SONY

4-745-630-**11** (1)

Color Camera

Operating Instructions

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

HDC3500

Table of Contents

Overview

The HDC3500 is a color camera equipped with a newly developed 2/3 inch CMOS sensor with global shutter for F10 (1080/59.94P)/F11 (1080/50P) high sensitivity and high signal-to-noise ratio.
Operation as a studio camera is supported when connected with an HDCU3100 [a)] or HDCU2000-series [b)] Camera Control Unit (CCU) using fiber cables. Triax cable connection between the unit and HDCU3170 Camera Control Unit is also supported by replacing the transmission adaptor side panel with an HKC-TR37 Triax Transmission Adaptor [c)] (option).

a) Use HDCU3100 software version 2.00 or later.

b) Use HDCU2000-series software version 3.30 or later.

c) The HKC-CN50 Side Panel Attachment Kit (option) is required in order to use the HKC-TR37 Triax Transmission Adaptor.

Note

Before starting system operation, check that the software version and ROM version of the unit and system devices meet the version requirements.

Supported Formats

The unit supports 1080-59.94i, 1080-50i, 720-59.94P, and 720-50P formats as standard.
(When an HKC-TR37 is attached to the unit, 1080-59.94P and 1080-50P formats are supported as standard.)
You can extend the formats that are supported by installing the following camera operating software (option).

For details, contact a Sony service or sales representative.

Camera operating software	Extended formats
HZC-PRV50/PRV50M/PRV50W	1080-59.94P 1080-50P
HZC-PSF50/PSF50M/PSF50W	1080-24PsF 1080-23.98PsF 1080-25PsF 1080-29.97PsF

Notes

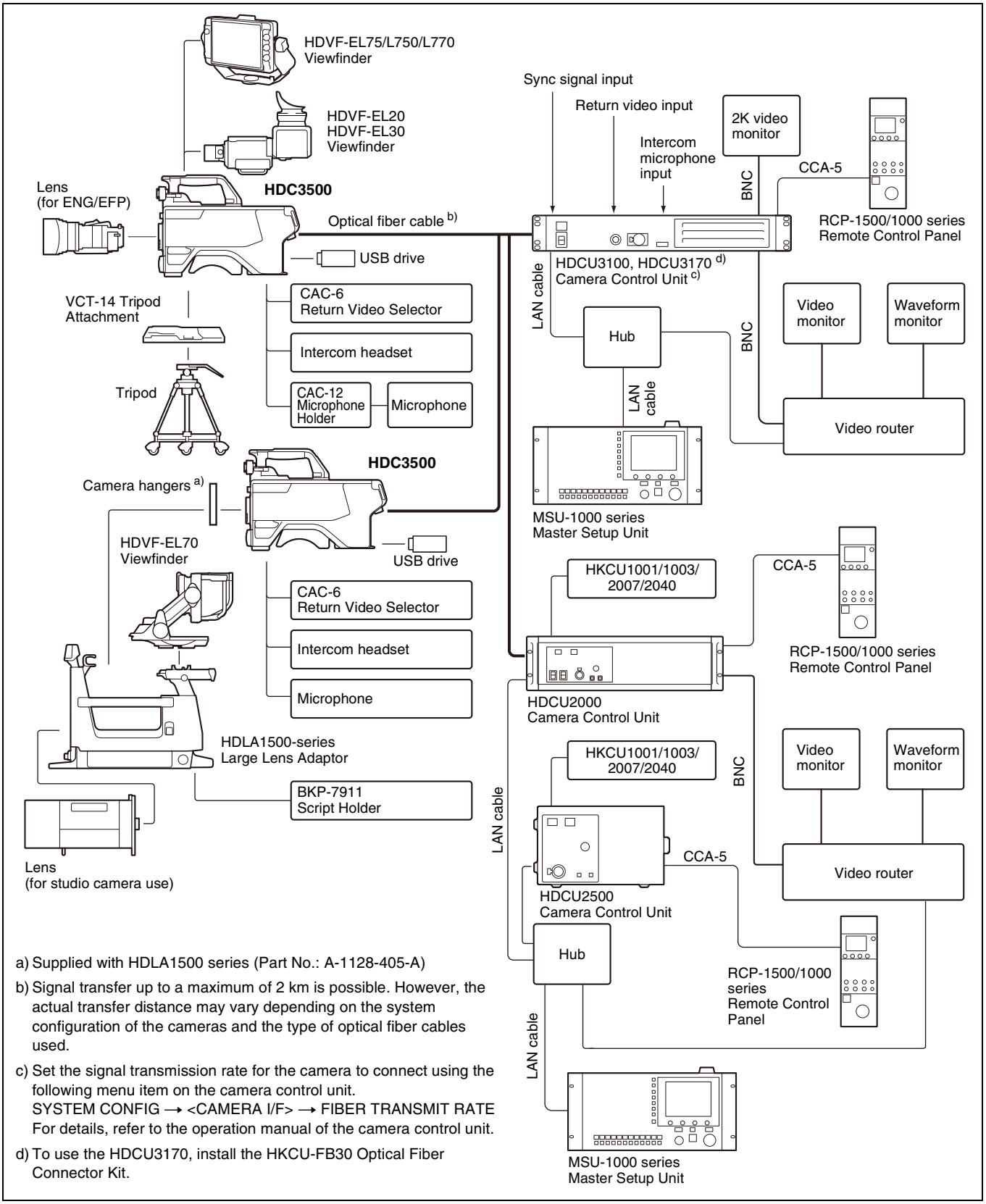
- HZC-PRV50M/PSF50M are 30-day software licenses.
- HZC-PRV50W/PSF50W are 7-day software licenses.
- When an HKC-TR37 is attached to the unit, HZC-PSF50/PSF50M/PSF50W cannot be installed.

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 (optical fiber transmission)



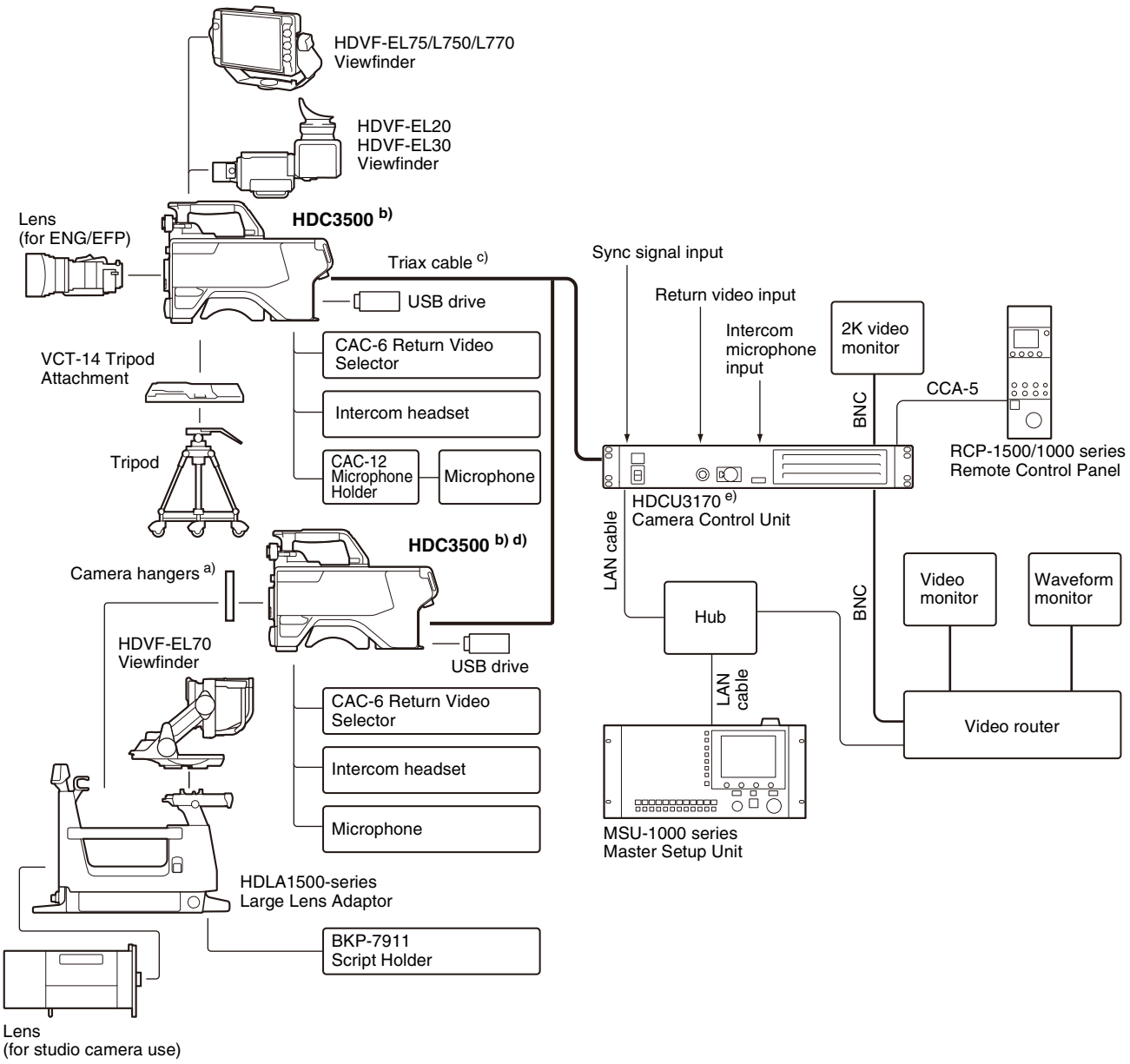
a) Supplied with HDLA1500 series (Part No.: A-1128-405-A)

b) Signal transfer up to a maximum of 2 km is possible. However, the actual transfer distance may vary depending on the system configuration of the cameras and the type of optical fiber cables used.

c) Set the signal transmission rate for the camera to connect using the following menu item on the camera control unit.
SYSTEM CONFIG → <CAMERA I/F> → FIBER TRANSMIT RATE
For details, refer to the operation manual of the camera control unit.

d) To use the HDCU3170, install the HKCU-FB30 Optical Fiber Connector Kit.

Connection example (digital triax)



a) Supplied with HDLA1500 series (Part No.: A-1128-405-A)

b) Attach the HKC-TR37 Triax Transmission Adaptor and HKC-CN50 Side Panel Attachment Kit (option).

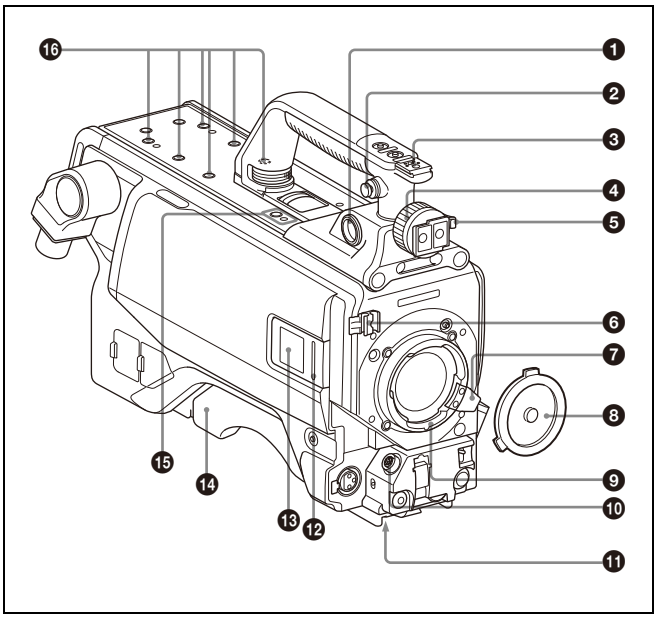
c) Signal transfer up to a maximum of 1.8 km is possible. However, the actual transfer distance may vary depending on the system configuration of the cameras and the type of triax cables used.
For details, see *page 55*.

d) When using the HDLA1500 series, external DC power supply is not available.

e) Set the signal protocol using the following menu item on the camera control unit.
SYSTEM CONFIG → <CAMERA I/F> → TRIAX TRANSMIT
For details, refer to the operation manual of the camera control unit.

Locations and Functions of Parts

Accessory Attachments



❶ VF (viewfinder) connector (20-pin)
Connect the cable of the viewfinder (not supplied).

❷ 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.

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

❹ Viewfinder left-right positioning ring
Loosen this ring to adjust the viewfinder position towards the left or right.

❺ Viewfinder front-rear positioning lever
Unlock the front-rear positioning lever to adjust the viewfinder position towards the front or rear, then lock in the desired position.

For details on adjusting the viewfinder position, see "Attaching a Viewfinder" on page 12.

❻ Lens cable clamp
To secure the cable of the lens (not supplied).

❼ Lens fixing lever
To secure the lens in the lens mount.

❽ 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.

❾ Lens mount
To attach a lens.

❿ LENS connector (12-pin)
Connect the lens cable. The camera can control the lens functions through this cable.

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

⓬ LED lamp
Use as a tally. You can switch the function using the menu.

⓭ Camera number
The unit uses electronic paper (e-ink) type camera numbers. You can set the camera number using the menu.

Note

The operating temperature range of the camera number setting is 0 °C to 45 °C (32 °F to 113 °F). The setting may not be configurable if the temperature range is exceeded. Check the temperature when configuring.

⓮ 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 14.

⓯ Microphone holder attachment
Use to attach a CAC-12 Microphone Holder.

For details, refer to the microphone holder operation manual.

⓰ V-wedge shoe attachment points
Attach a V-wedge shoe here to mount an HDVF-EL75/L750/L770 Viewfinder.

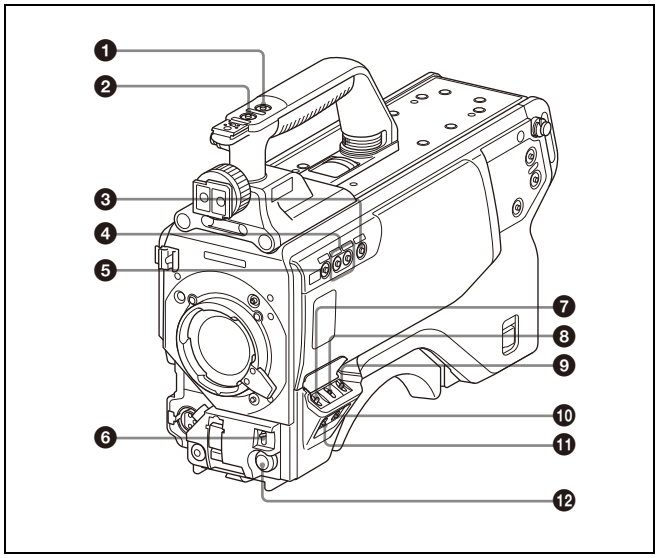
Note

Select either the front or rear V-wedge shoe attachment points to attach the V-wedge shoe. If the front position is used, it may restrict the tilt/pan angle available for the viewfinder.

For details about attachment, refer to the operation manual of the viewfinder.

Controls and Connectors

Front right



❶ INCOM1 (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.

❷ 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 8*) and RET/ASSIGNABLE button A on the operation panel on the rear of the camera (*page 9* or *10*).
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❸ Assignable switch
You can assign a function using the menu displayed on the viewfinder screen.
You can also display the assigned function name by attaching the corresponding label (supplied) for the assigned function.

❹ Filter select buttons
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) in sequence.

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

❻ 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.

❼ 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.

❽ 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 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. The auto knee circuit is disabled.
CAM	ON	Output is the camera's video signal. The auto knee circuit is enabled.

❾ 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.

❿ 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.

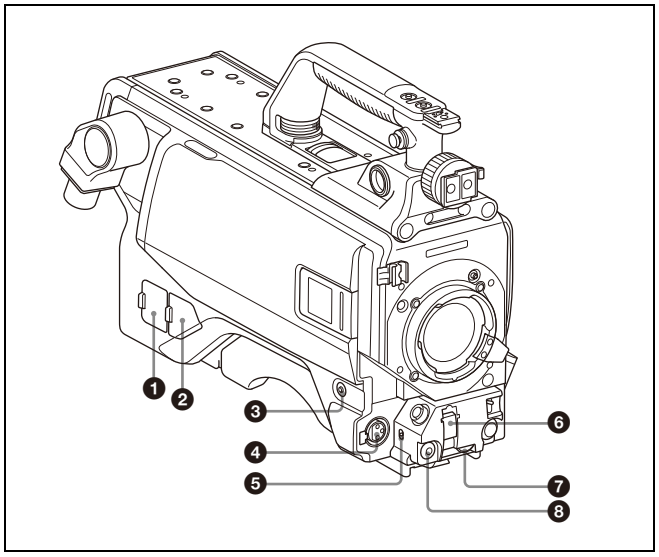
⓫ STATUS/CANCEL switch
STATUS: When no menu is displayed on the viewfinder screen, the status information of this camera is displayed.
CANCEL: When a menu is displayed on the viewfinder screen, you can cancel any changed settings or return the display to the previous menu.

⓬ 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).
You can change the ECS frequency by pushing the ENTER button when no menu is displayed on the viewfinder screen. Make sure that the camera is used in standalone status without connecting a camera control unit, and the shutter mode is set to ECS. When the camera is used in standalone status and the shutter mode is set to other than ECS, the VF DETAIL function can be adjusted.

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 ❻ to ❾ are controlled from the external control device and the controls on the camera are disabled.

Front left



❶ NETWORK TRUNK connector (RJ-45 8-pin) (common to HKC-FB30)
Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

❷ DC power supply out connector (2-pin) (common to HKC-TR37/HKC-FB30)
Supplies power to an external device up to 2.5 A.

❸ 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 handle (*page 7*) and RET/ASSIGNABLE button A on the operation panel on the rear of the camera (*page 9* or *10*). You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❹ MIC 1 IN (microphone 1 input) connector (XLR 3-pin)
Connect a microphone.
This connector and the AUDIO IN CH-1 connector (*page 11*) on the operation panel on the rear of the camera are alternately activated with the CH1 audio input select switch (*page 11*).

❺ 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.

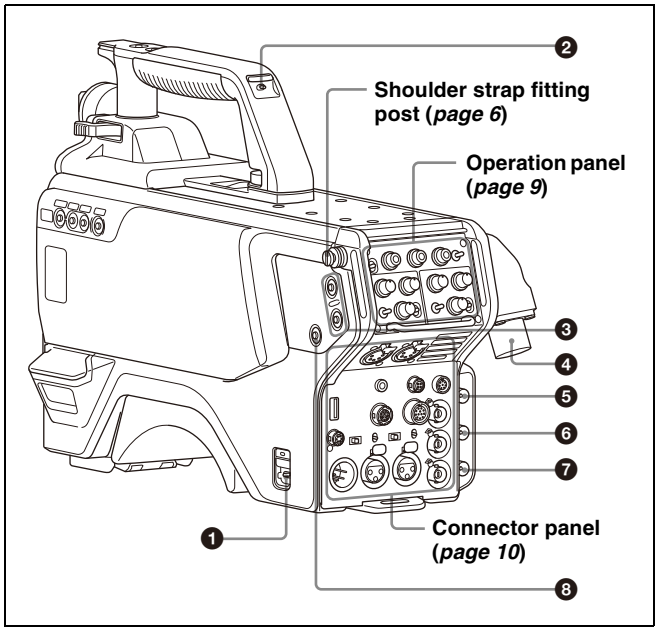
❻ SHUTTER switch
For setting the electronic shutter functions when the camera is used in standalone status without connecting a camera control unit.
OFF: The electronic shutter does not function.
ON: The electronic shutter is activated.
SEL: The shutter speed and shutter mode change each time the switch is set to this position.

