For Customer in China
根据中华人民共和国信息产业部第39号令《电子信息产品污染控制管理办法》及标准中要求的“有毒有害物质或元素名称及含量”等信息，本产品相关信息请参考以下链接:
http://pro.sony.com.cn

HD CAMCORDER SRW-9000PL

SONY

HD CAMCORDER

SRW-9000PL

HD-SDI EXPANSION BOARD
HKSR-9001
PICTURE CACHE BOARD
HKSR-9002

HDCAM SR™

Tele-File CINE ALTA MEMORY STICK™ CE

OPERATION MANUAL English
1st Edition (Revised 2)

出版日期：2012年1月

Sony Corporation

SRW-9000PL
(SY)
4-259-257-**03** (1)

http://www.sony.net/

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4259257030

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

WARNING

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

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

Excessive sound pressure from earphones and headphones can cause hearing loss. In order to use this product safely, avoid prolonged listening at excessive sound pressure levels.

For the customers in the U.S.A.
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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

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

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

For the customers in Canada
This Class B digital apparatus complies with Canadian ICES-003.

For the customers in Europe
This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European standards:
- EN55103-1: Electromagnetic Interference (Emission)
- EN55103-2: Electromagnetic Susceptibility (Immunity)

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

Hereby, Sony Corporation, declares that this SRW-9000PL/HD Camcorder is in compliance with the essential requirements and other relevant provisions of the Directive 1999/5/EC.
For details, please access the following URL: http://www.compliance.sony.de/

Con la presente Sony Corporation dichiara che questo SRW-9000PL/HD Camcorder è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Per ulteriori dettagli, si prega di consultare il seguente URL: http://www.compliance.sony.de/

Por medio de la presente Sony Corporation declara que el SRW-9000PL/HD Camcorder cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Para mayor información, por favor consulte el siguiente URL: http://www.compliance.sony.de/

Hierbij verklaart Sony Corporation dat het toestel SRW-9000PL/HD Camcorder in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Nadere informatie kunt u vinden op: http://www.compliance.sony.de/

Härmed intygar Sony Corporation att denna SRW-9000PL/HD Camcorder står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
För ytterligare information gå in på följande hemsida: http://www.compliance.sony.de/

Sony Corporation declara que este SRW-9000PL/HD Camcorder está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Para mais informacoes, por favor consulte a seguinte URL: http://www.compliance.sony.de/

Undertegnede Sony Corporation erklærer herved, at følgende udstyr SRW-9000PL/HD Camcorder overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
For yderligere information gå ind på følgende hjemmeside: http://www.compliance.sony.de/

Sony Corporation vakuuttaa täten että SRW-9000PL/HD Camcorder tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Halutessasi lisätietoja, käy osoitteessa: http://www.compliance.sony.de/

Sony Corporation erklærer herved at utstyret SRW-9000PL/HD Camcorder er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
For flere detaljer, vennligst se: http://www.compliance.sony.de/

Με την παρούσα η Sony Corporation δηλώνει ότι SRW-9000PL/HD Camcorder συμμορφώνεται προς της ουσιώδεις απαιτήσεις και τις λοιπές σχετικές διατάξεις της οδηγίας 1999/5/ΕΚ.
Για λεπτομέρειες παρακαλούμε όπως ελέγξετε την ακόλουθη σελίδα του διαδικτύου:
http://www.compliance.sony.de/

Sony Corporation tímto prohlašuje, že tento SRW-9000PL/HD Camcorder je ve shode se základními požadavky a dalšími príslušnými ustanoveními smernice 1999/5/ES.
Podrobnosti lze získat na následující URL:
http://www.compliance.sony.de/

Sony Corporation kinnitab käesolevaga seadme SRW-9000PL/HD Camcorder vastavust 1999/5/EÜ direktiivi põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Üksikasjalikum info: http://www.compliance.sony.de/

Alulírott, Sony Corporation nyilatkozom, hogy a(z) SRW-9000PL/HD Camcorder megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
További információkat a következő weboldalon találhat:
http://www.compliance.sony.de/

Ar šo Sony Corporation deklarē, ka SRW-9000PL/HD Camcorder atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Plašāka informācija ir pieejama:
http://www.compliance.sony.de/

Šiuo Sony Corporation deklaruoja, kad šis SRW-9000PL/HD Camcorder atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Susipažinti su visu atitikties deklaracijos turiniu Jūs galite interneto tinklalapyje:
http://www.compliance.sony.de/

Niniejszym Sony Corporation oświadcza, że SRW-9000PL/HD Camcorder jest zgodne z zasadniczymi wymaganiami oraz innymi stosownymi postanowieniami Dyrektywy 1999/5/WE.
Szczegółowe informacje znaleźć można pod następującym adresem URL:
http://www.compliance.sony.de/

Prin prezenta, Sony Corporation declară că acest SRW-9000PL/HD Camcorder respectă cerinţele esenţiale şi este în conformitate cu prevederile Directivei 1995/5/EC.
Pentru detalii, vă rugăm accesaţi următoarea adresă:
http://www.compliance.sony.de/

Sony Corporation týmto vyhlasuje, že SRW-9000PL/HD Camcorder spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Podrobnosti získate na nasledovnej webovej adrese:
http://www.compliance.sony.de/

Sony Corporation izjavlja, da je ta SRW-9000PL/HD Camcorder v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Za podrobnosti vas naprošamo, če pogledate na URL:
http://www.compliance.sony.de/

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japan.
The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

For the State of California, USA only
Perchlorate Material - special handling may apply, See
www.dtsc.ca.gov/hazardouswaste/perchlorate
Perchlorate Material : Lithium battery contains perchlorate.

For the customers in Taiwan only

廢電池請回收

AVERTISSEMENT

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

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

Une pression acoustique excessive en provenance des écouteurs ou du casque peut provoquer une baisse de l'acuité auditive.
Pour utiliser ce produit en toute sécurité, évitez l'écoute prolongée à des pressions sonores excessives.

Pour les clients au Canada
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Pour les clients en Europe
Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) émise par la Commission de la Communauté européenne.
La conformité à cette directive implique la conformité aux normes européennes suivantes:
- EN55103-1 : Interférences électromagnétiques (émission)
- EN55103-2 : Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants : E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4

(environnement EMC contrôlé, ex. studio de télévision).

Par la présente Sony Corporation déclare que l'appareil SRW-9000PL/HD Camcorder est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Pour toute information complémentaire, veuillez consulter l'URL suivante: http://www.compliance.sony.de/

Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japon.
Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

WARNUNG

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

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

Zu hoher Schalldruck von Ohrhörern und Kopfhörern kann Gehörschäden verursachen.
Um dieses Produkt sicher zu verwenden, vermeiden Sie längeres Hören bei sehr hohen Schalldruckpegeln.

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

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

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

Hiermit erklärt Sony Corporation, dass sich das Gerät SRW-9000PL/HD Camcorder in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Weitere Informationen erhältlich unter: http://www.compliance.sony.de/

Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, 108-0075 Japan.
Der autorisierte Repräsentant für EMV und Produktsicherheit ist Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Deutschland. Bei jeglichen Angelegenheiten in Bezug auf Kundendienst oder Garantie wenden Sie sich bitte an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

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Chapter 1 Overview

Features

The SRW-9000PL is an HDCAM SR format digital cinematography camcorder that supports 35 mm lenses.
This unit features the advanced image sensor employed by the F35 Digital Cinematography Camera, together with powerful digital signal processing ICs. It combines the high quality and high performance of HDCAM SR recording with the superior mobility of a compact camcorder. It delivers the high image quality required by cinema and TV commercial production and the mobility needed in drama and documentary location shooting.

Superior Picture Quality and High Performance

Super 35 mm size CCD sensor and PL mount

The image sensor is a single-chip, super 35 mm IT progressive CCD with 6.6 million pixels (effective pixels 1920 (H) × 1080 (V) RGB). The PL mount allows you to mount most existing movie lenses for 35 mm film cameras without using an adapter.

Wide dynamic range and high-quality digital pictures

With its newly developed imagers, 14-bit A/D converter, and unique digital LSI, the camera achieves significant extension of the dynamic range and picture quality of optimal grade, minimizing noises.

High-performance digital recording in HDCAM SR format

The SRW-9000PL (called “this unit” below), records and plays back component video signals that comply with the MPEG-4 Studio Profile, an international video signal compression standard. It supports the standard 440 Mbps recording format of the SRW series (HDCAM SR VTRs), and also a double-speed 880 Mbps recording format.[1)] It records up to 12 channels of uncompressed audio signals (24 bits, sampling frequency 48 kHz).

1) Double-speed recording
Double-speed recording is realized by doubling the standard drum rotation and tape transport speeds, allowing twice as much data to be recorded per unit of time.
This enables recording of high-quality formats such as 1080/50P, and recording in RGB 4:4:4 HQ mode.

Multi frame rate support

The unit supports a variety of 1080 formats for the production of high-end content such as movies, commercials, and broadcast programming.

- 1080 × 1920 (progressive) formats: 23.98PsF/24PsF/25PsF/29.97PsF/50P
- 1080 × 1920 (interlaced) formats: 50i/59.94i

RGB 4:4:4 shooting and recording

Because of its high compatibility with computer graphics and digital compositing systems, the RGB 4:4:4 format opens up a wide range of creative possibilities for applications such as movie-making and commercial production. The unit offers the same S-LOG gamma as with the F35/F23 Digital Cinematography Camera, thus ensuring wide dynamic range shooting.

Rich selection of gamma curves

You can choose from a rich selection of gamma curves. S-LOG enables a shooting style similar to film cameras. Hypergamma delivers smooth gradations with a wide dynamic range. There are also special gamma curves that deliver a wide dynamic range even when you need to shoot with high sensitivity, comparable to ISO800.

User Gamma function

This unit inherits the User Gamma function of the HDW-F900R HD Camcorder. This allows you to load gamma curves created with the CvpFileEditor.
The User Gamma function allows you to capture a look that expresses your creative intentions.

Design and Shape

Compact body and low power consumption

This unit is about two times lighter than previous HDCAM SR recording systems, and consumes only about half as much power. Its compact size and light weight enable capture by small camera crews. Like previous HDCAM camcorders, it can be powered by Sony BP-GL95 lithium ion battery packs.

High compatibility with film camera accessories

Using the supplied riser plate, you can connect industry standard ARRIFLEX movie camera accessories such as bridge plates, matte boxes, and follow focus units.

Instead of the riser plate, you can also attach the supplied V-shoe plate. This allows you to use the optional VCT-14 Tripod Attachment to mount the unit on a tripod.

Assignable buttons/switch

The unit is equipped with 10 assignable buttons/switch on the side panel. For easier operation during shooting, you can assign frequently used functions to these switches. You can also assign basic VTR control functions such as STOP, PLAY, and REW, which allows you to control tape transport without using the control panel.

Rich Selection of Functions

Three operation modes: Cine, Cine-EI and Custom

This unit offers three operation modes: Cine and Cine-EI mode, for film-like shooting, with adjustments normally being made in post production, and Custom mode, for users who wish to obtain a specific look by adjusting parameters on the set.

Monitor output functions

The unit provides a wide range of monitor output functions, including mixing of characters and markers into monitor output, mixing of camera and playback video, and separate gammas for monitor and main line.

Down converter

A down converter is provided as a standard feature, allowing you to monitor camera and VTR playback video as SD composite on an SD monitor.

1.5G Dual link output

Installation of the optional HKSR-9001 in this unit enables output of 1.5G Dual Link signals (RGB 4:4:4 or 4:2:2 1080/50P).

3G HDSDI output

Installation of the HKSR-9001 enables output of 3G Single Link signals, equivalent to 1.5G Dual Link signals, over a single BNC cable.

SR Motion™ 1)

When the optional HKSR-9002 Picture Cache Board is installed, SR Motion is available on this unit. SR Motion allows you to obtain effects similar to overcranking and undercranking on film cameras by using HKSR-9002's built-in memory while maintaining the high picture quality of HDCAM-SR (1920 × 1080) format. SR Motion is available in Select FPS mode. Select FPS enables variable-speed motion effects by changing the frame frequency during recording (Ramp function).

1) SR Motion is a trademark of Sony Corporation.

Timer Rec

When the optional HKSR-9002 Picture Cache Board is installed, a Timer Rec function is available on this unit. This allows you to utilize the memory in the option board to shoot images at a specified interval. This enables time-lapse recording and recording over long periods.

Cache Rec

When the optional HKSR-9002 Picture Cache Board is installed, a Cache Rec function is available on this unit. This function captures about 200 frames of the video and audio that the camera is currently shooting (or about 100 frames in HQ mode) to the memory. Thus, when you press the recording start button (if the unit is in standby on mode and SR Motion is not being used), the recording starts with the data stored about 200 frames (or about 100 frames in HQ mode) before.

Shutter control

When adjusting the electronic shutter, you can display shutter settings as shutter angles (in degrees) or shutter speeds (in seconds).

Image inversion function

The image inversion function allows you to cancel out the image inversion that occurs when a cine-lens converter is used.

Monitoring and recording AUX inputs

Installing the optional HKSR-9001 allows monitoring and recording the 4:2:2 video signals input to the AUX IN connector. You can select the monitoring or recording target between the camera picture and the AUX inputs by menu setting.

Removable control panel

The control panel is independent of the unit, allowing it to be installed in the most convenient location in your operating environment. It can be held in the hand and operated like a remote controller.

AP-1 Assistant Panel (optional)

The optional AP-1 Assistant Panel provides the same functions as the control panel on the right side of the unit. It enables convenient control of basic camera operations such as shutter control (indication in degrees possible), gain and color temperature settings (selection of Tungsten and Daylight possible), timecode and tape remaining checks, control of character display, and assignment of functions to the assignable buttons/ switch.

Per-channel audio level adjustments

You can check peaks and adjust audio playback and recording levels independently on all 12 audio channels.

Lens hot shoes

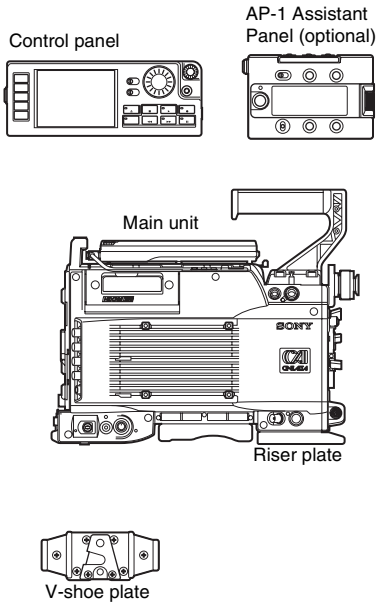
The camera is equipped with hot shoes for the ARRI [1)] LDS (Lens Data System) and Cooke [2)]/i Intelligent Electronic Lens System. When a lens with corresponding characteristics is mounted, information regarding the lens, such as the type, serial number, iris setting, and focus position, may be available for on-screen displays.

1) ARRI Group
2) Cooke Optics Limited

Example System Configuration

The figure below shows a camera system configured around this unit. In this manual, figures and explanations assume that you are using the optional HDVF-C30WR HD Electronic Viewfinder.

For more information about attaching, connecting, and using additional equipment and accessories, see Chapter 2 "Preparations" (page 29) as well as the operation manuals for the connected equipment.



Viewfinder

Name	Model name
HD Electronic Viewfinder	HDVF-20A/C30WR/ C35W

Viewfinder-related equipment

Name/purpose	Magnification	Part No.
Fog-proof filter	—	1-547-341-11
Eyepiece (high magnification)	–2.8D to +2.0D	A-8262-537-A

Name/purpose	Magnification	Part No.
Eyepiece (low magnification)	–3.6D to –0.8D	A-8262-538-A
Eyepiece (aberration compensation)	–3.6D to +0.4D	A-8267-737-A
Eyepiece (×3 magnification)	–2.4D to +0.5D	A-8314-798-A

Products for battery operation

Name	Model name
Battery Pack	BP-GL95
Battery Charger	BC-L70/L160/L500

Products for audio input

Name	Model name
UHF Synthesized Tuner Unit	WRR-861
Microphone	ECM-678/674
Microphone Holder	CAC-12
HDSDI 4-Channel Analog Audio Embedder/ Disembedder	HD10AMA (AJA Video)

Products for AC power supply

Name	Model name
AC Adaptor	AC-DN2B/DN10

Data storage media

"Memory Stick PRO" and "Memory Stick PRO Duo"

Products for tripod mounting

Name	Model name
Tripod Attachment	VCT-14
Bridge Plate	BP-8 (ARRIFLEX)

Expansion boards

Name	Model name
HD-SDI Expansion Board	HKSR-9001
Picture Cache Board	HKSR-9002

Remote control devices

Name	Model name
Remote Control Unit	RM-B150/B750

Video and audio output devices

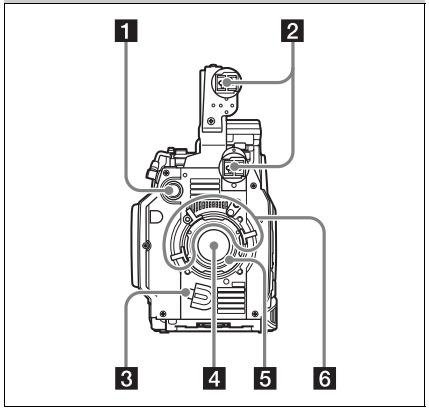
Purpose	Name
HD video output monitoring (HDSDI)	HD video monitor
SD video output monitoring (TEST OUT)	SD video monitor
Audio monitoring (EARPHONES)	Stereo headphones

External video recorders

Name/purpose	Model name
HDSDI portable recorder/player	nanoFlash (Convergent Design)
HDSDI portable digital video recorder (Dual Link)	SRW-1/SRPC-1

Locations and Functions of Parts

Front Panel



1 VF (viewfinder) connector (20-pin)

Connect an optional viewfinder.

2 Viewfinder shoes

When you attach the supplied viewfinder shoe assembly to the handle, you can mount a viewfinder on either of two shoes.
The attachment position of both viewfinder shoes can be adjusted up and down.

For details, see "Attaching the Viewfinder" (page 32).

3 LENS connector (12-pin)

If you mount an optional lens with a cable, connect the cable to this connector. You can control the functions of the lens through this connector.

Note

Do not connect a device whose maximum rated current is 1 A or higher to the LENS connector.

4 Lens mount cap

Cover the lens mount with this cap when a lens is not attached. The cover may be removed by rotating the lens fixing lever upward.

5 Lens mount

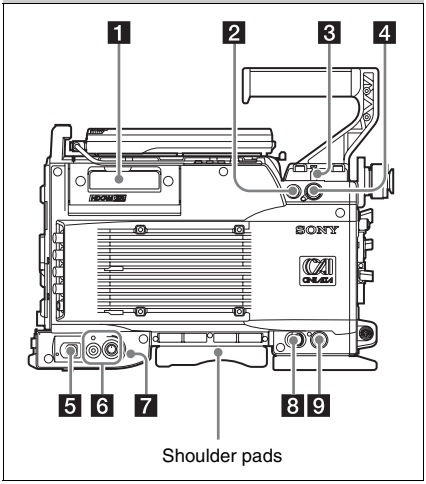
Attach the lens. When no lens is mounted, keep the lens mount cap fitted for protection from dust.

For details, see "Mounting the Lens" (page 31).

6 Lens fixing lever

Push these levers downward to secure the lens in the lens mount. To remove the lens, pull up on the lever.

Left Side



1 Cassette insertion slot

Insert cassettes.

For details, see "Loading and Unloading Cassettes" (page 84).

2 CTRL (VTR) (control panel) connector

Connect the cable of the supplied control panel. A short cable is connected when the unit is shipped from the factory. You can exchange the short cable for the supplied extension cable.

For details, see "Attaching the Control Panel" (page 37).

3 Measure hook/focus reference mark (ϕ)

For actual measurement of the distance from a subject, you can fix the end of a tape measure to the hook.
A mark on the side panel (ϕ) indicates the reference focus position.

4 CTRL (CAM) (assistant panel) connector

Connect the cable of the optional AP-1 Assistant Panel.

For details, see "Attaching the AP-1 Assistant Panel (Optional)" (page 39).

5 Power ON (I)/OFF (⏻) switch and indicator

Push the switch to the ON side to power the unit on (the indicator lights). Push it to the OFF side to power the unit off (the indicator goes out).

6 EARPHONES jack and LEVEL knob

Use the jack to attach earphones or stereo headphones equipped with a stereo miniplug, for use in monitoring audio during recording and playback. Adjust the audio level with the LEVEL knob.

A warning sound is heard through the earphones or headphones when an error occurs.

Note

Some L-type mini plugs cannot be connected. Use a straight type mini plug.

For details on the warning tone, see "Warning System" (page 200).

7 AUDIO indicator

Lights when the audio level meters *(see page 26)* exceed a certain level.

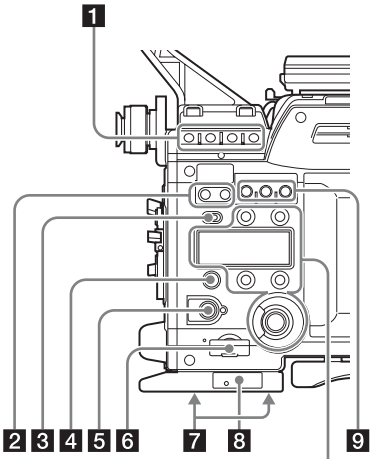
8 HD SDI MON1 (HDSDI monitor output 1) connector (BNC type)

Output HDSDI signals for display on a monitor. You can select/set the output signals in the Camera menu *(see page 59)*. The same signals are output from the HD SDI MON2 connector on the rear panel.

9 EXT I/O (external control) connector (5-pin)

Use the connector for control via RS-232C.

Right Side



Display/menu operations section *(page 18)*.

1 Assignable buttons 5 to 8

You can assign frequently used functions to these buttons by menu settings. The following functions are assigned when the unit is shipped from the factory.

Switches	Functions
5	STOP
6	PLAY
7	REW
8	F.FWD

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

2 Assignable buttons N and C

You can use the Camera menu to assign functions to assignable buttons N and C. They are set to OFF (disabled) when the unit is shipped from the factory.

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

3 LOCK switch

When slid to the right, locks the operation buttons on the right-side panel.

If you wish, you can set this switch so that it locks all buttons except the RUN button. Make this setting on the <SUBDISPLAY 2> page *(see page 122)* of the Camera >USER (OPERATION) menu.

4 Assignable 4/AUTO BLK BAL (auto black balance) switch

Push the switch downward to the AUTO BLK BAL side to start the auto black balance adjustment.
You can use the Camera menu to assign a function to the 4 position (upper position). This position is set to OFF (disabled) when the unit is shipped from the factory.

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

5 RUN button and indicator

Starts and stops recording. The indicator lights during recording, and flashes when low voltage or an error is detected.

For more information about the indicator operation, see "Warning/Error Messages" (page 202).

6 "Memory Stick" slot

Allows you to insert a "Memory Stick".
The access lamp lights in red while the unit is writing or reading data to/from a "Memory Stick". You can use "Memory Stick PRO" or "Memory Stick PRO Duo" media with this unit. ("Memory Stick PRO Duo" media can be used without any adaptor.)

Note

When the access lamp is lit in red, do not insert/remove the "Memory Stick" or turn off the unit.

See "File Configuration" (page 186) for information about data files that can be handled with "Memory Stick" media.

For details on "Memory Stick" media, see "Using a "Memory Stick"" (page 191).

7 Tripod screw holes

Two screw holes (for $^3/_8$-inch camera screws) are provided on the bottom-side panel.

8 Riser plate/focus reference mark (ϕ)

This is a plate for attaching movie accessories. It has a mark to show the focus standard position. A wrench (2.5 mm) for use in attaching and detaching the viewfinder is stored inside. When you want to use a tripod with the optional VCT-14 Tripod Attachment, exchange the riser plate for the supplied V-shoe plate.

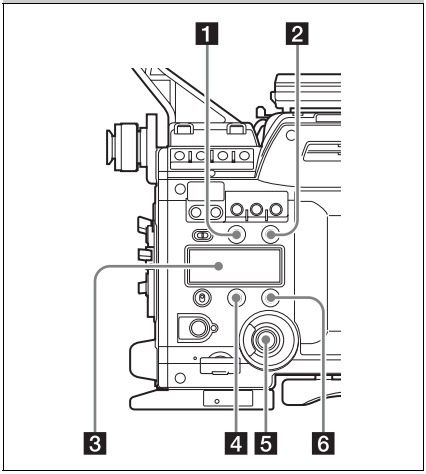
See "To use the optional VCT-14 Tripod Attachment" (page 37) for more information about attaching the V-shoe plate.

9 Assignable buttons 1 to 3

You can assign frequently used functions to these buttons by Camera menu settings. They are set to OFF (disabled) when the unit is shipped from the factory.

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

Display/Menu Operations Section



For details, see "Basic Operations in the Subdisplay" (page 44) or "Basic Camera Menu Operations" (page 124).

1 VF (viewfinder) MENU/DISPLAY button

Displays and hides menus in the subdisplay and viewfinder.

2 CANCEL/STATUS button

Cancels settings made in the subdisplay and viewfinder, or returns the display to a previous state. When the Camera menu is not displayed, you can press this button to display information about the status of the unit in the subdisplay and viewfinder.

See "Viewing Settings and Indications in the Viewfinder" (page 64) for details about the status information that appears

3 Subdisplay

Displays the Camera menu and unit settings. If you are using the optional AP-1 Assistant Panel, the same information appears in the subdisplay of the AP-1.

4 PAGE button

In subdisplay screens, switches to the next page or confirms settings.

5 MENU SEL (selection)/ENTER dial

In subdisplay and viewfinder screens, confirms settings. When the Camera menu is displayed in the subdisplay and viewfinder, turn the dial to select menu items.

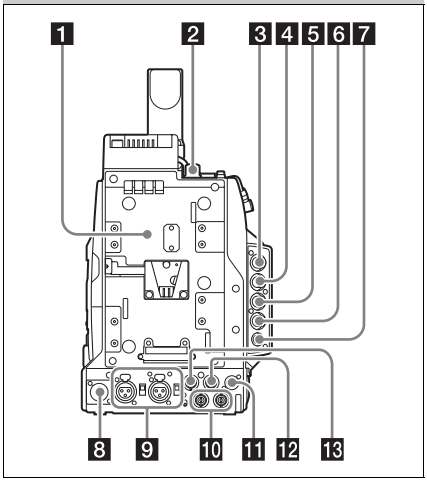
Note

When you turn the dial, stop it at a position where you feel a click. If you force the dial to stop at a non-click position, the operating stability of the dial on the AP-1 side may be affected.

6 SET button

In subdisplay screens, returns to the previous page. When this button is held down for one second or longer, the screen enters settings modification mode.

Rear Panel



1 Battery attachment shoe

Attach a battery or AC adaptor.

For details, see "Connecting a Power Supply" (page 29).

2 Tally indicator and ON/OFF switch

When the switch is set to ON, the tally indicator lights during recording. The indicator flashes when low voltage or an error is detected. You can set the switch to OFF to prevent the indicator from lighting or flashing.

See "Warning System" (page 200)" for more information about when the tally indicator flashes.

3 GENLOCK IN (external sync signal input) connector (BNC type)

Used for input of an external genlock signal (HD tri sync).

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

Connect to the timecode output connector of a timecode generator, VTR, or other external device. Use this connector when you want to lock the internal timecode generator to external timecode.

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

Connect to the timecode input connector of a timecode reader, VTR, or other external device. The output signal depends on the setting of TC Setup >OTHERS (MAIN) >TC OUT in the VTR menu *(see page 174)*.

6 TEST OUT connector (BNC type)

Outputs an analog signal selected in the Camera menu *(see page 59)*.

7 DC OUT (DC power output) connector (4-pin, male)

Supplies 12 V DC power. You can connect the power cord of the WRR-861 UHF Synthesized Tuner Unit to this connector.

8 DC IN 11-17V (DC power input) connector (4-pin)

Connect the DC power cord of an AC-DN2B/DN10 AC Adaptor.

For details, see "Connecting a Power Supply" (page 29).

9 AUDIO IN (audio input) CH-1/CH-2 connectors (XLR type 3-pin, female type) and input selection switches

Input audio signals to the CH-1 and CH-2 connectors.

Set the input selection switches according to the type of the connected signal source.

LINE: When a line-level (+4 dBu) signal source is connected

MIC: When an external microphone is connected (no power is supplied.)

MIC +48V ON: When an external microphone is connected (+48 V power is supplied.)

10 HD SDI OUT A/B connectors (BNC type) and ON/OFF switch (when the HKSR-9001 is installed)

When the switch is set to ON, HDSDI signals are output from the A and B connectors. When the switch is set to OFF, no signals are output.

See "What Are Dual Link and 3G?" (page 212) for more information about HDSDI signal output.

11 REMOTE connector (8-pin)

Connect an external control device, such as the RM-B150/B750 Remote Control Unit.

12 AUX IN (auxiliary input) connector (BNC type) (when the HKSR-9001 is installed)

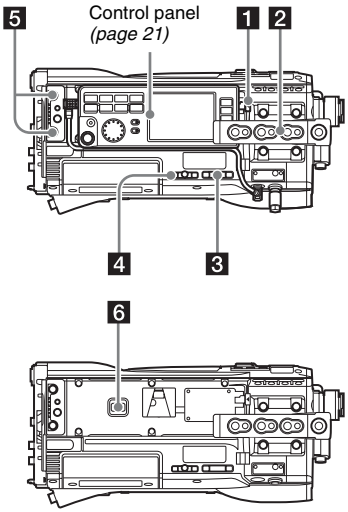
1.5G single link (4:2:2 30PsF or less) HDSDI signals can be input to this connector and recorded. Connect an external device to increase the number of audio input channels, or to synchronize this unit to the output of an HD device.

When you use this connector for HDSDI input, set SYSTEM Setup >FORMAT >INPUT SEL *(see page 180)* in the VTR menu to AUX Input.

13 HD SDI MON2 (HDSDI monitor output 2) connector (BNC type)

Use in the same way as the HD SDI MON1 connector on the left-side panel *(see page 17)*.

Upper Panel



1 Lock release button

When removing the control panel, use this button.

For details, see "Attaching the Control Panel" (page 37).

2 Handle

Use to carry the unit.

You can attach an accessory to the seven screw holes ($^3/_8$" × 4, $^1/_4$" × 3) on the top of the handle. You can also attach the CAC-12 Microphone Holder to the side of the handle.

For details, see "Using a Microphone" (page 34).

3 Assistant panel attachment screws

Attach the optional AP-1 Assistant Panel or the CAC-12 Microphone Holder.

For details, see "Attaching the AP-1 Assistant Panel (Optional)" (page 39) or "Using a Microphone" (page 34).

4 Cable holder attachment screws

Attach the supplied cable holder to hold the cable of the control panel or the optional AP-1 Assistant Panel.

5 Accessory attachment screw holes

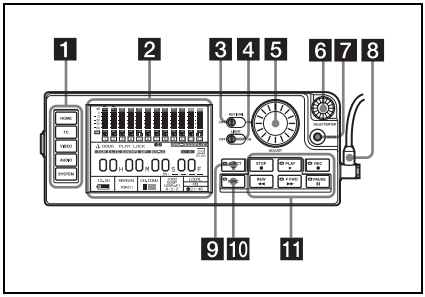
You can attach accessories to the two screw holes ($^3/_8$" × 1, $^1/_4$" × 1).

6 EJECT button

Pressing this button opens the lid of the cassette insertion slot, allowing you to take out the inserted cassette.

Control Panel

The control panel is used mainly for control of the VTR module.



1 VTR menu selection buttons

Select one of the VTR menus or the Camera menu to be shown on the display.

HOME button: Displays the HOME screen. The HOME screen displays audio levels, operating status, warnings, time data, and other information.

TC button: Displays the TC (timecode) Setup menu *(see page 173)*. This menu allows you to switch between LTC and VITC, to switch between DF and NDF, and to display timecode on an external monitor.

VIDEO button: Displays the VIDEO Setup menu. The menu allows you to perform Camera menu operations *(see page 124)*.

AUDIO button: Displays the AUDIO Setup menu *(see page 176)*. This menu allows you to make settings related to audio.

SYSTEM button: Displays the SYSTEM Setup menu *(see page 178)*. This menu allows you to make settings related to the entire system, such as recording format, power, and test signal output.

For details on VTR menus, see "VTR Menu List" (page 173).

2 Display

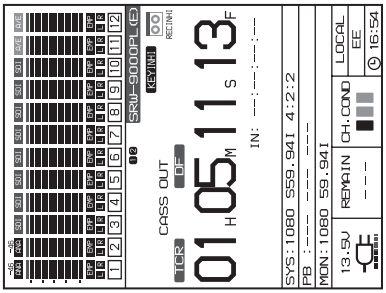
Displays VTR menus, audio levels, warnings, operating status, time data, remaining tape time, and remaining battery power.

For details, see "Display" (page 26).

You can rotate the display to display it vertically (rotated 90 degrees to the left).

To change the display, press the HOME button while holding the FUNC and BACK buttons down.

To return the display to its original orientation, press the HOME button again while holding the FUNC and BACK buttons down.



3 KEY INHI (inhibit) switch

When the KEY INHI item *(see page 181)* in the SYSTEM Setup menu is set to ALL, setting this switch to ON disables operation buttons, to prevent misoperations due to accidental button operations.

ON: All operation buttons are disabled.

OFF: During recording, only the STOP button and PAUSE button are enabled. All buttons are enabled when the unit is not in recording mode.

When the KEY INHI item in the SYSTEM Setup menu is set to MAP, the operation buttons follow the settings of the LOCAL KEYMAP item.

4 LIGHT switch

The backlight comes on when this is set to ON.

5 ADJUST knob

Use to adjust audio levels, etc.

6 SELECT/ENTER dial

When a menu is displayed, you can turn this dial to move the cursor, and press it to select and confirm settings.

7 BACK button

When a menu is displayed, you can press this button to back up one level in the menu structure.

8 Control panel connection cable

Connect to the CTRL (VTR) connector.

9 EJECT button and indicator

Pressing the button opens the cover of the cassette insertion slot so that you can remove a cassette. The indicator lights during removal.

10 FUNC (function) button and indicator

When the tape transport control buttons are pressed with this button held down, the functions of the buttons change.
The indicator lights when the FUNC button is turned on.

For details, see "11 Tape transport control buttons" (page 22).

Pressing the HOME button with this button held down switches the display at the bottom of the HOME screen.

For details, see "Display" (page 26).

11 Tape transport control buttons

Use these buttons for tape transport operations. The functions of the buttons change when they are pressed together with the FUNC button.

Name	Pressed alone	Pressed with FUNC button
STOP button	Stops tape transport. Pressing this button while in standby on mode resets the still timer *(see page 182)*. Pressing the button while in standby off mode puts the unit into standby on mode.	Puts the unit into standby off mode.

Name	Pressed alone	Pressed with FUNC button
PLAY button and indicator	Starts playback. (The indicator lights during playback.) To start recording, press this button with the REC button held down.	**Pressed with tape transport stopped:** Searches for the recording end point and then stops. When SYSTEM Setup >SERVO >EOS MODE in the VTR menu is set to “NORM” (factory default setting), rewinds for about five seconds and then plays for about 10 seconds. If the recording end point is located in that section, playback stops at that point and the unit enters recording pause mode. If the recording end point is not located in that section, playback continues for about 10 seconds and then stops. When SYSTEM Setup >SERVO >EOS MODE is set to “LONG”, the 10-second search time limit described above does not apply. Once playback starts, the search continues until the recording end point is found. *For details, see “Continuous recording in other cases” (page 92).* **Pressed with recording paused:** Plays back the most recently recorded material, and then returns to recording pause mode (recording review). When SYSTEM Setup >SERVO >REC REVIEW in the VTR menu is set to “NORM” (factory default setting), one press of this button rewinds the tape about three seconds and then starts playback. You can keep the PLAY button pressed together with the FUNC button to rewind the tape as long as the buttons are held down (up to a maximum of 10 seconds), and then start playback. Recording review allows you to check whether the material was recorded correctly. When SYSTEM Setup >SERVO >REC REVIEW is set to “ALL”, one press of this button rewinds up to the beginning of the most recently recorded cut and then starts playback. **Note** Recording review is available when recording is paused after recording at least three seconds.

Name	Pressed alone	Pressed with FUNC button
REC button and indicator	Pressing PLAY button with this button held down starts recording. (The indicator lights during recording.) Pressing the button with recording paused in standby off mode puts the unit into standby on mode. If you press this button during playback, fast forward, or rewind, the unit enters E-E mode. [a] In this mode you can monitor E-E signals [b] output from the HD SDI OUT A/B connectors or the HD SDI MON1/2 connectors.	Temporarily memorizes the time data of the current position (Mark In). Mark In data is displayed in the format "IN: xx:xx:xx:xx" in the time data field of the display, and can be used for cueup. **Note** The Mark In data is only temporarily memorized in the unit's internal memory. It is erased when you eject the cassette.
REW (rewind) button and indicator	Rewinds the tape. (The indicator lights during rewinding, and goes out when the rewinding is finished.) When the REW button is pressed again during rewinding, the operation changes to search, in the same way as when the button is pressed together with the FUNC button (searching at the speed in effect when the most recent search was interrupted).	Executes reverse direction searches. With each press, the search speed changes in the order × 2 → × 5 → × 8 → × 2 normal speed.... If a search is interrupted by another operation, the next search is performed at the speed in effect at the time of the interruption. **Note** When you are using the unit at the 880 Mbps recording rate, × 8 normal speed search is disabled. *For details on recording rates, see FORMAT >SIGNAL in the SYSTEM Setup menu (page 179).*
F FWD (fast forward) button and indicator	Fast forwards the tape. (The indicator lights during fast forwarding, and goes out when the fast forwarding is finished.) When the F FWD button is pressed again during fast forwarding, the operation changes to search, in the same way as when the button is pressed together with the FUNC button (searching at the speed in effect when the most recent search was interrupted).	Executes forward direction searches. With each press, the search speed changes in the order × 2 → × 5 → × 8 → × 2 normal speed.... If a search is interrupted by another operation, the next search is performed at the speed in effect at the time of the interruption. **Note** When you are using the unit at the 880 Mbps recording rate, × 8 normal speed search is disabled. *For details on recording rates, see FORMAT >SIGNAL in the SYSTEM Setup menu (page 179).*

Name	Pressed alone	Pressed with FUNC button
PAUSE button and indicator	Pauses tape transport. (The indicator flashes during pause.) To resume tape transport, press the button again.	Cues up a time data position specified with FUNC+REC buttons or SYSTEM Setup >EDIT >IN POINT in the VTR menu and stops. The specified time data (Mark In data) is displayed in the format “IN: xx:xx:xx:xx” in the time data field of the display. Turning the ADJUST knob during the paused state performs jog search, and a shuttle still is displayed whenever you stop turning. The image and the TCR value may not always match. Press the PAUSE button again to return to the paused state. **Note** The Mark In data is only temporarily memorized in the unit’s internal memory. It is

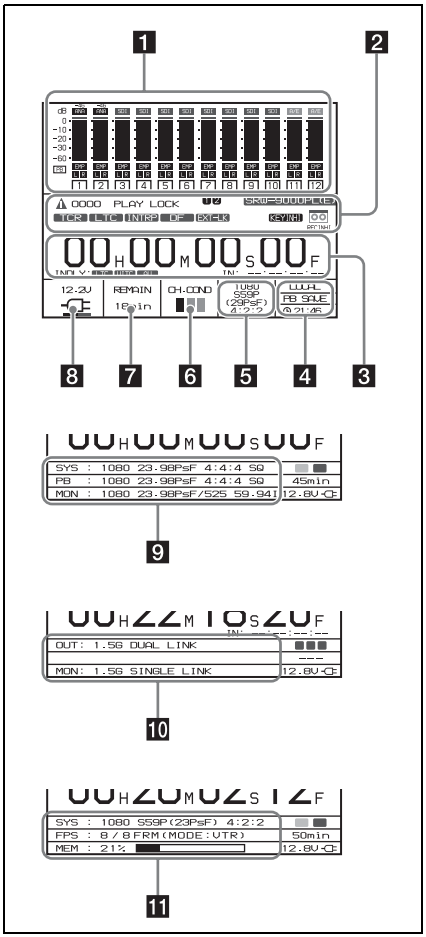
a) E-E mode: A state in which E-E (electric to electric) signals can be monitored. Commonly used to monitor the camera picture or the input signal before either is recorded.

b) E-E signal: A signal which passes solely through internal circuitry, and not through pathways in which magnetic conversion takes place, such as magnetic heads and tapes.

Display

When you press the HOME button with the FUNC button held down, sections 4 to 7 are replaced by the display shown in section 9.

This manual refers to the screen shown below as the HOME screen.



1 Audio level meters

Display recording audio levels in recording and E-E modes. Display playback audio levels during playback.The indications in the top row show the audio input signal types.
The numbers 1 to 12 at the bottom are the numbers of audio tracks on the tape.

2 Operation status and warnings

Display the operation status of the unit and warnings. The principal information items are as follows.

TCR/TCG/UBR/UBG/CTL: Type of time data being displayed.

LTC/VITC: When timecode is being displayed, whether it is LTC or VITC. [1)]

INTRP: Indicates that timecode could not be read accurately, and has been interpolated.

DF/NDF: Whether the system is in DF (drop frame) or NDF (non-drop frame) mode.

EXT-LK: Timecode is locked to external timecode.

KEY INHI: The KEY INHI switch is set to ON.

REC INHI: The cassette is record inhibited.

SRW-9000PL(E) or SRW-9000(PL,E): Model name display. When the optional HKSR-90PL Upgrade Kit is installed on the SRW-9000, “SRW-9000(PL,E)” is displayed. “E” shows that an enhanced processor is installed, which allows recording in RGB 4:4:4 or 4:4:4 HQ 12bit format and using S-LOG gamma.
When SYSTEM Setup >FORMAT >INPUT SEL in the VTR menu is set to “AUX Input” with the optional HKSR-9001 installed, the indication changes as follows.
SRW-9000(E)→9000(E)AUX
SRW-9000(PL,E)→9000(PL,E)AUX

[1]/[2]: Option board installation status. “1” represents the HKSR-9001, and “2” represents the HKSR-9002.

1) VITC (Vertical Interval Time Code): Timecode inserted into the vertical blanking interval. This type of timecode can be read even during very slow playback.

For details on warnings, see “Warning/Error Messages” (page 202).

3 Time data

Displays time data for the current tape position. The type of time data is CTL [1)] (tape running time), timecode, or user bits, as selected with TC Setup >TIMER SEL in the VTR menu *(see page 173)*.
When Mark In data has been set by the FUNC + REC buttons or SYSTEM Setup >EDIT >IN POINT in the VTR menu, it is displayed in the format “IN: xx:xx:xx:xx” beneath (right side) the time data for the current tape position.

When no Mark In data has been set, "IN: --:--:--:--" appears. When TC Setup >OTHERS(MAIN) >LTC Delay and/or TC Setup >OTHERS(MAIN) >VITC Delay in the VTR menu are set to something other than "NO Delay", "IN DLY:" appears beneath (to the left side) the time data of the current position and the LTC and/or VITC indicators light to indicate the item(s) set to something other than "NO Delay".

1) CTL signal: This is a control signal consisting of a pulse signal recorded longitudinally on the tape for every frame of video.

4 Status

Displays the unit's control status (LOCAL), the POWER mode (EE), and the real time.
Upper row: Unit's control status
Middle row: POWER mode
Lower row: Real time

5 Signal format

Displays the format of recording signals.

6 Channel condition/RF indicator

During playback, "CH.COND" appears and one of three bars (green, yellow, and red) lights to indicate the playback signal condition.
Green bar: Playback signal quality is good.
Yellow bar: Playback signal quality is degraded, but playback is possible.
Red bar: Playback signal quality is degraded. If this continues, head cleaning or internal inspection is needed.
During playback with manual tracking control, the "CH.COND" indication flashes in yellow *(see page 95)*. "CH.COND" flashes during auto tracking operation.
During recording, "RF" appears and a green bar or a red bar lights to indicate the recording signal condition. Normally the green bar lights. If a recording problem occurs, the red bar lights.
Green bar: Recording signal quality is good.
Red bar: Recording signal quality is degraded. If this continues, head cleaning or internal inspection is needed.

7 Remaining tape time

Displays the time remaining on the tape. "TOP" is displayed at the start of the tape, and "END" is displayed at the end.
The time display flashes when the tape is within three minutes of the end.

8 Battery level/external power supply voltage and current

Displays the current power level of the battery pack. When the battery pack is fully charged, all seven segments light up. As the battery pack discharges, the segments go out from left to right. When the battery pack is almost exhausted, the voltage indication and the tally indicator flash, and a warning tone sounds intermittently. When the battery pack is completely exhausted, the tally indicator flashes at a higher rate and the warning tone sounds continuously.

For details, see "Warning System" (page 200).

The voltage actually used by the unit (slightly lower than the input voltage) is shown.

For details on battery voltage and so on, see "Checking the Power and Voltage" (page 30).

9 Signal formats

When you press the HOME button with the FUNC button held down, displays the system (SYS), playback (PB), and monitor (MON) output signal formats, in that order from the top row.
When the unit is in one of the following modes, an alphabetic character indicating the mode appears before the number of lines.
T: Auto Timer Rec
M: Manual Timer Rec
C: Cache Rec
When SR Motion is used, "S" appears before the system frequency. When you play a tape that was recorded with SR Motion, the FPS value in SR Motion recording is shown in the playback frequency position *(see page 103)*.

See Chapter 6 "SR Motion (With HKSR-9002 Installed)" (page 101) for more information about the SR Motion function.

10 HDSDI output

When the optional HKSR-9001 is installed, displays the signal formats of monitor output (MON) and the output of the HD SDI OUT A/B connectors (OUT). The display switches when you press the HOME button with the FUNC button held down.

See "What Are Dual Link and 3G?" (page 212) for more information about HDSDI output.

11 SR Motion

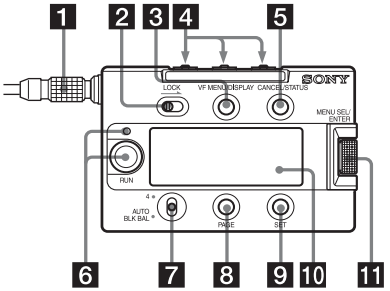
When SYSTEM Setup >FORMAT >SELECT FPS in the VTR menu is set to “ON” and the signal format is being displayed, pressing both the FUNC and HOME buttons together displays the FPS or FRM on the second line and the memory level on the third line.

See Chapter 6 “SR Motion (With HKSR-9002 Installed)” (page 101) for more information about the SR Motion function.

AP-1 Assistant Panel (Optional)

By connecting the cable to the CTRL (CAM) connector, you can operate the unit remotely. You can also connect the AP-1 Assistant Panel to the unit’s left-side panel. The AP-1 provides the same functions as the switches and buttons on the unit’s right-side panel.

See “Attaching the AP-1 Assistant Panel (Optional)” (page 39) for more information about attaching the AP-1.



1 Connection cable
2 LOCK switch *(page 17)*
3 VF MENU/DISPLAY button *(page 18)*
4 Assignable switches 1 to 3 *(page 18)*
5 CANCEL/STATUS button *(page 18)*
6 RUN button and indicator *(page 18)*
7 Assignable 4/AUTO BLK BAL switch *(page 18)*
8 PAGE button *(page 19)*
9 SET button *(page 19)*
10 Subdisplay *(page 19)*
11 MENU SEL/ENTER dial *(page 19)*

Note

The cursor in the subdisplay may move unexpectedly if you disconnect or connect the AP-1 cable while operating the subdisplay. If a **?** symbol is shown on the subdisplay, register the setting before disconnecting or connecting the cable.

Chapter 2 Preparations

Connecting a Power Supply

This unit operates on DC 12 V (11 to 17 V) power. Supply power by connecting it directly to a DC power source or by using a battery pack or AC adaptor.

Note

For safety, use only the Sony products listed below.
- BP-GL95 Lithium-ion Battery Pack
- AC-DN2B/DN10 AC Adaptor

Using a Battery Pack

When a BP-GL95 Battery Pack is used, the continuous operating time is approximately 80 minutes.

Notes

- The battery pack operating time depends on how often the battery pack is used, and on the ambient temperature when it is used.
- Before use, charge the battery pack with the specified charger.

  For details on the battery charging procedure, refer to the battery charger operation manual.
- The battery pack may not be recharged fully if you charge it immediately after use, while it is still warm.
- Remove the battery pack if the unit will be out of use for an extended period.

WARNING

Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

AVERTISSEMENT

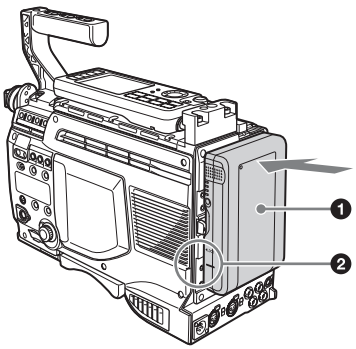
N'exposez pas les batteries à une chaleur excessive, au soleil ou près d'un feu par exemple.

WARNUNG

Akkus dürfen keinesfalls übermäßiger Wärmeeinwirkung ausgesetzt werden, wie z.B. Sonneneinstrahlung, Feuer o. ä.

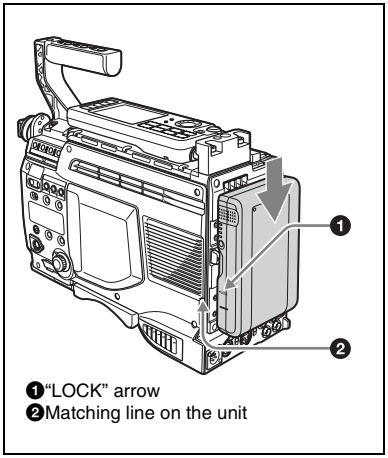
To attach the battery pack

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



❶Battery pack
❷Align these lines.

2 Slide the battery pack down until its "LOCK" arrow points at the matching line on the unit.



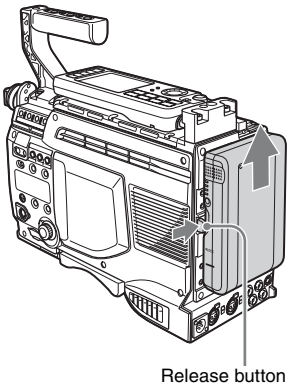
❶"LOCK" arrow
❷Matching line on the unit

Note

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

To detach the battery pack

With the unit powered off, hold the release button in and pull the battery pack up.



Notes

- Be careful never to remove the battery pack during recording and playback.
- Make sure to power the unit off before replacing the battery pack.

Using AC Power

Use an AC-DN2B/DN10 AC adaptor.
Connect a DC power cord (not supplied) to this unit's DC IN 11-17V connector, and then connect the AC power cord (supplied with the AC adaptor) to an AC power source.

Turning on the Power

Push the power ON (I)/OFF (⏻) switch to the ON side. The power indicator lights when the unit is powered on.
Power is supplied to the viewfinder connected to the VF connector and to the lens connected to the LENS connector, and 12 V power is supplied from the DC OUT connector.

Push the switch to the OFF side to power the unit off. The indicator goes out when unit is powered off.

Notes

- To protect tapes, do not power the unit off with a cassette loaded. Always eject the cassette before powering the unit off.
  If you do power the unit off with a cassette loaded, the power does not go off immediately. This is to protect the tape. The power goes off after the tape has been returned to the unthreaded position.
- Do not remove the battery pack or disconnect the DC power cord before the power goes off.
- After powering the unit off, wait at least two seconds before powering it on again.
- Always make sure that the unit is powered off before connecting accessories.

Checking the Power and Voltage

To check the type of power being used

A battery mark appears in the lower left of the control panel display when power is being supplied from the battery attachment section.
A power plug mark appears when an AC adaptor is selected as the power supply.

Note that this mark does not reflect the actual type of power being used, but reflects the settings of the following VTR menu items.

- SYSTEM Setup >BATTERY >BATT TYPE
- SYSTEM Setup >BATTERY >DCIN TYPE

A 15-segment bar graph (maximum value: 10 A) displays the unit's operating current.
The bar graph flashes red in the following cases.

- When the input current to the DC IN 11-17V connector exceeds 9 A.
- When one of the unit's internal power systems has been disconnected.

Note

To protect the unit from excessive current inflows, alarms or error messages may appear when you have connected other devices to it.

For details, see "Warning/Error Messages" (page 202).

To check the remaining battery power

You can check the remaining battery power with the battery level display.

As the battery pack discharges, the segments go out from left to right.
When the battery pack is almost exhausted (Near END), the voltage indication and the tally indicator start to flash, and an intermittent warning tone sounds in the headphones.
When the battery pack is completely exhausted (END), the corresponding warning indication lights, the tally indicator starts to flash at a higher rate, and the headphones warning tone sounds continuously.
You can use BATTERY *(see page 185)* of the SYSTEM Setup menu to set the battery voltage threshold values that trigger the END and Near END warnings.

You can check the power voltage in the subdisplay, in the viewfinder, and on an external monitor. For details, see "Checking the Power Voltage and Selecting the Fan Mode" (page 53) and "Viewing Settings and Indications in the Viewfinder" (page 64)

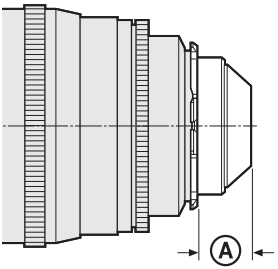
For details on the warning tone, see "Warning System" (page 200).

Mounting the Lens

Attach an appropriate optional lens that conforms to the PL lens mount.

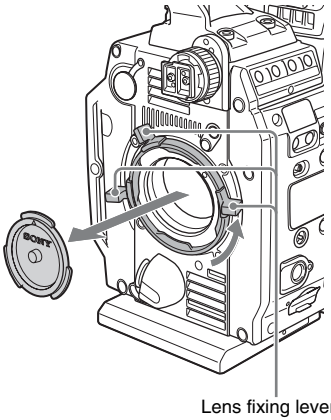
Note

Always use a lens whose projection from the flange (Ⓐ in the figure) is less than 30 mm. Use of any lens that protrudes more than 30 mm will damage the internal filter.



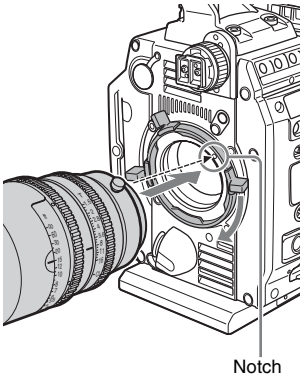
For information on handling lenses, refer to the lens' operation manual.

