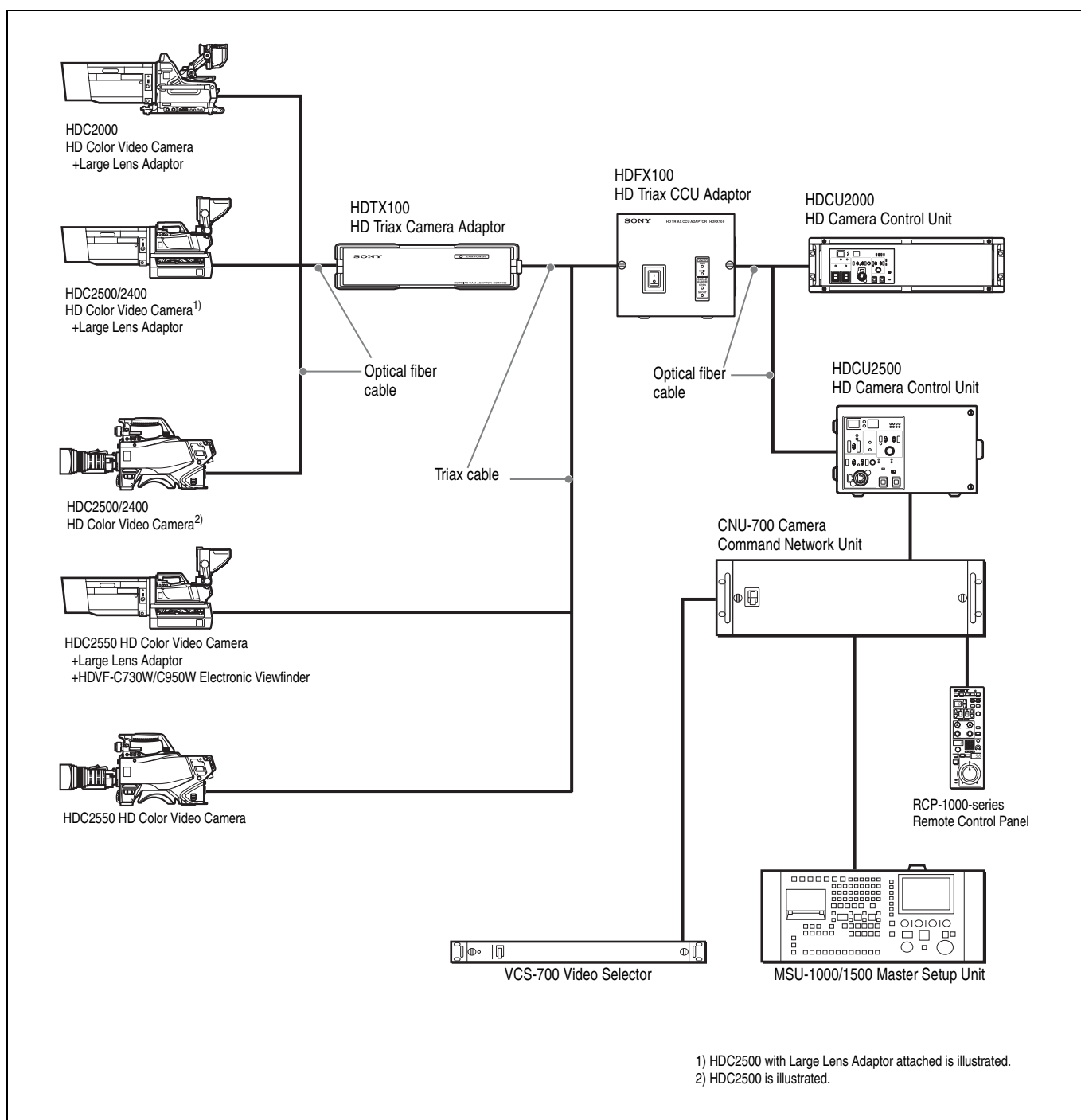
**Studio Use Mode (Bottom):**

- Camera:** HDC2550.
- Viewfinder:** HDVF-EL70/700A Viewfinder.
- Accessories:** Zoom Lens (for studio use), Camera hangers<sup>c)</sup>, HDLA1500-series Large Lens Adaptor, BKP-7911 Script Holder, CAC-6 Return Video Selector, Intercom Headset, Microphone, USB drive, Triax cable<sup>b)</sup>, LAN cable.
- Control Units:** HKCU1001, HKCU1003, HKCU2007, HDCU2500 Camera Control Unit, Hub, MSU-1000-series Master Setup Unit.
- Remote Control:** RCP-1000-series Remote Control Panel.
- Connections:** CCA-5, BNC, LAN cable.

**Footnotes:**

- The HDVF-550/C730W/C550W and HDVF-C35W function as monochrome viewfinders when monitoring a return video with the HDC2550.
- The maximum Triax cable length between the HDC2550 and the HAFX100 depends on the type of cable.  
For details, refer to the Operation Manual of the HAFX100.
- Supplied with HDLA1500-series Large Lens Adaptor  
Part number: A-1128-405-A

### Connection example 3



#### Maximum cable run with Triax cable

The maximum Triax cable length between the HDC2500/2400/2550 and the HDFX100 or between the HDFX100 and the HDTX100 depends on the type of cable.

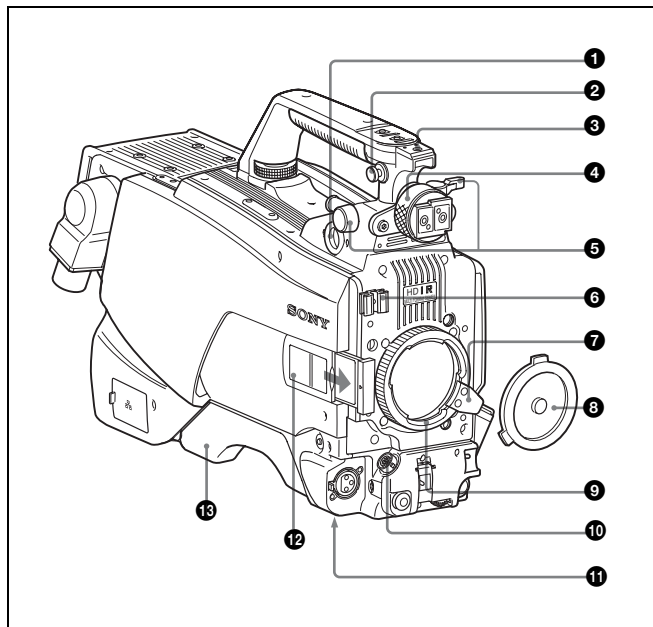
For details, refer to the Operation Manual of the HDFX100/HDTX100.

#### Notes

- The viewfinders function as monochrome viewfinders when monitoring a return video using the HDFX100 and the HDTX100.
- The skin gate signal is superimposed on the camera video signal. When tally becomes ON, the skin gate signal is forced to OFF.

# Locations and Functions of Parts

## Accessory Attachments



### 1 VF (viewfinder) connector (20-pin)

Connect the cable of the viewfinder (not supplied).

### 2 Shoulder strap fitting post

Attach one end of a shoulder strap (not supplied) to this fitting post, and the other end to the fitting post on the other side of the camera.

### 3 Accessory shoe

To attach an accessory using a 1/4-inch screw.

### 4 Viewfinder left-right positioning ring

Loosen this ring to adjust the viewfinder position towards the left or right.

### 5 Viewfinder front-rear positioning lever and lock knob

Loosen the lever and knob to adjust the viewfinder position towards the front or rear.

*For details on adjusting the viewfinder position, see "Attaching a Viewfinder" on page 19.*

### 6 Lens cable clamp

To secure the cable of the lens (not supplied).

### 7 Lens fixing lever

To secure the lens in the lens mount.

### 8 Lens mount cap

The cover can be removed by moving the lens fixing lever upwards. Always keep the lens mount covered with this cap when a lens is not attached.

### 9 Lens mount

To attach a lens.

### 10 LENS connector (12-pin)

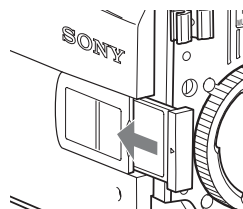
Connect the lens cable. The camera can control the lens functions through this cable.

### 11 Tripod mount

Attach the VCT-14 Tripod Attachment when mounting the camera on a tripod.

### 12 Camera number

Insert the supplied camera number label. You can display the camera number.



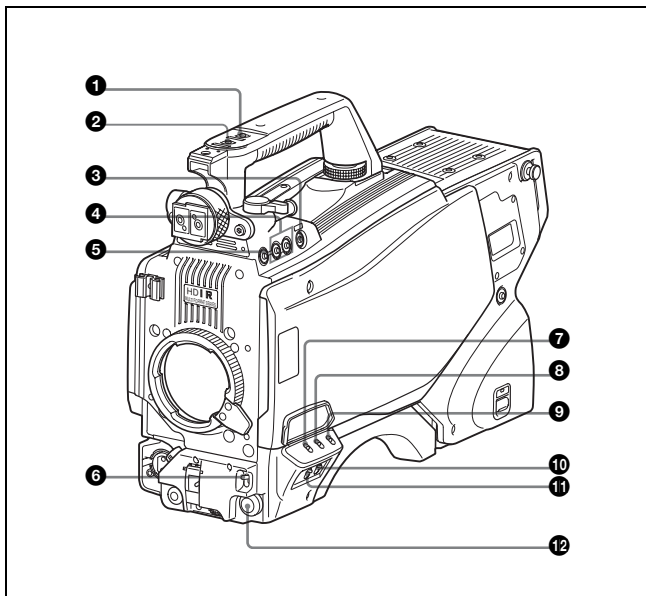
### 13 Shoulder pad

You can adjust the position so that you can get the best balance for shooting with the camera on your shoulder.

*For details, see "Adjusting the Shoulder Pad Position" on page 22.*

## Controls and Connectors

### Front right



### 1 INCOM (intercom 1) button

The intercom 1 microphone is turned ON while this button is held pressed.

You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

## ② RET 1 (return video 1) button

The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It function the same as the RET 1 button on the side (page 14) and that on the operation panel on the rear of the camera (page 16 or 17).

You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

## ③ Assignable switch

You can assign a function using the menu displayed on the viewfinder screen.

## ④ Filter select buttons

### HDC2500/2550

You can switch the built-in ND and CC (color temperature conversion) filters by pressing the selectors while holding the FILTER LOCAL button depressed.

Pressing the left button selects the available ND filters (clear, 1/4ND, 1/8ND, 1/16ND, 1/64ND) in sequence. Pressing the right button selects the available CC filters (cross, 3200K, 4300K, 6300K, 8000K) in sequence.

### HDC2400

You can switch the built-in optical filters (clear, 1/4ND, 1/16ND, 1/64ND, cross) by pressing either of these buttons while holding the FILTER LOCAL button depressed.

## ⑤ FILTER LOCAL button

While holding this button depressed, press either of the filter select buttons to select the built-in optical filters.

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

To automatically adjust white and black balance when the camera is used in standalone status without connecting to the camera control unit.

**WHT:** Automatically adjust white balance.

**BLK:** Automatically adjust black balance.

## ⑦ GAIN switch

To select the gain of the video amplifier based on lighting conditions when the camera is used in standalone status without connecting a camera control unit.

When shipped from the factory, the values set are L = 0 dB, M = 6 dB, and H = 12 dB.

## ⑧ OUTPUT (output signal selection)/AUTO KNEE switch

To select the signal (color bar signal or camera's video signal) to be used as output to a VTR, the viewfinder or a video monitor when the camera is used in standalone status without connecting a camera control unit.

When the camera's video signal is being used as output, the auto knee function may be used.

The relationship between the switch setting and the output signal and auto knee function is shown in the table below.

| OUTPUT | AUTO KNEE | Function                                                                   |
|--------|-----------|----------------------------------------------------------------------------|
| BARS   | OFF       | Output is a color bar signal.                                              |
| CAM    | OFF       | Output is the camera's video signal.<br>The auto knee circuit is disabled. |
| CAM    | ON        | Output is the camera's video signal.<br>The auto knee circuit is enabled.  |

## ⑨ WHITE BAL (white balance memory selection) switch

To select the white balance adjustment method or the memory used to store the adjusted value when the camera is used in standalone status without connecting a camera control unit.

**PRST (preset):** White balance is adjusted to a preset value corresponding to a color temperature of 3200K.

**A or B:** Selects memory A or B.

## ⑩ DISPLAY switch

The functions of the DISPLAY switch are as follows:

**DISPLAY:** Characters and messages showing the camera settings and operating status may be displayed on the viewfinder screen.

**OFF:** Status messages will not appear on the viewfinder screen.

**MENU:** Menus for camera settings will be displayed on the viewfinder screen.

## ⑪ STATUS/CANCEL switch

**STATUS:** When no menu is displayed on the viewfinder screen, the status information of this camera is displayed.

**CANCEL:** When a menu is displayed on the viewfinder screen, you can cancel any changed settings or return the display to the previous menu.

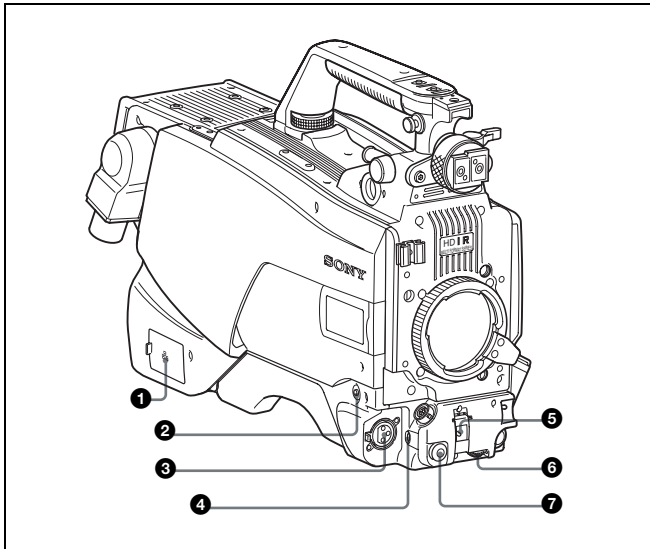
## ⑫ MENU SEL (menu select) knob/ENTER button (rotary encoder)

To select settings from menus displayed on the viewfinder screen (by rotating the knob) and to confirm settings (by pushing the button).

### Note

When a camera control unit or a remote control device, such as an MSU or RCP-series Remote Control Panel, is connected, the functions of ⑥ to ⑨ are controlled from the external control device and the controls on the camera are disabled.

## Front left



### ① NETWORK TRUNK connector (RJ-45 8-pin) (HDC2500/2400)

Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

#### Caution

- For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.
- When you connect the LAN cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.

#### ATTENTION

Par mesure de sécurité, ne raccordez pas le connecteur pour le câblage de périphériques pouvant avoir une tension excessive à ce port. Suivez les instructions pour ce port.

#### VORSICHT

Aus Sicherheitsgründen nicht mit einem Peripheriegerät-Anschluss verbinden, der zu starke Spannung für diese Buchse haben könnte. Folgen Sie den Anweisungen für diese Buchse.

### ② RET 1 (return video 1) button

The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It function the same as the RET 1 buttons on the handle (page 13) and that on the operation panel on the rear of the camera (page 16 or 17).

You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

### ③ MIC 1 IN (microphone 1 input) connector (XLR 3-pin)

Connect a microphone.

This connector and the AUDIO IN CH-1 connector (page 18) on the operation panel on the rear of the camera are alternately activated with the CH1 audio input select switch (page 18).

### ④ MIC (microphone) power switch

**+48V:** To supply a power of +48 V to the connected microphone.

**OFF:** Not to supply a power to the connected microphone.

### ⑤ SHUTTER switch

For setting the electronic shutter functions when the camera is used in standalone status without connecting a camera control unit.

**OFF:** The electronic shutter does not function.

**ON:** The electronic shutter is activated.

**SEL:** The shutter speed and shutter mode change each time the switch is set to this position.

For details, see "Setting the Electronic Shutter" on page 26.

### ⑥ INTERCOM LEVEL control

To adjust the intercom/earphone volume level.

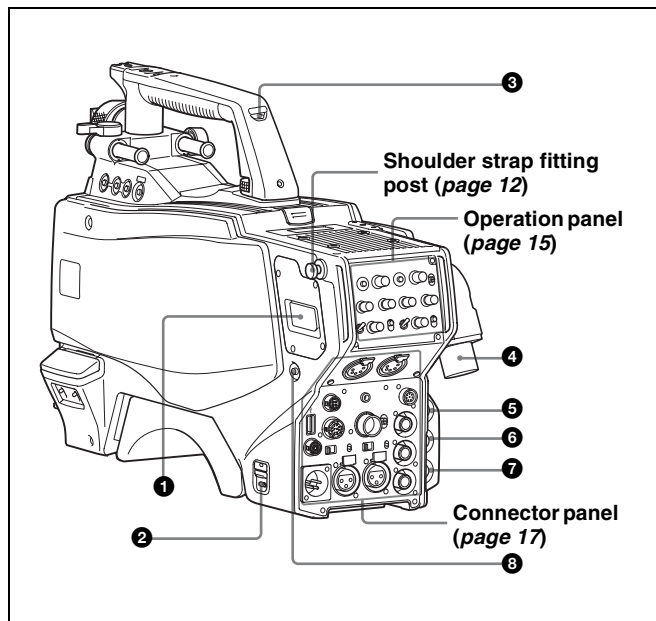
The intercom level adjustment is enabled when the INTERCOM 1 and 2 LEVEL/MIC switches (on the SY-type operation panel, page 15) or the LEVEL switch (on the European-type operation panel, page 17) on the rear of the camera are set to "FRONT."

### ⑦ RET 2 (return video 2) button

When this button is pressed, the picture on the viewfinder screen changes to the return video signal selected with the RET 2 select switch (page 15 or 16) on the operation panel on the rear of the camera.

You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

## Rear



### ① DC power supply out connector (2-pin)

Supplies power to an external device up to 2.5 A.

### ② CAMERA POWER switch

**CCU:** Power is supplied from the camera control unit.

**EXT:** Power is supplied through the DC IN connector.

### ③ Tally lamp and switch

**ON:** The tally lamp lights when a tally signal is input to the connected camera control unit or a call signal is generated in response to pressing of a CALL button.

**OFF:** The tally lamp is prevented from lighting.

### ④ CCU (Camera Control Unit) connector (optical/electrical multi-connector) (HDC2500/2400)

Connect a camera control unit using an optical electro-composite cable.

### ④ HDFX (HD Triax CCU) connector (Triax connector) (HDC2550)

Connect the HDFX100 HD Triax CCU Adaptor using a Triax cable. A camera control unit can be connected via the HDFX100.

### ⑤ SDI 1 (serial digital interface 1) connector (BNC-type) (HDC2500/2400)

For 3G-SDI, HD-SDI or HD PROMPTER signal output.

### ⑥ SDI 2 (serial digital interface 2) connector (BNC-type) (HDC2500/2400)

For HD-SDI signal output or HD TRUNK signal input. During stand-alone operation, also used for inputting an HD-SDI return signal. When RET (return) is set to 1, this is displayed in the viewfinder.

### ⑦ PROMPTER2 connector (BNC-type) (HDC2500/2400)

For prompter 2 signal output

Available only when connecting a camera control unit with a prompter 2 input connector.

During stand-alone operation, also used for inputting a VBS return signal. When RET (return) is set to 2, this is displayed in the viewfinder.

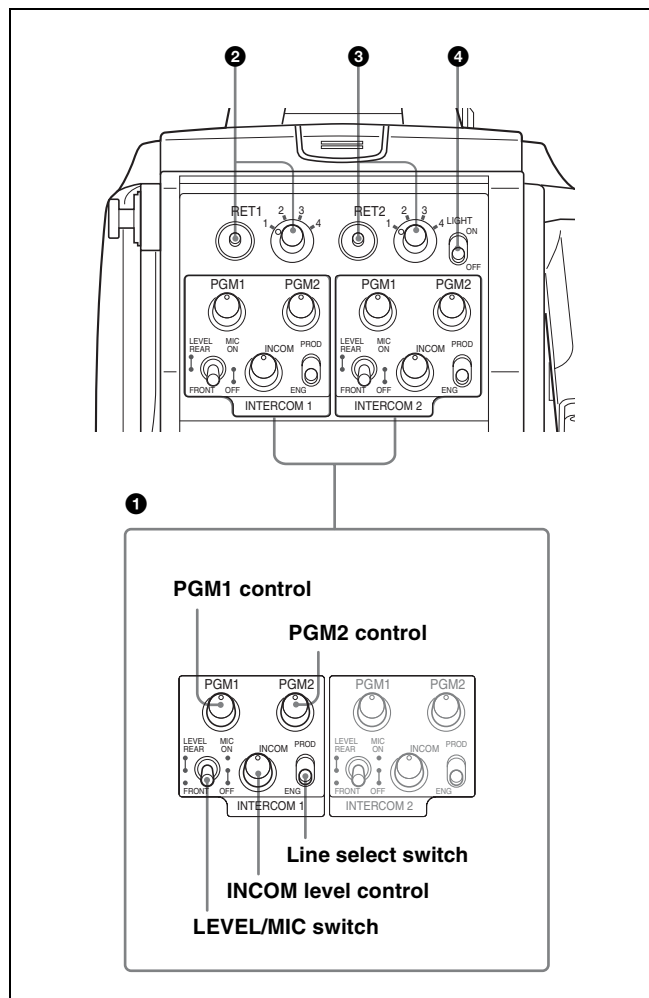
### ⑧ CALL button

When this button is pressed, the red tally lamp of the RCP-1000-series Remote Control Panel or the MSU-1000-series Master Setup Unit will light. Use to call the operator of the RCP or MSU.

## Operation panel

**SY type:** For JN/SY/UC (USA, Canada, East Asia and other countries) models (for NTSC areas)

For details on the differences among models, see "Overview" on page 5.



### ① INTERCOM1 and INTERCOM2 controls and switches

There are PGM1 and 2 controls incorporated with a line select switch, a LEVEL/MIC switch, and INCOM level control each for intercom line 1 and 2.

#### PGM1 (program 1) control

Adjust the audio listening level of program 1.

#### PGM2 (program 2) control

Adjust the audio listening level of program 2.

#### LEVEL/MIC switch

**REAR/ON:** The intercom headset microphone is turned on.

The intercom audio listening level is adjusted with the INCOM level control.

**REAR/OFF:** The intercom headset microphone is turned off.

The intercom audio listening level is adjusted with the INCOM level control.

**FRONT/OFF:** The intercom headset microphone is turned off.  
The intercom audio listening level is adjusted with the INCOM level control and the INTERCOM LEVEL control on the front of the camera (*page 14*).

#### INCOM level control

Adjust the intercom audio listening level.

#### Line select switch

Select the intercom line.

**PROD:** Producer line

**ENG:** Engineer line

#### ② RET 1 (return video 1) button and select switch

Press the button to display the return video signal selected with the switch on the viewfinder screen.

#### ③ RET 2 (return video 2) button and select switch

If you use an additional return video system in addition to return video 1, press the button to display the return video signal selected with the switch on the viewfinder screen.

#### Note

The RET 1 button has priority over the RET 2 button if both buttons are pressed.

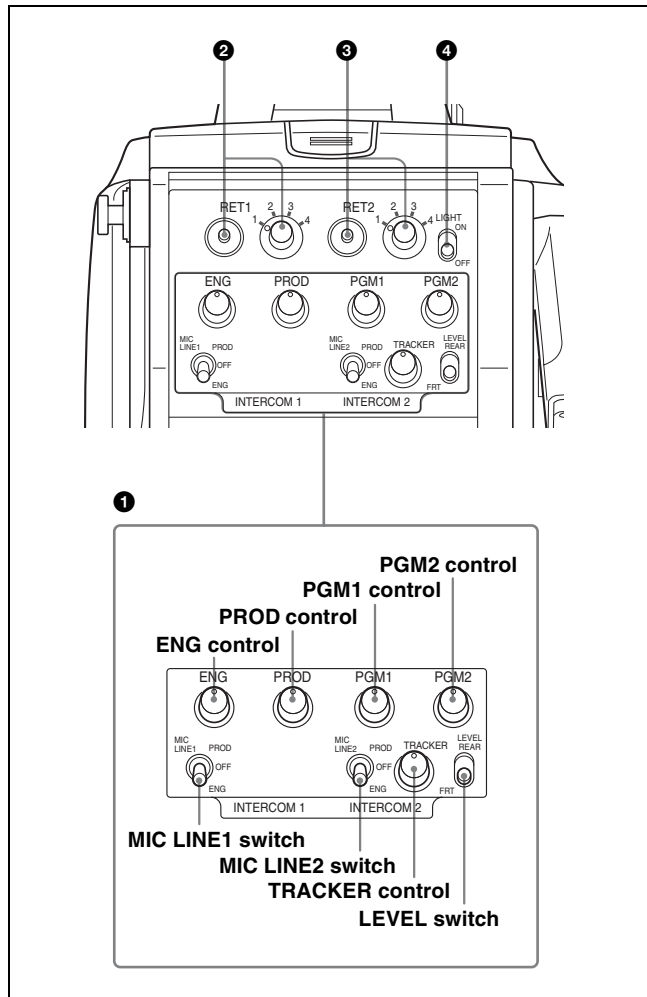
If RET 1 and RET 2 buttons are pressed at the same time, the two buttons function as the RET 3 button when setting <RETURN> 12 of the OPERATION menu.

#### ④ LIGHT switch

Set to ON to illuminate the operation panel.

**European type:** For CE (Europe) and E (China and South Asia) models (for PAL areas)

For details on the differences among models, see "Overview" on *page 5*.