For details, see "Setting the Electronic Shutter" on page 17.

❼ 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 UCJ model operation panel, *page 9*) or the LEVEL switch (on the CE model operation panel, *page 10*) on the rear of the camera are set to "FRONT."

❽ RET 2 (return video 2) button
When this button is pressed, the picture on the viewfinder screen changes to the return video signal selected using RET/ASSIGNABLE button A, B, or C on the operation panel on the rear of the camera or using the menu.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

Rear



❶ CAMERA POWER switch
CCU: Power is supplied from the camera control unit.
EXT: Power is supplied through the DC IN connector.

❷ 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.

❸ RET 1/2 (return video 1/2) buttons
When pressed, the picture on the viewfinder screen changes to the return video signal selected using the operation panel on the rear of the camera or using the menu.

❹ CCU (camera control unit) connector
HDC3500/HKC-FB30: Connect a camera control unit using an optical electrical multi cable.
When HKC-TR37 is attached: Connect a camera control unit using a triax cable.

❺ SDI 1 (serial digital interface 1) connector (BNC-type) (common to HKC-FB30)
For 3G SDI, HD SDI or HD PROMPTER signal output.

For details on the output signals, see "Setting the Camera Outputs" (page 21).

❻ SDI 2 (serial digital interface 2) connector (BNC-type) (common to HKC-FB30)
For 3G SDI or 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.

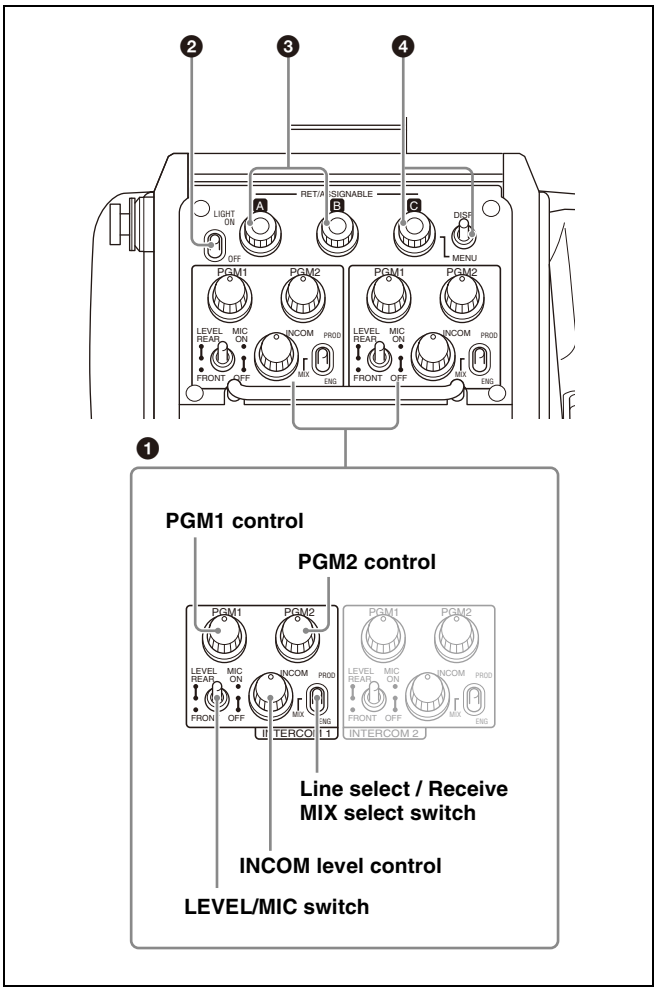
❼-1 PROMPTER2 connector (BNC-type)
HDC3500/HKC-FB30: For prompter 2 signal output. Available only when connecting a camera control unit with a prompter 2 input connector.

❼-2 SDI (serial digital interface) connector (BNC-type)
When HKC-TR37 is attached: 3G SDI signal or HD TRUNK signal input.

❽ CALL button
When this button is pressed, the red tally lamp of the RCP-1500/1000 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

UCJ model: For USA, Canada, East Asia and other countries



❶ INTERCOM 1 and INTERCOM 2 controls and switches
There are separate PGM1 and PGM2 controls, line select/ receive MIX select switch, LEVEL/MIC switch, and INCOM level control for both intercom line 1 and intercom line 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 8)*.

INCOM level control
Adjust the intercom audio listening level.

Line select / Receive MIX select switch
Select the intercom line.

PROD: Producer line

ENG: Engineer line

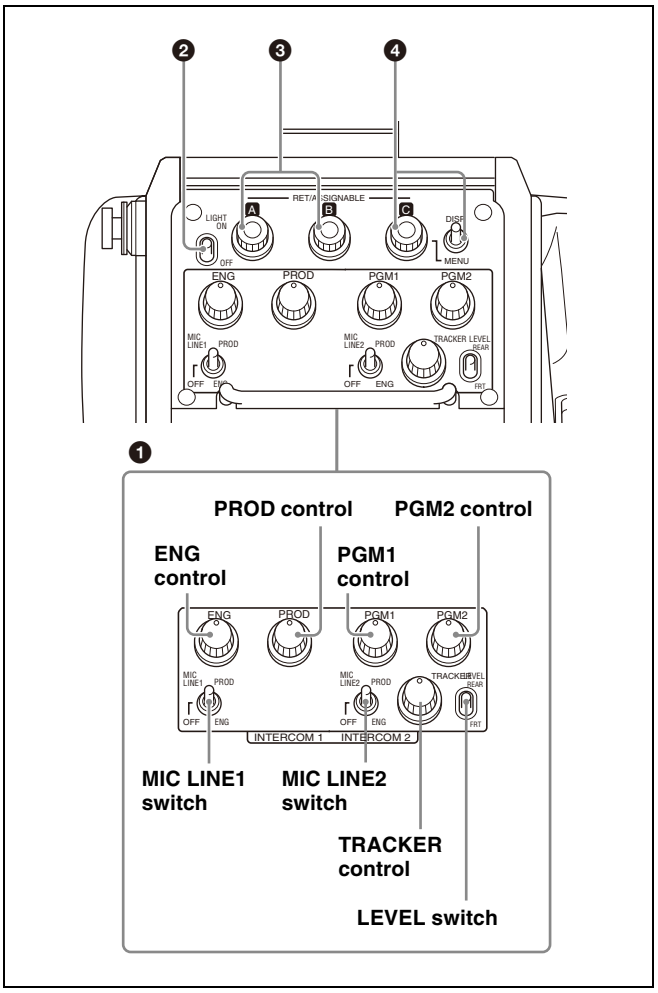
MIX: Receive mixed PROD/ENG audio. Select the intercom talk line from the menu.
The default intercom line setting is ENG.

❷ LIGHT switch
Set to ON to illuminate the operation panel.

❸ RET/ASSIGNABLE button A, B
Press the button to switch the function assigned to the button on the <REAR FUNCTION ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.

❹ RET/ASSIGNABLE button C / DISP/MENU switch
Press the button to switch the function assigned to the button on the <REAR FUNCTION ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.
When the DISP/MENU switch is set to the MENU position to display the MENU screen, you can perform menu operations using RET/ASSIGNABLE button C.

CE model: For Europe and South Asia



❶ INTERCOM 1 and INTERCOM 2 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.

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

TRACKER control
Adjust the intercom audio listening level at the TRACKER connector (*page 11*) on the connector panel when using the connector for intercom.

LEVEL switch

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

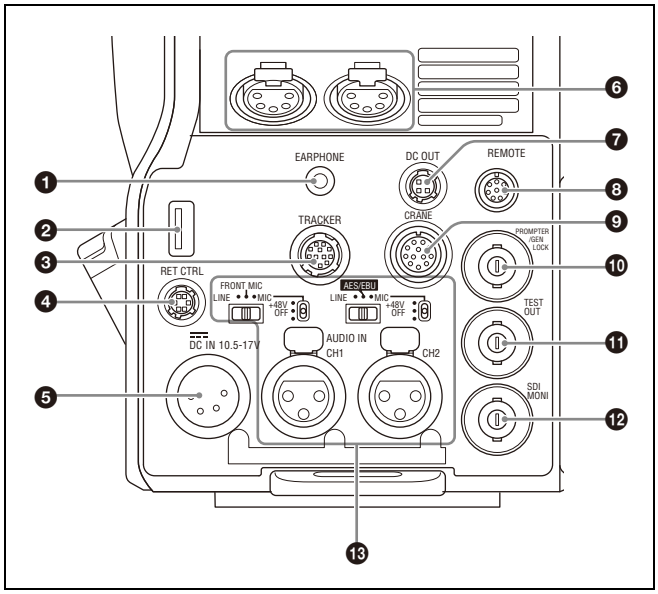
FRT: The intercom audio listening level is adjusted with the INTERCOM LEVEL control on the front of the camera.

❷ LIGHT switch
Set to ON to illuminate the operation panel.

❸ RET/ASSIGNABLE button A, B
Press the button to switch the function assigned to the button on the <ROTARY ENCODER ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.

❹ RET/ASSIGNABLE button C / DISP/MENU switch
Press the button to switch the function assigned to the button on the <ROTARY ENCODER ASSIGN> page on/off. When the return function is assigned, press the button to display the return video signal on the viewfinder screen while the button is pressed.
Turn the button to change the assigned function setting. When the return function is assigned, you can change the return signal channel.
When the DISP/MENU switch is set to the MENU position to display the MENU screen, you can perform menu operations using RET/ASSIGNABLE button C.

Connector panel



❶ EARPHONE jack (4-pole mini jack)
Connect to a headset, or earphones with microphone (3-pole/4-pole earphones), to input/output the intercom audio signal. For 4-pole earphones, the intercom line is linked to the INTERCOM1 setting.
Turn the microphone function on/off using HEADSET MIC *(page 42)* in the OPERATION menu. The default setting is OFF.

❷ 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 57).

❸ TRACKER connector (12-pin)
For external interface, such as intercom and tally.

❹ RET CTRL (return control) connector (6-pin)
For connection to a CAC-6 Return Video Selector.

❺ 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.

❻ 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.

❼ DC OUT (DC power supply output) connector (4-pin)
To supply power to devices such as a wireless receiver (optional) (max. 0.5 A).

❽ REMOTE connector (8-pin)
For connection to an RCP-1500/1000 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.

❾ CRANE connector (12-pin)
For external interface, such as viewfinder and external data.

❿ PROMPTER/GENLOCK (prompter 1 signal output/ external gen-lock signal input) connector (BNC-type)
The PROMPTER function is enabled when a camera control unit is connected. The GENLOCK IN function is enabled 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.

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.

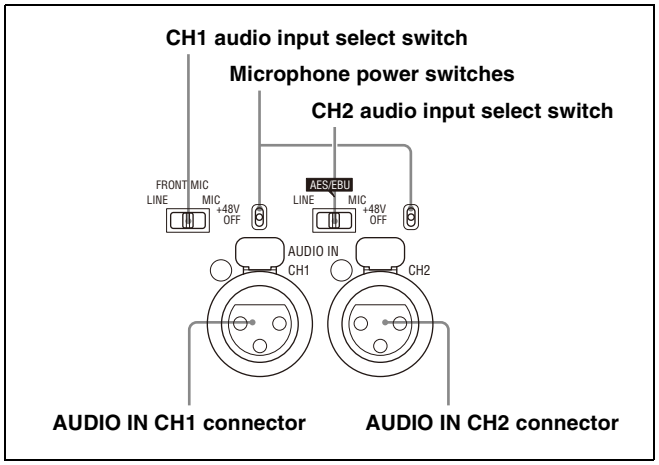
⓫ TEST OUT connector (BNC-type)
To output the analog signal.
This can also output a VBS signal, HD-SYNC signal, or SD-SYNC signal, whichever is selected in the menu.

For details on the output signals, see “Setting the Camera Outputs” (page 21).

⓬ 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 21).

⓭ 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).

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

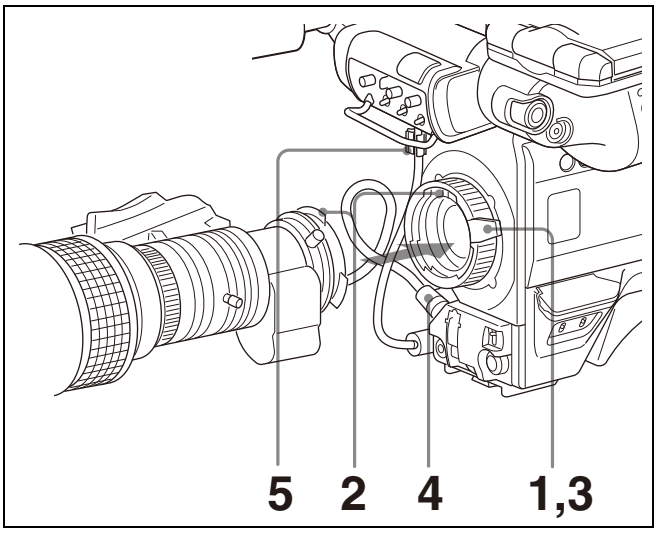
To supply +12 V power, contact a Sony sales representative or Sony service representative.

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 19 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

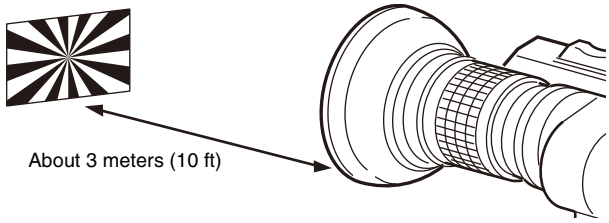
1 **Set the iris control to manual, and open the iris fully.**

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

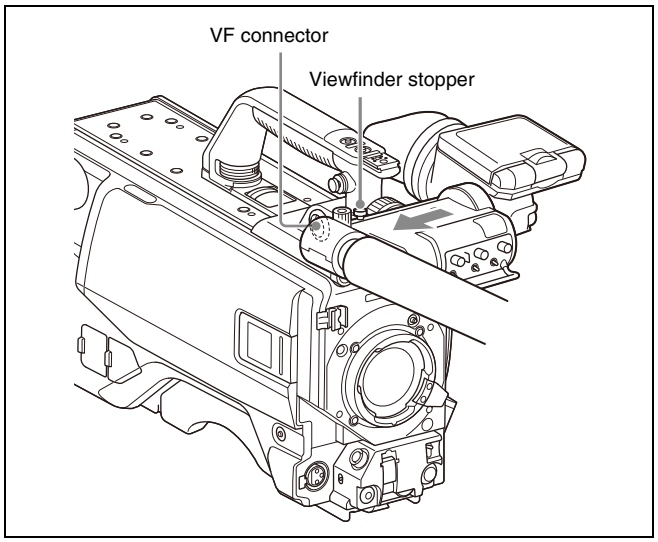
Caution

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

This section describes using a HDVF-20A/200/EL20/EL30 (the HDVF-EL30 is shown in the diagrams).

For details on the viewfinder, refer to the operation manual of the viewfinder.



1 **Slide the viewfinder in the direction of the arrow.**
The viewfinder stopper automatically pops down.

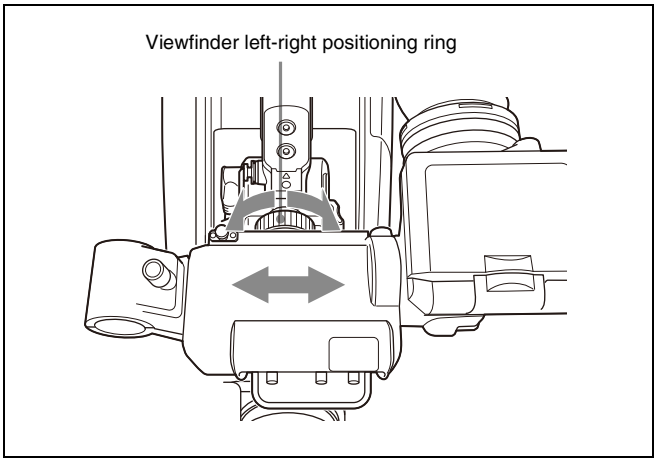
2 **Loosen the viewfinder left-right positioning ring, slide the viewfinder side to side to the most convenient position and tighten the ring. (See *"To adjust the position to the left or right"* below.)**

3 **Connect the viewfinder cable to the VF connector of the camera.**

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

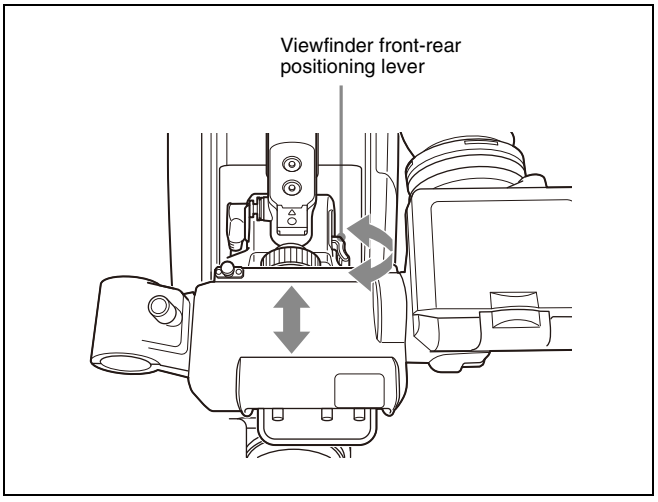


1 **Loosen the viewfinder left-right positioning ring.**

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 **Set the viewfinder front-rear positioning lever to the unlocked position.**

2 **Slide the viewfinder towards the front or rear of the camera to move it into a good viewing position.**

3 **Set the viewfinder front-rear positioning lever to the lock position to secure the viewfinder.**

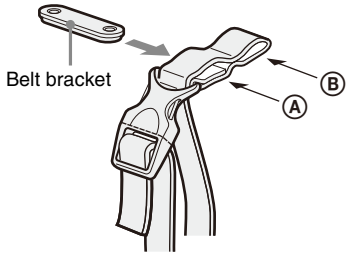
Detaching the viewfinder

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.

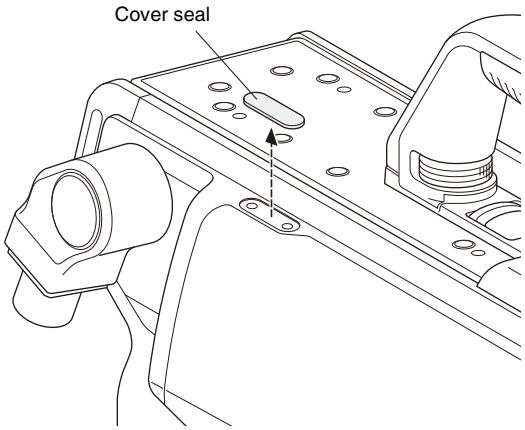
Attaching the Cable Clamp Belt (Supplied)

You can secure the optical/electrical multi cable or triax cable, connected to the CCU connector, to the side of the camera by attaching the supplied cable clamp belt.