1 Rotate the lens fixing levers counterclockwise and remove the lens mount cap from the lens mount.

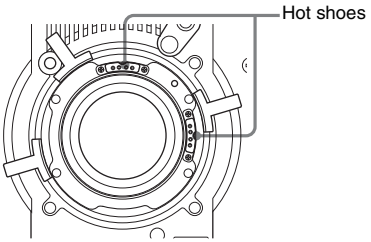


2 Align the lens' alignment pin with the notch in the upper part of the lens mount and insert the lens into the mount.

3 While supporting the lens, rotate the lens fixing levers clockwise to secure the lens.



When using an ARRI LDS lens or a Cooke/i lens, align the contacts of the lens with a hot shoe of the camera. The camera has two hot shoes that operate completely the same.



Selecting a Lens File

With this camera, values, such as the compensation values, which are specific to the mounted lens can be registered in a lens file. You can perform necessary adjustments upon replacement of lenses by merely invoking the registered file.
Select the file using the subdisplay.

For lens file selection on the subdisplay, see "Selecting a Lens File" (page 51).

For details on the lens files, see Chapter 8 "Storage and Retrieval of User Setting Data" (page 186).

Adjusting the Flange Focal Length

Contact a Sony service or sales representative for details on how to adjust the flange focal length.

Attaching the Viewfinder

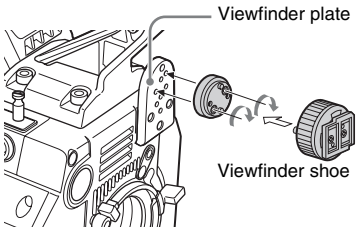
Caution

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

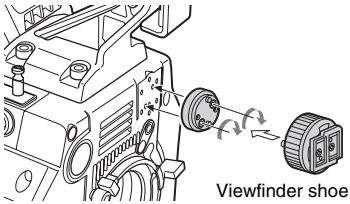
For details on handling the viewfinder, refer to the manual for the viewfinder.

The examples in this section assume that the viewfinder is mounted on the unit's front panel viewfinder shoe. You can move the viewfinder up and down in the same way even when it is mounted on a viewfinder shoe attached to the handle.

1 To attach the viewfinder at a higher position, loosen the two screws, using the 2.5-mm wrench stored in the wrench box *(see page 18)* to detach the viewfinder shoe, and attach it to the upper position using the upper screw holes.

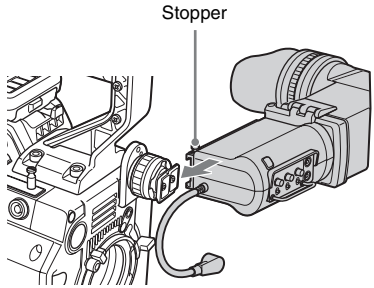


To attach it at a lower position, use the 2.5-mm wrench to loosen the three screws that secure the viewfinder plate, remove the viewfinder plate, and attach the viewfinder directly.

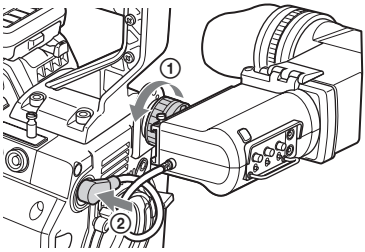


2 Fit the viewfinder to the viewfinder shoe and slide the viewfinder horizontally.

The viewfinder stopper slides down automatically.



3 Set the viewfinder to the most convenient position, tighten the viewfinder positioning ring (① in the figure below), and connect the viewfinder cable to the VF connector of the camera (② in the figure below).



To detach the viewfinder

Loosen the viewfinder positioning ring, pull on the viewfinder stopper, then pull out the viewfinder by sliding it in the direction opposite that when attaching.

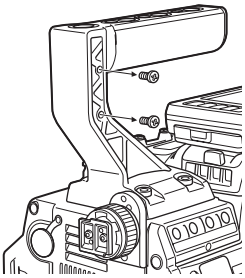
To add a viewfinder shoe

Adding a viewfinder shoe to this unit allows you to mount the viewfinder in different positions, as required by the shooting situation.

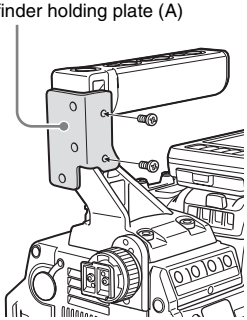
Before starting, confirm that you have the following supplied parts on hand.

- Viewfinder shoe assembly
- Viewfinder holding plate (A)
- Viewfinder holding plate (B)
- Conversion screw (1)
- B4×8 screws (2) for viewfinder holding plate (B) attachment
- M3 hex socket head bolts (2) for viewfinder shoe attachment

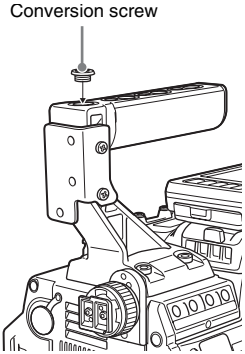
1 Using a Phillips screwdriver, remove the screws (2) from the right-side face of the handle.



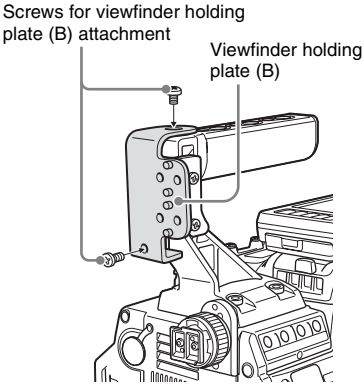
2 Use the screws that you just removed to attach viewfinder holding plate (A).



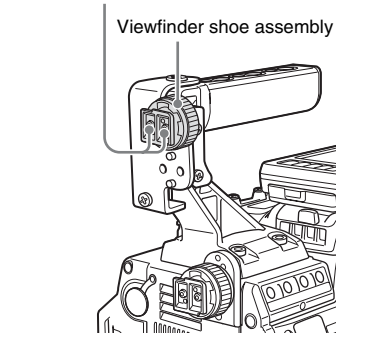
3 Using a flat head screwdriver, screw the conversion screw into the hole at the front top of the handle.



4 Using a Phillips screwdriver, secure viewfinder holding plate (B) with the screws for viewfinder holding plate (B) attachment.



5 Using the 2.5 mm wrench stored inside the riser plate *(see page 18)*, secure the viewfinder shoe assembly to the upper or lower screw holes with the supplied hex socket head bolts (2) for viewfinder shoe attachment.

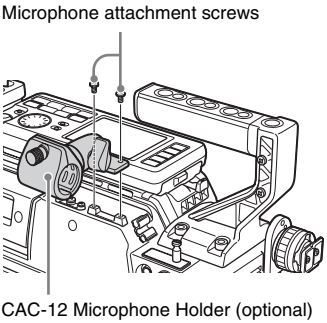


Connecting Audio Input

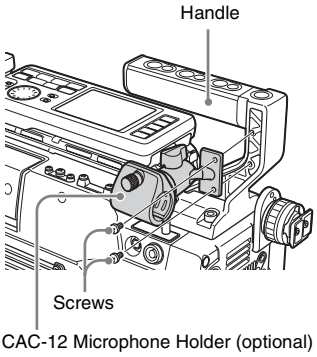
Using a Microphone

You can attach a microphone to the viewfinder (when the viewfinder has a microphone holder), to the top panel of the main unit, or to the handle. To attach a microphone to the top panel of the main unit or to the handle, first attach the optional CAC-12 Microphone Holder.
Remove the two microphone attachment screws on the top panel of the main unit, or remove the two screws on the left side of the handle, and then attach the CAC-12.

To attach the CAC-12 to the top panel of the main unit

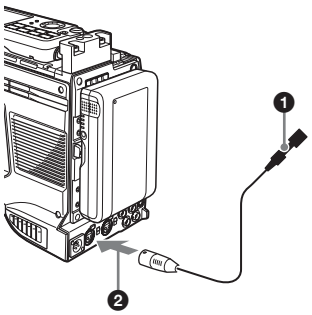


To attach the CAC-12 to the handle



To connect a microphone

Mount the microphone in the microphone holder, connect the microphone cable to the AUDIO IN CH-1 or CH-2 connector, and set the corresponding input selection switch to “MIC” or “MIC+48V”.



❶ Microphone
❷ To AUDIO IN CH-1 or CH-2 connector

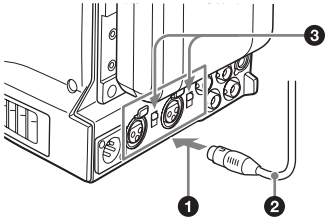
For details on how to attach a microphone to the microphone holder, refer to the operation manual for the microphone.

Notes

- If the input level on this unit is not at an appropriate setting for the microphone sensitivity, loud sounds may be distorted, and the signal-to-noise ratio may be affected.
- The AUDIO IN CH-1 and CH-2 connectors are female XLR connectors (3-pin), to enable them to provide a phantom 48 V power supply. If the microphone cable has a female connector, use a conversion adaptor.
- When you detach the CAC-12 Microphone Holder, save the screws that you used to attach it and screw them back into the original screw holes.

Connecting Line Input Audio Equipment

Connect the audio output connector of the line input signal source equipment to the AUDIO IN CH-1 or CH-2 connector, and set the corresponding input selection switch to “LINE”.



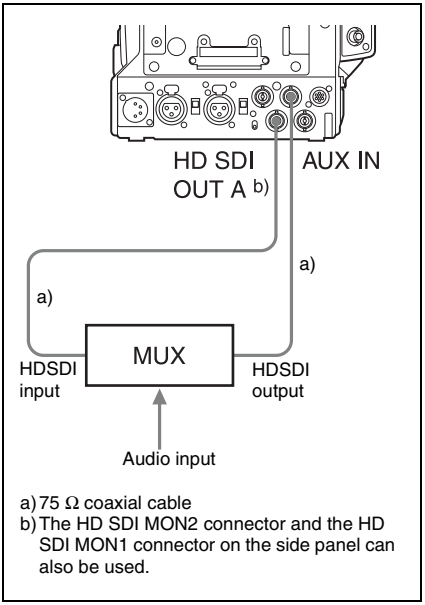
❶ To AUDIO IN CH-1 or CH-2 connector
❷ From audio equipment
❸ Input selection switches

Connecting an Audio Multiplexer (MUX) to the AUX IN Connector (When Using the HKSR-9001)

You can multiplex audio signals into HDSDI signals and input them to the AUX IN connector when using the AJA HD10AMA Analog Audio Embedder/Disembedder, HKSP-105 HD AV Multiplexer, and HD VTRs such as the SRW-1/SRPC-1.

Multiplexing into the HDSDI output signals of this unit

Set REFERENCE on the <GENLOCK> page of the Camera >MAINTENANCE menu to INTERNAL or GENLOCK IN.



a) 75 Ω coaxial cable
b) The HD SDI MON2 connector and the HD SDI MON1 connector on the side panel can also be used.

To use the HD SDI OUT A connector: Set GL-MODE on the <Genlock> page to SDI.

To use the HD SDI MON1/2 connectors: Set GL-MODE on the <Genlock> page to MON.

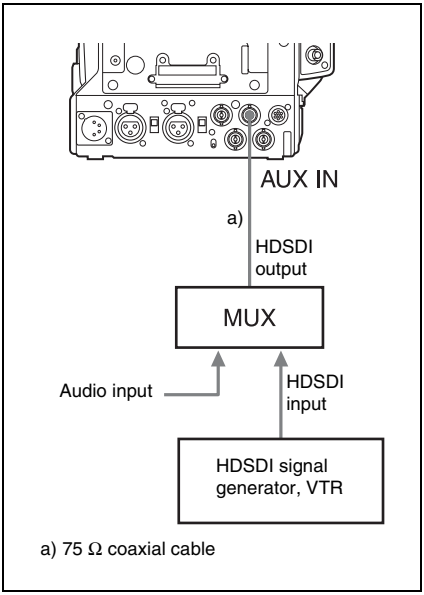
Note

When SYSTEM Setup >FORMAT >INPUT SEL in the VTR menu is set to AUX Input, it is not possible to multiplex audio signals into HDSDI signals because there is a phase difference between HDSDI outputs and AUX IN inputs.

To input audio signals, multiplex them into external HDSDI signals (see the next section "Multiplexing audio signals into external HDSDI signals).

Multiplexing into external HDSDI signals

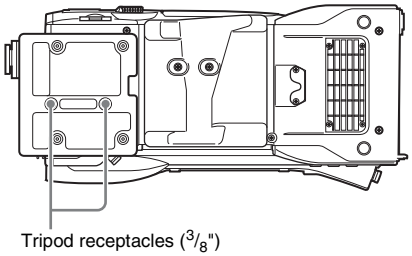
Set REFERENCE on the <GENLOCK> page of the Camera >MAINTENANCE menu to AUX IN.



a) 75 Ω coaxial cable

Mounting on a Tripod

Two tripod receptacles (for $^3/_8$" camera screws) are provided on the riser plate at the bottom of the unit.

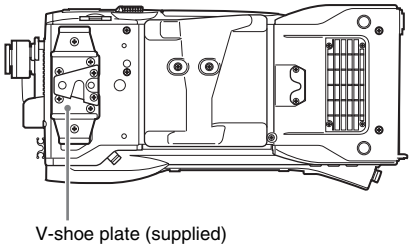


Notes

- Select an appropriate hole, considering the balance of the weight of the unit. If an inappropriate hole is selected, the unit may fall over.
- Check that the size of the selected hole matches that of the screw of the tripod. If they do not match, the unit cannot be attached to the tripod securely.

To use the optional VCT-14 Tripod Attachment

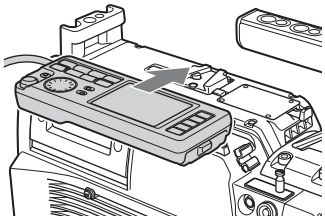
Remove the riser plate, and use the supplied six screws to attach the supplied V-shoe plate in the position indicated in the figure.



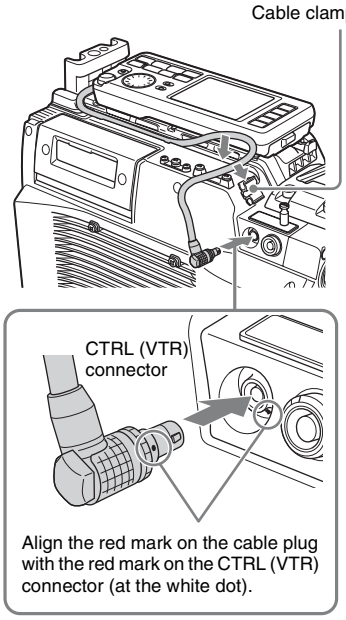
Attaching the Control Panel

The supplied control panel is used for tape and VTR menu operations. You can attach it to the top panel of this unit.

1 Place the control panel on the top panel of this unit, and slide it as shown in the figure.

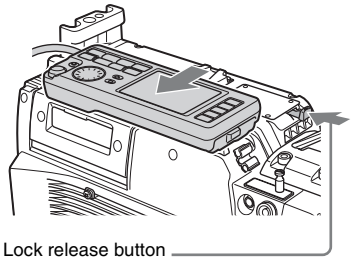


2 Connect the cable of the control panel to the CTRL (VTR) connector, and then fit the cable into the groove and cable clamp on the top panel of the unit.



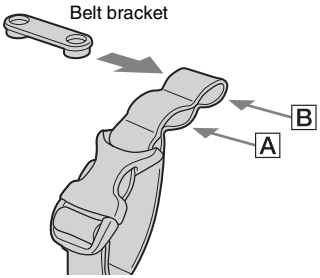
To detach the control panel

Hold down the lock release button and detach the control panel by sliding it out.



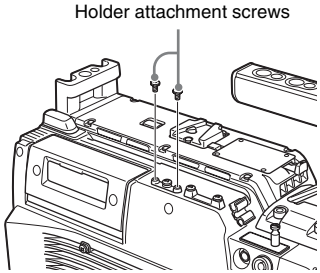
To use the extension cable

1 Insert the belt bracket into hole [A] or [B] of the cable holder (supplied).

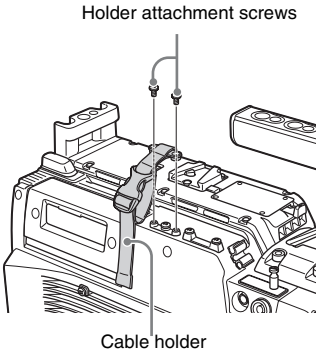


2 Detach the control panel.

3 Remove the two cable holder attachment screws.

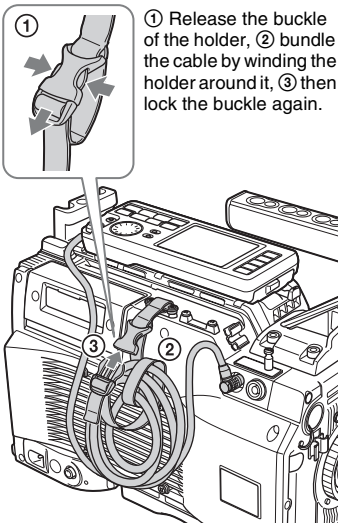


4 Attach the cable holder, using the attachment screws removed in step 2.

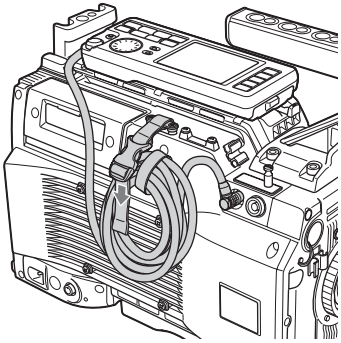


5 Attach the control panel.

6 Connect the cable of the control panel to the CTRL (VTR) connector, and store the excess length of the cable in the cable holder.

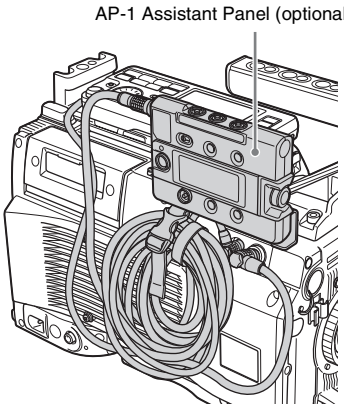


7 Adjust the length by pulling the lower end of the holder.



To use the cable holder of the AP-1 Assistant Panel

When you are using the optional AP-1 Assistant Panel, you can attach a cable holder to the AP-1 attachment hook base, and use the cable holder to store the cable of the control panel.

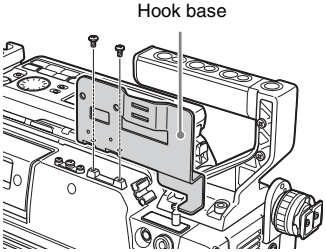


See "Attaching the AP-1 Assistant Panel (Optional)" (page 39) for more information about attaching the AP-1.

Attaching the AP-1 Assistant Panel (Optional)

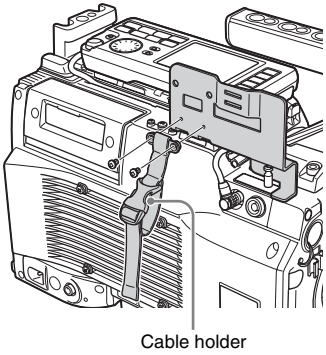
The optional AP-1 Assistant Panel provides the same functions as the controls on the right-side panel of the unit. You can attach the assistant panel to the left side of the unit.

1 Remove the microphone holder attachment screws, and use the screws to attach the hook base.

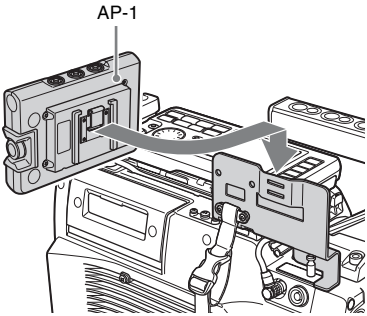


2 Screw the cable holder into the hook base.

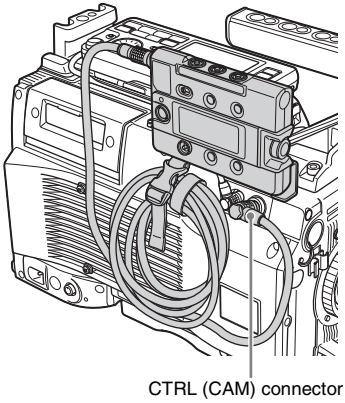
See "To use the extension cable" (page 38) for more information about how to use the cable holder.



3 Hang the reverse side of the AP-1 on the hook base.



4 Connect the cable of the AP-1 to the CTRL (CAM) connector, gather up the excess length of the cable, and store it in the cable holder.



Setting the Built-in Clock

When using the camera for the first time, set the built-in clock to the local time, using the <DATE> page of the MAINTENANCE menu in the Camera menu.
The Camera menu appears in the subdisplay, in the control panel display, and on the viewfinder. You can also display it on a monitor connected to the HD SDI MON1 or HD SDI MON2 connector.

For details on Camera menu operations, see "Basic Camera Menu Operations" (page 124).

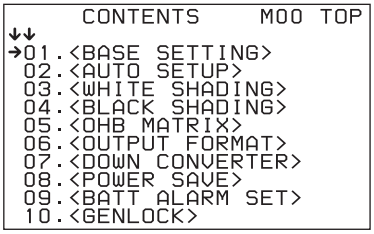
1 Turn on the unit.

2 While pressing the MENU SEL/ENTER dial, press the VF MENU/DISPLAY button.
The Camera menu appears. ("TOP" is displayed at the upper right corner of the screen.)

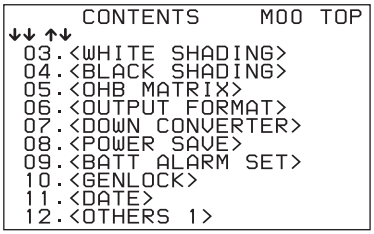
3 Turn the MENU SEL/ENTER dial to move the cursor to "TOP" and press the MENU SEL/ENTER dial.
The TOP MENU screen appears.

```
<TOP MENU>

→USER
 USER MENU CUSTOMIZE
 ALL
 •OPERATION
 •PAINT
 •MAINTENANCE
 •FILE
 •DIAGNOSIS
```

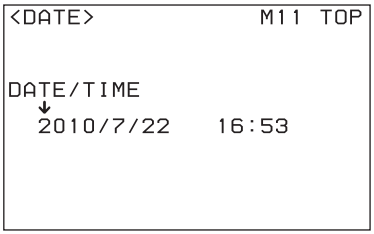
4 Turn the MENU SEL/ENTER dial to move the cursor to "MAINTENANCE" and press the dial.
The CONTENTS page of the MAINTENANCE menu appears.
(The following display examples show Custom mode menus. They include some items that do not appear in Cine and Cine-EI modes.)



5 **Turn the MENU SEL/ENTER dial to scroll the page and move the cursor to <DATE>.**



6 **Press the MENU SEL/ENTER dial.**
The <DATE> page appears.



7 **Turn the MENU SEL/ENTER dial to set the date and time.**
Press the MENU SEL/ENTER dial to shift to the next digit.

8 **When you have finished setting the date and time, press the VF MENU/ DISPLAY button to exit menu operation mode.**

Chapter 3 Basic Adjustments and Settings

Selecting the Basic Operation Mode

Overview of the Basic Operation Modes

This unit supports three operation modes: Cine mode, Cine-EI mode and Custom mode. Cine and Cine-EI modes allow you to use the unit like a film camera, on the assumption that the video will undergo post-production processing to achieve a specific look. Custom mode allows you to access all settings on site, so that you can achieve the look you want as you shoot.
You can control the camera either from the Camera menu or a remote control unit, but the items you can set and the values they can take depend on the operation mode.

Cine mode (default mode)

The most commonly used operations are available in the subdisplay and the USER menus of the Camera menu.

- The menu configuration is simple, with most items relating to the basic "look" of the video fixed as factory defaults.
- The only active auto setup item is auto black balance (ABB).
- The white balance level is fixed at the preset value (3200K), and auto white balance (AWB) and WHITE R/G/B settings are not operative.
- When you are controlling the unit from a remote control unit connected to the REMOTE connector, items with numeric settings that are fixed in Cine mode do not appear on the remote control unit. Items with ON/OFF settings and selectable items do appear, even when their settings are fixed.
- The only file that can be read from or written to "Memory Stick" media is the operator file in the USER menu, and the only file data that can be reset to factory defaults is the data in that file.
- The only operation that can be carried out with lens files is loading a lens file by specifying its number.
- The reference file items are fixed to the default values set at the factory even if you have changed the values in Custom mode.

Cine-EI (Exposure Index) mode

This mode is intended that shooting be achieved using a light meter at your specified sensitivity with the camera gain fixed.
The sensitivity can be selected from among ISO 450 (standard), 640, 800, and 1000. As the camera gain is fixed, the higher you set the sensitivity, the darker shot images will be. Afterward in the postproduction process, raise the gain to the value that corresponds to the sensitivity specified for shooting. Although the camera output of the main line may become dark, proper monitoring is enabled, as appropriate LUT for the selected sensitivity is automatically applied to each of the VF and monitor outputs. The gain display is replaced by the EI display, and the color space is fixed to S-GAMUT.

- As in Cine mode, the subdisplay and the USER menu are mainly used.
- The menu configuration is simple, with most items relating to the basic "look" of the video fixed as factory defaults.
- The only active auto setup item is auto black balance (ABB).
- The white balance level is fixed at the preset value (3200K), and auto white balance (AWB) and WHITE R/G/B settings are not operative.
- When you are controlling the unit from a remote control unit connected to the REMOTE connector, items with numeric settings that are fixed in Cine mode do not appear on the remote control unit. Items with ON/OFF settings and selectable items do appear, even when their settings are fixed.
- The only file that can be read from or written to "Memory Stick" media is the operator file in the USER menu, and the only file data that can be reset to factory defaults is the data in that file.

- The only operation that can be carried out with lens files is loading a lens file by specifying its number.
- The reference file items are fixed to the default values set at the factory even if you have changed the values in Custom mode.

Custom mode

This mode is intended for users who want to make detailed menu settings, or who want to operate from a remote control unit.

- You can save and load reference files, which store adjustment reference values, and scene files, which store adjustment values specific to particular scenes.
- You can load user gamma tables.
- You can adjust and save lens files.

Note

The settings for file items adjusted in Custom mode are maintained when the camera is switched back to Cine or Cine-EI mode. However, video adjustment values that are changed temporarily and not stored in any file are cleared upon mode switching.

For details on the items and values that can be set in each mode, see "Camera Menu List" (page 128).

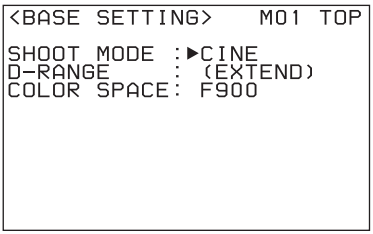
Switching between the Basic Operation Modes

Cine mode is selected when the unit is shipped from the factory.

To switch the operation modes

Referring to the procedure described in "Setting the Built-in Clock" *(page 40)*, display the <BASE SETTING> page of the Camera > MAINTENANCE menu on the subdisplay, viewfinder screen, or monitor screen and use that page to switch to Custom mode.

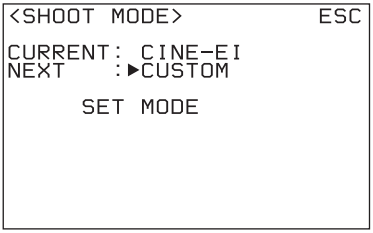
<BASE SETTING> page of the MAINTENANCE menu



For details on Camera menu operations, see "Basic Camera Menu Operations" (page 124).

Move the cursor to SHOOT MODE and press the MENU SEL/ENTER dial.
The <SHOOT MODE> subpage is displayed.

<SHOOT MODE> subpage



The CURRENT line indicates the current mode setting.
CINE: Cine mode
CINE-EI: Cine-EI mode
CUSTOM: Custom mode

Select the desired operation mode on the NEXT line, move the cursor to SET MODE, and press the MENU SEL/ENTER dial to return to the <BASE SETTING> page.

On the <BASE SETTING> page, making settings for dynamic range (only in Custom mode) and for color space is also possible (display only in Cine mode).

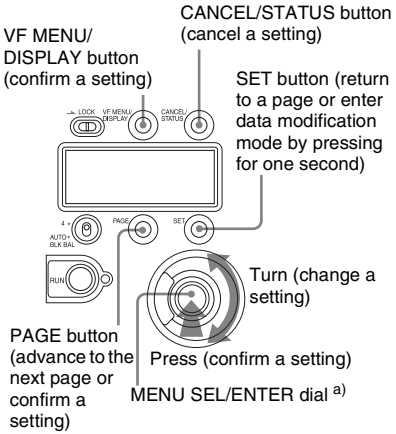
Basic Settings with the Subdisplay

On the unit, you can easily make basic settings for the camera module by using the subdisplay located on the side of the unit or the optional AP-1 Assistant Panel connected via the CTRL (CAM) connector.

Basic Operations in the Subdisplay

Use the buttons and dials shown in the figures below for subdisplay operations.

Right side of the unit (display/menu operations section)

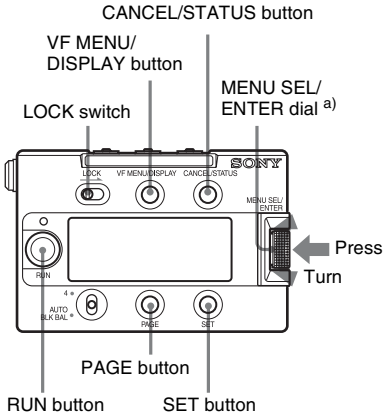


a) Turning the dial changes a setting, and pressing it confirms a setting (ENTER button function).

Note

When you turn the dial, stop it at a position where you feel a click. If you force the dial to stop at a non-click position, the operating stability of the dial on the AP-1 side may be affected.

AP-1 Assistant Panel



a) Turning the dial changes a setting, and pressing it confirms a setting (ENTER button function).

You can also use the display/menu operations section of the main unit to operate the subdisplay of the AP-1, and use the AP-1 to operate the subdisplay on the right-side panel.
However, the LOCK switches function independently. When you want to lock the display/menu operations section or the AP-1, turn on the LOCK switch on that side.

To display setting pages

After the unit is turned on, the current operation mode (CINE, CINE-EI or CUSTOM) appears on the subdisplay for several seconds, followed by the most recently used settings page.

To advance one page

Press the PAGE button.

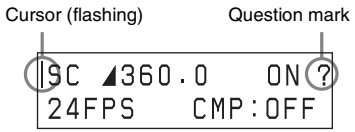
To go back one page

Press the SET button (press and release the button within one second).

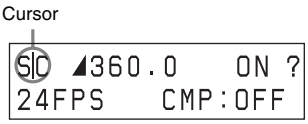
To change a setting

1 Press and hold the SET button for more than 1 second.

The unit enters data modification mode, the cursor (|) starts flashing, and a question mark appears at the rightmost position on the first line.



On a page with two or more setting items, pressing the SET button moves the cursor to the next item.



2 Move the cursor to the item to be set, then change the setting by turning the MENU SEL/ENTER dial.

Note

Camera menu operations on the viewfinder screen cannot be performed while the subdisplay is in data modification mode.

To confirm a change

Do one of the following:

- Press the PAGE button.
- Exit data modification mode by pressing the MENU SEL/ENTER dial (the cursor and question mark disappear).
- Terminate the subdisplay operation by pressing the VF MENU/DISPLAY button.

To cancel a change

Press the CANCEL/STATUS button before confirming the change.
The ? mark disappears, and the original setting is restored.

To terminate subdisplay operation

Press the VF MENU/DISPLAY button.

Shutter Settings

The electronic shutter settings of the unit can be displayed and adjusted as exposure time values, or as shutter angle values, as with a film camera. There are two adjustment modes for angles: Step mode and Continuous mode.

Step mode (STEP)

You can register and select up to eight frequently used values as step shutter values.
Factory-set values are as follows:

STEP No.	Shutter angle
1	216.0°
2	180.0°
3	172.8°
4	150.0°
5	144.0°
6	90.0°
7	45.0°
8	22.5°

Actual shutter speeds vary according to the frame frequency and frame rate of the selected video format. The shutter step values can be changed and reregistered on the <SHUTTER ASSIGN> page of the Camera >USER (OPERATION) menu or the <SHUTTER> page of the Camera >USER (PAINT) menu.

Continuous mode (CONTINUOUS)

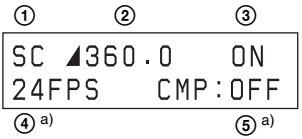
This mode allows you to change shutter values continuously over the range from 360.0 to 4.3 degrees.
To obtain a continuous shutter value quickly, select a value close to the one you want in Step mode, and then switch to Continuous mode to make the final selection.

Note

When operating from a remote control unit connected to the REMOTE connector, you can control the shutter with the STEP (shutter step operation) or CONTINUOUS (continuous operation) functions. There is no need to set ECS to ON on this unit. However, an upgrade is required to display shutter values correctly on the remote control unit.

For details, consult a Sony representative.

Shutter settings page



a) Appears only when the optional HKSR-9002 is installed.

To select a shutter value in Step mode

In Step mode you can select a step shutter value (one of up to eight registered values) as follows:

1 Move the cursor to the left of "SC" (① in the figure).

(When the unit switches to data modification mode in the shutter settings page, the cursor automatically appears to the left of "SC".)

2 Turn the MENU SEL/ENTER dial to display the shutter value that you want to use at ② in the figure.

The shutter values change step by step as the MENU SEL/ENTER dial is turned.

To select a shutter value by continuous operation

Continuous operation allows you to set shutter values freely.

1 Move the cursor to the left of "SC" (① in the figure).

2 Turn the MENU SEL/ENTER dial to display the shutter value that you want to use at ② in the figure.

The shutter value changes continuously as the MENU SEL/ENTER dial is turned.

To change the parameter display unit

You can change the parameter display unit between shutter angle (degree) and shutter speed (second).

1 Move the cursor to the left of ◢ (② in the figure).

2 Turn the MENU SEL/ENTER dial.

The display at ② changes to a speed value (seconds).

The speed value for a given shutter angle varies depending on the selected video format and frame rate.

To select the frame rate (number of frames to shoot)

When the optional HKSR-9002 is installed, and you have selected the Select FPS video format, select the frame rate (number of frames to shoot).

Note

The frame rate cannot be changed when a format other than Select FPS is selected.

1 Move the cursor to the left of the frame rate (④ in the figure).

2 Turn the MENU SEL/ENTER dial to select the desired frame rate (number of frames to shoot).

To use a compensation mode

When the optional HKSR-9002 is installed, you can compensate for changes in the video level that occur when the frame rate (number of frames to shoot) is changed. There are two compensation modes, which compensate by adjusting the shutter angle or electrical gain.

1 Move the cursor to the left of "CMP" (⑤ in the figure).

2 Turn the MENU SEL/ENTER dial to select the compensation mode to use.

AC (angle compensation mode): When the frame rate is changed, the video level is held constant by automatically adjusting the shutter angle.

GC (gain compensation mode): When the frame rate is changed, the video level is held constant by automatically adjusting the electrical gain. The shutter angle is held constant.

See "Detailed Shutter Settings" (page 73) for details about compensation modes and about compensation mode menu operations.

When you are not using the shutter

Select OFF at ③.

The shutter value indication at ② becomes "----".

To change the registered shutter values

You can change registered shutter step values in the <SHUTTER ASSIGN> page of the Camera >USER (OPERATION) menu.

For details on how to operate the Camera menu, see "Basic Camera Menu Operations" (page 124).

You can also use the <SHUTTER> page of the Camera >USER (PAINT) menu to change a registered shutter step value.

See "Detailed Shutter Settings" (page 73) for more information about the <SHUTTER> page.

<SHUTTER ASSIGN> page

```
<SHUTTER ASSIGN>  10 TOP

STEP [deg]     [sec]
  1: 216.0   (1/39.97)
  2: 180.0   (1/48.00)
  3: 172.8   (1/50.05)
  4: 150.0   (1/57.63)
  5: 144.0   (1/60.07)
  6:  90.0   (1/95.92)
  7:  45.0   (1/192.2)
  8:  22.5   (1/383.0)
ADD:→---.-   DEL   PRESET
```

STEP 1-8

On each line, the [deg] column displays a registered shutter angle. The [sec] column displays the corresponding shutter speed value, converted according to the currently selected frame rate.

ADD

Use this to register new shutter step values. Display the shutter angle you wish to register, and then press the MENU SEL/ENTER dial. You can select angle values in the range from 360.0 to 4.3 degrees. Shutter step values are sorted automatically in descending order.

If eight values have been already registered, the message “STEPS FULL” appears, and a new value cannot be added. In this case, use DEL (see the following section) to delete an unneeded value beforehand.

DEL

Use this to delete registered shutter step values. When the cursor is positioned at DEL, an asterisk (*) appears to the left of STEP 1.

Turn the MENU SEL/ENTER dial to move the asterisk to the left of the value you wish to delete, and then press the MENU SEL/ENTER dial. That value is deleted, and the items after the deleted one are automatically renumbered.

Example: Delete 90.0 at STEP 6

```
<SHUTTER ASSIGN>  10 TOP

STEP [deg]     [sec]
  1: 216.0   (1/39.97)
  2: 180.0   (1/48.00)
  3: 172.8   (1/50.05)
  4: 150.0   (1/57.63)
  5: 144.0   (1/60.07)
 *6:  90.0   (1/95.92)
  7:  45.0   (1/192.2)
  8:  22.5   (1/383.0)
ADD: ---.- →DEL   PRESET
```

During step selection operations, the unit displays registered values only. If you rarely use one of the registered values, you can operate more quickly by deleting it.

You can leave up to seven of the STEP numbers (numbers 2 to 8) unregistered.

PRESET

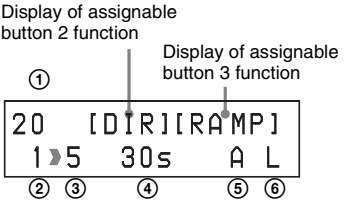
Resets all step shutter values to the factory defaults.

Using the Ramp Function

When the optional HKSR-9002 is installed, you can use the ramp settings page of the subdisplay or the <RAMP> page of the PAINT menu to change the FPS (number of frames shot) during shooting.

Ramp settings page

While the ramp settings page of the subdisplay is displayed, assignable buttons 2 and 3 function as ramp setting buttons, regardless of any other functions that have been assigned to them *(see page 54)*.



① in the first line shows the current FPS.

Use this page to make the settings shown in the following table.

Figure number	Setting item	Setting value
②	Starting FPS value	**S23.98PsF/S24PsF:** 1 to 24 **S25PsF:** 1 to 25 **S29.97PsF/S30PsF:** 1 to 30 **S50PsF:** 1 to 50 **S59.94PsF/S60PsF:** 1 to 50
③	Ending FPS value	
④	Ramp time (seconds)	0 to 30
⑤	Video level compensation mode *(see page 46)*	**A (Angle):** Angle compensation mode **G (Gain):** Gain compensation mode **–:** No compensation
⑥	Ramp mode (FPS ramp curve)	**L (Linear):** Linear mode **E (Exponential):** Exponential mode **–:** Ramp off **Note** The ramp function is not executed when "–" is selected. (Assignable button 3 does not work.)

To change a setting value: Move the cursor to the left of the item to set, and then turn the MENU SEL/ENTER dial.

To switch ② (starting FPS value) and ③ (ending FPS value): Press assignable button 2.

To execute the ramp function: Press assignable button 3.

The FPS (number of frames shot) changes according to the settings described above. During execution, "*" appears to the right of the current FPS value (① in the figure).

The "*" indication disappears when execution end, and the ② (starting FPS value) and ③ (ending FPS value) values are switched.

Note

The following limitations apply during execution of the ramp function.

- The values of the setting items (② to ⑥) cannot be changed.
- FPS cannot be controlled from this unit or a remote control unit.
- The subdisplay page cannot be switched to another page.

To set up and execute the ramp function from a menu

You can use the <RAMP> page of the PAINT menu *(see page 149)* to operate in the same way as the subdisplay ramp settings page.
When you execute the ramp function, the subdisplay changes automatically to the ramp settings page.

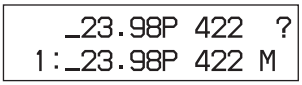
Selecting the Video Formats

You can select the video format from among the eight registered formats.
When the unit is shipped from the factory, the following eight formats are registered under numbers 1 to 8.

No.	Registered format	Indication on the subdisplay
1 (default)	23.98P 4:2:2	**_23.98P 422**
2	24P 4:2:2	**_24P 422**
3	25P 4:2:2	**_25P 422**
4	29.97P 4:2:2	**_29.97P 422**
5	50P 4:2:2	**_50P 422**
6	50I 4:2:2	**_50I 422**
7	59.94I 4:2:2	**_59.94I 422**
8	NO ASSIGN	

Video format selection page

The first line indicates the currently selected format.
When you switch to data modification mode, an alternative format appears on the second line. This allows you to select the desired format from among the registered formats.



Turn the MENU SEL/ENTER dial until the format that you want appears.

If the desired format is not registered

1 **Turn the MENU SEL/ENTER dial to display the number of the format that you want to change on the second line.**

Note

Empty numbers (numbers without registered formats) do not appear. If you want to register a format under an empty number, use the <SUBDISPLAY 1> page of the Camera >USER (OPERATION) menu *(see page 122)*.

2 **Move the cursor to the left of "M" and turn the MENU SEL/ENTER dial.**
The selectable formats are displayed in sequence as you turn the dial.

3 **When the desired format appears, press the MENU SEL/ENTER dial.**
The registration is updated, and the unit starts to operate with the selected format.

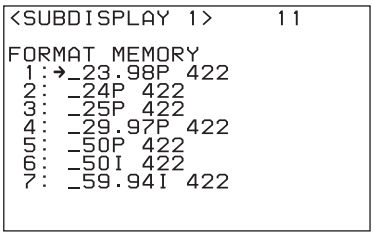
To change the registered formats using a menu

The registered formats can also be changed on the <SUBDISPLAY 1> page of the Camera >USER (OPERATION) menu.

For details on how to operate the Camera menu, see "Detailed Video Format Settings" (page 79).

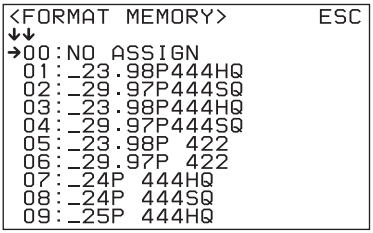
For details on how to operate the Camera menu, see "Basic Camera Menu Operations" (page 124).

<SUBDISPLAY 1> page



Move the cursor to the line you want to change and press the MENU SEL/ENTER dial. The <FORMAT MEMORY> page appears.

<FORMAT MEMORY> page



Move the cursor to the item you want to select, and press the MENU SEL/ENTER dial to change the registered format. Select 00:NO ASSIGN if you want to make the selected number into an empty number.

Retrieving the ND Offset

If an ND filter is attached to the matte box, etc., the white balance may be in variance. In such a case, you can retrieve an appropriate ND offset value from a previous adjustment you made. Use the ND filter selection page on the subdisplay. The offset values ND: 2 to 5 are stored with respect to the white balance stored for ND: 1 as the reference.

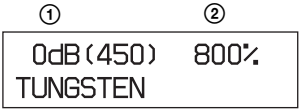
For the ND offset adjustment, see "Storing OHB Files" (page 195).

ND filter selection page

Selecting Gain, Sensitivity, Color Temperature, and White Balance Values

The setting items and values are different depending the operation mode.

In Cine mode: Gain setting page



①: You can select the gain value from among the following: –6 dB, –3 dB, 0 dB, 3 dB, 6 dB, 9 dB, and 12 dB (the factory default is 0 dB).

The corresponding ISO sensitivity is displayed in parentheses.

②: Displays either a dynamic range or a latitude *(see "ISO sensitivity and dynamic range indications" (page 51)).*

On the second line, the color temperature filter is selected from TUNGSTEN (factory default) or DAYLIGHT.

With DAYLIGHT, electrical gain 5600K is on.

The white balance is fixed at the preset value (3200K).

In Cine-EI mode: Sensitivity setting page

The gain setting page is replaced with the sensitivity setting page in this mode.

①: The sensitivity value can be selected from among the following: 450EI, 640EI, 800EI (factory default), and 1000EI. The camera gain is unchanged even if the sensitivity value is changed.

②: Displays either a dynamic range or a latitude. The dynamic range value is fixed to 800%, and the latitude value can be selected from 5.3E, 5.5E, 5.7E (factory default), and 6.0E *(see "ISO sensitivity and dynamic range indications" (page 51)).*

On the second line, the color temperature is selected from TUNGSTEN (factory default) or DAYLIGHT.

With DAYLIGHT, electrical gain of 5600K is turned on.

The white balance adjustment value is fixed at the preset value (3200K).

In Custom mode: Gain setting page

The first line is in common with Cine mode *(page 49).*

③: Turn on/off electrical gain 5600K (the factory default is off).

④: Select the white balance setting (the factory default is W:P).

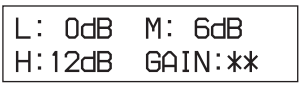
Setting	Value
W:P	Preset value (3200K)
W:A	The value stored in memory A
W:B	The value stored in memory B

For details on white balance adjustment, see "Adjusting the White Balance (in Custom Mode)" (page 57).

Gain switch values (L/M/H) page

Note

This page is not displayed in Cine-EI mode. The gain value is fixed to 0 dB in Cine-EI mode.



You can use the gain switch of the RM-B150 Remote Control Unit to switch the gain of this unit's video amplifier. You can also assign gain functions to assignable buttons 1 to 3, 5 to 8, N, and C. Before doing so, you need to set a gain value for each position (L/M/H). You can set these values on this page. This page also allows you to switch the gain of this unit's video amplifier between the L, M, and H values.

Note

To adjust the gain, you can either select it directly or switch between the L, M, and H values. If you set it directly, it may differ from the L, M, and H values, in which case the unit displays L*, M*, and H* with asterisks to indicate that the gain value is different from the values assigned to L, M, and H.

Immediately after you power the unit on, GAIN is always displayed as "**", to indicate that the gain switch position is undetermined. At this time, the gain is most recent gain value from the last time you used the unit. (The unit assumes that the position is undetermined because you may have powered the unit off with L*, M*, and H* displayed.)

When GAIN is displayed as "**", and you switch it with the assignable buttons or a subdisplay operation, the unit always selects L first.

You can make the same settings on the <GAIN ASSIGN> page of the Camera >OPERATION menu *(see page 138).*

ISO sensitivity and dynamic range indications

The ISO sensitivity value displayed on the Gain setting page is defined as "the value at which the video input becomes 20% when shooting a gray scale chart with a 18% reflection rate".
Note that the video output value with respect to this input will vary depending on the selected gamma.
Dynamic ranges are displayed as percentage values. They show the high luminance limit for the case where grayscale white output is 100% (700 mV), with ITU-R709 gamma (standard gamma) and the input level as 100%.
Latitude values are displayed with E, showing the latitude on the high luminance side as an f-stop value, using a gray-scale chart with an 18% reflection rate as the key light Gradations on the low luminance side can be expressed up to approximately –6.5 stop at 0 dB.

Note

As the dynamic range indication shows a value for the input video, the dynamic range of the output video is limited by the output settings as follows:

If a gamma other than S-LOG is selected (in Cine/Custom mode)

The upper limit is clipped according to the output video limitation specified by the gamma setting. When you select a curve as Hyper Gamma No. 4, which compresses 460% input to 109%, the output video is fed within the range up to 460% of input video even if 800% is displayed on the subdisplay as the dynamic range as the output video is limited to 109%.
Using CvpFileEditor V4.0 or later *(see page 77)*, you can change the dynamic range of Hyper Gamma and create a user gamma curve having no dynamic range limitation.

If the white clip function is in use

As the white clip function limits the level of output video, the dynamic range specified for the input video may not be obtained for video output.

When you select "gain compensation mode" as the video level compensation mode for the Select FPS function

The dynamic range value declines up to a maximum of $^{1}/_{2}$, depending on the FPS setting (number of frames to shoot).

Memo

Why the ISO sensitivity is defined for 20% input

Defining the level of gray scale of 18% reflection rate for the ISO sensitivity on the linear curve (defining with input signal) permits you to use the values as the absolute reference for proper gamma conversion in postproduction.
In addition, defining the output for 20% input with ITU-R709 so that it becomes the reference code for Cineon curve allows high compatibility.

Selecting a Lens File

On this unit, you can adjust the compensation data for the mounted lens in Custom mode and registered it in the built-in memory as a lens file (max. 64 files in total: 32 files for serial lenses and another 32 files for non-serial lenses).
You can invoke the compensation data for the mounted lens simply by selecting the corresponding file.

Lens file selection page

On the first line, select the number of a lens file. (If a serial lens is mounted, the unit will recognize the lens name and invoke the corresponding lens file automatically. In that case, the file number is always 33.)
The second line displays the lens file name corresponding to the selected number.

The selected lens file is retained until a new lens file is selected. As long as you are using the same lens, you do not need to select it again.

Note

All the lens files are named "No Offset," with all zero settings at shipment. File registration and modification of data in a lens file must be performed in Custom mode.

For details on the lens files, see Chapter 8 "Storage and Retrieval of User Setting Data" (page 186).

Checking the Operating Status of the VTR Module

You can check the operating status of the VTR module in the subdisplay. When the unit is in recording pause mode, you can also use this page to switch the power supply to the VTR module between power saving (SAVE) mode and standby (STBY) mode.

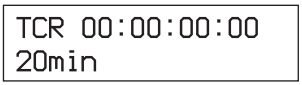
The first line shows the operating status of the VTR module (REC PAUSE, REC, F.FWD, REW, PLAY, STOP, etc).
The second line shows the VTR module power supply mode (SAVE, STBY) when it is in stop mode (STOP), recording pause mode (REC PAUSE), or playback pause mode (PLAY PAUSE). Use an assignable button/switch to which the VTR SAVE function is assigned to select SAVE or STBY.

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

Checking Timecode and the Remaining Tape Time

The timecode/tape remaining page allows you to check timecode and the approximate remaining tape time (unit: minutes).

Timecode/tape remaining page



The first line displays a timecode value, and the second line displays the approximate tape remaining time, within the range 1 to 99 minutes. The following table lists the types of timecode that appear.

Indication	Meaning
TCR 00:00:00:00	Timecode data of the LTC reader
TCR 00:00.00:00	Timecode data of the LTC reader (DF)
TCR.00:00:00:00	Timecode data of the VITC reader
UBR 00 00 00 00	User bit data of the LTC reader
UBR.00 00 00 00	User bit data of the VITC reader
TCG 00:00:00:00	Timecode data of the timecode generator
TCG 00:00:00.00	Timecode data of the timecode generator (DF)
UBG 00 00 00 00	User bit data of the timecode generator
CTL -0:00:00:00	Data of the CTL counter
T*R 00:00:00:00	Timecode cannot be read with the LTC reader.
U*R 00 00 00 00	User bits cannot be read with the LTC reader.
T*R.00:00:00:00	Timecode cannot be read with the VITC reader.
U*R.00 00 00 00	User bits cannot be read with the VITC reader.

See "To select time data to display during playback" (page 94) for information about how to switch between different types of timecode.

Setting the Timecode Generator Value to XX:00:00:00

You can set the current timecode generator value to the "00:00:00" value of the next hour.
Example: TCG 01:12:34:12 → TCG 02:00:00:00

You can perform this setting from the control panel or the subdisplay/menu operations section.

To perform the setting from the control panel
Press the TC button while holding the FUNC and BACK buttons down.

To perform the setting from the subdisplay/menu operations section
When the TCG is displayed in the subdisplay, press the SET button while holding the MENU SEL/ENTER dial down.

Checking the Power Voltage and Selecting the Fan Mode

Voltage check/Fan mode page

The first line allows you to check the battery voltage, and the second line displays the operating mode of the internal fans.

To select the fan mode

You can select the fan mode from the modes in the following table.

Setting	Operation of the fans
AUTO1 (default)	The fans are controlled automatically according to the unit's internal temperature. During recording, they are controlled for quiet operation. Normally use this mode.
AUTO2	Normally the fans are controlled in the same way as in MIN mode, but during recording they are controlled for quieter operation. However, control for quieter operation is limited to several minutes or less. Use this mode only when the ambient temperature is normal or lower.
MIN	In this mode, the fans operate quietly regardless of whether the unit is recording. This mode is preferable for 30 minutes or more of shooting in quiet environments such as concert halls. Use this mode only when the ambient temperature is normal or lower.
MAX	The fans rotate at maximum speed to lower the unit's internal temperature.

Notes

- If the internal temperature rises so high that the TEMPERATURE CARE message is displayed, the fan rotation speed will automatically increase to lower the temperature.
- If the internal temperature rises so high that the TEMP WARNING/FAN MAX message appears, the fan mode changes automatically to MAX. After the temperature has dropped sufficiently and the message has disappeared, restore the original mode manually.
- When the video format is 50P, the fans are controlled as in AUTO1 mode, even when AUTO2 or MIN mode is selected, so that the higher power consumption does not lead to higher internal temperatures. Also, the fans do not operate more quietly during recording.

To change the fan mode from a menu

You can also change the fan mode by using FAN MODE on the <OTHERS 1> page of the Camera >USER (MAINTENANCE) menu *(see page 156)*.

Character Data On and Off

You can enable and disable the superimposition of character data onto the camera picture for selected output destinations.

Character data page

Superimposition of character data can be turned ON or OFF for each of the following destinations individually.

VF

The viewfinder connected to the VF connector (default ON)

HDY

A monitor connected to the TEST OUT or REMOTE connector. This setting is enabled when TEST[SIG] or RM[SIG] has been set to HD-Y in the <MONITOR OUTPUT> page of the Camera >USER (OPERATION) menu (default ON).

MON

A monitor connected to the HD SDI MON1 or HD SDI MON2 connector (default ON)

VBS

A monitor connected to the TEST OUT or REMOTE connector (default ON)

Assigning Functions to Assignable Buttons/Switch

You can assign functions to the following buttons/switch: assignable buttons 1 to 3 and 5 to 8 on the right-side panel of the main unit and the AP-1 (optional); the 4 side (top) of the assignable 4/AUTO BLK BAL switch (called “switch 4” below) and assignable buttons N and C.