#### ① INTERCOM1 and INTERCOM2 controls and switches

The reception level controls are common to intercom 1 and intercom 2. The talk lines can be set independently for intercom 1 and intercom 2.

#### ENG (engineer line) control:

Adjust the intercom audio listening level of the engineer line.

#### PROD (producer line) control

Adjust the intercom audio listening level of the producer line.

#### PGM1 (program 1) control

Adjust the audio listening level of program 1.

#### PGM2 (program 2) control

Adjust the audio listening level of program 2.

#### TRACKER control

Adjust the intercom audio listening level at the TRACKER connector (*page 17*) on the connector panel when using the connector for intercom.

#### MIC LINE1 (intercom microphone line 1) switch

Select the talk line for intercom 1.

**PROD:** To talk over the producer line

**OFF:** To turn off the headset microphone for intercom line 1.

**ENG:** To talk over the engineer line

#### **MIC LINE2 (intercom microphone line 2) switch**

Select the talk line for intercom 2.

**PROD:** To talk over the producer line

**OFF:** To turn off the headset microphone for intercom line 2.

**ENG:** To talk over the engineer line

#### **LEVEL switch**

**REAR:** The intercom audio listening level is adjusted with the controls on this panel.

**FRT:** The intercom audio listening level is adjusted with the INTERCOM LEVEL control on the front of the camera.

#### **2 RET 1 (return video 1) button and select switch**

The return video signal selected with the switch is displayed on the viewfinder screen while the button is pressed.

#### **3 RET 2 (return video 2) button and select switch**

When other return video systems are used in addition to return video 1, you can monitor the signal selected with the switch on the viewfinder screen while pressing the button.

#### **Note**

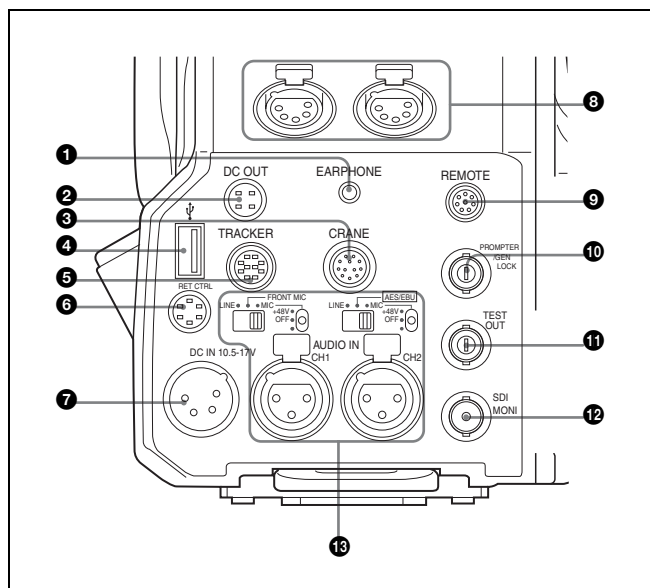
The RET 1 button has priority over the RET 2 button if both buttons are pressed.

If RET 1 and RET 2 buttons are pressed at the same time, the two buttons function as the RET 3 button when setting <RETURN> 12 of the OPERATION menu.

#### **4 LIGHT switch**

Set to ON to illuminate the operation panel.

### **Connector panel**



#### **1 EARPHONE jack (stereo minijack)**

For connecting an earphone or headset to hear the intercom audio.

#### **2 DC OUT (DC power supply output) connector (4-pin)**

To supply power to devices such as a wireless receiver (optional) (max. 0.5 A).

#### **3 CRANE connector (12-pin)**

For external interface, such as viewfinder (and external data with HDC2500/2400).

#### **4 USB connector (for connecting a USB drive)**

Connect a USB drive to save or load the settings data file.

For details, see "Using a USB drive" (page 62).

#### **5 TRACKER connector (10-pin)**

For external interface, such as intercom and tally.

#### **6 RET CTRL (return control) connector (6-pin)**

For connection to a CAC-6 Return Video Selector.

#### **7 DC IN (DC power supply input) connector (XLR 4-pin)**

Used for connection to the AC-DN10 AC Adaptor to supply power to the camera.

#### **8 INTERCOM1 and 2 (intercom 1 and 2) connectors (XLR 5-pin)**

Used for input and output of intercom audio signals if an XLR 5-pin headset is connected.

The INTERCOM 1 connector can be used for communication over the engineer line even when the power is off, as long as the power LED is lit in red.

#### **9 REMOTE connector (8-pin)**

For connection to an RCP-1000/1500-series Remote Control Panel, or MSU-1000/1500 Master Setup Unit.

#### **Note**

When the camera is connected to a CCU, do not connect any remote control device, such as RCP and MSU, to this connector.

#### **10 PROMPTER/GENLOCK (prompter 1 signal output/ external gen-lock signal input) connector (BNC-type)**

The PROMPTER function is available only when a camera control unit is connected.

The GENLOCK IN function and RET IN function are available when a camera control unit is not connected.

**GENLOCK IN:** For input of an external gen-lock signal (VBS or 3-level sync) during stand-alone operation.

**RET IN:** For input of the return video signal during stand-alone operation.

The connector accepts analog HD signals only. SDI signals are not acceptable. Supply a signal of 1080i (720P is not acceptable).

The signal supplied to this connector cannot be fed as RET OUT from the TEST OUT or SDI OUT connector. This is displayed in the viewfinder regardless of which RET is selected. CHARACTER will not be overlapped for the displayed RET 3 signal.

**PROMPTER:** For output of the prompter 1 signal (valid only when a camera control unit is connected). When a camera control unit having two prompter inputs is connected, the signal of input 1 is output from this connector.

### 11 TEST OUT connector (BNC-type)

To output the analog signal.

This also supplies the VBS signal, an HD signal nearly equal to the signal output from the VF connector, an HD-SYNC signal, or an SD-SYNC signal depending on which of these you have selected on the menu.

*For details on the output signals, see "Setting the Camera Outputs" (page 29).*

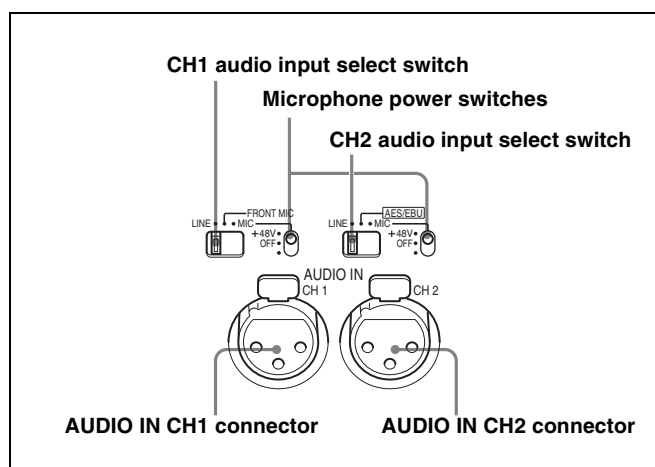
### 12 SDI-MONI (serial digital interface) connector (BNC-type)

For HD-SDI or SD-SDI signal output.

*For details on the output signals, see "Setting the Camera Outputs" (page 29).*

### 13 AUDIO IN CH1 and CH2 connectors (XLR 3-pin) and switches

Connect audio signals. An input select switch and microphone power switch are provided for each channel.



#### CH1 audio input select switch

Set to the appropriate position according to the equipment connected to the AUDIO IN CH1 connector.

**LINE:** When a line-level (0 dBu) signal source is connected

**FRONT MIC:** When using the microphone connected to the MIC 1 IN connector

**MIC:** When an external microphone is connected

#### CH2 audio input select switch

Set to the appropriate position according to the equipment connected to the AUDIO IN CH2 connector.

**LINE:** When a line-level (0 dBu) signal source is connected

**AES/EBU:** When a digital audio signal is connected (The signal must be in synchronization with the camera output). With HDC2550, the signal will not be transmitted to CCU.

**MIC:** When an external microphone is connected

#### Microphone power switches

When a microphone is connected to the corresponding AUDIO IN connector, set whether or not to supply a power to the microphone.

**+48V:** To supply a power of +48 V

**OFF:** Not to supply a power

(No function has been assigned to the lowermost position. No power is supplied to the microphone.)

### Note

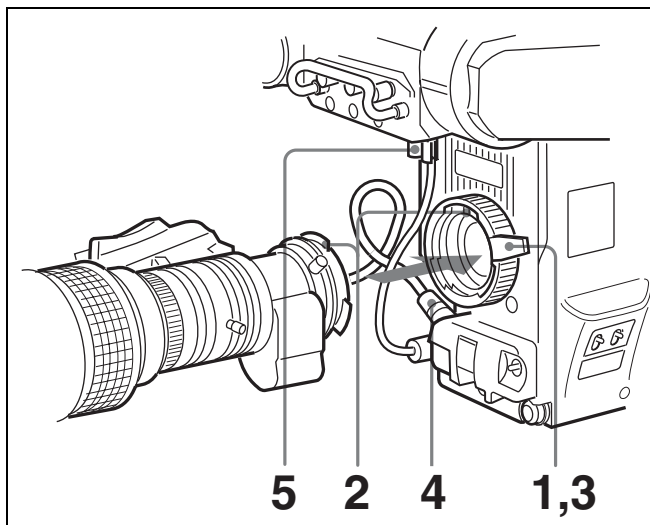
To supply +12 V power, contact a Sony sales representative or Sony service representative.

# Preparations

## Attaching a Lens

*For information on handling lenses, refer to the lens' operation manual.*

### Attaching procedure



- 1 Push the lens fixing lever upwards and remove the lens mount cap from the lens mount.
- 2 Align the lens' alignment pin with the notch in the upper part of the lens mount and insert the lens into the mount.
- 3 While supporting the lens, push the lens fixing lever downwards to secure the lens.
- 4 Connect the lens cable to the LENS connector.
- 5 Secure the lens cable with the cable clamp.

## Adjusting the Flange Focal Length

Adjustment of the flange focal length (the distance between the lens mount attachment plane and the imaging plane) is necessary in the following situations:

- The first time a lens is attached
- When changing lenses
- If the focus is not sharp at both telephoto and wide angle when zooming

The flange focal length can be more precisely adjusted by using the focus assist indicators.

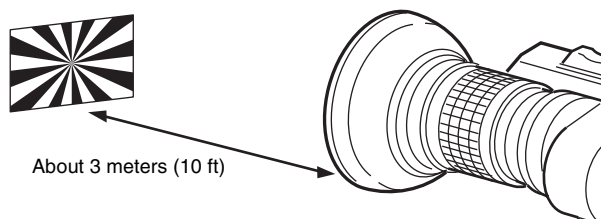
*See "Displaying the focus assist indicators" on page 28 for the focus assist indicators.*

### Note

The various parts of the lens used in adjusting the flange focal length are in different positions on different lenses. Refer to the operation manual for the particular lens.

### Adjusting procedure

- 1 Set the iris control to manual, and open the iris fully.
- 2 Place a flange focal length adjustment chart approximately 3 meters from the camera and adjust the lighting to get an appropriate video output level.
- 3 Loosen the Ff (flange focal length) ring lock screw.
- 4 With either manual or power zoom, set the zoom ring to telephoto.
- 5 Aim at the flange focal length adjustment chart and turn the focus ring to focus the image.



- 6 Set the zoom ring to wide angle.
- 7 Turn the Ff ring to bring the chart into focus. Take care not to move the distance ring.
- 8 Repeat steps 4 through 7 until the image is in focus at both telephoto and wide angle.
- 9 Tighten the Ff ring lock screw.

## Attaching a Viewfinder

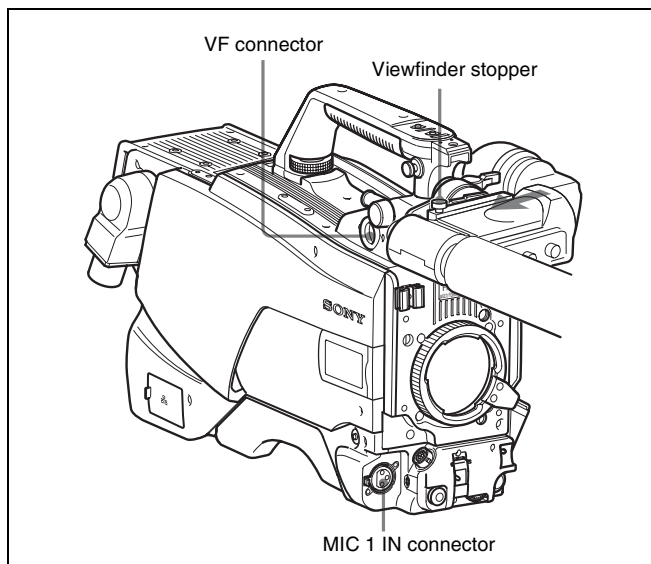
### Caution

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

### Attaching a viewfinder

The instructions are made using the HDVF-20A/200/C30WR/C35W viewfinder as an example.

*For details on the viewfinder, refer to the instruction manual of the viewfinder.*

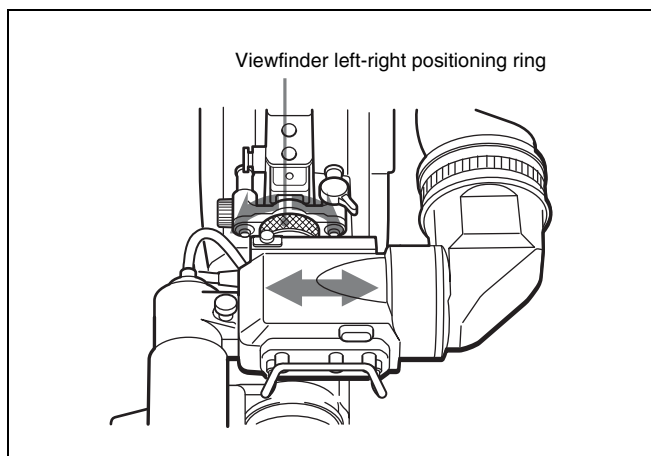


- 1** Slide the viewfinder in the direction of the arrow. The viewfinder stopper automatically pops down.
- 2** Loosen the viewfinder left-right positioning ring, slide the viewfinder side to side to the most convenient position and tighten the ring. (See “To adjust the position to the left or right” below.)
- 3** Connect the viewfinder cable to the VF connector of the camera.
- 4** Connect the microphone cable to the MIC 1 IN connector of the camera.

### Adjusting the viewfinder position

The viewfinder position may be adjusted towards the front and rear and to the left and right to make it easy to see into it.

#### To adjust the position to the left or right

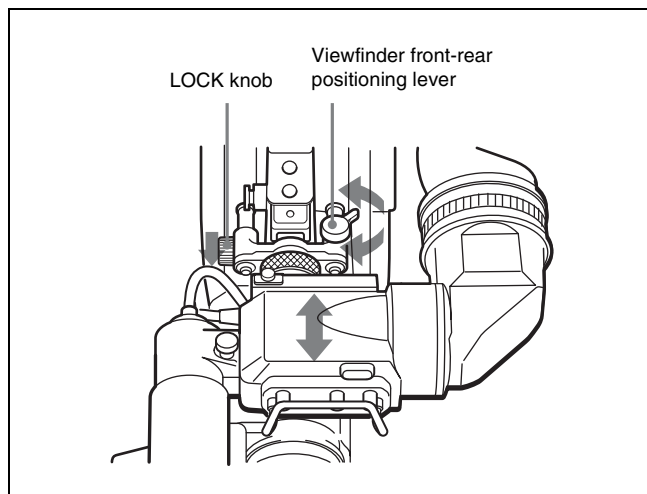


- 1** Loosen the viewfinder left-right positioning ring.

- 2** Slide the viewfinder left or right to move it into a good viewing position.

- 3** Tighten the viewfinder left-right positioning ring.

#### To adjust the position forward or backward



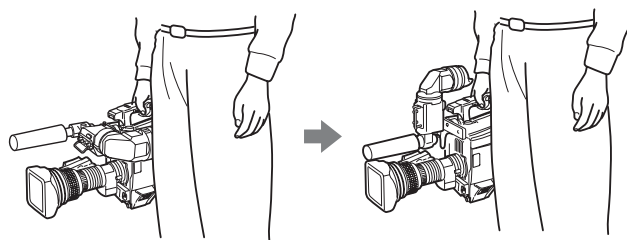
- 1** Loosen the viewfinder front-rear positioning lever and LOCK knob.
- 2** Slide the viewfinder towards the front or rear of the camera to move it into a good viewing position.
- 3** Tighten the viewfinder front-rear positioning lever and LOCK knob.

### Detaching the viewfinder

Loosen the viewfinder left-right positioning ring, pull the viewfinder stopper, then pull out the viewfinder by sliding it in the direction opposite to that when attached.

### Keeping the viewfinder from hitting your leg (using BKW-401)

To keep the viewfinder from bumping your leg when carrying the camera, install the BKW-401 Viewfinder Rotation Bracket (optional) and rotate the viewfinder upwards.



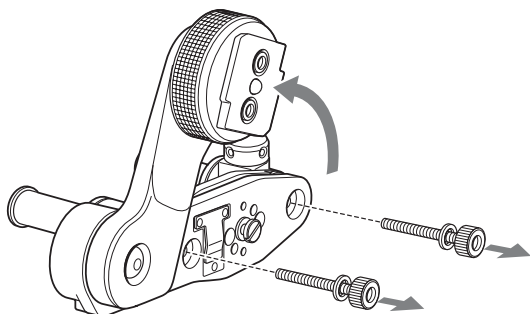
#### Note

Lock the viewfinder in a slightly forward position before rotating it upwards. If the viewfinder is in its rearmost position, the arm of the viewfinder rotation bracket will strike the grip.

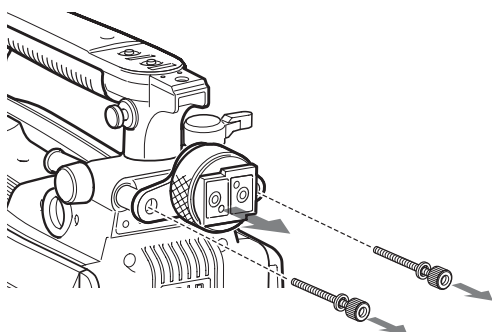
## Attaching procedure of the BKW-401

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

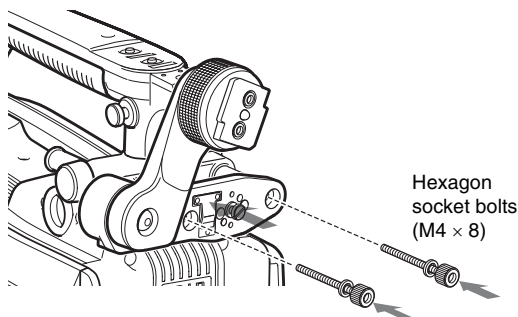
Next, using a hexagonal wrench 3 mm across flats, remove the bolts (M4 × 8) together with the washers, to separate the rotation mechanism assembly from the viewfinder front-back positioning mechanism assembly.



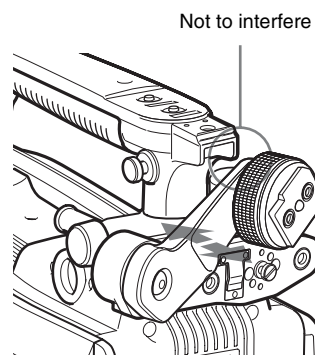
- 2 In the same manner as step 1, remove the viewfinder shoe of the camera from the front-rear positioning mechanism.



- 3 Using the two bolts (M4 × 8) and the washers removed from the camera in step 2, attach the rotation mechanism assembly of the BKW-401 to the camera.



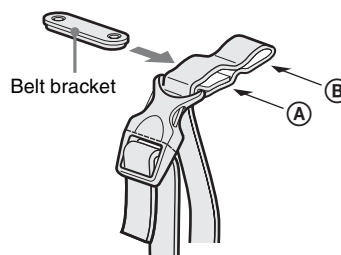
- 4 Adjust the front-rear position so that the camera handle does not interfere when you rotate the BKW-401 arm upwards.



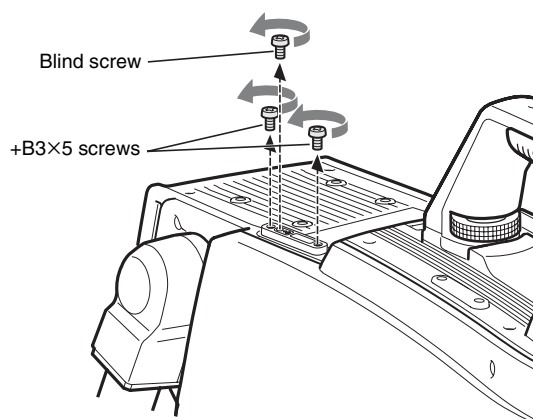
## Attaching the Cable Clamp Belt (Supplied)

You can secure the camera cable to the camera by attaching the supplied cable clamp belt.

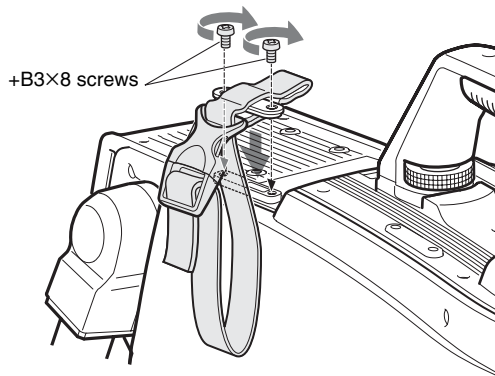
- 1 Insert the belt bracket into hole (A) or (B) of the cable clamp belt.



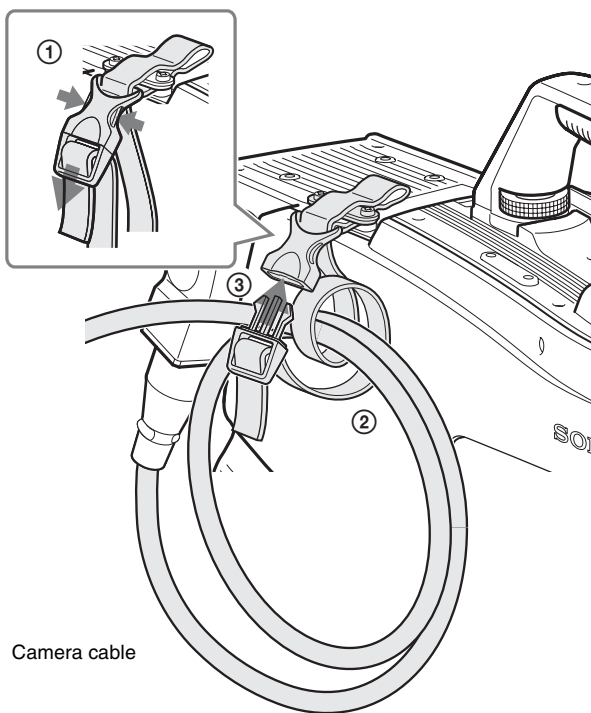
- 2 Remove two +B3×5 screws and a blind screw shown in the figure below from the camera.



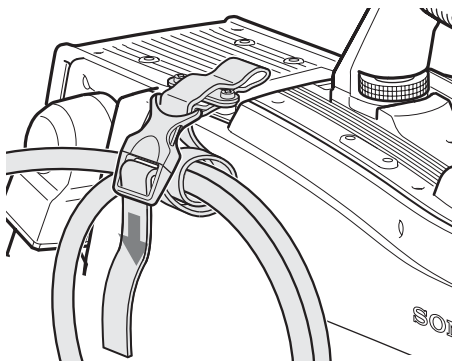
- 3** Secure the cable clamp belt to the camera, using the two supplied +B3×8 screws.



- 4** ① Release the buckle, ② bundle the cable with the belt, ③ then lock the buckle again.



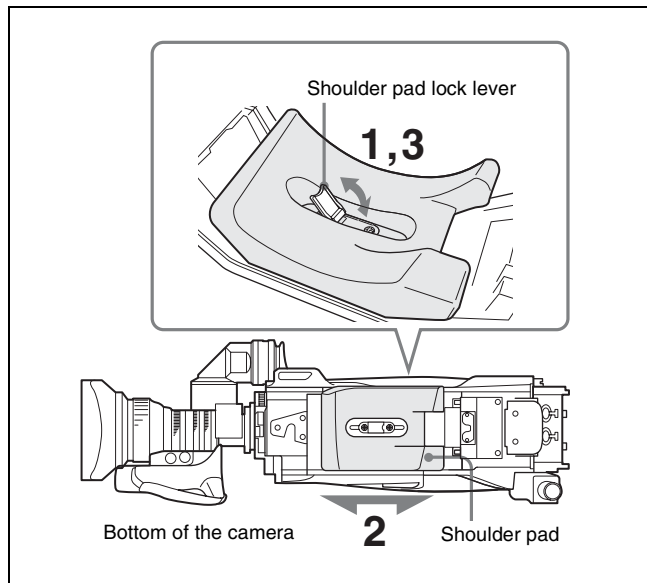
- 5** Adjust the length by pulling down the end of the belt.



## Adjusting the Shoulder Pad Position

You can shift the shoulder pad from its center position (factory 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 camera on your shoulder.

### Adjusting procedure



- 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** Move the lever down to lock the shoulder pad in the selected position.

## Mounting the Camera to a Tripod

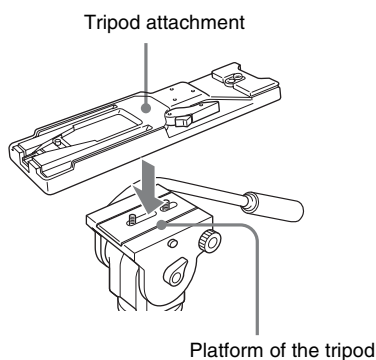
Mount the camera to a tripod using a VCT-14 Tripod Attachment.