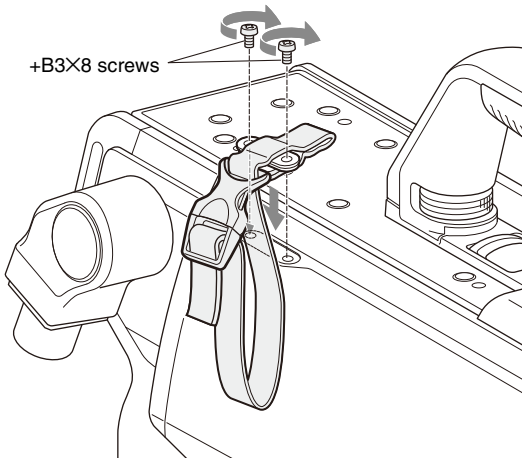
1 **Insert the belt bracket into hole Ⓐ or Ⓑ of the cable clamp belt.**



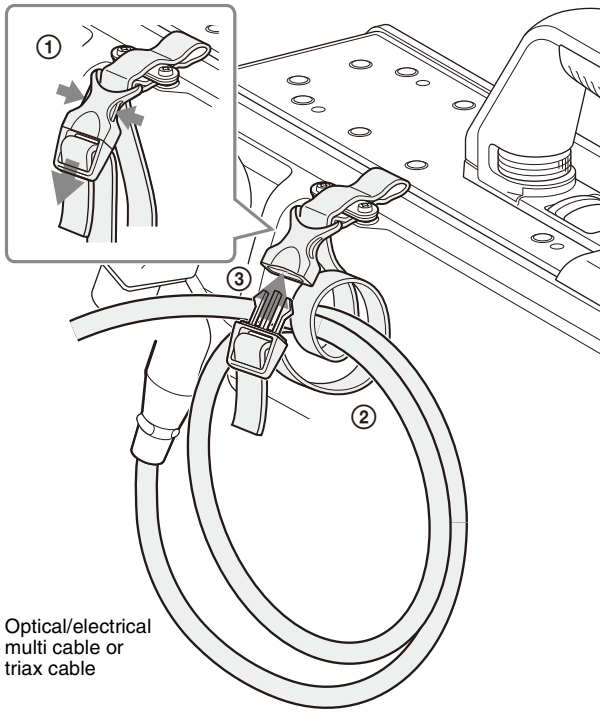
2 **Peel off the cover seal from the camera as shown in the following diagram.**



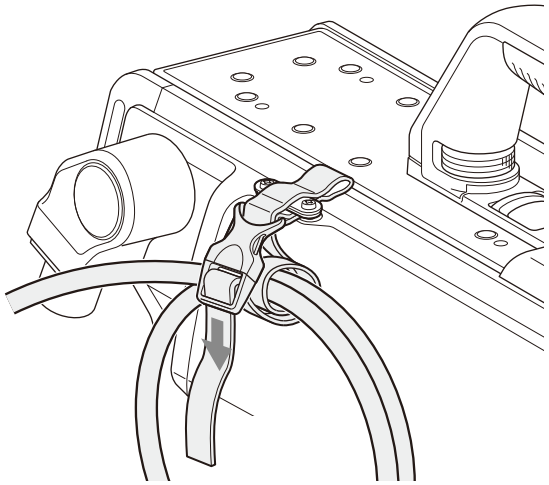
3 **Secure the cable clamp belt to the camera, using the two supplied +B3×8 screws.**



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



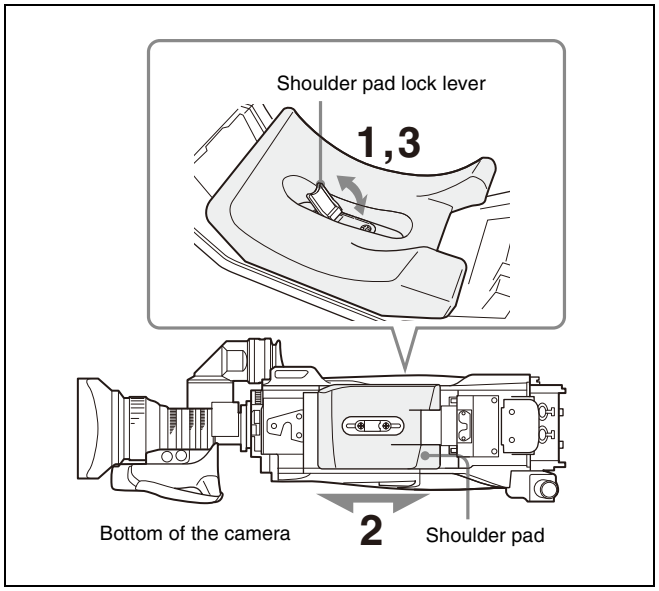
5 **Adjust the length by pulling down the end of the belt.**



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

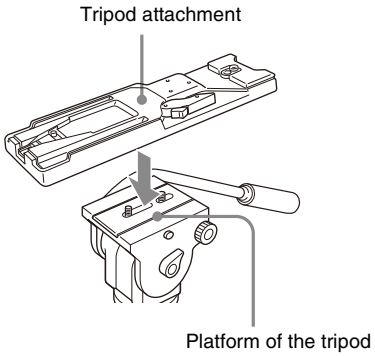
Mount the camera to a tripod using a VCT-14 Tripod Attachment.

Caution

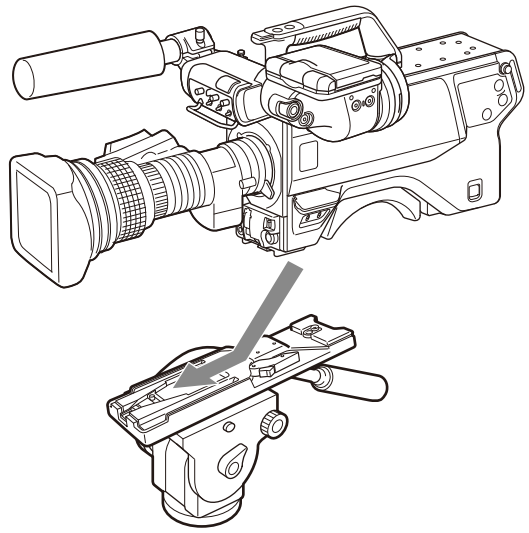
- Select an appropriate hole from among those at the bottom of the tripod attachment considering the balance of the weight of the camera and the tripod attachment. If an inappropriate hole is selected, the camera may fall over.
- Check that the size of the selected hole matches that of the screw of the 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.**



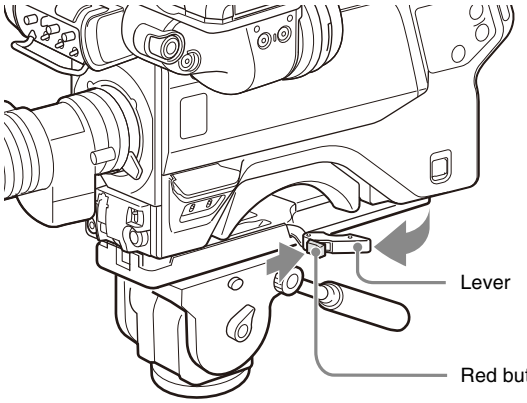
2 Place the camera on the tripod attachment, and slide forward it along the groove of the tripod attachment until it clicks.



3 Make sure that the camera is securely attached by moving it back and forth.

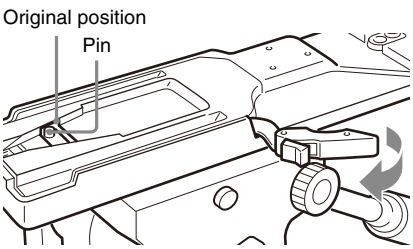
To remove the camera from the tripod attachment

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

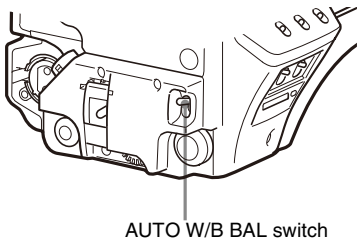
After the process of adjusting the black balance or white balance begins, messages about the progress and results of the adjustment will be displayed on the viewfinder screen.

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.

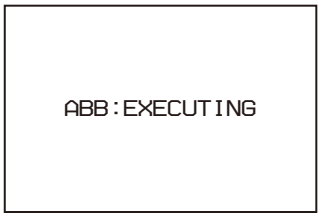
Adjusting the black balance

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

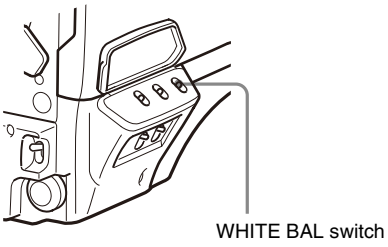
If the automatic black balance adjustment process does not end successfully, the error message “ABB: NG” will be displayed on the viewfinder screen for approximately three seconds.
If this error message is displayed, try black balance adjustment again.
If the error message continues to be displayed after 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

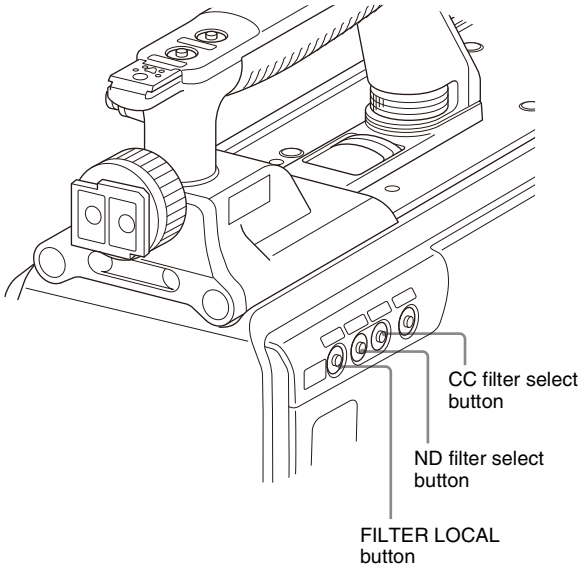
1 Set the WHITE BAL switch to A or B.



2 Select the filter setting according to the lighting conditions.

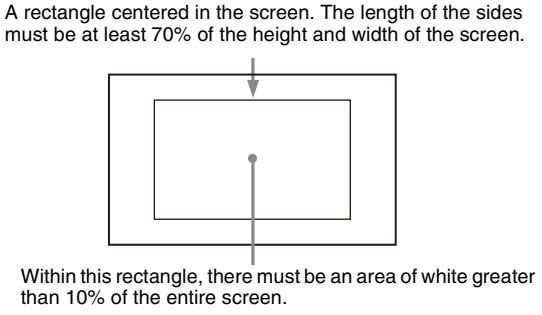
To select the ND filter
Press the ND filter select button while holding the FILTER LOCAL button depressed.
Each press of the select button switches the available ND filters (CLEAR, 1/4ND, 1/8ND, 1/16ND,1/64ND) in sequence.

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) 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		

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.



Note

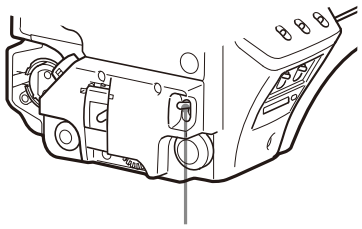
Be careful not to have any spots of high illumination in the rectangle.

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.



AUTO W/B BAL 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[1)] may occur. Adjust the lens’ iris gain control (labeled IG, IS, S, etc.).

[1)] 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-1500/1000 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 59.96 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

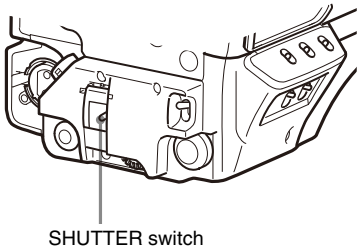
With artificial lighting, particularly fluorescent lights and mercury vapor lamps, the brightness appears to be constant, but in fact the strength of the red, green, and blue components varies with the power supply frequency. This phenomenon is known as “flicker.” When using the electronic shutter under 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.

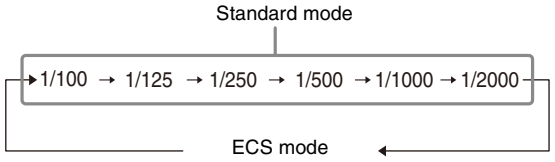


SHUTTER switch

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.

```
<TOP MENU>

➡USER
 USER MENU CUSTOMIZE
 ALL
 ·OPERATION
 ·PAINT
 ·MAINTENANCE
 ·FILE
 ·DIAGNOSIS
```

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.

```
   CONTENTS        00  TOP
↓↓
➡01.<VF DISPLAY>
 02.<'!'IND>
 03.<VF MARKER>
 04.<VF DETAIL>
 05.<FOCUS POSITION METER1
 06.<FOCUS POSITION METER2
 07.<FOCUS ASSIST>
 08.<ZEBRA>
 09.<CURSOR>
 10.<BOX CURSOR FILE>
```

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.

```
<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%
```

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.

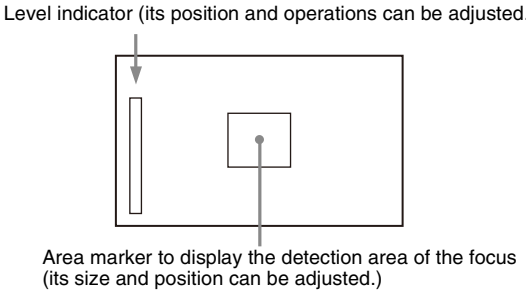
CHROMA LEVEL: To reduce the chroma components of the video signal (only for video signals on the viewfinder).

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.



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>    ➡ 07 TOP

INDICATOR   : OFF
 MODE       : BOX    BOTTOM
 LEVEL      : 3      QUICK
 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.[1)]

OFFSET: Set the offset of the focus detection value.[2)]

[1)] 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.

[2)] 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.

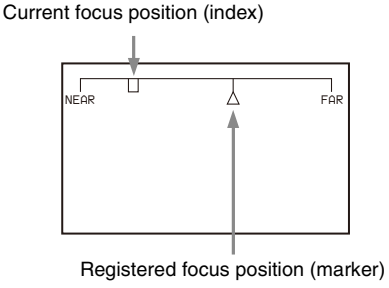
Notes

- 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 12 for the flange focal length.

Setting the Focus Position Meter Function

The focus position meter function allows you to graphically display the registered focus position (marker) and the current focus position (index) graphically on the viewfinder screen.

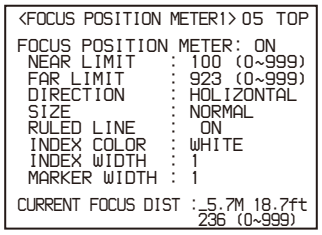


You can set the focus to the registered point easily by adjusting the focus until the index position overlaps the marker position (adjusted state). In the adjusted state, you can display a color frame and marker name on the viewfinder screen.

1 Display the CONTENTS page of the OPERATION menu (referring to steps 1 to 4 in "Adding the VF detail signal").

2 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to <FOCUS POSITION METER1> or <FOCUS POSITION METER2>, and press the MENU SEL knob/ENTER button.

The <FOCUS POSITION METER1> page or <FOCUS POSITION METER2> page is displayed.



3 Turn the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and press the MENU SEL knob/ENTER button.

To use the focus position meter

Setting FOCUS POSITION METER to ON displays the focus position meter on the viewfinder screen.

You can set the display format with the <FOCUS POSITION METER1> page items below.

NEAR LIMIT: Sets the NEAR edge of the focus position meter.

FAR LIMIT: Sets the FAR edge of the focus position meter.

The focus position range to display varies depending on the NEAR LIMIT and FAR LIMIT settings. The full range is displayed by setting NEAR LIMIT to 0 and FAR LIMIT to 999.

DIRECTION: Selects whether to display the meter horizontally at the top of the screen or vertically on the right edge of the screen.

SIZE: Sets the size of the meter.

RULED LINE: Turns the display of guide lines on the meter on/off.

INDEX COLOR: Sets the color of the index.

INDEX WIDTH: Sets the width of the index.

MARKER WIDTH: Sets the width of the marker.

To set the adjustment sensitivity and display content

You can set the adjustment sensitivity and configure the display in the adjusted state using ADJUSTED SIGN on the <FOCUS POSITION METER2> page.

SENSE: Sets the adjustment sensitivity. Increasing the value increases the sensitivity (making determination of adjusted state more precise).

NAME DISP: Turns the display of the marker name in the adjusted state on/off (DISPLAY screen only).

FRAME DISP: Turns the display of a color frame (adjustment frame) on the screen in the adjusted state on/off.

FRAME WIDTH: Sets the width of the adjustment frame.

To configure the marker display settings

You can set the marker display using MARKER CONFIG on the <FOCUS POSITION METER2> page.

REG: Registers a marker at the index position.

DISP: Turns the marker display on/off.

COLOR: Sets the color of the marker. This also sets the color of the adjustment frame.

NAME: Sets the name of the marker.

POS: Adjusts the marker position manually.

4 Turn the MENU SEL knob/ENTER button to display the desired setting and press the MENU SEL knob/ENTER button.

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

Marker registration

You can register a marker for the focus position meter using RET/ASSIGNABLE buttons A, B, and C.

When HDLA is attached, you can register a marker for the focus position meter using the VF OUT switch. Marker 1 is registered using the R switch, marker 2 by the G switch, and marker 3 by the B switch. Setting a switch to ON registers a marker at the current index position (same function as REG on the <FOCUS POSITION METER2> page). Setting a switch to OFF turns the marker display off (same as setting DISP on the <FOCUS POSITION METER2> page to OFF).

To register a marker for the focus position meter using the VF OUT switch

Set VF OUT SW to FOCUS POSITION METER on the <SWITCH ASSIGN1> page in the OPERATION menu.

Setting the Camera Outputs

You can specify video signals directly output from the camera, with menu operations.
You can display the signal name by attaching a label (supplied) for the configured output signal name to the connector label area.

Notes

- 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 output is 1080i, even if the format setting is 720P.

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 3G SDI

The SDI 1 output and SDI 2 output form 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 SDI-2	MAIN (3G) LEVEL-A or LEVEL-B

Note

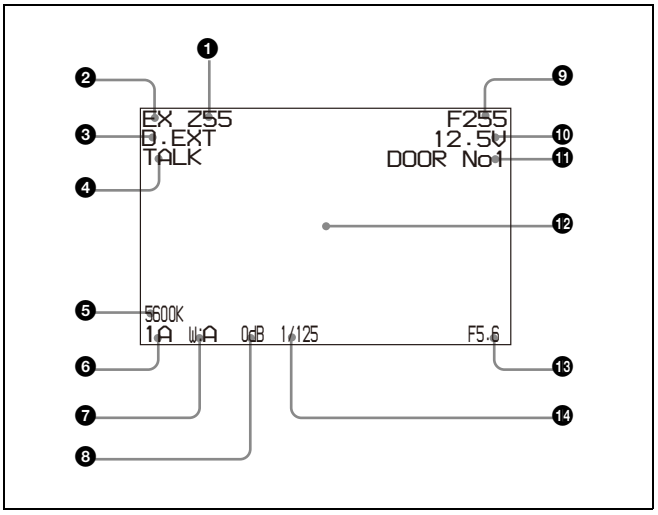
HZC-PRV50/PRV50M/PRV50W camera operating software (option) is required for 3G SDI output.

