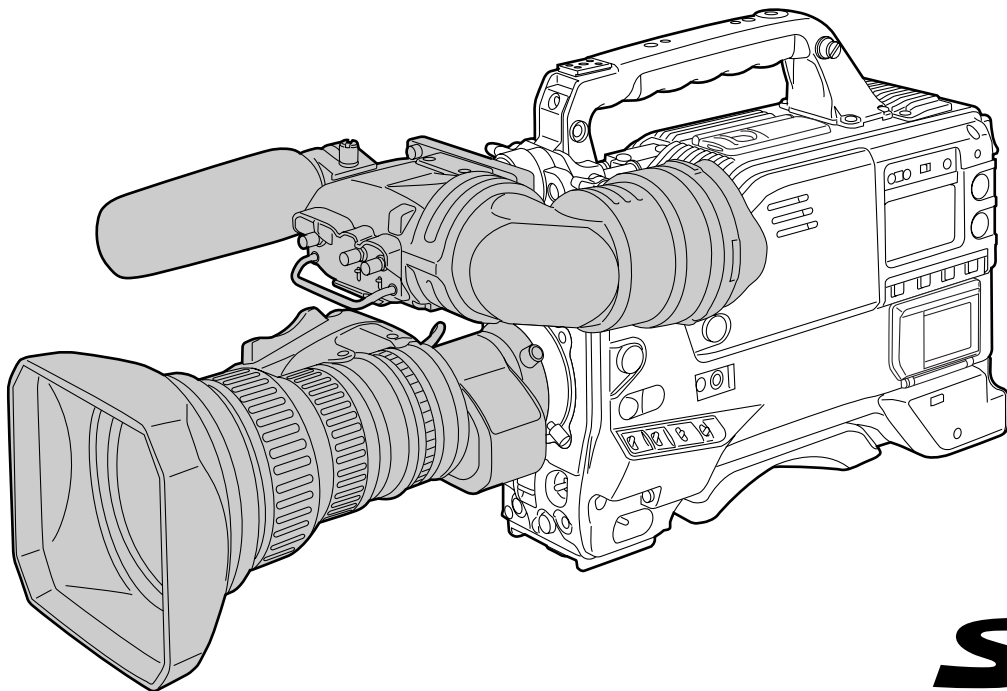# Panasonic®

Operating Instructions

Camera-Recorder

Model No. AJ-HDX900PE

DVCPRO HD

EX

SD™

Before operating this product, please read the instructions carefully and save this manual for future use.

ENGLISH

VQT0X86

Read this first! (For AJ-HDX900P)

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER TO SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (service) instructions in the literature accompanying the appliance.

WARNING:
- **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**
- **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, KEEP THIS EQUIPMENT AWAY FROM ALL LIQUIDS. USE AND STORE ONLY IN LOCATIONS WHICH ARE NOT EXPOSED TO THE RISK OF DRIPPING OR SPLASHING LIQUIDS, AND DO NOT PLACE ANY LIQUID CONTAINERS ON TOP OF THE EQUIPMENT.**

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

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

Warning:
To assure continued FCC emission limit compliance, the user must use only shielded interface cables when connecting to external units. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate it.

⬜ indicates safety information.

A rechargeable battery that is recyclable powers the product you have purchased.

<For USA-California Only>
This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply.
See www.dtsc.ca/gov/hazardouswaste.perchlorate.

Caution regarding laser beams
The CCD may be damaged if it is subjected to light from a laser beam.
When using the camera-recorder in locations where laser irradiation equipment is used, be careful not to allow the laser beam to shine directly on the lens.

Read this first! (For AJ-HDX900E)

■ **DO NOT REMOVE PANEL COVERS BY UNSCREWING THEM.**
To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside.
Refer servicing to qualified service personnel.

CAUTION:
TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

WARNING:
● **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.**
● **TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, KEEP THIS EQUIPMENT AWAY FROM ALL LIQUIDS. USE AND STORE ONLY IN LOCATIONS WHICH ARE NOT EXPOSED TO THE RISK OF DRIPPING OR SPLASHING LIQUIDS, AND DO NOT PLACE ANY LIQUID CONTAINERS ON TOP OF THE EQUIPMENT.**

☐ indicates safety information.

Caution regarding laser beams
The CCD may be damaged if it is subjected to light from a laser beam.
When using the camera-recorder in locations where laser irradiation equipment is used, be careful not to allow the laser beam to shine directly on the lens.

Read this first! (For AJ-HDX900E)

Attention/Attentie

- Batteries are used for the main power source and memory back-up in the product.
  At the end of their useful life, you should not throw them away.
  Instead, hand them in as small chemical waste.
- Voor de primaire voeding en het reservegeheugen van het apparaat wordt gebruikgemaakt van een batterij.
  Wanneer de batterij is uitgeput, mag u deze niet gewoon weggooien, maar dient u deze als klein chemisch afval weg te doen.
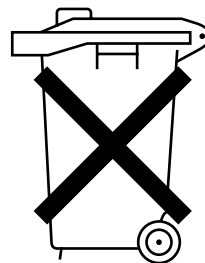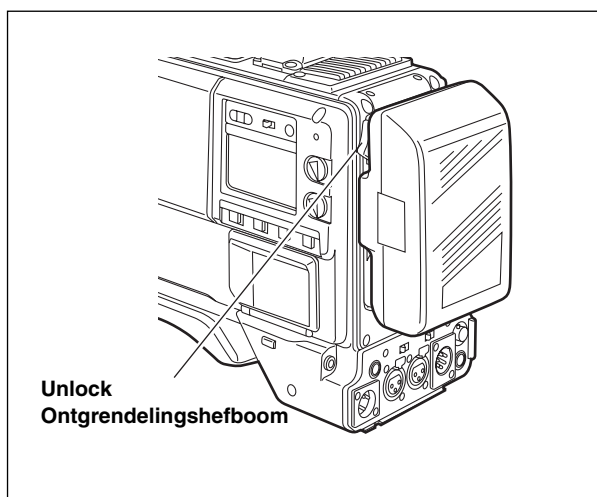
To remove the battery/Verwijderen van de batterij

Main Power Battery (Ni-Cd Battery)
Batterij Voor Primaire Voeding (Nikkelcadmiumbatterij)

Anton/Bauer Battery
Anton/Bauer-Batterij

Unlock
Ontgrendelingshefboom

- **If a battery made by any other manufacturer is to be used, check the Operating Instructions accompanying the battery.**
- **In geval u een batterij van een anden fabrikant zou gebruiken, gelieve dan eerst zorgvuldig de gebruiksaanwijzing van deze batterij te lezen.**

Back-up Battery (Lithium Battery)
Batterij Voor Reservegeheugen (Lithiumbatterij)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.
- Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.

4

Contents

Contents (continued)

Chapter 1 General

The AJ-HDX900 is a video camera-recorder that integrates an HD camera part equipped with a progressive scan (full pixel reading) 3-CCD camera unit featuring a 2/3-inch on-chip lens with a VTR that in turn supports the DVCPRO HD EX format. The progressive scan CCD produces high quality pictures with superior image expression.

The unit is both compact and lightweight, with minimal power consumption. Featuring high picture quality and sensitivity, the camera-recorder has excellent mobility and effectively withstands dust, humidity, and moisture. With many other superior functions, the unit is the optimum camera-recorder for production.

1-1 Features of the camera unit

● **Multi-format**

The unit supports the following video systems by driving the CCD progressively. (Refer to page 30)

Video system	Recording format
1080-59.94i	1080-59.94i
1080-29.97P	
1080-23.98P	1080-59.94i (2-3 Pull-down)
1080-23.98PA	1080-59.94i (2-3-3-2 Pull-down)
1080-50i	1080-50i
1080-25P	
720-59.94P	720-59.94P
720-29.97P	
720-23.98P	
720-50P	720-50P
720-25P	

● **Storage type high-sensitivity function (DS. GAIN)**

The unit uses the storage type gain increase function by driving the CCD progressively. With this function, it is possible to obtain brighter pictures without increasing noise under low light conditions.

This is a function that makes it possible to achieve higher sensitivity of up to 20 dB above the regular gain increase. Furthermore, this function can also be used as picture effects.

● **14-bit A/D conversion digital signal processing**

Analog video signals are processed into digital data by a 14-bit A/D converter with sampling frequencies of 74 MHz. It is possible to reproduce images that are more finely detailed.

● **Film-like Gamma function**

The unit employs three types of film-like gamma to easily obtain film tones accumulated through Varicam (AJ-HDC27 series), so that a wide range of image impressions can be reproduced for production. (Refer to page 113)

● **Y-get function**

By allocating functions to USER button, it is possible to measure the subject's video level easily. The lens aperture can be adjusted precisely for appropriate pictures. (Refer to page 62)

● **Lens file function**

The unit has 8 lens files.

By using an SD memory card, 64 lens files can be stored. (Refer to page 74)

● **Data management function**

Within the unit, one user data file and four sets of scene file data can be saved.

By using an SD memory card as the setup cart, up to eight sets of setup data can be stored. (Refer to page 64)

● **Color bar**

The unit employs the SMPTE color bar, ARIB color bar, Split color bar for SNG (Satellite News Gathering) as well as the conventional color bar, which is useful for adjusting the color monitor. (Refer to page 121)

● **DRS (Dynamic Range Stretcher) function**

The dynamic range can be streched by compressing the video signal level of a part with high brightness where white-color-skipping phenomena occur during ordinary shooting. (Refer to page 62)

1-2 Features of the VTR unit

● **DVCPRO HD EX format system**
The VTR unit employs the DVCPRO HD EX recording format.
Using the latest compression technology, it achieves two times the economy of the conventional DVCPRO HD format.

● **PRE RECORDING function provided as a standard configuration**
The VTR unit employs the PRE RECORDING function as the standard configuration.
Pictures and voices of up to 7 seconds prior to pressing the VTR REC button can be recorded. (Refer to page 26)

● **Interval REC function and ONE-SHOT Recording function provided as a standard configuration**
The VTR unit employs the Interval REC function and the ONE-SHOT Recording function as the standard configuration.
With memory control, this unit makes it possible to record in intervals with a minimum recording time in increments of one frame.
This is particularly useful for shooting science and nature programs.
Furthermore, when the unit is used for one-shot recording, frame-by-frame shooting is easily accomplished.
(Refer to page 27)

● **Valid frame information**
The VTR unit supports multiple formats.
For low frame rates, valid frame information is recorded in the user bits etc.
When HD SDI signals are output, valid frame information is also output. (Refer to page 39)

● **Input signals from four separate audio channels**
The unit enables audio input signals from four channels to be selected separately. Further, the level of the signal in each channel can be monitored on the LCD display window. (Refer to page 12)

● **Built-in DOLBY NR**
The CUE audio recording circuitry contains a DOLBY B noise reduction circuit.

● **Unislot wireless receiver**
The unit's construction supports a slot-in wireless receiver, which is available as an optional accessory.
(Refer to page 86)

1-3 Features of the Input/Output unit

● **DVCPRO (IEEE1394) output provided as a standard configuration**
By connecting the non-linear editor to the DVCPRO output connector, it is possible to shoot and edit at the same time to improve mobility.
However, control signals and video/audio signals from devices connected to the DVCPRO connector cannot be received. (Refer to page 16)

● **Two-system output of HD SDI signals provided**
HD SDI outputs are provided independently for Video output and Monitor output.
Since it is possible to turn ON/OFF characters and markers independently for the respective outputs, it can be used fro video monitoring by video creators or recording on hard disks.
On the HD SDI output, the embedded audio and the time code overlap. (Refer to page 31)

● **Down converter output provided as a standard configuration**
The video output can be switched between HD SDI signals and down converter output signals (analog composite signals).
It is optimum for confirming shot images on the SD monitor. (Refer to page 31)

● **SD SDI output provided as a standard configuration**
The video output can be switched between HD SDI signals and down converter output signals (serial digital component signals).
It is optimum for confirming shot images on the SD monitor.
On the SD SDI output, the embedded audio overlap.
(Refer to page 31)

● **Remote control connector**
By connecting the remote control unit (AJ-RC10G), which is available as an optional accessory, the unit can be controlled remotely. (Refer to page 89)

● **Confirmation of return video signals**
It is possible to confirm the return video signals (analog HD-Y signals) supplied to the GENLOCK IN connector of this unit in the viewfinder to confirm programs.
(Only video signals from the same video system can be confirmed.)
(Refer to page 121)

● **DC OUT connector**
The DC OUT connector of the unit produces 1.5 A of electrical current.
By connecting an external switch to this connector, it is possible to control REC start/stop.
Since a tally lamp can be used by connecting the LED to this connector, it is useful for shooting video when fixing the camera on a crane. (Refer to page 89)

1-4 Other features

● **Single action shoulder pad slide function**
It is now possible to adjust the position where the unit is optimally balanced for operation using a single-touch action. This means that the operator can easily optimize the unit's balance when the lens, battery, and other peripheral camera devices have been installed on the unit. (Refer to page 88)

● **Viewfinder connection**
From the viewfinder connector of the unit, 1080-59.94i or 1080-50i signals are output.
Furthermore, signals are output for switching the frequencies of the connected viewfinder.
Confirm images in multi formats by connecting the viewfinder (AJ-HVF21G), which is available as an optional accessory. (Refer to page 50)

● **User button**
On the side panel of the unit, three user buttons are available.
For the respective buttons, it is possible to allocate functions that are used frequently. (Refer to page 62)

1-5 Dimensions drawing

Unit: mm (inch)

1-6 System configuration

```
Microphone kit:
AJ-MC900G

UniSlot wireless
microphone receiver:
Sennheiser EK3041

Remote control unit:
AJ-RC10G

2-inch electronic HD
viewfinder:
AJ-HVF21G
(Mic holder provided)

Microphone holder:
AJ-MH800G

Lens
(Bayonet type):
Fujinon, Canon

GPS unit:
AJ-GPS900G
(This unit is not
available in European
region.)

Rain cover:
SHAN-RC700

Soft carrying case:
AJ-SC900
(not available in some
area.)

Hard carrying case:
AJ-HT901G

Tripod adapter:
SHAN-TM700

Camera-Recorder:
AJ-HDX900

Battery

PROPAC14, TRIMPAC14,
HYTRON50/100/120,
DIONIC90/100/160

V-mount type battery plate    ENDURA7/10, BP-GL65/95

NP-1 type battery holder    NP-L7

External DC
power supply

Cleaning tape:
AJ-CL12MP

SD memory card

M Cassette tapes:
AJ-HP23EMG
AJ-HP33EMG
```

<Note>
All of the devices and accessories other than the unit, which are shown in this system configuration, are optionally available. To use these devices and accessories, refer to the respective operation manuals.

Chapter 2 Parts and their functions

2-1 Power supply and accessory mounting section
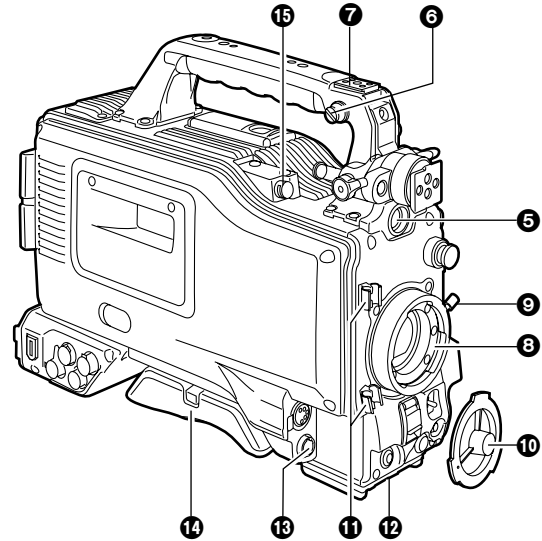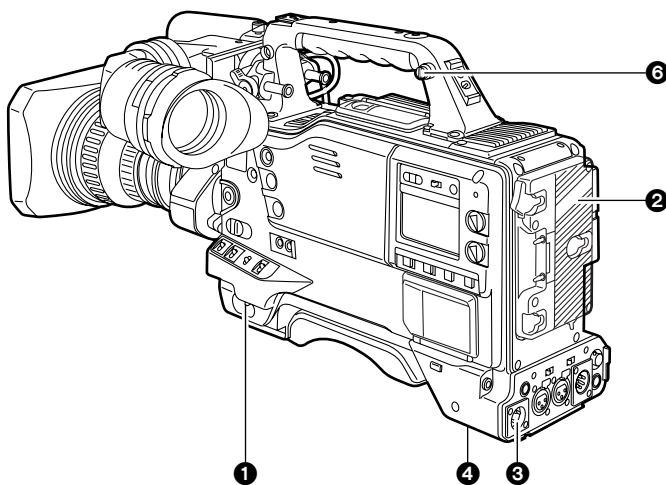
❶ POWER switch
This switch turns the power ON and OFF.

❷ Battery mount
This is for attaching the Anton/Bauer battery pack.

❸ DC IN (external power input) socket (XLR, 4-pin)
This unit is connected to an external DC power supply.

❹ BREAKER switch
If an excessively high current flows inside the unit due to some problem or other, the circuit breaker is tripped and the power is automatically turned off to protect the unit.
Push this button in after an inspection has been conducted or repairs performed inside the unit by a qualified service person. If there are no problems, the power will come back on.

❺ VF connector
Viewfinder AJ-HVF21G (optional accessory) is connected here.
Insert the connector for the viewfinder firmly until it clicks.

❻ Shoulder belt fittings
The shoulder belt is attached here.

❼ Light shoe
Use this to attach the video light, etc.

❽ Lens mount (bayonet type)
The lens is attached to this mount.

❾ Lens lever
This lever is tightened to secure the lens after it has been attached to the lens mount.

❿ Lens mount cap
To remove the cap, push the lens lever ❾ up.
Keep the cap in place while the lens is not attached.

⓫ Lens cable/microphone cable clamp
This clamp is for anchoring the lens cable or microphone cable.

⓬ Tripod mount
Mount the tripod adapter (SHAN-TM700), available as an optional accessory, when the unit is to be anchored to a tripod.

⓭ LENS jack (12-pin)
The connecting cord of the lens is connected to this jack. For further details on the lenses that can be used, refer to the operating instructions of the lenses concerned.

⓮ Easy-to-adjust shoulder pad
The position of the shoulder pad can be adjusted backward or forward so that the unit is balanced when it is carried on the user's shoulder.

⓯ GPS connector
GPS unit AJ-GPS900G (optional accessory) is connected here.
(GPS unit AJ-GPS900G is not available in Europe region.)

2-2 Audio function section (input system)
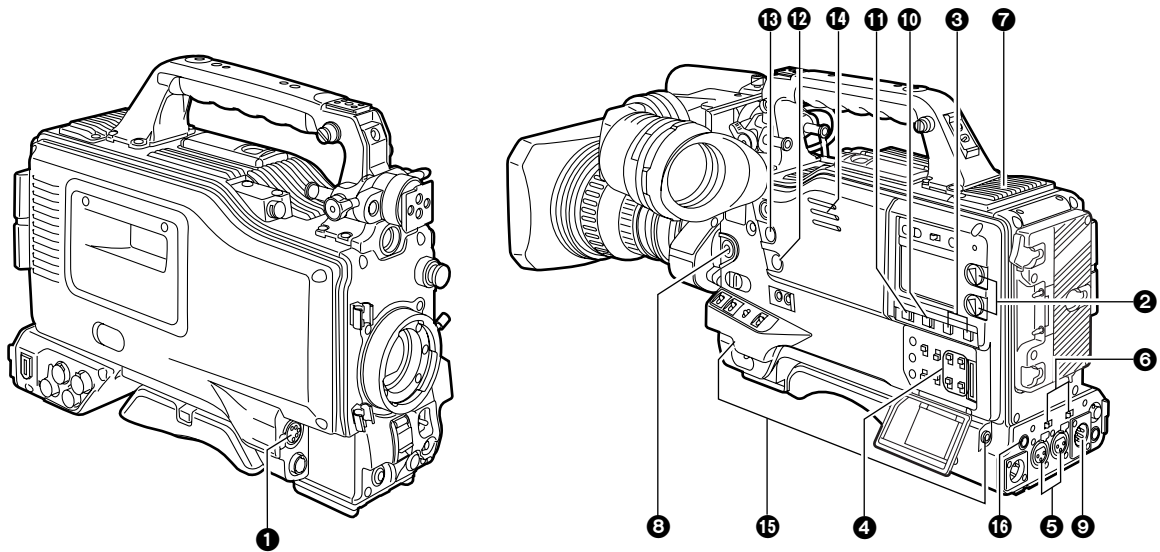
❶ MIC IN (microphone input) jack (XLR, 5-pin)
Connect the microphone (optional accessory) here. The power for the microphone is supplied from this jack.
<Note>
Components of 150 Hz are removed from the signals input from this connector.

❷ AUDIO LEVEL CH1/CH2 (audio channel 1 & 2 recording level adjustment) controls
When the AUDIO SELECT CH1/CH2 switch ❸ is set to MAN, the recording level of audio channels 1 and 2 can be adjusted using these controls.
The controls come with a locking mechanism. Therefore, to adjust the recording level, simultaneously push in and turn the controls.

❸ AUDIO SELECT CH1/CH2 (audio channel 1 & 2 automatic/manual level adjustment selector) switch
This is used to select the method for adjusting the recording levels of audio channels 1 and 2.
AUTO : Set here for automatic adjustment.
MAN   : Set here for manual adjustment.

❹ AUDIO IN (audio input selector) switch
These are used to select the input signals to be recorded on audio channels 1 and 2.
FRONT :
The input signals supplied from the microphone which has been connected to the MIC IN jack ❶ are recorded.
W.L. (wireless) :
The input signals from the slot-in wireless microphone receiver are recorded.
REAR :
The audio input signals supplied from the audio component which has been connected to the AUDIO IN CH1/CH2 connectors ❺ are recorded.
<Note>
When you use stereo microphone (AJ-MC900G optional), set both CH1 and CH2 to [FRONT]. The signal from L CH is recorded to CH1 and that from R CH to CH2.

❺ AUDIO IN CH1/CH2 (audio input channel 1 & 2) connectors (XLR, 3-pin)
An audio component or microphones are connected here. This unit does not support AES/EBU signals.

❻ LINE/MIC/+48V (line input/mic input/mic input + 48V) selector switch
This is used to switch the audio input signals from the audio component which has been connected to the AUDIO IN CH1/CH2 connectors ❺.
LINE : The audio input signals from the audio component serving as the line input are selected.
MIC : The audio input signals from the internal power supply type of microphone are selected. (The phantom mic power is not supplied from the unit.)
+48V : The audio input signals from the external power supply type of microphone are selected. (The phantom mic power is supplied from the unit.)

❼ Wireless receiver slot
The UniSlot wireless receiver (optional accessory) can be attached here.

❽ FRONT AUDIO LEVEL (audio recording level adjustment) control
This enables the recording level of audio channels 1 and 2 to be adjusted.
However, when the AUDIO SELECT switch is set to the AUTO position, the audio recording level is automatically adjusted.
When the <MIC/AUDIO1> screen is opened from the VTR MENU page by performing a menu operation, whether to enable or disable the operation of this level control can be set using the FRONT VR CH1 and FRONT VR CH2 setting items.

2-2 Audio function section (output system)

⑨ AUDIO OUT connector (XLR, 5-pin)
The audio signals recorded on audio channels 1 and 2 or audio channels 3 and 4 are output from this connector.
The signals to be output can be selected using the MONITOR SELECT CH1/2 ● CH3/4 selector switch ⑩.

⑩ MONITOR SELECT (audio channel) CH1/2 ● CH3/4 selector switch
This is used to select the audio channels whose signals are to be output to the speaker, earphone and AUDIO OUT connector.
CH1/2 : The signals of audio channels 1 and 2 are output.
CH3/4 : The signals of audio channels 3 and 4 are output.
In addition, the channel indications for the audio level meters appearing in the display window and viewfinder change when this switch is operated.

⑪ MONITOR SELECT (audio selection) CH1/3 ● ST ● CH2/4 selector switch
This is linked with the MONITOR SELECT CH1/2 ● CH3/4 selector switch ⑩ and used to select the sound which is to be output from the speaker, earphone and AUDIO OUT connector.
CH1/3 : The signals of audio channel 1 or 3 are output.
ST   : The stereo audio signals of either audio channels 1 and 2 or audio channels 3 and 4 are output. Using a menu setting, the stereo signals can be changed to MIX signals.
CH2/4 : The signals of audio channel 2 or 4 are output.

	MONITOR SELECT CH1/2 ● CH3/4 selector switch	
	CH1/2	**CH3/4**
CH1/3	Audio channel 1	Audio channel 3
ST	Stereo✳ signals of audio channels 1 and 2	Stereo✳ signals of audio channels 3 and 4
CH2/4	Audio channel 2	Audio channel 4

✳ Either STEREO or MIX can be selected as the setting for the MONITOR SELECT item by opening the <MIC/AUDIO2> screen from the VTR MENU page by performing a menu operation.

⑫ MONITOR (volume) control
This is used to adjust the volume of the monitor speaker or earphone.

⑬ ALARM (warning alarm volume adjustment)
This is used to adjust the volume of the warning alarms from the earphones which have been connected to the speaker ⑭ or PHONES jack ⑮.
The warning alarms are not audible when this control is at its lowest setting.

⑭ Speaker
The EE sound during recording or the playback sound during playback can be monitored through this speaker.
The warning alarms are output in synchronization with the flashing or lighting of the warning lamps and warning displays.
The sound heard from the speaker is automatically cut off when earphones are connected to the PHONES jack ⑮.

⑮ PHONES (earphones) jack (mini jack)
This is the earphone (stereo) jack which is used to monitor the audio signals. When earphones are connected, the sound from the speaker is automatically cut off. The sound which is output from the two jacks (front and rear) is the same.

⑯ DC OUT (DC power supply) output connector
This normally serves as the DC 12 V output connector. A current of approximately 1.5 A can be supplied.

It is possible to control REC start/stop by connecting an external switch to this connector.
Since a tally lamp can also be used by connecting an LED to this connector, it is useful for shooting video when fixing the camera on a crane.
For details, see "5-11 Connection of the external switch."

2-3 Shooting and recording/playback function section
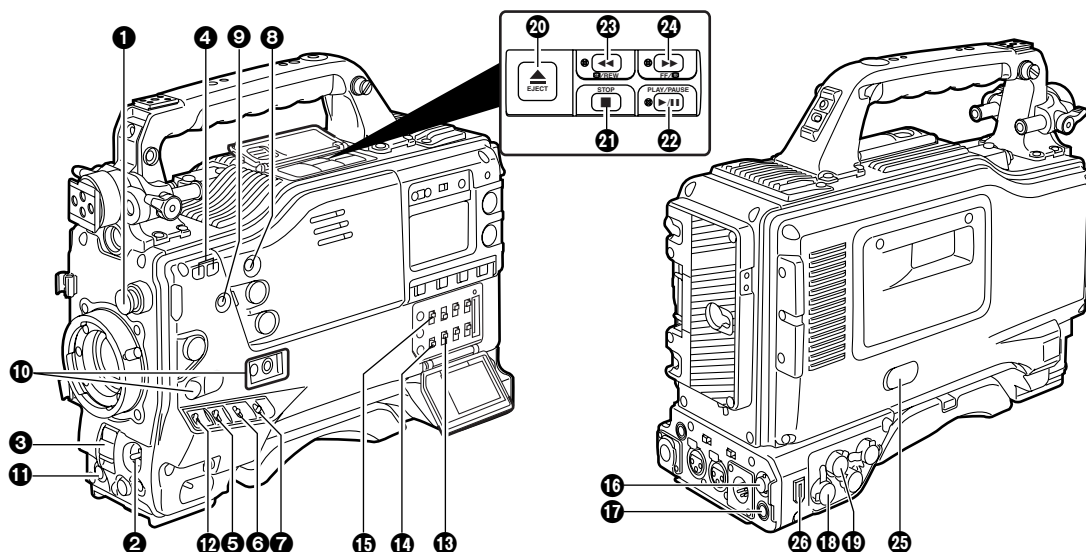
Shooting and recording (camera unit)

❶ CC FILTER/ND FILTER (filter switching) controls

These are used to select the filter in accordance with the subject's brightness and color temperature.

CC FILTER knob (outside, large diameter)

A: Cross filter   B: 3200 K
C: 4300 K   D: 6300 K

ND FILTER knob (inside, small diameter)

1: CLEAR (transparent)   2: 1/4 ND
3: 1/16 ND   4: 1/64 ND

■ Examples of filter selection

Shooting conditions	CC filter	ND filter
Sunrise, sunset, inside a studio	B (3200 K)	1 (CLEAR)
Outdoors under a clear sky	C (4300 K) or D (6300 K)	2 (1/4 ND) or 3 (1/16 ND)
Outdoors under cloudy or rainy skies	D (6300 K)	1 (CLEAR) or 2 (1/4 ND)
Snowscapes, high mountains, seashores or other perfectly clear scenery	C (4300 K) or D (6300 K)	3 (1/16 ND) or 4 (1/64 ND)

❷ AUTO W/B (white/black) BAL switch

AWB : The white balance is automatically adjusted. When the WHITE BAL switch on the side panel is set to A or B and then the AUTO W/B BAL switch is operated, the adjustment value is recorded in the memory.

Note that the unit does not operate when the switch is in PRST position.

ABB : The black balance is automatically adjusted.

If the AUTO W/B BAL switch is held down at the ABB position for 8 or more seconds, the black shading is compensated automatically.

For details, refer to "4-2 Adjusting the white balance and black balance."

<Note>

When white balance or black balance are being automatically adjusted and the switch is pressed again to either the AWB side or to the ABB side, the automatic adjustment for the side pressed will be stopped.

The adjusted value in this case is the value before automatic adjustment was performed.

❸ SHUTTER switch

This is the ON/OFF selector switch of the electronic shutter.

OFF : The electronic shutter does not operate.

ON : The electronic shutter operates.

SEL : This is used when the electronic shutter speed is to be changed.

The switch is a non-locking type. The shutter speed changes each time it is operated. For further details, refer to "4-3 Setting the electronic shutter."

❹ Synchro scan adjustment switches

These switches become effective when the shutter switch ❸ is set to ON and SYNCHRO SCAN is selected. They are used to adjust the synchro scan speed.

When the "–" switch is pressed, the shutter speed is reduced; conversely, when the "+" switch is pressed, it is increased.

During personal computer monitor shooting, etc. adjust these switches to the positions where the horizontal bar noise inside the viewfinder is decreased.

❺ GAIN selector switch

This is used to select the gain of the video amplifier in accordance with the lighting conditions prevailing at the time of the shooting. The gain values for the L, M and H settings are set ahead of time on the setting menu. Their factory settings are 0 dB, 6 dB and 12 dB, respectively.

2

❻ **OUTPUT/AUTO KNEE selector switch**

This switch selects the video signals which are to be output from the camera unit to the VTR unit, viewfinder and/or video monitor.

CAM. AUTO KNEE ON:

The images shot by the camera are output.
The AUTO KNEE circuit operates.

CAM. AUTO KNEE OFF:

The images shot by the camera are output.
The MANUAL KNEE circuit operates.

BARS:

Color bar signals are output.
The AUTO KNEE circuit does not operate.

AUTO KNEE function

When shooting with the level set to people or scenes against a high-brightness background, the background will be whitened out, and the buildings and scene in the background will be blurred. If the AUTO KNEE function is activated at times like this, the background will be reproduced clearly. This function is effective for shooting in the following situations:

● When shooting people in the shade under a clear sky
● When simultaneously shooting people in a car or indoors and the outside scenery through a window
● When shooting scenes with a strong contrast

---

❼ **WHITE BAL (white balance memory selector) switch**

This is used to select the method used to adjust the white balance.

PRST:

Set the switch to this position at times when, for instance, there is no time to adjust the white balance. The factory setting for the white balance is 3200K, but this can be changed to any other value by a menu setting. For details, refer to "4-9-4 Setting the color temperature manually."

A or B:

When the AUTO W/B BAL switch ❷ is set to AWB, the white balance is automatically adjusted, and the adjusted value is stored in memory A or memory B. For details, refer to "4-2-1 Ajusting the white balance."

❽ **MODE CHECK button**

Each time this button is pressed, one of the four screen pages (STATUS screen display, !LED screen display, FUNCTION screen display and AUDIO screen display) is selected and displayed on the viewfinder to indicate the camera's settings.

This does not affect the output signals of the camera.

❾ **MARKER SELECT button**

This is used to select the marker information displays on the viewfinder screen. Each time it is pressed, the two marker information display screens set by the menu are switched in the following sequence: A (A marker display) ➧ B (B marker display) ➧ OFF (no marker display) ➧ A, and so on repeatedly. Note that when the power is switched ON, the display on the viewfinder screen immediately before the power was switched OFF will appear.

For details, refer to "4-7-8 Marker check screen displays."

❿ **USER MAIN, USER 1 and USER 2 buttons**

A user setting can be allocated to each of these buttons using the setting menu. When a button is pressed, the user setting mode allocated to it is selected.

When the button is pressed again, the selected mode is released.

For details, refer to "4-8-4 Allocating functions to the USER MAIN, USER1 and USER2 buttons."

Shooting and recording (VTR unit)

⓫ **REC START button**

When this is pressed, recording starts; when it is pressed again, recording stops. This button functions in the same way as the lens VTR button.

⓬ **VTR SAVE/STBY (tape protection) switch**

This is used to select the power supply mode when the VTR has temporarily stopped recording (REC PAUSE mode).

SAVE: This is the tape protection mode. The cylinder is stopped in the half-loading status.
Less power is consumed than at the STBY position, and the operating time provided by the battery is prolonged.
When the switch is set to this position, the SAVE lamp inside the viewfinder lights.

STBY: When the REC START button ⓫ is pressed, recording on tape will start immediately.

<Notes>

● This unit employs the PRE RECORDING function as a standard configuration.
Images will be recorded immediately after pressing the REC START button when this switch is set to either SAVE or STBY.
However, when the switch is set to SAVE position, the length of time for operating the tape travel mechanism after stopping the recording by pressing the REC START button is slightly longer than when the switch is set to STBY position.

● When the prescribed amount of time has elapsed in the STBY mode, the unit is automatically set to the SAVE mode. To return the unit to the STBY mode, set the VTR SAVE/STBY switch to SAVE, and then again to the STBY position.

⑬ **VIDEO OUT OUTPUT SEL (output signal selection) switch**

This is used to select the signals output from the VIDEO OUT connector.

VTR : In the recording or other EE mode, the camera images are output from the connectors; in the playback mode, it is the VTR's playback signals which are output.

CAM : The camera images are output at all times.

Furthermore, the audio output signals are synchronized with the video signals as well.

For details on the video output, refer to "4-8-1 Settings of signals output from VIDEO OUT connector."

⑭ **VIDEO OUT CHARACTER switch**

This is used to control the superimposing of the characters onto the images which are output from the VIDEO OUT connector.

ON : The characters are superimposed onto the images.

OFF : The characters are not superimposed onto the images.

For details on the character types, refer to "4-8-1 Settings of signals output from VIDEO OUT connector."

⑮ **VIDEO OUT (signal switching) switch**

This switch switches the modes of output signals from the VIDEO OUT connector.

HD SDI: To output HD SDI signals

SD SDI: To output the down-converted SD SDI signals

VBS: To output the down-converted composite video signals

⑯ **VIDEO OUT connector**

This is an output connector for video signals. Video signals linked to the setting of the VIDEO OUT switch (⑬, ⑭, ⑮) are output from here.

⑰ **REMOTE (remote control) connector**

The AJ-RC10G remote control unit (optional accessory) is connected here.

⑱ **MON OUT (Monitor) connector**

This is the connector for outputting the video signal which is used for monitoring.

HD SDI signals or analog HD Y signals are output from here.

Whether characters are to be superimposed onto the images output from the VIDEO OUT connector can be selected separately using the internal menu.

For details, refer to "4-8-2 Settings for signals output from the MON OUT connector."

⑲ **GENLOCK IN connector**

The HD Y reference signal is supplied to this connector when the camera unit is to be gen-locked or the time code is to be externally locked.

Composite video signals may be input as the reference signal instead but, in this case, the H phase cannot be adjusted. Also, it is not possible to externally lock the sub carrier of the unit's down-converter output (composite video signal).

● Returned video images can be confirmed in the viewfinder screen by entering HD-Y signals.

⑳ **EJECT button**

This is pressed to insert or eject the cassette.

㉑ **STOP button**

This is pressed to stop the tape travel.

㉒ **PLAY/PAUSE button**

This is pressed to view the playback picture on the viewfinder screen or using a color video monitor. The button's lamp comes on during playback.

When it is pressed during playback, the unit is set to pause in the playback mode (PLAY PAUSE), and the button's lamp flashes. If the unit is left in the pause mode for two minutes, it automatically changes to the stop (STOP) mode.

㉓ **REW (rewind) button and lamp**

When this button is pressed during stop, the tape is reviewed at high speed. Its lamp lights at this time.

When it is pressed during playback or pause, the tape is reviewed at approximately 4 times the normal tape speed. Both the PLAY lamp and REW lamp light at this time.

During the jump operation, the REW lamp flashes.

㉔ **FF (fast forward) button and lamp**

When this button is pressed during stop, the tape is cued at high speed. Its lamp lights at this time.

When it is pressed during playback or pause, the tape is cued at approximately 4 times the normal tape speed. Both the PLAY lamp and FF lamp light at this time.

㉕ **EMERGENCY screw (inside rubber cap)**

If the cassette does not eject even when the EJECT button is pressed, use a screwdriver or similar implement to push and turn the EMERGENCY screw at the same time: this will cause the cassette to be ejected.

For details, refer to "6-3-3 Emergency eject."

26 DVCPRO connector

This is an output connector for video, voice, and data that comply with the IEEE1394 standard.

<Notes>

- It is impossible to input signals from external devices.
- Power is not supplied from the unit.
- Before proceeding to connect or disconnect the DV cable (IEEE1394), be absolutely sure to turn off the power of the units that are to be connected or disconnected using this cable.
- Before proceeding to connect the unit which uses a 6-pin type of DV connector, carefully check the shape of the connectors on the DV cable and unit. Connecting a connector upside down may damage the parts inside the camera-recorder and cause malfunctioning.
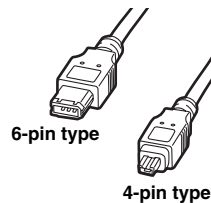
6-pin type

4-pin type

Always connect the DV cable to the unit with the 6-pin type DV connector first.
- You can connect a digital video unit equipped with a DV connector and digitally transfer video and audio signals as well as time codes and other information.
- When a DV cable has been connected to the DV connector, do not apply any strong external force as this may damage the connector.
- To control start/stop of recording operation on the external recording device connected to the DVCPRO connector using the unit, set the 1394 CONTROL item on the menu (OPTION MODE screen on the SYSTEM SETTING page) to "BOTH" (the default setting when shipped from the factory is BOTH).
- When the FireStore FS-100 is used in 1080i mode as an external recording device, set the VITC UB MODE item (TC/UB screen on the VTR MENU page) to "FRM RATE", so that the frame rates of the unit can be displayed on the display panel of the FS-100.
  If it is used in 720P mode, frame rates are not displayed properly but video images will be recorded properly.

2-4 Menu operation section
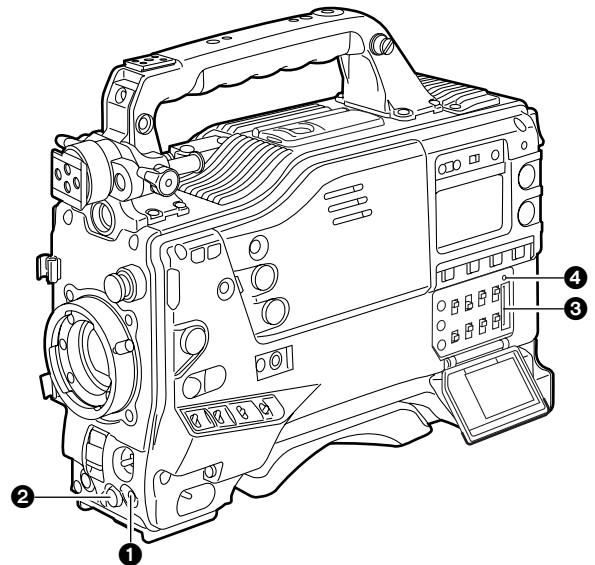
1 MENU button

This is used to switch the menu ON and OFF.

2 JOG dial button

This is used to select the menu items and perform settings when the MENU button 1 is at the ON position.

3 Setup card insertion slot

This is where the SD memory card (optional accessory) is inserted into the unit.

4 BUSY (operation mode display) lamp

This lamp shows the operation mode of the setup card. It lights during operation.

<Note>

When this lamp is lighted, refrain from inserting or removing the card.

2-5 Time code related section
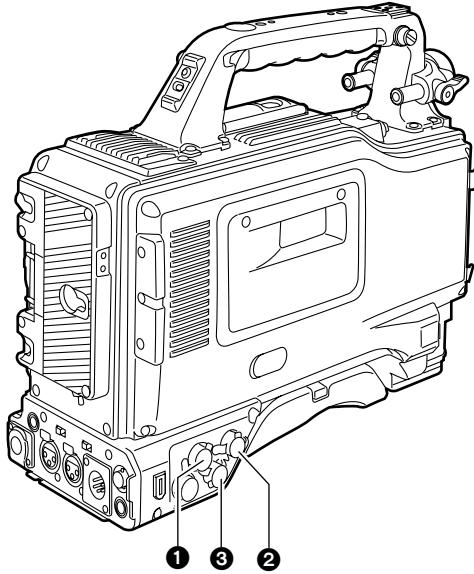
❶ GENLOCK IN connector (BNC)
The HD Y reference signal is supplied to this connector when the camera unit is to be gen-locked or the time code is to be externally locked. It is also possible to supply composite video signals instead as the reference signal.

❷ TC IN connector (BNC)
Supply the time code which will serve as the reference to this connector when externally locking the time code.
<Note>
A time code with the same format as the system mode of the unit must be input.

❸ TC OUT connector (BNC)
To lock the time code of an external VTR to the unit's time code, connect this connector to the time code input (TC IN) connector on the external VTR.

❹ HOLD button
The time data display of the counter display section which was on the screen at the moment when this button is pressed is held. (However, the time code generator keeps running.) When the button is pressed again, the hold status is released.
It is used, for instance, to find out the time code or CTL counter value at which a particular scene was shot.

❺ RESET button
This is used to reset the time data on the counter display section to "00:00:00:00." If it is pressed while the TCG switch ❾ is at the SET position, the time code data and user bits data are respectively reset to "00:00:00:00."

❻ DISPLAY switch
This is used to display the time code, CTL or user bits on the counter display section depending on the setting positions of this switch and the TCG switch ❾.
UB : The user bits are displayed.
TC : The time code is displayed.
CTL : CTL is displayed.
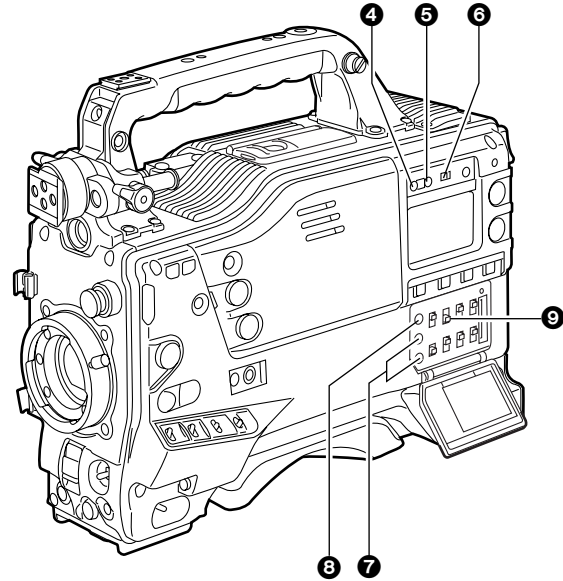
❼ "+" button, "–" button
These are used to increment or decrement by 1 the figure in the digit which was made to flash by the SHIFT button ❽ when the time code or user bits are to be set.

❽ SHIFT button
This causes the digit to be set to flash when the time code or user bits are to be set.

❾ TCG (time code selector) switch
This is used to set the running mode of the built-in time code generator.
F-RUN : Set here to have the time code run all the time regardless of the VTR's operation.
This position is used to align the time code with the time or externally lock the time code.
SET : Set here when the time code or user bits are to be set.
R-RUN : Set here to have the time code run only during recording. The time code on the tape with scene-to-scene continuity is recorded continuously.

2-6 Warning/status display section
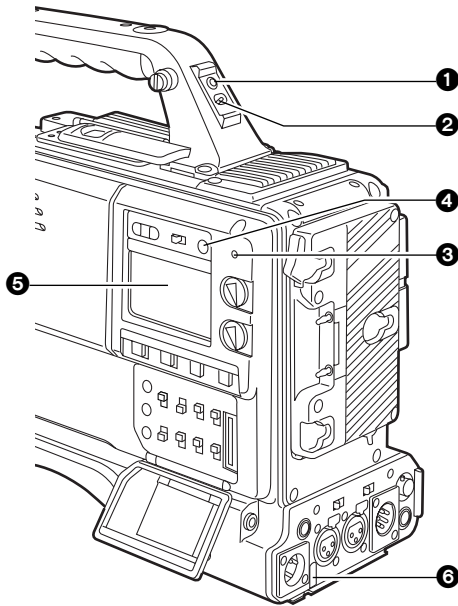
❶ Back tally lamp

When the back tally switch ❷ is set to ON, this lamp serves the same function as the front tally lamp in the viewfinder.

❷ Back tally switch

This is used to control the unit's back tally lamp ❶ and rear tally lamp ❻.

ON : The back tally lamp and rear tally lamp operate.

OFF : The back tally lamp and rear tally lamp do not operate.

❸ WARNING lamp

When a problem of some form or other occurs within the VTR unit, this lamp flashes or lights.

❹ LIGHT switch

This controls the lighting of the display window.

Each time it is pressed, the lighting of the display window ❺ is set in turn from on to off or vice versa.

❺ Display window

This displays the alarms, remaining battery charge, audio levels, time data, etc. relating to the VTR unit.

❻ Rear TALLY lamp

When the back tally switch ❷ is set to ON, this lamp operates in exactly the same way as the back tally lamp.

2-7 Display window and its displays

Remaining tape and remaining battery charge and audio channel level displays

Remaining tape display

The remaining tape time is displayed using 7 segments.

The remaining tape time indicated by each segment is set to 3 minutes or 5 minutes using TAPE REMAIN/■ on the VTR MENU "BATTERY/TAPE" screen. Each time the number of minutes set for the segments elapses, one segment is cleared.
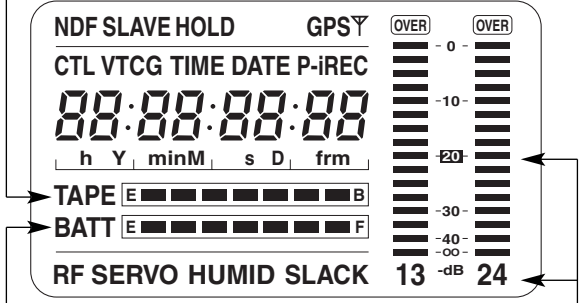
Remaining battery charge display

If a battery with a digital display (% display) is used, all 7 segments up to the "F" position light when the 70% or more of the battery charge remains.

When there is less than 70% of the battery charge remaining, the segments go out one by one in sequence every time the remaining charge drops by 10%. It is also possible to set all 7 segments to light at a 100% battery charge by selecting 100% as the setting for BATT REMAIN FULL on the <BATTERY/TAPE> screen of the VTR menu.

Audio channel level meter

When the MONITOR SELECT CH1/2 ● CH3/4 switch is set to CH1/2, numbers 1 and 2 indicating the audio channels appear, and the CH1 and CH2 audio levels are displayed. Conversely, when it is set to CH3/4, numbers 3 and 4 indicating the audio channels appear, and the CH3 and CH4 audio levels are displayed.