### Caution

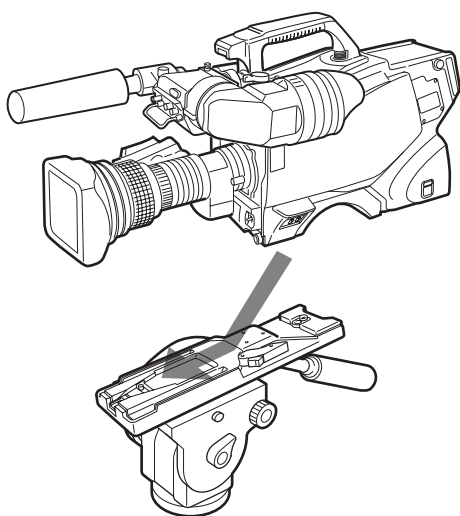
- Select an appropriate hole from among those at the bottom of the tripod attachment considering the balance of the weight of the camera and the tripod attachment. If an inappropriate hole is selected, the camera may fall over.
- Check that the size of the selected hole matches that of the screw of the tripod. If they do not match, the tripod attachment cannot be attached to the tripod securely.

## Mounting procedure

- 1 Attach the tripod attachment to the tripod and secure it with the screw.**

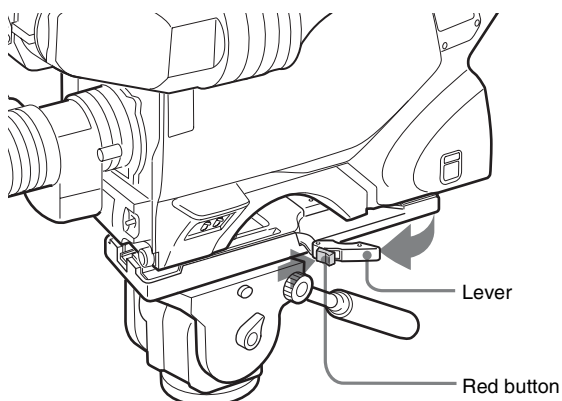


- 2 Place the camera on the tripod attachment, and slide forward it along the groove of the tripod attachment until it clicks.**



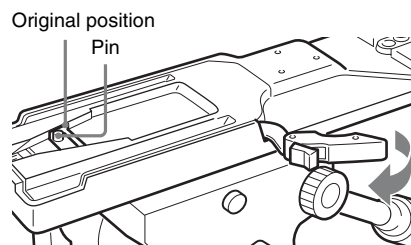
## To remove the camera from the tripod attachment

Hold down the red button and pull the lever in the direction of the arrow.



## If the pin of the tripod attachment does not return to its original position

After removing the camera, if the pin of the tripod attachment does not return to its original position, hold down the red button and move the lever in the direction of the arrow to return the pin to its original position. It is not possible to mount a camera with the pin not seated.



# Adjustments and Settings for Shooting

## Adjusting the Black Balance and White Balance

In order to maintain high picture quality, it is necessary to set the black balance and white balance appropriately for the conditions.

### Note

When a camera control unit or a remote control device-such as the MSU or RCP series-is connected, control is performed from the RCP/MSU, and the switches on the camera are disabled.

### Black balance adjustment

The black balance needs adjustment in situations like the following:

- The first time the camera is used
  - When the camera is used after a long period of disuse
  - When the surrounding temperature changes greatly
  - When the gain value is changed using the setup menus
- Normally, there is no need to adjust the black balance every time the camera is turned on.

### White balance adjustment

Always readjust the white balance when lighting conditions change.

### About the viewfinder screen

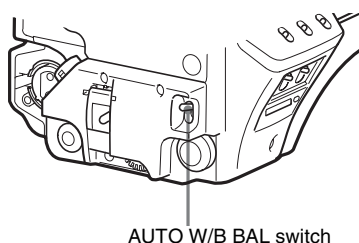
After the process of adjusting the black balance or white balance begins, messages about the progress and results of the adjustment will be displayed on the viewfinder screen.

### Note

Adjusted values set through automatic adjustment, and other settings, are stored in the camera's memory and preserved even when the camera power is turned off.

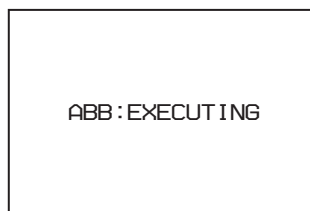
### Adjusting the black balance

Push the AUTO W/B BAL switch toward BLK (downward).



Automatic adjustment of black balance begins. In automatic adjustment of black balance, both the black set and black balance are adjusted.

During adjustment, a message like the one in the figure below will be displayed on the viewfinder screen.



When the adjustment process is completed, the message "ABB: OK" will be displayed. The adjusted value is automatically stored in memory.

### Notes

- During black balance adjustment, the iris will be automatically closed.
- During black balance adjustment, the gain switching circuit will work automatically, and the viewfinder screen will flicker several times. This is not a malfunction.

### When automatic black balance adjustment fails

If the automatic black balance adjustment process does not end successfully, the error message "ABB: NG" will be displayed on the viewfinder screen for approximately three seconds.

If this error message is displayed, try black balance adjustment again.

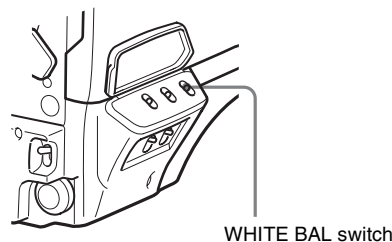
If the error message continues to be displayed after several attempts, the camera requires internal inspection.

### About black balance memory

The black balance values stored in memory will be preserved even when the camera power is turned off.

## Adjusting the white balance

- 1 Set the WHITE BAL switch to A or B.



- 2 Select the filter setting according to the lighting conditions.

## • HDC2500/2550

### To select the ND filter

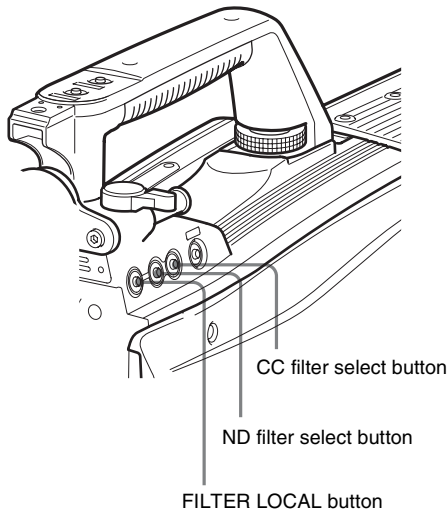
Press the ND filter select button while holding the FILTER LOCAL button depressed.

Each press of the select button switches the available ND filters (clear, 1/4ND, 1/8ND, 1/16ND, 1/64ND) in sequence.

### To select the CC filter

Press the CC filter select button while holding the FILTER LOCAL button depressed.

Each press of the select button switches the available CC filters (cross, 3200K, 4300K, 6300K, 8000K) in sequence.

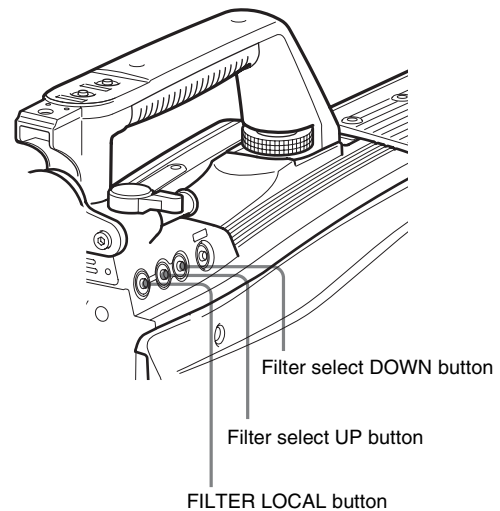


| ND filter |         | Color temperature conversion filter |               |
|-----------|---------|-------------------------------------|---------------|
| 1         | clear   | A                                   | cross filter  |
| 2         | 1/4 ND  | B                                   | 3200K (clear) |
| 3         | 1/8 ND  | C                                   | 4300K         |
| 4         | 1/16 ND | D                                   | 6300K         |
| 5         | 1/64 ND | E                                   | 8000K         |

## • HDC2400

Press the filter select UP or DOWN button while holding the FILTER LOCAL button depressed.

Each press of the UP or DOWN button switches the available optical filters in sequence.

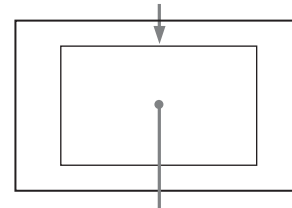


| Optical filter |         |
|----------------|---------|
| 1              | clear   |
| 2              | 1/4 ND  |
| 3              | 1/16 ND |
| 4              | 1/64 ND |
| 5              | cross   |

## 3 Place a white pattern in the same lighting conditions as the subject, and zoom in on it so that a white area is obtained in the screen to satisfy the positional and quantitative requirements illustrated below.

A white object (white cloth, a white wall, etc.) near the subject may be used in place of a white pattern.

A rectangle centered in the screen. The length of the sides must be at least 70% of the height and width of the screen.



Within this rectangle, there must be an area of white greater than 10% of the entire screen.

### Note

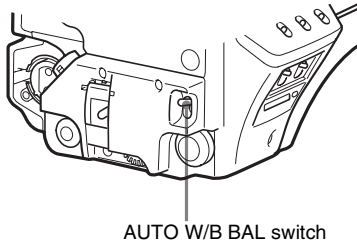
Be careful not to have any spots of high illumination in the rectangle.

## 4 Adjust the lens iris opening.

**With a manually adjusted lens:** Set the opening to an appropriate value.

**With a lens which has automatic iris control:** Set the lens' automatic/manual iris control switch to automatic.

**5** Push the AUTO W/B BAL switch to WHT and release the switch.



The switch will return to the center position, and adjustment will be performed.

During adjustment, the message “AWB: EXECUTING” will be displayed on the viewfinder screen. A message like the one in the figure below will be displayed, and the adjustment process will complete. The adjusted value will be automatically stored in the memory (A or B) selected in step 1.



**Note**

When using a zoom lens with automatic iris control capability, hunting<sup>1)</sup> may occur. Adjust the lens' iris gain control (labeled IG, IS, S, etc.).

<sup>1)</sup> Hunting: The automatic iris responds over and over, and the image repeatedly darkens and lightens.

For more information, refer to the lens' operation manual.

**When automatic white balance adjustment fails**

If the white balance adjustment process does not end successfully, the error message “AWB: NG” will be displayed on the viewfinder screen for approximately three seconds. If this error message is displayed, try white balance adjustment again. If the error message continues to be displayed after several attempts, the camera requires internal inspection.

**When there is no time to adjust the white balance**

Set the WHITE BAL switch to PRST. The white balance will be set automatically according to the filter settings.

**About white balance memory**

The white balance values stored in memory will be preserved even when the camera power is turned off. There are two white balance memories, A and B. When the AUTO W/B BAL switch is pushed to the WHT side, the white balance will be adjusted automatically according to the filter settings. The adjusted value will be stored in the selected memory. Each memory can store up to five adjusted values, for a total of 10.

**Setting the Electronic Shutter**

This section explains the different modes which can be used for the electronic shutter and gives the procedures for setting the shutter mode and shutter speed.

**Note**

When a camera control unit or a remote control device, such as MSU-1000/1500 Master Setup Unit and RCP-1000/1500-series Remote Control Panel, is connected, the electronic shutter is controlled from the external control device and control on the camera are disabled.

**About the shutter modes**

The shutter modes that can be used with the electronic shutter of the camera and the shutter speeds that may be selected are as follows:

**Shutter modes and speeds**

| Shutter mode              | Shutter speeds*                                           | Usage                                                              |
|---------------------------|-----------------------------------------------------------|--------------------------------------------------------------------|
| Standard                  | 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 seconds        | Use to obtain clear images of quickly moving subjects              |
| ECS (Extended Clear Scan) | Continuously variable in the range of 60.00 Hz to 4300 Hz | Use to obtain images on video monitors without horizontal striping |

\* The values in the table are those with 59.94i. With other formats, the available values are different.

**Note**

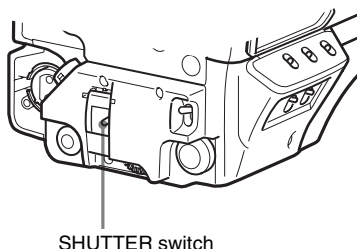
With artificial lighting, particularly fluorescent lights and mercury vapor lamps, the brightness appears to be constant, but in fact the strength of the red, green, and blue components varies with the power supply frequency. This phenomenon is known as “flicker.” When using the electronic shutter under these lighting conditions, there are certain cases in which the flicker is more noticeable. In particular, color flicker is evident when the power frequency is 60 Hz. In areas where the power frequency is 50 Hz, setting the shutter speed to 1/100 second will reduce the flicker.

**Selecting the shutter mode and speed**

The shutter mode, and the shutter speed in standard mode, are set using the SHUTTER switch.

## Setting the shutter mode, and shutter speed in Standard mode

- 1 Push the SHUTTER switch from the ON position to the SEL position.



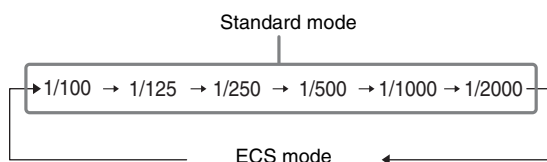
The current shutter setting will be displayed in the setting change/adjustment progress message display area of the viewfinder screen for about three seconds.

Example: "SHUTTER: 1/250"

- 2 Push the SHUTTER switch to the SEL position again before the display disappears. Repeat this action until the desired mode or speed is displayed.

When all modes and speeds are displayed, they will be displayed in the following order:

Example: with 59.94i



## Setting the Focus Assist Functions

Using the OPERATION menu, the assist functions for easier focusing on the viewfinder, can be activated.

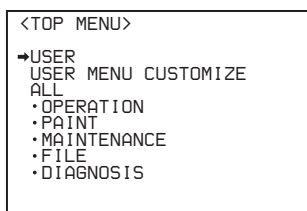
### Adding the VF detail signal

Adding the VF detail signal to sharp edges in the image on the viewfinder screen makes it easier to check the focusing condition by observing changes in the detail signal or in the color converted from the detail signal (color detail).

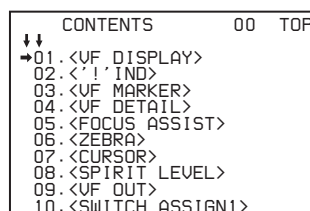
The focus setting where the detail signal becomes strongest is the best focus setting.

- 1 Turn on the camera.
- 2 Set the DISPLAY switch to MENU while holding the MENU SEL knob/ENTER button pressed.  
The camera enters Menu mode, and "TOP" is displayed at the upper right corner of the screen.

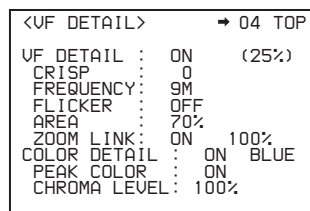
- 3 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to "TOP" and push on the MENU SEL knob/ENTER button.  
The TOP MENU screen is displayed.



- 4 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to OPERATION and push on the MENU SEL knob/ENTER button.  
The CONTENTS page of the OPERATION menu is displayed.



- 5 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to <VF DETAIL> and push on the MENU SEL knob/ENTER button.  
The <VF DETAIL> page is displayed.



- 6 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and push on the MENU SEL knob/ENTER button.

### To use the VF detail signal

Set VF DETAIL to ON to activate the VF detail function to add the detail signal to sharp edges in the image. You can adjust the signal level (strength) in the range of 0 to 100% (default 25%).

You can adjust the characteristics of the detail signal with the menu items below.

**CRISP:** Adjust to eliminate fine portions of the detail signal.

**FREQUENCY:** Change the detection band of sharp edges.

**FLICKER:** Turn ON/OFF the function to flicker the detail signal, which makes it easier to check the signal on a viewfinder screen.

**AREA:** To limit the area where to display the detail signal.

**ZOOM LINK:** Set the VF detail level at the full WIDE position. (The VF detail level changes according to the zoom position.)

#### To use the color detail

Set COLOR DETAIL to ON to convert the VF detail signal to a specified color. This makes it easier to check the signal on an LCD screen, including the viewfinder screen. The display color can be selected at the column next to ON.

You can adjust the coloring with the menu items below.

**PEAK COLOR:** Turn ON/OFF the function to change the color where the detail signal is strongest.

**CHROMA LEVEL:** To reduce the chroma components of the video signal (only for video signals on the viewfinder).

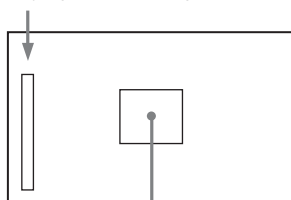
- 7 Rotate the MENU SEL knob/ENTER button to display the desired setting and push on the MENU SEL knob/ENTER button.**

- 8 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

### Displaying the focus assist indicators

The focus assist indicator function extracts the irregularities of a subject and converts the integrated values to a level indicator, which shows the focus condition.

Level indicator (its position and operations can be adjusted.)



Area marker to display the detection area of the focus (its size and position can be adjusted.)

The focus setting where the indicator shows the maximum level is the best focus setting. (The range of the indicator substantially changes depending on picture elements or shooting environments. Adjust it with GAIN and OFFSET as required.)

- 1 Display the CONTENTS page of the OPERATION menu (referring to step 1 to 4 in “Adding the VF detail signal”).**

- 2 Rotate the MENU SEL knob/ENTER button to align the arrow marker (→) to <FOCUS ASSIST> and push on the MENU SEL knob/ENTER button.**

The <FOCUS ASSIST> page is displayed.

|                |   |          |
|----------------|---|----------|
| <FOCUS ASSIST> |   | → 05 TOP |
| INDICATOR      | : | OFF      |
| MODE           | : | BOX      |
| LEVEL          | : | 3        |
| GAIN           | : | 50       |
| OFFSET         | : | 50       |
| AREA MARKER    | : | ON       |
| SIZE           | : | MIDDLE   |
| POSITION       | : | CENTER   |
| POSITION H:    | : | 50       |
| POSITION V:    | : | 50       |

- 3 Rotate the MENU SEL knob/ENTER button to align the arrow marker (→) to the item to be set and push on the MENU SEL knob/ENTER button.**

#### To use the level indicator

Setting INDICATOR to ON displays the level indicator on the viewfinder.

You can set the display format with the menu items below.

**MODE:** Set the type and position of the indicator.

**LEVEL:** Set the density and the response speed of the indicator.

**GAIN:** Set the sensitivity of the indicator.<sup>1)</sup>

**OFFSET:** Set the offset of the focus detection value.<sup>2)</sup>

<sup>1)</sup>Normally, the sensitivity of the indicator is automatically set to the optimum value in conjunction with the AREA MARKER SIZE set value. Use this setting when an optimum sensitivity value cannot be obtained, depending on the shooting environment.

<sup>2)</sup>Normally, the optimum offset is automatically set in conjunction with the AREA MARKER SIZE and MASTER GAIN set values. Use this setting when the optimum offset cannot be obtained, depending on the shooting environment.

#### To use the area marker

Setting AREA MARKER to ON displays the detection area of the focus as a marker on the viewfinder screen.

You can set the size and position of the detection area with the menu items below.

**SIZE:** The size of the detection area can be changed. (If the area size is too large, both the subject and the background are included in the area, making the indicator display may easily deviate from the subject.)

**POSITION:** Roughly set the position of the detection area.

**POSITION H:** Finely adjust the position of the detection area in the horizontal directions.

**POSITION V:** Finely adjust the position of the detection area in the vertical directions.

- 4 Rotate the MENU SEL knob/ENTER button to display the desired setting and push on the MENU SEL knob/ENTER button.**

- 5 To finish the adjustment, set the DISPLAY switch to OFF to exit Menu mode.**

#### Notes

- The level indicator and the effect area marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.

- The area marker and the aspect safety marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.
- When displaying the focus assist indicators, check that the flange focal length has been precisely adjusted.  
See “Adjusting the Flange Focal Length” on page 19 for the flange focal length.

## Setting the Camera Outputs

You can specify video signals directly output from the camera, with menu operations.

### Note

The MAIN (camera picture), RET (return video), or VF (the same picture as that displayed on the viewfinder screen) setting is common to SD-SDI and VBS. Different signals cannot be output.

The menu pages used for the output settings have been registered to the USER menu at the factory.

- <OUTPUT FORMAT>
- <TEST OUT>
- <SDI OUT>

Set the following menu items to the settings shown in the table.

For details on menu operations and the USER menu, see “Menu Operations” on page 32.

### Outputting the signal being shot (camera picture)

The same textual information as that displayed on the viewfinder screen can be added to the output signal by setting CHARACTER to “ON” on the <SDI OUT> or <TEST OUT> page.

#### To output as HD-SDI

| Menu page | Item         | Setting |
|-----------|--------------|---------|
| <SDI OUT> | SDI-MONI OUT | MAIN    |

#### To output as SD-SDI

| Menu page | Item                  | Setting |
|-----------|-----------------------|---------|
| <SDI OUT> | SDI-MONI OUT          | SD-SDI  |
|           | DOWN CONVERTER SELECT | MAIN    |

#### To output as VBS

| Menu page  | Item                  | Setting |
|------------|-----------------------|---------|
| <TEST OUT> | OUTPUT                | VBS     |
|            | DOWN CONVERTER SELECT | MAIN    |

## Constantly outputting a return video

- When a camera control unit is connected, one of the signals being supplied to the camera control unit can be output from the camera.
- The last selected return signal is output.
- The same textual information as that displayed on the viewfinder screen can be added to the output signal by setting CHARACTER to "ON" on the <SDI OUT> or <TEST OUT> page.

### To output as HD-SDI

| Menu page | Item         | Setting |
|-----------|--------------|---------|
| <SDI OUT> | SDI-MONI OUT | RET     |

### To output as SD-SDI

| Menu page | Item                  | Setting |
|-----------|-----------------------|---------|
| <SDI OUT> | SDI-MONI OUT          | SD-SDI  |
|           | DOWN CONVERTER SELECT | RET     |

### To output as VBS

| Menu page  | Item                  | Setting |
|------------|-----------------------|---------|
| <TEST OUT> | OUTPUT                | VBS     |
|            | DOWN CONVERTER SELECT | RET     |

## Outputting the same image as that on the viewfinder screen

- With HD-SDI, you can obtain a signal that includes the same information as that being displayed on the viewfinder screen according to the settings of the VF MARKER, CHARACTER, VF DETAIL, ZEBRA, etc. The ON/OFF or other settings for adding information are common to those for the viewfinder. The output is synchronized with switching among Y, R, G, and B or switching to a return signal.
- With SD-SDI or VBS, the output is synchronized only with switching between a return signal and the camera image. It does not correspond to switching among Y, R, G, and B. Information other than CHARACTER (such as VF MARKER, VF DETAIL, ZEBRA) cannot be added to the output.

### Note

With the settings for outputting the same image as that on the viewfinder screen, the output will be obtained in 1080i, even if the format setting is 720P.

### To output as HD-SDI

| Menu page | Item         | Setting |
|-----------|--------------|---------|
| <SDI OUT> | SDI-MONI OUT | VF      |

### To output as SD-SDI

| Menu page | Item                  | Setting |
|-----------|-----------------------|---------|
| <SDI OUT> | SDI-MONI OUT          | SD-SDI  |
|           | DOWN CONVERTER SELECT | VF      |

### To output as VBS

| Menu page  | Item                  | Setting |
|------------|-----------------------|---------|
| <TEST OUT> | OUTPUT                | VBS     |
|            | DOWN CONVERTER SELECT | VF      |

## Outputting via 3G-SDI (HDC2500/2400)

The SDI-1 output becomes 3G-SDI output.

### To output in 1080/59.94P or 1080/50P

| Menu page       | Item        | Setting       |
|-----------------|-------------|---------------|
| <OUTPUT FORMAT> | ACTIVE LINE | 1080          |
|                 | (Format)    | 59.94P or 50P |
| <SDI OUT>       | SDI-1 OUT   | 3G-SDI        |

## Outputting via Dual Link (HDC2500/2400)

The SDI-1 output is assigned to Link A, SDI-2 output to Link B.

### To output in 1080/59.94P or 1080/50P

| Menu page       | Item         | Setting       |
|-----------------|--------------|---------------|
| <OUTPUT FORMAT> | ACTIVE LINE  | 1080          |
|                 | (Format)     | 59.94P or 50P |
| <SDI OUT>       | SDI-1 OUT    | MAIN/LINK-A   |
|                 | SDI-2 OUT/IN | MAIN/LINK-B   |

### Note

Installing HZC-PRV20 software for progressive support may be necessary.



For details, see OPERATION menu <' IND> (page 44).

**④ Light-receiving level indications (HDC2500/2400 only)**  
This area shows the light-receiving levels in segments.

**CAM:** Light-receiving level at the CCU connector (page 15) of the camera

**CCU:** Light-receiving level at the CAMERA connector of the CCU

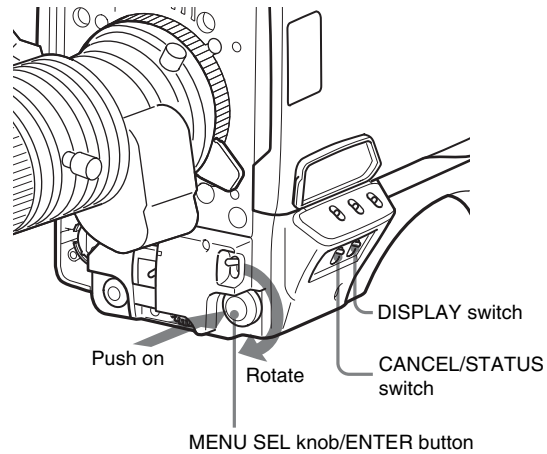
**Note**

If a camera control unit other than an HDCU2000/2500 is connected, correct indications may not be obtained.

