INSTALLATION and CONNECTION

3

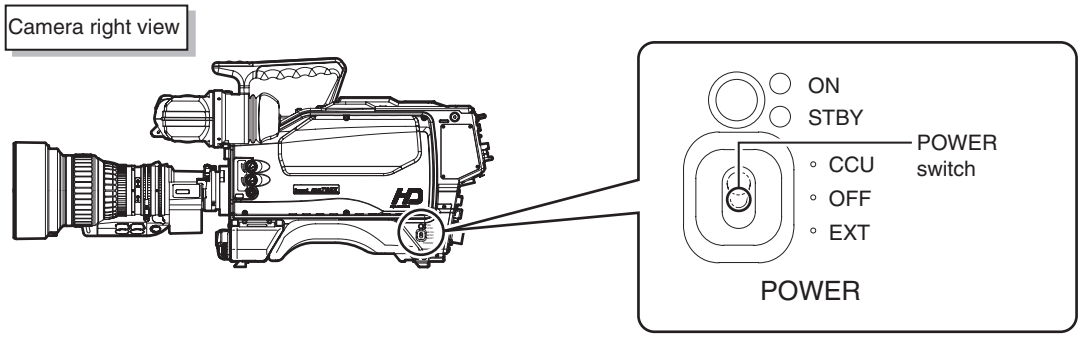
3.1 Preparation

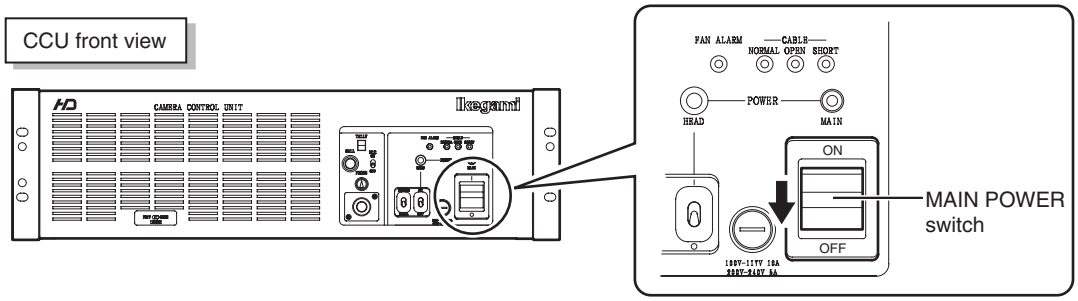
Product Use Environment

Please read "SAFETY PRECAUTIONS" described at the beginning of this manual for precautions on use of this product.

Make sure the Power Switch is OFF

Please make sure that the power switch is "OFF" before connecting the HDK-79EX and peripheral equipment such as the CCU.