Displays relating to the VTR unit's operations and modes

Error code display

(for details, refer to "6-3 Warning system")
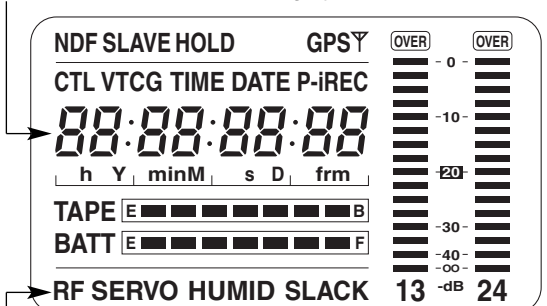
Warning displays

RF: Clogged video head

SERVO: Servo disturbance

HUMID: Formation of condensation on the head drum

SLACK: Problem in tape take-up

For details, refer to "6-3 Warning system."

Mode displays

GPS: Lights when signals cannot be received during GPS operation.

GPS ⅄ : Lights when signals are being received during GPS operation.

P-REC: Lights in pre-recording mode and flashes during the time set for pre-recording after the tally lamp for recording has turned off.

iREC: Lights during recording when the interval recording mode is established; flashes during recording standby.

i: Flashes when the interval recording mode has been selected.

```
NDF SLAVE HOLD        GPS⅄  ⟵W R    OVER
                                        - 0 -
CTL VTCG TIME DATE P-iREC ⟵
                                        - -10 -
88:88:88:88
                                        -20-
  h  Y   minM    s  D   frm
                                        -30 -
TAPE E■■■■■■■■ B
                                        -40 -
BATT E■■■■■■■■ F
                                        -∞-
RF SERVO HUMID SLACK  13 -dB 24
```

Displays relating to the time code

NDF: Lights when the time code is in the non-drop frame mode.

DF: Lights when the time code is in the drop frame mode.

SLAVE: Lights when the time code is locked externally.

HOLD: Lights when the time generator/reader value is being held.

CTL: Lights when CTL is selected by the DISPLAY switch and the CTL count value is displayed.

TCG: Lights when TC (or UB) is selected by the DISPLAY switch and the TC (or UB) generator value is displayed.

TC: Lights when TC (or UB) is selected by the DISPLAY switch and the TC (or UB) reader value is displayed.

VTCG: Lights when UB is selected by the DISPLAY switch and the VIUB generator value is displayed.

VTC: Lights when UB is selected by the DISPLAY switch and the VIUB reader value is displayed.

TIME: Lights when UB is selected by the DISPLAY switch and the values of the hour, minutes and seconds in real time are displayed.

DATE: Lights when UB is selected by the DISPLAY switch and the values of the year, month and day are displayed in real time.

No display: Remains off when UB is selected by the DISPLAY switch and the real-time values of the hour and minutes in the time zone are displayed.

Time counter display:
The time code, CTL, user bits and real time are displayed.

<Note>

When UB has been selected by the DISPLAY switch, each time the HOLD button is pressed, the setting is switched in the following sequence: VTCG (VTC) ➜ DATE ➜ TIME ➜ no display (time zone) ➜ TCG (TC) and so on repeatedly.

Time code-related switch settings and display items

TCG switch position	DISPLAY switch position	Display item
SET	TC or CTL	Time code
	UB	User bits
F-RUN or R-RUN	CTL	CTL
	TC	Time code
	UB	User bits

2-8 Viewfinder section
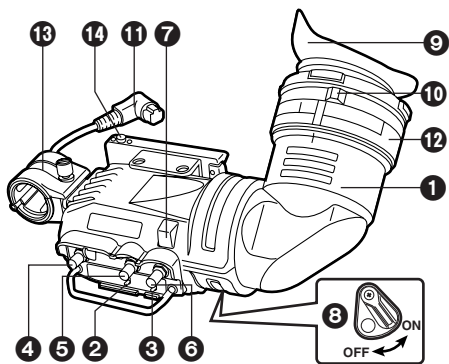
❶ Viewfinder (optional accessory)

While recording or playback is underway, pictures can be viewed through the viewfinder in black and white. The warning displays concerning the unit's operation statuses and settings, messages, zebra patterns and markers (safety zone markers and center marker) can also be seen in the viewfinder.

❷ ZEBRA (zebra pattern) switch

This is used to display the zebra pattern in the viewfinder.
ON : The zebra pattern is displayed.
OFF : The zebra pattern is not displayed.

❸ TALLY switch

This is used to control the front tally lamp ❼.
HIGH: The brightness of the front tally lamp is increased.
OFF : The front tally lamp is turned off.
LOW : The brightness of the front tally lamp is reduced.

❹ PEAKING control

This is used to enhance the outlines of the images seen inside the viewfinder to make focusing easier. Its adjustment does not affect the output signals of the camera.

❺ CONTRAST control

This is used to adjust the contrast of the picture seen inside the viewfinder. Its adjustment does not affect the output signals of the camera.

❻ BRIGHT control

This is used to adjust the brightness of the picture seen inside the viewfinder. Its adjustment does not affect the output signals of the camera.

❼ Front tally lamp

This lamp is activated when the TALLY switch ❸ is set to the HIGH or LOW position, and it lights while the VTR unit is recording. It also flashes to provide a warning display like the REC lamp inside the viewfinder. The lamp's brightness (HIGH or LOW) when it is lighted can be selected using the TALLY switch.

❽ Back tally lamp

This lamp lights while the VTR unit is recording. It also flashes to provide a warning display like the REC lamp inside the viewfinder.
When the lever is set to OFF, the back tally lamp is hidden.

❾ Eyepiece

Do not point the eyepiece at the sun.
Doing so may damage the parts inside.

❿ Diopter adjustment ring

This is adjusted in line with the camera operator's diopter in such a way that the user can see the image on the viewfinder screen most clearly.

⓫ Connecting plug

⓬ Locking ring

⓭ Microphone holder

⓮ Viewfinder stopper

This is used to attach and remove the viewfinder.
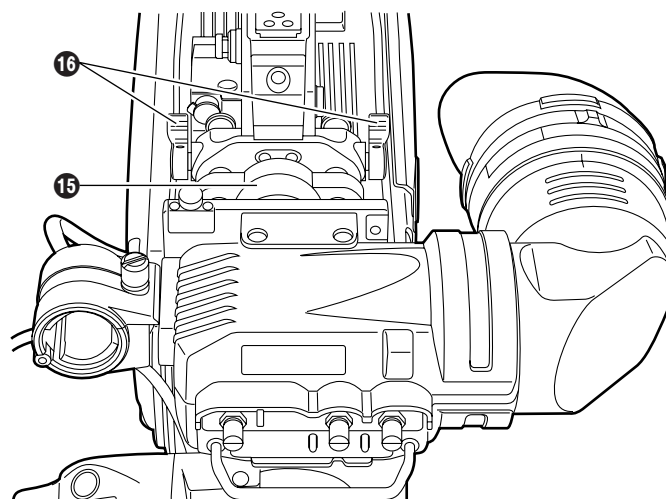
⓯ Viewfinder left-right position anchoring ring

This is used to adjust the left-right position of the viewfinder.

⓰ Viewfinder front-back position anchoring ring

This is used to adjust the front-back position of the viewfinder.

<Note>

For more information, see the instruction manual for the viewfinder.

Chapter 3 Recording and playback

3-1 Cassette tapes

Loading a cassette tape

1 Set the POWER switch to ON.

<Note>
When condensation has formed inside the unit, the HUMID display lights. Wait until this display is cleared before proceeding with the intended operation.

HUMID display

POWER: ON
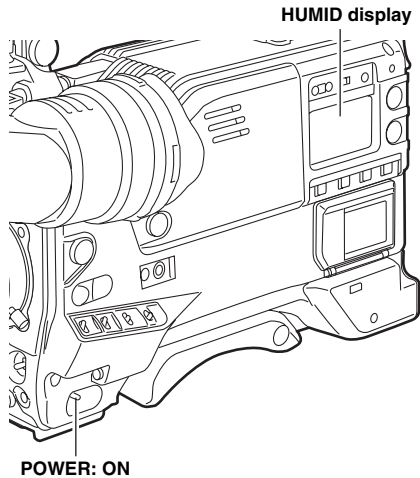
2 Press the EJECT button.
The cassette holder opens.

EJECT button
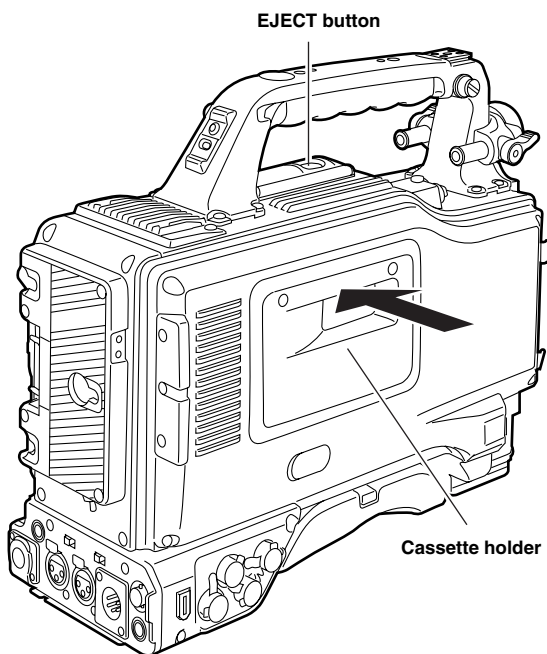
Cassette holder

3 Insert the cassette tape and press the part marked with the arrow to close the cassette holder securely.

<Note>
Check that there is no slack in the tape of the cassette.

Checking for tape slack
Gently push in the reel using your finger and turn the reel in the direction of the arrow. If the reel fails to turn, it means there is no tape slack.
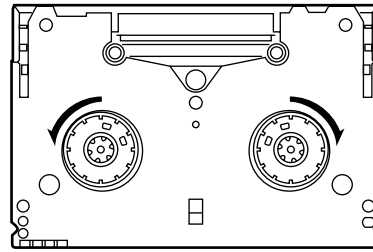
Ejecting the cassette tape

While the power is still on, press the EJECT button to open the cassette holder, and take out the cassette tape. If another cassette is not going to be loaded immediately after this tape is ejected, close the cassette holder.

Ejecting the cassette when the battery has no charge

First, set the POWER switch to OFF to turn off the unit's power.
Then turn the power back on, and immediately hold down the EJECT button.
The cassette can be removed when there is still some power left in the battery. However, do not repeat this operation.

To prevent accidental erasure

Set the cassette's tab to SAVE to prevent the recordings on the tape from being erased accidentally.

REC
SAVE
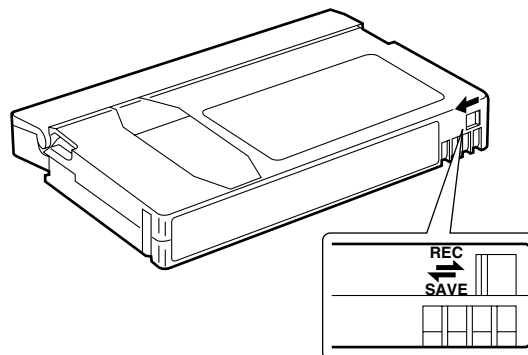
3-2 Basic procedures

This section describes the basic steps for shooting and recording.
Before actually departing to shoot scenes, carry out inspections to ensure that the system is functioning properly.

* For details on how to perform these inspections, refer to "6-1 Inspections prior to shooting."

From providing the power supply to loading the cassette

1 Attach a fully charged battery pack.

2 Set the POWER switch to ON. Now check that the HUMID display is not showing and that at least 5 segments of the remaining battery charge display are lighted.

● If the HUMID display is showing, wait until it goes off.
● When five or more segments of the remaining battery charge display have not lighted, first check the battery setting. If there is nothing wrong with the battery setting, replace the existing battery pack with a fully charged battery pack.
When the MODE CHECK button is pressed to display the status screen in the viewfinder, the type of set battery is shown on the top right of the screen.

3 Check that there are no cables around the cassette holder or top panel, and then press the EJECT button to open the cassette holder.

4 After checking the following points, insert the cassette tape and close the cassette holder.
● Position of the accidental erasure prevent tab
● Tape slack

MODE CHECK button
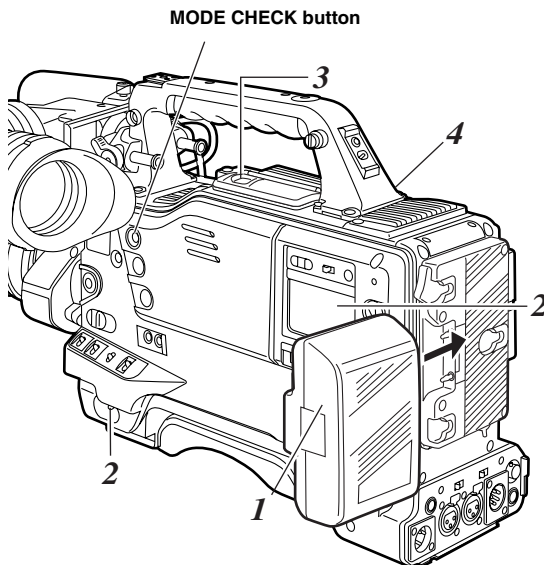
Up to performing the switch settings

Provide the power supply, and load the cassette. Next, set each switch as shown in the figure below, and then proceed to operate.

Switch settings for shooting and recording

OUTPUT: CAM/AUTO KNEE ON

AUDIO SELECT CH 1/CH 2: AUTO

TCG: F-RUN or R-RUN

GAIN: Normally set to 0 dB; change to a more suitable value if the picture is too dark.
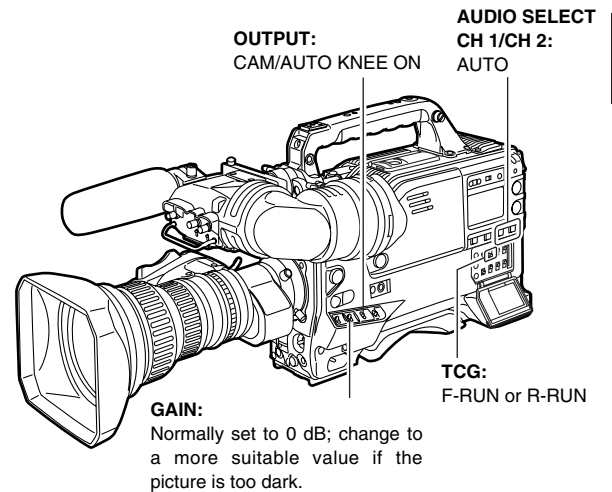
Procedure for shooting

From adjusting the white balance and black balance to stopping the recording

1 Select the filter to match the lighting conditions.

2-1 **If the white balance has been stored in the memory ahead of time:**
Set the WHITE BAL switch to "A" or "B."

2-2 **If the white balance and/or black balance have not been stored in the memory and there is no time to adjust the white balance:**
Set the WHITE BAL switch to PRST.
The white balance for the filter is achieved in accordance with the setting position of the CC FILTER control (outer).

2-3 **When adjusting the white balance on the spot:**
Select the filter to match the lighting conditions, set the WHITE BAL switch to "A" or "B" and adjust the white balance as follows:

① Press the AUTO W/B BAL switch to the AWB position and adjust the white balance.
② Press the AUTO W/B BAL switch to the ABB position and adjust the black balance.
③ Press the AUTO W/B BAL switch to the AWB position and adjust the white balance again.

* **For details on how to perform the adjustments, refer to "4-2-1 Adjusting the white balance" and "4-2-2 Adjusting the black balance."**

3 Point the camera at the subject, and adjust the focus and zoom.

4 When the electronic shutter is to be used, set the shutter speed and operating mode.

* **For further details, refer to "4-3 Setting the electronic shutter."**

5 Press the REC START button or lens VTR button to start recording.
During recording, the REC lamp inside the viewfinder lights.

6 To stop the recording, press the REC START button again.
The REC lamp inside the viewfinder goes off.

Tape function buttons
During recording, the tape function buttons (EJECT, REW, FF, PLAY/PAUSE and STOP) will not work.

---

3 *1* *4* *5, 6* *2-3* *2-1, 2, 3*

CAUTION:
The unit records video and audio signals into the built-in memory once, and then reads these signals out and records them on tape. Thus, video images or voice for 2 to 3 seconds will be recorded on tape, when you start recording while the VTR SAVE/STBY switch is set to the SAVE position and then stop it immediately by pressing the REC START button or the VTR button on the lens.

3-3 Scene-to-scene continuity

Maintaining continuity from one scene to the next at an accuracy of +1 frame or less can be assured simply by pressing the REC START button or VTR button on the lens while the unit is in the rec-pause mode.

If the unit is in a mode other than rec-pause, the point at which the scene-to-scene continuity is to be maintained must be located before recording is started.

Scene-to-scene continuity during rec-pause

The scene-to-scene continuity timing is located automatically.

● When the VTR SAVE/STBY switch is set to "SAVE", the tape loading operation will complete about 2 seconds after pressing the REC START button.

● When the VTR SAVE/STBY switch is set to "STBY", the tape loading operation has completed.

● When recording with the switch set to STBY position, the tape travel mechanism will stop 2 seconds after pressing the REC START button.

When pre-recording is set to 7 seconds, it takes 7 seconds or more to stop the tape travel mechanism after pressing the REC START button.

Ensuring scene-to-scene continuity after the power was turned off while the unit was in the rec-pause mode

1 Switch the power back on.

2 Press the REC START button or lens VTR button to start the recording.
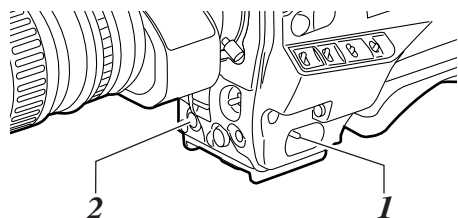
Jump function

To jump to the starting point of the unrecorded section of a tape, open the <SW MODE> screen from the OPERATION page, and set the RET SW item to R. REVIEW.

3

When the recorded tape is replayed to the starting point of the unrecorded section, the recording head is at Position Ⓑ. If the RET button of the lens or the USER button that is allocated the RET SW function is pressed once in this state, the tape will rewind for 5 seconds.

If the recorded section cannot be found, press this button again.

If the recorded section is recognized during the rewind operation, such as Position Ⓒ, the tape will be rewound for an additional 2 seconds from the termination point Ⓐ of the recording and then played back for 2 seconds; the tape then pauses the recording at the termination point Ⓐ.

Press the REC START button or the VTR button of the lens to continue recording from the termination point Ⓐ.

(In this case, the time code is regenerated as a value for position Ⓐ on the tape if the TCG switch is set to the R-RUN position.)

When the tape is rewound to the recorded section, the recording head is at Position Ⓓ. If the RET button of the lens or the USER button that is allocated the RET SW function is pressed once in the STOP mode, the tape rewind for 2 seconds, and then replay for 2 seconds before entering into the pause state for recording at position Ⓓ.

During the pause in playback, the tape pauses the recording at position Ⓓ without rewinding or playing back the tape. (In this case, the time code will be regenerated as a value for position Ⓓ on the tape if the TCG switch is set to the R-RUN position.)

● During the jump operation, the REW lamp flashes and the JUMP indication in the viewfinder screen flashes.

<Notes>

● When the cassette tab is in the "SAVE" position, the jump operation is disabled.

● By executing the jump operation while the TCG switch is set to the R-RUN position, time codes will always be regenerated to the value on the tape.

Even if the TCG switch is set to the SET position or the F-RUN position, the time code will be rewritten to the value on the tape when the jump operation is executed after returning the switch to the R-RUN position. When recording starts, the unit regenerates the time code to the value on the tape. Even if the FIRST REC TC item of the menu (TC/UB screen of the VTR MENU page) is set to PRESET, the time code will always be regenerated to the value on the tape by executing the jump operation after setting the TCG switch to the R-RUN position.

Forward direction of the tape
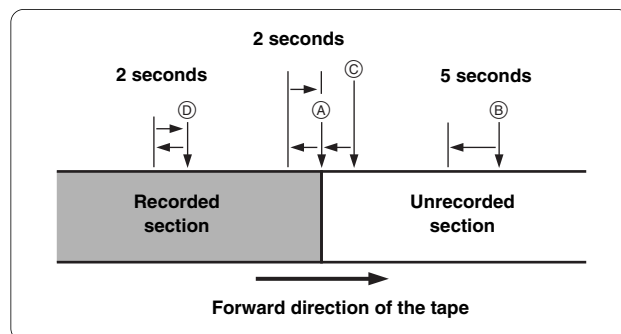
Transitions with the jump operation

Recorded section Ⓓ .... **Section not recorded (Ⓑ, Ⓒ)**

Pause for replaying

Pause for replaying

No recorded section is available.
● Rewinding for 5 seconds

● Time code regeneration

Pause for recording

Pause for recording

● Time code regeneration
● Rewound for 2 seconds and then played back

No recorded section is available.
● Rewinding for 5 seconds

Stopped

Stopped

Rec-review
For details, refer to "3-7 To check the last few seconds of the recording (Rec-review function)".

No recorded section is available.
● Rewinding for 5 seconds

If the recorded section is found
● Rewound to the recorded part
● Time code regeneration
● Rewound for 2 seconds and then played back

3-4 To record video signals of a few seconds before starting recording (PRE-RECORDING function)

By always storing a few seconds' worth (maximum of 7 seconds) of audio and video data shot by the camera, it is possible to record video and audio signals a few seconds before recording is actually started by pressing the REC START button or the VTR button on the lens in the built-in memory.

In order for this function to be used, it is necessary to open the <REC FUNCTION> screen from the SYSTEM SETTING page and set the data storage time in memory using the PRE REC MODE item and the PRE REC TIME item using the menu operation.

PRE REC MODE
ON: PRE RECORDING function is activated.
OFF: Recording starts about 0.4 seconds after pressing the REC START button or the VTR button on the lens.
If you stop recording by pressing the REC START button or the VTR button on the lens, the message "TAPE ✳S" will be displayed on the viewfinder screen.

PRE REC TIME
From 0 to 7 seconds:
A value from 0 to 7 seconds is set as the length of time for which the video and audio signals can be recorded before the REC START button or the VTR button on the lens is pressed.

<Notes>
● If the PRE REC MODE items is set to "OFF", recording starts about 0.4 seconds after pressing the REC START button when the VTR SAVE/STBY switch is set to either SAVE or STBY position.
If the PRE REC MODE item is set to "ON," video signals for the time set in the PRE REC TIME item before starting are recorded.
● The data contained in the storage memory becomes unstable immediately after the power is turned on, immediately after the PRE REC MODE item setting is selected or its set time has been changed, and immediately after playback or rec-review has been performed. Immediately after any of these operations, therefore, the video and audio signals will not be pre-recorded for the duration set when recording is started by pressing the REC START button or VTR button on the lens.
● The video data and audio data are not stored in the storage memory while playback or rec-review is being performed. This means that the pre-recording will not include the video and audio signals supplied during a playback or rec-review operation.
● When recording has been started, the time code (TCG) display may remain in the hold status until it is possible for the time code (TCR) on the tape to be read.
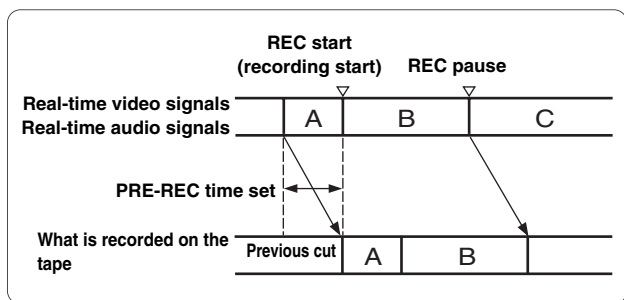
3-5 Recording in intervals (INTERVAL REC function)

This unit enables recording in intervals with a minimum recording time in increments of one frame, by using the built-in memory.

In order to use this function, it is necessary to use the menu operations to open the <REC FUNCTION> screen from the SYSTEM SETTING page, select the interval recording mode by using the INTERVAL REC MODE item (INTERVAL REC MODE: ON), and set the recording time (REC TIME), interval pause time (PAUSE TIME), and time required for shooting (TAKE TOTAL TIME). Upon completion of the settings, the total shooting time (TOTAL REC TIME) is automatically calculated and displayed.

INTERVAL REC MODE
  OFF: Interval recording is not performed.
  ON: Interval recording is performed.
  ONE SHOT:
    One-shot interval recording is performed for the time which was selected by the REC TIME setting.

INTERVAL REC HOLD
  ON: When the power is turned off, the INTERVAL REC MODE settings are retained.
  OFF: When the power is turned off, the INTERVAL REC MODE settings are released.

Procedure for shooting in the ON modes of INTERVAL REC

1 After performing the basic operations for shooting and recording as set forth in "3-2 Basic procedures," secure the unit in such a way that it will not move.

2 Press the unit's REC START button or the VTR button on the lens. Interval recording now starts. When the set TOTAL TAKE TIME has elapsed, recording is ended automatically.
As mentioned in "2-7 Display window and its displays," "i" flashes when the INTERVAL REC mode is selected. As soon as recording starts, "iREC" lights. During rec-pause, "iREC" flashes. Exactly what mode is established in the unit can be ascertained by observing these displays.
The same displays as the ones in the display window also appear inside the viewfinder, and the TALLY lamp lights while recording is underway. Further, when the pause time has been set to 2 minutes or more, the tally lamp blinks at 5 second intervals to inform the operator. Further, when pause time has been set to 2 minutes or more, the tally lamp blinks at 5 second intervals to indicate when recording is paused. Under these conditions, the tally lamp will also flash 3 seconds before recording starts.
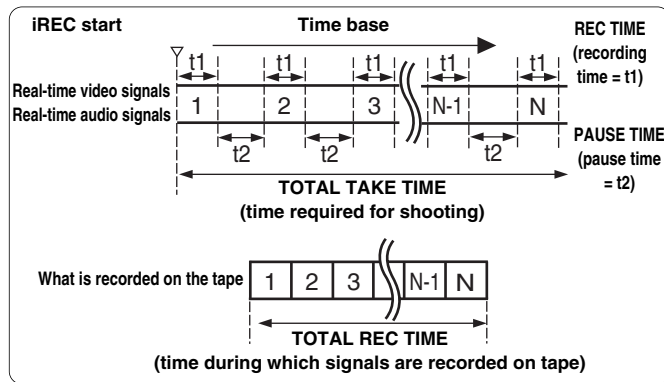
3

When the recording is to be continued

Press the unit's REC START button or VTR button on the lens once more. Interval recording is now started again.

When recording is to be suspended at any time

Press the STOP button. Recording is now suspended.
● The tape may continue to run since the unit will record the images stored in the memory until the moment when the button is pressed.

When the INTERVAL REC mode is to be exited

There are two ways to do this.
1) Using the menu operations, set the INTERVAL REC HOLD item to OFF to turn off the POWER switch of the unit.
When the INTERVAL REC HOLD item is set to ON, the interval recording settings are not released even if the POWER switch on the unit is turned off.
2) Perform a menu operation and select OFF as the INTERVAL REC MODE item setting.

Frame-by-frame shooting
Procedure for shooting in the ONE SHOT mode

The INTERVAL REC MODE item is set to ONE SHOT. (The PAUSE TIME item cannot be set.)

1 After performing the basic operations for shooting and recording as set forth in "3-2 Basic procedures," secure the unit in such a way that it will not move.

2 Press the unit's REC START button or the VTR button on the lens. When the set REC TIME has elapsed, the recording is ended automatically.
As mentioned in "2-7 Display window and its displays," "i" flashes when the INTERVAL REC mode is selected. As soon as recording starts, "iREC" lights.
When the recording ends, "iREC" flashes.
The same displays as the ones in the display window also appear inside the viewfinder, and the TALLY lamp lights while recording is underway.
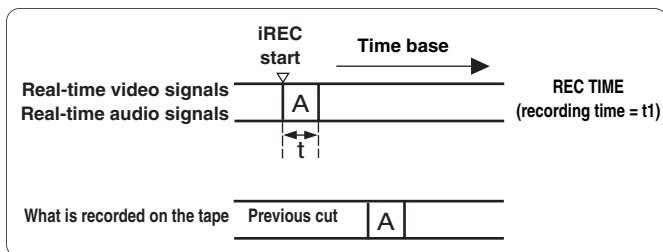
When the recording is to be continued

Press the unit's REC START button or VTR button on the lens once more. One-shot recording is now started again.
● For ONE SHOT mode, the unit is always in the standby state regardless of the positions of the VTR SAVE/STBY switch.

When the ONE SHOT mode of INTERVAL REC is to be exited

There are two ways to do this.
1) Use the menu operations to set the INTERVAL REC HOLD item to OFF to turn off the POWER switch of the unit.
When the INTERVAL REC HOLD item is set to ON, the interval recording settings are not released even if the POWER switch on the unit is turned off.
2) Perform a menu operation and select OFF as the INTERVAL REC MODE item setting.

Checkpoints common to all INTERVAL REC modes

● **Sound-related**
Whether the sound is to be recorded or not during interval recording is set by setting ON or OFF for the AUDIO REC item on the <REC FUNCTION> screen.
● **Tape function button-related**
During interval recording, all the tape function buttons (EJECT, REW, FF and PLAY/STILL) except STOP do not work.
● **When the unit's power was turned off during recording**
If the unit's POWER switch was set to the OFF position during interval recording with the use of the memory, the tape will continue to run in order to record the video signals which were stored in the memory until the moment when the POWER switch was set to OFF, and then the power will automatically go off.
If the battery was removed, the DC cable was disconnected or the power supplied through the external DC power supply was cut off during recording, those shots (Maximum 5 seconds, 150 frames) taken prior to the moment concerned may not be recorded. Bear this in mind when the battery is to be replaced.
● **When the tape has run out during recording**
Bear in mind that if the tape has run out and stops during interval recording with the use of the memory, those shots (Maximum 5 seconds, 150 frames) taken prior to the moment when the tape stopped may not be recorded.
● **Starting recording quickly when unit is in pause mode**
Selecting REC as the setting for one of either USER MAIN or USER1/USER2 buttons in advance enables quick start recording during pause mode when the set button is pressed. Measurement of pause mode time is continued even after quick start recording.
● If a PLAY, FF or REW operation is performed after one-shot recording, the operation will be performed after the images remaining in the memory are written on the tape.
While the images are being recorded, the LED of the button pressed (for play, FF or REW operation) will flash.
● **Concerning the time code display**
When recording has been started, the time code (TCG) display may remain in the hold status until it is possible for the time code (TCR) on the tape to be read.
● After turning the power ON, inserting a tape, or pressing PLAY/FF/REW, the first recording made with INTERVAL REC (including ONE SHOT mode) will be about 1 second longer than the time set in the REC TIME menu option. This is to guarantee the quality of consecutive recordings and is not a defect.

3-6 To take the previous cut again (RETAKE function)

The RETAKE function ensures continuity with the previous cut on the tape when shooting is resumed.
It is set by opening the <REC FUNCTION> screen from the SYSTEM SETTING page and selecting ON as the setting for the RETAKE MODE item by performing menu operations.

The RETAKE MODE item settings are described below.
ON: The retake operation is performed when the RET button on the lens is pressed while the MODE CHECK button is held down.
OFF: The RETAKE function does not operate.

If, when the rec-pause mode is established upon completion of the recording or the stop mode is established afterwards, the RET button on the lens is pressed while the MODE CHECK button is held down, the tape will be rewound to the approximate start point (a position advanced by 10 or so frames from the recording start) of the final image that was last recorded, and the rec-pause mode will be established.
If there is some leeway in the shooting time and a "NG" condition has been clearly identified, recording can be started from this point, and the cut in the NG area will be deleted.
This function is particularly useful for cutting the amount of time taken for copying onto work tapes and other such economical operations.
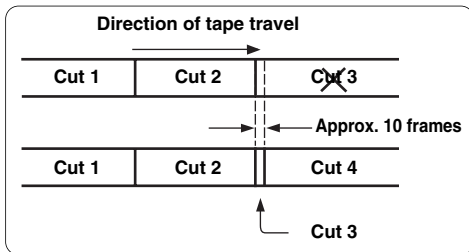
When the RETAKE function is to be exited

There are two ways to do this.
1) Set the unit's POWER switch to OFF.
2) Perform a menu operation and select OFF as the RETAKE MODE item setting.

3-7 To check the last few seconds of the recording (Rec-review function)

When recording is temporarily stopped and the lens RET button is pressed, the last two seconds of the tape are automatically rewound, and the playback pictures on this part of the tape appear on the viewfinder screen. This makes it possible to check whether recording was performed properly. After the two seconds of the tape have been played back, the unit is again set to the recording start standby mode.
If the RET button is held down, a maximum of 10 seconds of the tape is rewound and played back.
The Rec-review function can be executed by opening the <SW MODE> screen from the OPERATION page and setting the RET SW items to the R. REVIEW via menu operations.
The RET button function can be allocated by opening the <USER SW> screen from the OPERATION page and selecting settings for the USER MAIN SW, USER1 SW and USER2 SW items by performing menu operations.

<Notes>
● The rec-review function cannot be used unless recording lasts for one or more seconds.
● If the VIDEO OUT OUTPUT SEL switch on the side panel is at the VTR position during the rec-review operation, the rec-review images are output not only to the viewfinder but to the video output connector (VIDEO OUT connector) as well.
  Use the menu operations to open the <OUTPUT SEL> screen from the SYSTEM SETTING page and set the MONI OUT MODE item to VTR to output video signals of Rec-review from the MON OUT connector as well.
  Bear in mind that if back-up images are being recorded by a backup VTR that has been connected, these rec-review images will end up being recorded.
  The jump function as a relevant function. For details, refer to "3-3 Scene-to-scene continuity."
● After executing the rec-view operation, the time code at the time of recording the following data will correspond to the settings in the REC REVIEW REGEN item (<TC/UB> screen on the VTR MENU page).
● When the REC REVIEW REGEN item is turned ON and the rec-view operation is executed while the TCG switch is set to the R-RUN position, the time code will always be regenerated to the value on the tape.
  Even if the TCG switch is set to the SET position or the F-RUN position, the time code will be rewritten to the value on the tape when the rec-veiw operation is executed after returning the switch to the R-RUN position. When recording starts, the unit regenerates the time code to the value on the tape. Even if the FIRST REC TC item of the menu (TC/UB screen of the VTR MENU page) is set to PRESET, the time code will always be regenerated to the value on the tape by executing the rec-view operation after setting the TCG switch to the R-RUN position.
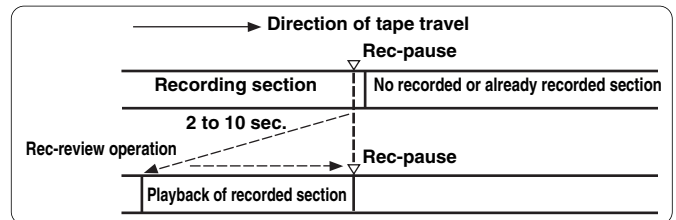
3-8 Normal playback and playback at different speeds

Black-and-white playback images can be viewed in the viewfinder by pressing the PLAY button. When a color monitor is connected to the unit's VIDEO OUT connector and an HD color video monitor is connected to its MON OUT connector at the same time, the down-converted color playback images from the VIDEO OUT connector can be viewed on the color monitor while the HD high-quality images from the MON OUT connector can be viewed on the HD color video monitor.

● In order to view these images, the OUTPUT SEL switch on the side panel must be set to the VTR position.

In addition, when the FF and REW buttons are used, the images can be played back at different speeds by establishing the cue mode (PLAY + FF), review mode (PLAY + REW), high-speed fast forward playback mode (FF) or high-speed rewind playback mode (REW).

Chapter 4 Adjustments and settings for recording

4-1 Multi Format

4-1-1 Video system and Recording format

The unit employs a progressive scan (full pixel reading) CCD system.
It is possible to select 11 kinds of the recording formats by combinations of the SYSTEM MODE item and the CAMERA MODE item on the <SYSTEM MODE> screen on the SYSTEM SETTING page in the setting menu.
In any recording format, the CCD operates in progressive (non-interlace) scan mode.

<Note>
When settings for SYSTEM MODE item are changed, the message "TURN POWER: OFF" is displayed in the viewfinder screen.
The settings for SYSTEM MODE item will change when the POWER switch of the unit is turned "OFF" and then turned "ON" again.
● Retain the state where the POWER switch of the unit is turned OFF for at least 5 seconds.

4-1-2 Recording format on tapes and signal format at output connector

The format for recording signals from CCD on tape and signal formats to be output from the respective connectors are shown below.

4

Menu setting		● Recording on tapes ● HD SDI signal output (VIDEO OUT connector/MON OUT connector)	
SYSTEM MODE item	CAMERA MODE item	Video signals	Audio Time code User bits UMID information (ON/OFF switching is enabled.)
1080-59.94i	60i	60i	
	30P	30P Over 60i	
	24P	24P Over 60i (2-3 Pull-down)	
	24PA	24P Over 60i (2-3-3-2 Pull-down)	
1080-50i	50i	50i	
	25P	25P Over 50i	
720-59.94P	60P	60P	
	30P	30P Over 60P	
	24P	24P Over 60P (2-3 Pull-down)	
720-50P	50P	50P	
	25P	25P Over 50P	

Menu setting		SD SDI signal output (VIDEO OUT connector)		Analog composite signal output (VIDEO OUT connector/REMOTE connector)
SYSTEM MODE item	CAMERA MODE item	Video signals	Audio EDH (Error Detect Handling) UMID information (ON/OFF switching is enabled.) (Time codes and user bits are not output.)	Video signals
1080-59.94i	60i	525i		525i
	30P	525i		525i
	24P	525i		525i
	24PA	525i		525i
1080-50i	50i	625i		625i
	25P	625i		625i
720-59.94P	60P	525i		525i
	30P	525i		525i
	24P	525i		525i
720-50P	50P	625i		625i
	25P	625i		625i

Menu setting		● Analog HD-Y signal output (MON OUT connector) ● Analog HD signal output (VF connector)
SYSTEM MODE item	CAMERA MODE item	Video signals
1080-59.94i	60i	60i
	30P	30P Over 60i
	24P	24P Over 60i (2-3 Pull-down)
	24PA	24P Over 60i (2-3-3-2 Pull-down)
1080-50i	50i	50i
	25P	25P Over 50i
720-59.94P	60P	60P
	30P	30P Over 60P
	24P	24P Over 60P (2-3 Pull-down)
720-50P	50P	50P
	25P	25P Over 50P

30P Over 60i:
This operates in the interlace mode in 60 fields. This processes video signals of the same time into the odd field and the even field and records them on tape as video signals in the respective fields.

30P Over 60P:
This operates in the progressive mode in 60 frames. This outputs the same video signals as video signals for 2 frames and records them on tape.

In order to achieve images with a consistently high picture quality with this unit, it is necessary to adjust the black balance and white balance as the individual conditions demand.   To achieve a higher picture quality, it is recommended that the adjustments be performed in the following sequence: AWB (white balance adjustment) → ABB (black balance adjustment) → AWB (white balance adjustment).

4-2 Adjusting the white balance and black balance

4-2-1 Adjusting the white balance

The white balance must always be re-adjusted when the lighting conditions have changed.
The white balance is adjusted automatically by following the steps below.

1 Set the switches as shown in the figure.

CC FILTER/ND FILTER controls

WHITE BAL: A or B

OUTPUT: CAM

AUTO W/B BAL switch: Use this to execute AWB.

GAIN: Normally 0 dB Set to a more suitable gain level if it is too dark.
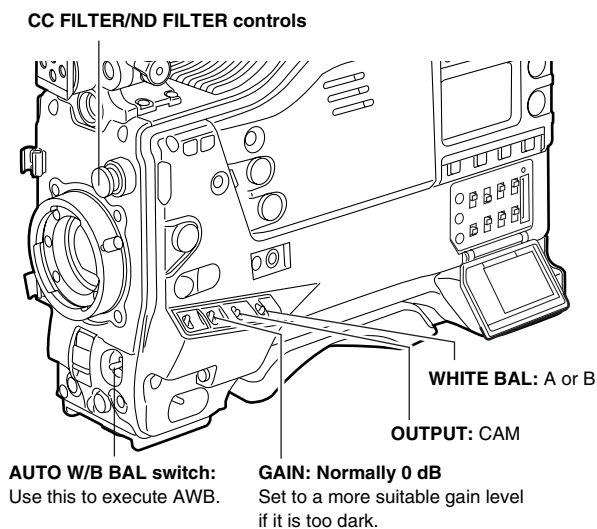
2 Select the CC FILTER/ND FILTER controls setting in accordance with the lighting conditions.

<Note>
For examples of the FILTER controls settings, refer to "2-3 Shooting and recording/playback function section."

3 Erect a white pattern at a place with the same conditions as the source of light illuminating the subject, zoom in, and shoot the white of the pattern on the screen. A white object (such as a white cloth or white wall) near the subject may be used as a substitute for the white pattern.
The size of the white object required is shown in the figure below.

<Notes>
● Take care to keep high-brightness spots off the screen.
● Shoot white objects in the center of the screen.

At least one-fourth of the screen width

At least one-fourth of the screen height
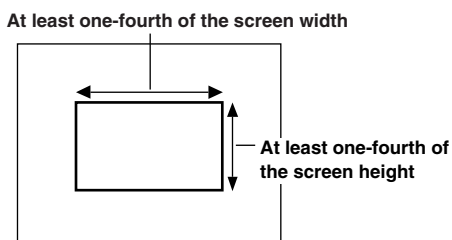
4 Adjust the lens aperture.
In this case, adjusting the white balance by setting the signal level of white within a range between 70% and 90% is recommended.

5 Set the AUTO W/B BAL switch to AWB, and then release it.
The switch returns to the center, and the white balance is automatically adjusted.

<Note>
When the AUTO W/B BAL switch is pressed again to the AWB side when the white balance is being adjusted automatically (AWB ACTIVE), the adjustment operation will stop.
The adjusted value in this case is the value before automatic adjustment was performed.

6 While the adjustment is in progress, the following message appears on the viewfinder screen.

```
AWB ACTIVE
```
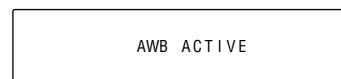
7 Adjustment is completed in several seconds.   (A message similar to the one shown in the figure below now appears.)
The adjustment value is automatically saved in the memory (A or B) which was set in step *1*.

```
AWB A OK 3.2K
```
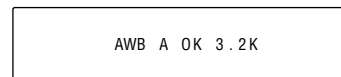
8 The message shown in the figure below appears when the color temperature of the subject falls below 2300 K or rises above 9900 K.
The downward pointing arrow indicates that the color temperature is lower than the display temperature; conversely, an upward pointing arrow indicates that the it is higher than the display temperature.

```
AWB A OK 2.3K ↓
```
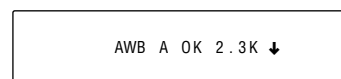
White balance detection area

The white balance detection area setting can be changed to 90%, 50% or 25% by opening the <WHITE BALANCE MODE> screen from the OPERATION page and selecting the desired setting for the AWB AREA item by performing menu operations.
The factory setting is 25%.

90%

50%

25%

4
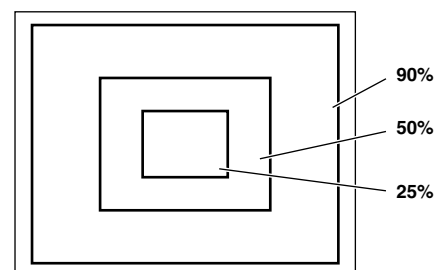
When there is no time to adjust the white balance

Set the WHITE BAL switch to PRST. The white balance for the filter is achieved in accordance with the setting position of the FILTER control (outer).

When the white balance cannot be adjusted automatically

When the white balance adjustment was not completed correctly, one of the following error messages will appear on the viewfinder screen. When an error message is displayed, take the recommended action, and try adjusting the white balance again. If the error message persists even after repeated attempts, the inside of the unit must be inspected. For details, contact your dealer.

Messages relating to white balance adjustment

Error message	Meaning	Recommended action
COLOR TEMP. HIGH	Color temperature is too high.	Select a suitable filter.
COLOR TEMP. LOW	Color temperature is too low.	Select a suitable filter.
LOW LIGHT	There is not enough light.	Increase the amount of light or increase the gain.
LEVEL OVER	There is too much light.	Reduce the amount of light or reduce the gain.
CHECK FILTER	The setting position of the CC filter selector control is not correct.	Check the CC filter selector control.
TIME OVER	AWB was not completed within the allotted time.	The shooting conditions may be unstable. If flicker occurs, engage the shutter and shoot again under stable conditions.

White balance memories

The values stored in the memories are retained even after the unit's power has been turned off until the white balance is next adjusted. There are two sets of white balance memories, A and B.

When ON has been selected (initial setting) as the setting for the FILTER INH item on the <WHITE BALANCE MODE> screen opened from the OPERATION page by performing menu operations, the number of memories is limited to one in A and one in B. In this case, the memory contents are not coupled with the CC filter.

When FILTER INH is set to OFF, the adjustment values for each CC filter can be automatically saved in the memories corresponding to the WHITE BAL switch settings (A or B). This unit contains four filters so that a total of 8 (4×2) adjustment values are saved.

When the S. GAIN function operates, the AWB switch is not activated and is the PRST value of the WHITE BAL switch.

4-2-2 Adjusting the black balance

The black balance needs to be adjusted in the following cases:
- When the unit is used for the first time
- When the unit is used after it has not been used for a prolonged period of time
- When the unit is used in an ambient temperature which has fluctuated significantly
- When the value selected for the gain switch has been changed
- When the gamma ON/OFF setting has been changed

1 Set the switches as shown in the figure.

AUTO W/B BAL switch:
Use this to execute ABB.

OUTPUT: CAM
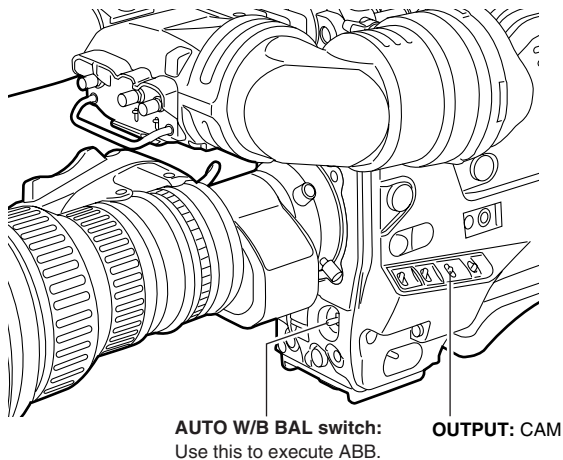
2 Set the AUTO W/B BAL switch to the ABB position, and then release it.
The switch returns to the center, and the adjustment is performed.

3 While the adjustment is in progress, the following message appears on the viewfinder screen.

ABB ACTIVE

<Note>
While the adjustment is in progress, the lens aperture is automatically set to CLOSE.

4 Adjustment is completed in several seconds. (A message similar to the one shown in the figure below now appears.)
The adjustment value is automatically saved in the memory.

ABB OK

<Notes>
- Check that the lens connector has been connected and that the lens aperture is set to CLOSE.
- While the black balance is being adjusted, the gain selector circuit is switched automatically.
  Flicker or noise may appear on the viewfinder screen, but this is not indicative of malfunctioning.
- If the black shading is still unsatisfactory although the "ABB OK" message is displayed, perform menu operations to open the <BLACK SHADING> screen from the MAINTENANCE page, move the arrow mark (→) to the DETECTION item, press the JOG dial button, and proceed with the black shading adjustment. If the ABB switch is held down for 8 or more seconds, the black shading can be automatically adjusted after the ABB operation. (See the SHD.ABB SW CTL item under "7-5-5 SW MODE.")
- If the AUTO W/B BAL switch is pushed down to the ABB position again while the black balance is being automatically adjusted (ABB ACTIVE), the adjustment will be aborted.
 The adjusted value in this case is the value before automatic adjustment was performed.
- If a lens without a lens connector is used, execute the auto adjustment of the black balance while the lens aperture is securely closed.

Black balance memory

The values stored in the memory are retained even after the unit's power has been turned off.

4-3 Setting the electronic shutter

This section describes the unit's electronic shutter, its settings and operations.

4-3-1 Shutter modes

The table below lists the shutter modes in which the unit's electronic shutter can be used as well as the shutter speeds which can be selected.

