JVC

HD MEMORY CARD CAMERA RECORDER

JY-HM360AG

INSTRUCTIONS
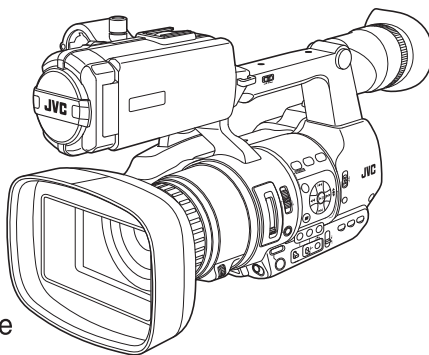
SDHC™

SD XC™

▶◀ DOLBY
DIGITAL
STEREO CREATOR

HDMI™
HIGH DEFINITION MULTIMEDIA INTERFACE

∧∨CHD™ Progressive

The specifications and appearance of this product are subject to changes for further improvement without prior notice.
Please check the latest version of the INSTRUCTIONS from the following Mobile User Guide. You can also download the PDF from the Mobile User Guide.

Mobile User Guide

When you are outside, you can refer to the instructions from your Android phone or iPhone.

http://manual3.jvckenwood.com/pro/mobile/global/

You can view the Mobile User Guide using the browser on your Android phone or iPhone.

This product does not come with a battery pack. When using a battery, please purchase the recommended battery pack (SSL-JVC50).

Please read the following before getting started:
Thank you for purchasing this JVC product.
Before operating this unit, please read the instructions carefully to ensure the best possible performance.

Safety Precautions

CAUTION:
The mains plug shall remain readily operable.
● Remove the mains plug immediately if the camera functions abnormally.

WARNING:
The battery pack, the camera with battery installed, and the remote control with battery installed should not be exposed to excessive heat such as direct sunlight, fire or the like.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

NOTES:
● The rating plate and safety caution are on the bottom and/or the back of the main unit.
● The serial number plate is on the bottom of the unit.
● The rating information and safety caution of the AC adapter are on its upper and lower sides.

Caution on Replaceable lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated.
Do not recharge, disassemble, heat above 100°C or incinerate.
Replace battery with Panasonic, Sanyo, Sony or Maxell CR2025.
Danger of explosion or risk of fire if the battery is incorrectly replaced.
● Dispose of used battery promptly.
● Keep away from children.
● Do not disassemble and do not dispose of in fire.

When the equipment is installed in a cabinet or on a shelf, make sure that it has sufficient space on all sides to allow for ventilation (10 cm or more on both sides, on top and at the rear).
Do not block the ventilation holes.
(If the ventilation holes are blocked by a newspaper, or cloth etc. the heat may not be able to get out.)
No naked flame sources, such as lighted candles, should be placed on the apparatus.
When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.

The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

Do not point the lens directly into the sun. This can cause eye injuries, as well as lead to the malfunctioning of internal circuitry. There is also a risk of fire or electric shock.
CAUTION!
The following notes concern possible physical damage to this unit and to the user.
Carrying or holding this unit by the LCD monitor can result in dropping the unit, or in a malfunction.
Do not use a tripod on unsteady or unlevel surfaces. It could tip over, causing serious damage to the unit.
CAUTION!
Connecting cables (Audio/Video, etc.) to this unit and leaving it on top of the TV is not recommended, as tripping on the cables will cause the unit to fall, resulting in damage.

CAUTIONS:
● To prevent shock, do not open the cabinet. No user serviceable parts inside.
  Refer servicing to qualified personnel.
● When you are not using the AC adapter for a long period of time, it is recommended that you disconnect the power cord from AC outlet.

CAUTION:
Where there are strong electromagnetic waves or magnetism, for example near a radio or TV transmitter, transformer, motor, etc., the picture and the sound may be disturbed. In such case, please keep the apparatus away from the sources of the disturbance.

CAUTION:
To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adapter until it is no longer wobbly, and then plug the larger end of the power cord in to an AC outlet.
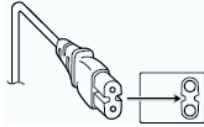
The plastics packaging bags may cause suffocation when they are covered over the head. Tear them open, and keep them away from the reach of infants and children by ensuring that they are disposed of properly.
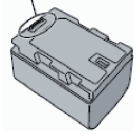
If this symbol is shown, it is only valid in the European Union.

Battery Pack (sold separately)
The battery pack is a lithium-ion battery. Before using the battery pack, be sure to read the following cautions:

● **To avoid hazards**   **Terminals**
... do not burn.
... do not short-circuit the terminals. Keep it away from metallic objects when not in use.
When transporting, carry the battery in a plastic bag.
... do not modify or disassemble.
... do not expose the battery to temperatures exceeding 60°C, as this may cause the battery to overheat, explode or catch fire.
... use only specified chargers.

● **To prevent damage and prolong service life**
... do not subject to unnecessary shock.
... charge within the temperature range of 10°C to 30°C. Cooler temperatures require longer charging time, or in some cases stop charging at all. Warmer temperatures prevent complete charging, or in some cases stop charging at all.
... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
... keep a 30% battery level (☐) if the battery pack is not to be used for a long period of time.
... remove from charger or powered unit when not in use, as some machines use current even when switched off.
... do not drop or subject to strong impact.

Contents

Menu Display and Detailed Settings

Display/Status Screen

Camera Features

Connecting External Devices

Others

<table>
<tr><td colspan="2" align="center">Content of this manual</td></tr>
</table>

Symbols used

Caution	:	Describes precautions concerning the operation of this product.
Memo	:	Describes reference information, such as functions and usage restrictions of this product.
☞	:	Indicates the reference page numbers and reference items.

Content of this manual

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Main Features

1/2.3-Inch Backlit CMOS Sensor with 18.91M Pixels and Bright "F1.2 Lens"

This camera recorder is equipped with a backlit CMOS sensor with 18.91M pixels. Together with the bright "F1.2 JVC GT Lens", high-sensitivity shooting is achieved, capturing videos of high resolution and 3D appearance. Clear and bright videos of higher definition can be recorded with less noise even in indoor and dark scenes.

One-Touch "Scene Select" Function to Set Appropriate Shooting Mode According to the Shooting Situation

This camera recorder comes with a one-touch button for selecting an appropriate mode to reduce poor shooting integrity such as lighting difference in indoor and outdoor scenes, backlight, and overexposure. This is a great help for bridal or important event shootings where there is no room for poor quality or failed shooting.

Stylish and Ergonomic Design

This handheld compact HD camera recorder has a well-designed sense of balance and is highly mobile. Parts on the camera recorder, such as the "REC button" and "Grip Zoom Lever" on the handle grip, "Camera Adjust/Set button", and "card slot", are "easily accessible during shooting". Input and output terminals are also strategically located with easy cable connection access. In addition, you can also customize and preset frequently used functions in any of the 7 operation buttons.

JVC's Proprietary FALCONBRID High-Quality Imaging Engine

The FALCONBRID high-quality imaging engine omits unnecessary processing through incorporating camera processing and image compression on a single chip. Images from imaging devices are compressed and processed without any loss thereby achieving high-quality images.

Supports Multiple Coding and File Formats

This camera recorder supports major file formats such as FinalCutPro™ native "MOV", XDCAMEX™ compatible "MP4", and AVCHD-compatible "MTS". It also supports high-definition picture quality of 35 Mbps in MPEG-2 and 28 Mbps in AVCHD. In addition, for H.264, the "High Definition" mode (50 Mbps) captures fast-moving subjects vividly in almost block noise-free high resolution.

Flexible Dual SD Card Slot

Two card slots for the economic and operable "SDHC/SDXC memory cards" are available for your recording media. With the dual SD card slots, you can perform seamless and continuous recording for long hours with "Relay Recording", create clips of the same content at the same time with "Dual Recording", and take stills on one card while pressing start/stop during simultaneous recording with "Backup Recording".
The mobile and efficient workflow supports various situations and allows you to record memorable moments from ENG (Electronic News Gathering) to bridal and events shooting.

Continuous Clip Recording Convenient for File Management and Editing

Several footage shootings from "the start till the end of recording" can be consolidated and recorded under one file in the SD card. This reduces the amount of workload taken to edit wedding ceremonies and other long-hour event shootings.

Auto Focus and Other Various Shooting Assist Functions

When using auto focus and expanded focus, the Focus/Zoom ring can be forcibly set to Focus mode to further enhance assistance during shooting.

Professional Switch Layout and Various Video Parameter Settings

Switches for Gain and White Balance are available on the side panel to enable quick switching according to the shooting scene.
Image parameters such as gamma and color matrixes are also available in the menu for adjusting preferred tones.

Equipped with 0.24-inch 1.56M Pixel Color Viewfinder, 3.5-inch 920K Pixel LCD Display

The standard high-performance viewfinder allows you to capture subjects more accurately according to the shooting purpose and concept. In addition, the 3.5-inch 920K pixel LCD monitor further heightens the shooting function. The backlight adjustment position on the LCD monitor can be set to 3 steps to increase the luminance, thus improving the visibility.

Built-in Stereo Microphone, 2-channel XLR Audio Input (Microphone/Line Switch, Phantom Power Supply) and Mini Jack Input Terminal for Wireless Microphone Receiver

This camera recorder is equipped with high-performance analog circuits. With the wide dynamic range, soft sounds and loud sounds can be recorded without distortion compared to previous models.

Precautions for Proper Use

Storage and Usage Locations

■ Allowable ambient temperature and humidity
Be sure to use this unit within the allowable
temperature range of 0 °C to 40 °C and a relative
humidity of 30 % to 80 %. Using this unit at a
temperature or humidity outside the allowable
ranges could result not only in malfunction but
also serious impact on the CMOS elements as
small white spots may be generated. Please
exercise care during use.

■ Strong electromagnetic waves or magnetism
Noise may appear in the picture or audio and/or
the colors may be incorrect if this unit is used
near a radio or television transmitting antenna,
in places where strong magnetic fields are
generated by transformers, motors, etc., or near
devices emitting radio waves, such as
transceivers or cellular phones.

■ Use of wireless microphone near this unit
When a wireless microphone or wireless
microphone tuner is used near this unit during
recording, the tuner could pick up noise.

■ Avoid using or placing this unit in the following
places.
  ● Places subject to extreme heat or cold
  ● Places with excessive dirt or dust
  ● Places with high humidity or moisture
  ● Places subject to smoke or vapor such as near
    a cooking stove
  ● Places subject to strong vibrations or unstable
    surfaces
  ● In a parked car under direct sunlight or near a
    heater for long hours

■ Do not place this unit at places that are subject
to radiation or X-rays, or where corrosive gases
occur.

■ Protect this unit from being splashed with water.
(Especially when shooting in the rain)

■ Protect this unit from getting wet when shooting
on a beach. In addition, salt and sand may
adhere to the body. Be sure to clean the unit after
use.

■ Protect this unit against penetration of dust
when using it in a place subject to sandy dust.

Transportation

■ Do not drop or hit this unit against a hard object
when transporting.

Power Saving

■ When this unit is not in use, be sure to set the
[POWER ON/OFF] switch to "OFF" in order to
reduce power consumption.

Maintenance

■ Turn off the power before performing any
maintenance.

■ Wipe the external cabinet of the unit with a soft
cloth. Do not wipe the body with benzene or
thinner. Doing so may cause the surface to melt
or turn cloudy. When it is extremely dirty, soak
the cloth in a solution of neutral detergent, wipe
the body with it, and then use a clean cloth to
remove the detergent.

Rechargeable Battery (sold separately)

■ Be sure to use only the specified batteries.
We do not guarantee the safety and
performance of this device if an unspecified
battery is used.

■ For details, refer to the "INSTRUCTIONS" of the
battery.

LCD Monitor and Viewfinder

■ The LCD monitor and viewfinder screen are
manufactured using high-precision technology.
Black spots may appear on the LCD monitor and
viewfinder screen, or red, blue, and/or white
spots may not disappear. However, this is not a
malfunction and these spots are not recorded on
the SD card.

■ If you use this unit continuously for a long period
of time, the characters displayed in the
viewfinder may temporarily remain on the
screen. This is not recorded on the SD card.
They will not appear after you turn the power off
and then on again.

■ If you use this unit in a cold place, the images
may appear to lag on the screen, but this is not
a malfunction. Retained images are not
recorded on the SD card.

■ Do not press against the surface with force or
subject it to strong impact. Doing so may
damage or break the screens.

■ Noise may appear in the viewfinder when
switching between the live video and playback
images.

■ Due to the characteristic of the viewfinder
display device, colors may appear on the
images when you blink your eyes. It does not
affect the recorded images or HDMI output.

SDHC/SDXC Cards

■ SDHC/SDXC card is referred to as SD card in this manual.
■ This camera recorder saves the recorded images and audio sound on the SD card (sold separately) in the card slot.
■ If the SD card contains files recorded by devices other than this camera recorder or files that are saved from a PC, the recordable time may be shorter or data may not be properly recorded. In addition, the remaining space on the card may not increase even when files are deleted using a PC.
■ For details on the combinations of usable SD card and format setting, refer to the following. (☞ P33 [Usable Cards])

* Using cards other than those from Panasonic, TOSHIBA or SanDisk may result in recording failure or data loss.

Handling of SD Cards

■ The status indicator lights up in red when data on the SD card is being accessed.
Do not remove the SD card during data access (such as recording, playback, or formatting). Do not turn off the power or remove the battery and AC adapter during access either.
■ Do not use or store the SD card in a place that is subject to static electricity or electrical noise.
■ Do not place the SD card near locations that are exposed to strong magnetic fields or radio waves.
■ Inserting the SD card incorrectly may result in damage of this unit or the SD card.
■ We are not liable for any accidental loss of data stored on the SD card. Please back up any important data.
■ Make use of the SD card within the prescribed conditions of use.
Do not use it at the following locations.
Places that are subject to direct sunlight, high humidity or corrosion, places near thermal equipment, sandy or dusty places, or in a car under the sun with the doors and windows closed.
■ Do not bend or drop the SD card, or subject it to strong impact or vibration.
■ Do not splash the SD card with water.
■ Do not dismantle or modify the SD card.
■ Do not touch the terminals with your hands or with a metal object.
■ Do not allow dust, dirt, water, or foreign objects to adhere to the terminals.
■ Do not remove the labels or stick other labels or stickers on the SD cards.

■ Do not use pencils or ballpoint pens to write on the SD cards. Always use oil-based pens.
■ If you format (initialize) the SD card, all data recorded on the card, including video data and setup files, will be deleted.
■ You are recommended to use cards that are formatted (initialized) on this camera recorder.
● The SD card may be damaged if the camera recorder is not operated correctly. Formatting (Initializing) the SD card may allow it to operate correctly.
● SD cards that have been formatted (initialized) on other cameras, computers or peripheral equipment may not operate correctly. In this case, format (initialize) the SD card on this camera recorder.
■ If you want to wipe out all information by completely erasing the data, we recommend either using commercially available software that is specially designed for that purpose, or by physically destroying the SD card with a hammer, etc. When formatting or erasing data using the camera recorder, only the file administration information is changed. The data is not completely erased from the SD card.
■ Some commercially available SD cards may be harder to be removed from this unit. Remove them by hooking onto the groove on the cards.
● It will be easier to remove the cards after several times.
● Do not stick any stickers on the cards.

Groove

■ The SD card may pop out when it is being removed. Be careful not to lose the card.

License Notices

■ MPEG LA AVC
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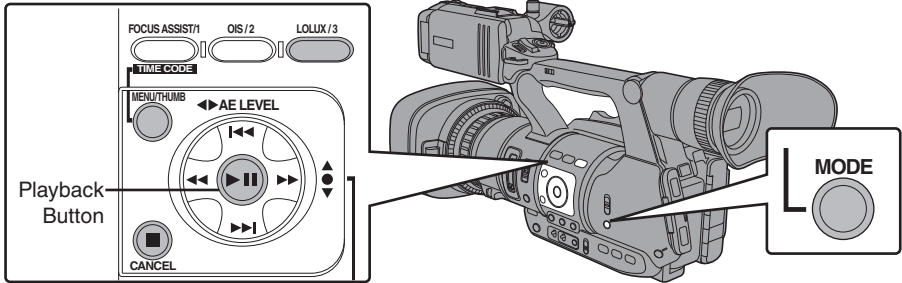
Copyright

■ Any recordings made on this camera recorder that are played back for profit or public preview may infringe on the rights of the owner of the recordings.
Do not use the recordings for purpose other than personal enjoyment without prior consent from the owner.

Others

■ Do not insert objects other than the memory card into the card slot.
■ Do not block the vent on the unit.
Blocking of the vent causes internal heating and may lead to burns and fires.
■ Do not put anything into the camera unit.
Metal and flammable items entering from the vent and connectors can result in fire or electric shock.
■ Do not turn off the [POWER ON/OFF] switch or remove the power cable during recording or playback.
■ The camera recorder may not show stable pictures for a few seconds immediately after the power is turned on, but this is not a malfunction.
■ When the video signal output terminals are not in use, put on the covers to prevent damage to the terminals.
■ Do not drop this unit or subject it to strong impact or vibration as it is a precision equipment.
■ Optical performance of lens
Due to the optical performance of the lens, color divergence phenomena (magnification chromatic aberration) may occur at the periphery of the image. This is not a camera malfunction.
■ Noise may appear in the image when switching modes.
■ If placed on its side, heat release efficiency will deteriorate.
■ Use the supplied AC adapter as the power supply. Do not use the supplied AC adapter on other devices.
■ When the connectors that come with connector covers are not in use, put on the covers to prevent damage to the connectors.
■ This camera recorder makes use of fonts by Fontworks Inc.
■ This camera recorder makes use of M+FONTS.

Operation Modes

This camera recorder has three operation modes - Camera mode, Media mode, and USB mode.
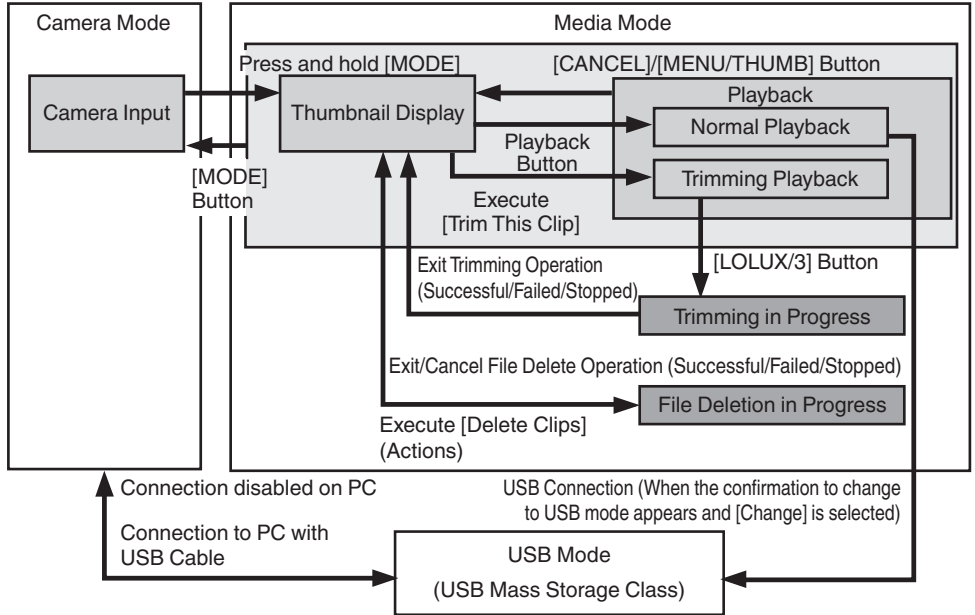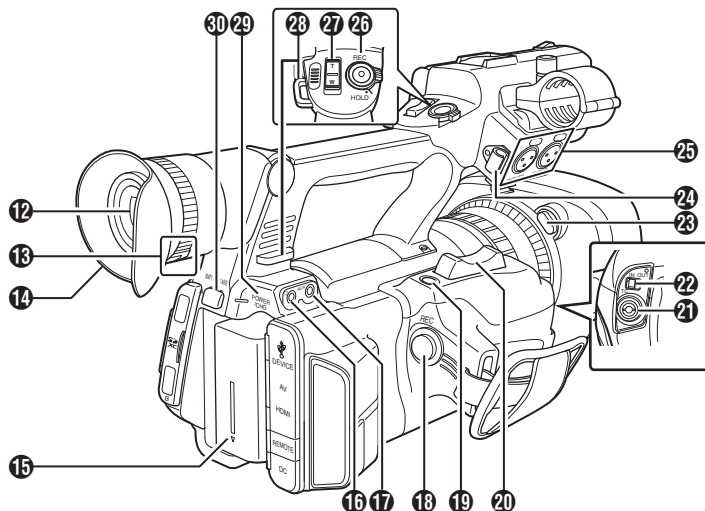
Operation Mode	Description
Camera Mode	• This is the camera shooting mode. The camera recorder starts up in Camera mode when the power is turned on. • Camera images are output on the viewfinder and LCD monitor. When a recordable SD card is inserted, the camera recorder enters the recording standby mode. "STBY" appears on the operation mode display area of the LCD monitor and viewfinder. • Press the [REC] trigger button to start recording. Memo : ——————— • Playback of SD card is not possible in Camera mode. However, you can check the most recently recorded video clip. (☞ P64 [Viewing Recorded Videos Immediately (Clip Review)])
Media Mode	• This mode allows you to play back or delete clips recorded on the SD card. • When a playable SD card is inserted, the thumbnail or playback screen is displayed on the viewfinder and LCD monitor. • Press the [MODE] selection button to enter Media mode when you are not shooting in Camera mode. Once the camera recorder is in Media mode, thumbnails of the selected media slot are displayed.
USB Mode	• This mode allows you to connect to a PC and transfer the files on an SD card to the PC. • When the camera recorder is connected to a USB cable, the message "Change to USB Mode?" appears. Select [Change] and press the Set button to switch to USB mode. (☞ P122 [Loading Clips to the PC]) • In USB mode, the camera recorder is recognized by the connected PC as a peripheral drive. (USB mass storage class only) Disable the connection on the PC and remove the USB cable from the camera recorder to switch to Camera mode. (☞ P122 [Loading Clips to the PC]) Memo : ——————— • When a USB cable is connected during recording, the message appears after recording stops. • If playback is in progress, the message appears once the files are closed automatically, such as when playback stops. • Files on the PC cannot be written to the SD card.

Names of Parts
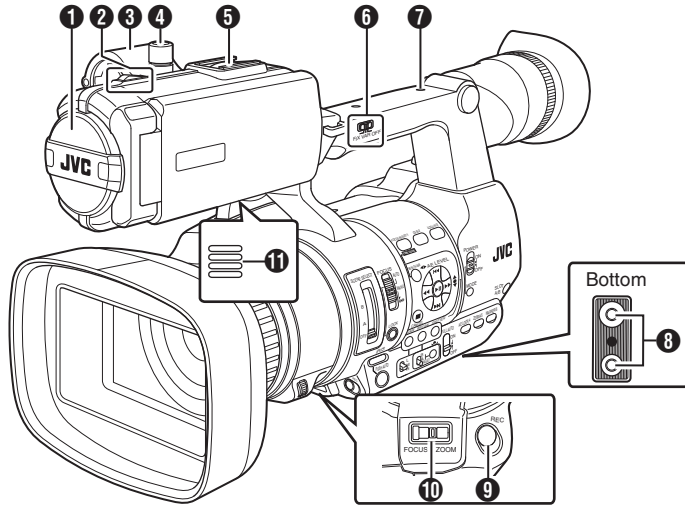
❶ Built-in Microphone
(☞ P55 [Audio Recording])

❷ Tally Lamp
(☞ P32 [Tally Lamp])
(☞ P126 [Blinking of the Tally Lamp])

❸ Microphone Holder
(☞ P21 [Attaching an External Microphone])

❹ Microphone Holder Lock Knob
(☞ P21 [Attaching an External Microphone])

❺ Shoe
For mounting separately sold lights and accessories.

❻ [FIX/VAR/OFF] Zoom Speed Switch
(☞ P41 [Zoom Operation])
For switching the zoom speed of the zoom lever ㉗ at the handle.

❼ Accessory Mounting Screw Hole

❽ Tripod Mounting Hole
(☞ P21 [Attaching the Tripod])

❾ [REC] Record Trigger Button
Starts/stops recording.
You can also change its function in the menu.
(☞ P88 [Front REC])

Memo : —————————————————

• This button is interlocked with the [REC] button ⑱ on the grip and the [REC/HOLD] button ㉖ at the top of the handle.

❿ [FOCUS/ZOOM] Operation Switch
For focus operation using the Focus/Zoom ring, set the [FOCUS/ZOOM] operation switch to "FOCUS". For zoom operation, set it to "ZOOM".
(☞ P41 [Zoom Operation])
(☞ P43 [Focus Operation])

⓫ Monitor Speaker
(☞ P77 [Audio Output during Playback])

⓬ Viewfinder
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])

⓭ Visibility Adjustment Lever
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])

⓮ Eyecup
Prevents external light from entering the viewfinder screen and cameraman's vision.

⓯ Battery (sold separately)
(☞ P22 [Using a Battery Pack (sold separately)])

⓰ [Ω] Headphone Jack (Φ3.5 mm)
(☞ P57 [Monitoring Audio Sound During Recording Using a Headphone])

⓱ [AUX] AUX Input Terminal (Φ3.5 mm)
For connecting to receiver such as wireless microphone.

14 Names of Parts

⑱ [REC] Record Trigger Button
Starts/stops recording.

Memo :

- This button is interlocked with the [REC] button
⑨ at the bottom of the lens and the [REC/
HOLD] button ㉖ at the top of the handle.

⑲ [C.REVIEW/7] Clip Review/User 7 Button
For checking the most recently captured
images.
(☞ P64 [Viewing Recorded Videos
Immediately (Clip Review)])
You can also use it as a user button by assigning
a specific feature in the menu setting to this
button.
(☞ P32 [Assignment of Functions to User
Buttons])

⑳ Zoom Lever at the Grip
(☞ P41 [Using the Zoom Lever at the Grip])

㉑ [TC] TC Input/Output Terminal
(☞ P58 [Time Code and User's Bit])

㉒ [IN/OUT] TC IN/OUT Selection Switch
(☞ P62 [Synchronizing Time Code on
Another Camera])

㉓ Hood Release Button
(☞ P22 [Attaching/Detaching the Hood])

㉔ External Microphone Cable Clamp
(☞ P21 [Attaching an External Microphone])

㉕ [INPUT1/INPUT2] Audio Input Terminal 1, 2
(XLR 3-pin x 2)
(☞ P21 [Attaching an External Microphone])

㉖ [REC/HOLD] Record Trigger Button/Lock
Switch
Starts/stops recording.
Set the switch to [HOLD] to lock the [REC]
Trigger button.

Memo :

- This button is interlocked with the [REC] button
⑱ on the grip and the [REC] button ⑨ at the
bottom of the lens.
- The [REC] button ⑱ on the grip and the [REC]
button ⑨ at the bottom of the lens will not be
locked.

㉗ Zoom lever at the Handle
(☞ P41 [Using the Zoom Lever at the
Handle])

㉘ Shoulder Belt Mount (x2)
For mounting a shoulder belt (sold separately).

Caution :

- Be sure to use a shoulder belt with the strength
to withstand the weight of this camera recorder.
- If the shoulder belt is not properly attached, the
camera recorder may fall and cause injuries.
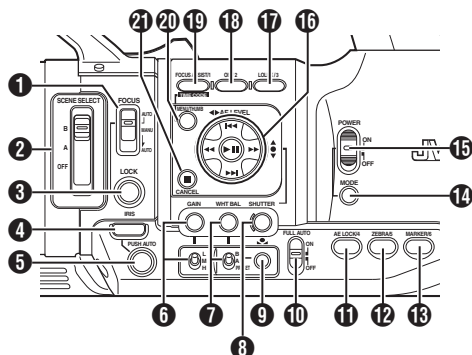Check the instruction manual provided with the
shoulder belt before using.

㉙ [POWER/CHG] Power/Charging Display Lamp
(☞ P22 [Using a Battery Pack (sold
separately)])

㉚ [BATT. RELEASE] Battery Lock Release Button
(☞ P23 [Removing the Battery])

Names of Parts   15

Side Control Panel

❶ **[FOCUS AUTO / MANU / ➜AUTO] Focus Switch**
(☞ P43 [Focus Operation])

❷ **[SCENE SELECT] Scene Selection Switch**
(☞ P46 [Using Scene Select])

❸ **[LOCK] Auto Focus Lock Button**

❹ **[IRIS] Iris Auto/Manual Selection Button**
(☞ P48 [Adjusting the Iris])

❺ **[PUSH AUTO] Iris Push Auto Button**
(☞ P48 [Adjusting the Iris])

❻ **[GAIN] Gain Auto/Manual Selection Button / [L/M/H] Sensitivity Selection Switch**
(☞ P49 [Setting the Gain])

❼ **[WHT BAL] White Balance Auto/Manual Selection Button / [B/A/PRESET] Selection Switch**
(☞ P51 [Adjusting the White Balance])

❽ **[SHUTTER] Shutter Speed Auto/Manual Selection Button**
(☞ P50 [Setting the Electronic Shutter])

❾ **[ ] One Push Auto White Balance Button**

❿ **[FULL AUTO ON/OFF] Full Auto Switch**
For switching the Full Auto mode to ON/OFF.
Full Auto mode adjusts the Iris, Gain, Shutter and White Balance automatically.
(☞ P48 [Adjusting the Brightness Automatically])
(☞ P48 [Auto Iris (Automatic Adjustment) Mode])
(☞ P49 [Automatic Gain Mode (Automatic Gain Adjustment)])
(☞ P50 [Automatic Shutter Mode (Automatic Shutter Adjustment)])
(☞ P51 [Automatic White Balance Mode (FAW: Fulltime Auto White balance)])

⓫ **[AE LOCK/4] AE Lock/User 4 Button**
When Gain, Iris, and Shutter are set to "AUTO", their respective values and the value of white balance are locked when the [AE LOCK/4] button is pressed.
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓬ **[ZEBRA/5] Zebra/User 5 Button**
(☞ P63 [Setting Zebra Pattern])
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓭ **[MARKER/6] Marker/User 6 Button**
This button toggles ON/OFF the marker, safety zone, and center mark displays.
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓮ **[MODE] Camera/Media Mode Selection Button**
(☞ P12 [Operation Modes])

⓯ **[POWER ON/OFF] Lock Power ON/OFF Switch**
Turns ON/OFF the power.
- Hold down the lock button (blue) in the center to toggle ON/OFF.
- When the power is turning OFF, "P.OFF" appears on the LCD monitor and viewfinder.
- Wait for 5 seconds or more to turn on the power again.

⓰ **Cross-Shaped Button (▲▼◀▶)/Set Button (●)**
The function changes according to the operation status of the camera recorder.
■ During menu operation (all modes)
(☞ P83 [Basic Operations in Menu Screen])
Set Button (●) : Confirms menu items and setting values
Cross-shaped Button (▲▼) : Selects menu items and setting values
■ During Camera mode Shutter operation:
Set Button (●) : Shutter ON/OFF
Cross-shaped Button (▲▼) : Switches shutter speed when shutter is ON
Cross-Shaped Button (◀▶) : AE level operation

⓱ **[LOLUX/3] Low-light Shooting/User 3 Button**
For switching the low-light shooting mode ON or OFF.
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓲ [OIS/2] Optical Image Stabilizer/User 2 Button
For switching the image stabilizer feature mode ON or OFF.
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓳ [FOCUS ASSIST/1] Focus Assist/User 1 Button
For switching the focus assist function ON or OFF.
(☞ P44 [Focus Assist Function])
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

⓴ [MENU/THUMB] Menu/Thumbnail Button
● Displays the menu screen during Camera mode.
● Switches between [Main Menu] and [Favorites Menu] when the [MENU/THUMB] button is pressed and held down while the menu screen is displayed.
(☞ P83 [Basic Operations in Menu Screen])
● Displays the menu screen when the button is pressed during thumbnail display in the Media mode.
● Stops playback and displays the thumbnail screen when the button is pressed during playback screen display in the Media mode.

㉑ [CANCEL] Cancel Button
Cancels various settings and stops playback.

SD Slot

(☞ P33 [SD Card])
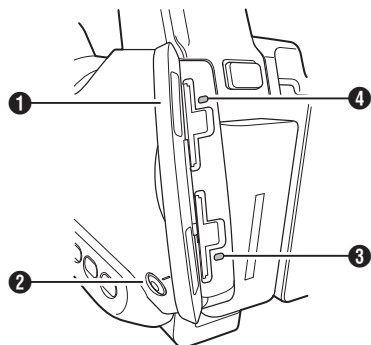
❶ SD Card Cover
❷ [SLOT A/B] Card Slot Selection Button
For switching the active card slot during shooting and playback.
❸ Card Slot B Status Indicator
❹ Card Slot A Status Indicator

Rear Terminal
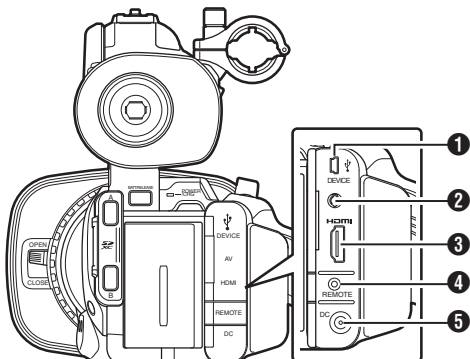
❶ [DEVICE] USB Mini Terminal
(☞ P122 [Loading Clips to the PC])

❷ [AV] AV Output Terminal
(☞ P123 [Connecting External Monitor])

❸ [HDMI] HDMI Output Terminal
(☞ P123 [Connecting External Monitor])

❹ [REMOTE] Remote Terminal
(☞ P124 [Connecting Wired Remote Control])

❺ [DC] DC Input Terminal
Input terminal for DC 12 V power supply. For connecting with the supplied AC adapter.
(☞ P24 [Using AC Power (DC IN Power)])

LCD Monitor
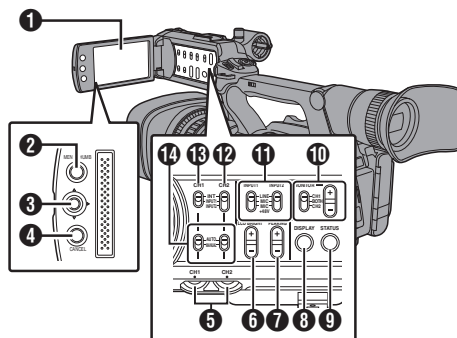
➊ LCD Monitor
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])

➋ [MENU/THUMB] Menu/Thumbnail Button
• Displays the menu screen during Camera mode.
• Switches between [Main Menu] and [Favorites Menu] when the [MENU/THUMB] button is pressed and held down while the menu screen is displayed.
(☞ P83 [Basic Operations in Menu Screen])
• Displays the menu screen when the button is pressed during thumbnail display in the Media mode.
• Stops playback and displays the thumbnail screen when the button is pressed during playback screen display in the Media mode.

➌ LCD Cross-Shaped Button (▲▼◀▶)/Set Button (●)
The function changes according to the operation status of the camera recorder.
• During menu operation (all modes)
(☞ P83 [Basic Operations in Menu Screen])

Set Button (●)	:	Confirms menu items and setting values
Cross-shaped Button (▲▼)	:	Selects menu items and setting values

• During Camera mode
You can also use it as a user button by assigning a specific feature in the menu setting to this button.
(☞ P32 [Assignment of Functions to User Buttons])

➍ [CANCEL] Cancel Button
Cancels various settings and stops playback.

➎ [CH1/CH2] CH1/CH2 Recording Level Adjustment Knob
(☞ P55 [Audio Recording])

➏ [LCD BRIGHT +/-] LCD Display Brightness Adjustment Button
(☞ P30 [Adjusting the Brightness])

➐ [PEAKING +/-] LCD/VF Contour Adjustment Button
(☞ P31 [Adjusting the Contour (LCD)])
(☞ P31 [Adjusting the Contour (Viewfinder)])

➑ [DISPLAY] Display Button
• Press the [DISPLAY] button to switch to the display screen during normal screen display (when the menu screen is not displayed).
(☞ P28 [Display Screen])
• Switches between [Main Menu] and [Favorites Menu] when the [DISPLAY] button is pressed while the menu screen is displayed.
(☞ P83 [Basic Operations in Menu Screen])

➒ [STATUS] Status Screen Display Button
Press the [STATUS] button to display the status screen on the viewfinder and LCD monitor during normal screen display (when the menu screen is not displayed).
(☞ P29 [Status Screen])

➓ [MONITOR]/[+/-] Audio Monitor Selection Switch/Volume Adjustment Button
Switches the audio monitor and adjusts the monitor speaker/headphone.
(☞ P57 [Monitoring Audio Sound During Recording Using a Headphone])

⓫ [INPUT1/INPUT2] Audio Input Signal Selection Switch
(☞ P55 [Audio Recording])

⓬ [CH2] CH2 Audio Input Signal Selection Switch
Select the audio input terminal to record to CH2.
(☞ P55 [Audio Recording])

⓭ [CH1] CH1 Audio Input Signal Selection Switch
(☞ P55 [Audio Recording])

⓮ [CH1/CH2 AUTO/MANUAL] CH1/CH2 Audio Recording Mode Switch
(☞ P56 [Adjusting Audio Recording Level])

Lens Section
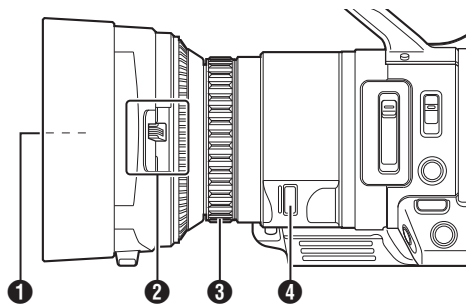
❶ Filter Built-In Screw
  • Transparent or UV filter for lens protection, or filters for various effects can be installed.
  • Installable filter types: φ46mmP0.75

Memo :
  • Remove the lens hood when installing the filter. (☞ P22 [Attaching/Detaching the Hood])

❷ Lens Cover Open/Close Switch
  (☞ P21 [Opening/Closing the Lens Cover])

❸ Focus/Zoom Ring
  (☞ P43 [Focus Operation])
  (☞ P41 [Zoom Operation])
  For focus operation using the Focus/Zoom ring, set the [FOCUS/ZOOM] operation switch to "FOCUS". For zoom operation, set it to "ZOOM".

❹ Iris Dial
  (☞ P48 [Adjusting the Iris])
  To operate auto iris, press the [IRIS] button on the side control panel.
  (Ⓐ mark appears on the screen)

Basic System Diagram

Shoulder Belt

JY-HM360AG

Headphone

Wireless Microphone Receiver

Monitor

Microphone

Monitor

[INPUT1]/
[INPUT2]

[Ω]

[TC]

[AUX]

JY-HM360AG

[HDMI]

HDMI Cable

[AV]

AV Cable

RCA pin

Battery

[DC]

Standard Package

AC Adapter

Carrying Case

Remote Control Unit

Tripod

USB Cable

SDHC/SDXC
Memory Card

SDHC/SDXC
Card Reader

Non-linear Editing
System
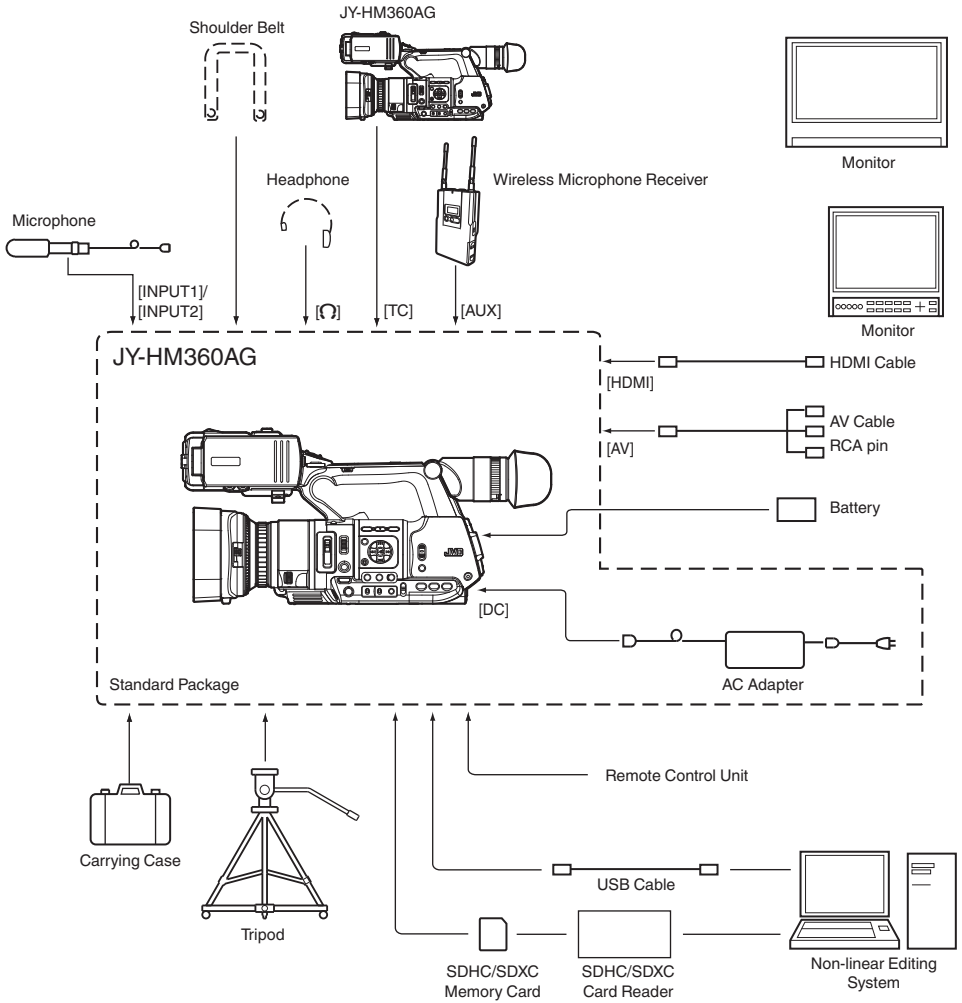
Settings and Adjustments Before Use

Adjusting the Grip Belt

Open the pad and adjust the position of the grip belt accordingly.
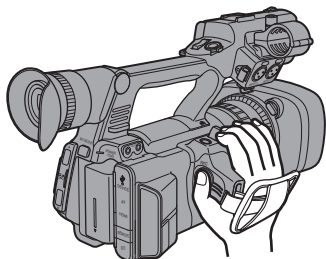
Caution :
- If the grip is loose, the camera recorder may fall off resulting in injuries or malfunction.