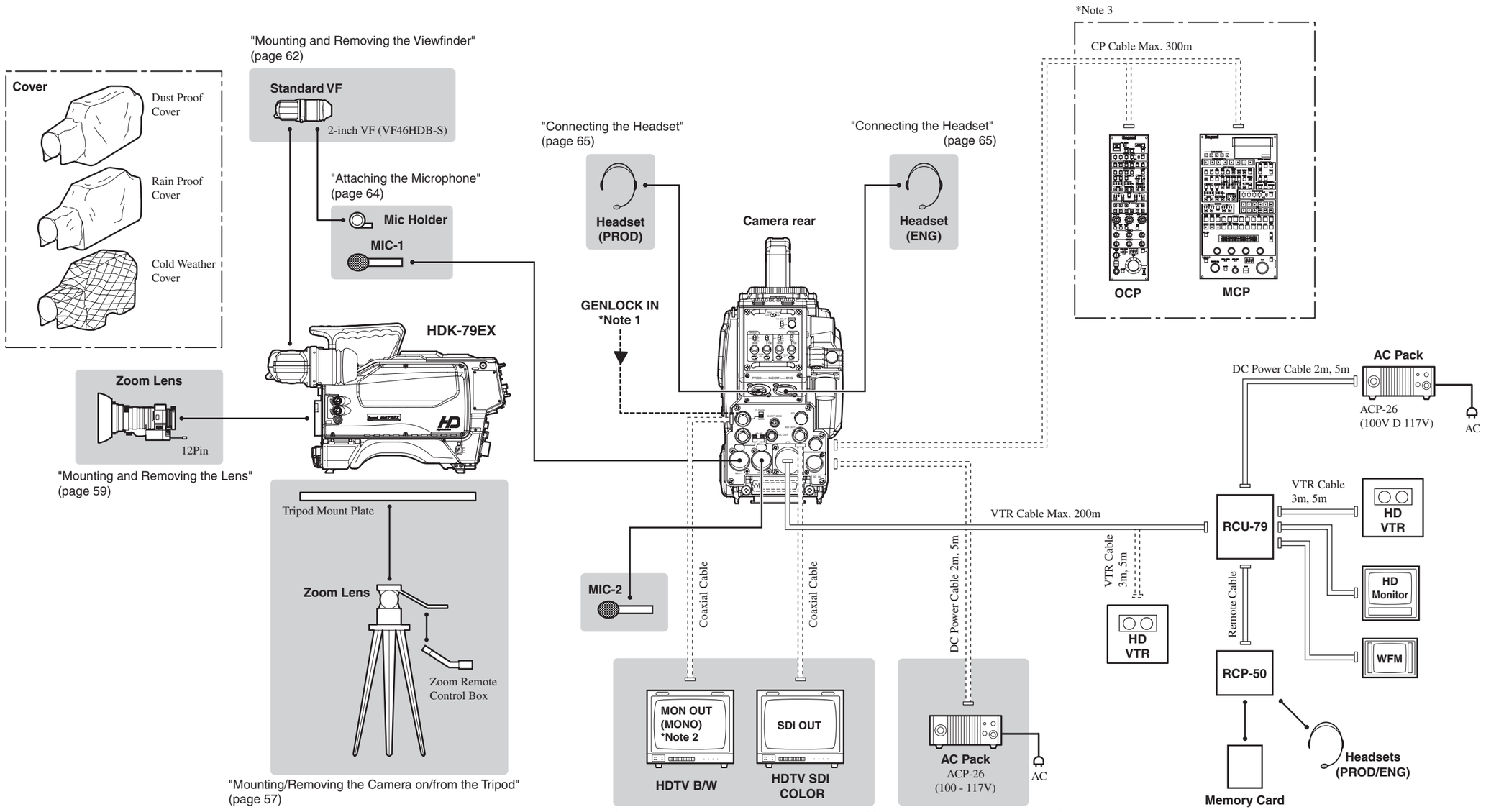




Connection Example for Each Operating System

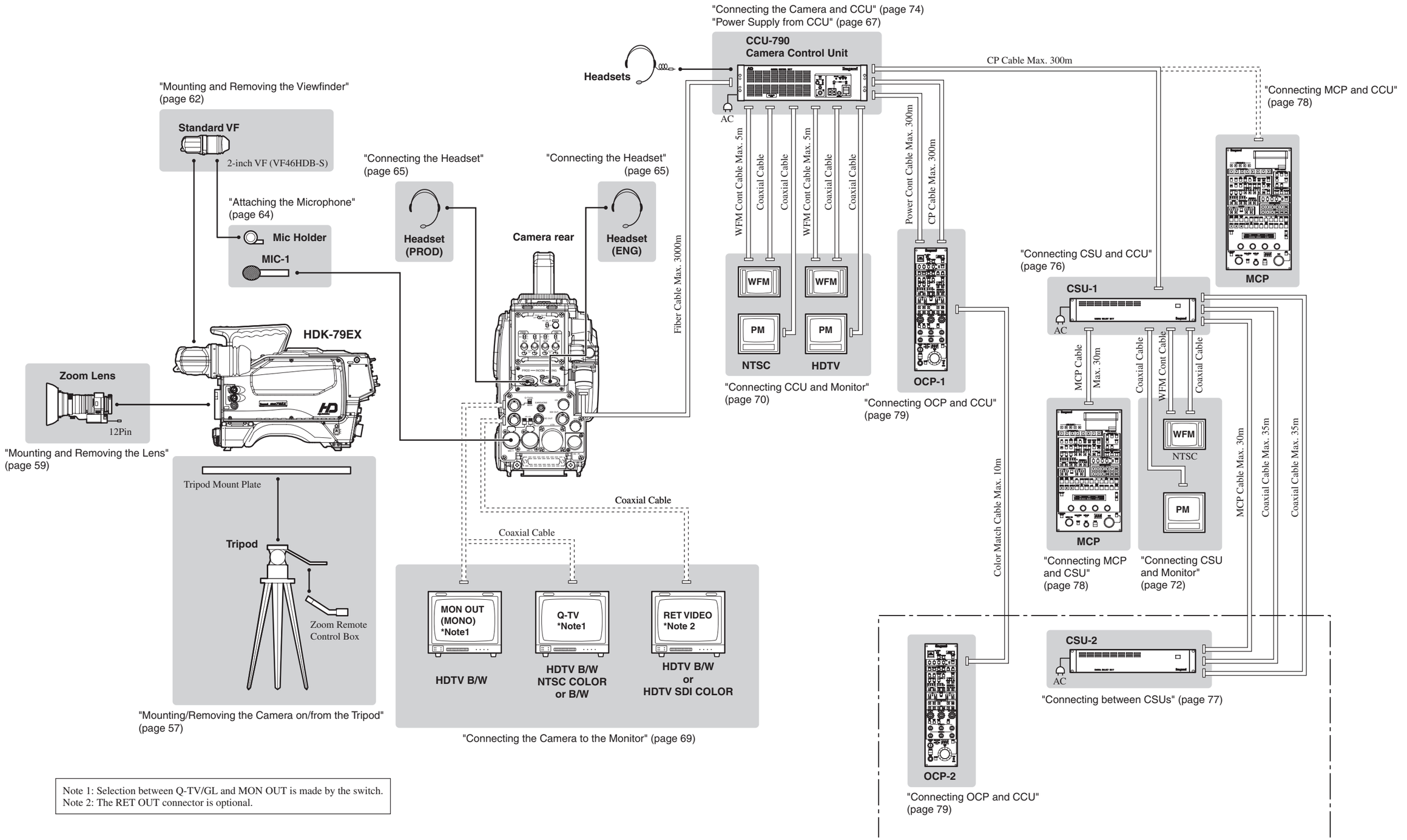
Not only can the HDK-79EX be used stand-alone for video location operation, but it can also be used in various operating systems in studio and in field as a system camera in combination with peripheral equipment such as the CCU.
This section shows a connection example of each operating system. Please refer to these examples when you connect the camera, shooting equipment, and peripheral equipment.