To use the fixed shutter speed
- For eliminating flicker due to lighting
- For shooting fast moving subjects clearly

Video system	CAMERA MODE	Shutter speed
1080-59.94i	60i	1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, HALF
1080-29.97P	30P	
1080-23.98P	24P	
1080-23.98PA	24PA	
720-59.94P	60P	
720-29.97P	30P	
720-23.98P	24P	
1080-50i	50i	1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, HALF
1080-25P	25P	
720-50P	50P	
720-25P	25P	

To use the shutter speed of SYNCRO SCAN
- For shooting monitor screens in a way that minimizes the pattern of horizontal lines
- For shooting images when adding effects to the subjects' movement

Video system	CAMERA MODE	Variable range
1080-59.94i	60i	1/60.3 to 1/249.8
1080-29.97P	30P	1/30.2 to 1/249.8
1080-23.98P	24P	1/24.1 to 1/249.8
1080-23.98PA	24PA	1/24.1 to 1/249.8
720-59.94P	60P	1/60.3 to 1/249.8
720-29.97P	30P	1/30.2 to 1/249.8
720-23.98P	24P	1/24.1 to 1/249.8
1080-50i	50i	1/50.2 to 1/209.5
1080-25P	25P	1/25.2 to 1/209.5
720-50P	50P	1/50.2 to 1/209.5
720-25P	25P	1/25.2 to 1/209.5

To use the half shutter speed (HALF)
- For shooting images when adding effects as if taken with film

Video system	CAMERA MODE	Shutter speed
1080-59.94i	60i	1/120
1080-29.97P	30P	1/60
1080-23.98P	24P	1/48
1080-23.98PA	24PA	1/48
720-59.94P	60P	1/120
720-29.97P	30P	1/60
720-23.98P	24P	1/48
1080-50i	50i	1/100
1080-25P	25P	1/50
720-50P	50P	1/100
720-25P	25P	1/50

<Notes>
- No matter in which mode the electronic shutter is used, the higher the shutter speed, the lower the camera's sensitivity.
- When the aperture is in the automatic mode, it will increasingly open and the depth of focus will become shallower as the shutter speed is increased.

4

4-3-2 Setting the shutter mode and speed

The shutter speeds used in the shutter mode are set by switching the SHUTTER switch.

The shutter speeds in the SYNCHRO SCAN mode can easily be changed using the SYNCHRO SCAN (+ and –) buttons on the side panel.

Open the <SHUTTER SPEED> screen and <SHUTTER SELECT> screen from the OPERATION page by performing menu operations. It is now possible to restrict the shutter speed selection range to the required range beforehand and/or select whether to use the SYNCHRO SCAN mode and SUPER V mode beforehand.

Once selected, the shutter speed is retained even after the unit's power has been turned off.

```
→ < SHUTTER SPEED >

  SYNCHRO SCAN    : ON
  POSITION1       : ON
  POSITION2       : ON
  POSITION3       : ON
  POSITION4       : ON
  POSITION5       : ON
  POSITION6       : ON
```

```
→ < SHUTTER SELECT >

  POSITION1 SEL   : 1 / 6 0
  POSITION2 SEL   : 1 / 1 2 0
  POSITION3 SEL   : 1 / 2 5 0
  POSITION4 SEL   : 1 / 5 0 0
  POSITION5 SEL   : 1 / 1 0 0 0
  POSITION6 SEL   : 1 / 2 0 0 0
```
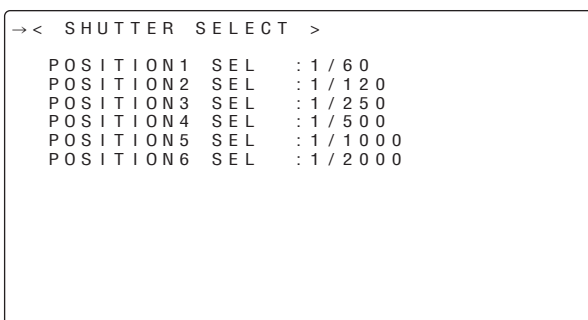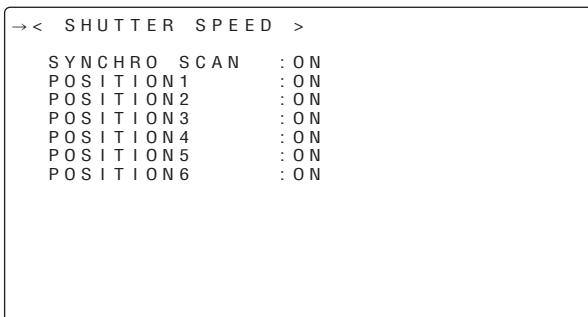
1 Press the SHUTTER switch from ON to SEL.
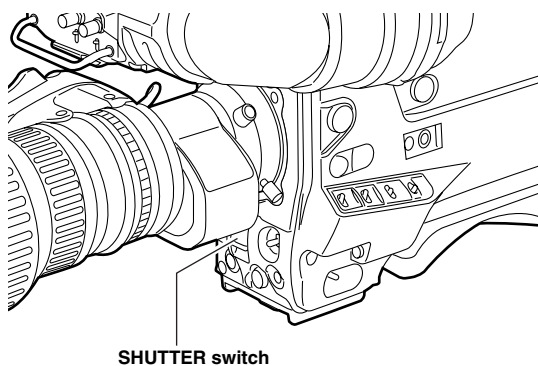
SHUTTER switch

2 Press the SHUTTER switch to the SEL position again, and repeat this until the desired mode or speed is displayed.

When all the modes and speeds are displayed, the display will change in the sequence shown below.

Standard mode

POSITION 1 → POSITION 2 → POSITION 3 → POSITION 4 → POSITION 5 → POSITION 6
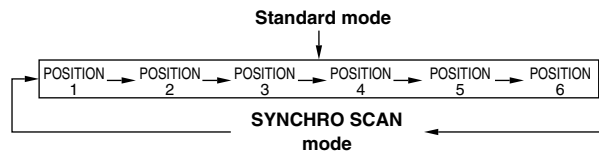
SYNCHRO SCAN mode

Viewfinder screen displays relating to the shutter

For details, refer to "4-7 Viewfinder screen status displays."

4-3-3 Setting the synchro scan mode

Proceed with operation by following the steps below.

1 Press the SHUTTER switch from ON to SEL to establish the SYNCHRO SCAN mode.

SHUTTER switch   **SYNCHRO SCAN (+ and –) buttons**
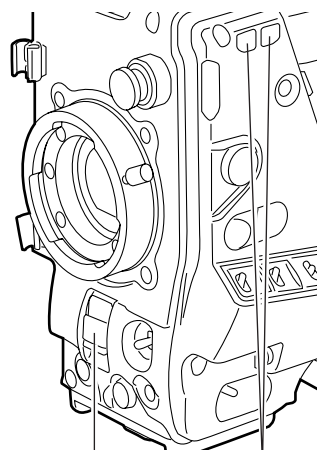
2 In the SYNCHRO SCAN mode, it is possible to change the shutter speed continuously by operating the SYNCHRO SCAN (+ and –) buttons.

4-4 Selecting the audio input signals and adjusting their recording levels

When the AUDIO SELECT CH1/CH2 switch is set to AUTO, the recording levels on audio tracks CH1 and CH2 are adjusted automatically. On the other hand, when it is set to MAN, the levels can be adjusted manually. The recording levels on audio tracks CH3 and CH4 can be selected using the menu.

4-4-1 Selecting the audio input signals

Use the AUDIO IN switch to select the input signals to be recorded on audio tracks CH1, CH2, CH3 and CH4.
For details, refer to "2-2 Audio function section."

Display window

MONITOR CH1/3 ● ST ● CH2/4 selector switch

MONITOR SELECT CH1/2 ● CH3/4 switch

AUDIO SELECT CH1, CH2 buttons

AUDIO LEVEL CH1, CH2 controls
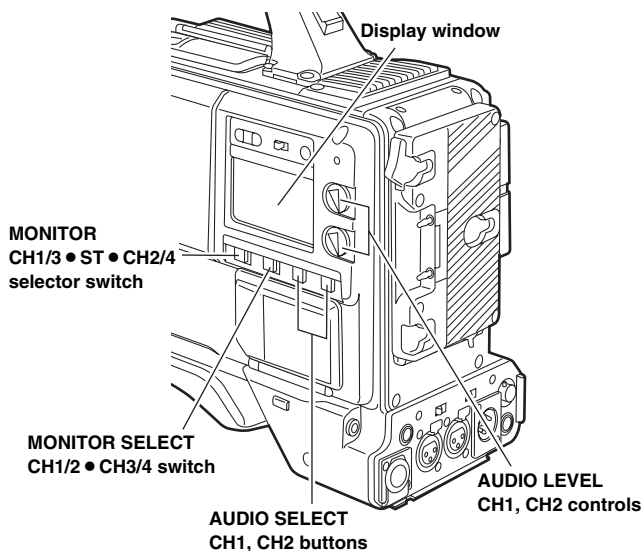
For the detailed audio-related settings, open the <MIC/AUDIO1> and <MIC/AUDIO2> screens from the VTR MENU page and select the settings for the items by performing menu operations.
For details, refer to "Chapter 7 Menu description tables."

```
→< MIC/AUDIO1 >

  FRONT VR CH1          :OFF
  FRONT VR CH2          :OFF
  MIC LOWCUT CH1        :OFF
  MIC LOWCUT CH2        :OFF
  MIC LOWCUT CH3        :OFF
  MIC LOWCUT CH4        :OFF
  LIMITER CH1           :OFF
  LIMITER CH2           :OFF
  AUTO LEVEL CH3        :ON
  AUTO LEVEL CH4        :ON
  CUE REC SELECT        :CH1
  TEST TONE             :NORMAL
```

```
→< MIC/AUDIO2 >

  FRONT MIC POWER       :ON
  REAR MIC POWER        :ON
  MONITOR SELECT        :STEREO
  FRONT MIC LEVEL       :-40dB
  REAR MIC CH1 LVL      :-60dB
  REAR MIC CH2 LVL      :-60dB
  REAR LINE IN LVL      :0dB
  AUDIO OUT LVL         :0dB
  HEADROOM              :18dB
  WIRELESS WARN         :OFF
```

4-4-2 Adjusting the audio signal recording levels

The procedure for manually adjusting the levels at which the signals are to be recorded on audio tracks CH1 and CH2 is set forth below.

1 Set the MONITOR SELECT switch to the CH1/2 position so that the audio level meter display in the display window indicates CH1 and CH2, and check that 1 and 2 are actually indicated as the display in the display window. Before proceeding any further, on the menu, set whether to activate the F.AUDIO LEVEL controls which are used for attenuation. (At the factory, the mode in which these controls are inactive is established.)

2 Set the AUDIO SELECT CH1 and CH2 buttons to MAN (manual).

3 While monitoring the audio level meter in the display window or the audio level meter display inside the viewfinder, adjust the AUDIO LEVEL CH1 and CH2 controls. If the uppermost bar (0 dB) is exceeded, the "OVER" display lights up to indicate that the input volume is too high. The level must be adjusted so that 0 dB will not be indicated even under maximum volume conditions.

Audio level meter in display window
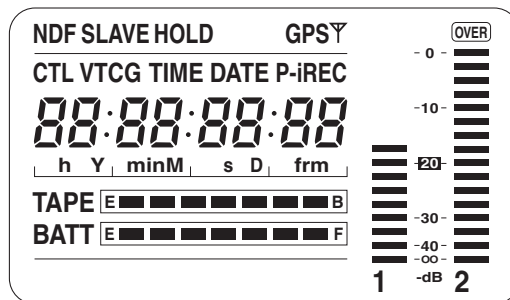
Audio level meter display inside viewfinder


```
F : 1 - - - - ■
R : 2 - - - - ■ - - - +
```

For the audio levels to be adjusted by one person only, it is recommended that the F.AUDIO LEVEL controls be used.
Select in advance the audio channels whose levels are to be adjusted, and while monitoring the level meter on the viewfinder screen, adjust the F.AUDIO LEVEL controls in such a way that the input will not be too high.

4-4-3 CH3 and CH4 recording levels

Audio signals can be recorded separately for four audio channels. Perform menu operations to open the <MIC/AUDIO1> screen from the VTR MENU page to change the settings for the AUTO LEVEL CH3 and AUTO LEVEL CH4. Depending on the setting conditions and input level for these items, recording levels for audio tracks CH3 and CH4 change as shown in the table below. Note that adjustments cannot be performed manually.

AUTO LEVEL CH3/CH4*	Input level	
	LINE	MIC
ON	AGC ON	AGC ON
OFF	AGC/LIMITER OFF	LIMITER ON

<Note>
The DVCPRO HD EX format allows signals for 8 audio channels to be recorded, but the same signals as CH1, CH2, CH3 and CH4 will be recorded for CH5, CH6, CH7 and CH8, respectively.

4-5 Setting the time data

When the user bits and time code are both to be used, the user bits are set first.
If the time code is set first, the time code generator will stop while the user bits are being set so that the time code setting will be off.
The time code setting range extends from 00:00:00:00 to 23:59:59:29.

4-5-1 Setting the user bits

By setting the user bits, information, such as a memorandum (date, time) of up to 8 digits in hexadecimal numbers, can be recorded in the sub-code area (LTC) and the VIDEO AUX area (VITC).
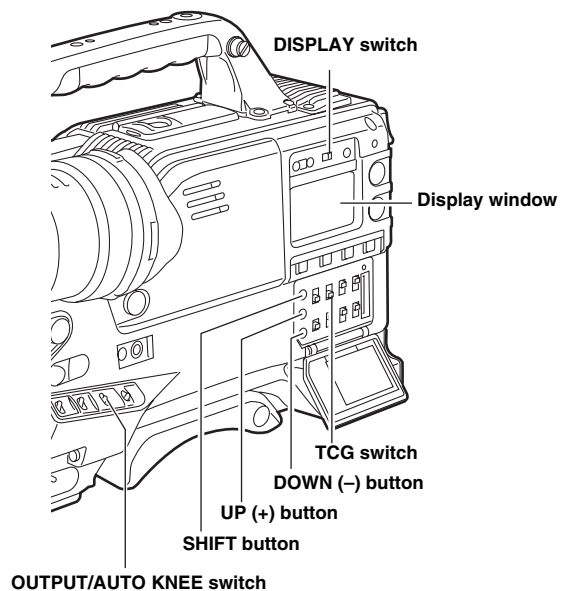
1 Set the DISPLAY switch to UB.

2 Set the TCG switch to SET.

3 Set the user bits using the SHIFT button, UP (+) button and DOWN (–) button.
SHIFT button: This is used to cause the digit that is to be set to flash. Each time it is pressed, the flashing digit moves to the right.
UP (+) button: This increments the numerical value of the flashing digit by 1.
DOWN (–) button: This decrements the numerical value of the flashing digit by 1.

4 Set the TCG switch to F-RUN or R-RUN.

5 ● To record the user bits of LTC, open the <TC/UB> screen from the VTR MENU page by performing menu operations and select "USER" in the UB MODE item.
(When the recording format is 720-50P or 720-59.94P, set the OUTPUT/AUTO KNEE switch to the "BARS" position in order to record the user bits of LTC in a mode for recording built-in color bar signals.)
● To record the user bits of VITC, select "USER/EXT" in the VITC UB MODE item.

<Notes>
● The time code/user bits are also recorded in the VIDEO AUX area of the unit's memory.
The time code (VITC) is the same value as the sub code area's time code (LTC). The user bits (VITC user bits) can be selected by menu operations using the VITC UB MODE item on the <TC/UB> screen which is accessed from the VTR MENU page, and it can be used for different applications from the LTC.
● The number of digits that can record user bits may vary with the recording format.

When the recording format is 1080-50i or 1080-59.94i

CAMERA MODE	User bits	
24P 24PA	LTC UB	**All 8 digits can be recorded** (In accordance with the settings in the UB MODE item)
	VITC UB	Camera shooting information is recorded automatically.
60i 50i 30P 25P	LTC UB	**All 8 digits can be recorded** (In accordance with the settings in the UB MODE item)
	VITC UB	**All 8 digits can be recorded** (In accordance with the settings in the VITC UB MODE item)

When the recording format is 720-50P or 720-59.94P

OUTPUT/AUTO KNEE switch	CAMERA MODE: 60P/50P/30P/25P/24P	
BARS (Built-in color bar signals)	LTC UB	**Upper 6 digits can be recorded.** (In accordance with the settings in the UB MODE item)
	VITC UB	**Upper 6 digits can be recorded.** (In accordance with the settings in the VITC UB MODE item)
CAM (Camera video image signals)	LTC UB	User bits information is recorded automatically.
	VITC UB	**Upper 6 digits can be recorded.** (In accordance with the settings in the VITC UB MODE item)

● When the recording format is 720-50P or 720-59.94P, operations where FRM RATE or REGEN is selected in the UB MODE item will be the same when USER is selected. Furthermore, operations where TIME is selected in the VITC UB MODE item will be the same when FRM RATE or REGEN is selected.
● When only the upper 6 digits of the user bits can be recorded, the remaining lower 2 digits are not recorded. In this case, the user setting value and the lower 2 digits of the time code generator that are selected in the UB MODE item and VITC UB MODE item cannot be recorded.

4

User bit memory function

The user bit settings (except for the actual time) are automatically saved in the memory and retained even after the power is turned off.

Tape continuity with the user bits

(Only when the recording format is 1080-50i or 1080-59.94i)
Selecting REGEN for the UB MODE item on the <TC/UB> screen by performing menu operations will call up the user bits recorded on the tape, making it possible to continue recording from that value. However, it is not possible to record the contents that were set.

Camera shooting information

In the unit, the frame rate information (camera shooting mode) indicating the shooting rate and the active frame information (update frame information) indicating the first frame of which frame images are switched are automatically stored as the camera's shooting information into the user bits of LTC (when the recording format is 720-50P or 720-59.94P) or the user bits of VITC (when the recording format is 1080-59.94i and the video method is 24P or 24PA).
These kinds of information will be output from the TC OUT connector rather than recorded on tape. It will also be overlaid with the HD SDI signals output from the MON OUT connector and VIDEO OUT connector.
The active frame information (update frame information) is stored in the lowest digit of the user bits, while the frame rate information (camera shooting mode) is stored in the lower 3rd and 4th digits. To store the camera shooting information into the user bits of LTC and the user bits of VITC in other shooting modes, open the <TC/UB> screen from the VTR MENU page by performing menu operations and select "FRM RATE" in the UB MODE item and the VITC UB MODE item.

How to store the camera shooting information into user bits

SYSTEM MODE/ CAMERA MODE			User bits
1080-59.94i	24P 24PA	LTC UB	Select "FRM RATE" in the UB MODE item.
		VITC UB	Auto
1080-50i 1080-59.94i	60i 50i 30P 25P	LTC UB	Select "FRM RATE" in the UB MODE item.
		VITC UB	Select "FRM RATE" in the VITC UB MODE item.
720-50P 720-59.94P	60P 50P 30P 25P 24P	LTC UB	Auto
		VITC UB	The VITC user bits information is recorded automatically.

When the recording format is 1080-50i or 1080-59.94i

User bits of VITC (or LTC)

$$**:04:24:8*$$

- Checking information for the 6 digits at right.
- Fixed value
- Sequence No. 24P, 24PA: 0 to 4 In all other modes: Fixed at F
- Tape management information
  - Updated frame information
  - REC START/STOP mark
- Camera shooting mode
  - 60i: 600
  - 30P: 308
  - 24P: 248
  - 24PA: 24C
  - 50i: 502
  - 25P: 25A
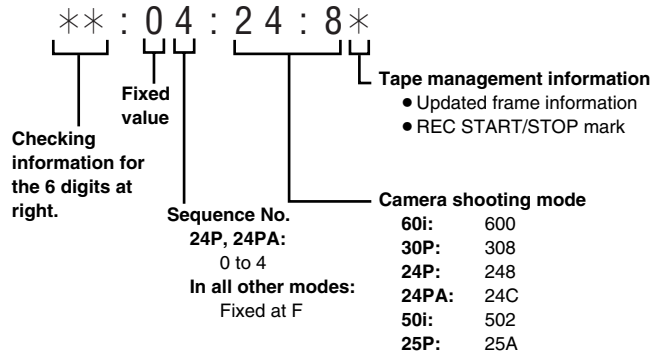
Frame rate: 24P Over 60i (2:3)

▨ Starting field for the updated frame

Time code frame digit

00	01	02	03	04	05	06	⋯	23	24	25	26	27	28	29

Image

| Ao | Ae | Bo | Be | Bo | Ce | Co | De | Do | De | Ao | Ae | Bo | Be | ⋯ | Co | De | Do | De | Ao | Ae | Bo | Be | Bo | Ce | Co | De | Do | De |

Sequence No.

| 0 | 1 | 2 | 3 | 4 | 0 | 1 | ⋯ | 3 | 4 | 0 | 1 | 2 | 3 | 4 |

Updated frame information

| 10 | 10 | 01 | 01 | 00 | 10 | 10 | ⋯ | 01 | 00 | 10 | 10 | 01 | 01 | 00 |

Frame rate: 24PA Over 60i (2:3:3:2)

Time code frame digit

00	01	02	03	04	05	06	⋯	23	24	25	26	27	28	29

Image

| Ao | Ae | Bo | Be | Bo | Ce | Co | Ce | Do | De | Ao | Ae | Bo | Be | ⋯ | Co | Ce | Do | De | Ao | Ae | Bo | Be | Bo | Ce | Co | Ce | Do | De |

Sequence No.

| 0 | 1 | 2 | 3 | 4 | 0 | 1 | ⋯ | 3 | 4 | 0 | 1 | 2 | 3 | 4 |

Updated frame information

| 10 | 10 | 01 | 00 | 10 | 10 | 10 | ⋯ | 00 | 10 | 10 | 10 | 01 | 00 | 10 |

Frame rate: 30P Over 60i (2:2)
25P Over 50i (2:2)

Time code frame digit

00	01	02	⋯

Image

| Ao | Ae | Bo | Be | Co | Ce | ⋯ |

Updated frame information

| 10 | 10 | 10 | ⋯ |

When the recording format is 720-50P or 720-59.94P

LTC user bits

● When the internal colour bar signals are being recorded

User bits setting

Frame frequency
4: 50.00 Hz
5: 59.94 Hz

Tape management information
● Active frame information
● REC START/STOP mark

0 1 : 1 2 : 0 1 : 5 0
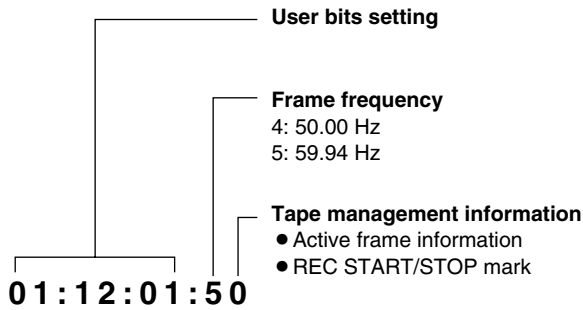
● When the camera's video signals are being recorded

Recorded frame number count
An estimated calculation of the number of recorded frames will be displayed.
When the frame rate has been set to 24 fps and recording has been performed for 10 seconds, "0240" will be displayed as the count.
When recording is started, the count is reset to "0000," and the number of recorded frames per cut is counted up to "9999."
<Note>
When the PRE RECORDING function is turned ON, the number of frames recorded in the pre-recording operation is not counted.

Frame rate information
24 fps
(23.98 fps)

Frame frequency
4: 50.00 Hz
5: 59.94 Hz

Tape management information
● Active frame information
● REC START/STOP mark

0 2 : 4 0 : 2 4 : 5 0

VITC user bits

User bits setting

Tape management information
LTC user bits verification information

0 1 : 1 2 : 0 1 : x x

To verify the VITC user bits, set the DISPLAY switch to UB, and hold down the HOLD button.
While the HOLD button is held down, the VITC user bits information appears on the counter display.

<Reference>
The table below shows the correlation between the active frame rate and time code in the 24P, 25P, 30P and 50P modes.

Frame rate: 24P Over 60P (2:3)

Time code frame digit   ▨ **Active frame**

00	01	02	03	04	05	06	···	23	24	25	26	27	28	29

Image

A	A	B	B	B	C	C	D	D	D	A	A	B	B	···	C	D	D	D	A	A	B	B	B	C	C	D	D	D

Active frame information

10	10	01	01	00	10	10	···	01	00	10	10	01	01	00
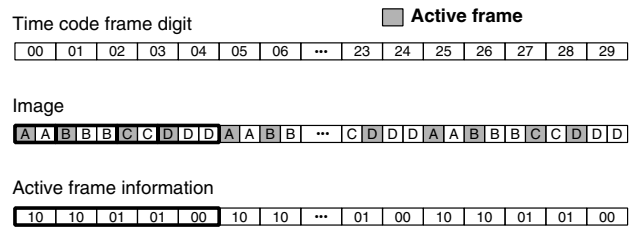
Frame rate: 30P Over 60P (2:2)
25P Over 50P (2:2)

Time code frame digit

00	01	02	···

Image

A	A	B	B	C	C	···

Active frame information

10	10	10	···

4
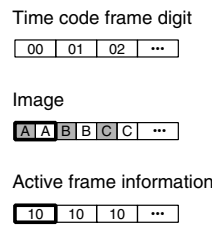
4-5-2 Setting the internal clock's date and time

1 Set the DISPLAY switch to UB.

2 Press the HOLD button to cause DATE to be displayed in the display window.

3 Set the TCG switch to SET.

4 Set the date (year/month/day) using the SHIFT button, UP (+) button and DOWN (–) button.

5 Press the HOLD button to cause TIME to be displayed in the display window.

6 Set the time (hour/minutes/seconds) using the SHIFT button, UP (+) button and DOWN (–) button.

7 Set the TCG switch to F-RUN or R-RUN. The internal clock starts marking time as soon as the switch position is changed.

8 Press the HOLD button to cause TIME ZONE (difference from the world standard time) to be displayed in the display window.

9 Set the TCG switch to SET.

10 Set the time difference (hour/minutes) and whether it is ahead (no display) or behind ("–" display) the world standard time using the UP (+) button or DOWN (–) button.

Example: When the time difference is 5 hours behind (New York)
Set "05:00 –".

The time zone is always stored along with the date and time in the memory as memo data. While referring to the table on the right, set whatever applies to the local time.

11 Set the TCG switch to F-RUN or R-RUN to fix the time zone.

Time difference	Region	Time difference	Region
00:00	Greenwich	– 00:30	
– 01:00	Azores	– 01:30	
– 02:00	Mid-Atlantic	– 02:30	
– 03:00	Buenos Aires	– 03:30	New Foundland
– 04:00	Halifax	– 04:30	
– 05:00	New York	– 05:30	
– 06:00	Chicago	– 06:30	
– 07:00	Denver	– 07:30	
– 08:00	Los Angeles	– 08:30	
– 09:00	Alaska	– 09:30	Marquesas Islands
– 10:00	Hawaii	– 10:30	
– 11:00	Midway Island	– 11:30	
– 12:00	Kwajalein	+ 11:30	Norfork Island
+ 13:00		+ 10:30	Lord Howe Island
+ 12:00	New Zealand	+ 09:30	Darwin
+ 11:00	Solomon Islands	+ 08:30	
+ 10:00	Guam	+ 07:30	
+ 09:00	Tokyo	+ 06:30	Rangoon
+ 08:00	Beijing	+ 05:30	Bombay
+ 07:00	Bangkok	+ 04:30	Kabul
+ 06:00	Dhaka	+ 03:30	Tehran
+ 05:00	Islamabad	+ 02:30	
+ 04:00	Abu Dhabi	+ 01:30	
+ 03:00	Moscow	+ 00:30	
+ 02:00	Eastern Europe	+ 12:45	Chatham Island
+ 01:00	Central Europe		

\<Notes\>

● After the date has been set in step **4**, the internal clock starts marking the time as soon as the switch position has been changed even when the TCG switch is set to F-RUN or R-RUN.
To cancel the setting in the course of setting the date, time or time zone, set the TCG switch to F-RUN or R-RUN while holding down the SHIFT button.

● The clock is accurate to a monthly error of approximately +/– 30 seconds in the power OFF status. If a more accurate time reading is required, check the time and set it again when the power is turned on.
If the date or time display has deviated from the local time, the time zone setting may be off. Check the time zone setting again. (There is no need to set the date and time again.)

4-5-3 Setting the time code

1 Set the DISPLAY switch to TC.

2 Set the TCG switch to SET.

3 Open the <TC UB> screen from the VTR MENU page by performing menu operations, and select DF or NDF as the TC MODE item setting. To advance the time code in the drop frame mode, select DF; to advance it in the non-drop frame mode, select NDF.
   <Note>
   The switching function between "NDF" and "DF" is enabled when the system frequency of the unit is set to 59.94 Hz.
   When the system frequency is set to 50 Hz, it always advances the time code in the non-drop frame mode.

4 Set the time code using the SHIFT button, UP (+) button and DOWN (–) button.

5 Select the TCG switch position.
   Select "F-RUN" to advance the time code in the free-run mode or select "R-RUN" to advance it in the rec-run mode.

To regenerate the time code as the value on the tape and record continuously

When the TCG switch is constantly set to R-RUN position, the time code is regenerated as the time code value on the tape that was already recorded when starting the recording on the tape, so that the time code is recorded continuously. (When the FIRST REC TC item is set to the REGEN)
<Notes>
● If the TCG switch is set to the SET or F-RUN position before recording, the recording starts with the time code of the set value when starting the recording regardless of the value on the tape.
● After recording once, the unit returns to the state where the time code is regenerated as the value on the tape.
● When the power is turned off, the unit returns to the state where the time code is regenerated as the value on the tape. (When the TCG SET HOLD item is set to the OFF)
● When the TCG switch is set to the SET or the F-RUN position once and then to R-RUN, the unit returns to the state where the time code is regenerated as the value on the tape by executing the jump function. For details, refer to "3-3 Scene-to-scene continuity."

Time code when the battery is replaced

The backup function works even when the battery is replaced, and the time code generator continues to operate for a prolonged duration (approx. 1 year).

<Note>
If the POWER switch is turned on, then off, and then on again, the free-run time code backup accuracy is approximately ±2 frames.

4-5-4 Externally locking the time code

The unit's internal time code generator can be locked to an external generator. In addition, the time code generator of an external VTR can be locked to the unit's internal generator.

Example of connections for external locking

As the figure shows, connect both the reference video signal and reference time code.

Example 1: When locking onto an external signal
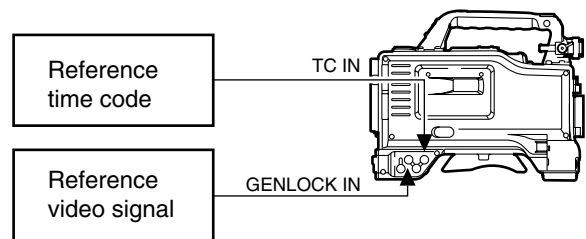
<Note>
In place of the HD Y reference signal, composite video signals can be input as the reference video signal.

Example 2: When connecting a multiple number of units and using one of them as the reference unit

MON OUT (HD-Y) or VIDEO OUT (VBS)

TC OUT

Reference unit

TC IN

GENLOCK IN

MON OUT (HD-Y) or VIDEO OUT (VBS)

TC OUT

TC IN

GENLOCK IN

MON OUT (HD-Y) or VIDEO OUT (VBS)

TC OUT

To the next camera

<Note>

The system can be configured with multiple units by opening the <GENLOCK> screen from the SYSTEM SETTING page and setting the GL PHASE item to the connector using menu operations.

The phase of the time code can correspond to either the HD-Y output signals of the MON OUT connector or VBS output signals of the VIDEO OUT connector. However, the same value should commonly be set to the GL PHASE for all cameras. If different values coexist in the system, the shooting timing may not correspond to each other.

Reference video signal	Setting of GL PHASE
MON OUT (HD-Y)	HD SDI
VIDEO OUT (VBS)	COMPOSIT

Setting of GL PHASE

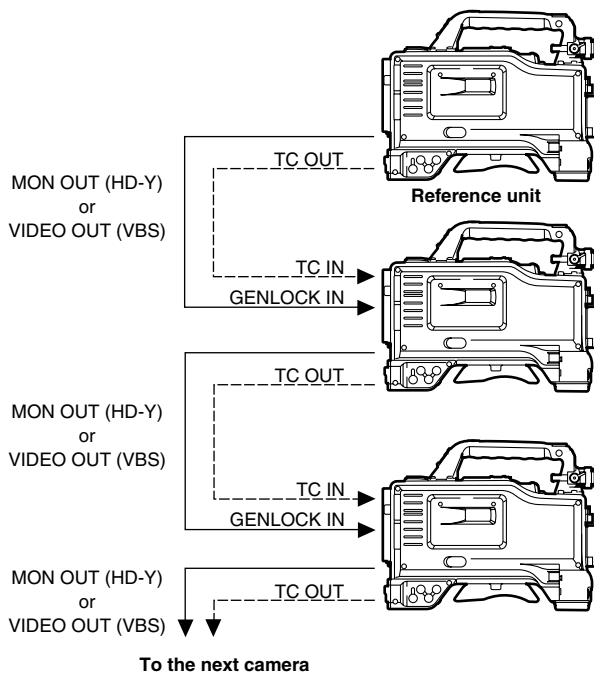| Item	Variable range	Remarks
GL PHASE	HD SDI COMPOSIT	For selecting the output signals that lock phases to the signals that are input in the GENLOCK IN connector. **HD SDI:** For locking the HD SDI signals to the GENLOCK input. For the down converter output signals, the start position of the video delays by about 90 lines. **COMPOSIT:** For locking the down converter output signals to the GENLOCK input. For the HD SDI output signals, the start position of the video gains by about 90 lines.

In the unit, there is a video signal delay in the camera, which is required or the process of converting video images taken with the image-shooting element from the progressive signals to the interlace signals. Since time is required for making the 2:3 pull-down from the 24P frame, there is a video signal delay in the camera. When recording from a device that can record images without a delay and the unit is connected in parallel, it is necessary to synchronize the time code. To set this timing, open the <TC UB> screen from the VTR MENU page and set it in the TC VIDEO SYNCRO item. Set by referring to the connection example.

Setting of the TC VIDEO SYNCRO item

Item	Variable range	Remarks
TC VIDEO SYNCRO	0 1 2 3	For setting to correct the time code according to the delay of video signals. **0:** Do not correct. **1:** To delay the time code to be input according to the timing of the video images. **2:** To forward the time code to be output according to the timing of the video images. **3:** To delay the time code to be input and forward the time code to be output, respectively, according to the timing of the video images.

Example 3:

When the unit and an external device are locked to the external time code generator, which is connected externally, and when simultaneous recording is made by using the TC OUT output signals.

Reference video signal

External time code generator

TCG

TC OUT

Device that records images without a delay

TC IN

DAT

AJ-HDX900

TC IN

Settings of the TC VIDEO SYNCRO item: 1

GENLOCK IN

TC OUT

MON OUT or VIDEO OUT

TC IN

VTR etc.

VIDEO IN SDI IN HD SDI IN

REF IN
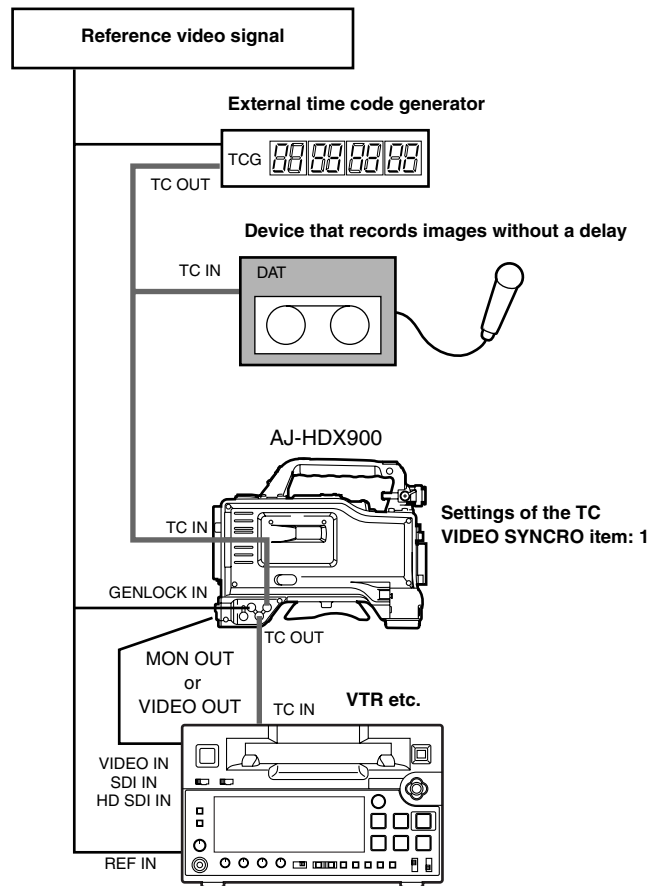
Example 4:
When the unit and an external device are locked to the external time code generator, which is connected externally, and when several units of the camera are connected in a cascade configuration.

Reference video signal

External time code generator

TCG

TC OUT

Device that records images without a delay

TC IN   DAT

AJ-HDX900   **1st unit**

Settings of the TC VIDEO SYNCRO item: 1

TC IN

GENLOCK IN

TC OUT

AJ-HDX900   **2nd unit and later**

Settings of the TC VIDEO SYNCRO item: 0

TC IN

GENLOCK IN

TC OUT

AJ-HDX900

TC IN

GENLOCK IN

Settings of the TC VIDEO SYNCRO item: 0

TC OUT
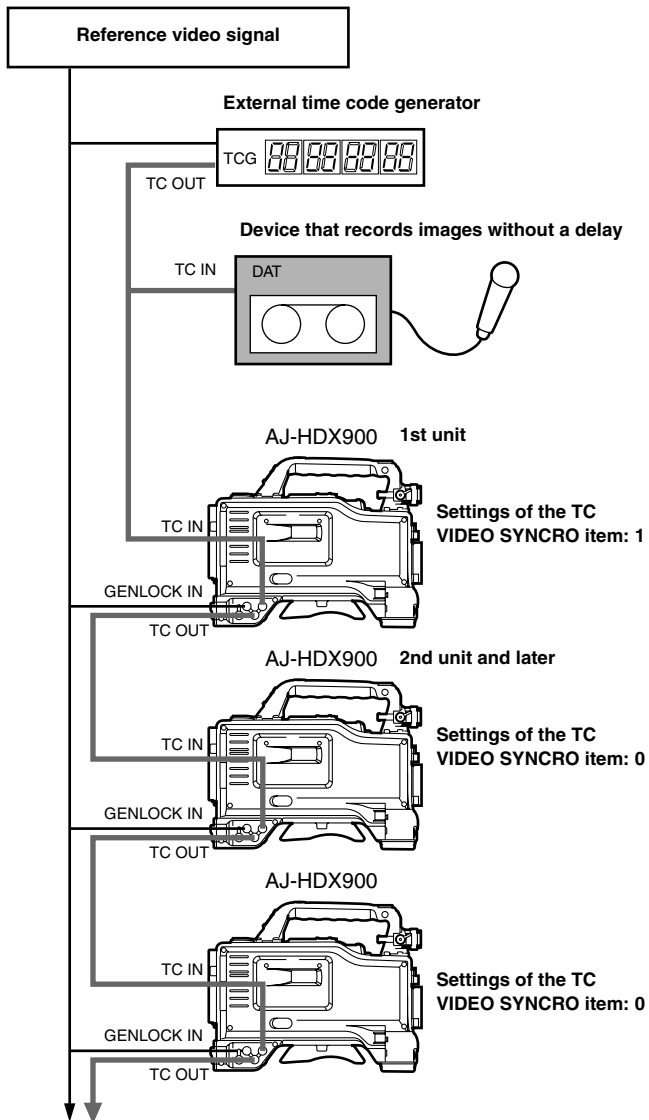
Example 5:
When an external device is locked to the time code generator of the unit.

Reference video signal

To be connected if necessary

TCG

TC OUT

AJ-HDX900

TC IN

Settings of the TC VIDEO SYNCRO item: 3

GENLOCK IN

TC OUT

A device that synchronizes with the TC IN input and capable to record without delay (DAT etc.)

TC IN   DAT

4
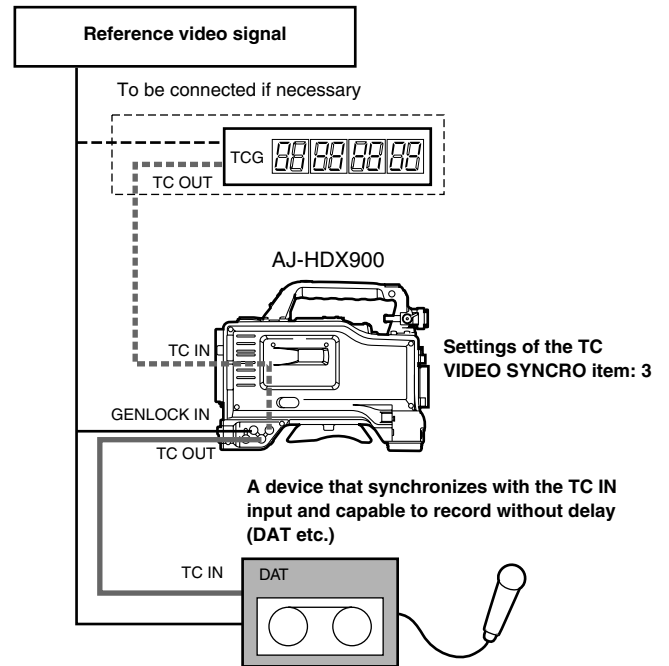
Example 6:
When an external device is locked to the time code generator of this unit, which is connected in a cascade configuration.

Reference video signal

To be connected if necessary

TCG

TC OUT

AJ-HDX900   **1st unit**

Settings of the TC VIDEO SYNCRO item: 1

TC IN

GENLOCK IN

TC OUT

AJ-HDX900   **From the 2nd unit to the (n–1)-th unit**

TC IN

Settings of the TC VIDEO SYNCRO item: 0

GENLOCK IN

TC OUT

AJ-HDX900   **n-th unit**

TC IN

Settings of the TC VIDEO SYNCRO item: 2

GENLOCK IN

TC OUT

A device that synchronizes with the TC IN input and capable to record without delay (such as DAT or a camera recorder)

TC IN   DAT

Operating procedure for external locking

Follow the steps below for external locking.

1 Set the POWER switch to ON.

2 Set the TCG switch to F-RUN.

3 Set the DISPLAY switch to TC.

4 Supply the reference time code and reference video signal, which are in a phase relationship that satisfies the time code standard, to the TC IN connector and GENLOCK IN connector respectively.

The built-in time code generator is now locked to the reference time code.
About 10 seconds after locking, the external lock status will be retained even if the connection of the externally supplied reference time code is disconnected. However, the servo lock will be subject to disturbances if it is connected or disconnected during recording.
● When the power of the unit is turned off, the time code is unlocked.
● The accuracy of the time code is ± 20 seconds a month.

<Note>
When the external lock operation is performed, the time code is instantly locked to the external time code, and the same value as the external code value appears on the counter display. Do not set the unit to the recording mode during the few seconds it takes for the sync generator to stabilize.

Concerning the user bits setting during external lock

When the unit's time code is externally locked, only the time data is locked to the time data of the time code supplied from the external source. This means that the user bits can be set separately for each component.
When the <TC/UB> screen is opened from the VTR menu page and EXT is selected as the UB MODE item setting by performing menu operations, the user bits can also be locked to the user bits of the time code supplied from the external source.

To release the external lock

First stop supplying the external time code, and set the TCG switch to R-RUN.

When switching the power from the battery to an external power supply while the time code is externally locked

In order to ensure the continuity of the time code generator's power, connect the external power supply to the DC IN socket, and then remove the battery pack. If the battery pack is removed first, no guarantees can be made for the continuity of the external locking of the time code.

Gen-locking of the camera unit while the time code is externally locked

While the time code is externally locked, the camera unit is gen-locked by the reference video signal which is supplied to the GENLOCK IN connector.

<Notes>
● When the signal from the unit's HD SDI connector is to be used as the reference video signal, first set the OUTPUT SEL switch on the side panel to the CAM position.
● It takes time to synchronize GEN LOCK. Please do not record or do any other operations until synchronization is finished (approx. 10 sec.).

4-5-5 Setting the UMID information

This unit supports metadata UMIDs. As the UMID data, the user must first set the name of his or her country (with 3 or fewer characters), the name of the company or organization (with 4 or fewer characters), and the user name (with 4 or fewer characters). Input the name of the country based on the Country Codes (∗1) stipulated under the ISO 3166 standard.
Given here as an example is the procedure for inputting the user name.

∗1 **Examples:**
CHN for China, USA for United States, CAN for Canada, and JPN for Japan

```
< UMID SET/INFO >
  --OWNER--
  COUNTRY        : * * *
  ORGANIZATION   : * * * *
→ USER           : * * * *

  **DEVICE NODE**
```

1 Open the <UMID SET/INFO> screen from the VTR menu page by performing a menu operation.

2 Turn the JOG dial button to move the arrow (cursor) to the "USER" item.

3 Press the JOG dial button to switch the screen to the character entry mode.

4 Press the JOG dial button again and turn it until the character to be set is displayed.
When the button is turned, the character displayed is switched in the following sequence:
　　Space: □
　　　⬇
　　letters: A—Z
　　　⬇
　　numbers: 0—9
　　　⬇
　　symbols: ', >, <, /, −

<Note>
Only spaces and letters can be selected for the COUNTRY item. This does not apply to other items.

5 Press the JOG dial button to enter the character.

6 Turn the JOG dial button to set the following characters.

7 When the JOG dial button is pressed, the arrow (cursor) returns to the "USER" item.

8 Press the MENU button to exit the menu operations.

4-6 Menu displays on the viewfinder screen

4-6-1 Menu configuration

USER MENU:
Although USER MENU is set at the factory, the user may perform menu operations to open the <USER MENU SELECT> screen from the MAIN MENU page, select the settings for its items in accordance with the purpose of operation and setting frequency and configure a menu tailored to individual needs.
This menu appears when the MENU button is pressed.

MAIN MENU:
This enables all the items on the setting menus to be set. It can be organized hierarchically by category in accordance with the purpose of operation and setting frequency. It appears when the MENU button is pressed for 3 or more seconds.

OPTION MENU:
This menu is provided to accommodate the functions that may be added in the future. It appears when the MENU button is pressed while the LIGHT button is held down.

4-6-2 Basic menu operations

Menu items are selected and entered using the MENU button and JOG dial button. The menus have a hierarchical configuration consisting of the main menu, sub menus and setting item menus.
The data which has been set is written and saved in a non-volatile memory.
The operations performed for the MAIN MENU are described here but the operating procedure is the same for the other menus as well except for the screen displays.

1 Press the MENU button for 3 or more seconds.
The menu screen consisting of items organized on a category by category basis now appears.

```
→ * * * *  M A I N  M E N U  * * * *

    S Y S T E M  S E T T I N G
    P A I N T
    V F
    O P E R A T I O N
    F I L E
    M A I N T E N A N C E
    V T R  M E N U

    U S E R  M E N U  S E L E C T


```

SYSTEM SETTING:
This item is used when deciding on the unit's recording signals, recording system, etc.

PAINT:
This item is used when detailed image adjustments are to be made while a waveform monitor is used to monitor the camera's output waveforms. Video engineer support is normally required for this. The items under this sub menu can also be set using an external remote control unit, but they are valid only when the unit is used on its own.

VF:
This item is used for selecting what is to be displayed on the viewfinder screen.

OPERATION:
This item is used to change settings in accordance with the subject conditions and other factors, usually when the unit is operated by the cameraman.

FILE:
This item is used to read and write the setup card data and perform the lens file and other file-related operations.

MAINTENANCE:
This item is used to perform the maintenance and inspections related to this unit's camera unit.

VTR MENU:
This item is used to perform the maintenance and inspections related to this unit's VTR unit.

USER MENU SELECT:
This item is used for editing the USER MENU.