Viewfinder Screen Status Display

Besides the video image, the viewfinder can display text and messages showing the camera settings and operation status, as well as items such as a center marker or safety zone marker.

When the DISPLAY switch is set to DISPLAY

Items set to ON using the menu or related switches will be displayed on the upper and lower edges of the screen.



❶ Zoom position
Indicates the approximate position of the zoom lens variator between wide angle (0) and telephoto (99). Shows how close it is to the telephoto side.

❷ Lens extender
“EX” is displayed when a lens extender is in use.

❸ Digital extender
“D.EXT” is displayed when a digital extender is in use.

❹ TALK indication
Displayed when the intercom microphone is set to ON.

❺ 5600K mode
Displayed when 5600K is set to ON.

❻ Filter
Displays the type of filter currently selected. The number (1, 2, 3, 4, or 5) indicates the ND filter, and the letter (A, B, C, or D) is for the CC filter.

❼ White balance memory
Displays the currently selected white balance automatic adjustment memory.
W:A: The WHITE BAL switch is set to “A”
W:B: The WHITE BAL switch is set to “B”
W:P: The WHITE BAL switch is set to “PRST”

❽ Gain value
Displays the video gain value (dB) set with the GAIN switch.

❾ Focus position
Shows the focus position of a zoom lens as a numeric value (0 to 255 (infinity)).

Note

Displayed only when a serial communication lens is connected.

❿ Battery voltage
Displays the input voltage.

⓫ Marker name of the focus position meter
Displays the marker name of the focus position meter.

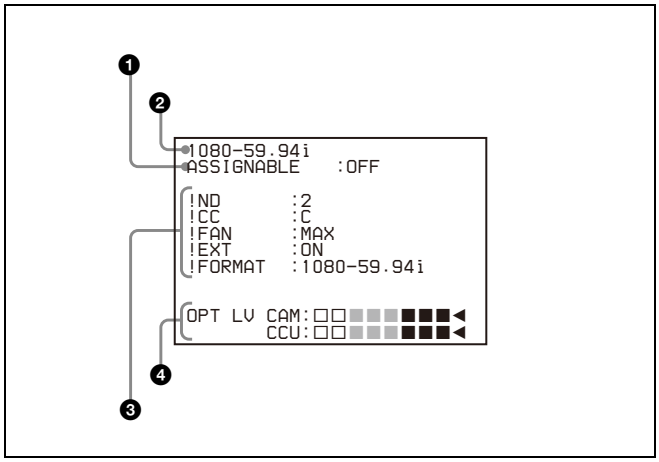
⓬ Setting change / adjustment process message area
This area is only used when the MESSAGE item of the menu is set to other than OFF.

⓭ F value
Indicates the lens F (iris opening) value.

⓮ Shutter/ECS
Displays the shutter/ECS status. Nothing is displayed if the electronic shutter is set to OFF.

When you press the STATUS/CANCEL switch toward STATUS

The status display is changed to show the following items:



❶ Assignable switch indication
The function assigned to the assignable switch *(page 7)* is indicated.

For the functions that can be assigned, see OPERATION menu <SWITCH ASSIGN1> (page 38).

❷ Format indication
The current video format is displayed.

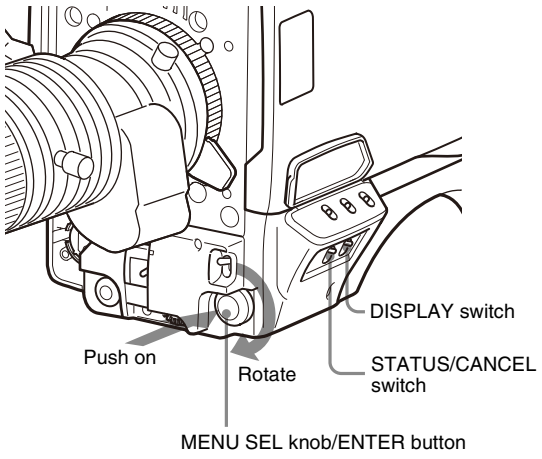
❸ ‘!’ indication area
This area is used to display abnormal statuses, using the <‘!’IND> function. Display options can be set, using the menu.

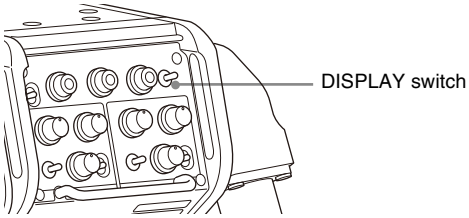
For details, see OPERATION menu <‘!’ IND> (page 33).

❹ Light sensor level indicators (optical fiber transmission only)
This area shows the light-receiving levels in segments.
CAM: Light-receiving level at the CCU connector *(page 8)* of the camera
CCU: Light-receiving level at the CAMERA connector of the CCU

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.
You can also display the menu by setting the DISPLAY switch on the rear panel 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

```
<TOP MENU>

➡USER
 USER MENU CUSTOMIZE
 ALL
 ·OPERATION
 ·PAINT
 ·MAINTENANCE
 ·FILE
 ·DIAGNOSIS
```

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 STATUS/CANCEL 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 25.

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

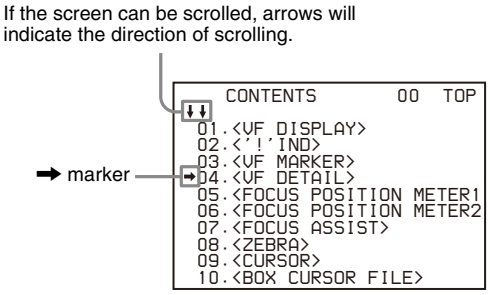
1 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired menu indication.**

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

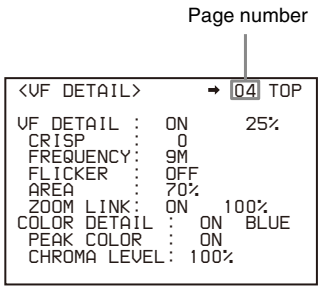
When selecting a page from a CONTENTS page

Example: CONTENTS page of the OPERATION menu



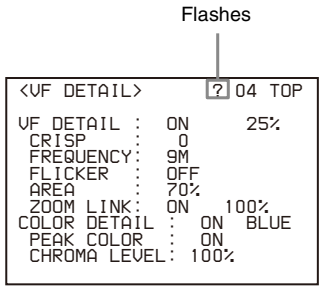
Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) with the desired page indication, then push on the MENU SEL knob/ENTER button.

The selected page is displayed.



To change the displayed page

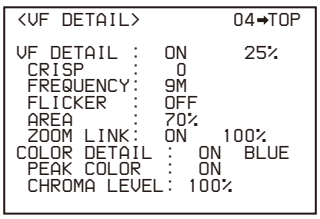
1 **Check that the arrow marker (➡) is located at the left of the page number, then push on the MENU SEL knob/ENTER button.**
The arrow marker (➡) changes to a flashing question (**?**) mark.



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.



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 STATUS/CANCEL 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	12
<VF DETAIL>	U02	OPERATION	04
<FOCUS ASSIST>	U03	OPERATION	07
<VF DISPLAY>	U04	OPERATION	01
<'!' IND>	U05	OPERATION	02
<VF MARKER>	U06	OPERATION	03
<CURSOR>	U07	OPERATION	09
<ZEBRA>	U08	OPERATION	08
<SWITCH ASSIGN1>	U09	OPERATION	13
<SWITCH ASSIGN2>	U10	OPERATION	14
<HEADSET MIC>	U11	OPERATION	18
<OUTPUT FORMAT>	U12	MAINTENANCE	M11
<TEST OUT>	U13	MAINTENANCE	M12
<SDI OUT>	U14	MAINTENANCE	M13
<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 28.

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

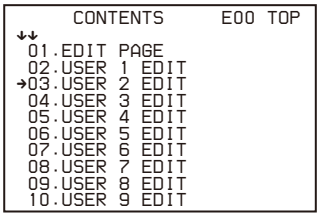
The USER MENU CUSTOMIZE menu allows you to add a new page to the USER menu and add desired items to the page.
While the EDIT page contains factory-preset items, the USER 1 EDIT to USER 19 EDIT pages are all blank in their initial state. You can register up to 10 items, including blank lines, on each of these pages.

To add items to a page

Proceed as follows.

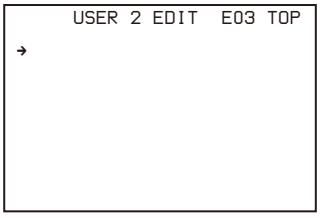
1 **Set the DISPLAY switch from the OFF position to the MENU position while holding the MENU SEL knob/ ENTER button pressed.**
The TOP MENU screen appears.

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.

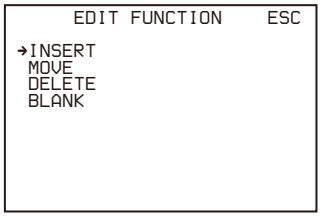


If the USER MENU CUSTOMIZE menu has been used before, the page last accessed appears.

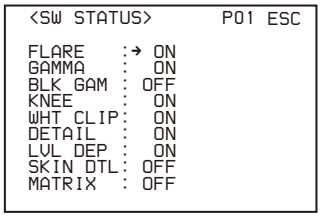
3 **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to any of USER 1 EDIT to USER 19 EDIT then push on the MENU SEL knob/ENTER button to display the page.**
If a different page is displayed, turn the MENU SEL knob/ENTER button until the desired page appears, then push on the MENU SEL knob/ENTER button to select the page.
Example: When you select the USER 2 EDIT page



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.**

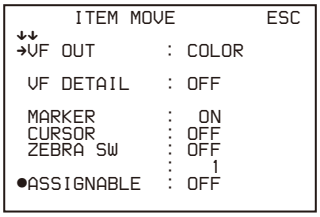
To change the order of items on a page

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

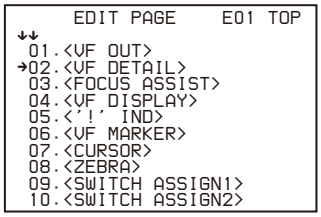
You can add a page to the USER menu, delete a page from the USER menu, or replace pages, using the EDIT PAGE of the USER MENU CUSTOMIZE menu.

To add a page

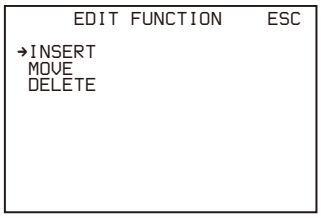
Proceed as follows:

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.

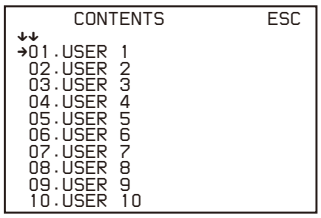
2 **If the CONTENTS page is displayed, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "EDIT PAGE" then push on the MENU SEL knob/ENTER button to display the EDIT PAGE screen. If a different page is displayed, turn the MENU SEL knob/ENTER button until the EDIT PAGE screen appears,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



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.



4 **Select INSERT then push on the MENU SEL knob/ENTER button.**
The selection screen appears.



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

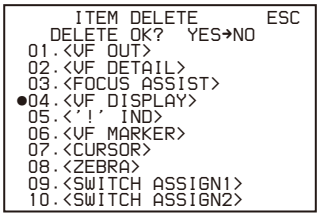
Before pushing the MENU SEL knob/ENTER button in step **5**, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "ESC" at the top right of the screen, then push on the MENU SEL knob/ENTER button.
The EDIT PAGE screen appears again.

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.



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.**

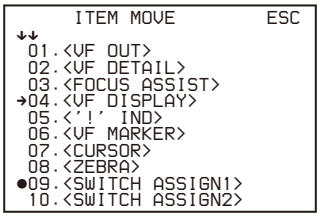
To move a page

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.**



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.

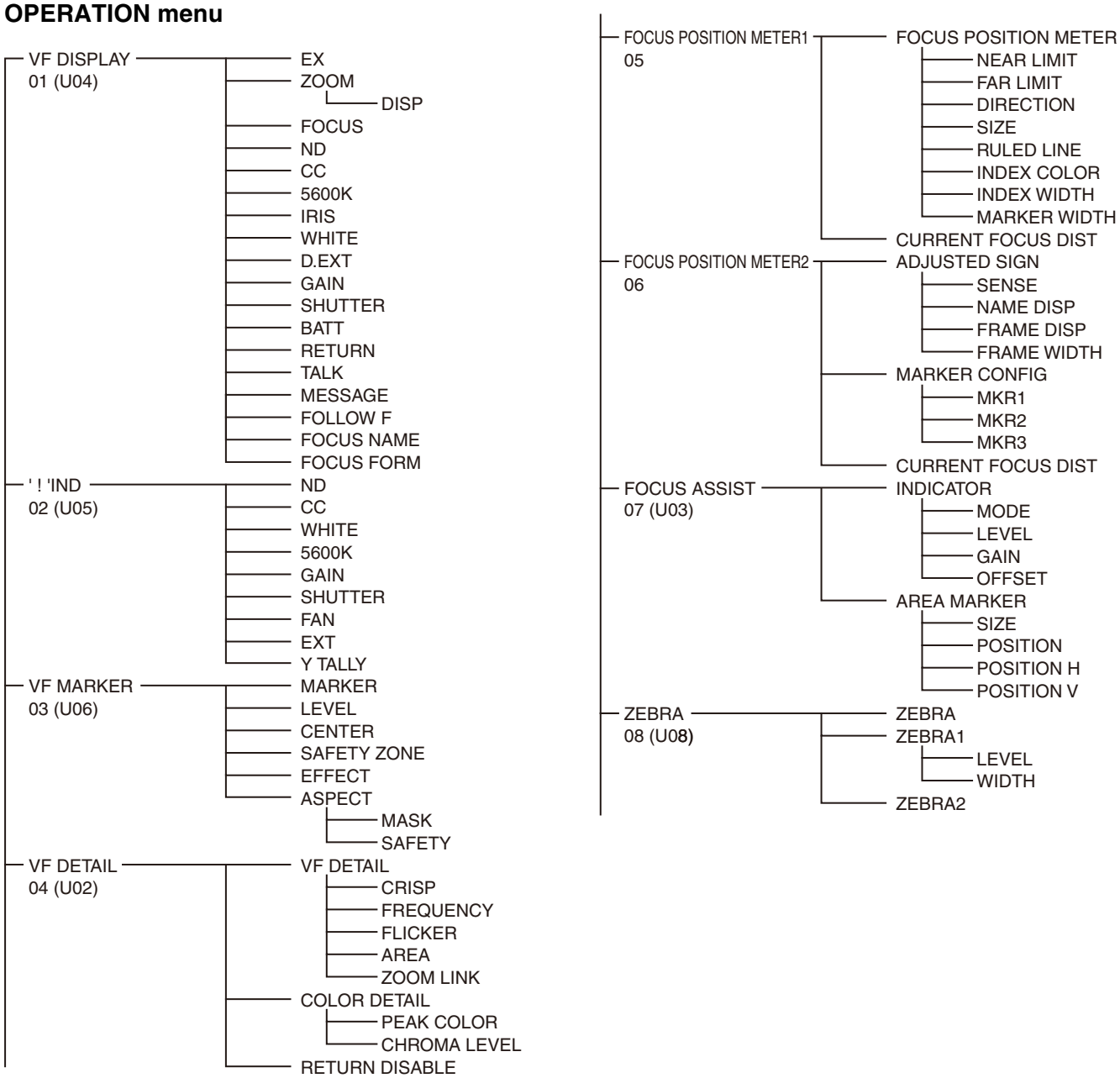
- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

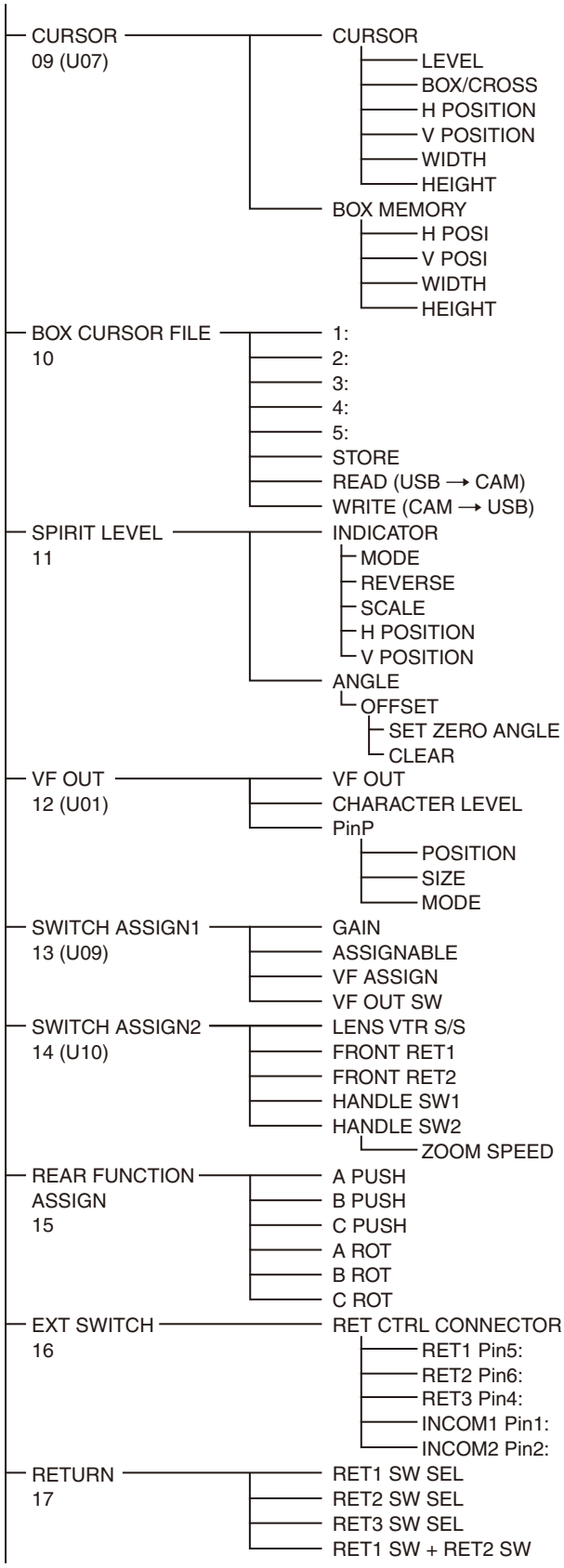
Notes

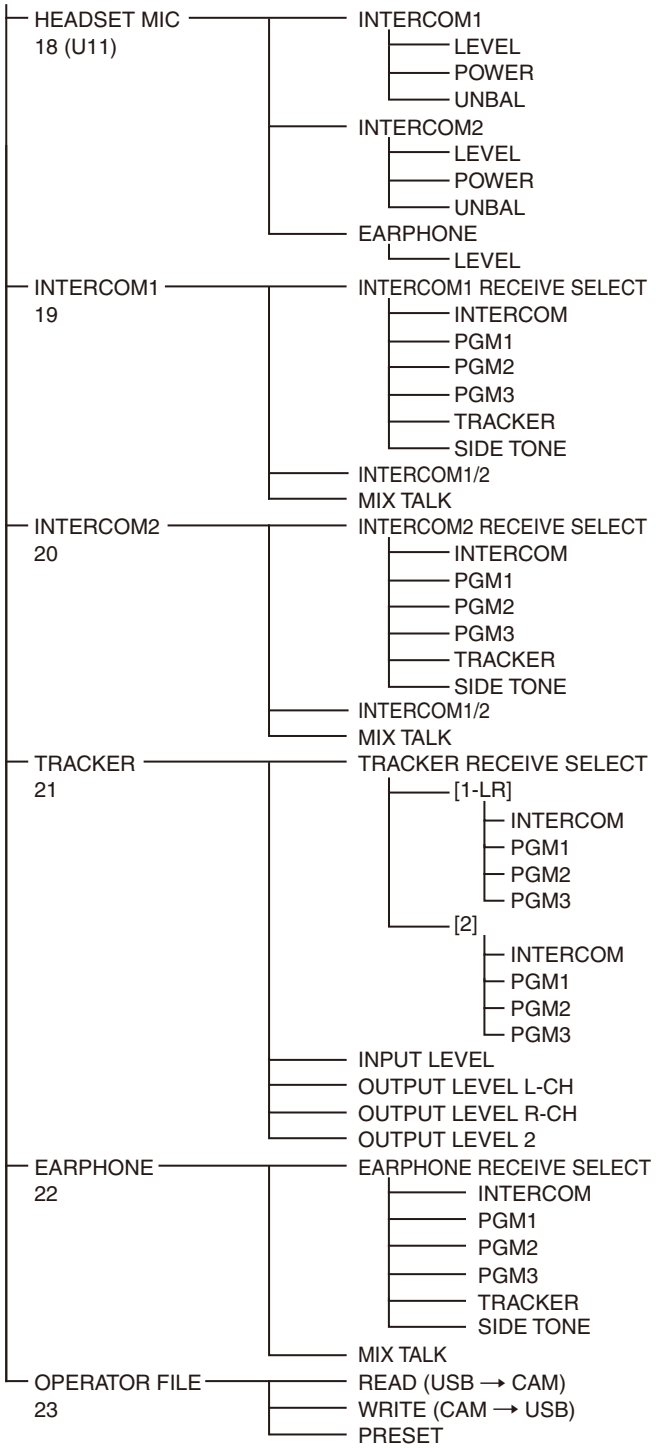
HDLA: HDLA1500-series Large Lens Adaptor
CCU: HDCU3100/3170/2000/2500 Camera Control Unit
Bold values (e.g. ON, OFF, 0): Default settings
Execute via ENTER: Execute by pushing on the MENU SEL knob/ENTER button.