Attaching an External Microphone

You can attach a separately sold microphone to the microphone holder.

1 **Turn the knob on the microphone holder counterclockwise to loosen and open the microphone holder.**
2 **Place the microphone in the microphone holder.**
3 **Turn the knob on the microphone holder clockwise to secure the microphone.**
4 **Connect the microphone cable to the [INPUT1] or [INPUT2] terminal.**
5 **Pin the microphone cable to the clamp.**
6 **Perform the settings for the microphone correctly.**
   (☞ P55 [Audio Recording])

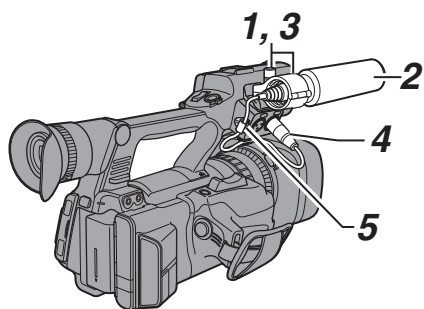## Attaching the Tripod

Use the screw hole at the bottom of this camera recorder.
(3/8×16UNC, 1/4×20UNC)
Use the screw hole that suits the tripod.
To prevent the camera recorder from falling off, which may result in injuries or damages, read the "INSTRUCTIONS" of the tripod to be used and make sure that it is securely attached.

■ Bottom
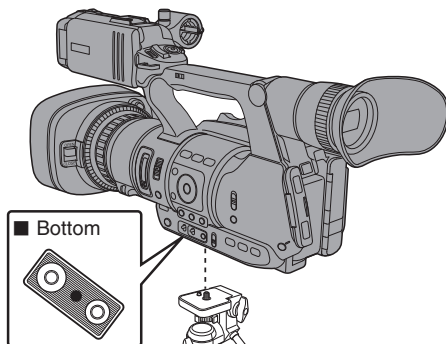
Caution :
- If the camera recorder exceeds the weight limit of the tripod, do not mount it on the tripod.
- Use the tripod on a stable surface.
- To prevent the camera recorder from falling, attach securely using the rotation prevention hole.
- Use screws with screw length 5 mm and below.

Opening/Closing the Lens Cover

Use the lens cover open/close switch to open or close the lens cover.
Before shooting, open the lens cover.
When this camera recorder is not in use, close the lens cover to protect the lens.
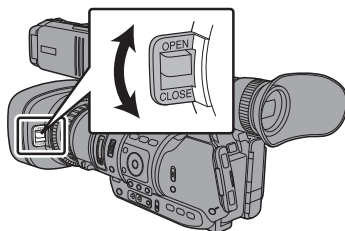
Caution :
- Do not press against the lens cover with force. Doing so may damage the lens or the cover.

Attaching/Detaching the Hood

Attaching the Hood

Align the markings on the camera recorder and hood; turn the hood in the direction of the arrow until it is locked.
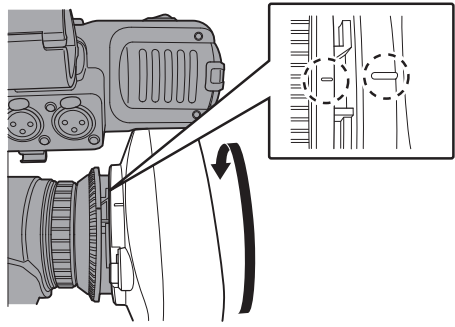
Detaching the Hood

● Remove the hood when attaching a filter, teleconverter or wide converter to the front of the lens.
● While pressing the hood release button, turn the hood in the direction of the arrow (anticlockwise) to remove it.
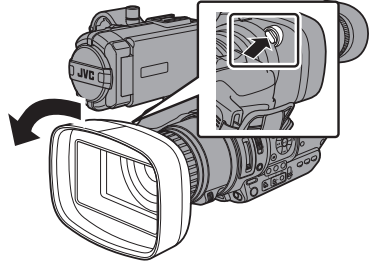
Power Supply

To use this camera recorder, you can attach a battery pack or connect an AC adapter to it.
(☞ P22 [Using a Battery Pack (sold separately)])
(☞ P24 [Using AC Power (DC IN Power)])

Caution :
● Set the [POWER ON/OFF] switch to "OFF" before changing the power supply that operates this camera recorder.
● This product does not come with a battery pack. When using a battery, please purchase the recommended battery pack (SSL-JVC50).

Using a Battery Pack (sold separately)

Charging the Battery

Charge the battery immediately after purchase or when the battery power is running low.
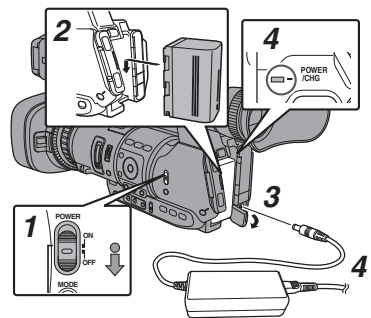
1 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "OFF".**

2 **Attach the battery.**
Slide it in until you hear a click.

3 **Connect the supplied AC adapter to the [DC] terminal.**
Open the cover of the [DC] terminal and connect as shown in the diagram.

4 **Connect the AC adapter to a power outlet.**
● The [POWER/CHG] lamp blinks during charging and will go out after charging is complete.
● Remove the AC adapter after charging is complete.

Memo :
- Blinking of the [POWER/CHG] lamp during charging indicates the charge level.

[POWER/CHG] Lamp	Charge Level
Orange blinking (4 times per second)	Less than 25 %
Orange blinking (3 times per second)	Less than 50 %
Orange blinking (2 times per second)	Less than 75 %
Orange blinking (1 time per second)	Less than 100 %
Light goes out	Fully charged

- You can charge the battery even when operating the camera recorder using the AC adapter.

Removing the Battery
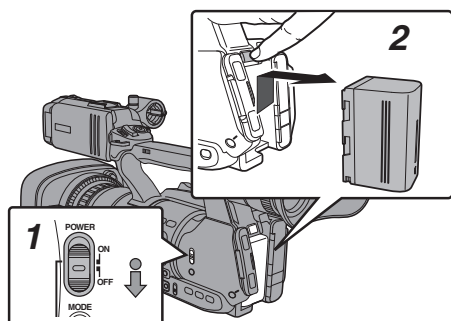
1 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "OFF".**

2 **While pressing and holding the [BATT. RELEASE] button, push up and remove the battery in the direction of the arrow.**

Caution :
- Do not remove the battery when the [POWER ON/OFF] switch is "ON".
- Do not insert or remove the DC cable when the battery is in use.
- Leaving the camera recorder unused with the battery inside will deplete the battery power even if you set the [POWER ON/OFF] switch to "OFF". Remove the battery if you are not using the camera recorder.

Estimated Charging and Continuous Operating Times

■ Charging time
 Approx. 4 hrs (SSL-JVC50)

*   When the [POWER ON/OFF] switch is set to "OFF"

Memo :
- If you charge the battery immediately after using while the battery is still warm, it may not be fully charged.
- For details, refer to the "INSTRUCTIONS" of the battery.

■ Continuous operating time
  Approx. 6 hrs (SSL-JVC50)

Memo :
- Actual operating times may differ depending on the age of the battery, charging condition, and operating environment.
- Operating time is shortened in cold environment.
- The operating time may shorten when power zoom is used, accessories are connected, or when the LCD monitor is frequently used.
- For purchase of spare batteries and battery charger, please contact the local dealers in your area.

Precautions for Batteries

- Store the battery in a cool and dry place when not in use. Do not expose the battery to high temperatures (such as in a car under direct sunlight). Failure to do so not only shortens the battery life but also damages the battery.
- If the operating time shortens drastically even after charging, the battery may be reaching the end of its life. Replace the battery with a new one.

Using AC Power (DC IN Power)

Use the supplied AC adapter to operate the camera recorder with AC power.
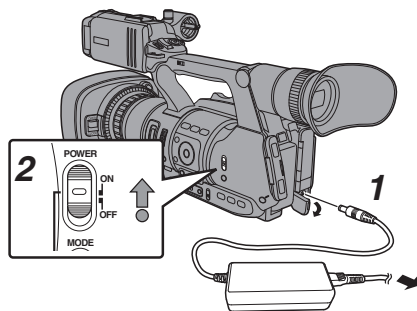
1 **Connect the DC cable of the AC adapter to the [DC] terminal of the camera recorder.**
   - Check that the power switch of the camera recorder is set to "OFF".
   - Open the cover of the [DC] terminal and connect as shown in the diagram.

2 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "ON".**
   Power will be supplied to the camera recorder.

Caution :
- Do not insert or remove the DC cable during recording.
- Do not use power supply of high voltage fluctuation, containing noise such as ripple, or with insufficient capacity.

Charging the Built-In Battery

- The date/time and time code data are stored using the built-in rechargeable battery.
- When power is connected to the camera recorder, the built-in battery always gets charged. When the power is disconnected, the battery gradually discharges.
- The battery will be totally discharged if left unused for 3 months and the date/time and time code data will be reset. When this happens, set the [POWER ON/OFF] switch to "ON" to display the [Initial Setting] screen, then set the date/time.
  (☞ P26 [Initial Settings])

Power Status Display

Viewfinder Screen and LCD Monitor

The power status is displayed on the display and menu screens.

Display	Description
▥ 7.4V ▥ 100min ▥ 30% ☐ RES	Currently powered by a battery. When the battery power runs out, the battery mark appears hollow, and "RES" (yellow) is displayed. Memo : ──── • You can set the display using [LCD/VF] ➡ [Display Settings] ➡ [Battery]. (☞ P97 [Battery])
▥?	Acquisition of battery information may fail if a recommended battery is not used.
▥⚡	An error has occurred during battery charging; the charging function is not working or charging has been interrupted. Memo : ──── • If the error appears, turn off the power and remove the battery then reinsert the battery and turn the power on again.
⇥	Currently powered by an AC adapter.
▥⚡ ▥⚡ ▥⚡ ☐⚡	Camera recorder battery charging in progress. (☞ P97 [Details on charging condition])

Memo : ────
- If the battery in use is not a recommended one, the battery mark which indicates the battery level may not appear.
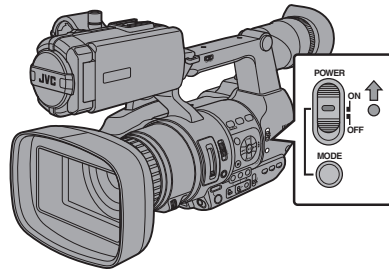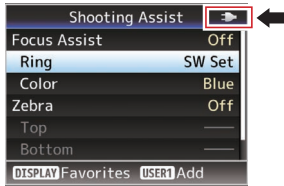- The charging function may not work depending on the usage condition.

Display Screen

(☞ P110 [Display Screen in Camera Mode])
(☞ P114 [Display Screen in Media Mode])

Menu Screen

(☞ P84 [Display and Description of the Menu Screen])

Warnings by Lamp and Warning Tone

Warning status is indicated by tally lamp and warning tone.
● The tally lamp blinks.
● The warning tone is output from the monitor speaker or [Ω] terminal.

Memo : ─────────────────────────
● You can specify whether to turn on the warning tone as well as setting the volume in [A/V Set] ➜ [Audio Set] ➜ [Alarm Level].
(☞ P101 [Alarm Level])
● If you continue to use the camera recorder while the power warning is displayed, the camera recorder will stop automatically when the battery or supplied voltage from the AC adapter becomes lower.

Caution : ─────────────────────────
● The remaining battery power and time are displayed as they are from the battery information. Accurate data may not be displayed depending on the battery condition. Replace the battery as soon as possible when the remaining battery power and time are low.

Turning On/Off the Power

Turning On the Power

1 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "ON".**
   The camera recorder starts up in Camera mode and is ready for shooting.

Memo : ─────────────────────────
● The camera recorder always start up in Camera mode when the [POWER ON/OFF] switch is set to "ON". Use the [MODE] button at the side of the camera recorder to switch mode.
(☞ P12 [Operation Modes])

Turning Off the Power

Sets the camera recorder to the recording standby or stop mode.

1 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "OFF".**

2 **Remove the battery and the power to the [DC terminal] (when not in use for a long time).**

Auto Power Off function

When [System] ➜ [Auto Power Off] is set to "On", the power turns off automatically when the camera recorder is not operated for 5 minutes or longer while running on battery.
(☞ P102 [Auto Power Off])

Memo : ─────────────────────────
● When both the battery and AC adapter are connected, power from the AC adapter connection will be used. As such, the [Auto Power Off] function will not have any effect.

Caution : ─────────────────────────
● Do not set the [POWER ON/OFF] switch to "OFF" during recording. Check that the operation mode display is "STBY" or "STOP" before you turn off the power.
● If you have mistakenly set the [POWER ON/ OFF] switch to "OFF" during recording, wait for 5 seconds or more before you turn on the power again.
● When turning off the power, first set the [POWER ON/OFF] switch of the camera recorder to "OFF". Do not remove the battery or turn off the AC power while the [POWER ON/OFF] switch is set to "ON".

Initial Settings

When the power is first turned on, the Initial Setting screen for performing the initial settings in the camera recorder appears.
Set the date/time of the built-in clock in the [Initial Setting] screen.
All operations are disabled until initial settings are complete.
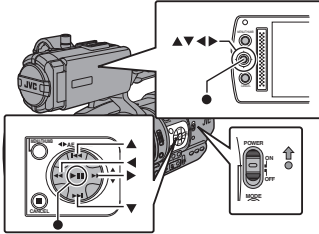
Memo : ────────────────────
- It is recommended to use the AC adapter as the power supply.
- Be sure to close the lens cover.

1 **Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "ON".**
The Initial Setting screen appears.

Please Diagnose on Using at First.
The Time is about 6 minutes.
Diagnose
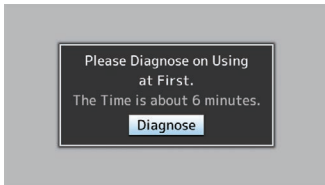
2 **Ensure that the lens cover is closed, and press the Set button (●).**
- Self-diagnosis starts.
- A progress bar appears, and "Complete Diagnosis" appears when the diagnosis is complete.

Diagnosing...

Complete Diagnosis
Close
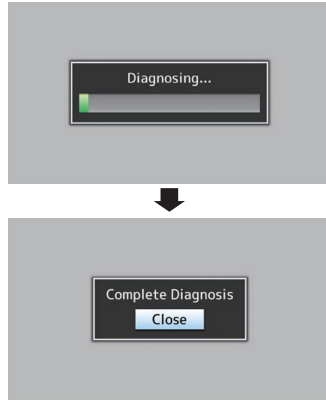
Memo : ────────────────────
- It takes about 6 minutes to complete the diagnosis. During the diagnosis, do not operate or turn off the camera recorder.

3 **Press the Set button (●) after confirming the exit screen.**
The [Initial Setting] screen appears.

Initial Setting
UTC+05:30 Jan 1, 2016 00 : 00
●Set
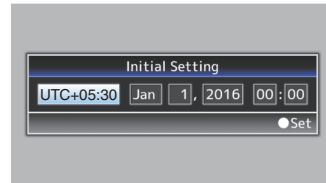
Memo : ────────────────────
- The [Initial Setting] screen appears when the power is turned on for the first time and when the power is turned on after the built-in battery is fully discharged.
- The configured date/time data is saved in the built-in rechargeable battery even if the power is turned off.

4 **Set the time zone and date/time.**

① Move the cursor with the cross-shaped button
(◀▶) and select the setting item.

② Change the values with the cross-shaped
button (▲▼).

5 **Press the Set button (●) after setting is
complete.**
The clock is set to 0 seconds of the input date/
time.

Memo : ─────────────────────

● The configured date/time data can be displayed
on the LCD monitor and viewfinder and be
recorded to the SD card.
● The value of the year can be set in the range of
"2000" to "2099".

─────────────────────────

Changing the Time after Initial Setting

Setting the Date/Time

(☞ P102 [Date/Time])

1 **Select [System] ➜ [Date/Time].**
The [Date/Time] screen appears.

2 **Set the date and time.**

① Move the cursor with the cross-shaped button
(◀▶) and select the setting item.

② Change the values with the cross-shaped
button (▲▼).

3 **Press the Set button (●) after setting is
complete.**
The clock is set to 0 seconds of the input date/
time.

Changing the Display Style

You can change the display style of the date/time
on the menu.

Setting the Date Display (Date Style)

(☞ P97 [Date Style])
The date display can be changed in [LCD/VF] ➜
[Display Settings] ➜ [Date Style].

Setting the Time Display (Time Style)

(☞ P97 [Time Style])
The time display can be changed in [LCD/VF] ➜
[Display Settings] ➜ [Time Style].

Date/Time Display in Each Operation Mode

During Camera mode:
Date/time of the built-in clock is displayed.
During Media mode:
Shooting date/time of the clip being played back is
displayed.

Displays on the LCD Monitor and Viewfinder

You can display the camera status, media information, zebra pattern, and various markers in the video image on the LCD monitor and viewfinder screen during shooting.

Memo : ─────────────────────────

● When [Main Menu] ➜ [A/V Set] ➜ [Video Set] ➜ [Display On TV] is set to "On", the display screen and menu screen are also displayed in the video image from the video signal output terminal.
(☞ P98 [Display On TV])

────────────────────────────────

Display Screen

Display Screen (VF/LCD) in Camera Mode

(☞ P110 [Display Screen in Camera Mode])

● The display switches between three screen types with every press of the [DISPLAY] button. (Display 0 ➜ 1 ➜ 2 ➜ 0)
● Press the [STATUS] button to switch to the status screen.

Display 0 screen

Display 1 screen
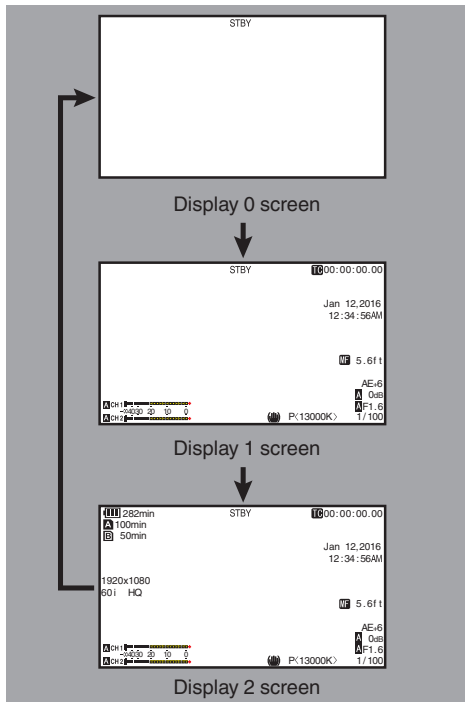
Display 2 screen

Display Screen (VF/LCD) in Media Mode

(☞ P114 [Display Screen in Media Mode])

● This is the screen display during clip playback in Media Mode.
● The display switches between three screen types with every press of the [DISPLAY] button. (Display 0 ➜ 1 ➜ 2 ➜ 0)

Display 0 screen

Display 1 screen
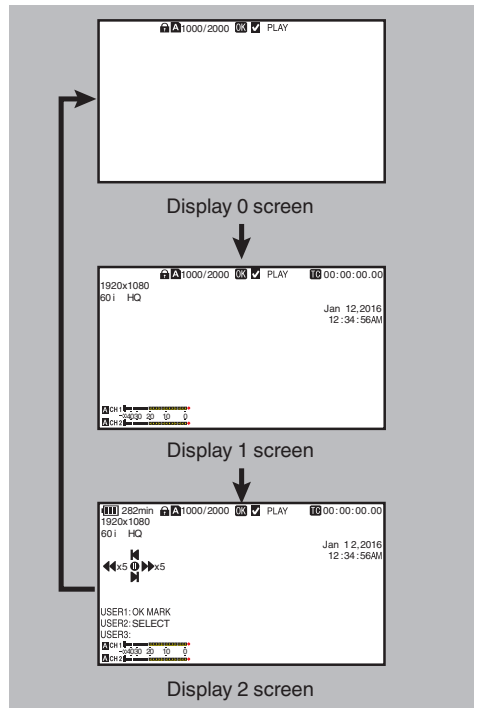
Display 2 screen

Status Screen

- This screen allows you to check the current settings.
- To display the status screen, press the [STATUS] button in the normal screen.
- The status display differs according to the operation mode (two types).
  (☞ P12 [Operation Modes])
- Press the [STATUS] button to switch to the display screen.
- Press the [MENU/THUMB] button at each status screen (other than the [Camera 1]/[Camera 2] screen) to enter the setting screen.
- Use the cross-shaped button (◀▶) to switch screens as follows:
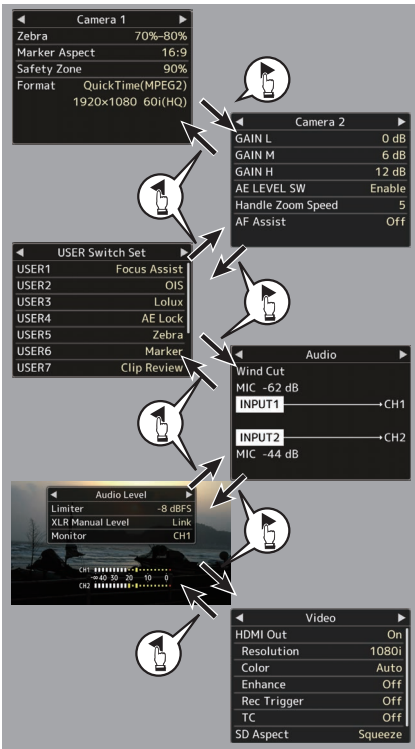
*   These are screen examples. The contents displayed are different depending on the settings.

USB Mode Screen

This screen displays the USB mode.

Warning Display

Warning display is displayed in the display screen (Camera mode, Media mode).
  (☞ P125 [Error Messages and Actions])

Warning Display Area

Displays on the LCD Monitor and Viewfinder   29
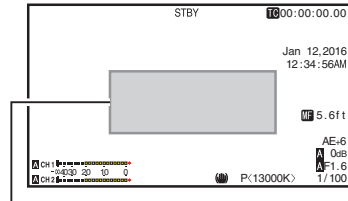
Adjusting the LCD Monitor and Viewfinder

You can monitor video images on this camera recorder using the viewfinder, LCD monitor, or both.
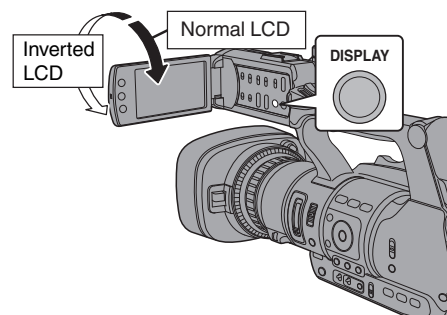
Displays on the LCD Monitor and Viewfinder Screen (VF)

When [LCD/VF] ➡ [LCD + VF] is set to "Off"

(☞ P94 [LCD + VF])

LCD Monitor Status		LCD Display	VF Display
LCD closed	Normal LCD	OFF	ON
	Inverted LCD	ON	OFF *
LCD opened	Normal LCD	ON	OFF *
	Inverted LCD	ON	OFF *

* Turns on when [LCD/VF] ➡ [LCD + VF] is set to "On".

Memo :
- Press and hold the [DISPLAY] button for 2 seconds to turn ON/OFF the LCD monitor.
- The function to switch between LCD monitor and viewfinder displays by pressing the [DISPLAY] button can be canceled by opening/closing or rotating the LCD monitor.
- The viewfinder screen is always displayed when [LCD/VF] ➡ [LCD + VF] is set to "On".
- You can display both the LCD monitor and viewfinder screens at the same time by setting [LCD/VF] ➡ [LCD + VF] to "On".
  (☞ P94 [LCD + VF])

Tilt 90 degrees downward

Tilt 180 degrees upward
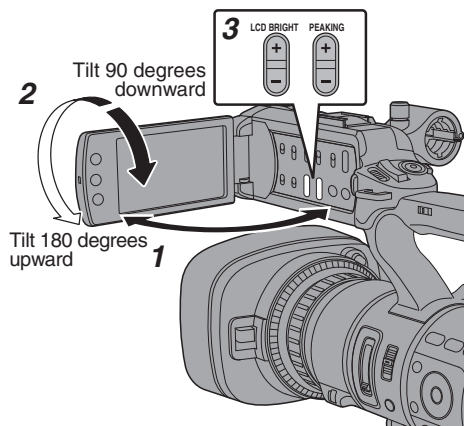
1 **Open the LCD cover.**

2 **Incline the LCD monitor to a position that enables easy viewing.**
Rotate the LCD monitor to adjust the angle.
- While the LCD monitor is open, you can rotate it 180 degrees upward or 90 degrees downward.
- Rotating the LCD monitor 180 degrees upward enables you to see the screen from the lens side. To display the image when it is viewed from the opposite direction (mirror image), perform setting as follows.
  Set [Main Menu] ➡ [LCD/VF] ➡ [LCD Mirror] to "Mirror" ➡ Set button (●)
  (☞ P94 [LCD Mirror])

3 **Adjust the brightness, contour, and contrast of the LCD monitor.**
You can change the angle and brightness of the LCD monitor according to your usage condition. Changing the brightness of the screen will not affect the recorded images.

Adjusting the Brightness

Use the [LCD BRIGHT +/−] button to adjust the brightness of the LCD monitor.
- The [+] button brightens the monitor and the [−] button darkens it.
- Press the [+] and [−] buttons simultaneously to return to standard settings.
- During adjustment, the brightness level is displayed on the LCD monitor.

Adjusting the Contour

Use the [PEAKING +/−] button to adjust the contour of the LCD monitor.
(The contour of the viewfinder screen will also be adjusted at the same time.)
- The [+] button increases contour correction and the [−] button decreases contour correction.
- Press the [+] and [−] buttons simultaneously to return to standard settings.
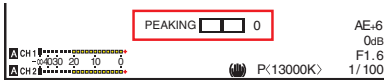- During adjustment, the contour level is displayed on the LCD monitor.

| PEAKING ▭ 0	AE±6
	0dB
Ⓐ CH 1	F1.6
Ⓐ CH 2	P⟨13000K⟩ 1/100

Adjusting the Contrast

Use the [LCD Contrast] menu to adjust the contrast of the LCD monitor.
- Adjust using [Main Menu] ➡ [LCD/VF] ➡ [LCD Contrast].
- Increasing the value increases the contrast. [Setting Values: +10 to -10] (Default value: 0)

Adjusting the Viewfinder

You can change the brightness and peaking of the viewfinder screen according to your usage conditions.
Changing the brightness of the screen will not affect the recorded images.
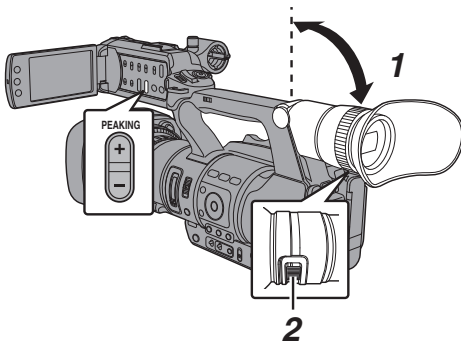
Caution : ─────────────────────
- A high-definition viewfinder is used on this camera recorder in order to provide an accurate focusing environment. Due to the characteristic of the display device, colors may appear on the images when you blink your eyes. This is not a malfunction. It does not affect the recorded images, VIDEO output, or HDMI output.

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1 **Incline the viewfinder vertically to a position that enables easy viewing.**

2 **Turn the visibility adjustment lever to adjust the visibility.**
Turn the visibility adjustment lever to sharpen the image on the viewfinder screen.

3 **Adjust the brightness, contour, and contrast of the viewfinder screen.**

Adjusting the Brightness

Use the [VF Bright] menu to adjust the brightness of the viewfinder screen.
- Adjust using [Main Menu] ➡ [LCD/VF] ➡ [VF Bright].
- Increasing the value increases the brightness. [Setting Values: +10 to -10] (Default value: 0)

Adjusting the Contour

Use the [PEAKING +/-] button to adjust the contour of the viewfinder screen.
The contour of the LCD monitor will also be adjusted at the same time.
(☞ P31 [Adjusting the Contour])

Memo : ─────────────────────
- When [Main Menu] ➡ [LCD/VF] ➡ [LCD + VF] is set to "Off", operate after switching to the viewfinder display by pressing the [DISPLAY] button for 2 seconds or longer.

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Adjusting the Contrast

Use the [VF Contrast] menu to adjust the contrast of the viewfinder screen.
- Adjust using [Main Menu] ➡ [LCD/VF] ➡ [VF Contrast].
- Increasing the value increases the contrast. [Setting Values: +10 to -10] (Default value: 0)

Assignment of Functions to User Buttons

You can assign functions to the following buttons and use them as user buttons.
By assigning functions to the buttons, the usability of the camera recorder can be enhanced.
Perform settings in the menu items corresponding to each button.

Button	Menu Item
[FOCUS ASSIST/1] Button	[USER1]
[OIS/2] Button	[USER2]
[LOLUX/3] Button	[USER3]
[AE LOCK/4] Button	[USER4]
[ZEBRA/5] Button	[USER5]
[MARKER/6] Button	[USER6]
[C.REVIEW/7] Button	[USER7]
LCD Cross-Shaped Button (▲)	[LCD KEY▲]
LCD Cross-Shaped Button (▼)	[LCD KEY▼]
LCD Cross-Shaped Button (◄)	[LCD KEY◄]
LCD Cross-Shaped Button (►)	[LCD KEY►]
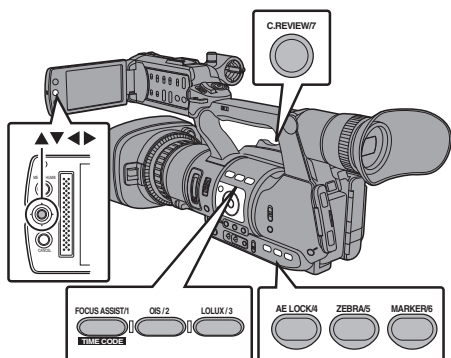
1 **Assign functions to the buttons from the menu.**
Set items in [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [USER1]-[USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], [LCD KEY◄].
(☞ P88 [User Switch Set Item])

Memo :
- Operations of the user buttons are interlocked with the menu settings.
- When the menu screen is displayed, these buttons function as the menu operation buttons.
(☞ P83 [Basic Operations in Menu Screen])

Tally Lamp

This is the indicator lamp for recording and warning.
The operation changes according to the menu settings.
The lamp blinks when the battery or remaining space on the SD card is low. (Camera mode only)
* Set using [Main Menu] ➡ [System] ➡ [Tally Lamp].
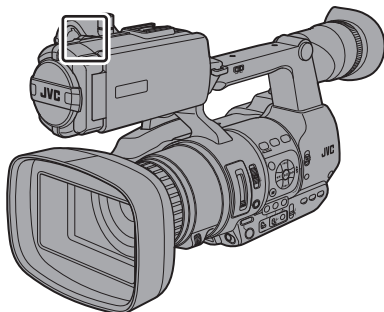
  (☞ P102 [Tally Lamp])

Menu Setting	Tally Lamp	Off	On
Functional information	Warning	-	▲
	Caution	-	■
Recording status	Recording	-	●
	Special recording *	-	●

● : Lights up
▲ : Blinks four times in 1 second
■ : Blinks once in 1 second

* Paused state during special recording ([Clip Continuous]).
  (☞ P70 [Clip Continuous Rec])

Memo :
- Blinking takes priority over lighting up.

Preparations

SD Card

This camera recorder saves the recorded images and audio sound on the SD card (sold separately) in the card slot.

Usable Cards

Use a Class 6/10 SD card.

Memo : ─────────────────────────────
- Depending on the recording format, SD card with Class 4 or higher performance can also be used.
  (☞ P40 [Selecting System Definition, File Format and Video Format])
- To use an SDHC card, set [4GB File Spanning(SDXC)] to "On".
  (☞ P105 [4GB File Spanning(SDXC)])

Caution : ───────────────────────────
- Using cards other than those from Panasonic, TOSHIBA or SanDisk may result in recording failure or data loss.

Estimated Recordable Time of SD Cards

The estimated recordable time is only a guide. Differences may occur depending on the SD card in use and the battery condition.
  (☞ P103 [Resolution])
  (☞ P103 [Frame & Bit Rate])

	QuickTime/MP4	
	MPEG2/HD	
	SP	HQ
	1080i	720p/1080i
4 GB	17	12
8 GB	35	25
16 GB	70	50
32 GB	140	100
64 GB (SDXC)	280	200
128 GB (SDXC)	560	400

(Unit: minute)

	AVCHD				
	HQ	HQ	SP	LP	EP
	1080p	1080i			
4 GB	16	19	25	46	82
8 GB	33	39	50	95	168
16 GB	67	78	100	190	336
32 GB	135	156	200	380	672
64 GB (SDXC)	270	312	400	760	1344
128 GB (SDXC)	540	624	800	1520	2688

(Unit: minute)

	QuickTime		
	H.264/HD		H.264/SD
	XHQ	UHQ	-
	1080i/1080p	1080i	576i
4 GB	9	12	47
8 GB	18	25	95
16 GB	36	50	190
32 GB	72	100	380
64 GB (SDXC)	145	200	760
128 GB (SDXC)	290	400	1520

(Unit: minute)

Memo : ─────────────────────────────
- If the SD card contains files recorded by devices other than this camera recorder or files that are saved from a PC, the recordable time may be shorter or data may not be properly recorded.
- The number of clips that can be recorded to one SD card on this camera recorder for each file format is restricted.
  Up to 600 clips can be recorded for the "QuickTime" file format and 4000 clips for the "AVCHD" file format. When the maximum number of clips is reached, the remaining space is displayed as "0 min" regardless of the estimated recordable time, and no further recording can be made.

Write-Protect Switch on the SD Card

① Slide the write-protect switch upward to enable writing or deleting.
② Slide the write-protect switch downward to prevent writing or deleting. (Images in the card are protected.)

Write-Protect Switch

Write/Delete Enabled   Write/Delete Disabled
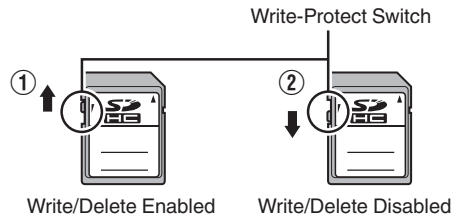
Inserting an SD Card

This camera recorder comes with two card slots (Slot A and B) for video/audio recording and playback.

1 **Open the SD card cover.**
2 **Insert an SD card with the notched corner pointing up.**
   The status indicator of the card slot to which the card was inserted lights up in red.
3 **Close the SD card cover.**

Card Slot Status Indicator
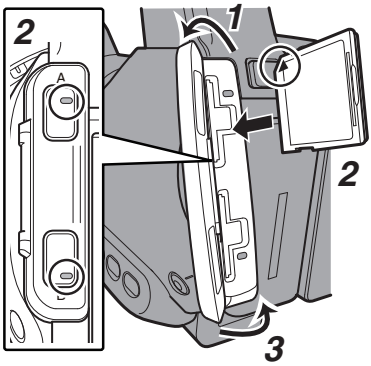
The following table shows the respective states of slot A and B.

Lamp	Slot Status
Lights up in red	The inserted SD card is being accessed. (writing/reading data) Do not turn off the power of the camera recorder or remove the SD card.
Lights up in green	On standby. The inserted SD card can be used for recording or playback.
Light goes out	• SD card is not inserted. • An unusable card is inserted. • An SD card is inserted but a different slot is selected.

Removing the SD Card

1 **Check that the SD card to be removed is not being accessed (status indicator of the card slot lights up in red).**
2 **Open the SD card cover.**
3 **Push the SD card and remove it from the slot.**
4 **Close the SD card cover.**

Memo : ———————————————————
• When both slots are inserted with usable SD cards, the previously selected slot is used.

Caution : ———————————————————
• Data may be lost if you turn off the power of the camera recorder or remove the SD card when it is being accessed. All data recorded on the card, including the file that is being accessed, may be corrupted. Be sure to check whether the status indicator is lit in green or turned off before you turn off the power or remove the SD card.
• If you mistakenly remove the card when it is being accessed, reinsert the card only after the status indicator goes off.
• The SD card may not be recognized if you insert and remove the card within a short time. When this happens, remove the card and wait for a few seconds before you reinsert.

Switching the SD cards

When both card slots are inserted with SD cards, you can use the [SLOT A/B] button to switch the card to use.
When the memory on an SD card is full during recording, data recording automatically switches to the other card.
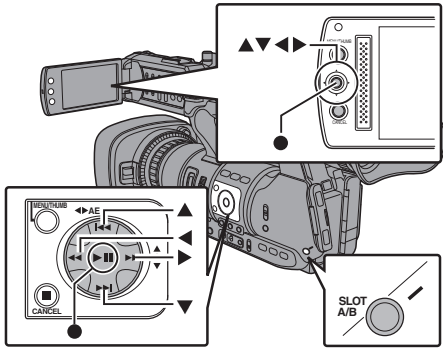
Memo : ─────────────────────

- The [SLOT A/B] button is disabled during recording or playback. Cards will not be switched even if you press the button.

Formatting (Initializing) SD Cards

When the following cards are inserted, [!FORMAT] appears at the remaining media display area.
Format the card using the camera recorder menu.

- Unformatted SD cards
- SD cards formatted under different specifications

* For details of the menu operation, refer to "[Basic Operations in Menu Screen] (☞ P 83)".

Caution : ─────────────────────

- Be sure to format the SD card on this camera recorder. SD cards formatted on a PC and other peripheral equipment cannot be used on this camera recorder.
- [!RESTORE] appears at the remaining media display area when an SD card that requires restoring is inserted.

1 **Select [System] ➡ [Media] ➡ [Format Media].**
(☞ P101 [Format Media])

2 **Select the slot of the SD card to be formatted and press the Set button (●).**
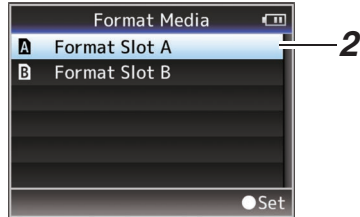
3 **The status of the selected SD card appears.**

4 **Select [Format] and press the Set button (●).**
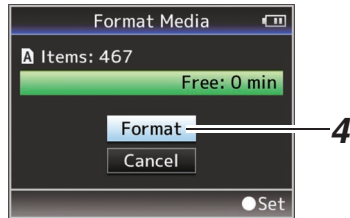
5 **Formatting starts.**

6 Formatting is complete.

When formatting is complete, "Complete" appears and the camera recorder returns to the [Format Media] screen.