# Menu Operations

The menus displayed on the viewfinder screen enable various settings of the camera.

The following controls are used to operate the menus.



## Starting Menu Operations

### To display a menu page

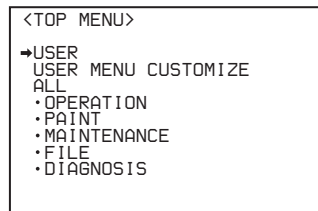
Set the DISPLAY switch from OFF to MENU.

The menu page that last operated will be displayed. (If it is the first time, the CONTENTS page of the OPERATION menu will be displayed.)

### To display the TOP MENU screen

If you set the DISPLAY switch from OFF to MENU while holding the MENU SEL knob/ENTER button pressed, "TOP" is displayed at the upper right corner of the screen. Selecting it displays the TOP MENU screen, which lists the available menus, and you can select the menus on this screen.

#### TOP MENU screen



### To disable the "TOP" indication

Turn the power once off then on again, or set the DISPLAY switch from OFF to MENU while holding the CANCEL/STATUS switch pressed toward CANCEL. This disables the TOP selection.

## Available menus

### USER menu

This menu can include menu pages selected from among the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus, for convenience. Changing, adding, and deleting pages can be performed with the USER MENU CUSTOMIZE menu.

### USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

For details on the USER menu, see “Editing the USER Menu” on page 35.

### ALL menu

This menu permits you to control all items of the OPERATION menu, PAINT menu, MAINTENANCE menu, FILE menu, and DIAGNOSIS menu as a single menu.

### OPERATION menu

This menu contains items for camera operators to operate the camera. It mainly permits viewfinder, intercom, and switch settings.

### PAINT menu

This menu contains items for making detailed image adjustments while using a waveform monitor to monitor the waveforms output from the camera. Support of a video engineer is usually required to use this menu. Although you can also use an external remote control panel or master setup unit to set the items on this menu, the menu is effective when using the camera by itself outdoors.

### MAINTENANCE menu

This menu contains items for performing camera maintenance operations, such as changing the system or setting infrequently used “paint” items.

### FILE menu

This menu is for performing file operations, such as writing or clearing the reference file.

### DIAGNOSIS menu

This menu enables you to confirm the self-diagnostic information.

## To select a menu on the TOP MENU screen

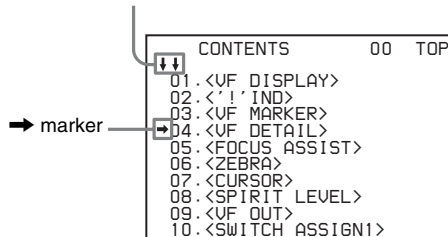
- 1 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired menu indication.
- 2 Push on the MENU SEL knob/ENTER button.  
The CONTENTS page or the last operated page of the selected menu is displayed.

## Selecting Pages

### When selecting a page from a CONTENTS page

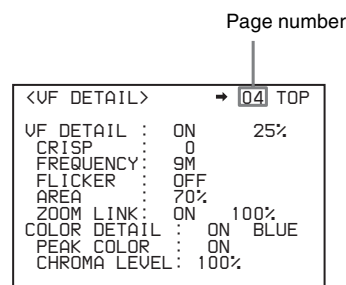
Example: CONTENTS page of the OPERATION menu

If the screen can be scrolled, arrows will indicate the direction of scrolling.



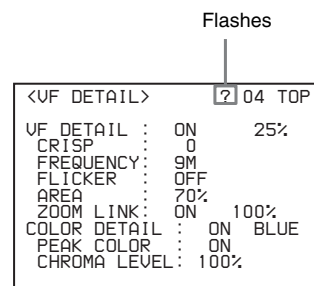
Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired page indication, then push on the MENU SEL knob/ENTER button.

The selected page is displayed.



## To change the displayed page

- 1 Check that the arrow marker (➡) is located at the left of the page number, then push on the MENU SEL knob/ENTER button.  
The arrow marker (➡) changes to a flashing question (?) mark.



- 2 Rotate the MENU SEL knob/ENTER button to flip through the pages.**
- 3 When the desired page is displayed, push on the MENU SEL knob/ENTER button.**  
The “?” mark will change back to the arrow marker (➡), and operations with the displayed page are enabled.

#### To return to the TOP MENU screen

Align the arrow marker (➡) with “TOP” at the top right of the menu page then press the MENU SEL knob/ENTER button.

|                |      |        |
|----------------|------|--------|
| <VF DETAIL>    |      | 04➡TOP |
| VF DETAIL :    | ON   | 25%    |
| CRISP :        | 0    |        |
| FREQUENCY :    | 9M   |        |
| FLICKER :      | OFF  |        |
| AREA :         | 70%  |        |
| ZOOM LINK :    | ON   | 100%   |
| COLOR DETAIL : | ON   | BLUE   |
| PEAK COLOR :   | ON   |        |
| CHROMA LEVEL : | 100% |        |

The TOP MENU screen is resumed.

## Setting the Menu Items

If a “?” mark is flashing at the left of the page number, push on the MENU SEL knob/ENTER button to change it to the arrow marker (➡). Setting on the displayed page is enabled.

- 1 Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired item.**
- 2 Push on the MENU SEL knob/ENTER button.**  
The arrow marker (➡) will change to a flashing “?” mark.
- 3 Rotate the MENU SEL knob/ENTER button to change the setting value.**  
When the knob is rotated quickly, the values will change quickly; when rotated slowly, the values will change slowly.

#### To reset a changed value

If you press the CANCEL/STATUS switch toward CANCEL before pressing the MENU SEL knob/ENTER button, the setting will be returned to its previous value.

#### To interrupt settings

Set the DISPLAY switch to OFF to turn off the menu screen display.

The setting operation can be restarted by setting the DISPLAY switch back to MENU.

- 4 Push on the MENU SEL knob/ENTER button.**  
The “?” mark will change back to the arrow marker (➡), and the new setting will be registered.
- 5 To change other setting items on the same menu page, repeat steps 1 through 4.**

## To specify a character string

When you press the MENU SEL knob/ENTER button with the arrow marker (➡) pointing to an item for which a character string, such as a file ID, is to be specified, a cursor and the list of selectable characters are displayed.

The displayed cursor can be moved by rotating the MENU SEL knob/ENTER button.

- 1 Set the cursor to the position where you wish enter a character, then push on the MENU SEL knob/ENTER button.**  
Another cursor appears on the character list.
- 2 Set the cursor to the character to be entered and push on the MENU SEL knob/ENTER button.**  
Repeat steps 1 and 2.

By selecting INS on the line below the character list, you can enter a space at the cursor position.

Selecting DEL deletes the character at the cursor position.

You can return to step 1 without changing the character by selecting RET.

If you enter the permitted maximum number of characters (up to the stop mark at the right end of the line), the cursor moves to ESC on the line below the character list.

To register the new string you have set, select END and push on the MENU SEL knob/ENTER button.

To restore the previous string, select ESC and push on the MENU SEL knob/ENTER button.

## To return a menu item to its standard value

Select the menu item to be returned to its standard value then hold the MENU SEL knob/ENTER button pressed for 3 seconds while the arrow marker (➡) is displayed. If “10 SEC CLEAR” has been set to ON on the <FILE CLEAR> page of the FILE menu, you can return the setting in the reference file for the item being selected to the factory-set value by holding the MENU SEL knob/ENTER button pressed for another 10 seconds.

## To end menu operations

Set the DISPLAY switch to OFF.

## Editing the USER Menu

You can select desired pages and items from the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus and register them to the USER menu. If you specify pages or items frequently used for the USER menu, you can easily call and use them.

The following pages are included on the factory-set USER menu:

| Menu page title  | USER menu No. | Source menu / page No. |
|------------------|---------------|------------------------|
| <VF OUT>         | U01           | OPERATION 08           |
| <VF DETAIL>      | U02           | OPERATION 04           |
| <FOCUS ASSIST>   | U03           | OPERATION 05           |
| <VF DISPLAY>     | U04           | OPERATION 01           |
| <'I' IND>        | U05           | OPERATION 02           |
| <VF MARKER>      | U06           | OPERATION 03           |
| <CURSOR>         | U07           | OPERATION 07           |
| <ZEBRA>          | U08           | OPERATION 06           |
| <SWITCH ASSIGN1> | U09           | OPERATION 09           |
| <SWITCH ASSIGN2> | U10           | OPERATION 10           |
| <HEADSET MIC>    | U11           | OPERATION 12           |
| <OUTPUT FORMAT>  | U12           | MAINTENANCE M09        |
| <TEST OUT>       | U13           | MAINTENANCE M10        |
| <SDI OUT>        | U14           | MAINTENANCE M11        |
| <ROM VERSION>    | U15           | DIAGNOSIS D03          |

For the items on each page, see the corresponding source menu page in the table in "Menu List" on page 39.

The USER MENU CUSTOMIZE menu allows you to configure a USER menu that consists only of pages and items that you need, by your adding, deleting or replacing pages.

## Editing by items

The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.

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.

### To add items to a page

Proceed as follows.

- 1 While holding the CANCEL/STATUS switch pressed toward STATUS, move the DISPLAY switch from the OFF position to the MENU position.  
The TOP MENU screen appears.
- 2 Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to "USER MENU CUSTOMIZE" then push on the MENU SEL knob/ENTER button.  
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

| CONTENTS        | E00 TOP |
|-----------------|---------|
| ↓               |         |
| 01.EDIT PAGE    |         |
| 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  |         |

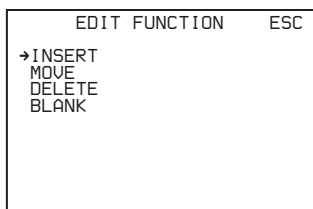
If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.

- 3 If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (→) to any of USER 1 EDIT to USER 19 EDIT then push on the MENU SEL knob/ENTER button to display the page.  
If a different page is displayed, turn the MENU SEL knob/ENTER button until the desired page appears, then push on the MENU SEL knob/ENTER button to select the page.

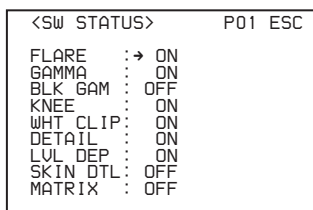
Example: When you select the USER 2 EDIT page

| USER 2 EDIT | E03 TOP |
|-------------|---------|
| →           |         |

- 4 Move the arrow marker (➡) to the item to be added (this operation is unnecessary if no item exists on the page, as shown in the figure for step 3) then push on the MENU SEL knob/ENTER button.  
The EDIT FUNCTION screen appears.



- 5 Move the arrow marker (➡) to "INSERT" and push on the MENU SEL knob/ENTER button.  
The page with the last item added appears.



## 6 Add the items.

- ① Turn the MENU SEL knob/ENTER button until the page that has the desired items appears then push on the MENU SEL knob/ENTER button.
- ② Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired item then push on the MENU SEL knob/ENTER button.

The USER 2 EDIT page appears again, displaying the newly added item.

- 7 Add the remaining items by repeating steps 4 to 6.  
You can add up to 10 items on one page.

### To delete items from a page

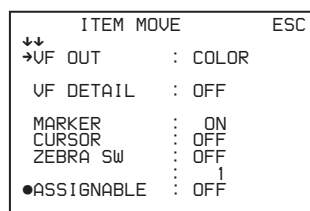
Proceed as follows:

- 1 Move the arrow marker (➡) to the item to be deleted, and push on the MENU SEL knob/ENTER button.  
The EDIT FUNCTION screen appears.
- 2 Select "DELETE," and push on the MENU SEL knob/ENTER button.  
The previously displayed page appears again, and the message "DELETE OK? YES➡NO" appears at the upper right.
- 3 To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "YES," and push on the MENU SEL knob/ENTER button.

### To change the order of items on a page

Proceed as follows:

- 1 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item to be moved then push on the MENU SEL knob/ENTER button.  
The EDIT FUNCTION screen appears.
- 2 Select MOVE then push on the MENU SEL knob/ENTER button.  
The previously displayed page appears again.
- 3 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the position where you wish to move the item then push on the MENU SEL knob/ENTER button.



The item selected in step 1 moves to the position that you selected in step 3.

In the above example, "ASSIGNABLE" is moved to the top and the other items are moved down one line.

### To insert a blank line

Proceed as follows:

- 1 Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item above which you wish to insert a blank line.  
The EDIT FUNCTION screen appears.
- 2 Select "BLANK" then push on the MENU SEL knob/ENTER button.  
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.

### Editing by pages

You can add a 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

Proceed as follows:

### 1 Select “USER MENU CUSTOMIZE” on the TOP MENU screen.

If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears. If the menu has been used before, the last accessed page appears.

### 2 If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (→) to “EDIT PAGE” then push on the MENU SEL knob/ENTER button to display the EDIT PAGE screen. If a different page is displayed, turn the MENU SEL knob/ENTER button until the EDIT PAGE screen appears, then push on the MENU SEL knob/ENTER button to select the page.

```
EDIT PAGE      E01 TOP
↓↑
01.<VF OUT>
→02.<VF DETAIL>
03.<FOCUS ASSIST>
04.<VF DISPLAY>
05.<'I' IND>
06.<VF MARKER>
07.<CURSOR>
08.<SPIRIT LEVEL>
09.<ZEBRA>
10.<SWITCH ASSIGN1>
```

### 3 Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to where you wish to add the page, then push on the MENU SEL knob/ENTER button. The EDIT FUNCTION screen appears.

```
EDIT FUNCTION  ESC
→INSERT
MOVE
DELETE
```

### 4 Select INSERT then push on the MENU SEL knob/ENTER button.

The selection screen appears.

```
CONTENTS      ESC
↓↑
→01.USER 1
02.USER 2
03.USER 3
04.USER 4
05.USER 5
06.USER 6
07.USER 7
08.USER 8
09.USER 9
10.USER 10
```

### 5 Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to the desired page, then push on the MENU SEL knob/ENTER button.

This adds the number and name of the selected page above the item selected in step 3.

## To cancel addition of a page

Before pushing the MENU SEL knob/ENTER button in step 5, turn the MENU SEL knob/ENTER button to move the arrow marker (→) to “ESC” at the top right of the screen, then push on the MENU SEL knob/ENTER button. The EDIT PAGE screen appears again.

## To delete a page

Proceed as follows:

### 1 On the EDIT PAGE screen of the USER MENU CUSTOMIZE menu, move the arrow marker (→) to the page to be deleted, and push on the MENU SEL knob/ENTER button.

The EDIT FUNCTION screen appears.

### 2 Select “DELETE” then push on the MENU SEL knob/ENTER button.

The previously displayed page appears again, and the message “DELETE OK? YES→NO” appears at the upper right.

```
ITEM DELETE    ESC
DELETE OK? YES→NO
01.<VF OUT>
02.<VF DETAIL>
03.<FOCUS ASSIST>
●04.<VF DISPLAY>
05.<'I' IND>
06.<VF MARKER>
07.<CURSOR>
08.<SPIRIT LEVEL>
09.<ZEBRA>
10.<SWITCH ASSIGN1>
```

### 3 To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (→) to “YES,” then push on the MENU SEL knob/ENTER button.

## To move a page

Proceed as follows:

### 1 Display the EDIT PAGE screen of the USER MENU CUSTOMIZE menu. Turn the MENU SEL knob/ENTER button to move the arrow marker (→) to the page that you wish to move.

The EDIT FUNCTION screen appears.

### 2 Select “MOVE” then push on the MENU SEL knob/ENTER button.

The EDIT PAGE screen appears again.

### 3 Turn MENU SEL knob/ENTER button to move the arrow marker (→) to the position to which you wish to move the page selected in step 1.

```
ITEM MOVE      ESC
↓↑
01.<VF OUT>
02.<VF DETAIL>
03.<FOCUS ASSIST>
→04.<VF DISPLAY>
05.<'I' IND>
06.<VF MARKER>
07.<CURSOR>
08.<SPIRIT LEVEL>
●09.<ZEBRA>
10.<SWITCH ASSIGN1>
```

#### **4 Push on the MENU SEL knob/ENTER button.**

The page selected in step 1 is moved to the position selected in step 3.

In the above example, <ZEBRA> moves to the “04” position, and the <VF DISPLAY> and following pages move down one line.

# Menu List

This section shows the menus to be displayed on the viewfinder screen in tables.

- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

## Notes

**HDLA:** HDLA1500-series Large Lens Adaptor

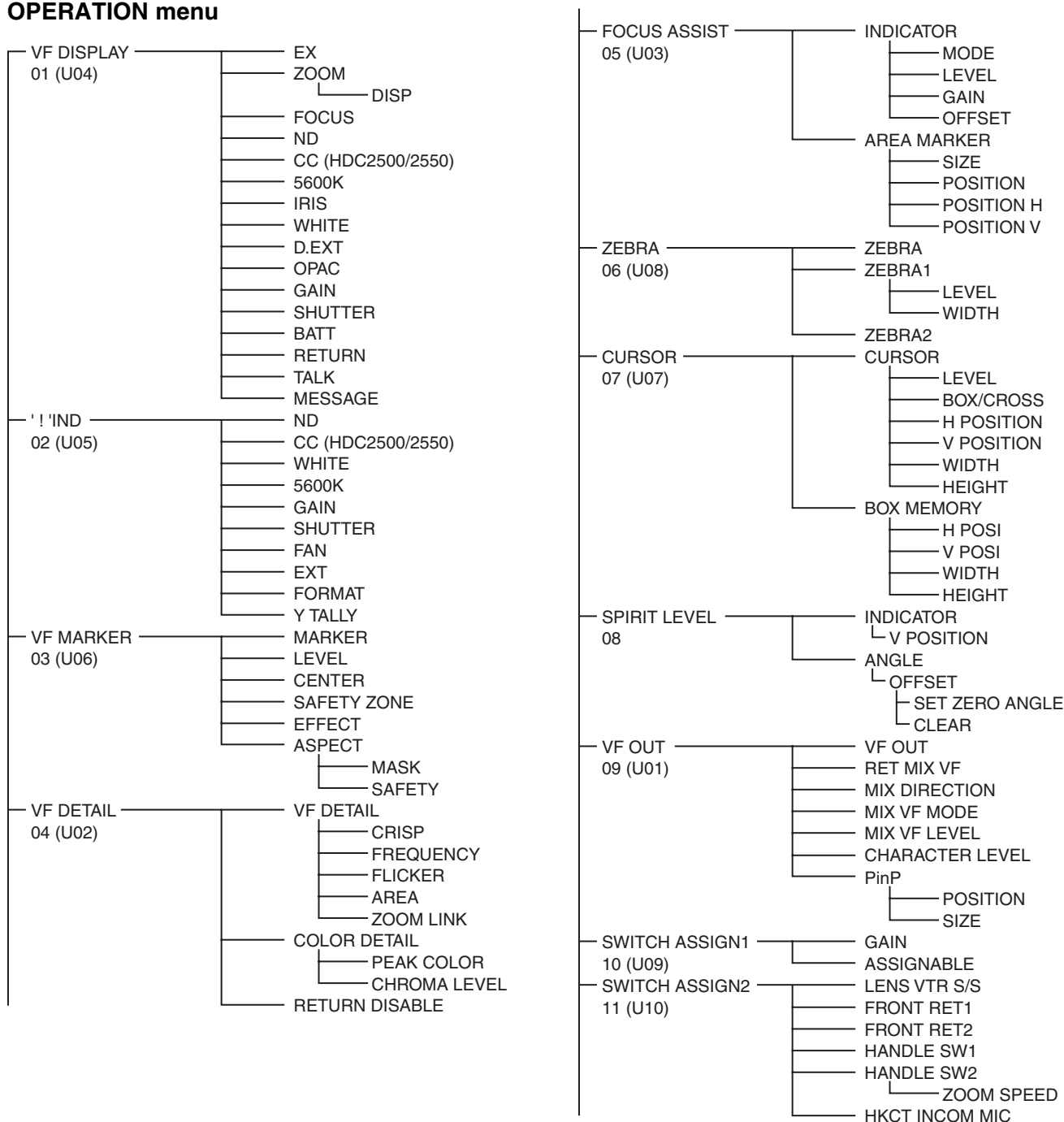
**CCU:** HDCU2000/2500 Camera Control Unit

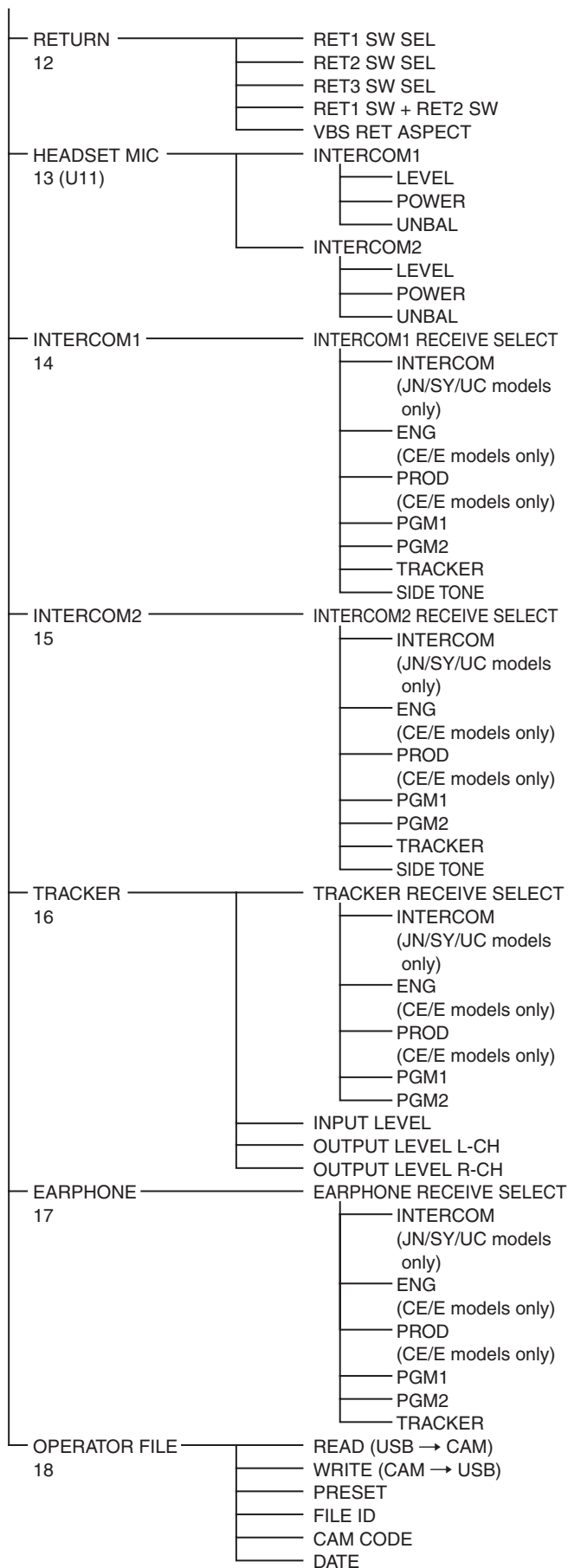
**Bold values (e.g. ON, OFF, 0):** Default settings