The following functions are assigned when the unit is shipped from the factory.

Switch	Function
1	OFF (no function)
2	OFF (no function)
3	OFF (no function)
4	OFF (no function)
5	STOP
6	PLAY
7	REW
8	F.FWD
N	OFF (no function)
C	OFF (no function)

Functions that can be assigned to assignable buttons 1 to 3, 5 to 8, N, and C

Menu indication	Function
ND	ND Switch ND filters
REC REVIEW	With REC REVIEW set to NORM, the last part of the recorded tape is normally rewound for three seconds (maximum: 10 seconds) then played back. With REC REVIEW set to ALL, the tape is rewound to the recording start position then played back.
PB(VF/VBS)	The video signals being played back are output to the viewfinder.
MLUT (VFVBS)[a)]	On/Off of the fixed ITU-R709 gamma of the viewfinder
MLUT(MON)[a)]	On/Off of the fixed ITU-R709 gamma of the monitor
FAN MODE	Switching of the fan mode
VTR SAVE	Switching of the VTR power supply mode (SAVE, STBY)
BARS	Display color bars
STOP	Stop tape transport
REW	Rewind the tape
PLAY	Play the tape
F.FWD	Fast forward the tape
GAIN	Switch the gain position
WHITE BAL	Switch the white balance memory
GAIN-9/18dB	The gain value is temporary set to –9 dB or –18 dB (gain drop function). Each press of the button switches gain value in the following order; –9 dB → –18 dB → OFF → –9 dB ···. If the gain value is kept unchanged from –9 dB or –18 dB, gain drop function is cancelled.
CACHE REC[b)]	Switch the setting for the Cache Rec function. Each press of the button switches the setting in the following order; 25% → 50% → 75% → 100% → Quick Rec → OFF.
OFF	None

a) When using S-LOG A

b) When an HKSR-9002 is installed

Functions that can be assigned to assignable switch 4

Menu indication	Function
AWB	Automatic white balance adjustment
BARS	Color-bar indication
TEST1	Test signal output
OFF	None

Note

Even if AWB is assigned to assignable switch 4, AWB does not function in Cine and Cine-EI modes.

Assignable buttons 1 and 2 setting page

You can assign the functions of buttons 1 and 2 on the first and second lines, respectively.

Assignable button 3 and switch 4 setting page

You can assign the functions of button 3 and switch 4 on the first and second lines, respectively.

Assignable buttons 5 and 6 setting page

You can assign the functions of buttons 5 and 6 on the first and second lines, respectively.

Assignable buttons 7 and 8 setting page

You can assign the functions of buttons 7 and 8 on the first and second lines, respectively.

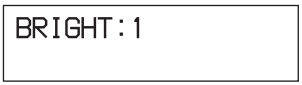
Assignable buttons N and C setting page

You can assign the functions of buttons N and C on the first and second lines, respectively.

Adjusting the Brightness of the Subdisplay

You can adjust the brightness of the subdisplay to one of eight levels.

Subdisplay brightness adjustment page



The higher the value, the brighter the display.

Selecting Gamma Tables

In Cine mode or Custom mode, you can select the gamma curves on the gamma table selection page.

Gamma table selection page

Note

This page is for display only and not operative in Cine-EI mode. The gamma curve setting is fixed to S-LOG A in Cine-EI mode.

Select the gamma table (STANDARD, HYPER, SPECIAL, or USER) on the first line and the gamma curve on the second line.

For details on the available gamma curves, see "Selecting the Gamma" (page 75).

Selection of Color Spaces

In Cine mode or Custom mode, color reproducibility can be selected on the color space selection page of the subdisplay.

For details on color space, see "Color Space According to the COLOR SPACE Settings" (page 217)

Color space selection page

Note

This page is for display only and not operative in Cine-EI mode. The color space setting is fixed to S-GAMUT in Cine-EI mode.

Select the color space mode (S-GAMUT, F900, F900R, or DCDM REF PJ) on the second line.

You can also select the color space by using the <BASE SETTING> page (see page 43).

Selecting Pages to Display in the Subdisplay

Use the setup mode of the subdisplay or the OPERATION menu of the Camera menu.

To set the subdisplay to Setup mode

Hold the PAGE button pressed for more than five seconds to set the subdisplay to Setup mode.

Subdisplay in Setup mode

Select a page in the first line, and select ON or OFF on the second line.
Pages that are set to OFF will not appear in the subdisplay.

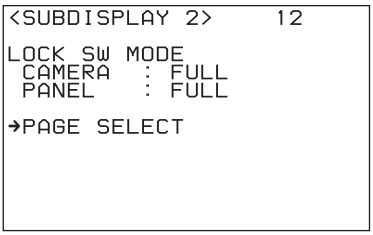
Indication	Target page
SHUTTER	Shutter settings page
RAMP	Ramp settings page
FORMAT	Video format selection page
ND	Optical filter status page
GAIN/WHT/ 5600K	Gain setting page
GAIN L/M/H	Gain switch values (L/M/H) page
LENS FILE	Lens file selection page
VTR STATUS	VTR status page
TC/TAPE REM	Timecode/tape remaining page
VOLT/FAN	Voltage check/Fan mode page
CHAR MIX	Character data page
ASSIGN SW1/ SW2	Assignable buttons 1 and 2 setting page
ASSIGN SW3/ SW4	Assignable button 3 and switch 4 setting page
ASSIGN SW5/ SW6	Assignable buttons 5 and 6 setting page
ASSIGN SW7/ SW8	Assignable buttons 7 and 8 setting page
ASSIGN SWN/ SWC	Assignable buttons N and C setting page
BRIGHT	Subdisplay brightness adjustment page
GAMMA TABLE	Gamma table selection page

To select pages with a menu operation

Use the <SUBDISPLAY 2> page of the Camera >USER (OPERATION) menu.

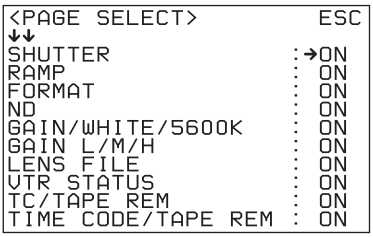
For details on how to operate the Camera menu, see "Basic Camera Menu Operations" (page 124).

<SUBDISPLAY 2> page



Move the cursor to PAGE SELECT then press the MENU SEL/ENTER dial to display to the <PAGE SELECT> page.

<PAGE SELECT> page



To switch between ON/OFF settings, move the cursor to the setting you wish to change and press the MENU SEL/ENTER dial.

Note

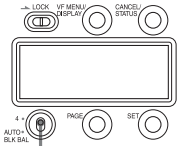
"RAMP" appears only when the optional HKSR-9002 is installed.

Adjusting the Black Balance

To obtain consistently high picture quality, you need to adjust the black balance. After turning the unit on, wait for a minute and then adjust the black balance before making any other picture adjustments.

To adjust the black balance automatically

Push the assignable 4/AUTO BLK BAL switch on the right side of the unit or on the AP-1 (optional) down to the AUTO BLK BAL position, and then release it.



Assignable 4/AUTO BLK BAL switch

Automatic black balance adjustment is performed.
During adjustment, “ABB: EXECUTING” is displayed on the viewfinder screen. If the adjustment process succeeds, the message “ABB: OK” appears.

Note

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

If automatic black balance adjustment fails

If the automatic black balance adjustment process fails, the error message “ABB: NG” appears on the viewfinder screen for about three seconds.
If this error message appears, try adjusting the black balance again.
If the error message continues to appear after several attempts, the unit requires internal inspection.

Adjusting the White Balance (in Custom Mode)

When adjusting the white balance, select a white balance memory bank.
You can check the selected memory bank with the status display on the viewfinder screen *(see page 64)*, and select it on the subdisplay or from a connected remote control unit.

Note

When using the unit in Custom mode, readjust the white balance if the lighting conditions change.

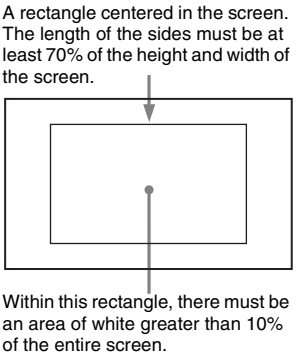
To adjust the white balance automatically

1 Select memory A or B, using the subdisplay or the RM-B750 Remote Control Unit (default: preset memory).

For details on how to select on the subdisplay, see “Selecting Gain, Sensitivity, Color Temperature, and White Balance Values” (page 49).

2 Place a white pattern in the same lighting conditions as the subject and zoom in on it to obtain a white area in the screen.

A white object (white cloth, a white wall, etc.) near the subject may be used in place of a white pattern.
The minimum white area required for adjustment is as illustrated below:



Note

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

3 Adjust the lens iris opening or set the shutter to ON.

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

With a lens that has automatic iris control: Set the lens automatic/manual iris control switch to automatic.

Or, set the video level to an appropriate value, using the shutter setting.

4 Perform automatic white balance adjustment.

The message "AWB: EXECUTING" appears on the viewfinder screen. If the adjustment process succeeds, the message "AWB: OK" appears.

If automatic white balance adjustment fails

If the automatic white balance adjustment process fails, the error message "AWB: NG" appears on the viewfinder screen for about three seconds.
If this error message appears, try adjusting the white balance again.
If the subject has a higher color temperature, use an optical filter or set 5600K to ON, then try white balance adjustment again.
If the error message continues to appear after several attempts, the unit requires internal inspection.

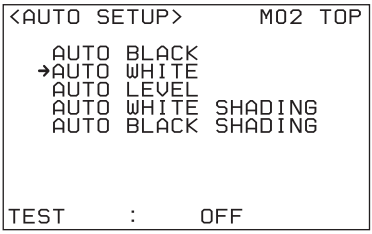
Note

When you execute the automatic white balance adjustment function on a system where the Select FPS function *(see page 107)* is enabled, set the FPS value (number of frames to shoot) to a value greater than $^1/_2$ of the maximum setting value. If the FPS value is set to a value lower than $^1/_2$ of the maximum setting value, the error message "AWB: LOW FPS" appears and the automatic adjustment is not performed.

Example: The maximum FPS value for shooting at S23.98PsF is 24. In this case, set the FPS value to 13 or higher. The maximum FPS value for shooting at S59.94PsF is 50. In this case, however, set the FPS value to 31 or higher.

To use the <AUTO SETUP> page of the MAINTENANCE menu

Referring to the procedure in "Setting the Built-in Clock" *(page 40)*, select the MAINTENANCE menu in the <TOP MENU> screen and display the <AUTO SETUP> page.



Move the cursor to AUTO WHITE, and then press the MENU SEL/ENTER dial.
Select "EXEC" when a confirmation message appears.

For details on Camera menu operations, see "Basic Camera Menu Operations" (page 124).

To use the assignable switch

If AWB is assigned to assignable switch 4, push the switch up to "4", then release it.

For details on assigning a function to the switch, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

To use a remote control unit

When the RM-B750 or RM-B150 Remote Control Unit is connected to the REMOTE connector, press the AWB button.

Setting the Camera Outputs

Selecting Video Output Signals for the Connectors

You can select the types of video signals to be output to the HD SDI MON1, HD SDI MON2, TEST OUT, and REMOTE connectors.
Use the <MONITOR OUTPUT> page of the Camera >USER (OPERATION) menu.

<MONITOR OUTPUT> page

```
<MONITOR OUTPUT>  07

COLOR:→COLOR

      [SIG]    [SRC][MLUT]
VF  : VF        CAM   OFF
MON : MON       PB    OFF
TEST: VBS       ---   ---
RM  : VBS       CAM   OFF
```

COLOR

When you select COLOR, all R, G, and B channels will be output.
Single-channel output of R, G, or B is also possible.

MON

You can select the signals to be monitored with video monitors connected to the HD SDI MON1 and HD SDI MON2 connectors.

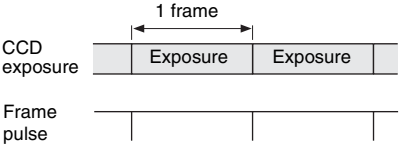
Setting	Output
MON	Regardless of the VF settings, characters or markers can be added independently to the video output signals (default).
VF	Video signals that are output to the VF connector (camera images with character data for the setting menus, status displays and so on).

TEST

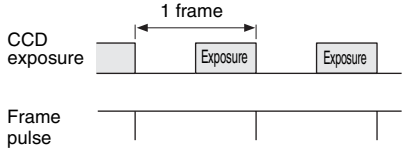
You can select the signals to be output to a video monitor or waveform monitor connected via the TEST OUT connector.

Setting	Output
VBS	VBS signals (default)
HD-Y	HD-Y signals
FRAME	One pulse per frame

Example 1: SHUTTER OFF



Example 2: SHUTTER ON, shutter angle 180º



RM VIDEO

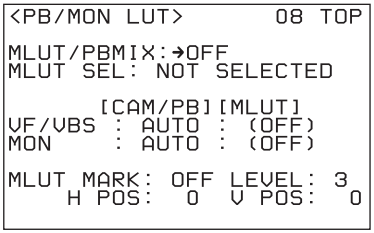
You can select the video signals to be output to equipment connected via the REMOTE connector.

Setting	Output
VBS	The VBS signals (default)
HD-Y	The HD-Y signals

Setting the Monitor Picture

Using the <PB/MON LUT> page of the Camera >USER (OPERATION) menu, you can select the gamma setting of the monitor picture and the playback picture monitor mode.

<PB/MON LUT> page



To apply monitor LUT to the monitor picture

When MLUT/PBMIX is set to MLUT, the monitor LUT (ITU-R709) appropriate for monitoring is applied to the video signals output from the VF, HD SDI MON1, HD SDI MON2, and REMOTE connectors. The video output signals from those connectors are selected on the <MONITOR OUTPUT> page.[1)]
This setting is effective when S-LOG gamma is applied to the video output signals for recording intended for postproduction editing.

1) The VBS output signal always becomes the camera image to which ITU-R709 gamma is applied.

Notes

- The monitor LUT function is enabled when you are using S-LOG A.
- Some of the paint settings (black, gamma, knee, detail, matrix, etc.) for the main line are not applied to monitor LUT.

To monitor the playback picture

You can monitor the on a playback picture can be confirmed with an external monitor or on the viewfinder screen.[1)]

1)When MLUT/PBMIX is set to MLUT or OFF, the same gamma as that applied to the main line is applied to all the outputs. When MLUT/PBMIX is set to PBMIX, the PB and PB MIX modes can be independently selected for the VF/VBS and MON. VF and VBS output the same signals respectively.

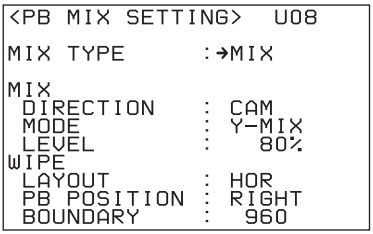
You can change the PB setting separately for the VF/VBS and MON to select their playback signal output modes.

Setting	Function
AUTO	Normally, the camera picture is output. When the unit enters playback mode (PLAY, FF, REW, or REC REVIEW), the playback picture is automatically selected (default).
CAM	The camera picture is always output.

To compare the playback and camera pictures

When PB (playback signal output mode) is set to AUTO, you can set PB MIX to ON to display the playback picture and the camera picture in the same screen.
You can change the PB MIX setting separately for the VF/VBS and MON to turn playback signal mixing on and off. The setting for both VF and VBS is the same. When it is turned on, the playback picture and camera output are mixed.
You can also use the <PB MIX SETTING> page of the Camera >USER (OPERATION) menu to select the playback picture and camera picture display modes.

<PB MIX SETTING> page



MIX TYPE

Select how to display the playback and camera pictures.

Setting	How to display
MIX	The playback picture and camera image are overlapped (default).
WIPE	The screen is horizontally or vertically split in two, and two pictures are displayed simultaneously.

MIX

When MIX TYPE is set to MIX, how to mix the pictures can be selected.

Item	Setting	Content
DIRECTION	CAM	The playback picture is gradually mixed into the camera image (default).
	PB	The camera image is gradually mixed into the playback picture.
MODE	Y-MIX	The Y signals are mixed (default).
	WIRE(W)	Only the outline components are mixed and displayed with white lines.
	WIRE(B)	Only the outline components are mixed and displayed with black lines.
LEVEL	0 to 80%	The mix level can be adjusted (default: 80%).

WIPE

When MIX TYPE is set to WIPE, you can select how pictures are to be wiped.

Item	Setting	Content
LAYOUT	HOR	Horizontally split (default)
	VERT	Vertically split
PB POSITION	RIGHT	With HOR, the playback picture is displayed on the right and the camera image on the left (default when HOR is selected).
	LEFT	With HOR, the playback picture is displayed on the left and the camera image on the right.
	BOTTOM	With VERT, the playback picture is displayed in the lower part and the camera image in the upper part (default when VERT is selected).
	TOP	With VERT, the playback picture is displayed in the upper part and the camera image in the lower part.
BOUNDARY	With HOR: 0 to 1920 With VERT: 0 to 1080	The boundary position can be changed (default: with HOR: 960, with VERT: 540).

To display a monitor LUT mark

When a monitor LUT (ITU-R709) is applied to the SDI output from the HD SDI MON1 and HD SDI MON2 connectors, or to the video in the viewfinder, you can display an MLUT mark (709Ƴ) to indicate that the applied gamma is different from the gamma of the recorded video.

Note

The monitor LUT function is enabled when you are using S-LOG A.

Set MLUT MARK to ON, then set the brightness and position of the indication.

Item	Function
LEVEL	For selecting the brightness of the monitor LUT mark among 1 to 4 (4 is the maximum brightness.)

Item	Function
H POS	For setting the horizontal position of the indication in the range of 0 to 99 (0 is the leftmost.)
V POS	For setting the vertical position of the indication in the range of 0 to 99 (0 is the uppermost.)

Outputting Color Bars

Color bar signals can be output from the unit's internal color bar generator.
Use the <OTHERS 1> page of the Camera >USER (MAINTENANCE) menu.

<OTHERS 1> page

```
<OTHERS 1>          U21

FAN MODE          : AUTO1
CAM BARS          :→OFF
 HD-BAR(VF/MON)
    BAR 16:9(100%)
 SD-BAR
    SMPTE
AUDIO SG          : OFF
IMAGE INVERT      : OFF
IRIS CLOSE        : OFF
SDI REMOTE        : OFF
```

When CAM BARS is set to ON, the color bar generator is turned on, and the color bar signal is output.
For the HD output (to the viewfinder and monitor) and SD (VBS) output, the format of the color bar signals can be independently selected. Regardless of HD output and SD output settings, the main line output is always a 16:9 (100%) color bar signal.

HD-BAR (VF/MON)

You can select the formats of the color bar signals sent to the VF, HD SDI MON1 and HD SDI MON2 connectors from among 17 types.

SD-BAR

You can select the formats of the color bar signals to the TEST OUT and REMOTE connectors from among five types.

Item	Selectable color-bar formats
HD-BAR (VF/MON)	BAR 16:9 (100%), BAR 16:9 (75%), SMPTE 16:9 (BLACK) BAR 4:3 (100%), BAR 4:3 (75%), SMPTE 4:3 (BLACK), MF-ARIB (75%), MF-ARIB (100%), MF-ARIB (+I), MF-SMPTE (–I, Q)
SD-BAR	SMPTE, EIA, FULL (EBU), 95%, NTSC100% (PAL100%)

Note

The color bar signal is not output with the video output from the VF, HD SDI MON1, HD SDI MON2, and REMOTE connectors if the monitor LUT (R709) is selected for MLUT/PBMIX of the respective output on the <PB/MON LUT> page *(see page 132)* (except when a VBS signal is output).

Outputting Rec Trigger Signals

By outputting Rec Trigger signals to an SRW-1/SRPC-1 connected to the HD SDI MON1 or HD SDI MON2 connector or the HD SDI OUT A/B connector (when the HKSR-9001 is installed), you can configure a function that enables recording in conjunction with the unit.
Use the <OTHERS 1> page of the Camera >USER (MAINTENANCE) menu.

<OTHERS 1> page

```
<OTHERS 1>          U23

FAN MODE          : AUTO1
CAM BARS          : OFF
 HD-BAR(VF/MON)
    BAR 16:9(100%)
 SD-BAR
    SMPTE
AUDIO SG          : OFF
IMAGE INVERT      : OFF
IRIS CLOSE        : OFF
SDI REMOTE        :→CHARA
```

Notes

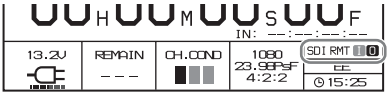
- Even if there is no cassette loaded in the unit or the tape ends, Rec Trigger signals will be output when you press the REC button (or RUN button).
- If the tape ends or the cassette is removed while Rec Trigger signals are being output, tape recording will start when you load a new cassette and press the REC button (or RUN button).

Set SDI REMOTE to CHAR, G-TLY, or R-TLY. Depending on the status of the unit, the viewfinder, unit tally indicator, and control panel displays will be as follows.

Unit status	SDI REMOTE setting	SDI REMOTE output status	Display
Not recording	CHAR	REC	• Viewfinder: “REC2” flashes on the screen. • Control panel: The “O” for SDI RMT is displayed in red.
		STOP	• Control panel: The “O” for SDI RMT is displayed in white.
	G-TLY	REC	• Viewfinder: The green tally lights. • Unit tally indicator: Lights in green. • Control panel: The “O” for SDI RMT is displayed in red.
		STOP	• Control panel: The “O” for SDI RMT is displayed in white.
	R-TLY	REC	• Viewfinder: The red tally lights. • Unit tally indicator: Lights in red. • Control panel: The “O” for SDI RMT is displayed in red.
		STOP	• Control panel: The “O” for SDI RMT is displayed in white.
Recording	CHAR	REC	• Viewfinder: “REC2” flashes on the screen. The red tally lights. • Control panel: The “O” for SDI RMT is displayed in red.
	G-TLY	REC	• Viewfinder: The green tally lights. The red tally lights. • Unit tally indicator: Lights in red. Lights in green once every 4 seconds. • Control panel: The “O” for SDI RMT is displayed in red.
	R-TLY	REC	• Viewfinder: The red tally lights. • Unit tally indicator: Lights in red. • Control panel: The “O” for SDI RMT is displayed in red.

Viewfinder display

Control panel display



Viewing Settings and Indications in the Viewfinder

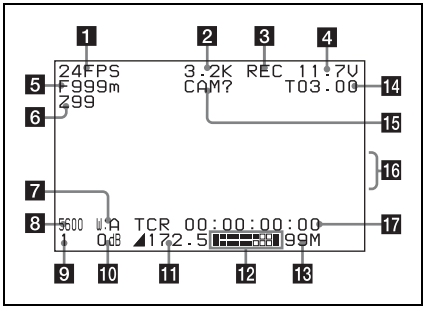
In addition to the video, the viewfinder can display text and messages showing the settings and operating status of the unit.
The same information can be displayed on the monitors connected to the HD SDI MON1 and HD SDI MON2 connectors.

Note

This information is not displayed when the unit is in menu operation mode. Exit menu operation mode to view the information.

Viewing the Basic Status

The following status indications can be superimposed on the camera picture. They appear when you press the VF MENU/DISPLAY button. The display conditions can be specified on the <VF DISPLAY> page of the Camera >USER (OPERATION) menu.



1 Frame rate

The current frame rate is displayed.

2 Color temperature

Displays the color temperature.

3 Recording mode

"REC" is displayed when the recorder docked on the camera is in recording mode.

4 Battery indication

Indicates the input power voltage.

The indication begins to flash if the voltage decreases to the NEAR END value specified on the <BATT ALARM SET> page of the Camera >MAINTENANCE menu. The flashing becomes quicker when the voltage decreases further and approaches the END value. You can check the NEAR END and END values on the <BATTERY ALARM> page of the Camera >USER (OPERATION) menu and on the SYSYTEM Setup >BATTERY of the VTR menu.

5 Focus position

Shows the focus position of a zoom lens as a numeric value.
With an ARRI LDS lens: 0 to 1023
With a Cooke/i lens: 0.00 m to 999 m
May be shown in inches with some lenses: 0000000 to 9999999 (inches × 10)

6 Zoom position

Indicates the approximate position of the zoom lens variator between wide angle and telephoto.
With an ARRI LDS lens: Z0 (wide) to Z1023 (tele)
With a Cooke/i lens: Z1 (wide) to Z9999 (tele) (focal length: 1 mm to 9999 mm)

7 White balance memory

Displays the currently selected white balance memory.
W:A: Memory A
W:B: Memory B
W:P: Preset memory
The setting is fixed at W:P in Cine or Cine-EI mode.
In Custom mode, you can change the setting using the subdisplay or from a remote control unit.

8 Color temperature filter mode

Indicates the state of the electrical filter.
In Cine or Cine-EI mode, "5600" is displayed when the daylight filter is selected. When the tungsten filter is selected, this column becomes blank.
In Custom mode, "5600" is displayed when 5600K is set to ON.

9 Optical filters

Displays the types of currently selected two filters.

10 Gain value

Displays the video gain value (dB) of the video amplifier.

11 Shutter

Displays the shutter setting as a shutter angle or speed. For a shutter angle, ◢ is displayed at the left.
The type of the display, angle (deg) or speed (sec), can also be switched on the <VF DISPLAY> page of the Camera >USER (OPERATION) menu (default: deg).

12 Audio level meters

The upper row displays the maximum levels for odd-numbered channels. The lower row displays the maximum levels for even-numbered channels.

13 Tape remaining

Indicates the approximate remaining tape time in minutes.

14 Iris setting

Indicates the iris setting of the lens.
With an ARRI LDS lens: I0 to I1023
With a Cooke /i lens: T00.00 to T99.99

15 Self-diagnosis information

If an error occurs on an internal board or elsewhere, “CAM?” appears here, and an error message appears in the message area.
This indication cannot be turned off.

For the error messages, see “Warning/Error Messages” (page 202).

16 Message area

Displays the status of auto setup processing, error messages, and so on.

For the error messages, see “Warning/Error Messages” (page 202).

17 Timecode area

Displays the same timecodes as the subdisplay.

For details, see “Checking Timecode and the Remaining Tape Time” (page 52).

To select the basic status indications

You can use the <VF DISPLAY> page of the Camera >USER (OPERATION) menu to select the basic status indications that you want appear in the viewfinder.

<VF DISPLAY> page

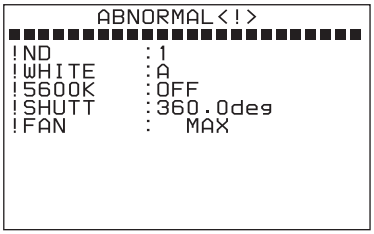
```
<VF DISPLAY>      U01

FPS    :→ ON   GAIN   :  ON
FOCUS  :  OFF  SHUTT  :  ON
IRIS   :  OFF   UNIT  : deg
ZOOM   :  OFF  BATT   :  ON
ND     :   ON  REC    :  ON
5600K  :  OFF  TAPE   : OFF
WHITE  :  OFF  TC     : OFF
               AUDIO  :  ON
               MESSAG : ALL
               C TEMP : OFF
```

Item	Setting
FPS	Set to ON to obtain the frame rate indication 1.
FOCUS	Set to ON to display the focus position indication 4.
IRIS	Set to ON to display the F value indication 13.
ZOOM	Set to ON to display the zoom position indication 5.
ND	Set to ON to display the optical filter indications 8.
5600K	Set to ON to display the 5600 indication 7.
WHITE	Set to ON to display the white balance memory indication 6.
GAIN	Set to ON to display the gain value indication 9.
SHUTT	Set to ON to display the shutter indication 10.
UNIT	Select the unit for the shutter indication. **deg:** Shutter angle (default) **sec:** Shutter speed (sec)
BATT	Set to ON to display the battery indication 3.
REC	Set to ON to display the recording mode indication 2.
TAPE	Set to ON to display the tape remaining indication 12.
TC	Set to ON to display the timecode indication 16.
AUDIO	Set to ON to display the audio level meters 11.
MESSAG	Select the type of messages to be displayed in the message area 15. **ALL:** Display all messages **AT:** Display auto setup information and higher **WRN:** Display warning messages and higher **OFF:** Display warning messages of the highest level only

Item	Setting
C TEMP	Set to ON to display the color temperature.

Viewing the ABNORMAL <!> Display

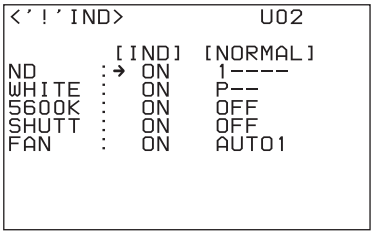
An ABNORMAL< ! > screen like the one shown below appears if you press the CANCEL/STATUS button when the basic status indications are displayed in the viewfinder.



This screen allows you to check for items that are set to non-standard settings.
You can select the items to display and define non-standard settings on the <'!' IND> page of the Camera >USER (OPERATION) menu.

Setting the ABNORMAL<!> indications

<'!' IND> page



For each item, select ON in the [IND] column if you want that item to appear in the ABNORMAL<'!'> screen.
Specify the standard setting in the [NORMAL] column.
When an item is set to select ON in the [IND] column, and the setting is other than the setting specified in the [NORMAL] column, that condition is indicated in the ABNORMAL<'!'> screen.

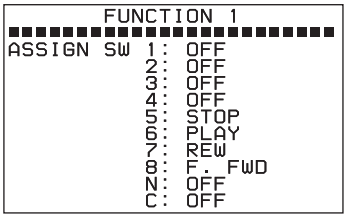
Item	Setting
ND	ND filter selection: 1, 2, 3, 4, 5 (combination allowed)
WHITE	White balance memory selection: P, A, B (combination allowed)
5600K	Custom mode: 5600K ON/OFF Cine/Cine-EI mode: ON for Daylight, OFF for Tungsten
SHUTT	Shutter mode ON/OFF
FAN	Fan operation mode selection: AUTO1, AUTO2, MIN or MAX

Viewing the FUNCTION (Format/Switch Function)/SYSTEM (System Settings) Display

When the ABNORMAL<'!'> screen *(see page 66)* is displayed, you can press the CANCEL/STATUS button repeatedly to cycle through the following screens.
FUNCTION 1 screen → FUNCTION 2 screen → SYSTEM screen → basic status indications → ...

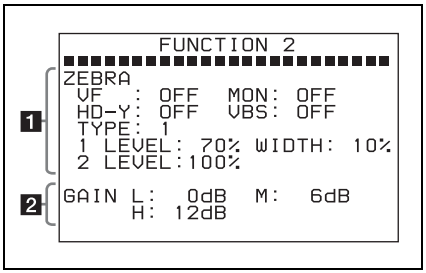
FUNCTION 1 screen

This screen shows the functions assigned to the assignable buttons/switch.



For functions that can be assigned, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

FUNCTION 2 screen



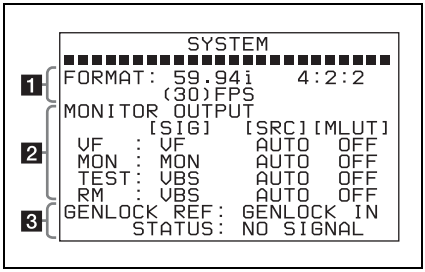
1 Zebra settings

Displays the zebra settings.

2 Gain switch values

Displays the values assigned to the L/M/H positions of the gain switch.

SYSTEM screen



1 Format

Display the current video format.

For details on the formats, see "Detailed Video Format Settings" (page 79).

2 Monitor output settings

Displays the current settings of the monitor outputs.

3 Genlock status

Displays the reference signal setting and the status of the input signal.

Specifying and Displaying Markers

You can display various markers, such as the center marker and safety zone marker, on the viewfinder and monitor screens.

Example: Center marker (entire cross)

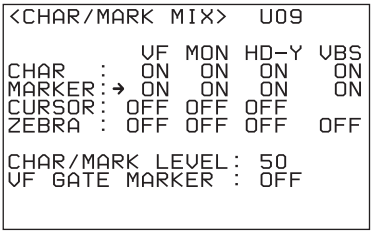
Example: Safety zone marker (90%)

The <CHAR/MARK MIX> page and <MARKER SETTING> page of the Camera >USER (OPERATION) menu allow you to switch the display of the markers on or off and to specify the appearance, and parameters of the markers.

Activating/deactivating marker display on each output

The <CHAR/MARK MIX> page allows you to activate and deactivate the display of markers on each output.

<CHAR/MARK MIX> page



The display of markers (MARKER) is set to ON for all outputs when the unit is shipped from the factory.

Item	Setting
VF	Turn all the markers on or off in the viewfinder.
MON	Turn the markers on or off on the monitors connected via the HD SDI MON1 or HD SDI MON2 connector.

Item	Setting
HD-Y	Turn the markers on or off on the monitors connected to the HD SDI OUT A/B connectors (when the HKSR-9001 is installed).
VBS	Turn the markers on or off on the monitors connected via the TEST OUT and REMOTE connectors.

The CHAR/MARK LEVEL line allows you to adjust the brightness (0 to 50) of the character and marker indications.

Specifying the markers to be displayed

The <MARKER SETTING> page allows you to select the markers that you want to display. The selected markers will appear on an output if marker display for that output has been activated on the <CHAR/MARK MIX> page.

<MARKER SETTING> page

```
<MARKER SETTING> U03

CENTER     :→OFF   1
SAFETY     : OFF   90.0%
EFFECTIVE  : OFF
ASPECT     : OFF   4:3
 VARIABLE  : --
 SAFETY    : OFF   90.0%
 MASK      : OFF   12
CURSOR     : BOX
 POSI H/V  :    0       0
 SIZE W/H  :  960     540
```

All the markers have been set to OFF at the factory.

Item	Setting
CENTER	Set to ON to display the center marker and select the type of the center marker. 1: Entire cross 2: Entire cross with a hole 3: Center 4: Center with a hole
SAFETY	Set to ON to display the safety zone marker and specify the range (80%, 90%, 92.5%, or 95%).
EFFECTIVE	Set to ON to display the effective pixel area.
ASPECT	Set to ON to display the aspect marker and specify the aspect: 2.40:1, 2.35:1, 1.85:1, 1.66:1, 16:9, 15:9, 14:9, 13:9, 4:3, VAR H, VAR V
VARIABLE	If you select VAR H or VAR V for ASPECT, set the H or V value. VAR H: 12 to 1920 VAR V: 12 to 1080
SAFETY	Set to ON to display the safety zone for the selected aspect marker, and specify the range.
MASK	Set to ON to make the areas outside the selected aspect marker dimmer, and select the mask level (0 to 15).

Making Viewfinder Detail Adjustments

You can adjust the image on the viewfinder screen to obtain a clearer view, using the <VF/HD-Y DETAIL> page of the Camera >USER (OPERATION) menu. This adjustment does not affect the image being recorded.

<VF/HD-Y DETAIL> page

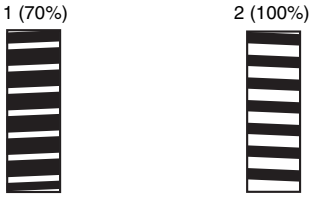
```
<VF/HD-Y DETAIL>  U04

VF         :→ OFF
HD-Y       :  OFF

 LEVEL     :     25%
 CRISP     :      0
```

Item	Function
VF	Turn the VF detail adjustment function on or off.
HD-Y	Turn the monitor picture detail adjustment function on or off.
LEVEL	Set the level (0 to 100%) of the VF detail adjustment function (when VF is ON).
CRISP	Set the noise crispening level (–99 to +99).

Displaying Zebra Patterns

You can display zebra patterns on the viewfinder and monitor screens.

Zebra (default settings)



Use the <ZEBRA> page of the Camera >USER (OPERATION) menu to adjust zebra patterns and turn them on and off.

<ZEBRA> page

```
<ZEBRA>                U05

VF                :→ OFF
MONITOR           :   OFF
HD-Y              :   OFF
VBS               :   OFF

 ZEBRA TYPE       :     1
 ZEBRA1 LEVEL     :   70%
        WIDTH     :   10%
 ZEBRA2           :  100%
```

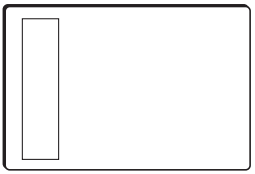
Item	Function
VF [a)]	Turn the zebra pattern in the viewfinder on and off.
MONITOR [a)]	Turn the zebra pattern on the monitors connected to the HD SDI MON1 or HD SDI MON2 connector on and off.
HD-Y [a)]	Turn the zebra pattern on the monitor on and off.
VBS [a)]	Turn the zebra pattern on a device connected via the REMOTE connector on and off.
ZEBRA TYPE	Select the zebra type to be displayed: 1, 2, or 1&2
ZEBRA1 LEVEL	Adjust the level (0 to 109%) of the zebra 1 indication (factory default: 70%).
WIDTH	Adjust the width (0 to 30%) of the zebra 1 indication (factory default: 70%).
ZEBRA2	Adjust the level (50 to 109%) of the zebra 2 indication (factory default: 100%).

a) These items can also be set on the <CHAR/MARK MIX> page.

Specifying and Displaying Cursors

You can display cursors on the viewfinder and monitor screens.

Example: Box cursor



Activating/deactivating cursor display on each output

The <CHAR/MARK MIX> page of the Camera >USER (OPERATION) menu allows you to activate and deactivate the display of cursors on each output.

<CHAR/MARK MIX> page

```
<CHAR/MARK MIX>   U09

              VF  MON  HD-Y  VBS
CHAR     :   ON   ON    ON    ON
MARKER   :   ON   ON    ON    ON
CURSOR   :→OFF  OFF   OFF
ZEBRA    :  OFF  OFF   OFF   OFF

CHAR/MARK LEVEL :  50
VF GATE MARKER  : OFF
```

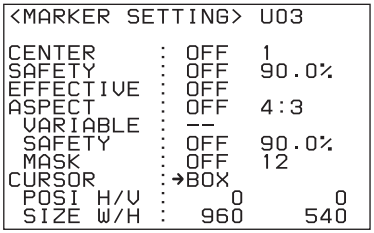
The display of cursors (CURSOR) is set to OFF for all outputs when the unit is shipped from the factory.

Item	Function
VF	Turn the display of cursors on the viewfinder on and off.
HD-Y	Turn the display of cursors on the monitor on and off.
MON	Turn the display of cursors on the monitors connected to the HD SDI MON1 or HD SDI MON2 connector on and off.

Selecting the type and size of the cursor

The <MARKER SETTING> page allows you to select the type and size of the cursor.
The cursor will appear on an output if cursor display for that output has been activated on the <CHAR/MARK MIX> page.

<MARKER SETTING> page

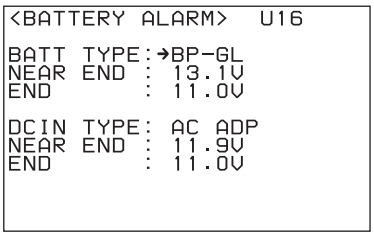


Item	Function
CURSOR	Select the type (BOX/CROSS) of the cursor to be displayed.
POS1 H/V	Set the H (horizontal) position (–958 to +956) and the V (vertical) position (–538 to +536) of the center.
SIZE W/H	Set the width (from the center to right or left side) (16 to 1920) and the height (from the center to top or bottom) (16 to 1080) of the cursor.

Checking the Power Supply Voltage

You can check the NEAR END and END settings, which specify trigger values for low voltage warnings, on the <BATTERY ALARM> page of the Camera >USER (OPERATION) menu.

<BATTERY ALARM> page



Item	Indication
BATT TYPE	Selects the type of battery to check.
NEAR END	Displays the NEAR END value of the battery selected with BATT TYPE.
END	Displays the END value of the battery selected with BATT TYPE.
DCIN TYPE	Selects the type of power supply to check.
NEAR END	Displays the NEAR END value of the power supply selected with DCIN TYPE.
END	Displays the END value of the power supply selected with DCIN TYPE.

The only items that can be changed on this page are the two TYPE items (BATT TYPE and DCIN TYPE), which specify the type of battery or power supply to check. If you want to change the values, use the <BATT ALARM SET> page of the Camera >MAINTENANCE menu.

Detailed Function Settings

You can use the <SW ASSIGN 1> and <SW ASSIGN 2> pages of the Camera >USER (OPERATION) menu to assign functions to the assignable buttons/switch, in the same way that you assign functions using the subdisplay. You can also set the operation mode of the MENU SEL/ENTER dial.

<SW ASSIGN 1> page

```
<SW ASSIGN 1>     U13

ASSIGN SW1 :→OFF
ASSIGN SW2 : OFF
ASSIGN SW3 : OFF
ASSIGN SW4 : OFF
ASSIGN SW5 : STOP
ASSIGN SW6 : PLAY
ASSIGN SW7 : REW
ASSIGN SW8 : F.FWD
```

<SW ASSIGN 2> page

```
<SW ASSIGN 2>     U14

ASSIGN SWN :→OFF
ASSIGN SWC : OFF
RE.ROTATION: STD
```

Assigning functions to the assignable buttons/switch

Move the cursor to one of the ASSIGN SW1 to ASSIGN SW8 lines, or to the ASSIGN SWN or ASSIGN SWC line, and then press the MENU SEL/ENTER dial. The settings page for the corresponding assignable button/switch appears. Assign functions in the same way that you assign functions in the subdisplay.

For the assignable functions, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

Setting page for assignable button 1

```
      ASSIGN SW1        ESC

→OFF
 REC REVIEW
 PB(VF/VBS)
 MLUT(VFVBS)
 MLUT(MON)
 FAN MODE
 VTR SAVE
 BARS
 STOP
 REW
```

The setting pages for buttons 2, 3, 5 to 8, N and C have the same layout as that for button 1.

Setting page for assignable switch 4

```
      ASSIGN SW4        ESC

→OFF
 AWB
 BARS
 TEST1
```

On each page, move the cursor to the function to be assigned and press the MENU SEL/ENTER dial.

Setting the operation mode of the MENU SEL/ENTER dial

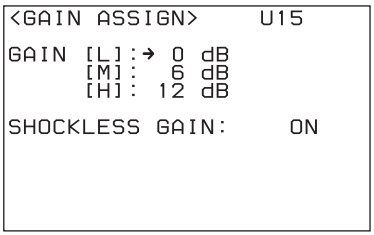
You can reverse the operations that occur when the MENU SEL/ENTER dial is turned in the clockwise or counterclockwise direction. This setting applies to the dial on the AP-1 (optional) as well as to the one on the right-side panel of the main unit.

Setting	Operation
STD (default)	Clockwise rotation moves the cursor down (to the next position) or increases a setting value.
RVS	Clockwise rotation moves the cursor up (to the previous position) or decreases a setting value.

Setting the Gain

If the gain of the video amplifier of the unit is to be switched using the gain switch of the RM-B150 Remote Control Unit, the gain values for the corresponding switch positions must be specified in advance.
Use the <GAIN ASSIGN> page of the Camera >USER (OPERATION) menu.

<GAIN ASSIGN> page



Menu item	Setting
GAIN [L]	Gain value corresponding to the L position of the gain switch
GAIN [M]	Gain value corresponding to the M position of the gain switch
GAIN [H]	Gain value corresponding to the H position of the gain switch
SHOCKLESS GAIN	Shockless gain on or off

Any of –6, –3, 0, 3, 6, 9, or 12 dB can be set for each of the L, M, and H positions, in any sequence.

Note

The gain value is fixed to 0 dB in Cine-EI mode.

Relationship between dynamic range and gain

The dynamic range determined by the gain setting on the unit is the same for all formats at 460% for 0 dB or lower and 800% for 6 dB or higher.

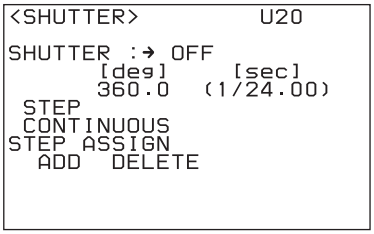
Dynamic range	Gain
460%	–6 dB, –3 dB, 0 dB
650%	3 dB
800%	6 dB, 9 dB, 12 dB

Setting the gain so that the dynamic range is 800% enables reproduction of gradation at high luminance. In such cases, however, the S/N (noise in dark areas) will decrease due to the inverse relationship between the dynamic range and the S/N. If you want to prioritize the S/N, configure the gain setting so that the dynamic range is 460%.

Detailed Shutter Settings

When you turn this unit's Electronic Shutter function on, you can control the shutter by selecting either shutter angles or shutter speeds (seconds).
You can use the subdisplay for normal shutter switching, and make more detailed settings on the <SHUTTER> page of the Camera >USER (PAINT) menu. The menu allows you to set the shutter on a page that displays the shutter angle (degrees), the shutter speed (seconds), and the shutter mode.

<SHUTTER> page



SHUTTER

To activate the electronic shutter, set this to ON. The [deg] field displays the currently selected shutter angle, and the [sec] field displays the speed (in seconds), converted according to the current frame rate.

STEP (Step mode)

To select a step shutter value, move the cursor to this line.
Turn the MENU SEL/ENTER dial to display registered shutter values in the [deg] and in [sec] fields.

CONTINUOUS (Continuous mode)

To fine-adjust the selected shutter step value or use a value that has not been registered as a shutter step value, move the cursor to this line. The values in the [deg] and [sec] columns change continuously when the MENU SEL/ENTER dial is turned.

STEP ASSIGN

You can add and delete shutter step values in the same way as with the <SHUTTER ASSIGN> page *(see page 133)* of the Camera >USER (OPERATION) menu.

ADD: After a Continuous mode operation to specify a shutter value in the [deg] field, you can use ADD to register that value as a new shutter step. If eight shutter step values have been already registered, "STEPS FULL" appears, and the new value is not registered. In that case, use DELETE to delete an unneeded shutter step value and try again.

DELETE: Deletes the shutter step value displayed in the [deg] field by a step operation.

See "Shutter Settings" (page 45) for more information about shutter step values.

FRAME RATE

When the optional HKSR-9002 is installed, select the frame rate (number of frames to shoot), for when Select FPS is selected as the video format. You can select from the ranges in the following table.

Selected format	Selectable frame rates (number of frames to shoot)
S23.98PsF/S24PsF	1 to 24 FPS (1 to 24 frames)
S25PsF	1 to 25 FPS (1 to 25 frames)
S29.97PsF/S30PsF	1 to 30 FPS (1 to 30 frames)
S50P	1 to 50 FPS (1 to 50 frames)
S59.94P/S60P	1 to 50 FPS (1 to 50 frames)

Note

When you have selected a format other than Select FPS, the frame rate is displayed in parentheses and cannot be changed.

COMP MODE

When the optional HKSR-9002 is installed, you can compensate for changes in the video level when the frame rate (number of frames to shoot) is changed. There are two compensation modes, which use either the shutter angle or electrical gain.

ANGLE (angle compensation mode): When the frame rate is changed, the video level is held constant by automatically adjusting the shutter angle.

Notes

- In angle compensation mode, the frame rate cannot be changed to a low value when the angle approaches 0°, and the frame rate cannot be changed to a high value when the angle approaches 360°.

- In angle compensation mode, the shutter is automatically switched to ON.

GAIN (gain compensation mode): When the frame rate is changed, the video level is held constant by automatically adjusting the electrical gain. The shutter angle is held constant.

Notes

- Depending on the selected format and FPS value, the dynamic range (latitude) may decline up to a maximum of $^{1}/_{2}$. Be aware of this when you are shooting scenes with high contrast.
- When the unit is shipped from the factory, the frame rate ranges that can be selected for the Select FPS function *(see page 107)* are limited. When COMP MODE is set to OFF or ANGLE, it is not possible to select a frame rate of 8 FPS or below. This limitation is intended to prevent degraded video quality. To remove this limitation, change the setting of FPS LIMITER on the <OTHERS 2> page of the MAINTENANCE menu from LIMIT to FREE. However, if you do set the frame rate to 8 FPS or below, noise will become more prominent in the picture. When you change the setting of FPS LIMITER from FREE back to LIMIT, COMP MODE is automatically set to OFF.

Restoring Factory Default Settings

The <OPERATOR FILE> page of the Camera >USER (OPERATION) menu allows you to return the operation items on pages U02 to U14 of the USER menu to the settings they had when the unit was shipped from the factory default.

<OPERATOR FILE> page

```
<OPERATOR FILE>  U16

   READ  (MS →CAM)
   WRITE (CAM→MS )

  →PRESET


FILE ID:
CAM CODE
DATE
```

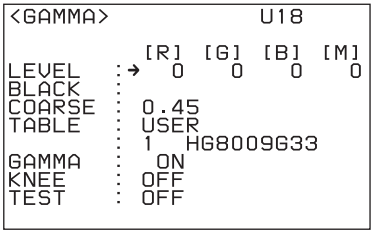
Move the cursor to PRESET and press the MENU SEL/ENTER dial. The operation items are reset to the settings they had when the unit was shipped from the factory.

See Chapter 8 “Storage and Retrieval of User Setting Data” (page 186) for “Memory Stick” and other file operations.

Selecting the Gamma

In addition to the built-in standard gamma and HyperGamma curves, you can create and use your own user gamma tables.
Use the <GAMMA> page of the Camera >USER (PAINT) menu to turn gamma correction on and off and to select gamma curves.

<GAMMA> page



You can also select the gamma on the gamma table selection page *(see page 55)* of the subdisplay.

Note

The gamma curve setting is fixed to S-LOG A in Cine-EI mode.

Using the Standard Gamma

Standard gamma provides video gamma curves intended mainly for the creation of broadcast content. It is used in combination with the Knee function, which adjusts the dynamic range of high-luminance areas.
When STANDARD is selected on the first line of TABLE on the <GAMMA> page, you can select from among the following standard gamma curves on the second line.

Gamma table No.	Gamma curve
1	Equivalent to SD ENG camcorder
2	Equivalent to 4.5-times gain
3	Equivalent to 3.5-times gain
4	Equivalent to SMPTE-240M
5	Equivalent to ITU-R709
6	Equivalent to 5.0-times gain
7	Equivalent to 5.0-times-709 gain

The No. 5 (ITU-R709) curve is recommended for normal use.
Note that ITU-R709 provides 4.5-times gain near black. Select the No. 6 (×5.0) curve when you need higher contrast near black.

Using HyperGamma

Hyper Gamma enables the wide dynamic range of the CCD sensors to be reproduced with smooth contrast without using the Knee function.
This camera provides the following eight hyper gamma choices:

Available Hyper Gamma choices

No.	Name [1)]	Dynamic range	White limit	Video output with 18% gray card (video input 20%)
1	HG3250G36	325%	100%	36%
2	HG4600G30	460%	100%	30%
3	HG3259G40	325%	109%	40%
4	HG4609G33	460%	109%	33%
5	HG8000G36	800%	100%	36%
6	HG8000G30	800%	100%	30%
7	HG8009G40	800%	109%	40%
8	HG8009G33	800%	109%	33%

1) Naming rule: HG + 3 digits of dynamic range value + 1's digit of white limit + G + video output value with 18% gray card

For the respective curves, see the figures in "HyperGamma curves" (page 76).

Reproducibility of high luminance areas

You can select the dynamic range from among 325%, 460%, and 800%. Selecting a wide dynamic range, such as 800%, enables reproduction of gradation at high luminance. However, the brightness of intermediate gradation will be lowered.

White limit

You can select either 109% or 100% for the maximum value of video output (white limit). While reproduction up to 109% is possible with SDI outputs, only 100% may be available, depending on the environment of the production system. In such conditions, select 100% as the white limit.

Midtone

You can select two values for the brightness of intermediate gradation areas around skin tones. Selecting a curve for bright intermediate gradation may slightly inhibit reproducibility of the high luminance.

To select HyperGamma

1 Select HYPER GAMMA on the first line of TABLE on the <GAMMA> page and select the hyper gamma curve most suitable to the shooting conditions and purpose on the second line.

```
<GAMMA>                U18

              [R]  [G]  [B]  [M]
LEVEL    :→    0    0    0    0
BLACK    :
COARSE   :  0.45
TABLE    :  HYPER GAMMA
         :  8   HG8009G33
GAMMA    :    ON
KNEE     :  OFF
TEST     :  OFF
```

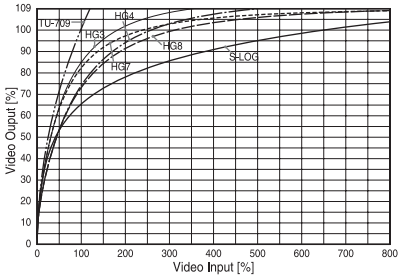
2 Observing the output video level for a gray card of 18% reflection rate on a waveform monitor, adjust the iris so that the level becomes equal to that shown in the "Video output with 18% gray card" column of the "Available Hyper Gamma choices" table. (The iris setting in this condition is the standard iris setting for the selected hyper gamma.)

Notes

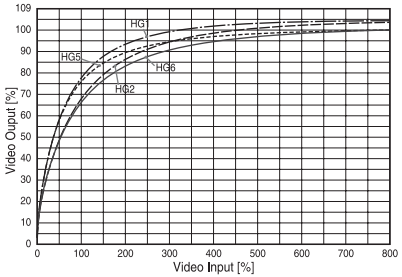
- When this unit is in Custom mode *(see page 43)*, white clip level adjustment is allowed, but the white limit values shown in the "Available Hyper Gamma choices" table may not be obtained if you adjust the white clip level.
- With a Hyper Gamma selected, the knee and gamma level adjustments are not allowed, even in Custom mode.

HyperGamma curves

HG3: HG3259G40
HG4: HG4609G33
HG7: HG8009G40
HG8: HG8009G33



HG1: HG3250G36
HG2: HG4600G30
HG5: HG8000G36
HG6: HG8000G30



Using S-LOG

You can select "S-LOG A" (Sony-Log) on TABLE and SPECIAL on the <GAMMA> page. Sony Log (called "S-Log" below) is a gamma function optimized for CCD cameras. It was developed for use in the DI (digital intermediate) workflow of film production, in which the camera negative captured on film is digitally processed to create the digital master release print.

S-Log allows you to monitor the full latitude of Sony digital cinema cameras, which is comparable to that of film cameras, and to perform color correction (grading). The camera image can be treated as a “digital negative” in workflows optimized for digital processing of negative film.
By working with this “digital negative”, you can make a smooth transition from film production to digital cinema production. You can use the same ISO sensitivity ratings, light meters, and shooting style as always, and enjoy a latitude comparable to that of negative film.

For more information about S-Log, refer to the “S-Log Whitepaper”. Contact a Sony service representative for information about how to obtain this whitepaper.