2 Turn the JOG dial button to move the arrow (cursor) to the item which is to be set, and the sub menu screen appears when the JOG dial button is pressed.

```
 * * * *   M A I N   M E N U   * * * *

    S Y S T E M   S E T T I N G
    P A I N T
    V F
→   O P E R A T I O N
    F I L E
    M A I N T E N A N C E
    V T R   M E N U

    U S E R   M E N U   S E L E C T
```

3 Turn the JOG dial button to move the arrow (cursor) to the item which is to be set, and the setting item menu screen appears when the JOG dial button is pressed.

```
  <   O P E R A T I O N   >

    C A M E R A   I D
    S H U T T E R   S P E E D
    S H U T T E R   S E L E C T
→   U S E R   S W
    S W   M O D E
    W H I T E   B A L A N C E   M O D E
    U S E R   S W   G A I N
    I R I S
```

4 Turn the JOG dial button to move the arrow (cursor) to the item which is to be set, and the item's setting flashes when the JOG dial button is pressed.

```
  <   U S E R   S W   >

→   U S E R   M A I N   S W      : S . G A I N
    U S E R 1   S W              : P R E   R E C
    U S E R 2   S W              : D S . G A I N
```

5 Turn the JOG dial button to change the setting.

To increment the value

Turn the JOG dial button in the clockwise direction as viewed from the front of the camera.

To decrement the value

Turn the JOG dial button in the counterclockwise direction as viewed from the front of the camera.
Each time the button is turned, the number changes by one increment. When it is turned quickly, the number changes quickly, and when it is turned slowly, the setting can be adjusted finely.

To set an item to ON or OFF

To set an item to ON, turn the JOG dial button in the clockwise direction as viewed from the front of the camera. Conversely, to set an item to OFF, turn the button in the counterclockwise direction as viewed from the front of the camera.

6 Press the JOG dial button.
The setting stops flashing, and the setting is entered.

7 To change another setting item on the same page, repeat steps *4* to *6*.

8 Press the MENU button to exit the menu operations.
The menu setting mode is exited, and operation returns to the normal operation mode.

4-6-3 Selecting the user menus

By performing menu operations, open the USER MENU SELECT page from the MAIN MENU and then open the setting item menu screens, and select only those items required on the USER MENU.
Only the items which have been set are displayed as the USER MENU items. For details on operation, refer to "4-6-2 Basic menu operations."

```
  <   U S E R   M E N U   S E L E C T   >
                          ( S E L E C T   M O D E )
→   S Y S T E M   S E T T I N G
    P A I N T
    V F
    O P E R A T I O N
    F I L E
    M A I N T E N A N C E
    V T R   M E N U
```
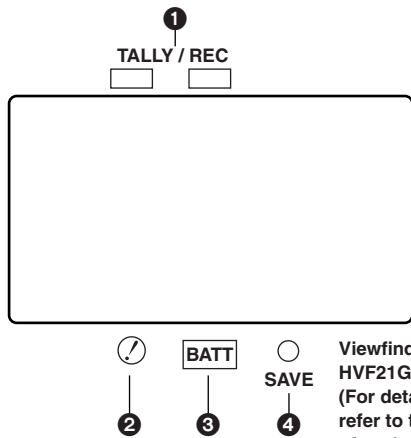
<Note>
Setting items are effective when "✳" is displayed. However, the maximum number of items that can be set is 42 in the case of camera related items (3 pages' worth, with 14 items per page, 14 × 3 = 42) or 14 in the case of VTR related items (1 page's worth, or 14 items).

4-7 Viewfinder screen status displays

Not only the images but the lamps and characters indicating the unit's settings and operation statuses as well as the messages, center and safety zone markers, camera ID and other information are displayed inside the viewfinder.

4-7-1 Viewfinder lamp displays

TALLY / REC

❶

⊘ **BATT** ○
        SAVE
❷   ❸   ❹

**Viewfinder pictured here is the AJ-HVF21G.
(For details concerning viewfinder, refer to the operating instructions of each viewfinder.)**

❶ **TALLY/REC (recording) lamp**

This lights up (red) during recording. It flashes when a problem has occurred.   For details, refer to the appropriate section in "6-3 Warning system."

❷ ⊘ **(abnormal operating status warning) lamp**

This lights when the unit is set to an abnormal operating status for any of the items set to "ON" on the "!LED" screen of the setting menu.

For details on selecting the items which are to be indicated with the ⊘ lamp, refer to the <!LED> screen items in "Chapter 7 Menu description tables."

❸ **BATT (battery) lamp**

This starts flashing when the battery voltage has dropped to the level where the battery will no longer be usable in several minutes' time, and it lights when the battery is no longer usable.   To prevent operation from being interrupted, replace the battery before it has discharged completely. For details, refer to the appropriate section in "6-3 Warning system."

❹ **SAVE (VTR power-saving) lamp**

This lights when the VTR SAVE/STBY switch is set to SAVE. It goes off during recording.

<Note>

In the rec-pause mode, the SAVE mode is established automatically, and the lamp lights after the time set for the pause timer (temporary stop time) has elapsed.

After two minutes in the play-pause mode, the SAVE mode is established automatically, and the lamp lights.

4-7-2 Viewfinder screen status display configuration

All the items that can be displayed are laid out inside the viewfinder as shown in the figure below.
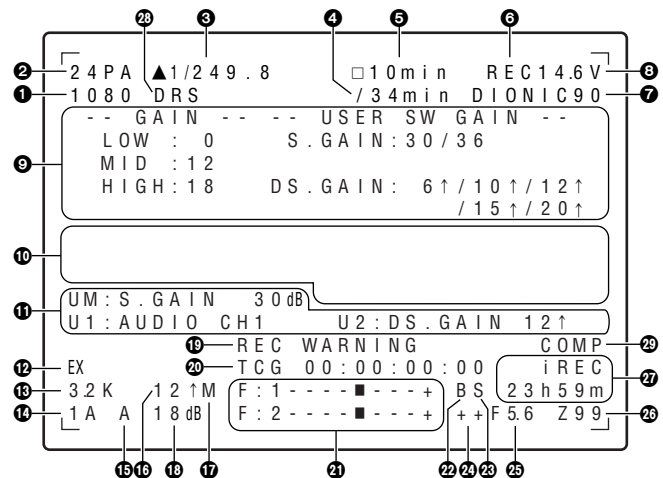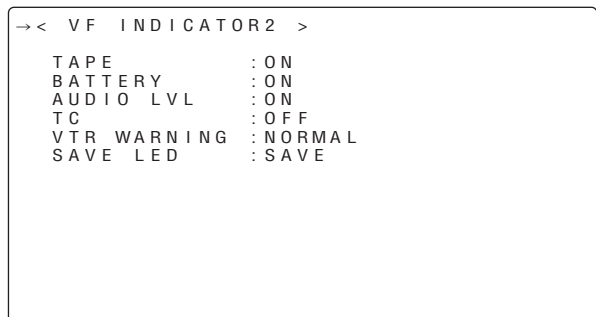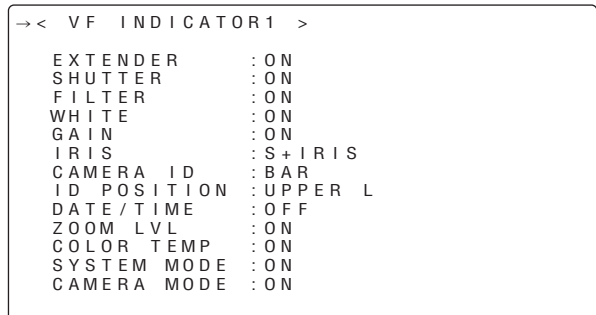

For details, refer to the following pages.

4-7-3 Selecting the viewfinder screen display items

To select which items are to be displayed on the viewfinder screen, perform menu operations to open the <VF INDICATOR1> screen or <VF INDICATOR2> screen from the VF page, and select ON or OFF for the display or select the type desired for each item concerned.

For details on operation, refer to "4-6-2 Basic menu operations."

```
→<  V F   I N D I C A T O R 1   >

    E X T E N D E R      : O N
    S H U T T E R        : O N
    F I L T E R          : O N
    W H I T E            : O N
    G A I N              : O N
    I R I S              : S + I R I S
    C A M E R A   I D    : B A R
    I D   P O S I T I O N : U P P E R   L
    D A T E / T I M E    : O F F
    Z O O M   L V L      : O N
    C O L O R   T E M P  : O N
    S Y S T E M   M O D E : O N
    C A M E R A   M O D E : O N
```

```
→<  V F   I N D I C A T O R 2   >

    T A P E              : O N
    B A T T E R Y        : O N
    A U D I O   L V L    : O N
    T C                  : O F F
    V T R   W A R N I N G : N O R M A L
    S A V E   L E D      : S A V E
```

Display item	What is displayed	Status when display appears
❶ **System mode**	1080 720	This indicates the mode that the unit operates in. 1080 interlace mode 720 progressive mode
❷ **Camera mode**	60i 30P 24P 24PA 50i 25P 60P 50P	This indicates the video systems for recording signals output from the CCD on tape and outputting signals as HD SDI signals. 1080-59.94i 1080-29.97P or 720-29.97P 1080-23.98P or 720-23.98P (2-3 Pull-down) 1080-23.98P (2-3-3-2 Pull-down) 1080-50i 1080-25P or 720-25P 720-59.94P 720-50P
❸ **Shutter speed/mode**	▶1/✳✳.✳ 1/60 (1/100) - 1/2000, HALF	This indicates that the shutter speed is set to SYNCHRO SCAN. This indicates that a fixed shutter speed has been set.
❹ **Total length of cassette tape**	✳✳✳min	This indicates the total length of the cassette tape. (This appears during a mode check.)
❺ **Remaining tape**	✳✳✳min 🎞 END 🎞 INH	Under normal conditions, "✳✳✳min" lights, and this starts flashing while the tape is reaching the end. When the tape has reached the end, "🎞 END" lights. When recording has been inhibited, "🎞 INH" lights.
❻ **Unit's REC display**	REC	This appears when the extender unit has been connected to indicate the unit's recording status using characters. It lights during recording, and it flashes while the unit's mode is transferring to recording or when a warning has been issued.
❼ **Battery type**	PROPAC14 to AC_ADPT	This indicates the type of battery selected on the menu. "AC_ADPT" appears when an external DC power supply has been input.
❽ **Remaining battery charge/voltage**	✳✳.✳V ✳✳✳% EMP MAX	This indicates the remaining battery charge in 0.1V increments. This indicates the remaining digital battery charge in percent. This appears when the battery has no charge left. This appears when the battery has a full charge.

❾ **MODE CHECK dedicated display area** (STATUS: master gain, user switch gain)	LOW/MID/HIGH
	  –3 to 30
	S.GAIN30/36
	DS.GAIN6↑/10↑/12↑/
	  15↑/20↑
		This indicates the master gain setting.
		Example: LOW = 0
		When S.GAIN and DS.GAIN functions have been allocated to the user switches, the corresponding gain values are displayed.

(Causes for ! LED to light: Displayed on the entire screen.) ● An exclamation mark (!) appears next to items selected on the ! LED menu. ● An exclamation mark (🔳) appears next to items for which the ! LED lights.	GAIN (0 dB) GAIN (–3 dB) DS.GAIN LINE MIX SHUTTER WHITE PRE. EXTENDER BLACK GAMMA. MATRIX COLOR COR. FILTER	This indicates the current GAIN status. This indicates the current GAIN status. This indicates the current DS.GAIN value. This indicates whether the current LINE MIX is ON or OFF. This indicates the current shutter status. This indicates the current WHITE BAL status. This indicates whether the current extender setting is on EX2 or OFF. This indicates whether the current black gamma setting is ON or OFF. This indicates whether the current MATRIX setting is A, B or OFF. This indicates whether the current COLOR CORRECTION setting is ON or OFF. This indicates the current filter status.
(FUNCTION)	VIDEO OUT MONI OUT	This indicates the settings for signals output from the VIDEO OUT connector. This indicates the settings for signals output from the MON OUT connector.
(AUDIO: front controls enable/disable)	CH1: ON/OFF CH2: ON/OFF	ON appears if the front CH1 control is enabled and OFF appears if it is disabled. ON appears if the front CH2 control is enabled and OFF appears if it is disabled.

4

Display item	What is displayed	Status when display appears
(AUDIO: microphone power status)	FRONT: ON/OFF REAR: ON/OFF	This indicates the status of the front microphone's power. This indicates the menu setting status for the rear microphone's power.
(AUDIO: channel input signals and levels)	FRONT/W.L./REAR CH1/2/3/4	This indicates the input signals and levels for the individual channels.

❿ **Camera warning and message display area** (Displays related to the AWB, ABB and switch operations)	AWB A ACTIVE
	AWB B ACTIVE
	AWB A OK ✳.✳K
	
	AWB B OK ✳.✳K
	
	AWB BREAK ✳.✳K
	AWB NG
	
	   COLOR TEMP LOW
	   COLOR TEMP HIGH
	   LEVEL OVER
	   LOW LIGHT
	   TIME OVER
	
	AWB PRESET ✳.✳K
	
	CHECK FILTER
	
	ABB ACTIVE
	ABB OK
	ABB BREAK
	ABB NG
	
	B-SHD READY
	
	B-SHD ACTIVE
	B-SHD OK
	
	B-SHD BREAK
	
	B-SHD NG
		This appears during an AWB operation for channel A.
		This appears during an AWB operation for channel B.
		This appears when the AWB operation has been completed satisfactorily for channel A.
		This appears when the AWB operation has been completed satisfactorily for channel B.
		This appears when the AWB operation has been forcibly terminated.
		This appears when the AWB operation has not been completed satisfactorily. The status is indicated on the second line.
		  This warns the user that the color temperature is too low.
		  This warns the user that the color temperature is too high.
		  This warns the user that the brightness is too high.
		  This warns the user that the brightness is too low.
		  This warns the user that the processing could not be executed within the operation time.
		This appears when the AWB switch is set to PRE or when super gain is set and AWB cannot be executed.
		This warns the user to recheck the position of the filter selector control during the AWB operation.
		This appears during an ABB operation.
		This appears when the ABB operation has been completed satisfactorily.
		This appears when the ABB operation has been forcibly terminated.
		This appears when the ABB operation has not been completed satisfactorily.
		This appears when the BLACK SHADING operation is ready to be performed as a result of holding down the ABB switch for a length of time during an ABB operation.
		This appears during a BLACK SHADING operation.
		This appears when the BLACK SHADING operation has been completed satisfactorily.
		This appears when the BLACK SHADING operation has been forcibly terminated.
		This appears when the BLACK SHADING operation has been not completed satisfactorily.

(Switch selection displays)	WHITE: # ✳.✳K AUTO KNEE: ON/OFF GAIN: ✳✳dB SS: 1/✳✳✳✳ SS: ▶ 1/✳✳✳✳ CC: ✳✳✳✳ ✳✳K ND: ✳ EXTENDER: ON/OFF IRIS: ✳✳ F ✳ ✳	This appears when the position of the WHITE BAL switch has been changed. "A," "B" or "PRE" appears at #. This appears when the AUTO KNEE switch has been set to ON or OFF. This appears when the gain has been selected using the GAIN selector switch or USER button. This indicates the shutter speed value when the shutter speed has been selected. This appears when synchro scan has been selected as the shutter speed. This appears when the CC filter setting has been selected. This appears when the ND filter setting has been selected. This appears when the lens extender has been set to ON or OFF. This appears when the iris overwrite correction value has been changed.
(LOW LIGHT warning display)	LOW LIGHT	This appears when the brightness has dropped.
(Y GET value)	✳✳✳.✳%	With the Y GET ON setting, the output brightness level near the center marker is displayed as "%."
(MARKER display)	MKR: A/B/OFF	This indicates the type of marker presently being displayed.

Display item	What is displayed	Status when display appears
⓫ **Information allocated to USER buttons** UM: USER MAIN U1: USER1 button U2: USER2 button	INH	"INH" is indicated when the operation of the USER button has been disabled.
	S.GAIN ✳✳dB/OFF	This indicates the value selected for S.GAIN.
	DS.GAIN ✳✳↑/OFF	This indicates the value selected for DS.GAIN.
	LINE MIX ON/OFF	This indicates whether LINE MIX GAIN is set to ON or OFF.
	S.IRIS ON/OFF	This indicates whether S.IRIS is set to ON or OFF.
	I.OVR ON/OFF	This appears when the IRIS OVERRIDE setting is enabled (ON).
	S.BLK −✳✳/OFF	This indicates whether SUPER BLACK is set to ON or OFF and, if it is set to ON, it also indicates its value.
	B.GAMMA ON/OFF	This indicates whether BLACK GAMMA (black level gradation compensation) is set to ON or OFF.
	AUDIO CH1	This appears when the input signal to recorded on audio channel 1 has been switched.
	AUDIO CH2	This appears when the input signal to recorded on audio channel 2 has been switched.
	REC SW	This appears only during MODE CHECK button operations while the USER button functions as the REC switch.
	Y GET ON	This appears when the function for measuring the output brightness level (in % units for approx. 3 seconds for the area near the center marker) is ON.
	RET SW	This appears only during MODE CHECK button operations while the USER button functions as the RET switch.
	DRS	This appears when the DRS function is turned on.
⓬ **Extender**	EX2	This appears when the lens extender is in use.
⓭ **Color temperature**	✳.✳K	This indicates the color temperatures assigned to the A, B, and PRE positions of the WHITE BAL switch. (These may be memory values during AWB operation or menu setting values.)
⓮ **Filter positions**	1 to 4	This indicates the position of the ND filter.
	A to D	This indicates the position of the CC filter.
	–	This indicates that the filter has not been set to a proper position.
⓯ **WHITE BAL switch position**	A	This indicates that the WHITE BAL switch is set to channel A.
	B	This indicates that the WHITE BAL switch is set to channel B.
	P	This indicates that the WHITE BAL switch is set to PRE.
⓰ **Cumulative gain display**	6↑/10↑/12↑/15↑/20↑	This indicates the value of the cumulative gain (DS.GAIN) when this gain function is working.
⓱ **LINE MIX GAIN display**	M	This appears when LINE MIX GAIN (+6 dB) is active.
⓲ **Gain value**	✳✳dB	This indicates the current gain value.
⓳ **VTR warnings, information**	REC WARNING	This indicates that a problem has occurred during recording.
	SLACK E-✳✳	This indicates that a problem has occurred in a mechanism. Depending on the nature of the trouble concerned, the power may be turned off automatically.
	HUMID	This indicates that condensation has formed.
	SERVO	This indicates that servo lock has not been initiated during recording or playback.
	RF	This indicates that the level of the signals from the tape has dropped.
	BACKUP BATT EMPTY	This signals that it is time to replace the backup battery.
	WIRELESS-RF	This indicates that the level of the RF signal from the wireless microphone receiver has dropped. **<Note>** For details on the codes displayed in this area, refer to "6-3-2 Error codes."
⓴ **Time code display**	TCG 12:59:59:20	This indicates the TCG (time code generator) value.
	TCR 12:59:59:20	This indicates the TCR (time code reader) value.
	(V)UBG AB CD EF 00	This indicates the UBG VUBG display.
	(V)UBR 12 34 56 78	This indicates the UBR VUBR display.
	CTL −01:59:59:20	This indicates the CTL-COUNTER value.

4

Display item	What is displayed	Status when display appears
㉑ **AUDIO input system and level meter**	- - - - ■ - - - + F W R	This indicates the audio channels selected and their audio levels. This appears when the AUDIO IN switch is at the FRONT position. This appears when the AUDIO IN switch is at the WIRELESS position. This appears when the AUDIO IN switch is at the REAR position.
㉒ **Super black ON**	B	This appears when S.BLK has been set to ON.
㉓ **Super iris ON**	S	This appears when S.IRIS has been set to ON.
㉔ **Iris override display**	++ + (No display) – – –	When the iris override function is working, this indicates how much compensation is provided. ++: The aperture is opened by a full stop. +: The aperture is opened by a half stop. – –: The aperture is closed by a full stop. –: The aperture is closed by a half stop. No display: Reference status
㉕ **Iris, f-value**	NC OPEN F1.7 to F16 CLOSE	This appears when the lens cable is not connected. This appears when the lens aperture is open. This indicates the aperture value (f-value) of the lens. This appears when the lens aperture is closed. **<Note>** These displays appear when using a lens equipped with an aperture value display function. They flash while the aperture is being changed for the iris override.
㉖ **Zoom display**	Z00 to Z99	This indicates the amount of zoom. Note that this item is not displayed even if the display setting is ON if the lens is not equipped with a zoom position return function.
㉗ **Interval, pre-rec display**	i (flashing) iREC (lighting) iREC (flashing) ✳✳h✳✳m/✳✳s P-REC (flashing) ✳s TAPE ✳s	This appears in the INTERVAL REC mode during the times when the operation of the REC button is not acknowledged before the start of or at the end of recording. This appears during an INTERVAL REC operation. This appears during INTERVAL REC standby to indicate the wait time until the next recording. This indicates the amount of time remaining until the end of the set PRE REC time during PRE REC operation. This appears when recording is stopped by turning OFF the PRE REC MODE (in the state where signals accumulated in the built-in memory are recorded on tape).
(Jump indication)	JUMP (flashing)	This appears during the jump function.
㉘ **Dynamic range stretcher mode**	DRS	This appears when the video level of a part with high brightness is compressed, and the function stretching the dynamic range is selected.
㉙ **Compression mode**	COMP	This appears when setting the mode for suppressing distortion of compressed video images that may occur when dark parts are shot.

Viewfinder screen display selection

	Whether a display is to be shown or not can be selected on a menu.	Status displayed when established	Displayed only by MODE CHECK button (*1)	Display can be cleared	Displayed during playback
❶ Systetm mode	○	—	●	○	—
❷ Camera mode	○	—	●	○	—
❸ Shutter speed/mode	○	○	●	○	—
❹ Total length of cassette tape	—	—	●	○	—
❺ Remaining tape	○	—	●	○	—
❻ Unit's REC display	○	○	●	○	—
❼ Battery type	—	—	●	○	—
❽ Remaining battery charge/voltage	○	—	●	○	—
❾ MODE CHECK dedicated display area	—	—	○	○	—
❿ Camera warning, message display area	—	○	○	○	—
⓫ Information allocated to USER buttons	—	○	○	○	—
⓬ Extender	○	○	●	○	—
⓭ Color temperature	○	○	●	○	—
⓮ Filter positions	○	—	●	○	—
⓯ WHITE BAL switch position	○	—	●	○	—
⓰ Cumulative gain display	○	—	●	○	—
⓱ LINE MIX GAIN display	○	—	●	○	—
⓲ Gain value	○	—	●	○	—
⓳ VTR warnings, information	○	○	●	○	—
⓴ Time code display	○	—	●	○	○ (dependent upon menu)
㉑ AUDIO input system and level meter	○	—	All input information for 4 channels	○	—
㉒ Super black ON	○	○	●	○	—
㉓ Super iris ON	○	○	●	○	—
㉔ Iris override display	○	○	●	○	—
㉕ Iris, f-value	○	—	●	○	—
㉖ Zoom display	○	—	●	○	—
㉗ Interval, pre-rec display	—	○	●	○	—
㉘ Dynamic range stretcher mode	○	—	●	○	—
㉙ Compression mode	○	○	○	○	—

*1　○: The display does not appear when OFF has been selected for the STATUS item setting on the <MODE CHK IND> screen.
　　●: Display always appears regardless of the menu.

4-7-4 Display modes and setting changes/adjustment result messages

By setting the display mode item, it is possible to select various display methods for the changes made in the settings and for the messages advising the user of the adjustment results: for instance, the items displayed can be limited to a select number or not displayed at all. To select the display mode, perform menu operations to open the <VF DISPLAY> screen from the VF page and select the setting for the DISP MODE item.

For details on operation, refer to "4-6-2 Basic menu operations."

```
→< VF DISPLAY >

 DISP CONDITION     :NORMAL
 DISP MODE          :3
 VF OUT             :Y
 VF DTL             :3
 ZEBRA1 DETECT      :070%
 ZEBRA2 DETECT      :085%
 ZEBRA2             :SPOT
 LOW LIGHT LVL      :35%
 RC MENU DISP.      :ON
 MARKER/CHAR LVL    :50%
```

Setting change/adjustment result messages and display modes

Situation in which message is displayed	Message	Display mode setting		
		1	2	3
When the filter selection has been changed	CC: n (n=1, 2, 3, 4) or ND: m (m=A, B, C, D)	○	○	●
When the gain setting has been changed	GAIN: n dB (n= −3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30)	○	○	●
When the WHITE BAL switch setting has been changed	WHITE: n (n=ACH, BCH, PRESET)	○	○	●
When the OUTPUT/AUTO KNEE switch has been set to AUTO KNEE or OFF	AUTO KNEE: ON (or OFF)	○	●	●
When the shutter speed/mode setting has been changed	SS: 1/60 (or 1/120, 1/250, 1/500, 1/1000, 1/2000, ▶ 1/****)	○	●	●
When the white balance (AWB) has been adjusted	Example) AWB A OK 3.2K	○	●	●
When the black balance (ABB) has been adjusted	Example) ABB OK	○	●	●
When the extender has been selected	Example) EXTENDER ON	○	○	●
When a user button has been selected	Example) UM: S.GAIN 30 dB	○	●	●
When a marker select button has been selected	Example) MKR: A	○	○	●
When in iris overwrite status	Example) ++ F 5.6	○	●	●

●: Message is to be displayed.
○: Message is not to be displayed.

4-7-5 Setting the marker displays

ON, OFF or the display type can be selected for the displays of the center marker, safety zone markers, safety zone area and frame marker. To make the selection, perform menu operations to open the <VF MARKER> screen from the VF page and select the display mode for each item.

For details on operation, refer to "4-6-2 Basic menu operations."

```
→< VF MARKER >
                                    MKR:A
 TABLE            :A
 CENTER MARK      :1
 SAFETY ZONE      :2
 SAFETY AREA      :90%
 FRAME SIG        :4:3
 FRAME MARK       :OFF
 FLAME LVL        :15
```

<Note>
The MKR: A indication at the upper right of the screen shows the display status. To check the settings for TABLE B, press the MARKER SELECT so that MKR:B is displayed.

4-7-6 Setting the camera ID

The camera ID is set on the CAMERA ID screen.
Up to ten alphanumerics, symbols and spaces can be used.

<Note>
The camera ID is not displayed while the setting menu is displayed even if color bar signals are output.

1 Perform a menu operation to open the <CAMERA ID> screen from the OPERATION page.

```
→< CAMERA ID >

 ID1 : ABCDEFGHIJ

 ID2 : ABCDEFGHIJ

 ID3 : ABCDEFGHIJ
```

2 Turn the JOG dial button to move the arrow (cursor) to the "ID 1: to 3:" item.

3 When the JOG dial button is pressed, the arrow (cursor) moves to the ID input area, and the input mode is established.

4 Press the JOG dial button again and turn it until the character to be set is displayed.
When the button is turned, the character displayed is switched in the following sequence:

　　Space: □
　　　➡
　　letters: A—Z
　　　➡
　　numbers: 0—9
　　　➡
　　symbols: ', >, <, /, –

5 Press the JOG dial button to enter the character.

6 Turn the JOG dial button to move the arrow (cursor) to the next position (right), and repeat steps *4* and *5* to set the characters.

7 When the characters have been input, turn the JOG dial button to move the arrow (cursor) to the ":" position.

8 When the JOG dial button is pressed, the arrow (cursor) returns to the ID 1:, ID 2: or ID 3: item.

9 Press the MENU button to exit the menu operations.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.
Confirm the display of CAMERA ID when setting the OUTPUT/AUTO KNEE selection switch to "BARS."

<Note>
The camera ID is recorded at the same time as the color bar signals if "CAMERA ID" on the VF INDICATOR screen has been set to "BAR."
The camera ID is not recorded for video signals other than the color bar signal.

4-7-7 Mode check screen displays (MODE CHECK button function)

The screens enabling the unit's settings and modes to be checked can be displayed in the viewfinder.
Each time the unit's MODE CHECK button is pressed, one of the four screen displays is selected in the following sequence: STATUS screen display → !LED screen display → FUNCTION screen display → AUDIO screen display.
Each screen is displayed for about 3 seconds.
When the MODE CHECK button is pressed and held, the screen is displayed continuously while the button is pressed.
When the MODE CHECK button is pressed while one screen is displayed, the next screen is displayed.
To select whether to display the screens, perform menu operations to open the <MODE CHECK IND> screen from the VF page and select ON or OFF for each screen display.

```
→< MODE CHECK IND >

STATUS              : ON
! LED               : ON
FUNCTION            : ON
AUDIO               : ON
P.ON IND            : ON
```
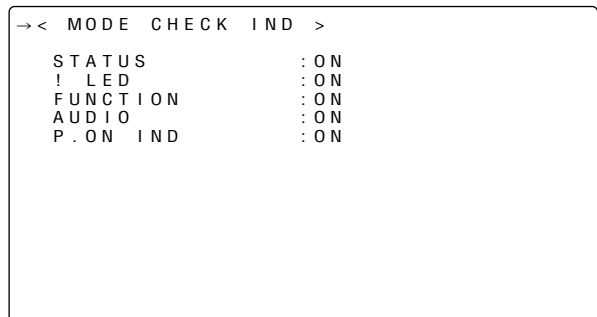
4-7-8 Marker check screen displays (MARKER SELECT button function)

The screens enabling the unit's marker statuses to be checked can be displayed in the viewfinder.
Each time the unit's MARKER SELECT button is pressed, one or none of the two screen displays is selected in the following sequence: A marker screen display → B marker screen display → no display.
When the MARKER SELECT button is pressed while one screen is displayed, the next screen is displayed. Before this, perform menu operations to open the <VF MARKER> screen from the VF page, select A as the TABLE item setting, and select the marker information for the other items. Next, select B as the TABLE item setting, and select the marker information for the other items.
If, for instance, "16:9" is selected for the FRAME SIG item as the A marker information and "4:3" is selected for the FRAME SIG item as the B marker information, then the 16:9 and 4:3 aspect ratios can be checked easily by operating the MARKER SELECT button as and when required.

4

4-8 Selection of video output signals

The unit employs the VIDEO OUT connector and the MON OUT connector as connectors for outputting video signals.

4-8-1 Settings of signals output from VIDEO OUT connector

The signal modes for outputting signals from the VIDEO OUT connector are switched with the VIDEO OUT switch.

HD SDI: To output the HD SDI signals
SD SDI: To output the down-converted SD SDI signals
VBS: To output the down-converted composite video signals.
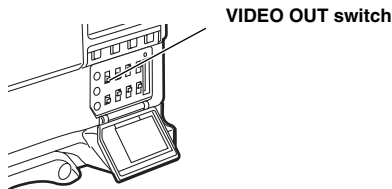
VIDEO OUT switch

The signals output from the VIDEO OUT connector are switched with the VIDEO OUT OUTPUT SEL switch.
However, the switching operation is not acknowledged during the recording operation.

VTR: In the recording or other EE mode, camera images are output from the connector; in playback mode, the VTR's playback signals are output.
CAM: The camera images are output at all times.

VIDEO OUT OUTPUT SEL switch
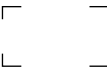
Set the characters to be superimposed on the signals output from the VIDEO OUT connector by using the VIDEO OUT CHARACTER switch and the OUTPUT ITEM item on the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).

VIDEO OUT CHARACTER switch

Item	Variable range	Remarks
OUTPUT ITEM	TC STATUS MENU ONLY	Set the characters to be superimposed on the output signals from the VIDEO OUT connector. **TC:** Time codes are superimposed (when the menu is accessed, the menu screen is superimposed.) **STATUS:** The characters that are the same as the characters superimposed in the viewfinder screen are superimposed. (When the menu is accessed, the menu screen is superimposed.) **MENU ONLY:** The menu screen is superimposed only when the menu is accessed. This normally displays nothing.

Set the marker and user boxes to superimpose on the output signals from the VIDEO OUT connector by using the respective items on the <VIDEO OUT SETTING> screen (SYSTEM SETTING page) of the menu.

Item	Variable range	Remarks
VIDEO OUT CENTR MARK	OFF 1 2 3 4	For setting the center marker to be superimposed on the output signals of the VIDEO OUT connector. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
VIDEO OUT SAFETY MARK	OFF 1 2	For setting the type of safety marker frame to be superimposed on the output signals of the VIDEO OUT connector. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA	80% ⋮ 90% ⋮ 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
VIDEO OUT FRM MARK	ON OFF	For superimposing the frame marker on the output signals from the VIDEO OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
FRM SIG	4:3 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.
VIDEO OUT USER BOX	ON OFF	For superimposing the user box on the output signals from the VIDEO OUT connector. **ON:** To superimpose **OFF:** Not to superimpose ● It is not superimposed when the VIDEO OUT switch is set to the SD-SDI or the VBS position.
USER BOX WIDTH	1 ⋮ 13 ⋮ 100	For setting the horizontal width of the user box.
USER BOX HEIGHT	1 ⋮ 13 ⋮ 100	For setting the vertical height of the user box.
USER BOX H POS	–50 ⋮ +00 ⋮ +50	For setting the horizontal position of the user box center.
USER BOX V POS	–50 ⋮ +00 ⋮ +50	For setting the vertical position of the user box center.

● The user box can be displayed in any position as a box-type cursor.

<Notes>
● When the DOWNCON MODE item on the DOWNCON SETTING screen is set to LT-BOX or S-CROP, the frame marker and the safety marker are not displayed.
● Settings in the SAFETY AERA item and the FRM SIG item are interlinked with the respective connectors of VIDEO OUT, MON OUT, and REMOTE.
● Settings for the respective items of USER BOX WIDTH, USER BOX HEIGHT, USER BOX H POS, and USER BOX V POS are interlinked with the VIDEO OUT connector and the MON OUT connector.

4

4-8-2 Settings of signals output from MON OUT connector

Set the video signals output from the MON OUT connector by using the MONI OUT item on the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).
The HD-Y signals can be used for applying GEN LOCK to other devices. It is impossible to superimpose markers and characters on the HD-Y signals.
Even when the tape is replayed, images from the camera are output.

Item	Variable range	Remarks
MONI OUT	HD-SDI HD-Y	Set video signals output from the MON OUT connector. **HD-SDI:** For outputting the HD SDI signals **HD-Y:** For outputting the analog HD-Y signals

Set to superimpose characters to the HD SDI signals output from the MON OUT connector in the MONI OUT CHARA item of the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).

Item	Variable range	Remarks
MONI OUT CHARA	ON OFF	Superimpose characters on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose **<Note>** This does not link with the VIDEO OUT CHARACTER switch.

Switch the signals output from the MON OUT connector by using MONI OUT MODE item on the menu (<OUTPUT SEL> screen on the SYSTEM SETTING page).

Item	Variable range	Remarks
MONI OUT MODE	CAM VTR	Switch the signals output from the MON OUT connector. **CAM:** The camera images are output at all times. **VTR:** In the recording or other EE mode, camera images are output from the connector; in playback mode, the VTR's playback signals are output.

Set the marker and user boxes to superimpose on the output signals from the MON OUT connector by using the respective items on the <MONITOR OUT SETTING> screen (SYSTEM SETTING page) of the menu.

Item	Variable range	Remarks
MONI OUT CENTR MARK	OFF 1 2 3 4	For setting the center marker to be superimposed on the HD SDI output signals of the MON OUT connector. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
MONI OUT SAFETY MARK	OFF 1 2	For setting the type of the safety marker frame to be superimposed on the HD SDI output signals of the MON OUT connector. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA	80% 90% 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
MONI OUT FRM MARK	ON OFF	For superimposing the frame marker on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
FRM SIG	4:3 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.
MONI OUT USER BOX	ON OFF	For superimposing the user box on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
USER BOX WIDTH	1 : 13 : 100	For setting the horizontal width of the user box.
USER BOX HEIGHT	1 : 13 : 100	For setting the vertical height of the user box.
USER BOX H POS	−50 : +00 : +50	For setting the horizontal position of the user box center.
USER BOX V POS	−50 : +00 : +50	For setting the vertical position of the user box center.

● The user box can be displayed in any position as a box-type cursor.

4-9 Menu-driven function setup

The functions can be set up using the unit's menus.

4-9-1 Setting the USER SW GAIN switching

This unit allows three other modes to be used in addition to the L/M/H standard gain settings: the analog gain-up S.GAIN (super gain) mode to achieve a gain of 30 dB or more, the cumulative gain-up DS.GAIN (digital super gain) mode which uses progressive drive, and the LINE MIX GAIN mode where the gain of two lines is mixed.

To select these functions, perform menu operations to open the <USER SW GAIN> screen from the OPERATION page, select the S.GAIN item and DS.GAIN item, and preset the gain to be used for each item. Furthermore, select the LINE MIX function on the <USER SW> screen.

For instance, if the S.GAIN, DS.GAIN and LINE MIX GAIN functions have been allocated to the USER MAIN button, USER1 button or USER2 button, the gain can be increased by using these buttons in combination with the USER buttons.

1) **To increase the gain without increasing the perceptible noise**
   The DS.GAIN function and the LINE MIX GAIN function are used.

2) **To increase the normal analog gain (in which case, the amount of noise will increase)**
   Use only the S.GAIN function.
   <Note>
   Note that the accuracy of AUTO IRIS, White Balance, and Black Balance may be influenced by an increase in noise.

3) **To use the unit in the ultra-high-sensitivity mode**
   Use the S.GAIN function and DS.GAIN or LINE MIX GAIN function in combination. However, exercise care during operation since image lag will become more conspicuous with moving subjects the more the gain is increased by using the DS.GAIN function.
   When shooting moving subjects, keep the gain increase with the LINE MIX GAIN function or DS.GAIN function to under +12 dB.

```
→< USER SW GAIN >

  S.GAIN
 *30dB
 *36dB


  DS.GAIN
 * 6dB↑
 *10dB↑
 *12dB↑
 *15dB↑
 *20dB↑
```
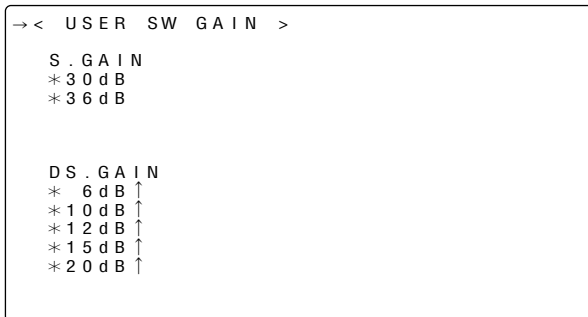
Setting items and details

S.GAIN: An analog gain increase with an asterisk is one that is valid. One without an asterisk is invalid.

DS.GAIN: A cumulative gain increase with an asterisk is one that is valid. One without an asterisk is invalid.

4-9-2 Selecting the F.AUDIO LEVEL control function

This function enables the recording level to be adjusted using the F.AUDIO LEVEL control.

To select this function, perform menu operations to open the <MIC/AUDIO> screen from the VTR MENU page, and set whether to enable or disable the F.AUDIO LEVEL controls for the system selected as the input signals using the FRONT VR CH1 and FRONT VR CH2 items.

```
→< MIC/AUDIO1 >

  FRONT  VR  CH1        : OFF
  FRONT  VR  CH2        : OFF
  MIC  LOWCUT  CH1      : OFF
  MIC  LOWCUT  CH2      : OFF
  MIC  LOWCUT  CH3      : OFF
  MIC  LOWCUT  CH4      : OFF
  LIMITER  CH1          : OFF
  LIMITER  CH2          : OFF
  AUTO  LEVEL  CH3      : ON
  AUTO  LEVEL  CH4      : ON
  REC  CH3/CH4          : SW
  CUE  REC  SELECT      : CH1
  TEST  TONE            : NORMAL
```
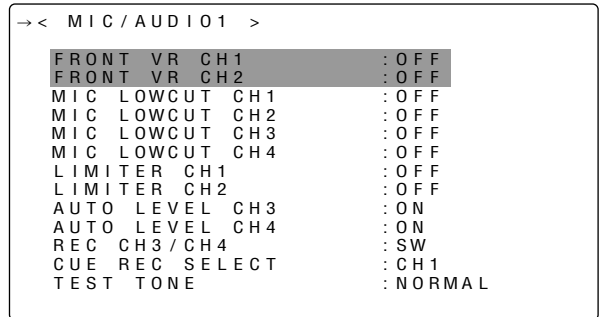
Setting items and what is set

| Item	Variable range	Remarks
FRONT VR CH1	FRONT W.L. REAR ALL OFF	For selecting whether or not to enable the F.AUDIO LEVEL control for the input signals which have been selected for audio CH1. **FRONT:** The control works only when FRONT has been selected. **W.L.:** The control works only when WIRELESS has been selected. **REAR:** The control works only when REAR has been selected. **ALL:** The control works regardless of which input has been selected. **OFF:** The control does not work regardless of which input has been selected. Even if it is rotated, the recording level will not change.
FRONT VR CH2	FRONT W.L. REAR ALL OFF	For selecting whether or not to enable the F.AUDIO LEVEL control for the input signals which have been selected for audio CH2 **FRONT:** The control works only when FRONT has been selected. **W.L.:** The control works only when WIRELESS has been selected. **REAR:** The control works only when REAR has been selected. **ALL:** The control works regardless of which input has been selected. **OFF:** The control does not work regardless of which input has been selected. Even if it is rotated, the recording level will not change.

4-9-3 Allocating functions to the USER MAIN, USER1 and USER2 buttons

The desired functions can be allocated to the USER MAIN, USER1 and USER2 buttons.
To select this function, perform menu operations to open the <USER SW> screen from the OPERATION page, and set the desired function each with the USER MAIN SW item, USER1 SW item and USER2 SW item.

<Note>
Once the power of the unit is turned OFF, functions assigned to the USER button are disabled. When the power is turned ON again, press the USER button to enable the assigned functions.

```
    < USER SW >
→  USER MAIN SW      :S.GAIN
   USER1 SW          :PRE REC
   USER2 SW          :DS.GAIN
```
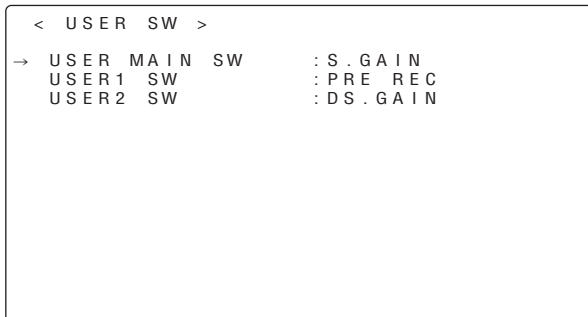
Functions which can be selected

INH:
No functions are allocated.
S.GAIN:
The S.GAIN function is allocated.
DS.GAIN:
The DS.GAIN function is allocated.
LINE MIX:
The LINE MIX GAIN (+6 dB) function is allocated.
S.IRIS:
The SUPER IRIS function is allocated. This is useful when providing backlight compensation.
I.OVR:
The IRIS override function is allocated.
This changes the target (reference) value in the auto iris mode.
To change the target value, first establish this mode, and then press the JOG dial button to enable the target value to be changed. The target value is changed by turning the JOG dial button clockwise or counterclockwise. "+," "+ +," "–" or "– –" is displayed on the left of the iris display area on the viewfinder screen. Stop turning the JOG dial button at the position to be changed, and press the JOG dial button to enter the change in the target value.
To release this mode, press the USER button again. Once the power is turned off, the value returns to the default value.
+: The aperture is opened by a half stop.
+ +: The aperture is opened by a full stop.
–: The aperture is stopped down by a half stop.
– –: The aperture is stopped down by a full stop.
No display:
The reference value remains unchanged.
S.BLK:
The SUPER BLACK function is allocated. This function reduces the black level to below the pedestal level.

B.GAMMA:
The BLACK gamma function is allocated. This function highlights the black gradations.
Regardless of the value set in the BLACK GAMMA item on the menu (<LOW SETTING> screen, <MID SETTING> screen and <HIGH SETTING> screen on the PAINT page), the BLACK GAMMA is set to "+2".
AUDIO CH1:
The function for switching the channel 1 input signal is allocated. Each press advances the setting through the sequence FRONT → W.L.→ REAR. Note that it is also possible to change the setting by operating the AUDIO IN switch. Whichever control is operated last takes precedence.
AUDIO CH2:
The function for switching the channel 2 input signal is allocated. Each press advances the setting through the sequence FRONT → W.L.→ REAR. Note that it is also possible to change the setting by operating the AUDIO IN switch. Whichever control is operated last takes precedence.
REC SW:
The function of the VTR's START button is allocated.
Y GET:
The function for displaying the brightness level of the center marker area is allocated.
RET SW:
The function of the RET button on the lens is allocated.
PRE REC:
The function to turn ON/OFF the PRE RECORDING is allocated.
Time for executing the PRE RECORDING is set by using the PRE REC TIME item after performing menu operations to open the <REC FUNCTION> screen from the SYSTEM SETTING page.
DRS:
The function of the dynamic range stretcher is allocated.
The function is allocated to compress the video level with high brightness and stretched the dynamic range.
<Notes>
● Since the DRS function compresses the video levels of sections with high brightness, there are slight differences in color development when the DRS function is turned on/off.
● When the DRS function is turned on, the Knee function and the BLACK GAMMA function are not available.
● To operate the DRS function, turn the LINE MIX GAIN function OFF.

4-9-4 Setting the color temperature manually

The white balance can be adjusted manually using the color temperature settings.

The manual color temperature settings can be set independently for PRST, A, and B with the WHITE BAL switch.

The manual color temperatures can be set in the respective positions of the WHITE BAL switch when color temperatures are set in the COLOR TEMP PRE item, the AWB A TEMP item, and the AWB B TEMP item.

Using the menu operation, open the <WHITE BALANCE MODE> screen from the OPERATION page.

<Note>

Even if the color temperatures are set manually, when auto adjustment of the white balance is executed in the A or B position of the WHITE BAL switch, the color temperatures at that time are memorized for the A or B position of the WHITE BAL switch.

```
→<  WHITE  BALANCE  MODE  >

  FILTER  INH        :ON
  SHOCKLESS  AWB     :NORMAL
  AWB  AREA          :25%

  COLOR  TEMP  PRE   :3200K
  AWB  A  TEMP       :4300K
  AWB  B  TEMP       :5600K
```

4-10 Set data handling

Set data file configuration
The unit employs 5 sets for the file data area.

FACTORY data:
    The area for storing factory settings
    Data cannot be revised with menu operations.
USER data:
    The area for storing the data set by menu operations
    The FACTORY data is stored as the factory setting.
CURRENT data:
    The area for storing the operating status of the unit
    The set value in this area is revised by menu operations.
SCENE file:
    Four sets of scene files are provided.
LENS file:
    Eight sets of lens files are provided.