Memo : ───────────────────

- During formatting, menu operation is unavailable but you can start recording. However, this is only available when a recordable SD card is inserted in the other slot.
- Formatting cannot be performed in the following cases.
  - Recording is in progress on the SD card to be formatted.
  - SD card is not inserted.
  - Write-protect switch of the SD card is set (🔒 is displayed).

Caution : ───────────────────

- If you format the SD card, all data recorded on the card, including video data and setup files, will be deleted.

Restoring the SD Card

It is necessary to restore the SD card if an abnormality occurs to the data in the card due to some reasons.
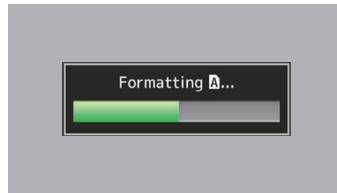
Memo : ───────────────────

- [!RESTORE] appears at the remaining media display area when an SD card that requires restoring is inserted.

1 Select [System] ➜ [Media] ➜ [Restore Media].
(☞ P101 [Restore Media])

2 Select the SD card to be restored and press the Set button (●).

2

3 Restoring starts.

4 Restoring is complete.

- When restoring is complete, "Complete" appears and the camera recorder returns to the [Restore Media] screen.
- When no media that requires restoring is inserted, the camera recorder returns to the [Media] menu screen.

Caution : ───────────────────

- [Restore Media] can only be selected in Camera mode. However, it cannot be selected while the camera recorder is recording. Select [Restore Media] in Camera mode when the camera recorder is not recording.
- [Restore Media] does not restore the SD card to its original states completely. If restoring fails, replace or format the SD card. Take note that formatting erases all the information inside the SD card.
- Restoring cannot be performed in the following cases.
  - Camera recorder is recording in progress.
  - SD card is not inserted.
  - Write-protect switch of the SD card is set (🔒 is displayed).

Clips Recorded to SD Cards

Folders in the SD Card

Images recorded are sorted into the respective folders according to the menu settings below.

*   Select which folder to record to from the menu.
    (☞ P105 [Recording in DCIM Folder])

System	Format	Record Folder
HD	QuickTime (MPEG2)	DCIM or PRIVATE/JVC/CQAV*
	MP4(MPEG2)	PRIVATE/JVC/BPAV
	AVCHD	PRIVATE/AVCHD
HD/SD	QuickTime(H.264)	DCIM or PRIVATE/JVC/CQAVC*

Memo :

*   By formatting (initializing) the SD card from the [Format Media] menu on the camera recorder, folders required for recording in the current [System] settings will be generated.
*   When the [System] settings and [QuickTime(MPEG2)] settings are changed, folders required for recording in those settings will be automatically generated.

Caution :

*   When a clip inside the folder is moved or deleted using the Explorer (Windows) or Finder (Mac), recording to the SD card may fail if formatting (initializing) of the card is not performed.

Clip (Recorded Data) and Clip Name

*   When recording is stopped, the images, audio and accompanying data which are recorded from start to stop are recorded as one "clip" on the SD card.
*   An 8-character clip name is automatically generated for the recorded clip.
    ("Clip Name Prefix" + "Clip Number")
*   When [Main Menu] ➔ [System] ➔ [Record Set] ➔ [Record Format] ➔ [Format] is set to "AVCHD", the clip name generated consists of only the Clip Number (5-digit number).
    (☞ P103 [Format])

Example: In the case of QuickTime/MP4

ABCG0001

└─ Clip Number
A number in automatic ascending order is assigned in the recording order.
The Clip Number can be reset in the menu.*

Clip Name Prefix (any four alphanumeric characters)
This is set to "xxxG" ("xxx" denotes the last 3 digits of the serial number) by default.

*   [Clip Set] ➔ [Reset Clip Number]
    (☞ P105 [Reset Clip Number])

Memo :

*   Before recording starts, you can set any characters for the clip name prefix by using [Main Menu] ➔ [System] ➔ [Record Set] ➔ [Clip Set] ➔ [Clip Name Prefix].
    (☞ P105 [Clip Name Prefix])
*   Changes cannot be made after recording.

Recorded Clips

*   The recorded materials may be split into several files but they can be played back continuously on the camera recorder.
*   Clips may be recorded across the two SD cards in card slots A and B depending on the recording time of the clip.

Caution :

*   A clip recorded across several cards cannot be played back continuously. Continuous playback is only possible when the recording is made on one card.
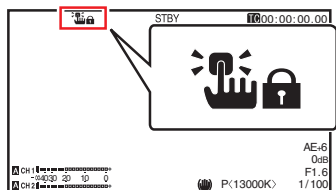
Operation Lock Feature

You can use this feature to prevent erroneous camera operation.
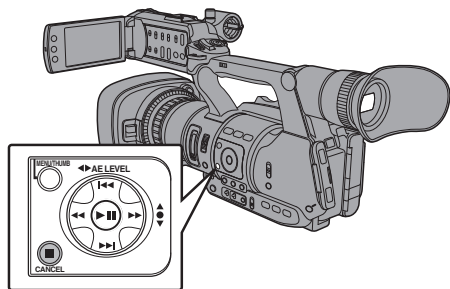
1 **While in the Camera mode (when the display screen appears), press and hold the [CANCEL] button for 5 seconds or longer.**
   - The operation lock turns on, and an operation lock icon (🖐🔒) appears on the display screen.

   - Press the [CANCEL] button again for 5 seconds or longer to turn off the operation lock.

Memo : ─────────────────────────────
- The operation lock feature is only valid in the Camera mode.
  (☞ P12 [Operation Modes])
- The power turns off and the operation lock is disengaged.
- The [CANCEL] button on the LCD monitor section cannot be used to turn on/off ("On/Off") the operation lock feature.
- The following remote operations are possible even when the operation lock feature is turned on ("On").
  · Remote operation from the wired remote control connected to the [REMOTE] terminal.
  · Remote operation of the camera through access via a browser on devices such as a smartphone, tablet terminal, or PC.

Operation lock does not apply to the following buttons and switches.

- [POWER ON/OFF] switch
- TC [IN/OUT] selection switch
- All switches inside the LCD monitor door (however, the operation of the [CH1/CH2] adjustment knob will be locked.)
- Zoom Lever at the Grip
- Zoom Lever at the Handle
- Focus/Zoom Ring
- [FOCUS/ZOOM] Operation Switch
- [FIX/VAR/OFF] zoom speed switch
- Iris Dial
- [REC] button (at the top of the handle, on the grip and at the bottom of the lens)

Memo : ─────────────────────────────
- The operation lock will also not apply to the [REC] button at the bottom of the lens if [Camera Function] ➡ [User Switch Set] ➡ [Front REC] is set to "Rec".

Basic Shooting Procedures

Preparations
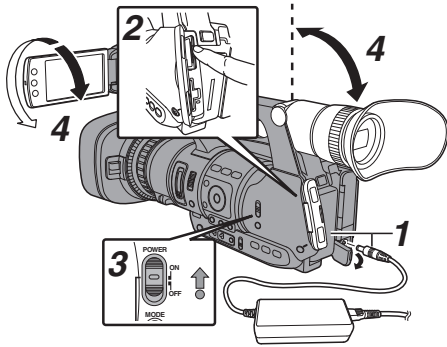
1 **Supply battery or AC adapter power to the camera recorder.**
(☞ P22 [Power Supply])

2 **Insert an SD card.**
(☞ P33 [SD Card])

3 **Turn on the power of the camera recorder.**
Hold down the lock button (blue) at the center of the [POWER ON/OFF] switch to set to "ON". The camera recorder starts up in Camera mode and is ready for recording.

4 **Adjust the angle of the LCD monitor and viewfinder.**
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])

Shooting

1 **Configure the video and audio input settings.**
  • Set the [FULL AUTO ON/OFF] switch to "ON" to enter Full Auto mode. This mode adjusts the Iris, Gain, Shutter and White Balance automatically.
  • The audio recording level is also set to Auto, and audio from the built-in microphone is recorded in the Full Auto mode.
  • The 🅰 icon appears at the lower center area of the LCD in the Full Auto mode.
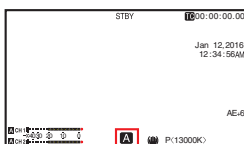
Memo : ─────────────────────
  • To set each individual video setting item automatically or manually, and to carry out the audio input settings and the audio recording level adjustment, refer to the following.
    ・ [Adjusting the Brightness] (☞ P 48)
    ・ [Adjusting the Iris] (☞ P 48)
    ・ [Setting the Gain] (☞ P 49)
    ・ [Setting the Electronic Shutter] (☞ P 50)
    ・ [Adjusting the White Balance] (☞ P 51)
    ・ [Adjusting Audio Recording Level]
      (☞ P 56)

2 **Press the [REC] button to start recording to the SD card.**
This camera recorder has three [REC] buttons. Any of the [REC] buttons can be used to start/ stop recording by default.
The tally lamp lights up in red during recording.
  • Zoom Operation
(☞ P41 [Zoom Operation])
  • Adjusting the Focus
(☞ P43 [Focus Operation])

Memo : ─────────────────────
  • If both the slots are loaded with recordable cards in the factory default, pressing the [REC] button starts recording only to the media in the selected slot.
When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Slot Mode] is set to "Dual", recording can be performed simultaneously to the cards in both the slots.
(☞ P66 [Dual Rec])
  • The tally lamp can be turned off in [System] ➡ [Tally Lamp].
(☞ P102 [Tally Lamp])

3 **Check the most recently captured images.**
  • Press the [C.REVIEW/7] button on the lens to activate the Clip Review function. The most recently captured images are played back on the LCD monitor and viewfinder screen.
  • After playback, the camera recorder returns to standby mode (STBY).
(☞ P64 [Viewing Recorded Videos Immediately (Clip Review)])

Memo : ─────────────────────
  • [Clip Review] is assigned to [C.REVIEW/7] button in factory default.
  • [Clip Review] can also be assigned to other user buttons.
(☞ P32 [Assignment of Functions to User Buttons])

Selecting System Definition, File Format and Video Format

You can select the system definition (HD or SD), file format for recording/playback and the record format for video images on this camera recorder.

Memo : ─────────────────

- Make a selection in [Main Menu] ➡ [Record Format].

Selecting a System Definition

The following definitions are available for selection.
- HD:
  Records in HD (High Definition) quality.
- SD:
  Records in SD (Standard Definition) quality.

You can select a definition for the recorded images from the following items under [System].
- HD:
  Records in HD quality for both slots A and B.
- SD:
  Records in SD quality for both slots A and B.

Selecting a File Format

Select a file format in [Format].
The following file formats are available for selection.
- QuickTime(MPEG2):
  QuickTime file format (.MOV)
- MP4(MPEG2):
  MP4 file format
- AVCHD:
  AVCHD file format
- QuickTime(H.264):
  QuickTime format (.MOV)

Memo : ─────────────────

- The available options vary as follows depending on the [System] setting.
  - For "HD":
    QuickTime(MPEG2), MP4(MPEG2), AVCHD,QuickTime(H.264)
  - For "SD":
    QuickTime(H.264)

Selecting a Video Format

- Select a [Record Format] from the list of formats. The selectable [Frame & Bit Rate] changes according to the settings of [System], [Format], and [Resolution].

- The recording bit rate (video) is 50 Mbps in "XHQ", 35 Mbps VBR in "UHQ" and "HQ", and 18.3 Mbps (25 Mbps in the case of 1080i) CBR in "SP".
- The recording bit rate (system rate) is as follows when [Format] is set to "AVCHD".
  - "HQ" (60p/50p): 28 Mbps VBR
  - "HQ" (60i/50i): 24 Mbps VBR
  - "SP": 18 Mbps VBR
  - "LP": 9 Mbps VBR
  - "EP": 5 Mbps VBR

List of Formats

The following is a list of file formats and video formats that can be selected on this camera recorder.
- When [System] is set to "HD"

Record Format		
Format	Resolution	Frame & Bit Rate
MP4 (MPEG2) QuickTime (MPEG2)	1920x 1080	60i (HQ)
		50i (HQ)
	1440x 1080	60i (HQ), 60i (SP) (*1)
		50i (HQ), 50i (SP) (*1)
	1280x 720	60p (HQ)
		50p (HQ)
AVCHD (*2)	1920x 1080	60p (HQ), 50p (HQ)
		60i (HQ), 60i (SP)
		50i (HQ), 50i (SP)
	1440x 1080	60i (LP), 60i (EP)
		50i (LP), 50i (EP)
QuickTime (H.264)	1920x 1080	60p (XHQ), 50p (XHQ)
		60i (XHQ), 60i (UHQ)
		50i (XHQ), 50i (UHQ)

*1   HDV compatible
*2   Recordable using Class 4

- When [System] is set to "SD"

The video format is fixed as follows.

Record Format			Remarks
Format	Resolution	Frame & Bit Rate	
QuickTime (H.264)	720 x 576	50i	Recordable using Class 4

Selecting the Aspect Ratio of SD Videos

Select an aspect ratio for the images.
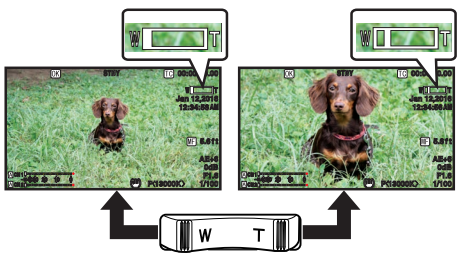The available options vary as follows depending on the [System] setting.
- For "HD": Fixed at 16:9
- For "SD": Can select 16:9 or 4:3

Setting the Record Format Menu

1 **Display the [Main Menu] → [Record Format] menu.**

2 **Set each of the items.**

3 **After setting is complete for all items, press the [FOCUS ASSIST/1] button.**
- The recording format is switched.
- A "Please Wait..." message appears on the screen during switching.

Zoom Operation

Adjusts the angle of view.
Optical zoom is 10 times.
Enable the dynamic zoom function to zoom up to 19 times.
Set the dynamic zoom "On"/"Off" in [Main Menu] → [Camera Function] → [Dynamic Zoom].
   (☞ P87 [Dynamic Zoom])

Zooming can be operated using any of the three levers/rings below.
- Zoom Lever at the Grip
- Zoom Lever at the Handle
- Focus/Zoom Ring:
  To zoom in and out using the Focus/Zoom Ring, set to "ZOOM".

Using the Zoom Lever at the Grip

1 **Press the zoom lever to zoom.**
- The zoom speed changes according to the extent the zoom lever is being pushed.
- Zooms into wide angle and increases the angle of view when "W" is pressed.
- Zooms into telephoto and decreases the angle of view when "T" is pressed.
- A zoom bar appears during zoom operation
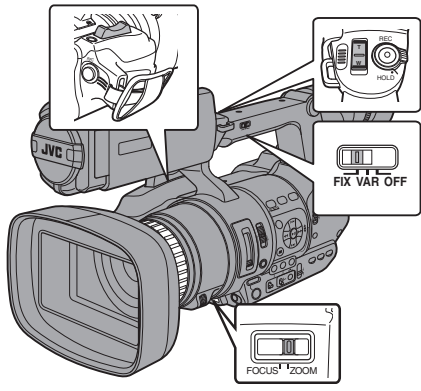
Using the Zoom Lever at the Handle

1 **Set the [FIX/VAR/OFF] zoom speed switch to "FIX" or "VAR".**

Memo : ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯
- Setting to "FIX" will allow the zoom operation to move at the speed set in [Handle Zoom Speed].
  - Set the zoom speed using [Main Menu] → [Camera Function] → [Handle Zoom Speed].
    (☞ P87 [Handle Zoom Speed])
- Setting to "VAR" will change the zoom speed according to the pressure applied on the lever.

2 **Press the zoom lever at the handle to zoom.**
Memo : ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯
- When the [FIX/VAR/OFF] zoom speed switch is set to "OFF", the zoom lever at the handle section cannot be used.

Using the Focus/Zoom Ring

1 **Set the [FOCUS/ZOOM] operation switch to "ZOOM".**

You can adjust the preferred angle of view by turning the focus/zoom ring.

Saving/Recalling Current Zoom Position (Preset Zoom)

This allows you to register up to three zoom positions.

1 **Assign the "Preset Zoom1", "Preset Zoom2", or "Preset Zoom3" function to any of the user buttons.**

(☞ P32 [Assignment of Functions to User Buttons])

(☞ P88 [USER1 to USER7, LCD KEY▲, LCD KEY►, LCD KEY▼, LCD KEY◄])

2 **Save the current zoom position.**
   - Press any of the buttons assigned with the "Preset Zoom1", "Preset Zoom2", or "Preset Zoom3" function for more than 1 second.
   - The current zoom position will be stored.

3 **Recall the stored zoom position.**
   - Press any of the buttons assigned with the "Preset Zoom1", "Preset Zoom2", or "Preset Zoom3" function and release within 1 second.
   - The camera recorder zooms to the stored zoom position.

Memo : ───────────────────────────
 - The speed to zoom to the zoom position can be set in [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Preset Zoom Speed].
   (☞ P89 [Preset Zoom Speed])
 - Operating other zoom maneuvers during a zoom position recall will cancel the recall.

Focus Operation
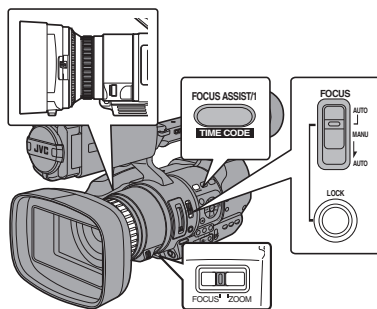
▌Adjusting Focus Automatically

Set the [FOCUS AUTO / MANU / ➡AUTO] focus switch to "AUTO".

There is no icon display in Auto Focus mode.

Memo : ───────────────────────────
 - If [Main Menu] ➡ [Camera Function] ➡ [AF Assist] is set to "Area" or "Far/Near", you can turn the focus/zoom ring to shift the auto focus point while in the automatic focus adjustment mode.
   (☞ P88 [AF Assist])
 - When face detection is enabled, the Auto Focus icon 🅰🅵 appears with the face mark.
   (☞ P96 [Focus])

One Push Auto Focus

While in the Manual Focus mode, pressing the [FOCUS AUTO / MANU / ➡AUTO] focus switch to "➡AUTO" (within 1 minute) makes the camera recorder focus on the center of the frame automatically.

Memo : ───────────────────────────
 - Face detection does not work during One Push Auto Focus.
 - AF Assist does not function.
 - When the operation is complete, the camera recorder returns to the Manual Focus mode automatically.
 - One Push Auto Focus functions with emphasis on the focusing speed. This function is not suitable during recording.

Setting to Auto Focus Temporarily (Push Auto Focus)

- The camera recorder will shift to Auto Focus mode temporarily and automatically adjusts focus when the [FOCUS AUTO / MANU / ➜AUTO] focus switch is pressed to "➜AUTO" during shooting in Manual Focus mode.
- Release your finger from the [FOCUS AUTO / MANU / ➜AUTO] focus switch to return to Manual Focus mode.

Memo :
- Face detection does not work during Push Auto Focus.

Locking the Auto Focus

The focus is locked at the current focus point during auto focus when you press the [LOCK] Auto Focus Lock button or the user button assigned with the [Push AF/AF Lock] function.
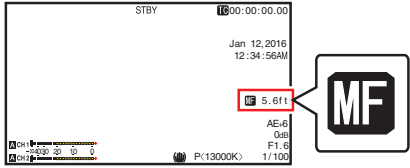🄰🄵🄻 appears on the screen while auto focus is locked.

Memo :
- Performing any focusing operation when the focus is locked disengages the focus lock.

Adjusting Focus Manually

1   **Set the [FOCUS AUTO / MANU / ➜AUTO] focus switch to "MANU".**
    The manual focus icon 🄼🄵 appears on the screen.

Memo :
- The 🄼🄵 icon appears even when [Main Menu] ➜ [LCD/VF] ➜ [Display Settings] ➜ [Focus] is set to "Off".
  (☞ P96 [Focus])

2   **Set the [FOCUS/ZOOM] operation switch to "FOCUS".**

3   **Turn the focus/zoom ring to adjust the focus.**
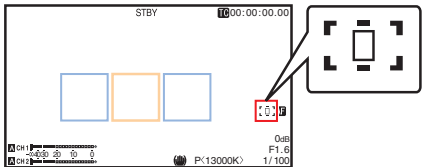
Memo :
- Using the Focus Assist or Expanded Focus function makes it easier to focus.
  (☞ P44 [Focus Assist Function])
  (☞ P44 [Expanded Focus Function])
- While in Manual Focus mode, pressing the [FOCUS AUTO / MANU / ➜AUTO] focus switch to "➜AUTO" will shift the camera recorder to the One Push Auto Focus mode. Continue to hold down to "➜AUTO" to enter the Push Auto Focus mode.
  (☞ P42 [One Push Auto Focus])
  (☞ P43 [Setting to Auto Focus Temporarily (Push Auto Focus)])

AF Assist Function

During auto focus, you can shift the auto focus point.
Set the [FOCUS/ZOOM] operation switch to "FOCUS" and turn the focus/zoom ring to set the focus point to the left, center, right, or near and far directions.

- Set [Main Menu] ➜ [Camera Function] ➜ [AF Assist].
  - Far/Near:
    This option allows you to shift the auto focus point to near and far directions by turning the focus/zoom ring during AF.
    Focus is automatically adjusted to a focus point near the position where the focus/zoom ring stops turning.
  - Area:
    Selecting this option displays the [🄿] icon in the area.
    Turning the focus/zoom ring during AF displays the focus area on the left, center, and right side for about 2 seconds. Turning the focus/zoom ring within 2 seconds allows you to move the orange frame to select the focus area.
    After selecting the area, focus is automatically adjusted to a focus point near the selected area.

*   The icons ([🄿] , [🄿] , and [🄿]) change in conjunction with the orange frame in the focus area.

Memo :
- When [Face Detect] is set, "Area" is not selectable.

Focus Operation   43

Focus Assist Function

- When the [FOCUS ASSIST/1] button is pressed during shooting, the focused area is displayed in color. This enables easy and accurate focusing.
- Select the color (blue, red or green) in the menu.

Memo :

- To adjust focus with the focus/zoom ring while the Focus Assist function is in operation, set the [FOCUS/ZOOM] operation switch to "FOCUS", or set [Main Menu] ➡ [Camera Function] ➡ [AF Assist] ➡ [Ring] to "Focus".
  (☞ P95 [Ring])
- Select the display color in [Main Menu] ➡ [LCD/VF] ➡ [Shooting Assist] ➡ [Focus Assist] ➡ [Color].
  (☞ P95 [Color])
- If you use the zebra function and the Focus Assist function at the same time, it may be difficult to see the effect of the Focus Assist. In this case, turn off the zebra function.

Setting Focus Assist Function to a User Button

You can assign the "Focus Assist" function to a user button.
  (☞ P32 [Assignment of Functions to User Buttons])

Expanded Focus Function

Magnifies the image at the center. Doing so enables precise focus to be established easily.

1 **Assign the "Expanded Focus" function to any of the user buttons.**
  (☞ P32 [Assignment of Functions to User Buttons])
  (☞ P88 [USER1 to USER7, LCD KEY▲, LCD KEY►, LCD KEY▼, LCD KEY◄])

2 **Press the user button that is assigned with the "Expanded Focus" function.**
- "EXPANDED" (yellow color) appears on the screen, and the center part of the image is enlarged.
- Pressing the user button again restores the image to the original size.
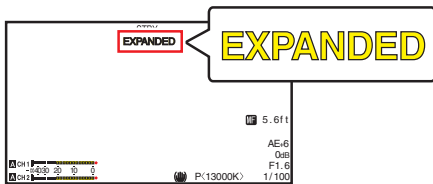
Memo :

- To set the operation when the button is pressed, go to [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Expanded Focus].
  (☞ P90 [Expanded Focus])
- To adjust focus with the focus/zoom ring while the Expanded Focus function is in operation, set the [FOCUS/ZOOM] operation switch to "FOCUS", or set [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Expanded Focus] ➡ [Ring] to "Focus".
  (☞ P90 [Ring])
- This function can be used together with the Focus Assist function. When the functions are used together, the focus can be adjusted using the focus/zoom ring in the Focus Assist or Expanded Focus function.
- The magnification ratio varies with the format of the record signals.
- Magnifying an image does not alter the size of the recorded image.
- This function is unavailable when [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [System] is set to "SD".

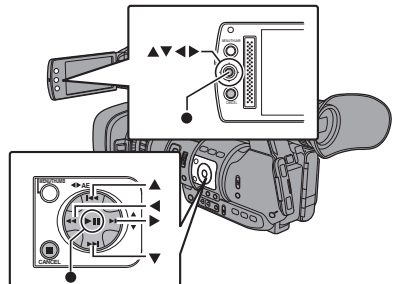# Adjusting the Focusing by Face Detection

This function detects human faces and automatically adjusts focus during Auto Focus. It can also track moving objects.
When several faces are detected, you can select one to focus on.

Memo :

- This function can also adjust the brightness automatically according to the brightness of the face detected.
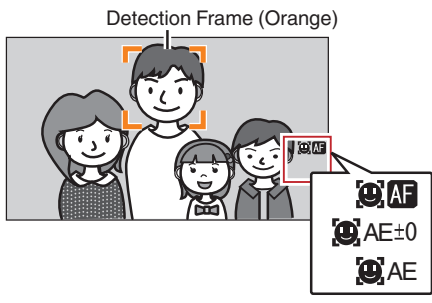 (☞ P89 [Face Detect])

1 **Assign the "Face Detect" function to any of the user buttons.**

(☞ P32 [Assignment of Functions to User Buttons])

2 **Focus the camera recorder on a person and press the user button that is assigned with "Face Detect".**

- When Face detection is enabled, the face detection icon (📷) appears.
  - When [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Face Detect] is set to "AF", "📷🔲" appears.
  - When [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Face Detect] is set to "AF&AE", "📷" appears on the left of the AE level setting value. When the camera recorder is in the Scene Select mode, "📷 AE" appears.
- If you select the person nearest to the center of the screen, an orange frame will appear on his face.
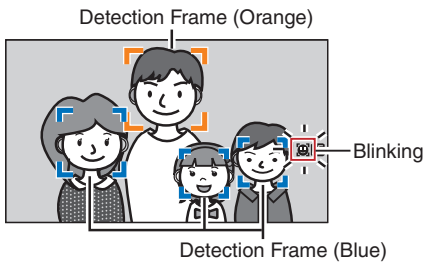- Focus will be automatically adjusted for the selected person.

Detection Frame (Orange)

Memo : ─────────────────────

- If the detection frame does not appear, make sure that the [FOCUS AUTO / MANU / ➡AUTO] focus switch is set to "AUTO". Also, if [Face Detect] is set to "AF&AE", set at least one of the iris, gain, and electronic shutter control items to the automatic adjustment mode.
  (☞ P48 [Adjusting the Brightness Automatically])
  (☞ P48 [Auto Iris (Automatic Adjustment) Mode])
  (☞ P49 [Automatic Gain Mode (Automatic Gain Adjustment)])
  (☞ P50 [Automatic Shutter Mode (Automatic Shutter Adjustment)])

Selecting Specific Person from Several Persons

1 **Hold down the user button that is assigned with "Face Detect".**

- The camera recorder will enter face selection mode and the face detection icon (📷) will blink.
- An orange frame will appear on the face of the person nearest to the center of the screen. Blue frames will appear on the faces of others.

Detection Frame (Orange)

Blinking

Detection Frame (Blue)

2 **Select a specific person.**

- Use the cross-shaped button (◀▶▲▼) to select a person.
- An orange frame will appear on the face of the selected person and focus will be automatically adjusted.

Detection Frame (Orange)

Detection Frame (Blue)
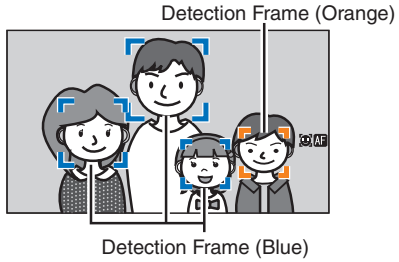
3 **Press the Set button (●) to confirm the person for face detection.**

Memo : ─────────────────────

- Press the [CANCEL] button to cancel the selection.
- You can specify the detection sensitivity and the operation speed after losing sight of the face using [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Face Detect] ➡ [Sensitivity] and [Hysteresis].
  (☞ P89 [Sensitivity])
  (☞ P89 [Hysteresis])

Using Scene Select

Changing Scene Select

Use the [SCENE SELECT] switch to change camera settings easily and promptly according to specific scenarios.
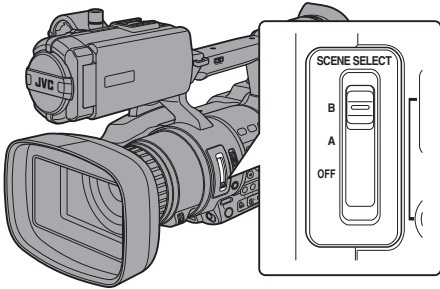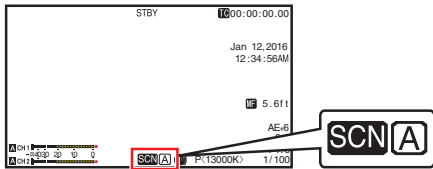Set the [SCENE SELECT] switch to "A" or "B" to enter the Scene Select mode. This allows the camera recorder to enter a preset shooting mode.

When the camera recorder is in the Scene Select mode, "SCN A" or "SCN B" appears on the screen.
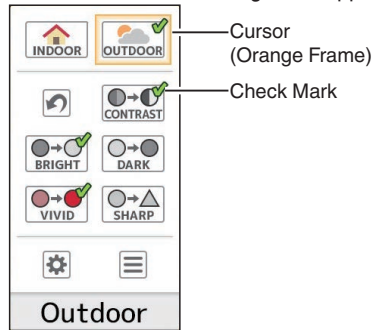

Setting Scene Select

You can set different shooting modes for "A" and "B" of the [SCENE SELECT] switch.

1 **Set the [SCENE SELECT] switch to "A" or "B".**

The camera recorder switches to the desired set position ("A" or "B").

2 **Press the [MENU/THUMB] button.**
The Scene Select setting menu appears.

Cursor
(Orange Frame)

Check Mark

3 **Select a shooting mode.**
- Use the cross-shaped button (▲▼◀▶) to move the orange cursor. Select icons for the shooting mode and press the Set button (●).
- Icons being selected are indicated by a check mark (✓). Press the Set button again to remove the check mark.
- When a check mark appears beside an icon, select 🔧 (Adjust) and press the Set button to display the Adjust screen. You can adjust the selected shooting mode.
(☞ P47 [Detailed Settings for Shooting Mode])

4 **Press the [MENU/THUMB] button.**
Returns to the normal screen.

Memo : ─────────────────────
- The Scene Select mode operates regardless of the [FULL AUTO ON/OFF] switch setting. However, Full Auto mode will be "ON".
- The status of the selected shooting mode can be saved in both "A" and "B" of the [SCENE SELECT] switch.
- If a check mark does not appear for "Bright", "Dark", "Hi Contrast", "Vivid" or "Sharp", the Adjust screen will not appear.
- When the Scene Select setting menu is displayed, changing the [SCENE SELECT] switch to "OFF" will close the Scene Select setting menu and return to the normal screen.
- When the [SCENE SELECT] switch is set to "A" or "B", items in [Main Menu] ➡ [Camera Function] cannot be set.
- Settings for [AE Level] are disabled during the Scene Select mode.
- Settings for [Camera Process] are disabled during the Scene Select mode.

List of Shooting Modes (Icon)

Icon	Description
INDOOR Indoor (*1)	Select for indoor shooting.
OUTDOOR Outdoor (*1)	Select for outdoor shooting.
(Reset)	Returns all current setting values for the [SCENE SELECT] switch ("A" or "B") to default.
CONTRAST Hi Contrast	Select to add contrast and differentiate brightness and darkness.
BRIGHT Bright (*2)	Select when the background is bright and the subject appears dark against the backlight. Adjust when the subject becomes darker than necessary in Auto Iris mode.
DARK Dark (*2)	Select when the background is dark and the subject is too bright. Adjust when the subject becomes brighter than necessary in Auto Iris mode.
VIVID Vivid	Select for shooting vivid and colorful subjects.
SHARP Sharp	Select to emphasize the contour of the subject.
(Adjust)	Displays the adjustment screen. Details for each setting value can be configured. (☞ P47 [Detailed Settings for Shooting Mode])
(Menu)	Displays the menu screen. (☞ P83 [Basic Operations in Menu Screen])

*1 "Indoor" and "Outdoor" cannot be selected at the same time.
*2 "Bright" and "Dark" cannot be selected at the same time.

Detailed Settings for Shooting Mode

1 **Adjust the setting values.**

① Select the item to adjust.

Select the item to adjust using the cross-shaped button (▲▼), and press the Set button (●).

② Select the setting value.

Change the setting value using the cross-shaped button (▲▼), and press the Set button (●).
The settable items and their values are as follows.

Contrast : -3 to +3 (Default value: +2)
Brightness : 0 to 6 (Default value: 3)
Darkness : 0 to 6 (Default value: 3)
Vividness : -5 to +5 (Default value: +3)
Sharpness : -3 to +3 (Default value: +2)

Memo : ────────────────────
- The default value is the one with the check mark beside the icon in the Scene Select setting menu.
- For items without a check mark beside the icons in the Scene Select setting menu, the setting values are fixed at "0" and cannot be changed.

2 **Press the crossed-shaped button (◀) or [CANCEL] button.**
- Returns to the Scene Select setting menu.
- Press the [MENU/THUMB] button to return to the normal screen.
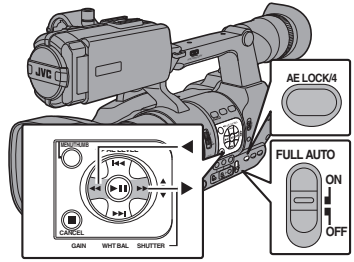
Memo : ────────────────────
- When the Adjust screen is displayed, changing the [SCENE SELECT] switch to "OFF" will close the Adjust screen and return to the normal screen.

Using Scene Select 47

Adjusting the Brightness

Adjust the brightness using Iris, Gain and Shutter speed according to the brightness of the object.

Adjusting the Brightness Automatically

When the [FULL AUTO ON/OFF] switch is set to "ON", Iris, Gain, Shutter speed and ND filter are automatically adjusted according to the brightness of the object to maintain optimum brightness.

Memo :
- You can use the cross-shaped button (◀▶) on the side of the camera recorder to set the target level (brighter/darker) to maintain optimum brightness during automatic adjustment. (☞ P87 [AE Level])
- The convergence speed of the automatic adjustment for gain, shutter and iris can be set in the menu. (☞ P87 [AE Speed])
- If one or more of the items (Gain, Iris and Shutter) have been set to "Auto", the value of the corresponding items when the user button that is assigned "AE Lock" is pressed can be fixed. (☞ P89 [AE Lock])

Adjusting the Brightness Manually

When the [FULL AUTO ON/OFF] switch is set to "OFF" and [SCENE SELECT] switch is set to "OFF", some or all of the items (Iris, Gain and Shutter Speed) can be manually adjusted.
> (☞ P48 [Adjusting the Iris])
> (☞ P49 [Setting the Gain])
> (☞ P50 [Setting the Electronic Shutter])

Memo :
- If Iris, Gain and Shutter Speed are manually adjusted, the [AE Level] setting is temporarily disabled.
- Settings for [AE Level] are disabled during the Scene Select mode.

Adjusting the Iris

You can adjust the aperture of the lens iris manually or automatically according to the brightness of the object.
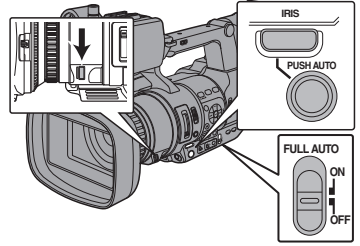
Auto Iris (Automatic Adjustment) Mode

1. **Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.**
2. **Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.**
3. **Press the [IRIS] button to set to the Auto Iris mode.**
   The iris is automatically adjusted according to the brightness of the object.
   The lens aperture value (F-number) is not displayed in the Auto Iris mode.

Memo :
- Setting the [FULL AUTO ON/OFF] switch to "ON" to enter Full Auto mode also activates the Auto Iris mode. In this case, the Gain, Shutter and White Balance also enter into Auto mode forcibly.
   The switching operation of the [IRIS] switch is disabled in the Full Auto mode.
- You can use the cross-shaped button (◀▶) on the side control panel to set the target level (brighter/darker) of the auto iris. (☞ P87 [AE Level])
- The convergence speed of the auto iris can be set in the menu. (☞ P87 [AE Speed])

Manual Iris (Manual Adjustment) Mode

The aperture value (F-number) of the lens can be set manually.

1. **Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.**
2. **Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.**
3. **Press the [IRIS] button to set to the Manual Iris mode.**
   The lens aperture value (F-number) is displayed.

4 **Turn the iris dial to adjust the iris manually.**
The open F-number of the aperture varies
according to the zoom position.
Wide [W] end   : F1.2
Tele [T] end   : F2.8

F-number	Description
Decrease	The subject appears brighter. The focused range becomes sharper, while the background is blurred to produce a soft image.
Increase	The subject appears darker. Background of image becomes focused as well.

Memo :
● Pressing the [PUSH AUTO] button during
Manual Iris mode activates One Push Auto Iris
mode. And holding down the [PUSH AUTO]
button activates Push Auto Iris mode.

One Push Auto Iris

When the camera recorder is in Manual Iris mode,
press the [PUSH AUTO] button to adjust the iris
according to the brightness of the object.

Push Auto Iris

When the camera recorder is in Manual Iris mode,
hold down the [PUSH AUTO] button to change to
Auto Iris mode temporarily. The iris will be
automatically adjusted according to the brightness
of the object.

Setting the Gain

This function electrically boosts the light sensitivity
when there is insufficient illumination on the object.
You can set the gain of the video amplifier
according to the brightness of the object. Select the
setting mode according to your shooting
conditions.
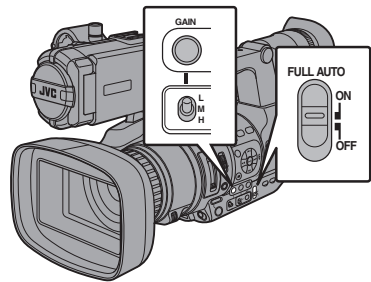
Automatic Gain Mode (Automatic Gain Adjustment)

1 **Set the [FULL AUTO ON/OFF] switch to
"OFF" to turn off the Full Auto mode.**

2 **Set the [SCENE SELECT] switch to "OFF" to
turn off the Scene Select mode.**

3 **Press the [GAIN] button to set to the
Automatic Gain mode.**
The sensitivity value (in dB) will not be displayed
in the Auto Gain mode.

Memo :
● Set the [FULL AUTO ON/OFF] switch on the
camera recorder to "ON" to enter the Automatic
Gain mode ([AGC] fixed). The gain of the video
amplifier is automatically set according to the
brightness of the object.
In this case, the [GAIN] switch on the camera
recorder is disabled.
● The upper limit of the gain setting value during
AGC operation can be set in [Main Menu] ➡
[Camera Function] ➡ [AGC Limit].
(☞ P87 [AGC Limit])

Manual Gain Mode (Manual Gain Switching)

1 **Set the [FULL AUTO ON/OFF] switch to
"OFF" to turn off the Full Auto mode.**

2 **Set the [SCENE SELECT] switch to "OFF" to
turn off the Scene Select mode.**

3 **Press the [GAIN] button to set to the Manual
Gain mode.**
● Use the [L/M/H] switch to set the gain of the
selected video amplifier.
● The gain level appears on the screen.
● The default positions of the switch are as
follows.

    [L] : 0dB
    [M] : 6dB
    [H] : 12dB

Memo :
● You can change the gain value of each position
in the menu. Increasing the sensitivity causes
the screen to appear grainier.
(☞ P87 [GAIN L, GAIN M, GAIN H])

Setting the Electronic Shutter

You can change the shutter speed (time for each shooting frame) using the electronic shutter function. Electronic shutter can be adjusted manually or automatically.

Automatic Shutter Mode (Automatic Shutter Adjustment)

1 **Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.**

2 **Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.**

3 **Press the [SHUTTER] button to set to the Automatic Shutter mode.**
   ● The shutter speed will not be displayed.
   ● The camera recorder enters the Automatic Shutter mode. The shutter speed is automatically adjusted according to the brightness of the object.