Menu Tree

OPERATION menu

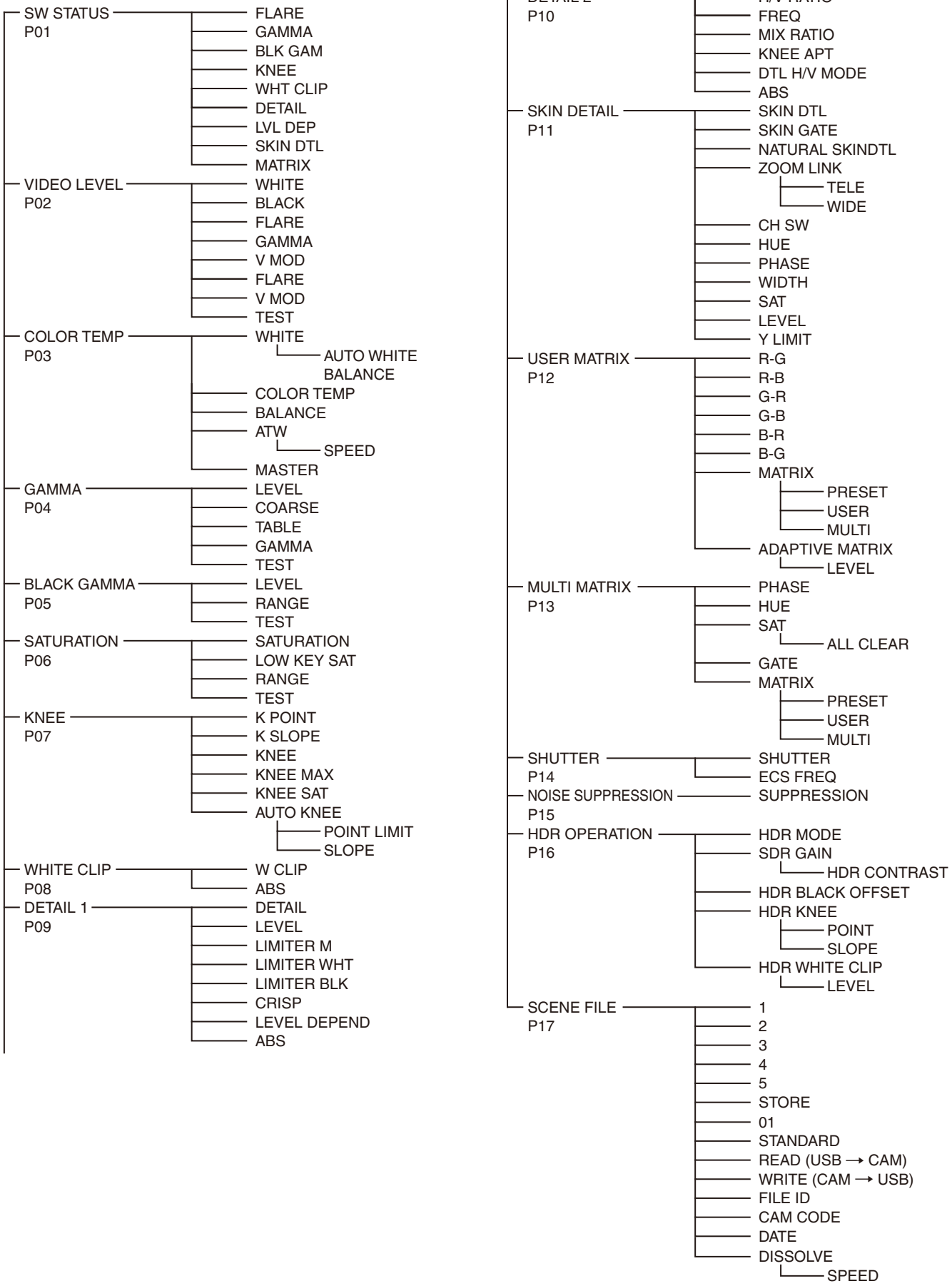




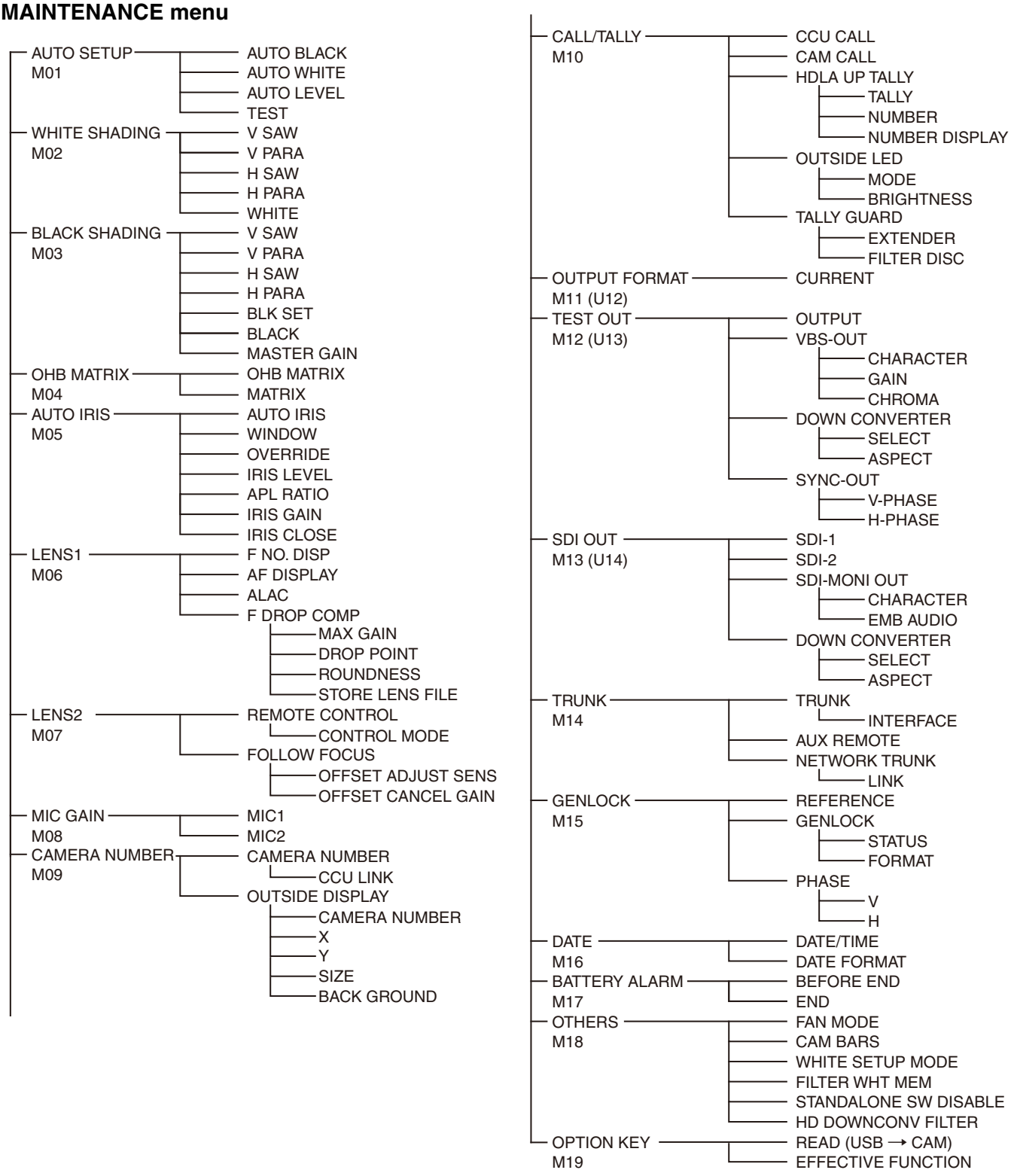


- INTERCOM and MIX TALK sub menu items are displayed on the UCJ model only.
- On the CE model, the INTERCOM sub menu item is replaced by separate ENG and PROD menu items. On the UCJ model, INTERCOM is replaced by separate ENG and PROD items, depending on the setting of the Line select / Receive MIX select switch.

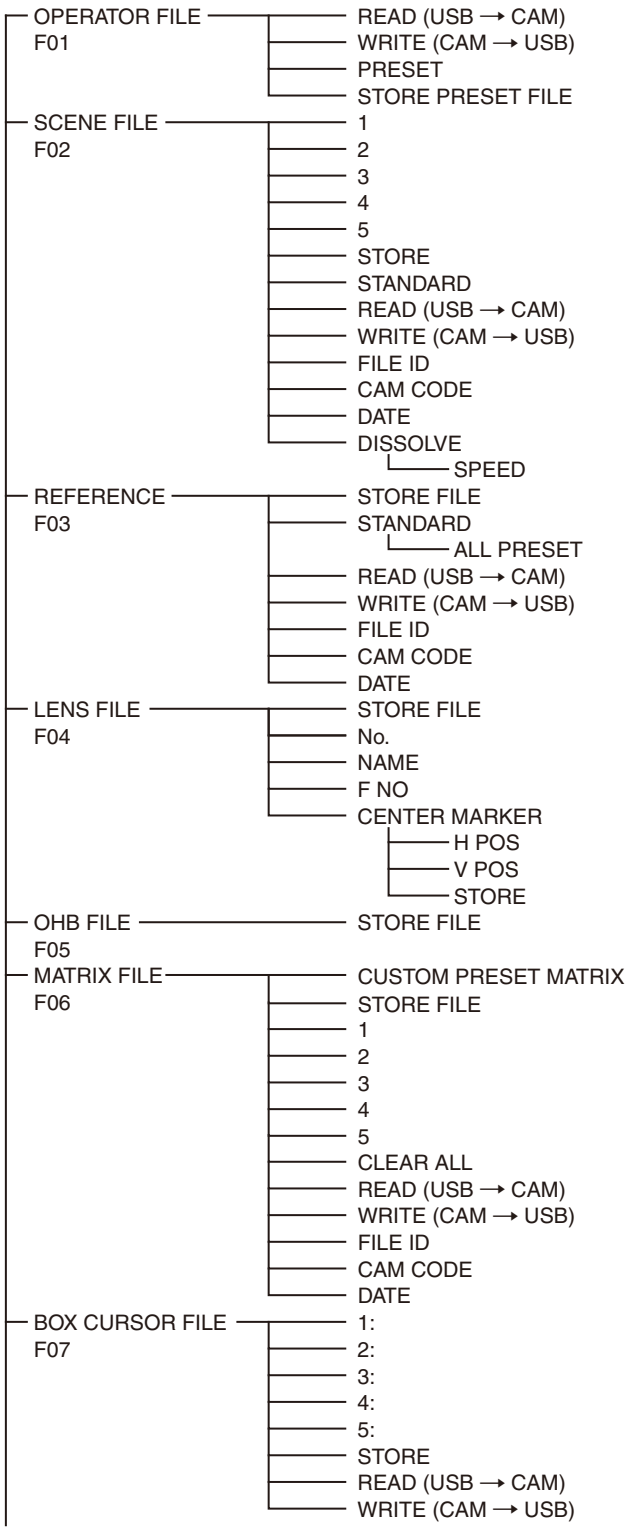
PAINT menu


SW STATUS
P01
FLARE
GAMMA
BLK GAM
KNEE
WHT CLIP
DETAIL
LVL DEP
SKIN DTL
MATRIX
VIDEO LEVEL
P02
WHITE
BLACK
FLARE
GAMMA
V MOD
FLARE
V MOD
TEST
COLOR TEMP
P03
WHITE
AUTO WHITE BALANCE
COLOR TEMP
BALANCE
ATW
SPEED
MASTER
GAMMA
P04
LEVEL
COARSE
TABLE
GAMMA
TEST
BLACK GAMMA
P05
LEVEL
RANGE
TEST
SATURATION
P06
SATURATION
LOW KEY SAT
RANGE
TEST
KNEE
P07
K POINT
K SLOPE
KNEE
KNEE MAX
KNEE SAT
AUTO KNEE
POINT LIMIT
SLOPE
WHITE CLIP
P08
W CLIP
ABS
DETAIL 1
P09
DETAIL
LEVEL
LIMITER M
LIMITER WHT
LIMITER BLK
CRISP
LEVEL DEPEND
ABS
DETAIL 2
P10
H/V RATIO
FREQ
MIX RATIO
KNEE APT
DTL H/V MODE
ABS
SKIN DETAIL
P11
SKIN DTL
SKIN GATE
NATURAL SKINDTL
ZOOM LINK
TELE
WIDE
CH SW
HUE
PHASE
WIDTH
SAT
LEVEL
Y LIMIT
USER MATRIX
P12
R-G
R-B
G-R
G-B
B-R
B-G
MATRIX
PRESET
USER
MULTI
ADAPTIVE MATRIX
LEVEL
MULTI MATRIX
P13
PHASE
HUE
SAT
ALL CLEAR
GATE
MATRIX
PRESET
USER
MULTI
SHUTTER
P14
SHUTTER
ECS FREQ
NOISE SUPPRESSION
P15
SUPPRESSION
HDR OPERATION
P16
HDR MODE
SDR GAIN
HDR CONTRAST
HDR BLACK OFFSET
HDR KNEE
POINT
SLOPE
HDR WHITE CLIP
LEVEL
SCENE FILE
P17
1
2
3
4
5
STORE
01
STANDARD
READ (USB → CAM)
WRITE (CAM → USB)
FILE ID
CAM CODE
DATE
DISSOLVE
SPEED

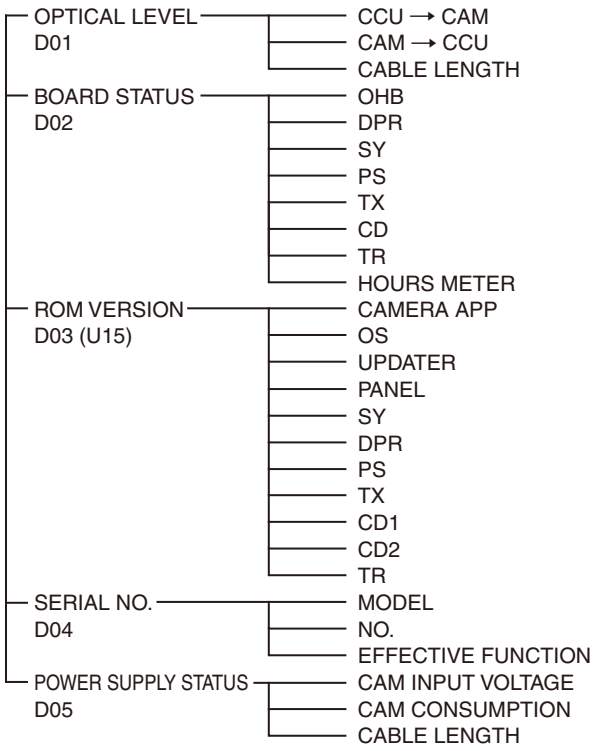
MAINTENANCE menu



FILE menu



DIAGNOSIS menu



OPERATION Menu

OPERATION			
Page title **Page No.**	**Item**	**Settings**	**Description**
<VF DISPLAY> 01 (U04)	EX	**ON**, OFF, 3S	
	ZOOM	ON, **OFF**, 3S	
	DISP	**LEFT**, RIGT	
	FOCUS	ON, **OFF**, 3S	Valid only when a serial lens is used.
	ND	**ON**, OFF, 3S	
	CC	**ON**, OFF, 3S	
	5600K	**ON**, OFF, 3S	
	IRIS	**ON**, OFF, 3S	
	WHITE	ON, **OFF**, 3S	
	D.EXT	**ON**, OFF, 3S	
	GAIN	**ON**, OFF, 3S	
	SHUTTER	**ON**, OFF, 3S	
	BATT	ON, **OFF**, 3S	
	RETURN	**ON**, OFF, 3S	
	TALK	**ON**, OFF, 3S	
	MESSAGE	**ALL**, WRN, AT, OFF	**ALL**: Displays all messages. **WRN**: Displays warning messages and higher. **AT**: Displays Auto Setup information and higher.
	FOLLOW F	ON, **OFF**, 3S	
	FOCUS NAME	OFF, 1S, 3S, 5S, **ON**	Displays/hides Marker Name, and sets the display time.
	FOCUS FORM	**NORMAL**, ABS(AUTO), ABS(m), ABS(ft)	Sets the FOCUS display format. **NORMAL:** Displayed in the range 0 to 255 (no units). **ABS(AUTO):** Displayed in the units (meters or feet) set on the lens. **ABS(m):** Displayed in meters. **ABS(ft):**Displayed in feet.
<' ! 'IND> 02 (U05)	ND	**ON**, OFF	[IND]: Sets whether to be included in the status indications on the viewfinder screen *(see page 22)*. [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.) e.g.: With the default setting of ND, the '!' indication is displayed when an ND filter other than 1 is selected. ---: When a CCU is connected (cannot be changed)
		1, 2, 3, 4, 5 (combination allowed)	
	CC	**ON**, OFF	
		A, **B**, C, D (combination allowed)	
	WHITE	**ON**, OFF, ---	
		P, **A**, **B** (combination allowed)	
	5600K	**ON**, OFF, ---	
		ON, **OFF**	
	GAIN	**ON**, OFF, ---	
		L, M, H (combination allowed)	
	SHUTTER	**ON**, OFF, ---	
		ON, **OFF**	
	FAN	**ON**, OFF	
		AUTO1, AUTO2, MIN, MAX	
	EXT	**ON**, OFF	
	Y TALLY	**ON**, OFF	