Using ISO800 mode

ISO800 mode is a shooting mode that provides appropriate contrast and a dynamic range up to 800% while shooting with sensitivity comparable to ISO800.
To put the unit into ISO800 mode, select HG7-ISO800 or HG8-ISO800 on TABLE >SPECIAL on the <GAMMA> page.
HG7-ISO800 is based on HG7:HG8009G40, and HG8-ISO800 is based on HG8:HG8009G33.
While preserving the characteristics of HG7 and HG8, they support sensitivity comparable to ISO800, delivering both high sensitivity and a wide dynamic range.
Because noise components become more prominent when the sensitivity is raised as high as ISO800, the Noise Suppression function *(see page 150)* is turned on automatically whenever the unit enters ISO800 mode. This decreases the amount of noise (noise suppression effect level: 60%).
You can change the noise suppression effect level of the Noise Suppression function on the <NOISE SUPPRESS> page of the PAINT menu. When a gamma curve other than HG7-ISO800 or HG8-ISO800 is selected, the setting of the Noise Suppression function returns to the setting in force immediately before the unit switched to ISO800 mode.

Using User Gamma

You can also use the CvpFileEditor [1)] software to create your own gamma tables on your personal computer, and load those table into the unit via a “Memory Stick”.
Note that gamma control (LEVEL, ON/OFF) may be disabled when a user gamma table is selected, because the gamma may have been forcibly fixed when the table was created.
When the unit is shipped from the factory, it is set up to use a user gamma table initialized to HG8009G33.

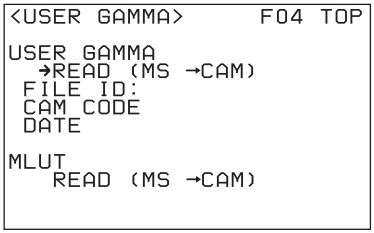
1) CvpFileEditor is a trademark of Sony Corporation.

To select a user gamma table

1 To use a gamma table you have created, load it into the unit.

Load the gamma table data via a “Memory Stick” using the <USER GAMMA> page of the FILE menu in Custom mode.

<USER GAMMA> page



For details on file operations, see Chapter 8 “Storage and Retrieval of User Setting Data” (page 186).

2 Select the user gamma.

Select USER on the first line of TABLE on the <GAMMA> page of the Camera >USER (PAINT) menu and display the desired user gamma table.

When the black level of a user gamma table has been set to “0” using CvpFileEditor V4.0, the master black (BLACK [M]) setting is fixed to “0” (factory setting), and “– –” is displayed.

CvpFileEditor

The unit supports CvpFileEditor Version 3.0 or later.

If you have an earlier version of CvpFileEditor, you can download the latest version from "eCSite", the site for downloading business and professional software from Sony Corporation.

If you have not registered at "eCSite," access the following URL and register.
https://www.ecspert.sony.biz/ecsite/center/registUserInfo?action=regulationsDirect

For detailed information on how to install the software, refer to the CvpFileEditor manual, available from the above site.

Inverting the Camera Picture

The image-inversion function allows you to cancel the image inversion phenomena that occurs when a cine-lens converter is used.
Use the <OTHERS 1> page of the Camera >USER (MAINTENANCE) menu to access this function.

<OTHERS 1> page

```
<OTHERS 1>          U21

FAN MODE            : AUTO1
CAM BARS            : OFF
 HD-BAR(VF/MON)
    BAR 16:9(100%)
 SD-BAR
    SMPTE
AUDIO SG            : OFF
IMAGE INVERT        :→OFF
IRIS CLOSE          : OFF
SDI REMOTE          : OFF
```

Set IMAGE INVERT to ON to activate the image inversion function. The camera picture is inverted vertically and horizontally.
Processing of camera video takes more time when the image inversion function is on. Carry out lip sync compensation as required.

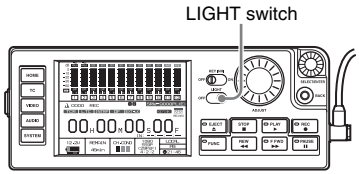
See "Lip Sync Compensation" (page 218) for more information about lip sync compensation.

Display Settings

The display of the control panel displays VTR menus and information such as audio levels, warnings, operating status indications, time data, remaining tape capacity, and remaining battery capacity.

For details, see “Display” (page 26).

If the display is hard to see because of low light conditions, you can set the LIGHT switch to ON to turn on the backlight.



Use the VTR menu to make display settings.

For details on menu operations, see “VTR Menu Operations” (page 171).

To make the backlight brighter

Select LCD >BRIGHT in the SYSTEM Setup menu *(see page 181)* and adjust the brightness (0 to 31) in the Backlight Brightness window.

To turn the backlight off after a specified interval

Select LCD >LIGHT OFF in the SYSTEM Setup menu *(see page 181)* and select the time that the backlight should remain on (5 sec to 5min) in the Backlight Off Timer window.
To keep the backlight on, select “Disable”.

To display a screen saver after a specified interval

Select LCD >SAVER in the SYSTEM Setup menu *(see page 181)* and select the time after which the screen saver should appear (1min to 1hour) in the Screen Saver window.
Select “Disable” if you do not want to display a screen saver.

Detailed Video Format Settings

On this unit, you can select the video formats listed in the following table.

Frame rate	Signal format	Bit length
23.98PsF	YCbCr 4:2:2	10
	RGB 4:4:4	10 or 12
24PsF	YCbCr 4:2:2	10
	RGB4:4:4	10 or 12
25PsF	YCbCr 4:2:2	10
	RGB4:4:4	10 or 12
29.97PsF	YCbCr4:2:2	10
	RGB4:4:4	10 or 12
50P	YCbCr 4:2:2	10
59.94I	YCbCr 4:2:2	10
	RGB 4:4:4	10 or 12
50I	YCbCr 4:2:2	10
	RGB 4:4:4	10 or 12

You can check the currently selected format in the SYSTEM screen *(page 66)*.

You can register eight of your most frequently used formats from the above list, which allows you to select them on the subdisplay.

For format selection on the subdisplay, see “Selecting the Video Formats” (page 48).

Setting the Video Format in the Camera Menu

You can set the video format on the <OUTPUT FORMAT> page of the MAINTENANCE menu. The factory default settings are the 23.98PsF frame rate and the 4:2:2 YCbCr signal format. Referring to the procedure mentioned in “Setting the Built-in Clock” *(page 40)*, select MAINTENANCE menu on the TOP MENU screen and call up the <OUTPUT FORMAT> page.

For details on menu operations, see “Basic Camera Menu Operations” (page 124).

<OUTPUT FORMAT> page

```
<OUTPUT FORMAT>   M07 TOP

CURRENT   23.98PsF 444 SQ

NEXT     S23.98P   444 SQ
 SCAN        :→PROGRESSIVE
 FRAME       : 23.98
 SIGNAL      : 4:4:4 SQ
 SELECT FPS: ON

      SET RORMAT
```

CURRENT
Display the current format.

SCAN
Select the scan mode: PROGRESSIVE or INTERLACE.

FRAME
Select the frame rate. When you select INTERLACE for the scan mode, select 29.97 to specify 59.94I or select 25 to specify 50I.

SIGNAL
Select the signal format.
The compression ratio of 4:4:4 HQ is $^1/_2$ of 4:4:4 SQ.

When the settings are completed, move the cursor to SET FORMAT and press the MENU SEL/ENTER dial.
The format is changed, and the new format is displayed on the CURRENT line.
The message “UNSUPPORTED FORMAT” appears for three seconds if the settings change is rejected.

SELECT FPS
When the optional HKSR-9002 is installed, set this to ON to use the Select FPS function *(see page 107)*.
The selected format appears on the NEXT line.
When the settings are completed, move the cursor to SET FORMAT and press the MENU SEL/ENTER dial.
The format changes, and the new format appears on the CURRENT line.

Notes

- If you select an invalid format combination (e.g., 60P and 4:4:4), SET FORMAT appears in parentheses, and the format cannot be changed.
- The message “UNSUPPORTED FORMAT” appears for 3 seconds if the unit is unable to change the settings after the above operations.

Setting the Video Format in the VTR Menu

Use FORMAT or OTHERS in the SYSTEM Setup menu to select the system signal format.

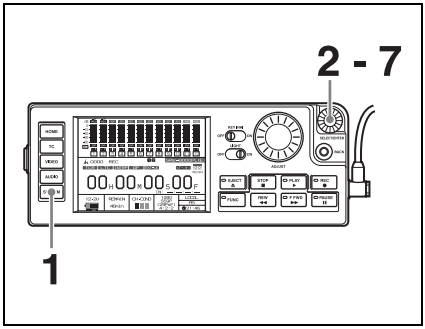
Notes

- The tape formats supported by this unit may differ from those supported by other VTRs.

  Before selecting the tape format, be sure to read “About Recording/Playback Formats” (page 210).
- If a cassette is loaded in the unit, be sure to eject it before starting the following procedure.

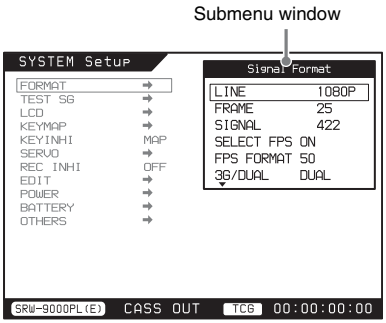
For details on menu operations, see “VTR Menu Operations” (page 171).

To set with FORMAT



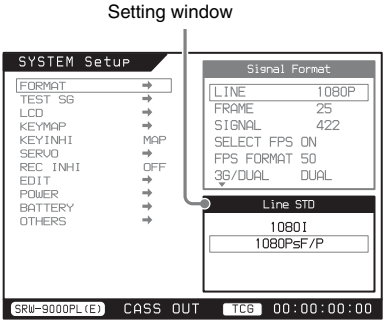
1 Press the menu selection button “SYSTEM” on the control panel.
The SYSTEM Setup menu appears.

2 Turn the SELECT/ENTER dial to move the cursor to FORMAT, and then press the dial.
A submenu window appears.



3 Turn the SELECT/ENTER dial to select LINE in the submenu window if necessary.

A setting window appears.



4 Turn and press the SELECT/ENTER dial to select the desired value.

This returns you to the submenu window, which is activated again.

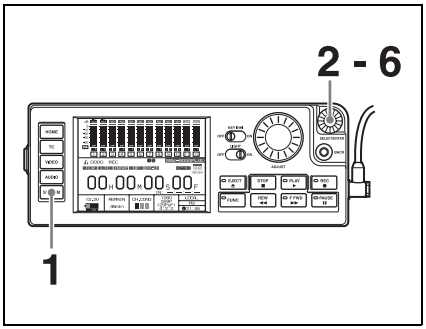
5 Repeat steps 3 and 4 to set the FRAME, SIGNAL, and 3G/DUAL (when the optional HKSR-9001 is installed) items.

6 In the submenu window, select [SET].

7 Confirm the format, move the cursor to "OK", and then press the SELECT/ENTER dial.

A message appears to inform you that the format has been selected, and you return to the HOME screen.

To set with OTHERS

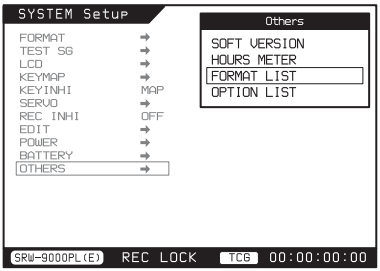


1 Press the menu selection button "SYSTEM" on the control panel.

The SYSTEM Setup menu appears.

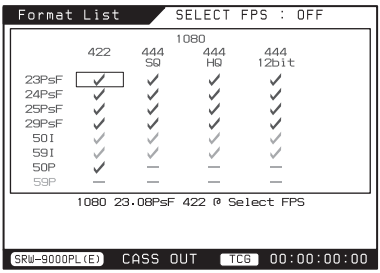
2 Turn the SELECT/ENTER dial to move the cursor to OTHERS, and then press the dial.

A submenu window appears.



3 Turn the SELECT/ENTER dial and select FORMAT LIST in the submenu window if necessary.

The format list screen appears.



A bar appears for formats that cannot be used. A yellow check mark appears for formats that can be used, and the current format flashes.

4 Move the cursor to the format you want to use.

To move the cursor left and right
Turn the SELECT/ENTER dial.

To move the cursor up and down
Turn the SELECT/ENTER dial with the FUNC button held down.

5 Press the SELECT/ENTER dial.
"CANCEL" and "OK" appear at the bottom of the screen.
To change the "SELECT FPS" setting, move the cursor and press the ENTER button while holding the FUNC button down.

6 Move the cursor to "OK", and then press the SELECT/ENTER dial.
A message appears to inform you that the format has been selected, and you return to the HOME screen.

Relation between Playback and Recording Signals and Video Monitor Output Signals

During recording and playback of HDSDI signals, signals in the formats shown in the following table are output to the video monitors connected to the HD SDI MON1 and HD SDI MON2 connectors.

Recording/playback signal		HD monitor Output		SD monitor Output
1080/4:2:2	23.98PsF	1080/4:2:2	23.98PsF	525/59.94i
	24PsF		24PsF	625/50i
	25PsF		25PsF	625/50i
	29.97PsF		29.97PsF	525/59.94i
	50i		50i	625/50i
	59.94i		59.94i	525/59.94i
	50P		50i	625/50i
1080/4:4:4SQ 1080/4:4:4HQ 1080/4:4:4HQ 12bit	23.98PsF		23.98PsF	525/59.94i
	24PsF		24PsF	625/50i
	25PsF		25PsF	625/50i
	29.97PsF		29.97PsF	525/59.94i
	50i		50i	625/50i
	59.94i		59.94i	525/59.94i

For the case of SR Motion shooting, see "Target Frame Frequencies and Signal Formats" (page 103).

To check the signals output to the video monitors

With the FUNC button on the control panel held down, press the HOME button.
The display at the bottom of the HOME screen changes to show the formats of the signals currently being output to the HD and SD video monitors.

Power Saving Mode

You can extend battery operation time by putting the unit into power saving mode, which saves power during recording and playback by turning off unnecessary signals and enabling other power saving features.
Settings related to power saving mode include “LED” and “TALLY” under SYSTEM Setup >POWER in the VTR menu *(see page 184)*, and the settings on the <POWER SAVE> page of the Camera >MAINTENANCE menu *(see page 154)*.
As described below, you can also reduce power consumption by selecting lower output levels and by turning off the functions of unit circuits that you are not using.

- Under INPUT SEL in the VTR >AUDIO Setup menu, turn off all audio inputs. This turns off the power of the audio input circuits.
- Lower the volume of your earphones.
- Turn off the backlight of the control panel.
- Lower the brightness of the subdisplay backlight.
- Detach the control panel. (Before doing this, you can assign basic tape transport functions to the assignable buttons/switch.)
- Detach the AP-1 (optional) (the same operations are available on the subdisplay).
- If you need only the camera module and will not be running the tape, you can put the unit into standby off mode by doing the following. This turns the drum drive off.
  - Press the FUNC + STOP buttons on the control panel *(see page 22)*.
  - Set SYSTEM Setup >SERVO >STBY OFF in the VTR menu to “1sec” *(see page 182)*.
  - With an assignable button/switch to which the VTR SAVE function is assigned, select SAVE *(see page 54)*.
  - Eject the cassette.
- When the HKSR-9001 is installed:
  ① Turn HD SDI A/B output off by setting the ON/OFF switch of the HD SDI OUT A/B connectors on the rear panel *(page 20)* to OFF.
  ② Turn the AUX IN input circuits off by making the following settings:
  - On the <GENLOCK> page of the Camera >MAINTENANCE menu, set REFERENCE to something other than AUX IN
  - Set audio input to something other than SDI
  - Set TC REGEN SRC to something other than AUX IN.
  - Set SYSTEM Setup >FORMAT >INPUT SEL in the VTR menu to CAM.

  The HKSR-9001 is powered off when you do both ① and ② above.
- Power off unneeded accessories, or disconnect them.

See “VTR Menu Operations” (page 171) and “Basic Camera Menu Operations” (page 124) for more information about operations in the VTR and Camera menus.

Power Saving Operations in the <POWER SAVE> page of the Camera >MAINTENANCE menu

MONITOR OUT: Enable or disable monitor output.
DOWN CONVERTER: Enable or disable VBS/RM output.
REMOTE: Enable or disable communications with the RM-B750 or RM-B150.

Chapter 4 Recording/Playback

About Cassettes

The unit uses $^1/_2$-inch width HDCAM-SR S-size cassettes.
The maximum recording times are as follows.

System frequency	Maximum recording time
29.97 Hz	40 minutes (20 minutes for double-speed recording)
25 Hz	48 minutes (24 minutes for double-speed recording)
23.98 Hz/24 Hz	50 minutes (25 minutes for double-speed recording)

Note

Use this unit or Sony SRW series video cassette recorder to rewind tapes. Do not use cassettes which have been rewound by other units or by rewinders.

Storage of cassettes

Store your cassettes at room temperature and normal humidity.

Loading and Unloading Cassettes

Loading a cassette

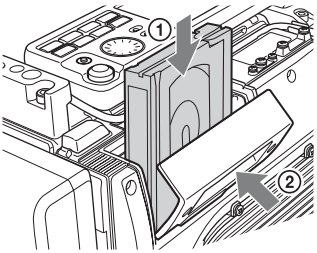
1 Set on the power ON/OFF switch to ON.

Note

If the interior of the VTR section is damp, the "VTR 007F:HUMID ERROR" indicator will light.

2 Press the EJECT button.
The cassette insertion slot will open.

3 Check that there is no slack in the tape. Then slide in the cassette until it clicks into position (①) and close the cassette insertion slot completely (②).

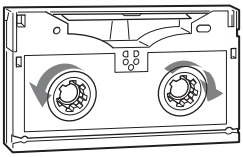


Note

When inserting the cassette, be careful that you do not hit the tape against the cassette holder.

Checking the tape for slack

Pressing in the reels lightly, turn them gently with your fingers in the directions shown below. If the reels will not move, there is no slack to adjust.



Unloading a cassette

With the power supply on, press the EJECT button to open the cassette insertion slot. Then take out the cassette.
If you are not going to insert another cassette, close the cassette insertion slot.

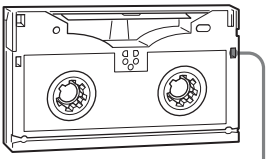
Even if the battery is exhausted and the unit stops, it is possible to take out the cassette and close the cassette insertion slot if the remaining battery voltage is about 10.5 V or more.
However, when the battery voltage is low, do not repeat the unloading operation. If you repeat the operation, the power may be turned off during the ejection operation and you may not be able to continue the operation.

Note

When you do not intend to use the camcorder for a long time, take out the cassette to protect the tape and turn off the power.

Preventing Accidental Erasure

The following procedure prevents cassettes from being recorded inadvertently.



Push the plug in.

To reuse the cassette, return the plug to its original position.

Recording

Before recording, it is necessary to set the following items.

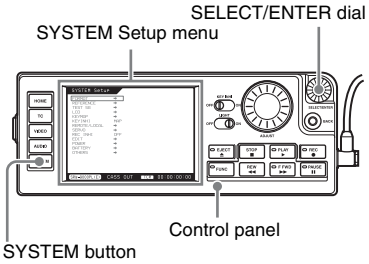
- System signal format
- Audio signals
- Recording audio levels
- Timecode and user bits

Setting System Signal Format

Use the VTR >SYSTEM Setup menu to make settings related to system signal format.

To display SYSTEM Setup menu

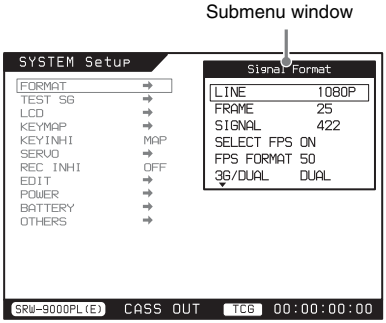
Press the menu selection button “SYSTEM”.



To set with FORMAT

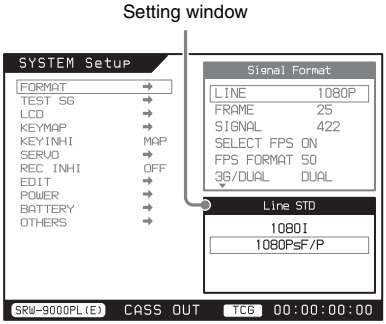
1 Turn the SELECT/ENTER dial to select FORMAT, and then press the dial.

A submenu window appears.



2 Turn the SELECT/ENTER dial to select a sub-item in the submenu window, and then press the dial.

A setting window appears.



3 Turn the SELECT/ENTER dial to select a value, and then press the dial.

This returns you to the submenu window.

4 Repeat steps 2 and 3 as required.

5 In the submenu window, select [SET].

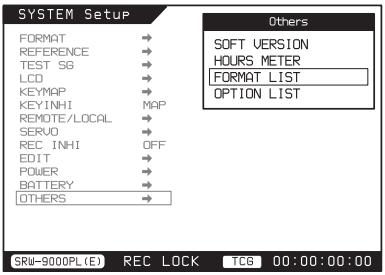
6 Make sure of the format, select “OK”, and then press the SELECT/ENTER dial.

A message appears to inform you that the format has been set, and you return to the HOME screen.

To set with OTHERS

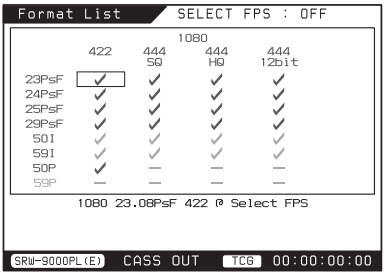
1 Turn the SELECT/ENTER dial to select OTHERS, and then press the dial.

A submenu window appears.



2 Select FORMAT LIST, and then press the SELECT/ENTER dial.

The Format List screen appears.



A bar appears for formats that cannot be used. A yellow or green check mark appears for formats that can be used. The check mark is green for formats that can be used when the SELECT FPS function is enabled.

See “Select FPS Function” (page 107) for more information about the Select FPS function.

3 Move the cursor to the format you want to use.

To move the cursor left and right
Turn the SELECT/ENTER dial.

To move the cursor up and down
Turn the SELECT/ENTER dial with the FUNC button held down.

4 Press the SELECT/ENTER dial.

To change the “SELECT FPS” setting, move the cursor and press the ENTER button while holding the FUNC button down.

5 Make sure of the format, select “OK”, and then press the SELECT/ENTER dial.

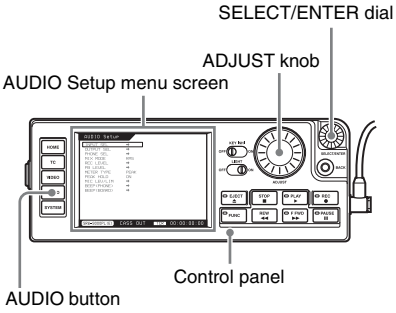
A message appears to inform you that the format has been set, and you return to the HOME screen.

Making Audio Signal Settings

Use the VTR >AUDIO Setup menu to make settings related to audio signals.

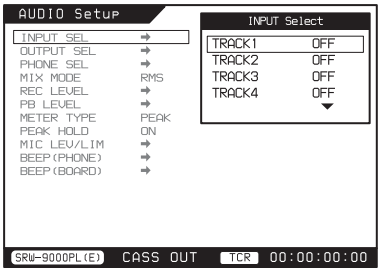
To display the AUDIO Setup menu

Press the menu selection button “AUDIO”.



To select audio signals to record

The INPUT SEL item allows you to select the audio signals to record on each track.



1 **Turn the SELECT/ENTER dial to select a track (TRACK1 to TRACK12, ALL MODE).**

2 **Press the SELECT/ENTER dial.**

3 **Turn the SELECT/ENTER dial to select the signal to record on the track selected in steps 1 and 2.**

TRACK1 to TRACK12

SDI1 to SDI12 (displayed when the HKSR-9001 is installed): SDI signal input to the AUX IN connector

ANA1 and ANA2: Analog audio signal input to the AUDIO INPUT CH-1 and CH-2 connectors

OFF: Do not record audio signals (silent)

ALL MODE

Specify whether to assign signals to each track at one time.

USER: Select the signal to record to each track individually. (You can configure each track individually only if [ALL MODE] is set to [USER].)

ALL SDI: Set tracks 1 to 12 to SDI (1 to 12) at one time.

ALL ANALOG: Set tracks 1, 3, 5, 7, 9, and 11 to ANA, and set tracks 2, 4, 6, 8, 10, and 12 to ANA2.

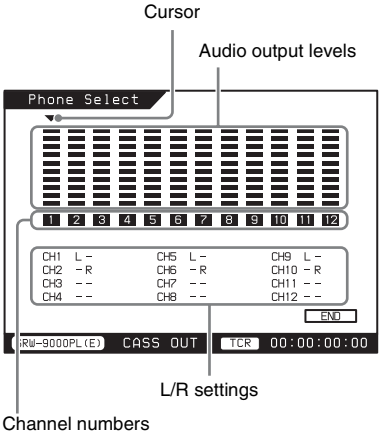
OFF: Set tracks 1 to 12 to OFF at one time.

4 **Press the SELECT/ENTER dial.**

5 **Repeat steps 1 and 2 to select other tracks and steps 3 and 4 to select other signals.**

To select audio signals to monitor

The PHONE SEL item allows you to select the audio signals to output to the EARPHONES jack for the individual channels.



1 **Turn the SELECT/ENTER dial to select a channel (1 to 12).**

2 **Press the SELECT/ENTER dial.**

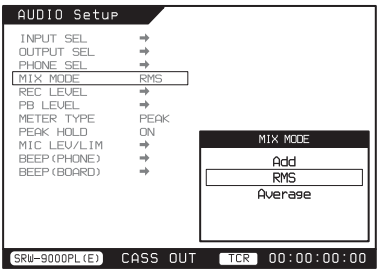
The L/R setting of the selected channel changes in the order L → R → LR → none. Select “none” if you do not want to output the selected channel to the EARPHONES jack.

Select LR if you want to output the channel from both sides.

3 Repeat step 1 to select other channels and step 2 to make L/R settings for those channels.

4 When you are finished, turn the SELECT/ENTER dial to select END, and press the dial.

To select the digital audio signal mixing method



1 Turn the SELECT/ENTER dial to select the mixing method.
ADD: Simple addition
RMS: Multiplied average (room mean square)
Average: Simple average

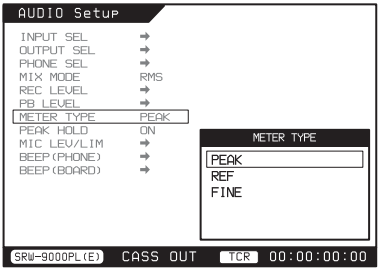
2 Press the SELECT/ENTER dial.

Setting Recording Audio Levels

To check recording audio levels, use the audio level meters in the control panel display. The display switches automatically between recording audio levels during recording and playback audio levels during playback.

To set the display range of the audio level meters

The AUDIO Setup >METER TYPE in the VTR menu allows you to set the display range of the audio level meters.



1 Turn the SELECT/ENTER dial to select the scale to display.
Full Peak: Display 0 dBFS as the peak value.
Full Ref: Display the reference level (+4 dBu) as 0 dB.
Fine: Display a scale with steps of 0.25 dB centered around.

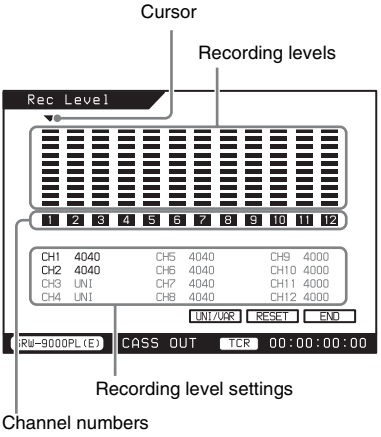
2 Press the SELECT/ENTER dial.

To set recording audio levels

The AUDIO Setup >REC LEVEL in the VTR menu allows you to set recording audio levels for the individual channels.

Note

Recording levels cannot be set during playback.



1 Turn the SELECT/ENTER dial to select a channel (1 to 12).

2 Press the SELECT/ENTER dial.
The current recording level of the selected channel is shown as a hexadecimal number.

UNI is shown for channels whose recording levels have not been changed.

3 Turn the SELECT/ENTER dial to select UNI/VAL, and press the dial.
If you do not need to change the recording level, set the recording level of the channel selected in steps **1** and **2** to UNI and proceed to step **5**. If you do need to change the recording level, set the recording level of the channel selected in steps **1** and **2** to VAR and proceed to step **4**.

4 Turn the ADJUST knob to set the recording level.
Turn clockwise to raise the level and turn counterclockwise to lower it.

To reset the setting
Turn the SELECT/ENTER dial to move the cursor to RESET, and press the dial.

5 Press the SELECT/ENTER dial.

6 Repeat steps 1 and 2 to select other channels and steps 3 and 4 to set the recording levels of those channels.

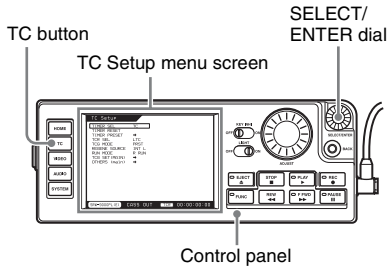
7 When you are finished, turn the SELECT/ENTER dial to select END, and press the dial.

Making Timecode and User Bits Settings

Use the VTR >TC Setup menu to make timecode and user bits settings.

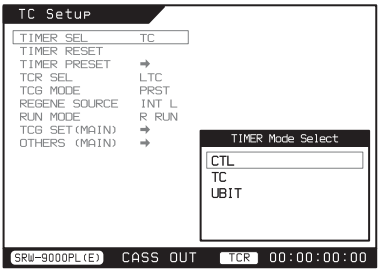
To display the TC Setup menu

Press the menu selection button “TC”.



To select the type of time data to display

Use the TIMER SEL item.



1 Turn the SELECT/ENTER dial to select CTL, TC (timecode), or UBIT (user bits).
CTL: Display CTL signals.
TC: Display timecode.
UBIT: Display user bit data.

2 Press the SELECT/ENTER dial.

To select timecode to record

You can select the following types of timecode.

Menu item		Timecode
TCG MODE	**REGENE SOURCE**	
PRST	–	An arbitrary initial timecode value can be preset (R RUN/F RUN and DF/NDF menu items can be set to any values).
RGN	INT L	Timecode in synchronization with the timecode recorded in the longitudinal direction on the tape.
	EXT L	Timecode in synchronization with the timecode input to the TC IN connector.
	AUX L [a)]	Timecode in synchronization with the LTC timecode of the SDI signal input to the AUX IN connector.

Menu item		Timecode
TCG MODE	REGENE SOURCE	
	AUX V [a]	Timecode in synchronization with the VITC timecode of the SDI signal input to the AUX IN connector.

a) Only when the HKSR-9001 is installed

To select user bits to record

You can select the following types of user bits.

Menu item			User bits
OTHERS (MAIN) >RT REC	TCG SET (MAIN) >UBG SOURCE	TCG MODE	
OFF	TCG	PRST	Arbitrary user bits can be preset (TIMER PRESET >TCG UBIT).
OFF	TCG	RGN	Regenerate the user bits of the timecode selected with REGEN SOURCE.
	INT	–	Arbitrary user bits can be preset, regardless of the setting of TCG MODE (TIMER PRESET >TCG UBIT).
VITC	–	–	Record real time in the user bits of VITC only (LTC user bits follow the setting of UBG SOURCE).
V+L	–	–	Record real time in the user bits of both VITC and LTC.
LTC	–	–	Record real time in the user bits of LTC only (VITC user bits follow the setting of UBG SOURCE).

To record timecode

You can use either of the following methods to record timecode.

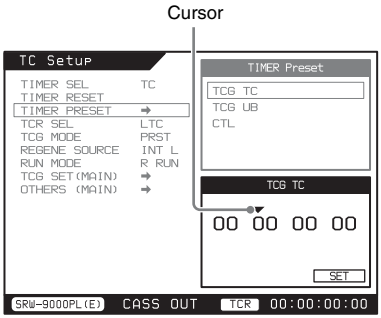
- Initialize the internal timecode generator with an arbitrary initial value, and record the output of the timecode generator.
- Record the output of the internal timecode generator synchronized with external timecode or timecode recorded in the longitudinal direction on the tape.

To preset an arbitrary initial timecode value

Set the TCG MODE menu item to PRST, then proceed as follows.

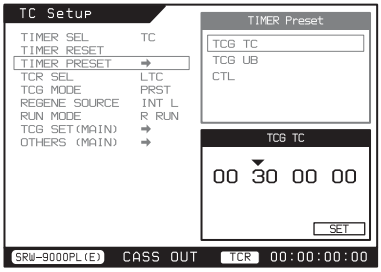
1 Select TIMER PRESET >TCG TC.

A preset value setting screen appears.



2 Turn the SELECT/ENTER dial to select the digit that you want to modify, then press the dial.

3 Turn the SELECT/ENTER dial to modify the value of the selected digit, then press the dial.



4 Repeat steps 2 and 3 to set the values of all digits.

5 Turn the SELECT/ENTER dial to move the cursor to SET, then press the dial.

If RUN MODE is set to F RUN, the timecode starts advancing immediately.

To set all digits to 0

Reset the timecode value with the TIMER RESET menu item.

To set the timecode generator value to XX:00:00:00

You can set the current timecode generator value to the "00:00:00" value of the next hour.
Example: TCG 01:12:34:12 → TCG 02:00:00:00

You can perform this setting from the control panel or the subdisplay/menu operations section.

- **Performing the setting from the control panel**
  Press the TC button while holding the FUNC and BACK buttons down.
- **Performing the setting from the subdisplay/menu operations section**
  When the TCG is displayed in the subdisplay, press the SET button while holding the MENU SEL/ENTER dial down.

To synchronize the internal timecode generator to external timecode

Use the following method to synchronize the timecode generators of multiple camcorder.
Set the TCG MODE menu item to RGN, then use REGENE SOURCE to select the signal which the timecode generator should regenerate *(see "To select timecode to record" (page 89))*.

To record user bits

By setting user bits, you can record up to eight hexadecimal digits of information (date, time, etc.) in timecode tracks.

To record user bits after setting an arbitrary value

Set OTHERS (MAIN) >RT REC to OFF.
To initialize user bits to an arbitrary value, set the TCG SET (MAIN) >UBG SOURCE menu item to INT. (The TCG MODE menu item can be set to any value.)
Alternatively, set the TCG MODE menu item to PRST. The TCG SET (MAIN) >UBG SOURCE menu item can be set to any value *(see "To select user bits to record" (page 90))*.

To set the user bit value, proceed as described in "To preset an arbitrary initial timecode value". As with timecode, all digits in user bit values can be set to 0 by using the TIMER RESET menu item.

To record real time in user bits

Select the recording method with OTHERS (MAIN) > RT REC (VITC only, both VITC and LTC, or LTC only). Regardless of the setting of TCG SET (MAIN) >UBG SOURCE, real time is recorded in the specified location.

To set the real time to record, proceed as follows.

1 Turn the SELECT/ENTER dial to select RT SET, and press the dial.
The real time setting window appears.

2 Turn the SELECT/ENTER dial to move the cursor to the digit you want to change, and press the dial.

3 Turn the SELECT/ENTER dial to change the value of the selected digit, and press the dial.

4 Repeat steps 2 and 3 until the desired value is displayed.

5 Turn the SELECT/ENTER dial to move the cursor to SET, and press the dial.

Tele-File recording

This system records the following Tele-File data to cassette labels with each recording operation.

- IN (recording start point)
- OUT (recording end point)
- Tape Format
- Duration (time from In point to Out point)
- File Name (automatically assigned file name in the format HDCAMSR_00X)

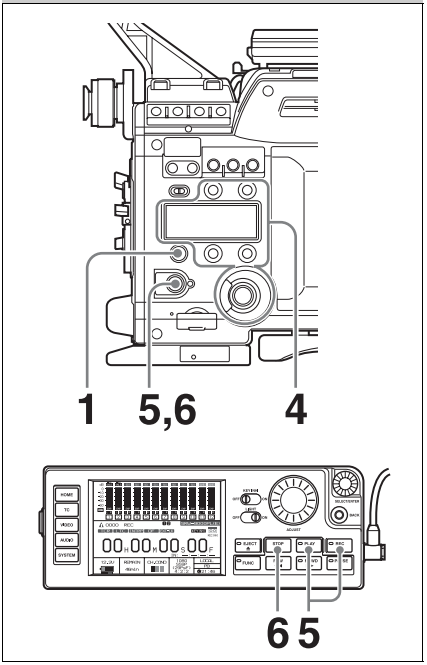
Note

TeleFile data may not be saved correctly if the power ON/OFF switch is set to the OFF position within one second after the end of recording.

When the number of files exceeds 70

Old files are deleted before new files are added. To delete all or selected files, use the SRW-5000/5500 to format the memory label or carry out a file deleting operation.

Shooting



1 Push the assignable 4/AUTO BLK BAL switch to AUTO BLK BAL to adjust the black balance.

For details of black balance adjustment, see "Adjusting the Black Balance" (page 57).

2 Adjust the white balance to match the lighting conditions.

For details, see "Adjusting the White Balance (in Custom Mode)" (page 57).

3 Aim the camera at the subject and adjust the focus and zoom.

4 If necessary, set the electronic shutter to an appropriate mode and speed.

For details, see "Shutter Settings" (page 45).

5 To start recording, press the RUN button on the main unit or the REC + PLAY buttons on the control panel.

If the recording start/stop function has been assigned to an assignable switch, that switch functions as a REC START button.

For details, see "Assigning Functions to Assignable Buttons/Switch" (page 54).

During recording, the REC indicator lights in the viewfinder. Perform zooming and focus control, if necessary.

6 To stop recording, press the RUN button again or press the STOP button on the control panel.

The REC indicator in the viewfinder goes off.

Cassette control buttons

During recording, the cassette control buttons (EJECT, REW, F FWD, PLAY) have no effect.

Note

If you record over a previously recorded tape without using continuous recording, then the previously recorded timecode may appear for a few seconds when you play back the first part of a cut.

Continuous Recording

When recording is paused, you can easily perform continuous recording with a precision of ±0 frames simply by pressing the RUN button on the main unit or the PAUSE button on the control panel.

In other cases, before starting to record, you need to manually cue up the tape to the point where you want to start continuous recording.

If you want to record timecode that is continuous with timecode already recorded on the tape, set TCG MODE *(see page 173)* to RGN, and set REGENE SOURCE to INT L *(see page 174)* in the VTR >TC Setup menu.

When the unit is in recording pause mode

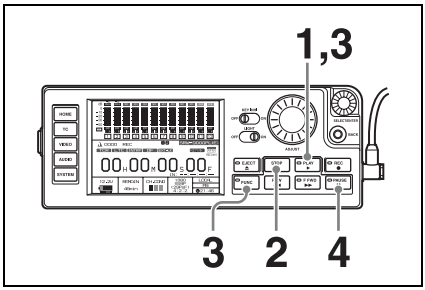
You can start continuous recording by pressing the RUN button on the main unit or the PAUSE button on the control panel.

However, the time taken before recording starts depends on the setting of the SYSTEM Setup >SERVO >STBY OFF in the VTR menu.

Continuous recording in other cases

After rewinding or fast forwarding, after removing the cassette, or on a tape that has been

partially recorded, you can obtain a continuous recording by following the procedure below. The EOS SEARCH function also allows you to continue recording on a partially recorded tape.



1 Looking in the viewfinder, press the PLAY button to start playback.

2 Press the STOP button at the desired point to begin recording.
To continue from the end of a recording already on the tape, press the STOP button immediately after the end of the previously recorded segment (within 0.5 seconds).

3 With the FUNC button held down, press the PLAY button.
The tape will rewind and will be positioned at the desired point to continue recording.

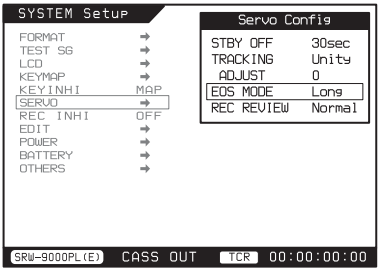
4 Press the PAUSE button to start recording.

Note

When SYSYTEM Setup >SERVO >EOS MODE in the VTR menu is set to “NORM”, the unit plays about 10 seconds of the recorded portion. If the end point cannot be found, the unit enters recording pause mode at that point.

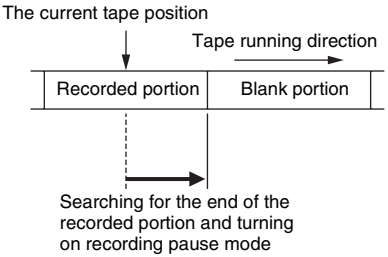
Searching for the end of the last recorded section and turning on recording pause mode (EOS SEARCH function)

The EOS SEARCH LONG function allows the unit to search for the end of a recorded section on the tape after the recorded section is rewound and played back.
To use this function, set SYSTEM Setup >SERVO >EOS MODE in the VTR menu to “LONG”.



For details on VTR menu operations, see “VTR Menu Operations” (page 171).

EOS SEARCH function



Note

If there is an unrecorded section between recorded sections, the unit may behave as if that section is the end of the last recorded section.

Playback – Checking the Recording

You can view playback video by pressing the PLAY button. Playback video appears in the viewfinder, and on monitors connected to the HD SDI MON1 connector, the HD SDI MON2 connector, the TEST OUT connector, and the HD SDI OUT A/B connectors (when the HKSR-9001 is installed).
You can also view playback video during recording review, rewind searches (REW), and fast-forward searches (F FWD).
In addition, you can search for images during the paused state by turning the ADJUST knob (jog search). Press the PAUSE button again to return to the paused state.

Preparing for Playback

To make audio monitor signal settings

The VTR >AUDIO Setup menu *(see page 176)* allows you to make various settings related to audio monitor signals for playback.
The procedures are basically the same as those for making settings related to audio monitor signals for recording.

To adjust the level of audio output to the EARPHONES jack

Turn the LEVEL knob.

To adjust playback audio levels

The PB LEVEL item in the VTR >AUDIO Setup menu *(see page 177)* allows you to adjust audio levels separately for each channel.

Note

Playback audio levels cannot be adjusted during recording.

The PB LEVEL settings window appears when you select the PB LEVEL item. The subsequent procedure is the same as steps **1** to **5** in "To set recording audio levels" *(page 88)*.

To set the display range of the audio level meters

See page 88.

To select time data to display during playback

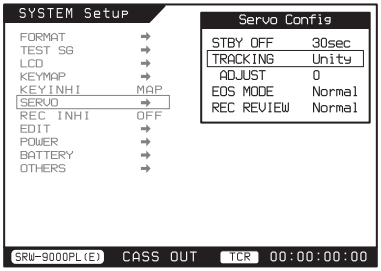
Proceed as follows to select the type of time data to display during playback.

1. **Display the TC Setup menu *(see page 89)*.**
2. **Select TIMER SEL.**
   The TIMER SEL settings window appears. *(See "To select the type of time data to display" (page 89).)*
3. **Turn the SELECT/ENTER dial to select CTL, TC (timecode), or UBIT (user bits).**
   CTL: Display CTL signals recorded on the tape.
   TC: Display LTC or VITC read by the internal timecode reader.
   The TCR SEL item in the TC Setup menu allows you to determine whether the timecode reader is to read LTC or VITC.
   UBIT: Display user bit values inserted into the playback timecode.
4. **Press the SELECT/ENTER dial.**

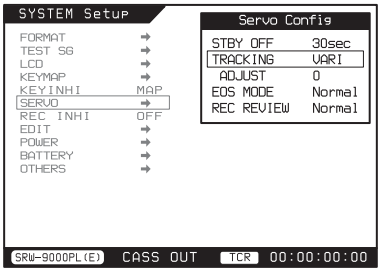
To play back with tracking control

Tracking control can be manually operated or automatically optimized.
To play back with manual tracking control, use the following procedure.

1. **Insert the cassette to play back and press the PLAY button.**
2. **In the VTR >SYSTEM Setup menu select SERVO >TRACKING, and press the SELECT/ENTER dial.**
   A setting window opens.



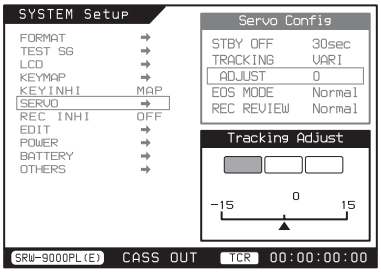
3 Turn the SELECT/ENTER dial to select “VARI”, and press the dial.



The “CH.COND” indication in the HOME screen flashes in yellow.

4 Select ADJUST and press the SELECT/ENTER dial.

The Tracking Adjust window appears.



5 While viewing the channel condition display, turn the ADJUST knob or SELECT/ENTER dial to adjust so that the channel condition display lights in green.

To release tracking control

Eject the cassette, or power the system off.
The setting of SERVO >TRACKING in the SYSTEM Setup menu returns to “UNITY”.

To automatically optimize the tracking

Select “AUTO” in step **3** of the procedure for playback with manual tracking control.
Step **4** and following are not necessary.
When the tracking has been automatically optimized, the tracking control is not released even if the cassette is ejected or the system is powered off.

Checking the Last Three Seconds of the Recording –Recording Review

When SYSTEM Setup >SERVO >REC REVIEW in the VTR menu is set to NORM (the factory default), you can review the last three seconds of the recording. Pause the recording and simultaneously press the FUNC and PLAY buttons on the control panel. The last three seconds of the recording are played back in the viewfinder. You can also keep the FUNC + PLAY buttons pressed to rewind the tape. The unit rewinds the tape for as long as you keep the buttons pressed (up to 10 seconds), and then begins playback.
When SYSTEM Setup >SERVO >REC REVIEW is set to ALL, you can review the whole cut. Pause the recording and press the FUNC + PLAY buttons. The unit rewinds to the start of the last cut and plays it back.
The REC REVIEW function can also be assigned to the assignable buttons.

For details, see “Assigning Functions to Assignable Buttons/Switch” (page 54).

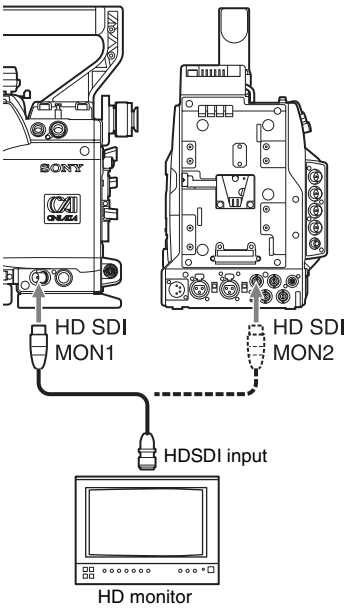
Note

The recording review functions only works if the recording you have made is at least three seconds long.

Checking the Recording on a Color Video Monitor –Playback in Color

Connect an HD color video monitor with an HDSDI input connector to the HD SDI MON1 connector or the HD SDI MON2 connector of the camcorder. By pressing the PLAY button, you can view the recorded picture of high quality. The signals output from these connectors depend on menu settings.

For details, see "Setting the Camera Outputs" (page 59).



Note

No video appears if MONITOR OUT in the <POWER SAVE> page of the Camera >MAINTENANCE menu is set to PWR SAVE. Set it to ACTIVE.

Checking the Camera Picture on the Viewfinder and/or Color Video Monitor

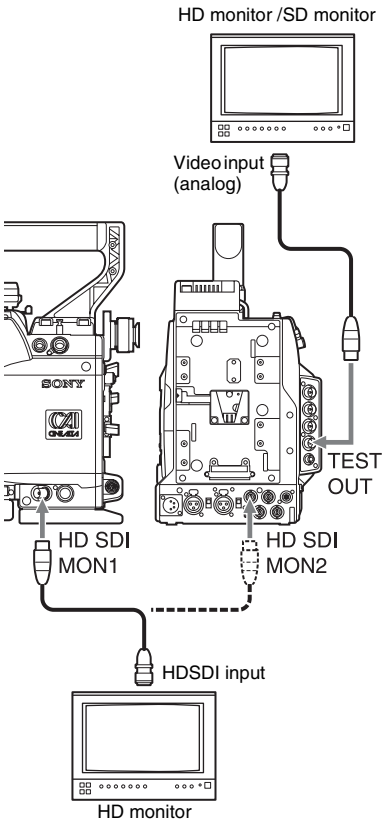
Normally, the signals output from the TEST OUT connector, HD SDI MON1 connector and the HD SDI MON2 connector switch from the camera picture to the recorded picture during playback. The viewfinder and an external monitor also switch to the recorded picture. However, by setting VF/VBS and MON on the <PB/MON LUT> page of the Camera >OPERATION menu, you can choose to output the camera picture even during playback.

To output VTR playback signals to the viewfinder, TEST OUT connector, HD SDI MON1 connector and HD SDI MON2 connector

Set VF/VBS and MON on the <PB/MON LUT> page *(see page 132)* of the OPERATION menu to AUTO.

To output VTR playback signals to the HD SDI MON1 and HD SDI MON2 connectors, and output the camera picture to the viewfinder and the TEST OUT connector

On the <PB/MON LUT> page *(see page 122)* of the OPERATION menu, set MON to AUTO and set VF/VBS to CAM.



Chapter 5 Memory Recording (With HKSR-9002 Installed)

You can use the memory on the optional HKSR-9002 Picture Cache Board to perform the following kinds of recording while maintaining the high quality of the HDCAM-SR (1920 × 1080) format.

- SR Motion: Provides slow and quick motion effects.
- Timer Rec: Captures and records images at specified intervals.
- Cache Rec: Allows you to record video and audio from a few seconds before the time when you press the recording start button (in standby on mode).

When installing the HKSR-9002 in this unit, refer to the HKSR-9002 Installation Manual.

For details on SR Motion, see Chapter 6 "SR Motion (With HKSR-9002 Installed)" (page 101).

Timer Rec

The Timer Rec function allows you to use the memory of the optional HKSR-9002 board to capture and record images at specified intervals. It is comparable to the Interval Rec function of previous models, but enables time-lapse recording and recording over longer periods.
The following two methods are available.

Manual Timer Rec: Specifies the number of frames to record in a single take. Each time that recording starts, the specified number of frames are captured continuously.

Auto Timer Rec: Specifies the number of frames to record in a single take and the interval (seconds) between takes. Each time that recording starts after the specified interval, the specified number of frames are captured continuously.

The following formats can be recorded by Timer Rec.
1080 422: 23.98/24/25/29.97PsF, 50P
1080 444SQ/444HQ: 23.98/24/25/29.97PsF

Note

Timer Rec cannot be used at the same time as Cache Rec.

Manual Timer Rec

Note

Set SELECT FPS in the SYSTEM Setup menu to "OFF".

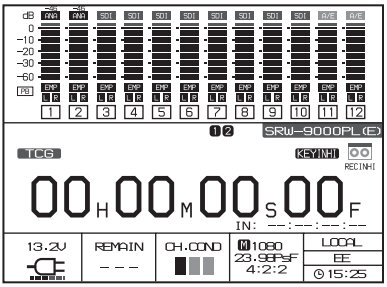
1 In the SYSTEM Setup menu, set EDIT >TIMER REC to "MANU".

2 In the submenu window, select "Manu Frm" and then press the SELECT/ ENTER dial.
A setting window opens.

3 Turn the SELECT/ENTER dial to select the number of frames to record in one take.

4 Start recording.

In Manual Timer Rec mode, “M” appears on the HOME screen before the number of lines of the signal format.



After about 0.5 seconds of normal tape recording, the specified number of frames are accumulated in the memory of the HKSR-9002. Recording to tape starts again when the amount of data reaches the specified amount. The tally indicator of this unit lights during storage to memory and during recording to tape.

During Manual Timer Rec recording, each time the PAUSE button is pressed, the specified number of frames are accumulated in the memory and the unit is put into recording standby mode.

To check the amount of data in memory

Press FUNC + HOME twice. The amount appears at the bottom of the display *(see page 103)*.

To cancel Manual Timer Rec mode

Press the STOP button.

Note

Do not stop recording until the amount of data in memory exceeds 20%. When there is only a small amount of data in memory, recording may stop without transferring the images to tape.

Auto Timer Rec

Note

In the SYSTEM Setup menu, set SELECT FPS to “OFF”.

1 In the SYSTEM Setup menu, set EDIT >TIMER REC to “AUTO”.

2 In the submenu window, select “Interval” and then press the SELECT/ENTER dial.

A setting window opens.

3 Turn the SELECT/ENTER dial to set the recording interval (hours/minutes/seconds).

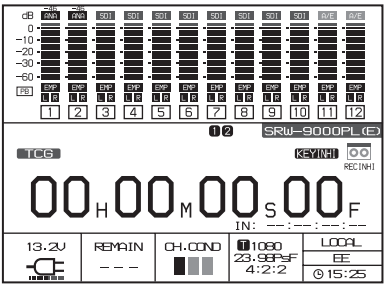
4 In the submenu window, select “Auto Frm” and then press the SELECT/ENTER dial.

A setting window opens.

5 Turn the SELECT/ENTER dial to specify the number of frames to record in one take.

6 Put the unit into recording paused mode.

In Auto Timer Rec mode, “T” appears on the HOME screen before the number of lines of the signal format.



Recording at the specified intervals of specified time begins, and the specified number of frames are accumulated in the memory of the HKSR-9002. Recording to tape starts when the amount of data reaches the specified amount. The tally indicator of this unit lights during storage to memory and during recording to tape.

To check the amount of data in memory
Press FUNC + HOME twice. The amount appears at the bottom of the display, together with information such as the time remaining until the start of the next recording *(see page 103)*.

Note

Do not stop recording until the amount of data in memory exceeds 20%. When there is only a small amount of data in memory, recording may stop without transferring the images to tape.

Cache Rec

The Cache Rec function captures about 200 frames of the video and audio that the camera is currently shooting (or about 100 frames in HQ mode) to the memory. Thus, when you press the recording start button, the recording starts with the data stored about 200 frames (or about 100 frames in HQ mode) before (if the unit is in standby on mode and SR Motion is not being used).

Notes

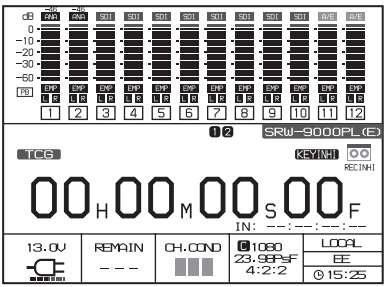
- To maximize the Cache Rec effect, it is recommended that the Cache Rec function be used in standby on mode and with SR Motion disabled. Though the Cache Rec function can be used in standby off mode or together with SR Motion, the unit may be unable to record video and audio from immediately before you press the recording start button.
- Cache Rec cannot be used at the same time as Timer Rec.