■ *Connection Example for Stand-Alone/VTR Location Operation*



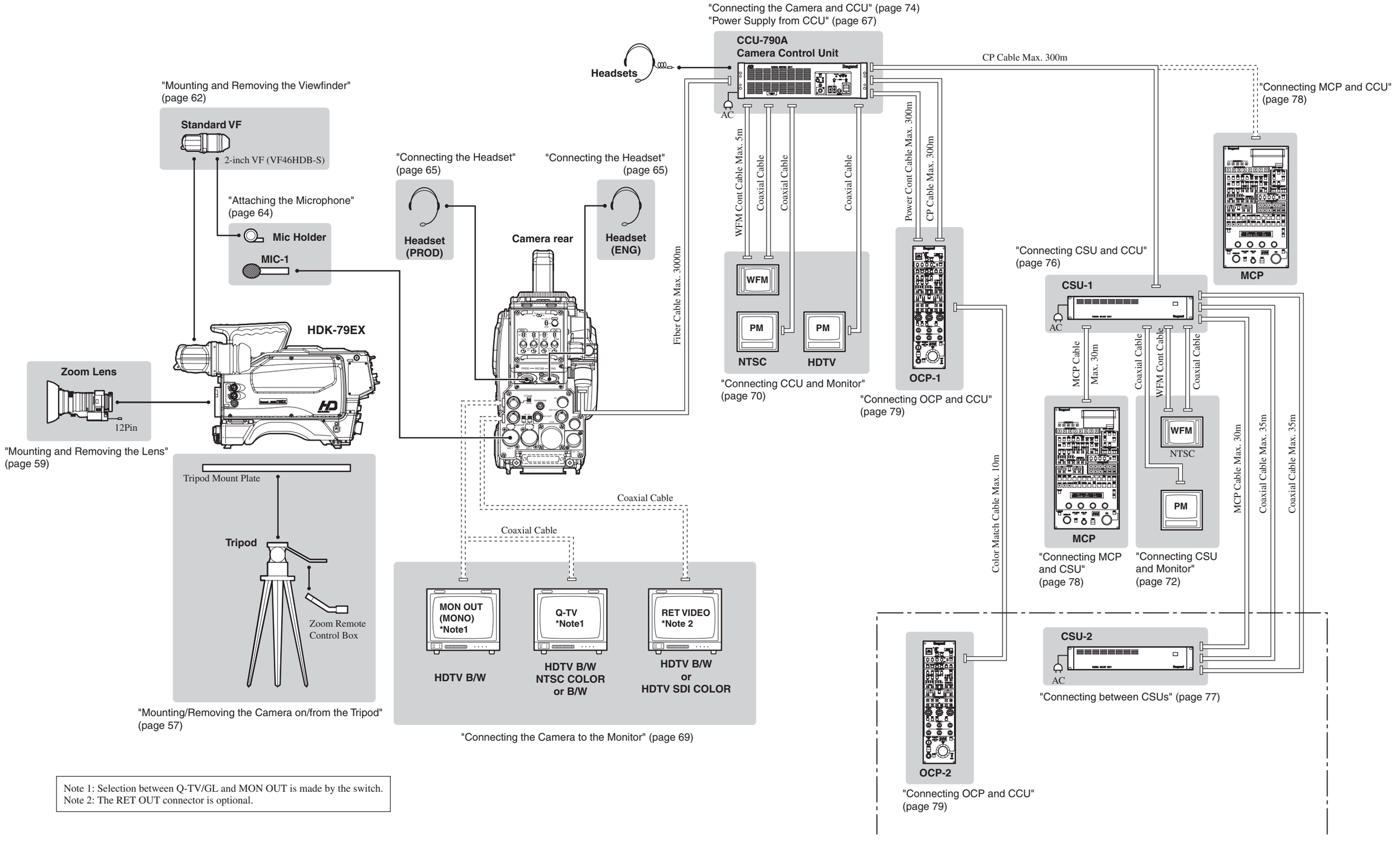
Note 1 : Only applicable for the self-contained system operation
Note 2 : Selection between Q-TV/GL and MON OUT is made by the switch.
Note 3 : OCP and MCP can be directly connected to the camera only in the self-contained system operation.

■ *Connection Example for Studio Operation (Using CCU-790)*



Note 1: Selection between Q-TV/GL and MON OUT is made by the switch.
Note 2: The RET OUT connector is optional.

■ *Connection Example for Studio Operation (Using CCU-790A)*



Note 1: Selection between Q-TV/GL and MON OUT is made by the switch.
Note 2: The RET OUT connector is optional.

3.2 Camera and Peripheral Installation and Connection

Mounting/Removing the Camera on/from the Tripod

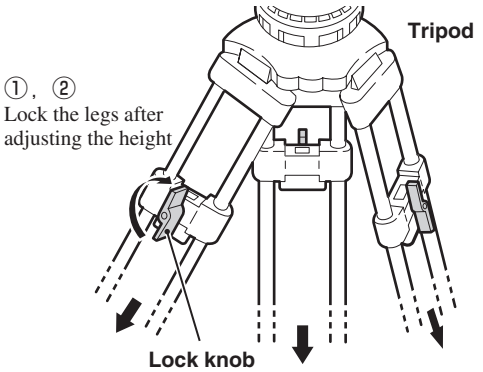
■ *Mounting the Camera on the Tripod*

This section explains how to mount the camera on a tripod. A number of different kinds of tripods are available to suit different applications and purposes. For details on the tripod, refer to the instructions accompanying the tripod to be mounted. The mounting of the VIDEO-18 will be described below as an example.

1 Loosen the lock knobs and extend the tripod legs.

Adjust the height of the tripod to the desired height.