**Execute via ENTER:** Execute by pushing on the MENU SEL knob/ENTER button.

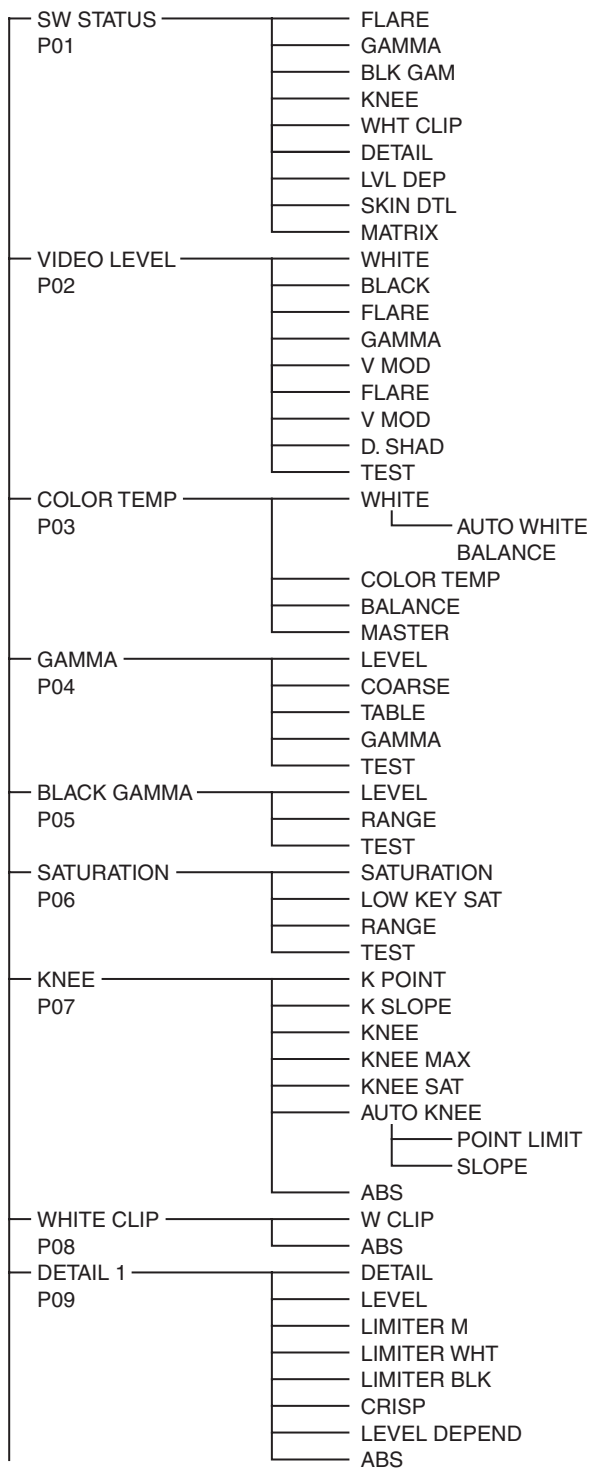
## Menu Tree

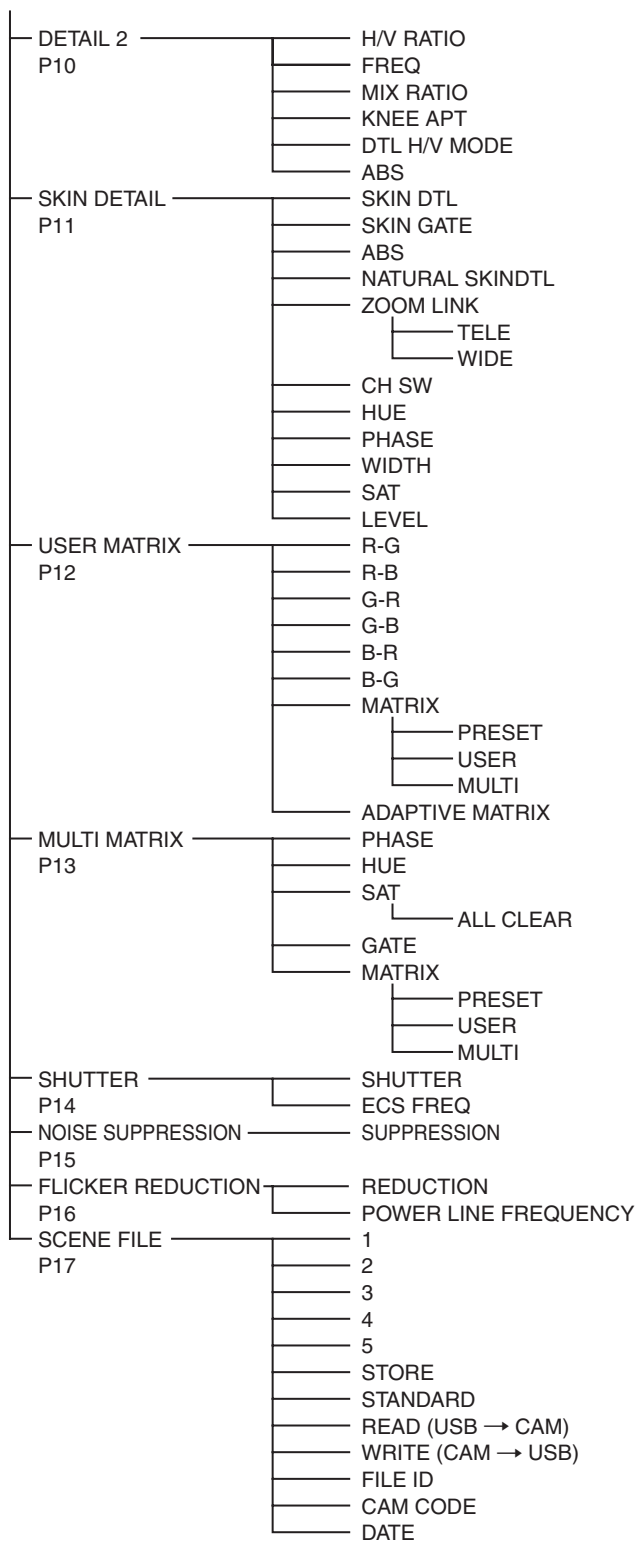
### OPERATION menu



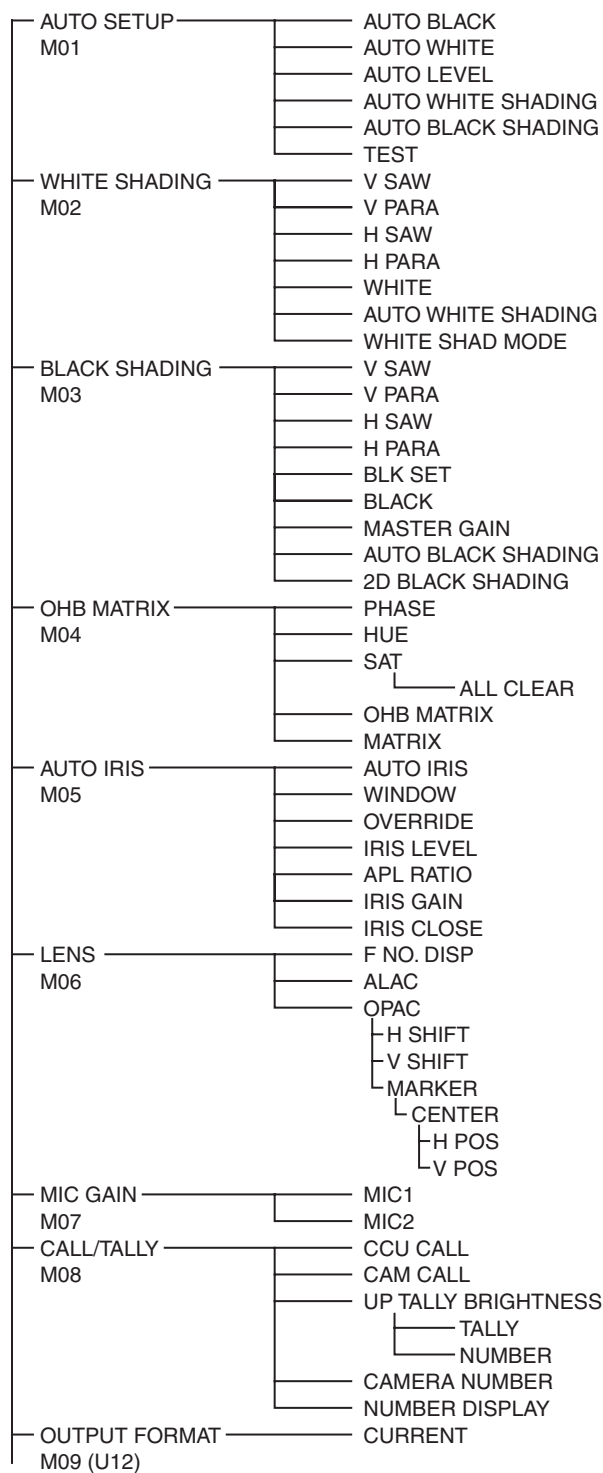


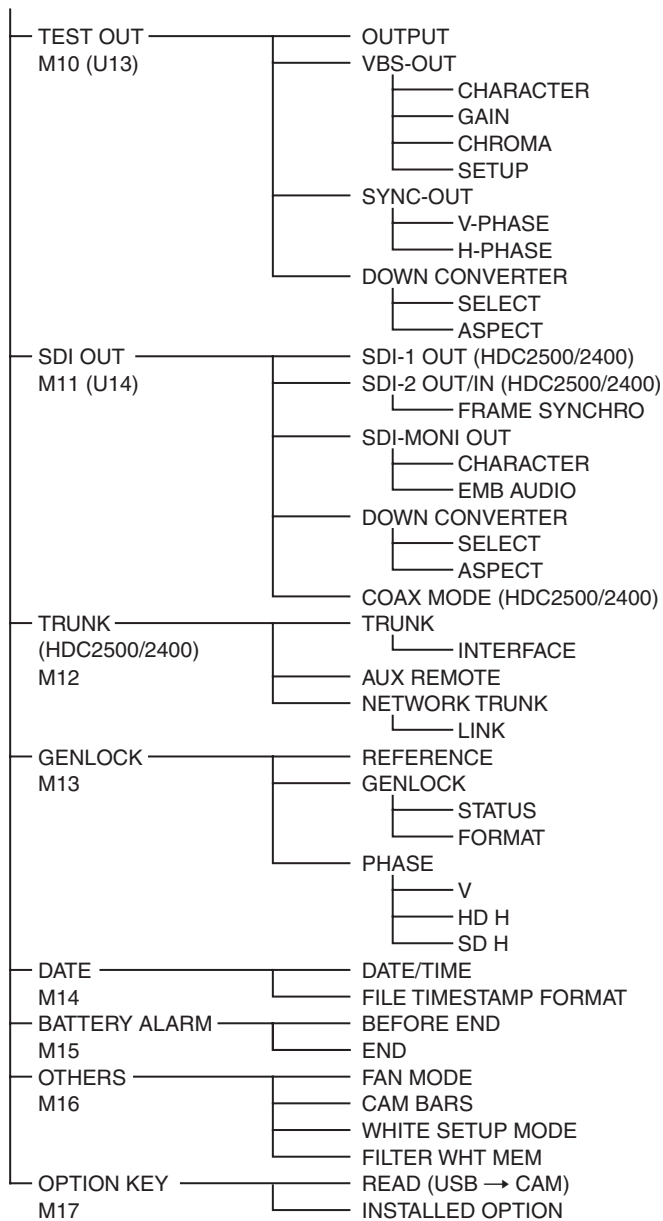
## PAINT menu



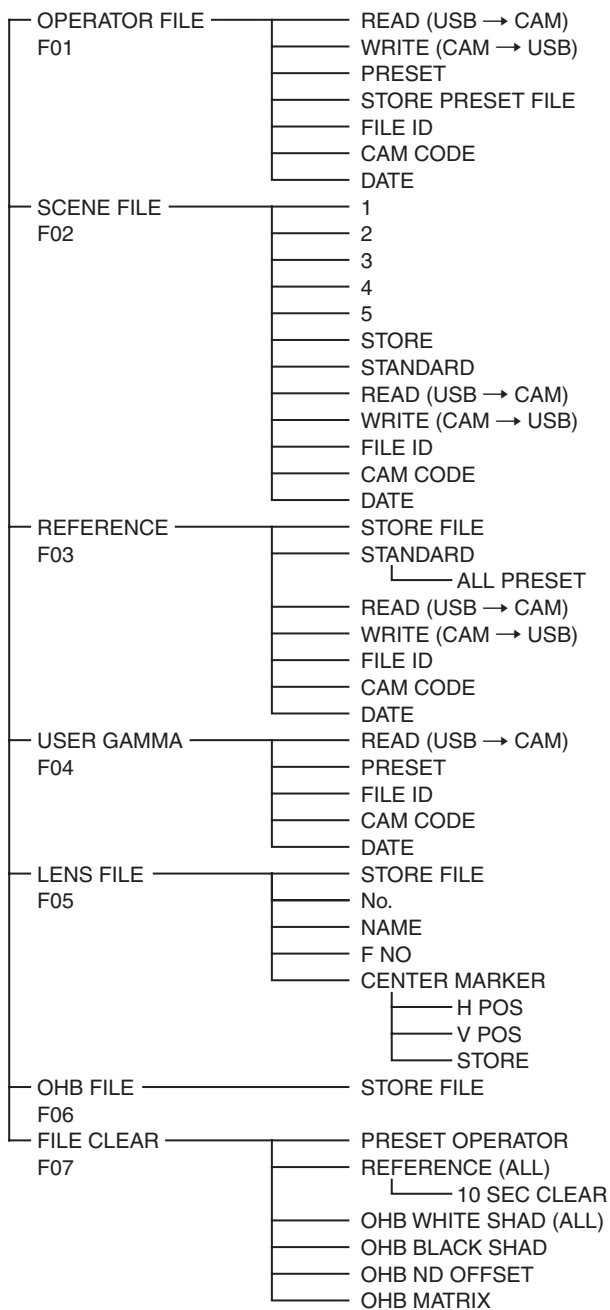


## MAINTENANCE menu

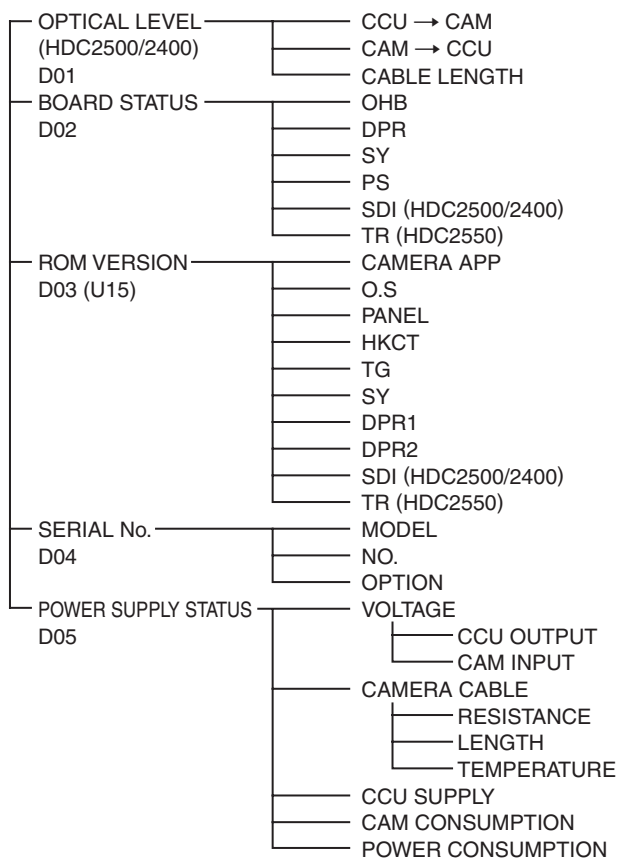




## FILE menu



## DIAGNOSIS menu



## OPERATION Menu

| OPERATION                |         |                           |                                                                                                                                                      |
|--------------------------|---------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.    | Item    | Settings                  | Description                                                                                                                                          |
| <VF DISPLAY><br>01 (U04) | EX      | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | ZOOM    | ON, <b>OFF</b>            |                                                                                                                                                      |
|                          | DISP    | <b>LEFT</b> , RIGHT       |                                                                                                                                                      |
|                          | FOCUS   | ON, <b>OFF</b>            | Valid only when a serial lens is used.                                                                                                               |
|                          | ND      | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | CC      | <b>ON</b> , OFF           | Valid with HDC2500/2550 only.                                                                                                                        |
|                          | 5600K   | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | IRIS    | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | WHITE   | ON, <b>OFF</b>            |                                                                                                                                                      |
|                          | D.EXT   | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | OPAC    | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | GAIN    | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | SHUTTER | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | BATT    | ON, <b>OFF</b>            |                                                                                                                                                      |
|                          | RETURN  | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | TALK    | <b>ON</b> , OFF           |                                                                                                                                                      |
|                          | MESSAGE | <b>ALL</b> , WRN, AT, OFF | <b>ALL</b> : Displays all messages.<br><b>WRN</b> : Displays warning messages and higher.<br><b>AT</b> : Displays Auto Setup information and higher. |

| OPERATION               |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.   | Item        | Settings                                                                                                                                                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <'!IND><br>02 (U05)     | ND          | <u>ON</u> , OFF<br>1, 2, 3, 4, 5 (combination allowed)                                                                                                                                                                                                                                          | [IND]: Sets whether to be included in the status indications on the viewfinder screen ( <i>see page 31</i> ).<br>[NORMAL]: Specifies the conditions under which the '!' indication is not to be displayed even if [IND] is ON. (By specifying the standard or normal conditions here, non-standard or abnormal conditions can be found with the '!' indication on the viewfinder screen.)<br>e.g.: With the default setting of ND, the '!' indication is displayed when an ND filter other than 1 is selected.<br>--- : When a CCU is connected (cannot be changed) |
|                         | CC          | <u>ON</u> , OFF<br>A, <u>B</u> , C, D, E (combination allowed)                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | WHITE       | <u>ON</u> , OFF, ---<br>P, <u>A</u> , <u>B</u> (combination allowed)                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | 5600K       | <u>ON</u> , OFF, ---<br>ON, <u>OFF</u>                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | GAIN        | <u>ON</u> , OFF, ---<br><u>L</u> , M, H (combination allowed)                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | SHUTTER     | <u>ON</u> , OFF, ---<br>ON, <u>OFF</u>                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | FAN         | <u>ON</u> , OFF<br><u>AUTO1</u> , AUTO2, MIN, MAX                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | EXT         | <u>ON</u> , OFF                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | FORMAT      | <u>ON</u> , OFF<br>HDC2500: <u>1080-59.94i</u> , 1080-29.97PsF, 1080-50i, 1080-25PsF, 1080-24PsF, 1080-23.98PsF, 1080-59.94P, 1080-50P, 720-59.94P, 720-50P, 1080-59.94i (2x), 1080-50i (2x), 720-59.94P (2x), 720-50P (2x)<br>HDC2400/2550: <u>1080-59.94i</u> , 720-59.94P, 1080-50i, 720-50P |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | Y TALLY     | <u>ON</u> , OFF                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | MARKER      | <u>ON</u> , OFF<br><u>WHITE</u> , BLACK, DOT                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | LEVEL       | 0 to 100, <u>70</u>                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <VF MARKER><br>03 (U06) | CENTER      | ON, <u>OFF</u><br>1, 2, 3, 4                                                                                                                                                                                                                                                                    | Sets MARKER to ON/OFF.<br><br>1: Entire cross<br>2: Entire cross with a hole<br>3: Center<br>4: Center with a hole<br><br>( <b>FOCUS</b> ): Displayed when INDICATOR of <FOCUS ASSIST> is ON.<br><br>( <b>4.3</b> ): If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)<br>( <b>ON</b> ): If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)<br>Sets the level to darken outside the aspect area.<br>For the safety marker in Aspect mode.<br>( <b>AREA</b> ): Displayed when AREA MARKER of <FOCUS ASSIST> is ON.                  |
|                         | SAFETY ZONE | ON, <u>OFF</u><br>80.0, <u>90.0</u> , 92.5, 95.0%                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | EFFECT      | ON, <u>OFF</u> , (FOCUS)                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | ASPECT      | ON, <u>OFF</u><br>16:9, 15:9, 14:9, 13:9, <u>4:3</u> , (4.3)                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | MASK        | ON, <u>OFF</u> , (ON)<br>0 to 15, <u>12</u>                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         | SAFETY      | ON, <u>OFF</u> , (AREA)<br>80.0, <u>90.0</u> , 92.5, 95.0%                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                         |             |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Note**

CC is available for HDC2500/2550 only.

| OPERATION                  |                |                                                                     |                                                                      |
|----------------------------|----------------|---------------------------------------------------------------------|----------------------------------------------------------------------|
| Page title<br>PageNo.      | Item           | Settings                                                            | Description                                                          |
| <VF DETAIL><br>04 (U02)    | VF DETAIL      | <b>ON</b> , OFF, (ON), (OFF)<br>0 to 100%, (0 to 100%), <b>25%</b>  | Settings in ( ): When HDLA is attached (cannot be changed)           |
|                            |                | CRISP<br>-99 to +99, <b>0</b>                                       |                                                                      |
|                            |                | FREQUENCY<br><b>9M</b> , 14M, 18M                                   |                                                                      |
|                            |                | FLICKER<br><b>ON</b> , <b>OFF</b>                                   |                                                                      |
|                            |                | AREA<br><b>100%</b> , 70%, 60%, 50%, 40%                            |                                                                      |
|                            |                | ZOOM LINK<br><b>ON</b> , OFF<br>0%, 25%, 50%, 75%, <b>100%</b>      |                                                                      |
|                            |                | COLOR DETAIL<br><b>ON</b> , <b>OFF</b><br><b>BLUE</b> , RED, YELLOW |                                                                      |
|                            | PEAK COLOR     | <b>ON</b> , <b>OFF</b>                                              |                                                                      |
|                            |                | CHROMA LEVEL<br>100%, 50%, <b>25%</b> , 0%                          |                                                                      |
|                            | RETURN DISABLE | <b>ON</b> , <b>OFF</b>                                              |                                                                      |
| <FOCUS ASSIST><br>05 (U03) | INDICATOR      | <b>ON</b> , <b>OFF</b> , (EFFECT)                                   | <b>(EFFECT)</b> : Displayed when EFFECT of <VF MARKER> is ON.        |
|                            |                | MODE<br><b>BOX</b> , B&W, COL<br><b>BTM</b> , LEFT, TOP, RIGHT      |                                                                      |
|                            |                | LEVEL<br>0 to 100%, <b>70%</b><br><b>QUICK</b> , SMOOTH             |                                                                      |
|                            |                | GAIN<br>0 to 99, <b>50</b>                                          |                                                                      |
|                            |                | OFFSET<br>0 to 99, <b>50</b>                                        |                                                                      |
|                            |                | AREA MARKER<br><b>ON</b> , <b>OFF</b> , (ASPECT)                    | <b>(ASPECT)</b> : Displayed when ASPECT SAFETY of <VF MARKER> is ON. |
|                            | SIZE           | SMALL, <b>MIDDLE</b> , LARGE                                        |                                                                      |
|                            |                | POSITION<br>LEFT, <b>CENTER</b> , RIGHT                             |                                                                      |
|                            |                | POSITION H<br>0 to 99, <b>50</b>                                    |                                                                      |
|                            |                | POSITION V<br>0 to 99, <b>50</b>                                    |                                                                      |
|                            |                |                                                                     |                                                                      |
| <ZEBRA><br>06 (U08)        | ZEBRA          | <b>ON</b> , <b>OFF</b><br><b>1</b> , 2, 1&2                         |                                                                      |
|                            |                |                                                                     |                                                                      |
|                            | ZEBRA1         | LEVEL<br>50 to 109%, <b>70%</b>                                     |                                                                      |
|                            |                | WIDTH<br>0 to 30%, <b>10%</b>                                       |                                                                      |
|                            | ZEBRA2         | 50 to 109%, <b>100%</b>                                             |                                                                      |
|                            |                |                                                                     |                                                                      |
| <CURSOR><br>07 (U07)       | CURSOR         | <b>ON</b> , <b>OFF</b><br><b>WHITE</b> , BLACK, DOT                 | Displayed only if HDLA attached.                                     |
|                            |                | LEVEL<br>0 to 100%, <b>70%</b>                                      |                                                                      |
|                            |                | BOX/CROSS<br><b>BOX</b> , CROSS                                     |                                                                      |
|                            |                | H POSITION<br>0 to 99, <b>50</b>                                    |                                                                      |
|                            |                | V POSITION<br>0 to 99, <b>50</b>                                    |                                                                      |
|                            |                | WIDTH<br>0 to 99, <b>50</b>                                         |                                                                      |
|                            | HEIGHT         | 0 to 99, <b>50</b>                                                  | Displayed only if HDLA attached.                                     |
|                            |                | BOX MEMORY<br>1/2/3: <b>OFF</b> , ON                                |                                                                      |
|                            |                | H POSI<br>1/2/3: 0 to 99, <b>50</b>                                 |                                                                      |
|                            |                | V POSI<br>1/2/3: 0 to 99, <b>50</b>                                 |                                                                      |
|                            |                | WIDTH<br>1/2/3: 0 to 99, <b>50</b>                                  |                                                                      |
|                            |                | HEIGHT<br>1/2/3: 0 to 99, <b>50</b>                                 |                                                                      |

| OPERATION                    |                      |                                                                                                                                                                                        |                                                                                                 |
|------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.        | Item                 | Settings                                                                                                                                                                               | Description                                                                                     |
| <SPIRIT LEVEL><br>08         | INDICATOR            | ON, <b>OFF</b>                                                                                                                                                                         | When this is set to ON, BOX MEMORY for CURSOR does not function.                                |
|                              | V POSITION           | 0 to 99, <b>97</b>                                                                                                                                                                     |                                                                                                 |
|                              | ANGLE                |                                                                                                                                                                                        | Sets the inclination angle. (Display only)                                                      |
|                              | OFFSET               | -99 to +99, <b>0</b>                                                                                                                                                                   |                                                                                                 |
|                              | SET<br>ZERO<br>ANGLE | Execute via ENTER.                                                                                                                                                                     | Designates the current angle as level (0°).                                                     |
|                              | CLEAR                | Execute via ENTER.                                                                                                                                                                     | Sets OFFSET to 0.                                                                               |
| <VF OUT><br>09 (U01)         | VF OUT               | <b>COLOR</b> , Y, R, G, B, (COLOR), (Y), (R), (G), (B), (RET), (R+G), (R+B), (G+B)                                                                                                     | Settings in ( ): When HDLA is attached (cannot be changed)                                      |
|                              | RET MIX VF           | ON, <b>OFF</b> , (ON), (OFF)                                                                                                                                                           | Settings in ( ): When HDLA is attached (cannot be changed)                                      |
|                              | MIX DIRECTION        | MAIN, <b>RET</b>                                                                                                                                                                       |                                                                                                 |
|                              | MIX VF MODE          | <b>Y-MIX</b> , WIRE(W), WIRE(B)                                                                                                                                                        |                                                                                                 |
|                              | MIX VF LEVEL         | 0 to <b>80%</b>                                                                                                                                                                        |                                                                                                 |
|                              | CHARACTER LEVEL      | 0 to 5, <b>5</b>                                                                                                                                                                       |                                                                                                 |
|                              | PinP                 | ON, <b>OFF</b> , (OFF)                                                                                                                                                                 | Cannot be used during stand-alone operation.                                                    |
|                              | POSITION             | <b>1</b> , 2, 3, 4                                                                                                                                                                     | Not available when HD TRUNK FRAME SYNCHRO is set to ON.                                         |
|                              | SIZE                 | <b>1/3</b> , 1/4                                                                                                                                                                       |                                                                                                 |
| <SWITCH ASSIGN1><br>10 (U09) | GAIN                 | L: -6, -3, <b>0</b> , 3, 6, 9, 12 dB                                                                                                                                                   |                                                                                                 |
|                              |                      | M: -6, -3, 0, 3, <b>6</b> , 9, 12 dB                                                                                                                                                   |                                                                                                 |
|                              |                      | H: -6, -3, 0, 3, 6, 9, <b>12</b> dB                                                                                                                                                    |                                                                                                 |
|                              | ASSIGNABLE           | <b>OFF</b> , RETURN1 SW, RETURN2 SW, INCOM1, INCOM2, VF DETAIL, MIX VF, 5600K, FAN MAX, D.EXTENDER, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP | JN/SY/UC models only.<br>When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP |
|                              |                      | <b>OFF</b> , RETURN1 SW, RETURN2 SW, ENG, PROD, VF DETAIL, MIX VF, 5600K, FAN MAX, D.EXTENDER, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP      | CE/E models only.<br>When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP     |

**Note**

When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction. D.EXTENDER does not operate when a 2x speed motion format is selected.