With the formats which support SR Motion, Cache Rec can be used together with SR Motion.

For details on the formats, see the table on page 104.

To record using the Cache Rec function

1 In the SYSTEM Setup menu, set EDIT >CACHE REC to “25%”, “50%”, “75%”, “100%”, or “Quick Rec”.
When the Cache Rec function is active, “C” appears on the HOME screen before the number of lines of the signal format.



2 Put this unit into standby on mode (the mode in which the drum is rotating).

To switch from standby off mode to standby on mode

When the unit is in stop mode, press the STOP button. When recording is paused, press the REC button.

Note

To make the most effective use of the Cache Rec capability, be sure to start recording with the unit in standby on mode. The time after which the unit leaves standby on mode and enters standby off mode can be selected with the SERVO >STBY OFF item in the SYSTEM Setup menu. Select a time that will be long enough for your shooting conditions.

3 Do one of the following to start recording.

- With the REC button held down, press the PLAY button.

Note

Be sure to press the REC button first. If you press the PLAY button first, playback starts and the video and audio data that has been saved to memory is cleared.

- Perform sequential recording (you will need to record at least four seconds before pausing) *(see page 92)*.
- Record after pausing.
  Record four seconds or more, and then press the PAUSE button to pause. The unit starts to save video and audio data to memory.
  Then press the PAUSE button again to resume recording. The unit starts to transfer data from memory to the tape.

Maximizing the Cache Rec effect

The Cache Rec function advances recording start timing by up to about 100 frames (or about 200 frames for 422 or 444SQ, when the frame rate is 30PsF or lower). (The number of frames is equivalent to about 4 seconds (or about 8 seconds for 422 or 444SQ, when the frame rate is 30PsF or lower).)

The recording start timing varies depending on whether the SR Motion is used for recording. The following table shows how many seconds of data are recorded in advance of the time that the REC button is pressed. (The values shown are approximate and obtained when the frame frequency is 1080/59P.)

Status of this unit	Recording start timing	
	Standby on mode	Standby off mode
Not using SR Motion	About three seconds before	About three seconds before 0 to two seconds after
Using SR Motion	About two seconds before	About two seconds after

Note

The values listed above vary depending on the frame frequency and the current operating conditions. You should make a test recording before using the Cache Rec function to record important material.

Chapter 6 SR Motion (With HKSR-9002 Installed)

Overview

The SR Motion functions of HDCAM-SR allow you to obtain slow and quick motion effects in high-quality, high-resolution full HD (1920×1080). By selecting the number of frames to shoot (the number of frames recorded each second), you can obtain slow and quick motion effects on playback. You can review the motion effects immediately after shooting. Since only the required number of frames are recorded to tape, no format conversion is needed before playback.

SR Motion has the following function.

Function	Features	Reference
Select FPS	Provides smooth slow and quick motion effects without skipped frames. Changing the number of frames to extract during recording provides motion effects with variable speeds (Ramp function).	*Page 107*
Interval Frame	Provides slow and quick motion effects without afterimaging. Changing the number of frames to extract during recording provides motion effects with variable speeds (Ramp function).	*Page 114*

Notes

- The optional HKSR-9002 Picture Cache Board is required to use SR Motion.
- Audio signals are not recorded correctly during SR Motion recording.

Overview of SR Motion Recording/Playback

SR Motion allows you to obtain motion effects by setting the number of frames at shooting time to a different value than the number of frames in the recorded material (number of frames at playback time, target frame frequency).

Target frame frequency

Normally, the frame frequency of recorded material is set before shooting. For example, it is usually 24 Hz for movies, and usually 29.97 Hz or 25 Hz for TV programming.
After shooting, when the material is played back, it is played at that set rate. In SR Motion, the number of frames per second in the recorded material is called the “target frame frequency”.
SR Motion achieves motion effects by appropriately setting three variables: the “target frame frequency”, the “system frequency” at shooting time, and the “number of frames shot” at shooting time.

In SR Motion shooting, you can obtain slow or quick motion effects by recording with a system frequency or number of frames set to a value different from the target frame frequency. If you record with the system frequency and the number of frames set to the same value as the target frame frequency, normal speed video can be obtained.

Examples of how to use SR Motion

Example of slow motion

This example describes shooting and recording with Select FPS function at the system frame frequency of 50P, and playback at the system frame frequency of 23.98PsF. When video shot and recorded at 50 frames/second (FPS) is played back at 24 FPS, it is played back in slow motion at 24/50 = 0.48 times normal playback speed. If you set the format for recording according to the target frame frequency (system frequency at playback), the timecode can continuously advance during playback. The recorded tape can

be used for editing or other postprocessing in 1080/23.98PsF format.

Example of quick motion

This example describes shooting at the system frame frequency of 23.98PsF, recording at 6 frames/second (FPS) and played back at the system frame frequency of 23.98PsF, it is played back in quick motion at 24/6 = 4 times normal playback speed. The recorded tape can be used for editing or other post-processing in 1080/23.98PsF format.

Relation between the target frame frequency and the number of frames shot

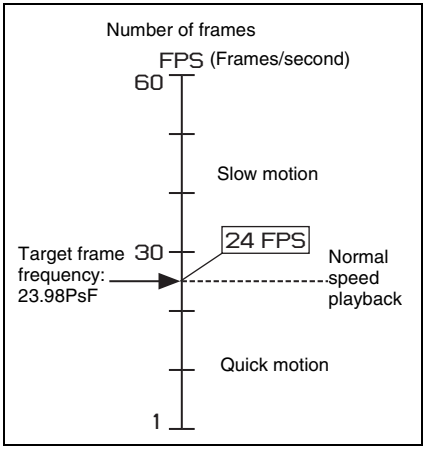
To obtain the desired slow and quick motion effects, it is necessary to set the appropriate number of frames according to the target frame frequency. To obtain quick motion effects, shoot with undercranking. To obtain slow motion effects, shoot with overcranking.

Example at the target frame frequency of 23.98PsF

To obtain quick motion effects: Set the number of frames to 1 to 23 FPS.

To obtain slow motion effects: Set the number of frames to 25 to 50 FPS.

For example, shooting at 50 FPS causes playback in slow motion at 0.48 times normal playback speed.

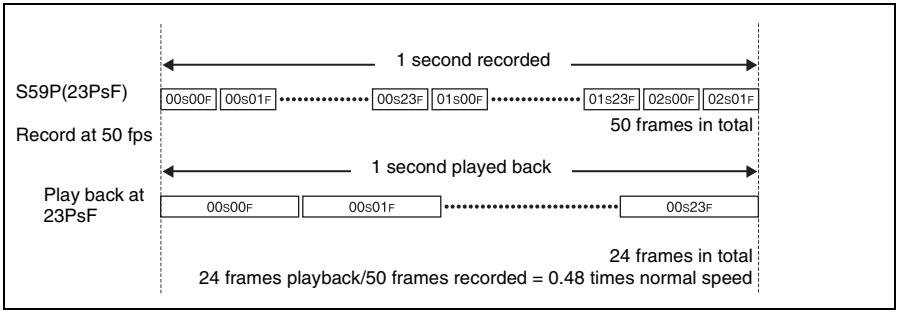


Relation between the target frame frequency and timecode

When the system frequency is 23.98 Hz, timecode normally advances from 0 to 23 frames. This becomes the timecode of the recorded material (target frame frequency). If the rate at which timecode advances is not constant within the recorded material, a timecode discontinuity occurs at playback time. For this reason, set the target frame rate at recording time to the same value as the timecode at playback time.

In SR Motion shooting, it is possible to set the target frame frequency and the system frequency at recording time to different values. For example, if 50 frames are recorded with the target frame frequency set to 23.98 Hz and the system frequency set to 59.94 Hz, then 50 frames per second are recorded, but the timecode does not advance from 0 to 49 frames. Instead, it advances from 0 to 23 frames, which matches the target frame frequency. If one second is recorded with these settings, beginning with second 00 frame 00, then the timecode advances quickly from second 00 frames 00 to 23, and then continues to advance as second 01 frames 00 to 23, and finally as second 02 frames 00 to 01, at which point 50 frames have been recorded *(see the following figure)*.

When a tape recorded in this way is played on a VTR that has been set to a system frequency of 23.98 Hz (the tape is played at a target frame frequency of 23.98PsF), then the video is 24/50 = 0.48 times normal speed. But the timecode advance by one second in the space of one second. Even if the slow-motion section follows a section recorded at normal speed, the playback timecode is continuous and no discontinuity occurs.



Operation during slow and quick motion shooting

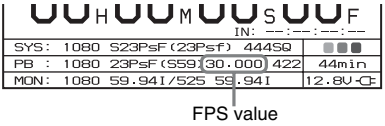
During slow and quick motion shooting, input data is stored in the memory of the HKSR-9002. Transfer of the data to tape starts when a specified amount of data has been stored. Therefore, the tape does not run for a short time after recording starts. The tape starts running when data transfer from the memory starts, and stops running when the specified amount of data has been transferred. Recording proceeds by repeating this series of operations. You can check the amount of data stored in the memory of the HKSR-9002 with the numeric value and bar graph shown in the MEM: area at the bottom of the control panel display.

Notes

- During recording, data transfer to the tape starts when you press the STOP button or PAUSE button to stop or temporarily stop the recording. The tally indicator on the rear side of this unit flashes four times per second during data transfer. Be sure not to power off this unit until the data transfer to the tape is complete.
- Tape recording is not performed until the amount of data stored in the memory exceeds the specified value.
- Input data is not recorded while the bar graph shows 0%.

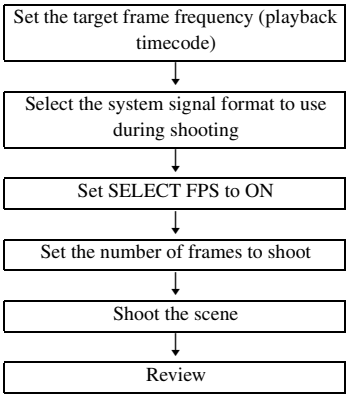
Playback of tapes recorded with SR Motion

When you play a tape that was recorded with SR Motion, the FPS value in SR Motion recording is shown in the playback frequency position of the PB line.



Operation Flow

The operation flow is shown below.



Target Frame Frequencies and Signal Formats

The following table shows the combinations of target frame frequencies and signals formats that are required for SR Motion shooting.

Menu Settings				State of the unit			
Format		FPS FORMAT	SELECT FPS	System frame frequency (Hz)	Format indication	Reference signal frame frequency (Hz)	TEST OUT output (when VBS is selected)
SIGNAL	FRAME (target frame frequency)						
4:2:2	23.98	23/24	When set to "ON" ➧	23.98	1080 S23PsF (23PsF) 4:2:2	23.98	525/59.94i
		29/30		29.97	1080 S29PsF (23PsF) 4:2:2	29.97	525/59.94i
		DEF or 59/60		59.94	1080 S59P (23PsF) 4:2:2	29.97	525/59.94i
	24	23/24		24	1080 S24PsF (24PsF) 4:2:2	24	625/50i
		25		25	1080 S25PsF (24PsF) 4:2:2	25	625/50i
		29/30		30	1080 S30PsF (24PsF) 4:2:2	30	525/60i [a)]
		50		50	1080 S50P (24PsF) 4:2:2	25	625/50i
		DEF or 59/60		60	1080 S60P (24PsF) 4:2:2	30	525/60i [a)]
	25	25		25	1080 S25PsF (25PsF) 4:2:2	25	625/50i
		29/30		30	1080 S30PsF (25PsF) 4:2:2	30	525/60i [a)]
		DEF or 50		50	1080 S50P (25PsF) 4:2:2	25	625/50i
		59/60		60	1080 S60P (25PsF) 4:2:2	30	525/60i [a)]
	29.97	29/30		29.97	1080 S29PsF (29PsF) 4:2:2	29.97	525/59.94i
		DEF or 59/60		59.94	1080 S59P (29PsF) 4:2:2	29.97	525/59.94i

Menu Settings				State of the unit			
Format		FPS FORMAT	SELECT FPS	System frame frequency (Hz)	Format indication	Reference signal frame frequency (Hz)	TEST OUT output (when VBS is selected)
SIGNAL	FRAME (target frame frequency)						
4:4:4 SQ	23.98	23/24	When set to "ON" ➧	23.98	1080 S23PsF (23PsF) 4:4:4 SQ	23.98	525/59
		DEF or 29/30		29.97	1080 S29PsF (23PsF) 4:4:4 SQ	29.97	525/59
		59/60		59.94	1080 S59P (23PsF) 4:4:4 SQ	29.97	525/59
	24	23/24		24	1080 S24PsF (24PsF) 4:4:4 SQ	24	625/50i
		25		25	1080 S25PsF (24PsF) 4:4:4 SQ	25	625/50i
		DEF or 29/30		30	1080 S30PsF (24PsF) 4:4:4 SQ	30	525/60i [a)]
		50		50	1080 S50P (24PsF) 4:4:4 SQ	25	625/50i
		59/60		60	1080 S60P (24PsF) 4:4:4 SQ	30	525/60i [a)]
	25	25		25	1080 S25PsF (25PsF) 4:4:4 SQ	25	625/50i
		DEF or 29/30		30	1080 S30PsF (25PsF) 4:4:4 SQ	30	525/60i [a)]
		50		50	1080 S50P (25PsF) 4:4:4 SQ	25	625/50i
		59/60		60	1080 S60P (25PsF) 4:4:4 SQ	30	525/60i [a)]
	29.97	DEF or 29/30		29.97	1080 S29PsF (29PsF) 4:4:4 SQ	29.97	525/59
		59/60		59.94	1080 S59P (29PsF) 4:4:4 SQ	29.97	525/59
4:4:4 HQ	23.98	23/24	When set to "ON" ➧	23.98	1080 S23PsF (23PsF) 4:4:4 HQ	23.98	525/59.94i
		DEF or 29/30		29.97	1080 S29PsF (23PsF) 4:4:4 HQ	29.97	525/59.94i
	24	23/24		24	1080 S24PsF (24PsF) 4:4:4 HQ	24	625/50i
		25		25	1080 S25PsF (24PsF) 4:4:4 HQ	25	625/50i
		DEF or 29/30		30	1080 S30PsF (24PsF) 4:4:4 HQ	30	525/60i [a)]
	25	DEF or 25		25	1080 S25PsF (25PsF) 4:4:4 HQ	25	625/50i
		29/30		30	1080 S30PsF (25PsF) 4:4:4 HQ	30	525/60i [a)]
	29.97	DEF or 29/30		29.97	1080 S29PsF (29PsF) 4:4:4 HQ	29.97	525/59.94i

Menu Settings				State of the unit			
Format		FPS FORMAT	SELECT FPS	System frame frequency (Hz)	Format indication	Reference signal frame frequency (Hz)	TEST OUT output (when VBS is selected)
SIGNAL	FRAME (target frame frequency)						
4:4:4 HQ 12bit	23.98	23/24	When set to "ON" ➧	23.98	1080 S23PsF (23PsF) 4:4:4 HQ 12bit	23.98	525/59.94i
		DEF or 29/30		29.97	1080 S29PsF (23PsF) 4:4:4 HQ 12bit	29.97	525/59.94i
	24	23/24		24	1080 S24PsF (24PsF) 4:4:4 HQ 12bit	24	625/50i
		25		25	1080 S25PsF (24PsF) 4:4:4 HQ 12bit	25	625/50i
		DEF or 29/30		30	1080 S30PsF (24PsF) 4:4:4 HQ 12bit	30	525/60i [a)]
	25	DEF or 25		25	1080 S25PsF (25PsF) 4:4:4 HQ 12bit	25	625/50i
		29/30		30	1080 S30PsF (25PsF) 4:4:4 HQ 12bit	30	525/60i [a)]
	29.97	DEF or 29/30		29.97	1080 S29PsF (29PsF) 4:4:4 HQ 12bit	29.97	525/59.94i

a) Characters can be displayed. However, camera images are not output.

Example settings

Signal format (SIGNAL): 4:2:2
Target frame frequency (FRAME): 24 Hz
In this case, 23/24, 25 or 29/30 can be selected for "FPS FORMAT".
These selections differ in their system frequencies, slow motion effects, and VBS output.

- When 23/24 is selected
  The system frame frequency is set to 24 Hz. Input a 24 Hz signal as reference signal. The maximum number of frames is 24 FPS. The VBS output is converted to 625/50i.
  When 1FRM is selected while using the Interval Frame function, the number of frames is 24 FPS (1x speed).
- When 25 is selected
  The system frame frequency is set to 25 Hz. Input a 25 Hz signal as reference signal. VBS output is 625/50i. The maximum number of frames is 25 FPS.
- When 29/30 is selected
  The system frame frequency is set to 30 Hz. Input a 30 Hz signal as reference signal. Since the number of frames can be set up to 30 FPS, this selection is effective for further enhancing slow motion effects. However, VBS output is 525/60i and camera images are not output.
- When 50 is selected
  The system frame frequency is set to 50 Hz. Input a 25 Hz signal as reference signal. Since the number of frames can be set up to 50 FPS, this selection is effective for further enhancing slow motion effects. VBS output is 625/50i.
- When 59/60 is selected
  The system frame frequency is set to 60 Hz. Input a 30 Hz signal as reference signal. Since the number of frames can be set up to 50 FPS, this selection is effective for obtaining the maximum slow motion effect. However, VBS output is 525/60i and camera images are not output.

Select FPS Function

Select FPS allows you to obtain smooth motion effects without skipped frames by adjusting the number of frames to be shot. Changing the number of frames to extract during recording provides motion effects with variable speeds (Ramp function).

The number of frames recorded in one second is displayed in units of FPS (frames per second). It can be set at steps of 1 FPS within the following range.

For 4:2:2 formats: 1 to 50 FPS

For 4:4:4 formats: 1 to 50 FPS

For details on the Ramp function, see "Using the Ramp Function" (page 111).

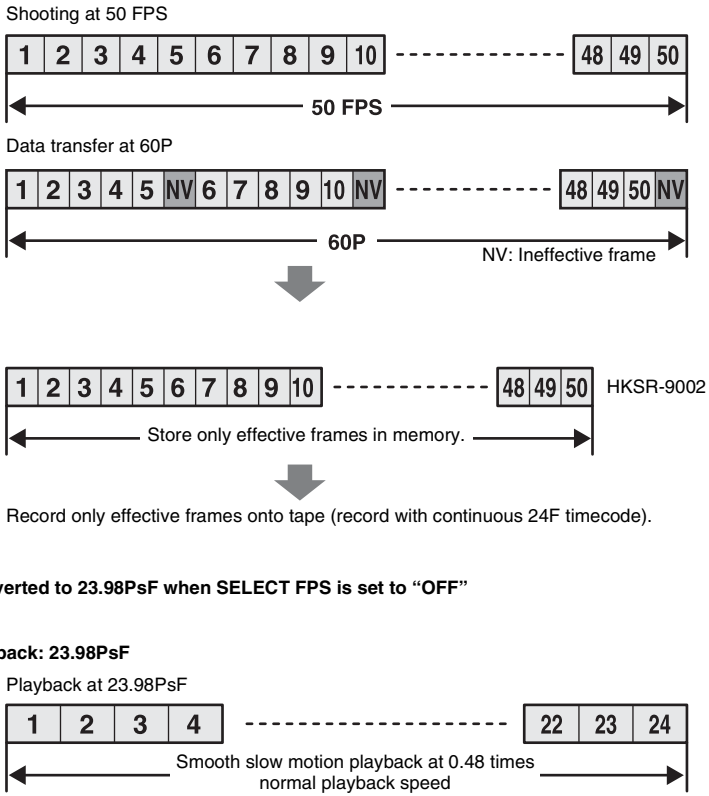
Relation Between the Number of Frames Shot and the Number of Playback Frames (Outline of Select FPS)

To obtain the desired slow or quick motion effects using the Select FPS function, it is necessary to set the appropriate number of frames to shoot.

If you shoot with the number of frames shot set to 50 FPS, the camera module generates 50 frames (50 FPS) while the data is transferred from the camera module to the VTR module at 60P. As a result, transferred data is padded with frames (ineffective frames) in which no signal is recorded. This unit extracts and stores only effective frames and records them onto tape. When the tape is played back at 24P, a slow motion effect of 0.48 times normal playback speed is obtained.

The following figure illustrates the operation described above.

Format: S59P (23PsF) SELECT FPS = ON
Number of frames shot: 50 FPS



Converted to 23.98PsF when SELECT FPS is set to "OFF"

Playback: 23.98PsF

Using the Select FPS Function

1 Make system settings.

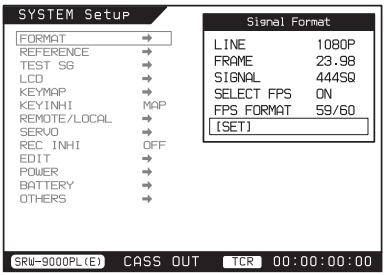
Select the target frame frequency (24, 25, or 30PsF), and select the recording format (4:2:2, 4:4:4 SQ, 4:4:4 HQ, or 4:4:4 HQ 12bit).

On formats available for Select FPS shooting, see page 110.

Example settings: Settings for 24 frames of target frame frequency (23.98PsF) and 4:4:4 SQ recording format.

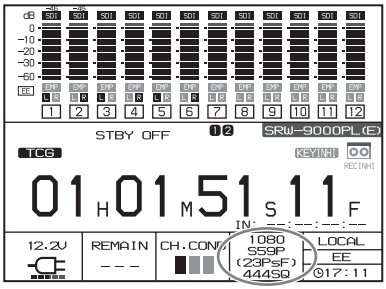
① Carry out step **1** of "To set with FORMAT" (page 80) in "Selecting the System Signal Format".

② Set as shown below.



③ In the submenu window, select [SET].

The format is switched, and "S59P(23PsF)" appears in the display (for about 30 seconds).



The S in S59P indicates that SR Motion is enabled (SELECT FPS is set to “ON”). The 59P indicates that FPS FORMAT is set to 59.94P. (23PsF) indicates that the target frame frequency setting is 23.98PsF.

To make the timecode continuous

Make the following settings in the TC Setup menu.

RUN MODE: R RUN (Rec Run)

TCG MODE: PRST (Preset) or RGN (Regen), both are available.

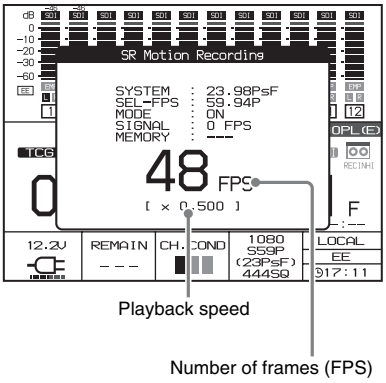
REGEN SOURCE: INT L (Internal LTC) (following the timecode recorded on the tape)

For details on the TC Setup menu, see “TC (Timecode) Setup Menu” (page 173).

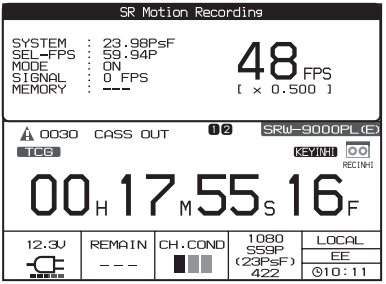
2 Set the number of frames to shoot.

① While holding the FUNC button down, press the SELECT/ENTER dial.

② Turn the SELECT/ENTER dial to set the number of frames to shoot. (The setting range is 1 to 60 FPS.)



To confirm the new setting, press the SELECT/ENTER dial or leave it unrotated for three seconds. The display returns to the original screen. A screen like the one shown below appears if you hold down the FUNC button and press the SELECT/ENTER dial again while the above screen is displayed. This new screen remains even if three seconds pass with no operation. While this screen is visible, you can check the setting that specifies the number of frames to shoot. To do so, hold down the FUNC button and press the HOME button. The signal format display at the bottom of the screen changes into the SR Motion display, allowing you to check the number of frames setting.



You can also change the number of frames as you are shooting (Ramp function). For details, see “Using the Ramp Function” (page 111)

3 Start shooting.

① Check the timecode of the current position (make a memo), so that you will be able to rewind after shooting.

② Set the number of frames to be shot (FPS value).
③ Start recording. During recording, change the FPS value as required by turning the SELECT/ENTER dial.
④ Stop recording.

4 Conduct a review.

① Rewind to the timecode position that you noted in step **3** ①.
② Set SELECT FPS in the SYSTEM Setup >FORMAT menu to “OFF” to set the playback timecode to 24 frames/sec (the target frame frequency to 23.98PsF).
③ Press the SET button to switch the format.
④ Press the PLAY button to start playback.

You can check the slow or quick motion effect at the target frame frequency of 23.98PsF. The timecode advances from 0 to 23 frames per second. You can also review the recording by using simple playback without checking the slow or quick motion effect.

For more information about simple playback, see the next section “To perform simple playback without checking motion effects”.

Notes

- Audio cannot be recorded normally when SR Motion is used for shooting.
- When the FPS is set to a lower value than the value set for FPS FORMAT (system frame frequency), recording to the tape proceeds in starts and stops, because data is recorded only when a certain amount has been accumulated in the unit’s internal memory.

To perform simple playback without checking motion effects

Simple playback allows you to check recorded video in fewer steps than normal playback. Simple playback does not use the specified target frame frequency, so it does not allow you to check slow or quick motion effects.

1 Set the number of frames to shoot (FPS value).

2 Start recording. During recording, change the FPS value as required.

3 Stop recording.

4 While holding the FUNC button down, press the PLAY button.

This starts a recording review. The unit rewinds the tape for three seconds and then starts playback of the scene you have just shot. When playback ends, the unit enters recording pause mode at the point where recording ended.

To check more than three seconds earlier

If you hold down the FUNC button while pressing the PLAY button for three seconds or more, the unit rewinds as long as you keep the buttons held down. If the setting of SERVO >REC REVIEW in the SYSTEM Setup menu is “NORM”, you can rewind up to 10 seconds. If the setting is “ALL”, you can hold down the FUNC button and press the PLAY button once. The unit will rewind to the start of the most recently recorded cut and start playback.

Formats available for Select FPS shooting

Note

The 4:4:4 format is not available when the scan method is progressive and the target frame frequency is 50 Hz or higher.

The following table shows the combinations of setting items in the SYSTEM Setup >FORMAT menu.
○: Available
●: Not available

SELECT FPS: ON

FPS FORMAT (system frame frequency)	FRAME (target frame frequency)	SIGNAL (signal format)		
		4:2:2 (YCbCr)	4:4:4 SQ (RGB)	4:4:4 HQ/ 4:4:4 HQ 12bit (RGB)
23.98	23.98	○	○	○
24	24	○	○	○
25	24	○	○	○
	25	○	○	○
29.97	23.98	○	○	○
	29.97	○	○	○
30	24	○	○	○
	25	○	○	○
50	24	○	○	●
	25	○	○	●
	50	○	●	●
59.94	23.98	○	○	●
	29.97	○	○	●
	59.94	●	●	●
60	24	○	○	●
	25	○	○	●
	50	○	●	●

SELECT FPS: OFF

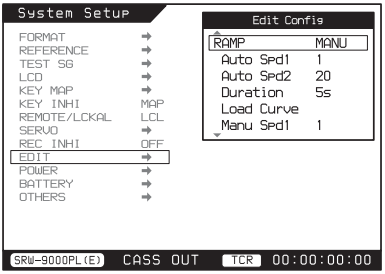
FPS FORMAT (system frame frequency)	FRAME (target frame frequency)	SIGNAL (signal format)		
		4:2:2 (YCbCr)	4:4:4 SQ (RGB)	4:4:4 HQ/ 4:4:4 HQ 12bit (RGB)
–	23.98	○	○	○
	24	○	○	○
	25	○	○	○
	29.97	○	○	○
	50	○	●	●
	59.94	●	●	●

Using the Ramp Function

The Ramp function allows you to achieve speed variations by changing the number of frames shot (FPS) during Select FPS recording.
There are two Ramp modes: manual mode, in which you specify upper and lower limits and manually vary the speed within that range, and auto mode, in which you specify start and end frames and a duration, and allow the unit to vary the speed automatically according to preset rules. Proceed as follows to set up the Ramp function.

1 In the SYSTEM Setup menu, select EDIT >RAMP.

A setting window opens.



2 Select the Ramp function operating mode from the following.

Auto(Linear): Varies the number of frames shot (FPS) linearly.

Auto(Inverse): Varies the inverse of the number of frames shot (frm) linearly.

Auto(Even): Varies the number of frames shot so that there are the same number of frames for each frequency.

Auto(User): Varies the number of frames shot along a user-specified curve.

Manual: Varies the number of frames shot manually within preset upper and lower limits.

Off: Varies the number of frames shot manually with no range limits.

3 Make the settings required by the selected mode.

When Auto(Linear), Auto(Inverse), or Auto(Even) was selected, see the next section, "To vary the number of frames shot automatically".

When Auto(User) was selected, see "To vary the number of frames shot along a user-specified curve" (page 112).

When Manual or Off was selected, see "To vary the number of frames shot manually" (page 113).

To vary the number of frames shot automatically

Operating mode: Auto (Linear), Auto (Inverse), or Auto (Even)

1 Turn the ADJUST knob or the SELECT/ENTER dial to set the Auto Spd1, Auto Spd2, and Duration items.

Auto Spd1: The number of frames shot of the ramp start point, or the number of frames shot of the ramp end point (FPS)

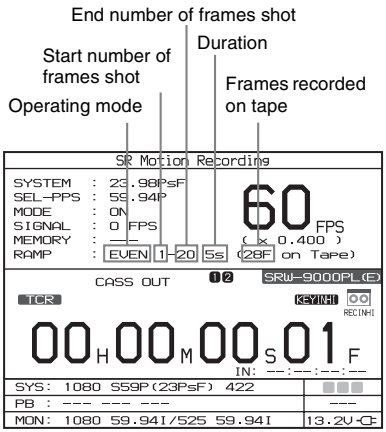
Auto Spd2: The number of frames shot of the ramp start point, or the number of frames shot of the ramp end point (FPS) (This is the end point number of frames shot when the start point number of frames shot was set with Auto Spd1. Otherwise it is the start point number of frames shot.)

Duration: The time (seconds) from the start of the ramp to its end.

2 Press the HOME button to return to the HOME screen.

3 With the FUNC button held down, press the SELECT/ENTER dial twice.

A screen like the following appears, in which you can check the settings. (This example shows the information that appears when the Auto (Even) mode is selected.)



4 With the FUNC button held down, press the SELECT/ENTER dial.

The number of frames shot starts to change.

When the number of frames shot changes to that of the end point, the values of the ramp start point and the ramp end point are exchanged.

To stop the number of frames shot changes

With the FUNC button held down, press the SELECT/ENTER dial again.

This also causes the values of the ramp start point and the ramp end point to be exchanged.

To vary the number of frames shot along a user-specified curve

Note

You will need to prepare a curve file in advance before carrying out this procedure.

For details on how to create a curve file, see "To create a curve file" (page 113).

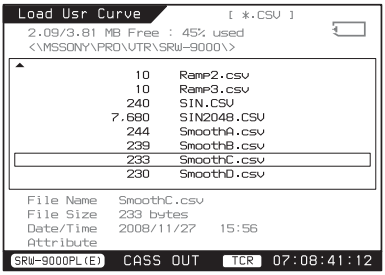
Operating mode: Auto(User)

1 Insert a "Memory Stick" containing a curve file into the Memory Stick slot.

For details on "Memory Stick" operations, see "Using a "Memory Stick"" (page 191).

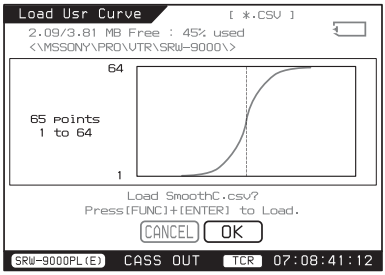
2 Select Load Curve.

A list of curve files saved in the "Memory Stick" appears.



3 Select a file.

The curve saved in the selected file appears, allowing you to check it.



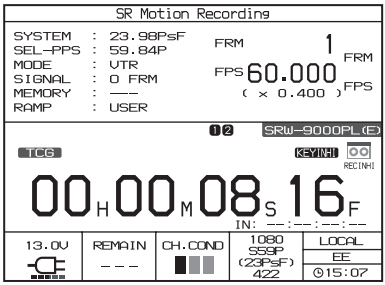
4 **With the FUNC button held down, press the SELECT/ENTER dial.**
The selected file is loaded.

To change the file selection
Turn the SELECT/ENTER dial to select "CANCEL", and then press the dial.

5 **Select "Duration", and then turn the ADJUST knob or the SELECT/ENTER dial to set the time (seconds) from the start to the end of the ramp.**

6 **Press the HOME button to return to the HOME screen.**

7 **With the FUNC button held down, press the SELECT/ENTER dial twice.**
A screen like the following appears, allowing you to check the settings.



8 **With the FUNC button held down, press the SELECT/ENTER dial.**
Variation of the number of frames shot begins along the selected curve.

To create a curve file

1 **Insert a "Memory Stick" into the Memory Stick slot of the PC.**

For details on "Memory Stick" operations, see "Using a "Memory Stick"" (page 191).

2 **Open a new file in a text editor.**

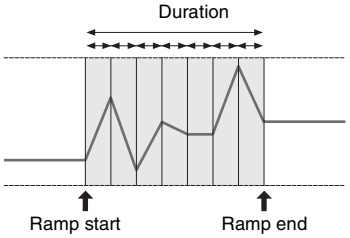
3 **Enter two or more number of frames shot values. Enter each value on its own line.**

4 **Save the file as a CSV file (file extension ".csv") in the "Memory Stick" (located in /MSSONY/PRO/VTR/SRW9000).**

Note

If you specify a folder other than the above folder, the function does not work.

For example, you could enter the following values.
10
50
6
30
24
24
60
30
A curve like the following is produced when you save the values entered in the text file as a CSV file.



To vary the number of frames shot manually

Set the number of frames shot manually if you want to set upper and lower number of frames shot limits.

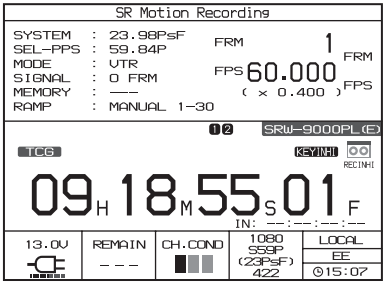
Operating mode: Manual

1 **Turn the ADJUST knob or the SELECT/ENTER dial to set the Manu Spd1 and Manu Spd2 items.**
Manu Spd1: The upper or lower limit of the number of frames shot (FPS)
Manu Spd2: The upper or lower limit of the number of frames shot (FPS)

(This is the lower limit when the upper limit was set with Manu Spd1. Otherwise it is the upper limit.)

2 Press the HOME button to return to the HOME screen.

3 With the FUNC button held down, press the SELECT/ENTER dial twice.
A screen like the following appears, in which you can check the settings.



4 With the FUNC button held down, press the SELECT/ENTER dial.

5 Turn the ADJUST knob or the SELECT/ENTER dial to vary the number of frames shot.

To temporarily remove the upper and lower limits
With the FUNC button held down, press the SELECT/ENTER dial again.

Interval Frame Function

Even when you use a camera that does not support the Select FPS function, you can obtain motion effects without afterimaging by using the Interval Frame function. You can obtain variable-speed motion effects by changing the frame frequency during recording (Ramp function).

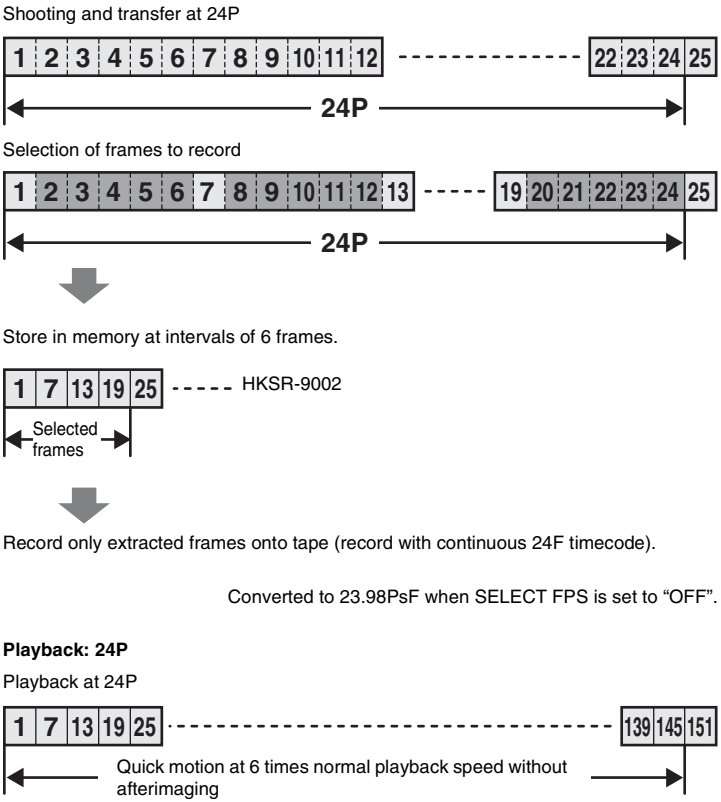
This function extracts frames from video material at a frame frequency set on this unit, stores them in memory, and records the stored frames onto tape.
The frame interval of shot frames is set in units of FRM (frames).
It can be set in steps of 1FRM within the following ranges.
For 4:2:2 formats: 1 to 64FRM
For 4:4:4 formats: 1 to 32FRM

For details on the Ramp function, see "Using the Ramp Function" (page 111).

Relation Between the Number of Frames Shot and the Frame interval (Outline of Interval Frame)

To obtain the desired slow or quick motion effects using the Interval Frame function, you need to set the appropriate frame interval according to the number of frames shot.
When the camera has shot the material in 24P format (at 24 FPS, or in other words at a system frequency of 24 frames), and you set the frame interval to 6FRM, then a frame is extracted once every 6th frame from the 24 frames of video signals shot by the camera. In other words, 4 frames of video signals are extracted every second and recorded onto tape.
When the signals are played back at 24PsF, a quick motion effect of 6 times normal playback speed is obtained.
The following figure illustrates the operation described above.

Format: S23PsF (23PsF) SELECT FPS = VTR
Frame interval: 6FRM (4 FPS)



Using the Interval Frame Function

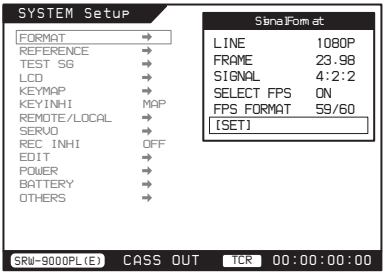
1 Make system settings.

Select the target frame frequency (24, 25, or 30PsF), and select the recording format and picture quality (4:2:2, 4:4:4 SQ, 4:4:4 HQ, or 4:4:4 HQ 12bit).

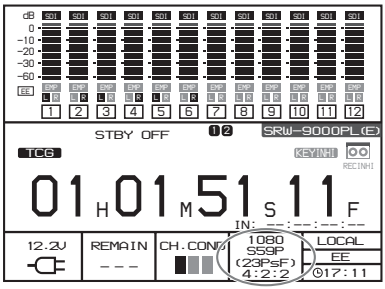
Example settings: Settings for 24 frames of target frame frequency (23.98PsF) and 4:2:2 recording format and picture quality.

① Carry out steps **1** and **2** of "To set with FORMAT" (page 85) in "Selecting the System Signal Format".

② Set as shown below, according to the camera system format.



③ In the submenu window, select [SET]. The format of the unit is switched, and "S59P(23PsF)" appears in the display (for about 30 seconds).



The S in S59P indicates that SR Motion is enabled. (SELECT FPS is set to "VTR", and the Interval Frame function is used.) The 59P indicates that FPS FORMAT is set to 59.94P. (23PsF) indicates that the target frame frequency is 23.98PsF.

To make the timecode continuous

Make the following settings in the TC Setup menu.

RUN MODE: R RUN (Rec Run)

TCG MODE: PRST (Preset) or RGN (Regen), both are available.

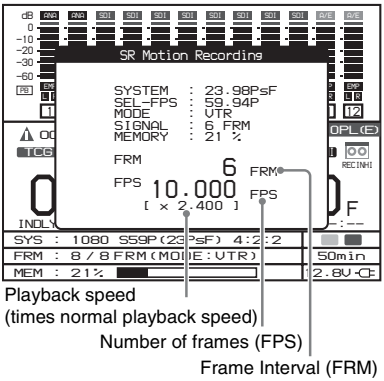
REGEN SOURCE: INT L (Internal LTC) (following the timecode recorded on the tape)

For details on the TC Setup menu, "TC (Timecode) Setup Menu" (page 173).

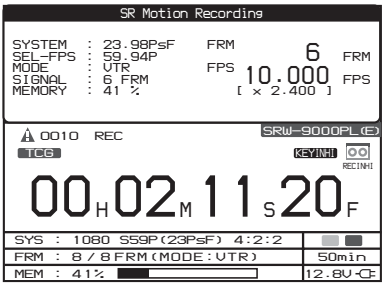
2 Set the frame interval (FRM).

① Exit the menu, and press the SELECT/ENTER dial with the FUNC button held down in the HOME screen.

The popup window displays the current frame interval (FRM), the current number of frames (FPS), and the playback speed.



When you press the SELECT/ENTER dial with the FUNC button held down and do not perform any operation for three seconds, the screen returns to the previous state. When you press the SELECT/ENTER dial with the FUNC button held down and press the SELECT/ENTER dial again with the FUNC button held down, the following screen appears. This screen remains on the display even if you do not perform any operation for three seconds or more.



② Rotate the SELECT/ENTER dial or ADJUST dial to select the value of FRM.

The values of FPS and playback speed are displayed according to the value of FRM.

Note

In the Interval Frame function, the number of frames cannot be set at steps of 1 FPS, which is different from the Select FPS function. For example, when you shoot using a camera of 60P format at 1FRM intervals, the number of frames is 60 FPS. However, since the next interval which can be set is 2 FRM, the number of frames becomes 30 FPS.

3 Start shooting.

① Check the timecode of the current position (make a memo), so that you will be able to rewind after shooting.
② Set the frame frequency (FRM value).
③ Start recording. During recording, change the FRM value as required by rotating the SELECT/ENTER dial.
④ Stop recording.

4 Conduct a review.

① Rewind to the timecode position that you noted in step **4** ①.
② Set Select FPS in the SYSTEM >FORMAT menu to “OFF” to set the playback timecode to 24 frames/sec (the target frame frequency to 23.98PsF).
③ Press the SET button to switch the format.
④ Press the PLAY button to start playback.

You can check the slow or quick motion effect at the target frame frequency of 23.98PsF. The timecode advances from 0 to 23 frames per second. You can also review the recording by using simple playback without checking the slow or quick motion effect.

For more information about simple playback, see “To perform simple playback without checking motion effects” (page 110).

Notes

- Audio cannot be recorded normally when SR Motion is used for shooting.
- When FRM is set to a value larger than one, recording to the tape proceeds in starts and stops, because data is recorded only when a certain amount has been accumulated in the unit’s internal memory.

Formats available for Interval Frame shooting

Note

The 4:4:4 format is not available when the scan method is progressive and the target frame frequency is 50 Hz or higher.

A/B: Connection with two coaxial cables, HD SDI A/B

A: Connection with one coaxial cable, HD SDI A

*: Not available

Select FPS setting		FRAME (target frame frequency)	SIGNAL (signal format)		
FPS FORMAT (system frame frequency)			4:2:2 (YCbCr)	4:4:4 SQ (RGB)	4:4:4 HQ / 4:4:4 HQ 12bit (RGB)
VTR	23.98	23.98	A	A/B	A/B
	24	24	A	A/B	A/B
	25	24	A	A/B	A/B
		25	A	A/B	A/B
	29.97	23.98	A	A/B	A/B
		29.97	A	A/B	A/B
	30	24	A	A/B	A/B
		25	A	A/B	A/B
	50	24	A/B	*	*
		25	A/B	*	*
		50	A/B	*	*
	59.94	23.98	A/B	*	*
		29.97	A/B	*	*
		59.94	A/B	*	*
	60	24	A/B	*	*
		25	A/B	*	*
		50	A/B	*	*
Off		23.98	A	A/B	A/B
		24	A	A/B	A/B
		25	A	A/B	A/B
		29.97	A	A/B	A/B
		50	A/B	*	*
		59.94	A/B (F23 only)	*	*

Using the Ramp Function

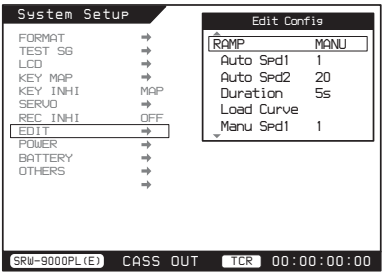
The Ramp function allows you to achieve speed variations by changing the frame frequency (FRM) in Interval Frame recording.

There are two Ramp modes: manual mode, in which you specify upper and lower limits and manually vary the speed within that range, and auto mode, in which you specify start and end frames and a duration, and allow the unit to vary the speed automatically according to preset rules.

Proceed as follows to set up the Ramp function.

1 In the SYSTEM Setup menu, select EDIT >RAMP.

A setting window opens.



2 Select the Ramp function operating mode from the following.

Auto(Linear): Varies the frame frequency (FRM) linearly.

Auto(Inverse): Varies the inverse of the frame frequency (fps) linearly.

Auto(Even): Varies the frame frequency so that there are the same number of frames for each frequency.

Auto(User): Varies the frame frequency along a user-specified curve.

Manual: Varies the frame frequency manually within preset upper and lower limits.

Off: Varies the frame frequency manually with no range limits.

3 Make the settings required by the selected mode.

When Auto(Linear), Auto(Inverse), or Auto(Even) was selected, see the next section, "To vary the frame frequency automatically".

When Auto(User) was selected, see "To vary the frame frequency along a user-specified curve" (page 119).

When Manual or Off was selected, see "To vary the frame frequency manually" (page 120).

To vary the frame frequency automatically

Operating mode: Auto (Linear), Auto (Inverse), or Auto (Even)

1 Rotate the ADJUST knob or the SELECT/ENTER dial to set the Auto Spd1, Auto Spd2, and Duration items.

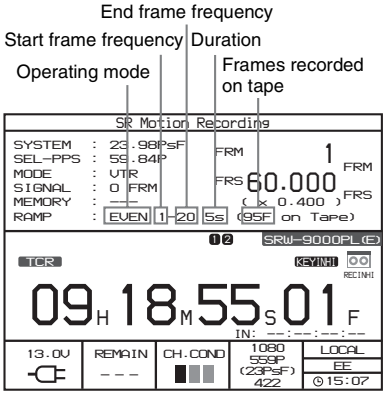
Auto Spd1: The frame frequency of the ramp start point, or the frame frequency of the ramp end point (FRM)

Auto Spd2: The frame frequency of the ramp start point, or the frame frequency of the ramp end point (FRM)
(This is the end point frame frequency when the start point frame frequency was set with Auto Spd1. Otherwise it is the start point frame frequency.)

Duration: The time (seconds) from the start of the ramp to its end.

2 Press the HOME button to return to the HOME screen.

3 With the FUNC button held down, press the SELECT/ENTER dial twice.
A screen like the following appears, in which you can check the settings. (This example shows the information that appears when the Auto (Even) mode is selected.)



4 With the FUNC button held down, press the SELECT/ENTER dial.
The frame frequency starts to change. When the frame frequency changes to that of the end point, the values of the ramp start point and the ramp end point are exchanged.

To stop the frame frequency changes
With the FUNC button held down, press the SELECT/ENTER dial again.
This also causes the values of the ramp start point and the ramp end point to be exchanged.

To vary the frame frequency along a user-specified curve

Note

You will need to prepare a curve file in advance before carrying out this procedure.

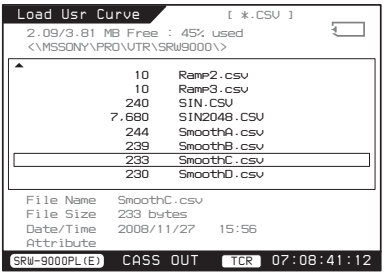
For details on how to create a curve file, see "To create a curve file" (page 120).

Operating mode: Auto(User)

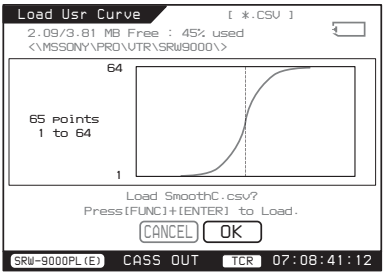
1 Insert a "Memory Stick" containing a curve file into the Memory Stick slot.

For details on "Memory Stick" operations, "Using a "Memory Stick"" (page 191).

2 Select "Load Curve".
A list of curve files saved in the "Memory Stick" appears.



3 Select a file.
The curve saved in the selected file appears, allowing you to check it.



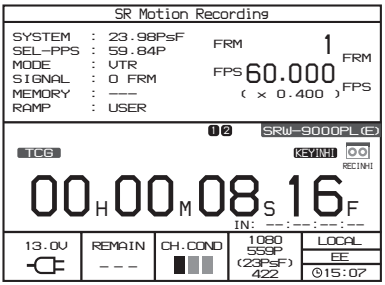
4 With the FUNC button held down, press the SELECT/ENTER dial.
The selected file is loaded.

To change the file selection
Rotate the SELECT/ENTER dial to select "CANCEL", and then press the dial.

5 Select "Duration", and then rotate the ADJUST knob or the SELECT/ENTER dial to set the time (seconds) from the start to the end of the ramp.

6 Press the HOME button to return to the HOME screen.

7 With the FUNC button held down, press the SELECT/ENTER dial twice.
A screen like the following appears, allowing you to check the settings.



8 With the FUNC button held down, press the SELECT/ENTER dial.
Variation of the frame frequency begins along the selected curve.

To create a curve file

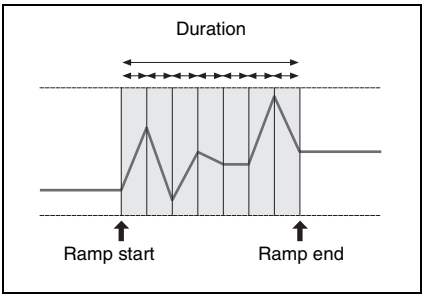
1 Insert a "Memory Stick" into the Memory Stick slot of the PC.

For details, "About a "Memory Stick"" (page 208).

2 Open a new file in a text editor.

3 Enter two or more frame frequency values. Enter each value on its own line.

4 Save the file as a CSV file (file extension ".csv") in the "Memory Stick" (located in /MSSONY/PRO/VTR/SRW9000).
For example, you could enter the following values.
10
50
6
30
24
24
60
30
A curve like the following is produced when you save the values entered in the text file as a CSV file.



To vary the frame frequency manually

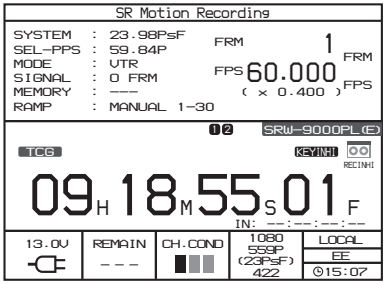
Set the frame frequency manually if you want to set upper and lower frame frequency limits.

Operating mode: Manual

1 Rotate the ADJUST knob or the SELECT/ENTER dial to set the Manu Spd1 and Manu Spd2 items.
Manu Spd1: The upper or lower limit of the frame frequency (FRM)
Manu Spd2: The upper or lower limit of the frame frequency (FRM)
(This is the lower limit when the upper limit was set with Manu Spd1. Otherwise it is the upper limit.)

2 Press the HOME button to return to the HOME screen.

3 With the FUNC button held down, press the SELECT/ENTER dial twice.
A screen like the following appears, in which you can check the settings.



4 With the FUNC button held down, press the SELECT/ENTER dial.

5 Rotate the ADJUST knob or the SELECT/ENTER dial to vary the frame frequency.

To temporarily remove the upper and lower limits
With the FUNC button held down, press the SELECT/ENTER dial again.

Chapter 7 Menu Configuration and Detailed Settings

Camera Menu Configuration

The Camera menu enables various detailed settings of the camera. In addition to the subdisplay pages, the menus are displayed in the control panel display, on the viewfinder, and on an external monitor.
The available menus are:

USER menu

This menu can include menu pages selected from among the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus, for your convenience. Changing, adding, and deleting pages can be performed with the USER MENU CUSTOMIZE menu.
The following pages are included on the factory-set USER menu:

Menu page title	USER menu No.	Source menu/Page No.	
<VF DISPLAY>	U01	OPERATION	01
<' ! ' IND>	U02	OPERATION	02
<MARKER SETTING>	U03	OPERATION	04
<VF/HD-Y DETAIL>	U04	OPERATION	05
<ZEBRA>	U05	OPERATION	06
<MONITOR OUTPUT>	U06	OPERATION	07
<PB/MON LUT>	U07	OPERATION	08
<PB MIX SETTING>	U08	OPERATION	09
<CHAR/MARK MIX>	U09	OPERATION	03
<SHUTTER ASSIGN>	U10	OPERATION	10
<SUBDISPLAY 1>	U11	OPERATION	11
<SUBDISPLAY 2>	U12	OPERATION	12
<SW ASSIGN 1>	U13	OPERATION	13
<SW ASSIGN 2>	U14	OPERATION	14
<GAIN ASSIGN>	U15	OPERATION	15
<BATTERY ALARM>	U16	OPERATION	16
<OPERATOR FILE>	U17	OPERATION	17
<LENS FILE>	U18	OPERATION	18
<LENS INFO>	U19	OPERATION	19
<GAMMA>	U20	PAINT	P03[P02] a)
<SHUTTER> or <SHUTTER/FPS> (when the optional HKSR-9002 is installed)	U21	PAINT	P13[P03] a)
<OTHERS 1> or <RAMP> (when the optional HKSR-9002 is installed)	U22	MAINTENANCE	M13[M09] a) or P14[P04] a)

Menu page title	USER menu No.	Source menu/Page No.	
<OTHERS 1> (when the optional HKSR-9002 is installed)	U23	MAINTENANCE	M13[M09] a)

a) in Cine/Cine-EI mode

For the items on each page, see the corresponding source menu page in "Camera Menu List" (page 128).

USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

For details, see "Editing the USER Menu" (page 168).