2 Tighten the lock knobs to lock the tripod legs.

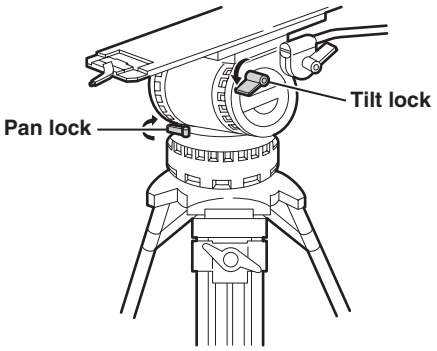


3 Make sure that the tilt lock and pan lock are locked.

If they are not locked and loose, tighten them.

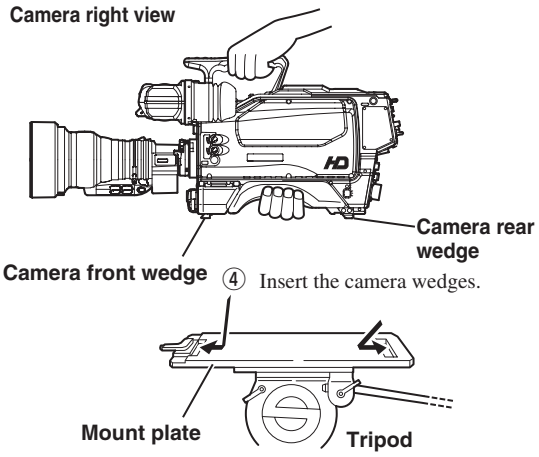
CAUTION:

Be sure to tighten the lock knobs before mounting the camera on a tripod. If the tripod is unstable, the camera might fall when it is mounted on the tripod, resulting in a damage to the camera or injury to the user.



③ Make sure the tilt lock and pan lock are locked.

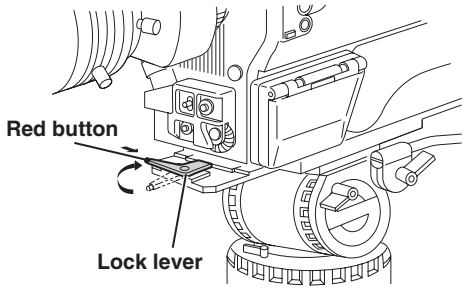
4 Insert the rear wedge of the camera into the groove of the tripod mount plate and move it backward slightly.



④ Insert the camera wedges.

5 After inserting the front wedge of the camera, tighten the lock lever until the camera is completely fixed.

Turn the lock lever until it clicks. You will hear a click sound when the lock lever is locked.



⑤ Tighten the lock lever until the camera is completely fixed.

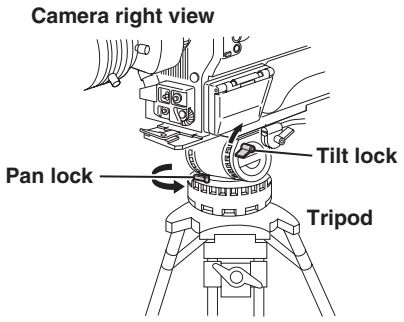
6 Make sure that the camera is fixed to the tripod mount plate completely and does not wobble.

CAUTION:

Be sure to mount the camera on a tripod securely, or the camera might fall and get damaged and you can be injured.

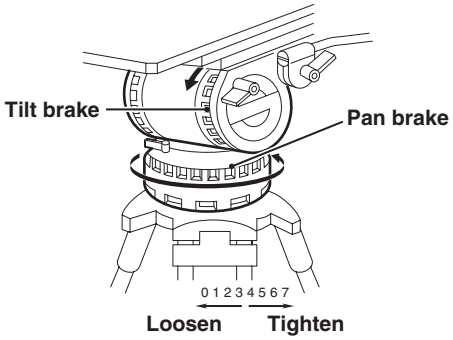
7 Loosen the tilt lock and pan lock and adjust the pan and tilt of the camera.

Setting the pan brake and tilt brake to a low number will minimize friction and ensure smooth movement.



⑦ Loosen the tilt lock and pan lock and adjust the pan and tilt of the camera.

8 After positioning the camera to the desired pan and tilt, tighten the tilt lock and pan lock to lock the camera.



⑧ Tighten the tilt lock and pan lock to lock the camera.

■ *Removing the Camera from the Tripod*

This section explains how to remove the camera from the tripod.

1 Press the red button on the lock lever to unlock the camera.

Be sure to hold the handle while pressing the button to prevent the camera from falling.