For menu items that can be read from or stored in the respective areas, refer to "Chapter 7 Menu description table."
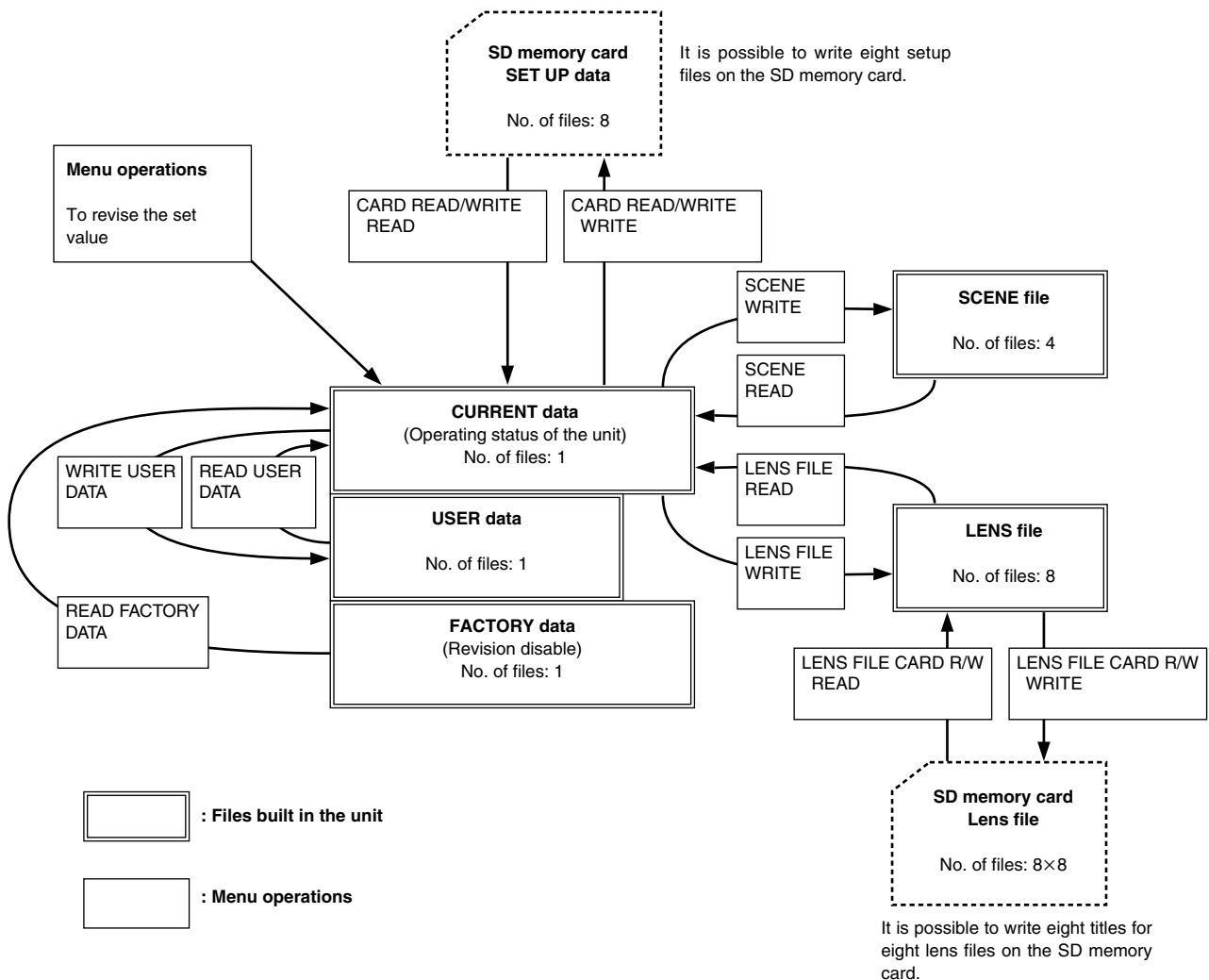
4-10-1 Handling the setup card

An SD memory card (optional accessory) can be used as a setup card that stores up to eight files of settings menu specifications.
The setup card can be inserted or removed before or after the power is switched on.
<Notes>
● The unit supports SD memory cards from 8 MB to 2 GB.
● The SD memory card must be formatted using the unit.

Inserting the setup card

Open the switch cover, position the SD memory card with its cutout facing up, insert it into the setup card insertion slot, and close the switch cover.
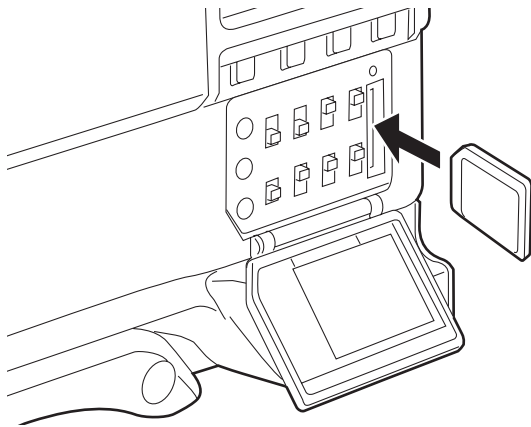
<Note>
Before inserting the setup card, check that it is pointed in the correct direction. If the card meets with resistance and if it is difficult to insert, it may mean that it is the wrong way round or upside down. Do not force the card into the slot but check its direction again and insert it properly.

Removing the setup card

Open the switch cover, check that the BUSY lamp is not lighted, and push the setup card further into the unit. This causes the card to partially pop out from the insertion slot. Take hold of the card, remove it, and close the switch cover.

Bear in mind the following points when using and saving the setup cards.

● Avoid high temperatures and high humidity levels.
● Keep the cards away from water.
● Avoid exposing the cards to electrical charges.

4-10-2 Setup card operations

To format the setup card, save the setting data on the card or read the saved data from the card, first perform a menu operation to open the <CARD READ/WRITE> screen from the FILE page.

```
→< CARD READ/WRITE >

  R.SELECT            :1
   READ
  W.SELECT            :1
   WRITE
  CARD CONFIG
  TITLE READ


  TITLE:
  1: * * * * * * * *   5: * * * * * * * *
  2: * * * * * * * *   6: * * * * * * * *
  3: * * * * * * * *   7: * * * * * * * *
  4: * * * * * * * *   8: * * * * * * * *
```
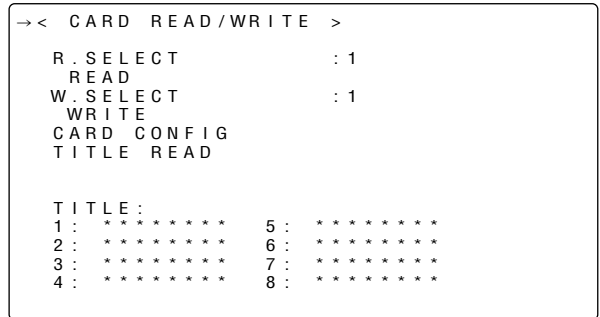
Formatting the setup card

1 Perform the menu operations, and display the "CARD READ/WRITE" screen.

2 Turn the JOG dial button to move the arrow (cursor) to the CARD CONFIG item.

3 When the JOG dial button is pressed, the following message appears on the screen.

```
       CONFIG?
        YES
   →    NO
```
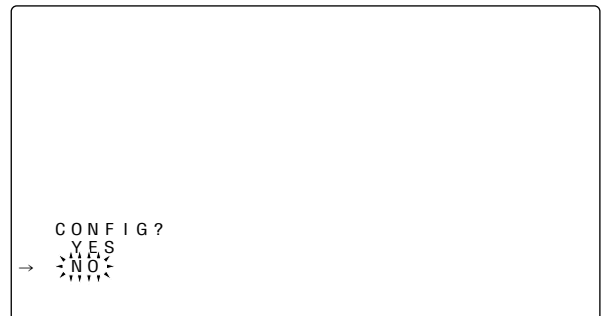
4 To proceed with the formatting of the setup card, turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button. When the formatting of the card is completed, the following message appears.
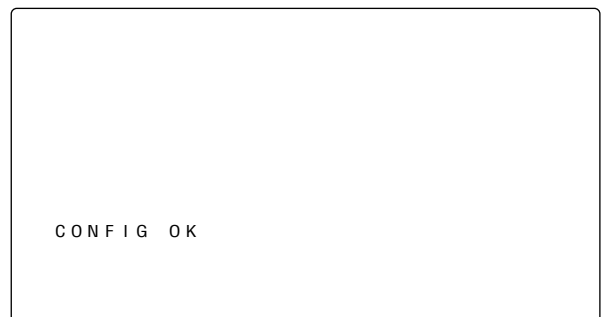
```
       CONFIG OK
```

If one of the following messages appears when the JOG dial button is pressed, the card will not be formatted

Error message	Remedial action
CONFIG NG NO CARD (setup card has not been inserted)	Insert the card.
CONFIG NG ERROR (the card cannot be formatted)	The card may be defective. Replace it.
CONFIG NG WRITE PROTECT	Remove the card to cancel write protect.

5 Press the MENU button to exit the menu operations.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

<Note>
Data titles cannot be recognized when the setup card was inserted while the CARD READ/WRITE screen was open. Move the arrow (cursor) to the TITLE READ item, and press the JOG dial button.
The data title is recognized, and the title is displayed.

Saving the data settings on the card

1 Perform the menu operations, and display the "CARD READ/WRITE" screen.

Selecting the file No.

2 Turn the JOG dial button to move the arrow (cursor) to the W.SELECT item and press the JOG dial button.

```
  < C A R D   R E A D / W R I T E   >

    R . S E L E C T              : 1
      R E A D
→   W . S E L E C T           ⋮⋮1⋮⋮
      W R I T E
    C A R D   C O N F I G
    T I T L E   R E A D


    T I T L E :
    1 :   * * * * * * * *    5 :   * * * * * * * *
    2 :   * * * * * * * *    6 :   * * * * * * * *
    3 :   * * * * * * * *    7 :   * * * * * * * *
    4 :   * * * * * * * *    8 :   * * * * * * * *
```

3 Turn the JOG dial button to select a number from 1 to 8, and press the JOG dial button.

Giving a title to the selected file

4 Turn the JOG dial button to move the arrow (cursor) to the "TITLE : " item.

```
  < C A R D   R E A D / W R I T E   >

    R . S E L E C T              : 1
      R E A D
    W . S E L E C T              : 1
      W R I T E
    C A R D   C O N F I G
    T I T L E   R E A D


→   T I T L E :
    1 :   * * * * * * * *    5 :   * * * * * * * *
    2 :   * * * * * * * *    6 :   * * * * * * * *
    3 :   * * * * * * * *    7 :   * * * * * * * *
    4 :   * * * * * * * *    8 :   * * * * * * * *
```

5 When the JOG dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

```
  < C A R D   R E A D / W R I T E   >

    R . S E L E C T              : 1
      R E A D
    W . S E L E C T              : 1
      W R I T E
    C A R D   C O N F I G
    T I T L E   R E A D

                 ↓
    T I T L E :
    1 :   * * * * * * * *    5 :   * * * * * * * *
    2 :   * * * * * * * *    6 :   * * * * * * * *
    3 :   * * * * * * * *    7 :   * * * * * * * *
    4 :   * * * * * * * *    8 :   * * * * * * * *
```

6 Press the JOG dial button again and turn it until the character to be set is displayed.
When the button is turned, the character displayed is switched in the following sequence:
Space: □
↓
letters: A—Z
↓
numbers: 0—9
↓
symbols: ', >, <, /, –

7 Press the JOG dial button to enter the character.

8 Turn the JOG dial button to move the arrow (cursor) to the next position (right), and repeat steps *6* and *7* to set the characters (maximum of 8).

Saving the data settings to the selected file

9 When the title has been input, turn the JOG dial button to move the arrow (cursor) to the ":" position.

```
<  CARD READ/WRITE  >

 R.SELECT              1
  READ
 W.SELECT              1
  WRITE
 CARD CONFIG
 TITLE READ
              ↓
 TITLE:
 1 :  * * * * * * * *    5 :  * * * * * * * *
 2 :  * * * * * * * *    6 :  * * * * * * * *
 3 :  * * * * * * * *    7 :  * * * * * * * *
 4 :  * * * * * * * *    8 :  * * * * * * * *
```

10 When the JOG dial button is pressed, the arrow (cursor) returns to the TITLE: item.

11 Turn the JOG dial button to move the arrow (cursor) to the WRITE item.

12 When the JOG dial button is pressed, the following message appears.

```
   WRITE?
     YES
 →   NO
 TITLE:
```

If one of the following messages appears when the JOG dial button is pressed, the data cannot be saved.

Error message	Remedial action
WRITE NG NO CARD (setup card has not been inserted)	Insert the card.
WRITE NG FORMAT ERROR (formatting error)	The card was formatted by a device other than the unit. Replace the card.
WRITE NG ERROR (the data cannot be saved)	The card may be defective. Replace it.
WRITE NG WRITE PROTECT	Remove the card to cancel write protect.

13 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
When the data saving is completed, the following message appears.

```
   WRITE OK
```

14 Press the MENU button to exit the menu operations.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

Loading the data saved on the card

1 Perform the menu operations, and display the "CARD READ/WRITE" screen.
If the data is given a title when it is saved, the title will also be displayed.

Selecting the file No.

2 Turn the JOG dial button to move the arrow (cursor) to the R.SELECT item and press the JOG dial button.

```
<  CARD READ/WRITE  >

 → R.SELECT             1
   READ
   W.SELECT             1
   WRITE
   CARD CONFIG
   TITLE READ

   TITLE:
   1 :  * * * * * * * *   5 :  * * * * * * * *
   2 :  * * * * * * * *   6 :  * * * * * * * *
   3 :  * * * * * * * *   7 :  * * * * * * * *
   4 :  * * * * * * * *   8 :  * * * * * * * *
```

3 Turn the JOG dial button to select any number from 1 to 8, and press the JOG dial button.

Loading the data of the selected file

4 Turn the JOG dial button to move the arrow (cursor) to the READ item.

```
  <  CARD  READ/WRITE  >

   R.SELECT           : 1
→    READ
   W.SELECT           : 1
    WRITE
   CARD  CONFIG
   TITLE  READ

   TITLE :
   1 :  * * * * * * * *    5 :  * * * * * * * *
   2 :  * * * * * * * *    6 :  * * * * * * * *
   3 :  * * * * * * * *    7 :  * * * * * * * *
   4 :  * * * * * * * *    8 :  * * * * * * * *
```

5 When the JOG dial button is pressed, the following message appears.

```
    READ ?
     Y E S
→   : N O :
```

6 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
When the data loading is completed, the following message appears.

```
    READ  OK
```

If one of the following messages appears when the JOG dial button is pressed, the data cannot be loaded.

Error message	Remedial action
READ NG NO CARD (setup card has not been inserted)	Insert the card.
READ NG FORMAT ERROR (formatting error)	The card was formatted by a device other than the unit. Replace the card.
READ NG NO FILE (file not found)	Save the file data.
READ NG ERROR (the data cannot be loaded)	Data saved by devices other than unit cannot be loaded.

7 Press the MENU button to exit the menu operations.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

4-10-3 How to use the user data

The setting data can be written in the user data area of the unit's internal memory and data written in the memory can be read from this area.

Use of this data speeds up the process of reproducing suitable setup statuses.

Writing the setting data in the user area

1 Perform a menu operation to open the <INITIALIZE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the WRITE USER DATA item.

```
< INITIALIZE >

  READ FACTORY DATA
→ WRITE USER DATA
```

3 When the JOG dial button is pressed, the following message appears.

```
    WRITE?
      YES
→   :NO:
```

4 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The setting data is now written in the user data area of the unit's internal memory.

5 Press the MENU button to exit the menu operations.

Loading the user data

1 Perform a menu operation to open the <SCENE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the READ USER DATA item.

```
  < SCENE >

→ READ USER DATA
  SCENE SEL        : 1
   READ
   WRITE
   RESET

  TITLE1 : * * * * * * * *

  TITLE2 : * * * * * * * *

  TITLE3 : * * * * * * * *

  TITLE4 : * * * * * * * *
```

3 When the JOG dial button is pressed, the following message appears.

```
    READ?
      YES
→   :NO:
```

4 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The data written in the user data area of the unit's internal memory is now read, and the setting is completed.

5 Press the MENU button to exit the menu operations.

4-10-4 How to use the scene file data

The setting data can be written in the scene file area of the unit's internal memory and the data written can be read from this area. Up to four scene files can be registered. By using this data, the appropriate setup statuses can be established speedily.
At the factory, the unit's default statuses were set in TITLE1-4.

Writing the setting data used for the scene files

1 Perform a menu operation to open the <SCENE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the SCENE SEL item.

3 When the JOG dial button is pressed, the scene file number starts flashing. Turn the JOG dial button to select the scene file in which data is to be saved.

```
  <  S C E N E  >

   R E A D   U S E R   D A T A
→  S C E N E   S E L              1
    R E A D
    W R I T E
    R E S E T

   T I T L E 1  :  * * * * * * * *

   T I T L E 2  :  * * * * * * * *

   T I T L E 3  :  * * * * * * * *

   T I T L E 4  :  * * * * * * * *
```

4 Press the JOG dial button to enter the scene file.

5 Turn the JOG dial button to move the arrow (cursor) to the WRITE item.

```
  <  S C E N E  >

   R E A D   U S E R   D A T A
   S C E N E   S E L            ; 1
    R E A D
→   W R I T E
    R E S E T

   T I T L E 1  :  * * * * * * * *

   T I T L E 2  :  * * * * * * * *

   T I T L E 3  :  * * * * * * * *

   T I T L E 4  :  * * * * * * * *
```

6 When the JOG dial button is pressed, the following message appears.

```




   W R I T E ?
     Y E S
→    N O
```

7 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The setting data is now stored in the scene file area of the unit's internal memory.

8 Press the MENU button to exit the menu operations.

Reading the setting data used for the scene files

1 Perform a menu operation to open the <SCENE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the SCENE SEL item.

3 When the JOG dial button is pressed, the scene file number starts flashing. Turn the JOG dial button to select the scene file whose data is to be loaded.

```
< SCENE >

  READ USER DATA
→ SCENE SEL          :1:
   READ
   WRITE
   RESET

  TITLE1 : * * * * * * * *

  TITLE2 : * * * * * * * *

  TITLE3 : * * * * * * * *

  TITLE4 : * * * * * * * *
```

4 Press the JOG dial button to enter the scene file.

5 Turn the JOG dial button to move the arrow (cursor) to the READ item.

```
< SCENE >

  READ USER DATA
  SCENE SEL          : 1
→ READ
   WRITE
   RESET

  TITLE1 : * * * * * * * *

  TITLE2 : * * * * * * * *

  TITLE3 : * * * * * * * *

  TITLE4 : * * * * * * * *
```

6 When the JOG dial button is pressed, the following message appears.

```
  READ?
   YES
→  NO
```

7 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The data stored in the scene file area of the unit's internal memory is read, and the setting is completed.

8 Press the MENU button to exit the menu operations.

Returning the setting data used for the scene files to the factory settings

1 Perform a menu operation to open the <SCENE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the SCENE SEL item.

3 When the JOG dial button is pressed, the scene file number starts flashing. Turn the JOG dial button to select the scene file whose data is to be reset.

```
< SCENE >

  READ USER DATA
→ SCENE SEL          :1:
   READ
   WRITE
   RESET

  TITLE1 : * * * * * * * *

  TITLE2 : * * * * * * * *

  TITLE3 : * * * * * * * *

  TITLE4 : * * * * * * * *
```

4 Press the JOG dial button to enter the scene file.

5 Turn the JOG dial button to move the arrow (cursor) to the RESET item.

```
< SCENE >

  READ USER DATA
  SCENE SEL          : 1
   READ
   WRITE
→ RESET

  TITLE1 : * * * * * * * *

  TITLE2 : * * * * * * * *

  TITLE3 : * * * * * * * *

  TITLE4 : * * * * * * * *
```

6 When the JOG dial button is pressed, the following message appears.

```
  RESET?
   YES
→  NO
```

7 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The data stored in the scene file area of the unit's internal memory is reset and the factory settings are restored.

8 Press the MENU button to exit the menu operations.

4

Appending titles to the setting data used for the scene files

1 Perform a menu operation to open the <SCENE> screen.

2 Turn the JOG dial button to move the arrow (cursor) to the scene file TITLE1, 2, 3 or 4 item where the title is to be appended.

```
  <  S C E N E   >

   R E A D   U S E R   D A T A
   S C E N E   S E L           : 1
    R E A D
    W R I T E
    R E S E T

→  T I T L E 1   :   * * * * * * * *

   T I T L E 2   :   * * * * * * * *

   T I T L E 3   :   * * * * * * * *

   T I T L E 4   :   * * * * * * * *
```

3 When the JOG dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

```
  <  S C E N E   >

   R E A D   U S E R   D A T A
   S C E N E   S E L           : 1
    R E A D
    W R I T E
    R E S E T
                    ↓
   T I T L E 1   :   * * * * * * * *

   T I T L E 2   :   * * * * * * * *

   T I T L E 3   :   * * * * * * * *

   T I T L E 4   :   * * * * * * * *
```

4 Press the JOG dial button again and turn it until the character to be set is displayed.
When the button is turned, the character displayed is switched in the following sequence:

　　Space: □
　　　↓
　　letters: A—Z
　　　↓
　　numbers: 0—9
　　　↓
　　symbols: ', >, <, /, −

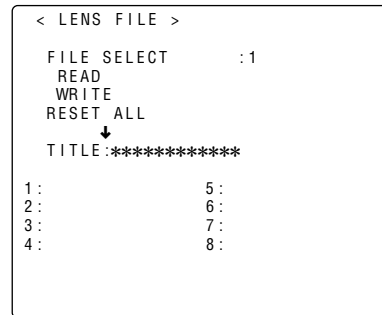*5* Press the JOG dial button to enter the character.

6 Turn the JOG dial button to move the arrow (cursor) to the next position (right), and repeat steps *4* and *5* to set the characters (maximum of 8).

7 When the title has been input, turn the JOG dial button to move the arrow (cursor) to the ":" position.

8 When the JOG dial button is pressed, the arrow (cursor) returns to the TITLE1, 2, 3 or 4 item.

9 Turn the JOG dial button to move the arrow (cursor) to the WRITE item.

10 When the JOG dial button is pressed, the following message appears.

```




     W R I T E ?
       Y E S
    →  N O

   T I T L E :
```

11 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The title is stored in the scene file area of the unit's internal memory.

12 Press the MENU button to exit the menu operations.

4-10-5 Method for returning to user settings

It is possible to return the settings of the menu on the unit to the user settings that were registered previously in accordance with "4-10-3 How to use the user data."
There are two methods: one that reads out the USER DATA saved in accordance with "4-10-3 How to use the user data," and the other method that returns without menu operations.

Operation method without performing FILE menu operations

1 Set the POWER switch to the OFF position.

2 Set the WHITE BAL switch to the PRST position.

WHITE BAL switch
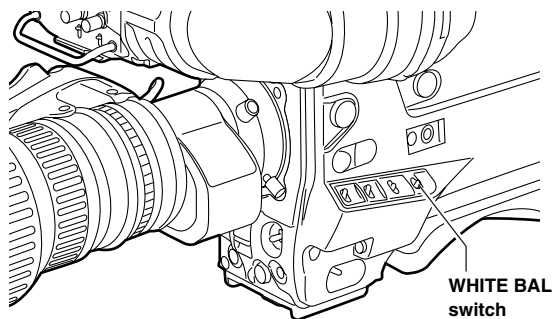
3 Set the POWER switch to the ON position while holding up the AUTO W/B BAL switch.
The USER menu item settings are all returned together to the standard user data.

4-10-6 Method for returning to the factory settings

It is possible to return the settings of the menu on the unit to the factory settings.

1 Open the <INITIALIZE> screen with the menu operations.

2 Move the arrow (cursor) to the READ FACTORY DATA by turning the JOG dial button.

```
  < INITIALIZE >

→ READ FACTORY DATA
  WRITE USER DATA
```
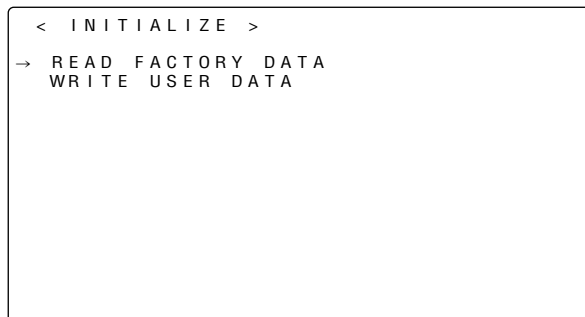
3 Press the JOG dial button to display the following message.

```



    READ?
     YES
→   >NO<
```

4 Move the arrow (cursor) to YES by turning the JOG dial button, and then press the JOG dial button.
The unit is reset to the factory settings.
● User data is not changed.

5 Press the MENU button to exit the menu operations.

4

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4-10-7 Lens file

The built-in memory of the unit stores eight sets of lens files.
On the SD memory card, eight titles for eight sets of lens files in a table (total 64 sets) can be written.
The following data are recorded on the lens file.
● Title name
● White shading correction value
● Flare compensation value
● RB gain offset correction value

4-10-8 How to provide lens files

Adjustment of white shading
For the white shading adjustment, refer to "5-3 Adjusting the white shading of the lens."

Adjustment of the flare
Using the menu operations, open the <LENS FILE ADJ> screen from the MAINTENANCE page and adjust the flare in the LENS R FLARE item, the LENS G FLARE item and the LENS B FLARE item.

```
→<  LENS  FILE  ADJ  >

  RB  GAIN  CTRL  RESET:ON
  LENS  R  GAIN  OFFSET:+000
  LENS  B  GAIN  OFFSET:+000

  LENS  R  FLARE        :000
  LENS  G  FLARE        :000
  LENS  B  FLARE        :000
```
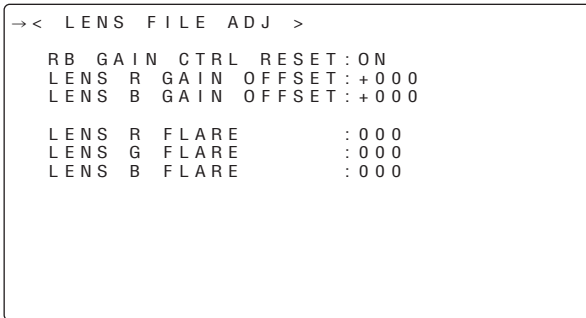
Example of the chart for flare adjustment

0.1H

0.1L
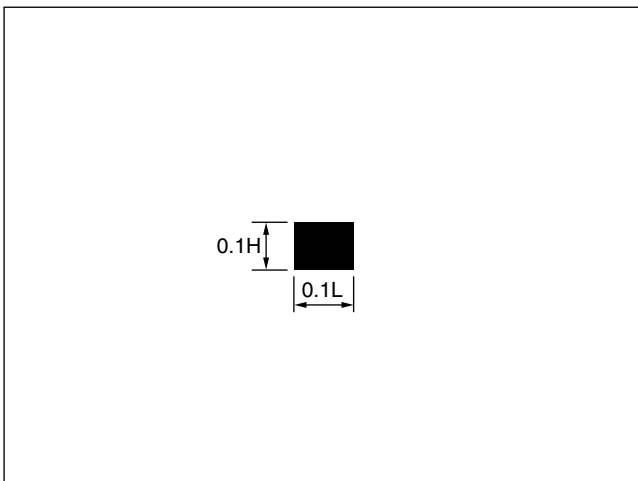
Adjustment of gain offset
For correcting changes in white balance that may occur when replacing the lens.

1 Mount the lens as standard on the unit.

2 Shoot the grayscale chart with appropriate lighting (2000 lx, 3200 K are preferable).

3 Set the WHITE BAL switch to the "A" position.

4 Adjust the lens aperture so that the white window at the center of the grayscale chart is about 80%.

5 Push the AUTO W/B BAL switch to "AWB" to adjust the white balance automatically.

6 Measure the signal level of RGB by using the waveform monitor (WFM).

7 Replace the lens to one where a lens file is provided.

8 Adjust the lens aperture so that the signal level of Gch is the same signal level as the one obtained in *6* above.

9 Using the menu operations, open the <LENS FILE ADJ> screen from the MAINTENANCE page and set the RB GAIN CTRL RESET to ON.

10 Adjust the signal level of Rch to be the same as Gch in the LENS R OFFSET item.

11 In the same way, adjust the signal level of Bch to be the same as Gch in the LENS B OFFSET item.

4-10-9 To save the lens file into the built-in memory
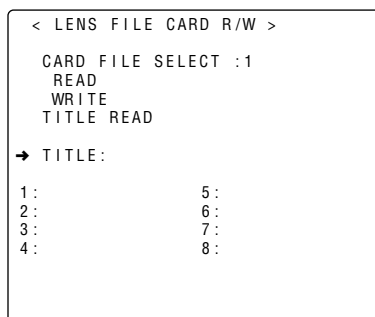
Select the file No.

1 Using the menu operations, open the <LENS FILE> screen from the FILE page.

2 Turn the JOG dial button to move the arrow (cursor) to the FILE SELECT item

3 Press the JOG dial button and the file number will flash. Turn the JOG dial button to select the file (1 to 8) to be recorded.

```
< LENS FILE >

  FILE SELECT      :1:
   READ
   WRITE
   RESET ALL

→ TITLE:

1:              5:
2:              6:
3:              7:
4:              8:
```
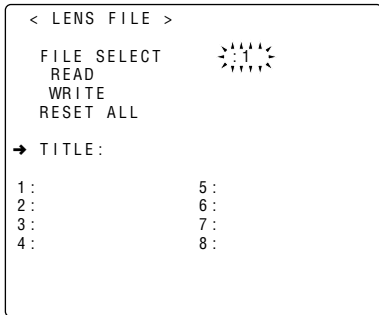
4 Press the JOG dial button to enter the file number.

Give a title to the selected file.

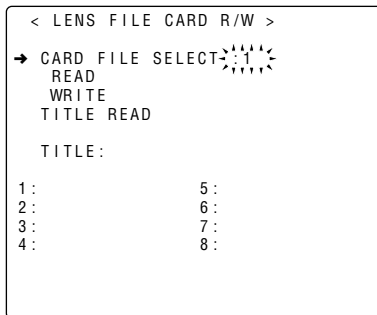*5* Turn the JOG dial button to move the arrow (cursor) to the "TITLE : " item.
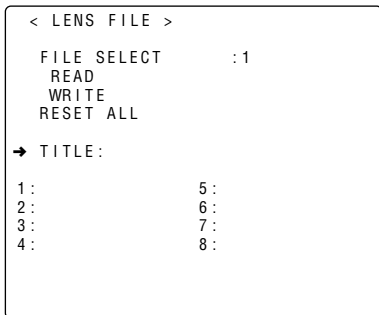
```
< LENS FILE >

  FILE SELECT      :1
   READ
   WRITE
   RESET ALL

→ TITLE:

1:              5:
2:              6:
3:              7:
4:              8:
```

6 When the JOG dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

```
< LENS FILE >

  FILE SELECT      :1
   READ
   WRITE
   RESET ALL
        ↓
   TITLE:

1:              5:
2:              6:
3:              7:
4:              8:
```
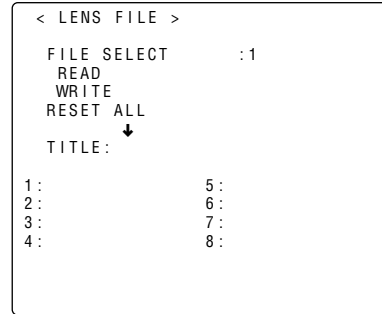
7 Press the JOG dial button again and turn it until the character to be set is displayed.
When the button is turned, the character displayed is switched in the following sequence:

Space: □
↓
letters: A—Z
↓
numbers: 0—9
↓
symbols: ', >, <, /, −, . , x

8 Press the JOG dial button to enter the character.

9 Turn the JOG dial button to move the arrow (cursor) to the next position (right), and repeat steps *7* and *8* to set the characters (maximum of 12).

10 When the title has been input, turn the JOG dial button to move the arrow (cursor) to the ":" position.

```
< LENS FILE >

  FILE SELECT      :1
   READ
   WRITE
   RESET ALL
        ↓
   TITLE:***********

1:              5:
2:              6:
3:              7:
4:              8:
```

11 When the JOG dial button is pressed, the arrow (cursor) returns to the TITLE: item.

```
< LENS FILE >

 FILE SELECT       :1
  READ
  WRITE
  RESET ALL

➜ TITLE:************

1:              5:
2:              6:
3:              7:
4:              8:
```

12 Turn the JOG dial button to move the arrow (cursor) to the WRITE position.

```
< LENS FILE >

 FILE SELECT       :1
  READ
➜  WRITE
  RESET ALL

  TITLE:************

1:              5:
2:              6:
3:              7:
4:              8:
```

13 When the JOG dial button is pressed, the following message appears.

```
WRITE ?
  YES
➜  NO
```

14 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The current white shading correction value, the flare compensation value, and the RB gain offset correction value are stored in the built-in memory of the unit.
<Note>
The values will not be stored in the unit's internal memory if another menu screen is selected without executing WRITE or if the menu is exited.

15 Press the MENU button twice upon completion of the adjustment.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

4-10-10 To read the lens file from the built-in memory

1 Using menu operations, open the <LENS FILE> screen from the FILE page.

2 Turn the JOG dial button to move the arrow (cursor) to the FILE SELECT item

3 Press the JOG dial button and the file number will flash. Turn the JOG dial button to select the file (1 to 8) to be read.

```
< LENS FILE >

➜ FILE SELECT      :1:
    READ
    WRITE
   RESET ALL

   TITLE:

1:              5:
2:              6:
3:              7:
4:              8:
```
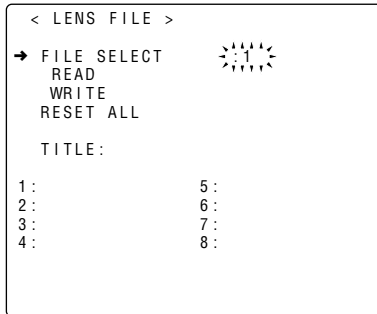
4 Press the JOG dial button to enter the file number.

5 Turn the JOG dial button to move the arrow (cursor) to the READ item
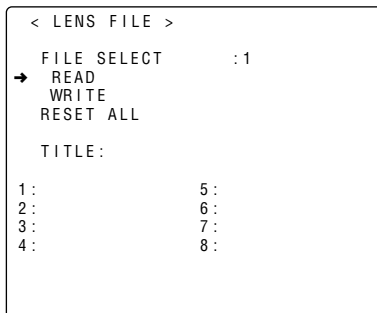
```
< LENS FILE >

   FILE SELECT      :1
➜  READ
    WRITE
   RESET ALL

   TITLE:

1:              5:
2:              6:
3:              7:
4:              8:
```

6 When the JOG dial button is pressed, the following message appears.

```
   READ ?
      YES
➜   :NO:
```
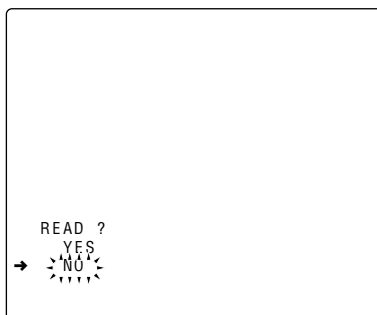
7 Turn the JOG dial button to move the arrow (cursor) to YES, and press the JOG dial button.
The recorded data from the white shading file is read.

8 Press the MENU button twice.
The setting menu is cleared, and the displays showing the unit's current statuses appear at the top and bottom of the viewfinder screen.

4

4-10-11 To write in and read out the lens file to/from the SD memory card

The contents of the eight lens files stored in the unit's internal memory can be saved onto an SD memory card as card files under a single title. A total of eight titles can be saved on an SD memory card.

Furthermore, the eight lens files saved under one title on an SD memory card can be loaded into the unit's internal memory.

The correlation between the lens files stored in the internal memory and lens files saved on an SD memory card is shown below.
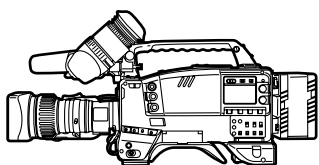
Internal memory

8 lens files

① ⑤
② ⑥
③ ⑦
④ ⑧
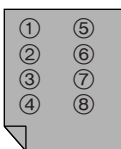
Up to 8 sets of the lens file can be stored in the built-in memory.

The contents of 8 lens files can be saved onto an SD memory card as card files under one title or they can be loaded from the SD memory card.

Card files

Title 1

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 2

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 3

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 4

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 5

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 6

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 7

① ⑤
② ⑥
③ ⑦
④ ⑧

Title 8

① ⑤
② ⑥
③ ⑦
④ ⑧
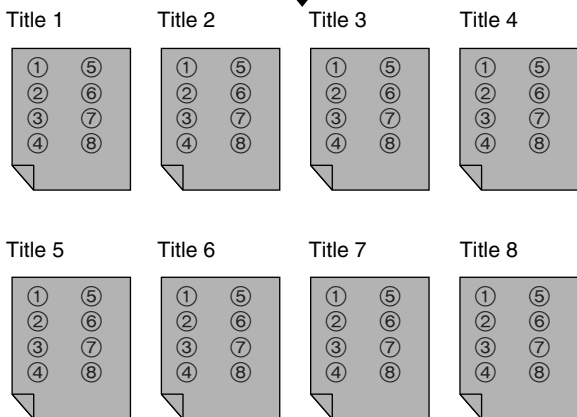
A total of 64 lens files (8 lens files × 8 titles) can be saved on an SD memory card.

Saving lens files on the SD memory card

Select the card file No.

1 Using menu operations, open the <LENS FILE CARD R/W> screen from the FILE page.

2 Turn the JOG dial button to move the arrow (cursor) to the CARD FILE SELECT item

3 Press the JOG dial button and the card file number will flash. Turn the JOG dial button to select the file (1 to 8) to be recorded.

```
< LENS FILE CARD R/W >

➜ CARD FILE SELECT :1
   READ
   WRITE
   TITLE READ

   TITLE:

1 :              5 :
2 :              6 :
3 :              7 :
4 :              8 :
```
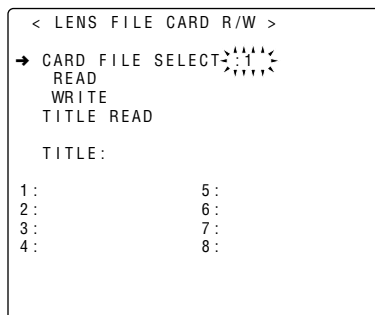
4 Press the JOG dial button to enter the file number.

Give a title to the selected card file.

5 Turn the JOG dial button to move the arrow (cursor) to the "TITLE : " item.

```
< LENS FILE CARD R/W >

   CARD FILE SELECT :1
   READ
   WRITE
   TITLE READ

➜ TITLE:

1 :              5 :
2 :              6 :
3 :              7 :
4 :              8 :
```

6 When the JOG dial button is pressed, the arrow (cursor) moves to the title input area, and the input mode is established.

Loading lens files from the SD memory card

1 Using menu operations, open the <LENS FILE CARD R/W> screen from the FILE page.

2 Turn the JOG dial button to move the arrow (cursor) to the CARD FILE SELECT item

3 Press the JOG dial button and the card file number will flash. Turn the JOG dial button to select the file (1 to 8) to be read.

```
< LENS FILE CARD R/W >

→ CARD FILE SELECT : 1
   READ
   WRITE
  TITLE READ

  TITLE :

1 :              5 :
2 :              6 :
3 :              7 :
4 :              8 :
```

4 Press the JOG dial button to enter the file number.

<Note>
The card file titles on the SD memory card are displayed on the LENS FILE (CARD R/W) screen, but the titles of the lens files contained in the card files are not shown on this screen.
To display these titles, load the files, and check the titles on the LENS FILE screen.
The lens files in the unit's internal memory will be rewritten as the loaded lens files at this time. For this reason, save the lens files in the internal memory onto the SD memory card first to back them up before loading them on the SD memory card.

Chapter 5 Preparation

5-1 Supplying the power

A battery pack or an external DC power supply can be used as this unit's power supply.

To use the battery pack, there is the following choice of makes of batteries:

- Anton/Bauer
- IDX
- PACO
- Sony

Types of battery can be confirmed and revised in the viewfinder or the menu screen on the monitor.

- Press the MODE CHECK button on the side panel of the unit to display the type of the battery currently set at the top right of the viewfinder screen.
- Using the menu operation, open the <BATTERY/TYPE> screen from the VTR MENU page to confirm/change it in the BATTERY SELECT item.

```
→<  BATTERY/TAPE  >

BATTERY  SELECT          :DIONIC
EXT  DC  IN  SELECT       :AC-ADPT
BATT  NEAR  END  ALARM    :OFF
BATT  NEAR  END  CANCEL   :ON
BATT  END  ALARM          :ON
BATT  REMAIN  FULL        :70%

TAPE  NEAR  END  ALARM    :ON
TAPE  NEAR  END  TIME     :2min
TAPE  END  ALARM          :ON
TAPE  REMAIN/■            :3min/■
```

<Notes>
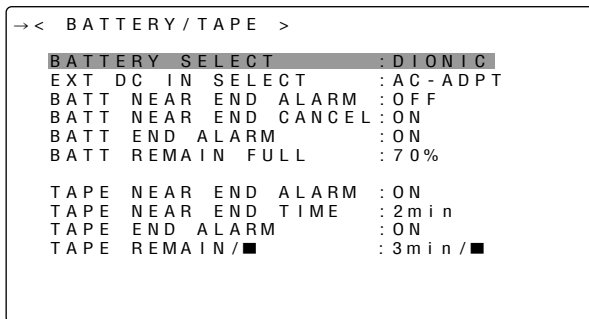
- Batteries of other makes can also be supported by changing the setting menu but no guarantees are made for the system when they are actually used with this unit.
- Before using the battery pack, recharge the battery using the battery charger.
  (For details on the recharging method, refer to the operating instructions of the battery concerned.)

5-1-1 Attaching the battery and setting the battery type

Using the Anton/Bauer battery pack

1 Attach the battery pack made by Anton/Bauer.

Power output connector for lighting

Battery pack made by Anton/Bauer

Lighting control switch

<Reference>
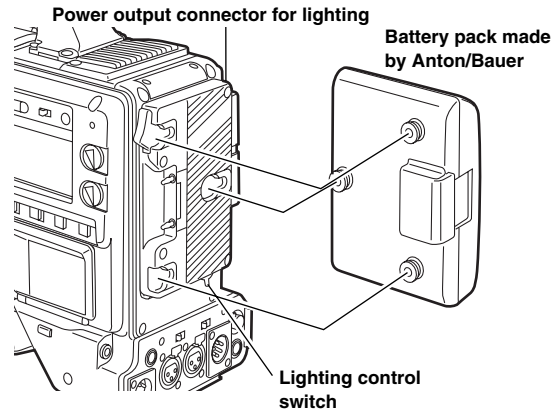
A battery holder made by Anton/Bauer is equipped with a power output connector for the lighting and a lighting control switch to enable a light to be easily attached. For details on the lighting systems available, contact Anton/Bauer.

2 Insert the battery pack and slide it in the direction of the arrow.

Release lever

<Reference>
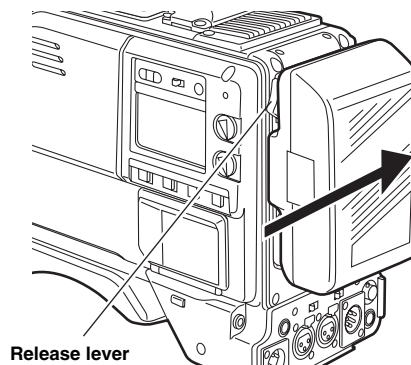
To remove the battery pack, slide it in the opposite direction to the one in which it was attached while keeping the release lever on the battery holder pulled down all the way.

3 Set the battery type.
Select the battery type using the BATTERY SELECT menu item. This item is selected from the <BATTERY/TAPE> screen on the VTR FUNCTION page.
For details, refer to "7-8-3 BATTERY SETTING1."

Anton/Bauer batteries which can be used

- PROPAC14
- TRIMPAC14
- HYTRON50
- HYTRON100
- HYTRON120
- DIONIC90
- DIONIC100
- DIONIC160

Using the NP-1 type battery pack

CAUTION:
These servicing instructions are for use by qualified service personel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operaiting instructions unless you are qualified to do so.

1 Remove the battery holder.

2 Attach the NP-1 type battery case to the unit.
　① Tighten the mounting screws.
　② Tighten the power contact screws.
　③ Insert the top of the detached cover in the direction shown by the arrows.
　④ Align the holes in the bottom of the cover (metal part) with the holes at the bottom of the case, and use the screws to attach the case.

　<Note>
　When mounting the battery holder, take care not to pinch the connecting cord.

NP-1 type Battery case
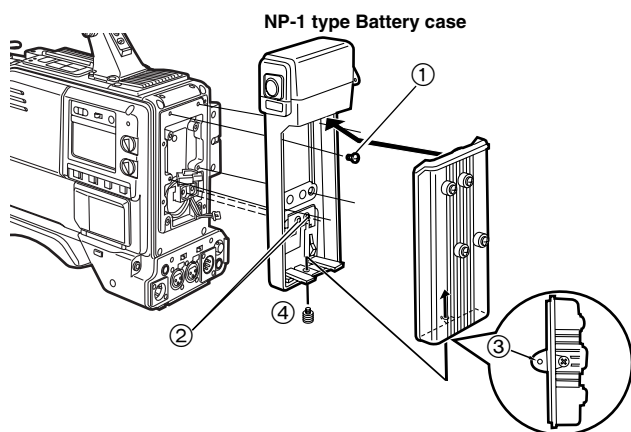
Using the V-mount type battery pack

Attach the V-mount adapter plate.
Insert it in the direction shown by the arrows, and slide it into place.
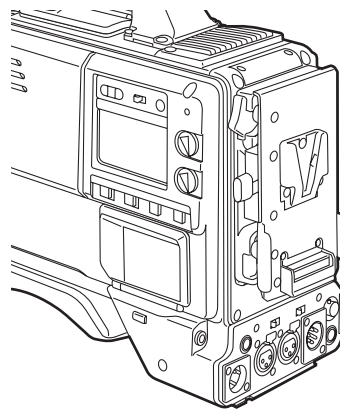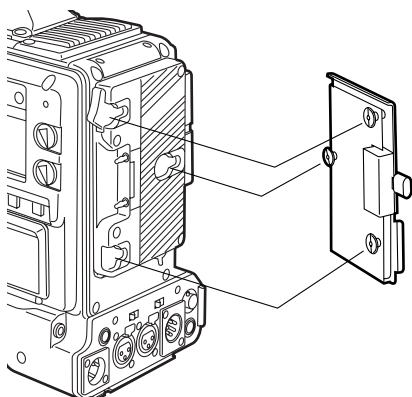
3 Set the battery type.
Select the battery type using the BATTERY SELECT menu item. This item is selected from the <BATTERY/TAPE> screen on the VTR FUNCTION page.
When using another battery which cannot be selected using the BATTERY SELECT item setting, select TYPE A or TYPE B, and set the items that correspond to the characteristics of the battery.
For details, refer to "7-8-4 BATTERY SETTING2."

<Note>
Address all inquiries concerning the V-mount adapter plate to your dealer.

5

5-1-2 Use of the external DC power supply

1 Connect the external DC power supply to the DC IN socket on the unit.

DC IN socket

External DC power supply
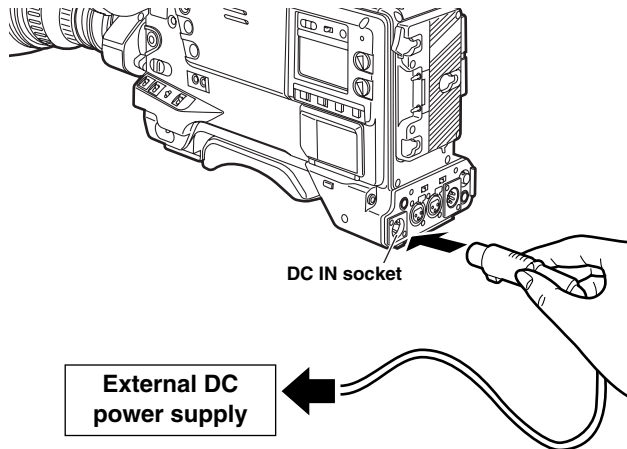
2 Turn "ON" the power switch of the external DC power supply.
(If the power switch is available on the external DC power supply)

3 Turn ON the POWER switch on the unit.

Rush current may occur at the time for turning on the power of the unit.
We recommend using an external DC power supply capable to secure double or more capacity of the total power consumption of the devices connected to the unit such as the viewfinder and lights. Use a DC cable with a capacity of 10A or more.

Confirm the pin arrangements of the DC output connector of the external DC power supply and the DC IN socket on the unit, and connect the proper polarities to each other.
If the +12 V power supply is connected to the GND connector in error, it may cause a fire or failure of the unit.
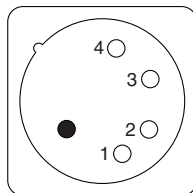
1: GND
4: +12V

DC IN socket

<Notes>
● If both the battery pack and the external DC power supply are connected, the electric power is supplied from the external DC power supply. While the external DC power supply is used, the battery can be mounted and removed on/from the unit.
● When the external DC power supply is used, ensure that the power switch of the external DC power supply is turned on first and then the POWER switch on the unit is turned on. In the case of the reverse operation, a malfunction may occur on the unit since the output voltage of the external DC power supply is raised slowly.

