SONY®

HD COLOR CAMERA
HDC2500

Digital **HDVS**

OPERATION MANUAL   English
1st Edition

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

Pour les clients en Europe

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) émise par la Commission de la Communauté européenne.
La conformité à cette directive implique la conformité aux normes européennes suivantes :
• EN55103-1 : Interférences électromagnétiques (émission)
• EN55103-2 : Sensibilité électromagnétique (immunité)
Ce produit est prévu pour être utilisé dans les environnements électromagnétiques suivants : E1 (résidentiel), E2 (commercial et industrie légère), E3 (urbain extérieur) et E4 (environnement EMC contrôlé, ex. studio de télévision).

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

WARNUNG

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

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

Für Kunden in Europa

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt die EMV-Richtlinie der EG-Kommission.
Angewandte Normen:
• EN55103-1: Elektromagnetische Verträglichkeit (Störaussendung)
• EN55103-2: Elektromagnetische Verträglichkeit (Störfestigkeit)
Für die folgenden elektromagnetischen Umgebungen: E1 (Wohnbereich), E2 (kommerzieller und in beschränktem Maße industrieller Bereich), E3 (Stadtbereich im Freien) und E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

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

Table of Contents

Overview

The HDC2500 is 2/3-type high-definition portable video camera equipped with CCD for 2,200,000 pixels.

Features

High picture quality and high performance

HDC2500 features a 2/3-type wide progressive IT CCD for 2,200,000 pixels and a signal processing LSI, both newly developed to help achieve a high level of image quality via improved S/N, high resolution, and low smear compared to previous models. A 16-bit AD converter allows for optimal picture quality and enhanced black reproduction.

Slow motion via 2× speed recording

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

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

Standard 3G optical digital transmission unit

3G optical digital transmission of signals between the camera and camera control unit (CCU) is included, and allows the following kinds of video signal transmission and system configurations:
- 1080/50P-60P progressive video signal transmission
- Transmission of 2× speed recording signals such as 1080/100i-119.88i for production of slow-motion video
- Transmission of HD prompter, HD TRUNK, and network TRUNK signals that utilize empty bands during 1080/50i-60i and 720/50p-60p operation
- Dual camera system for transmitting video signals from two HDC2500 cameras to two CCUs using just one optical fiber/multi-cable
- Subcamera system for transmitting video signals from both an HDC2500 and another subcamera—such as the HDC-P1—using just one optical fiber/multi-cable and outputting their signals from one CCU

Various color-reproduction functions

Adaptive-matrix function

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

Multimatrix color correction

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

Knee saturation

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

Low key saturation

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

Selection of multiple gamma tables

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

User gamma

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

Versatile detail control functions

Skin-tone detail function/Natural skin detail function

Like HDC1500R, this function allows control (emphasis or suppression) of the detail level for just a certain hue or chroma area in the image, by creating a detail gate signal from color components of your specified hue, such as skin tones. The detail levels of three hues can be adjusted independently at the same time.
HDC2500 features the natural skin detail function, which allows for adjustment of the detail gate signal, allowing even more vivid distinction of areas like skin that you want to make smooth while selectively keeping areas like eyebrows that don't require smoothing.

Detail boost-frequency control

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

H/V ratio control

The ratio between horizontal and vertical detail can be adjusted.

White/black limiter

The white and black details can be limited independently.

Focus assist functions

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

VF detail

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

Focus assist indicator

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

Numerous viewfinder functions

Wide variety of viewfinder display options

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

Menu-based setting operation function

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

Wide variety of input/output interfaces

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

Network TRUNK function

The network TRUNK function (LAN port) allows for data transmission between the camera and CCU at speeds of up to 1 Gbps. This allows for a multitude of new system configurations, such as connecting several IP transmission cameras as subcameras.

Note

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

HD TRUNK function

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

Notes

- The HD TRUNK function can only be used when a single format is selected and the network TRUNK function is set to OFF.
- This function is only available for the genlocked signal.

HD prompter function

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

Notes

- The HD prompter function can only be used when a single format is selected and the network TRUNK function is set to OFF.
- This function is only available for the genlocked signal.

User-friendly operation

Carbon-graphite outer cover

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

Unit-body with low center of gravity

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

Swing handle and VF slide mechanism

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

Position-adjustable shoulder pad

The position of the shoulder pad can be adjusted for stable shooting according to the build of the camera operator, the type of lens in use, or the shooting style.
A low-repulsion shoulder pad (position fixed) is available as an option (Part No.: A-8286-346-A).

Function-assignable switches

The function-assignable switches on the side panel can be assigned to your desired function, such as electronic color-temperature conversion.
These switches can be synchronized with the assignable switches on viewfinder models such as HDVF-EL75 and HDVF-C550W, and can be used to operate the viewfinder functions such as MAGNIFICATION, etc.

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

USB connector

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

Prevention of electrical shock

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

Optional accessories

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

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

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

HZC-UG444 User gamma-compatible software

Embedding HZC-UG444 user gamma-compatible software makes RGB 4:4:4 output possible.

HZC-PSF20 Support software for PsF format

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

HZC-PRV20 Software for progressive support

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

HZC-DFR20 Dual-speed software

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

HKC-TR20 Triax Transmission Adaptor

Embedding HKC-TR20 into HDC2500 makes triax transmission possible.

HKC-CN20 Side Panel Attachment Kit

HKC-CN20 must be used to attach HKC-TR20 to HDC2500.

System Configuration

Note

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

Connection example

a) HDLA1500-series Large Lens Adaptor
Part number: A-1128-405-A
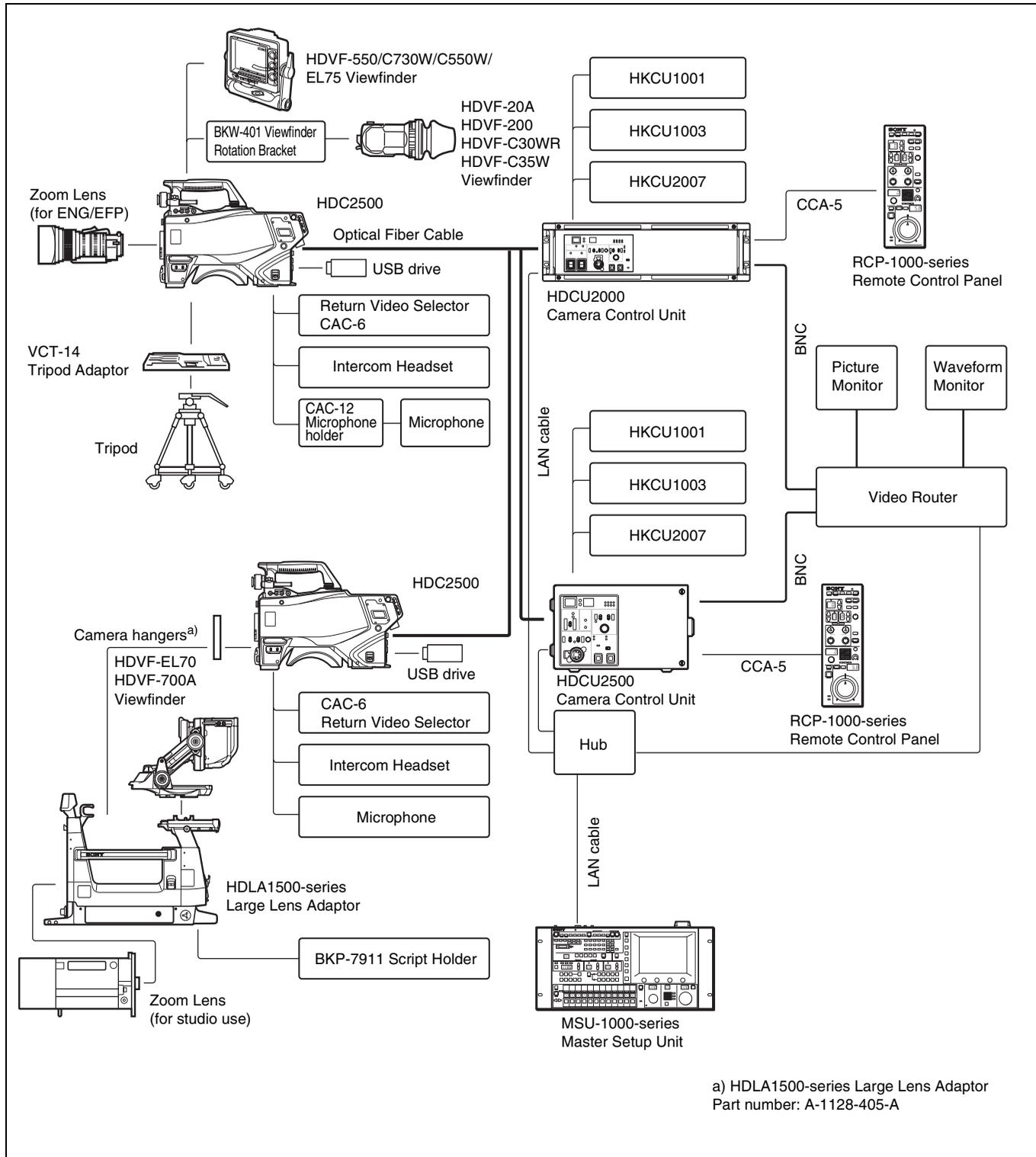
Locations and Functions of Parts

Accessory Attachments
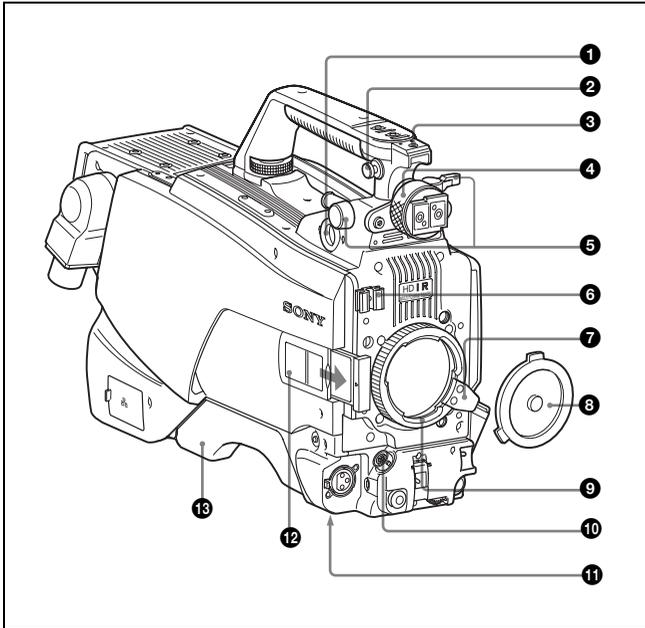
1 VF (viewfinder) connector (20-pin)
Connect the cable of the viewfinder (not supplied).

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

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

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

5 Viewfinder front-rear positioning lever and lock knob
Loosen the lever and knob to adjust the viewfinder position towards the front or rear.

For details on adjusting the viewfinder position, see "Attaching a Viewfinder" on page 15.

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

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

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

9 Lens mount
To attach a lens.

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

11 Tripod mount
Attach the VCT-14 Tripod Adaptor when mounting the camera on a tripod.

12 Camera number
Insert the supplied camera number label. You can display the camera number.
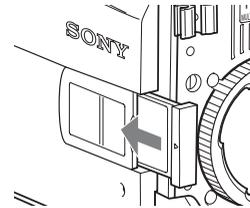
13 Shoulder pad
You can adjust the position so that you can get the best balance for shooting with the camera on your shoulder.

For details, see "Adjusting the Shoulder Pad Position" on page 18.

Controls and Connectors

Front right
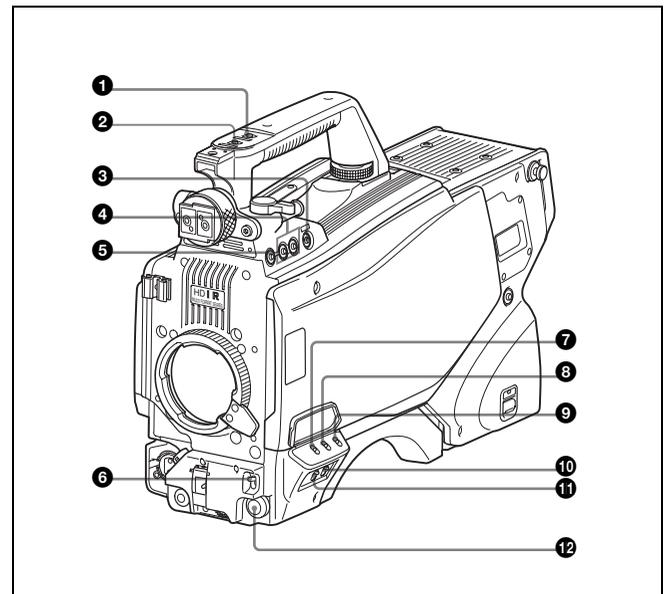
1 INCOM (intercom 1) button
The intercom 1 microphone is turned ON while this button is held pressed.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❷ **RET 1 (return video 1) button**
The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It function the same as the RET 1 button on the side (*page 11*) and that on the operation panel on the rear of the camera (*page 13*).
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❸ **Assignable switch**
You can assign a function using the menu displayed on the viewfinder screen.

❹ **Filter select buttons**
You can switch the built-in ND and CC (color temperature conversion) filters by pressing the selectors while holding the FILTER LOCAL button depressed.
Pressing the left button selects the available ND filters (clear, 1/4ND, 1/8ND, 1/16ND,1/64ND) in sequence. Pressing the right button selects the available CC filters (cross, 3200K, 4300K, 6300K, 8000K) in sequence.

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

❻ **AUTO W/B BAL (white and black balance automatic adjustment) switch**
To automatically adjust white and black balance when the camera is used in standalone status without connecting to the camera control unit.
WHT: Automatically adjust white balance.
BLK: Automatically adjust black balance.

❼ **GAIN switch**
To select the gain of the video amplifier based on lighting conditions when the camera is used in standalone status without connecting a camera control unit.
When shipped from the factory, the values set are L = 0 dB, M = 6 dB, and H = 12 dB.

❽ **OUTPUT (output signal selection)/AUTO KNEE switch**
To select the signal (color bar signal or camera's video signal) to be used as output to a VTR, the viewfinder or a video monitor when the camera is used in standalone status without connecting a camera control unit.
When the camera's video signal is being used as output, the auto knee function may be used.
The relationship between the switch setting and the output signal and auto knee function is shown in the table below.

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

❾ **WHITE BAL (white balance memory selection) switch**
To select the white balance adjustment method or the memory used to store the adjusted value when the camera is used in standalone status without connecting a camera control unit.
PRST (preset): White balance is adjusted to a preset value corresponding to a color temperature of 3200K.
A or B: Selects memory A or B.

❿ **DISPLAY switch**
The functions of the DISPLAY switch are as follows:
DISPLAY: Characters and messages showing the camera settings and operating status may be displayed on the viewfinder screen.
OFF: Status messages will not appear on the viewfinder screen.
MENU: Menus for camera settings will be displayed on the viewfinder screen.

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

⓬ **MENU SEL (menu select) knob/ENTER button (rotary encoder)**
To select settings from menus displayed on the viewfinder screen (by rotating the knob) and to confirm settings (by pushing the button).

Note

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

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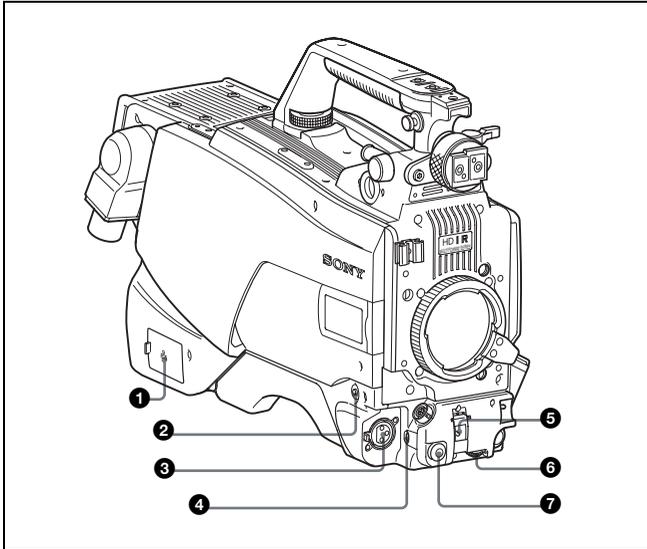
❶ NETWORK TRUNK connector (RJ-45 8-pin)
Connects a device connected to the CCU's NETWORK TRUNK connector to the network.

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

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

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

❷ RET 1 (return video 1) button
The return video 1 signal from the camera control unit is monitored on the viewfinder screen while this button is pressed. It function the same as the RET 1 buttons on the handle (*page 10*) and that on the operation panel on the rear of the camera (*page 13*).
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

❸ MIC 1 IN (microphone 1 input) connector (XLR 3-pin)
Connect a microphone.
This connector and the AUDIO IN CH-1 connector (*page 14*) on the operation panel on the rear of the camera are alternately activated with the CH1 audio input select switch (*page 14*).

❹ MIC (microphone) power switch
+48V: To supply a power of +48 V to the connected microphone.
OFF: Not to supply a power to the connected microphone.

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

For details, see "Setting the Electronic Shutter" on page 22.

❻ INTERCOM LEVEL control
To adjust the intercom/earphone volume level.
The intercom level adjustment is enabled when the INTERCOM 1 and 2 LEVEL/MIC switches (*page 12*) on the rear of the camera are set to "FRONT."

❼ RET 2 (return video 2) button
When this button is pressed, the picture on the viewfinder screen changes to the return video signal selected with the RET 2 select switch (*page 13*) on the operation panel on the rear of the camera.
You can also assign other functions to this button, using the menu displayed on the viewfinder screen.