ALL menu

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

OPERATION menu

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

For the pages and items of the OPERATION menu, see "OPERATION Menu" (page 128).

PAINT menu

This menu contains items for making detailed image adjustments while using a waveform monitor to monitor the waveforms output from the unit.

For the pages and items of the PAINT menu, see "PAINT Menu" (page 142).

MAINTENANCE menu

This menu contains items for performing unit maintenance, such as changing the system or setting infrequently used "paint" items.

For the pages and items of the MAINTENANCE menu, see "MAINTENANCE Menu" (page 151).

FILE menu

This menu is for performing file operations, such as storing/retrieving menu setting data.

For the pages and items of the FILE menu, see"FILE Menu" (page 162).

For details on files and file operations, see Chapter 8 "Storage and Retrieval of User Setting Data" (page 186).

DIAGNOSIS menu

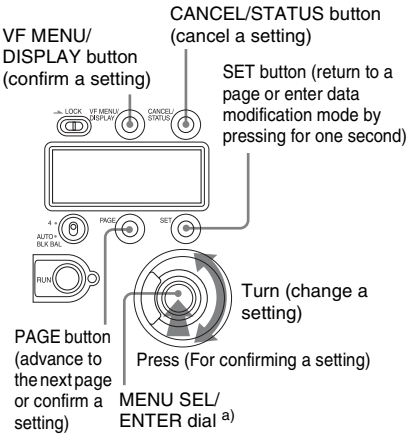
This menu enables you to check the self-diagnostic information.

For the pages and items of the DIAGNOSIS menu, see "DIAGNOSIS Menu" (page 167).

Basic Camera Menu Operations

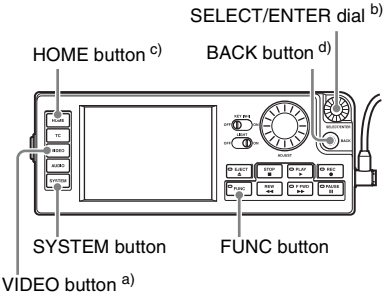
For Camera menu operations, you can use the display/menu operations section on the right side of the main unit, the control panel, or the optional AP-1 Assistant Panel.

Display/menu operations section



a) Turning the dial changes a setting, and pressing it confirms a setting (ENTER button function).

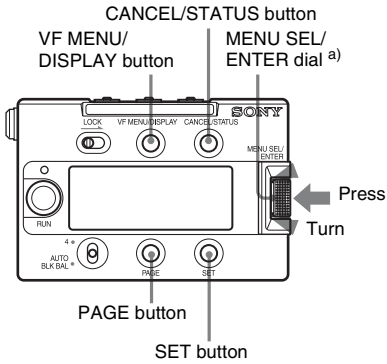
Control panel



a) Pressing the button to select “CAMERA MENU” displays the Camera menu.
b) Turning the dial changes a setting, and pressing it confirms a setting (ENTER button function).
c) When pressed alone, functions as the VF MENU/DISPLAY button. When pressed together with the SYSTEM button, displays the TOP MENU screen. To disable the “TOP” indication, press this button while holding the BACK button down.
d) When pressed alone, functions as the CANCEL/STATUS button. When pressed together with the FUNC button, returns to the VIDEO Setup menu.

For details on how to operate the above controls, see “VTR Menu Operations” (page 171).

AP-1 Assistant Panel



a) Turning the dial changes a setting, and pressing it confirms a setting (ENTER button function).

You can also use the display/menu operations section to operate the subdisplay of the assistant panel, and use the AP-1 to operate the subdisplay on the right-side panel.

However, the LOCK switches function independently. When you want to lock the operation section on the right side panel or the AP-1, turn on the LOCK switch on that side.

Note

When the subdisplay is in data modification mode ("**?**" symbol shown at the right corner) *(page 126)*, menu operations on the viewfinder or monitor screen are disabled.

Displaying Setting Pages

Press the VF MENU/DISPLAY button.
The most recently used menu page appears. (If this is your first menu operation, the CONTENTS page of the USER menu appears.)

The cursor on the menu screen is ▶ in Cine mode , ▷ in Cine-EI mode, and → in Custom mode.

Selecting menu pages from the TOP MENU screen

If you press the VF MENU/DISPLAY button while pressing the MENU SEL/ENTER dial, "TOP" appears at the upper right corner of the screen.

Example

```
<VF/HD-Y DETAIL>   05→TOP

VF          :  OFF
HD-Y        :  OFF

 LEVEL      :  25%
 CRISP      :   0
```

Press the CANCEL/STATUS button, or move the cursor to "TOP" and press the MENU SEL/ENTER dial. This displays the TOP MENU screen, which lists the available menus. You can select a menus on this screen.

TOP MENU screen

```
<TOP MENU>

→USER
 USER MENU CUSTOMIZE
 ALL
 •OPERATION
 •PAINT
 •MAINTENANCE
 •FILE
 •DIAGNOSIS
```

1 Turn the MENU SEL/ENTER dial to align the cursor with the desired menu.

2 Press the MENU SEL/ENTER dial.
The CONTENTS page or the most recently used page of the selected menu appears.

To return to the TOP MENU screen

Press the CANCEL/STATUS button, or move the cursor to "TOP" and press the MENU SEL/ENTER dial.
The TOP MENU screen is restored.

To disable the "TOP" indication

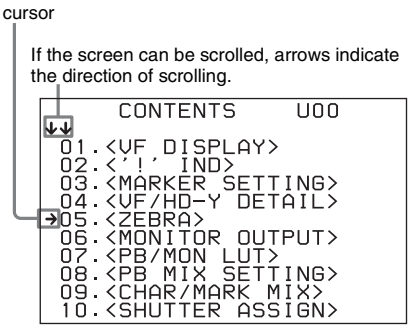
Turn the power once off then on again, or press the VF MENU/DISPLAY button while holding the CANCEL/STATUS button pressed.
Each time you turn the power off, the TOP selection is disabled, putting the unit into a state where only the USER menu *(page 122)* can be accessed.
You can arrange the USER menu so that it includes the pages and items you use most frequently.

For details, see "Editing the USER Menu" (page 168).

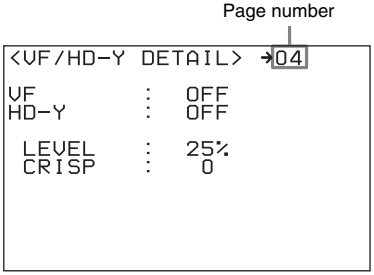
Selecting a page from a CONTENTS page

Turn the MENU SEL/ENTER dial to align the cursor with the desired page indication and then press the MENU SEL/ENTER dial.

CONTENTS page (Example: USER menu)

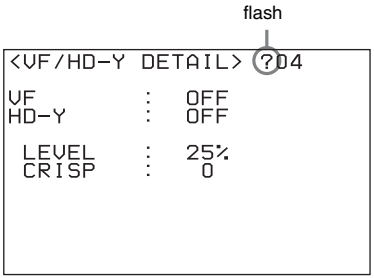


The selected page is displayed.



Changing the displayed page

1 Check that the cursor is located at the left of the page number and then press the MENU SEL/ENTER dial.
The cursor changes to a flashing question mark ("**?**" symbol).



2 Turn the MENU SEL/ENTER dial to flip through the pages.

3 When the desired page appears, press the MENU SEL/ENTER dial.
The "**?**" symbol will change back to the cursor (→ or ➡), and operations with the displayed page will be enabled.

Setting Menu Items

If a "**?**" symbol is flashing at the left of the page number, press the MENU SEL/ENTER dial to change it to the cursor (→ or ➡). Making settings on the displayed page is then enabled.

Changing the setting

1 Turn the MENU SEL/ENTER dial to align the cursor with the desired item.

2 Press the MENU SEL/ENTER dial.
The cursor changes to a flashing "**?**" symbol.

3 Turn the MENU SEL/ENTER dial to change the setting value.
When the knob is turned quickly, the values change quickly; when turned slowly, the values change slowly.

To reset a changed value
Press the CANCEL/STATUS button.

To interrupt settings
Press the VF MENU/DISPLAY button.
To restart the setting operation, press the VF MENU/DISPLAY button again.

4 Press the MENU SEL/ENTER dial.
The "**?**" symbol changes back to the cursor (→ or ➡), and the new setting is registered.

5 To change other setting items on the same menu page, repeat steps 1 through 4.

Specifying a character string

When you press the MENU SEL/ENTER dial with the cursor pointing to an item for which a character string, such as a file ID, is to be specified, a cursor ■ and a list of selectable characters appear.
You can move cursor by turning the MENU SEL/ENTER dial.

1 Move the cursor to the position where you want to enter a character then press the MENU SEL/ENTER dial.
Another cursor appears on the character list.

2 Position the cursor the character to be entered and press the MENU SEL/ ENTER dial.

To enter a space: Select INS on the line below the character list.

To delete the character: Select DEL.

To return to step 1 without changing the character: Select RET.

3 Repeat steps 1 and 2.

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

To register the string you have entered, select END and press the MENU SEL/ENTER dial.

To restore the previous string

Select ESC and press the MENU SEL/ ENTER dial.

Ending menu operations

Press the VF MENU/DISPLAY button.

Camera Menu List

The following tables list the menus and menu items in the Camera menu.

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

OPERATION Menu

The OPERATION menu items can be set in all operation modes.

Execute by ENTER: Execute by pressing the MENU SEL/ENTER dial.

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<VF DISPLAY> Select the basic status indications *(page 64)*	01(U01)	FPS	ON	ON, OFF	
		FOCUS	OFF	ON, OFF	
		IRIS	OFF	ON, OFF	
		ZOOM	OFF	ON, OFF	
		ND	ON	ON, OFF	
		5600K	OFF	ON, OFF	
		WHITE	OFF	ON, OFF	
		GAIN	ON	ON, OFF	
		SHUTT	ON	ON, OFF	
		UNIT	deg	deg, sec	
		BATT	ON	ON, OFF	
		REC	ON	ON, OFF	
		TAPE	OFF	ON, OFF	
		TC	OFF	ON, OFF	
		AUDIO	OFF	ON, OFF	
		MESSAG	ALL	ALL, AT, WRN, OFF	**ALL:** Display all messages **AT:** Display Auto Setup information and higher **WRN:** Display warning messages and higher **OFF:** Display warning messages of the highest level only
		C TEMP	OFF	ON, OFF	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<‘ ! ’ IND> Specify ABNORMAL <‘ ! ’> display conditions	02(U02)	ND	[IND] ON	ON, OFF	**[IND]:** Set whether to be included in the ‘ ! ’ indications on the ABNORMAL < ‘ ! ’ > display **[NORMAL]:** Specify the conditions under which the ‘ ! ’ indication is not to be displayed even if [IND] is ON. (By specifying the standard or normal conditions here, non-standard or abnormal conditions can be found with the ‘ ! ’ indication.) **e.g.:** With the default setting of ND, the ‘ ! ’ indication is displayed when an ND filter other than 1 is selected.
			[NORMAL] 1 – – – –	1, 2, 3, 4, 5 (combination allowed)	
		WHITE	[IND] ON	ON, OFF	
			[NORMAL] P – –	ON, OFF	
		5600K	[IND] ON	ON, OFF	
			[NORMAL] OFF	ON, OFF	
		SHUTT	[IND] ON	ON, OFF	
			[NORMAL] OFF	ON, OFF	
		FAN	[IND] ON	ON, OFF	
			[NORMAL] AUTO1	AUTO1, AUTO2, MIN, MAX	
		G-COMP (appears only when the optional HKSR-9002 is installed)	[IND] ON	ON, OFF	
				The normal condition is fixed to OFF.	
<CHAR/MARK MIX> Turn characters and markers ON/OFF and adjust their brightness	03(U09)	CHAR	VF ON	ON, OFF	Character superimposing ON/OFF
			MON ON	ON, OFF	
			HD-Y ON	ON, OFF	
			VBS OFF	ON, OFF	
		MARKER	VF ON	ON, OFF	Markers ON/OFF
			MON ON	ON, OFF	
			HD-Y ON	ON, OFF	
			VBS ON	ON, OFF	
		CURSOR	VF OFF	ON, OFF	Cursor ON/OFF
			MON OFF	ON, OFF	
			HD-Y OFF	ON, OFF	
		ZEBRA	VF OFF	ON, OFF	Zebra ON/OFF
			MON OFF	ON, OFF	
			HD-Y OFF	ON, OFF	
			VBS OFF	ON, OFF	
		CHAR/MARK LEVEL	50	0 to 50	Adjust the brightness of the character/marker indications.
		VF GATE MARKER	OFF	ON, OFF	Zebra ON/OFF for SKIN GATE and MULTI MATRIX GATE on the viewfinder

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<MARKER SETTING> Specify markers	04(U03)	CENTER	OFF	ON, OFF	
			1	1, 2, 3, 4	**1:** Entire cross **2:** Entire cross with a hole **3:** Center **4:** Center with a hole
		SAFETY	OFF	ON, OFF	
			90.0%	80.0%, 90.0%, 92.5%, 95.0%	
		EFFECTIVE	OFF	ON, OFF	
		ASPECT	OFF	ON, OFF	
			4:3	2.40:1, 2.35:1, 1.85:1, 1.66:1, 16:9, 15:9, 14:9, 13:9, 4:3, VAR H, VAR V	**1.66:1 :** VISTA1 equivalent **1.85:1 :** VISTA2 equivalent
		VARIABLE	1440	12 to 1920	
			1016	12 to 1080	
		SAFETY	OFF	ON, OFF	For the safety marker in Aspect mode
			90.0%	80.0%, 90.0%, 92.5%, 95.0%	
		MASK	OFF	ON, OFF	
			12	0 to 15	Set the level to darken the areas outside the aspect marker.
		CURSOR	BOX	BOX, CROSS	
		POSI H/V	0/0	–958 to +956/ –538 to +536	
		SIZE W/H	960/540	16 to 1920/16 to 1080	
<VF HD-Y DETAIL> Adjust the detail on the viewfinder and the HD-Y signal	05(U04)	VF	OFF	ON, OFF	
		HD-Y	OFF	ON, OFF	
		LEVEL	25%	0 to 100%	
		CRISP	0	–99 to +99	
<ZEBRA> Set up the zebra display	06(U05)	VF	OFF	ON, OFF	
		MONITOR	OFF	ON, OFF	
		HD-Y	OFF	ON, OFF	
		VBS	OFF	ON, OFF	
		ZEBRA TYPE	1	1, 2, 1&2	
		ZEBRA1 LEVEL	70%	0 to 109%	
		ZEBRA1 WIDTH	10%	0 to 30%	
		ZEBRA2	100%	50 to 109%	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<MONITOR OUTPUT> Set up the monitor output **Note** The MLUT function is enabled when you are using S-LOG A.	07(U06)	COLOR	COLOR	COLOR, R, G, B	
		VF	[SIG] VF	VF (display only)	
			[SRC] CAM	CAM, AUTO, MIX (display only)	
			[MLUT] OFF	ON, OFF (display only)	
		MON	[SIG] MON	MON, VF	
			[SRC] PB	CAM, AUTO, MIX (display only)	
			[MLUT] OFF	ON, OFF (display only)	
		TEST	[SIG] VBS	VBS, HD-Y, FRAME	
			[SRC] ---	CAM, AUTO, MIX, --- (display only)	
			[MLUT] ---	ON, OFF, --- (display only)	
		RM	[SIG] VBS	VBS, HD-Y	
			[SRC] CAM	CAM, AUTO, MIX (display only)	
			[MLUT] OFF	ON, OFF (display only)	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<PB/MON LUT> Set the gamma of the playback picture/monitor picture **Note** The MLUT function is enabled when you are using S-LOG A.	08(U07)	MLUT/PBMIX	MLUT	MLUT, PBMIX, OFF	
		MLUT SEL	NOT SELECTED	709(800%), HG8009G40, HG8009G33, 709(180%) User setting - - - NOT SELECTED	**709:** ITU-R709 **HG:** HyperGamma **User setting:** User MLUT name (up to 12 characters) read from a "Memory Stick" **- - -:** MLUT not available **NOT SELECTED:** MLUT not selected
		VF/VBS	[CAM/PB] AUTO	AUTO, CAM, - - - (for PBMIX)	
			[MLUT] (OFF)	ON, OFF, (OFF)	**(OFF):** MLUT/PBMIX Fixed when not MLUT
		MON	[CAM/PB] AUTO	AUTO, CAM, - - - (for PBMIX)	
			[MLUT] (OFF)	ON, OFF, (OFF)	**(OFF):** MLUT/PBMIX Fixed when not MLUT
		MLUT MARK	OFF	ON, OFF	
		LEVEL	3	1, 2, 3, 4	
		H POS	99	0 to 99	
		V POS	99	0 to 99	
<PB MIX SETTING> Specify mixing of the playback picture	09(U08)	MIX TYPE	MIX	MIX, WIPE	
		MIX			
		DIRECTION	CAM	CAM, PB	
		MODE	Y-MIX	Y-MIX, WIRE(W), WIRE(B)	
		LEVEL	80%	0 to 80%	
		WIPE			
		LAYOUT	HOR	HOR, VERT	
		PB POSITION	HOR: RIGHT VERT: BOTTOM	HOR: RIGHT, LEFT VERT: BOTTOM, TOP	
		BOUNDARY	HOR: 960 VERT: 540	HOR: 0 to 1920 VERT: 0 to 1080	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SHUTTER ASSIGN> Set shutter step values	10(U10)	STEP			**[deg] column:** Shutter angle value settings **[sec] column:** The converted speed values (sec) depending on the selected FPS value are displayed.
		1	216.0	360.0 to 4.3	
		2	180.0	360.0 to 4.3	
		3	172.8	360.0 to 4.3	
		4	150.0	360.0 to 4.3	
		5	144.0	360.0 to 4.3	
		6	90.0	360.0 to 4.3	
		7	45.0	360.0 to 4.3	
		8	22.5	360.0 to 4.3	
		ADD		Execute by ENTER	Add a shutter step value
		DEL		Execute by ENTER	Delete a shutter step value
		PRESET		Execute by ENTER	Resume the factory default shutter step settings
<SUBDISPLAY 1> Register formats so that they can be selected on the AP-1 (optional)	11(U11)	FORMAT MEMORY			

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SUBDISPLAY 1> Register formats so that they can be selected on the AP-1 (optional)	11(U11)	1	23.98P 422	NO ASSIGN, _23.98P 444HQ, S23.98P 444HQ, _23.98P 444SQ, S23.98P 444SQ, _29.97P 444HQ, S29.97P 444HQ, _29.97P 444SQ, S29.97P 444SQ, S59.94P 444SQ, _23.98P 422, S23.98P 422, _29.97P 422, S29.97P 422, S59.94P 422, _24P 444HQ, S24P 444HQ, _24P 444SQ, S24P 444SQ, _25P 444HQ, S25P 444HQ, _25P 444SQ, S25P 444SQ, S30P 444HQ, S30P 444SQ, S50P 444SQ, S60P 444SQ, _24P 422, S24P 422, _25P 422, S25P 422, S30P 422, _50P 422, S50P 422, S60P 422, _50I 444HQ, _50I 444SQ, _50I 422, _59.94I 444HQ, _59.94I 444SQ, _59.94I 422 _23.98P 44412, S23.98P 44412, _29.97P 44412, S29.97P 44412, _24P 44412, S24P 44412, _25P 44412, S25P 44412, S30P 44412, _50I 44412, _59.94I 44412	Register the formats to be selected on the subdisplay. Select from among the formats displayed on the corresponding <FORMAT MEMORY> subpage. **Note** Select FPS format can be selected when the optional HKSR-9002 is installed.

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SUBDISPLAY 1> Register formats so that they can be selected on the AP-1 (optional)	11(U11)	2	24P 422	Same as above	Register the formats to be selected on the subdisplay. Select from among the formats displayed on the corresponding <FORMAT MEMORY> subpage. **Note** Select FPS format can be selected when the optional HKSR-9002 is installed.
		3	25P 422	Same as above	
		4	29.97P 422	Same as above	
		5	50P 422	Same as above	
		6	50I 422	Same as above	
		7	59.94I 422	Same as above	
		8	NO ASSIGN		
<SUBDISPLAY 2> Set the LOCK switch mode and select subdisplay pages	12(U12)	LOCK SW MODE			
		CAMERA	FULL	FULL, –RUN	**Set the mode of the LOCK switch in the display/menu operations section.** **–RUN:** Enable the RUN button even when the LOCK switch is set to ON
		PANEL	FULL	FULL, –RUN	**Set the mode of the LOCK switch on the AP-1 (optional).** **–RUN:** Enable the RUN button even when the LOCK switch is set to ON
		PAGE SELECT		Execute by ENTER	Jump to the subpage

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<PAGE SELECT> Select pages to be displayed on the subdisplay		SHUTTER	ON	ON, OFF	
		RAMP (appears only when the optional HKSR-9002 is installed)	ON	ON, OFF	
		FORMAT	ON	ON, OFF	
		ND	ON	ON, OFF	
		GAIN/WHITE/ 5600K	ON	ON, OFF	
		GAIN L/M/H	ON	ON, OFF	
		LENS FILE	ON	ON, OFF	
		VTR STATUS	ON	ON, OFF	
		TIME CODE/ TAPE REM	ON	ON, OFF	
		VOLTAGE/FAN MODE	ON	ON, OFF	
		CHARACTER MIX	ON	ON, OFF	
		ASSIGNABLE SW1/SW2	ON	ON, OFF	
		ASSIGNABLE SW3/SW4	ON	ON, OFF	
		ASSIGNABLE SW5/SW6	ON	ON, OFF	
		ASSIGNABLE SW7/SW8	ON	ON, OFF	
		ASSIGNABLE SWN/SWC	ON	ON, OFF	
		BRIGHT	ON	ON, OFF	
		GAMMA TABLE	ON	ON, OFF	
		COLOR SPACE	ON	ON, OFF	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SW ASSIGN 1> Assign functions to assignable buttons/ switch **Note** The monitor LUT function is enabled when you are using S-LOG A.	13(U13)	ASSIGN SW1	OFF	OFF, ND, REC REVIEW, PB(VF/VBS), MLUT(VFVBS), MLUT(MON), FAN MODE, VTR SAVE, BARS, STOP, REW, PLAY, F.FWD, GAIN, WHITE BAL, GAIN-9/18dB, CACHE REC [a)]	Select from among the functions displayed on the corresponding subpage.
		ASSIGN SW2	OFF		
		ASSIGN SW3	OFF		
		ASSIGN SW4	OFF	OFF, AWB, BARS, TEST1	
		ASSIGN SW5	STOP	OFF, ND, REC REVIEW, PB(VF/VBS), MLUT(VFVBS), MLUT(MON), FAN MODE, VTR SAVE, BARS, STOP, REW, PLAY, F.FWD, GAIN, WHITE BAL, GAIN-9/18dB, CACHE REC [a)]	
		ASSIGN SW6	PLAY		
		ASSIGN SW7	REW		
		ASSIGN SW8	F.FWD		

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SW ASSIGN 2> Assign functions to assignable buttons	14(U14)	ASSIGN SWN	OFF	OFF, ND, REC REVIEW, PB(VF/VBS), MLUT(VFVBS), MLUT(MON), FAN MODE, VTR SAVE, BARS, STOP, REW, PLAY, F.FWD, GAIN, WHITE BAL, GAIN-9/18dB, CACHE REC [a)]	
		ASSIGN SWC	OFF		
		RE. ROTATION	STD	STD, RVS	Specify the operation mode of the MENU SEL/ENTER dial. **STD:** Clockwise rotation advances the cursor or increases values on the menu screen. **RVS:** Counterclockwise rotation advances the cursor or increases values on the menu screen.
<GAIN ASSIGN> Specify gain switch settings	15(U15)	GAIN	[L] 0 dB	–6, –3, 0, 3, 6, 9, 12 dB	Assign the values for the assignable buttons or the gain switch of the RM-B150.
			[M] 6 dB	–6, –3, 0, 3, 6, 9, 12 dB	
			[H] 12 dB	–6, –3, 0, 3, 6, 9, 12 dB	
		SHOCKLESS GAIN	ON	OFF, ON	

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<BATTERY ALARM> Check the operating power voltage	16(U16)	BATT TYPE	BP-GL	AC ADP, LITHIUM, BP-GL, OTHERS1, OTHERS2	
		NEAR END	(13.0)	11.0 to 15.0	Display only (Set in the MAINTENANCE menu.)
		END	(11.0)	11.0 to 12.0	Display only (Set in the MAINTENANCE menu.)
		DCIN TYPE	AC ADP	AC ADP, LITHIUM, BP-GL, OTHERS1, OTHERS2	
		NEAR END	(11.9)	11.0 to 15.0	Display only (Set in the MAINTENANCE menu.)
		END	(11.0)	11.0 to 12.0	Display only (Set in the MAINTENANCE menu.)
<OPERATOR FILE> Operations Operator file	17(U17)	READ (MS→CAM)		Execute by ENTER	Read the operator file from a “Memory Stick”
		WRITE (CAM→MS)		Execute by ENTER	Write the current settings of the operator file items to a “Memory Stick”
		PRESET		Execute by ENTER	Set the operator file items to the preset values in internal memory
		FILE ID		Max.14 characters	Enter a comment for the operator file to be written to a “Memory Stick”. *See “Specifying a character string” (page 126).*
		CAM CODE	SRW-9000PL	Camera code	Display only
		DATE		Date	Display only

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<LENS FILE> Lens files operations	18(U18)	FILE	1	1 to 32	
			No Offset	Lens file name	Display only
		CENTER MARKER			Set and store the center marker position: **H POS:** Increasing the value moves it to the right. **V POS:** Increasing the value moves it downwards. **Note** This item is not displayed in Cine and Cine-EI modes.
		H POS	0	–96 to +95	
		V POS	0	–54 to +53	
		STORE		Execute by ENTER	
		WHITE R/G/B	ON	ON, OFF	Turn WHITE R/G/B compensation by the lens file on or off
<LENS INFO>Show the lens information	19(U19)	NAME			**With an ARRI LDS lens:** Response from the lens with respect to a SendTab commad (max. 16 characters × 3 lines) **With Cooke/i lens:** Owner Data (max. 16 characters × 1 line) + Lens Type (P or Z)
		SERIAL			**With an ARRI LDS lens:** Serial number of the lens (hex.) **With Cooke/i lens:** Serial number of the lens (9 digits)
		FOCUS			Focus setting: **With an ARRI LDS lens:** 0 to 1023 **With Cooke/i lens:** 000000 to 999999
		IRIS			Iris setting: **With an ARRI LDS lens:** 0 to 1023 **With Cooke/i lens:** T0 to T99999
		ZOOM			Zoom setting: **With an ARRI LDS lens:** 0 to 1023 **With Cooke/i lens:** 0 to 1023

OPERATION menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<VTR FUNCTION>Set the VTR function	20	VTR SAVE/ STBY		SAVE, STBY	VTR power supply mode display
		STBY OFF TIMER	30SEC	1SEC to 30MIN	*See "STBY OFF" for "SERVO" (page 182).*
		CACHE REC	OFF	OFF, 25%, 50%, 75%, 100%, QUICK	*See "CACHE REC" for "EDIT" (page 183).*
		TIMER REC	OFF	OFF, MANU, AUTO	*See "TIMER REC" for "EDIT" (page 183).*
		M.REC FRAME (appears only during TIMER REC MANU)	1F	1F to 10F	*See "Manu Frm" for "EDIT" (page 183).*
		M.REC FRAME (appears only during TIMER REC AUTO)	1F	1F to 10F	*See "Auto Frm" for "EDIT" (page 183).*
		INTERVAL (appears only during TIMER REC AUTO)			<AUTO REC INTERVAL> Jump to subpage *See "Interval" for "EDIT" (page 183).*

a) When the optional HKSR-9002 is installed

PAINT Menu

: Enabled in Custom mode only (Switch settings, such as ON/OFF, are fixed to the defaults in Cine and Cine-EI modes.)
: Enabled in all operation modes
: Enabled in Custom and Cine modes only
Execute by ENTER: Execute by pressing the MENU SEL/ENTER dial.

Notes

- When the setting is fixed, it is shown in parentheses.
  Example: (OFF)
- The markings [P01] to [P03] in the No. column indicate the page numbers in Cine/Cine-EI mode.
  The pages marked with [- -] in the No. column are not displayed in Cine/Cine-EI mode.

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SW STATUS> List of paint functions and their on/off setting	P01[P01]	FLARE	(OFF)	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		GAMMA	(ON)	ON, OFF	Fixed to ON in Cine/ Cine-EI mode
		BLK GAM	(OFF)	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		KNEE	(OFF)	ON, OFF	
		WHT CLIP	(OFF)	ON, OFF	
		DETAIL	(OFF)	ON, OFF	
		LVL DEP	(OFF)	ON, OFF	
		SKIN DTL	(OFF)	ON, OFF	
		MATRIX	(OFF)	ON, OFF	
		5600K	OFF	ON, OFF	
<VIDEO LEVEL> Adjust the various video balance functions	P02[- -]	WHITE	[R] [G] [B] [M] 0 0 0	–99 to +99	R, G, B, and M (master) values can be independently set. (M cannot be set for WHITE or FLARE.)
		BLACK	0 0 0 0	–99 to +99	
		FLARE	0 0 0	–99 to +99	
		GAMMA	0 0 0 0	–99 to +99	
		FLARE	OFF	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		TEST	OFF	OFF, TEST1, TEST2	

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<GAMMA> Select or adjust the gamma	P03[P02] (U20)	LEVEL	[R] [G] [B] [M] 0 0 0 0	–99 to +99	R, G, B, and M (master) values can be set independently.
		BLACK	[M] 0	–99 to +99	Only M (master) value can be set.
		COARSE	0.45	0.35 to 0.90 (in 0.05 steps)	Fixed to 0.45 when HYPER GAMMA, SPECIAL or USER is selected
		TABLE	USER	STANDARD, HYPER GAMMA, SPECIAL, USER	Fixed to SPECIAL >S-LOG A in Cine-EI mode
			1	STANDARD 1: CAMCORDER 2: × 4.5 3: × 3.5 4:SMPTE-240M 5: ITU-R709 6: × 5.0 7: × 5.0-709 HYPER GAMMA 1: HG3250G36 2: HG4600G30 3: HG3259G40 4: HG4609G33 5: HG8000G36 6: HG8000G30 7: HG8009G40 8: HG8009G33 SPECIAL 1: S-LOG A 2:HG7-ISO800 3:HG8-ISO800 USER 1 to 5: HG8009G33	*For details, see "Selecting the Gamma" (page 75).*
		GAMMA	ON	ON, OFF	Fixed to ON in Cine/ Cine-EI mode
		KNEE	(OFF)	ON, OFF, (OFF)	**(OFF):** Fixed to OFF with the gamma settings other than STANDARD
		TEST	OFF	OFF, TEST1, TEST2	

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<BLACK GAMMA> Adjust the contrast near black	P04[- -]	LEVEL	[R] [G] [B] [M] 0 0 0 0	–99 to +99	R, G, B, and M (master) values can be set independently.
		RANGE	HIGH	LOW, L.MID, H.MID, HIGH	
			OFF	ON, OFF	
		TEST	OFF	OFF, TEST1, TEST2	
<SATURATION> Adjust the color saturation	P05[- -]	SATURATION	0	–99 to +99	
			OFF	ON, OFF	
		LOW KEY SAT	0	–99 to +99	
		RANGE	HIGH	LOW, L.MID, H.MID, HIGH	
			OFF	ON, OFF	
		TEST	OFF	OFF, TEST1, TEST2	
<KNEE> Adjust the compression for high-luminance areas	P06[- -]	K POINT	[R] [G] [B] [M] 0 0 0 0	–99 to +99	R, G, B, and M (master) values can be set independently. **K POINT:** To adjust the point to apply the change **K SLOPE:** To adjust the slope of compression Absolute values are displayed in ABS mode except for M (master).
		K SLOPE	[R] [G] [B] [M] 0 0 0 0	–99 to +99	
		KNEE	OFF	ON, OFF	
		KNEE MAX	OFF	ON, OFF	
		KNEE SAT	0	–99 to +99	Adjust the color saturation of high-luminance areas
			OFF	ON, OFF	
		AUTO KNEE	OFF	OFF, AUTO	
		POINT LIMIT	0	–99 to +99	Absolute value is displayed in ABS mode.
		SLOPE	0	–99 to +99	Absolute value is displayed in ABS mode.
		ABS			**Highlighted:** ABS (Absolute) mode

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<WHITE CLIP> Adjust the clip level for high-luminance areas	P07[- -]	W CLIP	[R] [G] [B] [M] 0 0 0 0	–99 to +99	R, G, B, and M (master) values can be set independently. Absolute values are displayed in ABS mode except for [M] (master).
			OFF	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		ABS			**Highlighted:** ABS (Absolute) mode
<DETAIL 1> Adjust the emphasis of edges in video	P08[- -]	DETAIL	OFF	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		LEVEL	0	–99 to +99	Absolute value is displayed in ABS mode.
		LIMITER	[M] 0	–99 to +99	Adjust the level to clip the maximum value of the emphasis signal (absolute values are displayed for [WHT] and [BLK] only in ABS mode).
			[WHT] 0	–99 to +99	
			[BLK] 0	–99 to +99	
		CRISP	0	–99 to +99	Adjust the level for noise suppression (absolute values are displayed in ABS mode.)
		LVL DEP	0	–99 to +99	To adjust the emphasis elements suppressed by gamma (Absolute values are displayed in ABS mode).
			OFF	ON, OFF	
		ABS			**Highlighted:** ABS (Absolute) mode

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<DETAIL 2> Adjust the emphasis of edges in the video	P09[- -]	H/V RATIO	0	–99 to +99	Specify the vertical factor of the contour emphasis (absolute values are displayed in ABS mode).
		FREQ	0	–99 to +99	Adjust the video frequency components to be emphasized (Absolute values are displayed in ABS mode).
		MIX RATIO	0	–99 to +99	Absolute value is displayed in ABS mode.
		KNEE APT	0	–99 to +99	Edge emphasis in high-luminance areas compressed by the KNEE function (absolute values are displayed in ABS mode).
			OFF	ON, OFF	
		ABS		ON, OFF	**Highlighted:** ABS (Absolute) mode
<SKIN DETAIL> Emphasize the edges of specific color components	P10[- -]	SKIN DTL	OFF	ON, OFF	Fixed to OFF in Cine/ Cine-EI mode
		SKIN GATE	OFF	OFF, 1, 2, 3	**1, 2, 3:** Skin gate can be set to ON for the specified channel only. With the ON setting, a zebra pattern is displayed for the color component affected by the DETAIL function.
		ABS			**Highlighted:** ABS (Absolute) mode
		CH SW	[1] [2] [3] (ON) OFF OFF	ON, OFF	The skin tone detail function can be independently set for each channel (channel 1 is always ON). **HUE:** For automatic detection of the target color Absolute values are indicated for LEVEL only in ABS mode.
		HUE	EXEC	Execute by ENTER	
		PHASE	0	0 to 359	
		WIDTH	29	0 to 90	
		SAT	–89	–99 to +99	
		LEVEL	0	–99 to +99	

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<USER MATRIX> Adjust the color components without affecting the black and white components	P11[- -]	R-G	0	–99 to +99	
		R-B	0	–99 to +99	
		G-R	0	–99 to +99	
		G-B	0	–99 to +99	
		B-R	0	–99 to +99	
		B-G	0	–99 to +99	
		MATRIX	OFF	ON, OFF	
		PRESET	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)
			- -	SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, - -	Invalid when MATRIX is OFF (- - indication)
		USER	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)
		MULTI	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)
<MULTI MATRIX> Adjust the color components independently by dividing into 16 axes	P12[- -]	PHASE	0	0, 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338	Select an axis (angle) at PHASE for which the multimatrix adjustment is to be made, and set HUE and SAT (HUE and SAT can be adjusted independently for 16 axes).
			B	B, B+, MG–, MG, MG+, R, R+, YL–, YL, YL+, G–, G, G+, CY, CY+, B–	
		HUE	0	–99 to +99	
		SAT	0	–99 to +99	
		ALL CLEAR		Execute by ENTER	
		GATE	OFF	ON, OFF	
		MATRIX	OFF	ON, OFF	
		PRESET	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)
			- -	SMPTE-240M, ITU-709, SMPTE-WIDE, NTSC, EBU, - -	Invalid when MATRIX is OFF (- - indication)
		USER	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)
		MULTI	- -	ON, OFF, - -	Invalid when MATRIX is OFF (- - indication)

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SHUTTER> or <SHUTTER/FPS> (appears only when the optional HKSR-9002 is installed) Adjust the shutter while observing the shutter angles and speeds (make settings regarding shutter and Select FPS when the optional HKSR-9002 is installed)	P13[P03] (U21)	SHUTTER	OFF	ON, OFF	Setting to ON displays the current shutter values in the [deg] and [sec] columns. **[deg]:** Shutter angle (360.0 to 4.3) **[sec]:** Shutter speed obtained according to the angle in [deg] and the FRAME RATE value
		STEP			Change the shutter value in Step mode
		CONTINUOUS			Change the shutter value in Continuous mode
		STEP ASSIGN			
		ADD		Execute by ENTER	Add a step shutter value
		DELETE		Execute by ENTER	Delete a step shutter value
		FRAME RATE (appears only when the optional HKSR-9002 is installed)	- -	S23.98PsF/S24PsF: 1 to 24 S25PsF: 1 to 25 S29.97PsF/S30PsF: 1 to 30 S50PsF: 1 to 50 S59.94PsF/S60PsF: 1 to 50	( ): When the format is fixed. The setting range depends on the selected format and the gain compensation mode setting. *For details, see "Detailed Shutter Settings" (page 73).*
		COMP MODE (appears only when the optional HKSR-9002 is installed)	OFF	OFF, ANGLE, GAIN	Selects the compensation mode.

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<RAMP> (appears only when the optional HKSR-9002 is installed) Setup and execution of the ramp function	P14[P04] (U22)	CURRENT			Current FPS value
		START	24 FPS	Same as FRAME RATE on the <SHUTTER/FPS> page	Sets the starting FPS.
		END	24 FPS	Same as FRAME RATE on the <SHUTTER/FPS> page	Sets the ending FPS.
		DURATION	0 s	0 to 30 s	Sets the ramp time (seconds).
		COMP MODE	OFF	OFF, ANGLE, GAIN	Selects the video level compensation mode.
		RAMP MODE	OFF	OFF, LINEAR, EXPONENTIAL	Selects ramp mode (FPS ramp curve).
		DIR		Execute with ENTER	Switches the starting and ending FPS values.
		RAMP		Execute with ENTER	Executes the ramp function (disabled when RAMP MODE is set to OFF).
<NOISE SUPPRESS> Set the noise suppression function	P15[- -]	NOISE SUP	OFF	ON, OFF	*See "Noise Suppression" (page 150).* **Note** When you select HG7-ISO800 or HG8-ISO800 under TABLE >SPECIAL on the <GAMMA> page, NOISE SUP is set to "ON" and LEVEL is set to "MID (60%)" automatically *(see page 77)*.
		LEVEL	LOW (30%)	LOW (30%), MID (60%), HIGH (90%), MAX (100%)	

PAINT menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SCENE FILE> Storing and retrieving scene files (data set by the PAINT menu)	P16[- -]	1			When storing a file in internal memory, specify the number before executing STORE.When reading, only specify the number.
		2			
		3			
		4			
		5			
			01	01 to 32	Specify the scene file number 01 to 32 when 32 SCENE FILE of <OTHERS 2> of the MAINTENANCE menu is ON.
		STORE		Execute by ENTER	
		STANDARD		Execute by ENTER	Read the standard paint data
		READ (MS→CAM)		Execute by ENTER	Load scene files from a “Memory Stick” to internal memory.
		WRITE (CAM→MS)		Execute by ENTER	Write scene files in internal memory to a “Memory Stick”.
		FILE ID		Max.14 characters	Enter a comment for the scene files to be written to a “Memory Stick”.
		CAM CODE	SRW-9000PL	Camera code	Display only (when files made by the unit are detected, “SRW-9000PL” is displayed).
		DATE		Date of file creation	Display only

Noise Suppression

You can enable this function on the <NOISE SUPPRESS> page of the PAINT menu. It allows you to effectively suppress noise components while preserving fine-grained edge components. The noise suppression function of this unit employs a system that extracts and suppresses noise within frames. Compared to inter-frame methods, it delivers excellent results when applied to moving subjects.

You can select from among 4 effect levels; LOW (30%), MID (60%), HIGH (90%), MAX (100%).

LOW: To mainly cut noise components in the high range

MID: To mainly cut noise components in the high and middle ranges

HIGH: To mainly cut noise components in the high, middle, and low ranges

MAX: To mainly cut noise components in the high, middle, and low ranges

The percentage values are approximate indications of the effect, when the maximum is 100%.

Note

Because this function has some effect on the frequency components of the video, the edges of low-luminance blocks may be weakened. A preliminary test shooting is recommended.

MAINTENANCE Menu

: Enabled in Custom mode only
: Enabled in all operation modes
: Enabled in Custom and Cine modes only
Execute by ENTER: Execute by pressing the MENU SEL/ENTER dial.

Notes

- The markings [M01] to [M12] in the No. column indicate the page numbers in Cine/Cine-EI mode.
- The pages marked with [- -] in the No. column are not displayed in Cine/Cine-EI mode.

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<BASE SETTING> Set the basic operation mode	M01 [M01]	SHOOT MODE	CINE	CINE, CUSTOM, CINE-EI	
		D-RANGE	EXTEND	EXTEND, NORMAL	**EXTEND:** To improve the dynamic range and sensitivity Fixed to EXTEND in Cine/Cine-EI mode
		COLOR SPACE	S-GAMUT	S-GAMUT, F900, F900R, DCDM REF PJ	**S-GAMUT:** Wide color space designed for this camera **F900:** Color space equivalent to other HD cameras **F900R:** Color space equivalent to HDW-F900R (only with <OTHERS 2> COLOR F900R ENABLED) **DCDM REF PJ:** Color space of the reference projector specified by DCI Fixed to S-GAMUT in Cine-EI mode

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<AUTO SETUP> Various auto balance adjustments	M02 [- -]	AUTO BLACK		Execute by ENTER	
		AUTO WHITE		Execute by ENTER	
		AUTO LEVEL		Execute by ENTER	
		AUTO WHITE SHADING		Execute by ENTER	**Note** Do not execute if a flat white subject is not available.
		AUTO BLACK SHADING		Execute by ENTER	
		TEST	OFF	OFF, TEST1, TEST2	
<WHITE SHADING> Adjust the shading of white level	M03 [- -]	V SAW	[R][G][B] 0 0 0	–99 to +99	R, G, and B values can be set independently. **V SAW, H SAW:** To vertically or horizontally adjust the slope of shading compensation **V PARA, H PARA:** To vertically or horizontally adjust the irregularity of shading compensation
		V PARA	0 0 0	–99 to +99	
		H SAW	0 0 0	–99 to +99	
		H PARA	0 0 0	–99 to +99	
		WHITE	0 0 0	–99 to +99	
		AUTO WHITE SHADING		Execute by ENTER	
		WHITE SHAD MODE	RB	RGB, RB	**RGB:** To adjust the shading independently for R, G, and B **RB:** To adjust R and B according to G

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<BLACK SHADING> Adjust the shading of black level	M04 [- -]	V SAW	[R][G][B][M] 0 0 0 0	–99 to +99	R, G, and B values can be set independently. M (master) value can also be set for BLACK. **V SAW, H SAW:** To vertically or horizontally adjust the slope of shading compensation **V PARA, H PARA:** To vertically or horizontally adjust the irregularity of shading compensation
		V PARA	0 0 0 0	–99 to +99	
		H SAW	0 0 0 0	–99 to +99	
		H PARA	0 0 0 0	–99 to +99	
		BLK SET	0 0 0 0	–99 to +99	
		BLACK	0 0 0 0	–99 to +99	
		MASTER GAIN	0 dB	–6, –3, 0, 3, 6, 9, 12 dB	
		AUTO BLACK SHADING		Execute by ENTER	
<OHB MATRIX> Adjust the colors at the CCD block (OHB) to match the colors among multiple cameras (can be stored in the OHB file)	M05 [- -]	PHASE	0	0, 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338	Select an axis (angle) at PHASE for which the OHB matrix adjustment is to be made, and set HUE and SAT (HUE and SAT can be adjusted independently for 16 axes).
			B	B, B+, MG–, MG, MG+, R, R+, YL–, YL, YL+, G–, G, G+, CY, CY+, B–	
		HUE	0	–99 to +99	Clear the HUE and SAT values for all PHASE settings
		SAT	0	–99 to +99	
		ALL CLEAR		Execute by ENTER	
		OHB MATRIX	ON	ON, OFF	Always ON in Cine/ Cine-EI mode
		MATRIX	OFF	ON, OFF	Always OFF in Cine/ Cine-EI mode

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OUTPUT FORMAT> Select the output video format	M06 [M02]	CURRENT	23.98PsF 422		Display only
		NEXT	23.98PsF 422		Display only
		SCAN	PROGRESSIVE	PROGRESSIVE, INTERLACE	
		FRAME	23.98	23.98, 24, 25, 29.97, 50, 59.94	Appears when PROGRESSIVE is selected for SCAN.
		FIELD	59.94	59.94, 50	Appears when INTERLACE is selected for SCAN.
		SIGNAL	4:2:2	4:2:2, 4:4:4 SQ, 4:4:4 HQ, 4:4:4 12	
		SELECT FPS (appears only when the optional HKSR-9002 is installed)	OFF	ON, OFF	
		SET FORMAT		Execute by ENTER	
<DOWN CONVERTER> Set the aspect ratio for VBS output	M07 [M03]	ASPECT	LB	SQ, LB, EC	**SQ:** Squeeze **LB:** Letter Box **EC:** Edge Crop
<POWER SAVE> Select the output power save mode	M08 [M04]	MONITOR OUT	ACTIVE	PWR SAVE, ACTIVE	Fixed to the default value for AC ADP
		DOWN CONVERTER (VBS/RM-VIDEO)	ACTIVE	PWR SAVE, ACTIVE	
		REMOTE	ACTIVE	PWR SAVE, ACTIVE	

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<BATT ALARM SET> Set the voltage values to trigger alarm indications for each battery	M09 [M05]	BATT TYPE	BP-GL	AC ADP, LITHIUM, BP-GL, OTHERS1, OTHERS2	*For settings about remaining battery power, see item "BATTERY" (page 185) in "VTR Menu List".*
		NEAR END	11.9(AC), 13.0(Li), 13.1(BP-GL), 13.0(OTHERS1, 2)	11.0 to 15.0 V	
		END	11.0 V	11.0 to 12.0 V	
		DCIN TYPE	AC ADP	AC ADP, LITHIUM, BP-GL, OTHERS1, OTHERS2	
		NEAR END	11.9(AC), 13.0(Li), 13.1(BP-GL), 13.0(OTHERS1, 2)	11.0 to 15.0 V	
		END	11.0 V	11.0 to 12.0 V	
<GENLOCK> Adjusting Genlock with status indications	M10 [M06]	REFERENCE	GENLOCK IN	INTERNAL, GENLOCK IN, AUX IN	
		STATUS		OK, NG, NO SIGNAL	Display only
		H PHASE	0	–511 to +511	Adjust the H phase for genlock
		GL MODE	MON	MON, SDI	Select an output source for H phase synchronization (when the optional HKSR-9001 is installed)
<DATE> Set the built-in clock	M11 [M07]	DATE/TIME		yyyy/mm/dd hh : mm	

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OTHERS 1> Set various subsidiary functions	M12 [M08] (U22 or U23 when the optional HKSR-9002 is installed)	FAN MODE	AUTO1	AUTO1, AUTO2, MIN, MAX	Select the operation modes of the fans **AUTO1:** Automatically controlled according to the internal temperature, quiet during recording. **AUTO2:** Normally controlled in MIN mode, quieter during recording (only for short recording under ordinary ambient temperature). **MIN:** The quietest fan operation is maintained regardless of whether the unit is recording (only for use under ordinary ambient temperature). **MAX:** The fans rotate at the maximum speed. *For details on fan operations, see "Checking the Power Voltage and Selecting the Fan Mode" (page 53).*
		CAM BARS	OFF	ON, OFF	Turn the built-in color bar generator on or off
		HD-BAR (VF/MON)	BAR 16:9 (100%)	BAR 16:9 (100%) BAR 16:9 (75%) SMPTE 16:9 (BLACK) BAR 4:3 (100%) BAR 4:3 (75%) SMPTE 4:3 (BLACK) MF-ARIB (75%) MF-ARIB (100%) MF-ARIB (+I) MF-SMPTE (–I, Q)	Select the color bar format for HD output

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OTHERS 1> Set various subsidiary functions	M12 [M08] (U22 or U23 when the optional HKSR-9002 is installed)	SD-BAR	SMPTE	SMPTE, EIA, FULL (EBU), 95%, NTSC100% (PAL100%)	Select the color bar format for SD output **EBU, PAL100%:** With 1.000 formats
		AUDIO SG	OFF, 1 KHz, NONE	OFF	Turn the 1 KHz sine wave test signal on or off (when the color bar selected with HD-BAR(VF/MON) is displayed)
		IMAGE INVERT	OFF	ON, OFF	Turn the image-inversion function on or off (ON to turn the camera picture upside-down)
		IRIS CLOSE	OFF	ON, OFF	

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OTHERS 1> Set various subsidiary functions	M12 [M08] (U22 or U23 when the optional HKSR-9002 is installed)	SDI REMOTE	OFF	OFF, CHAR, G-TLY, R-TLY	Specify the function which enables synchronized recording of this unit and the SRW-1/SRPC-1 connected to the SDI MON1 connector, HD SDI MON2 connector or HD SDI OUT A/B connectors (when the optional HKSR-9001 is installed) by feeding the SRW-1/SRPC-1 with recording trigger. Select the indicator displayed when Rec Trigger signals are output from the HD SDI MON1 or HD SDI MON2 connector or the HD SDI OUT A/B connector (when the HKSR-9001 is installed). **OFF:** Disable synchronized recording. **CHARA:** Flash "REC2" in the indication area of the viewfinder. **G-TLY:** Light the green tally of the viewfinder, and light the tally indicator of the unit green. **R-TLY:** Light the red tally of the viewfinder, and light the tally indicator of the unit red. (Be aware that the indicators light even if there is no cassette loaded in the unit or if the tape ends.) *For details on other indications, see "Outputting Rec Trigger Signals" (page 62).*

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OTHERS 1> Set various subsidiary functions	M12 [M08] (U22 or U23 when the optional HKSR-9002 is installed)	SMEAR REDUCER	OFF	OFF, LOW, HIGH	To set the smear compensation function.For compensation, select the compensation level, LOW or HIGH. When the camera is turned off, the setting returns to OFF. **Note** While smear compensation is effective for still pictures, it may emphasize a smear with a moving subject. Be sure to use this function as appropriate for the subjects.
<OTHERS 2> Set various subsidiary functions	M13 [M09]	DATE TYPE	5 M/D/Y	1 Y/Mn/D 2 Mn/D 3 D/M/Y 4 D/M 5 M/D/Y 6 M/D	Select the date display mode **Y:** Year **Mn:** Month (numeric) **M:** Month (abbr. in English) **D:** Day
		V DTL CREATION [a]	Y	NAM, G, R+G, Y	Specify from which signal the vertical detail volume is to be created **NAM:** The highest signal among R, G, and B **G:** G signal **R+G:** Additional value of the R signal and G signal **Y:** Y signal
		DTL H/V MODE [a]	H/V	H/V, V ONLY	**H/V:** Change the H detail at the same time when adjusting the V detail **V ONLY:** Adjust V detail while maintaining the H detail

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OTHERS 2> Set various subsidiary functions	M13 [M09]	TEST2 MODE	20% STEP	20% STEP, 10STEP	**20% STEP:** 20%-steps up to full scale when gamma is OFF **10STEP:** 10%-steps up to 100% when gamma is OFF
		WHITE SETUP MODE [a)]	A.LVL	AWB, A.LVL	**A.LVL:** Return the white value to "0" when STANDARD is executed **AWB:** Return the white value to the AWB value when STANDARD is executed
		FPS LIMITER (appears only when the optional HKSR-9002 is installed)	LIMIT	LIMIT, FREE	**LIMIT:** Set a limitation on the variable range of FPS values **FREE:** Remove the limitation from the variable range of FPS values
		COLOR F900R	ENABLE	ENABLE, DISABLE	To enable/disable selection of F900R COLOR SPACE mode
		32 SCENE FILE	OFF (5)	ON, OFF (5)	Turn the function to expand the number of scene files to be registered to 32 on or off
		SHOCKLESS WHITE	1	OFF, 1, 2, 3	Turn the 1 KHz sine wave test signal on or off (when the color bar selected with HD-BAR(VF/MON) is displayed)
<OTHERS 3> Set various subsidiary functions	M14 [M10]	VF COLOR SPACE	AUTO	AUTO, STD	**AUTO:** To synchronize with the camera's color space **STD:** To fix to F900

a)Not displayed in Cine/Cine-EI mode

MAINTENANCE menu					
Page title & purpose	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<TIME CODE1> Set timecode settings	M15 [M11]	TIMER SEL	TC	CTL, TC, UBIT	*See "TIMER SEL" (page 173).*
		TIMER RESET	EXEC		*See "TIMER RESET" (page 173).*
		TIMER PRESET		TCG TC, TCG UBIT, CTL	*See "TIMER PRESET" (page 173).*
		TCR SEL	LTC	AUTO, LTC, VITC	*See "TCR SEL" (page 173).*
		TCG MODE	PRST	PRST, RGN	*See "TCG MODE" (page 173).*
		REGENE SRC	(INT L)	INT L, EXT L, AUX L, AUX V	*See "REGENE SOURCE" (page 174).*
		RUN MODE	R RUN	F RUN, R RUN	*See "RUN MODE" (page 174).*
		DF/NDF	(DF)	DF, NDF	*See "DF/NDF" for "TCG SET (MAIN)" (page 174).*
		UBG SRC	TCG	TCG, INT	*See "UBG SOURCE" for "TCG SET (MAIN)" (page 174).*
		12H/24H	24H	12H, 24H	*See "12H/24H" for "TCG SET (MAIN)" (page 174).*
<TIME CODE2> Set timecode settings	M16 [M12]	TC OUT	AUTO	AUTO, TCG, THRU	*See "TC OUT" for "OTHERS (MAIN)" (page 174).*
		RT REC	OFF	OFF, VITC, V+L, LTC	*See "RT REC" for "OTHERS (MAIN)" (page 175).*
		RT SET			*See "RT SET" for "OTHERS (MAIN)" (page 175).*
		RT SRC	RTC	RTC, DATE	*See "RT SRC" for "OTHERS (MAIN)" (page 175).*
		VITC REC	TCG	TCG, AUX IN	*See "VITC REC" for "OTHERS (MAIN)" (page 175).*
		LTC DELAY	0	0 to +5F	*See "LTC Delay" for "OTHERS (MAIN)" (page 175).*
		VITC DELAY	0	0 to +5F	*See "VITC Delay" for "OTHERS (MAIN)" (page 175).*

FILE Menu

: Enabled in Custom mode only
: Enabled in all operation modes
Execute by ENTER: Execute by pressing the MENU SEL/ENTER dial.