**Note**

When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction. D.EXTENDER does not operate when a 2x speed motion format is selected.

| OPERATION                    |                   |                                                                 |                                                                                                                                                                                                                           |
|------------------------------|-------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.        | Item              | Settings                                                        | Description                                                                                                                                                                                                               |
| <SWITCH ASSIGN2><br>11 (U10) | LENS VTR S/S      | OFF, RETURN1 SW, <b>RETURN2 SW</b> , INCOM1, INCOM2             | JN/SY/UC models only.<br>Assigns a function to the VTR START/STOP switch on the mounted lens.                                                                                                                             |
|                              |                   | OFF, RETURN1 SW, <b>RETURN2 SW</b> , ENG, PROD                  | CE/E models only.<br>Assigns a function to the VTR START/STOP switch on the mounted lens.                                                                                                                                 |
|                              | FRONT RET1        | OFF, <b>RETURN1 SW</b> , RETURN2 SW, INCOM1, INCOM2, D.EXTENDER | JN/SY/UC models only.                                                                                                                                                                                                     |
|                              |                   | OFF, <b>RETURN1 SW</b> , RETURN2 SW, ENG, PROD, D.EXTENDER      | CE/E models only.                                                                                                                                                                                                         |
|                              | FRONT RET2        | OFF, RETURN1 SW, <b>RETURN2 SW</b> , INCOM1, INCOM2, D.EXTENDER | JN/SY/UC models only.                                                                                                                                                                                                     |
|                              |                   | OFF, RETURN1 SW, <b>RETURN2 SW</b> , ENG, PROD, D.EXTENDER      | CE/E models only.                                                                                                                                                                                                         |
|                              | HANDLE SW1        | OFF, <b>RETURN1 SW</b> , RETURN2 SW, INCOM1, INCOM2, ZOOM(T)    | JN/SY/UC models only.                                                                                                                                                                                                     |
|                              |                   | OFF, <b>RETURN1 SW</b> , RETURN2 SW, ENG, PROD, ZOOM(T)         | CE/E models only.                                                                                                                                                                                                         |
|                              | HANDLE SW2        | OFF, RETURN1 SW, RETURN2 SW, <b>INCOM1</b> , INCOM2, ZOOM(W)    | JN/SY/UC models only.                                                                                                                                                                                                     |
|                              |                   | OFF, RETURN1 SW, RETURN2 SW, <b>INCOM1</b> , INCOM2, ZOOM(W)    | CE/E models only.                                                                                                                                                                                                         |
|                              | ZOOM SPEED        | 0 to 99, <b>20</b>                                              |                                                                                                                                                                                                                           |
|                              | HKCT INCOM MIC    | OFF, <b>INCOM1</b> , INCOM2                                     | JN/SY/UC models only.<br>Assigns a function to the INTERCOM MIC switch on the HKC-T1500.                                                                                                                                  |
|                              |                   | OFF, <b>ENG</b> , PROD                                          | CE/E models only.<br>Assigns a function to the INTERCOM MIC switch on the HKC-T1500.                                                                                                                                      |
| <RETURN><br>12               | RET1 SW SEL       | CCU RET1, CCU RET2,                                             | Varies based on the RET1 button setting.                                                                                                                                                                                  |
|                              | RET2 SW SEL       | CCU RET3, CCU RET4                                              | Varies based on the RET2 button setting.                                                                                                                                                                                  |
|                              | RET3 SW SEL       | CCU RET1, CCU RET2, <b>CCU RET3</b> , CCU RET4                  |                                                                                                                                                                                                                           |
|                              | RET1 SW + RET2 SW | RET1 SW, <b>RET3 SW</b>                                         | Changes operation when you press both the RET1 button and RET2 button at the same time.<br><b>RET1 SW</b> : The two buttons function as the RET1 button.<br><b>RET3 SW</b> : The two buttons function as the RET3 button. |
|                              | VBS RET ASPECT    | <b>EC</b> , SQ                                                  | Sets the Aspect mode of the VBS RET when the camera is used in stand-alone.<br><b>EC</b> : Edge Crop<br><b>SQ</b> : SQeeze                                                                                                |

| OPERATION                 |                             |                                                                                                   |                                                             |
|---------------------------|-----------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Page title<br>PageNo.     | Item                        | Settings                                                                                          | Description                                                 |
| <HEADSET MIC><br>13 (U11) | INTERCOM1                   | <b>DYNAMIC</b> , CARBON, MANUAL                                                                   |                                                             |
|                           | LEVEL                       | –60 dB, –50 dB, –40 dB, –30 dB, –20 dB, ( <b>–60 dB</b> ), (–50 dB), (–40 dB), (–30 dB), (–20 dB) | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
|                           |                             | –6, <b>0</b> , 6 dB                                                                               | Input gain                                                  |
|                           | POWER                       | ON, OFF, (ON), ( <b>OFF</b> )                                                                     | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
|                           | UNBAL                       | ON, OFF, ( <b>ON</b> ), (OFF)                                                                     | Settings in ( ): With CARBON (cannot be changed)            |
|                           | INTERCOM2                   | <b>DYNAMIC</b> , CARBON, MANUAL                                                                   |                                                             |
|                           | LEVEL                       | –60 dB, –50 dB, –40 dB, –30 dB, –20 dB, ( <b>–60 dB</b> ), (–50 dB), (–40 dB), (–30 dB), (–20 dB) | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
|                           |                             | –6, <b>0</b> , 6 dB                                                                               | Input gain                                                  |
|                           | POWER                       | ON, OFF, (ON), ( <b>OFF</b> )                                                                     | Settings in ( ): With DYNAMIC or CARBON (cannot be changed) |
|                           | UNBAL                       | <b>ON</b> , OFF, (ON), (OFF)                                                                      | Settings in ( ): With CARBON (cannot be changed)            |
| <INTERCOM1><br>14         | INTERCOM1<br>RECEIVE SELECT | <b>SEPARATE</b> , MIX                                                                             |                                                             |
|                           | INTERCOM                    | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | JN/SY/UC models only                                        |
|                           | ENG                         | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PROD                        | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PGM1                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | PGM2                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | TRACKER                     | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   |                                                             |
|                           | SIDE TONE                   | MU, 1 to 99, <b>50</b>                                                                            |                                                             |
| <INTERCOM2><br>15         | INTERCOM2<br>RECEIVE SELECT | <b>SEPARATE</b> , MIX                                                                             |                                                             |
|                           | INTERCOM                    | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | JN/SY/UC models only                                        |
|                           | ENG                         | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PROD                        | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PGM1                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | PGM2                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | TRACKER                     | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   |                                                             |
|                           | SIDE TONE                   | MU, 1 to 99, <b>50</b>                                                                            |                                                             |
| <TRACKER><br>16           | TRACKER RECEIVE<br>SELECT   | <b>SEPARATE</b> , MIX                                                                             |                                                             |
|                           | INTERCOM                    | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | JN/SY/UC models only                                        |
|                           | ENG                         | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PROD                        | --- , <b>LEFT</b> , RIGHT, BOTH                                                                   | CE/E models only                                            |
|                           | PGM1                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | PGM2                        | --- , LEFT, <b>RIGHT</b> , BOTH                                                                   |                                                             |
|                           | INPUT LEVEL                 | –20 dBu, <b>0 dBu</b><br>–6 dBu, <b>0 dBu</b> , 6 dBu                                             |                                                             |
|                           | OUTPUT<br>LEVEL             | L-CH <b>0 dBu</b> , –6 dBu, –12 dBu, –18 dBu,<br>–20 dBu, –24 dBu                                 |                                                             |
|                           |                             | R-CH                                                                                              |                                                             |

| OPERATION             |                            |                                   |                                                                                                                                |
|-----------------------|----------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item                       | Settings                          | Description                                                                                                                    |
| <EARPHONE><br>17      | EARPHONE<br>RECEIVE SELECT | <b>SEPARATE</b> , MIX             |                                                                                                                                |
|                       | INTERCOM                   | --- , <b>LEFT</b> , RIGHT, BOTH   | JN/SY/UC models only                                                                                                           |
|                       | ENG                        | --- , <b>LEFT</b> , RIGHT, BOTH   | CE/E models only                                                                                                               |
|                       | PROD                       | --- , <b>LEFT</b> , RIGHT, BOTH   | CE/E models only                                                                                                               |
|                       | PGM1                       | --- , LEFT, <b>RIGHT</b> , BOTH   |                                                                                                                                |
|                       | PGM2                       | --- , LEFT, <b>RIGHT</b> , BOTH   |                                                                                                                                |
|                       | TRACKER                    | --- , <b>LEFT</b> , RIGHT, BOTH   |                                                                                                                                |
| <OPERATOR FILE><br>18 | READ (USB→CAM)             | Execute via ENTER.                | Reads the operator file from a USB drive.                                                                                      |
|                       | WRITE (CAM→USB)            | Execute via ENTER.                | Writes the current settings of the operator file items to a USB drive.                                                         |
|                       | PRESET                     | Execute via ENTER.                | Sets the operator file items to the preset values in internal memory.                                                          |
|                       | FILE ID                    | alphanumerics (max.16 characters) | Enters a comment for the operator file to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i> |
|                       | CAM CODE                   | Camera code                       | Display only                                                                                                                   |
|                       | DATE                       |                                   | Display only                                                                                                                   |

## PAINT Menu

| PAINT                 |          |                               |                                                                                                   |
|-----------------------|----------|-------------------------------|---------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item     | Settings                      | Description                                                                                       |
| <SW STATUS><br>P01    | FLARE    | <b>ON</b> , OFF               |                                                                                                   |
|                       | GAMMA    | <b>ON</b> , OFF               |                                                                                                   |
|                       | BLK GAM  | ON, <b>OFF</b>                |                                                                                                   |
|                       | KNEE     | <b>ON</b> , OFF               |                                                                                                   |
|                       | WHT CLIP | <b>ON</b> , OFF               |                                                                                                   |
|                       | DETAIL   | <b>ON</b> , OFF               |                                                                                                   |
|                       | LVL DEP  | <b>ON</b> , OFF               |                                                                                                   |
|                       | SKIN DTL | ON, <b>OFF</b>                |                                                                                                   |
|                       | MATRIX   | ON, <b>OFF</b>                |                                                                                                   |
| <VIDEO LEVEL><br>P02  | WHITE    | R/G/B: -99 to +99, <b>0</b>   | R, G, B, and M (master) values can be independently set.<br>(M cannot be set for WHITE or FLARE.) |
|                       | BLACK    | R/G/B/M: -99 to +99, <b>0</b> |                                                                                                   |
|                       | FLARE    | R/G/B: -99 to +99, <b>0</b>   |                                                                                                   |
|                       | GAMMA    | R/G/B/M: -99 to +99, <b>0</b> |                                                                                                   |
|                       | V MOD    | R/G/B/M: -99 to +99, <b>0</b> |                                                                                                   |
|                       | FLARE    | <b>ON</b> , OFF               |                                                                                                   |
|                       | V MOD    | <b>ON</b> , OFF               |                                                                                                   |
|                       | D. SHAD  | ON, <b>OFF</b>                | Selectable only with a lens which supports dynamic shading.                                       |
|                       | TEST     | <b>OFF</b> , SAW, 10STEP      |                                                                                                   |

| PAINT                 |                       |                                        |                                                                                                                                                                                                                                |
|-----------------------|-----------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item                  | Settings                               | Description                                                                                                                                                                                                                    |
| <COLOR TEMP><br>P03   | WHITE                 | R/G/B: -99 to +99, <u>0</u>            |                                                                                                                                                                                                                                |
|                       | AUTO WHITE<br>BALANCE | Execute via ENTER.                     |                                                                                                                                                                                                                                |
|                       | COLOR TEMP            | 0K to 65535K, <u>3200K</u>             |                                                                                                                                                                                                                                |
|                       | BALANCE               | -99 to +99, <u>0</u>                   |                                                                                                                                                                                                                                |
|                       | MASTER                | -3.0 to +12.0 dB, <u>0.0 dB</u>        |                                                                                                                                                                                                                                |
| <GAMMA><br>P04        | LEVEL                 | R/G/B/M: -99 to +99, <u>0</u>          | R, G, B, and M (master) values can be independently set.                                                                                                                                                                       |
|                       | COARSE                | 0.35 to 0.90 (0.05 steps), <u>0.45</u> |                                                                                                                                                                                                                                |
|                       | TABLE                 | <u>STANDARD</u> , HYPER, USER          |                                                                                                                                                                                                                                |
|                       |                       | 1, 2, 3, 4, <u>5</u> , 6, 7            | With STANDARD or USER selected (only 1 to 5 are available for USER)<br>1: equivalent to a camcorder<br>2: gain x4.5<br>3: gain x3.5<br>4: equivalent to SMPTE-240M<br>5: equivalent to ITU-R709<br>6: gain x5.0<br>7: x5.0-709 |
|                       |                       | 1, 2, 3, <u>4</u>                      | With HYPER selected<br>1: 325% to 100%<br>2: 460% to 100%<br>3: 325% to 109%<br>4: 460% to 109%                                                                                                                                |
|                       | GAMMA                 | <u>ON</u> , OFF                        |                                                                                                                                                                                                                                |
|                       | TEST                  | <u>OFF</u> , SAW, 10STEP               |                                                                                                                                                                                                                                |
| <BLACK GAMMA><br>P05  | LEVEL                 | R/G/B/M: -99 to +99, <u>0</u>          | R, G, B, and M (master) values can be independently set.                                                                                                                                                                       |
|                       | RANGE                 | LOW, L.MID, H.MID, <u>HIGH</u>         |                                                                                                                                                                                                                                |
|                       | TEST                  | <u>OFF</u> , SAW, 10STEP               |                                                                                                                                                                                                                                |
| <SATURATION><br>P06   | SATURATION            | -99 to +99, <u>0</u>                   |                                                                                                                                                                                                                                |
|                       |                       | ON, <u>OFF</u>                         |                                                                                                                                                                                                                                |
|                       | LOW KEY SAT           | -99 to +99, <u>0</u>                   |                                                                                                                                                                                                                                |
|                       | RANGE                 | LOW, L.MID, H.MID, <u>HIGH</u>         |                                                                                                                                                                                                                                |
|                       | TEST                  | <u>OFF</u> , SAW, 10STEP               |                                                                                                                                                                                                                                |
| <KNEE><br>P07         | K POINT               | R/G/B/M: -99 to +99, <u>0</u>          | R, G, B, and M (master) values can be independently set.                                                                                                                                                                       |
|                       | K SLOPE               | R/G/B/M: -99 to +99, <u>0</u>          | Absolute values are displayed in ABS mode except for M (master).                                                                                                                                                               |
|                       | KNEE                  | <u>ON</u> , OFF                        |                                                                                                                                                                                                                                |
|                       | KNEE MAX              | ON, <u>OFF</u>                         |                                                                                                                                                                                                                                |
|                       | KNEE SAT              | -99 to +99, <u>0</u>                   |                                                                                                                                                                                                                                |
|                       |                       | ON, <u>OFF</u>                         |                                                                                                                                                                                                                                |
|                       | AUTO KNEE             | <u>OFF</u> , AUTO                      |                                                                                                                                                                                                                                |
|                       | POINT LIMIT           | -99 to +99, <u>0</u>                   | Absolute value is displayed in ABS mode.                                                                                                                                                                                       |
|                       | SLOPE                 | -99 to +99, <u>0</u>                   | Absolute value is displayed in ABS mode.                                                                                                                                                                                       |
|                       | ABS                   |                                        | Highlighted: ABS (Absolute) mode                                                                                                                                                                                               |

| PAINT                 |                 |                                                             |                                                                                                                                         |
|-----------------------|-----------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item            | Settings                                                    | Description                                                                                                                             |
| <WHITE CLIP><br>P08   | W CLIP          | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       |                 | <u>ON</u> , OFF                                             |                                                                                                                                         |
|                       | ABS             |                                                             | Highlighted: ABS (Absolute) mode                                                                                                        |
| <DETAIL 1><br>P09     | DETAIL          | <u>ON</u> , OFF                                             |                                                                                                                                         |
|                       | LEVEL           | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | LIMITER M       | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | LIMITER WHT     | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | LIMITER BLK     | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | CRISP           | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | LEVEL DEPEND    | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       |                 | <u>ON</u> , OFF                                             |                                                                                                                                         |
|                       | ABS             |                                                             | Highlighted: ABS (Absolute) mode                                                                                                        |
|                       |                 |                                                             |                                                                                                                                         |
| <DETAIL 2><br>P10     | H/V RATIO       | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | FREQ            | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | MIX RATIO       | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       | KNEE APT        | -99 to +99, <u>0</u>                                        | Absolute value is displayed in ABS mode.                                                                                                |
|                       |                 | ON, <u>OFF</u>                                              |                                                                                                                                         |
|                       | DTL H/V MODE    | <u>H/V</u> , V only                                         |                                                                                                                                         |
|                       | ABS             |                                                             | Highlighted: ABS (Absolute) mode                                                                                                        |
| <SKIN DETAIL><br>P11  | SKIN DTL        | ON, <u>OFF</u>                                              |                                                                                                                                         |
|                       | SKIN GATE       | <u>OFF</u> , 1, 2, 3, (MAT)                                 | 1, 2, 3: The skin gate function can be turned on for the specified channel only.<br>(MAT): Displayed when GATE of <MULTI MATRIX> is ON. |
|                       | ABS             |                                                             | Highlighted: ABS (Absolute) mode                                                                                                        |
|                       | NATURAL SKINDTL | <u>OFF</u> , ON                                             |                                                                                                                                         |
|                       | ZOOM LINK       | <u>OFF</u> , ON                                             |                                                                                                                                         |
|                       | TELE            | 0 to <u>99</u>                                              |                                                                                                                                         |
|                       | WIDE            | <u>0</u> to 99                                              |                                                                                                                                         |
|                       | CH SW           | 1: (ON), 2/3: ON, <u>OFF</u>                                | Sets the skin tone detail function independently for each channel. (Channel 1 is always set to ON.)                                     |
|                       | HUE             | 1/2/3: Execute via ENTER.                                   |                                                                                                                                         |
|                       | PHASE           | 1/2/3: <u>0</u> to 359                                      |                                                                                                                                         |
|                       | WIDTH           | 1/2/3: 0 to 90, <u>29</u>                                   | Absolute values are indicated for LEVEL only in ABS mode.                                                                               |
|                       | SAT             | 1/2/3: -99 to +99, <u>-89</u>                               |                                                                                                                                         |
|                       | LEVEL           | 1/2/3: -99 to +99, <u>0</u>                                 |                                                                                                                                         |
|                       |                 |                                                             |                                                                                                                                         |
|                       |                 |                                                             |                                                                                                                                         |
| <USER MATRIX><br>P12  | R-G             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | R-B             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | G-R             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | G-B             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | B-R             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | B-G             | -99 to +99, <u>0</u>                                        |                                                                                                                                         |
|                       | MATRIX          | ON, <u>OFF</u>                                              |                                                                                                                                         |
|                       | PRESET          | <u>ON</u> , OFF                                             |                                                                                                                                         |
|                       |                 | SMPTE-240M, <u>ITU-709</u> , SMPTE-WIDE, NTSC, EBU, ITU-601 |                                                                                                                                         |
|                       | USER            | ON, <u>OFF</u>                                              |                                                                                                                                         |
|                       | MULTI           | ON, <u>OFF</u>                                              |                                                                                                                                         |
|                       | ADAPTIVE MATRIX | <u>OFF</u> , ON                                             |                                                                                                                                         |

| PAINT                 |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                       |
|-----------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item      | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                                           |
| <MULTI MATRIX><br>P13 | PHASE     | <b>0</b> , 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338                                                                                                                                                                                                                                                                                                                                                                                                   | Selects an axis (angle) at PHASE for which the multimatrix adjustment to be made, and set HUE and SAT. (HUE and SAT can be adjusted independently for 16 axes.)                                                                       |
|                       | HUE       | -99 to +99, <b>0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       |
|                       | SAT       | -99 to +99, <b>0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                       |
|                       | ALL CLEAR | Execute via ENTER.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                       |
|                       | GATE      | ON, <b>OFF</b> , (SKN)                                                                                                                                                                                                                                                                                                                                                                                                                                                             | (SKN): Displayed when SKIN GATE of <SKIN DETAIL> is ON.                                                                                                                                                                               |
|                       | MATRIX    | ON, <b>OFF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
|                       | PRESET    | <b>ON</b> , OFF<br>SMPTE-240M, <b>ITU-709</b> , SMPTE-WIDE, NTSC, EBU, ITU-601                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
|                       | USER      | ON, <b>OFF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
|                       | MULTI     | ON, <b>OFF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                       |
|                       |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                       |
| <SHUTTER><br>P14      | SHUTTER   | ON, <b>OFF</b> , (ON), (OFF)<br><br>59.94i: <b>1/100</b> , 1/125, 1/250, 1/500, 1/1000, 1/2000<br>50i: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000<br>29.97PsF: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000<br>25PsF: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000<br>24PsF/23.98P: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000<br>59.94P: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000<br>50P: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 | Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)<br><br>Step shutter selection<br><br><b>Note</b><br><br>The available settings for HDC2400/2550 are 59.94i, 50i, 59.94P and 50P only. |
|                       | ECS FREQ  | 59.94i: <b>60.00</b> to 4300 Hz<br>50i: 50.00 to 4700 Hz<br>29.97PsF: 30.00 to 2700 Hz<br>25PsF: 25.00 to 2300 Hz<br>24PsF/23.98PsF: 24.00 to 2200 Hz<br>59.94P: 59.96 to 4600 Hz<br>50P: 50.03 to 4600 Hz                                                                                                                                                                                                                                                                         | <b>Note</b><br><br>The available settings for HDC2400/2550 are 59.94i, 50i, 59.94P and 50P only.                                                                                                                                      |

| PAINT                         |                         |                    |                                                                                                                              |
|-------------------------------|-------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.         | Item                    | Settings           | Description                                                                                                                  |
| <NOISE<br>SUPPRESSION><br>P15 | SUPPRESSION             | <u>0</u> to 100%   |                                                                                                                              |
|                               |                         | ON, <u>OFF</u>     |                                                                                                                              |
| <FLICKER<br>REDUCTION><br>P16 | REDUCTION               | ON, <u>OFF</u>     |                                                                                                                              |
|                               | POWER LINE<br>FREQUENCY | <u>50</u> , 60     |                                                                                                                              |
| <SCENE FILE><br>P17           | 1                       |                    | Stores and reads scene files (paint data):                                                                                   |
|                               | 2                       |                    | When storing a file in camera memory, specify the number before executing STORE.                                             |
|                               | 3                       |                    | When reading, only specify the number.                                                                                       |
|                               | 4                       |                    |                                                                                                                              |
|                               | 5                       |                    |                                                                                                                              |
|                               | STORE                   | Execute via ENTER. |                                                                                                                              |
|                               | STANDARD                | Execute via ENTER. | Reads the standard paint data.                                                                                               |
|                               | READ (USB→CAM)          | Execute via ENTER. | Loads five scene files from a USB drive to internal memory.                                                                  |
|                               | WRITE (CAM→USB)         | Execute via ENTER. | Writes five scene files in the camera's memory to a USB drive.                                                               |
|                               | FILE ID                 | Max.16 characters  | Enters a comment for the scene files to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i> |
|                               | CAM CODE                | Camera code        | Display only                                                                                                                 |
|                               | DATE                    | Date               | Display only                                                                                                                 |