Rear

Shoulder strap fitting post (*page 9*)
Operation panel (*page 12*)
Connector panel (*page 13*)
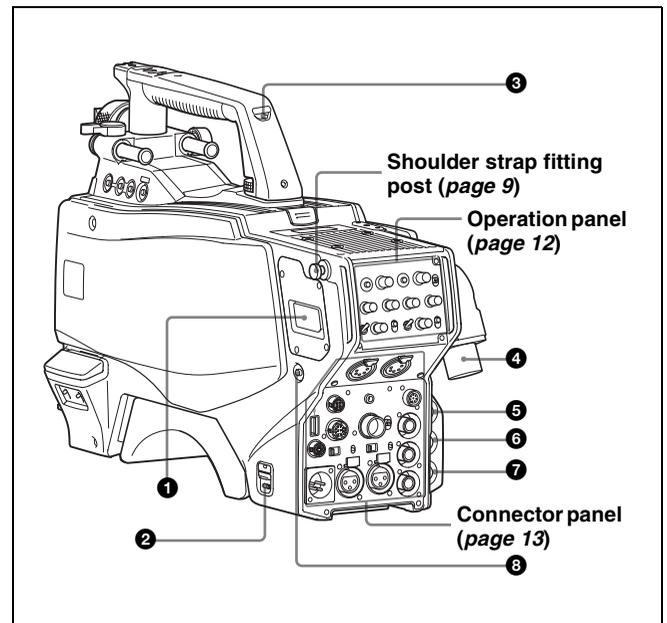
❶ DC power supply out connector (2-pin)
Supplies power to an external device up to 2.5 A.

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

❸ Tally lamp and switch
ON: The tally lamp lights when a tally signal is input to the connected camera control unit or a call signal is generated in response to pressing of a CALL button.
OFF: The tally lamp is prevented from lighting.

4 CCU (Camera Control Unit) connector (optical/ electrical multi-connector)
Connect a camera control unit using an optical electro-composite cable.

5 SDI 1 (serial digital interface 1) connector (BNC-type)
For 3G-SDI, HD-SDI or HD PROMPTER signal output.

6 SDI 2 (serial digital interface 2) connector (BNC-type)
For HD-SDI signal output or HD TRUNK signal input. During stand-alone operation, also used for inputting an HD-SDI return signal. When RET (return) is set to 2, this is displayed in the viewfinder.

7 PROMPTER2 connector (BNC-type)
For prompter 2 signal output
Available only when connecting a camera control unit with a prompter 2 input connecter.
During stand-alone operation, also used for inputting a VBS return signal. When RET (return) is set to 2, this is displayed in the viewfinder.

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

Operation panel
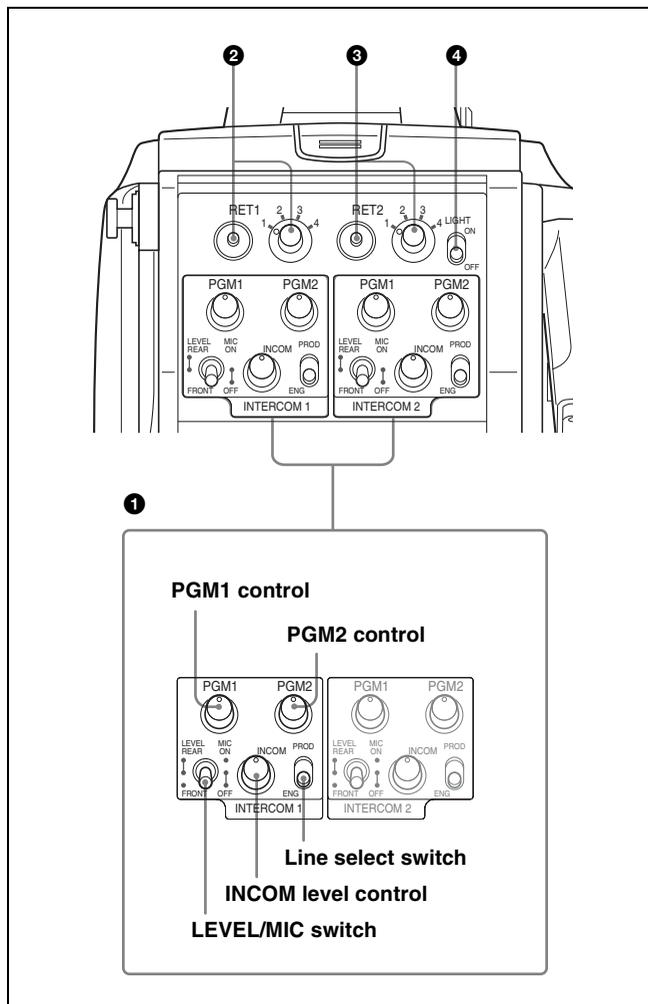
1 INTERCOM1 and INTERCOM2 controls and switches
There are PGM1 and 2 controls incorporated with a line select switch, a LEVEL/MIC switch, and INCOM level control each for intercom line 1 and 2.

PGM1 (program 1) control
Adjust the audio listening level of program 1.

PGM2 (program 2) control
Adjust the audio listening level of program 2.

LEVEL/MIC switch
REAR/ON: The intercom headset microphone is turned on. The intercom audio listening level is adjusted with the INCOM level control.
REAR/OFF: The intercom headset microphone is turned off. The intercom audio listening level is adjusted with the INCOM level control.
FRONT/OFF: The intercom headset microphone is turned off. The intercom audio listening level is adjusted with the INCOM level control and the INTERCOM LEVEL control on the front of the camera *(page 11)*.

INCOM level control
Adjust the intercom audio listening level.

Line select switch
Select the intercom line.
PROD: Producer line

ENG: Engineer line

❷ RET 1 (return video 1) button and select switch
Press the button to display the return video signal selected
with the switch on the viewfinder screen.

❸ RET 2 (return video 2) button and select switch
If you use an additional return video system in addition to
return video 1, press the button to display the return video
signal selected with the switch on the viewfinder screen.

Note

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

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

Connector panel
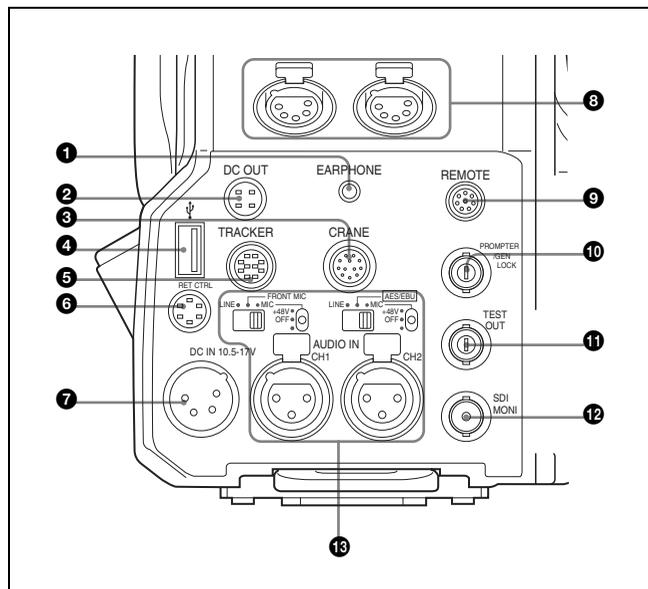
❶ EARPHONE jack (stereo minijack)
For connecting an earphone or headset to hear the intercom
audio.

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

❸ CRANE connector (12-pin)
For external interface, such as viewfinder.

❹ USB connector (for connecting a USB drive)
Connect a USB drive to save or load the settings data file.

For details, see "Using a USB drive" (page 55).

❺ TRACKER connector (10-pin)
For external interface, such as intercom and tally.

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

❼ DC IN (DC power supply input) connector (XLR 4-pin)
Used for connection to the AC-DN10 AC Adaptor to supply
power to the camera.

**❽ INTERCOM1 and 2 (intercom 1 and 2) connectors (XLR
5-pin)**
Used for input and output of intercom audio signals if an XLR
5-pin headset is connected.
The INTERCOM 1 connector can be used for communication
over the engineer line even when the power is off, as long as
the power LED is lit in red.

❾ REMOTE connector (8-pin)
For connection to an RCP-1000/1500-series Remote Control
Panel, or MSU-1000/1500 Master Setup Unit.

Note

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

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

Available when a camera control unit with a PROMPTER function is connected.

GENLOCK IN and RET IN functions are available only when a camera control unit with a PROMPTER function is not connected.

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

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

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

The signal supplied to this connector cannot be fed as RET OUT from the TEST OUT or SDI OUT connector. This is displayed in the viewfinder when RET (return) is set to 3. CHARACTER will not be overlapped for the displayed RET 3 signal.

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

⓫ TEST OUT connector (BNC-type)

To output the analog signal.

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

For details on the output signals, see "Setting the Camera Outputs" (page 24).

⓬ SDI-MONI (serial digital interface) connector (BNC-type)

For HD-SDI or SD-SDI signal output.

For details on the output signals, see "Setting the Camera Outputs" (page 24).

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

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

CH1 audio input select switch
Microphone power switches
CH2 audio input select switch
AUDIO IN CH1 connector   AUDIO IN CH2 connector

CH1 audio input select switch

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

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

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

MIC: When an external microphone is connected

CH2 audio input select switch

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

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

AES/EBU: When a digital audio signal is connected (The signal must be in synchronization with the camera output).

MIC: When an external microphone is connected

Microphone power switches

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

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

OFF: Not to supply a power

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

Note

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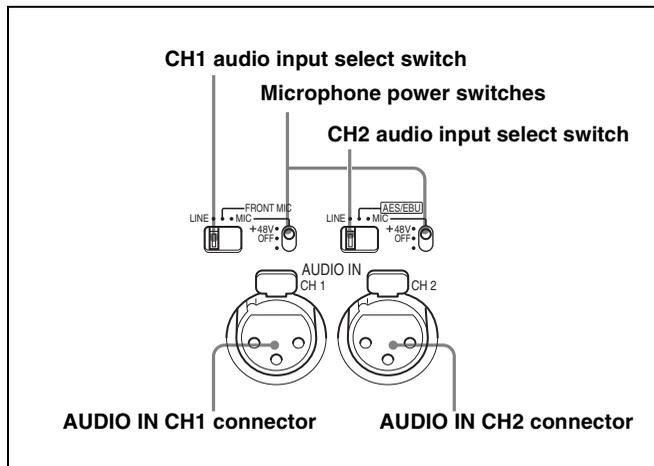
Preparations

Attaching a Lens

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

Attaching procedure

5 2 4 1,3
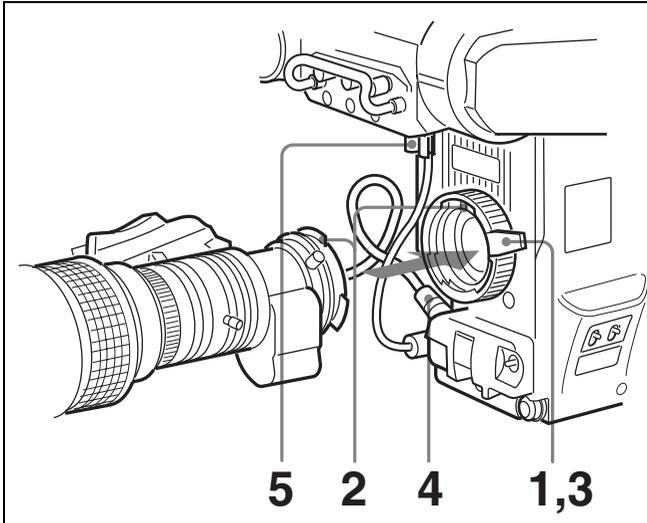
1 Push the lens fixing lever upwards and remove the lens mount cap from the lens mount.

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

3 While supporting the lens, push the lens fixing lever downwards to secure the lens.

4 Connect the lens cable to the LENS connector.

5 Secure the lens cable with the cable clamp.

Adjusting the Flange Focal Length

Adjustment of the flange focal length (the distance between the lens mount attachment plane and the imaging plane) is necessary in the following situations:
- The first time a lens is attached
- When changing lenses
- If the focus is not sharp at both telephoto and wide angle when zooming

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

See "Displaying the focus assist indicators" on page 23 for the focus assist indicators.

Note

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

Adjusting procedure

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

2 Place a flange focal length adjustment chart approximately 3 meters from the camera and adjust the lighting to get an appropriate video output level.

3 Loosen the Ff (flange focal length) ring lock screw.

4 With either manual or power zoom, set the zoom ring to telephoto.

5 Aim at the flange focal length adjustment chart and turn the focus ring to focus the image.

About 3 meters (10 ft)
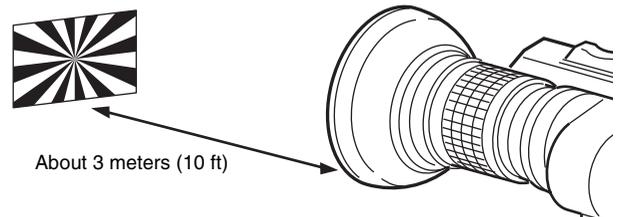
6 Set the zoom ring to wide angle.

7 Turn the Ff ring to bring the chart into focus. Take care not to move the distance ring.

8 Repeat steps 4 through 7 until the image is in focus at both telephoto and wide angle.

9 Tighten the Ff ring lock screw.

Attaching a Viewfinder

Caution

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

Attaching a viewfinder

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

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

VF connector

Viewfinder stopper

SONY

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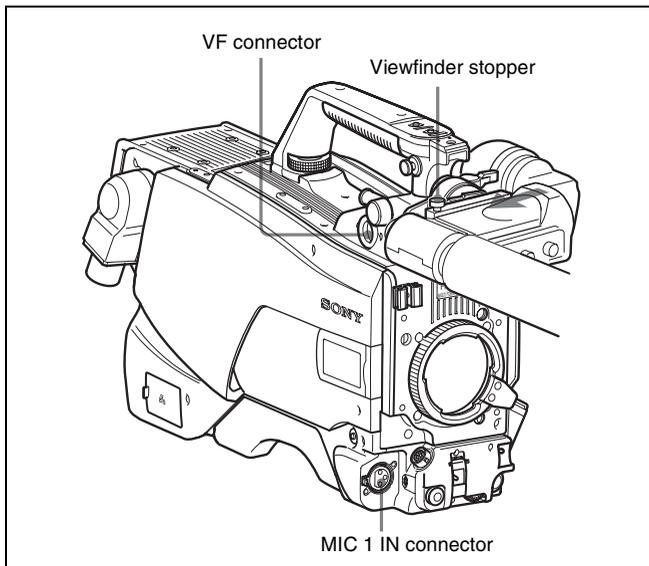
1 **Slide the viewfinder in the direction of the arrow.**
The viewfinder stopper automatically pops down.

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

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

4 **Connect the microphone cable to the MIC 1 IN connector of the camera.**

Adjusting the viewfinder position

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

To adjust the position to the left or right

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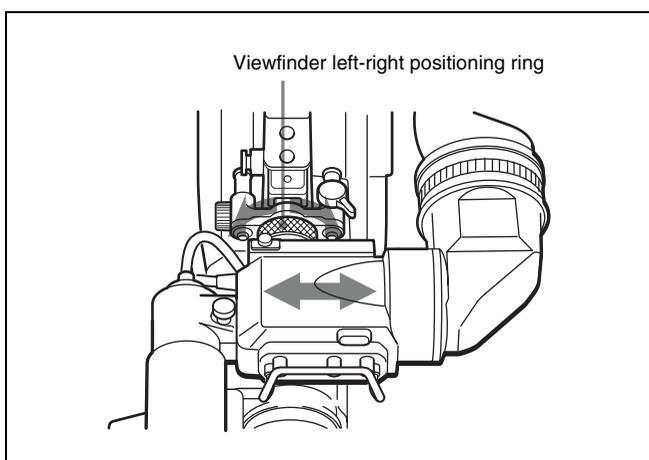
1 **Loosen the viewfinder left-right positioning ring.**

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

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

To adjust the position forward or backward

LOCK knob

Viewfinder front-rear positioning lever
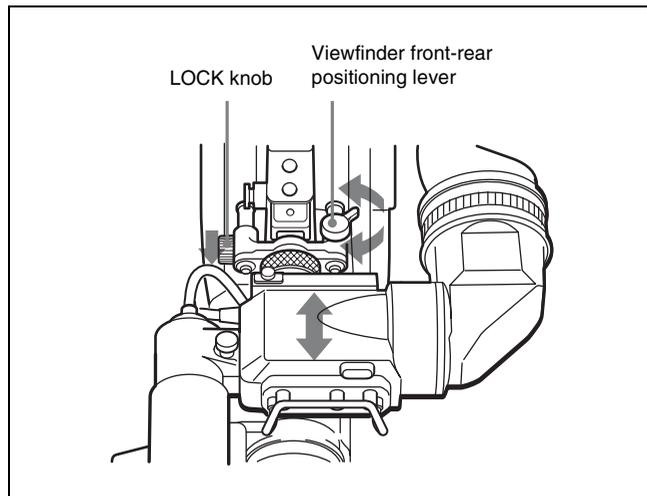
1 **Loosen the viewfinder front-rear positioning lever and LOCK knob.**

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

3 **Tighten the viewfinder front-rear positioning lever and LOCK knob.**

Detaching the viewfinder

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

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

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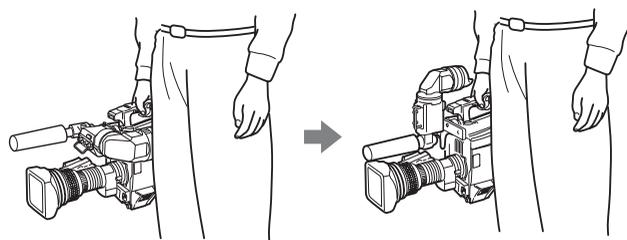
Note

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

Attaching procedure of the BKW-401

1 Turn the arm of the rotation mechanism assembly of the BKW-401 in the direction of the arrow in the following illustration.
Next, using a hexagonal wrench 3 mm across flats, remove the bolts (M4 × 8) together with the washers, to separate the rotation mechanism assembly from the viewfinder front-back positioning mechanism assembly.
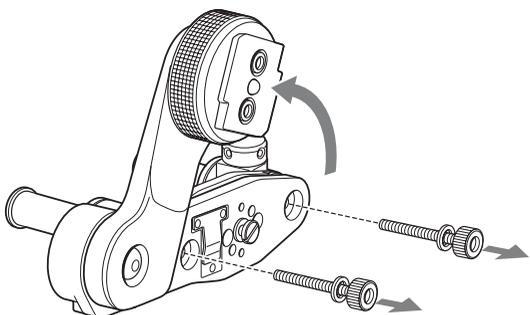
2 In the same manner as step 1, remove the viewfinder shoe of the camera from the front-rear positioning mechanism.
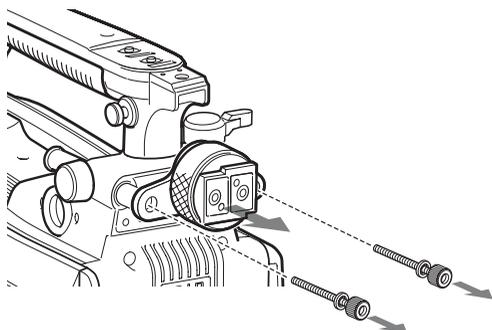
3 Using the two bolts (M4 × 8) and the washers removed from the camera in step 2, attach the rotation mechanism assembly of the BKW-401 to the camera.