Memo :
● Switching of shutter speed with the cross-shaped button (▲▼) and switching of shutter mode with the Set button (●) are disabled.
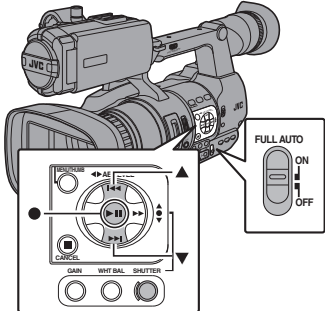
Manual Shutter Mode (Manual Shutter Switching)

1 **Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.**

2 **Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.**

3 **Press the [SHUTTER] button to set to the Manual Shutter mode.**

● The shutter speed appears on the screen.
● Use the Set button (●) to switch between the shutter modes and the cross-shaped button (▲▼) to switch between the speeds.

Switching Shutter Mode

Press the Set button (center of the cross-shaped button) to turn ON/OFF the shutter.

Memo :
● When the shutter is ON, "Step" or "Variable" may be selected in [Camera Function] ➜ [Shutter]. "Step" is the factory default.
(☞ P87 [Shutter])

Switching Shutter Speed

When Manual Shutter is activated, use the cross-shaped button (▲▼) to set the shutter speed. The settable shutter speed range differs according to the video format setting.

| Shutter			Frame Rate	
			60p 60i	50p 50i
▲	(Step)		1/10000	1/10000
			1/4000	1/4000
			1/2000	1/2000
			1/1000	1/1000
			1/500	1/500
			1/250	1/250
			1/120	1/120
			1/100	1/100
		(Standard)	1/60	1/50
			1/30	1/25
			1/15	1/12.5
▼			1/7.5	1/6.25
▲	(Variable)	(Upper limit)	1/9934	1/10014
			~	
		(Standard)	1/60.00	1/50.00
			~	
▼		(Lower limit)	1/30.00	1/25.00

Memo :
● The operations of the cross-shaped button (▲▼) and Set button (●) are disabled in the following cases.
   ・ During clip preview
   ・ During display of the USB switching confirmation screen
   ・ During display of the formatting confirmation screen
   ・ When selecting a face using face detection

Adjusting the White Balance

Adjust the white balance according to the color temperature of the lighting. You can select the adjustment mode according to the shooting conditions.
As the color of the light (color temperature) varies according to the light source, it is necessary to readjust the white balance when the main light source illuminating the subject changes.
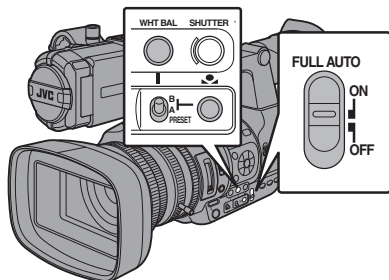
Automatic White Balance Mode (FAW: Fulltime Auto White balance)

● Press the [WHT BAL] button on the side control panel to enter into Automatic White Balance mode.
● Set the [FULL AUTO ON/OFF] switch on the camera recorder to "ON" to enter Automatic White Balance mode. An appropriate white balance is automatically adjusted according to the color temperature of the lighting on the object.
● White balance switching with the [WHT BAL B/A/PRESET] selection switch is disabled.

Caution : ─────────────────────
● The accuracy of [FAW] is inferior to that of Auto White Balance.
● When the power of the camera recorder is turned on with the [FAW] mode selected, it takes about 15 seconds for the colors to stabilize.

Memo : ─────────────────────
● When [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [AE Lock] is set to "AE/WB", the white balance when the user button that is assigned [AE Lock] is pressed can be fixed. (☞ P89 [AE Lock])
● If [White Balance] has been assigned to the user button, pressing the assigned user button will display the FAW Paint Adjustment screen. (☞ P32 [Assignment of Functions to User Buttons])

FAW Paint Adjustment

You can fine-adjust the white balance that was automatically adjusted.

1　**Select [Main Menu] ➡ [Camera Process] ➡ [White Balance] ➡ [FAW Paint] and press the Set button (●).**
The FAW Paint Adjustment screen appears.

2　**Adjust the R and B values.**
Use the cross-shaped button (▲▼) to adjust R value and (◀▶) to adjust B value.

Adjusting the White Balance　51

3 Press the Set button (●).
Returns to the [White Balance] screen.

- R Value
- B Value

Manual White Balance Mode (Manual Switching)

1 **Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.**

2 **Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.**

3 **Press the [WHT BAL] button to set to Manual White Balance mode.**
- You can select the white balance with the [WHT BAL B/A/PRESET] selection switch.
- Use the [WHT BAL B/A/PRESET] selection switch to select "PRESET" (preset mode), "A" (memory A mode), or "B" (memory B mode).
- The value assigned to the switch appears on the screen.

Memo : ─────────────
- This is fixed at "FAW" when the [FULL AUTO ON/OFF] switch of the camera recorder is set to "ON".

Preset Mode (PRESET)

- Two different color temperature settings are registered on this camera recorder. You can switch between them using the [▲] button. (Default setting: "3200K" ↔ "5600K")
- Press the [▲] button to switch to a different color temperature.
("Preset Temp." ↔ "Alternative Temp.")

1 **Set the [WHT BAL B/A/PRESET] switch to "PRESET".**
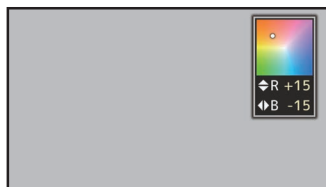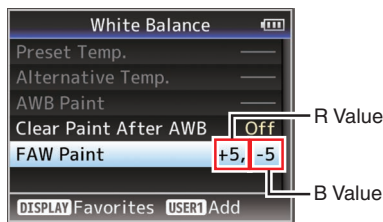
2 **Press the [▲] button.**

Setting the [Preset Temp.] or [Alternative Temp.] Values

You can change both the color temperature settings in the Preset mode in the menu.

1 **Open the [Preset Temp.] or [Alternative Temp.] menu.**
- Select [Main Menu] ➡ [Camera Process] ➡ [White Balance] ➡ [Preset Temp.] and [Alternative Temp.], and press the Set button (●).
- The Color Temperature setting screen appears.

Color Temperature Selection Screen

Color Temperature Detailed Selection Screen

2 **Select the color temperature.**
- When selecting from a setting value (Color Temperature Selection screen), use the cross-shaped button (▲▼) to select the color temperature.
[Setting Values: 7500K, 6500K, 5600K, 5200K, 4800K, 4200K, ●3200K, 3000K, 2800K]
- To select detailed values (Color Temperature Detailed Selection screen)
  · Press the cross-shaped button (▶) to display the Color Temperature Detailed Selection screen.
  · Use the cross-shaped button (▲▼) to select a color temperature.
  [Setting Values: 2300K to 15000K (in 100K increments)]

Memo : ─────────────
- Use the cross-shaped button (▶) to switch between the Color Temperature Selection screen and the Color Temperature Detailed Selection screen.
- If [White Balance] has been assigned to the user button, pressing the assigned user button will display the Color Temperature Selection screen.
(☞ P32 [Assignment of Functions to User Buttons])

Memory A Mode (A), Memory B Mode (B)

- Set to the white balance saved in Memory A or Memory B.
- When the [WHT BAL B/A/PRESET] selection switch is set to "A" or "B", press the [📷] button to execute white balance. The white balance will be automatically adjusted and the adjusted value will be saved in Memory A or Memory B.

1 **Prepare the camera recorder.**

① Set the [POWER ON/OFF] switch to "ON".
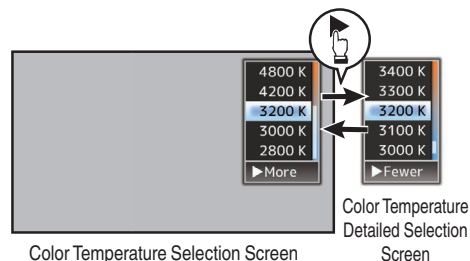
② Set the [FULL AUTO ON/OFF] switch to "OFF" to turn off the Full Auto mode.

③ Set the [SCENE SELECT] switch to "OFF" to turn off the Scene Select mode.

④ Press the [IRIS] button to set to the Auto mode.

2 **Set the [WHT BAL B/A/PRESET] selection switch to "A" or "B".**

3 **Locate a place with similar lighting conditions as the object to be shot, place a white object near the center of the screen and zoom in to fill the screen with white.**

4 **Press the [📷] (Auto White Balance) button.**
- The white detection frame appears when Auto White Balance is activated. Fill the frame with white completely.
- While Auto White Balance is starting up, "A<📷>" or "B<📷>" appears on the screen. (📷 mark appears blinking)
- After the correct white balance is obtained, an estimated value of the current color temperature is displayed.

White Detection Frame

[AWB] Activating

Blinking

Result Display

Caution :

- Do not use highly reflective objects, such as metals. Doing so may result in improper white balance adjustment.
- The Auto White Balance function cannot provide optimum white balance with an object outside the adjustment range, for example when it contains only a single color or not enough white color.

Error Message

If the Auto White Balance adjustment is not correctly completed, one of the following messages will appear for about 3 seconds.

Message	Status
Auto White　＊NG: Object (*A or B)	Displayed when there is not enough white color on the object, or when the color temperature is not suitable. Use another white object and adjust the white balance again.
Auto White ＊ Error: Low Light (*A or B)	Displayed when the lighting is dark. Increase the lighting and adjust the white balance again.
Auto White ＊ Error: Over Light (*A or B)	Excessive illumination. Displayed when the lighting is too bright. Decrease the lighting and adjust the white balance again.

Adjusting the White Balance　53
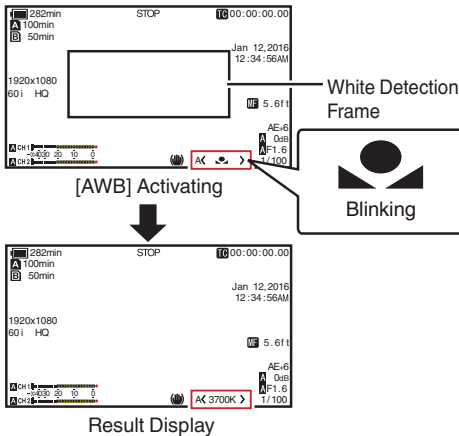
White Paint Adjustment

You can fine-tune the white balance saved in Memory A or Memory B.

1 **Select [Main Menu] ➜ [Camera Process] ➜ [White Balance] ➜ [AWB Paint] and press the Set button (●).**
The White Paint Adjustment screen appears.
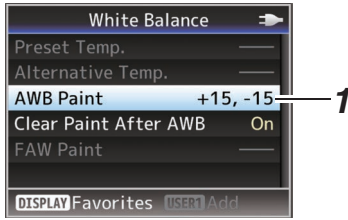
White Balance	
Preset Temp.	——
Alternative Temp.	——
AWB Paint	+15, -15	⟵ *1*
Clear Paint After AWB	On
FAW Paint	——
DISPLAY Favorites **USER1** Add	

2 **Adjust the R and B values.**
Use the cross-shaped button (▲▼) to adjust R value and (◀▶) to adjust B value.

```
                    ○
              ⬍R +15
              ◀▶B  -15
```

3 **Press the Set button (●).**
Returns to the [White Balance] screen.

White Balance	
Preset Temp.	——
Alternative Temp.	——
AWB Paint	+5, -5	⟵ R Value
Clear Paint After AWB	On	⟵ B Value
FAW Paint	——
DISPLAY Favorites **USER1** Add	
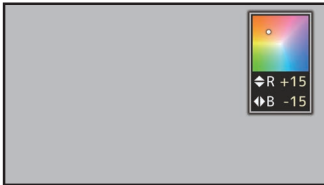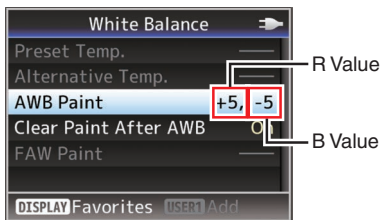
Memo :
- Selecting [⬛] will usually clear the White Paint Adjustment value. But when [Main Menu] ➜ [Camera Process] ➜ [White Balance] ➜ [Clear Paint After AWB] is set to "Off", values will not be cleared even when [⬛] is selected.
  (☞ P92 [Clear Paint After AWB])
- If [White Balance] has been assigned to the user button, pressing the assigned user button will display the AWB Paint Adjustment screen.
  (☞ P32 [Assignment of Functions to User Buttons])

Adjusting the Camera Image

The picture quality of the camera can be set using the [Camera Process] menu.
As the adjustments are shown on the screen, you can adjust the values while checking the picture quality on the camera.
- [Detail]
- [Master Black]
- [Black Toe]
- [White Clip]
- [Gamma]
- [White Balance]
- [Color Matrix]
- [Color Gain]

Memo :
- For details of the respective items, see the [Camera Process] menu.
  (☞ P90 [Camera Process Menu])
- During Scene Select mode, use the Scene Select setting menu to set the picture quality.

Shooting

Using the Image Stabilizer

Reduces blurring of images due to camera shake.

1 **Check whether the image stabilizer feature is turned ON or OFF.**
   If the image stabilizer icon ((illustration)/(illustration)) does not appear on the screen display, the image stabilizer function is OFF.
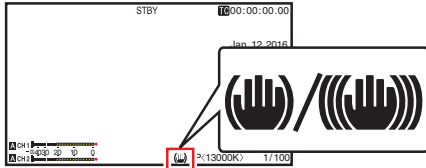
2 **Press the [OIS/2] button to turn ON the image stabilizer feature (when image stabilizer feature is OFF).**
   The image stabilizer feature switches between ON and OFF with every press of the [OIS/2] button.
   - OFF:
     Use this setting when the camera recorder is secured, such as when using a tripod.
   - ON:
     Reduces blurring of images due to camera shake.

Memo :
- Select [Main Menu] ➡ [Camera Function] ➡ [OIS] ➡ [Level] to set the correction level. (☞ P87 [Level])
- Correction by this feature may not be sufficient when camera shake is too strong.
- "OIS" is assigned to [OIS/2] button in factory default.
- "OIS" can also be assigned to other user buttons. (☞ P32 [Assignment of Functions to User Buttons])
- The angle of view becomes narrower at the wide angle end when the image stabilizer function is turned ON (High).

Audio Recording

You can record audio from the two channels (CH1/CH2) in synchronization with video images on this camera recorder.
Select from the four options below to record the audio.
- Built-in Microphone
- Microphone connected to [AUX] terminal
- Microphone connected to [INPUT1] terminal
- Microphone connected to [INPUT2] terminal
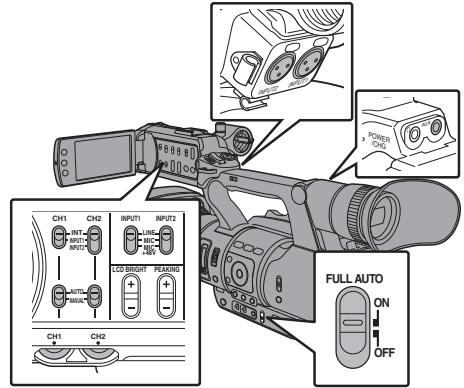
Selecting Audio to Be Recorded in Each Channel

Select the audio to be recorded in CH1/CH2.

-	Switch Setting	Connected Devices
CH1	INT	• Built-in Microphone • Microphone connected to [AUX] terminal
	INPUT1	Microphone connected to [INPUT1] terminal
CH2	INT	• Built-in Microphone • Microphone connected to [AUX] terminal
	INPUT1	Microphone connected to [INPUT1] terminal
	INPUT2	Microphone connected to [INPUT2] terminal

Memo :
- When "INT" is set, the built-in microphone is disabled if a microphone is connected to the [AUX] terminal; audio from the microphone connected to the [AUX] is recorded.
- When "INT" is selected, set the reference input level in [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Int. Mic Gain]/[AUX Gain].
   (☞ P99 [Int. Mic Gain])
   (☞ P99 [AUX Gain])

Setting Input Channel to [INPUT1]/[INPUT2]

Select the audio to input to [INPUT1] and [INPUT2] terminals with the [INPUT1]/[INPUT2] mode switch.

Setting	Description
[LINE]	Use this setting when connecting to an audio device or other equipment. The reference input level is +4 dBu.
[MIC]	Use this setting when connecting to a dynamic microphone.
[MIC+48V]	Use this setting when connecting to a microphone (phantom microphone) that requires a +48 V power supply.

Memo :

● When "MIC" or "MIC+48V" is selected, set the reference input level in [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Input1 Mic Ref.]/[Input2 Mic Ref.].
  (☞ P99 [Input1 Mic Ref.])
  (☞ P99 [Input2 Mic Ref.])

Caution :

● When connecting a device that does not require a +48 V power supply, make sure that it is not set to the "MIC+48V" position.
● When the [INPUT1]/[INPUT2] mode switch is set to "MIC", make sure that a microphone is connected to the [INPUT1]/[INPUT2] terminal. If you increase the recording level when a microphone is not connected, noise from the input terminal may be recorded.
● When a microphone is not connected to the [INPUT1]/[INPUT2] terminal, set the [INPUT1]/[INPUT2] mode switch to "LINE" or adjust the volume with the [CH1]/[CH2] recording level adjustment knob.

Adjusting Audio Recording Level

You can select to adjust the audio recording levels for the two channels (CH1/CH2) manually or automatically.
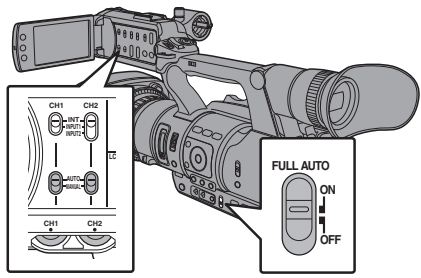
Manual Adjustment Mode (Manual Adjustment)

● Set the [CH1/CH2 AUTO/MANUAL] switch on the camera recorder to "MANUAL" to enter the manual adjustment mode, and use the [CH1]/[CH2] recording level adjustment knob to set the recording level.
● You can adjust the level manually during the recording, recording standby, and stop modes.

■ When the input channel is set to "INPUT1"/ "INPUT2"

1 **Set the [CH1/CH2 AUTO/MANUAL] selection switch to "MANUAL" for the channel to be adjusted manually.**

2 **Turn the corresponding [CH1]/[CH2] recording level adjustment knob to adjust the level.**
   When [Audio Set] ➡ [Limiter] is set to "Off", adjust such that the audio level meter does not light up at -2 dB even for loud sounds.
   (☞ P99 [Limiter])

-2dB

Shooting
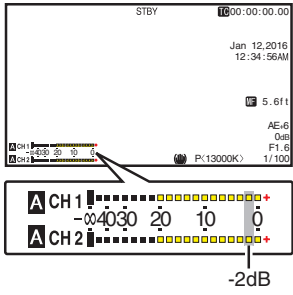
■ When the input channel is set to "INT" for both [CH1] and [CH2]

1 **Set the [CH1 AUTO/MANUAL] selection switch to "MANUAL".**

2 **Turn the [CH1] recording level adjustment knob to adjust the level.**
When the built-in microphone and the [AUX] input terminal are used, the recording levels of [CH1] and [CH2] are interlocked.
This is also effective when the [CH1 AUTO/MANUAL] selection switch is set to [CH2].

Memo :
● Select [Limiter], [AGC Response], [AGC Mode], or [Int. Mic Separation] in the menu to set the recording audio.
● If [Limiter] is set to other than "Off", the limiter operates according to the value set.
(☞ P99 [Limiter])
● For the reference level to be recorded to an SD card, set [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Ref. Level] to "-20dB", "-18dB", or "-12dB". (common for CH1/CH2)
(☞ P99 [Ref. Level])
● The operations of the [CH2] recording level adjustment knob and [CH2 AUTO/MANUAL] selection switch are disabled.

Automatic Adjustment Mode

● Set the [CH1/CH2 AUTO/MANUAL] selection switch to "AUTO" or the [FULL AUTO ON/OFF] switch to "ON" to enter Automatic Adjustment mode. The audio recording level is set automatically according to the input level.
● When the [FULL AUTO ON/OFF] switch is set to "ON", mode switching with the [CH1/CH2 AUTO/MANUAL] selection switch is disabled.

Memo :
● When [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Limiter] is set to "Off" while in the automatic adjustment mode, the limiter operates at -5 dBFS.
● If [Limiter] is set to other than "Off", the limiter operates according to the value set.
(☞ P99 [Limiter])
● When [A/V Set] ➡ [Audio Set] ➡ [Audio On FULL AUTO] is set to "SW Set", you can switch the audio recording mode with the [CH1/CH2 AUTO/MANUAL] selection switch on the camera recorder even when the [FULL AUTO ON/OFF] switch is set to "ON".
(☞ P101 [Audio On FULL AUTO])

Monitoring Audio Sound During Recording Using a Headphone

You can check the recorded audio using headphone.
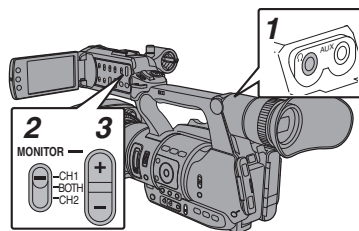
1 **Connect the headphone.**

2 **Select the channel to monitor with the [MONITOR] selection switch.**

Setting	Description
[CH1]	Outputs the audio recorded in [CH1].
[BOTH]	Outputs the audio recorded in [CH1/CH2].
[CH2]	Outputs the audio recorded in [CH2].

3 **Use the [MONITOR +/-] button to adjust the monitor volume.**

Memo :
● Audio during recording is not output from the monitor speaker.
● Warning tone is output when there is an abnormality in the camera recorder or when the battery is low.
(☞ P126 [Warning Tone])

Selecting Audio Output Method When the [MONITOR] Selection Switch Is Set to "BOTH"

When a stereo type earphone jack is connected, perform the following setting to output stereo sound.

1 **Set the [MONITOR] selection switch to "BOTH".**

2 **Set [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Monitor] to "Stereo".**
(☞ P101 [Monitor])

Memo :
● You can set the volume of the warning tone in [Main Menu] ➡ [A/V Set] ➡ [Audio Set] ➡ [Alarm Level]. ("Off"/"Low"/"Middle"/"High")
(☞ P101 [Alarm Level])

Time Code and User's Bit

Time code and user's bit data are recorded with the video in this camera recorder.
The time code and user's bit are displayed on the viewfinder and LCD monitor during playback or recording. (Display screen)
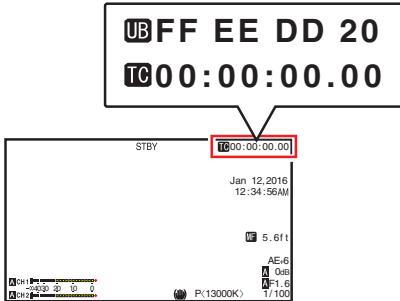
Displaying Time Code and User's Bit

The time code and user's bit are displayed on the viewfinder and LCD monitor during playback or recording.
The display differs according to the menu settings.

1 **Set [Main Menu] ➡ [LCD/VF] ➡ [Display Settings] ➡ [TC/UB] to a value other than "Off".**

(☞ P96 [TC/UB])

When "TC" or "UB" is selected, time code or user's bit data is displayed respectively on the display screen.

UB FF EE DD 20
TC 00:00:00.00

STBY   TC 00:00:00.00

Jan 12,2016
12:34:56AM

NF 5.6 f t

AE×6
A 0dB
F1.6
1/100

A CH 1
A CH 2   P⟨13000K⟩

Memo :
- Values recorded on the SD card is displayed in Media mode.

Time Code Operation Mode

Set the time code operation in [Main Menu] ➡ [TC/UB] ➡ [TC Generator].
(☞ P93 [TC Generator])

Setting	Description
Free Run(Ext)	This mode synchronizes another camera recorder connected to the [TC] terminal. The time code operates in the run mode at all times regardless of the recording status. It continues to run even when the power of the camera recorder is turned off.
Free Run	The time code operates in the run mode at all times regardless of the recording status. It continues to run even when the power of the camera recorder is turned off.
Rec Run	The time code operates in the run mode during recording. It continues to run in the order of the recorded clips as long as the SD card is not replaced. If the SD card is removed and recording is made on another card, time code will be recorded on the new card from where it was left off in the previous card.
Regen	The time code operates in the run mode during recording. When the SD card is replaced, the last time code recorded on the card is read and recorded on a new card so that the time code continues in running order. (☞ P59 [Setting Time Code])

Memo :
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] is set to "Interval Rec" or "Frame Rec", and [TC Generator] is set to "Free Run" or "Free Run(Ext)", Rec Run is activated.
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Format] is set to "AVCHD", Pre Rec enters Free Run mode.
(☞ P103 [Format])

Setting Time Code Generator

Presetting the Time Code

Time code and user's bit data generated from the internal time code generator are recorded.
This section describes how to set [TC/UB] ➡ [TC Preset].

(☞ P93 [TC Preset])

Memo :
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Frame & Bit Rate] is set to "50p" or "50i", "Drop" cannot be selected.
(☞ P103 [Frame & Bit Rate])
- You can configure the setting without accessing the [TC/UB] menu screen.
(☞ P60 [Setting Time Code without Opening the Menu])

Required Settings Before Preset

1 **Set [TC/UB] ➡ [TC Generator] to "Rec Run" or "Free Run".**
(☞ P93 [TC Generator])
- [Rec Run]:
  Preset data in the time code generator operates in run mode during recording mode. Set this when recording continuous time code in connecting frames.
- [Free Run]:
  Time code starts to operate in run mode from the preset time in the time code generator.

2 **Select the framing mode for the time code generator (only when the frame rate setting is "60").**
Set using [Main Menu] ➡ [TC/UB] ➡ [Drop Frame].
(☞ P93 [Drop Frame])
- [Drop]:
  Sets the run mode of the time code generator to drop frame mode. Use this setting when placing emphasis on the recording time.
- [Non Drop]:
  Sets the run mode of the time code generator to non-drop frame mode. Use this setting when placing emphasis on the number of frames.

Memo :
Drop frame/non-drop frame mode
- When the frame rate setting of [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Frame & Bit Rate] is set to "60p" or "60i", the actual number of frames per second is approximately 59.94. However, the time code processing standard is "60p" or "60i" frames. To make up for the frame number discrepancy, the drop frame mode (Drop) drops the 00 frame and 01 frame every minute except for minutes that are multiples of 10. However, in the case of "60p", the 00, 01, 02 and 03 frame are dropped.
- The non-drop frame mode (Non Drop) does not drop frames and ignores the discrepancy with the actual time.

Setting Time Code
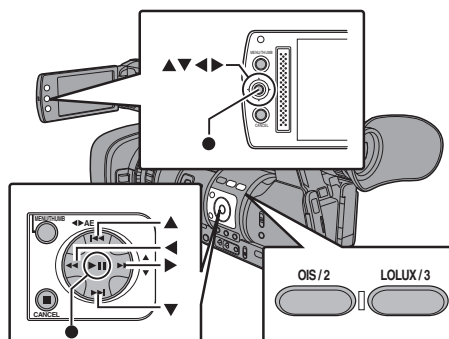
1 **Select [Main Menu] ➡ [TC/UB] ➡ [TC Preset] and press the Set button (●).**
(☞ P93 [TC Preset])
The [TC Preset] screen appears.

TC/UB	🔋
TC Generator	Rec Run
TC Preset	**00:00:00.00**	——— *1*
UB Mode	Preset
Preset	00 00 00 00
Drop Frame	Drop

DISPLAY Favorites   USER1 Add

Memo : ————————————————
- When [TC/UB] ➡ [TC Generator] is set to "Regen", the parameter is displayed as "Regen" and cannot be selected.
(☞ P93 [TC Generator])

2 **Set the time code (hour, minute, second, frame).**
Use the cross-shaped button (◀▶) to place the cursor at the item to set, then use the cross-shaped button (▲▼) to change the values.
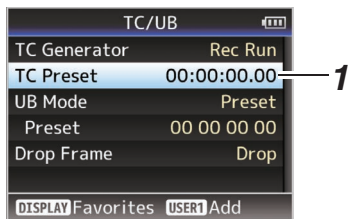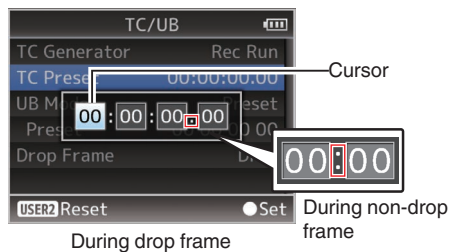

Cursor

During drop frame

During non-drop frame

Memo : ————————————————
- Press the [OIS/2] button to reset each digit to "0". The cursor moves to the time digit (left).

3 **Check the values and press the Set button (●).**
- The time code is set and the screen returns to [TC/UB].
- To cancel the setting, press the [CANCEL] button.

4 **Press the [MENU/THUMB] button.**
Returns to the normal screen.

Setting Time Code without Opening the Menu
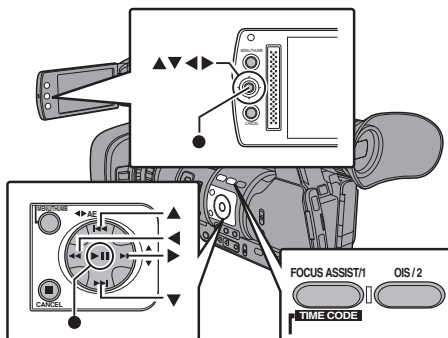
Memo : ————————————————
- Settings cannot be made in the following cases.
  - [TC/UB] ➡ [TC Generator] has been set to "Regen".
  - Menu screen is displayed.
  - The camera recorder is not in the Camera mode.

Setting Time Code

1 **Set [TC/UB] ➡ [TC Generator] to a value other than "Regen".**
(☞ P93 [TC Generator])

2 **Hold down the [MENU/THUMB] button and press the [FOCUS ASSIST/1] button.**
The [TC Preset] setting screen appears.

Cursor

During drop frame

During non-drop frame
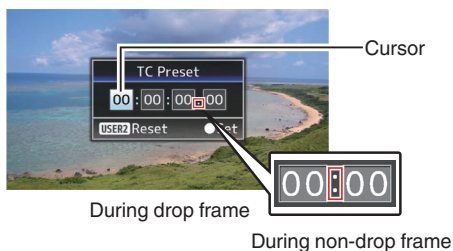
3 **Set the time code (hour, minute, second, frame).**
Use the cross-shaped button (◀▶) to place the cursor at the item to set, then use the cross-shaped button (▲▼) to change the values.

Memo : ————————————————
- Press the [OIS/2] button to reset each digit to "0". The cursor moves to the time digit (left).

Shooting

4 **Check the values and press the Set button (●).**
- The time code is set and the screen returns to the normal screen.
- To cancel the setting, press the [CANCEL] button.

Caution :
- When the camera recorder is switched to Media mode during editing, editing will be canceled and the screen will close.
- When editing the time code, operation of the [FOCUS ASSIST/1] and [OIS/2] buttons that are set in [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] is disabled. [OIS/2] functions as the number reset button.
  (☞ P88 [User Switch Set Item])

Recording Time Code in Continuation of the Recorded Time Code on SD Card

This camera recorder is equipped with the time code reader.

1 **Set [TC/UB] ➡ [TC Generator] to "Regen".**
- When the camera recorder enters from recording standby mode to recording mode, it reads the time code already recorded on the SD card and records the new time code in continuation of that value.
- The same data as the user's bit already recorded on the SD card is recorded.

Memo :
- When [TC/UB] ➡ [TC Generator] is set to "Regen", the framing mode of the time code follows the setting in [TC/UB] ➡ [Drop Frame] instead of the clip settings.
  (☞ P93 [Drop Frame])

Setting the User's Bit

You can add the date, time or an 8-digit hexadecimal number as the user's bit to the recorded image.
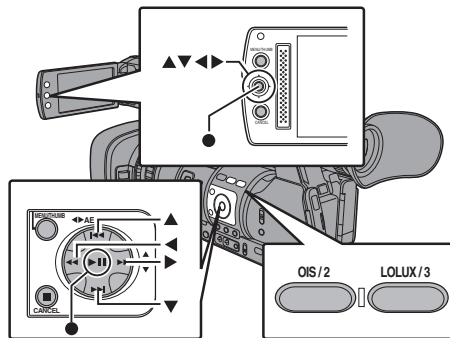
Selecting a Recording Mode

Recording date/time information to the user's bit

1 **Set [Main Menu] ➡ [TC/UB] ➡ [UB Mode] to "Date" or "Time", and press the Set button (●).**
(☞ P93 [UB Mode])
The date or time information is recorded to the user's bit.

Memo :
- When "Date" or "Time" is set, [Preset] appears as "-" and cannot be set.
- "Time" is displayed in the 24-hour format.

Presetting the User's Bit

Recording arbitrary information (8-digit hexadecimal) to the user's bit

1 **Set [Main Menu] ➜ [TC/UB] ➜ [UB Mode] to "Preset", and press the Set button (●).**
(☞ P93 [UB Mode])
The [UB Mode] setting screen appears.

TC/UB	▥
TC Generator	Rec Run
TC Preset	00:00:00.00
UB Mode	Date
Preset	00 0 Time
Drop Frame	**Preset**

●Set ◀Cancel

1

Memo : ─────────────

- When [TC/UB] ➜ [TC Generator] is set to "Regen", the parameter is displayed as "Regen" and cannot be selected.
(☞ P93 [TC Generator])

2 **Select [Main Menu] ➜ [TC/UB] ➜ "Preset" and press the Set button (●).**
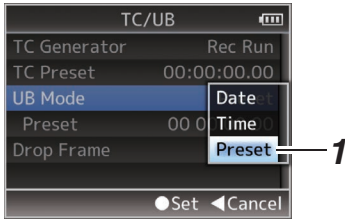The [Preset] setting screen appears.

3 **Use the cross-shaped button (◀▶) to place the cursor at the item to set, then use the cross-shaped button (▲▼) to change the values.**
Numbers between 0 and 9 or alphabets between A and F can be specified for the user's bit.

TC/UB	▥
TC Generator	Rec Run
TC Preset	00:00:00.00
UB	
Pr [A][A] [B][B] [C][C] [D][D]	Cursor
Drop Frame	Drop

USER2 Reset ●Set
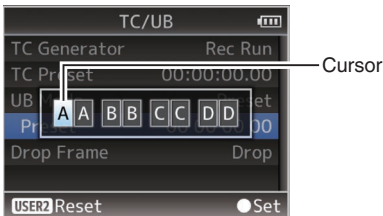
Memo : ─────────────

- Press the [OIS/2] button to reset each digit to "0". The cursor moves to the left.

4 **Check the values and press the Set button (●).**
- The user's bit is set and the screen returns to [TC/UB].
- To cancel the setting, press the [CANCEL] button.

5 **Press the [MENU/THUMB] button.**
Returns to the normal screen.

Synchronizing Time Code on Another Camera

This camera recorder is equipped with a time code input/output terminal ([TC] terminal).
Connect another camera recorder to the [TC] terminal and synchronize to the time code.

1 **Connect the [TC] terminal of the master device with the [TC] terminal of the slave device.**
Set the [TC IN/OUT] switch of the master device to "OUT", and the [TC IN/OUT] switch of the slave device to "IN".

Master Device

[OUT]

Slave Device (This Camera Recorder)

[IN]

Shooting

Settings and Operation of the Camera Recorder
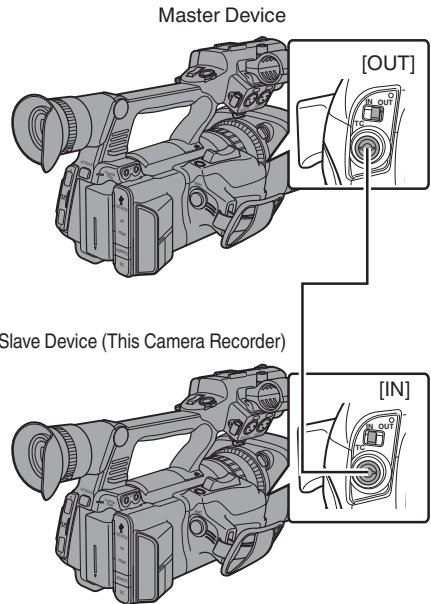
1 **Set to Camera mode.**
(☞ P12 [Operation Modes])

2 **Set [TC/UB] ➜ [TC Generator] as follows.**
• Slave device:
Select "Free Run(Ext)".
• Master device:
Select "Free Run".

3 **Set LCD monitor or viewfinder to Display 1 screen.**

4 **Set the master device and run the time code.**
• When the built-in time code generator is synchronized with the external time code data input, the ⬛ icon on Display 1 screen lights up.
• When time code is not synchronized or time code input is not available, the ⬛ icon goes out.

```
                STBY    L TC  0:00:00.00


                        Jan    30
                        12:34

                        NF  5.6

                              AE±0
                              0dB
 A CH1 ▪▪▪▪▪▪▪▪▪▪▪          F1.6
   -∞40 30 20  10  0    P〈13000K〉
 A CH2 ▪▪▪▪▪▪▪▪▪▪▪              1/100
```

Memo : ─────────────────────

• The built-in time code generator will continue operation even when the master device is disconnected after synchronization.
• User's bit will become data in the master device.
• While the [TC] terminal is connected, the time code may be out of synchronization when the [A/V Set] ➜ [Video Set] ➜ [HDMI out] setting of the Master device and Slave device is being changed.
(☞ P98 [HDMI out])

Setting Zebra Pattern

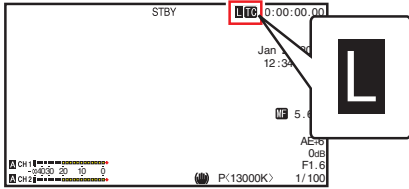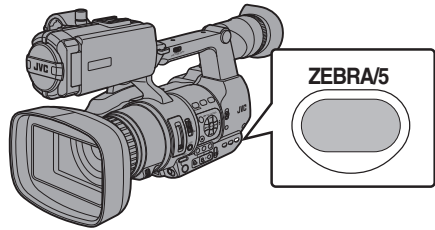When the luminance level range for displaying zebra patterns is specified, diagonal lines (zebra pattern) are displayed at areas with the specified luminance levels during shooting.

1 **Set the zebra display pattern.**
Select the display pattern in [LCD/VF] ➜ [Shooting Assist] ➜ [Zebra].

2 **Specify the brightness (luminance) level range for displaying zebra pattern.**
Specify the upper and lower limits of the luminance level in [LCD/VF] ➜ [Shooting Assist] ➜ [Zebra] ➜ [Top] and [Bottom].

Item	Settings	Options
Top	Upper luminance limit for displaying [Zebra]	5% - 95% (in 5 % increments), 98%, 100%, Over
Bottom	Lower luminance limit for displaying [Zebra]	0% - 95% (in 5 % increments), 98%, 100%

3 **Display the zebra pattern.**
Press the [ZEBRA/5] button to display the zebra pattern in the specified range.

During zebra pattern display, 🦓 (zebra icon) is displayed on the display screen in Camera mode.

Memo : ─────────────────────

• "Zebra" is assigned to [ZEBRA/5] button in factory default.
• "Zebra" can also be assigned to other user buttons.
(☞ P32 [Assignment of Functions to User Buttons])

Viewing Recorded Videos Immediately (Clip Review)

You can check (review) the last recorded video clip on the screen.
However, the video clip cannot be played back if the settings of the camera recorder are different from the video format (Resolution/Frame & Bit Rate/SD Aspect) of the clip.
(☞ P103 [Resolution])
(☞ P103 [Frame & Bit Rate])
(☞ P103 [SD Aspect])

Memo :
- To use this function, assign "Clip Review" to any of the user buttons. "Clip Review" is assigned to [C.REVIEW/7] button in factory default.
- "Clip Review" can also be assigned to other user buttons.
(☞ P32 [Assignment of Functions to User Buttons])

C.REVIEW/7

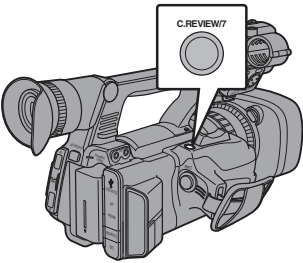1 **Press the button assigned with the "Clip Review" function during standby ("STBY" is displayed).**
Playback of the configured section starts.

Memo :
- The video clip is played back according to the setting in [Main Menu] ➡ [Camera Function] ➡ [User Switch Set] ➡ [Clip Review]. By default setting (Last 5sec), the last 5 seconds of the clip is played back.
(☞ P88 [Clip Review])
- When playback is complete, the camera recorder exits Clip Review and returns to "STBY" (recording standby) mode.