## MAINTENANCE Menu

| MAINTENANCE            |                       |                             |                                              |
|------------------------|-----------------------|-----------------------------|----------------------------------------------|
| Page title<br>PageNo.  | Item                  | Settings                    | Description                                  |
| <AUTO SETUP><br>M01    | AUTO BLACK            | Execute via ENTER.          |                                              |
|                        | AUTO WHITE            | Execute via ENTER.          |                                              |
|                        | AUTO LEVEL            | Execute via ENTER.          |                                              |
|                        | AUTO WHITE<br>SHADING | Execute via ENTER.          |                                              |
|                        | AUTO BLACK<br>SHADING | Execute via ENTER.          |                                              |
|                        | TEST                  | <u>OFF</u> , SAW, 10STEP    |                                              |
| <WHITE SHADING><br>M02 | V SAW                 | R/G/B: -99 to +99, <u>0</u> | R, G, and B values can be independently set. |
|                        | V PARA                | R/G/B: -99 to +99, <u>0</u> |                                              |
|                        | H SAW                 | R/G/B: -99 to +99, <u>0</u> |                                              |
|                        | H PARA                | R/G/B: -99 to +99, <u>0</u> |                                              |
|                        | WHITE                 | R/G/B: -99 to +99, <u>0</u> |                                              |
|                        | AUTO WHITE<br>SHADING | Execute by ENTER.           |                                              |
|                        | WHITE SHAD MODE       | RGB, <u>RB</u>              |                                              |

| MAINTENANCE            |                    |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|--------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.  | Item               | Settings                                                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <BLACK SHADING><br>M03 | V SAW              | R/G/B: -99 to +99, <u>0</u>                                                      | R, G, and B values can be independently set.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                        | V PARA             | R/G/B: -99 to +99, <u>0</u>                                                      | M (master) value can also be set for BLACK.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                        | H SAW              | R/G/B: -99 to +99, <u>0</u>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | H PARA             | R/G/B: -99 to +99, <u>0</u>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | BLK SET            | R/G/B: -99 to +99, <u>0</u>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | BLACK              | R/G/B/M: -99 to +99, <u>0</u>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | MASTER GAIN        | -6, -3, <u>0</u> , 3, 6, 9, 12 dB                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | AUTO BLACK SHADING | Execute via ENTER.                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | 2D BLACK SHADING   | <u>ON</u> , OFF                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <OHB MATRIX><br>M04    | PHASE              | <u>0</u> , 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338 | Selects an axis (angle) at PHASE for which the OHB matrix adjustment is to be made, and set HUE and SAT. (HUE and SAT can be adjusted independently for 16 axes.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                        | HUE                | -99 to +99, <u>0</u>                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | SAT                | -99 to +99, <u>0</u>                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | ALL CLEAR          | Execute via ENTER.                                                               | Clears the HUE and SAT values for all PHASE settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                        | OHB MATRIX         | ON, <u>OFF</u>                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | MATRIX             | ON, <u>OFF</u>                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <AUTO IRIS><br>M05     | AUTO IRIS          | ON, <u>OFF</u> , (ON), (OFF)                                                     | Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | WINDOW             | <u>1</u> , 2, 3, 4, 5, 6                                                         | Selects the auto iris windows:<br><br><div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center;">1<br/></div> <div style="text-align: center;">2<br/></div> <div style="text-align: center;">3<br/></div> <div style="text-align: center;">4<br/></div> <div style="text-align: center;">5<br/></div> <div style="text-align: center;">6<br/></div> </div> <p>The shaded parts indicate the area where light detection occurs.</p> |
|                        | OVERRIDE           | -99 to 99, <u>---</u>                                                            | Sets the override to temporarily change the reference value for brightness of the automatic iris level in the range of $\pm 2$ steps:<br>-99: Two steps to fully closed iris.<br>99: Two steps to fully opened iris.<br>--- : OFF<br>The setting returns to " --- " when the power is turned off.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                        | IRIS LEVEL         | -99 to +99, <u>0</u>                                                             | $\pm 4$ steps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                        | APL RATIO          | -99 to +99, <u>65</u>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | IRIS GAIN          | -99 to +99, <u>0</u>                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        | IRIS CLOSE         | ON, <u>OFF</u>                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        |                    |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                        |                    |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| MAINTENANCE                               |                        |                                                                                                                                |                                                                                                                                                                                                                                                                    |
|-------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.                     | Item                   | Settings                                                                                                                       | Description                                                                                                                                                                                                                                                        |
| <LENS><br>M06                             | F NO. DISP             | <u>CONTROL</u> , RETURN                                                                                                        | Selects the iris indication on the panel when AUTO IRIS is off:<br><b>CONTROL</b> : Displays the value from the camera<br><b>RETURN</b> : Displays the value returned from the lens. (When AUTO IRIS is on, the value returned from the lens is always displayed.) |
|                                           | ALAC                   | <u>AUTO</u> , OFF                                                                                                              | With AUTO selected, the status is displayed at the right.<br><b>(ACTIVE)</b> : Compensation is in progress.<br><b>(WAIT)</b> : Waiting for completion of lens initialization.<br><b>(STOP)</b> : Compensation is turned off for a non-applicable lens.             |
|                                           | OPAC                   | ON, <u>OFF</u>                                                                                                                 | Sets the optical axis compensation (OPAC) function to ON/OFF.                                                                                                                                                                                                      |
|                                           | H SHIFT                | -5, -4, -3, -2, -1, <u>0</u> , 1, 2, 3, 4, 5                                                                                   | Sets the H-direction movement amount.                                                                                                                                                                                                                              |
|                                           | V SHIFT                | -3, -2, -1, <u>0</u> , 1, 2, 3                                                                                                 | Sets the V-direction movement amount.                                                                                                                                                                                                                              |
|                                           | MARKER                 | <u>ON</u> , OFF                                                                                                                | Sets VF MARKER to ON/OFF. (This has the same function as MARKER on the VF MARKER page in the OPERATION menu.)                                                                                                                                                      |
|                                           | CENTER                 | ON, <u>OFF</u>                                                                                                                 | Sets the center marker to ON/OFF.                                                                                                                                                                                                                                  |
|                                           | H POS                  | -48 to +48, <u>0</u>                                                                                                           | Display only<br>(The value of H POS on the LENS FILE page in the FILE menu is displayed.)                                                                                                                                                                          |
|                                           | V POS                  | -27 to +27, <u>0</u>                                                                                                           | Display only<br>(The value of V POS on the LENS FILE page in the FILE menu is displayed.)                                                                                                                                                                          |
|                                           |                        |                                                                                                                                |                                                                                                                                                                                                                                                                    |
| <MIC GAIN><br>M07                         | MIC1                   | 20, 30, 40, 50, <u>60</u> dB                                                                                                   | Valid only in standalone operation.                                                                                                                                                                                                                                |
|                                           | MIC2                   | 20, 30, 40, 50, <u>60</u> dB                                                                                                   |                                                                                                                                                                                                                                                                    |
| <CALL/TALLY><br>M08                       | CCU CALL               | OFF, <u>ON</u> , ---                                                                                                           | --- : With no CCU connected (cannot be changed)                                                                                                                                                                                                                    |
|                                           | CAM CALL               | <u>OFF</u> , ON, ---                                                                                                           |                                                                                                                                                                                                                                                                    |
|                                           | UP TALLY<br>BRIGHTNESS |                                                                                                                                |                                                                                                                                                                                                                                                                    |
|                                           | TALLY                  | 0 to 100, <u>50</u>                                                                                                            |                                                                                                                                                                                                                                                                    |
|                                           | NUMBER                 | 0 to 100, <u>50</u>                                                                                                            |                                                                                                                                                                                                                                                                    |
|                                           | CAMERA NUMBER          | ---, 1 to 96                                                                                                                   |                                                                                                                                                                                                                                                                    |
|                                           | NUMBER DISPLAY         | ON, OFF, <u>AUTO</u>                                                                                                           |                                                                                                                                                                                                                                                                    |
| <OUTPUT FORMAT><br>(HDC2500)<br>M09 (U12) | CURRENT                | 1080: 24PsF, 59.94i, 29.97PsF, 23.98PsF, 59.94P, 50i, 25PsF, 50P, 59.94i × 2, 50i × 2<br>720: 59.94P, 50P, 59.94P × 2, 50P × 2 | Displays the current format.                                                                                                                                                                                                                                       |
|                                           | CURRENT                | 1080: 59.94i, 50i<br>720: 59.94P, 50P                                                                                          | Displays the current format.                                                                                                                                                                                                                                       |

| MAINTENANCE                      |                       |                                                                 |                                                                                                         |
|----------------------------------|-----------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.            | Item                  | Settings                                                        | Description                                                                                             |
| <TEST OUT><br>M10 (U13)          | OUTPUT                | SD-SYNC, HD-SYNC, <b><u>VF</u></b> , VBS                        |                                                                                                         |
|                                  | VBS-OUT               |                                                                 | OUTPUT is displayed during VBS.                                                                         |
|                                  | CHARACTER             | ON, <b><u>OFF</u></b>                                           |                                                                                                         |
|                                  | GAIN                  | −99 to +99, <b><u>0</u></b>                                     |                                                                                                         |
|                                  | CHROMA                | −99 to +99, <b><u>0</u></b>                                     |                                                                                                         |
|                                  | SETUP                 | ON, <b><u>OFF</u></b>                                           | JN/SY/UC models only (displayed when the format is NTSC)                                                |
|                                  | SYNC-OUT              |                                                                 | OUTPUT is displayed during SD-SYNC and HD-SYNC.                                                         |
|                                  | V-PHASE               | −999 to +999, <b><u>0</u></b>                                   |                                                                                                         |
|                                  | H-PHASE               | −999 to +999, <b><u>0</u></b>                                   |                                                                                                         |
|                                  | DOWN CONVERTER        |                                                                 | OUTPUT is displayed for VBS.                                                                            |
|                                  | SELECT                | <b><u>MAIN</u></b> , RET, VF                                    |                                                                                                         |
|                                  | ASPECT                | <b><u>SQ</u></b> , EC                                           |                                                                                                         |
| <SDI OUT><br>M11 (U14)           | SDI-1 OUT             | OFF, <b><u>MAIN/LINK-A</u></b> , 3G-SDI, HD PROMPTER            | HDC2500/2400 only                                                                                       |
|                                  | SDI-2 OUT/IN          | OFF, <b><u>MAIN/LINK-B</u></b> , HD TRUNK/RET IN                | HDC2500/2400 only                                                                                       |
|                                  | FRAME SYNCHRO         | ON, <b><u>OFF</u></b>                                           | Displays this when SDI-2 OUT/IN is HD TRUNK.                                                            |
|                                  | SDI-MONI OUT          | <b><u>MAIN</u></b> , VF, LINK-B, RET, SD-SDI, OFF               | LINK-B is available for HDC2500 only.                                                                   |
|                                  | CHARACTER             | ON, <b><u>OFF</u></b>                                           |                                                                                                         |
|                                  | EMB AUDIO             | <b><u>OFF</u></b> , MIC, PGM                                    |                                                                                                         |
|                                  | DOWN CONVERTER        |                                                                 | SDI-MONI OUT is displayed for SD-SDI.                                                                   |
|                                  | SELECT                | <b><u>MAIN</u></b> , RET, VF                                    |                                                                                                         |
|                                  | ASPECT                | <b><u>SQ</u></b> , EC                                           |                                                                                                         |
|                                  | COAX MODE             | ON, <b><u>OFF</u></b>                                           | HDC2500/2400 only (Not displayed with CCU connected.)<br>Enables or disables COAX connection.           |
|                                  |                       |                                                                 |                                                                                                         |
| <TRUNK><br>(HDC2500/2400)<br>M12 | TRUNK                 | <b><u>ON</u></b> , OFF                                          |                                                                                                         |
|                                  | INTERFACE             | <b><u>232c</u></b> , 422A                                       |                                                                                                         |
|                                  | AUX REMOTE            |                                                                 | Display only                                                                                            |
|                                  | NETWORK TRUNK LINK    |                                                                 | Display only                                                                                            |
| <GENLOCK><br>M13                 | REFERENCE             | Condition of synchronisation                                    | Display only                                                                                            |
|                                  | GENLOCK               | <b><u>ENABLE</u></b> , DISABLE                                  | Displayed only when no CCU connected.                                                                   |
|                                  | STATUS                |                                                                 |                                                                                                         |
|                                  | FORMAT                |                                                                 |                                                                                                         |
|                                  | PHASE                 |                                                                 |                                                                                                         |
|                                  | V                     | −1024 to +1023, <b><u>0</u></b>                                 |                                                                                                         |
|                                  | HD H                  | −1700 to +1700, <b><u>0</u></b>                                 |                                                                                                         |
|                                  | SD H                  | −1024 to +1023, <b><u>0</u></b>                                 |                                                                                                         |
| <DATE><br>M14                    | DATE/TIME             | 2000 to 2099 / 01 to 12 / 00 to 31, 00 to 23 : 00 to 59         |                                                                                                         |
|                                  | FILE TIMESTAMP FORMAT | 1 Y/Mn/D, 2 Mn/D, 3 D/M/Y, 4 D/M, <b><u>5 M/D/Y</u></b> , 6 M/D | <b>Y</b> : Year<br><b>Mn</b> : Month (numeric)<br><b>M</b> : Month (character string)<br><b>D</b> : Day |
| <BATTERY ALARM><br>M15           | BEFORE END            | <b><u>11.5</u></b> to 17.0 V                                    |                                                                                                         |
|                                  | END                   | <b><u>11.0</u></b> to 11.5 V                                    |                                                                                                         |

| MAINTENANCE           |                  |                                      |                                                                                                   |
|-----------------------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item             | Settings                             | Description                                                                                       |
| <OTHERS><br>M16       | FAN MODE         | OFF, <u>AUTO1</u> , AUTO2 , MIN, MAX | <b>AUTO1</b> : Normal rotation<br><b>AUTO2</b> : Slow rotation                                    |
|                       | CAM BARS         | ON, <u>OFF</u>                       |                                                                                                   |
|                       | WHITE SETUP MODE | AWB, <u>A.LVL</u>                    |                                                                                                   |
|                       | FILTER WHT MEM   | ON, <u>OFF</u>                       | Sets the function to use independent white memory at each CC filter position to ON/OFF. (HDC2500) |
| <OPTION KEY><br>M17   | READ (USB→CAM)   | Execute via ENTER.                   | Reads the install key from a USB drive.                                                           |
|                       | INSTALLED OPTION |                                      | Displayed only when an option has been installed.                                                 |

## FILE Menu

Five types of files can be used for easy adjustments of the camera; Operator, Reference, Scene, OHB, and Lens.  
You can store the items set with the OPERATION menu and customized USER menu in the Operator file.

*For the specific items included in these files, refer to the Maintenance Manual.*

| FILE                   |                   |                    |                                                                                                                                |
|------------------------|-------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.  | Item              | Settings           | Description                                                                                                                    |
| <OPERATOR FILE><br>F01 | READ (USB→CAM)    | Execute via ENTER. | Reads the operator file from a USB drive.                                                                                      |
|                        | WRITE (CAM→USB)   | Execute via ENTER. | Writes the current settings of the operator file items to a USB drive.                                                         |
|                        | PRESET            | Execute via ENTER. | Sets the operator file items to the preset values in internal memory.                                                          |
|                        | STORE PRESET FILE | Execute via ENTER. | Stores the current settings of the operator file items in the operator file in internal memory.                                |
|                        | FILE ID           | Max.16 characters  | Enters a comment for the operator file to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i> |
|                        | CAM CODE          | Camera code        | Display only                                                                                                                   |
|                        | DATE              | Date               | Display only                                                                                                                   |
| <SCENE FILE><br>F02    | 1                 |                    | Stores and reads scene files (paint data):                                                                                     |
|                        | 2                 |                    | When storing a file in camera memory, specify the number before executing STORE.                                               |
|                        | 3                 |                    | When reading, only specify the number.                                                                                         |
|                        | 4                 |                    |                                                                                                                                |
|                        | 5                 |                    |                                                                                                                                |
|                        | STORE             | Execute via ENTER. |                                                                                                                                |
|                        | STANDARD          | Execute via ENTER. | Reads the standard paint data.                                                                                                 |
|                        | READ (USB→CAM)    | Execute via ENTER. | Loads five scene files from a USB drive to internal memory.                                                                    |
|                        | WRITE (CAM→USB)   | Execute via ENTER. | Writes five scene files in the camera's memory to a USB drive.                                                                 |
|                        | FILE ID           | Max.16 characters  | Enters a comment for the scene files to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i>   |
|                        | CAM CODE          | Camera code        | Display only                                                                                                                   |
|                        | DATE              | Date               | Display only                                                                                                                   |

| FILE                  |                      |                           |                                                                                                                                      |
|-----------------------|----------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo. | Item                 | Settings                  | Description                                                                                                                          |
| <REFERENCE><br>F03    | STORE FILE           | Execute via ENTER.        | Stores the current settings of the reference file items in the reference file in internal memory.                                    |
|                       | STANDARD             | Execute via ENTER.        | Reads the standard values in the reference file in internal memory.                                                                  |
|                       | ALL PRESET           | Execute via ENTER.        | Resumes the factory-preset reference file.                                                                                           |
|                       | READ (USB→CAM)       | Execute via ENTER.        | Loads a reference file from a USB drive.                                                                                             |
|                       | WRITE (CAM→USB)      | Execute via ENTER.        | Writes the current settings of the reference file items as a reference file to a USB drive.                                          |
|                       | FILE ID              | Max.16 characters         | Enters a comment for the reference file to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i>      |
|                       | CAM CODE             | Camera code               | Display only                                                                                                                         |
|                       | DATE                 | Date                      | Display only                                                                                                                         |
| <USER GAMMA><br>F04   | READ (USB→CAM)       | Execute via ENTER.        | Reads the user gamma file from a USB drive.                                                                                          |
|                       | PRESET               | Execute via ENTER.        | Sets the user gamma file items to the preset values in internal memory.                                                              |
|                       | FILE ID              | Max.16 characters         | Enters a comment for the user gamma file to be written to a USB drive.<br><i>See "To specify a character string" on page 34.</i>     |
|                       | CAM CODE             | Camera code               | Display only                                                                                                                         |
|                       | DATE                 | Date                      | Display only                                                                                                                         |
|                       |                      |                           |                                                                                                                                      |
| <LENS FILE><br>F05    | STORE FILE           | Execute via ENTER.        |                                                                                                                                      |
|                       | No.                  | 1 to 17, <b>1</b>         | <b>1 to 16:</b> When using a non-serial lens<br><b>17:</b> When using a serial lens                                                  |
|                       | NAME                 |                           | Changeable only when using a non-serial lens.                                                                                        |
|                       | F NO                 | F1.0 to F3.4, <b>F1.7</b> | Changeable only when using a non-serial lens.                                                                                        |
|                       | CENTER MARKER        |                           | Sets and stores the center marker position:                                                                                          |
|                       | H POS                | -20 to +20, <b>0</b>      | <b>H POS:</b> Increasing the value moves the position to the right.                                                                  |
|                       | V POS                | -20 to +20, <b>0</b>      | <b>V POS:</b> Increasing the value moves the position downwards.                                                                     |
|                       | STORE                | Execute via ENTER.        |                                                                                                                                      |
| <OHB FILE><br>F06     | STORE FILE           | Execute via ENTER.        | Stores the offset values of items specific to the CCD. (No repeated store operation is necessary even if the CCD is reattached)      |
| <FILE CLEAR><br>F07   | PRESET OPERATOR      | Execute via ENTER.        |                                                                                                                                      |
|                       | REFERENCE (ALL)      | Execute via ENTER.        |                                                                                                                                      |
|                       | 10 SEC CLEAR         | ON, <b>OFF</b>            | Sets the function to clear the selected menu item to ON/OFF.<br><i>See "To return a menu item to its standard value" on page 34.</i> |
|                       |                      |                           |                                                                                                                                      |
|                       | OHB WHITE SHAD (ALL) | Execute via ENTER.        |                                                                                                                                      |
|                       | OHB BLACK SHAD       | Execute via ENTER.        |                                                                                                                                      |
|                       | OHB ND OFFSET        | Execute via ENTER.        |                                                                                                                                      |
|                       | OHB MATRIX           | Execute via ENTER.        |                                                                                                                                      |

## DIAGNOSIS Menu

This menu is only for viewing and camera settings cannot be made using this menu.

However, some items set the conditions for viewing.

| DIAGNOSIS                                |              |                                   |                                                                                                                                   |
|------------------------------------------|--------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Page title<br>PageNo.                    | Item         | Indication                        | Description                                                                                                                       |
| <OPTICAL LEVEL><br>(HDC2500/2400)<br>D01 | CCU→CAM      | GREEN, YELLOW, RED, NG, NO SIGNAL | Displayed only when a CCU is connected.                                                                                           |
|                                          | CAM→CCU      | GREEN, YELLOW, RED, NG, NO SIGNAL | Displayed only when a CCU is connected.                                                                                           |
|                                          | CABLE LENGTH | 0.0 km to 9.9 km, <u>-.- km</u>   | Displays the camera cable length. (Applies only to HDC2500/2400 not used with HDFS/HDTX. Displayed only when a CCU is connected.) |
| <BOARD STATUS><br>D02                    | OHB          | OK, NG                            |                                                                                                                                   |
|                                          | DPR          | OK, NG                            |                                                                                                                                   |
|                                          | SY           | OK, NG                            |                                                                                                                                   |
|                                          | PS           | OK, NG                            |                                                                                                                                   |
|                                          | SDI          | OK, NG                            | HDC2500/2400 only                                                                                                                 |
|                                          | TR           | OK, NG                            | HDC2550 only                                                                                                                      |
| <ROM VERSION><br>D03 (U15)               | CAMERA APP   | Vx.xx                             |                                                                                                                                   |
|                                          | O.S          | Vx.xx                             |                                                                                                                                   |
|                                          | PANEL        | Vx.xx                             | Displayed only when HDLA is attached.                                                                                             |
|                                          | HKCT         | Vx.xx                             | Displayed only when HKC-T1500 is installed.                                                                                       |
|                                          | TG           | Vx.xx                             |                                                                                                                                   |
|                                          | SY           | Vx.xx                             |                                                                                                                                   |
|                                          | DPR1         | Vx.xx                             |                                                                                                                                   |
|                                          | DPR2         | Vx.xx                             |                                                                                                                                   |
|                                          | SDI          | Vx.xx                             | HDC2500/2400 only                                                                                                                 |
|                                          | TR           | Vx.xx                             | HDC2550 only                                                                                                                      |
|                                          |              |                                   |                                                                                                                                   |
| <SERIAL No.><br>D04                      | MODEL        | HDCxxxx                           |                                                                                                                                   |
|                                          | NO.          | xxxxxxx                           |                                                                                                                                   |
|                                          | OPTION       |                                   | Displayed if any option is installed.                                                                                             |

| DIAGNOSIS             |      |            |             |
|-----------------------|------|------------|-------------|
| Page title<br>PageNo. | Item | Indication | Description |

### Note

This display has a margin of error for the display of the electric supply state of a camera. Use only as a guide.

### Note

1. Detach all peripheral devices from your camera.
2. Connect your camera to the CCU with the shortest possible camera cable.
3. Input the voltage value displayed in CAM INPUT.

Displays the supply voltage for a CCU.  
(Applies only to HDC2550 and other  
cameras using HDFX/HDTX. Displayed only  
when a portable CCU is connected.)

Displays the input supply voltage for a camera. (Displayed only when a CCU is connected.)

Applies only to HDC2500/2400 not used with HAFX/HDTX.

Sets the resistance value of each power supply cable. (Displayed only when a CCU is connected.)

### Note

However, calculations for this menu refer to 3.4 ohms/100 m at normal temperature for an actual measurement.

Since the impedance of a power cable differs according to the cable type, set the power source cable impedance of a cycle according to the optical fiber cable the you use.

|                                                                                          |
|------------------------------------------------------------------------------------------|
| Displays the cable length that a CCU measured. (Displayed only when a CCU is connected.) |
|------------------------------------------------------------------------------------------|

Sets the environmental temperature for laying a cable when performing cable resistance compensation. (Displayed only when a CCU is connected.)

Displays the supply current for a CCU.  
(Applies only to HDC2500/2400 not used  
with HDFS/HDTX. Displayed only when a  
CCU is connected.)

### Note

---

Displays camera current consumption.

Displays the rate of the supply capacity consumption.

# Appendix

## Precautions

### 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 a laser beam become directed into the lens of the camera.

### Do not subject to severe shocks

Damage to the case or internal components may result.

### When finished using

Set the power switch to OFF.

### Operation and storage environment

Store in a level place with air conditioning.

If the unit gets wet, make sure it is completely dry before storage.

Avoid use or storage in the following places:

- Extremely hot or cold places
- Places with high humidity
- Places with strong vibration
- Near strong magnetic fields
- In places where it receives much direct sunlight, or near heating equipment

### Condensation

If you move the camera from a very cold place to a warm place, or use it in a damp location, condensation may form on the lens or inside the camera.

The camera has no built-in condensation indicator. If you find condensation on the body or lens, switch the camera off and wait for the condensation to disappear for about one hour.

### 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.

This is related to the principle of CCD image sensors and is not a malfunction.

The white flecks especially tend to be seen

- when operating at a high environmental temperature
- when you have raised the master gain (sensitivity)

This product has a compensation function and the problem may be alleviated by automatic black balance adjustment (see page 24).

### 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.

## Error Messages

If a problem occurs during operation, a warning message is displayed.

### Note

To display a message, set the DISPLAY switch to DISPLAY or MENU.

| Message               | Meaning                                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------|
| TEMP WARNING          | The internal temperature is abnormally high.                                                                                       |
| FAN STOP              | The built-in fan is not rotating properly.                                                                                         |
| SET SYSTEM CLOCK      | The time/date of the internal clock have not been set.                                                                             |
| OHB BLOCK NG!         | A problem is detected in the optical block.                                                                                        |
| MSU RPN BUSY          | RPN compensation was attempted using the camera menu while being operated from an external device. Consult Sony service personnel. |
| VF RPN BUSY           | RPN compensation was attempted from an external device while being operated using the camera menu. Consult Sony service personnel. |
| NO USB FLASH DRIVE    | A USB drive operation was attempted with no USB drive connected.                                                                   |
| USB FLASH DRIVE ERROR | An error occurred during access to a USB drive.                                                                                    |
| FORMAT ERROR!         | A USB drive operation was attempted with an unformatted USB drive.                                                                 |
| WRITE PROTECTED       | File writing was attempted with a write-protected USB drive.                                                                       |
| FILE ERROR            | An error occurred while reading a file from a USB drive.                                                                           |
| OTHER MODEL'S FILE    | You attempted to read a file of other models having no compatibility.                                                              |
| FILE NOT FOUND        | The file you attempted to read does not exist in the USB drive.                                                                    |

# Using a USB Drive

You can connect a USB drive to the USB connector to save and load the settings data file.