Hexagon socket bolts (M4 × 8)
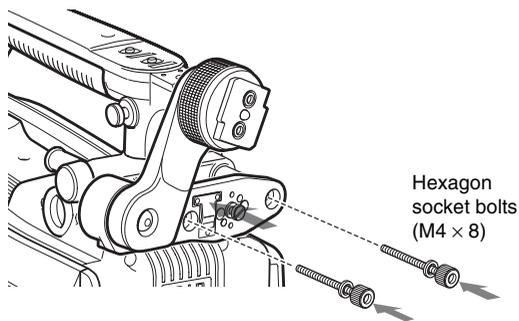
4 Adjust the front-rear position so that the camera handle does not interfere when you rotate the BKW-401 arm upwards.

Not to interfere
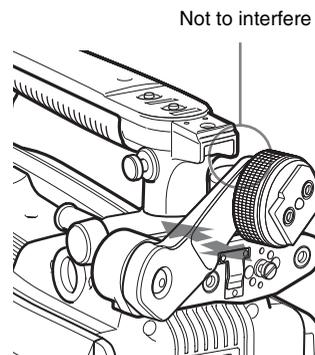
Attaching the Cable Clamp Belt (Supplied)

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

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

Belt bracket

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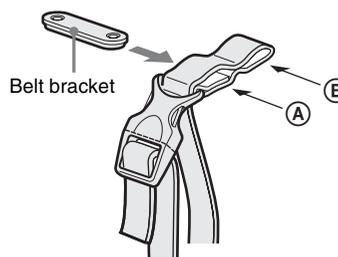
2 Remove two +B3×5 screws and a blind screw shown in the figure below from the camera.

Blind screw

+B3×5 screws
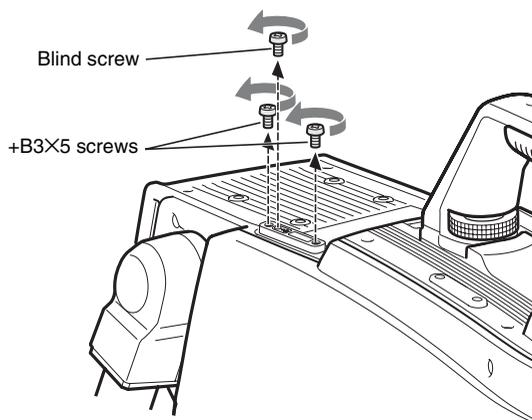
3 Secure the cable clamp belt to the camera, using the two supplied +B3×8 screws.

+B3×8 screws
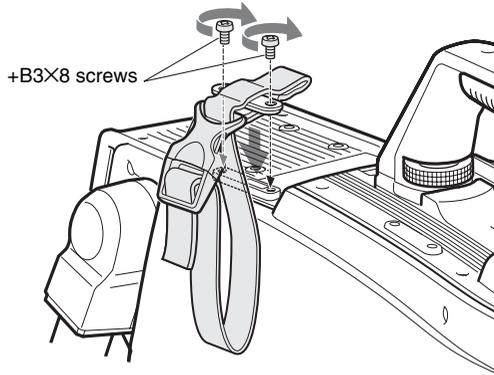
4 ① Release the buckle, ② bundle the cable with the belt, ③ then lock the buckle again.

①

③

②
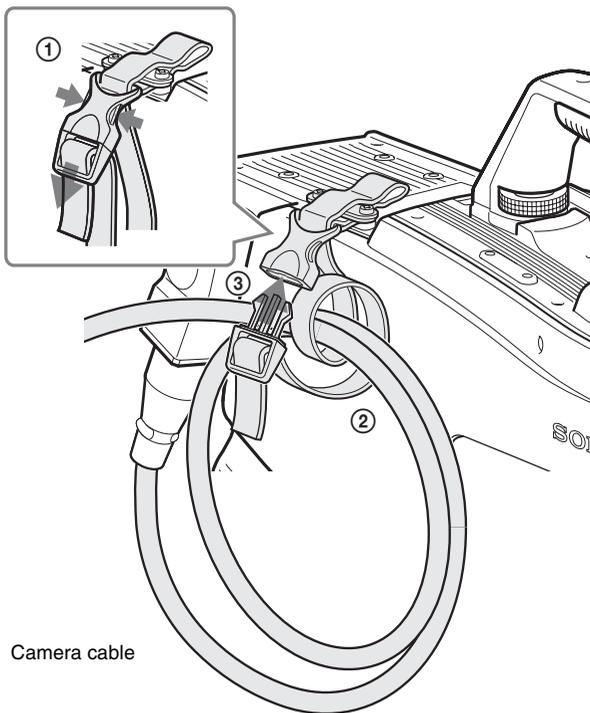
Camera cable

5 Adjust the length by pulling down the end of the belt.
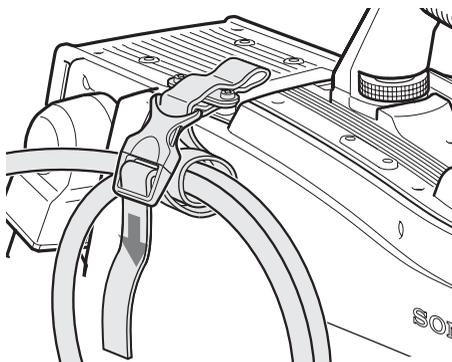
Adjusting the Shoulder Pad Position

You can shift the shoulder pad from its center position (factory setting) backward by up to 10 mm (3/8 inch) or forward by up to 25 mm (1 inch). This adjustment helps you get the best balance for shooting with the camera on your shoulder.

Adjusting procedure

Shoulder pad lock lever

1,3

Bottom of the camera   **2**   Shoulder pad
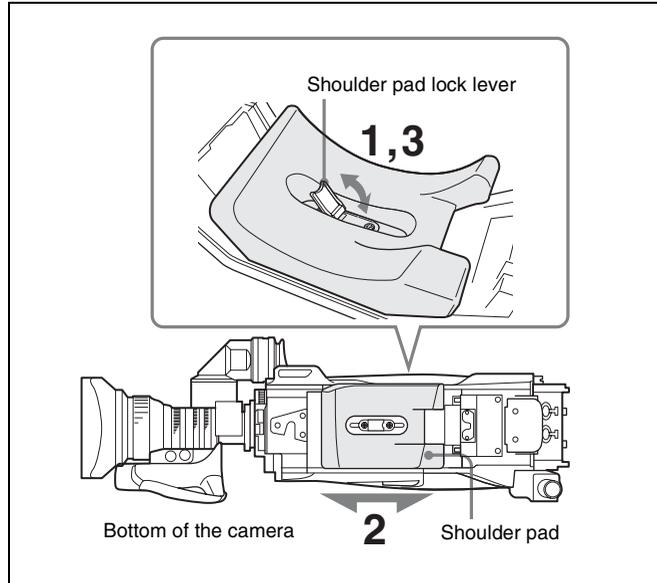
1 Raise the lever in the center of the shoulder pad to unlock the shoulder pad.

2 Slide the shoulder pad backward or forward until it is in the most convenient position.

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

Mounting the Camera to a Tripod

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

Caution

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

Mounting procedure

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

Tripod adaptor

Platform of the tripod
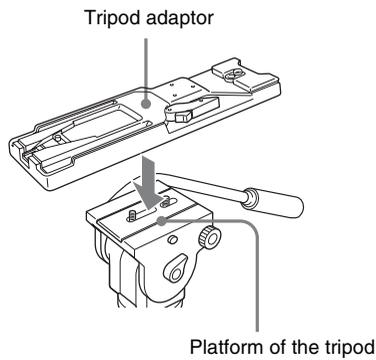
2 **Place the camera on the tripod adaptor, and slide forward it along the groove of the tripod adaptor until it clicks.**
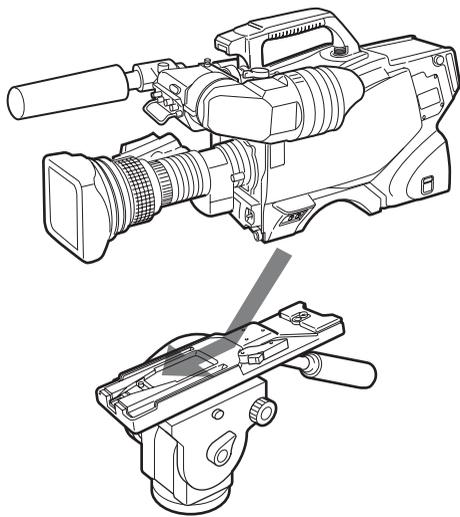
To remove the camera from the tripod adaptor

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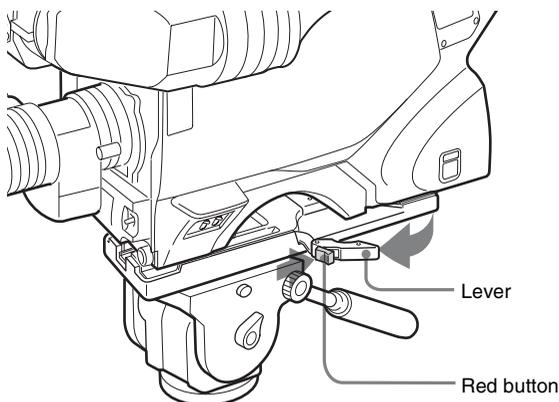
Lever

Red button

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

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

Original position

Pin
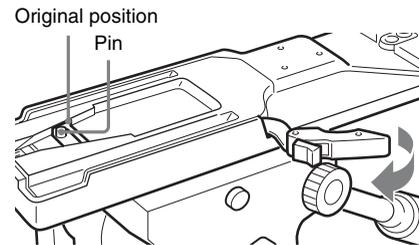
Adjustments and Settings for Shooting

Adjusting the Black Balance and White Balance

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

Note

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

Black balance adjustment

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

White balance adjustment

Always readjust the white balance when lighting conditions change.

About the viewfinder screen

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

Note

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

Adjusting the black balance

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

AUTO W/B BAL switch
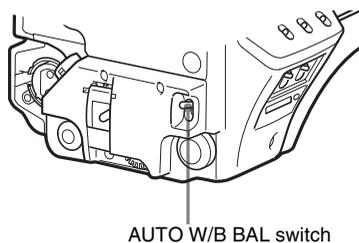
Automatic adjustment of black balance begins.
In automatic adjustment of black balance, both the black set and black balance are adjusted.

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

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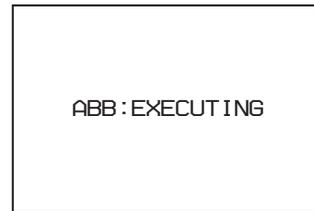
When the adjustment process is completed, the message "ABB: OK" will be displayed. The adjusted value is automatically stored in memory.

Notes

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

When automatic black balance adjustment fails

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

About black balance memory

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

Adjusting the white balance

1 Set the WHITE BAL switch to A or B.

WHITE BAL switch
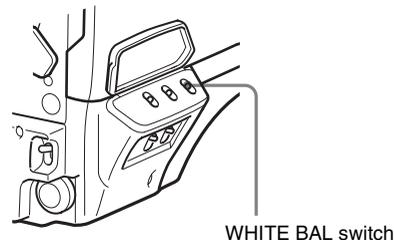
2 Select the filter setting according to the lighting conditions.

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

To select the CC filter
Press the CC filter select button while holding the FILTER LOCAL button depressed.
Each press of the select button switches the available CC filters (cross, 3200K, 4300K, 6300K, 8000K) in sequence.

CC filter select button

ND filter select button

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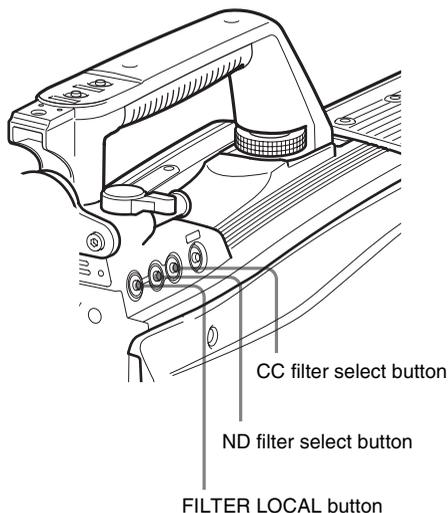
ND filter		Color temperature conversion filter	
1	clear	A	cross filter
2	1/4 ND	B	3200K (clear)
3	1/8 ND	C	4300K
4	1/16 ND	D	6300K
5	1/64 ND	E	8000K

3 **Place a white pattern in the same lighting conditions as the subject, and zoom in on it so that a white area is obtained in the screen to satisfy the positional and quantitative requirements illustrated below.**
A white object (white cloth, a white wall, etc.) near the subject may be used in place of a white pattern.

A rectangle centered in the screen. The length of the sides must be at least 70% of the height and width of the screen.
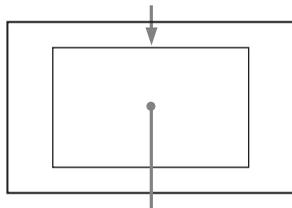
Within this rectangle, there must be an area of white greater than 10% of the entire screen.

Note

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

4 **Adjust the lens iris opening.**
With a manually adjusted lens: Set the opening to an appropriate value.
With a lens which has automatic iris control: Set the lens' automatic/manual iris control switch to automatic.

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

AUTO W/B BAL switch
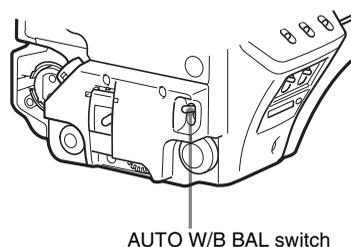
The switch will return to the center position, and adjustment will be performed.

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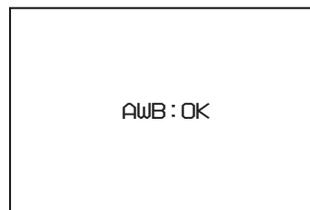
Note

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

[1] Hunting: The automatic iris responds over and over, and the image repeatedly darkens and lightens.

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

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

When there is no time to adjust the white balance

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

About white balance memory

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

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

Setting the Electronic Shutter

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

Note

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

About the shutter modes

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

Shutter modes and speeds

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

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

Note

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

Selecting the shutter mode and speed

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

Setting the shutter mode, and shutter speed in Standard mode

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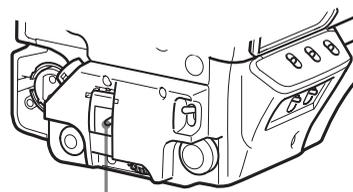
SHUTTER switch

The current shutter setting will be displayed in the setting change/adjustment progress message display area of the viewfinder screen for about three seconds.
Example: "Shutter: 1/250"

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

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

Example: with 59.94i

Standard mode

1/100 → 1/125 → 1/250 → 1/500 → 1/1000 → 1/2000

ECS mode
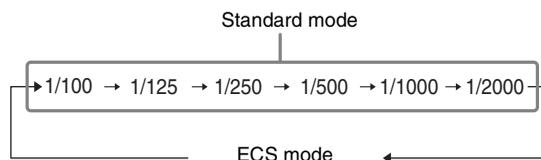
Setting the Focus Assist Functions

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

Adding the VF detail signal

Adding the VF detail signal to sharp edges in the image on the viewfinder screen makes it easier to check the focusing condition by observing changes in the detail signal or in the color converted from the detail signal (color detail).
The focus setting where the detail signal becomes strongest is the best focus setting.

1 Turn on the camera.

2 Set the DISPLAY switch to MENU while holding the MENU SEL knob/ENTER button pressed.

The camera enters Menu mode, and "TOP" is displayed at the upper right corner of the screen.