5-2 Attaching the lens and adjusting the flange back

Attaching the lens

1 Raise the lever for securing the lens, and detach the mount cap.

Lever for securing the lens

Mount cap
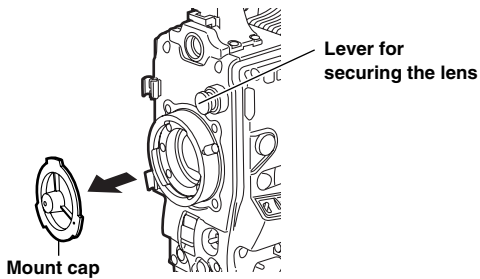
2 Align the center mark of the lens with the groove in the top center of the lens mount, and attach the lens.

Mark
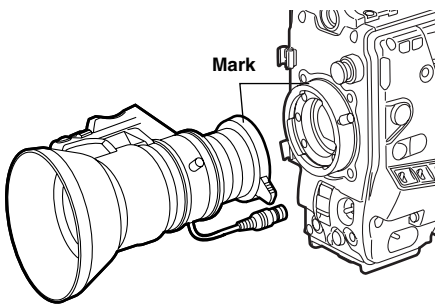
3 Push down the lever for securing the lens to secure the lens.
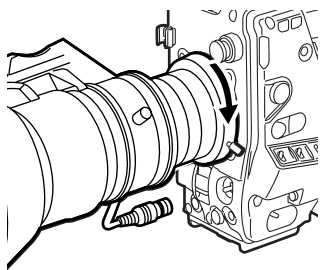
4 Push the cable into the cable clamp, and connect it to the LENS socket.

LENS socket
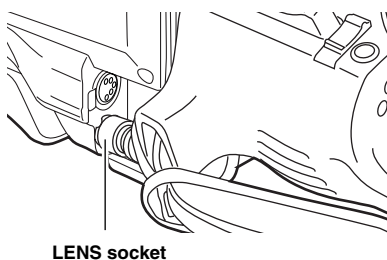
5 Proceed with the flange back adjustment for the lens.
   <Notes>
   ● For details on how to handle the lens, refer to the operating instructions of the lens.
   ● While the lens is removed, attach the mount cap to protect the unit.

Adjusting the lens flange

If the subject is not focused properly in the telephoto and wide-angle modes during zoom operations, adjust the flange back (distance from the lens mounting surface to the image-forming surface).
Once this adjustment is done, it need not be redone unless the lens is replaced.

<Note>
For details on the adjustment method and lens positions, refer also to the operating instructions that accompany the lens.

1 Attach the lens to the camera.
   At this stage, do not forget to connect the lens cable.

2 Set the lens aperture to manual and open the aperture.
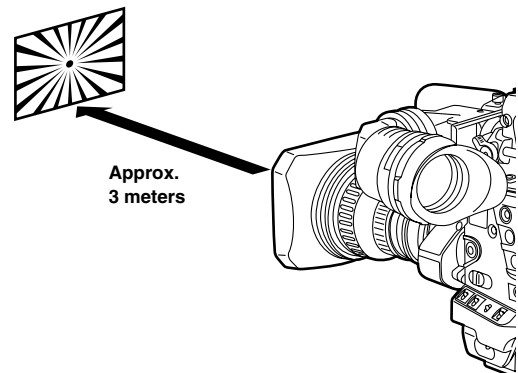
Approx. 3 meters

3 Set the lighting in such a way that the appropriate video output level is achieved at a distance of about 3 meters away from the chart used for the flange back adjustment. If the video level is too high, use the filters and shutter.

4 Loosen the screw securing the F.f (flange focus) ring.
   <Note>
   On some lenses, this may be marked as F.b (flange back) ring.

5 Set the zoom ring to the telephoto position either manually or electrically.

6 Shoot the chart used for the flange back adjustment, and turn the distance ring to adjust the focus.

7 Set the zoom ring to the wide-angle position, and turn the F.f ring to adjust the focus.
   Take care not to move the distance ring during this process.

8 Repeat steps *5* to *7* until the focus is adjusted at both the telephoto and wide-angle positions.

9 Tighten the screw securing the F.f ring.

5

5-3 Adjusting the white shading of the lens

Method to correct the waveform to be more flat by combining the sawtooth-shaped waveform and the parabola waveform when watching the respective waveforms of R, G and B of the video signals.

White shading adjustment is disabled when the DS. GAIN is turned ON or the LINE MIX GAIN function operates. Adjust the white shading in the following manner after turning OFF the DS. GAIN and releasing the LINE MIX GAIN function.

<Note>
Coloring may occur in the vertical direction near where the lens aperture is open even when the white shading has been adjusted. This is something that is inherent to lenses and optical systems and is therefore not indicative of a failure or malfunctioning.

1 Attach the lens to the camera.
At this stage, do not forget to connect the lens cable.

2 Set the electronic shutter to OFF and the gain to "L (0 dB)."

3 If the extender is attached to the lens, release the extender function.

4 Perform a menu operation to open the <GAMMA> screen from the PAINT page, and check that "STD" is selected as the GAMMA MODE SEL item setting. Then open the <VF DISPLAY> screen from the VF page, check that the settings selected for the ZEBRA1 DETECT item, ZEBRA2 DETECT item and ZEBRA2 item match the settings shown in the figure below. If they differ, make the appropriate changes, and then close the menu screen.

```
→ < V F   D I S P L A Y >

    D I S P   C O N D I T I O N      : N O R M A L
    D I S P   M O D E                : 3
    V F   O U T                      : Y
    V F   D T L                      : 3
    Z E B R A 1   D E T E C T        : 0 7 0 %
    Z E B R A 2   D E T E C T        : 0 8 5 %
    Z E B R A 2                      : S P O T
    L O W   L I G H T   L V L        : 3 5 %
    R C   M E N U   D I S P .        : O N
    M A R K E R / C H A R   L V L    : 5 0 %
```

5 Set the ZEBRA switch on the viewfinder to ON.

6 Shoot a white sheet of paper with no unevenness of color.
<Note>
Since fluorescent lights, mercury lamps and other such kinds of lighting tend to flicker, use a light source which is free from flicker such as sunlight or a halogen lamp.

7 Set the lens aperture control to manual, and adjust it so that the zebra pattern covers the whole screen. Check that the lens aperture is between F4 and F10.
<Notes>
- The zebra pattern will not cover the whole screen if there is any unevenness in the lighting. In this case, make adjustments to the position of the lighting, etc.
- Make adjustments to the position of the lighting, etc. also when the lens aperture is not between F4 and F10.
- Be absolutely sure to leave the electronic shutter at OFF.

8 ① Set the WHITE BAL selector switch to "A" or "B," and use the AUTO W/B BAL switch to adjust the white balance automatically (AWB).
② Use the AUTO W/B BAL switch to adjust the black balance automatically (ABB).
③ Again, use the AUTO W/B BAL switch to adjust the white balance automatically (AWB).

9 Repeat step *7*.

10 Using the menu operation, open the <WHITE SHADING> screen from the MAINTENANCE page and adjust a range of items from R H SAW item to B V PARA item, so that the waveform is more flat.

```
< W H I T E   S H A D I N G >

    C O R R E C T                    : O N
→   R   H   S A W                    : + 0 0 0
    R   H   P A R A                  : + 0 0 0
    R   V   S A W                    : + 0 0 0
    R   V   P A R A                  : + 0 0 0
    G   H   S A W                    : + 0 0 0
    G   H   P A R A                  : + 0 0 0
    G   V   S A W                    : + 0 0 0
    G   V   P A R A                  : + 0 0 0
    B   H   S A W                    : + 0 0 0
    B   H   P A R A                  : + 0 0 0
    B   V   S A W                    : + 0 0 0
    B   V   P A R A                  : + 0 0 0
```

H SAW

Before correction → After correction

H PARA
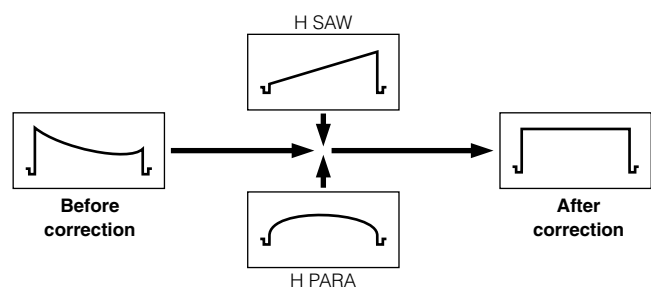
11 When the lens is provided with an extender, turn on the extender function, and repeat steps *7* to *9*.
(Once the extender function is turned on, the set values shown on the menu screen change.)
The adjustment values of the two resulting patterns–one when the lens extender is provided and the other when it is not provided–are stored in the unit as the data of one lens file.

When making the white shading correction, make the adjustment while observing the R, G, and B waveforms in the horizontal and vertical directions with the waveform monitor.

This now completes the white shading adjustments.
The adjustment values are now stored in the non-volatile memory so that even when the unit's power is turned off, there will be no further need to perform the white shading adjustment.

5

5-4 Audio input signal preparations

Prepare to connect the audio components which will supply the audio signals to the unit.

5-4-1 When using the front microphone

The microphone of the AJ-MC900G mic kit (optional accessory) can be attached to the viewfinder.

1 Open the mic holder.
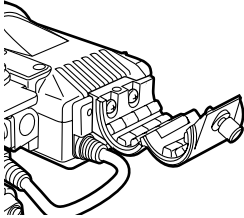
2 Attach the microphone, and tighten the locking screw. Install the microphone by setting the UP indication to the top.

Locking screw
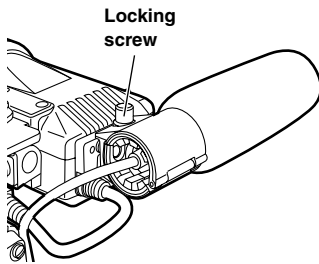
3 Connect the microphone's connecting cable to the MIC IN jack on the camera.

MIC IN jack
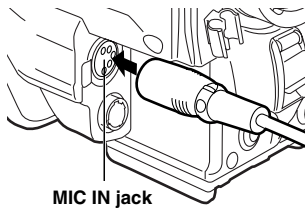
4 Set the AUDIO IN switch or switches to "FRONT" in accordance with the audio channel or channels whose sound is to be recorded.
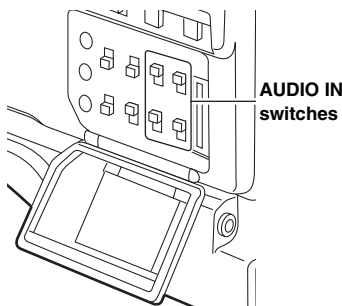
AUDIO IN switches

5-4-2 When using a wireless receiver

When using a UniSlot wireless receiver

1 Remove the slot cover, insert the wireless receiver, and screw it down.
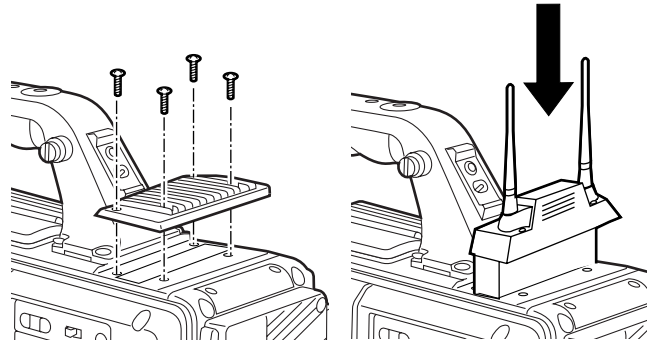
2 Set the AUDIO IN switches to WIRELESS for the audio channels whose audio signals are to be recorded.

5-4-3 When using an audio component

1 Connect the AUDIO IN connectors on the camera with the audio component using the XLR cable.

2 Set the AUDIO IN switch or switches for the channel or channels to which the audio component has been connected to "REAR."

3 Set the LINE/MIC/+48V selector switch on the rear panel to "LINE."

LINE/MIC/+48V selector switch

AUDIO IN connectors

AUDIO IN switches
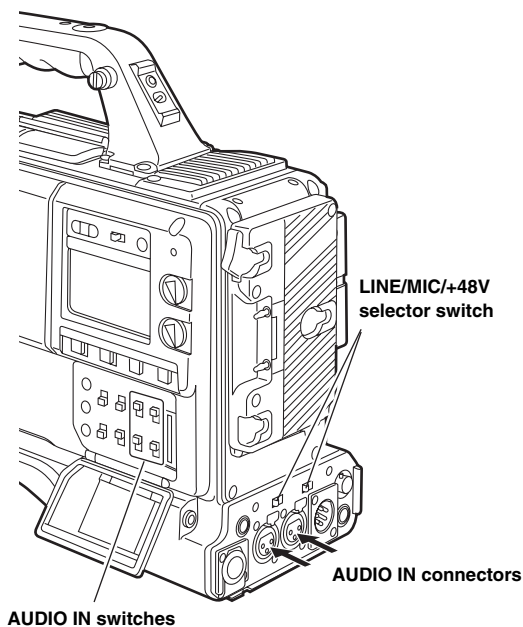
5-5 Mounting the unit on a tripod

Use the tripod adapter (SHAN-TM700) to mount the unit on a tripod.

1 Mount the tripod adapter on the tripod.

Tripod adapter
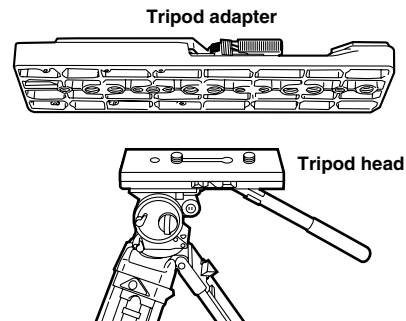
Tripod head

<Note>
Take account of the center of gravity of the unit and that of the tripod adapter when selecting the adapter hole. Check that the diameter of the hole selected matches the diameter of the tripod head screw.

2 Mount the unit on the tripod adapter.
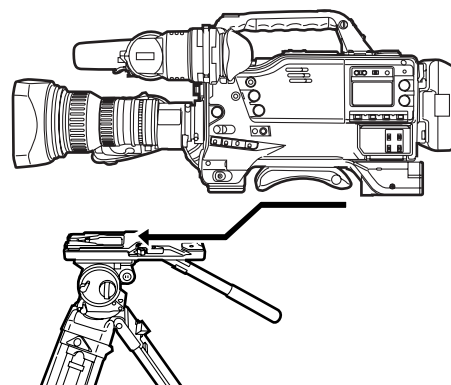
Slide the unit along the groove toward the front until it clicks into place.

Detaching the unit from the tripod adapter

Tripod adapter

Red lever   Black lever
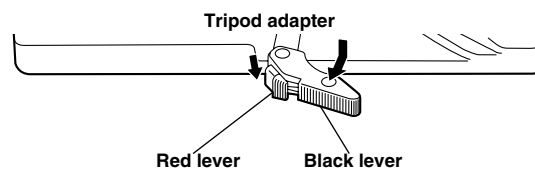
While pushing down the red lever, move the black lever in the direction of the arrow and slide the unit toward the back to remove it.

<Note>
If the pin of the tripod adapter fails to return to its original position after the unit has been detached, again move the black lever in the direction of the arrow while pushing down the red lever, and return the pin to its original position. Bear in mind that the unit cannot be attached if the pin remains in the center.

5

5-6 Attaching the shoulder belt

Shoulder belt

The tab opens when it is pressed.
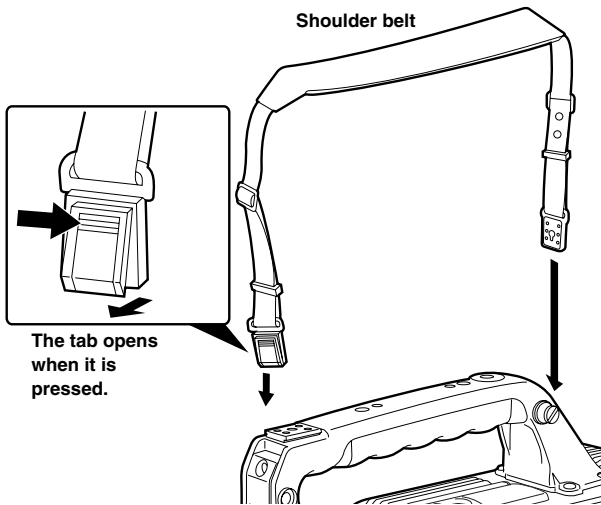
To disengage the shoulder belt, press the tabs.

<Note>
Check that the shoulder belt is attached securely.

5-7 Adjusting the position of the shoulder pad

The shoulder pad can be moved while the slide lever is held down. Its position can be adjusted in 3 mm steps (up to max. of 10 steps or 30 mm) in either the front or back direction.

While holding down the slide lever, move the shoulder pad toward the front or back to the optimum shooting position.

Slide lever
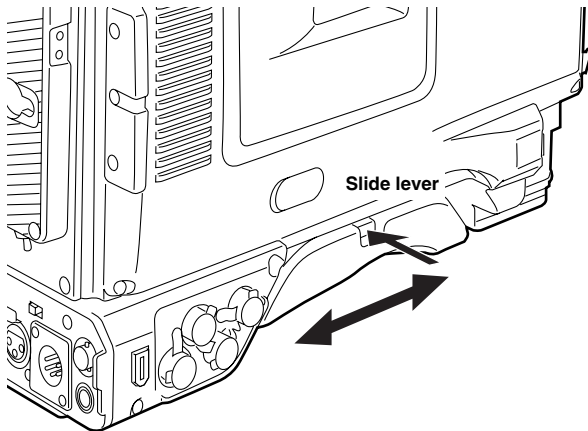
5-8 Attaching the rain cover

Example showing use of the SHAN-RC700 rain cover

Tighten the cord.

Close using the fastener.

Close using the fastener.
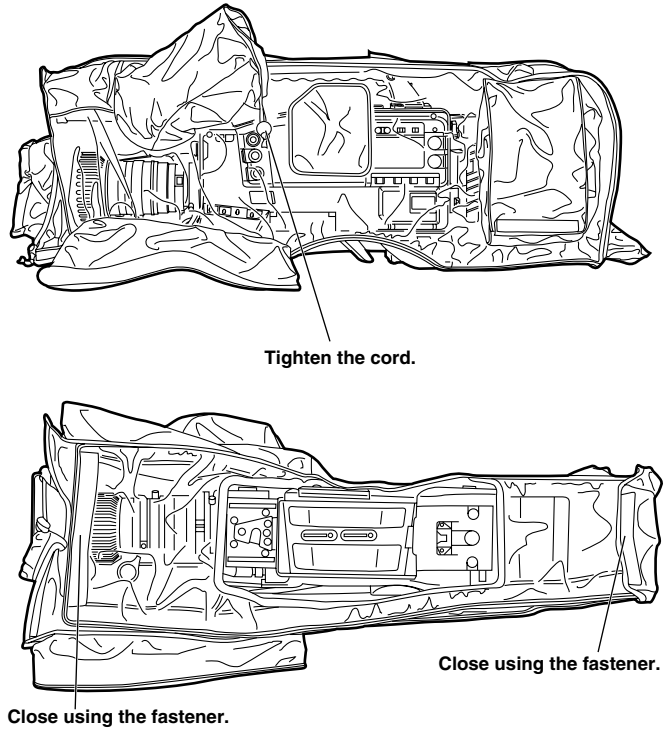
5-9 Attaching the FRONT AUDIO LEVEL control knob

When the FRONT AUDIO LEVEL control is to be operated frequently, the accessory knob can be attached to make it easier to operate the control.

FRONT AUDIO LEVEL control

Screw

Index marks

Knob (accessory)
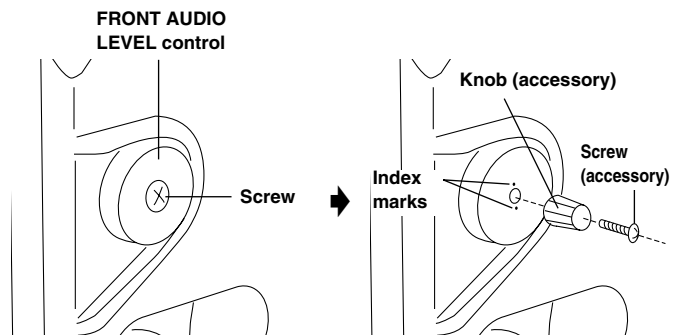
Screw (accessory)

Remove the screw at the center of the FRONT AUDIO LEVEL control, and secure the accessory knob to the control and unit behind using the same screw (accessory). Make sure that the index mark on the knob side is aligned with the index mark on the control side.

5-10 Connection of the remote control unit (AJ-RC10G)

It is possible to control some of the functions remotely by connecting the remote control unit AJ-RC10G (optional accessory).

When AJ-RC10G is connected to the REMOTE connector on the unit and the power switches of both of the unit and AJ-RC10G are turned on, the unit automatically enters the remote control mode.

The remote control mode is released when AJ-RC10G is removed or the power for the AJ-RC10G is turned OFF.

Switch functions in the remote control mode

In the remote control mode, the following switches and buttons on the unit are disabled.
● SHUTTER switch
● MENU button
● JOG dial button
● GAIN switch
● OUTPUT/AUTO KNEE switch
● WHITE BAL switch
● USER MAIN button
● USER 1 button
● USER 2 button

VTR operations in the remote control mode

In the remote control mode, the VTR can be operated with either the unit or AJ-RC10G.

<Notes>

● The state that was adjusted by connecting AJ-RC10G is stored in the unit. Not to store the adjusted state in the unit, open the FUNCTION MENU of AJ-RC10G to set the RC DATA SAVE item to "OFF".
● When the dedicated cable is connected or removed, ensure that the POWER switches on both the main unit and AJ-RC10G are turned "OFF".

Dedicated cable

AJ-RC10G

REMOTE connector
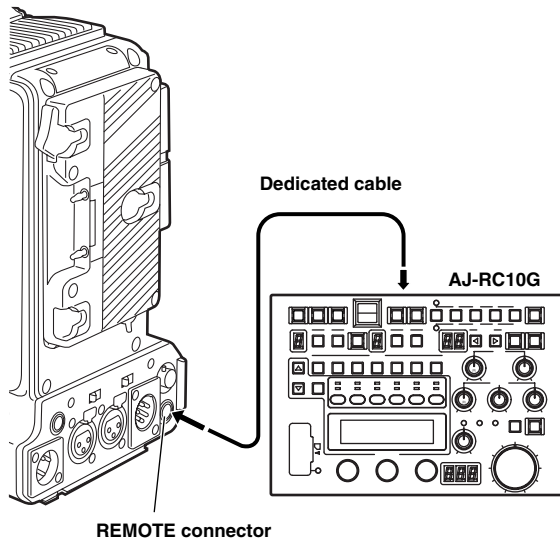
5-11 Connection of the external switch

It is possible to draw 1.5 A current from the DC OUT connector of the unit.

REC start/stop can be controlled by connecting an external switch to this connector.

Since a tally lamp can be used by connecting an LED to this connector, it is useful for shooting video when fixing the camera on a crane.

DC OUT connector

**Connector at the cable side
HR10A-7R-4P(73)
(Hirose Denki)**

LED

Resistance

Max. 50 mA
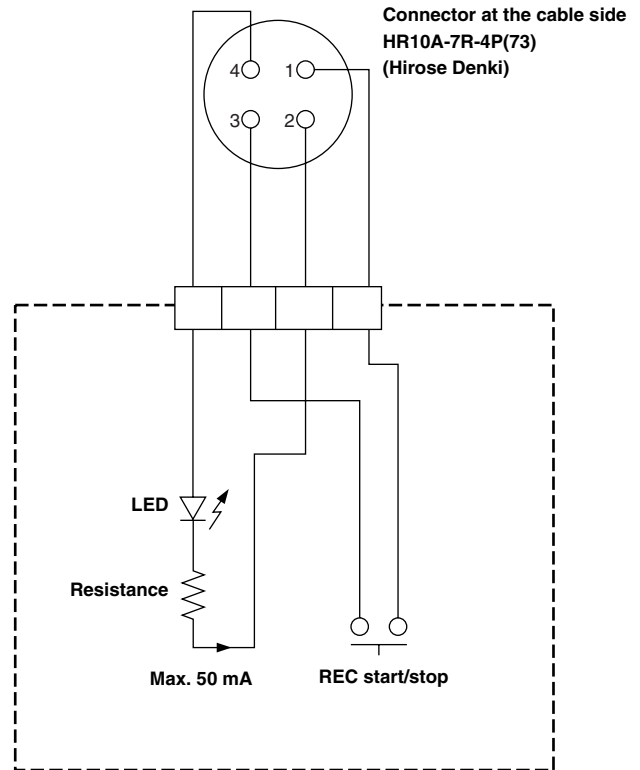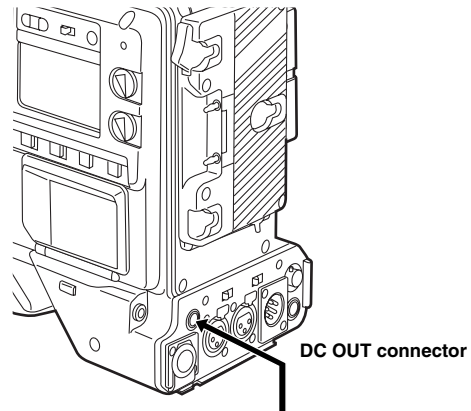
REC start/stop

1: GND
2: TALLY OUT
Open collector output on the unit side
TALLY ON:　Low impedance
TALLY OFF: High impedance
3: REC start/stop switch
This is connected in parallel to the REC START button on the unit or the VTR button on the lens
4: +12V

5

Chapter 6 Maintenance and inspections

6-1 Inspections prior to shooting

Before setting off for a shooting session, perform the following inspections to verify that the system is functioning correctly. It is recommended that a color video monitor be used to check the images.

6-1-1 Preparation for inspections

1 Insert a fully charged battery.

2 Set the POWER switch to ON, and check that the HUMID display has not come on and that at least 5 segments of the BATTERY display are lighted.

● If the HUMID display has come on, wait until it goes off.
● If fewer than 5 segments of the BATTERY display have lighted, replace the battery with one having an adequate charge.
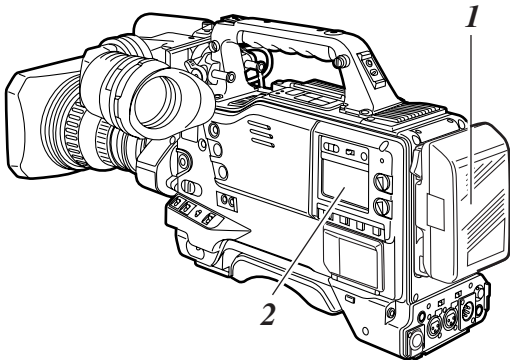
3 Check that there are no cables near the cassette holder or top panel, and then press the EJECT button to open the cassette holder.

4 After checking the following points, insert the cassette tape and close the cassette holder.

● The cassette tape must not be set to the accidental erasure prevention mode.
● There must be no tape slack.
● The tape must be free from condensation.
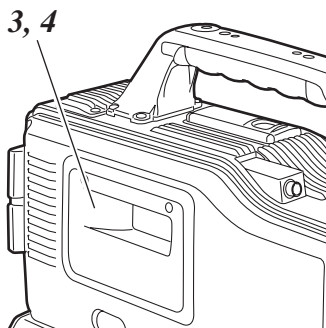
6-1-2 Inspecting the camera unit

1 Set the zoom to the motorized zoom mode, and check its operations in this mode.
Check that the image changes when the zoom is set to the telephoto and wide-angle positions.

2 Set the zoom to the manual zoom mode, and check its operations in this mode.
Turn the manual zoom lever, and check that the image changes when the zoom is set to the telephoto and wide-angle positions.

3 Set the aperture to the auto adjustment mode, point the lens at some objects with different brightness levels, and check that the auto aperture adjustment works.

4 Set the aperture to the manual adjustment mode, turn the aperture ring, and check that the manual aperture is adjusted.

5 While holding down the auto instantaneous aperture adjustment button, point the lens at some objects with different brightness levels, and check that the auto instantaneous aperture adjustment function works.

6 Return the aperture to the auto adjustment mode, switch the GAIN switch setting to L, M and H, and check that:

● The aperture is adjusted for objects of the same brightness level in tandem with the switching of the gain setting.
● The gain displayed on the viewfinder screen is switched in tandem with the switching of the gain setting.

7 When a lens with an extender has been installed, set the extender to the operating position, and check that it works properly.

6-1-3 Inspecting the VTR unit

Perform all the steps outlined in section "1. Tape travel inspection" through section "4. Earphone and speaker inspection" one after the other.

1. Tape travel inspection

1 Set the VTR SAVE/STBY switch to SAVE, and check that the SAVE lamp inside the viewfinder lights.

2 Set the VTR SAVE/STBY switch to STBY, and check that the SAVE lamp goes off.

3 Set the TCG switch to R-RUN.

4 Set the DISPLAY switch to CTL.

5 Press the unit's REC START button, and check that:
● The tape reels rotate.
● The figure shown on the counter display changes.
● The REC lamp inside the viewfinder lights.
● The RF and SERVO displays do not appear in the display window.

6 Press the unit's REC START button again. Check that the tape stops and the REC lamp inside the viewfinder goes off.

7 Use the lens VTR button to check the same operations as in steps *5* and *6*.

8 Press the RESET button, and check that "00:00:00:00" appears on the counter display.

9 Set the LIGHT switch to ON, and check that the display window illuminates.

10 Press the REW button, and after the tape has been rewound for a few seconds, press the PLAY/PAUSE button.
Check that the tape is recorded, played back and rewound properly.

11 Press the FF button, and check that the tape is fast forwarded properly.

2. Automatic audio level adjustment function inspection

1 Set the AUDIO SELECT CH1 and CH2 switch to AUTO.

2 Set the AUDIO IN CH1 and CH2 switches to FRONT.

3 Point the microphone connected to the MIC IN jack at a suitable sound source, and check that the changes in the level displays for both CH1 and CH2 reflect the changes in the strength of the sound.

3. Manual audio level adjustment function inspection

1 Set the AUDIO IN CH1 and CH2 switches to FRONT.

2 Set the AUDIO SELECT CH1 and CH2 switch to MAN.

3 Turn the AUDIO LEVEL CH1 and CH2 controls.
Check that when they are turned clockwise, the level displays increase.

4. Earphone and speaker inspection

1 Set the VTR SAVE/STBY switch to STBY.

2 Turn the MONITOR control, and check that the speaker volume changes.

3 Connect the earphones to the PHONES jack.
Check that the sound from the speaker is muted, and that the microphone's sound is heard in the earphones.

4 Turn the MONITOR control, and check that the earphone volume changes.

6

5. Inspection using external microphones

1 Connect external microphones to the AUDIO IN CH1 and CH2 jacks.

2 Set the AUDIO IN CH1 and CH2 switches to REAR.

3 Set the LINE/MIC/+48V selector switch on the back panel to MIC or +48V in accordance with the external mic's power supply type.

   MIC : Internal power supply mic.
   +48V : External power supply mic.

4 Point the microphones at the sound source, and check that the changes in the audio levels displayed on the audio level meter of the display window and in the viewfinder reflect the changes in the strength of the sound.
This inspection can also be performed for each channel by connecting one of the microphones to each channel in turn.

6. Inspections relating to the time code and user bits

1 Set the user bits as required.
For details on the setting procedure, refer to "4-5-1 Setting the user bits."

2 Set the time code.
For details on the setting procedure, refer to "4-5-3 Setting the time code."

3 Set the TCG switch to R-RUN.

4 Press the REC START button.
Check that the figure on the counter display changes as the tape travels.

5 Press the REC START button again.
Check that the tape stops and the figure shown on the counter display stops changing.

6 Set the TCG switch to F-RUN.
Check that the figure on the counter display changes irrespective of the tape travel.

7 Set the DISPLAY switch to UB.
Check that pressing the HOLD button advances the display value through the sequence VTCG → DATE → TIME → no display (time zone) → TCG.

6-1-4 Self-diagnosis function

Simplified checks can be undertaken on the unit's system at such times when, for instance, a color video monitor is not available.
Perform menu operations to open the <SYSTEM CHECK> from the MAINTENANCE page. Check the camera output level setting under the COLOR CHECK item.

```
→ <  SYSTEM CHECK  >

  COLOR CHECK   : OFF




        Y :  0 %        R :  0 %
                        G :  0 %
                        B :  0 %
```
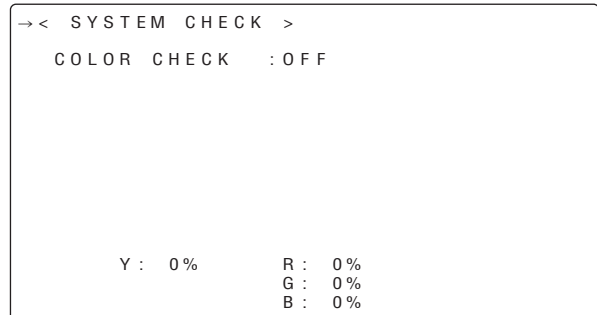
6-2 Maintenance

6-2-1 Condensation

The water vapor in the air may form as tiny droplets on the head drum when the unit is moved from a cold location to a warm location or used in a very humid place. This phenomenon is known as condensation, and running the tape under these conditions is liable to cause the tape to stick to the drum.
Note the following points:
● Remove the tape when the unit's operation is to be started in conditions where condensation may form.
● Before loading the tape, set the power switch to ON, and check that the HUMID display is not lighted in the display window.

<Note>
For safety reasons, the HUMID display will flash and the drum will rotate for 80 minutes after condensation detection is released.
During this time, the operation buttons cannot be operated.

6-2-2 Head cleaning

Use the AJ-CL12MP cleaning cassette if the heads need to be cleaned. Take care to read the instructions accompanying the cleaning tape since the video heads may be damaged if the tape is not used in the correct way.

6-2-3 Cleaning inside the viewfinder

● Do not use thinners or any other solvent to remove dirt.
● Use a lens cleaner available on the market to wipe the lens.
● NEVER wipe the mirror.
  If dirt or dust has found its way onto the mirror, remove it using an air blower at retail outlets.

6-2-4 Phenomena inherent to CCD cameras

Smear
This phenomenon may occur when very bright subjects are shot.
This phenomenon is more conspicuous when the electronic shutter speed is faster.

White dot defects
For shooting in a high temperature environment using the DS GAIN, red, green, or blue dots may appear on the screen.
Adjust the DS. GAIN and the S. GAIN in accordance with the operating environment.

6-2-5 Replacing the backup battery

The backup battery is already installed when the unit is shipped.
When it has discharged, the "BACK UP BATT EMPTY" display appears for 3 seconds on the viewfinder screen when the POWER switch is set to ON.
Moreover, the time code value of the TCG will be set to "00:00:00:00" and the backup of the time code value will no longer be possible: this means that the backup battery should be replaced.
Consult with your dealer, and replace the spent battery with a new battery (CR2032).

6

6-2-6 Connectors and signals

DC IN	
1	GND
2	NC
3	NC
4	+12V

Matsushita part number K1AA104H0038
Maker part number HA16RX-4P (SW1)
(Hirose Denki)
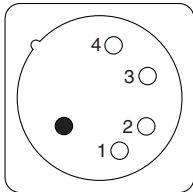
<Note>
Ensure that the polarities are used correctly for a power supply from an external source.

FRONT MIC IN	
1	GND
2	L CH IN(H)
3	L CH IN(C)
4	R CH IN(H)
5	R CH IN(C)

Matsushita part number K1AB105B0002
Maker part number NC5FBH
(NEUTRIK)
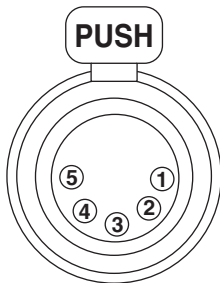
AUDIO IN	
1	GND
2	AUDIO IN(H)
3	AUDIO IN(C)

Matsushita part number K1AB103A0007
Maker part number HA16PRM-3SG
(Hirose Denki)
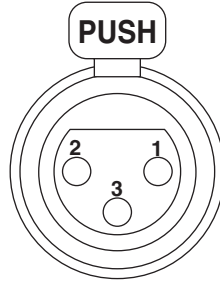
AUDIO OUT	
1	GND
2	L CH OUT (H)
3	L CH OUT (C)
4	R CH OUT (H)
5	R CH OUT (C)

Matsushita part number K1AA105H0016
Maker part number HA16RD-5P (76)
(Hirose Denki)
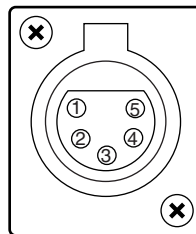
DC OUT	
1	GND
2	R TALLY
	(Open collector)
3	REC START SW
	(Max. 1.5 A)
4	+12V OUT

Matsushita part number K1AY104J0002
Maker part number HR10A-7R-4S (74)
(Hirose Denki)

Connector at the cable side
Maker part number HR10A-7R-4P (73)
(Hirose Denki)
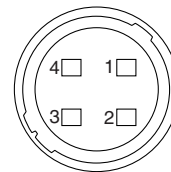
REMOTE

1	CAM DATA (H)	Data from the camera to the remote control (H)
2	CAM DATA (C)	Data from the camera to the remote control (C)
3	CAM CONT (H)	Control signals from the remote control to the camera (H)
4	CAM CONT (C)	Control signals from the remote control to the camera (C)
5	RC-ON	Identification signals of the remote control Low: ON
6	RC VIDEO OUT	Video signals output to the remote control
7	RC VIDEO GND	GND of the video signals to the remote control
8	NC	Not used
9	UNREG 12V	DC +12 V power supply (AJ-RC10G: Max. 0.75 A)
10	GND	GND

Matsushita part number K1AY110JA001
Maker part number HR10A-10R-10SC (71)
(Hirose Denki)

Connector at the cable side
Maker part number HR10A-10P-10P(73)
(Hirose Denki)
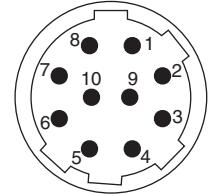
6

VF

1	UNREG-12V	DC +12 V power supply (AJ-HVF21G: About 0.35 A)
2	UNREG-12V	DC +12 V power supply
3	A9.0V	DC +9 V power supply (not used)
4	VF-PB-GND	GND for the viewfinder P_B signals
5	VF-PR-GND	GND for the viewfinder P_R signals
6	VF-Y	Viewfinder Y signals output
7	VF-Y-GND	GND for the viewfinder Y signals
8	VF-CLK	Serial data clock pulse signals
9	VF-WR	Pulse signals for reading serial-parallel conversion data
10	VF-DATA	Serial data signals for serial-parallel conversion
11	UNREG-GND	GND
12	ZEBRA-SW	ON/OFF of the zebra signals
13	PEAKING	Control of the peaking (not used)
14	SPARE	Standby (not used)
15	VF-PR	Viewfinder P_R signal output
16	VF-PB	Viewfinder P_B signal output
17	MARKER-SW	ON/OFF of the marker (not used)
18	FRONT-VR	FRONT AUDIO LEVEL adjustment (not used)
19	VR-GND	GND for the FRONT AUDIO LEVEL (not used)
20	UNREG-GND	GND
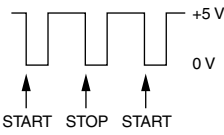
Matsushita part number K1AB120H0001
Maker part number HR12-14RA-20SC
(Hirose Denki)
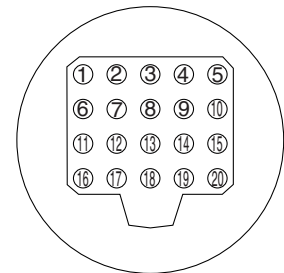
Caution:
Total amount of current from the respective connectors for DC OUT, REMOTE, VF, and LENS should not exceed 2.5 A.

LENS

Matsushita part number K1AY112JA001
Maker part number HR10A-10R-12SC(71)
(Hirose Denki)

1	RET-SW	ON/OFF of the return video RETURN ON: GND RETURN OFF: OPEN
2	REC-START/STOP	Control for recording start/stop
3	GND	GND
4	IRIS-AUTO	ON/OFF of the forced iris servo SERVO ON: +5 V ±0.5 V SERVO OFF: OPEN
5	IRIS-CONT	Control output for the lens iris F2.8: –6.2 V, F16: +3.4 V, CLOSE: +2.5 V
6	UNREG-12V	+12V power supply for the lens (Max. 1.5 A)
7	IRIS-POSI	Iris position signals 3.4 V (F16) to +6.2 V (F2.8)
8	IRIS-G-MAX	IRIS REMOTE/LOCAL (AUTO) signals REMOTE: +5 V ±0.5 V LOCAL (AUTO): GND
9	EXT-POSI	ON/OFF of the built-in extender EXTENDER ON: GND EXTENDER OFF: OPEN
10	ZOOM-POSI	Zoom position signals
11	FOCUS-POSI	Focus position signals
12	SPARE	Standby (not used)

For row 2, the description area also shows a waveform diagram labeled +5 V / 0 V with arrows marked START, STOP, START.

GPS

Matsushita part number K1AY106J0001
Maker part number HR10A-7R-6SC(73)
(Hirose Denki)

1	GPS TXA	Transmission data from the GPS unit to the camera
2	GPS RXA	Transmission data from the camera to the GPS unit
3	GPS VBAT	Backup power supply connector for the GPS unit (DC+3.3 V)
4	REC START SW	Control signals of REC start/stop
5	GPS VCC	Power supply connector for the GPS unit (DC+3.3 V)
6	GPS GND	GND

Unislot Interface

Matsushita part number K1GB25A00010
Maker part number HDBB-25S (05)
(Hirose Denki)
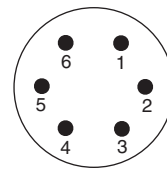
1	CH-1 SHIELD	GND
2	CH-1 HOT	Audio input from the wireless receiver: HOT
3	CH-1 COLD	Audio input from the wireless receiver: COLD
4	GND	GND
5	+12V UNREG	Power supply to the wireless receiver
6	RX ON	Power supply remote output to the wireless receiver
7	RF WARN	RF warning input from the wireless receiver
8	RM5	Not used
9	RM4	Not used
10	SPARE 1	Not used
11	SPARE 2	Not used
12	EXT CLK	Not used
13	CLK SHIELD	Not used
14	CH-2 SHIELD	Not used
15	CH-2 HOT	Not used
16	CH-2 COLD	Not used
17	+5.6V	Power supply to the wireless receiver
18	VIDEO OUT	Not used
19	VIDEO RET	Not used
20	VIDEO EN	Not used
21	RM 1 (RM CLK)	Not used
22	RM 2 (RM DATA)	Not used
23	RM 3 (RM WR)	Not used
24	RM +5V	Not used
25	RM GND	Not used

6

6-3 Warning system

6-3-1 Warning description tables

When an error or a problem is detected immediately after the power is turned on or while an operation is underway, the WARNING lamp and lamps inside the viewfinder serve to alert the user.

<Note>
Items are displayed in the following sequence of priority: WARNING lamp > tally lamp > warnings inside the viewfinder. The display accords with this sequence when more than one error has occurred at the same time. However, WIRELESS RF may not be displayed depending on the menu setting selected.

1. SLACK

Indications on LCD screen	"SLACK" appears and an error code flashes.
WARNING lamp	Flashes four times a second.
Tally lamp	Flashes four times a second.
Viewfinder	"SLACK" appears and an error code lights up.
Alarm	Sounds continuously.
Warning description	Motor, solenoid or other mechanism-related trouble, etc.
VTR unit operation	Operation is stopped. Power is turned off if solenoid trouble has been detected.
Corrective action	Check "6-3-2 Error codes," and consult your dealer.

2. BATTERY END

Indications on LCD screen	The bar display that shows the remaining battery charge starts flashing.
WARNING lamp	Lights.
Tally lamp	Flashes once a second.
Viewfinder	BATT LED lights.
Alarm	Sounds continuously.
Warning description	The battery charge is now depleted.
VTR unit operation	All operations are stopped, and the tape is unloaded. Only cassette tape eject is accepted.
Corrective action	Replace the battery.

3. TAPE END

Indications on LCD screen	The bar display that shows the remaining tape amount starts flashing.
WARNING lamp	Lights (during stop and standby OFF).
Tally lamp	Flashes four times a second (during stop and standby OFF).
Viewfinder	" END" flashes (during stop and standby OFF).
Alarm	Sounds continuously (during stop and standby OFF).
Warning description	The tape has come to its end.
VTR unit operation	Operation is stopped during recording, playback and fast forwarding.
Corrective action	Rewind the tape or replace the cassette tape.

4. REC WARNING

Indications on LCD screen	The code 11 display lights.
WARNING lamp	Flashes four times a second (for at least 3 seconds during recording).
Tally lamp	Flashes four times a second (for at least 3 seconds during recording).
Viewfinder	REC WARNING display flashes (for at least 3 seconds during recording).
Alarm	Sounds four times a second (for at least 3 seconds during recording).
Warning description	Problem with the recording control signal.
VTR unit operation	Recording continues but the signals may not be recorded correctly while the warning remains displayed.
Corrective action	Rewind the tape or replace the cassette tape.

5. HUMID

Indications on LCD screen	"HUMID" display lights if condensation is detected. "HUMID" display flashes for an additional 10 to 90 minutes after condensation detection is canceled.
WARNING lamp	Lights for 90 minutes following the release of the condensation detection after the condensation formation was detected.
Tally lamp	Flashes 4 times per second for 90 minutes after condensation detection is canceled.
Viewfinder	"HUMID" display flashes from the time condensation is detected until 90 minutes after the condensation detection is released.
Alarm	Sounds continuously (4 times a second during recording).
Warning description	Condensation has formed.
VTR unit operation	The recording operation continues but if the tape sticks, recording will stop. For 80 minutes after the condensation detection is released, the drum is rotated and no operations are accepted.
Corrective action	Stop the tape travel and turn off the power. If the "HUMID" display fails to be cleared even when the power is turned back on, wait until it clears.

6. SERVO

Indications on LCD screen	"SERVO" display lights (during recording and playback).
WARNING lamp	Flashes four times a second (during recording and playback).
Tally lamp	Flashes four times a second (during recording and playback).
Viewfinder	"SERVO" display lights (during recording and playback).
Alarm	Sounds four times a second (during recording and playback).
Warning description	The servo is disturbed.
VTR unit operation	Operation continues but the unit may not operate correctly.
Corrective action	Turn off the power and consult your dealer. The warning display may flash for a moment and then disappear when tape transport commences: this is normal and not indicative of a failure or malfunctioning.

7. RF

Indications on LCD screen	"RF" display flashes (during standby and recording).
WARNING lamp	Flashes four times a second (during recording).
Tally lamp	Flashes four times a second (during recording).
Viewfinder	"RF" display lights (during recording).
Alarm	Sounds four times a second (during recording).
Warning description	The video heads have become clogged. There is a problem in the video system.
VTR unit operation	The cleaning rollers are activated to clean the heads (for a maximum of 3 seconds). Recording continues but the signals may not be recorded correctly. The indications on LCD screen are retained until the REC/PAUSE status is established. They go off as soon as the unit transfers from the REC/PAUSE mode to another mode.
Corrective action	Clean the heads. If the signals cannot be recorded correctly even after cleaning, consult your dealer.

8. WIRELESS RF

Indications on LCD screen	No indication
WARNING lamp	Flashes four times a second (during standby and recording).
Tally lamp	Flashes four times a second (during recording).
Viewfinder	"WIRELESS RF" display lights for at least 3 seconds during recording.
Alarm	Sounds four times a second (for at least 3 seconds during standby and recording).
Warning description	Poor wireless signal reception.
VTR unit operation	Operation continues but the signals from the wireless microphone cannot be received.
Corrective action	Check the microphone's power supply and the reception condition of the receiver.

9. BATTERY NEAR END

Indications on LCD screen	The bar display that shows the remaining battery charge starts flashing.
WARNING lamp	Flashes once a second.
Tally lamp	Flashes once a second.
Viewfinder	BATT LED starts flashing.
Alarm	Sounds four times a second.
Warning description	The battery charge is nearly depleted.
VTR unit operation	Operation continues.
Corrective action	Replace the battery when it becomes necessary.