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<VF MARKER> 03 (U06)	MARKER	**ON**, OFF	Sets MARKER to ON/OFF.
		WHITE, BLACK, DOT	
	LEVEL	MIN, 0 to 10, **4**	
	CENTER	ON, **OFF**	
		1, 2, 3, 4	**1**: Entire cross **2**: Entire cross with a hole **3**: Center **4**: Center with a hole
	SAFETY ZONE	ON, **OFF**	
		80.0, **90.0**, 92.5, 95.0%	
	EFFECT	ON, **OFF**	
	ASPECT	ON, **OFF**	
		16:9, 15:9, 14:9, 13:9, **4:3**, (4.3)	**(4.3)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)
	MASK	ON, **OFF**, (ON)	**(ON)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)
		0 to 15, **12**	Sets the level to darken outside the aspect area.
	SAFETY	ON, **OFF**	For the safety marker in Aspect mode.
		80.0, **90.0**, 92.5, 95.0%	
<VF DETAIL> 04 (U02)	VF DETAIL	**ON**, OFF, (ON), (OFF)	Settings in ( ): When HDLA is attached (cannot be changed)
		0 to 100%, (0 to 100%), **25%**	
	CRISP	–99 to +99, **0**	
	FREQUENCY	**9M**, 14M, 18M	
	FLICKER	ON, **OFF**	
	AREA	10 to 100%, **100%**	
	ZOOM LINK	**ON**, OFF	
		0 to 100%, **50%**	
	COLOR DETAIL	ON, **OFF**	
		YELLOW, RED, **BLUE**	
	PEAK COLOR	ON, **OFF**	
	CHROMA LEVEL	100%, 50%, **25%**, 0%	
	RETURN DISABLE	ON, **OFF**	Selects whether to set VF DETAIL to OFF for RETURN display.
<FOCUS POSITION METER1> 05	FOCUS POSITION METER	**OFF**, ON	Displays/hides the focus position meter.
	NEAR LIMIT	**0** to 999	Sets the NEAR limit of the focus position meter.
	FAR LIMIT	0 to **999**	Sets the FAR limit of the focus position meter.
	DIRECTION	**HORIZONTAL**, VERTICAL	Sets the display direction of the focus position meter. **HORIZONTAL**: Displayed horizontally on the top of the screen. **VERTICAL**: Displayed vertically on the right of the screen.
	SIZE	**NORMAL**, HALF	Sets the display size of the focus position meter.
	RULED LINE	**OFF**, ON	Displays/hides Ruled Line.
	INDEX COLOR	BLACK, **WHITE**	Sets the color of Index.
	INDEX WIDTH	**1** to 5	Sets the width of Index.
	MARKER WIDTH	**1** to 9	Sets the width for an axle of the marker.
	CURRENT FOCUS DIST		Displays the current focus distance (display only).

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<FOCUS POSITION METER2> 06	ADJUSTED SIGN		
	SENSE	1 to 5, **2**	Sets the sensitivity for the ADJUST decision. The higher the value, the higher the sensitivity.
	NAME DISP	OFF, 1S, 3S, 5S, **ON**	Displays/hides Marker Name, and sets the display time.
	FRAME DISP	OFF, 1S, 3S, 5S, **ON**	Displays/hides Adjust Frame, and sets the display time.
	FRAME WIDTH	1 to 5, **2**	Sets the width of Adjust Frame.
	MARKER CONFIG		
	[REG] MKR1, 2, 3	Execute via ENTER.	Registers the marker on the current focus position. (This item is not available when the marker registering operation is assigned to the dedicated switch.)
	[DISP] MKR1, 2, 3	**OFF**, ON	Displays/hides the marker. (This item is not available when the marker registering operation is assigned to the dedicated switch.)
	[COLOR] MKR1, 2, 3	**RED**, GREEN, BLUE, YELLOW, ORANGE, PURPLE, GRAY, BLACK, WHITE	Sets the color for the triangular area of the marker.
	[NAME] MKR1, 2, 3	Up to 8 characters (default setting: MARKER 1 to 3)	Sets the character of Marker Name. *See "To specify a character string" on page 24.*
	[POS] MKR1, 2, 3	**0** to 999	Sets the position of Marker.
	CURRENT FOCUS DIST		Displays the current focus distance (display only).
<FOCUS ASSIST> 07 (U03)	INDICATOR	ON, **OFF**	
	MODE	**BOX**, B&W, COL	
		BTM, LEFT, TOP, RIGHT	
	LEVEL	MIN, 0 to 10, **4**	
		QUICK, SMOOTH	
	GAIN	0 to 99, **50**	
	OFFSET	0 to 99, **50**	
	AREA MARKER	ON, **OFF**	
	SIZE	SMALL, **MIDDLE**, LARGE	
	POSITION	LEFT, **CENTER**, RIGHT	
	POSITION H	0 to 99, **50**	
	POSITION V	0 to 99, **50**	
<ZEBRA> 08 (U08)	ZEBRA	ON, **OFF**	
		1, 2, 1&2	
	ZEBRA1		
	LEVEL	50 to 109%, **70%**	
	WIDTH	0 to 30%, **10%**	
	ZEBRA2	50 to 109%, **100%**	

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<CURSOR> 09 (U07)	CURSOR	ON, **OFF**	Displayed only if HDLA attached.
	LEVEL	**WHITE**, BLACK, DOT	
		MIN, 0 to 10, **4**	
	BOX/CROSS	**BOX**, CROSS	
	H POSITION	0 to 99, **50**	Displayed only if HDLA attached.
	V POSITION	0 to 99, **50**	
	WIDTH	0 to 99, **50**	
	HEIGHT	0 to 99, **50**	
	BOX MEMORY	1/2/3: **OFF**, ON	
	H POSI	1/2/3: 0 to 99, **50**	
	V POSI	1/2/3: 0 to 99, **50**	
	WIDTH	1/2/3: 0 to 99, **50**	
	HEIGHT	1/2/3: 0 to 99, **50**	
<BOX CURSOR FILE> 10	1:		Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name. Sets the cursor to the left of the number when you select BOX CURSOR FILE. Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name. *See "To specify a character string" on page 24.*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	READ (USB → CAM)		Transfers BOX CURSOR FILE from a USB drive to the camera.
	WRITE (CAM → USB)		Transfers BOX CURSOR FILE from the camera to a USB drive.
<SPIRIT LEVEL> 11	INDICATOR	ON, **OFF**	When this is set to ON, BOX MEMORY for CURSOR does not function.
	MODE	**1**, 2	Switches the display method of the indicator.
	REVERSE	**OFF**, ON	Inverts the movement of the indicator horizontally.
	SCALE	50% to 150%, **100%**	Adjusts the horizontal width of the indicator.
	H POSITION	0 to 99, **50**	
	V POSITION	0 to 99, **97**	
	ANGLE		Sets the inclination angle. (Display only)
	OFFSET	–90 to +90, **0**	
	SET ZERO ANGLE	Execute via ENTER.	Designates the current angle as level (0°).
	CLEAR	Execute via ENTER.	Sets OFFSET to 0.

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<VF OUT> 12 (U01)	VF OUT	**COLOR**, 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)
	CHARACTER LEVEL	1 to 5, **4**	
	PinP	**OFF**, RETURN, HD PROMPTER	Only OFF and RETURN displayed when the HKC-TR37 is attached.
	POSITION	**1**, 2, 3, 4	
	SIZE	1/2.5, **1/3**, 1/4	
	MODE	PinP OFF: --- PinP RETURN: 1, 2, 3, 4 PinP HD PROMPTER: 1, 2	: Main picture : Return picture : HD Prompter picture **Pin P: OFF** Mode / RET SW OFF / RET SW ON: --- **Pin P: RETURN** Mode / RET SW OFF / RET SW ON: 1, 2, 3, 4 **Pin P: HD PROMPTER** Mode / RET SW OFF / RET SW ON: 1, 2 Cannot be used during stand-alone operation.

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<SWITCH ASSIGN1> 13 (U09)	GAIN	L: –6, –3, **0**, 3, 6, 9, 12 dB	
		M: –6, –3, 0, 3, **6**, 9, 12 dB	
		H: –6, –3, 0, 3, 6, 9, **12** dB	
	ASSIGNABLE	**OFF**, RETURN1 SW, RETURN2 SW, INCOM1, INCOM2, VF DETAIL, 5600K, FAN MAX, D.EXTENDER, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, CURSOR ALL OFF, FLAG, AWB	UCJ model only. When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP, FLAG **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.
		OFF, RETURN1 SW, RETURN2 SW, ENG, PROD, VF DETAIL, 5600K, FAN MAX, D.EXTENDER, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR, PinP, RET1 SW TOGGLE, RET2 SW TOGGLE, RET3 SW TOGGLE, CURSOR ALL OFF, FLAG, AWB	CE model only. When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER, PinP, FLAG **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.
	VF ASSIGN	OFF, **VF ASSIGN SW1**, VF ASSIGN SW2, PinP	Displayed only when HDLA is attached.
	VF OUT SW	**VF OUT RGB**, FOCUS POSITION METER	Displayed only when HDLA is attached. (When FOCUS POSITION METER is set, VF OUT SW (R/G/B) can be used for registering/displaying Marker 1/2/3.)

OPERATION			
Page title **Page No.**	**Item**	**Settings**	**Description**
<SWITCH ASSIGN2> 14 (U10)	LENS VTR S/S	OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2, VTR S/S UCJ model only.	Assigns a function to the VTR START/STOP switch on the mounted lens.
		OFF, RETURN1 SW, **RETURN2 SW**, ENG, PROD, VTR S/S CE model only.	
	FRONT RET1	OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2, D.EXTENDER UCJ model only.	VTR S/S is available only when using the camcorder as a stand-alone device, and adds the REC signal to the SDI signal. Pressing this button repeatedly, toggles recording on/off. While recording, the tally lamp lights in red.
		OFF, **RETURN1 SW**, RETURN2 SW, ENG, PROD, D.EXTENDER CE model only.	
	FRONT RET2	OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2, D.EXTENDER, VTR S/S UCJ model only.	
		OFF, RETURN1 SW, **RETURN2 SW**, ENG, PROD, D.EXTENDER, VTR S/S CE model only.	
	HANDLE SW1	OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2, ZOOM(T), VTR S/S UCJ model only.	
		OFF, **RETURN1 SW**, RETURN2 SW, ENG, PROD, ZOOM(T), VTR S/S CE model only.	
	HANDLE SW2	OFF, RETURN1 SW, RETURN2 SW, **INCOM1**, INCOM2, ZOOM(W) UCJ model only.	
		OFF, RETURN1 SW, RETURN2 SW, **ENG**, PROD, ZOOM(W) CE model only.	
	ZOOM SPEED	0 to 99, **20**	

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<REAR FUNCTION ASSIGN> 15	A PUSH B PUSH C PUSH	RETURN1 CAM SW, RETURN1 CAM SW TOGGLE, RETURN2 CAM SW, RETURN2 CAM SW TOGGLE, RETURN3 CAM SW, RETURN3 CAM SW TOGGLE, VF DETAIL, FOCUS POSITION METER, FOCUS POSITION METER MKR1 REG, FOCUS POSITION METER MKR2 REG, FOCUS POSITION METER MKR3 REG, FOCUS ASSIST INDICATOR	Assigns functions executed when you press RET/ASSIGNABLE buttons A, B, and C. Default values When A PUSH is selected: RETURN1 CAM SW. When B PUSH is selected: RETURN2 CAM SW. When C PUSH is selected: RETURN3 CAM SW.
	A ROT B ROT C ROT	RET CCU CH SEL, VF DETAIL LEVEL, VF DETAIL CRISP, FOCUS ASSIST IND GAIN	Assigns functions executed when you turn RET/ASSIGNABLE buttons A, B, and C. The items that can be selected vary depending on the A PUSH, B PUSH, and C PUSH settings. When the PUSH function is OFF: OFF When RETURN1 CAM SW, RETURN1 CAM SW TOGGLE, RETURN2 CAM SW, RETURN2 CAM SW TOGGLE, RETURN3 CAM SW, RETURN3 CAM SW TOGGLE, FOCUS POSITION METER, FOCUS POSITION METER MKR1 REG, FOCUS POSITION METER MKR2 REG, FOCUS POSITION METER MKR3 REG is selected: RET CCU CH SEL When VF DETAIL is selected: VF DETAIL LEVEL or VF DETAIL CRISP When FOCUS ASSIST INDICATOR is selected: FOCUS ASSIST IND GAIN

OPERATION			
Page title **Page No.**	**Item**	**Settings**	**Description**
<EXT SWITCH> 16	RET CTRL CONNECTOR		
	RET1 Pin:5	OFF, **RETURN1 SW**, RETURN2 SW, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	This function works when each pin of the RET CTRL connector contacts with GND (Pin3). TALLY R, G, Y are available only when using the camera as a standalone device, and make the tally lamp light. VTR S/S is available only when using the camera as a standalone device, and makes the R tally lamp light. VTR S/S signal is embedded in the video. **Note** On the CE model, menu item settings INCOM 1 and INCOM 2 are replaced by ENG and PROD, respectively.
	RET2 Pin:6	OFF, RETURN1 SW, **RETURN2 SW**, RETURN3 SW, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	RET3 Pin:4	OFF, RETURN1 SW, RETURN2 SW, **RETURN3 SW**, INCOM 1, INCOM 2, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	INCOM1 Pin:1	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, **INCOM 1**, INCOM 2, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
	INCOM2 Pin:2	OFF, RETURN1 SW, RETURN2 SW, RETURN3 SW, INCOM 1, **INCOM 2**, EXTENDER, D.EXTENDER, 5600K, VF DETAIL, SPIRIT LEVEL, FOCUS ASSIST, PinP, VF ASSIGN SW1, VF ASSIGN SW2, VTR S/S, TALLY R, TALLY G, TALLY Y	
<RETURN> 17	RET1 SW SEL	CCU RET1, CCU RET2, CCU RET3, CCU RET4	Varies based on the RET1 button setting.
	RET2 SW SEL		Varies based on the RET2 button setting.
	RET3 SW SEL	CCU RET1, CCU RET2, **CCU RET3**, CCU RET4	
	RET1 SW + RET2 SW	**RET1 SW**, RET3 SW	Changes operation when you press both the RET1 button and RET2 button at the same time. **RET1 SW**: The two buttons function as the RET1 button. **RET3 SW**: The two buttons function as the RET3 button.

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<HEADSET MIC> 18 (U11)	INTERCOM1	**DYNAMIC**, CARBON, MANUAL	
	LEVEL	–60 dBu, –50 dBu, –40 dBu, –30 dBu,–20 dBu, (**–60 dBu**), (–50 dBu), (–40 dBu), (–30 dBu), (–20 dBu)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		–6, **0**, 6 dBu	Input gain
	POWER	ON, OFF, (ON), (**OFF**)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
	UNBAL	**ON**, OFF, (ON), (OFF)	Settings in ( ): With CARBON (cannot be changed)
	INTERCOM2	**DYNAMIC**, CARBON, MANUAL	
	LEVEL	–60 dBu, –50 dBu, –40 dBu, –30 dBu, –20 dBu, (**–60 dBu**), (–50 dBu), (–40 dBu), (–30 dBu), (–20 dBu)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		–6, **0**, 6 dBu	Input gain
	POWER	ON, OFF, (ON), (**OFF**)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
	UNBAL	**ON**, OFF, (ON), (OFF)	Settings in ( ): With CARBON (cannot be changed)
	EARPHONE	ON, **OFF**	
	LEVEL	–34 dBu, **–40 dBu**, –46 dBu	
<INTERCOM1> 19	INTERCOM1 RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	---, **LEFT**, RIGHT, BOTH	UCJ model only When the Line select / Receive MIX select switch on the operation panel is set to MIX, menu items ENG and PROD appear instead of this item (the setting values are same as this item).
	ENG	---, **LEFT**, RIGHT, BOTH	CE model: Always displayed. UCJ model: Displayed when the Line select / Receive MIX select switch on the operation panel is set to MIX.
	PROD	---, **LEFT**, RIGHT, BOTH	
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	TRACKER	---, **LEFT**, RIGHT, BOTH	
	SIDE TONE	MUTE, 1 to 99, **50**	
	INTERCOM1/2	**SEPARATE**, MIX	
	MIX TALK	**ENG**, PROD	UCJ model only
<INTERCOM2> 20	INTERCOM2 RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	---, **LEFT**, RIGHT, BOTH	UCJ model only When the Line select / Receive MIX select switch on the operation panel is set to MIX, menu items ENG and PROD appear instead of this item (the setting values are same as this item).
	ENG	---, **LEFT**, RIGHT, BOTH	CE model: Always displayed. UCJ model: Displayed when the Line select / Receive MIX select switch on the operation panel is set to MIX.
	PROD	---, **LEFT**, RIGHT, BOTH	
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	TRACKER	**---**, LEFT, RIGHT, BOTH	
	SIDE TONE	MUTE, 1 to 99, **50**	
	INTERCOM1/2	**SEPARATE**, MIX	
	MIX TALK	**ENG**, PROD	UCJ model only

OPERATION			
Page title Page No.	**Item**	**Settings**	**Description**
<TRACKER> 21	TRACKER RECEIVE SELECT	**SEPARATE**, MIX	
	[1-LR]		
	INTERCOM	---, **LEFT**, RIGHT, BOTH	UCJ model only When the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX, menu items ENG and PROD appear instead of this item (the setting values are same as this item).
	ENG	---, **LEFT**, RIGHT, BOTH	CE model: Always displayed. UCJ model: Displayed when the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX.
	PROD	---, **LEFT**, RIGHT, BOTH	
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	[2]		
	INTERCOM	ON, **OFF**	UCJ model only When the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX, menu items ENG and PROD appear instead of this item (the setting values are same as this item).
	ENG	ON, **OFF**	CE model: Always displayed. UCJ model: Displayed when the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX.
	PROD	ON, **OFF**	
	PGM1	ON, **OFF**	
	PGM2	ON, **OFF**	
	PGM3	ON, **OFF**	
	INPUT LEVEL	–20 dBu, **0 dBu**	
		–6 dB, **0 dB**, 6 dB	
	OUTPUT LEVEL L-CH	**0 dBu**, –6 dBu, –12 dBu, –18 dBu, –20 dBu, –24 dBu	
	OUTPUT LEVEL R-CH		
	OUTPUT LEVEL 2		
<EARPHONE> 22	EARPHONE RECEIVE SELECT	**SEPARATE**, MIX	
	INTERCOM	---, **LEFT**, RIGHT, BOTH	UCJ model only When the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX, menu items ENG and PROD appear instead of this item (the setting values are same as this item).
	ENG	---, **LEFT**, RIGHT, BOTH	CE model: Always displayed. UCJ model: Displayed when the INTERCOM1 Line select / Receive MIX select switch on the operation panel is set to MIX.
	PROD	---, **LEFT**, RIGHT, BOTH	
	PGM1	---, LEFT, **RIGHT**, BOTH	
	PGM2	---, LEFT, **RIGHT**, BOTH	
	PGM3	**---**, LEFT, RIGHT, BOTH	
	TRACKER	---, **LEFT**, RIGHT, BOTH	
	SIDE TONE	MUTE, 1 to 99, **50**	
	MIX TALK	**ENG**, PROD	UCJ model only
<OPERATOR FILE> 23	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.