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

```
<TOP MENU>

➡USER
  USER MENU CUSTOMIZE
  ALL
  ·OPERATION
  ·PAINT
  ·MAINTENANCE
  ·FILE
  ·DIAGNOSIS
```
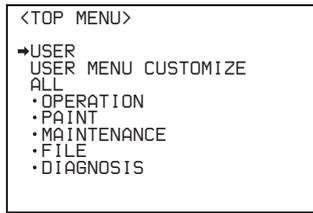
4 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to OPERATION and push on the MENU SEL knob/ENTER button.**
The CONTENTS page of the OPERATION menu is displayed.
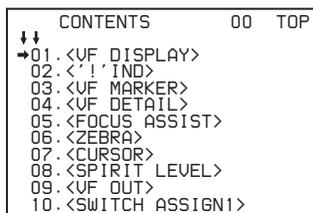
```
    CONTENTS      00  TOP
↓↓
➡01.<VF DISPLAY>
  02.<'!'IND>
  03.<VF MARKER>
  04.<VF DETAIL>
  05.<FOCUS ASSIST>
  06.<ZEBRA>
  07.<CURSOR>
  08.<SPIRIT LEVEL>
  09.<VF OUT>
  10.<SWITCH ASSIGN1>
```

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

```
<VF DETAIL>      ➡ 04 TOP

VF DETAIL :  ON    (25%)
  CRISP    :   0
  FREQUENCY:  9M
  FLICKER  :  OFF
  AREA     :  70%
  ZOOM LINK:  OFF  100%
COLOR DETAIL :  ON  BLUE
  PEAK COLOR :  ON
  CHROMA LEVEL: 100%
```
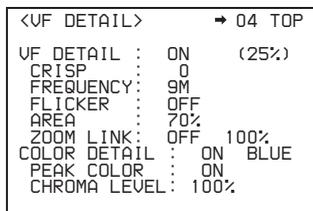
6 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and push on the MENU SEL knob/ENTER button.**

To use the VF detail signal
Set VF DETAIL to ON to activate the VF detail function to add the detail signal to sharp edges in the image. You can adjust the signal level (strength) in the range of 0 to 100% (default 25%).
You can adjust the characteristics of the detail signal with the menu items below.
CRISP: Adjust to eliminate fine portions of the detail signal.
FREQUENCY: Change the detection band of sharp edges.
FLICKER: Turn ON/OFF the function to flicker the detail signal, which makes it easier to check the signal on a CRT screen.
AREA: To limit the area where to display the detail signal.
ZOOM LINK: Set the VF detail level at the full WIDE position. (The VF detail level changes according to the zoom position.)

To use the color detail
Set COLOR DETAIL to ON to convert the VF detail signal to a specified color. This makes it easier to check the signal on an LCD screen, including the viewfinder screen. The display color can be selected at the column next to ON.
You can adjust the coloring with the menu items below.
PEAK COLOR: Turn ON/OFF the function to change the color where the detail signal is strongest.
CHROMA LEVEL: To reduce the chroma components of the video signal (only for video signals on the viewfinder).

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

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

Displaying the focus assist indicators

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

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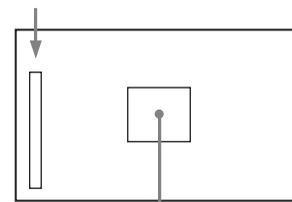
Area marker to display the detection area of the focus (its size and position can be adjusted.)

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

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

2 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to <FOCUS ASSIST>and push on the MENU SEL knob/ENTER button.**
The <FOCUS ASSIST> page is displayed.

```
<FOCUS ASSIST>    ➡ 05 TOP

INDICATOR  : OFF
MODE       : BOX   BOTTOM
LEVEL      : 3     QUICK
GAIN       : 50
OFFSET     : 50
AREA MARKER:  ON
  SIZE     : MIDDLE
  POSITION : CENTER
  POSITION H: 50
  POSITION V: 50
```
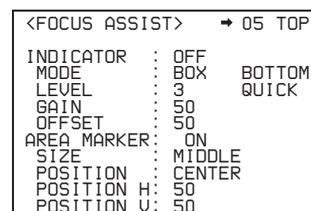
3 **Rotate the MENU SEL knob/ENTER button to align the arrow marker (➡) to the item to be set and push on the MENU SEL knob/ENTER button.**

To use the level indicator
Setting INDICATOR to ON displays the level indicator on the viewfinder.
You can set the display format with the menu items below.
MODE: Set the type and position of the indicator.
LEVEL: Set the density and the response speed of the indicator.
GAIN: Set the sensitivity of the indicator.[1]
OFFSET: Set the offset of the focus detection value.[2]

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

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

To use the area marker
Setting AREA MARKER to ON displays the detection area of the focus as a marker on the viewfinder screen.
You can set the size and position of the detection area with the menu items below.
SIZE: The size of the detection area can be changed. (If the area size is too large, both the subject and the background are included in the area, making the indicator display may easily deviate from the subject.)
POSITION: Roughly set the position of the detection area.
POSITION H: Finely adjust the position of the detection area in the horizontal directions.
POSITION V: Finely adjust the position of the detection area in the vertical directions.

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

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

Notes

- The level indicator and the effect area marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.
- The area marker and the aspect safety marker cannot be displayed simultaneously, whichever you set to ON later is preferentially displayed.
- When displaying the focus assist indicators, check that the flange focal length has been precisely adjusted.

See "Adjusting the Flange Focal Length" on page 15 for the flange focal length.

Setting the Camera Outputs

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

Note

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

The menu pages used for the output settings have been registered to the USER menu at the factory.
- <OUTPUT FORMAT>
- <TEST OUT>
- <SDI OUT>

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

For details on menu operations and the USER menu, see "Menu Operations" on page 27.

Outputting the signal being shot (camera picture)

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

To output as HD-SDI

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

To output as SD-SDI

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

To output as VBS

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

Constantly outputting a return video

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

To output as HD-SDI

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

To output as SD-SDI

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

To output as VBS

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

Outputting the same image as that on the viewfinder screen

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

Note

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

To output as HD-SDI

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

To output as SD-SDI

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

To output as VBS

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

Outputting via 3G-SDI

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

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

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

Outputting via Dual Link

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

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

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

Note

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

Viewfinder Screen Status Display

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

When the DISPLAY switch is set to ON

Items set to ON using the menu or related switches will be displayed on the upper and lower edges of the screen.
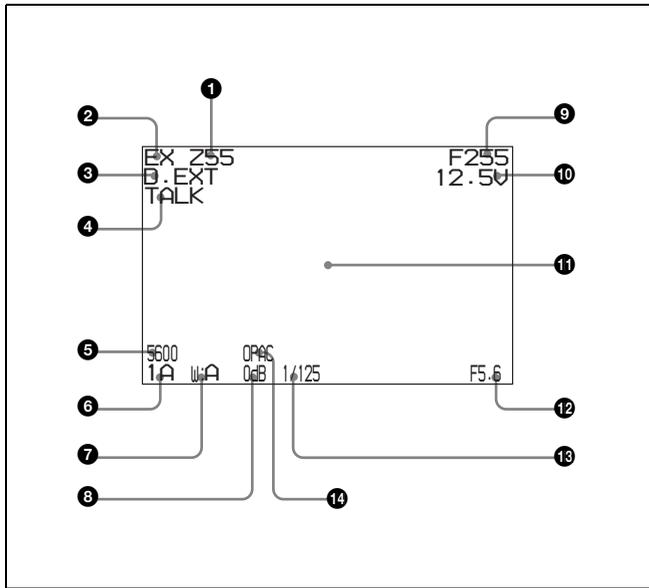
❶ Zoom position
Indicates the approximate position of the zoom lens variator between wide angle (0) and telephoto (99). Shows how close it is to the telephoto side.

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

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

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

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

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

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

W:P: The WHITE BAL switch is set to "PRST"

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

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

> **Note**
>
> Displayed only when a serial communication lens is connected.

❿ Battery voltage
Displays the input voltage.

⓫ Setting change / adjustment process message area
This area is only used when the MESSAG item of the menu is set to ON.

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

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

⓮ Optical axis compensation (OPAC) mode
Displays when optical axis compensation is set to ON.

When you press the CANCEL/STATUS switch toward STATUS

The status display is changed to show the following items:
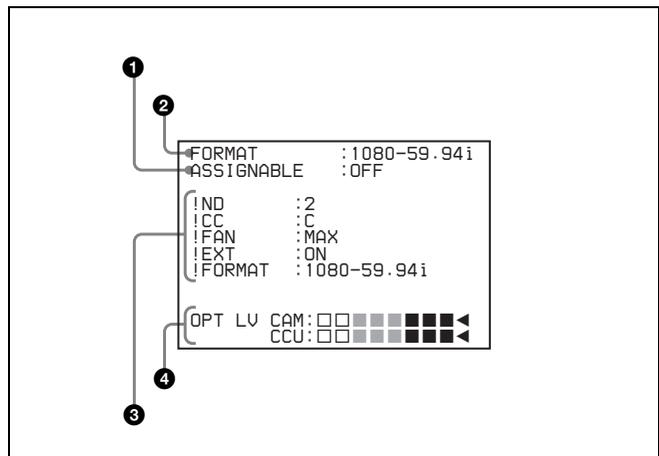
❶ Assignable switch indication
The function assigned to the assignable switch *(page 10)* is indicated.

For the functions that can be assigned, see OPERATION menu <SWITCH ASSIGN1> (page 41).

❷ Format indication
The current video format is displayed.

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

For details, see OPERATION menu <'!' IND> (page 39).

❹ Light-receiving level indications
This area shows the light-receiving levels in segments.
CAM: Light-receiving level at the CCU connector *(page 12)* of the camera
CCU: Light-receiving level at the CAMERA connector of the CCU

Note

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

Menu Operations

The menus displayed on the viewfinder screen enable various settings of the camera.
The following controls are used to operate the menus.

DISPLAY switch
Push on   CANCEL/STATUS switch
Rotate
MENU SEL knob/ENTER button
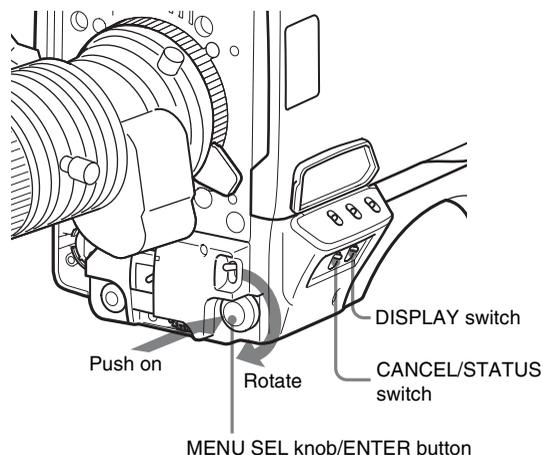
Starting Menu Operations

To display a menu page
Set the DISPLAY switch from OFF to MENU.
The menu page that last operated will be displayed. (If it is the first time, the CONTENTS page of the OPERATION menu will be displayed.)

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

TOP MENU screen

```
<TOP MENU>

➡USER
 USER MENU CUSTOMIZE
 ALL
 ·OPERATION
 ·PAINT
 ·MAINTENANCE
 ·FILE
 ·DIAGNOSIS
```
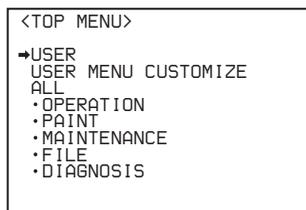
To disable the "TOP" indication
Turn the power once off then on again, or set the DISPLAY switch from OFF to MENU while holding the CANCEL/STATUS switch pressed toward CANCEL. This disables the TOP selection.

Available menus

USER menu

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

USER MENU CUSTOMIZE menu

This menu allows you to edit the USER menu.

For details on the USER menu, see "Editing the USER Menu" on page 30.

ALL menu

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

OPERATION menu

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

PAINT menu

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

MAINTENANCE menu

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

FILE menu

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

DIAGNOSIS menu

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

To select a menu on the TOP MENU screen

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

2 **Push on the MENU SEL knob/ENTER button.**
The CONTENTS page or the last operated page of the selected menu is displayed.

Selecting Pages

When selecting a page from a CONTENTS page

Example: CONTENTS page of the OPERATION menu

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

➜ marker

```
      CONTENTS      00  TOP
 ↓↓
   01.<VF DISPLAY>
   02.<'!'IND>
   03.<VF MARKER>
 ➜ 04.<VF DETAIL>
   05.<FOCUS ASSIST>
   06.<ZEBRA>
   07.<CURSOR>
   08.<SPIRIT LEVEL>
   09.<VF OUT>
   10.<SWITCH ASSIGN1>
```
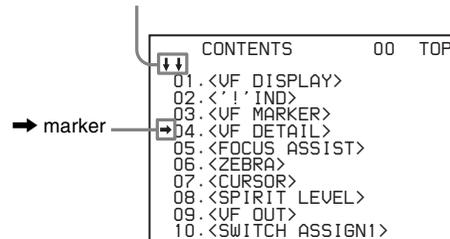
Rotate the MENU SEL knob/ENTER button to align the arrow marker (➜) with the desired page indication, then push on the MENU SEL knob/ENTER button.

The selected page is displayed.

Page number

```
<VF DETAIL>    ➜ 04 TOP

VF DETAIL :  ON     25%
 CRISP    :   0
 FREQUENCY:  9M
 FLICKER  :  OFF
 AREA     :  70%
 ZOOM LINK:  OFF   100%
COLOR DETAIL :  ON   BLUE
 PEAK COLOR  :  ON
 CHROMA LEVEL: 100%
```
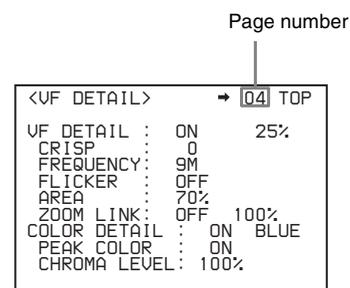
To change the displayed page

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

Flashes

```
<VF DETAIL>    ? 04 TOP

VF DETAIL :  ON     25%
 CRISP    :   0
 FREQUENCY:  9M
 FLICKER  :  OFF
 AREA     :  70%
 ZOOM LINK:  OFF   100%
COLOR DETAIL :  ON   BLUE
 PEAK COLOR  :  ON
 CHROMA LEVEL: 100%
```
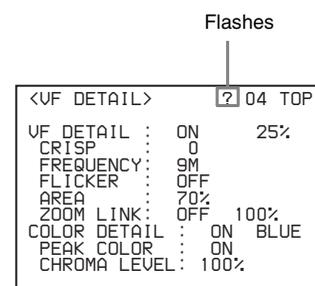
2 Rotate the MENU SEL knob/ENTER button to flip through the pages.

3 When the desired page is displayed, push on the MENU SEL knob/ENTER button.
The "**?**" mark will change back to the arrow marker (➡), and operations with the displayed page are enabled.

To return to the TOP MENU screen
Align the arrow marker (➡) with "TOP" at the top right of the menu page then press the MENU SEL knob/ENTER button.

```
<VF DETAIL>        04➡TOP

VF DETAIL :  ON    25%
 CRISP     :   0
 FREQUENCY:   9M
 FLICKER   :  OFF
 AREA      :  70%
 ZOOM LINK:  OFF   100%
COLOR DETAIL :  ON   BLUE
 PEAK COLOR  :  ON
 CHROMA LEVEL: 100%
```

The TOP MENU screen is resumed.

Setting the Menu Items

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

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

2 Push on the MENU SEL knob/ENTER button.
The arrow marker (➡) will change to a flashing "**?**" mark.

3 Rotate the MENU SEL knob/ENTER button to change the setting value.
When the knob is rotated quickly, the values will change quickly; when rotated slowly, the values will change slowly.

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

To interrupt settings
Set the DISPLAY switch to OFF to turn off the menu screen display.
The setting operation can be restarted by setting the DISPLAY switch back to MENU.

4 Push on the MENU SEL knob/ENTER button.
The "**?**" mark will change back to the arrow marker (➡), and the new setting will be registered.

5 To change other setting items on the same menu page, repeat steps 1 through 4.

To specify a character string

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

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

**1** Set the cursor to the position where you wish enter a character, then push on the MENU SEL knob/ENTER button.
Another cursor appears on the character list.

2 Set the cursor to the character to be entered and push on the MENU SEL knob/ENTER button.
Repeat steps **1** and **2**.

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

Selecting DEL deletes the character at the cursor position.

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

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

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

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

To return a menu item to its standard value

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

To end menu operations

Set the DISPLAY switch to OFF.

Editing the USER Menu

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

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

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

For the items on each page, see the corresponding source menu page in the table in "Menu List" on page 34.

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

Editing by items

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

To add items to a page

Proceed as follows.

1 **While holding the CANCEL/STATUS switch pressed toward STATUS, move the DISPLAY switch from the OFF position to the MENU position.**
The TOP MENU screen appears.

2 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "USER MENU CUSTOMIZE" then push on the MENU SEL knob/ENTER button.**
If this is the first time the USER MENU CUSTOMIZE menu has been displayed, the CONTENTS page of the menu appears.

```
      CONTENTS     E00 TOP
↓↓
 01.EDIT PAGE
 02.USER 1 EDIT
→03.USER 2 EDIT
 04.USER 3 EDIT
 05.USER 4 EDIT
 06.USER 5 EDIT
 07.USER 6 EDIT
 08.USER 7 EDIT
 09.USER 8 EDIT
 10.USER 9 EDIT
```

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

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

```
      USER 2 EDIT  E03 TOP

→


```

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

```
     EDIT FUNCTION    ESC
  →INSERT
   MOVE
   DELETE
   BLANK
```
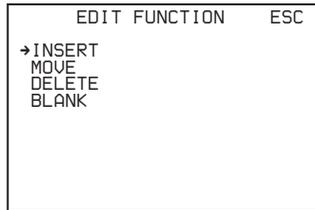
5 **Move the arrow marker (➡) to "INSERT" and push on the MENU SEL knob/ENTER button.**
The page with the last item added appears.

```
  <SW STATUS>      P01 ESC
  FLARE    :→ ON
  GAMMA    :  ON
  BLK GAM  : OFF
  KNEE     :  ON
  WHT CLIP:   ON
  DETAIL   :  ON
  LVL DEP  :  ON
  SKIN DTL: OFF
  MATRIX   : OFF
```
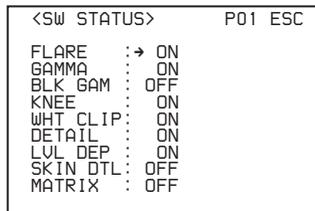
6 **Add the items.**

① Turn the MENU SEL knob/ENTER button until the page that has the desired items appears then push on the MENU SEL knob/ENTER button.

② Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the desired item then push on the MENU SEL knob/ENTER button.

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

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

To delete items from a page
Proceed as follows:

1 **Move the arrow marker (➡) to the item to be deleted, and push on the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

2 **Select "DELETE," and push on the MENU SEL knob/ENTER button.**
The previously displayed page appears again, and the message "DELETE OK? YES➡NO" appears at the upper right.

3 **To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "YES," and push on the MENU SEL knob/ENTER button.**

To change the order of items on a page
Proceed as follows:

1 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item to be moved then push on the MENU SEL knob/ENTER button.**
The EDIT FUNCTION screen appears.

2 **Select MOVE then push on the MENU SEL knob/ENTER button.**
The previously displayed page appears again.

3 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the position where you wish to move the item then push on the MENU SEL knob/ENTER button.**

```
     ITEM MOVE       ESC
  ↓↓
  →VF OUT      : COLOR

   VF DETAIL   : OFF

   MARKER      :  ON
   CURSOR      : OFF
   ZEBRA SW    : OFF
               :   1
  ●ASSIGNABLE  : OFF
```
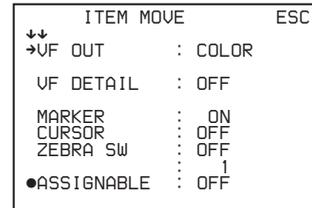
The item selected in step **1** moves to the position that you selected in step **3**.
In the above example, "ASSIGNABLE" is moved to the top and the other items are moved down one line.

To insert a blank line
Proceed as follows:

1 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to the item above which you wish to insert a blank line.**
The EDIT FUNCTION screen appears.

2 **Select "BLANK" then push on the MENU SEL knob/ENTER button.**
The previously displayed page appears again, and a blank line is inserted above the specified item.

Note

You cannot insert a blank line on a page where 10 items have already been registered.

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

To add a page

Proceed as follows:

1 **Select "USER MENU CUSTOMIZE" on the TOP MENU screen.**

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

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

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

3 **Turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to where you wish to add the page, then push on the MENU SEL knob/ENTER button.**

The EDIT FUNCTION screen appears.

```
        EDIT FUNCTION    ESC

→INSERT
 MOVE
 DELETE
```

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

The selection screen appears.

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

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

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

To cancel addition of a page

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

To delete a page

Proceed as follows:

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

The EDIT FUNCTION screen appears.

2 **Select "DELETE" then push on the MENU SEL knob/ENTER button.**

The previously displayed page appears again, and the message "DELETE OK? YES➡NO" appears at the upper right.

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

3 **To delete, turn the MENU SEL knob/ENTER button to move the arrow marker (➡) to "YES," then push on the MENU SEL knob/ENTER button.**

To move a page

Proceed as follows:

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

The EDIT FUNCTION screen appears.

2 **Select "MOVE" then push on the MENU SEL knob/ENTER button.**

The EDIT PAGE screen appears again.

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

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

4 **Push on the MENU SEL knob/ENTER button.**
The page selected in step **1** is moved to the position
selected in step **3**.
In the above example, <ZEBRA> moves to the "04"
position, and the <VF DISPLAY> and following pages
move down one line.

Menu List

This section shows the menus to be displayed on the viewfinder screen in tables.
- For the pages that have been registered in the USER menu at the factory, the USER menu page numbers are indicated in parenthesis in the No. column of the tables.
- A CONTENTS page (numbered 00) is also provided for each menu.

Notes

HDLA: HDLA1500-series Large Lens Adaptor
CCU: HDCU2000/2500 Camera Control Unit
Bold values (e.g. ON, OFF, 0): Default settings
**Execute via ENTER:** Execute by pushing on the MENU SEL knob/ENTER button.

Menu Tree

OPERATION menu

```
VF DISPLAY ──────────── EX
01 (U04)                ZOOM
                            └──── DISP
                        FOCUS
                        ND
                        CC
                        5600K
                        IRIS
                        WHITE
                        D.EXT
                        OPAC
                        GAIN
                        SHUTTER
                        BATT
                        RETURN
                        TALK
                        MESSAGE
' ! 'IND ─────────────── ND
02 (U05)                CC
                        WHITE
                        5600K
                        GAIN
                        SHUTTER
                        FAN
                        EXT
                        FORMAT
                        Y TALLY
VF MARKER ───────────── MARKER
03 (U06)                LEVEL
                        CENTER
                        SAFETY ZONE
                        EFFECT
                        ASPECT
                            ───── MASK
                            └──── SAFETY
VF DETAIL ───────────── VF DETAIL
04 (U02)                    ───── CRISP
                            ───── FREQUENCY
                            ───── FLICKER
                            ───── AREA
                            └──── ZOOM LINK
                        COLOR DETAIL
                            ───── PEAK COLOR
                            └──── CHROMA LEVEL
                        RETURN DISABLE
```

```
FOCUS ASSIST ───────── INDICATOR
05 (U03)                    ───── MODE
                            ───── LEVEL
                            ───── GAIN
                            └──── OFFSET
                        AREA MARKER
                            ───── SIZE
                            ───── POSITION
                            ───── POSITION H
                            └──── POSITION V
ZEBRA ──────────────── ZEBRA
06 (U08)                ZEBRA1 LEVEL
                            └──── WIDTH
                        ZEBRA2
CURSOR ─────────────── CURSOR
07 (U07)                    ───── LEVEL
                            ───── BOX/CROSS
                            ───── H POSITION
                            ───── V POSITION
                            ───── WIDTH
                            └──── HEIGHT
                        BOX MEMORY
                            ───── H POSI
                            ───── V POSI
                            ───── WIDTH
                            └──── HEIGHT
SPIRIT LEVEL ───────── INDICATOR
08                          └─ V POSITION
                        ANGLE
                            └─OFFSET
                                ┌─ SET ZERO ANGLE
                                └─ CLEAR
VF OUT ─────────────── VF OUT
09 (U01)                RET MIX VF
                        MIX DIRECTION
                        MIX VF MODE
                        MIX VF LEVEL
                        CHARACTER LEVEL
SWITCH ASSIGN1 ─────── GAIN
10 (U09)                ASSIGNABLE
```

SWITCH ASSIGN2 ─── LENS VTR S/S
11 (U10) ─── FRONT RET1
─── FRONT RET2
─── HANDLE SW1
─── HANDLE SW2
　　└─── ZOOM SPEED
─── HKCT INCOM MIC

RETURN ─── RET1 SW SEL
12 ─── RET2 SW SEL
─── RET3 SW SEL
─── RET1 SW + RET2 SW

HEADSET MIC ─── INTERCOM1
13 (U11) ─── LEVEL
─── POWER
─── UNBAL
─── INTERCOM2
─── LEVEL
─── POWER
─── UNBAL

INTERCOM1 ─── INTERCOM1 RECEIVE SELECT
14 ─── INTERCOM
─── PGM1
─── PGM2
─── TRACKER
─── SIDE TONE

INTERCOM2 ─── INTERCOM2 RECEIVE SELECT
15 ─── INTERCOM
─── PGM1
─── PGM2
─── TRACKER
─── SIDE TONE

TRACKER ─── TRACKER RECEIVE SELECT
16 ─── INTERCOM
─── PGM1
─── PGM2
─── INPUT LEVEL
─── OUTPUT LEVEL L-CH
─── OUTPUT LEVEL R-CH

EARPHONE ─── EARPHONE RECEIVE SELECT
17 ─── INTERCOM
─── PGM1
─── PGM2
─── TRACKER

OPERATOR FILE ─── READ (USB → CAM)
18 ─── WRITE (CAM → USB)
─── PRESET
─── FILE ID
─── CAM CODE
─── DATE

PAINT menu

SW STATUS ─── FLARE
P01 ─── GAMMA
─── BLK GAM
─── KNEE
─── WHT CLIP
─── DETAIL
─── LVL DEP
─── SKIN DTL
─── MATRIX

VIDEO LEVEL ─── WHITE
P02 ─── BLACK
─── FLARE
─── GAMMA
─── V MOD
─── FLARE
─── V MOD
─── D. SHAD
─── TEST

COLOR TEMP ─── WHITE
P03 ─── AUTO WHITE
　　　　 BALANCE
─── COLOR TEMP
─── BALANCE
─── MASTER

GAMMA ─── LEVEL
P04 ─── COARSE
─── TABLE
─── GAMMA
─── TEST

BLACK GAMMA ─── LEVEL
P05 ─── RANGE
─── TEST

SATURATION ─── SATURATION
P06 ─── LOW KEY SAT
─── RANGE
─── TEST

KNEE ─── K POINT
P07 ─── K SLOPE
─── KNEE
─── KNEE MAX
─── KNEE SAT
─── AUTO KNEE
─── POINT LIMIT
　　 └─── SLOPE
─── ABS

WHITE CLIP ─── W CLIP
P08 ─── ABS

DETAIL 1 ─── DETAIL
P09 ─── LEVEL
─── LIMITER M
─── LIMITER WHT
─── LIMITER BLK
─── CRISP
─── LEVEL DEPEND
─── ABS

Menu tree — left column:

- DETAIL 2 (P10)
  - H/V RATIO
  - FREQ
  - MIX RATIO
  - KNEE APT
  - DTL H/V MODE
  - ABS
- SKIN DETAIL (P11)
  - SKIN DTL
  - SKIN GATE
  - ABS
  - NATURAL SKINDTL
  - ZOOM LINK
    - TELE
    - WIDE
  - CH SW
  - HUE
  - PHASE
  - WIDTH
  - SAT
  - LEVEL
- USER MATRIX (P12)
  - R-G
  - R-B
  - G-R
  - G-B
  - B-R
  - B-G
  - MATRIX
    - PRESET
    - USER
    - MULTI
  - ADAPTIVE MATRIX
- MULTI MATRIX (P13)
  - PHASE
  - HUE
  - SAT
    - ALL CLEAR
  - GATE
  - MATRIX
    - PRESET
    - USER
    - MULTI
- SHUTTER (P14)
  - SHUTTER
  - ECS FREQ
- NOISE SUPPRESSION (P15)
  - SUPPRESSION
- FLICKER REDUCTION (P16)
  - REDUCTION
  - POWER LINE FREQUENCY
- SCENE FILE (P17)
  - 1
  - 2
  - 3
  - 4
  - 5
  - STORE
  - STANDARD
  - READ (USB → CAM)
  - WRITE (CAM → USB)
  - FILE ID
  - CAM CODE
  - DATE

MAINTENANCE menu

- AUTO SETUP (M01)
  - AUTO BLACK
  - AUTO WHITE
  - AUTO LEVEL
  - AUTO WHITE SHADING
  - AUTO BLACK SHADING
  - TEST
- WHITE SHADING (M02)
  - V SAW
  - V PARA
  - H SAW
  - H PARA
  - WHITE
  - AUTO WHITE SHADING
  - WHITE SHAD MODE
- BLACK SHADING (M03)
  - V SAW
  - V PARA
  - H SAW
  - H PARA
  - BLK SET
  - BLACK
  - MASTER GAIN
  - AUTO BLACK SHADING
  - 2D BLACK SHADING
- OHB MATRIX (M04)
  - PHASE
  - HUE
  - SAT
    - ALL CLEAR
  - OHB MATRIX
  - MATRIX
- AUTO IRIS (M05)
  - AUTO IRIS
  - WINDOW
  - OVERRIDE
  - IRIS LEVEL
  - APL RATIO
  - IRIS GAIN
  - IRIS CLOSE
- LENS (M06)
  - F NO. DISP
  - ALAC
  - OPAC
    - H SHIFT
    - V SHIFT
    - MARKER
      - CENTER
        - H POS
        - V POS
- MIC GAIN (M07)
  - MIC1
  - MIC2
- CALL/TALLY (M08)
  - CCU CALL
  - CAM CALL
  - UP TALLY BRIGHTNESS
    - TALLY
    - NUMBER
  - CAMERA NUMBER
  - NUMBER DISPLAY
- OUTPUT FORMAT (M09 (U12))
  - CURRENT

TEST OUT ——— OUTPUT
M10 (U13) ——— VBS-OUT
                ——— CHARACTER
                ——— GAIN
                ——— CHROMA
                ——— SETUP
            ——— SYNC-OUT
                ——— V-PHASE
                ——— H-PHASE
            ——— DOWN CONVERTER
                ——— SELECT
                ——— ASPECT

SDI OUT ——— SDI1-OUT
M11 (U14) ——— SDI2-OUT/IN
            ——— SDI-MONI OUT
            ——— CHARACTER
            ——— EMB AUDIO
            ——— DOWN CONVERTER
                ——— SELECT
                ——— ASPECT
            ——— COAX MODE

TRUNK ——— TRUNK
M12   ——— INTERFACE
        ——— AUX REMOTE
        ——— NETWORK TRUNK
            ——— LINK

GENLOCK ——— REFERENCE
M13   ——— GENLOCK
            ——— STATUS
            ——— FORMAT
         ——— PHASE
            ——— V
            ——— HD H
            ——— SD H

DATE ——— DATE/TIME
M14   ——— DATE TYPE

BATTERY ALARM ——— BEFORE END
M15   ——— END

OTHERS 1 ——— FAN MODE
M16   ——— CAM BARS
          ——— WHITE SETUP MODE
          ——— FILTER WHT MEM

OPTION KEY ——— READ (USB → CAM)
M17   ——— INSTALLED OPTION

FILE menu

OPERATOR FILE ——— READ (USB → CAM)
F01   ——— WRITE (CAM → USB)
               ——— PRESET
               ——— STORE PRESET FILE
               ——— FILE ID
               ——— CAM CODE
               ——— DATE

SCENE FILE ——— 1
F02   ——— 2
            ——— 3
            ——— 4
            ——— 5
            ——— STORE
            ——— STANDARD
            ——— READ (USB → CAM)
            ——— WRITE (CAM → USB)
            ——— FILE ID
            ——— CAM CODE
            ——— DATE

REFERENCE ——— STORE FILE
F03   ——— STANDARD
                ——— ALL PRESET
            ——— READ (USB → CAM)
            ——— WRITE (CAM → USB)
            ——— FILE ID
            ——— CAM CODE
            ——— DATE

USER GAMMA ——— READ (USB → CAM)
F04   ——— PRESET
            ——— FILE ID
            ——— CAM CODE
            ——— DATE

LENS FILE ——— STORE FILE
F05   ——— NO.
            ——— NAME
            ——— F NO
            ——— CENTER MARKER
                ——— H POS
                ——— V POS
                ——— STORE

OHB FILE ——— STORE FILE
F06

FILE CLEAR ——— PRESET OPERATOR
F07   ——— REFERENCE (ALL)
                ——— 10 SEC CLEAR
            ——— OHB WHITE SHAD (ALL)
            ——— OHB BLACK SHAD
            ——— OHB ND OFFSET
            ——— OHB MATRIX

DIAGNOSIS menu

```
┌─ OPTICAL LEVEL ──────── CCU → CAM
│  D01                    CAM → CCU
├─ BOARD STATUS ──────── OHB
│  D02                    DPR
│                         SY
│                         PS
│                         SDI
├─ ROM VERSION ────────── CAMERA APP
│  D03 (U15)              O.S
│                         PANEL
│                         HKCT
│                         TG
│                         SY
│                         DPR1
│                         DPR2
│                         SDI
└─ SERIAL No. ─────────── MODEL
   D04                    NO.
                          OPTION
```

OPERATION Menu

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

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<' ! 'IND> 02 (U05)	ND	**ON**, OFF	[IND]: Sets whether to be included in the status indications on the viewfinder screen *(see page 26)*.
		1, 2, 3, 4, 5 (combination allowed)	[NORMAL]: Specifies the conditions under which the '!' indication is not to be displayed even if [IND] is ON. (By specifying the standard or normal conditions here, non-standard or abnormal conditions can be found with the '!' indication on the viewfinder screen.)
	CC	**ON**, OFF	
		A, **B**, C, D, E (combination allowed)	
	WHITE	**ON**, OFF, ---	
		P, **A**, **B** (combination allowed)	e.g.: With the default setting of ND, the '!' indication is displayed when an ND filter other than 1 is selected.
	5600K	**ON**, OFF, ---	
		ON, **OFF**	
	GAIN	**ON**, OFF, ---	--- : When a CCU is connected (cannot be changed)
		L, M, H (combination allowed)	
	SHUTTER	**ON**, OFF, ---	
		ON, **OFF**	
	FAN	**ON**, OFF	
		AUTO1, AUTO2, MIN, MAX	
	EXT	**ON**, OFF	
	FORMAT	**ON**, OFF	
		1080-59.94i, 720-59.94P, 1080-50i, 720-50P	
	Y TALLY	**ON**, OFF	
<VF MARKER> 03 (U06)	MARKER	**ON**, OFF	Sets MARKER to ON/OFF.
		WHITE, BLACK, DOT	
	LEVEL	0 to 100, **70**	
	CENTER	ON, **OFF**	
		1, 2, 3, 4	**1**: Entire cross **2**: Entire cross with a hole **3**: Center **4**: Center with a hole
	SAFETY ZONE	ON, **OFF**	
		80.0, **90.0**, 92.5, 95.0%	
	EFFECT	ON, **OFF**, (FOCUS)	**(FOCUS)**: Displayed when INDICATOR of <FOCUS ASSIST> is ON.
	ASPECT	ON, **OFF**	
		16:9, 15:9, 14:9, 13:9, **4:3**, (4.3)	**(4.3)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)
	MASK	ON, **OFF**, (ON)	**(ON)**: If VF SCAN is set to 4:3 when HDLA is attached (cannot be changed)
		0 to 15, **12**	Sets the level to darken outside the aspect area.
	SAFETY	ON, **OFF**, (AREA)	For the safety marker in Aspect mode.
		80.0, **90.0**, 92.5, 95.0%	**(AREA)**: Displayed when AREA MARKER of <FOCUS ASSIST> is ON.