10. TAPE NEAR END

Indications on LCD screen	The bar display that shows the remaining tape amount starts flashing.
WARNING lamp	Flashes once a second (during recording).
Tally lamp	Flashes once a second (during recording).
Viewfinder	● The remaining tape display starts flashing (in the EE mode). ● "🎞" flashes for 3 seconds one minute before the tape reaches the end.
Alarm	Sounds once a second.
Warning description	The tape is close to its end (about 2 minutes remain).
VTR unit operation	Operation continues.
Corrective action	Replace the cassette tape when it becomes necessary.

11. 1394

Indications on LCD screen	"1394 E-✶✶" display flashes.
WARNING lamp	Flashes four times a second.
Tally lamp	Flashes four times a second.
Viewfinder	When error code 92 appears, "1394 INITIAL ERROR" display lights (during standby).
Alarm	Sounds four times a second.
Warning description	There is something wrong with the signals supplied to the DVCPRO connector.
VTR unit operation	Operation continues, but something is wrong with the signals supplied to the DVCPRO connector.
Corrective action	Check the IEEE 1394 cable and DVCPRO connector connections and the settings of the external units or menu settings, and then turn the power off and back on. If the warning display is not cleared, check "6-3-2 Error codes," and consult your dealer.

6

6-3-2 Error codes

One of the following error codes appears in the display window when an error has occurred in the unit for some reason.
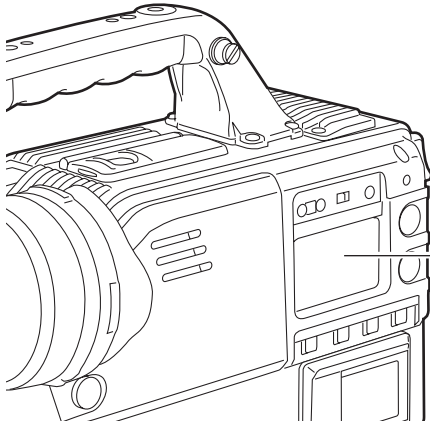

Code No.	Description of error
E-04	Pinch solenoid problem
E-08	Cleaning solenoid problem
E-0B	Supply reel problem
E-0C	Take-up reel problem
E-0D	Capstan problem
E-0E	Cylinder problem
E-0F	Loading problem
E-38	Servo transmission problem
E-3F	Camera transmission problem
E-6F	Reference signal problem
E-11	Video initialization problem
E-50	System format problem ● Turn the power supply on again.
E-92	Something is wrong with the DVCPRO connector connection.

6-3-3 Emergency eject

If the cassette cannot be ejected by pressing the EJECT button, use a screwdriver or similar tool to press and turn the emergency eject screw. This enables the cassette to be removed.

1 Set the power to OFF.

2 Remove the rubber cap where shown in the figure. Insert a Phillips head screwdriver into the cross-shaped part of the emergency eject screw (red).

3 While pushing in with the screwdriver, turn the emergency eject screw counterclockwise until the tape is ejected.

● This screw needs to be rotated through about 20 turns after the first turn until the unloading can be started.
● It also needs to be rotated through about 90 turns after the first turn until the tape is ejected.

4 Remove the cassette.

5 Return the rubber cap to its original position.

Cassette holder

Emergency eject screw

2, 5

3 **Push in and turn at the same time.**
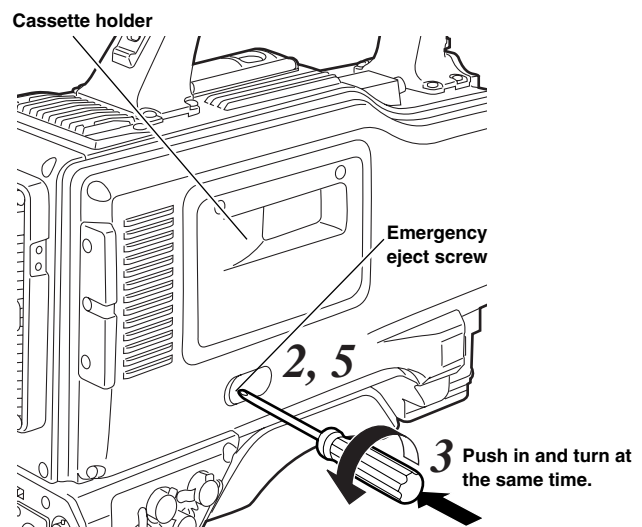
<Notes>
● Do not turn the emergency eject screw except in an emergency.
● **Do not turn the screw clockwise. Stop turning the screw as soon as the tape is ejected. Otherwise, the mechanism may be damaged.**
● After the tape is ejected, the cassette holder will not lock into place even when an attempt is made to close it. Be sure to turn the power off and turn it back on to reset the mechanism's operation, and then close the cassette holder.
● A clicking sound will be heard when the emergency eject screw is turned: this sound is made by the reel drive operation and is therefore not indicative of a malfunction.

Chapter 7 Menu description tables

7-1 Menu configuration

MENU
— USER MENU
— MAIN MENU
— OPTION MENU
  — OPTION

Items selected in <USER MENU SELECT>

MAIN MENU
— SYSTEM SETTING
— PAINT
  — RB GAIN CONTROL
  — RGB BLACK CONTROL
  — MATRIX
  — COLOR CORRECTION
  — LOW SETTING
  — MID SETTING
  — HIGH SETTING
  — ADDITIONAL DTL
  — SKIN TONE DTL
  — KNEE/LEVEL
  — GAMMA
  — CAMERA SETTING

SYSTEM SETTING
— SYSTEM MODE
— REC FUNCTION
— OUTPUT SEL
— VIDEO OUT SETTING
— MONITOR OUT SETTING
— RC OUT SETTING
— DOWNCON SETTING
— GENLOCK
— OPTION MODE

— VF
  — VF DISPLAY
  — VF MARKER
  — VF USER BOX
  — VF INDICATOR1
  — VF INDICATOR2
  — MODE CHECK IND
  — !LED

— OPERATION
  — CAMERA ID
  — SHUTTER SPEED
  — SHUTTER SELECT
  — USER SW
  — SW MODE
  — WHITE BALANCE MODE
  — USER SW GAIN
  — LENS IRIS

— FILE
  — CARD READ/WRITE
  — CARD R/W SELECT
  — LENS FILE
  — LENS FILE CARD R/W
  — SCENE
  — INITIALIZE

— MAINTENANCE
  — SYSTEM CHECK
  — DIAGNOSTIC
  — LENS ADJ
  — BLACK SHADING
  — WHITE SHADING
  — LENS FILE ADJ

— VTR MENU
  — VTR FUNCTION
  — BATTERY/TAPE
  — BATTERY SETTING1
  — BATTERY SETTING2
  — MIC/AUDIO 1
  — MIC/AUDIO 2
  — TC/UB
  — UMID SET/INFO
  — VTR DIAG

— USER MENU SELECT
  — SYSTEM(USER)
  — PAINT(USER)
  — VF(USER)
  — OPERATION(USER)
  — FILE(USER)
  — MAINTENANCE(USER)
  — VTR(USER)

How to open the menus

USER MENU:
Press MENU button to display.

MAIN MENU:
Hold down MENU button for 3 seconds or more to display.

OPTION MENU:
Press MENU button while holding down LIGHT button to display.

<Notes>
- There is a total of 42 camera-related items on three pages (14 items per page) and 14 VTR-related items on one page which can be set.
- The items with the shading cannot be selected using <USER MENU SELECT>.
- The items with the underlining can be selected only using <USER MENU SELECT> on condition that all the items (equivalent to the number of items on one page) are selected together. Individual items cannot be selected.

How to interpret the menu lists

The following abbreviations indicate whether the menu changes are stored (written) in the corresponding data or loaded (read) from the data.
The changes cannot be stored or loaded when "/" is indicated.

S: The changes can be stored or loaded as scene file data.
C: The changes can be stored or loaded using CARD READ/WRITE.
U: The changes can be stored or loaded as user data.
Refer to sections "7-6-4 SCENE" and "7-6-5 INITIALIZE."
F: The changes can be stored or loaded as READ FACTORY DATA.
Refer to section "7-6-5 INITIALIZE."
R: The changes can be stored or loaded using RC DATA SAVE.
Refer to section "5-10 Connection of the remote control unit (AJ-RC10G)."

Item	Variable range	Remarks
SYSTEM MODE	1080-50i 1080-59.94i 720-50P 720-59.94P	For setting the system frequency and the recording format of the unit. When this item is switched, turn "OFF" the POWER switch on the unit and then turn it "ON" again.
/ C U F /		

This column indicates the variable range in which the item can be set and the choice of the settings which can be selected for the item.

Described in this column are the operations which can be expected to result when the item's settings are selected.

7-2 SYSTEM SETTING

7-2-1 SYSTEM MODE

Item	Variable range	Remarks
SYSTEM MODE **For AJ-HDX900E** **For AJ-HDX900P** ⟋ C U F ⟍	1080-50i 1080-59.94i 720-50P 720-59.94P	For setting the system frequency and the recording format of the unit. When this item is switched, turn "OFF" the POWER switch on the unit and then turn it "ON" again. ● When the remote control unit (AJ-RC10G) is connected, this item is not displayed. To switch this item, operate the main unit independently.
CAMERA MODE **For AJ-HDX900E** **For AJ-HDX900P** ⟋ C U F R ⟍	(1080-50i) 50i 25P (1080-59.94i) 60i 30P 24P 24PA (720-50P) 50P 25P (720-59.94P) 60P 30P 24P	For setting the video system for shooting.

\<Note>

If the SYSTEM MODE item is changed while the time code is advanced in the free-run mode (the TCG switch is set to the F-RUN position.), the time code may not record properly. When the SYTEM MODE item is changed and the power of the unit is turned on again, check the time code and set it again if necessary.

7-2-2 REC FUNCTION

Item	Variable range	Remarks
INTERVAL REC MODE ⟋ C U F ⟍	ON ONE SHOT OFF	For setting the INTERVAL REC function. **ON:** For executing the interval recording. It is possible to record in intervals in increments of one frame. **ONE SHOT:** Recording is performed only once for the time set in the REC TIME item, after which it stops. **OFF:** Interval recording is not performed. For details, refer to "3-5 Recording in intervals (INTERVAL REC function)."
INTERVAL REC HOLD ⟋ C U F ⟍	ON OFF	For setting whether the settings in the INTERVAL REC MODE item are retained or released, when the power is turned OFF. **ON:** For retaining the settings in the INTERVAL REC MODE item. **OFF:** For releasing the settings in the INTERVAL REC MODE item.

Item	Variable range	Remarks
REC TIME **For 59.94 Hz** **For 50 Hz** ⟋ C U F ⟍	00s01f : 59s29f 00s01f : 59s24f	For setting the recording time (one cut). When the CAMERA MODE item is set to 24P or 24PA, the value is set in increments of 5 frames.
PAUSE TIME **For 59.94 Hz** **For 50 Hz** ⟋ C U F ⟍	00h00m00s01f 00h04m59s29f 23h59m59s29f 00h00m00s01f 00h04m59s24f 23h59m59s24f	For setting the recording pause time. When the CAMERA MODE item is set to 24P or 24PA, the value is set in increments of 5 frames.
TAKE TOTAL TIME ⟋ C U F ⟍	NONE : 5day	For setting the time required for shooting. Select a setting from NONE (shooting continues until it is stopped manually) to 5DAY (5 days).
TOTAL REC TIME ⟋⟋⟋⟋	00m00s01f : 99m59s29f OVER 100min NONE	For displaying the total recording time. The setting for this time cannot be changed. The total time yielded by adding the REC TIME, PAUSE TIME and TOTAL TAKE TIME is displayed. ● This indication is just a guide for the recording time. It is impossible to record for a period longer than the recording time of the tape.
AUDIO REC ⟋ C U F ⟍	OFF ON	For setting the availability of audio records during INTERVAL REC.
START DELAY ⟋ C U F ⟍	0SEC : 10SEC	For setting the time taken until recording is to start after the REC START button is pressed in the INTERVAL REC mode.
PRE REC MODE ⟋ C U F ⟍	OFF ON	For setting the PRE RECORDING function. **OFF:** Recording starts about 0.4 seconds after pressing the REC START button or the VTR button on the lens. **ON:** The PRE RECORDING function is activated. For details, refer to "3-4 To record video signals of a few seconds before starting recording (PRE-RECORDING function)."
PRE REC TIME ⟋ C U F ⟍	0SEC : 7SEC	For setting the length of time for which the video and audio signals can be recorded before the REC START button is pressed in PRE RECORDING.
RETAKE MODE ⟋⟋⟋ F ⟍	ON OFF	For setting the RETAKE function. **ON:** The RETAKE function is activated. **OFF:** The RETAKE function is not activated. It returns to OFF once the power is turned off. For details, refer to "3-6 To take the previous cut again (RETAKE function)."

The underlining in the variable range column indicates the setting in the preset mode.

7-2-3 OUTPUT SEL

Item	Variable range	Remarks

OUTPUT ITEM
 	
C U F
	TC
	STATUS
	MENU
	   ONLY
		For setting the characters superimposed on the output signals from the VIDEO OUT connector.
		TC:
		  Time codes are superimposed (when the menu is accessed, the menu screen is superimposed.)
		STATUS:
		  The characters that are the same as the characters superimposed in the viewfinder screen are superimposed. (When the menu is accessed, the menu screen is superimposed.)
		MENU ONLY:
		  The menu screen is superimposed only when the menu is accessed. This normally displays nothing.
		For details, refer to "4-8-1 Settings of signals output from VIDEO OUT connector."

MONI OUT
 	
C U F
	HD-SDI
	HD-Y
		For setting video signals output from the MON OUT connector.
		HD-SDI:
		  For outputting the HD SDI signals
		HD-Y:
		  For outputting the analog HD-Y signals
		For details, refer to "4-8-2 Settings of signals output from MON OUT connector."

MONI OUT CHARA C U F	ON OFF	For superimposing characters on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose **\<Note\>** This does not link with the VIDEO OUT CHARACTER switch.
MONI OUT MODE C U F	CAM VTR	For switching the signals output from the MON OUT connector. **CAM:** The camera images are output at all times. **VTR:** In the recording or other EE mode, camera images are output from the connector; in playback mode, the VTR's playback signals are output.
VF MODE C U F	CAM VTR	For switching the display mode of the viewfinder screen. **CAM:** The camera images are output at all times. **VTR:** In the recording or other EE mode, camera images are displayed; in playback mode, the VTR's playback images are displayed.

The underlining in the variable range column indicates the setting in the preset mode.

7-2-4 VIDEO OUT SETTING

Item	Variable range	Remarks
VIDEO OUT CENTR MARK C U F R	OFF 1 2 3 4	For setting the center marker to be superimposed on the output signals of the VIDEO OUT connector. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
VIDEO OUT SAFETY MARK C U F R	OFF 1 2	For setting the type of safety marker frame to be superimposed on the output signals of the VIDEO OUT connector. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA C U F R	80% : 90% : 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
VIDEO OUT FRM MARK C U F R	ON OFF	For superimposing the frame marker on the output signals from the VIDEO OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
FRM SIG C U F R	4:3 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.
VIDEO OUT USER BOX C U F R	ON OFF	For superimposing the user box on the output signals from the VIDEO OUT connector. **ON:** To superimpose **OFF:** Not to superimpose ● It is not superimposed when the VIDEO OUT switch is set to the SD-SDI or VBS position.
USER BOX WIDTH C U F R	1 : 13 : 100	For setting the horizontal width of the user box.
USER BOX HEIGHT C U F R	1 : 13 : 100	For setting the vertical height of the user box.
USER BOX H POS C U F R	−50 : +00 : +50	For setting the horizontal position of the user box center.
USER BOX V POS C U F R	−50 : +00 : +50	For setting the vertical position of the user box center.

● The user box can be displayed in any position as a box-type cursor.
● When the DOWNCON MODE item on the DOWNCON SETTING screen is set to LT-BOX or S-CROP, the frame marker and the safety marker are not displayed.

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7-2-5 MONITOR OUT SETTING

Item	Variable range	Remarks
MONI OUT CENTR MARK / C U F R	<u>OFF</u> 1 2 3 4	For setting the center marker to be superimposed on the HD SDI output signals of the MON OUT connector. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
MONI OUT SAFETY MARK / C U F R	<u>OFF</u> 1 2	For setting the type of the safety marker frame to be superimposed on the HD SDI output signals of the MON OUT connector. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA / C U F R	80% <u>90%</u>⋮ 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
MONI OUT FRM MARK / C U F R	ON <u>OFF</u>	For superimposing the frame marker on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
FRM SIG / C U F R	<u>4:3</u> 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.
MONI OUT USER BOX / C U F R	ON <u>OFF</u>	For superimposing the user box on the HD SDI output signals from the MON OUT connector. **ON:** To superimpose **OFF:** Not to superimpose
USER BOX WIDTH / C U F R	1 <u>13</u>⋮ 100	For setting the horizontal width of the user box.
USER BOX HEIGHT / C U F R	1 <u>13</u>⋮ 100	For setting the vertical height of the user box.
USER BOX H POS / C U F R	−50 <u>+00</u>⋮ +50	For setting the horizontal position of the user box center.
USER BOX V POS / C U F R	−50 <u>+00</u>⋮ +50	For setting the vertical position of the user box center.

● The user box can be displayed in any position as a box-type cursor.
● When the DOWNCON MODE item on the DOWNCON SETTING screen is set to LT-BOX or S-CROP, the frame marker and the safety marker are not displayed.

7-2-6 RC OUT SETTING

Item	Variable range	Remarks
RC OUT CENTR MARK / C U F R	<u>OFF</u> 1 2 3 4	For setting the center marker to be superimposed on the output signals of the REMOTE connector. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
RC OUT SAFETY MARK / C U F R	<u>OFF</u> 1 2	For setting the type of the safety marker frame to be superimposed on the output signals of the REMOTE connector. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA / C U F R	80% <u>90%</u>⋮ 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
RC OUT FRM MARK / C U F R	ON <u>OFF</u>	For superimposing the frame marker on the output signals from the REMOTE connector. **ON:** To superimpose **OFF:** Not to superimpose
FRM SIG / C U F R	<u>4:3</u> 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.

<Notes>
● Settings in the SAFETY AERA item and the FRM SIG item are interlinked with the respective connectors of VIDEO OUT, MON OUT, and REMOTE.
● Settings in the respective items of USER BOX WIDTH, USER BOX HEIGHT, USER BOX H POS, and USER BOX V POS are interlinked with the VIDEO OUT connector and the MON OUT connector.

The underlining in the variable range column indicates the setting in the preset mode.

7-2-7 DOWNCON SETTING

Item	Variable range	Remarks
DOWNCON MODE ⟋ C U F R	SQUEEZ LT-BOX S-CROP	For setting the mode of the down converter output signals.
DETAIL ⟋ C U F R	ON OFF	For setting the detail function for the down converter output signals ON/OFF. The down converter output signals contain detailed components that are set during HD signal processing. In this setting, these signals overlap the detailed components dedicated to the down converter outputs. Even if this setting is turned off, it is impossible to turn off the detailed components set during HD signal processing.
H.DTL LEVEL ⟋ C U F R	00 : 08 : 31	For setting the horizontal detail correction level for the down converter output signals.
V.DTL LEVEL ⟋ C U F R	00 : 04 : 31	For setting the vertical detail correction level for the down converter output signals.
DTL CORING ⟋ C U F R	00 01 : 15	For setting the noise elimination level of the details.
H.DTL FREQ. ⟋ C U F R	1 : 3 : 5	For selecting the horizontal detail frequencies. **1:** 2.5 MHz **4:** 4 MHz **2:** 3 MHz **5:** 4.5 MHz **3:** 3.5 MHz
2DLPF ⟋ C U F R	ON OFF	For setting the 2-D low path filter reducing cross colors. **ON:** Cross colors are reduced. **OFF:** Cross colors are not reduced.
SET UP **For AJ-HDX900E** **For AJ-HDX900P** ⟋ C U F R	0% 7.5%	For setting the setup level for the down converter output signals. **<Note>** When the system frequency is set to 50 Hz, the setup level will be 0%.

7-2-8 GENLOCK

Item	Variable range	Remarks
GENLOCK ⟋ C U F R	INT EXT	For setting the standard signals for executing the GENLOCK. **INT:** For synchronizing to the standard signal within the unit regardless of the signals that are input in the GENLOCK IN connector. **EXT:** For synchronizing to the standard signals that are input in the GENLOCK IN connector.
GL PHASE ⟋ C U F R	HD SDI COMPOSIT	For selecting the output signals that lock phases to the signals that are input in the GENLOCK IN connector. **HD SDI:** For locking the HD SDI signals to the GENLOCK input. For the down converter output signals, the start position of the video delays by about 90 lines. **COMPOSIT:** For locking the down converter output signals to the GENLOCK input. For the HD SDI output signals, the start position of the video gains by about 90 lines.
H PHASE COARSE ⟋⟋⟋⟋	−100 : +000 : +100	For making coarse adjustment for aligning phases of the horizontal synchronization, for executing the GENLOCK.
H PHASE FINE ⟋⟋⟋⟋	−100 : +000 : +100	For making fine adjustment for aligning phases of the horizontal synchronization, for executing the GENLOCK.

7

The underlining in the variable range column indicates the setting in the preset mode.

7-2-9 OPTION MODE

Item	Variable range	Remarks
REC TALLY /C|U|F/	RED GREEN CHAR	For selecting the method to access records on the unit when the unit is connected to peripheral devices and used remotely. **RED:** The red tally lamp lights. **GREEN:** The green tally lamp lights. **CHAR:** For displaying "REC" in the viewfinder.
P.OFF GPS DATA /C|U|F/	HOLD CLEAR	For selecting whether or not to hold the UMID GPS position information while the power is off and record the information as the data still held as the previous value until another measurement can be taken after the power is next turned on. **HOLD:** The data is held and recorded. **CLEAR:** The data is cleared at the same time as the power is turned off, and all zeros (no information) are recorded from the time the power is turned on until the measurement is next taken.
1394 SPEED /C|U|F/	S200 S400	For setting the transfer rate of signals output from the DVCPRO connector. **S200:** 200 Mbps **S400:** 400 Mbps
1394 IN CH /C|U|F/	0 : 63 AUTO	For setting the input channel of signals input to the DVCPRO connector. **0 – 63:** To fix to the designated value **AUTO:** To follow the settings of the externally connected devices
1394 OUT CH /C|U|F/	0 : 63 AUTO	For setting the input channel of signals output from the DVCPRO connector. **0 – 63:** To fix to the designated value **AUTO:** To follow the settings of the externally connected devices
1394 CONTROL /C|U|F/	OFF BOTH	For setting the control for recording start/stop operations of external devices that are connected to the DVCPRO connector. **OFF:** Do not control the externally connected devices. **BOTH:** To control both the unit and the externally connected devices
1394 CMD SEL /C|U|F/	REC_P STOP	For setting the control of recording stop operations of the external devices that are connected to the DVCPRO connector. **REC_P:** Operation to pause recording **STOP:** Stopping operation
SDI METADATA /C|U|F/	ON OFF	For setting metadata (UMID information) to output to the HD SDI signals. **ON:** To output **OFF:** Not to output
SDI EDH /C|U|F/	ON OFF	For setting that the detection signals of the communication error is output to the HD SDI signals. **ON:** To output **OFF:** Not to output

The underlining in the variable range column indicates the setting in the preset mode.

7-3 PAINT

7-3-1 RB GAIN CONTROL

Item	Variable range	Remarks
R GAIN AWB PRE S C U F R	−200 +000 +200	For setting the Rch gain when the WHITE BAL switch is in the PRST position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
B GAIN AWB PRE S C U F R	−200 +000 +200	For setting the Bch gain when the WHITE BAL switch is in the PRST position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
R GAIN AWB A S C U F R	−200 +000 +200	For setting the Rch gain when the WHITE BAL switch is in the A position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
B GAIN AWB A S C U F R	−200 +000 +200	For setting the Bch gain when the WHITE BAL switch is in the A position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
R GAIN AWB B S C U F R	−200 +000 +200	For setting the Rch gain when the WHITE BAL switch is in the B position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
B GAIN AWB B S C U F R	−200 +000 +200	For setting the Bch gain when the WHITE BAL switch is in the B position. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
AWB A GAIN OFFSET S C U F R	ON OFF	For setting the values of the Rch gain and the Bch gain when the auto white balance is executed as the WHITE BAL switch is in the A position. **ON:** To retain the values set in the items of R GAIN AWB A and B GAIN AWB A **OFF:** The values of the Rch gain and the Bch gain is set to "0".
AWB B GAIN OFFSET S C U F R	ON OFF	For setting the values of the Rch gain and the Bch gain when the auto white balance is executed as the WHITE BAL switch is in the B position. **ON:** To retain the values set in the items of R GAIN AWB B and B GAIN AWB B **OFF:** The values of the Rch gain and the Bch gain is set to "0".

7-3-2 RGB BLACK CONTROL

Item	Variable range	Remarks
MASTER PED S / U F R	−200 +015 +200	For setting the level of the master pedestal. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
R PEDESTAL S C U F R	−100 +000 +100	For setting the pedestal level of the Rch. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
G PEDESTAL S C U F R	−100 +000 +100	For setting the pedestal level of the Gch. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
B PEDESTAL S C U F R	−100 +000 +100	For setting the pedestal level of the Bch. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
PEDESTAL OFFSET S C U F R	ON OFF	For setting the pedestal levels of the Rch, the Gch and the Bch when the black balance is adjusted. **ON:** To retain the values set in the respective items of R PEDESTAL, G PEDESTAL, and B PEDESTAL **OFF:** The pedestal levels of the Rch, the Gch and the Bch are set to "0".
R FLARE S C U F R	−100 +000 +100	For adjusting the flare level of the Rch. Adjustment values in this item are added to the flare adjustment value that is adjusted on 7-7-6 <LENS FILE ADJ> screen. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
G FLARE S C U F R	−100 +000 +100	For adjusting the flare level of the Gch. Adjustment values in this item are added to the flare adjustment value that is adjusted on 7-7-6 <LENS FILE ADJ> screen. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)
B FLARE S C U F R	−100 +000 +100	For adjusting the flare level of the Bch. Adjustment values in this item are added to the flare adjustment value that is adjusted on 7-7-6 <LENS FILE ADJ> screen. ● If the remote control unit is connected, settings made from the menu are disabled. (The set value is displayed.)

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The underlining in the variable range column indicates the setting in the preset mode.

7-3-3 MATRIX

Item	Variable range	Remarks
■ MATRIX TABLE S | C | U | F | R	A B	For selecting the color correction table for the linear matrix.
MATRIX R-G S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (red/green)
MATRIX R-B S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (red/blue)
MATRIX G-R S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (green/red)
MATRIX G-B S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (green/blue)
MATRIX B-R S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (blue/red)
MATRIX B-G S | C | U | F | R	–63 : +00 : +63	For performing the linear matrix adjustment. (blue/green)
■ L MATRIX TABLE S | C | U | F | R	OFF A B	For selecting the color correction table when the GAIN switch is in the L position.
■ M MATRIX TABLE S | C | U | F | R	OFF A B	For selecting the color correction table when the GAIN switch is in the M position.
■ H MATRIX TABLE S | C | U | F | R	OFF A B	For selecting the color correction table when the GAIN switch is in the H position.

\<Note\>
Items with ■ in front of their names are set by the PAINT MENU SW (■) R/W menu items on the \<CARD R/W SELECT\> screen.
Items without ■ in front of their names are set by the PAINT MENU LEVEL R/W menu item.
For details, refer to "7-6-2 CARD R/W SELECT."

7-3-4 COLOR CORRECTION

Item	Variable range	Remarks
R (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of red.
R-Mg (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between red and magenta.
Mg (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of magenta.
Mg-B (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between magenta and blue.
B (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of blue.
B-Cy (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between blue and cyan.
Cy (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of cyan.
Cy-G (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between cyan and green.
G (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of green.
G-Yl (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between green and yellow.
Yl (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction of yellow.
Yl-R (SAT) S | C | U | F | R	–63 : +00 : +63	For performing the color saturation correction between yellow and red.

The underlining in the variable range column indicates the setting in the preset mode.

7-3-5 LOW SETTING

Item	Variable range	Remarks
R (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for red.
R-Mg (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between red and magenta.
Mg (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for magenta.
Mg-B (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between magenta and blue.
B (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for blue.
B-Cy (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between blue and cyan.
Cy (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for cyan.
Cy-G (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between cyan and green.
G (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for green.
G-Yl (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between green and yellow.
Yl (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction for yellow.
Yl-R (PHASE) S C U F R	–63 +00 : +63	For performing the hue correction between yellow and red.
■ COLOR CORRECT S C U F R	ON OFF	For switching ON/OFF of the 12-axis independent color correction of the position selected with the GAIN switch (L, M, H).

Item	Variable range	Remarks
■ MASTER GAIN S C U F R	–3dB 0dB : 30dB	For setting the master gain to –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27 or 30 dB.
H.DTL LEVEL S C U F R	00 10 : 63	For performing the horizontal detail correction level setting.
V.DTL LEVEL S C U F R	00 20 : 31	For performing the vertical detail correction level setting.
DTL CORING S C U F R	00 01 : 15	For performing the noise elimination level setting for detail.
H.DTL FREQ. S C U F R	00 18 : 31	For performing the horizontal detail frequency selection.
LEVEL DEPEND. S C U F R	0 1 : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
MASTER GAMMA S C U F R	0.30 0.45 : 0.75	For setting the master gamma. (0.01 step)
BLACK GAMMA S C U F R	–3 OFF +3	For setting the gamma curve for the dark portion. **–3 to –1:** The dark portion is compressed. **OFF:** Standard state **+1 to +3:** The dark portion is extended.
■ MATRIX TABLE S C U F R	OFF A B	For selecting the color correction table for the linear matrix.
■ COLOR CORRECT S U F R	ON OFF	For switching ON/OFF of the 12-axis independent color correction.

<Note>
Items with ■ in front of their names are set by the PAINT MENU SW (■) R/W menu items on the <CARD R/W SELECT> screen.
Items without ■ in front of their names are set by the PAINT MENU LEVEL R/W menu item.
For details, refer to "7-6-2 CARD R/W SELECT."

The underlining in the variable range column indicates the setting in the preset mode.

7-3-6 MID SETTING

Item	Variable range	Remarks
■ MASTER GAIN S C U F R	–3dB <u>6dB</u> : 30dB	For setting the master gain to –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27 or 30 dB.
H.DTL LEVEL S C U F R	00 : <u>08</u> : 63	For performing the horizontal detail correction level setting.
V.DTL LEVEL S C U F R	00 : <u>18</u> : 31	For performing the vertical detail correction level setting.
DTL CORING S C U F R	00 : <u>02</u> : 15	For performing the noise elimination level setting for detail.
H.DTL FREQ. S C U F R	00 : <u>18</u> : 31	For performing the horizontal detail frequency selection.
LEVEL DEPEND. S C U F R	0 1 : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
MASTER GAMMA S C U F R	0.30 : <u>0.45</u> : 0.75	For setting the master gamma. (0.01 step)

BLACK GAMMA
 	
S C U F R
	–3
	:
	<u>OFF</u>
	:
	+3
		For setting the gamma curve for the dark portion.
		–3 to –1:
		    The dark portion is compressed.
		OFF:
		    Standard state
		+1 to +3:
		    The dark portion is extended.

■ MATRIX TABLE S C U F R	<u>OFF</u> A B	For selecting the color correction table for the linear matrix.
■ COLOR CORRECT S / U F R	ON <u>OFF</u>	For switching ON/OFF of the 12-axis independent color correction.

7-3-7 HIGH SETTING

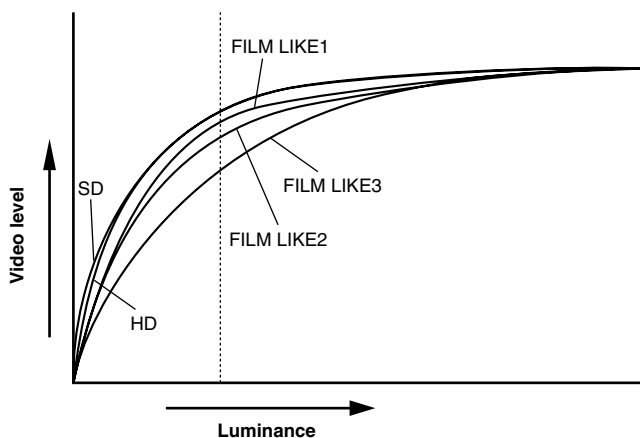| Item	Variable range	Remarks
■ MASTER GAIN S C U F R	–3dB <u>12dB</u> : 30dB	For setting the master gain to –3, 0, 3, 6, 9, 12, 15, 18, 21, 24, 27 or 30 dB.
H.DTL LEVEL S C U F R	00 : <u>06</u> : 63	For performing the horizontal detail correction level setting.
V.DTL LEVEL S C U F R	00 : <u>16</u> : 31	For performing the vertical detail correction level setting.
DTL CORING S C U F R	00 : <u>03</u> : 15	For performing the noise elimination level setting for detail.
H.DTL FREQ. S C U F R	00 : <u>18</u> : 31	For performing the horizontal detail frequency selection.
LEVEL DEPEND. S C U F R	0 : <u>3</u> : 5	For setting the LEVEL DEPEND. When the Y-detail is emphasized, details of dark sections are compressed. If the numerical value is larger, details of bright sections are also compressed.
MASTER GAMMA S C U F R	0.30 : <u>0.55</u> : 0.75	For setting the master gamma. (0.01 step)

BLACK GAMMA
 	
S C U F R
	–3
	:
	<u>OFF</u>
	:
	+3
		For setting the gamma curve for the dark portion.
		–3 to –1:
		    The dark portion is compressed.
		OFF:
		    Standard state
		+1 to +3:
		    The dark portion is extended.

■ MATRIX TABLE S C U F R	<u>OFF</u> A B	For selecting the color correction table for the linear matrix.
■ COLOR CORRECT S / U F R	ON <u>OFF</u>	For switching ON/OFF of the 12-axis independent color correction.

<Note>

Items with ■ in front of their names are set by the PAINT MENU SW (■) R/W menu items on the <CARD R/W SELECT> screen.
Items without ■ in front of their names are set by the PAINT MENU LEVEL R/W menu item.
For details, refer to "7-6-2 CARD R/W SELECT."

The underlining in the variable range column indicates the setting in the preset mode.

7-3-8 ADDITIONAL DTL

Item	Variable range	Remarks
KNEE APE LVL S C U F R	OFF 1 <u>2</u> ⋮ 5	For changing the detail level of the high brightness portion.
DTL GAIN(+) S C U F R	–31 ⋮ <u>+00</u> ⋮ +31	For changing the + direction level of the detail.
DTL GAIN(–) S C U F R	–31 ⋮ <u>+00</u> ⋮ +31	For changing the – (below) direction level of the detail.
DTL CLIP S C U F R	<u>00</u> ⋮ 63	For setting the level for clipping the detail signals.
DTL SOURCE S C U F R	(G+B)/2 <u>(R+G)/2</u> 2G+R+B/4 (3G+R)/4 R G	For setting the proportion of the RGB signal components that provide the detail.
V DTL FREQ S C U F R	360TV 450TV 540TV <u>630TV</u> 720TV	For selecting the vertical detail frequency. ● It is enabled when the recording format is set to 720P.
H.DTL LINE MIX S C U F R	<u>0H</u> 1H 2H	For setting the number of scanning lines to be added to the video signals in order to generate the horizontal detail signals.
MASTER DTL S C U F R	–31 ⋮ <u>+00</u> ⋮ +31	For revising the master detail level.

The underlining in the variable range column indicates the setting in the preset mode.

7-3-9 SKIN TONE DTL

Item	Variable range	Remarks
■ SKIN TONE DTL S C U F R	OFF A B AB	For selecting the skin color table for enabling the skin tone detail. The skin color table is provided in the SKIN TONE TABLE item. By enabling the skin tone detail, it is possible to shoot human skin more accurately.
■ SKIN TONE ZEBRA VF S C U F R	ON OFF	For the setting to display the zebra pattern in the skin tone area displayed in the viewfinder screen. The zebra pattern is displayed when this item is turned "ON" and the <SKIN TONE DTL> screen is opened. The zebra pattern is displayed on area A or B, which is selected in the SKIN TONE TABLE item. It is impossible to display both area A and B at the same time.
■ SKIN TONE ZEBRA VOUT S C U F R	ON OFF	For the setting to superimpose the zebra pattern in the skin tone area output from the VIDEO OUT connector. ● When the VIDEO OUT switch is set to the SD SDI or VBS position, the zebra pattern will not be superimposed.
■ SKIN TONE ZEBRA MONI S C U F R	ON OFF	For the setting to superimpose the zebra pattern in the skin tone area output from the MON OUT connector.
SKIN TONE TABLE S C U F R	A B	For selecting the skin tone table for enabling the skin tone details.
SKIN TONE GET S / U F R		For fetching the color information of A or B, which is selected in the SKIN TONE TABLE item, near the center marker. When this function is executed, data from I CENTER to Q PHASE are fetched automatically. The fetched data will be the table data of A or B, which is selected in the SKIN TONE TABLE item. It is impossible to obtain color information of both A and B at the same time.
SKIN DTL CORING S C U F R	0 : 5 : 7	For setting the effect level of the skin tone detail.
Y MAX S C U F R	000 : 190 : 255	For setting the maximum value of brightness for enabling the skin tone.
Y MIN S C U F R	000 : 010 : 255	For setting the minimum value of brightness for enabling the skin tone.

Item	Variable range	Remarks
I CENTER S C U F R	000 : 035 : 255	For setting the center position on the I axis (for setting an area that enables skin tone.)
I WIDTH S C U F R	000 : 055 : 255	For setting the area width for enabling the skin tone on the I-axis of which the center is the I CENTER.
Q WIDTH S C U F R	00 : 10 : 90	For setting the area width for enabling the skin tone on the Q-axis of which the center is the I CENTER
Q PHASE S C U F R	−180 : +00 : +179	For setting phases of the area for enabling skin tone as setting the standard to the Q-axis.
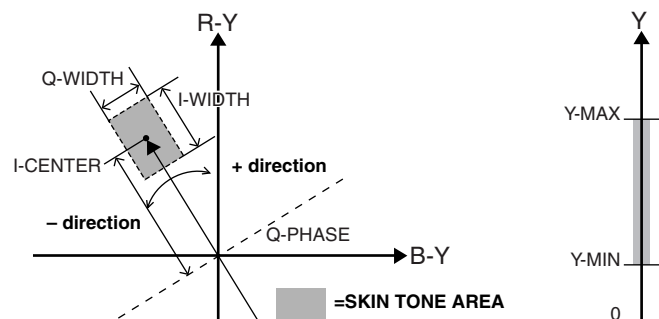
<Note>
Items with ■ in front of their names are set by the PAINT MENU SW (■) R/W menu items on the <CARD R/W SELECT> screen.
Items without ■ in front of their names are set by the PAINT MENU LEVEL R/W menu item.
For details, refer to "7-6-2 CARD R/W SELECT."

The underlining in the variable range column indicates the setting in the preset mode.

7-3-10 KNEE/LEVEL

Item	Variable range	Remarks
MASTER PED S C U F R	−200 +015 +200	For performing the MASTER PEDESTAL setting.
■ MANUAL KNEE S C U F R	ON OFF	For setting the mode which is to be established when the AUTO KNEE switch is at OFF. The KNEE POINT/SLOPE setting value is active when ON is selected.
KNEE POINT S C U F R	70.0% : 93.0% : 107.0%	For setting the knee point position in increments of 0.5% steps.
KNEE SLOPE S C U F R	00 : 85 : 99	For setting the inclination of the knee.
■ WHITE CLIP S C U F R	ON OFF	For selecting ON/OFF of the white clip function. When it is set to ON, the set value for the WHITE CLIP LVL becomes effective.
WHITE CLIP LVL S C U F R	90% 109%	For performing the white clip level setting.
A.KNEE POINT S C U F R	80% : 93% : 107%	For setting the auto knee point position in increments of 0.5% steps. When the OUTPUT/AUTO KNEE selection switch is set to CAM.AUTO KNEE ON, this function is enabled.
A.KNEE LVL S C U F R	100 : 107 : 109	For setting the auto knee level.
A.KNEE RESPONSE S C U F R	1 : 4 : 8	For setting the auto knee response rate. When a numerical value is larger, the response speed is slower.

\<Note\>

Items with ■ in front of their names are set by the PAINT MENU SW (■) R/W menu items on the \<CARD R/W SELECT\> screen.

Items without ■ in front of their names are set by the PAINT MENU LEVEL R/W menu item.

For details, refer to "7-6-2 CARD R/W SELECT."

7-3-11 GAMMA

Item	Variable range	Remarks
MASTER GAMMA S ╱ U F R	0.30 0.45 : 0.75	For setting the master gamma in increments of 0.01 steps.
R GAMMA S C U F R	−15 : +00 : +15	For performing the gamma setting for Rch.
B GAMMA S C U F R	−15 : +00 : +15	For performing the gamma setting for Bch.
GAMMA MODE SEL S C U F R	HD SD FILM LIKE1 FILM LIKE2 FILM LIKE3	For selecting the gamma mode. **HD:** Video gamma characteristics for HD (High Definition) **SD:** The gain in the dark section is higher than the HD gamma. **FILM LIKE1:** The cinema gamma characteristics for video applications are selected. **FILM LIKE2:** The cinema gamma characteristics for video applications are selected. In this setting gradations in highlit areas can be expressed better than when FILM LIKE1 is selected. **FILM LIKE3:** The cinema gamma characteristics for video applications are selected. In this setting gradations in highlit areas can be expressed better than when FILM LIKE2 is selected.

● When the GAMMA MODE SEL item is used for FILM LIKE3, the following settings are recommended.

MANUAL KNEE: ON
KNEE POINT : 85.0%
KNEE SLOPE : 50

The underlining in the variable range column indicates the setting in the preset mode.

7-3-12 ■ CAMERA SETTING

Item	Variable range	Remarks
DETAIL S C U F R	<u>ON</u> OFF	For switching ON/OFF of the detail signals.
HIGH COLOR S C U F R	ON <u>OFF</u>	For switching ON/OFF of the mode enlarging the color dynamic range.
GAMMA S C U F R	<u>ON</u> OFF	For switching ON/OFF of the gamma correction.
TEST SAW S C U F R	ON <u>OFF</u>	For switching ON/OFF of the test signals.
FLARE S C U F R	<u>ON</u> OFF	For switching ON/OFF of the flare compensation.
H-F COMPE. S C U F R	<u>ON</u> OFF	For switching ON/OFF of the aperture correction.

<Note>
All items in CAMERA SETTING are setting targets of the item PAINT MENU SW(■) R/W in the "7-6-2 CARD R/W SELECT" screen.

The underlining in the variable range column indicates the setting in the preset mode.

7-4 VF

7-4-1 VF DISPLAY
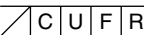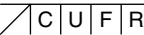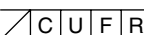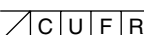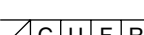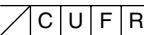
Item	Variable range	Remarks
DISP CONDITION /C U F R	NORMAL HOLD	**NORMAL:** The statuses are displayed at all times. **HOLD:** The statuses are displayed only when the MODE CHECK switch is pressed.
DISP MODE /C U F R	1 2 3	For setting the display mode. This sets what is displayed in the viewfinder screen when the state of the unit is changed. For details, refer to "4-7-4 Display modes and setting changes/ adjustment result messages."
VF OUT /C U F R	Y NAM R G B	For selecting the video signals to display in the viewfinder screen. **Y:** Luminance signal **NAM:** The signal with the highest level among the R, G and B signals is output. **R:** R channel signal **G:** G channel signal **B:** B channel signal
VF DTL /C U F R	0 : 5	For setting the detail level of the viewfinder screen. If it is set to "0", it has the same detail as the main line system signals. If it is set to "5", it has about double of details of the main line system signals.
ZEBRA1 DETECT /C U F R	0% : 70% : 109%	For setting the ZEBRA1 detection level (IRE level).
ZEBRA2 DETECT /C U F R	0% : 85% : 109%	For setting the ZEBRA2 detection level (IRE level).
ZEBRA2 /C U F R	ON SPOT OFF	For selecting ON or OFF for ZEBRA2 or selecting SPOT.
LOW LIGHT LVL /C U F R	OFF 10% 15% 20% 25% 30% 35%	For setting how much lower the camera's input light quantity should be in order for "LOW LIGHT" to be displayed.
RC MENU DISP. /C U F R	ON OFF	For the setting to display the menu in the viewfinder screen when the remote control unit is connected to the unit.
MARKER/ CHAR LVL /C U F R	50% 60% 70% 80% 90% 100%	For setting the brightness of markers and characters in the viewfinder screen.
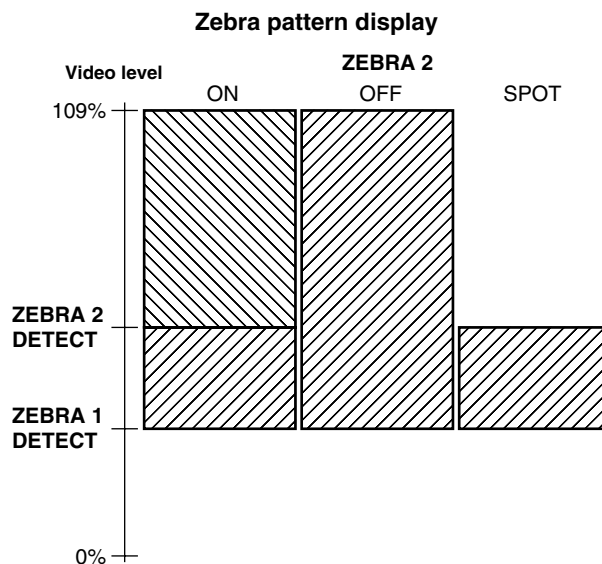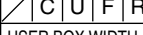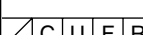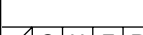
Zebra pattern display

The underlining in the variable range column indicates the setting in the preset mode.

7-4-2 VF MARKER

Item	Variable range	Remarks
TABLE /C U F R	A B	For selecting the VF MARKER setting table. This item is used to set the current values of table A or B which have been selected using the menu items listed below.
CENTER MARK /C U F R	OFF 1 2 3 4	For selecting the center marker. **OFF:** The center marker is not displayed. **1:** + (large) **2:** Center blank (large) **3:** + (small) **4:** Center blank (small)
SAFETY MARK /C U F R	OFF 1 2	For selecting the type of safety marker frame. **OFF:** The safety marker frame is not displayed. **1:** Box **2:** Corner frames
SAFETY AREA /C U F R	80% 90% 100%	For setting the size of the safety marker. It is possible to set the size by units of 1% with a fixed ratio between of width and height.
FRAME MARK /C U F R	ON OFF	For selecting ON or OFF for the frame marker.
FRAME SIG /C U F R	4:3 13:9 14:9 VISTA	For setting the frame marker. The VISTA setting is 16:8.65.
FRAME LVL /C U F R	0 : 15	For setting the level outside the frame marker. **0:** Equivalent to signal OFF (Blanking state) **15:** Same brightness as center area

7-4-3 VF USER BOX

Item	Variable range	Remarks
USER BOX /C U F R	ON OFF	For setting whether the user box is displayed in the viewfinder or not.
USER BOX WIDTH /C U F R	1 : 13 : 100	For setting the horizontal width of the user box.
USER BOX HEIGHT /C U F R	1 : 13 : 100	For setting the vertical height of the user box.
USER BOX H POS /C U F R	–50 : +00 : +50	For setting the horizontal position of the user box center.
USER BOX V POS /C U F R	–50 : +00 : +50	For setting the vertical position of the user box center.

● The user box can be displayed in any position as a box-type cursor.

The underlining in the variable range column indicates the setting in the preset mode.