For details on the files, see Chapter 8 "Storage and Retrieval of User Setting Data" (page 186).

Note

The markings [F01] to [F04] in the No. column indicate the page numbers in Cine/Cine-EI mode.
The pages marked with [- -] in the No. column are not displayed in Cine/Cine-EI mode.

FILE menu					
Page title	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<OPERATOR FILE>	F01 [F01]	READ (MS→CAM)		Execute by ENTER	Read an operator file from a "Memory Stick"
		WRITE (CAM→MS)		Execute by ENTER	Write the current settings of the operator file items to a "Memory Stick"
		PRESET		Execute by ENTER	Set the operator file items to the factory default values in internal memory
		FILE ID		Max.14 characters	Enter a comment for the operator file to be written to a "Memory Stick". *See "Specifying a character string" (page 126).*
		CAM CODE	SRW-9000PL	Camera code	Display only
		DATE		Date	Display only

FILE menu					
Page title	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<SCENE FILE>	F02[- -]	1			**To store and load scene files (paint data):** When storing a file in the internal memory, specify the number after executing STORE. When reading, only specify the number.
		2			
		3			
		4			
		5			
			01	01 to 32	Specify the scene file number 01 to 32 when 32 SCENE FILE of <OTHERS 2> of the MAINTENANCE menu is ON
		STORE		Execute by ENTER	
		STANDARD		Execute by ENTER	Read the standard paint data stored in the reference file
		READ (MS→CAM)		Execute by ENTER	Load five scene files from a "Memory Stick" to the camera's memory
		WRITE (CAM→MS)		Execute by ENTER	Write five scene files in the internal memory to a "Memory Stick"
		FILE ID		Max.14 characters	Enter a comment for the scene files to be written to a "Memory Stick" *See "Specifying a character string" (page 126).*
		CAM CODE	SRW-9000PL	Camera code	Display only
		DATE		Date	Display only

FILE menu					
Page title	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<REFERENCE>	F03[- -]	STORE FILE		Execute by ENTER	Store the current settings of the reference file items in the reference file in the internal memory
		STANDARD		Execute by ENTER	Read the standard values in the reference file in the internal memory
		READ (MS→CAM)		Execute by ENTER	Load a reference file from a "Memory Stick"
		WRITE (CAM→MS)		Execute by ENTER	Write the current settings of the reference file items as a reference file to a "Memory Stick"
		FILE ID		Max.14 characters	Enter a comment for the reference file to be written to a "Memory Stick" *See "Specifying a character string" (page 126).*
		CAM CODE	SRW-9000PL	Camera code	Display only
		DATE		Date	Display only
<USER GAMMA>	F04 [F02]	USER GAMMA			
		READ (MS→CAM)		Execute by ENTER	Load a user gamma table from a "Memory Stick"
		FILE ID		Max.14 characters	Display only
		CAM CODE	----------	Camera code	Display only
		DATE		Date	Display only
		MLUT			
		READ (MS→CAM)		Execute by ENTER	Load a monitor look-up table from a "Memory Stick"

FILE menu					
Page title	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<LENS FILE>	F05 [F03]	STORE FILE [a]		Execute by ENTER	
		No.	1	1 to 32	
		NAME	No Offset		Display only in Cine/Cine-EI mode
		CENTER [a]			Set and store the center marker position: **H:** Increasing the value moves it to the right. **V:** Increasing the value moves it downwards
		H [a]	0		
		V [a]	0		
		STORE [a]			
		WHITE R/G/B	ON	ON, OFF	Turn the WHITE R/G/B compensation by the lens file on or off
		LENS MS READ/WRITE		Execute by ENTER	Jump to the subpage
<LENS FILE> subpage		READ (MS→CAM)		Execute by ENTER	Load lens files from a "Memory Stick" (max. 32 files)
		WRITE (CAM→MS)		Execute by ENTER	Write the current settings of the lens file items as a lens file to a "Memory Stick"
		FILE ID		Max.14 characters	Enter a comment for the lens file to be written to a "Memory Stick". *See "Specifying a character string" (page 126).*
		CAM CODE	SRW-9000PL	Camera code	Display only
		DATE		Date	Display only
<OHB FILE>	F06[- -]	STORE FILE		Execute by ENTER	Store the offset values of the items specific to the CCD (no repeated store operation is necessary even if the CCD is reattached).
<FILE PRESET 1>	F07 [F04]	OPERATOR FILE		Execute by ENTER	Restore factory defaults
		USER MENU		Execute by ENTER	Restore factory defaults
		M. S. FORMAT		Execute by ENTER	Initialize a "Memory Stick"

FILE menu					
Page title	**No.**	**Item**	**Default**	**Settings**	**Remarks**
<FILE PRESET 2>	F08 [F05]	USER GAMMA FILE		Execute by ENTER	Restore factory defaults
		USER MLUT FILE		Execute by ENTER	Restore factory defaults
		LENS FILE (ALL) a)		Execute by ENTER	Restore factory defaults for all lens files
		No. a)		1 to 32 (when a non-serial lens is mounted) 1 to 33 (when a serial lens is mounted)	Resume the factory defaults for a selected lens file
		CLEAR a)		Execute by ENTER	
		REFERENCE FILE a)		Execute by ENTER	Restore factory defaults
		10 SEC CLEAR a)	OFF	ON, OFF	**ON:** Return a specific item in the reference file to the factory-set value *For details, see "Resetting to the Factory Defaults" (page 196).*
		OHB FILE a)		Execute by ENTER	Jump to the <OHB FILE> subpage
		FILE PRESET (–OHB) a)			Return all files except the OHB file to their factory defaults
<OHB FILE PRESET> (<FILE PRESET 2> subpage)	[- -]	WHITE SHADING (ALL)		Execute by ENTER	Return all the WHITE SHADING data in the OHB file to their factory defaults
		BLACK SHADING		Execute by ENTER	Return only the BLACK SHADING setting to its factory defaults
		BLACK SET		Execute by ENTER	Return only the BLACK SET setting to its factory defaults
		ND OFFSET		Execute by ENTER	Return only the ND OFFSET setting to its factory defaults
		MATRIX		Execute by ENTER	Return only the MATRIX setting to its factory defaults

a) Not displayed in Cine/Cine-EI mode

DIAGNOSIS Menu

This menu is for viewing only and no setting is possible.

DIAGNOSIS menu					
Page title	**No.**	**Item**	**Indication**	**Remarks**	
<BOARD STATUS>	D01	OHB	OK, NG	Display only (If NG is displayed, consult your local Sony representative.)	
		AD	OK, NG		
		VPR	OK, NG		
		VDA	OK, NG		
<PLD VERSION>	D02	TG	Vx.xxx	Display only	
		AD	Vx.xxx	Display only	
		PRE	Vx.xxx	Display only	
		POST	Vx.xxx	Display only	
		VDA	Vx.xxx	Display only	
		CPLD	Vx.xxx	Display only	
		AT	Vx.xxx	Display only	
<ROM VERSION>	D03	MAIN	Vx.xx, M/D/Y	Display only	
		NET	Vx.xx, M/D/Y	Display only	
		BOOT	Vx.xx, M/D/Y	Display only	
<OPTION BOARD>	D04	HD-SDI EXPANSION		Display only	When the optional HKSR-9001 is installed
		PICTURE CACHE		Display only	When the optional HKSR-9002 is installed

Editing the USER Menu

You can select pages and items from the OPERATION, PAINT, MAINTENANCE, FILE, and DIAGNOSIS menus and register them in the USER menu. By adding frequently used pages and items to the USER menu, you can work more efficiently.
The USER MENU CUSTOMIZE menu allows you to add, delete and replace menu pages and settings to configure an easy-to-use USER menu.

Creating New Pages

The USER MENU CUSTOMIZE menu allows you to add new pages to the USER menu. The EDIT page contains factory-preset items, but the USER 1 EDIT to USER 19 EDIT pages are initially blank. You can register up to 10 items, including blank lines, on each of these pages.
To create a new page, proceed as follows.

1 While holding down the CANCEL/ STATUS button, press the VF MENU/ DISPLAY button.
The TOP MENU screen appears.

2 Turn the MENU SEL/ENTER dial to move the cursor to "USER MENU CUSTOMIZE," and then press the MENU SEL/ENTER dial.
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

```
     CONTENTS     E00 TOP
↓↓
 01.EDIT PAGE
 02.USER 1 EDIT
→03.USER 2 EDIT
 04.USER 3 EDIT
 05.USER 4 EDIT
 06.USER 5 EDIT
 07.USER 6 EDIT
 08.USER 7 EDIT
 09.USER 8 EDIT
 10.USER 9 EDIT
```

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

3 If the CONTENTS page is appears, turn the MENU SEL/ENTER dial to move the cursor to any of USER 1 EDIT to USER 19 EDIT, and then press the MENU SEL/ENTER dial.
If a different page is appears, turn the MENU SEL/ENTER dial until the desired page appears, and then press the MENU SEL/ ENTER dial to select the page.

Example: To select the USER 2 EDIT page

```
     USER 2 EDIT  E03 TOP
→
```

4 Move the cursor to the location where you want to add a new item, (this operation is unnecessary if no item exists on the page, as shown in the figure for step 3), and then press the MENU SEL/ENTER dial.
The EDIT FUNCTION screen appears.

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

5 Move the cursor to "INSERT" and press the MENU SEL/ENTER dial.
The page that contains the most recently added item appears.

```
 <SW STATUS>      P17 ESC

 FLARE    :→ ON
 GAMMA    :  ON
 BLK GAM  : OFF
 KNEE     :  ON
 WHT CLIP :  ON
 DETAIL   :  ON
 LVL DEP  :  ON
 SKIN DTL : OFF
 MATRIX   : OFF
 5600K    : OFF
```

6 Add the item.

①Turn the MENU SEL/ENTER dial until the page that has the desired items appears, then press the MENU SEL/ENTER dial.
②Turn the MENU SEL/ENTER dial to move the cursor to the desired item, then press the MENU SEL/ENTER dial.

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

7 Add more items by repeating steps 4 to 6.

You can add up to 10 items on one page.

To delete items from a page

Proceed as follows:

1 Move the cursor to the item to be deleted, and press the MENU SEL/ENTER dial.

The EDIT FUNCTION screen appears.

2 Select "DELETE," and press the MENU SEL/ENTER dial.

The previously displayed page appears again, and the message "DELETE OK? Yes →No" appears at the upper right.

3 To delete, turn the MENU SEL/ENTER dial to move the cursor to "YES," and press the MENU SEL/ENTER dial.

To change the order of items on a page

Proceed as follows:

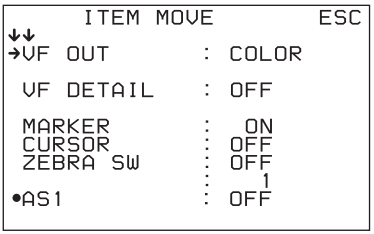
1 Move the cursor to the item to be moved, and then press the MENU SEL/ENTER dial.

The EDIT FUNCTION screen appears.

2 Select MOVE, and then press the MENU SEL/ENTER dial.

The previously displayed page appears again.

3 Turn the MENU SEL/ENTER dial to move the cursor to the position where you wish to move the item, and then press the MENU SEL/ENTER dial.



The item selected in step **1** moves to the position that you selected in step **3**.
In the above example, "AS1" is moved to the top and the other items are moved down one line.

To insert a blank line

Proceed as follows:

1 Move the cursor to the item above which you wish to insert a blank line.

The EDIT FUNCTION screen appears.

2 Select "BLANK," and then press the MENU SEL/ENTER dial.

The previously displayed page appears again, and a blank line is inserted above the specified item.

Note

You cannot insert a blank line on a page where 10 items have already been registered.

Adding/deleting/replacing pages

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

To add a page

Proceed as follows.

1 Select "USER MENU CUSTOMIZE" on the TOP MENU screen.

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

2 If the CONTENTS page appears, move the cursor to "EDIT PAGE", and then

press the MENU SEL/ENTER dial to display the EDIT PAGE page.
If a different page appears, turn the MENU SEL/ENTER dial until the EDIT PAGE screen appears, and then press the MENU SEL/ENTER dial to select the page.

```
     EDIT PAGE   E01 ESC
↓↓
→01.<VF DISPLAY>
 02.<'!' IND>
 03.<MARKER SETTING>
 04.<VF/HD-Y DETAIL>
 05.<ZEBRA>
 06.<MONITOR OUTPUT>
 07.<PB/MON LUT>
 08.<PB MIX SETTING>
 09.<CHAR/MARK MIX>
 10.<SHUTTER ASSIGN>
```

3 **Move the cursor to where you wish to add the page, and then press the MENU SEL/ENTER dial.**
The EDIT FUNCTION page appears.

```
     EDIT FUNCTION   ESC

→INSERT
 MOVE
 DELETE
```

4 **Select INSERT, and then press the MENU SEL/ENTER dial.**
The selection screen appears.

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

5 **Move the cursor to the desired page, and then press the MENU SEL/ENTER dial.**
This adds the number and name of the selected page above the item selected in step **3**.

To cancel the addition of a page

Before pressing the MENU SEL/ENTER dial in step **5**, turn the MENU SEL/ENTER dial to move the cursor to "ESC" at the top right of the screen, then press the MENU SEL/ENTER dial.
The EDIT PAGE screen appears again.

To delete a page

Proceed as follows.

1 **On the EDIT PAGE screen of the USER MENU CUSTOMIZE menu, move the cursor to the page to be deleted, and then press the MENU SEL/ENTER dial.**
The EDIT FUNCTION page appears.

2 **Select "DELETE," and then press the MENU SEL/ENTER dial.**
The previously displayed page appears again, and the message "DELETE OK?" appears at the upper right.

```
     ITEM DELETE      ESC
  DELETE OK? →YES NO
 01.<VF DISPLAY>
 02.<'!' IND>
•03.<MARKER SETTING>
 04.<VF/HD-Y DETAIL>
 05.<ZEBRA>
 06.<MONITOR OUTPUT>
 07.<PB/MON LUT>
 08.<PB MIX SETTING>
 09.<CHAR/MARK MIX>
 10.<SHUTTER ASSIGN>
```

3 **To delete, turn the MENU SEL/ENTER dial to move the cursor to "YES," and then press the MENU SEL/ENTER dial.**

To move a page

Proceed as follows:

1 **Display the EDIT PAGE screen of the USER MENU CUSTOMIZE menu. Move the cursor to the page that you wish to move, and then press the dial.**
The EDIT FUNCTION page appears.

2 **Select "MOVE," and then press the MENU SEL/ENTER dial.**
The EDIT PAGE page appears again.

3 **Turn MENU SEL/ENTER dial to move the cursor to the position to which you wish to move the page.**

```
      ITEM MOVE          ESC
↓↓
 01.<VF DISPLAY>
 02.<'!' IND>
→03.<MARKER SETTING>
 04.<VF/HD-Y DETAIL>
 05.<ZEBRA>
 06.<MONITOR OUTPUT>
 07.<PB/MON LUT>
•08.<PB MIX SETTING>
 09.<CHAR/MARK MIX>
 10.<SHUTTER ASSIGN>
```

4 **Press the MENU SEL/ENTER dial.**
The page selected in step **1** is moved to the position selected in step **3**.
In the above example, <PB MIX SETTING> moves to the "03" position, and the <MARKER SETTING> and following pages move down one line.

Returning the USER Menu to the Factory Defaults

Use the <FILE PRESET> page of the FILE menu.

For details, see "Resetting to the Factory Defaults" (page 196).

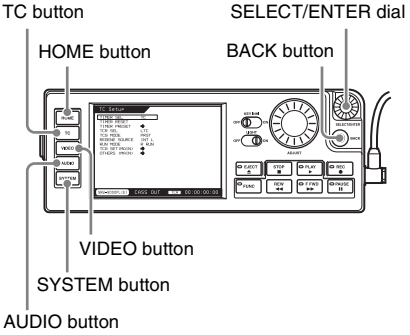
VTR Menu Operations

Displaying VTR Menus

The VTR menu of this unit contains three setup menus.
- TC Setup menu *(page 173)*
- AUDIO Setup menu *(page 176)*
- SYSTEM Setup menu *(page 178)*

To display menus

Press the menu button (TC, AUDIO, or SYSTEM) corresponding to the menu that you want to display.

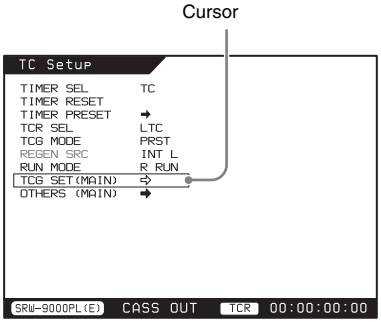


To return to the HOME screen

Press the HOME button or repeatedly press the BACK button.

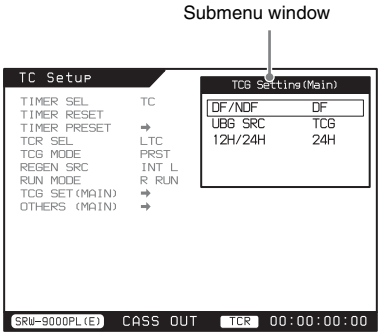
Changing Menu Settings

1 **Turn the SELECT/ENTER dial to move the cursor to the target item.**



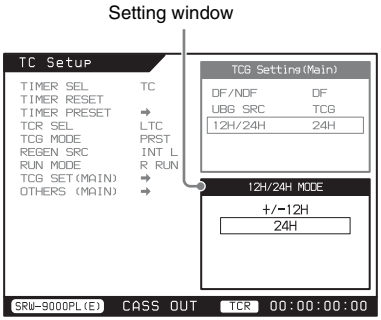
2 Press the SELECT/ENTER dial.

A submenu window opens for the selected item. If the selected item is a command, the command is executed.



3 Turn the SELECT/ENTER dial to select the desired setting in the submenu window if necessary.

A setting window opens.



4 Turn or press the SELECT/ENTER dial to select the desired setting.

To return to an upper level

Press the BACK button.

VTR Menu List

TC (Timecode) Setup Menu

The TC (timecode) Setup menu allows you to make settings related to timecode.

- Factory default settings are underlined.
- Square brackets indicate settings as displayed in setting windows *(see page 172)*.

Item	Settings
TIMER SEL	Selects the type of time data to use. **CTL [CTL Timer]:** Display the tape running time in Hours:Minutes:Seconds:Frames format. **TC [Time Code]:** Display timecode. **UBIT [User Bit]:** Display user bits.
TIMER RESET	Resets the internal timecode generator. Time data is displayed as 00:00:00:00 (timecode) or 00 00 00 00 (user bits). **Note** The values read by the timecode reader cannot be reset. The timecode generator cannot be reset when it is locked to external timecode or to the values read by the internal timecode reader.
TIMER PRESET	Selects the type of time data to preset to an arbitrary value. **TCG TC:** Timecode generated by the timecode generator **TCG UBIT:** User bits generated by the timecode generator **CTL:** CTL signal count
TCR SEL	Selects the type of timecode which you want the internal timecode reader to read during playback. **AUTO [AUTO]:** Read VITC when the playback speed is less than $\pm 1/2$ times normal speed, and LTC when the playback speed is more than $\pm 1/2$ times normal speed. **LTC [LTC]:** Read LTC. **VITC [VITC]:** Read VITC.
TCG MODE	Selects the type of timecode to which the internal timecode generator synchronizes. **PRST [Preset]:** Synchronize to a preset value. You can use the TIMER PRESET item to preset the initial value of the timecode generated by the internal timecode generator. **RGN [Regen]:** Synchronize to the timecode selected in the following item REGENE SOURCE (regenerate).

Item		Settings
REGENE SOURCE		Selects the timecode to be regenerated by the internal timecode generator. **INT L [Internal LTC]:** Timecode recorded in the longitudinal direction on the tape **EXT L [External LTC]:** Timecode input to the TC IN connector **AUX L [AUX LTC]:** LTC time data of the multiplexed signal input to the AUX IN connector (when the optional HKSR-9001 is installed) **AUX V [AUX VITC]:** VITC time data of the multiplexed signal input to the AUX IN connector (when the optional HKSR-9001 is installed)
RUN MODE		Selects the timecode generator run mode. **F RUN [Free Run]:** Timecode advances without pause from the time that the system is powered on. **R RUN [Rec Run]:** Timecode advances only during recording.
TCG SET (MAIN) Timecode generator settings for the main timecode	DF/NDF (Valid only when the frame frequency of this system is 29.97 Hz)	Selects the frame count mode. **DF [Drop Frm]:** Drop-frame mode **NDF [Non Drop Frm]:** Non-drop frame mode **Note** These settings are valid when the TCG MODE item is set to PRST.
	UBG SOURCE	Selects the source timecode of user bits. **TCG [TCG Source]:** The same source as the source of the internal timecode generator **INT [Internal]:** Timecode generated by the timecode generator. Arbitrary user bits settings *(see page 91)* are possible, regardless of the TCG setting.
	12H/24H	Selects the CTL display mode. **12H [+/–12H]:** 12-hour display mode **24H [24H]:** 24-hour display mode **Note** When +/–12H display is selected, the tens digit of the hours value is dropped for values less than 10.
OTHERS (MAIN) Other settings related to main timecode	TC OUT	Selects the timecode output from the TC OUT connector. **AUTO [Auto]:** During playback, timecode read by the internal timecode reader. During recording (including E-E mode), timecode generated by the timecode generator is output. **TCG [TCG]:** Timecode generated by the timecode generator is output. **THRU [Through]:** Through output of timecode input to the TC IN connector

Item		Settings
OTHERS (MAIN) Other settings related to main timecode	RT REC	Selects whether or not to record the real time in user bits *(see page 91)*. **OFF [Off]:** Do not record. **VITC [VITC UB]:** Record in VITC. **V+L [VITC UB+LTC UB]:** Record in VITC and LTC. **LTC [LTC UB]:** Record in LTC.
	RT SET	Sets the real time.
	RT SRC	Selects the real time to record in user bits. **RTC [RTC]:** Record real time set in RT REC and RT SET. (Select this normally.) **DATE [DATE]:** Record real time of the internal clock (real time shown as status information in the control panel display). This does not guarantee that frame count advances continuously.
	VITC REC	Selects the delay for VITC user bits, for use in recording. **TCG [TCG]:** User bits are delayed by one frame in both VITC and LTC (same as previous versions). **AUX IN [AUX IN]:** VITC user bits are not delayed. (LTC user bits are delayed by one frame.)
	LTC Delay	Sets the phase difference between the timecode generator and timecode consisting of the LTC input from the TC IN or AUX IN connector with the addition of the camera picture delay. **0 [NO Delay]:** Same timing **+1F [+1F Delay]:** The generator is delayed by one frame. **+2F [+2F Delay]:** The generator is delayed by two frames. **+3F [+3F Delay]:** The generator is delayed by three frames. **+4F [+4F Delay]:** The generator is delayed by four frames. **+5F [+5F Delay]:** The generator is delayed by five frames.
	VITC Delay	Sets the phase difference between the timecode generator and timecode consisting of the VITC input from the AUX IN connector with the addition of the camera picture delay. **0 [NO Delay]:** Same timing **+1F [+1F Delay]:** The generator is delayed by one frame. **+2F [+2F Delay]:** The generator is delayed by two frames. **+3F [+3F Delay]:** The generator is delayed by three frames. **+4F [+4F Delay]:** The generator is delayed by four frames. **+5F [+5F Delay]:** The generator is delayed by five frames.

VIDEO Setup Menu

The VIDEO Setup Menu allows you to make Camera menu settings.
To display the Camera menu, press the VIDEO button and select “CAMERA MENU”.
To close the Camera menu, press the FUNC + BACK buttons.

For details on how to operate the camera menu, see “Basic Camera Menu Operations” (page 124).

AUDIO Setup Menu

The AUDIO Setup menu allows you to make settings related to audio signals.

- Factory default settings are underlined.
- Square brackets indicate settings as displayed in setting windows *(see page 172)*.

Item		Settings
INPUT SEL Input signal selection	TRACK1	Selects the signal to assign to track 1. SDI1 [SDI CH1] to SDI12 [SDI CH12] (when the optional HKSR-9001 is installed), ANA1 [Analog CH1], ANA2 [Analog CH2], <u>OFF</u>
	TRACK2	Selects the signal to assign to track 2. Same settings as TRACK1 (<u>OFF</u>)
	TRACK3	Selects the signal to assign to track 3. Same settings as TRACK1 (<u>OFF</u>)
	TRACK4	Selects the signal to assign to track 4. Same settings as TRACK1 (<u>OFF</u>)
	TRACK5	Selects the signal to assign to track 5. Same settings as TRACK1 (<u>OFF</u>)
	TRACK6	Selects the signal to assign to track 6. Same settings as TRACK1 (<u>OFF</u>)
	TRACK7	Selects the signal to assign to track 7. Same settings as TRACK1 (<u>OFF</u>)
	TRACK8	Selects the signal to assign to track 8. Same settings as TRACK1 (<u>OFF</u>)
	TRACK9	Selects the signal to assign to track 9. Same settings as TRACK1 (<u>OFF</u>)
	TRACK10	Selects the signal to assign to track 10. Same settings as TRACK1 (<u>OFF</u>)
	TRACK11	Selects the signal to assign to track 11. Same settings as TRACK1 (<u>OFF</u>)
	TRACK12	Selects the signal to assign to track 12. Same settings as TRACK1 (<u>OFF</u>)
	ALL MODE	Specify whether to assign signals to each track at one time. **USER [User]:** Select the signal to record to each track individually. **ALL SDI [All SDI]:** Set tracks 1 to 12 to SDI (1 to 12) at one time. **ALL ANALOG [All Analog]:** Set tracks 1, 3, 5, 7, 9, and 11 to ANA, and set tracks 2, 4, 6, 8, 10, and 12 to ANA2. **OFF [All Off]:** Set tracks 1 to 12 to OFF at one time.

Item		Settings
OUTPUT SEL Track selection (when the optional HKSR-9001 is installed)	CH1	Selects the track to assign to channel 1 of the SDI output. Track1 to Track12
	CH2	Selects the track to assign to channel 2 of the SDI output. Track1 to Track12 (Track 2)
	CH3	Selects the track to assign to channel 3 of the SDI output. Track1 to Track12 (Track 3)
	CH4	Selects the track to assign to channel 4 of the SDI output. Track1 to Track12 (Track 4)
	CH5	Selects the track to assign to channel 5 of the SDI output. Track1 to Track12 (Track 5)
	CH6	Selects the track to assign to channel 6 of the SDI output. Track1 to Track12 (Track 6)
	CH7	Selects the track to assign to channel 7 of the SDI output. Track1 to Track12 (Track 7)
	CH8	Selects the track to assign to channel 8 of the SDI output. Track1 to Track12 (Track 8)
	CH9	Selects the track to assign to channel 9 of the SDI output. Track1 to Track12 (Track 9)
	CH10	Selects the track to assign to channel 10 of the SDI output. Track1 to Track12 (Track 10)
	CH11	Selects the track to assign to channel 11 of the SDI output. Track1 to Track12 (Track 11)
	CH12	Selects the track to assign to channel 12 of the SDI output. Track1 to Track12
PHONE SEL		Selects the audio signals output to the EARPHONES jack.
MIX MODE		Selects the method of mixing audio signals output to the EARPHONES jack. **ADD [Add]:** Simple addition **RMS [RMS]:** Multiplied average (root mean square) **AVG [Average]:** Simple average
REC LEVEL		Adjusts the audio recording level *(see page 94)*. (This adjustment is impossible during playback.)
PB LEVEL		Adjusts the audio playback level *(see page 88)*. (This adjustment is impossible during recording.)
METER TYPE		Sets the audio level meter display range. **PEAK [Full Peak]:** Display 0 dBFS as the peak value. **REF [Full Ref]:** Display the reference level (+4 dBu) as 0 dB. **FINE [Fine]:** Display a scale with 0.25 dB steps centered around –20 dB.
PEAK HOLD		Selects whether to use the peak hold function. **ON [On]:** Use. **OFF [Off]:** Do not use.

Item		Settings
MIC LEV/LIM Microphone level and limiter settings (Only when INPUT SEL is set to “ANA1”, “ANA2” or “All Analog” and the AUDIO IN CH-1/CH-2 connector input selection switches are set to “MIC”.)	Track1	Specifies limiter ON or OFF settings for the audio levels of microphones connected to the AUDIO IN CH-1/CH-2 connectors. –34dB/Off, –34dB/On, –46dB/Off, –46dB/On, –58dB/Off, –58dB/On
	Track2	
	Track3	
	Track4	
	Track5	
	Track6	
	Track7	
	Track8	
	Track9	
	Track10	
	Track11	
	Track12	
BEEP(PHONE) Volume of beep tones output from the EARPHONES jack	ALARM	Specifies whether to generate alarm tones. **OFF [Off]:** Do not generate alarm tones. **HIGH [High]:** Generate loud alarm tones. **LOW [Low]:** Generate quieter alarm tones.
	WARN	Determines whether to generate warning tones. **OFF [Off]:** Do not generate warning tones. **HIGH [High]:** Generate loud warning tones. **LOW [Low]:** Generate quieter warning tones.
BEEP(BOARD) Volume of beep tones on system board	ALARM	Determines whether to generate alarm tones. **OFF [Off]:** Do not generate alarm tones. **HIGH [High]:** Generate loud alarm tones. **LOW [Low]:** Generate quieter alarm tones.
	WARN	Determines whether to generate warning tones. **OFF [Off]:** Do not generate warning tones. **HIGH [High]:** Generate loud warning tones. **LOW [Low]:** Generate quieter warning tones.

SYSTEM Setup Menu

The SYSTEM Setup menu allows you to make system settings.

- Factory default settings are underlined.
- Square brackets indicate settings as displayed in setting windows *(see page 172)*.

Item		Settings
FORMAT Signal format settings	LINE	Sets the number of effective lines and the scanning system. **1080I [1080I]** **1080P [1080PsF/P]**
	FRAME	When SELECT FPS is set to "OFF", sets the operation frame frequency. When SELECT FPS is set to "ON", sets the target frame frequency. **23.98 [23.98]:** Frame frequency 23.976 Hz **24 [24]:** Frame frequency 24 Hz **25 [25]:** Frame frequency 25 Hz (field frequency 50 Hz) **29.97 [29.97]:** Frame frequency 29.97 Hz (field frequency 59.94 Hz) **50 [50]:** Frame frequency 50 Hz *For more information, see "Using the Select FPS Function" (page 108).*
	SIGNAL	Sets the sampling method and video signal recording rate. **422 [4:2:2]:** 4:2:2 (Y/Pb/Pr), 440 Mbps (880 Mbps for 50P) **444SQ [4:4:4 SQ]:** 4:4:4 (R/G/B), SQ mode, 440 Mbps (880 Mbps for 50P) **444HQ [4:4:4 HQ]:** 4:4:4 (R/G/B), HQ mode, 880 Mbps, bit length 10 **444 12 [4:4:4 HQ 12bit]:** 4:4:4 (R/G/B), HQ mode, 880 Mbps, bit length 12 **Note** Tapes recorded with the 444HQ or 444 12 setting cannot be played back on the SRW-5000/5500. Also, certain limitations apply to when tapes recorded in other 880 Mbps formats are played back on the SRW-5000/5500. *For details, see "About Recording/Playback Formats" (page 210).*
	SELECT FPS	When the HKSR-9002 is installed, selects the operating mode of the Select FPS function. **OFF [Off]:** Do not use the Select FPS function. **ON [On]:** Enable Select FPS function with frame rate (FPS) set on the subdisplay, control panel, or optional AP-1 Assistant Panel. **DUB [DUB (bypass MY)]:** Record without using the HKSR-9002. (Select this when dubbing tapes recorded using the Select FPS function.) **VTR [VTR]:** Enable the Select FPS function, and configure the frame rate (FPS) on the unit. *For details on the settings, see "Select FPS Function" (page 107).* **Note** To record 4:4:4 SQ 50P format signals, the optional HKSR-9002 must be installed, and SELECT FPS must be set to "ON".

Item		Settings
FORMAT Signal format settings	FPS FORMAT	Selects the system format when the Select FPS function is enabled. **DEF [Default]:** Use the factory default settings. **23/24 [23.98/24]** **25 [25]** **29/30 [29.97/30]** **50 [50]** **59/60 [59.94/60]** *For details on the settings, see "Select FPS Function" (page 107).*
	3G/DUAL	When the optional HKSR-9001 is installed, selects the output from the HD SDI A/B connectors. **DUAL [AUX OUT 1.5G]:** 1.5G Dual Link **3G [3G]:** 3G Single Link *For details, see "What Are Dual Link and 3G?" (page 212).*
	INPUT SEL	Selects the monitoring or recording target between the camera picture and the video signal input to the AUX IN connector. "AUX Input" can be selected only when a 4:2:2 video signal is input to the AUX IN connector. **CAM [CAM]:** Camera picture **AUX [AUX Input]:** Video signal input to the AUX IN connector
TEST SG Test signal output settings **Note** Powering off the unit returns the setting to "OFF" (factory default).	BARS	Turn the internal color bar generator ON/OFF. **OFF [Off]:** Output color bar signals. **ON [On]:** Do not output color bar signals.
	AUDIO	Selects the test signal generated by the internal audio signal generator. **OFF [Off]:** Generate no test signal. **1KHz [1KHz Sine]:** Generate a sine wave signal of 1 kHz. **NONE [Silence]:** Generate a silent signal.

Item		Settings
LCD Display backlight settings	LIGHT OFF	Determines whether to turn the backlight off after a specified interval. **DIS [Disable]:** Do not turn off. **5sec [5sec]:** Turn off after 5 seconds. **10sec [10sec]:** Turn off after 10 seconds. **30sec [30sec]:** Turn off after 30 seconds. **1min [1min]:** Turn off after 1 minute. **3min [3min]:** Turn off after 3 minutes. **5min [5min]:** Turn off after 5 minutes.
	BRIGHT	Sets the brightness of backlight. **0 to 31 (20)**
	SAVER	Determines whether to display a screen saver after a specified interval. **DIS [Disable]:** Do not display. **1min [1min]:** Display after 1 minute. **3min [3min]:** Display after 3 minutes. **5min [5min]:** Display after 5 minutes. **10min [10min]:** Display after 10 minutes. **20min [20min]:** Display after 20 minutes. **30min [30min]:** Display after 30 minutes. **1hour [1hour]:** Display after 1 hour.
	SAVER MSG	Sets a screen saver message.
KEYMAP Key map settings	EJECT EJECT button function	**DIS [Disable]:** Disable the button. **ENA [Enable]:** Enable the button.
	STOP STOP button function	
	PLAY PLAY button function	
	REC REC button function	
	REW REW button function	
	FFWD F FWD button function	
	PAUSE PAUSE button function	
KEY INHI Button inhibit settings		**ALL [ALL]:** Lock all buttons. **MAP [MAP]:** Lock only buttons which have been disabled with KEYMAP settings.

Item		Settings
SERVO	STBY OFF	Sets the time after the tape stops until the system enters tape protect mode (still timer). **1sec [1sec]:** After 1 second **5sec [5sec]:** After 5 seconds **10sec [10sec]:** After 10 seconds **20sec [20sec]:** After 20 seconds **30sec [30sec]:** After 30 seconds **40sec [40sec]:** After 40 seconds **50sec [50sec]:** After 50 seconds **1min [1min]:** After 1 minute **2min [2min]:** After 2 minutes **3min [3min]:** After 3 minutes **4min [4min]:** After 4 minutes **5min [5min]:** After 5 minutes **6min [6min]:** After 6 minutes **7min [7min]:** After 7 minutes **8min [8min]:** After 8 minutes **30min [30min]:** After 30 minutes
	TRACKING	**UNITY [Unity]:** Disable tracking control during playback. **VARI [Variable]:** Allow manual tracking control during playback. **AUTO [Auto]:** Automatically optimize tracking control during playback.
	ADJUST	Sets the tracking value when TRACKING is set to “VARI”. **–15 to +15 (0)**
	EOS MODE	**NORM [Normal]:** When the FUNC + PLAY buttons are pressed with tape transport stopped, the unit rewinds for about five seconds and then plays for about 10 seconds. If the recording end point is located in that section, playback stops at that point and the unit enters recording pause mode. If the recording end point is not located in that section, playback continues for about 10 seconds and then stops. The unit enters recording pause mode. **LONG [Long]:** The 10-second search time limit described above does not apply. Once playback starts, the search continues until the recording end point is found.
	REC REVIEW	**NORM [Normal]:** Pressing the FUNC+PLAY buttons once during recording pause mode rewinds the tape approximately three seconds and then starts playback. Holding down the FUNC+PLAY buttons rewinds the tape by the number of seconds that the buttons are held down (up to 10 seconds) and then starts playback from that position. **ALL [All]:** Pressing the FUNC+PLAY buttons once rewinds tape to the beginning of the most recently recorded cut and plays back the cut.
REC INHI Record inhibit settings		**OFF [Off]:** Do not inhibit recording. **ON [On]:** Inhibit recording.

Item			Settings
EDIT	IN POINT		Set time data to cue up (Mark IN data). (The time data set is displayed in the format “IN: xx:xx:xx:xx” in the time data field of the display.)
	TIMER REC		Sets the Timer Rec operating mode when the HKSR-9002 is installed. *For details on the settings, see “Timer Rec” (page 97).* **OFF [Off]:** Do not use the Timer Rec function. **MANU [Manual]:** Select Manual Timer Rec. **AUTO [Auto]:** Select Auto Timer Rec.
		Manu Frm	Selects the number of frames to record in one take when TIMER REC is set to “MANU”. **1 to 10 Frame (1 Frame)**
		Auto Frm	Selects the number of frames to record in one take when TIMER REC is set to “AUTO”. **1 to 10 Frame (1 Frame)**
		Interval	Specifies the recording interval (hours/minutes/seconds) when TIMER REC is set to “AUTO”.
	CACHE REC		Specified whether to use the Cache Rec function (only when the HKSR-9002 option board is installed). *For details on the settings, see “Cache Rec” (page 99).* **OFF [Off]:** Do not use the Cache Rec function. **25%:** Use 25% of the memory for the Cache Rec function. **50%:** Use 50% of the memory for the Cache Rec function. **75%:** Use 75% of the memory for the Cache Rec function. **100%:** Use 100% of the memory for the Cache Rec function. **QUICK REC [Quick Rec]:** Record the image at the instant the REC button is pressed to memory.
	RAMP		Specifies the Ramp operating function when SELECT FPS is set to “ON”. *For details on the settings, see “Using the Ramp Function” (page 111).* **OFF [Off]:** Vary the number of frames shot (FPS) manually with no range limits. **LINE [Auto(Linear)]:** Vary the number of frames shot linearly. **INV [Auto(Inverse)]:** Vary the inverse of the number of frames shot (frm) linearly. **EVEN [Auto(Even)]:** Vary the number of frames shot so that there area the same number of frames for each frequency. **USER [Auto(User)]:** Vary the number of frames shot along a user-specified curve. **MANU [Manual]:** Vary the number of frames shot manually within preset upper and lower limits.
		Auto Spd1	When RAMP is set to “LINE”, “INV”, or “EVEN”, sets the number of frames shot of the ramp start point or the number of frames shot of the ramp end point (**1FRM/FPS**).

Item			Settings
EDIT	RAMP	Auto Spd2	When RAMP is set to “LINE”, “INV”, or “EVEN”, sets the number of frames shot of the ramp start point or the number of frames shot of the ramp end point (**1FRM/FPS**). (This is the number of frames shot at the end point when the number of frames shot of the start point was set with Auto Spd1. Otherwise it is the number of frames shot of the start point.)
		Duration	When RAMP is set to “LINE”, “INV”, “EVEN”, or “USER”, specifies the time (seconds) from the start of the ramp to its end. **0 to 30s (0s)**
		Load Curve	When RAMP is set to “USER”, displays a list of files saved to a “Memory Stick”.
		Manu Spd1	When RAMP is set to “MANU”, specifies the upper or lower limit of the number of frames shot (**1FRM/FPS**).
		Manu Spd2	When RAMP is set to “MANU”, specifies the upper or lower limit of the number of frames shot (**1FRM/FPS**). (This is the lower limit when the upper limit was set with Manu Spd1. Otherwise it is the upper limit.)
POWER Settings to reduce power consumption	LED		Controls the power indicator. **ON [On]:** Normally light. **LOW [Low]:** Slightly dim. **OFF [Off]:** Disable lighting.
	TALLY		Controls the tally indicator. **ON [On]:** Normally light. **LOW [Low]:** Slightly dim. **OFF [Off]:** Disable lighting.

Item			Settings
BATTERY Settings relating to remaining battery power display	BATT TYPE		Selects the type of battery to attach to the battery attachment section. **AC [AC Adapter]:** AC adaptor **Li-ion [Li-ion Battery]** **BP-GL [BP-GL Battery]:** BP-GL95 **OTH1 [Other 1]** **OTH2 [Other 2]**
		Near END (BATT)	For the battery type selected with the previous item BATT TYPE, sets the threshold voltage to issue a “near-end (almost exhausted)” warning. **11.0 to 15.0 (13.1 V)**
		END (BATT)	For the battery type selected with the previous item BATT TYPE, sets the threshold voltage to issue an “end (exhausted)” warning. **11.0 to 12.0 (11.0 V)**
	DCIN TYPE		Selects the type of battery to connect to the DC IN 11-17V connector. **AC [AC Adapter]:** AC adaptor **Li-ion [Li-ion Battery]** **BP-GL [BP-GL Battery]:** BP-GL95 **OTH1 [Other 1]** **OTH2 [Other 2]**
		Near END (DCIN)	For the battery type selected with the previous item DCIN TYPE, sets the threshold voltage to issue a “near-end (almost exhausted)” warning. **11.0 to 15.0 (11.9 V)**
		END (DCIN)	For the battery type selected with the previous item DCIN TYPE, sets the threshold voltage to issue an “end (exhausted)” warning. **11.0 to 12.0 (11.0 V)**
OTHERS	SOFT VERSION		Displays the software version installed in the unit.
	HOURS METER		Display count values of the digital hours meter (totals since the start of use, or totals during a certain period). **SYSTEM:** Total system operation time **DRUM:** Total drum revolution time **TAPE:** Total tape running time **THREADING:** Total number of threadings and unthreadings
	FORMAT LIST		Displays a list of supported formats and the currently selected format. You can also change the format.
	OPTION LIST		Displays a list of the installed options.

Chapter 8 Storage and Retrieval of User Setting Data

File Configuration

You can store settings and adjustment values as data files in the unit's internal memory or on "Memory Stick" media in order to facilitate later operations and adjustments. Data files can be retrieved as required to reproduce stored states.

Notes

- To use a "Memory Stick" to save and read data files, insert a "Memory Stick" into the "Memory Stick" slot on the right-side panel of the unit.
- Some limitations apply to file operations in Cine or Cine-EI mode.

You can use the following six types of files on this unit. Operate in the subdisplay or the Camera menu.

Operator files

Operator files store operational settings not related to picture quality.
At shipment, an operator file with default settings is stored in the unit's internal memory. After you change the default settings, you can store the modified setting data as an operator file on a "Memory Stick" for later use.
For file operations, use the <OPERATOR FILE> page of the USER (OPERATION) or FILE menu.

Items stored

The setting items in the OPERATION menu *(page 128)* and the customized USER menu *(page 168)* are stored.

Lens files

Names of different lenses, their minimum f-stops, and standard values for these lenses can be registered in lens files in the unit's internal memory (maximum 64 files: 32 files for serial lenses and another 32 files for non-serial lenses). Files for lenses equipped with lens extenders can contain two sets of data for extender ON or OFF.

When you remount a lens after using another lens, you can easily recall the appropriate compensation for that lens by loading the corresponding lens file.

For non-serial lenses

Select the lens file (File No. 1 to 32) corresponding to the mounted lens using the subdisplay or the <LENS FILE> page of the USER (OPERATION) menu.

For serial lenses

When the lens is mounted, the unit automatically recognizes the lens name and selects the corresponding file from the registered files (maximum 32 files).

Create and modify lens files in Custom mode. Adjust the necessary items by using the PAINT and MAINTENANCE menus or the MSU-900/950 Master Setup Unit. Then store the adjustment data, by using the <LENS FILE> page of the FILE menu or by using the MSU-900/950.
You can back up lens files on "Memory Stick" media.

Note

In Cine and Cine-EI modes, only retrieval of lens files is possible.
You cannot modify file data or create lens files.

When using an ARRI LDS or Cooke /i system lens

When you mount the lens, the camera identifies it. If a lens file has been created once for the lens, the lens file is automatically recalled. If a new lens file is to be created as the lens is mounted for the first time, select one of the lens file numbers 1 to 32 and register the lens file with the lens mounted.

Items stored

The items that are stored in lens files are marked with "√" in the "L" column of the table in "List of Items Stored in Files" *(page 189)*.

Scene files

Scene files store data adjusted in the PAINT menu for specific scenes.
For example, if you store data prepared in rehearsal for a particular scene in a scene file, the

data can be retrieved to reproduce the same camera settings for the actual take.
For file operations, use the <SCENE FILE> page of the PAINT or FILE menu. You can also use the MSU-900/950 Master Setup Unit for file operations.
Scene files are stored in built-in memory. You can also back up scene files on a "Memory Stick".

Note

In Cine and Cine-EI modes, scene file operations are disabled.

To use 32 scene files

Set 32 SCENE FILE to ON on the <OTHERS 2> page of the MAINTENANCE menu.

Note

If you return 32 SCENE FILE to OFF, all scene files No. 6 to 32 are initialized when you next set it to ON. (Scene files No. 1 to 5 are maintained.)

Items stored

The items that are stored in scene files are marked with "√" in the "S" column of the table in "List of Items Stored in Files" *(page 189)*.

Reference files

Reference files store standard settings that can be used as reference settings when adjusting the unit.
If STANDARD is executed on the <SCENE FILE> page of the PAINT menu or the <REFERENCE> page of the FILE menu, or if STANDARD is selected with the MSU-900/950 Master Setup Unit, manually adjusted values are reset to the reference values stored in the current reference file.
At shipment, a reference file with the initial settings is stored in built-in memory.
The initial settings can be modified, as required, and then stored in a new reference file.
For file operations, use the <REFERENCE> page of the FILE menu. You can also use the MSU-900/950 Master Setup Unit for file operations.
You can back up reference files on "Memory Stick" media.

Notes

- In Cine and Cine-EI modes, reference file data is fixed as the factory defaults and cannot be modified.
- The adjustment values stored in scene files are relative to reference file data. If the data in the reference file is modified, the scene files must also be modified.

Items stored

The items that are stored in reference files are marked with "√" in the "R" column of the table in "List of Items Stored in Files" *(page 189)*.

User-Gamma files

You can create gamma curve data (user gamma) using the CvpFileEditor application, and load it into this unit from a "Memory Stick". This makes it easier to reproduce the look that you want on this unit.
For file operations, use the <USER GAMMA> page of the FILE menu.
User gamma files are stored in built-in memory. They cannot be backed up to "Memory Stick" media.

Note

In Cine and Cine-EI modes, you cannot load user gamma files from "Memory Stick" media.

User MLUT files

This unit is equipped with four types of monitor LUTs (Look-Up Tables) to apply the types of gamma to displayed images on monitors and viewfinder other than that of recorded images. In addition to these built-in data, user-defined LUT data can be read. User-defined LUT data can be created using CvpFileEditor V4.2 *(see page 77)* and loaded to the camera from a "Memory Stick".

For details, refer to "CvpFileEditor User's Guide V4.20".

Note

Monitor LUTs cannot be used with the gammas belonging to STANDARD and HYPER GAMMA, because these are gammas intended for checking video with no modification.

OHB files

OHB files store the offset values of items specific to the CCD unit. For file operations, use the <OHB FILE> page of the FILE menu. You can also use the MSU-900/950 Master Setup Unit for file operations.

Note

In Cine and Cine-EI modes, an OHB file can be retrieved automatically, but the data in the OHB file cannot be modified.

Items stored

The items that are stored in OHB files are marked with "√" in the "O" column of the table in "List of Items Stored in Files" *(page 189)*.

List of Items Stored in Files

The items that are stored in scene files, reference files, lens files, and OHB files are listed in the table below.

For details on setting values, see the corresponding items in the table in "Camera Menu List" (page 128).

S: Scene file
R: Reference file
L: Lens file
O: OHB file

Menu page (No. in Custom mode)	Item	S	R	L	O
<VIDEO LEVEL> (P02)	WHITE [R] [G] [B]	√	√	√	
	BLACK [R] [G] [B] [M]	√	√		
	FLARE [R] [G] [B]	√	√	√	
	V MOD [R] [G] [B] [M]				
	FLARE ON/OFF	√	√		
	V MOD ON/OFF		√		
<GAMMA> (P03)	LEVEL [R] [G] [B] [M]	√	√		
	BLACK [M]	√	√		
	COARSE	√	√		
	TABLE	√	√		
	GAMMA ON/OFF	√	√		
<BLACK GAMMA> (P04)	LEVEL [R] [G] [B] [M]	√	√		
	RANGE	√	√		
	BLACK GAMMA ON/OFF	√	√		
<SATURATION> (P05)	SATURATION	√	√		
	SATURATION ON/OFF	√	√		
	LOW KEY SAT	√	√		
	RANGE	√	√		
<KNEE> (P06)	K POINT [R] [G] [B] [M]	√	√		
	K SLOPE [R] [G] [B] [M]	√	√		
	KNEE ON/OFF	√	√		
	KNEE SAT	√	√		
	KNEE SAT ON/OFF	√	√		
	AUTO KNEE	√	√		
	POINT LIMIT	√	√		
	SLOPE	√	√		
<WHITE CLIP> (P07)	W CLIP [R] [G] [B] [M]	√	√		
	W CLIP ON/OFF	√	√		
<DETAIL 1> (P08)	DETAIL ON/OFF	√	√		
	LEVEL	√	√		
	LIMITER M	√	√		
	LIMITER WHT	√	√		
	LIMITER BLK	√	√		
	CRISP	√	√		
	LVL DEP	√	√		
	LVL DEP ON/OFF	√	√		

Menu page (No. in Custom mode)	Item	S	R	L	O
<DETAIL 2> (P09)	H/V RATIO	√	√		
	FREQ	√	√		
	MIX RATIO	√	√		
	KNEE APT	√	√		
	KNEE APT ON/OFF	√	√		
<SKIN DETAIL> (P10)	SKIN DTL ON/OFF	√	√		
	PHASE	√	√		
	WIDTH	√	√		
	SAT	√	√		
	LEVEL	√	√		
<USER MATRIX> (P11)	R-G	√	√		
	R-B	√	√		
	G-R	√	√		
	G-B	√	√		
	B-R	√	√		
	B-G	√	√		
	MATRIX ON/OFF	√	√		
	USER MATRIX ON/OFF	√	√		
	MULTI MATRIX ON/OFF	√	√		
<MULTI MATRIX> (P12)	HUE	√	√		
	SAT	√	√		
<SHUTTER> (P13)	SHUTTER	√	√		
	VAR	√	√		
<NOISE SUPPRESS> (P15)	NOISE SUP	√	√		
	LEVEL	√	√		
<WHITE SHADING> (M03)	V SAW [R] [G] [B]			√	√
	V PARA [R] [G] [B]			√	√
	H SAW [R] [G] [B]			√	√
	H PARA [R] [G] [B]			√	√
<BLACK SHADING> (M04)	V SAW [R] [G] [B]				√
	V PARA [R] [G] [B]				√
	H SAW [R] [G] [B]				√
	H PARA [R] [G] [B]				√
	BLK SET [R] [G] [B]				√
	MASTER GAIN	√	√		
<OHB MATRIX> (M05)	HUE				√
	SAT				√
	OHB MATRIX				√
<AUTO IRIS> (M06)	AUTO IRIS	√	√		
	WINDOW	√	√		
	IRIS LEVEL	√	√		
	APL RATIO	√	√		
	IRIS GAIN	√	√	√	
Non-menu items	ND filter selection	√			
	ND offset				√

File Operations

Using a “Memory Stick”

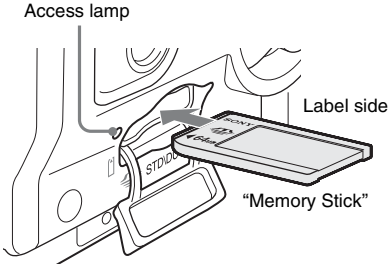
You can use “Memory Stick PRO” media with the camera module of the unit. “Memory Stick PRO Duo” can also be used without using a Memory Stick Duo adaptor.
Unit operations have been checked using “Memory Stick PRO” media up to 8 GB.

Operations checked with:
MSH-128
MSX-512S
MSX-M2GS
MSX-M4GS
MSX-M8GS

For details on “Memory Stick” media, see “About a “Memory Stick”” (page 208).

Inserting a “Memory Stick”

Insert a “Memory Stick” with the label side up into the “Memory Stick” slot until it clicks and the access lamp lights in red.
When the “Memory Stick” is properly set, the lamp lights in green.



Note

If it does not fit into the slot properly or if there is some resistance when you insert it, the “Memory Stick” may be turned around or upside-down. Do not force the “Memory Stick” into the slot. Confirm the direction of the notch and arrow on the “Memory Stick” before inserting the “Memory Stick,” and then try inserting it again.

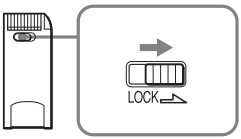
Removing a “Memory Stick”
Confirm that the access lamp is not lit in red, then lightly push in the “Memory Stick” to release the lock.

Note

If the access lamp is lit in red, data is being read from or written to the “Memory Stick” At this time, do not shake the product or subject it to shock. Do not turn off the power to the product or remove the “Memory Stick”. Doing so may damage the data.