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<VF DETAIL> 04 (U02)	VF DETAIL	**ON**, OFF, (ON), (OFF)	Settings in ( ): When HDLA is attached (cannot be changed)
		0 to 100%, (0 to 100%), **25%**	
	CRISP	−99 to +99, **0**	
	FREQUENCY	**9M**, 14M, 18M	
	FLICKER	ON, **OFF**	
	AREA	**100%**, 70%, 60%, 50%, 40%	
	ZOOM LINK	**ON**, OFF	
		0%, 25%, 50%, 75%, **100%**	
	COLOR DETAIL	ON, **OFF**	
		BLUE, RED, YELLOW	
	PEAK COLOR	ON, **OFF**	
	CHROMA LEVEL	100%, 50%, **25%**, 0%	
	RETURN DISABLE	ON, **OFF**	
<FOCUS ASSIST> 05 (U03)	INDICATOR	ON, **OFF**, (EFFECT)	**(EFFECT)**: Displayed when EFFECT of <VF MARKER> is ON.
	MODE	**BOX**, B&W, COL	
		BTM, LEFT, TOP, RIGHT	
	LEVEL	1 to 5, **3**	
		QUICK, SMOOTH	
	GAIN	0 to 99, **50**	
	OFFSET	0 to 99, **50**	
	AREA MARKER	ON, **OFF**, (ASPECT)	**(ASPECT)**: Displayed when ASPECT SAFETY of <VF MARKER> is ON.
	SIZE	SMALL, **MIDDLE**, LARGE	
	POSITION	LEFT, **CENTER**, RIGHT	
	POSITION H	0 to 99, **50**	
	POSITION V	0 to 99, **50**	
<ZEBRA> 06 (U08)	ZEBRA	ON, **OFF**	
		1, 2, 1&2	
	ZEBRA1 LEVEL	50 to 109%, **70%**	
	WIDTH	0 to 30%, **10%**	
	ZEBRA2	50 to 109%, **100%**	
<CURSOR> 07 (U07)	CURSOR	ON, **OFF**	Displayed only if HDLA attached.
		WHITE, BLACK, DOT	
	LEVEL	0 to 100%, **70%**	
	BOX/CROSS	**BOX**, CROSS	
	H POSITION	0 to 99, **50**	Displayed only if HDLA attached.
	V POSITION	0 to 99, **50**	
	WIDTH	0 to 99, **50**	
	HEIGHT	0 to 99, **50**	
	BOX MEMORY	1/2/3: **OFF**, ON	
	H POSI	1/2/3: 0 to 99, **50**	
	V POSI	1/2/3: 0 to 99, **50**	
	WIDTH	1/2/3: 0 to 99, **50**	
	HEIGHT	1/2/3: 0 to 99, **50**	

OPERATION				
Page title PageNo.	**Item**		**Settings**	**Description**
<SPIRIT LEVEL> 08	INDICATOR		ON, **OFF**	When this is set to ON, BOX MEMORY for CURSOR does not function.
		V POSITION	0 to 99, **97**	
	ANGLE			Sets the inclination angle. (Display only)
		OFFSET	−99 to +99, **0**	
			SET ZERO ANGLE	Execute via ENTER.	Designates the current angle as level (0°).
			CLEAR	Execute via ENTER.	Sets OFFSET to 0.
<VF OUT> 09 (U01)	VF OUT		**COLOR**, Y, R, G, B, (COLOR), (Y), (R), (G), (B), (RET), (R+G), (R+B), (G+B)	Settings in ( ): When HDLA is attached (cannot be changed)
	RET MIX VF		ON, **OFF**, (ON), (OFF)	Settings in ( ): When HDLA is attached (cannot be changed)
	MIX DIRECTION		MAIN, **RET**	
	MIX VF MODE		**Y-MIX**, WIRE(W), WIRE(B)	
	MIX VF LEVEL		0 to **80%**	
	CHARACTER LEVEL		0 to 5, **5**	
<SWITCH ASSIGN1> 10 (U09)	GAIN		L: −6, −3, **0**, 3, 6, 9, 12 dB	
			M: −6, −3, 0, 3, **6**, 9, 12 dB	
			H: −6, −3, 0, 3, 6, 9, **12** dB	
	ASSIGNABLE		**OFF**, RETURN1 SW, RETURN2 SW, INCOM1, INCOM2, VF DETAIL, MIX VF, 5600K, FAN MAX, D.EXTENDER, VF ASSIGN SW1, VF ASSIGN SW2, SPIRIT LEVEL INDICATOR, FOCUS ASSIST INDICATOR	When HDLA is attached: OFF, EXTENDER, 5600K, FAN MAX, D.EXTENDER **Note** When you turn D.EXTENDER ON or OFF, noise may be generated. This is not a malfunction.
<SWITCH ASSIGN2> 11 (U10)	LENS VTR S/S		OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2	Assigns a function to the VTR START/STOP switch on the mounted lens.
	FRONT RET1		OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2, D.EXTENDER	
	FRONT RET2		OFF, RETURN1 SW, **RETURN2 SW**, INCOM1, INCOM2, D.EXTENDER	
	HANDLE SW1		OFF, **RETURN1 SW**, RETURN2 SW, INCOM1, INCOM2, ZOOM(T)	
	HANDLE SW2		OFF, RETURN1 SW, RETURN2 SW, **INCOM1**, INCOM2, ZOOM(W)	
		ZOOM SPEED	0 to 99, **20**	
	HKCT INCOM MIC		OFF, **INCOM1**, INCOM2	Assigns a function to the INTERCOM MIC switch on the HKC-T1500.
RETURN 12	RET1 SW SEL		CCU RET1, CCU RET2, CCU RET3, CCU RET4	Varies based on the RET1 button setting.
	RET2 SW SEL			Varies based on the RET2 button setting.
	RET3 SW SEL		CCU RET1, CCU RET2, **CCU RET3**, CCU RET4	
	RET1 SW + RET2 SW		RET1 SW, **RET3 SW**	Changes operation when you press both the RET1 button and RET2 button at the same time. **RET1 SW**: The two buttons function as the RET1 button. **RET3 SW**: The two buttons function as the RET3 button.

Page title PageNo.	Item		Settings	Description
<HEADSET MIC> 13 (U11)	INTERCOM1		**DYNAMIC**, CARBON, MANUAL	
		LEVEL	–60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
			–6, **0**, 6 dB	Input gain
		POWER	ON, OFF, (ON), **(OFF)**	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		UNBAL	ON, OFF, **(ON)**, (OFF)	Settings in ( ): With CARBON (cannot be changed)
	INTERCOM2		**DYNAMIC**, CARBON, MANUAL	
		LEVEL	–60 dB, –50 dB, –40 dB, –30 dB, –20 dB, **(–60 dB)**, (–50 dB), (–40 dB), (–30 dB), (–20 dB)	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
			–6, **0**, 6 dB	Input gain
		POWER	ON, OFF, (ON), **(OFF)**	Settings in ( ): With DYNAMIC or CARBON (cannot be changed)
		UNBAL	**ON**, OFF, (ON), (OFF)	Settings in ( ): With CARBON (cannot be changed)
<INTERCOM1> 14	INTERCOM1 RECEIVE SELECT		**SEPARATE**, MIX	
		INTERCOM	--- , **LEFT**, RIGHT, BOTH	
		PGM1	--- , LEFT, **RIGHT**, BOTH	
		PGM2	--- , LEFT, **RIGHT**, BOTH	
		TRACKER	--- , **LEFT**, RIGHT, BOTH	
		SIDE TONE	MU, 1 to 99, **50**	
<INTERCOM2> 15	INTERCOM2 RECEIVE SELECT		**SEPARATE**, MIX	
		INTERCOM	--- , **LEFT**, RIGHT, BOTH	
		PGM1	--- , LEFT, **RIGHT**, BOTH	
		PGM2	--- , LEFT, **RIGHT**, BOTH	
		TRACKER	**---** , LEFT, RIGHT, BOTH	
		SIDE TONE	MU, 1 to 99, **50**	
<TRACKER> 16	TRACKER RECEIVE SELECT		**SEPARATE**, MIX	
		INTERCOM	--- , **LEFT**, RIGHT, BOTH	
		PGM1	--- , LEFT, **RIGHT**, BOTH	
		PGM2	--- , LEFT, **RIGHT**, BOTH	
	INPUT LEVEL		–20 dBu, **0 dBu**	
			–60 dBu, **0 dBu**, 6 dBu	
	OUTPUT LEVEL	L-CH / R-CH	**0 dBu**, –6 dBu, –12 dBu, –18 dBu, –20 dBu, –24 dBu	
<EARPHONE> 17	EARPHONE RECEIVE SELECT		**SEPARATE**, MIX	
		INTERCOM	--- , **LEFT**, RIGHT, BOTH	
		PGM1	--- , LEFT, **RIGHT**, BOTH	
		PGM2	--- , LEFT, **RIGHT**, BOTH	
		TRACKER	--- , **LEFT**, RIGHT, BOTH	

OPERATION			
Page title PageNo.	**Item**	**Settings**	**Description**
<OPERATOR FILE> 18	READ (USB→CAM)	Execute via ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM→USB)	Execute via ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute via ENTER.	Sets the operator file items to the preset values in internal memory.
	FILE ID	alphanumerics (max.16 characters)	Enters a comment for the operator file to be written to a USB drive. *See "To specify a character string" on page 29.*
	CAM CODE	Camera code	Display only
	DATE		Display only

PAINT Menu

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<SW STATUS> P01	FLARE	**ON**, OFF	
	GAMMA	**ON**, OFF	
	BLK GAM	ON, **OFF**	
	KNEE	**ON**, OFF	
	WHT CLIP	**ON**, OFF	
	DETAIL	**ON**, OFF	
	LVL DEP	**ON**, OFF	
	SKIN DTL	ON, **OFF**	
	MATRIX	ON, **OFF**	
<VIDEO LEVEL> P02	WHITE	R/G/B: –99 to +99, **0**	R, G, B, and M (master) values can be independently set. (M cannot be set for WHITE or FLARE.)
	BLACK	R/G/B/M: –99 to +99, **0**	
	FLARE	R/G/B: –99 to +99, **0**	
	GAMMA	R/G/B/M: –99 to +99, **0**	
	V MOD	R/G/B/M: –99 to +99, **0**	
	FLARE	**ON**, OFF	
	V MOD	**ON**, OFF	
	D. SHAD	ON, **OFF**	Selectable only with a lens which supports dynamic shading.
	TEST	**OFF**, SAW, 10STEP	
<COLOR TEMP> P03	WHITE	R/G/B: –99 to +99, **0**	
	AUTO WHITE BALANCE	Execute via ENTER.	
	COLOR TEMP	0K to 65535K, **3200K**	
	BALANCE	–99 to +99, **0**	
	MASTER	–3.0 to +12.0 dB, **0.0 dB**	

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<GAMMA> P04	LEVEL	R/G/B/M: −99 to +99, **0**	R, G, B, and M (master) values can be independently set.
	COARSE	0.35 to 0.90 (0.05 steps), **0.45**	
	TABLE	**STANDARD**, HYPER, USER	
		1, 2, 3, 4, **5**, 6, 7	With STANDARD or USER selected (only 1 to 5 are available for USER)
			1: equivalent to a camcorder **2**: gain ×4.5 **3**: gain ×3.5 **4**: equivalent to SMPTE-240M **5**: equivalent to ITU-R709 **6**: gain ×5.0 **7**: ×5.0-709
		1, 2, 3, **4**	With HYPER selected
			1: 325% to 100% **2**: 460% to 100% **3**: 325% to 109% **4**: 460% to 109%
	GAMMA	**ON**, OFF	
	TEST	**OFF**, SAW, 10STEP	
<BLACK GAMMA> P05	LEVEL	R/G/B/M: −99 to +99, **0**	R, G, B, and M (master) values can be independently set.
	RANGE	LOW, L.MID, H.MID, **HIGH**	
		ON, **OFF**	
	TEST	**OFF**, SAW, 10STEP	
<SATURATION> P06	SATURATION	−99 to +99, **0**	
		ON, **OFF**	
	LOW KEY SAT	−99 to +99, **0**	
	RANGE	LOW, L.MID, H.MID, **HIGH**	
		ON, **OFF**	
	TEST	**OFF**, SAW, 10STEP	
<KNEE> P07	K POINT	R/G/B/M: −99 to +99, **0**	R, G, B, and M (master) values can be independently set.
	K SLOPE	R/G/B/M: −99 to +99, **0**	Absolute values are displayed in ABS mode except for M (master).
	KNEE	**ON**, OFF	
	KNEE MAX	ON, **OFF**	
	KNEE SAT	−99 to +99, **0**	
		ON, **OFF**	
	AUTO KNEE	**OFF**, AUTO	
	POINT LIMIT	−99 to +99, **0**	Absolute value is displayed in ABS mode.
	SLOPE	−99 to +99, **0**	Absolute value is displayed in ABS mode.
	ABS		Highlighted: ABS (Absolute) mode

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

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<USER MATRIX> P12	R-G	–99 to +99, **0**	
	R-B	–99 to +99, **0**	
	G-R	–99 to +99, **0**	
	G-B	–99 to +99, **0**	
	B-R	–99 to +99, **0**	
	B-G	–99 to +99, **0**	
	MATRIX	ON, **OFF**	
	PRESET	**ON**, OFF	
		SMPTE-240M, **ITU-709**, SMPTE-WIDE, NTSC, EBU, ITU-601	
	USER	ON, **OFF**	
	MULTI	ON, **OFF**	
	ADAPTIVE MATRIX	**OFF**, ON	
<MULTI MATRIX> P13	PHASE	**0**, 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338	Selects an axis (angle) at PHASE for which the multimatrix adjustment to be made, and set HUE and SAT. (HUE and SAT can be adjusted independently for 16 axes.)
	HUE	–99 to +99, **0**	
	SAT	–99 to +99, **0**	
	ALL CLEAR	Execute via ENTER.	
	GATE	ON, **OFF**, (SKN)	**(SKN)**: Displayed when SKIN GATE of <SKIN DETAIL> is ON.
	MATRIX	ON, **OFF**	
	PRESET	**ON**, OFF	
		SMPTE-240M, **ITU-709**, SMPTE-WIDE, NTSC, EBU, ITU-601	
	USER	ON, **OFF**	
	MULTI	ON, **OFF**	
<SHUTTER> P14	SHUTTER	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
		59.94i: **1/100**, 1/125, 1/250, 1/500, 1/1000, 1/2000 50i: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 59.94P: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 50P: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000	Step shutter selection
	ECS FREQ	59.94i: **60.00** to 4300 Hz 50i: 50.00 to 4700 Hz 59.94P: 59.96 to 4600 Hz 50P: 50.03 to 4600 Hz	

PAINT			
Page title PageNo.	**Item**	**Settings**	**Description**
<NOISE SUPPRESSION> P15	SUPPRESSION	**0** to 100%	
		ON, **OFF**	
<FLICKER REDUCTION> P16	REDUCTION	ON, **OFF**	
	POWER LINE FREQUENCY	**50**, 60	
<SCENE FILE> P17	1		Stores and reads scene files (paint data):
	2		When storing a file in camera memory, specify the number before executing STORE.
	3		When reading, only specify the number.
	4		
	5		
	STORE	Execute via ENTER.	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB→CAM)	Execute via ENTER.	Loads five scene files from a USB drive to internal memory.
	WRITE (CAM→USB)	Execute via ENTER.	Writes five scene files in the camera's memory to a USB drive.
	FILE ID	Max.16 characters	Enters a comment for the scene files to be written to a USB drive.
			See "To specify a character string" on page 29.
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

MAINTENANCE Menu

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<AUTO SETUP> M01	AUTO BLACK	Execute via ENTER.	
	AUTO WHITE	Execute via ENTER.	
	AUTO LEVEL	Execute via ENTER.	
	AUTO WHITE SHADING	Execute via ENTER.	
	AUTO BLACK SHADING	Execute via ENTER.	
	TEST	**OFF**, SAW, 3STEP, 10STEP	
<WHITE SHADING> M02	V SAW	R/G/B: −99 to +99, **0**	R, G, and B values can be independently set.
	V PARA	R/G/B: −99 to +99, **0**	
	H SAW	R/G/B: −99 to +99, **0**	
	H PARA	R/G/B: −99 to +99, **0**	
	WHITE	R/G/B: −99 to +99, **0**	
	AUTO WHITE SHADING	Execute by ENTER.	
	WHITE SHAD MODE	RGB, **RB**	