Caution :
- During Clip Review, only the [CANCEL] and [REC] buttons are enabled.
Press the [CANCEL] button to cancel clip review and return to "STBY" (recording standby) mode. Press the [REC] button to cancel clip review and enter recording mode. It will take some time to start recording after the button is pressed.
- When the last clip is less than 5 seconds, the whole clip is played back.
- Only video clips in the currently selected slot can be reviewed.
- When there are no clips in the selected slot, Clip Review function is disabled.
- Clip Review is unavailable when Clip Continuous Rec is paused ("STBY🅒", yellow text). To operate Clip Review, use the [CANCEL] button to set to "STBY🅒" (white text) first.
(☞ P70 [Clip Continuous Rec])
- Clip Review is unavailable when the camera recorder is connected to an external equipment and the equipment is in recording state.
- Clip Review does not function while the record trigger is in the REC state.

Shooting

Splitting the Clips Freely (Clip Cutter Trig)

You can split the clips freely without having to stop recording during shooting.

1 **Assign the "Clip Cutter Trig" function to any of the user buttons.**
(☞ P32 [Assignment of Functions to User Buttons])

2 **Press the user button that is assigned with "Clip Cutter Trig" during shooting.**
A clip cut icon (●✂) appears on the display screen for 3 seconds, and the clip is split.
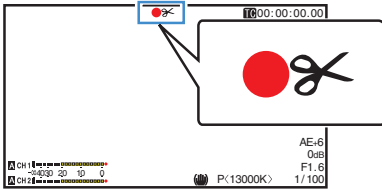
Memo : ─────────────────────────

- Clips cannot be split again for a few seconds after the operation is performed.
- This item cannot be used when [Slot Mode] is set to "Backup".
- Available only when [System] is set to "HD" or "SD".
  (☞ P67 [Backup Rec])
- This item cannot be used when [Rec Mode] is set to a value other than "Normal" or "Pre Rec".
  (☞ P104 [Rec Mode])
- The split clips are recorded seamlessly without interruptions in the video.

Series Rec

- Series Rec mode is specified in the factory default.
  ([Main Menu] ➡ [System] ➡ [Record Set] ➡ [Slot Mode] is set to "Series".)
  (☞ P104 [Slot Mode])
- If both the slots are loaded with recordable cards, pressing the [REC] button starts recording only to the media in the selected slot. When the remaining space in the selected media runs out, recording continues by automatically activating the media in the other slot.
- There is no indication on the display screen when the Series Rec mode is set.

Dual Rec

- If both the slots are loaded with recordable cards in the Dual Rec mode ([Slot Mode] is set to "Dual"), pressing the [REC] button starts recording simultaneously to the media in both the slots.
- The clips recorded to the media in both the slots are identical, and two clips of the same content can be created only on this camera recorder. (☞ P104 [Slot Mode])
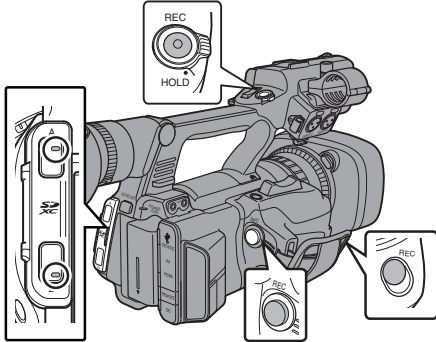
Setting to Dual Rec Mode

1 **Set [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Slot Mode] to "Dual".**
(☞ P104 [Slot Mode])
"DUAL" appears on the display screen.
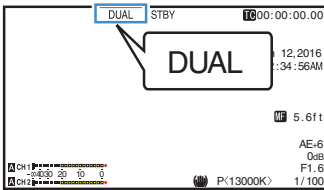
2 **Start recording.**
- Insert recordable media in both slots, and press the [REC] button.
- In the Dual Rec mode, recording to the media in both slots starts at the same time.
- Both the card slot marks turn red, and the status indicators of both the card slots also light up in red.
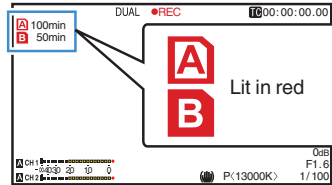
3 **Stop recording.**
- Press the [REC] button again.
- Recording to both slots stops, and both the card slot marks turn white.
- The same clips are recorded to both cards.
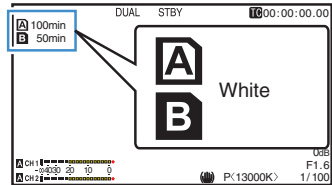
Memo :

- During recording in the Dual Rec mode, both the card slot marks light up in red.
- During recording in the Dual Rec mode to two cards with a different amount of remaining space, if the space of one card runs out, recording to both slots will stop automatically. After recording stops, recording automatically resumes for the card with remaining space. Although the clips are separated in this case, the clips can be seamlessly joined by arranging them on the timeline of the editing software since they are recorded seamlessly.
- If the last clip on the cards that are inserted in the two slots are different from each other, and the time code operating mode is set to "Regen", the Regen mode for the selected card slot will be enabled in the next recording.

Caution :
- To perform recording in the Dual Rec mode, it is recommended that you start recording by making use of two cards with the same capacity and from the formatted state.
- You can combine the use of the Dual Rec mode with a special recording mode. While in the Dual Rec mode, you can also set [Rec Mode] to "Normal", "Pre Rec", "Interval Rec", or "Frame Rec".
  (☞ P69 [Special Recording])
- When both slots are inserted with recordable cards, the Dual Rec (simultaneous recording) operation can be performed. If a recordable media is only inserted in one of the slots, you can also start recording with one card.
- In the Dual Rec mode, continuous recording by switching from one slot to another cannot be performed. Continuous recording will not be performed if a recordable media is inserted in a slot after recording to the other slot has started.
- When recording to one slot is in progress with the recorder set to the Dual Rec mode, inserting a recordable media to the other slot does not enable the Dual Rec operation. To perform the Dual Rec operation, stop recording temporarily (excluding pausing recording in the Clip Continuous Rec mode), and start again.
- When one of the cards is accidentally removed while recording is in progress in the Dual Rec mode, recording to the card in the other slot will continue. However, repair of the accidentally removed card by the recovery function may fail.
- If an error occurs on one of the cards while recording is in progress in the Dual Rec mode, recording of the erroneous card stops, while that of the other card continues.
- Operations on clips recorded in the Dual Rec mode, such as clip deletion in the Media mode or appending of OK marks, can only be performed on the card in the selected slot.

Backup Rec

- The Backup Rec mode allows you to make use of the media in slot B for backup recording by controlling the starting and stopping of recording in slot B without using the [REC] button.
- Start or stop the recording using [Main Menu] → [System] → [Record Set] → [Slot Mode] → [Backup Rec] or press the user button that is assigned with "Backup Trig".
  (☞ P104 [Slot Mode])
  (☞ P88 [User Switch Set Item])

Memo :
- During the Backup Rec mode (when [Slot Mode] is set to "Backup"), you can control recording to the 2 slots at different timings, and backup recording can only be performed on this camera recorder.
  (☞ P104 [Slot Mode])
- You can record without worrying about missing the important scenes by setting slot B to be always recording (backup recording) and using the [REC] button to start/stop recording of only the required scenes in slot A.
- It is recommended to use a media with high capacity in slot B.

Shooting

1 **Set [Main Menu] → [System] → [Record Set] → [Slot Mode] to "Backup".**
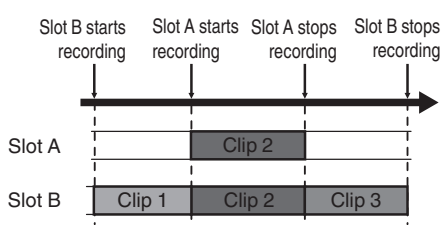(☞ P104 [Slot Mode])
"BACKUP" appears on the display screen.
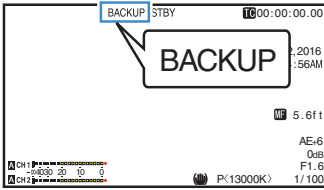
2 **Start backup recording. (Backup recording into slot B)**
- Select "REC" in [Main Menu] → [System] → [Record Set] → [Slot Mode] → [Backup Rec] and press the Set button (●).
(☞ P104 [Slot Mode])
- You can also press the user button that is assigned with "Backup Trig".
(☞ P88 [User Switch Set Item])
- Backup recording into slot B starts. (The characters "BACKUP" appear in red.)
- The card slot mark of slot B turns red (selected state), and the status indicator of slot B also blinks in red.

Red

Red (selected)

3 **Start normal recording (normal recording into slot A)**
- Press any of the [REC] buttons.
- Recording into the media in slot A starts. (The characters "●REC" appear in red.)
- The card icon of slot A turns red (unselected state), and the status indicator of slot A blinks in red.

Red (not selected)
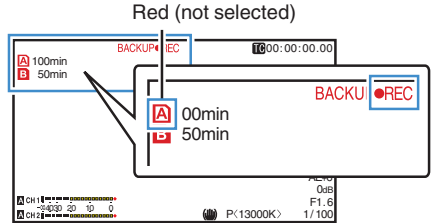
4 **Stop normal recording.**
- Press any of the [REC] buttons again.
- Recording to slot A stops, and the card slot mark of slot A turns white (unselected state).
- The characters "●REC" (red) changes back to "STBY" (white).
- The status indicator of slot A goes out.

White (not selected)
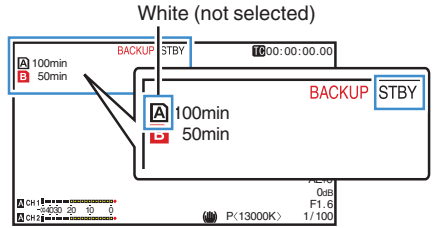
5 **Stop backup recording.**
- Select [STBY] in [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Slot Mode] ➡ [Backup Rec] and press the Set button (●).
(☞ P104 [Slot Mode])
- You can also press the user button that is assigned with "Backup Trig".
(☞ P88 [User Switch Set Item])
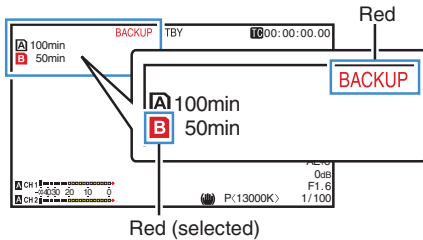- Recording to slot B stops, and the card slot mark of slot B turns white (unselected state).
- The characters "BACKUP" changes back to white.
- The status indicator of slot B lights up in green.

White
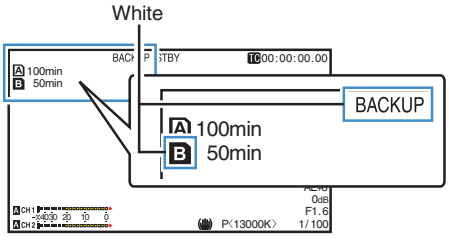
Memo :
- During backup recording, if the space of one card runs out, recording stops only for the card that is full.
- When recording to both slots is stopped, recording in the Regen mode will be enabled for the card slot in which recording started.
- When recording is started in the other slot while recording to one slot, the clip being recorded is split and simultaneous recording to the other card starts.
- When recording is stopped for either slot A or B while recording to both slots, the clip on the slot which is still recording is split.
- Although the clips are separated during recording the clips can be seamlessly joined by arranging them on the timeline of the editing software since they are recorded seamlessly.
- Clip Cutter Trig cannot be performed during backup recording.
(☞ P65 [Splitting the Clips Freely (Clip Cutter Trig)])
- When [Slot Mode] is set to "Backup", [Rec Mode] can only be set to "Normal".
(☞ P104 [Rec Mode])

Special Recording

Besides the normal recording mode, four special recording methods are available in this camera recorder. They are Pre Rec, Clip Continuous, Frame Rec and Interval Rec.

Memo :
- Set using [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode].
(☞ P104 [Rec Mode])

Pre Rec

- By setting the number of seconds in the [Pre Rec Time], you can start recording video and audio before actual recording starts based on the [Pre Rec Time] setting.
- When starting actual recording while the camera recorder is in Recording Standby (STBY🅿) mode, you can start recording a few seconds earlier based on the [Pre Rec Time] setting.
- Using Pre Rec allows you to record a complete event without missing the initial scenes even if you start the recording late.

Memo :
- Pre Rec Time can be set to "5sec", "10sec", or "15sec" in [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] ➡ [Pre Rec Time].
- When the frame rate setting in [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Frame & Bit Rate] is set to "XHQ", "15sec" cannot be selected.
(☞ P104 [Pre Rec Time])

Completed Clip
(Recorded video and audio)

Recording starts a number of seconds earlier based on the [Pre Rec Time] setting

Press [REC]
(Recording starts)

Press [REC]
(Recording stops)
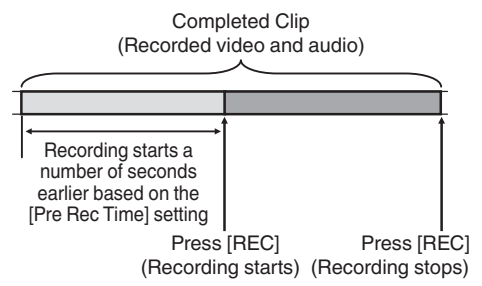
1 **Set [Rec Mode] to "Pre Rec".**

(☞ P104 [Rec Mode])
- Set [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] to "Pre Rec".
- The display changes ("STBY" ➡ "STBY🅿").

2 **Press the [REC] button to start recording in Pre Rec mode.**
- The display changes ("STBY🅿" ➡ "●REC🅿") and the card slot status indicator lights up in red.
- Press the [REC] button again to pause recording. The display changes ("●REC🅿" ➡ "STBY🅿") and the card slot status indicator lights up in green.

Caution :
- When the interval between start and stop recording is short, "STBY🅿" may not be displayed immediately after recording is complete.
  "●REC🅿" ➡ "STBY🅿" ("STBY" blinks in red) ➡ "STBY🅿" is displayed.
- When the SD card becomes full during recording, recording stops and "STOP" is displayed.
- Video and audio before the above mentioned time may not be recorded after recording starts in the following cases.
  - Immediately after power on
  - Immediately after recording stops
  - Immediately after switching from Media mode to Camera mode
  - Immediately after setting [Rec Mode]
  - Immediately after the end of Clip Review
  - Immediately after changing file format
  - Immediately after changing video format

Clip Continuous Rec
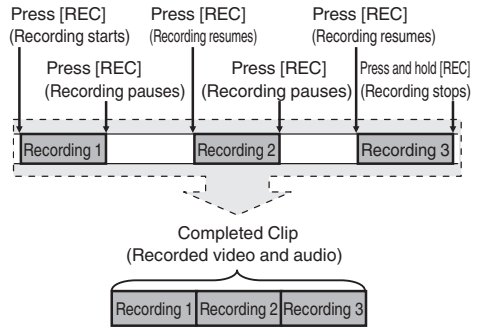
- In normal recording, when the recording stops, the image, audio, and accompanying data from the start till the end of the recording are recorded as one "clip" on the SD card.
- This mode allows you to consolidate several rounds of "startstop recording" into one clip.

Example:
In normal recording, three clips are generated as Recording 1, Recording 2, and Recording 3. However, recording in this mode generates only one clip.

Press [REC] (Recording starts) Press [REC] (Recording resumes) Press [REC] (Recording resumes)
Press [REC] (Recording pauses) Press [REC] (Recording pauses) Press and hold [REC] (Recording stops)

Recording 1 | Recording 2 | Recording 3

Completed Clip
(Recorded video and audio)

Recording 1 | Recording 2 | Recording 3

1 **Set "Rec Mode" to "Clip Continuous".**

(☞ P104 [Rec Mode])
- Set [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] to "Clip Continuous".
- The display changes ("STBY" ➡ "STBY🅲").

2 **Start recording. (Recording 1)**
- Press the [REC] button to start recording in Clip Continuous mode.
- The display changes ("STBY🅲" ➡ "●REC🅲") and the card slot status indicator lights up in red.

3 **Pause recording.**
- Press the [REC] button again to pause recording. The display changes ("●REC🅲" ➡ "STBY🅲" (yellow text)).
- The card slot status indicator remains lighted in red.

Memo :
- When the [CANCEL] button is pressed while the camera recorder is paused (STBY🅲), the display changes ("STBY🅲" (yellow text) ➡ "STBY🅲" (blinking yellow text) ➡ "STBY🅲" (white text)), and a "clip" is generated. The card slot status indicator lights up in green.

4 **Resume recording. (Recording 2)**
- Press the [REC] button again to resume recording. The display changes ("STBY🅲" (yellow text) ➡ "●REC🅲").
- The card slot status indicator remains lighted in red.

Shooting

5 **Pause recording.**
- Press the [REC] button again to pause recording. The display changes ("●REC**C**" ➜ "STBY**C**" (yellow text)).
- The card slot status indicator remains lighted in red.

6 **Resume recording. (Recording 3)**
- Press the [REC] button again to resume recording. The display changes ("STBY**C**" (yellow text) ➜ "●REC**C**").
- The card slot status indicator remains lighted in red.

7 **Press and hold the [REC] button.**
- Recording stops and the display changes ("●REC**C**" ➜ "STBY**C**"). A "clip" is generated.
- The card slot status indicator lights up in green.

8 **Press the [REC] button again.**
- The display changes ("STBY**C**" ➜ "●REC**C**") and the card slot status indicator lights up in red.
- A new "clip" is generated from here.

Memo : ─────────────
- The following operations cannot be performed while recording is paused (STBY**C**, yellow text).
  - Clip Review operation
    (☞ P64 [Viewing Recorded Videos Immediately (Clip Review)])
  - Switching SD card slots
  - Switching operation mode
    (☞ P12 [Operation Modes])

Caution : ─────────────
- Do not remove the SD card during recording (●REC**C**, red text) or recording pause (STBY**C**, yellow text).
- To remove the SD card in the "Clip Continuous" mode, press the [CANCEL] button, check that "STBY**C**" (white text) is displayed and the card slot status indicator lights up in green before you remove the card.
- When the SD card becomes full during recording, recording stops and "STOP" is displayed.
- When the [POWER ON/OFF] switch is turned off during recording or recording pause, recording stops and power is cut off after a clip is generated.

Caution : ─────────────
- If the power is cut off due to low battery power, a proper clip may not be generated.

Frame Rec

In normal recording, when the recording stops, the image and accompanying data from the start till the end of the recording are recorded as one "clip" on the SD card.
In this mode, recording starts with every press of the [REC] button, and only the specified number of frames is recorded.
The recording can be written to the media as a single clip until it is stopped.

Memo : ─────────────
- Audio will not be recorded.
- Until a specified amount of recordings is accumulated, the file cannot be written to the media.
- If the specified amount is not reached when recording is stopped, normal recording is performed and frames are added to the ending of the clip until the amount is reached. (Padding)
- After the specified number of frames is recorded and written to the media, recording will be performed until the same number is accumulated again.

Actual clips recorded to the media

Specific amount of data
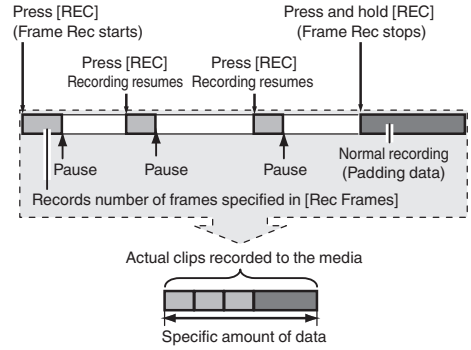
1 **Set [Rec Mode] to "Frame Rec".**
- Set [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Rec Mode] to "Frame Rec".
(☞ P104 [Rec Mode])
- The display changes ("STBY" ➜ "STBY🅵").

2 **Set the number of frames to record in [Rec Frames].**
- Set using [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Rec Mode] ➜ [Rec Frames].
(☞ P104 [Rec Frames])

3 **Start recording.**
- Press the [REC] button to record only the number of frames specified in [Rec Frames] and pause.
- The display changes ("STBY🅵" ➜ "●REC🅵" ➜ "STBY🅵" (yellow text)).
- The card slot status indicator lights up in green.

4 **Repeat Frame Rec.**
- Press the [REC] button again to record only the number of frames specified in [Rec Frames] and pause.
- The display changes ("STBY🅵" ➜ "●REC🅵" ➜ "STBY🅵" (yellow text)).
- Frame Rec continues until the recording is stopped (step *5*).

5 **Press and hold the [REC] button.**
- The card slot status indicator lights up in green.

Caution : ─────────────
- Do not remove the SD card during recording ("●REC🅵", red text) or recording pause ("STBY🅵", yellow text).
- To remove the SD card during Frame Rec, press the [CANCEL] button, check that "STBY🅵" (white text) is displayed and the card slot status indicator lights up in green before you remove the card.
- When [Main Menu] ➜ [TC/UB] ➜ [TC Generator] is set to "Free Run" or "Free Run(Ext)", the time code will be recorded in "Rec Run".
- Audio cannot be recorded. A ⊘ mark appears in the audio level meter display.
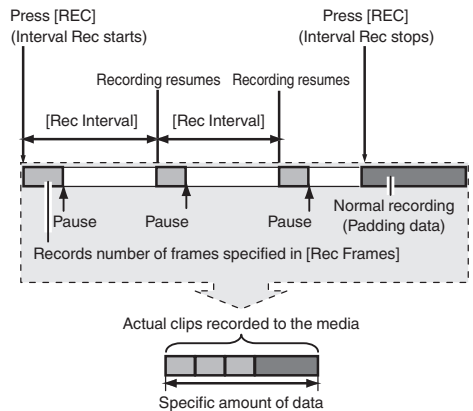(☞ P111 [Audio Level Meter])

| Interval Rec

In normal recording, when the recording stops, the image and accompanying data from the start till the end of the recording are recorded as one "clip" on the SD card.
In this mode, recording and pause are performed repeatedly at the specified time interval. Only the specified number of frames is recorded.
The recording can be written to the media as a single clip until it is stopped.

Memo : ─────────────
- Audio will not be recorded.
- Until a specified amount of recordings is accumulated, the file will not be written to the media.
- After the specified number of frames is recorded and written to the media, recording will be performed until the same number is accumulated again.
- If the specified amount is not reached when recording is stopped, normal recording is performed and frames are added to the ending of the clip until the amount is reached. (Padding)

Press [REC]   Press [REC]
(Interval Rec starts)   (Interval Rec stops)

Recording resumes Recording resumes

[Rec Interval]   [Rec Interval]

Pause   Pause   Pause   Normal recording
                                  (Padding data)

Records number of frames specified in [Rec Frames]

Actual clips recorded to the media

Specific amount of data

1 **Set [Rec Mode] to "Interval Rec".**
- Set [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Rec Mode] to "Interval Rec".
(☞ P104 [Rec Interval])
- The display changes ("STBY" ➜ "STBY🅸").

2 **Set the number of frames to record in [Rec Frames].**
Set using [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Rec Mode] ➜ [Rec Frames].
(☞ P104 [Rec Frames])

Shooting

3 **Set the time interval to start recording in [Interval Rec].**
Set using [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Rec Mode] ➜ [Rec Interval].
(☞ P104 [Rec Interval])

4 **Start recording.**
- Press the [REC] button to record only the number of frames specified in [Rec Frames] and pause.
- After the specified time in [Rec Interval] has passed, recording starts again to record only the number of frames specified in [Rec Frames] and pause.
- Interval Rec continues until the recording is stopped.
The display changes ("STBY**❚❚**" ➜ "●REC**❚❚**" ➜ "STBY**❚❚**" (red text) ➜ "●REC**❚❚**" ➜ "STBY**❚❚**" (red text)).
- The card slot status indicator blinks in green.

5 **Press and hold the [REC] button.**
- The card slot status indicator lights up in green.
- The display becomes "STBY**❚❚**".

Caution : ───────────────────
- Do not remove the SD card during recording (●REC**❚❚**, red text) or recording pause (STBY**❚❚**, yellow text).
- To remove the SD card during Interval Rec, press the [CANCEL] button, check that "STBY**❚❚**" (white text) is displayed and the card slot status indicator lights up in green before you remove the card.
- When [Main Menu] ➜ [TC/UB] ➜ [TC Generator] is set to "Free Run" or "Free Run(Ext)", the time code will be recorded in "Rec Run".
- Audio cannot be recorded. A ⊘ mark appears in the audio level meter display.
(☞ P111 [Audio Level Meter])

Shooting

Playing Recorded Clips

To play back clips recorded on SD cards, switch to the Media mode.
Press and hold the [MODE] selection button in Camera mode to enter Media mode. A thumbnail screen of the clips recorded on the SD card is displayed.
You can play back the selected clip on the thumbnail screen.

Memo :
- When an SD card without any clips is inserted, "No Clips" is displayed.

Operation Buttons

Use the operation buttons, on the side control panel of the camera recorder or the LCD monitor, to operate the thumbnail screen.
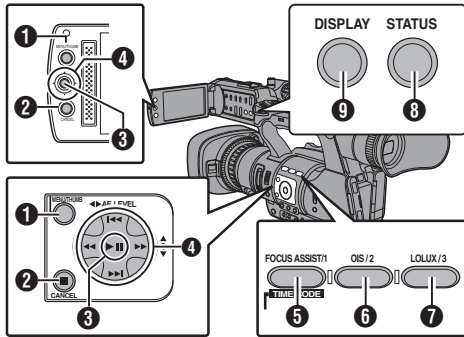

A [MENU/THUMB] Button
- Displays the menu.
- Press this button to close the menu screen during menu display and return to the thumbnail screen.

B [CANCEL] (Stop) Button
Cancels settings and returns to the previous screen.

C Set (Play) Button
- Sets the values and items. (Confirm)
- Plays back the selected clip.

D Cross-Shaped Button (▲▼◀▶)
Moves the cursor.

E [FOCUS ASSIST/1] Button
- Switches the OK mark of the clip selected by the cursor.
- If an OK mark has been appended, it will be deleted. Otherwise, an OK mark will be appended.

F [OIS/2] Button
- Switches the selection status of the clip selected by the cursor.
- Clips being selected are displayed with check mark.

G [LOLUX/3] Button
Enters the action selection screen.

H [DISPLAY] Button
Switches between the "Standard Screen" and "Detailed Screen".

I [STATUS] Button
Displays the media information screen.

Thumbnail Screen

- "Standard Screen" and "Detailed Screen" are available.
  Use the [DISPLAY] button to switch between the screens.
- Thumbnails are displayed in order of recording from the oldest to most recent.

Standard screen
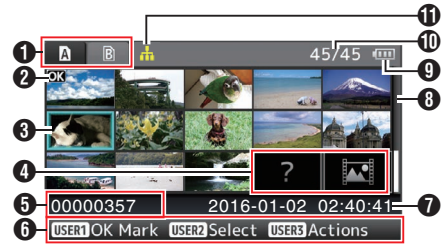
A SD Card Information
- Displays the status of the inserted SD card, selected SD card, write-protect switch, and the need for restoring.
- Use the [SLOT A/B] switch to switch slots. Clips in slot A and B cannot be displayed at the same time.

  A 🔒 : Write-protect switch of the SD card in slot A is set.
  B ! : SD card in slot B needs to be restored or formatted, or is an unsupported SD card.

B Clip Mark
Displays the clip information (properties).

① OK Mark
Clip is appended with OK mark.

Memo : ─────────────────────────
- Clips appended with OK marks cannot be deleted on the camera recorder.
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Format] is set to "AVCHD", the OK mark indicates that the clip is protected.
  (☞ P103 [Format])

② Continued From Mark

This mark indicates that the current clip is continued from another SD card when recording is divided and made on several SD cards.

③ Uneditable Mark
- This mark indicates that an OK mark cannot be appended to or deleted from the clip, and the clip cannot be deleted.
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [Format] is set to "AVCHD", clips that are not recorded on this camera recorder cannot be edited.

④ Continue Mark

This mark indicates that recording of the current clip is continued to another SD card when recording is divided and made on several SD cards.

⑤ Check Mark
- A green check mark is displayed when the clip is selected.
- Magenta and gray check marks are displayed in multiple selection mode.
  (☞ P80 [Selecting and Performing Operations on Multiple Clips])

❸ Cursor
Clip to be worked on. Use the cross-shaped button (▲▼◀▶) to move the cursor.

❹ Thumbnail Substitution Display

① A clip with corrupted management information. It cannot be played back even if you press the Set (Play) button.

② A clip that cannot be played back nor displayed in thumbnail with the current video format settings.
It cannot be played back even if you press the Set (Play) button.

Memo : ─────────────────────────
- Depends on the [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Record Format] ➡ [System], [Resolution] and [Frame & Bit Rate] settings.
  (☞ P103 [System])
  (☞ P103 [Frame & Bit Rate])
- When [Record Format] ➡ [Format] is set to "AVCHD", you may not be able to play back files recorded on a camera recorder other than the JY-HM360 series.
  If a file cannot be played back, the above thumbnail substitution display ② is displayed.

❺ Clip Name
The file name (clip number) of the selected clip is displayed.

❻ Operation Guide
- Displays a guide for the current operation buttons.
- The action selection screen is displayed when the User 3 ([LOLUX/3]) button is pressed.
  (☞ P76 [Actions])

❼ Recording Start Time
Displays the recording start time of the clip.

Memo : ─────────────────────────
- The date/time display is dependent on the [LCD/VF] ➡ [Display Settings] ➡ [Date Style]/[Time Style] settings in the [Main Menu] screen.
  (☞ P97 [Date Style])
  (☞ P97 [Time Style])

❽ Scroll Bar
- Indicates the scroll position.
- Black space below the scroll bar (white) indicates that there are more pages.
- When the scroll bar (white) is at the bottom, this indicates the last page.

❾ Remaining Battery Power
(☞ P24 [Power Status Display])

❿ Number of Clips
- If none of the clips are selected, the "running number/total number of clips" of the clip to be displayed appears.
- Even if only one clip is selected, the number of selected clips in the current slot is displayed.

Playback

Detailed screen

* Items that are common with the Standard screen will not be described. Refer to "[Standard screen] (☞ P 74)".
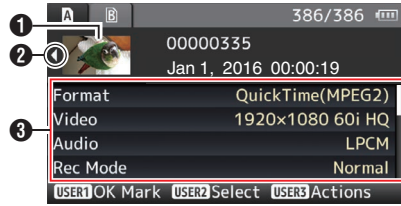
❶ Thumbnail
Thumbnail of the clip selected by the cursor.
Use the cross-shaped button (◀▶) to move the cursor.

❷ Scroll Mark (◁▷)
● If there are previous clips, ◁ appears on the left.
● If there are more clips, ▷ appears on the right.
● The marks will not be displayed if there are no clips before and after the current clip.

❸ Metadata
Metadata of the clip pointed by the cursor.
You can use the cross-shaped button (▲▼) to scroll.

Actions

The action selection screen is displayed when the User 3 ([LOLUX/3]) button is pressed.
You can perform the following operations.

| Item	Description
Select All Clips	Selects all clips.
Select OK Marked	Selects all clips appended with OK mark.
Select Range	Specifies the range when selecting multiple clips. (☞ P80 [Selecting Multiple Clips Randomly])
Deselect All	Clears all clip selections.

Item	Description
Add OK Mark	Appends an OK mark. ● This Clip: 　Appends an OK mark to the clip pointed by the cursor. ● Selected Clips: 　Appends an OK mark to the clips selected (appended with check mark). ● All Clips: 　Appends an OK mark to all clips.
Delete OK Mark	Deletes the OK mark. ● This Clip: 　Deletes the OK mark of the clip pointed by the cursor. ● Selected Clips: 　Deletes the OK mark of the clips selected (appended with check mark). ● All Clips: 　Deletes the OK mark of all clips.
Delete Clips	Deletes clip. However, clips with OK mark cannot be deleted. ● This Clip: 　Deletes the clip pointed by the cursor. ● Selected Clips: 　Deletes the clips selected (appended with check mark). ● All Clips: 　Deletes all clips.
Trim This Clip	Trims the clip pointed by the cursor.

Playback

Memo : ─────────────────────────

- The object of action is the clip of the current slot being displayed.
- [Selected Clips] cannot be performed if there are no selected (appended with check mark) clips.
- [This Clip] cannot be performed if there are more than one selected (appended with check mark) clips.
- If the write-protect switch of an SD card is set, OK mark cannot be appended or deleted, and the clips cannot be deleted.

Playing back

Use the operation buttons on the side control panel of the camera recorder to play back.
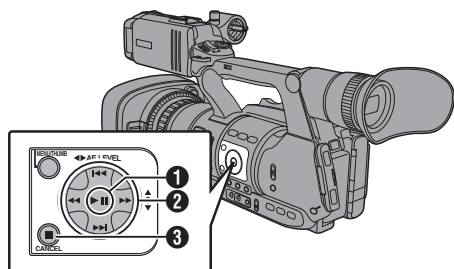
❶ ▶❚❚ Button
- Plays back/pauses the clip pointed by the cursor.
- You can press the cross-shaped button (◀▶) to perform frame-by-frame forward playback during pause mode.

❷ ❘◀◀/▶▶❘ Button
Skips in the reverse or forward direction.
◀◀/▶▶ Button
During Playback:
Fast forwards in the reverse or forward direction.
While paused:
Frame-by-frame playback in the reverse or forward direction.

❸ ■ Button
Stops playback.

1 **In the thumbnail screen, move the cursor to the clip to be played back.**
Move the cursor to the clip to be played back using the cross-shaped button (▲▼◀▶).

2 **Press the playback/pause button.**
Playback of the selected clip starts.

Audio Output during Playback

- You can confirm the playback sound from the monitor speaker, or the headphone connected to the [Ω] terminal. When a headphone is connected to the [Ω] terminal, sound cannot be output from the monitor speaker.
  (☞ P124 [Connecting the Headphone])
- Adjust the volume of the monitor speaker and headphone using the [MONITOR +/-] volume adjustment button on the LCD monitor section of the camera recorder.

Time Code Playback
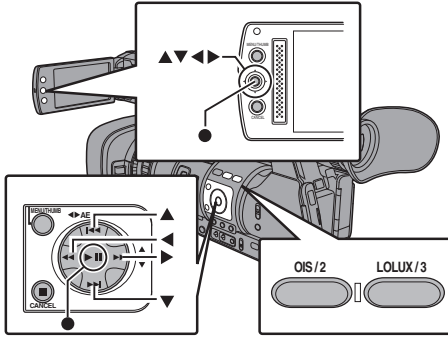
Time code or user's bit recorded on an SD card can be displayed on the LCD monitor and viewfinder.
Memo : ─────────────────────────

- If a section without time code is played back, the time code will stop. However, playback will continue.

Deleting Clips

Delete clip.

Memo :
- Clips appended with OK marks cannot be deleted on the camera recorder.
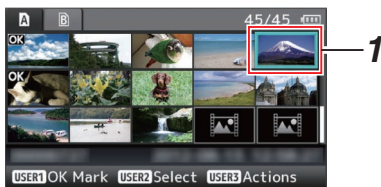- Read-only clips can be deleted on a PC.

Deleting One Clip

Delete the clip (one clip) pointed by the cursor in [Delete Clips] → [This Clip] in the menu.

Memo :
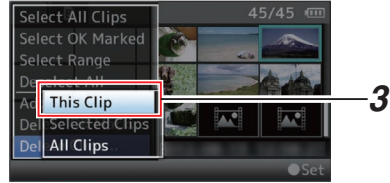- Clips with OK mark cannot be deleted.

During Thumbnail Screen

1 **Move the cursor to the clip to be deleted.**
Move the cursor to the clip to be deleted using the cross-shaped button (▲▼◀▶).

2 **Press the [LOLUX/3] button.**
The action selection screen is displayed.

3 **Select [Delete Clips] → [This Clip] and press the Set button (●).**
A screen to confirm deletion appears.

4 **Select [Delete] using the cross-shaped button (▲▼), and press the Set button (●).**
Deleting starts.
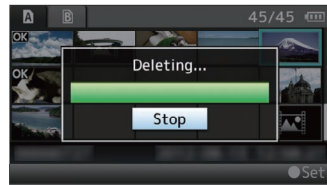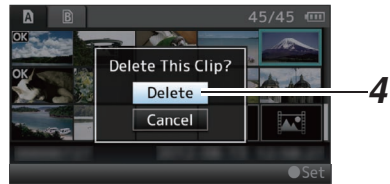
Selecting and Deleting Multiple Clips

To select and delete multiple clips, refer to "[Selecting and Performing Operations on Multiple Clips] (☞ P 80)".

Deleting All Clips

Delete all clips that are displayed.

1 **Press the [LOLUX/3] button.**
The action selection screen is displayed.

2 **Select [Delete Clips] → [All Clips].**
A screen to confirm deletion appears.

3 **Select [Delete] and press the Set button (●).**
Deleting starts.

Memo :
- The time taken to delete clips depends on the number of clips to be deleted.

Appending/Deleting OK Mark

- You can append OK marks to the clips for important scenes.
- Clips appended with OK marks cannot be deleted, thus protecting the important clips.
- When the camera recorder is in Media mode, you can delete the OK marks appended during recording, or append/delete OK marks after shooting.
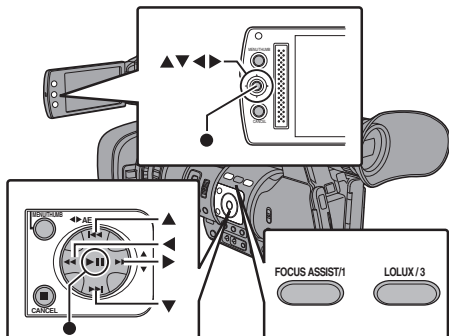
During Thumbnail Screen

1 **Press the [FOCUS ASSIST/1] button.**
   - If the clip does not have an OK mark, an OK mark will be appended.
   - If the clip is appended with an OK mark, the OK mark will be deleted.
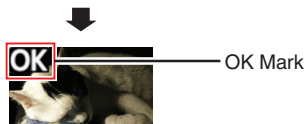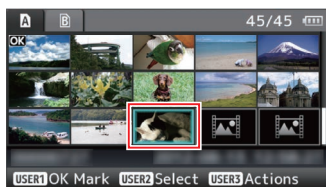
OK Mark

During Playback or Pause Screen

1 **Press [FOCUS ASSIST/1] button during clip playback.**
   - If the clip does not have an OK mark, an OK mark will be appended.
   - If the clip is appended with an OK mark, the OK mark will be deleted.

OK Mark

Memo :
- The clip pauses when an OK mark is appended or deleted during playback.

Appending/Deleting OK Mark of Multiple Clips

To select and append/delete OK mark for multiple clips, refer to "[Selecting and Performing Operations on Multiple Clips] (☞ P 80)".

Selecting and Performing Operations on Multiple Clips

- Multiple clips can be selected during thumbnail screen or playback screen display.
- After selecting multiple clips, perform appending/deleting of OK mark, deleting of clips using the action selection screen.
- After selecting multiple clips, the selections will be canceled by the following operations.
  - When [Deselect All] in the action menu is selected
  - When exiting Media mode from the thumbnail screen
  - When removing the SD card
  - When switching the slot in use
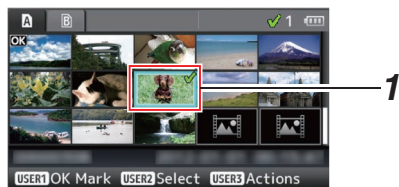
Selecting Multiple Clips Randomly

1 **Move the cursor to a clip without check mark, and press the [OIS/2] button.**
A green check mark appears on the clip.

1

2 **Repeat Step *1* to select multiple clips.**
- Multiple clips can be selected.
- Press the [LOLUX/3] button while the multiple clips are selected.
  - Appends OK mark together:
    [Add OK Mark] ➡ [Selected Clips]
  - Deletes OK mark together:
    [Delete OK Mark] ➡ [Selected Clips]
  - Deletes selected clips together:
    [Delete Clips] ➡ [Selected Clips]

Memo : —————————————————
- Selecting clips appended with check mark and pressing the [OIS/2] button will cancel the selection.
- If the operation is performed on multiple clips at the same time, a progress bar appears. You can stop the operation by pressing the Set button (●) while the operation is in progress. However, it is not possible to undo operations that are completed.

Selecting Multiple Clips Consecutively

1 **Press the [LOLUX/3] button.**

2 **Select "Select Range" in the action selection screen, and press the Set button (●).**

2
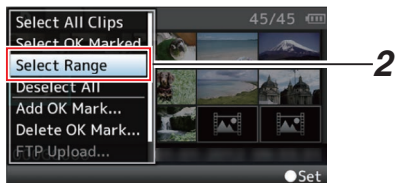
3 **Move the cursor to the beginning (or end) of the range for multiple selection, and press the Set button (●).**

4 **Move the cursor to the other end of the range.**
- Magenta check marks appear on the clips within the range. (Including clips that were already selected.)
- Gray check marks appear on selected clips that are outside the range.