Protecting saved data

To prevent accidental erasure of important setup data, use the LOCK switch on the “Memory Stick”.
Slide the switch right to the write protect position. This ensures that you cannot inadvertently overwrite data on the “Memory Stick”.



LOCK switch

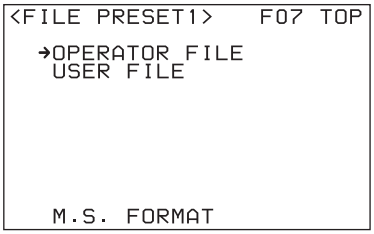
Note

If your “Memory Stick PRO Duo” media does not have a LOCK switch, be careful not to inadvertently overwrite or erase your data.

To format a “Memory Stick”

Use the <FILE PRESET 1> page of the FILE menu.

1. **Insert a “Memory Stick” you wish to format into the “Memory Stick” slot of the unit.**
2. **Display the <FILE PRESET 1> page of the FILE menu.**
3. **Move the cursor to M.S. FORMAT and press the MENU SEL/ENTER dial.**



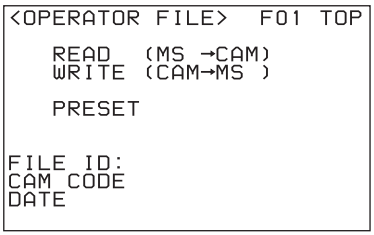
During formatting, “MEMORY STICK ACCESS” is displayed.
When formatting is completed, “COMPLETE” appears.

Note

Do not use a personal computer to format a “Memory Stick”.

Storage and Retrieval of the Operator File

Use the <OPERATOR FILE> page of the FILE menu.



You can also use the <OPERATOR FILE> page of the USER (OPERATION) menu *(see page 74)* for this purpose.

To store an operator file on a “Memory Stick”

Before starting, set the operation items and configure the USER menu to the state that you want to save.

1 **Insert a “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to WRITE (CAM → MS) and press the MENU SEL/ENTER dial.**

You can add a comment (maximum: 14 characters) to be sotred with the operator file by specifying it on the FILE ID line.

For details on how to enter a comment, see “Specifying a character string” (page 126).

To retrieve on operator file stored on a “Memory Stick”

The operator file stored in the “Memory Stick” can be read out into built-in memory of the unit.

1 **Insert the “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to READ (MS → CAM) and press the MENU SEL/ ENTER dial.**

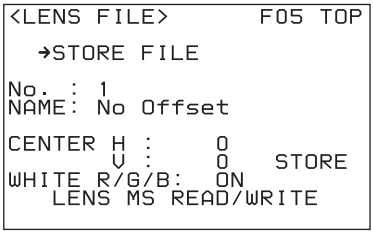
Unit settings change to reflect the settings loaded from the operator file.

To return operator file items to the factory defaults

Move the cursor to PRESET and press the MENU SEL/ENTER dial.
You can also use the <FILE PRESET> page of the FILE menu *(see page 196)* for this purpose.

Registration and Retrieval of Lens Files

You can retrieve registered lens files by using the subdisplay or the <LENS FILE> page of the OPERATION menu.
To register the data you have adjusted for the mounted lens as a lens file, or to use a “Memory Stick,” use the <LENS FILE> page of the FILE menu.



To store the data as a lens file in built-in memory

As required, set the items marked with "√" in the L column of the table in "List of Items Stored in Files" *(page 189)* to the state that you want to store.

1 For a non-serial lens, select the No. (file number), and set the NAME (lens name) and the F NO (minimum f-stop).

For details about setting file names, see "Specifying a character string" (page 126).

Note

This step is not required for a serial lens because these settings are made automatically.

2 Move the cursor to STORE FILE and press the MENU SEL/ENTER dial.

Storage of the position settings for the center marker can be performed independently.

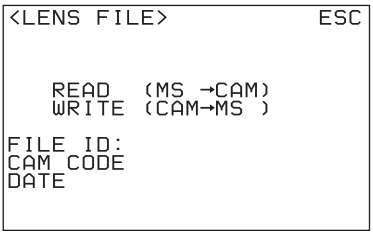
You can check the effect of the WHITE R/G/B compensation that has been set in the file, by changing the setting for WHITE R/G/B to OFF.

Note

The WHITE R/G/B item is provided only for checking the effect of compensation (comparison between when the file is used and not used). The file cannot be stored with WHITE R/G/B set to OFF.

To write the date or retrieve it from a "Memory Stick"

Move the cursor to LENS MS READ/WRITE and press the MENU SEL/ENTER dial. The following subpage appears.



To store

Move the cursor to WRITE (CAM ⟶ MS) and then press the MENU SEL/ENTER dial.
You can add a comment (maximum length: 14 characters) to be saved with the lens file on the "Memory Stick" by specifying it on the FILE ID line.

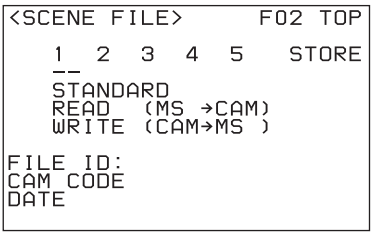
For details on how to enter a comment, see "Specifying a character string" (page 126).

To retrieve

Move the cursor to READ (MS ⟶ CAM) and then press the MENU SEL/ENTER dial.

Storage and Retrieval of the Scene Files

Use the <SCENE FILE> page of the FILE menu or the PAINT menu.



To store a scene file in built-in memory

Set the items for the scene file you wish to store.

1 Move the cursor to STORE and press the MENU SEL/ENTER dial.

2 Move the cursor to the number of the file in which you wish to store your settings and press the MENU SEL/ENTER dial.

During the storage process, “MEMORY STICK ACCESS” is displayed.
When storage is completed, “COMPLETE” appears.

To retrieve a scene file stored in built-in memory

Move the cursor to the number of the file that you wish to retrieve and press the MENU SEL/ENTER dial.
The state specified in the retrieved file is reproduced.
Setting 32 SCENE FILE to ON on the <OTHERS 2> page of the MAINTENANCE menu expands the number of usable scene files to 32.

Note

If you return 32 SCENE FILE to OFF, all scene files No. 6 to 32 are initialized when you next set it to ON. (Scene files No. 1 to 5 are maintained.)

To store a scene files in a “Memory Stick”

Scene files stored in the built-in memory of the unit can be read out to a “Memory Stick”.

1 **Insert a “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to WRITE (CAM → MS) and press the MENU SEL/ENTER dial.**

You can add a comment (maximum length: 14 characters) to be stored with the scene file on the “Memory Stick” by specifying it on the FILE ID line.

For details on how to enter a comment, see “Specifying a character string” (page 126).

To retrieve scene files stored on a “Memory Stick”

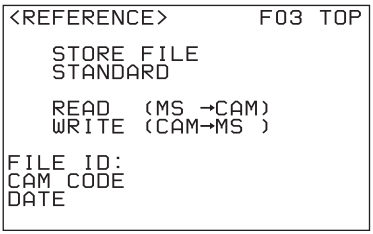
Scene files stored on a “Memory Stick” can be read into the built-in memory of the unit.

1 **Insert the “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to READ (MS → CAM) and press the MENU SEL/ENTER dial.**

Storage and Retrieval of Reference Files

Use the <REFERENCE> page of the FILE menu.



To retrieve the reference file (standard settings) stored in built-in memory

Move the cursor to STANDARD and press the MENU SEL/ENTER dial.

To store a reference file to the built-in memory

Set the reference-file items you want to store. Move the cursor to STORE FILE and press the MENU SEL/ENTER dial.

To store a reference file on a “Memory Stick”

1 **Insert a “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to WRITE (CAM → MS) and press the MENU SEL/ENTER dial.**

You can add a comment (maximum length: 14 characters) to be stored with the reference file on the “Memory Stick” by specifying it on the FILE ID line.

For details on how to enter a comment, see “Specifying a character string” (page 126)

To retrieve a reference file stored on a “Memory Stick”

You can read a reference file stored on a “Memory Stick” into the built-in memory of the unit.

1 **Insert the “Memory Stick” into the “Memory Stick” slot of the unit.**

2 **Move the cursor to READ (MS → CAM) and press the MENU SEL/ENTER dial.**

Unit settings change to reflect the settings loaded from the reference file.

Reading User Gamma Curves

You can read gamma-curve (user gamma) data that has been created using the CvpFileEditor application software and saved to a “Memory Stick”. Use the <USER GAMMA> page of the FILE menu.

```
<USER GAMMA>        F04 TOP

USER GAMMA
  →READ (MS →CAM)
 FILE ID:
 CAM CODE
 DATE

MLUT
   READ (MS →CAM)
```

Insert the “Memory Stick” into the “Memory Stick” slot of the unit. Move the cursor to READ (MS → CAM) in the USER GAMMA section and press the MENU SEL/ENTER dial.

Reading User MLUT Files

You can read MLUT-curve (user gamma) data that has been created using the CvpFileEditor application software and saved to a “Memory Stick”. Use the <USER GAMMA> page of the FILE menu.

```
<USER GAMMA>        F04 TOP

USER GAMMA
   READ (MS →CAM)
 FILE ID:
 CAM CODE
 DATE

MLUT
  →READ (MS →CAM)
```

Insert the “Memory Stick” into the “Memory Stick” slot of the unit. Move the cursor to READ (MS → CAM) in the MLUT section and press the MENU SEL/ENTER dial.

Storing OHB Files

Use the <OHB FILE> page of the FILE menu.

1 **Execute STANDARD on the <REFERENCE> page of the FILE menu.**

2 **Use the MAINTENANCE menu to set the items marked with “√” in the “O” column of the table in “List of Items Stored in Files” *(page 189)* to the state that you want to store.**

3 **Display the <OHB FILE> page of the FILE menu, move the cursor to STORE FILE, and then press the MENU SEL/ENTER dial.**

```
<OHB FILE>          F06 TOP
  →STORE FILE
```

Adjusting ND offset values

If an ND filter is attached to the matte box, etc., the white balance may be in variance. In such a case, adjust the ND offset so that you can retrieve the white balance compensation value using the ND filter selection page on the subdisplay.
The offset values ND: 2 to 5 are stored with respect to the white balance stored for ND: 1 as the reference.

1 **Switch the camera to Custom mode, referring to “Switching between the Basic Operation Modes” *(page 43)*.**

2 **Execute STANDARD on the <REFERENCE> page of the FILE menu.**

3 Execute AUTO BLACK on the <AUTO SETUP> page of the MAINTENANCE menu.

4 Connect a waveform monitor to the HD SDI MON1 connector or HD SDI MON2 connector of the unit.

5 Attach the ND filter having the lowest permeability among the ND filters to be used with this camera, and shoot a gray-scale chart.

Check that the lighting permits a video level in the range of 560 to 630 mV to be obtained, and write down the current video level.

Note

If you cannot obtain a video level in the range 560 to 630 mV, do not adjust the ND offsets.

6 Attach the ND filter to be used as the reference for white balance adjustment and select ND: 1.

7 Adjust iris of the lens so that the video level you wrote down in step 5 is obtained.

8 Perform the auto white balance adjustment.

9 Replace the ND filter, change to ND: 2, and repeat steps 7 and 8.

10 Replace the ND filter, change to ND: 3, and repeat steps 7 and 8.

11 Replace the ND filter, change to ND: 4, and repeat steps 7 and 8.

12 Replace the ND filter, change to ND: 5, and repeat steps 7 and 8.

13 Store the ND offset values in the OHB file by executing STORE FILE on the <OHB FILE> page of the FILE menu.

Note

Be sure to accurately adjust to the video level you noted. If the level cannot be obtained through iris adjustment of the lens, use the shutter function or master gain adjustment.

To load the ND offset values

The appropriate ND offset value is retrieved automatically when you switch from one ND filter to another.

To initialize the ND offset values

On the <FILE PRESET> page of the FILE menu, switch to the <OHB FILE> subpage and then execute ND OFFSET.

Resetting to the Factory Defaults

By using the <FILE PRESET 1> page and <FILE PRESET 2> page of the FILE menu, you can reset edited files and reconfigured USER menus to the factory default settings, either by specified file type or all at once.

```
<FILE PRESET1>    F07 TOP

  →OPERATOR FILE
   USER FILE




    M.S. FORMAT
```

```
<FILE PRESET 2>   F08 TOP

    USER GAMMA FILE
    USER MLUT FILE
    LENS FILE(ALL)
     No.: 1   CLEAR: EXEC
    REFERENCE FILE
      10 SEC CLEAR: OFF
    OHB FILE


   →FILE PRESET(-OHB)
```

To reset data by file type

To reset the data of the current operator file, user gamma file, user MLUT file, or reference file

Move the cursor to the corresponding line and then press the MENU SEL/ENTER dial.
The data in the corresponding file in built-in memory is reset to the factory defaults.
The configuration of the USER menu can be reset in the same manner.

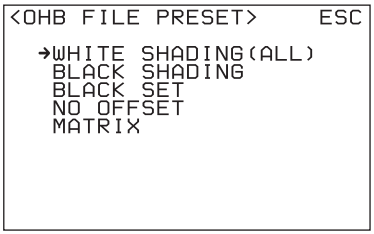
To reset the data of the lens files

- To reset the data of all lens files, move the cursor to LENS FILE (ALL) and press the MENU SEL/ENTER dial.

- To reset the data of a specific lens file, specify the file number in the No. column and press the MENU SEL/ENTER dial. Then move the cursor to the CLEAR column and press the MENU SEL/ENTER dial again.
- When a serial lens is mounted, the corresponding lens file can be reset by selecting 33 in the No. column.

To reset the data of the OHB file

Reset items in the OHB file individually.
Move the cursor to OHB FILE and then press the MENU SEL/ENTER dial. The <OHB FILE PRESET> page appears.



Move the cursor to the item you wish to reset and then press the MENU SEL/ENTER dial.

To reset a specific item in the reference file to the initial setting

The items in the reference file can be reset individually.

1 On the <FILE PRESET 2> page, set 10 SEC CLEAR to ON.

2 Shift to the menu page on which the item you wish to reset is located. Move the cursor to the item you wish to reset, and then keep the MENU SEL/ENTER dial pressed.

Continue to hold the MENU SEL/ENTER dial pressed after the cursor changes to a "**?**". After about three seconds, the current setting of the corresponding item is reset to the initial setting, and "CLEARED" appears.
If you keep the dial pressed for about seven seconds, the setting of the corresponding item that is stored in the reference file is reset to the initial setting, and "REF CLEARED" appears.

To reset the files and settings all at once

You can reset all files except the OHB file simultaneously.
Move the cursor to FILE PRESET (–OHB) on the <FILE PRESET> page, and then press the MENU SEL/ENTER dial.
The message "POWER OFF TO SET" appears.
Turn off the power.

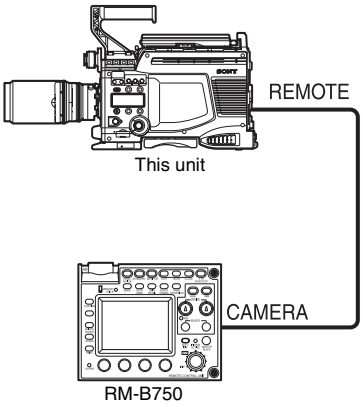
Appendixes

Using the RM-B750

When the RM-B750 Remote Control Unit (optional) is connected, you can control the menu settings of the unit and monitor the camera images on the display of the RM-B750.

Connection

Using the remote control cable supplied with the RM-B750, connect the CAMERA connector of the RM-B750 and the REMOTE connector of the unit.



Operating the Camera Menu

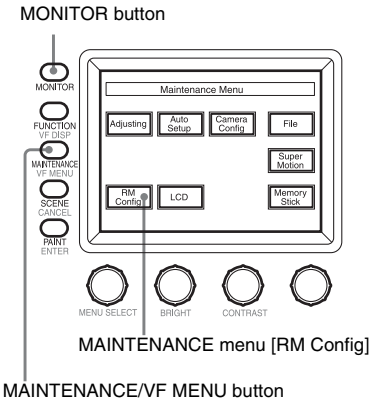
You can display and operate the Camera menu of this unit on the display of the RM-B750.

Settings on this unit

Make the following settings in the Camera menu.

- Set RM VIDEO to VBS on the <MONITOR OUTPUT> page of the USER (OPERATION) menu.
- Set VBS of CHAR to ON on the <CHAR/MARK MIX> page of the USER (OPERATION) menu.

Settings on the RM-B750



1. **Press the MAINTENANCE/VF MENU button to display the maintenance menu on the LCD/touch panel.**
2. **Press [RM Config] on the touch panel to display the RM configuration menu.**
3. **Press [Security] to set the unit to Engineering Mode.**
4. **Press [SW Setting] to change to the SW Setting display and set the VF Menu to Control Enable.**
5. **Press [Exit] to cancel the menu mode.**

If you press the MONITOR button, a menu page of this unit will be displayed on the display of the RM-B750. Pressing the MAINTENANCE/VF MENU button enables the menus of the unit to be set from the RM-B750.

For details on the operations, refer to the Operation Manual for the RM-B750.

Monitoring the Camera Image

Camera images are output as VBS signals and can be monitored on the display of the RM-B750 and on a monitor connected to the MONITOR connector of the RM-B750.

Settings on this unit

Set RM VIDEO to VBS on the <MONITOR OUTPUT> page of the USER (OPERATION) menu.

Settings on the RM-B750

Press the MONITOR button.

Warning System

When an error is detected immediately after the unit is powered on, or during operation, an message appears *(see A in the following table)* on the viewfinder screen, on an external monitor, in the subdisplay on the right-side panel, and in the control panel display, and the tally indicator *(see page 19)* flashes *(see B in the following table)* to alert you to the error. In addition, warning and alarm tones are output from the EARPHONES jack and the buzzer mounted on a circuit board inside the unit *(see C and D in the following table)*.

Notes

- Warning tones are not output unless BEEP(PHONE)/BEEP(BOARD) >WARN in the VTR >AUDIO Setup menu *(see page 178)* is set to HIGH or LOW.
- Alarm tones are not output unless BEEP(PHONE)/BEEP(BOARD) >ALARM in the VTR >AUDIO Setup menu *(see page 178)* is set to HIGH or LOW.

Layout of the table of warning messages

Message	Tally indicator	Warning tone	Alarm tone
A	B	C	D
Problem	**Operation on the VTR module**	**Action to take**	

- The operation of the tally indicator is represented by graphic symbols as follows.
  ☀: 1 flash/s
  ☀☀☀☀: 4 flashes/s

- The warning and alarm tones are represented by graphic symbols as follows.
  •))))))))))): 1 beep/s
  •)) •)) •)) •)): 4 beeps/s
  •))))))))))))))): Continuous beep

Warning indications/tones

Message	Tally indicator	Warning tone	Alarm tone
See "Warning messages" (page 205).	–	–	–
Problem	**Operation on the VTR module**	**Action to take**	
A warning message condition occurred (excepting "0060 LOST LOCK" described below).	Continues operation.	Check the warning message, and resolve the condition, referring to the "Description" column in the table of "Warning messages" *(page 205)*.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
0060 LOST LOCK	☀☀☀☀ a)	•)) •)) •)) •)) b)	–
Problem	**Operation on the VTR module**	**Action to take**	
Servo lock lost during recording.	Recording continues, but the results may be invalid.	Turn off the power and contact a Sony service representative.	

Message	Tally indicator	Warning tone	Alarm tone
See "Error messages" (page 203).			–
Problem	**Operation on the VTR module**	**Action to take**	
An error occurred (excepting "0050 NO REC RF").	Continues operation or stops, depending on the type of error.	Check the error message, and resolve the condition, referring to the "Description" column in the table of "Error messages" *(page 203)*. Or contact a Sony service representative. If a slack error occurs, refer to the maintenance manual and remove the cassette, or contact a Sony service representative.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
0050 NO REC RF	[a]	[b]	–
Problem	**Operation on the VTR module**	**Action to take**	
• Recording error occurred. • RF signals cannot be detected. • Video head clogging or failure in recording system.	Recording continues, but the results may be invalid.	Clean the video heads. If recording fails after head cleaning, turn off the power and contact a Sony service representative.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
–		–	[b]
Problem	**Operation on the VTR module**	**Action to take**	
Near tape end.	Operation continues.	Prepare an exchange cassette.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
–		–	
Problem	**Operation on the VTR module**	**Action to take**	
Tape end.	Recording, playback, and fast forward stop.	Exchange the cassette, or rewind the tape.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
–		–	[b]
Problem	**Operation on the VTR module**	**Action to take**	
Battery is almost exhausted. [c]	Operation continues.	Exchange the battery.	
Message	**Tally indicator**	**Warning tone**	**Alarm tone**
–		–	
Problem	**Operation on the VTR module**	**Action to take**	
Battery is exhausted. [c]	Operation stops.	Exchange the battery.	

a) Flashes only during recording.

b) Output only during recording.

c) You can use the battery level/external power display in the control panel display *(see page 27 and page 30)*, on the viewfinder screen, on an external monitor, and in the subdisplay to check the state of the battery *(see page 53 and page 70)*.

Warning/Error Messages

Warning and Error Messages Related to the Camera Module

If low battery power is detected, or if an error or other abnormal condition occurs on power on or during operation, the RUN indicator flashes and alarm message flash on the viewfinder, on an external monitor, and in the subdisplay.

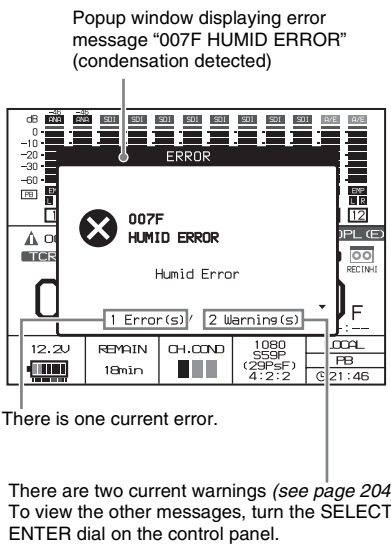
Viewfinder screen		Subdisplay	RUN indicator	Meaning
Basic status display *(see page 64)*	**Message**			
BATT flashes		BATT flashes	Flashes	Power voltage is low (has reached the specified NEAR END value).
BATT flashes		BATT flashes quickly	Flashes quickly	Power voltage is exhausted (has reached the specified END value).
	SHUTDOWN CAMERA/FAN MAX			The unit must be powered off for safety. FAN MODE has been forcibly set to MAX.
	OHB FAN NG!			The fan near the CCD has stopped.
	MAIN FAN NG!			The fan in the main unit has stopped.
CAM?	OHB NG!			CCD unit error
CAM?	AD BOARD NG!			AD board error
CAM?	VDA BOARD NG!			VDA board error
CAM?	VPR BOARD NG!			VPR board error
	VTR ERROR XXXX			Error in the VTR module XXXX: error code *(see page 203)*
	TEMPERATURE CARE			The temperature inside the unit is high.
	TEMP WARNING/ FAN MAX			The temperature inside the unit has risen to the limit. FAN MODE has been forcibly set to MAX.
	POWER OFF TO SET			Memory checksum error or other error occurred. The unit must be powered off.
	CAM ERROR! POWER OFF->ON			Changing formats or other operation failed. The unit must be powered off and on again.
	REF UNLOCK			When REFERENCE on the <GENLOCK> page of the Camera >MAINTENANCE menu is set to GENLOCK IN or AUX IN, an improper signal was detected.
	VTR WARNING XXXX			Warning in the VTR module XXXX: error code *(see page 203)*

Viewfinder screen				
Basic status display ***(see page 64)***	**Message**	**Subdisplay**	**RUN indicator**	**Meaning**
	VDA ROM MISMATCH			A wrong VDA_PLD version has written.
	ANOTHER TYPE OHB			Software (ROM data) for the camera module does not match to the CCD unit.

Error Messages Related to the VTR Module

When the unit stops operating correctly because of an internal error, a warning tone sounds and a popup window appears on the display of the control panel with an error message.
Only one message is displayed at one time, even if multiple errors occur. But the number of current errors appears at the bottom of the popup window.
At the same time, a VTR module error message appears in the viewfinder and in the message display section of the monitor screen.

Example:



When an error message appears

Check the message and eliminate the cause of the error.

If the error involved the tape transport mechanisms (SLACK-35, etc.), contact a Sony service representative.
For other errors, power the unit off and on again. If the same error message appears again when the unit is powered on, contact a Sony service representative.

To close the error message popup window

Press the menu selection button “HOME” or “BACK” on the control panel.
If you press the HOME button, an error code appears in the operation status and warnings section of the control panel display *(see page 26)*.
If you press the BACK button, the same error code appears in the operation status and warnings section of the display when you move back as far as the HOME screen.
The error code remains visible until the cause of the error is eliminated.

Tape protection mode

To protect the tape and the mechanical parts of the unit, the servo control system automatically stops tape transport and the drum motor and enters tape protection mode when an error occurs. Cassettes may not be inserted or ejected while the unit is in tape protection mode.

Error messages

Refer to the Maintenance Manual for more detailed information about the content of error messages, and about errors not listed here.

Code	Message	Description
0010	FAN STOP	A cooling fan stopped.
0011		
0012	ACC POWER NG	Error was detected in current flow monitoring circuits. Check the connected accessories.

Code	Message	Description
0013	DC OVERLOAD	Current of 10 A or higher is being supplied to the DC IN 11-17V connector or the battery terminal. Stop the power supply to accessories.
0014	DC VOLTAGE DOWN	Decline in power supply voltage was detected.
0015	BATTERY TEMPERATURE NG	The internal temperature of the Info Battery (battery with a communication function such as BP-GL95) is over the rated value.
0050	NO REC RF	Recording error occurred. Could not detect RF signal.
0057	EQ NVRAM SUM ERROR	EQ NVRAM operating error was detected.
0058	CONT REC NG TC	Continuous recording error was detected.
005A	CONT REC NG SV	Continuous recording error was detected.
005C	TIMER REC NG	Timer Rec error was detected.
005F	EQ TEMP NG	Abnormal EQ temperature was detected.
0060	SLACK-10	Drum drive voltage error was detected.
0061	SLACK-11	Drum FG error was detected.
0062	SLACK-12	Drum PG error was detected.
0063	SLACK-35	S reel rotation was detected in stop mode.
0064	SLACK-45	Abnormal ratio of T reel speed to capstan speed was detected during fast forward.
0065	SLACK-75	It is necessary to check the cassette.
0066	SLACK-70	Servo NVRAM communications error was detected.
0067	SLACK-71	System control initialization command error was detected.
0068	SLACK-20	Capstan drive voltage error was detected.
0069	SLACK-21	Capstan FG error was detected.
006B	SLACK-23	Capstan rotation direction error was detected.
006C	SLACK-24	Capstan speed error was detected.
006D	SLACK-100	Tension error was detected during rewind.
0071	SLACK-61	Function cam forward rotation time-out error was detected.
0072	SLACK-62	Function cam reverse rotation time-out error was detected.
0073	SLACK-63	Tape top detection time-out error was detected.
0074	SLACK-64	Full top detection time-out error was detected.
0075	SLACK-65	Tape end detection time-out error was detected.
0076	SLACK-66	Cassette ejection error was detected.
0077	F-TOP SENSOR ERR	FULL TOP sensor error was detected. (Exchange the sensor.)
0078	SLACK-32	S-reel FG error was detected.
0079	SLACK-42	T-reel FG error was detected.
007A	SLACK-33	S-reel direction error was detected.
007C	SLACK-34	S-reel speed error was detected.
007D	SLACK-44	T-reel speed error was detected.
007F	HUMID ERROR	Condensation detector detected condensation.
02XX	(An error message related to the camera module)	An error was detected in the camera module *(see page 202)*.

Warning Messages Related to the VTR Module

If one of the conditions described in the table of warning messages *(see page 205)* is detected, a

warning message code appears in the operation status and warnings section of the control panel display *(see page 26)*. This section is visible when the display is showing the HOME screen.

Note

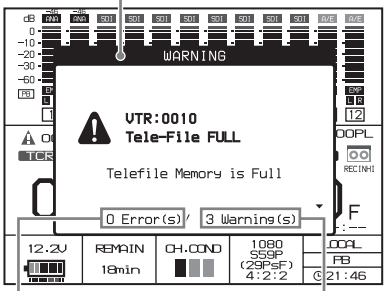
Warning messages do not appear unless the display is showing the HOME screen. To display the HOME screen, press the menu selectuion button "HOME" on the control panel.

To check the content of warning messages

Press the SELECT/ENTER dial on the control panel. A popup window appears to display messages for the current warnings.
Only one message is displayed at one time, even if multiple warnings occur. But the number of current warnings appears at the bottom of the popup window.

Example:

Popup window displaying warning message "VTR: 0010 Tele-File FULL"



There is no current error *(see page 202)*.

There are three current warnings. To view the other messages, turn the SELECT/ENTER dial on the control panel.

When a warning message appears

Take any action that may be needed to eliminate the cause of the warning.

Warning messages

Code	Message	Description
0001	PB FREQ MISMATCH	System frequency of this system does not match system frequency on the tape.
0002	PB FMT MISMATCH	The recording format of the tape being played back does not correspond to the current format.
0004	NO PB LTC	Playback LTC cannot be detected.
0005	NO PB VITC	Playback VITC cannot be detected.
0007	REC INHIBIT MODE	The system cannot record because of a record inhibit menu setting. Or the tape is not formatted for recording.
0008	INVALID FMT CONV	Format conversion is not possible with the current settings.
0009	TEMPERATURE LOW	The temperature inside the unit is lower than the specified values.
000A	RTC BATTERY WARN	The battery for RTC (Real Time Clock) has been exhausted. Exchange the battery.
000C	CP MISSING	The control panel is not connected. The main unit operates normally without the control panel. On how to clear this message, contact a Sony service representative.
000D	CAM MISSING	An internal communication error was detected. Power off and restart the unit.
000E	TEMPERATURE HIGH	The temperature inside the unit has risen.
0010	Tele-File FULL	Telefile memory is almost full. The next recording will erase existing data, beginning with oldest.
0011	T-File NO ROOM	Free memory in a Telefile has been completely exhausted.

Code	Message	Description
0012	TELE-FILE BROKEN	Defect of the Telefile label on the cassette was detected. Change the cassette. (If this message appears, playback operation is not affected.)
0013	Tele-File FMT NG	Telefile format is invalid in one or more locations.
0014	T-File RD FAIL	Telefile read failure occurred.
0015	T-File WR FAIL	Telefile write failure occurred.
0016	T-File WR INHI	Attempt to record was made when entire Telefile is write inhibited.
0017	NO T-File LABEL	Telefile could not be recognized.
001A	ACC OVERLOAD	Power consumption by connected accessories has exceeded the rated limit. Make sure that total power consumption by accessories does not exceed 16 W.
001C	LENS POWER OFF	Stop the power supply to the LENS connector.
001D	DC OUT POWER OFF	Stop the power supply to the DC OUT connector.
001E	RM POWER OFF	Stop the power supply to the REMOTE connector.
001F	VF POWER OFF	Stop the power supply to the VF connector.
0020	VIDEO PLL UNLCOK	The timing generator PLL is not locked to the reference video signal.
0022	AUDIO PLL UNLOCK	The audio clock generator PLL is not locked to the reference video signal.

Code	Message	Description
0030	NO SDI INPUT	When the optional HKSR-9001 is installed, there is no valid input to the AUX IN connector.
0031	SDI INPUT UNLOCK	The phase of the signal input to the AUX IN connector does not correspond to the setting made on the <GENLOCK> page *(see page 155)* of the Camera >MAINTENANCE menu. Check the setting and the input signal.
0032	INVALID SDI DATA	Data of the signal input to the AUX IN connector is invalid.
0036	SDI FMT MISMATCH	Format of signals input to AUX IN connector does not match system setting.
0038	MARI RST	Abnormality such as insecurity of synchronization was detected during recording operation. Check the recording.
0039	PIER RESET	This message generates when a tape recorded in a format which the current system setting does not support is played back.
0050	NO PB RF	Playback head is not reading digital data from tape.
0051	BAD CH CONDITION	Playback signal quality is bad.
0056	PB SEG NG	Abnormal recording was detected on the tape being played back. Confirm whether there was an abnormal operation or instability in power during recording or power-on/off.
0057	PB TR ID NG	

Code	Message	Description
0060	LOST LOCK	Capstan servo lock lost during playback or recording. (This message remains even after servo lock is restored. You can erase it by pressing the PLAY button.)
0061	SERVO NOT READY	The servo control system is not in standby because the unit is in tape protection mode.
0067	CASSETTE REC INHI	The cassette is record-protected.
0070	CAM ERROR	An error has occurred in the camera module. Check the viewfinder indications to find out what the problem is.
0071	CAM WARNING	A warning-level error has occurred in the camera module. Check the viewfinder indications to find out what the problem is.
0078	CAM COM NG	A communication error was detected between the VDA board and VPR board. Power off and restart the unit.
02XX	(A warning message related to the camera module)	A warning-level error was detected in the camera module *(see page 202)*.

Precautions

Use and Storage

Do not subject the unit to severe shocks

The internal mechanism may be damaged or the body warped.

After use

Always turn off the power.

Use and storage locations

Store in a level, ventilated place. Avoid using or storing the unit in the following places:

- Places subject to temperature extremes
- Very damp places
- Places subject to severe vibration
- Near strong magnetic fields
- In direct sunlight or close to heaters for extended periods

To prevent electromagnetic interference from mobile communications devices

The use of mobile phones and other communications devices near this unit can result in malfunctions and interference with audio and video signals.

It is recommended that communications devices near this unit be powered off.

Note on laser beams

Laser beams may damage the CCDs. If you shoot a scene that includes a laser beam, be careful not to let the laser beam be directed into the lens of the camera.

Condensation

See "Condensation" (page 209) in "Maintenance and Inspections"

Phenomena Specific to CCD Image Sensors

The following phenomena that may appear in images are specific to CCD (Charge Coupled Device) image sensors.

They do not indicate malfunctions.

White flecks

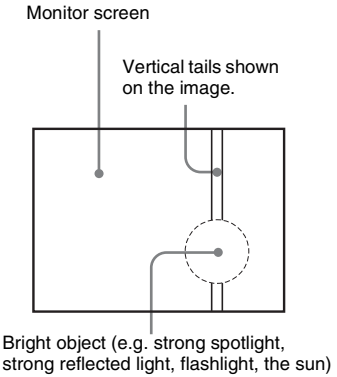
Although the CCD image sensors are produced with high-precision technologies, fine white flecks may be generated on the screen in rare cases, caused by cosmic rays.
This is related to the principle of CCD image sensors and is not a malfunction.

The white flecks especially tend to be seen
- when operating at a high environmental temperature
- when you have raised the master gain (sensitivity)

This unit has a compensation function and the problem may be alleviated by automatic black balance adjustment *(see page 57)*.

Smear

When an extremely bright object, such as a strong spotlight or flashlight, is being shot, vertical tails may be produced on the screen, or the image may be distorted.



Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

About a “Memory Stick”

Precautions

- Do not attach anything other than the supplied label to the “Memory Stick” labeling position.
- Attach the label so that it does not stick out beyond the labeling position.
- Carry and store the “Memory Stick” in its case.
- Do not touch the connector of the “Memory Stick” with anything, including your finger or metallic objects.
- Do not strike, bend, or drop the “Memory Stick”.
- Do not disassemble or modify the “Memory Stick”.
- Do not allow the “Memory Stick” to get wet.
- Do not use or store the “Memory Stick” in a location that is:
  - Extremely hot, such as in a car parked in the sun
  - Under direct sunlight
  - Very humid or subject to corrosive substances
- To prevent data loss, make backups of data frequently. In no event will Sony be liable for any loss of data.
- Unauthorized recording may be contrary to the provisions of copyright law. When you use a “Memory Stick” that has been pre-recorded, be sure that the material has been recorded in accordance with copyright and other applicable laws.

Maintenance and Inspections

Head Cleaning

Use the BCT-HD12CL Cleaning Cassette to clean the video and audio heads. Read the instructions included with the cleaning cassette carefully, as improper usage can damage the heads.
When you insert the cleaning cassette, it is automatically ejected after a cleaning operation which lasts for about five seconds.

Note

Do not run the cleaning tape more than six times in succession to avoid damaging the heads.

Refer to the instructions of the cleaning cassette for detailed information about cleaning the video and audio heads.

Condensation

If you move the camcorder from a very cold place to a warm place, or use it in a damp location, condensation may form on the head drum. If the camcorder is operated in this state, the tape may adhere to the drum, causing a failure or even permanent damage.

Note

Before moving the unit from a cold place to a warm place, make sure no cassette is loaded in the unit.

When condensation is detected

If the condensation detection mechanism detects condensation on the head drum during use, a popup window appears on the display of the control panel, displaying the message "VTR: 007F HUMID ERROR" *(see page 205)*.

See the figure under "Error Messages Related to the VTR Module" (page 203) for more information about this and other error messages.

When condensation is detected, the unit enters tape protection mode *(see page 203)*.

If "VTR: 007F HUMID ERROR" appears immediately after you power the system on

Leave the system powered on, and wait for the message to disappear. Cassettes cannot be inserted while the message is visible.
Even if the VTR has no condensation, moisture collected on tape may cause the tape to adhere to the drum, which will damage the tape.
This unit can check whether the drum rotates at the proper speed when it is started, so that tape adhesion caused by moisture collected on tapes can be detected. If tape adhesion is detected during this process, the error message "SLACK-50" or "SLACK-51" is displayed. In this case, the VTR is in tape protection mode *(see page 203)*. Take out the inserted tape with reference to the Maintenance Manual and check the tape, for example, for moisture and adhesion of sticky substances, or contact a Sony service representative.

When you suddenly move the VTR from a cold location to a warm one

Leave the VTR powered off for about 10 minutes, since some time is needed for the condensation detection mechanism to work.

Note About the Battery Terminal

The battery terminal of this unit (the connector for battery packs and AC adaptors) is a consumable part.
Power may not be supplied to the unit properly if the pins of the battery terminal are bent or deformed by shock or vibrations, or if they become corroded due to prolonged outdoor use. Periodic inspections are recommended to keep the unit working properly and to prolong its usable lifetime.

Contact a Sony service or sales representative for more information about inspections.

About Recording/Playback Formats

The following table shows how HDCAM SR tapes recorded on the unit are played back on the SRW-5000/5500, etc.

Yes: Recordable/playable
No: Not compatible
PB: Playback only
PB(Spl): Video playback of every other frame, with audio muted

Signal format	Scanning system	System frame frequency	Recording Rate (Video NET)	SRW-9000/ 9000PL (440/880 Mbps)	SRW-1+SRPC-1 (440/880 Mbps)	SRW-5000/ 5500 (440 Mbps)	SRW-5800 (440/880 Mbps)	SRW-5100 (440/880 Mbps)
1080/4:2:2	Interlaced	25	440 Mbps	Yes	Yes	Yes	Yes	PB
		29.97		Yes	Yes	Yes	Yes	PB
	PsF	23.98		Yes	Yes	Yes	Yes	PB
		24		Yes	Yes	Yes	Yes	PB
		25		Yes	Yes	Yes	Yes	PB
		29.97		Yes	Yes	Yes	Yes	PB
	Progressive	50	880 Mbps	Yes	Yes	PB(Spl)	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		59.94 a)		Yes	Yes	PB(Spl)	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		59.94 b)		No	No	No	No	No
1080/4:4:4 RGB(SQ)	Interlaced	25	440 Mbps	Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)
		29.97		Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)
	PsF	23.98		Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)
		24		Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)
		25		Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)
		29.97		Yes	Yes	Yes (HKSR-5003)	Yes (HKSR-5803SQ or HQ)	PB (HKSR-5103)

Signal format	Scanning system	System frame frequency	Recording Rate (Video NET)	SRW-9000/ 9000PL (440/880 Mbps)	SRW-1+SRPC-1 (440/880 Mbps)	SRW-5000/ 5500 (440 Mbps)	SRW-5800 (440/880 Mbps)	SRW-5100 (440/880 Mbps)
1080/4:4:4 RGB(HQ) 1080/4:4:4 RGB (HQ, 12bit) [c]	Interlaced	25	880 Mbps	Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		29.97		Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)
	PsF	23.98		Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		24		Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		25		Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)
		29.97		Yes	Yes	No	Yes (HKSR-5803HQ)	PB (HKSR-5103)

a) HDCAM SR tape recorded by SRW-9000

b) Playback on other devices not supported because this system frame frequency not supported on this unit

c) For SRW-5100/5800, supported by products of serial number 12001 or later

What Are Dual Link and 3G?

When the optional HKSR-9001 is installed in this unit, you can select output of HDSDI signals.

HDSDI signal format	Output mode
4:2:2 (YCbCr) 23.98PsF to 29.97PsF (59.94i)	Normal 1.5G Single Link output
4:2:2 50P	1.5G Dual Link output
	3G Single Link output
4:2:2 (YCbCr) 23.98PsF to 29.97PsF (59.94i)	Normal 1.5G Single Link output
4:2:2 50P	1.5G Dual Link output
	3G Single Link output
4:4:4 (RGB) 23.98PsF to 29.97PsF (59.94i)	1.5G Dual Link output
	3G Single Link output

This section explains the types of signals that you can output with HDSDI 1.5G Single Link, 1.5G Dual Link, and 3G Single Link.

1.5G Single Link

Single Link enables output of HDSDI signals over a single BNC cable.
The unit can handle 4:2:2 (Y/Cb/Cr)/1080/23.98PsF to 29.97PsF (59.94i) HD signals. The HD SDI OUT A and HD SDI OUT B connectors output the same signals. The number of pixels is 1920 × 1080.

1.5G Dual Link

Dual Link enables output of HDSDI signals over two BNC cables.
With Dual Link, you can do the following.

- Handle different color spaces
  Dual Link allows you to expand color difference signals to RGB. 4:4:4 (RGB)/1080/23.98PsF to 29.97PsF (59.94i) HD signals can be selected.
  When you do this, all of the G component and half of the B and R components are output via the HD SDI OUT A connector. The other half is output via the HD SDI OUT B connector.
  HD SDI OUT A = G/0.5 ×B'/0.5 ×R'
  HD SDI OUT B = None/0.5 ×B"/0.5 ×R"
- Increase the number of frames
  Dual Link allows you to double the number of frames to 4:2:2 60P.
  HD SDI OUT A = Even lines/Odd lines (alternating on each frame)
  HD SDI OUT B = Odd lines/Even lines (alternating on each frame)

Note

In the SMPTE-372M 4:2:2 60P standard, the active lines of digital field 2 are different between Link A and Link B (Link A: line 584 to 1123, Link B: line 583 to 1122).

3G Single Link

You can output HDSDI signals that correspond to 1.5G Dual Link over a single BNC cable.

HDSDI formats supported by the SRW-9000PL

		1.5G Single Link	1.5G Dual Link	
Format		4:2:2 (YCbCr)	RGB 4:4:4	4:2:2 (YCbCr) 60P
Frame rate		30/1.001PsF 25PsF 24PsF 24/1.001PsF 60/1.001i 50i	30/1.001PsF 25PsF 24PsF 24/1.001PsF 60/1.001i 50i	60/1.001P 50P
Effective frame size		1920 × 1080	1920 × 1080	1920 × 1080
HD SDI OUT A	Y channel	Y	G	Y
	C channel	CbCr	0.5B/0.5R	CbCr
HD SDI OUT B	Y channel	*	–	Y
	C channel	*	0.5B'/0.5R'	CbCr
SMPTE		292M	372M	372M

	3G Single Link	
Format	RGB 4:4:4	4:2:2 (YCbCr) 60P
Frame rate	30/1.001 PsF 25PsF 24PsF 24/1.001PsF 60/1.001i 50i	60/1.001P 50 P
Effective frame size	1920 × 1080	1920 × 1080
HD SDI IN/OUT A	RGB	YCbCr
HD SDI IN/OUT B	*	*
SMPTE	424M	424M

PsF: Progressive Segmented Frames

i: Interlace

P: Progressive

*: Same signals as HD SDI OUT A

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Specifications

General

Power requirements
11 to 17 V DC

Power consumption
Approx. 60 W
Main unit only, during recording in 23.98PsF 4:2:2, and audio input and all outputs other than output to the viewfinder are disabled.

Note

The power consumption of the main unit reaches its peak while the unit is in 50P and rewind mode (REW) and MIC+48V audio input and all outputs are enabled. Do not allow the total power consumption of the control panel and peripherals to exceed 16 W when they are connected.

Example: When the control panel (1.8 W), AP-1 (1 W), HDVF-C30WR (5.2 W), RM-B750 (4 W) and WRR-861 (1.4 W) are connected, the total power consumption is 13.4 W.

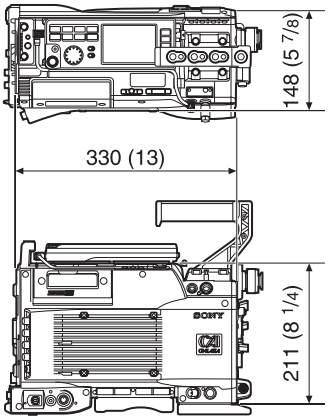
Operating temperature
0ºC to 40ºC (32ºF to 104ºF)

Storage temperature
–20ºC to +60ºC (–4ºF to +140ºF)

Operating humidity
25 to 85 % (without condensation)

Mass
6.9 kg (15 lb 3 oz) (excluding handle and control panel)

External dimensions



Unit: mm (inch)

Recording/playback

Recording format
- Video: HDCAM-SR 440 Mbps, HDCAM-SR 880 Mbps
- Color space: 4:2:2 RGB 4:4:4
- Audio: 12 channels/24 bits/48 kHz

Continuous operating time
- Approx. 80 minutes (using BP-GL95)

Recording/Playback time
- HDCAM-SR 440 Mbps: 40 minutes (30P), 50 minutes (24P)
- HDCAM SR 880 Mbps: 24 minutes (50P)

Camera Section

Pickup device
- Super 35-mm RGB color CCD array

Method Single-CCD

Aspect ratio
- 16:9

Effective picture elements (for each of R, G, B)
- 1920 (H)×1080 (V)

Lens mount
- 54-mm PL Mount

Sensitivity
- (2000 lx, 89.9% reflectance)
- T9 ISO340 (29.97PsF, D-RANGE [1]: NORMAL)
- T10 ISO450 (29.97PsF, D-RANGE [1]: EXTEND)
- 1) Selection on <BASE SETTING> page of the Camera >MAINTENANCE menu.

Gain selection
- –6, –3, 0, 3, 6, 9, 12 dB

Horizontal resolution
- 1000TV lines (at center of screen)
- 5% or higher modulation

Audio Performance

Reference input levels
- LINE: +4 dBu
- MIC: –34 dBv/–46 dBv/–58 dBv

Frequency response
- 20 Hz to 20 kHz, +0.5 dB/–1.0 dB

Dynamic range
- 100 dB or more

Distortion
- 0.05% or less (at 1 kHz, reference level)

Crosstalk
- –80 dB or less (at 1 kHz)

Headroom
- 20 dB

Input connectors

GENLOCK IN
- BNC, 0.6 Vp-p, 75 Ω

TC IN BNC, 0.5 to 18 Vp-p, 10 Ω

AUDIO IN CH-1/CH-2
- XLR 3-pin, female×2, LINE/MIC/MIC +48V

DC IN 11-17V
- XLR 4-pin, male, 11 to 17 V DC

AUX IN (when the optional HKSR-9001 is installed)
- BNC, 75 Ω
- SMPTE 292M (12 channels of embedded audio)

Output connectors

EARPHONES
- Mini-jack (stereo)

TEST OUT
- BNC (switchable)
- HD Y/SD composite (character on/off)

HD SDI MON1, HD SDI MON2
BNC×2
HDSDI: SMPTE 292M (embedded audio, timecode, character on/off)
HD SDI OUT A/B (when the optional HKSR-9001 is installed)
BNC×2
HDSDI 1.5G Single Link: SMPTE 292M (embedded audio, timecode)
HDSDI 1.5G Dual Link: SMPTE 372M (embedded audio, timecode)
HDSDI 3G Single Link: SMPTE 424M (embedded audio, timecode)
TC OUT
BNC, 1.0 Vp-p, 75 Ω
DC OUT
4-pin, (for wireless microphone receiver), 11 to 17 V DC (max. 0.5 A)

Input/Output connector

LENS 12-pin
REMOTE
8-pin
EXT I/O
5-pin
CTRL (CAM)
CTRL (VTR)

Supplied Accessories

Operation Manual (1)
Lens mount cap (1)
V-shoe plate (1)
V-shoe plate attachment screws (K4×8, 6)
Cable holder (1)
Control panel cable (L) (1)
Viewfinder shoe assembly (1)
Viewfinder holding plate (A) (1)
Viewfinder holding plate (B) (1)
Conversion screw (1)
B4×8 screws for viewfinder holding plate (B) attachment (2)
M3 hex socket head bolts for viewfinder shoe attachment (2)

Optional Accessories

See "Example System Configuration" (page 14).

Design and specifications are subject to change without notice.

Notes

- Always make a test recording, and verify that it was recorded successfully.
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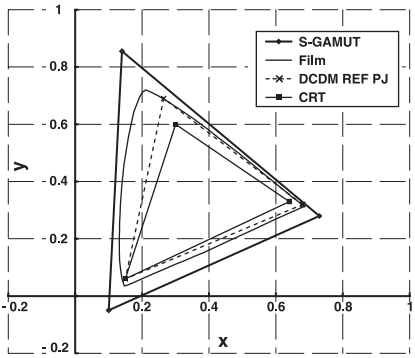
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

Color Space According to the COLOR SPACE Settings



Colorimetry

1. Virtual chromaticity points at S-GAMUT

The virtual color space at S-GAMUT is shown in the above chart. The virtual chromaticity points are as follows:

	x	y
R	0.73	0.28
G	0.14	0.855
B	0.1	-0.05

When converting the color space of a video source shot with this unit in S-GAMUT mode, use these virtual chromaticity points.
These chromaticity points are “virtual” because they do not represent the actual, accurate color space but are the calculated values for calculation of color space conversion. These virtual chromaticity points have been introduced because the actual color space cannot be represented as a triangle in this colorimetry.
A simple formula for conversion from the color space for S-GAMUT to that for conventional cameras (HDC-F950, HDW-F900R, etc.) is shown below:

$$\begin{bmatrix} R \\ G \\ B \end{bmatrix} = \begin{bmatrix} 1.306240 & -0.233075 & -0.073165 \\ -0.126851 & 1.178376 & -0.051526 \\ 0.000120 & -0.085649 & 1.085529 \end{bmatrix} \begin{bmatrix} R_w \\ G_w \\ B_w \end{bmatrix}$$

Rw, Gw, Bw: RGB values for the original color space for S-GAMUT
R, G, B: Values after being converted to the color space for conventional cameras

2. Color space for film

The color space for film shown in the above chart represents measurements from VISION Premier Film EK 2393.

3. Color space for F900 mode

The color space for conventional cameras (HDC-F950, HDW-F900R, etc.) is wider than that for DCDM REF PJ but narrower than that for film.

Lip Sync Compensation

Compensation (Lip Sync compensation) for the delay of video relative to audio may be necessary, depending on the video format and system configuration.

Amount of delay of video relative to audio

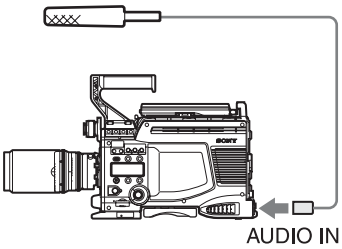
The amount of delay of video relative to audio depends the video format and the status of the image-inversion (IMAGE INVERT) function *(see page 78)* as follows:

Unit: frames

Video format	IMAGE INVERT	
	OFF	ON
59.94i	0.5	1
50i	0.5	1
50P	1	2
29.97PsF	2	3
25PsF	2	3
23.98PsF	2	3

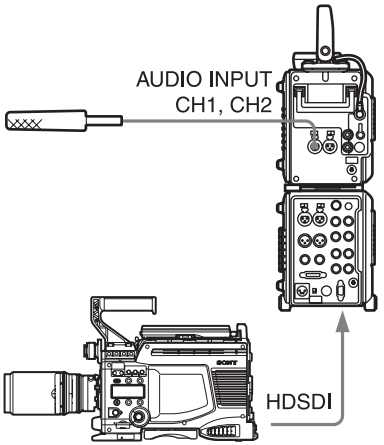
Systems on which compensation is performed automatically

The unit's input module performs delay compensation automatically when a microphone is connected to an AUDIO IN connector, and when multiplexed audio is input to the AUX IN connector.
Also, when timecode input to the TC IN or AUX IN connector is regenerated, timecode generator compensation is performed. In this case, a delay of 0.5 frames is handled as 0 frames.



Systems on which compensation must be performed manually

When you have connected this unit to an SRW-1 + SRPC-1, and wish to record on the SRW-1 using a microphone connected to the AUDIO INPUT CH1 to CH4 connectors of the SRW-1 + SRPC-1, perform lip sync compensation manually.
Adjust the amount of compensation on the SRW-1 side, according to the amount of delay described above.
If you input timecode to the TC IN connector of the SRW-1, timecode compensation must also be performed in the same way.



High-Sensitivity Shooting

While this unit permits you to vary the sensitivity by changing the gain as with conventional cameras, it supports two additional methods for high-sensitivity shooting.

1. ISO 800 Hyper Gamma shooting: Creating images while shooting using Hyper Gamma

Selecting HG7-ISO800 or HG8-ISO800 from the SPECIAL gamma table for the standard sensitivity (ISO 450), you can obtain a sensitivity setting equivalent to ISO 800.
These gamma curves have been created based on the curves of Hyper Gamma 7 and 8 so that they provide ISO 800-equivalent sensitivity.

As these settings have the same effect as when you increase the gain, the S/N is slightly decreased, but the dynamic range is maintained at 800%.

2. Cine-EI mode: Shooting with S-Log and performing postprocessing

The unit enters Cine-EI mode if you set SHOOT MODE to CINE-EI, using the <BASE SETTING> page of the MAINTENANCE menu.

ISO 450 (standard sensitivity), 640, 800, or 1000 can be selected, requiring use of a light meter for shooting in this mode,
As the gain does not change in this mode, the higher you set the sensitivity, the darker the camera image will become.
In the same manner as sensitivity-intensified shooting with film cameras, the gain is increased to the proper level in post-production for dark shooting.
Although the output of the main line may become dark, shooting at the proper level is enabled as appropriate LUT for the selected sensitivity is automatically applied to each of the VF and monitor outputs,

As the gain is increased in post-production, the higher you set the sensitivity, the more the S/N is decreased, but the dynamic range is widened for high-luminance signals.

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