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<BLACK SHADING> M03	V SAW	R/G/B: –99 to +99, **0**	R, G, and B values can be independently set. M (master) value can also be set for BLACK.
	V PARA	R/G/B: –99 to +99, **0**	
	H SAW	R/G/B: –99 to +99, **0**	
	H PARA	R/G/B: –99 to +99, **0**	
	BLK SET	R/G/B: –99 to +99, **0**	
	BLACK	R/G/B/M: –99 to +99, **0**	
	MASTER GAIN	–6, –3, **0**, 3, 6, 9, 12 dB	
	AUTO BLACK SHADING	Execute via ENTER.	
	2D BLACK SHADING	**ON**, OFF	
<OHB MATRIX> M04	PHASE	**0**, 23, 45, 68, 90, 113, 135, 158, 180, 203, 225, 248, 270, 293, 315, 338	Selects an axis (angle) at PHASE for which the OHB matrix adjustment is to be made, and set HUE and SAT. (HUE and SAT can be adjusted independently for 16 axes.)
	HUE	–99 to +99, **0**	
	SAT	–99 to +99, **0**	
	ALL CLEAR	Execute via ENTER.	Clears the HUE and SAT values for all PHASE settings.
	OHB MATRIX	ON, **OFF**	
	MATRIX	ON, **OFF**	
<AUTO IRIS> M05	AUTO IRIS	ON, **OFF**, (ON), (OFF)	Settings in ( ): When a remote control unit/panel or a CCU is not connected (cannot be changed)
	WINDOW	**1**, 2, 3, 4, 5, 6	Selects the auto iris windows: The shaded parts indicate the area where light detection occurs.
	OVERRIDE	–99 to 99, **---**	Sets the override to temporarily change the reference value for brightness of the automatic iris level in the range of ±2 steps: –99: Two steps to fully closed iris. 99: Two steps to fully opened iris. --- : OFF The setting returns to " --- " when the power is turned off.
	IRIS LEVEL	–99 to +99, **0**	±4 steps
	APL RATIO	–99 to +99, **65**	
	IRIS GAIN	–99 to +99, **0**	
	IRIS CLOSE	ON, **OFF**	
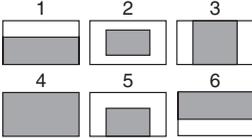
MAINTENANCE				
Page title PageNo.	**Item**		**Settings**	**Description**
<LENS> M06	F NO. DISP		**CONTROL**, RETURN	Selects the iris indication on the panel when AUTO IRIS is off:
				CONTROL: Displays the value from the camera. **RETURN**: Displays the value returned from the lens. (When AUTO IRIS is on, the value returned from the lens is always displayed.)
	ALAC		**AUTO**, OFF	With AUTO selected, the status is displayed at the right.
				(ACTIVE): Compensation is in progress. **(WAIT)**: Waiting for completion of lens initialization. **(STOP)**: Compensation is turned off for a non-applicable lens.
	OPAC		ON, **OFF**	Sets the optical axis compensation (OPAC) function to ON/OFF.
		H SHIFT	–5, –4, –3, –2, –1, **0**, 1, 2, 3, 4, 5	Sets the H-direction movement amount.
		V SHIFT	–3, –2, –1, **0**, 1, 2, 3	Sets the V-direction movement amount.
		MARKER	**ON**, OFF	Sets VF MARKER to ON/OFF. (This has the same function as MARKER on the VF MARKER page in the OPERATION menu.)
		CENTER	ON, **OFF**	Sets the center marker to ON/OFF.
		H POS	–20 to +20, **0**	Display only
				(The value of H POS on the LENS FILE page in the FILE menu is displayed.)
		V POS	–20 to +20, **0**	Display only
				(The value of V POS on the LENS FILE page in the FILE menu is displayed.)
<MIC GAIN> M07	MIC1		20, 30, 40, 50, **60** dB	Valid only in standalone operation.
	MIC2		20, 30, 40, 50, **60** dB	
<CALL/TALLY> M08	CCU CALL		OFF, **ON**, ---	**---** : With no CCU connected (cannot be changed)
	CAM CALL		**OFF**, ON, ---	
	UP TALLY BRIGHTNESS			
		TALLY	0 to 100, **50**	
		NUMBER	0 to 100, **50**	
	CAMERA NUMBER		**---**, 1 to 96	
	NUMBER DISPLAY		ON, OFF, **AUTO**	**AUTO**: When HDLA is attached, corresponds to the UP TALLY switch setting.
<OUTPUT FORMAT> M09 (U12)	CURRENT		1080: 59.94i, 50i 720: 59.94P, 50P	Displays the current format.
<TEST OUT> M10 (U13)	OUTPUT		SD-SYNC, HD-SYNC, **VF**, VBS	
	VBS-OUT			OUTPUT is displayed during VBS.
		CHARACTER	ON, **OFF**	
		GAIN	–99 to +99, **0**	
		CHROMA	–99 to +99, **0**	
		SETUP	ON, **OFF**	
	SYNC-OUT			OUTPUT is displayed during SD-SYNC and HD-SYNC.
		V-PHASE	–999 to +999, **0**	
		H-PHASE	–999 to +999, **0**	
	DOWN CONVERTER			OUTPUT is displayed for VBS.
		SELECT	**MAIN**, RET, VF	
		ASPECT	**SQ**, EC	

MAINTENANCE			
Page title PageNo.	**Item**	**Settings**	**Description**
<SDI OUT> M11 (U14)	SDI1-OUT	OFF, **MAIN/LINK-A**, 3G-SDI, HD PROMPTER	
	SDI2-OUT/IN	OFF, **MAIN/LINK-B**, HD TRUNK/ RET IN	
	SDI-MONI OUT	**MAIN**, VF, LINK-B, RET, SD-SDI	
	CHARACTER	ON, **OFF**	
	EMB AUDIO	**OFF**, MIC, PGM	
	DOWN CONVERTER		SDI-MONI OUT is displayed for SD-SDI.
	SELECT	**MAIN**, RET, VF	
	ASPECT	**SQ**, EC	
	COAX MODE	ON, **OFF**	Displayed only when no CCU connected. Enables or disables COAX connection.
<TRUNK> M12	TRUNK	**ON**, OFF	
	INTERFACE	**232c**, 422A	
	AUX REMOTE		Display only
	NETWORK TRUNK		Display only
	LINK		
<GENLOCK> M13	REFERENCE	Condition of synchronisation	Display only
	GENLOCK	**ENABLE**, DISABLE	Displayed only when no CCU connected.
	STATUS		
	FORMAT		
	PHASE		
	V	−1024 to +1023, **0**	
	HD H	−1700 to +1700, **0**	
	SD H	−1024 to +1023, **0**	
<DATE> M14	DATE/TIME	2000 to 2099 / 01 to 12 / 00 to 31, 00 to 23 : 00 to 59	
	DATE TYPE	1 Y/Mn/D, 2 Mn/D, 3 D/M/Y, 4 D/M, **5 M/D/Y**, 6 M/D	**Y**: Year **Mn**: Month (numeric) **M**: Month (character string) **D**: Day
<BATTERY ALARM> M15	BEFORE END	**11.5** to 17.0 V	
	END	**11.0** to 11.5 V	
<OTHERS 1> M16	FAN MODE	OFF, **AUTO1**, AUTO2 , MIN, MAX	**AUTO1**: Normal rotation **AUTO2**: Slow rotation
	CAM BARS	ON, **OFF**	
	WHITE SETUP MODE	AWB, **A.LVL**	
	FILTER WHT MEM	ON, **OFF**	Sets the function to use independent white memory at each CC filter position to ON/OFF.
	D.EXTENDER	ENABLE, **DISABLE**	
<OPTION KEY> M17	READ (USB→CAM)	Execute via ENTER.	Reads the install key from a USB drive.
	INSTALLED OPTION		Displayed only when an option has been installed.

FILE Menu

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

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

FILE			
Page title PageNo.	**Item**	**Settings**	**Description**
<OPERATOR FILE> F01	READ (USB→CAM)	Execute via ENTER.	Reads the operator file from a USB drive.
	WRITE (CAM→USB)	Execute via ENTER.	Writes the current settings of the operator file items to a USB drive.
	PRESET	Execute via ENTER.	Sets the operator file items to the preset values in internal memory.
	STORE PRESET FILE	Execute via ENTER.	Stores the current settings of the operator file items in the operator file in internal memory.
	FILE ID	Max.16 characters	Enters a comment for the operator file to be written to a USB drive. *See "To specify a character string" on page 29.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<SCENE FILE> F02	1		Stores and reads scene files (paint data): When storing a file in camera memory, specify the number before executing STORE. When reading, only specify the number.
	2		
	3		
	4		
	5		
	STORE	Execute via ENTER.	
	STANDARD	Execute via ENTER.	Reads the standard paint data.
	READ (USB→CAM)	Execute via ENTER.	Loads five scene files from a USB drive to internal memory.
	WRITE (CAM→USB)	Execute via ENTER.	Writes five scene files in the camera's memory to a USB drive.
	FILE ID	Max.16 characters	Enters a comment for the scene files to be written to a USB drive. *See "To specify a character string" on page 29.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<REFERENCE> F03	STORE FILE	Execute via ENTER.	Stores the current settings of the reference file items in the reference file in internal memory.
	STANDARD	Execute via ENTER.	Reads the standard values in the reference file in internal memory.
	ALL PRESET	Execute via ENTER.	Resumes the factory-preset reference file.
	READ (USB→CAM)	Execute via ENTER.	Loads a reference file from a USB drive.
	WRITE (CAM→USB)	Execute via ENTER.	Writes the current settings of the reference file items as a reference file to a USB drive.
	FILE ID	Max.16 characters	Enters a comment for the reference file to be written to a USB drive. *See "To specify a character string" on page 29.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only

FILE			
Page title PageNo.	**Item**	**Settings**	**Description**
<USER GAMMA> F04	READ (USB→CAM)	Execute via ENTER.	Reads the user gamma file from a USB drive.
	PRESET	Execute via ENTER.	Sets the user gamma file items to the preset values in internal memory.
	FILE ID	Max.16 characters	Enters a comment for the user gamma file to be written to a USB drive. *See "To specify a character string" on page 29.*
	CAM CODE	Camera code	Display only
	DATE	Date	Display only
<LENS FILE> F05	STORE FILE	Execute via ENTER.	
	No.	1 to 17, **1**	**1** to **16**: When using a non-serial lens **17**: When using a serial lens
	NAME		Changeable only when using a non-serial lens.
	F NO	F1.0 to F3.4, **F1.7**	Changeable only when using a non-serial lens.
	CENTER MARKER		Sets and stores the center marker position:
	H POS	−20 to +20, **0**	**H POS**: Increasing the value moves the position to the right.
	V POS	−20 to +20, **0**	**V POS**: Increasing the value moves the position downwards.
	STORE	Execute via ENTER.	
<OHB FILE> F06	STORE FILE	Execute via ENTER.	Stores the offset values of items specific to the CCD. (No repeated store operation is necessary even if the CCD is reattached)
<FILE CLEAR> F07	PRESET OPERATOR	Execute via ENTER.	
	REFERENCE (ALL)	Execute via ENTER.	
	10 SEC CLEAR	ON, **OFF**	Sets the function to clear the selected menu item to ON/OFF. *See "To return a menu item to its standard value" on page 29.*
	OHB WHITE SHAD (ALL)	Execute via ENTER.	
	OHB BLACK SHAD	Execute via ENTER.	
	OHB ND OFFSET	Execute via ENTER.	
	OHB MATRIX	Execute via ENTER.	

DIAGNOSIS Menu

This menu is only for viewing and no setting is made using this menu.

DIAGNOSIS			
Page title PageNo.	**Item**	**Indication**	**Description**
<OPTICAL LEVEL> D01	CCU→CAM	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU is connected.
	CAM→CCU	GREEN, YELLOW, RED, NG, NO SIGNAL	Displayed only when a CCU is connected.
<BOARD STATUS> D02	OHB	OK, NG	
	DPR	OK, NG	
	SY	OK, NG	
	PS	OK, NG	
	SDI	OK, NG	
<ROM VERSION> D03 (U15)	CAMERA APP	Vx.xx	
	O.S	Vx.xx	
	PANEL	Vx.xx	Displayed only when HDLA is attached.
	HKCT	Vx.xx	Displayed only when HKC-T1500 is installed.
	TG	Vx.xx	
	SY	Vx.xx	
	DPR1	Vx.xx	
	DPR2	Vx.xx	
	SDI	Vx.xx	
<SERIAL No.> D04	MODEL	HDCxxxx	
	NO.	xxxxxxx	
	OPTION		Displayed if any option is installed.

Appendix

Precautions

Note on laser beams

Laser beams may damage the CCDs. If you shoot a scene that includes a laser beam, be careful not to let a laser beam become directed into the lens of the camera.

Do not subject to severe shocks

Damage to the case or internal components may result.

When finished using

Set the power switch to OFF.

Operation and storage environment

Store in a level place with air conditioning.
If the unit gets wet, make sure it is completely dry before storage.
Avoid use or storage in the following places:
- Extremely hot or cold places
- Places with high humidity
- Places with strong vibration
- Near strong magnetic fields
- In places where it receives much direct sunlight, or near heating equipment

Condensation

If you move the camera from a very cold place to a warm place, or use it in a damp location, condensation may form on the lens or inside the camera.
The camera has no built-in condensation indicator. If you find condensation on the body or lens, switch the camera off and wait for the condensation to disappear for about one hour.

Phenomena Specific to CCD Image Sensors

The following phenomena that may appear in images are specific to CCD (Charge Coupled Device) image sensors. They do not indicate malfunctions.

White flecks

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

The white flecks especially tend to be seen
- when operating at a high environmental temperature
- when you have raised the master gain (sensitivity)
This product has a compensation function and the problem may be alleviated by automatic black balance adjustment *(see page 20)*.

Smear

When an extremely bright object, such as a strong spotlight or flashlight, is being shot, vertical tails may be produced on the screen, or the image may be distorted.

Aliasing

When fine patterns, stripes, or lines are shot, they may appear jagged or flicker.

Error Messages

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

Note

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

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

Using a USB Drive

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

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

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

Notes

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

Specifications

HDC2500

General	
Power requirements	AC 240 V, 1.4 A (max.)
	DC 180 V, 1.0 A (max.)
	DC 12 V, 7 A (max.)
Operating temperature	–20°C to +45°C (–4°F to 113°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Mass	Approx. 4.5 kg (9 lb 15 oz) (Unit only)
Dimensions	See *page 58*.

Imager	
Imager	2/3-type Progressive Scan CCD
Method	3-CCD, RGB
Effective resolution	1920 (horizontal) × 1080 (vertical)

Electrical characteristics	
Sensitivity	F10.0 with 1080/59.94i
	(at 2000 lx with 89.9% reflectivity)
Image S/N	Typical –60 dB/–64 dB (NS MAX)
Horizontal resolution	1000 TV lines (at center of screen)
	5% or higher modulation
Geometric distortion	Negligible (not including lens distortion)

Optical system specifications	
Spectral system	F1.4 prism
Built-in filters	Color temperature conversion filters
	A: cross filter B: 3200K(clear) C: 4300K D: 6300K E: 8000K
	ND filters 1: clear 2: 1/4ND 3: 1/8ND 4: 1/16ND 5: 1/64ND

Input/output connectors	
CCU	Optical/electrical multi-connector (1)
LENS	12-pin (1)
VF	20-pin (1)
MIC 1 IN	XLR 3-pin, female (1)
AUDIO IN CH1, CH2	XLR 3-pin, female (1 each)
	AUDIO switch for MIC: –60 dBu (can be selected up to –20 dBu by menu or HDCU2000/2500 operations), balanced AUDIO switch for LINE: 0 dBu, balanced
INTERCOM 1, INTERCOM 2	XLR 5-pin, female (1 each)
EARPHONE	Stereo minijack (1)
DC IN	XLR 4-pin (1), DC 10.5 to 17 V

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

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

For the customers in the U.S.A., Canada, Europe, Australia, and New Zealand
Connectors for optical/electric composite cables:
- LEMO® PUW.3K.93C.TLCC96 (to the "CAMERA" connector on CCU)
- LEMO® FUW.3K.93C.TLMC96 (to the "CCU" connector on CAMERA)

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

Pour les utilisateurs aux Etats-Unis, au Canada, en Europe, à l'Australie, et à la Nouvelle-Zélande
Connecteurs pour les câbles optiques/électriques composites:
- LEMO® PUW.3K.93C.TLCC96 (au connecteur «CAMERA» de l'unité de commande de caméra)
- LEMO® FUW.3K.93C.TLMC96 (au connecteur «CCU» de la caméra)

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

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

Anschlüsse für optische/elektrische FBAS-Kabel:
- LEMO® PUW.3K.93C.TLCC96 (an „CAMERA"-Anschluss an der Kamerasteuereinheit)
- LEMO® FUW.3K.93C.TLMC96 (an „CCU"-Anschluss an der KAMERA)

Vorsichtsmaßregeln für optische/elektrische FBAS-Kabel:

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

Design and specifications are subject to change without notice.

Note

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.