3

4
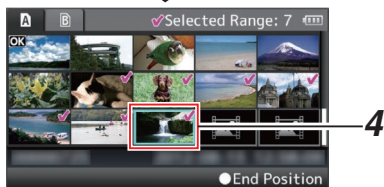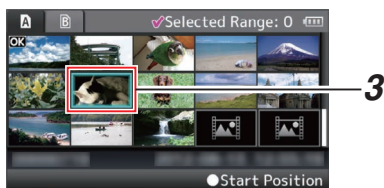
5 **Press the Set button (●) to confirm the range.**
- The check marks change from magenta to green.
- Pressing the [LOLUX/3] button while the multiple clips are selected displays the action selection screen. The following operations can be performed.
  - Appends OK mark together:
    [Add OK Mark] ➡ [Selected Clips]
  - Deletes OK mark together:
    [Delete OK Mark] ➡ [Selected Clips]
  - Deletes selected clips together:
    [Delete Clips] ➡ [Selected Clips]

Memo : ─────────────────────
- Selecting clips appended with check mark and pressing the [OIS/2] button will cancel the selection.
- If the operation is performed on multiple clips at the same time, a progress bar appears. You can stop the operation by pressing the Set button (●) while the operation is in progress. However, it is not possible to undo operations that are completed.

Trimming Recorded Clips

You can extract (trim) the necessary parts of a clip recorded in the SD card.
The trimmed clip is saved as a new file on the same SD card as the original clip. No changes are made to the original clip.

1 **Switch to Media mode.**
Switch the mode using the [MODE] selection button on the side control panel.

2 **Move the cursor to the clip to be trimmed.**
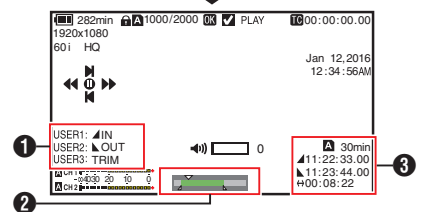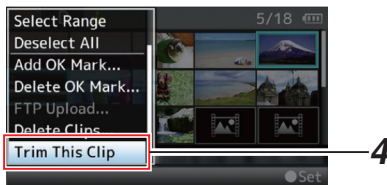Move the cursor to the clip to be trimmed using the cross-shaped button (▲▼◀ ▶).

3 **Press the [LOLUX/3] button.**
The action selection screen is displayed.

4 **Select [Trim This Clip], and press the Set button (●).**
Playback of the selected clip starts.

A Guide
Operation guide

B Position bar
▼ : Current position of the video
◢ : Position to start trimming (in point)
◣ : Position to end trimming (out point)

Playback

❸ Trimming information

A or **B**	:	Indicates the available space in the storage media (**A** or **B**)
◢	:	Indicates the time code of the in point
◣	:	Indicates the time code of the out point
↔	:	Indicates the duration from the in point to the out point

Memo : ─────────────────────

- The trimmed clip will be saved to the same card slot as that of the original clip.
- [Duration] appears in yellow if the duration is 10 minutes or longer. Trimming cannot be performed in this case.
- [Duration] appears in yellow if the duration is longer than the recordable time on the storage media. Trimming cannot be performed in this case.
- When trimming starts, the display switches to the Media Display 2 screen.

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5 **Specify the in point.**
- Operate buttons such as ◀◀/▶▶ or I◀◀/▶▶I to move the video to the in point.
  (☞ P77 [Playing back])
- Press the [USER1] button at the point you want to start trimming to specify the in point.

6 **Specify the out point.**
- Operate buttons such as ◀◀/▶▶ or I◀◀/▶▶I to move the video to the out point.
  (☞ P77 [Playing back])
- Press the [USER2] button at the point you want to end trimming to specify the out point.

7 **Perform trimming.**
Press the [USER3] button to perform trimming.

Memo : ─────────────────────

- While trimming is in progress, you can press the [CANCEL] button to return to the thumbnail screen.
- While trimming is in progress, you can press the [DISPLAY] button to switch the display, but the trimming information is displayed at all times.
- When trimming the in and out point, the in point trimmed may be up to one second before the specified in point and the out point trimmed may be up to one second behind the specified out point.

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Basic Operations in Menu Screen

- Press the [MENU/THUMB] button on the side control panel of the camera recorder or on the LCD monitor to display the menu screen on the LCD monitor and viewfinder.
- Various settings for shooting and playback can be configured on the menu screen.
- There are two types of menu screens - [Main Menu] and [Favorites Menu].
- [Main Menu] contains all the setting items of the camera recorder, classified according to functions and uses, while [Favorites Menu] allows users to customize the menu items freely. (☞ P106 [Adding/Editing Frequently Used Menu Items (Favorites Menu)])
- The operating procedures and main screen displays are the same for both menus.
- The menu screen can also be displayed on external monitors connected to the video signal output terminal. (☞ P98 [Display On TV])

Operation Buttons

Use the operation buttons on the side control panel of the camera recorder or the buttons on the LCD monitor to operate the menu.
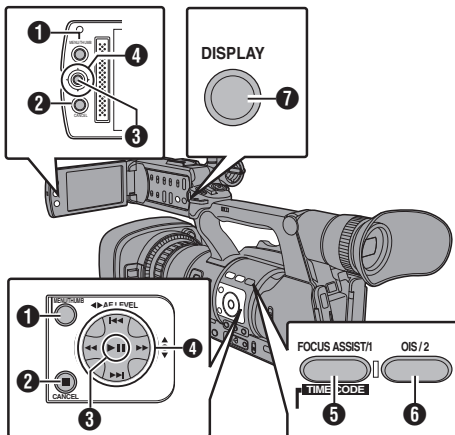
❶ [MENU/THUMB] Button
- Displays the menu screen. The [Main Menu] screen is displayed by default.
- During normal usage, [Main Menu] is displayed if the previous menu operation ended at [Main Menu], and [Favorites Menu] if the previous menu operation ended at [Favorites Menu].
- Press this button to close the menu screen during menu display and return to the normal screen.
- Pressing and holding down the button while the menu is displayed switches the [Main Menu] screen to the [Favorites Menu] or vice versa.

❷ [CANCEL] Button
Cancels settings and returns to the previous screen.

❸ Set Button (●)
Sets the values and items.

❹ Cross-shaped Button (▲▼◀▶)
- ▲ : Moves the cursor upward.
- ▼ : Moves the cursor downward.
- ◀ : Moves back to the previous item.
- ▶ : Moves forward to the next item.

❺ [FOCUS ASSIST/1] Button
Adds the selected menu or submenu item to the [Favorites Menu].
(☞ P106 [Adding/Editing Frequently Used Menu Items (Favorites Menu)])

❻ [OIS/2] Button
Resets settings in the [TC Preset] or [UB Preset] setting screen. This button is disabled in other screens.

❼ [DISPLAY] Button
Switches between the [Main Menu] and [Favorites Menu] screens.

Menu Display and Detailed Settings

Display and Description of the Menu Screen

Selecting Menu Items
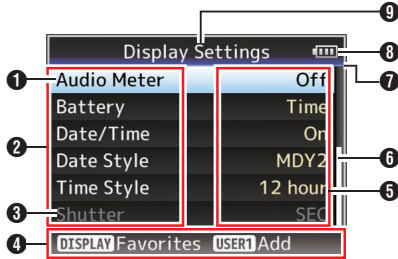
A Cursor
Indicates the selected item. Use the cross-shaped button (▲▼) to move the cursor

B Menu Item
- Displays the names of the menu item and sub-menu.
- Menu items with [...] after them indicates that there is a sub-menu to access.

C Fixed Item
Items that cannot be changed are displayed in gray and cannot be selected.

D Operation Guide
Guide for the current operation buttons.

E Setting Value
Setting values for the menu items.
For menus with sub-menus, values are not displayed.

F Scroll Bar
Indicates the scroll position.

G Header
Indicates the current menu type with the line color.
Blue	: [Main Menu] Screen
Green	: [Favorites Menu] (Operation screen)
Magenta	: [Favorites Menu] (Editing screen)

H Remaining Battery Power
(☞ P24 [Power Status Display])

Memo : ─────────────────
- If the battery in use is not a recommended one, the battery mark which indicates the battery level may not appear.
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I Menu Title
Title of the currently displayed menu.

Changing Setting Values
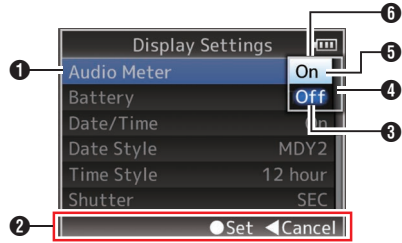
A Menu Item to Change
Menu item to be changed.
A list of setting values **F** appears in a pop-up.

B Operation Guide
Guide for the current operation buttons.

C Setting Values Before Change
Setting values before changing. The background of the item is displayed in blue.

D Scroll Bar
Indicates the scroll position.

E Cursor
Indicates the selected item. Use the cross-shaped button (▲▼) to move the cursor

F List of Setting Values
- A pop-up displaying a list of setting values for selection.
- The height of the pop-up depends on the number of settings available. Use the scroll bar **D** to confirm the current display status.

Text Input with Software Keyboard

Use the software keyboard to enter the [Setup File] subname and [Clip Name Prefix].

Entering a subname

(☞ P119 [Configuring Setup Files])
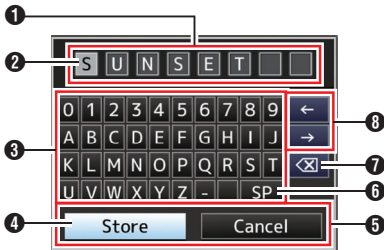
Entering the [Clip Name Prefix]

(☞ P105 [Clip Name Prefix])
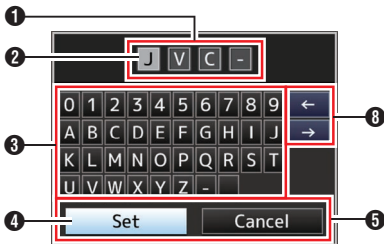
❶ Character Entry Field
- Field for entering the title.
- You can enter up to 8 characters for the [Setup File] subname or up to 4 characters for the [Clip Name Prefix].

❷ Character Cursor
Select a character using the key cursor ❹, and press the Set button (●) to input the selected character at the position of the character cursor. The character cursor moves to the next position on the right each time a character is input. The cursor can be moved using the arrow keys ❽.

❸ Character Keys
Use the cross-shaped button (▲▼◀▶) to move the key cursor ❹ to the character you want to enter.

❹ Key Cursor
Indicates the currently selected character or item. Use the cross-shaped button (▲▼◀▶) to move the cursor.

❺ Confirmation Buttons
- Select [Set]/[Store] and press the Set button (●) to confirm the title.
- Select [Cancel] and press the Set button (●) on the side control panel of the camera recorder to abort character input and return to the previous screen.

❻ [SP] Space Key
Select [SP] and press the Set button (●) on the side control panel of the camera recorder to enter a space at the current position of the character cursor ❷.

❼ [⌫] Backspace Key
Select [⌫] and press the Set button (●) on the side control panel of the camera recorder to delete the character on the left of the character cursor ❷.

❽ Arrow Keys
Moves the position of the character cursor ❷.

❾ Character Switch Button
Switches the character buttons ❸ to the upper case, lower case, and symbols.

Menu Screen Hierarchical Chart

Memo :
- Some menus cannot be set depending on the operating mode or status of the camera recorder. These items are displayed in gray, and they cannot be selected.
- Setting value with the ● mark is the factory default.

Camera Function Menu

Menu screen for specifying operation settings during shooting.
This item can only be selected in the Camera mode.

Bars

For setting whether to output color bars.
[Setting Values: On, ●Off]

Memo : ───────────────────────

● The audio test signals (1 kHz) can be output simultaneously with the color bar output.
(☞ P100 [Test Tone])

OIS

For setting whether to enable image stabilizer. When "On" is selected, set the Level.
[Setting Values: On, ●Off]

↳ Level

For setting the level of the image stabilizer.
[Setting Values: High, ●Normal]

Memo : ───────────────────────

● When "High" is selected, correcting severe camera shake may cause the area surrounding the image to darken.
● When "High" is selected, the angle of view becomes narrower at the wide angle end.

Flicker Correction

For setting whether to adjust image flicker that occurs under a fluorescent light.
[Setting Values: On, ●Off]

Shutter

For specifying shutter-related settings.
Use this item to set to "Step" (fixed value) or "Variable" when operating with the cross-shaped button (▲▼) on the right side.
● Variable:
  Sets to variable scan. Use this setting such as when shooting a PC monitor.
● Step:
  Sets to step shutter, which switches the shutter speed by a fixed value.
[Setting Values: Variable, ●Step]

AE Level

For setting the convergence level during AE (Auto Exposure).
This can also be adjusted using the cross-shaped button (◀▶) on the right side.
[Setting Values: -6 to +6 (●0)]

AE Speed

For setting the convergence speed during AE (Auto Exposure).
[Setting Values: ●Fast, Middle, Slow]

AGC Limit

For setting the maximum gain value of "AGC", which electrically boosts the sensitivity level according to the brightness automatically.
[Setting Values: ●24dB, 18dB]

Smooth Trans

For setting the shock reduction function, which slows down the sudden change when switching with the [GAIN] or [WHT BAL] selection switch.
[Setting Values: Fast, Middle, Slow, ●Off]

Memo : ───────────────────────

● This function is disabled when the [FULL AUTO ON/OFF] switch is set to "ON" or when Scene Select mode is activated.

GAIN L, GAIN M, GAIN H

For setting the gain value of each position on the [GAIN] selection switch.
When the [FULL AUTO ON/OFF] switch is set to "ON" or when Scene Select mode is activated, the setting is fixed at "AGC".
[Setting Values: 24dB, 21dB, 18dB, 15dB, 12dB, 9dB, 6dB, 3dB, 0dB]
(Default values GAIN L: 0dB, GAIN M: 6dB, GAIN H: 12dB)

AE LEVEL SW

For specifying the operation of the cross-shaped button (◀▶) on the right side.
● Enable:
  Enables the button.
● Disable:
  Disables the button.
[Setting Values: Enable, ●Disable]

Dynamic Zoom

For setting whether to enable the dynamic zoom function.
[Setting Values: On, ●Off]

Handle Zoom Speed

This function allows you to set the zoom speed of the zoom lever at the handle when the [ZOOM FIX/VAR/OFF] switch is set to "FIX".
[Setting Values: 1 to 8 (● 5)]

AF Speed

For setting the AF operation speed.
[Setting Values: Fast, ●Middle, Slow]

AF Assist

For setting whether to shift the auto focus point when the focus/zoom ring is turned during Auto Focus (AF).
- Area:
  This option allows you to shift the auto focus point to the left, center, right, or near and far directions by turning the focus/zoom ring during AF.
  Selecting this option displays the 〔 〕 icon in the area.
- Far/Near:
  This option allows you to shift the auto focus point to near and far directions by turning the focus/zoom ring during AF.
- Off:
  Sets the AF Assist function to "Off".

[Setting Values: Area, Far/Near, ●Off]
  (☞ P43 [AF Assist Function])

Memo :
- This setting is effective only when the [FOCUS] switch is set to "AUTO".
- The manual focus adjustment mode is temporarily activated by turning the focus/zoom ring in the AF mode. If the focus ring is not operated for a certain time, the camera recorder returns to the AF mode.
- When the [FOCUS/ZOOM] operation switch is set to "ZOOM", [AF Assist] is fixed at "Off".

User Switch Set...

For specifying user button related settings.
  (☞ P88 [User Switch Set Item])

User Switch Set Item

USER1 to USER7, LCD KEY▲, LCD KEY►, LCD KEY▼, LCD KEY◄

By assigning one of the following functions to each of the [FOCUS ASSIST/1], [OIS/2], [LOLUX/3], [AE LOCK/4], [ZEBRA/5], [MARKER/6], [C.REVIEW/7] buttons or the cross-shaped buttons on the LCD monitor, these buttons can be used to control the assigned function (on/off, start, switch).
Set according to the shooting conditions. Usable only in the Camera mode.
[Setting Values: None, Bars, Lolux, AE Lock, Beautiful Skin, Face Detect, OIS, One Push Iris, Push AF/AF Lock, Preset Zoom1, Preset Zoom2, Preset Zoom3, White Balance, Zebra, Marker, Focus Assist, Expanded Focus, LCD Backlight, Backup Trig, Clip Cutter Trig, OK Mark, Clip Review, Load Picture File]

Front REC

For setting the function of the [REC] button located below the lens at the front of the unit.
- REC:
  Functions as a record button for starting/ending recording.
- AWB:
  When the [WHT BAL B/A/PRESET] selection switch is set to "A" or "B" in the Manual White Balance mode, it functions as an AWB startup button. If the [WHT BAL B/A/PRESET] selection switch is set to "PRESET", it functions as a button for switching between two color temperature settings.
  (☞ P52 [Manual White Balance Mode (Manual Switching)])
- None:
  Disabled.
[Setting Values: ●REC, AWB, None]

Clip Review

For specifying the operation when any of the [USER1]-[USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], or [LCD KEY◄] items is set to "Clip Review".
- Last 5sec:
  Views about 5 seconds of the clip from the ending.
- Top 5sec:
  Views about 5 seconds of the clip from the beginning.
- Clip:
  Views the entire clip.
[Setting Values: ●Last 5sec, Top 5sec, Clip]

Memo :
- This item is selectable when any of the [USER1]-[USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], [LCD KEY◄] items is set to "Clip Review".

Face Detect

For specifying the operation when any of the [USER1]-[USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], or [LCD KEY◄] items is set to "Face Detect".

Select the control to track results of face detection.
- AF&AE:
  Sets auto focus and exposure control for the face that is being tracked.
- AF:
  Sets auto focus for the face that is being tracked.

[Setting Values: ●AF&AE, AF]

(☞ P44 [Adjusting the Focusing by Face Detection])

Memo :
- When "AF" is specified, this function will be activated only when the [FOCUS AUTO / MANU / ➔AUTO] focus switch is set to "Auto".
  When "AF&AE" is specified, this function will be activated only when the [FOCUS AUTO / MANU / ➔AUTO] focus switch is set to "Auto", or when one or more of the items (Gain, Iris and Shutter) is set to Auto mode.

↳ Sensitivity

For setting the level of ease of face detection.
[Setting Values: ●High, Middle, Low]

↳ Hysteresis

For setting the margin to maintain status when the face that is being tracked is lost.
Set to "Fast" to select another object immediately if the face on the screen is lost.
Set to "Slow" to operate at the same position for some time even if the face on the screen is lost.
[Setting Values: Fast, ●Middle, Slow]

AE Lock

For specifying the operation when any of the [USER1]-[USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], or [LCD KEY◄] items is set to "AE Lock".
- AE:
  Use this feature to fix a value to the Auto function of Gain, Iris, or Shutter when the user button that is assigned "AE Lock" is pressed.
- AE/WB:
  Use this feature to fix a value to White Balance and the Auto function of Gain, Iris, or Shutter when the user button that is assigned "AE Lock" is pressed.

[Setting Values: ●AE, AE/WB]

Memo :
- This feature only works when Iris, Shutter or Gain is set to Auto mode.
- "AE Lock" is canceled when the button assigned with "AE Lock" is pressed, or when any of the functions that can be locked is operated regardless of the mode (Manual or Auto).

Preset Zoom Speed

For setting the speed to shift to the preset zoom position that is assigned to a user button.
[Setting Values: 1 to 21 (● 11)]

Memo :
- Three preset zoom positions can be set but the speed to shift to the preset zoom position cannot be specified individually.

Expanded Focus

For specifying the operation when any of the
[USER1]-[USER7], [LCD KEY▲], [LCD KEY►],
[LCD KEY▼], or [LCD KEY◄] items is set to
"Expanded Focus".

- Toggle:
  Pressing the button assigned with "Expanded
  Focus" each time switches the "Expanded
  Focus" function to on or off.
- Momentary:
  The "Expanded Focus" function is enabled
  during the interval while the button assigned with
  "Expanded Focus" is pressed.
- Limited Time:
  Activates the timer.
  During autofocus, the [Expanded Focus] feature
  turns off about 3 seconds after it is turned on.
  During manual focus, the [Expanded Focus]
  feature turns off about 3 seconds after you stop
  operating the focus/zoom ring.

[Setting Values: ●Toggle, Momentary, Limited
Time]

↳ Ring

For setting the focus/zoom ring operation.
- SW Set:
  This follows the settings of the [FOCUS/
  ZOOM] operation switch.
- Focus:
  When the Expanded Focus function is activated,
  focusing operation is possible regardless of the
  settings of the [FOCUS/ZOOM] operation
  switch.

[Setting Values: ●SW Set, Focus]

Camera Process Menu

Menu screen for adjusting the quality of camera
images.
This item cannot be selected in the Media mode
and Scene Select mode.

Detail

For adjusting the contour (detail) enhancement
level.
Increasing the value increases the sharpness of
the contour.
[Setting Values: -10 to +10, Off (●0)]

↳ Adjust...

For specifying the detailed settings of the contour
(detail).
  (☞ P92 [Detail/Adjust Item])

Memo : ─────────────────────────────

- This item cannot be selected when [Detail] is set
  to "Off".

Master Black

For adjusting the pedestal level (master black) that
serves as the reference black.
Increasing the value increases the pedestal.
[Setting Values: -50 to +50 (●0)]

Black Toe

Process the dark areas according to the balance of
bright and dark areas in the image to adjust the
overall balance of contrast.
For altering the gain of dark areas. Adjust this item
according to the condition of the captured video
signals.
- Stretch:
  Increases the gain of dark areas in an image to
  stretch the signals of these areas only, thereby
  showing the contrast between bright and dark
  areas more clearly.
  Specify the amount of stretch with [Stretch
  Level].
- Normal:
  Normal condition.
- Compress:
  Compresses the gain of dark areas to increase
  the contrast when the entire image appears
  bright and contrast is weak. Specify the
  compression amount with [Compress Level].

[Setting Values: Stretch, ●Normal, Compress]

↳ Stretch Level

Stretch amount increases when a larger value is specified.
[Setting Values: 1 to 5 (● 3)]

Memo :
- This item is displayed only when [Black Toe] is set to "Stretch". Otherwise, this item appears as "---" and cannot be selected.

↳ Compress Level

Compression amount increases when a larger value is specified.
[Setting Values: 1 to 5 (● 3)]

Memo :
- This item is displayed only when [Black Toe] is set to "Compress". Otherwise, this item appears as "---" and cannot be selected.

White Clip

For setting the point to apply white clip for input video signals with a high luminance level.
- 108%:
  Applies white clip at the point where the luminance level is 108 %.
- 103%:
  Applies white clip at the point where the luminance level is 103 %.
- 100%:
  Applies white clip at the point where the luminance level is 100 %. Set to this value when the system in use limits Y output signals within 100 %.

[Setting Values: ●108%, 103%, 100%]

Gamma

For adjusting the gamma curve that determines the gradation expression.
- Cinema:
  Sets to a gamma curve with similar gradation to the screen characteristics of movies.
- Standard:
  Sets to a standard gamma curve.

[Setting Values: Cinema, ●Standard]

↳ Level

This item can be specified separately when [Gamma] is set to "Standard" or "Cinema".
- Increase the number:
  Enhances the gradation of black. However, the gradation of bright areas deteriorates.
- Decrease the number:
  Enhances the gradation of bright areas. However, the gradation of black deteriorates.

[Setting Values: -5 to +5 (● 0)]

White Balance...

Menu for adjusting white balance.
  (☞ P92 [White Balance Item])

* For details, refer to "[Adjusting the White Balance] (☞ P 51)".

Color Matrix

For setting the color matrix.
- Cinema Subdued:
  Sets to a subdued color matrix that is similar to the screen characteristics of movies.
- Cinema Vivid:
  Sets to a vivid color matrix that is similar to the screen characteristics of movies.
- Standard:
  Sets to a standard color matrix.

[Setting Values: Cinema Subdued, Cinema Vivid, ●Standard]

↳ Adjust

This item is used to adjust [Color Matrix] to a color according to the user's preference.
- This item is used to adjust [Color Matrix] to a color according to the user's preference.
- The saturation, hue and brightness of the primary and complementary colors (6 colors in total) can be set individually.
- The adjusted values of "Standard", "Cinema Vivid", and "Cinema Subdued" in [Color Matrix] can be stored individually.
  (☞ P118 [Adjusting Color Matrix])

[Setting range for Lightness/Saturation: -10 to +10] (roughly ± 10 %)
[Setting range for Hue: -5 to +5] (roughly ± 5°)

Color Gain

For adjusting the video signal color level.
Increasing the value deepens the color.
[Setting Values: -50 to +15, Off (●0)]

Memo :
- Images are displayed in black-and-white when this is set to "Off".

Reset Process

Restores all items in the [Camera Process] menu to their default settings.

Detail/Adjust Item

V/H Balance

For setting the H/V balance to enhance contour (detail) in the horizontal (H) or vertical (V) direction.
- H+1 to H+4:
  Increasing the value enhances contour in the horizontal direction.
- V+1 to V+4:
  Increasing the value enhances contour in the vertical direction.

[Setting Values: H+1 to H+4, ●Normal, V+1 to V+4]

Memo :
- When [System] under [Record Format] is set to "SD", this item is fixed at "Normal".

White Balance Item

Preset Temp.

For setting the color temperature when the [WHT BAL] switch is set to "PRESET".
For details, refer to "[Adjusting the White Balance] (☞ P 51)".

Alternative Temp.

For setting the alternative color temperature in the Preset mode.
When the [WHT BAL] switch is set to "PRESET", pressing the [◉] button each time switches the color temperature setting in the Preset mode. ([Preset Temp.] ↔ [Alternative Temp.])
For details, refer to "[Adjusting the White Balance] (☞ P 51)".

AWB Paint

For adjusting the R (red)/B (blue) component in the AWB (Auto White Balance) mode.
For details, refer to "[Adjusting the White Balance] (☞ P 51)".
- Increase the number:
  Strengthens the red/blue.
- Decrease the number:
  Weakens the red/blue.

[Setting Values: -32 to +32 (● 0)]

Memo :
- This item is selectable when the [WHT BAL] switch on the right of the camera recorder is set to "A" or "B". When "PRESET" is set, this item appears as "---" and cannot be selected.
- Different values can be specified for "A" and "B".
- After the [◉] (Auto White Balance) button is pressed to readjust the white balance while [Clear Paint After AWB] is set to "On", R and B values switch automatically to "0".

Clear Paint After AWB

For specifying whether to clear the [AWB Paint] (R value and B value) settings after executing AWB (Auto White Balance).
- On:
  Sets the [AWB Paint] (R value and B value) settings to "0" after executing AWB (Auto White Balance).
- Off:
  Does not change the [AWB Paint] (R value and B value) settings after executing AWB (Auto White Balance).

[Setting Values: ●On, Off]

FAW Paint

For adjusting the R (red)/B (blue) component during FAW (Full Auto White Balance) mode.
- Increase the number:
  Strengthens the red/blue.
- Decrease the number:
  Weakens the red/blue.

[Setting Values: -32 to +32 (● 0)]

TC/UB Menu

Menu screen for setting time code and user's bit. This item cannot be selected in the Media mode, or during recording.

TC Generator

For setting the operation of the time code.
- Free Run(Ext):
  External time code input will be synchronized with this and the time code will be recorded.
- Free Run:
  The time code operates in the run mode at all times regardless of the recording status. It continues to run even when the power of the camera recorder is turned off.
- Rec Run:
  The time code operates in the run mode during recording. It continues to run in the order of the recorded clips as long as the SD card is not replaced. If the SD card is removed and recording is made on another card, time code will be recorded on the new card from where it was left off in the previous card.
- Regen:
  The time code operates in the run mode during recording. When the SD card is replaced, the last time code recorded on the card is read and recorded on a new card so that the time code continues in running order.

[Setting Values: Free Run(Ext), Free Run, ●Rec Run, Regen]

TC Preset

For setting the time code (hour, minute, second, frame).
Display : Drop setting 02:02:25.20
         : Non Drop setting 02:02:25:20

UB Mode

For setting the recording mode of the user's bit.
- Date:
  Records the date.
- Time:
  Records the time.
- Preset:
  Records according to the preset setting.
  (☞ P61 [Setting the User's Bit])

[Setting Values: Date, Time, ●Preset]

Memo : ─────────────────────────
- If UB Mode is set to "Time", the user's bit operates in the 24-hour format even if the LCD display is in the 12-hour format.

↳ Preset

For setting the user's bit. (Digit by digit)
Display : AB CD EF 01
  (☞ P61 [Presetting the User's Bit])

Memo : ─────────────────────────
- When [UB Mode] is set to "Date" or "Time", this item appears as "---" and preset is disabled.

Drop Frame

For setting the framing mode of the time code generator.
- Non Drop:
  Internal time code generator works in the non-drop-frame mode. Use this setting when placing emphasis on the number of frames.
- Drop:
  Internal time code generator works in the drop-frame mode. Use this setting when placing emphasis on the recording time.

[Setting Values: Non Drop, ●Drop]

Memo : ─────────────────────────
- This item can be set only when [Main Menu] ➔ [System] ➔ [Record Set]➔[Record Format] ➔ [Frame & Bit Rate] is set to "60p" or "60i". When the frame rate is "50p" or "50i", this item appears as "---" and cannot be selected.
  (☞ P103 [Frame & Bit Rate])

Menu Display and Detailed Settings

LCD/VF Menu

Item for specifying settings related to the LCD monitor or viewfinder screen.
This menu screen can be used to specify settings related to the Focus Assist mode, zebra pattern display, screen size, marker, and safety zone. In addition, it is also used for selecting whether to display characters on the LCD monitor or viewfinder screen, as well as for adjusting the picture quality of the LCD monitor.

Shooting Assist...

Menu for setting the Shooting Assist function.
(☞ P95 [Shooting Assist Item])

Marker Settings...

For setting items such as the safety zone and center mark.
(☞ P95 [Marker Settings Item])

Display Settings...

For specifying display-related settings.
(☞ P96 [Display Settings Item])

LCD + VF

For selecting a method to switch between the LCD monitor and viewfinder screen displays.
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])
● On:
  Displays images on the viewfinder at all times.
● Off:
  Turns off the viewfinder screen display when the LCD monitor is turned on.
[Setting Values: On, ●Off]

VF Bright

For setting the brightness of the viewfinder screen.
Increasing the value increases the brightness.
[Setting Values: -10 to +10 (● 0)]

VF Contrast

For setting the difference in luminance between the darkest and brightness areas in the viewfinder screen.
Increasing the value increases the contrast.
[Setting Values: -10 to +10 (● 0)]

LCD Contrast

For setting the difference in luminance between the darkest and brightness areas in the LCD monitor.
Increasing the value increases the contrast.
[Setting Values: -10 to +10 (● 0)]

LCD Backlight

For setting the brightness of the LCD monitor backlight.
Increasing the value increases the brightness.
[Setting Values: -1, 0, ● +1]

LCD Mirror

For specifying the image display method when facing the LCD monitor.
Select "Mirror" to display the image after laterally inverting it. (Mirror display)
(☞ P30 [Adjusting the LCD Monitor and Viewfinder])
[Setting Values: Mirror, ●Normal]

Memo : ───────────────
● The setting of this item is valid only in Camera mode.
● During color bar, menu screen and status screen display, the "Mirror" setting is disabled.
(☞ P117 [Color Bar Output])

Menu Display and Detailed Settings

Shooting Assist Item

Focus Assist

For setting whether to add color to the contour of the focused image upon switching the image to black-and-white.
[Setting Values: On, ●Off]

↳ Ring

For setting the focus/zoom ring operation.
- SW Set:
  This follows the settings of the [FOCUS/ZOOM] operation switch.
- Focus:
  When the Focus Assist function is activated, focusing operation is possible regardless of the settings of the [FOCUS/ZOOM] operation switch.

[Setting Values: ●SW Set, Focus]

↳ Color

For setting the display color of the focused area when Focus Assist is activated.
[Setting Values: ●Blue, Green, Red]

Zebra

For selecting whether to display zebra patterns at the bright areas of the subject.
Select "On" to display zebra patterns or "Off" to hide.
[Setting Values: On, ●Off]

↳ Top

For setting the maximum luminance level for the zebra pattern display.
[Setting Values: Over, 100%, 98%, 95% to 5% (in 5% increments)] (●80%)

↳ Bottom

For setting the minimum luminance level for the zebra pattern display.
[Setting Values: 100%, 98%, 95% to 0% (in 5% increments)] (●70%)

Memo : ────────────────────

- The relation between Top and Bottom is such that Top>Bottom always holds. To maintain this relation during setting, the setting value is automatically corrected.

Focus Assist & Zebra

For selecting the operation when [Focus Assist] and [Zebra] are used simultaneously.
- Standard: The focus assist outlines will overlapped the zebra pattern.
- ALT: The focus assist outlines will not overlapped the zebra pattern, however, flicker may occur on the zebra area.

[Setting Values: Standard, ●ALT]

Marker Settings Item

For setting the marker and safety zone, which are useful in helping you determine the angle of view for the image according to the shooting purpose.
(☞ P117 [Marker and Safety Zone Displays (Camera Mode Only)])

Memo : ────────────────────

- During Clip Review or when in the Media mode, the markers do not appear regardless of the setting.

Marker

For setting whether to display marker, safety zone, and center marks on the screen.
[Setting Values: On, ●Off]

↳ Grid Marker

For setting whether to display a 3x3 grid on the screen.
[Setting Values: On, ●Off]

Memo : ────────────────────

- When [Grid Marker] is set to "On", [Aspect Ratio], [Aspect Marker], and [Safety Zone] do not function.

↳ Aspect Ratio

For selecting the final image aspect ratio to be used from the overall angle of view.
[Setting Values: 16:9(+4:3), 2.35:1, 1.85:1, ●16:9, 1.75:1, 1.66:1, 14:9, 13:9, 4:3, 2.35:1 Center, 2.35:1 Top, 1.85:1 Center, 1.85:1 Top]

Memo : ────────────────────

- When [System] ➡ [Record Set] ➡ [Record Format] ➡ [SD Aspect] is set to "4:3", this item is fixed at "4:3" and cannot be selected.
  (☞ P103 [SD Aspect])

↳ **Aspect Marker**

For specifying how boundary markers are to be used to indicate the parts of an image that are beyond the range of the aspect ratio selected in [Aspect Ratio].

- Line+Halftone:
  Displays the boundary using lines, and areas outside the boundary in halftone.
- Halftone:
  Displays areas outside the boundary in halftone.
- Line:
  Displays the boundary using lines.
- Off:
  Hides the boundary markers.

[Setting Values: Line+Halftone, Halftone, Line, ●Off]

Memo :

- When [Aspect Ratio] is set to "16:9" or "16:9(+4:3)", this item is fixed at "Off" and cannot be selected.

↳ **Safety Zone**

For setting the percentage of area that is to be deemed as valid area (Safety Zone) within the boundary of the aspect ratio selected in [Aspect Ratio].

[Setting Values: 95%, 93%, 90%, 88%, 80%, ●Off]

↳ **Center Mark**

For specifying whether to display a mark to indicate the screen center within the aspect ratio selected in [Aspect Ratio].

[Setting Values: ●On, Off]

| Display Settings Item

This menu is used to set the displays on the LCD monitor and viewfinder screen.

Zoom

For setting the display method of the zoom position.

- Number:
  Displays the zoom position in numbers (0-99).
- Bar:
  Displays the zoom position in a bar.
- Off:
  Does not display the zoom position.

[Setting Values: Number, ●Bar, Off]

Focus

For setting the display method of the approximate distance to the subject in focus during manual focus.

- Feet:
  Displays the focus in feet.
- Meter:
  Displays the focus in meters.
- Off:
  Does not display the focal length during focus.

[Setting Values: Feet, ●Meter, Off]

Record Format

For setting whether to display the video format during recording or playback.
[Setting Values: ●On, Off]

Media Remain

For setting whether to display the remaining space of the recording SD card.
[Setting Values: ●On, Off]

Memo :

- When the remaining space warning is displayed, the information appears even when "Off" is selected.
- The displayed time is an estimate.

TC/UB

For specifying whether to display the time code (TC) or user's bit (UB) rate in the display on the LCD monitor and viewfinder screen.
[Setting Values: UB, ●TC, Off]

Menu Display and Detailed Settings

Audio Meter

For specifying whether to display the audio level meter on the LCD monitor and viewfinder screen.
[Setting Values: ●On, Off]

Battery

For setting the display of the remaining battery power in the display on the LCD monitor and viewfinder screen.
The battery information appears only on the Display 2 screen in Camera mode.
(☞ P110 [Display 2 screen])
● Time:
  Displays the remaining battery power in minutes. (min)
● Capacity%:
  Displays the remaining battery power in percentage. (%)
● Voltage:
  Displays the current battery voltage in units of 0.1 V. (V)
● Off:
  The remaining battery power is not displayed.
[Setting Values: ●Time, Capacity%, Voltage, Off]

Memo : ───────────────────────
● The battery mark that appears before the "Time", "Capacity%" or "Voltage" value changes according to the remaining battery power.
  In addition, the plug mark is added during charging.

▭ ▭⊻	:	10 % and below
▯ ▯⊻	:	11 % to 30 %
▮ ▮⊻	:	31% to 70 %
▰ ▰⊻	:	71 % to 100 %

● When the remaining battery power is low, "RES" instead of the value is displayed.
  Replace the battery as soon as possible.
● The remaining battery power and remaining time are intended as reference values for the shooting duration.
● The time, capacity or voltage will not be displayed during charging.

Date/Time

For specifying whether to display the date and time in the display on the LCD monitor and viewfinder screen.
[Setting Values: ●On, Off]

Date Style

For setting the date display sequence for display on the LCD monitor and viewfinder screen as well as for time stamp recording.
Display examples of the setting values are as follows.
● DMY2: 30 Jun 2016
● DMY1: 30-06-2016
● MDY2: Jun 30, 2016
● MDY1: 06-30-2016
● YMD: 2016-06-30
[Setting Values: DMY2, DMY1, MDY2, MDY1, ●YMD]

Time Style

For setting the time display for display on the LCD monitor and viewfinder screen as well as for time stamp recording.
[Setting Values: ●24hour, 12hour]

A/V Set Menu

Menu screen for video output and audio.

Video Set...

For specifying video output-related settings.
(☞ P98 [Video Set Item])

Audio Set...

For specifying audio-related settings.
(☞ P99 [Audio Set Item])

Video Set Item

Display On TV

For setting whether to display the display and menu characters on the external monitor.
[Setting Values: On, ●Off]

HDMI out

For setting the terminal to output the video.
[Setting Values: On, ●Off]

↳ Resolution

For selecting the resolution of video output from the [HDMI] terminal according to the monitor to be connected.

[Setting Values: 576i, 576p, 480i, 480p, 720p, ●1080i, 1080p]

Memo : ───────────────

- The selectable options vary according to the setting in [System]/[Resolution]/[Frame & Bit Rate] of [System] ➡ [Record Set] ➡ [Record Format].
- Cross conversion output is not possible.

↳ Color

- For setting the color format of HDMI signals.
- This item can be set only when [HDMI out] is set to "On".

[Setting Values: RGB, ●Auto]

↳ Enhance

- For setting the color range of HDMI signals. When connecting to a PC monitor, set this to "On".
- This item can be set only when [HDMI out] is set to "On".

[Setting Values: On, ●Off]

↳ Rec Trigger

For setting whether to superimpose trigger signals in tandem with the [HDMI] terminal as well as the [REC] button on the camera body.

When a compatible device is connected, recording/stop control signals are output in tandem with the operation of the [REC] button.

The record trigger output status to the connected device is indicated by REC ➡/STBY➡ on the display screen.

- On:
  Superimposes the trigger signals in tandem with the [HDMI] terminal as well as the [REC] button on the camera body and outputs the recording/stop control signals to the compatible device.
- Off:
  Does not superimpose the trigger signals.

[Setting Values: On, ●Off]

Memo : ───────────────

- Even if REC ➡/STBY➡ is displayed on the display screen, the compatible device may not necessarily be recording.
- When [Main Menu] ➡ [A/V Set] ➡ [Video Set] ➡ [HDMI out] is set to "Off", [Rec Trigger] is fixed at "Off" and cannot be selected.
- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] is set to "Interval Rec" or "Frame Rec", [Rec Trigger] is fixed at "Off" and cannot be selected.
- Set to "Off" if connecting to a device that does not support record trigger.

↳ TC

For setting whether to superimpose time code to the [HDMI] terminal.

[Setting Values: On, ●Off]

Memo : ───────────────

- Set to "Off" if connecting to a device that does not support HDMI TC.