PAINT Menu

PAINT			
Page title Page No.	**Item**	**Settings**	**Description**
<SW STATUS> P01	FLARE	**ON**, OFF	
	GAMMA	**ON**, OFF	
	BLK GAM	ON, **OFF**	
	KNEE	**ON**, OFF	
	WHT CLIP	**ON**, OFF	
	DETAIL	**ON**, OFF	
	LVL DEP	**ON**, OFF	
	SKIN DTL	ON, **OFF**	
	MATRIX	ON, **OFF**	
<VIDEO LEVEL> P02	WHITE	R/G/B: –99 to +99, **0**	R, G, B, and M (master) values can be independently set. (M cannot be set for WHITE.)
	BLACK	R/G/B/M: –99 to +99, **0**	
	FLARE	R/G/B/M: –99 to +99, **0**	
	GAMMA	R/G/B/M: –99 to +99, **0**	
	V MOD	R/G/B/M: –99 to +99, **0**	
	FLARE	**ON**, OFF	
	V MOD	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	
<COLOR TEMP> P03	WHITE	R/G/B: –99 to +99, **0**	
	AUTO WHITE BALANCE	Execute via ENTER.	
	COLOR TEMP	0K to 65535K, **3200K**	
	BALANCE	–99 to +99, **0**	
	ATW	ON, **OFF**	
	SPEED	1, **2**, 3, 4, 5	
	MASTER	–3.0 to +12.0 dB, **0.0 dB**	
<GAMMA> P04	LEVEL	R/G/B/M: –99 to +99, **0**	R, G, B, and M (master) values can be independently set.
	COARSE	0.35 to 0.90 (0.05 steps), **0.45**	
	TABLE	**STANDARD**, HYPER, USER	
		1, 2, 3, 4, **5**, 6, 7	With STANDARD or USER selected (only 1 to 5 are available for USER) **1**: equivalent to a camcorder **2**: gain ×4.5 **3**: gain ×3.5 **4**: equivalent to SMPTE-240M **5**: equivalent to ITU-R709 **6**: gain ×5.0 **7**: ×5.0-709
		1, 2, 3, **4**	With HYPER selected **1**: 325% to 100% **2**: 460% to 100% **3**: 325% to 109% **4**: 460% to 109%
	GAMMA	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	
<BLACK GAMMA> P05	LEVEL	R/G/B/M: –99 to +99, **0**	R, G, B, and M (master) values can be independently set.
	RANGE	LOW, L.MID, H.MID, **HIGH**	
		ON, **OFF**	
	TEST	**OFF**, SAW, 10STEP	

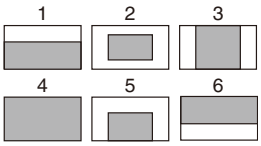
PAINT			
Page title Page No.	**Item**	**Settings**	**Description**
<SATURATION> P06	SATURATION	–99 to +99, **0**	
		ON, **OFF**	
	LOW KEY SAT	–99 to +99, **0**	
	RANGE	LOW, L.MID, H.MID, **HIGH**	
		ON, **OFF**	
	TEST	**OFF**, SAW, 10STEP	
<KNEE> P07	K POINT	R/G/B/M: –99 to +99, **0**	R, G, B, and M (master) values can be independently set. Absolute values are displayed in ABS mode except for M (master).
	K SLOPE	R/G/B/M: –99 to +99, **0**	
	KNEE	**ON**, OFF	
	KNEE MAX	ON, **OFF**	
	KNEE SAT	–99 to +99, **0**	
		ON, **OFF**	
	AUTO KNEE	**OFF**, AUTO	
	POINT LIMIT	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	SLOPE	–99 to +99, **0**	Absolute value is displayed in ABS mode.
<WHITE CLIP> P08	W CLIP	–99 to +99, **0**	
		ON, OFF	
	ABS		Highlighted: ABS (Absolute) mode
<DETAIL 1> P09	DETAIL	**ON**, OFF	
	LEVEL	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [M]	–99 to +99, **0**	
	LIMITER [WHT]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LIMITER [BLK]	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	CRISP	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	LEVEL DEPEND	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, OFF	
	ABS		Highlighted: ABS (Absolute) mode
<DETAIL 2> P10	H/V RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	FREQ	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	MIX RATIO	–99 to +99, **0**	Absolute value is displayed in ABS mode.
	KNEE APT	–99 to +99, **0**	Absolute value is displayed in ABS mode.
		ON, **OFF**	
	DTL H/V MODE	**H/V**, V only	
	ABS		Highlighted: ABS (Absolute) mode
<SKIN DETAIL> P11	SKIN DTL	ON, **OFF**	
	SKIN GATE	**OFF**, 1, 2, 3, (MAT)	**1**, **2**, **3**: The skin gate function can be turned on for the specified channel only. **(MAT)**: Displayed when GATE of <MULTI MATRIX> is ON.
	NATURAL SKINDTL	**OFF**, ON	
	ZOOM LINK	**OFF**, ON	
	TELE	0 to **99**	
	WIDE	**0** to 99	
	CH SW	1: (ON), 2/3: ON, **OFF**	Sets the skin tone detail function independently for each channel. (Channel 1 is always set to ON.) Absolute values are indicated for LEVEL only in ABS mode.
	HUE	1/2/3: Execute via ENTER.	
	PHASE	1/2/3: **0** to 359	
	WIDTH	1/2/3: 0 to 90, **29**	
	SAT	1/2/3: –99 to +99, **–89**	
	LEVEL	1/2/3: –99 to +99, **0**	
	Y LIMIT	1/2/3: **0** to 99	

PAINT			
Page title Page No.	**Item**	**Settings**	**Description**
<USER MATRIX> P12	R-G	–99 to +99, **0**	
	R-B	–99 to +99, **0**	
	G-R	–99 to +99, **0**	
	G-B	–99 to +99, **0**	
	B-R	–99 to +99, **0**	
	B-G	–99 to +99, **0**	
	MATRIX	ON, **OFF**	
	PRESET	**---**, ON, OFF	
		---, SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5	
	USER	**---**, ON, OFF	
	MULTI	**---**, ON, OFF	
	ADAPTIVE MATRIX	**OFF**, ON	
	LEVEL	0 to 7, **0**	
<MULTI MATRIX> P13	PHASE	**0**, 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, **0**	
	SAT	–99 to +99, **0**	
	ALL CLEAR	Execute via ENTER.	
	GATE	ON, **OFF**, (SKIN)	**(SKIN)**: Displayed when SKIN GATE of <SKIN DETAIL> is ON.
	MATRIX	ON, **OFF**	
	PRESET	**---**, ON, OFF	
		---, SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, ITU-601, CUSTOM1, CUSTOM2, CUSTOM3, CUSTOM4, CUSTOM5	
	USER	**---**, ON, OFF	
	MULTI	**---**, ON, OFF	
<SHUTTER> P14	SHUTTER	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
		59.94i: **1/100**, 1/125, 1/250, 1/500, 1/1000, 1/2000 50i: 1/60, **1/125**, 1/250, 1/500, 1/1000, 1/2000 29.97PsF: 1/40, 1/60, 1/100, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000 25PsF: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 24PsF/23.98PsF: 1/32, 1/48, 1/96, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 59.94P: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 50P: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000	Step shutter selection
	ECS FREQ	59.94i: **59.96** to 4300 Hz 50i: 50.00 to 4700 Hz 29.97PsF: 29.97 to 2700 Hz 25PsF: 25.00 to 2300 Hz 24PsF/23.98PsF: 24.00 to 2200 Hz 59.94P: 59.96 to 4600 Hz 50P: 50.03 to 4600 Hz	
<NOISE SUPPRESSION> P15	SUPPRESSION	**0** to 100%	
		ON, **OFF**	

PAINT			
Page title Page No.	**Item**	**Settings**	**Description**
<HDR OPERATION> P16 Not displayed when the HKC-TR37 is attached.	HDR MODE	**OFF**, LIVE HDR	Displays the CCU setting.
	SDR GAIN	**0.0** to –15 dB	Enabled only when LIVE HDR is selected. Gain setting applied to the SDR output.
	HDR CONTRAST	100 to 560 %	Enabled only when LIVE HDR is selected. HDR output contrast ensured by setting SDR GAIN (display only).
	HDR BLACK OFFSET	–99.9 to +99.9, **0**	Enabled only when LIVE HDR is selected. HDR output black offset
	HDR KNEE	**OFF**, ON	Enabled only when LIVE HDR is selected. KNEE setting applied for HDR
	POINT	–99 to +99, **0**	
	SLOPE	–99 to +99, **0**	
	HDR WHITE CLIP	**OFF**, ON	
	LEVEL	–99 to 99, **0**	
<SCENE FILE> P17	1		Stores and reads scene files (paint data): When storing a file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute via ENTER.	
	01	**01** to 32	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB → CAM)	Execute via ENTER.	Loads 32 scene files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via ENTER.	Writes 32 scene files in the camera's memory to a USB drive.
	FILE ID	Max.14 characters	Enters a comment for the scene files to be written to a USB drive. *See "To specify a character string" on page 24.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switching a scene file seamlessly.
	SPEED	0.2 to 2.8 (0.2 step), 3 to 10 (1 step), **0.2**	

MAINTENANCE Menu

MAINTENANCE			
Page title Page No.	**Item**	**Settings**	**Description**
<AUTO SETUP> M01	AUTO BLACK	Execute via ENTER.	
	AUTO WHITE	Execute via ENTER.	
	AUTO LEVEL	Execute via ENTER.	
	TEST	**OFF**, SAW, 10STEP	
<WHITE SHADING> M02	V SAW	R/G/B: –99 to +99, **0**	R, G, and B values can be independently set.
	V PARA	R/G/B: –99 to +99, **0**	
	H SAW	R/G/B: –99 to +99, **0**	
	H PARA	R/G/B: –99 to +99, **0**	
	WHITE	R/G/B: –99 to +99, **0**	

MAINTENANCE			
Page title Page No.	**Item**	**Settings**	**Description**
<BLACK SHADING> M03	V SAW	R/G/B: –99 to +99, **0**	R, G, and B values can be independently set. M (master) value can also be set for BLACK.
	V PARA	R/G/B: –99 to +99, **0**	
	H SAW	R/G/B: –99 to +99, **0**	
	H PARA	R/G/B: –99 to +99, **0**	
	BLK SET	R/G/B: –99 to +99, **0**	
	BLACK	R/G/B/M: –99 to +99, **0**	
	MASTER GAIN	–6, –3, **0**, 3, 6, 9, 12 dB	
<OHB MATRIX> M04	OHB MATRIX	ON, **OFF**	
	MATRIX	ON, **OFF**	
<AUTO IRIS> M05	AUTO IRIS	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
	WINDOW	**1**, 2, 3, 4, 5, 6	Selects the auto iris windows:  The shaded parts indicate the area where light detection occurs.
	OVERRIDE	–99 to 99, **0**, ---	Sets the override to temporarily change the reference value for brightness of the automatic iris level in the range of ±2 steps: –99: Two steps to fully closed iris. 99: Two steps to fully opened iris. --- : OFF The setting returns to " --- " when the power is turned off.
	IRIS LEVEL	–99 to +99, **0**	±4 steps
	APL RATIO	–99 to +99, **65**	
	IRIS GAIN	–99 to +99, **0**	
	IRIS CLOSE	ON, **OFF**	
<LENS1> M06	F NO. DISP	**CONTROL**, RETURN	Selects the iris indication on the panel when AUTO IRIS is off: **CONTROL**: Displays the value from the camera **RETURN**: Displays the value returned from the lens. (When AUTO IRIS is on, the value returned from the lens is always displayed.)
	AF DISPLAY	ON, **OFF**	
	ALAC	**AUTO**, OFF	With AUTO selected, the status is displayed at the right. **(ACTIVE)**: Compensation is in progress. **(WAIT)**: Waiting for completion of lens initialization. **(STOP)**: Compensation is turned off for a non-applicable lens.
	F DROP COMP	**OFF**, ON, (OFF)	Turns F drop compensation on/off. During compensation, the compensation gain is displayed on the right. (OFF): For when a serial lens is not attached.
	MAX GAIN	**0.0** to 24 dB	Maximum compensation value
	DROP POINT	0 to 99, **50**	Compensation start point
	ROUNDNESS	**0.0** to 12 dB	Roundness of the compensation curve.
	STORE LENS FILE	Execute using ENTER.	Saves settings to a lens file.

MAINTENANCE			
Page title Page No.	**Item**	**Settings**	**Description**
<LENS2> M07	REMOTE CONTROL	**OFF**, ON, (OFF)	Lens remote control from MSU/RCP on/off setting. Same function as the Active button on the Zoom/ Focus Control screen of the MSU/RCP. (OFF): When lens is not supported
	CONTROL MODE	**ZOOM&FOCUS**, FOCUS, FOLLOW FOCUS	**ZOOM & FOCUS:** Control ZOOM and FOCUS from an MSU/RCP (control by lens demand is not supported) **FOCUS:** Control FOCUS from an MSU/RCP. ZOOM is controlled by lens demand. **FOLLOW FOCUS:** FOCUS is controlled by lens demand, but can be adjusted (offset fine adjustment) from an MSU/RCP. ZOOM is controlled by lens demand. **Note** Settings other than FOLLOW FOCUS cannot be modified when the offset is not 0 and REMOTE CONTROL is OFF. To change settings, set REMOTE CONTROL to ON.
	FOLLOW FOCUS		
	OFFSET ADJUST SENS	1, 2, **3**, 4, 5	Sets the sensitivity of superimposing the offset of the MSU.
	OFFSET CANCEL GAIN	1, 2, **3**, 4, 5	Sets the sensitivity of canceling the offset on the demand side.
<MIC GAIN> M08	MIC1	20, 30, 40, 50, **60** dB	Can be modified only in standalone operation.
	MIC2	20, 30, 40, 50, **60** dB	
<CAMERA NUMBER> M09	CAMERA NUMBER	**---**, 1 to 96	Sets the camera number.
	CCU LINK	**OFF**, ON	Turns the link with the CCU No. on/off. When on, you can set the camera number from the CCU.
	OUTSIDE DISPLAY		
	CAMERA NUMBER	**OFF**, ON	Turns the camera number display on the side panel on/off.
		WHITE, BLACK	Sets the text color of the camera number.
	X	–100 to 100, **0**	Sets the text position of the camera number (0: center position)
	Y	–100 to 100, **0**	Sets the text position of the camera number (0: center position)
	SIZE	0 to 150, **100**	Sets the text size of the camera number
	BACK GROUND	PLAIN, LOGO	Sets the background color. **PLAIN**: Fill background with opposite color to the camera number **LOGO**: Set imported logo as the background.
		READ LOGO	Import logo data (BMP file) to use for the background color. To import logo data into the camera, prepare monochrome 200×200 pixel data. Change the file name of the data to “logo.bmp”, copy the file to a USB drive, connect the drive to the unit, and then select READ LOGO in the menu.

MAINTENANCE			
Page title **Page No.**	**Item**	**Settings**	**Description**
<CALL/TALLY> M10	CCU CALL	OFF, **ON**	Selects whether TALLY lights for CALL signal.
	CAM CALL	**OFF**, ON	
	HDLA UP TALLY		
	TALLY	0 to 100, **50**	
	NUMBER	0 to 100, **50**	
	NUMBER DISPLAY	**AUTO**, OFF, ON	
	OUTSIDE LED		Sets the display mode of the LED on the side panel.
	MODE	OFF, **TALLY**, LIGHT	**TALLY**: Function as a tally. **LIGHT**: Function as a light.
	BRIGHTNESS	0 to 100, **50**	Sets the brightness of the LED.
	TALLY GUARD		Selects whether to prevent changes while TALLY is lit.
	EXTENDER	**OFF**, ON	
	FILTER DISC	**OFF**, ON	
<OUTPUT FORMAT> M11 (U12)	CURRENT	1080: 59.94i, 50i 720: 59.94P, 50P	Displays the current format. Only 1080: 59.94P, 50P displayed when the HKC-TR37 is attached and a CCU is connected. 1080: 59.94P and 50P are displayed in addition to the settings on the left when the HKC-TR37 is attached and the unit is operating in standalone mode.
<TEST OUT> M12 (U13)	OUTPUT	SD-SYNC, HD-SYNC, **VBS**	
	VBS-OUT		OUTPUT is displayed during VBS.
	CHARACTER	ON, **OFF**	
	GAIN	–99 to +99, **0**	
	CHROMA	–99 to +99, **0**	
	DOWN CONVERTER		OUTPUT is displayed for VBS.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	
	SYNC-OUT		OUTPUT is displayed during SD-SYNC and HD-SYNC.
	V-PHASE	–999 to +999, **0**	
	H-PHASE	–999 to +999, **0**	
<SDI OUT> M13 (U14)	SDI-1	**OFF**, MAIN(3G), MAIN(1.5G), HD-PROMPTER	**MAIN(3G)**: Displayed only for 59.94P, 50P (when HZC-PRV50 series is installed) **HD-PROMPTER**: Not displayed when the HKC-TR37 is attached.
		LEVEL-A, **LEVEL-B**	Displayed when MAIN(3G) is selected.
	SDI-2	**OFF**, MAIN(3G), MAIN(1.5G), HD-TRUNK IN	**MAIN(3G)**: Displayed only for 59.94P, 50P (when HZC-PRV50 series is installed) Not displayed when the HKC-TR37 is attached.
		LEVEL-A, **LEVEL-B**	Displayed when MAIN(3G) is selected. Not displayed when the HKC-TR37 is attached.
	SDI-MONI OUT	MAIN, **VF**, RET, SD-SDI, OFF	
	CHARACTER	ON, **OFF**	
	EMB AUDIO	**OFF**, MIC, PGM	
	DOWN CONVERTER		SDI-MONI OUT is displayed for SD-SDI.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	
<TRUNK> M14	TRUNK	**ON**, OFF	
	INTERFACE	**232c**, 422A	
	AUX REMOTE		Display only
	NETWORK TRUNK		Display only
	LINK		