The following Sony USB drives are recommended. (As of July 2012)

| Series         | Product                                   |
|----------------|-------------------------------------------|
| Micro Vault L  | USM16GL, USM8GL, USM4GL, USM2GL, USM1GL   |
| Micro Vault LX | USM64GLX, USM32GLX, USM8GLX, USM4GLX      |
| Micro Vault P  | USM64GP, USM32GP, USM16GP, USM8GP, USM4GP |
| Micro Vault M  | USM32GM, USM16GM, USM8GM, USM4GM          |
| Micro Vault R  | USM32GR, USM16GR, USM8GR, USM4GR          |
| Micro Vault Q  | USM64GQ, USM32GQ, USM16GQ, USM8GQ         |
| Micro Vault N  | USM32GN, USM16GN, USM8GN, USM4GN          |

### Notes

- USB drives other than those recommended may not be recognized when connected to the USB connector.
- USB drives must be formatted with the FAT16 or FAT32 file system. Recommended Sony USB drives are preformatted, and can be used without any prior setup.

# Specifications

## HDC2500

| General                       |                                                                                                                                                                                                 |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power requirements            | AC 240 V, 1.4 A (max.)<br>DC 180 V, 1.0 A (max.)<br>DC 12 V, 7 A (max.)                                                                                                                         |
| Operating temperature         | –20°C to +45°C (–4°F to 113°F)                                                                                                                                                                  |
| Storage temperature           | –20°C to +60°C (–4°F to 140°F)                                                                                                                                                                  |
| Mass                          | Approx. 4.5 kg (9 lb 15 oz) (Unit only)                                                                                                                                                         |
| Dimensions                    | See <i>page 67</i> .                                                                                                                                                                            |
| Imager                        |                                                                                                                                                                                                 |
| Imager                        | 2/3-type Progressive Scan CCD                                                                                                                                                                   |
| Method                        | 3-CCD, RGB                                                                                                                                                                                      |
| Effective resolution          | 1920 (horizontal) × 1080 (vertical)                                                                                                                                                             |
| Electrical characteristics    |                                                                                                                                                                                                 |
| Sensitivity                   | F10.0 with 1080/59.94i<br>F11.0 with 1080/50i<br>(at 2000 lx with 89.9% reflectivity)                                                                                                           |
| Image S/N                     | Typical –60 dB/–64 dB (NS MAX)                                                                                                                                                                  |
| Horizontal resolution         | 1000 TV lines (at center of screen)<br>5% or higher modulation                                                                                                                                  |
| Geometric distortion          | Negligible (not including lens distortion)                                                                                                                                                      |
| Optical system specifications |                                                                                                                                                                                                 |
| Spectral system               | F1.4 prism                                                                                                                                                                                      |
| Built-in filters              | Color temperature conversion filters<br>A: cross filter<br>B: 3200K (clear)<br>C: 4300K<br>D: 6300K<br>E: 8000K<br><br>ND filters<br>1: clear<br>2: 1/4ND<br>3: 1/8ND<br>4: 1/16ND<br>5: 1/64ND |
| Input/output connectors       |                                                                                                                                                                                                 |
| CCU                           | Optical/electrical multi-connector (1)                                                                                                                                                          |
| LENS                          | 12-pin (1)                                                                                                                                                                                      |
| VF                            | 20-pin (1)                                                                                                                                                                                      |
| MIC 1 IN                      | XLR 3-pin, female (1)                                                                                                                                                                           |
| AUDIO IN CH1, CH2             | XLR 3-pin, female (1 each)<br>AUDIO switch for MIC: –60 dBu (can be selected up to –20 dBu by menu or HDCU2000/2500 operations), balanced<br>AUDIO switch for LINE: 0 dBu, balanced             |
| INTERCOM 1, INTERCOM 2        | XLR 5-pin, female (1 each)                                                                                                                                                                      |
| EARPHONE                      | Stereo minijack (1)                                                                                                                                                                             |
| DC IN                         | XLR 4-pin (1), DC 10.5 to 17 V                                                                                                                                                                  |

|                  |                                                                                                                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DC OUT           | 4-pin (1), DC 10.5 to 17 V, max. 0.5 A<br>(This may be limited by the imposed load or inputs.)<br>2-pin (1), DC 10.5 to 17 V<br>Max. 2.5 A<br>(This may be limited by the imposed load or inputs.) |
| SDI 1, SDI 2     | BNC-type (1-each)                                                                                                                                                                                  |
| SDI-MONI         | BNC-type (1)                                                                                                                                                                                       |
| TEST OUT         | BNC-type (1)                                                                                                                                                                                       |
| PROMPTER/GENLOCK | BNC-type (1), 1 Vp-p, 75 ohms                                                                                                                                                                      |
| PROMPTER2        | BNC-type (1), 1 Vp-p, 75 ohms                                                                                                                                                                      |
| RET CTRL         | 6-pin (1)                                                                                                                                                                                          |
| REMOTE           | 8-pin (1)                                                                                                                                                                                          |
| TRACKER          | 10-pin (1)                                                                                                                                                                                         |
| CRANE            | 12-pin (1)                                                                                                                                                                                         |
| USB              | USB 2.0 Type A 4-pin (1) (for connecting USB drive)                                                                                                                                                |
| NETWORK TRUNK    |  RJ-45 type 8-pin (1)                                                                                           |

### Supplied accessories

|                          |
|--------------------------|
| Operation manual (1)     |
| Cable clamp belt (1 set) |
| Camera number label (1)  |
| Screws (+B3×8) (2)       |

### For the customers in the U.S.A., Canada, Europe, Australia, and New Zealand

Connectors for optical/electric composite cables:

- LEMO® PUW.3K.93C.TLCC96 (to the “CAMERA” connector on CCU)
- LEMO® FUW.3K.93C.TLMC96 (to the “CCU” connector on CAMERA)

### Caution on the optical/electric composite cable:

For connection between the camera control unit and a camera, be sure to use an optical/electric signal composite cable with the connectors specified in this manual in order to comply with the limit for EMC regulations.

### Pour les utilisateurs aux Etats-Unis, au Canada, en Europe, à l’Australie, et à la Nouvelle-Zélande

Connecteurs pour les câbles optiques/électriques composites:

- LEMO® PUW.3K.93C.TLCC96 (au connecteur «CAMERA» de l’unité de commande de caméra)
- LEMO® FUW.3K.93C.TLMC96 (au connecteur «CCU» de la caméra)

### Attention concernant le câble optique/électrique composite:

Pour la connexion entre l’unité de commande de caméra et une caméra, utilisez un câble optique/électrique composite avec connecteurs spécifiés dans ce manuel pour assurer la conformité avec la réglementation EMC.

## Für Kunden in USA, Kanada, Europa, Australien und Neuseeland

Anschlüsse für optische/elektrische FBAS-Kabel:

- LEMO® PUW.3K.93C.TLCC96 (an „CAMERA“-Anschluss an der Kamerasteuereinheit)
- LEMO® FUW.3K.93C.TLMC96 (an „CCU“-Anschluss an der KAMERA)

### Vorsichtsmaßnahmen für optische/elektrische FBAS-Kabel:

Für Verbindung zwischen Kamerasteuereinheit und Kamera verwenden Sie immer ein optisches/elektrisches FBAS-Kabel mit Steckern, wie in dieser Anleitung beschrieben, um die Grenzwerte der geltenden EMV-Vorschriften zu erfüllen.

Design and specifications are subject to change without notice.

## HDC2400

| General                       |                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------|
| Power requirements            | AC 240 V, 1.4 A (max.)<br>DC 180 V, 1.0 A (max.)<br>DC 12 V, 7 A (max.)               |
| Operating temperature         | –20°C to +45°C (–4°F to 113°F)                                                        |
| Storage temperature           | –20°C to +60°C (–4°F to 140°F)                                                        |
| Mass                          | Approx. 4.5 kg (9 lb 15 oz) (Unit only)                                               |
| Dimensions                    | See <i>page 67</i> .                                                                  |
| Imager                        |                                                                                       |
| Imager                        | 2/3-type Progressive Scan CCD                                                         |
| Method                        | 3-CCD, RGB                                                                            |
| Effective resolution          | 1920 (horizontal) × 1080 (vertical)                                                   |
| Electrical characteristics    |                                                                                       |
| Sensitivity                   | F10.0 with 1080/59.94i<br>F11.0 with 1080/50i<br>(at 2000 lx with 89.9% reflectivity) |
| Image S/N                     | Typical –60 dB/–64 dB (NS MAX)                                                        |
| Horizontal resolution         | 1000 TV lines (at center of screen)<br>5% or higher modulation                        |
| Geometric distortion          | Negligible (not including lens distortion)                                            |
| Optical system specifications |                                                                                       |
| Spectral system               | F1.4 prism                                                                            |
| Built-in filters              | 1: clear<br>2: 1/4ND<br>3: 1/16ND<br>4: 1/64ND<br>5: cross filter                     |

| Input/output connectors |                                                                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CCU                     | Optical/electrical multi-connector (1)                                                                                                                                                             |
| LENS                    | 12-pin (1)                                                                                                                                                                                         |
| VF                      | 20-pin (1)                                                                                                                                                                                         |
| MIC 1 IN                | XLR 3-pin, female (1)                                                                                                                                                                              |
| AUDIO IN CH1, CH2       | XLR 3-pin, female (1 each)<br>AUDIO switch for MIC: –60 dBu (can be selected up to –20 dBu by menu or HDCU2000/2500 operations), balanced<br>AUDIO switch for LINE: 0 dBu, balanced                |
| INTERCOM 1, INTERCOM 2  | XLR 5-pin, female (1 each)                                                                                                                                                                         |
| EARPHONE                | Stereo minijack (1)                                                                                                                                                                                |
| DC IN                   | XLR 4-pin (1), DC 10.5 to 17 V                                                                                                                                                                     |
| DC OUT                  | 4-pin (1), DC 10.5 to 17 V, max. 0.5 A<br>(This may be limited by the imposed load or inputs.)<br>2-pin (1), DC 10.5 to 17 V<br>Max. 2.5 A<br>(This may be limited by the imposed load or inputs.) |
| SDI 1, SDI 2            | BNC-type (1-each)                                                                                                                                                                                  |
| SDI-MONI                | BNC-type (1)                                                                                                                                                                                       |
| TEST OUT                | BNC-type (1)                                                                                                                                                                                       |
| PROMPTER/GENLOCK        | BNC-type (1), 1 Vp-p, 75 ohms                                                                                                                                                                      |
| PROMPTER2               | BNC-type (1), 1 Vp-p, 75 ohms                                                                                                                                                                      |
| RET CTRL                | 6-pin (1)                                                                                                                                                                                          |
| REMOTE                  | 8-pin (1)                                                                                                                                                                                          |
| TRACKER                 | 10-pin (1)                                                                                                                                                                                         |
| CRANE                   | 12-pin (1)                                                                                                                                                                                         |
| USB                     | USB 2.0 Type A 4-pin (1) (for connecting USB drive)                                                                                                                                                |
| NETWORK TRUNK           |  RJ-45 type 8-pin (1)                                                                                         |

| Supplied accessories     |  |
|--------------------------|--|
| Operation manual (1)     |  |
| Cable clamp belt (1 set) |  |
| Camera number label (1)  |  |
| Screws (+B3×8) (2)       |  |

### For the customers in the U.S.A., Canada, Europe, Australia, and New Zealand

Connectors for optical/electric composite cables:

- LEMO® PUW.3K.93C.TLCC96 (to the “CAMERA” connector on CCU)
- LEMO® FUW.3K.93C.TLMC96 (to the “CCU” connector on CAMERA)

### Caution on the optical/electric composite cable:

For connection between the camera control unit and a camera, be sure to use an optical/electric signal composite cable with the connectors specified in this manual in order to comply with the limit for EMC regulations.

## Pour les utilisateurs aux Etats-Unis, au Canada, en Europe, à l'Australie, et à la Nouvelle-Zélande

Connecteurs pour les câbles optiques/électriques composites:

- LEMO® PUW.3K.93C.TLCC96 (au connecteur «CAMERA» de l'unité de commande de caméra)
- LEMO® FUW.3K.93C.TLMC96 (au connecteur «CCU» de la caméra)

### Attention concernant le câble optique/électrique composite:

Pour la connexion entre l'unité de commande de caméra et une caméra, utilisez un câble optique/électrique composite avec connecteurs spécifiés dans ce manuel pour assurer la conformité avec la réglementation EMC.

## Für Kunden in USA, Kanada, Europa, Australien und Neuseeland

Anschlüsse für optische/elektrische FBAS-Kabel:

- LEMO® PUW.3K.93C.TLCC96 (an „CAMERA“-Anschluss an der Kamerasteuereinheit)
- LEMO® FUW.3K.93C.TLMC96 (an „CCU“-Anschluss an der KAMERA)

### Vorsichtsmaßnahmen für optische/elektrische FBAS-Kabel:

Für Verbindung zwischen Kamerasteuereinheit und Kamera verwenden Sie immer ein optisches/elektrisches FBAS-Kabel mit Steckern, wie in dieser Anleitung beschrieben, um die Grenzwerte der geltenden EMV-Vorschriften zu erfüllen.

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## HDC2550

| General                       |                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------|
| Power requirements            | DC 180 V, 1.0 A (max.)<br>DC 12 V, 7 A (max.)                                         |
| Operating temperature         | −20°C to +45°C (−4°F to 113°F)                                                        |
| Storage temperature           | −20°C to +60°C (−4°F to 140°F)                                                        |
| Mass                          | Approx. 4.9 kg (10 lb 13 oz) (Unit only)                                              |
| Dimensions                    | See page 67.                                                                          |
| Imager                        |                                                                                       |
| Imager                        | 2/3-type Progressive Scan CCD                                                         |
| Method                        | 3-CCD, RGB                                                                            |
| Effective resolution          | 1920 (horizontal) × 1080 (vertical)                                                   |
| Electrical characteristics    |                                                                                       |
| Sensitivity                   | F10.0 with 1080/59.94i<br>F11.0 with 1080/50i<br>(at 2000 lx with 89.9% reflectivity) |
| Image S/N                     | Typical −60 dB/−64 dB (NS MAX)                                                        |
| Horizontal resolution         | 1000 TV lines (at center of screen)<br>5% or higher modulation                        |
| Geometric distortion          | Negligible (not including lens distortion)                                            |
| Optical system specifications |                                                                                       |
| Spectral system               | F1.4 prism                                                                            |

|                  |                                                                                                                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Built-in filters | Color temperature conversion filters<br>A: cross filter<br>B: 3200K (clear)<br>C: 4300K<br>D: 6300K<br>E: 8000K<br><br>ND filters<br>1: clear<br>2: 1/4ND<br>3: 1/8ND<br>4: 1/16ND<br>5: 1/64ND |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Input/output connectors |                                                                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDFX                    | Triax connector (1)                                                                                                                                                                                    |
| LENS                    | 12-pin (1)                                                                                                                                                                                             |
| VF                      | 20-pin (1)                                                                                                                                                                                             |
| MIC 1 IN                | XLR 3-pin, female (1)                                                                                                                                                                                  |
| AUDIO IN CH1, CH2       | XLR 3-pin, female (1 each)<br><br>AUDIO switch for MIC: −60 dBu (can be selected up to −20 dBu by menu or HDCU2000/2500 operations), balanced<br>AUDIO switch for LINE: 0 dBu, balanced                |
| INTERCOM 1, INTERCOM 2  | XLR 5-pin, female (1 each)                                                                                                                                                                             |
| EARPHONE                | Stereo minijack (1)                                                                                                                                                                                    |
| DC IN                   | XLR 4-pin (1), DC 10.5 to 17 V                                                                                                                                                                         |
| DC OUT                  | 4-pin (1), DC 10.5 to 17 V, max. 0.5 A<br>(This may be limited by the imposed load or inputs.)<br><br>2-pin (1), DC 10.5 to 17 V<br>Max. 2.5 A<br>(This may be limited by the imposed load or inputs.) |
| SDI-MONI                | BNC-type (1)                                                                                                                                                                                           |
| TEST OUT                | BNC-type (1)                                                                                                                                                                                           |
| PROMPTER/GENLOCK        | BNC-type (1), 1 Vp-p, 75 ohms                                                                                                                                                                          |
| RET CTRL                | 6-pin (1)                                                                                                                                                                                              |
| REMOTE                  | 8-pin (1)                                                                                                                                                                                              |
| TRACKER                 | 10-pin (1)                                                                                                                                                                                             |
| CRANE                   | 12-pin (1)                                                                                                                                                                                             |
| USB                     | USB 2.0 Type A 4-pin (1) (for connecting USB drive)                                                                                                                                                    |

| Supplied accessories     |  |
|--------------------------|--|
| Operation manual (1)     |  |
| Cable clamp belt (1 set) |  |
| Camera number label (1)  |  |
| Screws (+B3×8) (2)       |  |

Design and specifications are subject to change without notice.

## Optional Accessories/Related Equipment

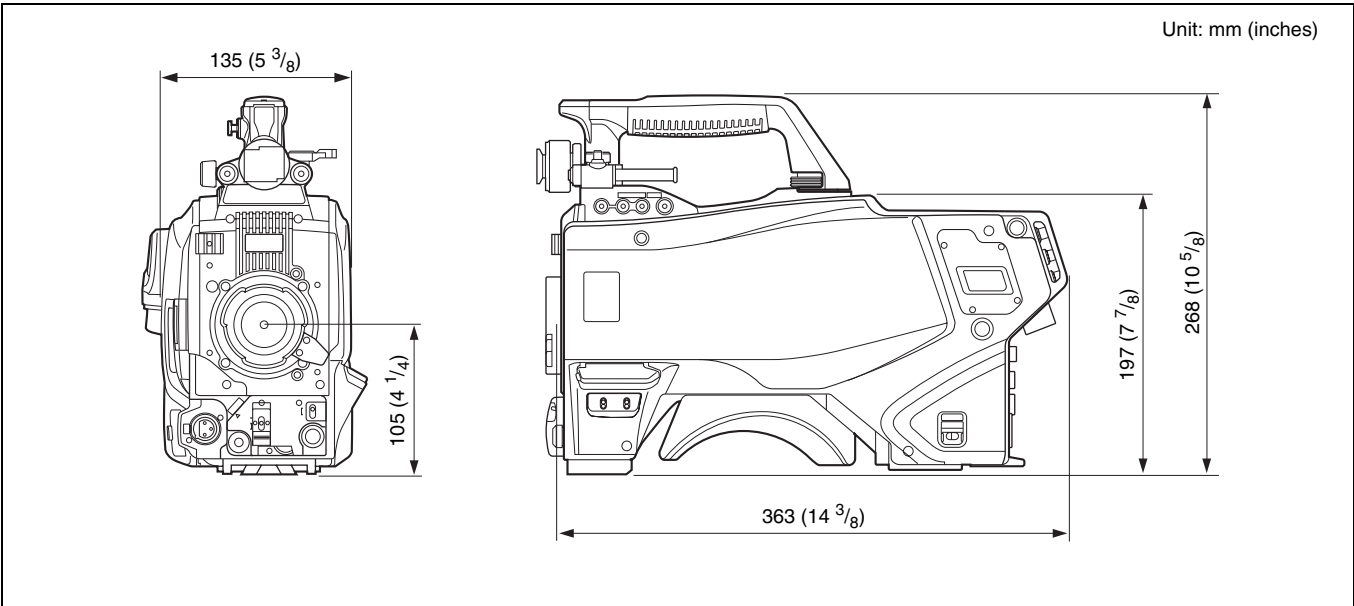
| Optional Accessories                        |                               |
|---------------------------------------------|-------------------------------|
| HD Electronic Viewfinder                    | HDVF-20A (2-type, monochrome) |
|                                             | HDVF-200 (2-type, monochrome) |
|                                             | HDVF-550 (5-type, monochrome) |
|                                             | HDVF-C30WR (2.7-type, color)  |
|                                             | HDVF-C35W (3.5-type, color)   |
|                                             | HDVF-C550W (5-type, color)    |
|                                             | HDVF-C730W (6.5-type, color)  |
|                                             | HDVF-EL75 (7.4-type, color)   |
| Large Lens Adaptor                          | HDLA1500/1505                 |
| Large Viewfinder Adaptor                    | HDLA1507                      |
| Microphone Holder                           | CAC-12                        |
| Return Video Selector                       | CAC-6                         |
| Viewfinder Rotation Bracket                 | BKW-401                       |
| Dual Optical Filter Unit                    | HKC-DF20                      |
| Triax Transmission adaptor                  | HKC-TR20                      |
| Optical Fiber Transmission Adaptor          | HKC-FB20                      |
| Side Panel Attachment Kit                   | HKC-CN20                      |
| Tripod Attachment                           | VCT-14                        |
| Low-repulsion Shoulder Pad                  | A-8286-346-A                  |
| Camera Operating Software                   | HZC-DFR20                     |
|                                             | HZC-PRV20                     |
|                                             | HZC-PSF20                     |
| Related Equipment                           |                               |
| HDCU2000/2500 series HD Camera Control Unit |                               |
| RCP-1000 series Remote Control Panel        |                               |
| MSU-1000 series Master Setup Unit           |                               |
| CNU-700 Camera Command Network Unit         |                               |
| HZC-CSM10 Camera System Management Software |                               |
| HD Triax CCU Adaptor HDFX100                |                               |

### Note

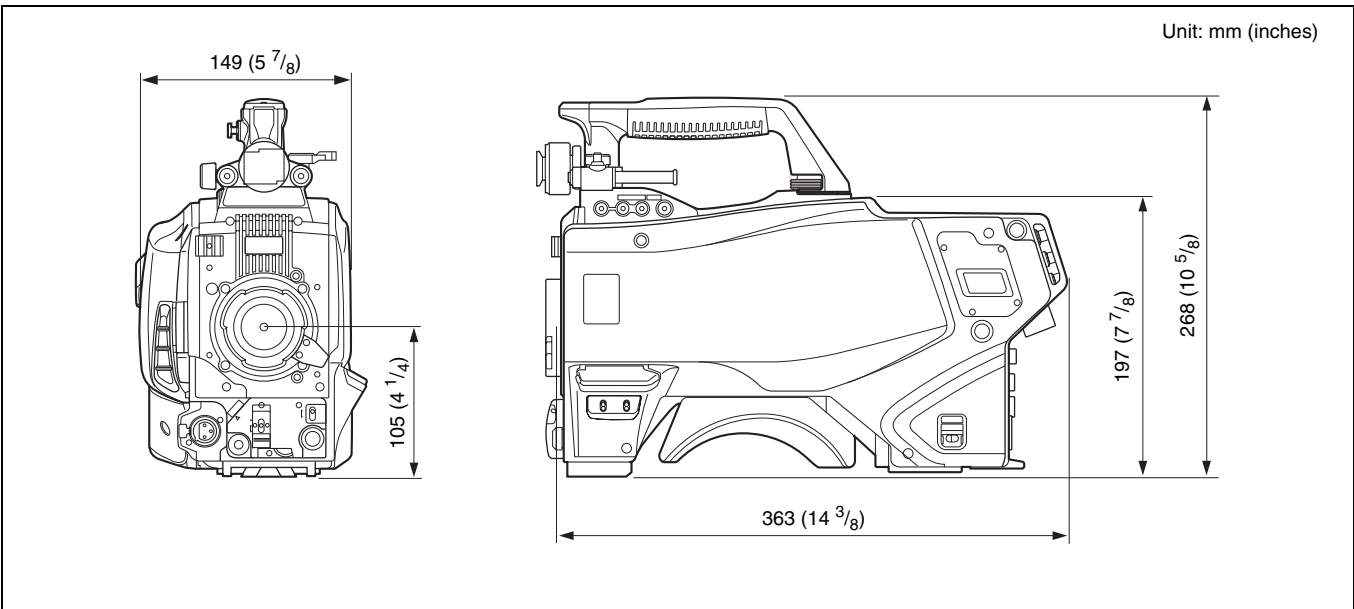
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Dimensions

HDC2500/2400



HDC2550



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Package list

|           |                |                      |
|-----------|----------------|----------------------|
| lzo       | time           | less                 |
| blktrace  | util-linux-ng  | libusb               |
| compcache | vsftpd         | minicom              |
| directfb  | wireless-tools | oprofile             |
| e2fsprogs | acl            | procps               |
| net-tools | glibc          | setserial            |
| gawk      | bash           | tar                  |
| gdisk     | busybox        | tofstools            |
| gpm       | coreutils      | vim                  |
| iputils   | diffutils      | which                |
| libtool   | dosfstools     | xz                   |
| libcap    | ethtool        | iptables             |
| memstat   | findutils      | mtt-utils            |
| mkcramfs  | fuse           | glibc-libpthread_ptt |
| nfs-utils | glib           | module-init-tools    |
| procinfo  | grep           | linux-kernel         |
| pump      | ksymoops       | netbase              |

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[Tatu continues]

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- RSA is no longer included, found in the OpenSSL library
- IDEA is no longer included, its use is deprecated
- DES is now external, in the OpenSSL library
- GMP is no longer used, and instead we call BN code from OpenSSL
- Zlib is now external, in a library
- The make-ssh-known-hosts script is no longer included
- TSS has been removed
- MD5 is now external, in the OpenSSL library
- RC4 support has been replaced with ARC4 support from OpenSSL
- Blowfish is now external, in the OpenSSL library

[The licence continues]

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@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>  
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zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.5, April 19th, 2010

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