SD Aspect

For setting the style of displaying down-converted images on a 4:3 aspect ratio screen.
- Side Cut:
  Displays image with the left and right sides cut off.
- Letter:
  Displays as a wide image with the top and bottom blackened.
- Squeeze:
  Displays image that is squeezed horizontally.
[Setting Values: Side Cut, Letter, ●Squeeze]

Memo : ─────────
- When [Record Format] ➜ [System] is set to "SD", and when [SD Aspect] is set to "4:3", this item appears as "---" and cannot be selected. (☞ P103 [System])

SD Set Up

For selecting whether to add a setup signal to the video signal output from the [AV] output terminal. Setup signals are added when "7.5%" is selected.
[Setting Values: 7.5%, ●0.0%]

Memo : ─────────
- Depending on the menu settings of the camera recorder and the condition of the cable connected to it, the setup signal setting may be fixed at "0.0%". "0.0%" is displayed in gray in this case.
- When [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Record Format]➜[Frame & Bit Rate] is set to "50p" or "50i", "---" is displayed and selection is disabled.

Audio Set Item

Input1 Mic Ref.

For setting the reference input level when the [INPUT1] selection switch is set to "MIC" or "MIC +48V".
[Setting Values: -62dB, -56dB, ●-50dB, -44dB, -38dB, -32dB]

Input2 Mic Ref.

For setting the reference input level when the [INPUT2] selection switch is set to "MIC" or "MIC +48V".
[Setting Values: -62dB, -56dB, ●-50dB, -44dB, -38dB, -32dB]

Int. Mic Gain

For setting the sensitivity of the built-in microphone.
[Setting Values: +12dB, +6dB, ●0dB]

AUX Gain

For setting the sensitivity of the [AUX] terminal input.
[Setting Values: +12dB, +6dB, ●0dB]

Ref. Level

For setting the audio reference level to be recorded to the SD card. (Applies to both [CH1/CH2].)
[Setting Values: -12dB, -18dB, ●-20dB]

Limiter

For setting the limiter operation.
- Ref. Level:
  Sets "Ref. Level" to the maximum recording level.
- -8dBFS, -5dBFS:
  Sets "-8dBFS" or "-5dBFS" to the maximum recording level.
- Off:
  Depending on the settings of the [CH1/CH2 AUTO/MANUAL] selection switches, the operation may be different as described below.
  - The limiter does not function when "MANUAL" is set.
  - The limiter functions at -5 dBFS when "AUTO" is set.

[Setting Values: Ref. Level, -8dBFS, ●-5dBFS, Off]

AGC Response

↳ Attack Time

Sets the time to activate the limiter.
[Setting Values: Fast, ●Middle, Slow]

↳ Decay Time

Sets the time to deactivate the limiter operation.
[Setting Values: Fast, ●Middle, Slow]

AGC Mode

For setting whether to link the limiter operation of [CH1] and [CH2].
Select "Link" to link or "Separate" to separate.
[Setting Values: Link, ●Separate]

Memo :
- Enabled only when both the [AUX] input terminal and [INPUT1/INPUT2] input terminal are set to "LINE" or "MIC", and CH1/CH2 of the [CH1/CH2 AUTO/MANUAL] switch is set to "AUTO".

XLR Manual Level

For setting whether to link manual audio adjustment operation between [INPUT1] and [INPUT2] terminals.
Select "Link" to link or "Separate" to separate.
When this item is set to "Link", adjust the recording level using the [CH1] recording level adjustment knob.
[Setting Values: Link, ●Separate]

Memo :
- Enabled only when both the [INPUT1/INPUT2] input terminals are set to "LINE" or "MIC", and both [CH1]/[CH2] of the [CH1/CH2 AUTO/MANUAL] selection switches are set to "MANUAL".
- When this item is set to "Link", [CH2] recording level adjustment knob is disabled.

Int. Mic Separation

For setting the enhancement level of the stereo effect of the built-in microphone.
- 1 to 4:
  Enhances the stereo effect. Increasing the value increases the stereo effect.
- Effect off:
  Does not enhance the stereo effect.
- Mono:
  Sets the built-in microphone to monaural.
[Setting Values: 1 to 4, Effect off, Mono (●2)]

Memo :
- When any value from 1 to 4 is selected, the sound quality changes slightly due to the process of enhancing the stereo effect. This is normal.
- This menu is enabled when the [CH1]/[CH2] selection switch is set to "INT".

Test Tone

For specifying whether to output the audio test signals (1 kHz) during color bar output.
[Setting Values: On, ●Off]

INPUT1/2 Wind Cut

For selecting whether to cut the low frequencies of the audio input signals (low-cut) when the [INPUT1/INPUT2] switch is set to "MIC" or "MIC+48V".
Set this item to reduce wind noise from the microphone.
- Both:
  Enables low-cut on both the [INPUT1] and [INPUT2] terminals.
- INPUT2:
  Enables low-cut on the audio of the [INPUT2] terminal only.
- INPUT1:
  Enables low-cut on the audio of the [INPUT1] terminal only.
- Off:
  Disables low-cut.
[Setting Values: Both, INPUT2, INPUT1, ●Off]

Int. Mic Wind Cut

For selecting whether to cut the low frequencies of the audio input signals (low-cut) from the built-in microphone. Set this item to "On" to reduce wind noise from the microphone.
[Setting Values: On, ●Off]

Equalizer

You can correct the characteristic and enhance the sound of the connected microphone using this equalizer setting.
For setting the audio frequency from a 5-band equalizer.
- Frequency:
  100Hz, 330Hz, 1kHz, 3.3kHz, 10kHz
- Variable level:
  ± 6dB (1dB step)

Memo :
- Audio will be recorded in the characteristic set in the equalizer.
- Set all bands to "0dB" to bypass the equalizer.
- When the equalizer level is set to the + side, the audio may be distorted. In this case, reduce the recording level in Manual mode.
- If the values of multiple frequencies are changed, the specified levels and the actual levels may be different due to interference between the frequency bands.
- This function is enabled only when both [INPUT1/2 Wind Cut] and [Int. Mic Wind Cut] are set to "Off".

Monitor

For setting the audio sound of the [⌒] terminal to stereo or mixed sound when the [MONITOR] selection switch on the LCD monitor is set to "BOTH".

- Mix:
  Outputs mixed sound (mixed sound of CH1 and CH2) to both L and R.
- Stereo:
  Outputs stereo sound (outputs audio sound of CH1 to L, and CH2 to R).

[Setting Values: ●Mix, Stereo]

Memo : ―――――――――――――――

- If both CH1 and CH2 are built-in microphones, stereo sound is output from the [⌒] terminal regardless of the [Monitor] setting.

Alarm Level

For selecting whether to turn on the warning tone as well as setting the volume.
The warning tone is output from the monitor speaker or [⌒] terminal.
[Setting Values: ●High, Middle, Low, Off]

Audio On FULL AUTO

For setting whether to enable Auto mode for audio when the [FULL AUTO ON/OFF] switch is set to "ON", or when Scene Select mode is activated.

- SW Set:
  Sets the audio recording mode following the [CH1/CH2 AUTO/MANUAL] selection switch setting.
- Auto:
  Sets audio recording mode to the forced auto mode.

[Setting Values: SW Set, ●Auto]

System Menu

This menu screen allows system-related settings. For specifying recording settings, formatting and restoring of SD card, tally lamp setting, date/time, time zone, and other settings.
It can also be used to reset the menu settings to their default values.

Record Set...

For specifying recorded video-related settings.
  (☞ P102 [Record Set Item])

Media

↳ Format Media

For formatting (initializing) an SD card.
Select a card slot (A or B), select [Format] from [Cancel]/[Format], and press the Set button (●) to format (initialize) the card.
  (☞ P35 [Formatting (Initializing) SD Cards])

↳ Restore Media

For restoring an SD card.
Select a card slot (A or B), and press the Set button (●) to restore the SD card.
  (☞ P36 [Restoring the SD Card])

Memo : ―――――――――――――――

- This item appears only when the SD card needs to be restored. However, it is not selectable when recording in Camera mode and during Clip Review.

Setup File

This allows you to save the menu settings as well as the performance results of shutter speed and AWB.
It is useful to save settings according to different shooting conditions.

↳ Load File...

Loads the settings.
  (☞ P120 [Loading a Setup File])

↳ Store File...

Saves the settings.
  (☞ P119 [Saving Setup Files])

↳ Delete File...

Deletes the configured file.
  (☞ P121 [Deleting Setup Files])

Auto Power Off

For setting whether to turn off the power automatically when the camera recorder is not operated for more than 5 minutes when the battery is used. This function is valid only when the battery is used.
[Setting Values: On, ●Off]

Memo : ─────────────────

● When both the battery and AC adapter are connected, power from the AC adapter connection will be used. As such, this function will not have any effect.

Tally Lamp

For setting whether to light up the tally lamp during recording, or when the remaining space warning is displayed.
● On:
  Turns on the indicator, indicator blinks.
● Off:
  Turns off the indicator, indicator does not blink.
[Setting Values: ●On, Off]

Memo : ─────────────────

● The blinking warning display, such as when the remaining battery level is low, is enabled in a setting other than "Off".

Reset All

Resets all menu settings.

Memo : ─────────────────

● [Date/Time] and [Time Zone] cannot be reset.
  (☞ P102 [Date/Time])
  (☞ P102 [Time Zone])
● This item is not selectable when recording in Camera mode, during Clip Review, and in Media mode.

Date/Time

For setting the year, month, day, hour, and minute.

Memo : ─────────────────

● The display order of the date (year, month, day) follows the setting in [Display Settings] ➜ [Date Style]. However, the 24-hour format is used for the hour display regardless of the [Time Style] setting.
  (☞ P97 [Date Style])

Time Zone

For setting the UTC time difference in units of 30 minutes.
[Setting Values: UTC-12:00-UTC-00:30, UTC, UTC+00:30-UTC+14:00 (in 30 min increments)] (●UTC+05:30)

Memo : ─────────────────

● If [Date/Time] is already set, the [Date/Time] item is automatically adjusted when [Time Zone] is altered.

Reserved

For setting the additional function to "On" or "Off".

↳ **Reserved 1 to Reserved 16**

Normally set to "Off".
[Setting Values: On, ●Off]

System Information

↳ **Version**

Displays information on the firmware version.

↳ **Open Source License**

Displays the license for the open source software used by this camera recorder.

Record Set Item

Record Format

After setting of all items in the [Record Format] menu is complete, select [Set] at the bottom of the screen to apply the new settings on the camera recorder and switch the recording format. A "Please Wait..." message appears during switching.

↳ **System**

For selecting a system definition.
- HD:
  Records in "HD" (high definition) quality
- SD:
  Records in "SD" (standard definition) quality

[Setting Values: ●HD, SD]

Caution :
- The selectable options for the [Format], [Resolution], and [Frame & Bit Rate] settings vary depending on the setting of this item.

↳ **Format**

For selecting the format of the file to be recorded to the SD card in slot A.
[Setting Values: ●QuickTime(MPEG2), MP4(MPEG2), AVCHD, QuickTime(H.264)]

Memo :
- When [System] is set to "HD" or "SD", the recording file format will be the same for both SD cards in slots A and B.
- When [System] is set to "SD", this item is fixed at "QuickTime(H.264)".

↳ **Resolution**

For setting the size of the recorded image when [System] is set to "HD". (Horizontal x vertical)
The available options vary according to the [Format] and [System] settings.
- When MP4(MPEG2) or QuickTime(MPEG2) is selected:
  [Setting Values: ●1920x1080, 1440x1080, 1280x720]
- When AVCHD is selected:
  [Setting Values: ●1920x1080, 1440x1080]
- When QuickTime(H.264) is selected:
  Fixed at "1920x1080"

Memo :
- When [System] is set to "HD" or "SD", the recording definition will be the same for both SD cards in slots A and B.
- When [System] is set to "SD", this item is fixed at "720x576".
- The selectable values of [Frame & Bit Rate] vary according to the setting of this item.

↳ **Frame & Bit Rate**

For selecting the recording frame rate and encoding bit rate for the SD card inserted into slot A.
The selectable options vary according to the settings of the following items.

Resolution	Format	Frame & Bit Rate
1920x1080	AVCHD	[Setting Values: 60p(HQ), 60i(HQ), 50p(HQ), ●50i(HQ), 60i(SP), 50i(SP)]
	QuickTime(H. 264)	[Setting Values: 60p(XHQ), 60i(XHQ), 50p(XHQ), 50i(XHQ), 60i(UHQ), ●50i(UHQ)]
	Other than AVCHD and QuickTime(H. 264)	[Setting Values: 60i(HQ), ●50i(HQ)]
1440x1080	AVCHD	[Setting Values: 60i(LP), ●50i(LP), 60i(EP), 50i(EP)]
	Other than AVCHD	[Setting Values: 60i(HQ), ●50i(HQ), 60i(SP), 50i(SP)]
1280x720	MP4(MPEG2) or QuickTime(MPEG2)	[Setting Values: 60p(HQ), ●50p(HQ)]

Memo :
- For details on the combinations of usable [Record Format], refer to the following.
  (☞ P40 [List of Formats])
- When [System] is set to "SD", this item is fixed at "50i".
- When [System] is set to "HD" or "SD", the frame rate and encoding bit rate for recording to the SD cards in slots A and B will be the same.

↳ **SD Aspect**

For setting the aspect ratio of the recorded image when [System] is set to "SD".
[Setting Values: ●16:9, 4:3]

Memo :
- When [System] is set to "HD", this item is fixed at "16:9".

Menu Display and Detailed Settings

Rec Mode

For selecting the record mode for recording to the SD card.

(☞ P69 [Special Recording])

[Setting Values: ●Normal, Pre Rec, Clip Continuous, Frame Rec, Interval Rec]

Memo : ─────────────────────

● When [Slot Mode] is set to "Backup", this item is fixed at "Normal".

↳ Pre Rec Time

For setting the pre-recording time when [Rec Mode] is set to "Pre Rec".

[Setting Values: ●5sec, 10sec, 15sec]

Memo : ─────────────────────

● When the frame rate setting in [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Record Format] ➜ [Frame & Bit Rate] is set to "XHQ", "15sec" cannot be selected.

↳ Rec Frames

For setting the number of frames to record when [Rec Mode] is set to "Frame Rec" or "Interval Rec".

[Setting Values: ●1frame, 3frames, 6frames]

↳ Rec Interval

For setting the recording time interval when [Rec Mode] is set to "Interval Rec".

[Setting Values: ●1sec, 2sec, 5sec, 10sec, 30sec, 1min, 2min, 5min, 10min, 30min, 1hour]

Slot Mode

For setting the operation of the card slot.

● Series:
Mode that activates the two slots sequentially.

● Dual:
Mode that activates the two slots at the same time.

(☞ P66 [Dual Rec])

● Backup:
Mode that enables recording to slot B without using the [REC] button. This item is selectable only when [Rec Mode] is set to "Normal".
Start or stop the recording using the [Backup Rec] menu or press the [USER1] to [USER7], [LCD KEY▲], [LCD KEY►], [LCD KEY▼], [LCD KEY◄] button that is assigned with "Backup Trig".

(☞ P67 [Backup Rec])

Memo : ─────────────────────

● When this is set to "Series", and recordable media are inserted in both slots, pressing the [REC] button starts recording only to the card in the selected slot (active slot).

● When "Series" is selected, and [Record Format] ➜ [Format] is set to "AVCHD", the clips are recorded over the slots seamlessly without interruption in the video.

● When this is set to "Dual", and recordable media are inserted in both slots, pressing the [REC] button starts simultaneous recording to the cards in both slots.

↳ Backup Rec

For starting/stopping backup recording with [REC]/[STBY].

This item is selectable only when [Slot Mode] is set to "Backup".

Memo : ─────────────────────

● When recording is stopped due to no remaining space on the media, etc., this item is fixed at "STOP" and cannot be selected.

4GB File Spanning(SDXC)

A recording file is automatically split when the size exceeds 4 GB, but if an SDXC card is used, you can record clips larger than 4 GB by setting this option to "Off". (Up to a maximum of 64 GB or 4 hours)
- On:
  Splits a file when it exceeds 4 GB or 30 minutes.
- Off:
  Splits a file when it exceeds 64 GB or 4 hours.

[Setting Values: ●On, Off]

Memo :
- To use an SDHC card, set [4GB File Spanning(SDXC)] to "On".
- This option is only valid if the SD card used for recording is of the SDXC format.
- During simultaneous recording, such as Dual Rec and backup recording, this option is valid only when the SD cards in both slots are of the SDXC format.
- This option is valid only when [Record Format] ➜ [Format] is set to "QuickTime(MPEG2)" or "QuickTime(H.264)".
  (☞ P103 [Format])

Recording in DCIM Folder

When "On" is selected, files are recorded to the DCIM folder of the SD card during MOV recording.
[Setting Values: ●On, Off]

Memo :
- When "Off" is selected, folders containing recorded clips may not be detectable in the MAC OS environment.
- To import clips to a Blu-ray disc & HDD recorder produced by our company, set this item to "Off" before recording.

LPCM (QuickTime)

For setting the audio recording format of QuickTime.
[Setting Values: Dual Mono, ●Stereo]

Time Stamp

For setting whether to display shooting date/time information in the recorded video.
[Setting Values: On, ●Off]

Memo :
- The date/time display style can be changed in [LCD/VF] ➜ [Display Settings] ➜ [Date Style]/[Time Style].
  (☞ P97 [Date Style])
  (☞ P97 [Time Style])
- When the date/time is hidden while the menu screen, status screen or other screen is displayed, the date/time during this period will not be recorded to the video. A confirmation screen appears if you try to display the menu screen or status screen during recording.

Clip Set

↳ Clip Name Prefix

For setting the first four characters of the name of the clip file to be recorded to the SD card.
Enter any of the 38 characters including alphabets (upper case), numbers (0 to 9), "_" (underscore), and "-" (hyphen) using the software keyboard.
  (☞ P85 [Text Input with Software Keyboard])
[Setting Values: xxxG] (The default value of xxx is the last three digits of the serial number.)

Memo :
- When [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Record Format] ➜ [Format] is set to "AVCHD", this setting is not reflected in the file name of the clip.
  However, it is recorded as the display name of the clip in the thumbnail display.
- "-" (hyphen) in the [Clip Name Prefix] will be replaced with "_" (underscore) only when recording clips to the DCIM folder.

↳ Reset Clip Number

For assigning a new number (Clip Number) by resetting it (0001).
Select [Reset] and press the Set button (●) to reset the number.
When [Format] is set to "AVCHD", the clip number is reset to "00000".
When other clips exist on the SD card, the smallest available number is used after reset.
- Example:
  If the [Clip Name Prefix] is "ABCD", and "ABCD0001" already exists on the SD card, "ABCD0002" will be assigned.

Adding/Editing Frequently Used Menu Items (Favorites Menu)

You can select and add/edit frequently used menu items freely to create a personal menu screen (Favorites Menu).
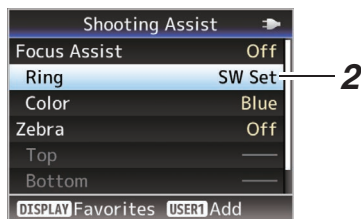
Memo : ───────────────

- [Favorites Menu] is only enabled in the Camera mode. [Favorites Menu] remains unchanged even when the recording format changes.
- Up to 20 menu items can be added.
- Added items in [Favorites Menu] will not be reset even when [Main Menu] ➜ [Reset All] is executed.
- Long descriptive names may be displayed for the menu items in [Favorites Menu] to enable better understanding.
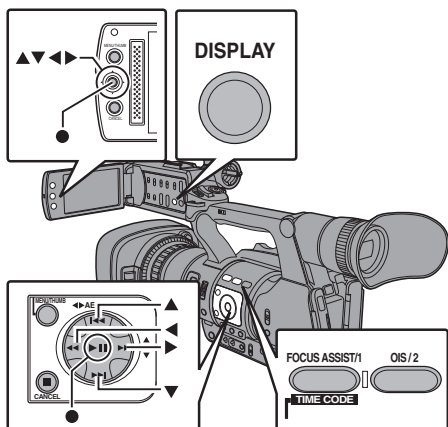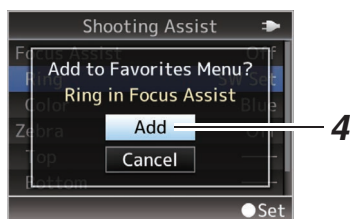

DISPLAY

Adding Menu Items to Favorites Menu

1 **Press the [MENU/THUMB] button to open the [Main Menu] screen.**

2 **Select the menu or submenu item to add.**

Memo : ───────────────

- Adding items to [Favorites Menu] cannot be performed in the following cases. [USER1 Add] is displayed in gray in the operation guide.
  • Selected item is already added to [Favorites Menu].
  • Number of menu items that can be added (20 items) is exceeded.

3 **Press the [FOCUS ASSIST/1] button.**
  A screen to confirm the addition appears.

4 **Select [Add] and press the Set button (●).**
  The selected menu item is added to [Favorites Menu].

Editing Favorites Menu

You can delete or change the order of the items added to [Favorites Menu].

Deleting Items from [Favorites Menu]

1 **Open the [Favorites Menu] screen.**

　① Press the [MENU/THUMB] button to open the [Main Menu] screen.

　② Press the [DISPLAY] button or press and hold down the [MENU/THUMB] button to open the [Favorites Menu] screen.

2 **Select [Edit Favorites] and press the Set button (●) or crossed-shaped button (▶).**
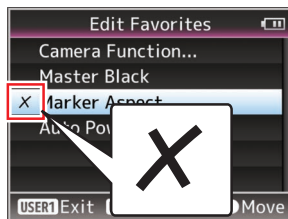The header turns magenta and the editing mode is activated.

2

Header (Magenta)
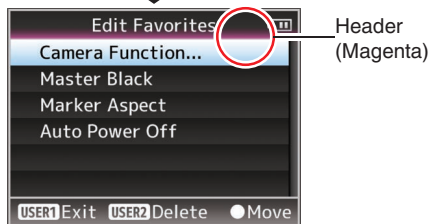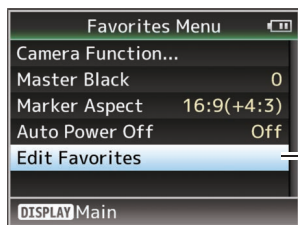
3 **Select the menu or submenu item to delete.**

3
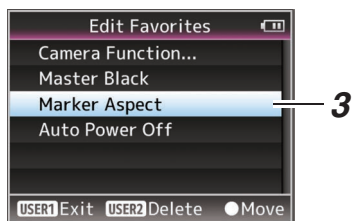
4 **Press the [OIS/2] button.**
A delete mark (✗) appears at the beginning of the menu item.

Memo : ―――――――――――――――――――

● When the [OIS/2] button is pressed again while the menu item with the delete mark (✗) is selected, the menu item will be excluded from the items to be deleted and the delete mark (✗) disappears.

5 **Press the [FOCUS ASSIST/1] button.**
The option menu to exit the [Favorites Menu] editing mode appears.

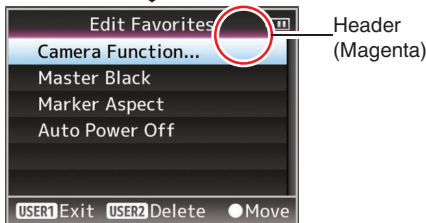6 **Select [Save & Exit] and press the Set button (●).**

6
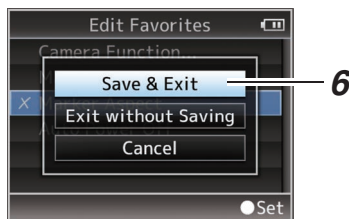
Memo : ―――――――――――――――――――

● Deletion is not complete until the changes are saved with [Save & Exit].
● To exit the editing mode without deleting any items, select [Exit without Saving].
● To return to the editing mode, select [Cancel].

Adding/Editing Frequently Used Menu Items (Favorites Menu) 107

**Changing the Order of Items in [Favorites Menu]**

DISPLAY
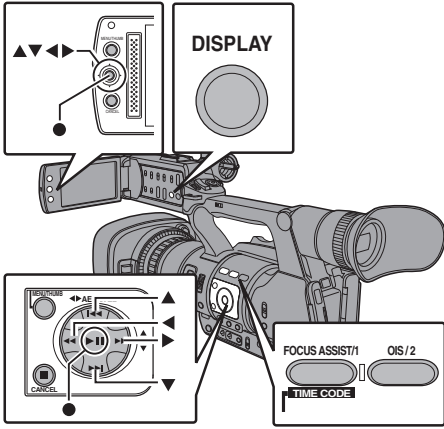
1 **Open the [Favorites Menu] screen.**
Press the [MENU/THUMB] button to open the [Favorites Menu] screen.

2 **Select [Edit Favorites] and press the Set button (●) or crossed-shaped button (▶).**
The header turns magenta and the editing mode is activated.

2

Header (Magenta)
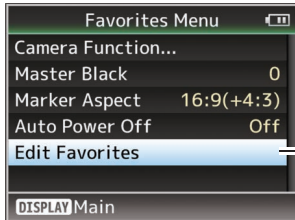
3 **Select the menu or submenu item to move and press the Set button (●).**
The moving mode is activated and a position selection bar for the move appears.

3

Position Selection Bar
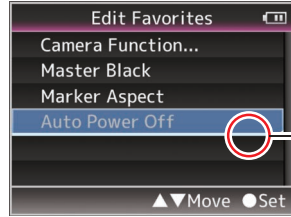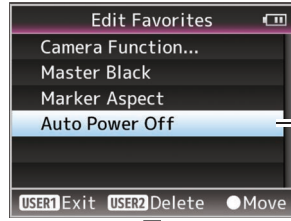
4 **Select the position to move to with the cross-shaped button (▲▼).**
Move the position selection bar with the cross-shaped button (▲▼) and select a position to move to.

5 **Press the Set button (●).**
The selected item moves to the new position.

4

5
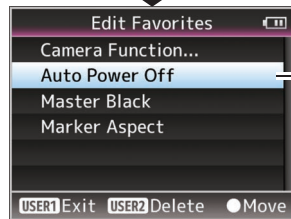
6 **Press the [FOCUS ASSIST/1] button.**
The option menu to exit the [Favorites Menu]
editing mode appears.

7 **Select [Save & Exit] and press the Set
button (●).**
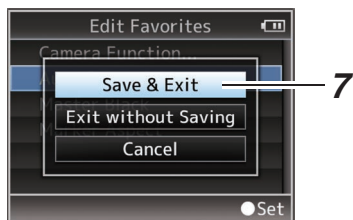
Memo : ─────────────────────────────

- Moving is not complete until the changes are
saved with [Save & Exit].
- To exit the editing mode without saving any
changes, select [Exit without Saving].
- To return to the editing mode, select [Cancel].

Display Screen in Camera Mode
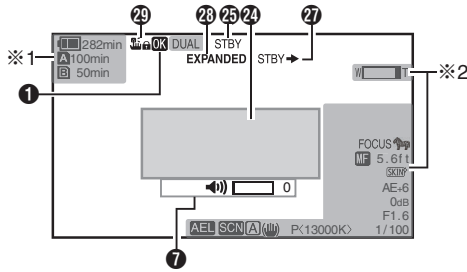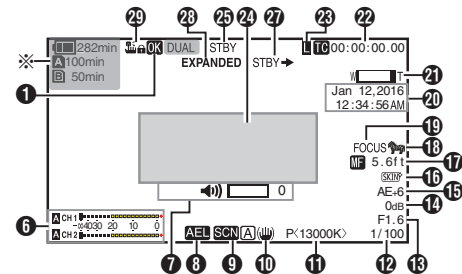
Display 0 screen

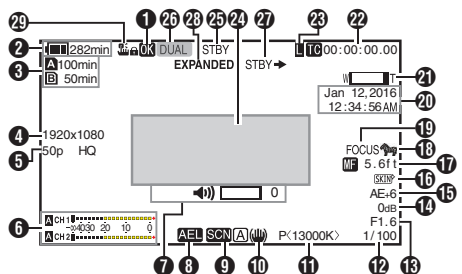This screen displays the event. It is also used to display warnings only.

*1 Appears only during warnings
*2 Appears only during operation

Display 1 screen

* Appears only during warnings

Display 2 screen

❶ OK Mark
Displayed when OK mark has been appended.
(☞ P79 [Appending/Deleting OK Mark])

❷ Voltage/Battery Power
Displays the current status of the power supply in use.
(☞ P24 [Power Status Display])

Memo : ────────────────────
● Displayed in the Display 0 and Display 1 screens during warnings only.
─────────────────────────

❸ Remaining Space on Media
Displays the remaining recording time of the SD cards in slot A and slot B separately.

  Ⓐ　　　　　 : Currently selected slot. (White card)
  Ⓐ🔒　　　 : Write-protect switch of SD card is set.
  Ⓐ!INVALID : SD card cannot be read or written to, or restored.
  Ⓐ!FORMAT : SD card requires formatting.
  Ⓐ!RESTORE : SD card requires restoring.
  Ⓐ!INCORRECT :
　　・ When Record Set is set to other than "AVCHD"/"SD" with a Class 4 SD card inserted.
　　・ When the SD card is not supported.
　　・ When an SD card lower than Class 10 is inserted while in the XHQ mode.
  Ⓐ!REC INH :
　　・ When attempting to record in 50i(HQ)/50i(SP) to an SD card recorded in AVCHD60i(HQ)/60i(SP) (or vice versa).
　　・ When an SDHC card is inserted while [4GB File Spanning(SDXC)] is set to "Off".
　(☞ P105 [4GB File Spanning(SDXC)])

Memo : ────────────────────
● This item is not displayed when [Main Menu] ➔ [LCD/VF] ➔ [Display Settings] ➔ [Media Remain] is set to "Off". However, warnings will be displayed.
　(☞ P96 [Media Remain])
● Displayed on the Display 0 and Display 1 screens only in the case of warnings. (When the remaining time is shorter than 3 minutes) The icons appear on all display screens in the following cases.
　　・ When recording is performed to only one of the slots while [Main Menu] ➔ [System] ➔ [Record Set] ➔ [Slot Mode] is set to "Dual".
　（☞ P104 [Slot Mode])
● The displayed time is an estimate.
─────────────────────────

④ Resolution
Displays the video image resolution.

Memo : ————————————————
- This item is not displayed when [Main Menu] ➡ [LCD/VF] ➡ [Display Settings] ➡ [Record Format] is set to "Off".
(☞ P96 [Record Format])

⑤ Frame Rate/Bit Rate
Displays the frame rate and bit rate in pairs.

Memo : ————————————————
- This item is not displayed when [Main Menu] ➡ [LCD/VF] ➡ [Display Settings] ➡ [Record Format] is set to "Off".
(☞ P96 [Record Format])

⑥ Audio Level Meter
- Displays the audio levels of CH1 and CH2.
- **A** appears on the screen when in the Auto mode.

A CH 1 ▮▮▮▮▮▮▯▯□□□□□□□□□□+
−∞ 40 30 20   10   0
A CH 2 ▮▮▮▮▮▮▯▯□□□□□□□□□□+

- When [Main Menu] ➡ [System] ➡ [Record Set] ➡ [Rec Mode] is set to "Frame Rec" or "Interval Rec", audio cannot be recorded and is indicated by the ⊘ mark.

CH 1 ▮▮▮▮▮▮▯▯□□□□□□□□□□+
−∞ 40 30 2⊘   0
CH 2 ▮▮▮▮▮▮▯▯□□□□□□□□□□+

Memo : ————————————————
- This item is not displayed when [Main Menu] ➡ [LCD/VF] ➡ [Display Settings] ➡ [Audio Meter] is set to "Off".
(☞ P97 [Audio Meter])

⑦ Volume Operation Indicator
Displayed when there are changes made to the volume of the headphone, speaker (0 to 15), and the values of LCD BRIGHT, PEAKING (-10 to +10).

🎧 ▭▮▭▭▭ 0
🔊 ▭▭▮▭▭ 12
LCD BRIGHT ▮▭▭▭▭ -10
PEAKING ▭▭▮▭▭ 0

Memo : ————————————————
- There is no audio output from the speaker in Camera mode.

⑧ AE Lock
The **AEL** icon is displayed during AE lock.

⑨ Scene Select/Full Auto
- When the [SCENE SELECT] switch is set to "A" or "B", this item appears as "SCN A" or "SCN B".
(☞ P46 [Using Scene Select])
- If the [SCENE SELECT] switch is set to "OFF" and the [FULL AUTO ON/OFF] switch is set to "ON", the **A** icon appears.

⑩ Image Stabilizer Mark
Displayed when the image stabilizer is ON.

(🖐) : When [Level] of [OIS] is set to "Normal".
((🖐)) : When [Level] of [OIS] is set to "High".

Memo : ————————————————
- If image stabilizer is set to "OFF" when the Display 0 screen is displayed, 🖐 appears for 3 seconds.
- Displayed in the Display 0 screen only when there is a change.

⑪ White Balance Mode
Displays the current white balance mode.
(*****K indicates color temperature)

A<*****K> : When the white balance is set to Auto A.
B<*****K> : When the white balance is set to Auto B.
P<*****K> : When the white balance is set to Preset.
<WBL> : Locked in the Full Auto White Balance mode.

Memo : ————————————————
- Displayed in the Display 0 screen only when there is a change.

⑫ Shutter
- The current shutter speed is displayed when the shutter is set to "Manual".
- The shutter speed display disappears when the [FULL AUTO ON/OFF] switch is set to "ON" to enable the Full Auto shooting mode, or when the [SHUTTER] button is pressed to enable the Automatic Shutter mode.

Memo : ————————————————
- The variable range of the shutter speed varies according to the video format settings.
(☞ P50 [Setting the Electronic Shutter])
- "OFF" is displayed when in the low-light shooting mode.
- Displayed in the Display 0 screen only when there is a change.

⑬ Iris F-Number
Displays F-number of the lens iris.

⑭ Gain
  • Displays the gain value when in the Manual Gain mode.
  • "LUX30" is displayed when in the low-light shooting mode.

Memo : ─────────────────────
• Displayed in the Display 0 screen only when there is a change.
─────────────────────────

⑮ AE Level
  • Displayed when the AE function is activated.
  • When operated while manual operation is disabled, "AE" blinks for about 5 seconds.
  • When face detection is enabled and [Face Detect] is set to "AF&AE", 🖼 appears on the left side of "AE".
  (☞ P44 [Adjusting the Focusing by Face Detection])

⑯ Beautiful Skin
  SKIN appears when Beautiful Skin is in operation.

Memo : ─────────────────────
• If [Beautiful Skin] is turned off while the Display 0 screen is displayed, SKIN appears for 3 seconds.
• Displayed in the Display 0 screen only when there is a change.
─────────────────────────

⑰ Focus Display
  • Displays the approximate distance to the subject in focus during manual focus.
  • When face detection is enabled, 🖼 appears on the left side of AF.
  (☞ P44 [Adjusting the Focusing by Face Detection])
  (☞ P89 [Face Detect])
  • If [Main Menu] ➜ [Camera Function] ➜ [AF Assist] is set to "Area", the ⌐ ⌐ icon appears on the left side of AF.
    (☞ P88 [AF Assist])
  • AFL appears on the screen while auto focus is locked.

Memo : ─────────────────────
• You can specify the display method (Feet/Meter) in [Main Menu] ➜ [LCD/VF] ➜ [Display Settings] ➜ [Focus].
  This item will not be displayed when "Off" is selected.
  (☞ P96 [Focus])
• Displayed in the Display 0 screen only when there is a change.
─────────────────────────

⑱ Zebra pattern
  During zebra pattern display, 🦓 (zebra icon) is displayed on the display screen in Camera mode.
  (☞ P63 [Setting Zebra Pattern])

⑲ Focus Assist
  • "FOCUS" is displayed when auto focus is activated.
  (☞ P95 [Focus Assist])

Memo : ─────────────────────
• Displayed in the Display 0 screen only when there is a change.
─────────────────────────

⑳ Date/Time Display
  Displays the current date and time.

Memo : ─────────────────────
• The date/time display style can be specified in [Main Menu] ➜ [LCD/VF] ➜ [Display Settings] ➜ [Date Style]/[Time Style].
  (☞ P97 [Date Style])
  (☞ P97 [Time Style])
• This item is not displayed when [Main Menu] ➜ [LCD/VF] ➜ [Display Settings] ➜ [Date/Time] is set to "Off".
  (☞ P97 [Date/Time])
• When [Main Menu] ➜ [System] ➜ [Record Set] ➜ [Time Stamp] is set to "On", this item is not displayed.
  (☞ P105 [Time Stamp])
─────────────────────────

㉑ Zoom Display
  • Displays the zoom position. (Zoom bar or value)

    Dynamic Zoom Off:
    W [▭▬▭] T

    Dynamic Zoom On:
    W [▭▭▬] T

  • The zoom bar will only be displayed for 3 seconds after the zoom operation is activated.
  • The value will always be displayed.
    · If [Main Menu] ➜ [Camera Function] ➜ [OIS] ➜ [OIS] is set to "Off", or [Level] is set to "Normal":
    Dynamic Zoom Off : Z00 to 99
    Dynamic Zoom On : Z00 to 149
    · If [Main Menu] ➜ [Camera Function] ➜ [OIS] ➜ [Level] is set to "High":
    Dynamic Zoom Off : Z09 to 99
    Dynamic Zoom On : Z09 to 149

Memo : ────────────────────

- You can specify the display method (Number/Bar) in [LCD/VF] ➜ [Display Settings] ➜ "Zoom". This item will not be displayed when "Off" is selected.
  (☞ P96 [Zoom])
- Displayed in the Display 0 screen only when there is a change.

──────────────────────────────

㉒ Time Code (🔢)/User's Bit (🔢) Display
- Displays the time code (hour: minute: second: frame) or user's bit data recorded in the SD card being played back.
- Example of time code display:

  🔢00 : 00 : 00 . 00
                    ※

* Colon (:) denotes non-drop frames and dot (.) denotes drop frames.

  - Example of user's bit display:

    🔢FF EE DD 20

Memo : ────────────────────

- You can specify whether to display the time code, user's bit, or turn off the display in [LCD/VF] ➜ [Display Settings] ➜ [TC/UB]. This item will not be displayed when "Off" is selected.
  (☞ P96 [TC/UB])

──────────────────────────────

㉓ Time Code Lock Indicator
When the built-in time code generator is synchronized to the external time code data input during the synchronization of time code with another camera recorder, 🔒 lights up.
(☞ P62 [Synchronizing Time Code on Another Camera])

㉔ Event/Warning Display Area
Displays error messages.
(☞ P125 [Error Messages and Actions])

㉕ Media Status
---- : No card found in the selected slot
STBY : Recording standby
●REC : Recording
REVIEW : Clip Review
(☞ P64 [Viewing Recorded Videos Immediately (Clip Review)])
STBY 🅿 : Pre Rec recording standby
(☞ P69 [Pre Rec])
●REC🅿 : Pre Rec recording
(☞ P69 [Pre Rec])

STBY 🅲 : Clip Continuous Rec recording standby
(☞ P70 [Clip Continuous Rec])
●REC🅲 : Clip Continuous Rec recording
(☞ P70 [Clip Continuous Rec])
STBY🅲 : Clip Continuous Rec recording pause
(displayed in yellow)
(☞ P70 [Clip Continuous Rec])
STBY 🅸 : Interval Rec recording standby
(☞ P72 [Interval Rec])
STBY🅸 : Interval recording pause
(displayed in red)
(☞ P72 [Interval Rec])
●REC🅸 : Interval Rec recording
(☞ P72 [Interval Rec])
STBY 🅵 : Frame Rec recording standby
(☞ P71 [Frame Rec])
●REC🅵 : Frame Rec recording
(☞ P71 [Frame Rec])
STBY🅵 : Frame Rec recording pause
(displayed in yellow)
(☞ P71 [Frame Rec])
STOP : Unable to record to the card in the slot
P.OFF : Power OFF

㉖ Dual Rec/Backup Rec Display
"DUAL" is displayed in the Dual Rec mode and "BACKUP" is displayed in the Backup Rec mode.
(☞ P104 [Slot Mode])

Memo : ────────────────────

- This item is not displayed when [Slot Mode] is set to "Series".
- This item is not displayed when [Main Menu] ➜ [LCD/VF] ➜ [Display Settings] ➜ [Media Remain] is set to "Off". However, warnings will be displayed.
  (☞ P96 [Media Remain])
- Displayed in the Display 0 and Display 1 screens during warnings only. (When the remaining time is shorter than 3 minutes)

──────────────────────────────

㉗ Record Trigger
STBY ➜ : When [Rec Trigger] is set to "On" and recording is stopped
REC ➜ : When [Rec Trigger] is set to "On" and recording is in progress

㉘ Expanded focus
"EXPANDED" (yellow) is displayed during expanded focus.