Optional Accessories/Related Equipment

Optional Accessories	
HD Electronic Viewfinder	HDVF-20A (2-type, monochrome)
	HDVF-200 (2-type, monochrome)
	HDVF-550 (5-type, monochrome)
	HDVF-C30WR (2.7-type, color)
	HDVF-C35W (3.5-type, color)
	HDVF-C550W (5-type, color)
	HDVF-C730W (6.3-type, color)
	HDVF-EL75 (7.4-type, color)
Large Lens Adaptor	HDLA1500/1505
Large Viewfinder Adaptor	HDLA1507
Microphone Holder	CAC-12
Return Video Selector	CAC-6
Viewfinder Rotation Bracket	BKW-401
Triax Transmission adaptor	HKC-TR20
Side Panel Attachment Kit	HKC-CN20
Tripod Adaptor	VCT-14
Low-repulsion Shoulder Pad	A-8286-346-A
Camera Operating Software	HZC-DFR20
	HZC-PRV20
	HZC-PSF20
	HZC-UG444

Related Equipment
HDCU2000/2500 series HD Camera Control Unit
RCP-1000 series Remote Control Panel
MSU-1000 series Master Setup Unit
CNU-700 Camera Command Network Unit
HZC-CSM10 Camera System Management Software

Dimensions

Unit: mm (inches)

135 (5 $^3/_8$)

105 (4 $^1/_4$)

268 (10 $^5/_8$)

197 (7 $^7/_8$)

363 (14 $^3/_8$)
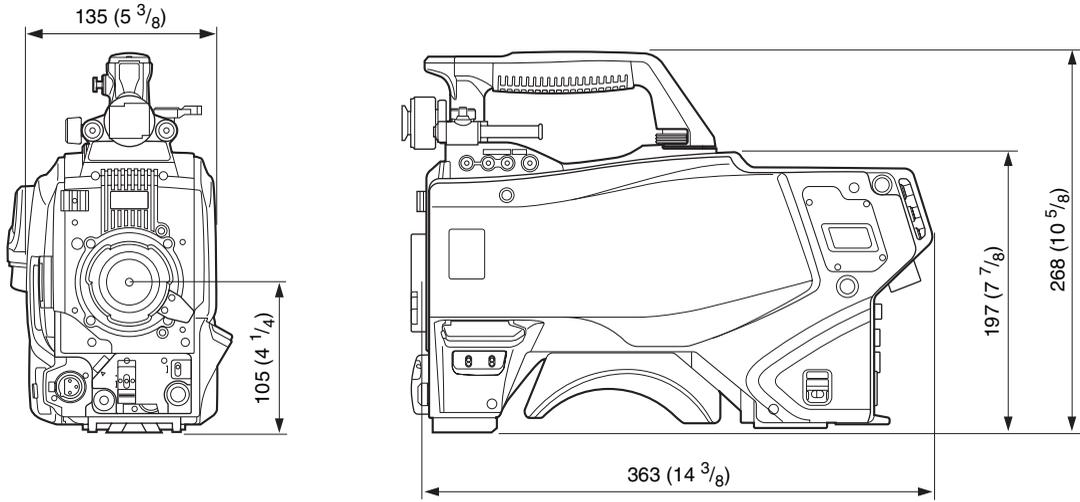
Notice Concerning Software Governed by the GNU GPL/LGPL

This product includes software to which the GNU General Public License ("GPL") or GNU Lesser General Public License ("LGPL") applies. Under the terms of the GPL/LGPL, of which a copy is attached, you have the right to obtain, modify, and distribute copies of the source code of this software.

Package list

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

To Obtain information on the source code and/or the source code for this software. Consult your nearest Sony Service.

The GNU General Public License (GPL)

Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble
The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software-to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

   You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

   a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

   b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

   c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

   These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

   a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

   b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

   c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this

License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

    If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

    It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

    This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

    Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs
If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

One line to give the program's name and a brief idea of what it does.
Copyright (C) <year> <name of author>

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

Gnomovision version 69, Copyright (C) year name of author Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type 'show w'. This is free software, and you are welcome to redistribute it under certain conditions; type 'show c' for details.

The hypothetical commands 'show w' and 'show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than 'show w' and 'show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the program 'Gnomovision' (which makes passes at compilers) written by James Hacker.

signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

GNU Lesser General Public License

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.
59 Temple Place, Suite 330, Boston, MA 02111-1307 USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble
The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages-typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

| Notice Concerning Software Governed by the GNU GPL/LGPL

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

    A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

    The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

    "Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

    Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

    You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

   a) The modified work must itself be a software library.

   b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

   c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

   d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

   (For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

   These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

   Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

   In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

   Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

   This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

   If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

   However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

   When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

   If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

   Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work

also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

   You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

   a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

   b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

   c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

   d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

   e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

   For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

   It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

   a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

   b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you

from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries
If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and an idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This product includes software libxml2 to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (C) 1998-2003 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FIT-NESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE DANIEL VEILLARD BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CON-NECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/).
Please note that we cannot respond to inquiries regarding the content of the source code.

OpenSSL License

==
Copyright (c) 1998-2011 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"

4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.

5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.

6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
==

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com). This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License

Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com).
The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered

Notice Concerning Software Governed by the GNU GPL/LGPL

– TSS has been removed
– MD5 is now external, in the OpenSSL library
– RC4 support has been replaced with ARC4 support from OpenSSL
– Blowfish is now external, in the OpenSSL library

[The licence continues]

Note that any information and cryptographic algorithms used in this software are publicly available on the Internet and at any major bookstore, scientific library, and patent office worldwide. More information can be found e.g. at "http://www.cs.hut.fi/crypto".

The legal status of this program is some combination of all these permissions and restrictions. Use only at your own responsibility. You will be responsible for any legal consequences yourself; I am not making any claims whether possessing or using this is legal or not in your country, and I am not taking any responsibility on your behalf.

NO WARRANTY

BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

2)
The 32-bit CRC compensation attack detector in deattack.c was contributed by CORE SDI S.A. under a BSD-style license.

Cryptographic attack detector for ssh - source code

Copyright (c) 1998 CORE SDI S.A., Buenos Aires, Argentina.

All rights reserved. Redistribution and use in source and binary forms, with or without modification, are permitted provided that this copyright notice is retained.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES ARE DISCLAIMED. IN NO EVENT SHALL CORE SDI S.A. BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR MISUSE OF THIS SOFTWARE.

Ariel Futoransky <futo@core-sdi.com>
<http://www.core-sdi.com>

3)
ssh-keyscan was contributed by David Mazieres under a BSD-style license.

Copyright 1995, 1996 by David Mazieres <dm@lcs.mit.edu>.

Modification and redistribution in source and binary forms is permitted provided that due credit is given to the author and the OpenBSD project by leaving this copyright notice intact.

4)
The Rijndael implementation by Vincent Rijmen, Antoon Bosselaers and Paulo Barreto is in the public domain and distributed with the following license:

@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

This code is hereby placed in the public domain.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS ''AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

5)
One component of the ssh source code is under a 3-clause BSD license, held by the University of California, since we pulled these parts from original Berkeley code.

Copyright (c) 1983, 1990, 1992, 1993, 1995
The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

6)
Remaining components of the software are provided under a standard 2-term BSD licence with the following names as copyright holders:

Markus Friedl
Theo de Raadt
Niels Provos
Dug Song
Aaron Campbell
Damien Miller
Kevin Steves
Daniel Kouril
Wesley Griffin
Per Allansson
Nils Nordman
Simon Wilkinson

Portable OpenSSH additionally includes code from the following copyright holders, also under the 2-term BSD license:

Ben Lindstrom
Tim Rice
Andre Lucas
Chris Adams
Corinna Vinschen
Cray Inc.
Denis Parker
Gert Doering
Jakob Schlyter
Jason Downs
Juha Yrjölä
Michael Stone
Networks Associates Technology, Inc.
Solar Designer
Todd C. Miller
Wayne Schroeder
William Jones
Darren Tucker
Sun Microsystems
The SCO Group
Daniel Walsh

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

8) Portable OpenSSH contains the following additional licenses:

a) md5crypt.c, md5crypt.h

"THE BEER-WARE LICENSE" (Revision 42): <phk@login.dknet.dk> wrote this file. As long as you retain this notice you can do whatever you want with

this stuff. If we meet some day, and you think this stuff is worth it, you can buy me a beer in return.   Poul-Henning Kamp

b) snprintf replacement

Copyright Patrick Powell 1995
This code is based on code written by Patrick Powell (papowell@astart.com) It may be used for any purpose as long as this notice remains intact on all source code distributions

c) Compatibility code (openbsd-compat)

Apart from the previously mentioned licenses, various pieces of code in the openbsd-compat/ subdirectory are licensed as follows:

Some code is licensed under a 3-term BSD license, to the following copyright holders:

Todd C. Miller
Theo de Raadt
Damien Miller
Eric P. Allman
The Regents of the University of California
Constantin S. Svintsoff

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Some code is licensed under an ISC-style license, to the following copyright holders:

Internet Software Consortium.
Todd C. Miller
Reyk Floeter
Chad Mynhier

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND TODD C. MILLER DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL TODD C. MILLER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Some code is licensed under a MIT-style license to the following copyright holders:

Free Software Foundation, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, distribute with modifications, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE ABOVE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name(s) of the above copyright holders shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization.

****

This product includes software libpng to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

libpng versions 1.2.6, August 15, 2004, through 1.5.2, March 31, 2011, are Copyright (c) 2004, 2006-2011 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-1.2.5 with the following individual added to the list of Contributing Authors

Cosmin Truta

libpng versions 1.0.7, July 1, 2000, through 1.2.5 - October 3, 2002, are Copyright (c) 2000-2002 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-1.0.6 with the following individuals added to the list of Contributing Authors

Simon-Pierre Cadieux
Eric S. Raymond
Gilles Vollant

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the library or against infringement. There is no warranty that our efforts or the library will fulfill any of your particular purposes or needs. This library is provided with all faults, and the entire risk of satisfactory quality, performance, accuracy, and effort is with the user.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are Copyright (c) 1998, 1999 Glenn Randers-Pehrson, and are distributed according to the same disclaimer and license as libpng-0.96, with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are Copyright (c) 1996, 1997 Andreas Dilger Distributed according to the same disclaimer and license as libpng-0.88, with the following individuals added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

libpng versions 0.5, May 1995, through 0.88, January 1996, are Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors" is defined as the following set of individuals:

Andreas Dilger
Dave Martindale
Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied "AS IS". The Contributing Authors and Group 42, Inc. disclaim all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The Contributing Authors and Group 42, Inc. assume no liability for direct, indirect, incidental, special, exemplary, or consequential damages, which may result from the use of the PNG Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this source code, or portions hereof, for any purpose, without fee, subject to the following restrictions:

1. The origin of this source code must not be misrepresented.

2. Altered versions must be plainly marked as such and must not be misrepresented as being the original source.

3. This Copyright notice may not be removed or altered from any source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without fee, and encourage the use of this source code as a component to supporting the PNG file format in commercial products. If you use this source code in a product, acknowledgment is not required but would be appreciated.

A "png_get_copyright" function is available, for convenient use in "about" boxes and the like:

printf("%s",png_get_copyright(NULL));

Also, the PNG logo (in PNG format, of course) is supplied in the files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

Libpng is OSI Certified Open Source Software. OSI Certified Open Source is a certification mark of the Open Source Initiative.

Glenn Randers-Pehrson
glennrp at users.sourceforge.net

This product includes software libcurl to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (c) 1996 - 2010, Daniel Stenberg, <daniel@haxx.se>.

All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

This product includes software libexpat to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the Software), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF

CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

This product includes software zlib to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

zlib.h -- interface of the 'zlib' general purpose compression library version 1.2.5, April 19th, 2010

(C) 1995-2004 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.

Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:
1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly   Mark Adler
jloup@gzip.org   madler@alumni.caltech.edu

This product includes software lighttpd to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (c) 2004, Jan Kneschke, incremental
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

– Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

– Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

– Neither the name of the 'incremental' nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes software file to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (c) Ian F. Darwin 1986, 1987, 1989, 1990, 1991, 1992, 1994, 1995.
Software written by Ian F. Darwin and others;
maintained 1994- Christos Zoulas.

This software is not subject to any export provision of the United States Department of Commerce, and may be exported to any country or planet.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice immediately at the beginning of the file, without modification, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes software freetype to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

The FreeType Project LICENSE

2006-Jan-27

Copyright 1996-2002, 2006 by
David Turner, Robert Wilhelm, and Werner Lemberg

Introduction
============

The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least.

This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its main points are that:

  o We don't promise that this software works. However, we will be interested in any kind of bug reports. (`as is' distribution)

  o You can use this software for whatever you want, in parts or full form, without having to pay us. (`royalty-free' usage)

  o You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you have used the FreeType code. (`credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products. We disclaim all warranties covering The FreeType Project and assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a credit/disclaimer to use in compliance with this license. We thus encourage you to use the following text:

  """
  Portions of this software are copyright ? <year> The FreeType Project (www.freetype.org). All rights reserved.
  """

Please replace <year> with the value from the FreeType version you actually use.

Legal Terms
===========

0.   Definitions

Throughout this license, the terms `package', `FreeType Project', and `FreeType archive' refer to the set of files originally distributed by the authors (David Turner, Robert Wilhelm, and Werner Lemberg) as the `FreeType Project', be they named as alpha, beta or final release.

`You' refers to the licensee, or person using the project, where `using' is a generic term including compiling the project's source code as well as linking it to form a `program' or `executable'. This program is referred to as `a program using the FreeType engine'.

This license applies to all files distributed in the original FreeType Project, including all source code, binaries and documentation, unless otherwise stated in the file in its original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

1.   No Warranty

THE FREETYPE PROJECT IS PROVIDED `AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

2.   Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display, copy, create derivative works of, distribute and sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

  o Redistribution of source code must retain this license file (`FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.

  o Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

3.   Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission.

We suggest, but do not require, that you use one or more of the following phrases to refer to this software in your documentation or advertising materials: `FreeType Project', `FreeType Engine', `FreeType library', or `FreeType Distribution'.

As you have not signed this license, you are not required to accept it. However, as the FreeType Project is copyrighted material, only this license, or another one contracted with the authors, grants you the right to use, distribute, and modify it. Therefore, by using, distributing, or modifying the FreeType Project, you indicate that you understand and accept all the terms of this license.

4.   Contacts

There are two mailing lists related to FreeType:

  o freetype@nongnu.org

    Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

  o freetype-devel@nongnu.org

    Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.

Our home page can be found at

  http://www.freetype.org

This product includes software usagi-tool to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the ""Software""), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, distribute with modifications, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED ""AS IS"", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE ABOVE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name(s) of the above copyright holders shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization.

This product includes software libjpeg to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

This software is based in part on the work of the Independent JPEG Group.

This product includes software glibc, glibc-libpthread_ptt to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products

derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS [root@pcu1148 SRPMS]# cat glibc/glibc-2.11.2/LICENSES This file contains the copying permission notices for various files in the GNU C Library distribution that have copyright owners other than the Free Software Foundation. These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

All code incorporated from 4.4 BSD is distributed under the following license:

Copyright (C) 1991 Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. [This condition was removed.]
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The DNS resolver code, taken from BIND 4.9.5, is copyrighted both by UC Berkeley and by Digital Equipment Corporation. The DEC portions are under the following license:

Portions Copyright (C) 1993 by Digital Equipment Corporation.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies, and that the name of Digital Equipment Corporation not be used in advertising or publicity pertaining to distribution of the document or software without specific, written prior permission.

THE SOFTWARE IS PROVIDED ``AS IS'' AND DIGITAL EQUIPMENT CORP. DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL DIGITAL EQUIPMENT CORPORATION BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

The Sun RPC support (from rpcsrc-4.0) is covered by the following license:

Copyright (C) 1984, Sun Microsystems, Inc.

Sun RPC is a product of Sun Microsystems, Inc. and is provided for unrestricted use provided that this legend is included on all tape media and as a part of the software program in whole or part. Users may copy or modify Sun RPC without charge, but are not authorized to license or distribute it to anyone else except as part of a product or program developed by the user.

SUN RPC IS PROVIDED AS IS WITH NO WARRANTIES OF ANY KIND INCLUDING THE WARRANTIES OF DESIGN, MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE.

Sun RPC is provided with no support and without any obligation on the part of Sun Microsystems, Inc. to assist in its use, correction, modification or enhancement.

SUN MICROSYSTEMS, INC. SHALL HAVE NO LIABILITY WITH RESPECT TO THE INFRINGEMENT OF COPYRIGHTS, TRADE SECRETS OR ANY PATENTS BY SUN RPC OR ANY PART THEREOF.

In no event will Sun Microsystems, Inc. be liable for any lost revenue or profits or other special, indirect and consequential damages, even if Sun has been advised of the possibility of such damages.

The following CMU license covers some of the support code for Mach, derived from Mach 3.0:

Mach Operating System
Copyright (C) 1991,1990,1989 Carnegie Mellon University
All Rights Reserved.

Permission to use, copy, modify and distribute this software and its documentation is hereby granted, provided that both the copyright notice and this permission notice appear in all copies of the software, derivative works or modified versions, and any portions thereof, and that both notices appear in supporting documentation.

CARNEGIE MELLON ALLOWS FREE USE OF THIS SOFTWARE IN ITS ``AS IS'' CONDITION. CARNEGIE MELLON DISCLAIMS ANY LIABILITY OF ANY KIND FOR ANY DAMAGES WHATSOEVER RESULTING FROM THE USE OF THIS SOFTWARE.

Carnegie Mellon requests users of this software to return to

 Software Distribution Coordinator
 School of Computer Science
 Carnegie Mellon University
 Pittsburgh PA 15213-3890

or Software.Distribution@CS.CMU.EDU any improvements or extensions that they make and grant Carnegie Mellon the rights to redistribute these changes.

The file if_ppp.h is under the following CMU license:

 Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
 3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
 THIS SOFTWARE IS PROVIDED BY CARNEGIE MELLON UNIVERSITY AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE UNIVERSITY OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The following license covers the files from Intel's ""Highly Optimized Mathematical Functions for Itanium"" collection:

Intel License Agreement

Copyright (c) 2000, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- The name of Intel Corporation may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ""AS IS"" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The files inet/getnameinfo.c and sysdeps/posix/getaddrinfo.c are copyright (C) by Craig Metz and are distributed under the following license:

/* The Inner Net License, Version 2.00

  The author(s) grant permission for redistribution and use in source and binary forms, with or without modification, of the software and documentation provided that the following conditions are met:

0. If you receive a version of the software that is specifically labelled as not being for redistribution (check the version message and/or README), you are not permitted to redistribute that version of the software in any way or form.
1. All terms of the all other applicable copyrights and licenses must be followed.

2. Redistributions of source code must retain the authors' copyright notice(s), this list of conditions, and the following disclaimer.
3. Redistributions in binary form must reproduce the authors' copyright notice(s), this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution.
4. [The copyright holder has authorized the removal of this clause.]
5. Neither the name(s) of the author(s) nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ITS AUTHORS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

If these license terms cause you a real problem, contact the author. */"

This product includes software iputils to which the license below applies.
Please note that we cannot respond to inquiries regarding the content of the source code.

Copyright (c) 1989 The Regents of the University of California. All rights reserved.

This code is derived from software contributed to Berkeley by Mike Muuss.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

     This product includes software developed by the University of California, Berkeley and its contributors.
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products

derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE."

Notice Concerning Software Governed by the GNU GPL/LGPL

Sony Corporation