7-4-4 VF INDICATOR1

Item	Variable range	Remarks
EXTENDER / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the extender display.
SHUTTER / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the shutter speed display.
FILTER / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the filter No. display.
WHITE / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the AWB PRE/A/B display.
GAIN / C U F R	<u>ON</u> OFF	For selecting ON/OFF of the gain currently selected, S.GAIN, DS. GAIN and LINE MIX GAIN displays.
IRIS / C U F R	OFF IRIS <u>S+IRIS</u> S	**OFF:** Neither the super iris ON status nor the aperture value is displayed. **IRIS:** Only the aperture value is displayed. **S+IRIS:** Both the super iris ON status and aperture value are displayed. **S:** The super iris ON status is displayed. ● The display of the aperture value and the display of the iris override are interlinked. When the iris override is changed, it is forcibly displayed for 3 seconds.
CAMERA ID / C U F R	<u>BAR</u> OFF	For setting to record the camera ID. **BAR:** The camera ID is recorded when the color bar signals are recorded. **OFF:** It is not recorded.
ID POSITION / C U F R	UPPER R <u>UPPER L</u> LOWER R LOWER L	For setting the position to display the camera ID. **UPPER R:** Top right **UPPER L:** Top left **LOWER R:** Bottom right **LOWER L:** Bottom left
DATE/TIME / C U F R	ON <u>OFF</u>	For selecting an option to display year/month/day and hour/minute/second simultaneously when the camera ID is displayed.
ZOOM LVL / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the zoom position display.
COLOR TEMP / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the color temperature display.
SYSTEM MODE / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the system mode display.
CAMERA MODE / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the camera mode display.
DRS / C U F R	<u>ON</u> OFF	For selecting ON/OFF of the dynamic range stretcher mode display.

7-4-5 VF INDICATOR2

Item	Variable range	Remarks
TAPE / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the remaining tape amount display.
BATTERY / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the battery voltage display.
AUDIO LVL / C U F R	<u>ON</u> OFF	For selecting ON or OFF for the audio level meter display.
TC / C U F R	TCG TCR TCG/TCR <u>OFF</u>	For selecting the time code which is to be displayed. **TCG:** The time code generator value is displayed in the E-E mode. **TCR:** For displaying the time code reader value during playback **TCG/TCR:** In EE mode, the time code generator value is displayed from the connectors; in playback mode, the time code reader value is displayed. **OFF:** The time code is not displayed at any time.
VTR WARNING / C U F R	ALWAYS <u>NORMAL</u> OFF	For selecting how VTR warnings are displayed. **ALWAYS:** It is displayed every time a warning has occurred. **NORMAL:** It is displayed for 3 seconds when a warning has occurred and also for 3 seconds after recording has started and after recording has finished. **OFF:** It is not displayed at any time.
COMPRESSION / C U F R	<u>ON</u> OFF	For selecting ON/OFF of the compression mode, which is to be displayed. **ON:** "COMP" will be displayed when the COMPRESSION MODE item (the VTR FUNCTION screen on the VTR MENU page) is set to DARK. **OFF:** It is not displayed at any time.
SAVE LED / C U F R	SAVE& TAPE <u>SAVE</u>	For setting the operation of the SAVE lamp. **SAVE&TAPE:** The lamp lights up when the VTR SAVE/STBY switch has been set to the SAVE position. It is off during recording. As the tape is approaching the end, it starts flashing in tandem with the warning alarm. **SAVE:** The lamp lights up when the VTR SAVE/STBY switch has been set to the SAVE position. It is off during recording.

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The underlining in the variable range column indicates the setting in the preset mode.

7-4-6 MODE CHECK IND

Item	Variable range	Remarks
STATUS C U F R	<u>ON</u> OFF	For the setting to display the status screen when the MODE CHECK button is pressed.
!LED C U F R	<u>ON</u> OFF	For the setting to indicate causes for turning on the ⊘ lamp on the viewfinder is displayed when the MODE CHECK button is pressed. The causes for turning on the ⊘ lamp are displayed with ❗.
FUNCTION C U F R	<u>ON</u> OFF	For the setting to display the FUNCTION screen when the MODE CHECK button is pressed.
AUDIO C U F R	<u>ON</u> OFF	For the setting to display the AUDIO screen when the MODE CHECK button is pressed.
P.ON IND C U F R	<u>ON</u> OFF	For the setting to display the status screen immediately after turning on the power of the unit. **<Note>** Even if it is set to "ON" in this item, the status screen is not displayed immediately after turning on the power of the unit when the STATUS item is set to OFF.

7-4-7 !LED

Item	Variable range	Remarks
GAIN(0dB) C U F R	<u>ON</u> OFF	For the setting to turn the ⊘ lamp on the viewfinder on when the GAIN is set to a value other than 0dB.
GAIN(-3dB) C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the GAIN is set to a value other than –3dB or –6dB.
DS.GAIN C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the DS. GAIN (cumulative gain) is activated.
LINE MIX C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the LINE MIX GAIN is activated.
SHUTTER C U F R	<u>ON</u> OFF	For the setting to turn the ⊘ lamp on the viewfinder on when the electronic shutter is activated.
WHITE PRESET C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the WHITE BAL switch is set to the PRESET position.
EXTENDER C U F R	<u>ON</u> OFF	For the setting to turn the ⊘ lamp on the viewfinder on when the lens extender is activated.
B.GAMMA C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the BLACK GAMMA is activated.
MATRIX C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the color correction table for the linear matrix is selected.
COLOR CORRECTION C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the 12-axis independent color correction is selected.
FILTER C U F R	ON <u>OFF</u>	For the setting to turn the ⊘ lamp on the viewfinder on when the filter combination is anyone other than 3200K and CLEAR.

The underlining in the variable range column indicates the setting in the preset mode.

7-5 OPERATION

7-5-1 CAMERA ID

Item	Variable range	Remarks
ID1: ／ C U **F** ／	**********	CAMERA ID setting 1
ID2: ／ C U **F** ／	**********	CAMERA ID setting 2
ID3: ／ C U **F** ／	**********	CAMERA ID setting 3

\<Note\>
If READ FACTORY DATA is selected, this setting will be cleared.

7-5-2 SHUTTER SPEED

Item	Variable range	Remarks
SYNCHRO SCAN ／ C U F R	ON OFF	For selecting SYNCHRO SCAN as the shutter speed to be used.
POSITION1 ／ C U F R	ON OFF	For selecting POSITION1 as the shutter speed to be used.
POSITION2 ／ C U F R	ON OFF	For selecting POSITION2 as the shutter speed to be used.
POSITION3 ／ C U F R	ON OFF	For selecting POSITION3 as the shutter speed to be used.
POSITION4 ／ C U F R	ON OFF	For selecting POSITION4 as the shutter speed to be used.
POSITION5 ／ C U F R	ON OFF	For selecting POSITION5 as the shutter speed to be used.
POSITION6 ／ C U F R	ON OFF	For selecting POSITION6 as the shutter speed to be used.

7-5-3 SHUTTER SELECT

Item	Variable range	Remarks
POSITION1 SEL **For 59.94 Hz** **For 50 Hz** ／ C U F R	<u>1/100</u> 1/120 1/250 1/500 1/1000 1/2000 HALF <u>1/60</u> 1/120 1/250 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 1.
POSITION2 SEL **For 59.94 Hz** **For 50 Hz** ／ C U F R	1/100 <u>1/120</u> 1/250 1/500 1/1000 1/2000 HALF 1/60 <u>1/120</u> 1/250 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 2.
POSITION3 SEL **For 59.94 Hz** **For 50 Hz** ／ C U F R	1/100 1/120 <u>1/250</u> 1/500 1/1000 1/2000 HALF 1/60 1/120 <u>1/250</u> 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 3.

The underlining in the variable range column indicates the setting in the preset mode.

7-5-4 USER SW

Item	Variable range	Remarks
POSITION4 SEL **For 59.94 Hz** **For 50 Hz** ⬚ C U F R	1/100 1/120 1/250 1/500 1/1000 1/2000 HALF 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 4.
POSITION5 SEL **For 59.94 Hz** **For 50 Hz** ⬚ C U F R	1/100 1/120 1/250 1/500 1/1000 1/2000 HALF 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 5.
POSITION6 SEL **For 59.94 Hz** **For 50 Hz** ⬚ C U F R	1/100 1/120 1/250 1/500 1/1000 1/2000 HALF 1/60 1/120 1/250 1/500 1/1000 1/2000 HALF	For setting the shutter speed for POSITION 6.

Item	Variable range	Remarks
USER MAIN SW ⬚ C U F R	INH S.GAIN DS.GAIN LINE MIX S.IRIS I.OVR S.BLK B.GAMMA AUDIO CH1 AUDIO CH2 REC SW Y GET RET SW PRE REC DRS	For setting the function to be allocated to the USER MAIN button. For details, refer to "4-9-3 Allocating function to the USER MAIN, USER1 and USER2 buttons.
USER 1 SW ⬚ C U F R	INH S.GAIN DS.GAIN LINE MIX S.IRIS I.OVR S.BLK B.GAMMA AUDIO CH1 AUDIO CH2 REC SW Y GET RET SW PRE REC DRS	For setting the function to be allocated to the USER1 button. For details, refer to "4-9-3 Allocating function to the USER MAIN, USER1 and USER2 buttons.
USER 2 SW ⬚ C U F R	INH S.GAIN DS.GAIN LINE MIX S.IRIS I.OVR S.BLK B.GAMMA AUDIO CH1 AUDIO CH2 REC SW Y GET RET SW PRE REC DRS	For setting the function to be allocated to the USER2 button. For details, refer to "4-9-3 Allocating function to the USER MAIN, USER1 and USER2 buttons.

The underlining in the variable range column indicates the setting in the preset mode.

7-5-5 SW MODE

Item	Variable range	Remarks
RET SW ／C U F R	R.REVIEW CAM RET	For setting the function when the USER button on the unit, to which the RET button of the lens or the RET SW function is allocated, is pressed. **R.REVIEW:** REC view function It is possible to check a last few seconds of the records taken. **CAM RET:** Return video function It is possible to confirm the return video signals (analog HD-Y signals) supplied to the GENLOCK IN connector on the unit by using the viewfinder. **<Notes>** ● If video signals are input with different formats from the HD-SDI output signals of the unit, the return video images are not displayed properly. ● When the GENLOCK item (the GENLOCK screen on the SYSTEM SETTING page) is set to INT, the return video image may be displayed as slightly shaking horizontally.
S.BLK LVL ／C U F R	OFF −10 −20 −30	For setting the super black level.
AUTO KNEE SW S C U F R	ON OFF	For selecting ON/OFF of the AUTO KNEE function. When it is set to OFF, the AUTO KNEE may not function even if the AUTO KNEE switch is turned ON.
SHD,ABB SW CTL ／C U F R	ON OFF	For the setting to adjust the black shading automatically when the AUTO W/B BAL switch is held to the ABB side for 8 seconds or more.
COLOR BARS **For AJ-HDX900P** **For AJ-HDX900E** ／C U F R	SMPTE FULL 　BARS SPLIT ARIB	For selecting the color bar to be used. **SMPTE:** Color bar complied with the SMPTE standards **FULL BARS:** Full color bar **SPLIT:** SPLIT color bar for SNG (Satellite News Gathering) **ARIB:** Color bar complied with the ARIB standards
S.GAIN OFF ／C U F／	L/M/H S.GAIN	For selecting the method used to release the super gain mode. **L/M/H:** The mode is released by making a change in the L/M/H switch position and the S.GAIN switch (USER switch). **S.GAIN:** The mode is released using only the S.GAIN switch (USER switch).
DS.GAIN OFF ／C U F／	L/M/H DS.GAIN	For selecting the method used to release the digital super gain mode (cumulative gain). **L/M/H:** The mode is released by making a change in the L/M/H switch position and the DS.GAIN switch (USER switch). **DS.GAIN:** The mode is released using only the DS.GAIN switch (USER switch).

7-5-6 WHITE BALANCE MODE

Item	Variable range	Remarks
FILTER INH ／C U F R	ON OFF	For selecting independently whether memory data for white balance (Ach, Bch) is retained or not for the respective CC filters. **ON:** Regardless of the CC filter, data for the memories (2 memories) for Ach and Bch is retained. **OFF:** The memory data (8 memories) for Ach and Bch is retained for the respective CC filters.
SHOCKLESS AWB ／C U F R	OFF FAST NORMAL SLOW1 SLOW2 SLOW3	For setting the length of time for transiting to the switched position of white balance, when the position of the WHITE BAL switch is changed. **OFF:** To transit instantly **FAST:** About 1 second **NORMAL:** About 2 seconds **SLOW1:** About 3 seconds **SLOW2:** About 10 seconds **SLOW3:** About 20 seconds
AWB AREA ／C U F R	25% 50% 90%	For switching the detection area for executing the automatic adjustment of white balance. **25%:** An area near the screen center equivalent to 25% of the screen is detected. **50%:** An area near the screen center equivalent to 50% of the screen is detected. **90%:** An area equivalent to 90% of the screen is detected.
COLOR TEMP PRE ／／／F／	2300K↓ : 3200K : 8000K	For setting the color temperature when the WHITE BAL switch is set to the PRST position. ● Depending on the position of the CC filter, the range of available color temperature varies.
AWB A TEMP ／／／F／	2300K↓ : 3200K : 8000K	For setting the color temperature when the WHITE BAL switch is set to the A position. If the automatic adjustment of white balance is executed in the A position, the color temperature at that time is memorized in the position of the WHITE BAL switch A.
AWB B TEMP ／／／F／	2300K↓ : 3200K : 8000K	For setting the color temperature when the WHITE BAL switch is set to the B position. If the automatic adjustment of white balance is executed in the B position, the color temperature at that time is memorized in the position of the WHITE BAL switch B.

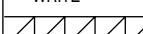The underlining in the variable range column indicates the setting in the preset mode.

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7-5-7 USER SW GAIN

Item	Variable range	Remarks
S.GAIN 30 dB / C U F R	✳ ●	For selecting whether or not to enable a setting of 30 dB for SUPER GAIN. ✳ : The 30 dB setting is enabled. ● : The 30 dB setting is disabled.
36 dB / C U F R	✳ ●	For selecting whether or not to enable a setting of 36 dB for SUPER GAIN. ✳ : The 36 dB setting is enabled. ● : The 36 dB setting is disabled.
DS.GAIN 6 dB↑ / C U F R	✳ ●	For selecting whether or not to enable a setting increase of 6 dB for DS.GAIN. ✳ : The 6 dB setting increase is enabled. ● : The 6 dB setting increase is disabled.
10 dB↑ / C U F R	✳ ●	For selecting whether or not to enable a setting increase of 10 dB for DS.GAIN. ✳ : The 10 dB setting increase is enabled. ● : The 10 dB setting increase is disabled.
12 dB↑ / C U F R	✳ ●	For selecting whether or not to enable a setting increase of 12 dB for DS.GAIN. ✳ : The 12 dB setting increase is enabled. ● : The 12 dB setting increase is disabled.
15 dB↑ / C U F R	✳ ●	For selecting whether or not to enable a setting increase of 15 dB for DS.GAIN. ✳ : The 15 dB setting increase is enabled. ● : The 15 dB setting increase is disabled.
20 dB↑ / C U F R	✳ ●	For selecting whether or not to enable a setting increase of 20 dB for DS.GAIN. ✳ : The 20 dB setting increase is enabled. ● : The 20 dB setting increase is disabled.

7-5-8 LENS/IRIS
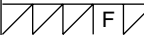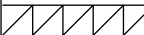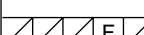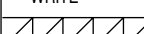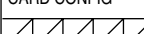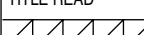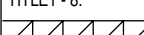
Item	Variable range	Remarks
A.IRIS LEVEL / C U F R	000 045 100	For setting the AUTO IRIS target value.
A.IRIS PEAK/AVE / C U F R	000 030 100	For determining the ratio of the peak to the AUTO IRIS reference. The higher the ratio, the greater the response to the peak inside the iris detection window; the lower the ratio, the greater the response to the average value inside the iris detection window.
A.IRIS WINDOW / C U F R	NORM1 NORM2 CENTR	For selecting the auto iris detection window. **NORM1:** Window from the screen center **NORM2:** Window from the bottom of the screen **CENTR:** Window in the shape of a spot at the screen center
S.IRIS LEVEL / C U F R	000 080 100	For setting the target value of the SUPER IRIS (backlight compensation function).
IRIS GAIN / C U F R	CAM LENS	For selecting whether the IRIS GAIN adjustment is executed by the camera or the lens. **\<Note\>** For a lens with an extender (×2, ×0.8 etc.) that was manufactured before the DIGI POWER type lens from Fujinon, the IRIS control on the unit will not operate properly when set to the CAM, since IRIS correction control is operated on the lens if the extender is inserted.
IRIS GAIN VALUE / C U F R	01 10 20	For setting the IRIS GAIN adjustment value. The setting takes effect when IRIS GAIN has been set to CAM.

The underlining in the variable range column indicates the setting in the preset mode.
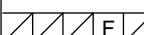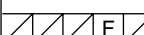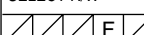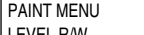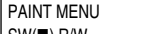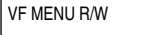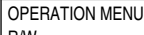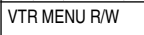
7-6 FILE

7-6-1 CARD READ/WRITE
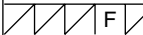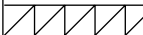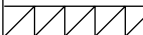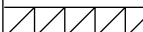
Item	Variable range	Remarks
R.SELECT	1 ÷ 8	For selecting the number of the file whose data is to be read.
READ		For reading the data from the SD memory card.
W.SELECT	1 ÷ 8	For selecting the number of the file in which the data is to be written.
WRITE		For writing the data of the camera into the SD memory card.
CARD CONFIG		For formatting the SD memory card.
TITLE READ		For reading the title assigned to the data from the SD memory card.
TITLE1 - 8:		For setting a title consisting of not more than 8 characters.

7-6-2 CARD R/W SELECT
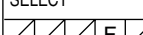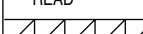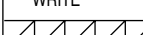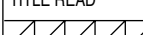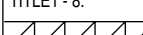
Item	Variable range	Remarks
SYSTEM MODE R/W	ON OFF	For selecting whether or not to handle the SYSTEM MODE item and the CAMERA MODE item for CARD READ/WRITE.
ID READ/WRITE	ON OFF	For selecting whether or not to handle the CAMERA ID during CARD READ/WRITE data operations.
USER MENU SELECT R/W	ON OFF	For selecting whether or not to handle the USER MENU SELECT settings during CARD READ/ WRITE data operations.
SYSTEM SETTING R/W	ON OFF	For selecting whether the items for SYSTEM SETTING (other than the SYSTEM MODE item and the CAMERA MODE item) and the OPTION MENU are handled or not for CARD READ/WRITE.
PAINT MENU LEVEL R/W	ON OFF	For selecting whether or not to handle the PAINT MENU adjustment values during CARD READ/WRITE data operations.
PAINT MENU SW(■) R/W	ON OFF	For selecting whether or not to handle the PAINT MENU settings during CARD READ/ WRITE data operations.
VF MENU R/W	ON OFF	For selecting whether or not to handle the VF MENU settings during CARD READ/WRITE data operations.
OPERATION MENU R/W	ON OFF	For selecting whether or not to handle the OPERATION MENU settings during CARD READ/WRITE data operations.
MAINTE MENU R/W	ON OFF	For selecting whether or not to handle the MAINTENANCE MENU settings during CARD READ/WRITE data operations.
VTR MENU R/W	ON OFF	For selecting whether or not to handle the VTR MENU settings during CARD READ/ WRITE data operations.

The underlining in the variable range column indicates the setting in the preset mode.
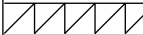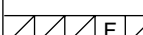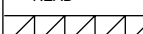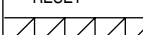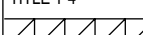
7-6-3 LENS FILE

Item	Variable range	Remarks
FILE SELECT	1 ÷ 8	For selecting the number of the lens file.
READ		For reading the data from the lens file.
WRITE		For writing the data in the lens file.
RESET ALL		For resetting the data of the lens file.
TITLE1-8	************	For setting a title consisting of not more than 12 characters.

7-6-4 LENS FILE CARD R/W

Item	Variable range	Remarks
CARD FILE SELECT	1 ÷ 8	For selecting the number of the lens file.
READ		For reading the lens file data from the SD memory card.
WRITE		For writing the lens file data into the SD memory card.
TITLE READ		For reading the title of the lens file.
TITLE1 - 8:	************	For setting a title consisting of not more than 12 characters.

7-6-5 SCENE

Item	Variable range	Remarks
READ USER DATA		For reading the data from the memory's user area.
SCENE SEL	1 ÷ 4	For selecting the scene file.
READ		For reading the data from the scene file.
WRITE		For writing the data in the scene file.
RESET		For returning the SCENE FILE values to the initial values.
TITLE 1-4	**********	For creating a title for a scene file.

For details, refer to "4-10 Set data handling."

7-6-6 INITIALIZE

Item	Variable range	Remarks
READ FACTORY DATA		For returning the state of the unit to factory settings. **Data returned to factory settings** ● User data ● Scene file **Data not returned to factory settings** ● Lens file ● Black shading ● White shading
WRITE USER DATA		The menu data that is inherent to the user are saved in user data memory on the unit.

For details, refer to "4-10 Set data handling."

7-7 MAINTENANCE

7-7-1 SYSTEM CHECK

Item	Variable range	Remarks
COLOR CHECK	ON <u>OFF</u>	For checking whether the camera unit operates properly. **ON:** The signal level of RGB near the center of the screen is displayed in the viewfinder. It indicates with numeric values that the respective RGB signals are properly transmitted from the optical system to the digital system and processed. **OFF:** Not display

7-7-2 DIAGNOSTIC

Item	Variable range	Remarks
CAMSOFT(IN)		For displaying the version of the software used for the flash memory incorporated in the microcomputer.
CAMSOFT(OUT)		For displaying the version of the software used for the externally connected flash memory.
CAM TABLE		For displaying the version of the tables.
FONT ROM		For displaying the version of the font used for the characters.
FPGA (CHAR)		For displaying the version of the FPGA for characters.
FPGA (FM)		For displaying the version of the FPGA for frame memories.
FPGA (D/C)		For displaying the version of the FPGA for down converters.
FPGA (TG)		For displaying the version of the FPGA for the CCD drive.

7-7-3 LENS ADJ

Item	Variable range	Remarks
F2.8 ADJ	ON <u>OFF</u>	The iris is set to f/2.8 only when ON is set for this item.
F16 ADJ	ON <u>OFF</u>	The iris is set to f/16 only when ON is set for this item.

The underlining in the variable range column indicates the setting in the preset mode.

7-7-4 BLACK SHADING

Item	Variable range	Remarks
CORRECT / C U F R	ON OFF	For selecting ON or OFF for the digital black shading compensation.
DETECTION (DIG)	–	For executing the digital black shading compensation.

7-7-5 WHITE SHADING

Item	Variable range	Remarks
CORRECT / C U F R	ON OFF	For selecting ON or OFF for the white shading compensation.
R H SAW R H PARA R V SAW R V PARA G H SAW G H PARA G V SAW G V PARA B H SAW B H PARA B V SAW B V PARA	−255 : +000 : +255	For executing the white shading compensation manually. The sawteeth-shaped waveform and the parabola waveform of the respective RGB channels are adjusted in the horizontal direction and the vertical direction.

7-7-6 LENS FILE ADJ

Item	Variable range	Remarks
RB GAIN CTRL RESET	ON OFF	**ON:** The gains of Rch and Bch adjusted in 7-3-1 <RB GAIN CONTROL> screen are reset. Furthermore, the flare levels of Rch, Gch and Bch that are adjusted on 7-3-2 <RGB BLACK CONTROL> screen are reset. **OFF:** The gains of Rch and Bch adjusted in 7-3-1 <RB GAIN CONTROL> screen are enabled. Furthermore, the flare levels of Rch, Gch and Bch that are adjusted on 7-3-2 <RGB BLACK CONTROL> screen are enabled.
LENS R GAIN OFFSET / / / F	−200 : +000 : +200	For compensating Rch sensitivity of the lens used.
LENS B GAIN OFFSET / / / F	−200 : +000 : +200	For compensating Bch sensitivity of the lens used.
LENS R FLARE / / / F	000 100	For adjusting the flare level of Rch.
LENS G FLARE / / / F	000 100	For adjusting the flare level of Gch.
LENS B FLARE / / / F	000 100	For adjusting the flare level of Bch.

● Data adjusted on the LENS FILE ADJ screen can be stored on an SD memory card as a lens file.

The underlining in the variable range column indicates the setting in the preset mode.

7-8 VTR MENU

7-8-1 VTR FUNCTION

Item	Variable range	Remarks
HUMID OPE / C U F /	ON OFF	For selecting whether or not to continue operation when HUMID alarm state has occurred. **ON:** Operation continues until tape slack is detected even when the HUMID alarm state has occurred during operation. **OFF:** Operation is stopped as soon as the HUMID alarm state occurs. If the HUMID alarm state occurs during recording, the recording operation will continue unless tape slack is detected regardless of whether ON or OFF has been selected as this item's setting.
REC START / C U F /	ALL NORMAL	For selecting how recording start is to be accepted.
PAUSE TIMER / C U F /	10min 20min 30min 60min	For selecting the time during which REC/PAUSE is to continue.
RC CHECK SW / C U F /	R.REVIEW RETAKE	For setting the operations of the unit by using the REC check button on the remote control unit. **R.REVIEW:** The rec-review operation is performed. **RETAKE:** The retake operation is performed, after which playback is initiated automatically.
COMPRESSION MODE / C U F /	NORMAL DARK	For selecting the DVCPRO compression mode. ● This is enabled when the recording format is set to 720P. **NORMAL:** Normal shooting shall be executed in this mode. **DARK:** Distortion of compressed video images that may occur at dark parts on the video images can be suppressed in this mode. Distortion of compressed video images on other parts may increase.

7-8-2 BATTERY/TAPE

Item	Variable range	Remarks
BATTERY SELECT / C U F /	PROPAC14 TRIMPAC14 HYTRON50 HYTRON120 DIONIC90 DIONIC160 NP-L7 ENDURA7 ENDURA10 ENDURA D PAG L95 BP-GL65/95 NICD14 TYPE A TYPE B	For selecting the type of battery to be used. The remaining charge is detected in accordance with the battery which has been selected. The variable range is changed by the item settings selected on the "7-8-3 BATTERY SETTING1" and "7-8-4 BATTERY SETTING2" menus. The initial value for TYPE A is set to DIONIC100 while the same for TYPE B is set to HYTRON100.
EXT DC IN SELECT / C U F /	AC_ADPT PROPAC14 TRIMPAC14 HYTRON50 HYTRON120 DIONIC90 DIONIC160 NP-L7 ENDURA7 ENDURA10 ENDURA D PAG L95 BP-GL65/95 NICD14 TYPE A TYPE B	For selecting the external power supply to connect to the DC IN socket. The variable range is changed by the item settings selected on the "7-8-3 BATTERY SETTING1" and "7-8-4 BATTERY SETTING2" menus. Analog voltage is displayed on the viewfinder screen.
BATT NEAR END ALARM / C U F /	ON OFF	For setting whether or not to output the warning tone when the battery charge is nearly depleted.
BATT NEAR END CANCEL / C U F /	ON OFF	When this item is set to ON, the warning tone and the warning display which are being output can be canceled by pressing the MODE CHECK button when the battery charge is nearly depleted.
BATT END ALARM / C U F /	ON OFF	For setting whether or not to output the warning tone when the battery charge is depleted.
BATT REMAIN FULL / C U F /	100% 70%	For setting when the remaining charge display bar on the LCD is to be displayed when a digital battery is used. **70%:** A full charge is indicated with a 70% display **100%:** A full charge is indicated with a 100% display.
TAPE NEAR END ALARM / C U F /	ON OFF	For setting whether or not to output the warning tone when the tape is nearly at its end.
TAPE NEAR END TIME / C U F /	3min 2min	For setting the remaining tape time at which to sound the warning that the tape has only the designated amount of time (2min. or 3min.) remaining.
TAPE END ALARM / C U F /	ON OFF	For setting whether or not to output the warning tone when the tape reaches the end.
TAPE REMAIN/■ / C U F /	5min/■ 3min/■	For setting the time of each segment (■) that makes up the remaining time display bar on the LCD. **5min:** Each segment denotes a remaining time of 5 minutes. **3min:** Each segment denotes a remaining time of 3 minutes.

The underlining in the variable range column indicates the setting in the preset mode.

7-8-3 BATTERY SETTING1

Item	Variable range	Remarks
PROPAC14 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.8</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
TRIMPAC14 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.6</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
HYTRON50 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.2</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
HYTRON120 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.0</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.

Item	Variable range	Remarks
DIONIC90 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.6</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
DIONIC160 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.1</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
NP-L7 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>12.9</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
ENDURA7 C U F	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. **AUTO:** The voltage is set automatically. **MANUAL:** The voltage is set manually.
	11.0 ⋮ <u>13.2</u> ⋮ 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.

● When the digital battery is attached in the unit, the remaining capacity of the battery is displayed in percent.

The underlining in the variable range column indicates the setting in the preset mode.

7-8-4 BATTERY SETTING2

Item	Variable range	Remarks
ENDURA10	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. AUTO: The voltage is set automatically. MANUAL: The voltage is set manually.
/C U F/	11.0 : <u>13.2</u> : 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
ENDURA-D	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. AUTO: The voltage is set automatically. MANUAL: The voltage is set manually.
/C U F/	11.0 : <u>13.2</u> : 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
PAG L95	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. AUTO: The voltage is set automatically. MANUAL: The voltage is set manually.
/C U F/	11.0 : <u>13.5</u> : 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.
BP-GL65/95	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
	<u>AUTO</u> MANUAL	For selecting how the voltage at which the battery charge is considered nearly depleted is to be set. AUTO: The voltage is set automatically. MANUAL: The voltage is set manually.
/C U F/	11.0 : <u>13.6</u> : 15.0	For selecting the voltage at which the battery charge is to be considered nearly depleted in 0.1 V steps when MANUAL has been selected as the setting for the menu item above.

Item	Variable range	Remarks
NICD14	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
NEAR END	11.0 : <u>13.8</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to considered nearly depleted.
END /C U F/	11.0 : <u>13.2</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to be considered depleted.
TYPE A	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
FULL	12.0 : <u>14.6</u> : 17.0	For selecting in 0.1 V steps the voltage at which FULL is to be displayed.
NEAR END	11.0 : <u>13.6</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to be considered nearly depleted.
END /C U F/	11.0 : <u>12.9</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to be considered depleted.
TYPE B	∗ /	For enabling or disabling the selection made for the BATTERY SELECT item. ∗ : The selection is enabled. / : The selection is disabled.
FULL	12.0 : <u>15.2</u> : 17.0	For selecting in 0.1 V steps the voltage at which FULL is to be displayed.
NEAR END	11.0 : <u>13.0</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to be considered nearly depleted.
END /C U F/	11.0 : <u>12.4</u> : 15.0	For selecting in 0.1 V steps the voltage at which the battery charge is to be considered depleted.

● When the digital battery is attached in the unit, the remaining capacity of the battery is displayed in percent.

The underlining in the variable range column indicates the setting in the preset mode.

7-8-5 MIC/AUDIO1

Item	Variable range	Remarks
FRONT VR CH1 ◿ C U F ◺	FRONT W.L. REAR ALL <u>OFF</u>	For setting whether or not to make the audio control operational for the input system selected for CH1.
FRONT VR CH2 ◿ C U F ◺	FRONT W.L. REAR ALL <u>OFF</u>	For setting whether or not to make the audio control operational for the input system selected for CH2.
MIC LOWCUT CH1 ◿ C U F ◺	FRONT REAR W.L. <u>OFF</u>	For selecting the microphone low-cut filter for CH1.
MIC LOWCUT CH2 ◿ C U F ◺	FRONT REAR W.L. <u>OFF</u>	For selecting the microphone low-cut filter for CH2.
MIC LOWCUT CH3 ◿ C U F ◺	FRONT REAR W.L. <u>OFF</u>	For selecting the microphone low-cut filter for CH3.
MIC LOWCUT CH4 ◿ C U F ◺	FRONT REAR W.L. <u>OFF</u>	For selecting the microphone low-cut filter for CH4.
LIMITER CH1 ◿ C U F ◺	ON <u>OFF</u>	For selecting the limiter for CH1.
LIMITER CH2 ◿ C U F ◺	ON <u>OFF</u>	For selecting the limiter for CH2.
AUTO LEVEL CH3 ◿ C U F ◺	<u>ON</u> OFF	For selecting the automatic adjustment of the recording level.
AUTO LEVEL CH4 ◿ C U F ◺	<u>ON</u> OFF	For selecting the automatic adjustment of the recording level.
CUE REC SELECT ◿ C U F ◺	<u>CH1</u> CH2 CH3 CH4 CH1+2 CH3+4	For selecting the signals to be recorded on the CUE track.

<Note>

The frequency characteristics when the microphone low-cut filter is applied are 200 Hz to 10 kHz.

Item	Variable range	Remarks
TEST TONE ◿ C U F ◺	<u>NORMAL</u> ALWAYS OFF CHSEL	For selecting the test signal. **NORMAL:** The test tone signal is output to all the channels when the CAM/BAR switch has been set to BAR and the CH1 AUDIO IN switch has been set to FRONT. **ALWAYS:** The test tone signal is always output to all the channels when the CAM/ BAR switch has been set to BAR. **OFF:** The test tone signal is not output. **CHSEL:** The test tone signal is output to the channels for which the CH1 or CH2 AUDIO IN switch has been set to FRONT when the CAM/BAR switch is set to BAR. It is not output to CH3 or CH4.

7-8-6 MIC/AUDIO2

Item	Variable range	Remarks
FRONT MIC POWER ◿ C U F ◺	<u>ON</u> OFF	For selecting the phantom power supply for the front microphone.
REAR MIC POWER ◿ C U F ◺	<u>ON</u> OFF	For selecting the phantom power supply for the rear microphone.
MONITOR SELECT ◿ C U F ◺	<u>STEREO</u> MIX	For selecting the format of the signals to be output to the monitor.
FRONT MIC LEVEL ◿ C U F ◺	<u>–40dB</u> –50dB	For selecting the input level of the front microphone.
REAR MIC CH1 LVL ◿ C U F ◺	–50dB <u>–60dB</u>	For selecting the input level of the rear microphone.
REAR MIC CH2 LVL ◿ C U F ◺	–50dB <u>–60dB</u>	For selecting the input level of the rear microphone.
REAR LINE IN LVL **For AJ-HDX900E** **For AJ-HDX900P** ◿ C U F ◺	–3dB <u>0dB</u> +4dB	For selecting the rear line input level.
AUDIO OUT LVL **For AJ-HDX900E** **For AJ-HDX900P** ◿ C U F ◺	–3dB <u>0dB</u> +4dB	For selecting the rear audio output level.
HEADROOM **For AJ-HDX900E** **For AJ-HDX900P** ◿ C U F ◺	<u>18dB</u> <u>20dB</u>	For setting the headroom (reference level).
WIRELESS WARN ◿ C U F ◺	ON <u>OFF</u>	For selecting whether or not to output warnings when the reception of the wireless receiver is poor.

The underlining in the variable range column indicates the setting in the preset mode.

7-8-7 TC/UB

Item	Variable range	Remarks
TC MODE C U F	DF NDF	For selecting the mode advancing the time code. **DF:** Drop frame **NDF:** Non-drop frame **<Note>** When the system frequency is set to 50 Hz, the mode is the non-drop frame mode.
UB MODE C U F	USER TIME DATE EXT TCG FRM RATE REGEN	For selecting the users bits to record in the LTC area. **USER:** For recording the user setting values. (fixed values) **TIME:** For recording the local time. (hour, minute, second) **DATE:** For recording the local date and time. (2 digits for year, month, day, time) **EXT:** For recording the users bits of the time code input in the TC IN connector. If the users bits cannot be read, the user setting values are recorded. **TCG:** For recording the value of the time code generator. **FRM RATE:** For recording the shooting information (frame rate etc.) of the camera. **REGEN:** For reading the value recorded on the tape and recording the value continuously. **<Note>** When the recording format is set to 720P, it follows the settings of FRAME RATE UB in 7-9-1 <OPTION> screen.
VITC UB MODE C U F	USER/EXT TIME DATE TCG FRM RATE REGEN	For selecting the users bits to record in the VITC area. **USER/EXT:** When the UB MODE item is set to EXT, the users bits of the time core input in the TC IN connector is recorded. If it is set to any option other than EXT, the user setting value is recorded. **TIME:** For recording the local time. (hour, minute, second) **DATE:** For recording the local date and time. (2 digits for year, month, day, time) **TCG:** For recording the value of the time code generator. **FRM RATE:** For recording the shooting information (frame rate etc.) of the camera. **REGEN:** For reading the value recorded on the tape and recording the value continuously. **<Note>** When the video system is set to 24P or 24PA, or when the recording format is set to 720P, it follows the settings of FRAME RATE UB in 7-9-1 <OPTION> screen.

Item	Variable range	Remarks
TCG SET HOLD C U F	ON OFF	For selecting ON or OFF for the function that without fail uses what was previously set as the TCG value for recording when the TCG value had been set before the power was turned off and recording was then performed after the power was turned back on again.
FIRST REC TC C U F	REGEN PRESET	For selecting whether or not to regenerate the time code as the value on the tape during the first recording after the power was turned on, the cassette was inserted or a playback or search operation was performed.
P.OFF LCD DISPLAY C U F	ON OFF	For selecting whether or not to set the LCD's time code and display its count while the power is off. **ON:** The time code can be set and displayed even while the power is off. **OFF:** While the power is off, the power to the LCD section is turned off, and the time code can be neither set nor displayed.
TC OUT C U F	TCG TCG/TCR	For selecting the time code to be output to the TC OUT connector. **TCG:** The time code generator value is always output. **TCG/TCR:** In the EE mode, the time code generator value is output from the connectors; in the playback mode, it is the time code reader value which is output.
TC DISP SEL C U F	30F 24F	For selecting the display format to be used for the frame digits of the time code. **30F:** A number up to 30 frames is indicated in frame digits of the time code. **24F:** A number up to 24 frames is indicated in frame digits of the time code. **<Note>** When the system frequency is set to 50 Hz, 25 frames are displayed.
TC VIDEO SYNCRO C U F	0 1 2 3	For setting to correct the time code according to the delay of video signals. **0:** Do not correct. **1:** To delay the time code to be input according to the timing of the video images. **2:** To forward the time code to be output according to the timing of the video images. **3:** To delay the time code to be input and forward the time code to be output, respectively, according to the timing of the video images. For details, refer to "4-5-4 Externally locking the time code".
REC REVIEW REGEN C U F	ON OFF	For selecting whether the time code is regenerated to the value on the tape or not, when subsequent recording starts after setting the RET SW item on the SW MODE screen to R.REVIEW and pressing the RET button on the lens or the USER button on the unit on which the RET SW function is assigned. **ON:** The time code is regenerated to the value on the tape. **OFF:** The time code is not regenerated.

The underlining in the variable range column indicates the setting in the preset mode.

7-8-8 UMID SET/INFO

Item	Variable range	Remarks
COUNTRY C U F	NO-INFO	For inputting the name of the user's country. "NO-INFO" is displayed until this is input.
ORGANIZATION C U F	NO-INFO	For inputting the name of the user's organization or company. "NO-INFO" is displayed until this is input.
USER C U F	NO-INFO	For inputting the user's name. "NO-INFO" is displayed until this is input.
DEVICE NODE		For displaying the ID number of the product.

7-8-9 VTR DIAG

Item	Variable range	Remarks
OPERATION		For displaying the total time during which the power has been on.
DRUM RUNNING		For displaying the total time during which the drum has rotated.
THREADING		For displaying the total number of times cassettes have been loaded.
DRUM RUNNING r		For displaying the total time during which the drum has rotated after resetting.
THREADING r		For displaying the total number of times cassettes have been loaded after resetting.
VTR SYSCON		For displaying the software version of the VTR SYSCON microcomputer.
SERVO		For displaying the software version of the SERVO microcomputer.
LCD		For displaying the software version of the LCD microcomputer.
VIDEO FPGA		For displaying the version of the FPGA for video signal processing.
PWR PLD		For displaying the version of the PLD for controlling the SD memory card.

7-9 OPTION MENU

7-9-1 OPTION

Item	Variable range	Remarks
ENG SECURITY	ON OFF	For selecting whether or not to place a restriction on the opening and closing of the MENU screen. **ON:** The MENU screen can no longer be opened. To release this restriction, consult your dealer. **OFF:** No restriction is placed on the opening and closing of the MENU screen.
TOTAL CHROMA G C	−40 ⋮ +00 ⋮ +40	For setting the chroma level of the P_R signals and the P_B signals.
CHROMA OUTPUT C	ON OFF	When this is set to OFF, the color elements of the video signals are eliminated.
FRAME RATE UB C	FRAME RATE MENU	For setting the users bits to record when the video system is set to 24P or 24PA, or when the recording format is set to 720P. **FRAME RATE:** For recording the shooting information (frame rate etc.) of the camera **MENU:** This follows the settings in the UB MODE item and the VITC UB MODE item of 7-8-7 <TC/UB> screen.
1394 CONFIG C	DFLT 1 ⋮ 255	This is the menu for expanding the DCVPRO connector. Use with DFLT in normal operation.
1394 GAP COUNT C	0 ⋮ 40 ⋮ 63	For setting the interval between packets.

The underlining in the variable range column indicates the setting in the preset mode.

Chapter 8 Specifications

[GENERAL]

Power supply:	DC 12 V (DC 11.0 V - 17.0 V)
Power consumption:	36 W

☐ indicates safety information.

Ambient operating temperature:
0°C to +40°C (32°F to 104°F)
Storage temperature:
–20°C to +60°C (–4°F to 140°F)
Ambient operating humidity:
Within 10% to 85% (relative humidity)
Continuous operation time:
Approx. 120 min. (using the DIONIC90 made by Anton/Bauer)
Dimensions (W×H×D):
129 mm×271 mm×329 mm
(5-1/8 inches×10-11/16 inches×13 inches)
Weight:
Approx. 4.5 kg (9.9 lb)
(main unit only)

[CAMERA UNIT]
Image sensor:
2/3-inch CCD ×3
Shooting method:
RGB 3-CCD method
Total number of pixels:
1370 (H) × 744 (V)
Effective number of pixels:
1280 (H) × 720 (V)
Horizontal drive frequency:
74.1758 MHz (59.94 Hz)
74.25 MHz (50 Hz)
Lens mount:
2/3-inch Bayonet type
Optical system:
F1.4 prism system
CC/ND Filter:
CC A: CROSS
    B: 3200 K
    C: 4300 K
    D: 6300 K
ND 1: CLEAR
    2: 1/4ND
    3: 1/16ND
    4: 1/64ND
Quantizing:
14 bits
Sampling frequency:
74.1758 MHz (59.94 Hz)
74.25 MHz (50 Hz)
Digital signal processing:
74.1758 MHz (59.94 Hz)
74.25 MHz (50 Hz)
Programmable gain values:
–3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB and 30 dB

DS GAIN function:
+6 dB, +10 dB, +12 dB, +15 dB, or +20 dB gain increase selectable
LINE MIX GAIN function
+6 dB (can be set to ON or OFF)
SUPER GAIN function:
30 dB or 36 dB selectable
Shutter speeds:
1/60 (50 Hz), 1/100 (59.94 Hz), 1/120, 1/250, 1/500, 1/1000, 1/2000 and HALF
Synchro scan shutter:
1/60.3 to 1/249.8 (1080-59.94i/720-59.94P)
1/30.2 to 1/249.8 (1080-29.97P/720-29.97P)
1/24.1 to 1/249.8
   (1080-23.98P/1080-23.98PA/720-23.98P)
1/50.2 to 1/209.5 (1080-50i/720-50P)
1/25.2 to 1/209.5 (1080-25P/720-25P)
Sensitivity:
F10 (2000 lx, 89.9% reflection)
Minimum subject brightness:
0.032 lx, F1.4, 36 dB (S. GAIN) +20 dB (DS. GAIN) +6 dB (LINE MIX)
Video signal-to-noise ratio:
54 dB (typical)
Registration error:
Less than 0.03% (entire area, excluding lens distortion)

[VTR UNIT]
Tape Transport System
Tape to be used:
M cassette tape for 1/4-inch DVCPRO
Tape speed:
67.640 mm/s (59.94 Hz)
67.708 mm/s (50 Hz)
Recording time:
33 minutes (when AJ-HP33EMG is used)
Fast forwarding time:
Approx. 1 min. 30 sec. (when AJ-HP33EMG is used)
Rewinding time:
Approx. 1 min. 30 sec. (when AJ-HP33EMG is used)

Video System
Sampling frequency:
Y: 74.1758 MHz (59.94 Hz)
        74.25 MHz (50 Hz)
PB/PR: 37.0879 MHz (59.94 Hz)
        37.125 MHz (50 Hz)
Quantizing:
8 bits
Video compression system:
DCT + variable-length code
Video compression ratio:
1/6.7 (other than 1080-50i/1080-25P)
1/6.3 (in case of 1080-50i/1080-25P)
Error correction:
Reed-Solomon product code
Video recording bit rate:
100 Mbps

Audio System
Sampling frequency:
48 kHz (synchronized with video)
Quantizing:
16 bits
Frequency response:
20 Hz to 20 kHz ±1.0 dB (at 1 kHz, reference level)
Dynamic range:
Better than 85 dB (at 1 kHz, AWTD)
Distortion:
Less than 0.1% (at 1 kHz, reference level)
Wow and flutter:
Below measurable limits
Head room:
For AJ-HDX900P: 20 dB
For AJ-HDX900E: 18 dB

[CONNECTOR SECTION]
Audio Input Connectors
MIC IN (XLR, 5 pins, female):
For stereo
Phantom power supply:
+48 V (It is possible to turn ON/OFF from the menu.)
Input level:
–40 dBu (–50 dBu or –40 dBu, selected on menu)
AUDIO IN CH1/CH2 (XLR ×2, 3 pins, female):
LINE/MIC/MIC + 48 V switching type
LINE:
For AJ-HDX900P: +4 dBu
For AJ-HDX900E: 0 dBu
(–3 dBu, 0 dBu or +4 dBu, selected on menu)
MIC: –60 dBu (–60 dBu or –50 dBu, selected on menu)
MIC + 48 V:
–60 dBu (–60 dBu or –50 dBu, selected on menu)
WIRELESS IN (D-SUB, 25 pins):
Input level: –40 dBu

Audio Output Connectors
AUDIO OUT CH1/CH2 (XLR, 5 pins, male):
Output level:
For AJ-HDX900P: +4 dBu
For AJ-HDX900E: 0 dBu
(–3 dBu, 0 dBu or +4 dBu, selected on menu)
PHONES:
Stereo mini jacks ×2

Video Input Connector
GENLOCK IN (BNC):
1.0 V$_{\text{P-P}}$, 75Ω
(It can also be used as an input connector for the return video signals.)

Video Output Connector
VIDEO OUT (BNC):
It can be switched among HD-SDI/SD-SDI/Composite.
HD-SDI   : 0.8 V$_{\text{P-P}}$, 75 Ω
SD-SDI   : 0.8 V$_{\text{P-P}}$, 75 Ω
Composite : 1.0 V$_{\text{P-P}}$, 75 Ω
MON OUT (BNC):
It can be switched between HD-SDI and HD-Y
HD-SDI   : 0.8 V$_{\text{P-P}}$, 75 Ω
HD-Y   : 1.0 V$_{\text{P-P}}$, 75 Ω (analog signal)

Time Code Input Connector
TC IN (BNC):
0.5 V$_{\text{P-P}}$ to 7 V$_{\text{P-P}}$, high impedance

Time Code Output Connector
TC OUT (BNC):
2.0 V$_{\text{P-P}}$, low impedance

Other Connectors
LENS (12 pins)
REMOTE (10 pins, connector used for AJ-RC10G)
DC IN (XLR, 4 pins, male):
DC 11 V to 17 V
DC OUT (4 pins):
DC 11 V to 17 V, the maximum output current 1.5 A
EVF (20 pins)
This supports the viewfinder that can be switched between 59.94 Hz and 50 Hz.
DVCPRO output connector (6 pins)
GPS (6 pins, connector used for AJ-GPS900G)

[ACCESSORIES]
Shoulder strap
FRONT AUDIO LEVEL control knob
Control knob mounting screw ×1

8

Weight and dimensions when shown are approximately.
Specifications are subject to change without notice.

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)

This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

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

Panasonic®

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