㉙ Operation lock
The 🔒 icon appears during operation lock.
(☞ P38 [Operation Lock Feature])

Display Screen in Media Mode

Media Display 0 Screen

This screen displays the media status or event. It is also used to display warnings only.

```
※ ⬛ 282min 🔒A1000/2000 OK ✅ PLAY
                    ⑮  ⑭⑬  ⑫  ⑪
❶



              LCD BRIGHT ▯▯▯ +5

                        ❼
```
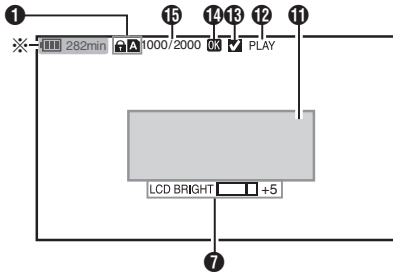
*   Appears only during warnings

Media Display 1 Screen

```
❶            ⑮  ⑭⑬ ⑫  ⑪    ⑩
❷ ⬛ 282min 🔒A1000/2000 OK ✅ PLAY TC00:00:00.00
❸ 1920x1080
❹ 50p   HQ
                              Jan 12,2016
                              12:34:56AM  ❾


                    🔊 ▯▯▯ 0

❻ ACH1 ▮▮▮▮▮▯▯▯▯▯▯▯▯
   -∞40 30 20  10  0
   ACH2 ▮▮▮▮▮▯▯▯▯▯▯▯▯
                ❼
```

Media Display 2 Screen

```
❶            ⑮  ⑭⑬ ⑫  ⑪    ⑩
❷ ⬛ 282min 🔒A1000/2000 OK ✅ PLAY TC00:00:00.00
❸ 1920x1080
❹ 50p   HQ
                              Jan 12,2016
   ◀◀ ⏸ ▶▶                    12:34:56AM  ❾
   ◀◀ ⏹ ▶▶
❺
   USER1:OK MARK
   USER2:SELECT
   USER3:        🔊 ▯▯▯ 0
❻ ACH1 ▮▮▮▮▮▯▯▯▯▯▯▯▯
   -∞40 30 20  10  0
   ACH2 ▮▮▮▮▮▯▯▯▯▯▯▯▯
                ❼ ❽
```
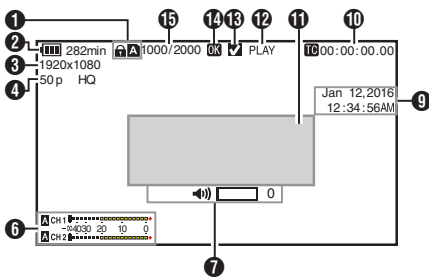
❶ Media
  - Displays the media slot (A or B) of the currently played clip.
  - 🔒 appears when the write-protect switch of the SD card is set.

❷ Voltage/Battery Power
  Displays the current status of the power supply in use.
  (☞ P24 [Power Status Display])

Memo :
- Displayed in the Media Display 0 screen during warnings only.

❸ Resolution
  Displays the video image resolution.

❹ Frame Rate/Bit Rate
  Displays the frame rate and bit rate in pairs.

❺ Operation Guide
  Displays a guide for the current operation buttons.

❻ Audio Level Meter
  Displays the audio levels of CH1 and CH2.

```
CH1 ▮▮▮▮▮▯▯▯▯▯▯▯▯▯▯+
    -∞40 30  20   10    0
CH2 ▮▮▮▮▮▯▯▯▯▯▯▯▯▯▯+
```

Memo :
- This item is not displayed when [Main Menu] ➡ [LCD/VF] ➡ [Display Settings] ➡ [Audio Meter] is set to "Off".
  (☞ P97 [Audio Meter])

❼ Volume Operation Indicator
  Displayed when there are changes made to the volume of the headphone, speaker (0 to 15), and the value of LCD BRIGHT (-10 to +10).
  (☞ P111 [Volume Operation Indicator])

❽ Position bar
  Displays the current position in the video. During trimming, the position bar appears in green, and icons for the in and out points are displayed.
  ▼ : Current position of the video
  ◢ : Position to start trimming (In point)
  ◣ : Position to end trimming (Out point)

❾ Date/Time Display
Displays the date/time that is recorded on the
currently played SD card.

Memo : ─────────────────────────
● The date/time display style can be specified in
[LCD/VF] ➡ [Display Settings] ➡ [Date Style]/
[Time Style].
(☞ P97 [Date Style])
(☞ P97 [Time Style])

❿ Time Code (🆃🅲)/User's Bit (🆄🅱) Display
● Displays the time code (hour: minute:
second: frame) or user's bit data recorded in
the SD card being played back.
● Example of time code display:

🆃🅲00 : 00 : 00 : 00
　　　　　　　　　※

* Colon (:) denotes non-drop frames and dot (.)
denotes drop frames.

● Example of user's bit display:

🆄🅱FF EE DD 20

Memo : ─────────────────────────
● You can specify whether to display the time
code, user's bit, or turn off the display in [TC/UB]
of [Main Menu] ➡ [LCD/VF] ➡ [Display
Settings].
(☞ P96 [TC/UB])

⓫ Event/Warning Display Area
Displays error messages.
(☞ P125 [Error Messages and Actions])

⓬ Media Status

PLAY　　: Playing
STILL　　: Still picture playback mode
FWD *　: High-speed playback in the
　　　　　forward direction (* playback
　　　　　speed: 5x, 15x, 60x, or 360x)
REV *　　: High-speed playback in the
　　　　　reverse direction (* reverse
　　　　　playback speed: 5x, 15x, 60x, or
　　　　　360x)
STOP　　: Stop mode
P.OFF　　: Power OFF

⓭ Check Mark
Displayed when the currently played clip is
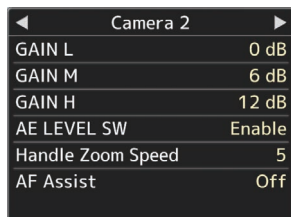selected.

⓮ OK Mark
Displayed when OK mark has been appended.
(☞ P79 [Appending/Deleting OK Mark])

⓯ Clip Information
Displays current clip number/total number of
clips.

Status Screen

For checking the settings of the camera recorder.

Camera 1 Screen/Camera 2 Screen

For checking information related to shooting using the camera recorder.

```
◄           Camera 1           ►
Zebra                    70%–80%
Marker Aspect               16:9
Safety Zone                  90%
Format        QuickTime(MPEG2)
              1920×1080  60i(HQ)
```

```
◄           Camera 2           ►
GAIN L                      0 dB
GAIN M                      6 dB
GAIN H                     12 dB
AE LEVEL SW               Enable
Handle Zoom Speed             5
AF Assist                   Off
```
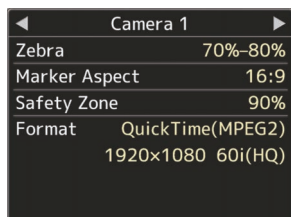
USER Switch Set Screen

For checking the status (functions assigned) of the user buttons.
(☞ P32 [Assignment of Functions to User Buttons])

```
◄         USER Switch Set       ►
USER1              Focus Assist
USER2                       OIS
USER3                     Lolux
USER4                   AE Lock
USER5                     Zebra
USER6                    Marker
USER7               Clip Review
```
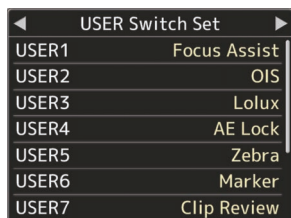
Audio Screen

For checking the settings related to audio input.
(☞ P99 [Audio Set Item])

```
◄             Audio             ►
Wind Cut
MIC  -62 dB
 INPUT1 ───────────→CH1

 INPUT2 ───────────→CH2
MIC  -44 dB
```
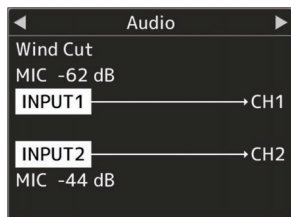
Audio Level Screen

For checking audio related information such as microphone volume level.
(☞ P55 [Audio Recording])

```
◄         Audio Level          ►
Limiter                 -8 dBFS
XLR Manual Level            Link
Monitor                     CH1

CH1 ▮▮▮▮▮▮▮▮▮▮·-▮·········
    -∞ 40 30  20   10   0
CH2 ▮▮▮▮▮▮▮▮▮▮·-▮·········
```

Video Screen

For checking the settings related to video output.
(☞ P98 [Video Set Item])

```
◄             Video            ►
HDMI Out                     On
  Resolution              1080i
  Color                    Auto
  Enhance                   Off
  Rec Trigger               Off
  TC                        Off
SD Aspect               Squeeze
```

Display/Status Screen
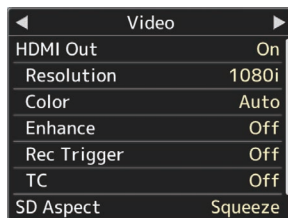
Marker and Safety Zone Displays (Camera Mode Only)

The marker and safety zone displays are useful in helping you determine the angle of view for the image according to the shooting purpose.
The marker is displayed only in the Camera mode.

Displaying the Grid Marker

1 **Set [LCD/VF] ➞ [Marker Settings] ➞ [Grid Marker] to "On".**
(☞ P95 [Grid Marker])
A grid that divides the screen into 3x3 is displayed.

Memo :
● When [Grid Marker] is set to "On", [Aspect Ratio], [Aspect Marker], and [Safety Zone] do not function.

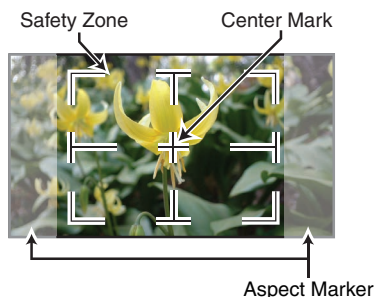● Example of display when [Aspect Ratio] = "4:3", [Aspect Marker] = "Line+Halftone", and [Center Mark] = "On"

Safety Zone   Center Mark

Aspect Marker

Memo :
● You can turn On/Off the safety zone and center mark displays using [LCD/VF] ➞ [Marker Settings] ➞ [Aspect Ratio], [Safety Zone], and [Center Mark].
(☞ P96 [Safety Zone])

Beautifying the Skin Tone (Beautiful Skin Mode)

With Beautiful Skin mode, you can beautify the skin tone to make it look dewy and smooth.

1 **Assign the "Beautiful Skin" function to any of the user buttons.**
(☞ P32 [Assignment of Functions to User Buttons])

2 **Press the user button that is assigned with the "Beautiful Skin" function.**
● SKIN appears when Beautiful Skin is in operation.
The Beautiful Skin mode toggles On and Off each time the button is pressed.

Color Bar Output

Color bars can be output on this camera recorder.

Memo :
● The audio test signals (1 kHz) can be output simultaneously with the color bar output.
(☞ P100 [Test Tone])

To Output the Color Bar Using the Menu

To output color bars, follow the setting procedure below.

1 **Set [Camera Function] ➞ [Bars] to "On".**
(☞ P87 [Bars])
Color bars are output.

To Output the Color Bar Using the User Button

1 **Assign the "Bars" function to any of the user buttons.**
(☞ P32 [Assignment of Functions to User Buttons])

2 **Press the user button that is assigned with "Bars".**
Color bars are output.

Camera Features
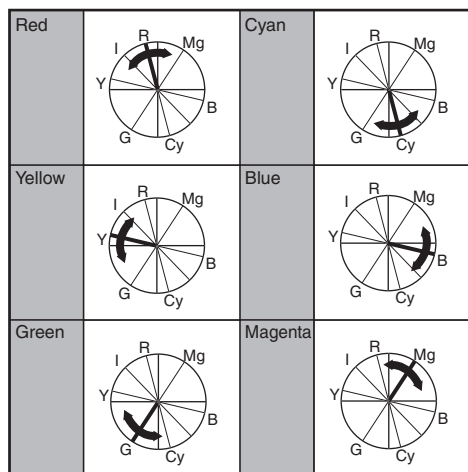
Adjusting Color Matrix

- The color matrix of the camera recorder can be adjusted to a color of the user's preference.
- When shooting is performed using multiple cameras, the colors of the different cameras can be adjusted, and a color of the user's preference can be set on this camera recorder.
- The Saturation, Hue and Lightness of the primary and complementary colors (6 colors in total) can be set individually.
- Adjust the color on the vector scope and waveform monitor using the DSC color chart.
- * The adjusted values of "Standard", "Cinema Vivid", and "Cinema Subdued" in [Color Matrix] can be stored individually.
  (☞ P91 [Color Matrix])

1 **Select [Camera Process] ➡ [Color Matrix]/ [Adjust].**
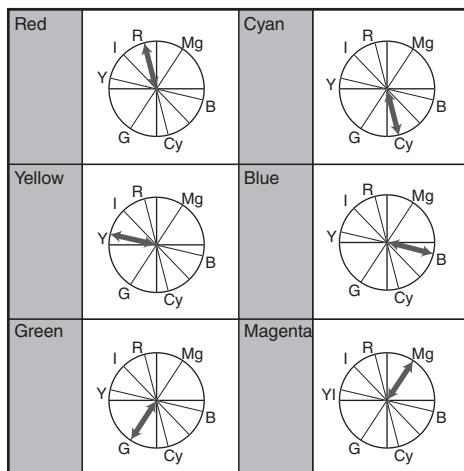   (☞ P91 [Adjust])

2 **Adjust Hue.**
   - Select the color using the cross-shaped button (▲▼) and confirm using the cross-shaped button (▶). (The cursor moves to Hue.)
   - Pressing the cross-shaped button (▲) rotates the hue in the clockwise direction on the vector scope.
   - Pressing the cross-shaped button (▼) rotates the hue in the anti-clockwise direction on the vector scope.

Red	Cyan
R, Mg, B, Cy, G, Y, I	R, Mg, B, Cy, G, Y, I
Yellow	Blue
R, Mg, B, Cy, G, Y, I	R, Mg, B, Cy, G, Y, I
Green	Magenta
R, Mg, B, Cy, G, Y, I	R, Mg, B, Cy, G, Y, I

3 **Adjust Saturation.**
   - Press the cross-shaped button (▶) to move the cursor to Saturation.
   - Each of the colors changes in the direction indicated by the arrow on the vector scope.
   - Pressing the cross-shaped button (▲) moves the color outward from the center of the circle on the vector scope.
   - Pressing the cross-shaped button (▼) moves the color toward to the center of the circle on the vector scope.

Red	Cyan
R, Mg, B, Cy, G, Y, I	R, Mg, B, Cy, G, Y, I
Yellow	Blue
R, Mg, B, Cy, G, Y, I	R, Mg, B, Cy, G, Y, I
Green	Magenta
R, Mg, B, Cy, G, Y, Yl	R, Mg, B, Cy, G, Y, I

4 **Adjust Lightness.**
   - Pressing the cross-shaped button (▲) lightens; and pressing the cross-shaped button (▼) darkens.
   - Press the cross-shaped button (▶) to return the cursor to Hue.

Configuring Setup Files

The menu settings can be stored on the camera recorder or an SD card by saving them as a setup file.
Loading a saved setup file enables you to reproduce the appropriate setup state speedily.
The following types of setup files are available.

■ Picture File:
File that contains image creation settings in accordance to the shooting conditions ([Camera Process] menu items).

■ All File:
File that contains all menu settings, ranging from video format settings to image creation settings such as device settings and shooting conditions, as well as the contents of the [Favorites Menu].

■ User File:
File that contains settings from All File that are not included in the [Camera Process] menu items.
(☞ P90 [Camera Process Menu])

Memo : ────────────────────
● Make use of the [Setup File] menu to save or load a setup file.
● The following operations can be performed on the [Setup File] menu.
  ・ [Saving Setup Files] (☞ P 119)
  ・ [Loading a Setup File] (☞ P 120)
  ・ [Deleting Setup Files] (☞ P 121)

Number of Storable Setup Files

■ Picture File
Camera recorder   : [CAM1] to [CAM4]
SD slot A   : [**A** 1] to [**A** 8]
SD slot B   : [**B** 1] to [**B** 8]
■ User File/All File
Camera recorder   : [CAM1] to [CAM2]
SD slot A   : [**A** 1] to [**A** 8]
SD slot B   : [**B** 1] to [**B** 8]

Saving Setup Files

1   **Display the [Setup File] menu.**
Select [Main Menu] ➜ [System] ➜ [Setup File] and press the Set button (●).
(☞ P101 [Setup File])

2   **Select [Store File] and press the Set button (●).**

3   **Select [Picture File], [User File] or [All File], and press the Set button (●).**
The existing files are displayed.

4   **Select the file to be newly saved (or overwritten) using the cross-shaped button (▲▼), and press the Set button (●).**

Store Picture File	🔋	
CAM1	<no file>	
CAM2	<no file>	
CAM3	<no file>	
CAM4	<no file>	
B1	<no file>	
B2	<no file>	
	●Set	

4
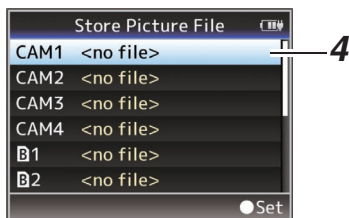
Memo : ────────────────────
● Files cannot be written in the following cases. (Displayed in gray, selection disabled)
  ・ When the inserted SD card is not supported or not formatted. (File name appears as "---".)
  ・ When a write-protected SD card is inserted (a 🔒 mark appears beside the SD card icon).

5   **Name the file.**
  ● Enter the subname using the software keyboard.
  (☞ P85 [Text Input with Software Keyboard])
  ● You can enter up to 8 characters for the [Store File]/[Picture File] subname.

Memo : ────────────────────
● When overwriting an existing file, the subname of the existing file is displayed.
● Select [Cancel] and press the Set button (●), or press the [CANCEL] button to return to the previous screen.

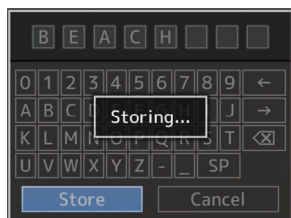**6** Select [Store] and press the Set button (●).

5

6

7 Save the file.
- A confirmation screen appears when you choose to overwrite.
  Select [Overwrite] on the confirmation screen, and press the Set button (●). Saving starts, and "Storing..." appears on the screen.

7
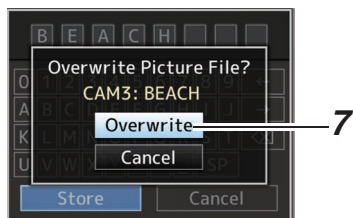
- Saving starts, and "Storing..." appears on the screen when the file is newly saved.

8 Saving is complete.
After saving of the file is complete, "Complete" appears on the screen, and the menu screen closes automatically.

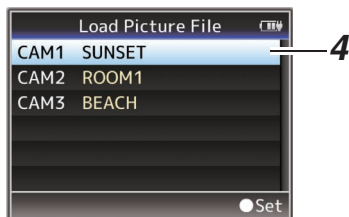## Loading a Setup File

1 **Display the [Setup File] menu.**
Select [Main Menu] ➜ [System] ➜ [Setup File] and press the Set button (●).
(☞ P101 [Setup File])

2 **Select [Load File] and press the Set button (●).**

3 **Select [Picture File], [User File] or [All File], and press the Set button (●).**
The existing files are displayed.

4 **Select the file to load using the cross-shaped button (▲▼), and press the Set button (●).**

4

Memo :
- When the write-protect switch of the inserted SD card is set, a 🔒 mark appears beside the SD card icon. Setup files can be loaded from an SD card even if the write-protect switch is set.
- Setup files that are completely incompatible will not be displayed.
  (☞ P119 [Configuring Setup Files])

5 **Select [Load] on the confirmation screen, and press the Set button (●).**
Loading starts, and "Loading..." appears on the screen.

5

6 **Reading is complete.**
After reading of the file is complete, "Complete" appears on the screen, and the menu screen closes automatically.

Camera Features

Deleting Setup Files

1 **Display the [Setup File] menu.**
Select [Main Menu] ➜ [System] ➜ [Setup File] and press the Set button (●).
(☞ P101 [Setup File])

2 **Select [Delete File] and press the Set button (●).**

3 **Select [Picture File], [User File] or [All File], and press the Set button (●).**
The existing files are displayed.

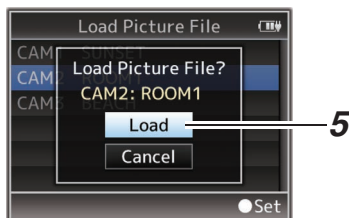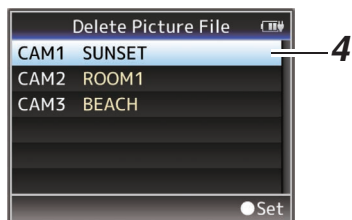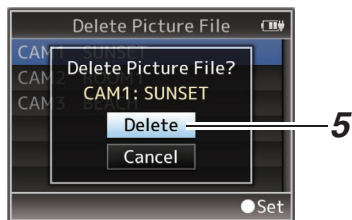4 **Select the file to delete using the cross-shaped button (▲▼), and press the Set button (●).**

```
┌──────────────────────────────┐
│   Delete Picture File   ▭    │
├──────────────────────────────┤
│ CAM1  SUNSET              ────── 4
│ CAM2  ROOM1                  │
│ CAM3  BEACH                  │
│                              │
│                              │
│                              │
│                      ●Set    │
└──────────────────────────────┘
```

Memo : ─────────────────────────────
● User File saved on the SD card cannot be deleted.
─────────────────────────────────────

5 **Select [Delete] on the confirmation screen, and press the Set button (●).**
Deletion starts, and "Deleting..." appears on the screen.

```
┌──────────────────────────────┐
│   Delete Picture File   ▭    │
├──────────────────────────────┤
│ CA┌────────────────────┐     │
│ CA│ Delete Picture File? │    │
│ CA│   CAM1: SUNSET       │    │
│   │  ┌──────────────┐    │──── 5
│   │  │    Delete    │    │    │
│   │  └──────────────┘    │    │
│   │  ┌──────────────┐    │    │
│   │  │    Cancel    │    │    │
│   │  └──────────────┘    │    │
│   └────────────────────┘     │
│                      ●Set    │
└──────────────────────────────┘
```

6 **Deletion is complete.**
After file deletion is complete, "Complete" appears on the screen.

Loading Clips to the PC

- You can load clips to a PC by connecting the camera recorder to the PC via the USB port. Doing so enables clips stored in the SD card to be managed and edited on the PC.
- Files on the SD card can be managed/edited on the connected PC in this mode only for USB mass storage class devices that are recognized by the said PC as a peripheral drive.

Memo :
- Files cannot be written to the SD card.

1 **Connect the camera recorder to the PC using a USB cable.**
A confirmation message "Change to USB Mode?" to enable the USB connection appears.

PC
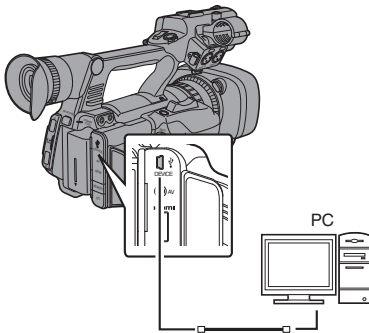
2 **Select [Change] using the cross-shaped button (▲▼), and press the Set button (●).**
The camera recorder switches to USB mode.

2

Memo :
- If recording is in progress, the "Change to USB Mode?" message appears after recording stops.
- If playback is in progress, the camera recorder switches to USB mode after the file closes automatically, such as when playback stops.

Disconnecting

- Disable the connection on the PC, then remove the USB cable from the camera recorder.
- Doing so exits the USB mode and switches the camera recorder to Camera mode.

Memo :
- The procedure for disabling the USB connection varies according to the PC in use. For details, refer to the "INSTRUCTIONS" of the PC.

When your PC cannot recognize the SD card

Confirm and update the OS of your PC.

OS	Description
Windows Vista	Necessary to update to SP1 or higher.
Windows Vista SP1/ Windows Vista SP2	Necessary to download the update software. (KB975823) • 32 bit version http://www.microsoft.com/downloads/en/details.aspx?FamilyID=2d1abe01-0942-4f8aabb2-2ad529de00a1 • 64 bit version http://www.microsoft.com/downloads/en/details.aspx?FamilyID=7d54c53f-017c-4ea5-ae08-34c3452ba315
Windows 7	Necessary to download the update software. (KB976422) • 32 bit version http://www.microsoft.com/downloads/en/details.aspx?FamilyID=3ee91fc2-a9bc-4ee1-aca3-2a9aff5915ea • 64 bit version http://www.microsoft.com/downloads/en/details.aspx?FamilyID=73f766dd-7127-4445-b860-47084587155f

Connecting External Monitor

- To output live or playback video images and audio sound to an external monitor, select the output signals from the camera recorder, and connect using an appropriate cable according to the monitor to be used.
- Choose the most suitable terminal according to the monitor in use.
- [AV] terminal:
  Outputs composite video and audio signals.
- [HDMI] terminal:
  Outputs HDMI signals.
  Configure the settings in the [A/V Set] menu to match the monitor to be connected.
  (☞ P98 [HDMI out])

Memo : ─────────────────────────

- If the [HDMI] terminal is connected, configure the settings in the [A/V Set] menu according to the monitor to be connected.
 (☞ P98 [HDMI out])

* Select the output signal in [A/V Set] ➜ [HDMI out].
  (☞ P98 [HDMI out])

* To display the menu screen or display screen on an external monitor, set [A/V Set] ➜ [Video Set]
  ➜ [Display On TV] to "On".
  (☞ P98 [Display On TV])

Setting the Aspect

- For setting the mode to convert images with a 16:9 aspect ratio to display on a 4:3 aspect ratio screen.
- Set using [A/V Set] ➜ [Video Set] ➜ [SD Aspect].
- The available modes include "Side Cut", "Letter" (blackened at the top and bottom), and "Squeeze" (full size, compressed at the left and right).
  (☞ P103 [SD Aspect])

Memo : ─────────────────────────

- When [Record Format] ➜ [System] is set to "SD", and [SD Aspect] is set to "4:3", this item cannot be selected.
 (☞ P103 [System])
  (☞ P103 [SD Aspect])
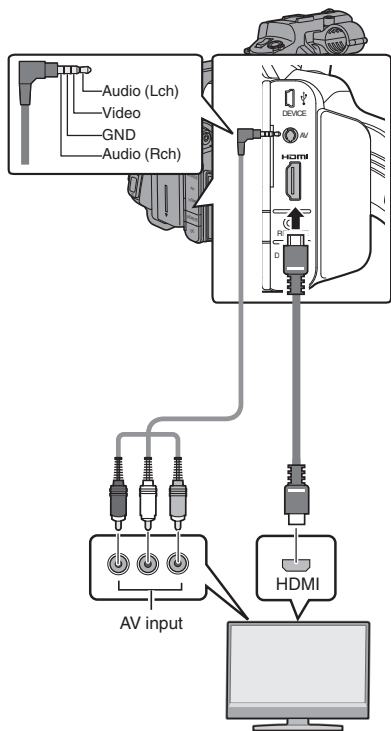
Connecting the Headphone

- Audio output from the [Ω] terminal can be selected using the [A/V Set] ➜ [Monitor] item or the [MONITOR] selection switch on the camera recorder.
  (☞ P101 [Monitor])
- The different combinations of settings that are output from the [Ω] terminal and monitor speaker are as follows.

[MONITOR] Selection Switch Setting	[Monitor] Setting	[Ω] Terminal L	[Ω] Terminal R	Speaker *
[CH1]	-	CH1		CH1
[BOTH]	[Mix]	CH1+CH2		CH1+CH2
	[Stereo]	CH1	CH2	
[CH2]	-	CH2		CH2

* Audio is output from the speaker only in Media mode. Does not output in the Camera mode.
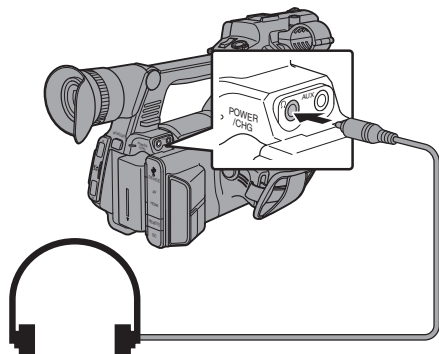
Memo :
- If both CH1 and CH2 are set to built-in microphone and the [MONITOR] selection switch has been set to "BOTH", stereo sound is output from the [Ω] terminal regardless of the [Monitor] setting.
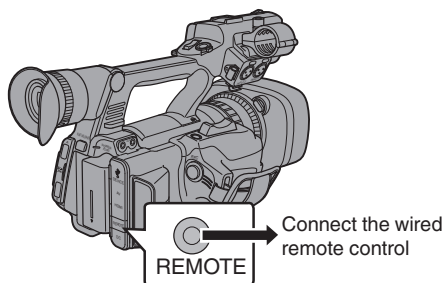
Connecting Wired Remote Control

You can operate the functions of this unit with a wired remote control.

Memo :
- When the switches of the camera recorder and remote control unit are operated at the same time, the switch operation of the remote control unit takes priority over that of the camera recorder.

1 **Connect a wired remote control to the camera recorder.**
Connect the wired remote control (sold separately) to the [REMOTE] terminal of this camera recorder.

Connect the wired remote control

Caution :
- Turn off the power of the camera recorder when connecting a wired remote control.

2 **Turn on the power of the camera recorder.**

Error Messages and Actions

Warning display on the LCD monitor and viewfinder screen, tally lamp indication and warning tone are as follows according to the error status.

Memo :
- This camera recorder makes use of a microcomputer. Noise interference from external sources may prevent it from functioning properly. When this occurs, turn off and on the power of the camera recorder again.

Error Message	Status	Action
Turn Power Off Turn Back On Later	System error. * The warning tone sounds and the tally lamp blinks twice every second.	Turn off the power, and turn it on again. If the error persists, please contact the local dealers in your area.
Getting Overheated. Please Turn Power Off.	• The battery has exceeded the specified temperature. • The power turns off automatically after about 15 second.	• Wait until the temperature drops or replace the battery. • If the error persists, please contact the local dealers in your area.
Rec Inhibited	[REC] button is pressed when the write-protect switch of the SD card is set.	Turn off the write-protect switch of the SD card, or insert a recordable SD card. (☞ P33 [SD Card])
Lost Media Info *	• Card is removed while recording is in progress. • Card is removed while formatting is in progress. • Card is removed while restoring is in progress. • Card is removed while adding the OK mark. • Card is removed while writing a setup file. • Card is removed while deleting a clip. (*: A, B)	Restore the card using this camera recorder. (☞ P36 [Restoring the SD Card])
Record Format Incorrect	• Video format of the file for Clip Review is different from the [Frame & Bit Rate] setting of the camera recorder.	Set [Resolution] and [Frame & Bit Rate] correctly. (☞ P103 [Resolution]) (☞ P103 [Frame & Bit Rate])
Media Full	• [REC] button is pressed when the media in use has no remaining space. • Remaining space ran out during recording.	Replace the SD card with a new one.

Others

Error Message	Status	Action
No Clips	No viewable clips are found on the card for Clip Review.	Insert an SD card that contains clips that can be reviewed. (☞ P33 [SD Card]) (☞ P64 [Viewing Recorded Videos Immediately (Clip Review)])
No Media	[REC] button is pressed when an SD card is not inserted.	Insert an SD card. (☞ P33 [SD Card])
No Media	No SD card is found in Media mode or when the thumbnail screen is displayed.	Insert an SD card. (☞ P33 [SD Card])
No Clips	No clips are found on the inserted SD card in Media mode or when the thumbnail screen is displayed.	Insert an SD card that contains playable clips. (☞ P33 [SD Card]) (☞ P74 [Playing Recorded Clips])
12h Continuation Record	The continuous recording time in AVCHD mode exceeds 12 hours and recording stops automatically.	To continue recording, press the [REC] button again.

Blinking of the Tally Lamp

The tally lamp start blinking when the remaining space on the SD card is running out during recording, or when the battery power is running low.

Blinking Mode	Remaining Battery Power/SD Card Space
Blinks slowly (once every second)	• Battery power is low • Remaining recording time on SD card is less than 3 minutes (during recording)
Blinks quickly (2 times per second)	• Remaining battery power is almost zero • Remaining recording time on SD card is zero (during recording) • Error on the camera recorder

Warning Tone

• Warning tone is output from the monitor speaker and [⌒] terminal when the battery level is low.
  Warning tone is also output when an error occurs in the camera recorder.

Memo :

• You can specify whether to turn on the warning tone as well as setting the volume in [A/V Set] ➜ [Audio Set] ➜ [Alarm Level].
  (☞ P101 [Alarm Level])

Others

Troubleshooting

Symptom	Action
Power does not turn on.	• Is the AC adapter properly connected? • Is the battery charged? • Is the power turned on immediately after it is turned off? Make sure to wait for an interval of at least 5 seconds before turning on the power again.
Unable to start recording.	• Is the record trigger button/lock switch on the handle turned on? • Is the write-protect switch of the SD card turned on? Make sure that the write-protect switch is turned off. (☞ P33 [Write-Protect Switch on the SD Card]) • Is the camera recorder set to the Camera mode? Use the [MODE] selection button to switch to the Camera mode. (☞ P12 [Operation Modes]) • Is the SD card inserted compatible with the recording format? (☞ P40 [Selecting a Video Format]) (☞ P105 [4GB File Spanning(SDXC)])
Camera image is not output on the LCD monitor and viewfinder screen.	• Is the camera recorder set to the Camera mode? Use the [MODE] selection button to switch to the Camera mode. (☞ P12 [Operation Modes])
Playback does not start after selecting a clip thumbnail and pressing the Set button (●).	• Is the selected clip a playable clip? Playback is not possible if the clip has a different video format setting.
Images on the LCD monitor and viewfinder screen appear dark or blurred.	• Readjust the brightness of the LCD monitor and viewfinder. • Is the iris closed? • Is the shutter speed setting too high? • Is the amount of peaking too little? Use the [PEAKING +/-] button to adjust the contour for the LCD monitor and the viewfinder screen. (☞ P30 [Adjusting the LCD Monitor]) (☞ P31 [Adjusting the Viewfinder])
The [CH1/CH2] recording level adjustment knob does not work.	• Is the [CH1/CH2 AUTO/MANUAL] switch set to "AUTO"? • Is the [FULL AUTO ON/OFF] switch set to "ON"? Is the [FULL AUTO ON/OFF] switch set to "ON", and [A/V Set] ➜ [Audio Set] ➜ [Audio On FULL AUTO] set to "Auto"? (☞ P101 [Audio On FULL AUTO])
SD card cannot be initialized (formatted).	• Is the write-protect switch of the SD card turned on? Make sure that the write-protect switch is turned off. (☞ P33 [Write-Protect Switch on the SD Card])
Battery alarm appears even after loading a charged battery.	• Is the battery too old?

Others

Symptom	Action
The time code and user's bit are not displayed.	• Even in Camera mode or Media mode, the time code and user's bit may not be displayed depending to the type of display. • Is [LCD/VF] ➡ [Display Settings] ➡ [TC/UB] set to "Off"? To display the time code or user's bit, set it to "TC" or "UB". (☞ P96 [TC/UB])
The date and time are not displayed.	• The date and time are only displayed on the Display 1 and Display 2 screens in the Camera mode (during shooting). (☞ P110 [Display Screen in Camera Mode]) • Is [System] ➡ [Record Set] ➡ [Time Stamp] set to "On"? To display the date and time, set it to "Off". (☞ P105 [Time Stamp])
Incorrect display on the viewfinder.	• Is the LCD monitor used with [LCD/VF] ➡ [LCD + VF] set to "Off"? (☞ P94 [LCD + VF])
The actual recording time is shorter than the estimated time.	• The recordable time may be shorter depending on the shooting conditions or the subject.
The two camera recorders are not synchronized even though the time codes have been synchronized. (🄛 on the Slave device is not displayed.)	• Is the [TC IN/OUT] switch correctly set? (☞ P62 [Synchronizing Time Code on Another Camera]) • Set [System] ➡ [Record Set] ➡ [Record Format] ➡ [Frame & Bit Rate] such that the two camera recorders have the same frame rate. (☞ P103 [Frame & Bit Rate])

Others

Specifications

General

Item	Description
Power	DC 12 V
Power consumption	Approx. 6 W (When recording in the factory default settings using the viewfinder.)
Mass	Approx. 1.7 kg (When battery is not installed)
Allowable operating temperature	0 °C to 40 °C
Allowable operating humidity	30 %RH to 80 %RH
Allowable storage temperature	-20 °C to 50 °C
Dimensions (W × H × D)	177.5 mm × 197 mm × 416 mm

Terminal Section

Item	Description
[HDMI] output terminal (Type A)	V1.4-compliant
[INPUT1/INPUT2] terminal	
[MIC]	-50 dBu, 3 kΩ, XLR (balanced), +48 V output (phantom power supply)
[LINE]	+4 dBu, 10 kΩ, XLR (balanced)
[AUX] terminal	-22 dBu, 10 kΩ, 3.5 mm stereo mini jack (unbalanced)
[AV] terminal	Φ3.5 mm 4-pin mini jack
Video signal	1.0 V (p-p)
Audio signal	-8 dBu (during reference level input), 1 kΩ (unbalanced)
[Ω] terminal	Φ3.5 mm mini jack (stereo)
[REMOTE] terminal	Φ2.5 mm mini jack (stereo)
[⚡] terminal	
[DEVICE]	Mini USB-B type, USB 2.0, slave function (mass storage class) only
[TC] terminal	
[IN]	1.0 V (p-p) to 4.0 V (p-p) high impedance
[OUT]	2.0 ± 1.0 V (p-p) low impedance
[DC] terminal	DC jack (for the supplied AC adapter)

Lens Section

Item	Description
Lens	F1.2, f=3.76 mm to 37.6 mm (Conversion to 35 mm camera format: f = 29.9 mm to 586 mm: dynamic zoom)
Filter diameter	Φ46 mm

Camera Section

Item	Description
Image pickup device	1/2.3-inch Progressive CMOS
Gain	0dB, 3dB, 6dB, 9dB, 12dB, 15dB, 18dB, 21dB, 24dB, Lolux, AGC
Electronic shutter	1/6.25 to 1/10000, EEI
LCD monitor	3.5-inch LCD, 16:9, 920K pixels
Viewfinder	0.24-inch LCOS, 16:9, 1.56M pixels

Storage Section

Item	Description
Supported media	SDHC/SDXC
Slots	x 2

Others

Video/Audio

Item	Description
Recording time	Approx. 25 minutes (8 GB SD card, 35 Mbps, VBR mode)
HD mode (MOV/MP4: MPEG-2)	

Video recording file format		QuickTime File Format (For Final Cut Pro)/MP4 File Format
Video		
	HQ mode	MPEG-2 Long GOP VBR, 35 Mbps (Max) MP@HL, 1920x1080/59.94i, 50i 1440x1080/59.94i, 50i 1280x720/59.94p, 50p
	SP mode	MPEG-2 Long GOP CBR 25 Mbps MP@H14 1440x1080/59.94i, 50i
Audio		LPCM 2ch, 48 kHz/16 Bit

HD mode (AVCHD)

Recording file format		AVCHD File Format
	Video	MPEG-4 AVC/H.264
	Audio	Dolby Digital 2ch, 48 kHz/16 Bit, 256 kbps
HQ Mode (Progressive)		1920x1080/59.94p, 50p 28 Mbps (Max)
HQ mode		1920x1080/59.94i, 50i 24 Mbps (Max)
SP mode		1920x1080/59.94i, 50i 18 Mbps (Max)
LP mode		1440x1080/59.94i, 50i 9 Mbps
EP mode		1440x1080/59.94i, 50i 5 Mbps

HD mode (MOV: H.264)

Video recording file format		QuickTime File Format
Video		
	XHQ Mode	MPEG-4 AVC/H.264, 50 Mbps (Max) 1920×1080/59.94p, 59.94i, 50p, 50i
	UHQ Mode	MPEG-4 AVC/H.264, 35 Mbps (Max) 1920x1080/59.94i, 50i
Audio		LPCM 2ch, 48 kHz/16 Bit

Item	Description
SD mode (MOV: H.264)	

Video recording file format	QuickTime File Format
Video	MPEG-4 AVC/H.264, 8 Mbps 720x576/50i
Audio	LPCM 2ch, 48 kHz/16 Bit

Accessories

Accessories	
INSTRUCTIONS (BASIC)	1
AC Adapter	1
Power Cord	1

Others

Dimensional Outline Drawing (Unit: mm)

* The specifications and appearance of this product are subject to changes for further improvement without prior notice.

Others

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Others

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① Turn on the power.
② Press the [MENU/THUMB] button.
③ Select [Main Menu] ➝ [System] ➝ [System Information] ➝ [Open Source License].

Others

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