MAINTENANCE			
Page title Page No.	**Item**	**Settings**	**Description**
<GENLOCK> M15	REFERENCE	Condition of synchronisation	Display only
	GENLOCK	**ENABLE**, DISABLE	Displayed only when no CCU connected.
	STATUS		
	FORMAT		
	PHASE		
	V	–1024 to 1023, **0**	
	H	–1700 to 1700, **0**	
<DATE> M16	DATE/TIME	2000 to 2035 / 01 to 12 / 00 to 31, 00 to 23 : 00 to 59	
	DATE FORMAT	1 Y/Mn/D, 2 Mn/D, 3 D/M/Y, 4 D/M, **5 M/D/Y**, 6 M/D	**Y**: Year **Mn**: Month (numeric) **M**: Month (character string) **D**: Day
<BATTERY ALARM> M17	BEFORE END	**11.5** to 17.0 V	
	END	**11.0** to 11.5 V	
<OTHERS> M18	FAN MODE	OFF, **AUTO1**, AUTO2 , MIN, MAX	**AUTO1**: Normal rotation **AUTO2**: Slow rotation
	CAM BARS	ON, **OFF**	
	WHITE SETUP MODE	AWB, **A.LVL**	
	FILTER WHT MEM	ON, **OFF**	Sets the function to use independent white memory at each CC filter position to ON/OFF.
	STANDALONE SW DISABLE	**OFF**, ON	When set to ON, disables operation of the unit's switches, such as the WHITE BAL switch, even when a CCU, or control panel is not connected.
	HD DOWNCONV FILTER	**1**, 2, 3, 4, 1(V0.3), 1(V0.6)	
<OPTION KEY> M19	READ (USB → CAM)	Execute via ENTER.	Reads the install key from a USB drive.
	EFFECTIVE FUNCTION	PsF FORMAT, 1080P FORMAT	Displayed only when option function is 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 Page No.	**Item**	**Settings**	**Description**
<OPERATOR FILE> 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			
Page title **Page No.**	**Item**	**Settings**	**Description**
<SCENE FILE> F02	1		Stores and reads scene files (paint data): When storing a file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute via ENTER.	
	01	**01** to 32	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB → CAM)	Execute via ENTER.	Loads 32 scene files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via ENTER.	Writes 32 scene files in the camera's memory to a USB drive.
	FILE ID	Max.14 characters	Enters a comment for the scene files to be written to a USB drive. *See "To specify a character string" on page 24.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
	DISSOLVE	**OFF**, ON	Switching a scene file seamlessly.
	SPEED	0.2 to 2.8 (0.2 steps), 3 to 10 (1 steps), **0.2**	
<REFERENCE> 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.14 characters	Enters a comment for the reference file to be written to a USB drive. *See "To specify a character string" on page 24.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<LENS FILE> F04	STORE FILE	Execute via ENTER.	The center marker is not included.
	No.	1 to 17, **1**	**1** to **16**: When using a non-serial lens (When using a large lens, this setting depends on the internal setting of the lens.) **17**: When using a serial lens
	NAME		Changeable only when using a non-serial lens.
	F NO	F1.0 to F3.4, **F1.7**	Changeable only when using a non-serial lens.
	CENTER MARKER		Sets and stores the center marker position: **H POS**: Increasing the value moves the position to the right. **V POS**: Increasing the value moves the position downwards.
	H POS	–20 to +20, **0**	
	V POS	–20 to +20, **0**	
	STORE	Execute via ENTER.	
<OHB FILE> F05	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			
Page title Page No.	**Item**	**Settings**	**Description**
<MATRIX FILE> F06	CUSTOM PRESET MATRIX		Stores and reads preset files: When storing a preset file in camera memory, specify the file number.
	STORE FILE	Execute via ENTER.	
	1		
	2		
	3		
	4		
	5		
	CLEAR ALL	Execute via ENTER.	Clears all the files.
	READ (USB → CAM)	Execute via ENTER.	Loads five preset files from a USB drive to internal memory.
	WRITE (CAM → USB)	Execute via ENTER.	Writes five preset files in the camera's memory to a USB drive.
	FILE ID	Max.14 characters	Enters a comment for the preset files to be written to a USB drive. *See "To specify a character string" on page 24.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<BOX CURSOR FILE> F07	1:		Selects BOX CURSOR FILE and enters a BOX CURSOR FILE name. Sets the cursor to the left of the number when you select BOX CURSOR FILE. Sets the cursor to the right of the number when you enter a BOX CURSOR FILE name. *See "To specify a character string" on page 24.*
	2:		
	3:		
	4:		
	5:		
	STORE		Stores a BOX CURSOR FILE name in the camera.
	READ (USB → CAM)		Transfers BOX CURSOR FILE from a USB drive to the camera.
	WRITE (CAM → USB)		Transfers BOX CURSOR FILE from the camera to a USB drive.

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 Page No.	**Item**	**Indication**	**Description**
<OPTICAL LEVEL> D01	CCU → CAM	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU is connected.
	CAM → CCU	GREEN, YELLOW, RED, NG, NO SIGNAL	Not displayed when the HKC-TR37 is attached.
	CABLE LENGTH	x.x km	Displays the camera cable length. (Displayed only when a CCU is connected.) Not displayed when the HKC-TR37 is attached.

DIAGNOSIS			
Page title Page No.	**Item**	**Indication**	**Description**
<BOARD STATUS> D02	OHB	OK, NG	
	DPR	OK, NG	
	SY	OK, NG	
	PS	OK, NG	
	TX	OK, NG	Not displayed when the HKC-TR37 is attached.
	CD	OK, NG	Displayed only when the HKC-TR37 is attached.
	TR	OK, NG	
	HOURS METER	xxxx H	Displays the total working time.
<ROM VERSION> D03 (U15)	CAMERA APP	Vx.xx	
	OS	Vx.xx	
	UPDATER	Vx.xx	
	PANEL	Vx.xx	Displayed only when HDLA is attached.
	SY	Vx.xx	
	DPR	Vx.xx	
	PS	Vx.xx	
	TX	Vx.xx	Not displayed when the HKC-TR37 is attached.
	CD1	OK, NG	Displayed only when the HKC-TR37 is attached.
	CD2	OK, NG	
	TR	OK, NG	
<SERIAL NO.> D04	MODEL	HDC3500	
	NO.	xxxxxxx	
	EFFECTIVE FUNCTION		Displayed if any option is installed.
<POWER SUPPLY STATUS> D05	CAM INPUT VOLTAGE	0% to 100%, 100% OVER	Displays the ratio of the input voltage for a camera to the output voltage for a CCU.
	CAM CONSUMPTION	0% to 100%	Displays camera power consumption.
Note This display has a margin of error for the display of the electric supply state of a camera. Use only as a guide.	CABLE LENGTH	x.x km	Displays the cable length that a CCU measured. (Displayed only when a CCU is connected.) Not displayed when the HKC-TR37 is attached.

Appendix

Precautions

Note on laser beams

Laser beams may damage the CMOS image sensor. If you shoot a scene that includes a laser beam, be careful not to let a laser beam become directed into the CMOS image sensor 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 the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

About consumable parts

- The fan and battery are consumable parts that will need periodic replacement.
  When operating at room temperature, a normal replacement cycle will be about 5 years.
  However, this replacement cycle represents only a general guideline and does not imply that the life expectancy of these parts is guaranteed. For details on parts replacement, contact your dealer.
- The life expectancy of the electrolytic capacitor is about 5 years under normal operating temperatures and normal usage (8 hours per day; 25 days per month).
  If usage exceeds the above normal usage frequency, the life expectancy may be reduced correspondingly.

Camera CMOS image sensor phenomena

Note

The following phenomena that may occur in images are specific to image sensors. They do not indicate a malfunction.

White flecks

Although the image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays, etc.
This is related to the principle of image sensors and is not a malfunction.
The white flecks especially tend to be seen in the following cases:

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

Flicker

If shooting under lighting produced by fluorescent lights, sodium lamps, mercury-vapor lamps, or LEDs, the screen may flicker or colors may vary.

To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this camera can result in malfunctions and interference with audio and video signals.
It is recommended that the portable communications devices near this camera be powered off.

Digital Triax Transmission (when HKC-TR37 is attached)

A powerful error-correction function is incorporated for the transmission between the camera and CCU. However, if an error occurs on long-distance transmission because of external noise or for some other reason, the compensation by interpolation that partially uses the previous picture may operate.

In digital triax transmission, the following video delay in transmission may occur.

- The video delay in transmission between the camera and the CCU is approx. 9 ms to 12 ms.
- A delay of about 1 frame occurs on the viewfinder display if a camera image is sent back from the CCU to the camera as a return signal.
- An appropriate delay is applied to the MIC 1 and 2 audio signals from the CCU to match the video delay.
- A certain time is required for the video signal transmitted between the camera and the CCU to stabilize after power is applied. This is not a malfunction.

Triax Transmission Distances

The maximum and minimum transmission distances allowed for triax cable connection are shown in the table below. The distances may vary according to the conditions, such as the total power requirements (including the power supply to the camera from the CCU) and cable degradation.
Allowable transmission range when using triax cables with the following characteristics:
Attenuation: 3.8 to 68.4 dB at 100 MHz (including the connector loss)

Cable type (example)		Max. distance	Min. distance
Fujikura	8.5 mm dia.	900 m (2953 ft)	50 m (164 ft)
Fujikura	14.5 mm dia.	1800 m (5906 ft)	100 m (328 ft)
Belden 9232	13.2 mm dia.	1300 m (4265 ft)	75 m (246 ft)

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 CORRECT SYSTEM DATE	The time/date of the internal clock have not been set.
OHB BLOCK NG!	A problem is detected in the optical block.
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, 2018)

Series	Product
USM-QX series	USM8GQX, USM16GQX, USM32GQX, USM64GQX, USM128GQX
USM-T series (Japan only)	USM8GT, USM16GT, USM32GT, USM64GT, USM128GT
USM-U series	USM4GU, USM8GU, USM16GU, USM32GU, USM64GU, USM128GU
USM-X series	USM8X, USM16X, USM32X, USM64X
USM-W3 series	USM8W3, USM16W3, USM32W3, USM64W3, USM128W3
USM-R series	USM4GR, USM8GR, USM16GR, USM32GR, USM64GR
USM-W series	USM8W, USM16W, USM32W, USM64W
USM-M1 series	USM8M1, USM16M1, USM32M1, USM64M1
USM-SA3 series	USM16SA3, USM32SA3, USM64SA3
USM-SA2 series	USM16SA2, USM32SA2, USM64SA2
USM-SA1 series	USM8SA1, USM16SA1, USM32SA1, USM64SA1
USM-CA1 series	USM16CA1, USM32CA1, USM64CA1
USM-L series (discontinued)	USM1GL, USM2GL, USM4GL, USM8GL, USM16GL, USM32GL
USM-LX series (discontinued)	USM1GLX, USM2GLX, USM4GLX, USM8GLX, USM16GLX, USM32GLX, USM64GLX
USM-N series (discontinued)	USM4GN, USM8GN, USM16GN, USM32GN
USM-P series (discontinued)	USM4GP, USM8GP, USM16GP, USM32GP, USM64GP
USM-M series (discontinued)	USM4GM, USM8GM, USM16GM, USM32GM
USM-Q series (discontinued)	USM8GQ, USM16GQ, USM32GQ, USM64GQ
USM-S series (discontinued)	USM4GS, USM8GS, USM16GS
USM-V series (discontinued)	USM4GV, USM8GV

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

HDC3500

General	
Power requirements	AC 240 V, 1.4 A (max.) DC 12 V, 9.5 A (max.) DC 240 V, 1.05 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) Approx. 5.1 kg (11 lb 4 oz) (when HKC-TR37 is attached) Approx. 4.9 kg (10 lb 13 oz) (when HKC-FB30 is attached)
Dimensions	See *page 60*.
Imager	
Imager	2/3 inch CMOS sensor with global shutter
Method	3-chip, RGB
Electrical characteristics	
Sensitivity	F10.0 with 1080/59.94i F11.0 with 1080/50i (at 2000 lx with 89.9% reflectance)
Image S/N	62 dB or higher
Horizontal resolution	1000 TV lines (at center of screen) 5% or higher modulation
Geometric distortion	Negligible (not including lens distortion)
Optical system specifications	
Spectral system	F1.4 prism
Built-in filters	ND filters 1: CLEAR 2: 1/4ND 3: 1/8ND 4: 1/16ND 5: 1/64ND Color temperature conversion filters A: cross filter B: 3200K(clear) C: 4300K D: 6300K
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) AUDIO switch for MIC: –60 dBu (can be selected up to –20 dBu in the menu), balanced AUDIO switch for LINE: 0 dBu, balanced
INTERCOM 1, INTERCOM 2	XLR 5-pin, female (1 each)
EARPHONE	4-pole mini jack (1) (2-polo mono, 3-pole stereo, 4-pole CTIA standard, 4-pole OMTP standard)
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 (This may be limited by the imposed load or inputs.) 2-pin (1), DC 10.5 to 17 V Max. 2.5 A (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) PROMPTER: 1 Vp-p, 75 Ω GENLOCK: HD: SMPTE ST274, tri-level sync, 0.6 Vp-p, 75 Ω SD: Black burst (NTSC: 0.286 Vp-p, 75 Ω/ PAL: 0.3 Vp-p, 75 Ω)
PROMPTER2	BNC-type (1), 1 Vp-p, 75 Ω
RET CTRL	6-pin (1)
REMOTE	8-pin (1)
TRACKER	12-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	
Before Using This Unit (1)	
Operating Instructions (CD-ROM) (1)	
Cable clamp belt (1 set)	
Screws (+B3×8) (2)	
Attached label (1)	

Optional Accessories/Related Equipment

Optional accessories	
Triax Transmission Adaptor	HKC-TR37
Side Panel Attachment Kit	HKC-CN50
Optical Fiber Transmission Adaptor	HKC-FB30
Camera operating software	HZC-PRV50/PRV50M/PRV50W HZC-PSF50/PSF50M/PSF50W
HD Electronic Viewfinder	HDVF-EL20 (0.7-type, color) HDVF-EL30 (0.7-type, color) HDVF-EL75 (7.4-type, color) HDVF-L750 (7-type, color) HDVF-L770 (7-type, color)
Large Lens Adaptor	HDLA1500/1505
Large Viewfinder Adaptor	HDLA1507
Microphone Holder	CAC-12
Return Video Selector	CAC-6
Tripod Attachment	VCT-14

Low-repulsion Shoulder Pad	A-8286-346-A
Related equipment	
HDCU3100/3170 Camera Control Unit	
HDCU2000-series HD Camera Control Unit	
RCP-1500/1000 series Remote Control Panel	
CNA-1 Camera Control Network Adaptor	

HKC-FB30

General	
Operating temperature	–20 °C to +45 °C (–4 °F to +113 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (w / h / d)	56 × 181 × 338 mm ($2\ ^1/_4 \times 7\ ^1/_4 \times 13\ ^3/_8$ in.)
Mass	Approx. 0.7 kg (1 lb. 8.7 oz.)
Input/output connectors	
CCU	Optical/electrical multi-connector (1)
SDI1, SDI2	BNC type (1 each)
PROMPTER2	BNC type (1), 1 Vp-p, 75 Ω
DC OUT	2-pin (1)
NETWORK TRUNK	RJ-45 type 8-pin (1)
Supplied accessories	
Attached label (1)	
Operating Instructions (1)	

HKC-TR37

General	
Operating temperature	–20 °C to +45 °C (–4 °F to +113 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (w / h / d)	58 × 181 × 338 mm ($2\ ^3/_8 \times 7\ ^1/_4 \times 13\ ^3/_8$ in.)
Mass	Approx. 1.0 kg (2 lb. 3.3 oz.)
Input/output connectors	
CCU	Triax connector (1)
SDI	BNC type (1)
DC OUT	2-pin (1)
Supplied accessories	
Attached label (1)	
Operating Instructions (1)	

HKC-CN50

General	
Operating temperature	–20 °C to +45 °C (–4 °F to +113 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (w / h / d)	150 × 50 × 20 mm ($6 \times 2 \times {}^{13}/_{16}$ in.)
Mass	Approx. 0.06 kg (2.1 oz.)
Supplied accessories	
Harness (1)	
Stepped screws (3)	
Screws (PSW 3×6) (2)	
Operating Instructions (1)	

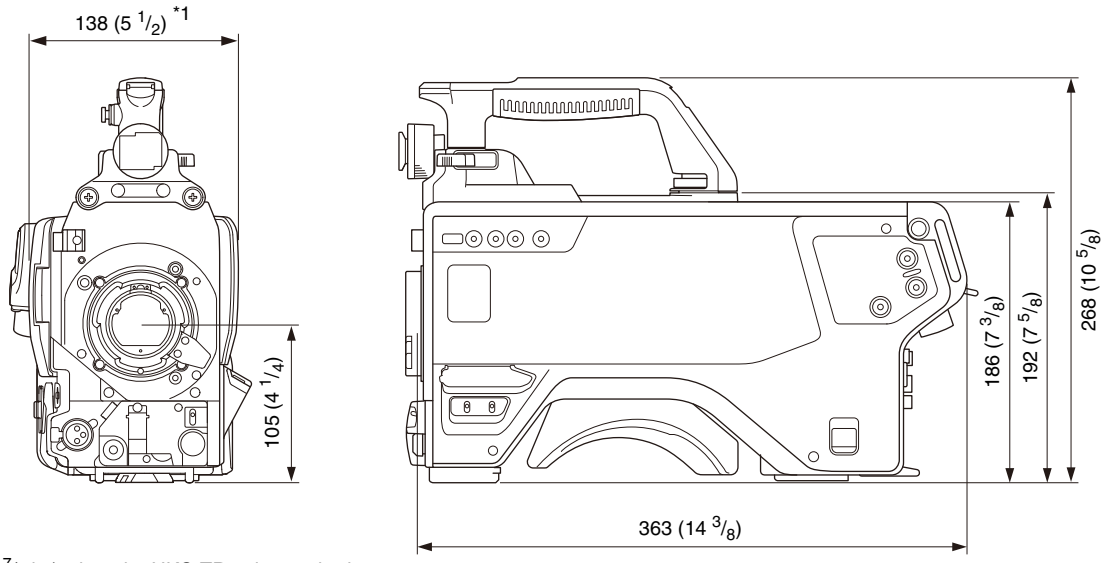
Design and specifications are subject to change without notice.

Notes

- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.
- SONY WILL NOT BE LIABLE FOR CLAIMS OF ANY KIND MADE BY USERS OF THIS UNIT OR MADE BY THIRD PARTIES.
- SONY WILL NOT BE LIABLE FOR THE TERMINATION OR DISCONTINUATION OF ANY SERVICES RELATED TO THIS UNIT THAT MAY RESULT DUE TO CIRCUMSTANCES OF ANY KIND.

Dimensions

Unit: mm (inches)



*1: 148 mm (5 7/8 in.) when the HKC-TR37 is attached

Open Software Licenses

On the basis of license contracts between Sony and the software copyright holders, this product uses open software. To meet the requirements of the software copyright holders, Sony is obligated to inform you of the content of these licenses.
For the content of these licenses, see “License1.pdf” in the “License” folder of the supplied CD-ROM.
Adobe Reader must be installed on your computer to view PDF files.
If Adobe Reader is not installed on your computer, you can download it by accessing the following URL.
http://get.adobe.com/reader

MPEG-4 Visual Patent Portfolio License

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NONCOMMERCIAL USE OF A CONSUMER FOR

(i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD (“MPEG-4 VIDEO”)
AND/OR
(ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO.

NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE. ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL, INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA, LLC. SEE HTTP://WWW.MPEGLA.COM

MPEG LA is offering licenses for (i) manufacturing/sales of any storage media storing MPEG-4 Visual video information (ii) distribution/broadcasting of MPEG-4 Visual video information in any manner (such as online video distribution service, internet broadcasting, TV broadcasting). Other usage of this product may be required to obtain license from MPEGLA. Please contact MPEG LA for any further information. MPEG LA, L.L.C., 250 STEELE STREET, SUITE 300, DENVER, COLORADO 80206, http://www.mpegla.com