2 Lift the camera and remove the wedges from the tripod mount plate.

Mounting and Removing the Lens

■ *Mounting the Lens*

This section explains how to mount the lens to the camera.
Be sure to place the camera on a tripod or on a flat, level, stable surface when you mount the lens. The lens can be mounted to the HDK-79EX either by BTA or Ikegami mounting methods.

1 Before proceeding any further, remove the lens cap by pushing up the lens lock lever.

2 Align the pin of the lens with the notch of the camera lens mount, and horizontally insert the lens into the camera lens mount.

Support the lens with your hand to prevent it from falling.

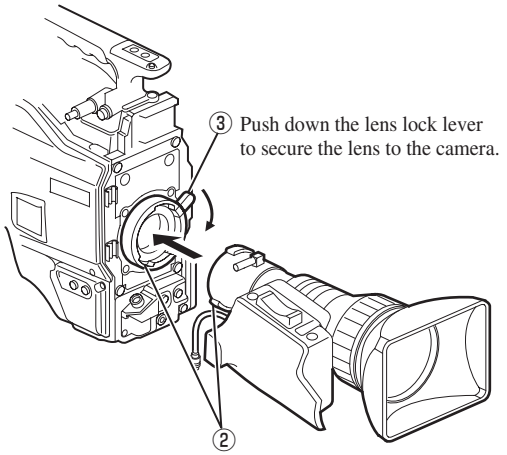
3 Secure the lens to the camera.

● *BTA mounting method*
Push down the lens lock lever to secure the lens to the camera.

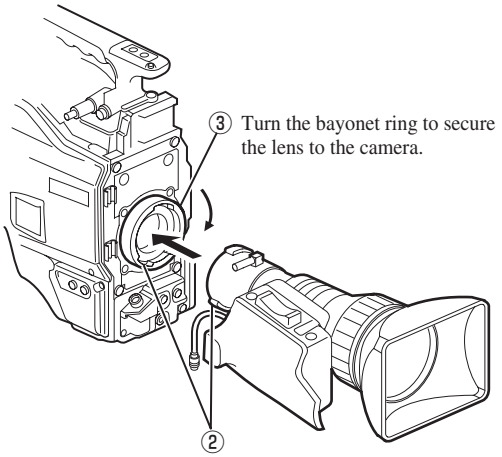
● *Ikegami mounting method*
Turn the bayonet ring clockwise to secure the lens to the camera.

Make sure there is no play.

● BTA mounting method



● Ikegami mounting method



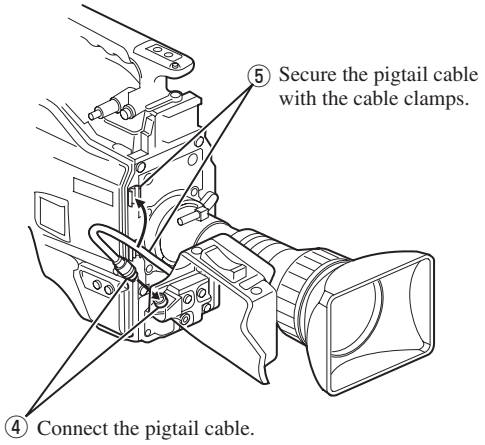
4 Connect the pigtail cable to the lens connector.

Align the pins on the pigtail cable with the lens connector and push until it is locked.

5 Secure the pigtail cable with the cable clamps to remove any slack.

CAUTION:

Do not hold the lens housing to support the entire camera. An excessive force applied to the mount will cause damage.

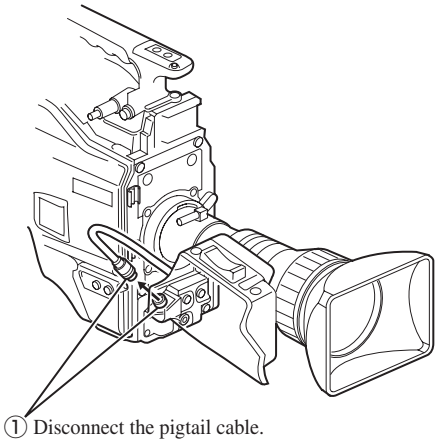


■ *Removing the Lens*

This section explains how to remove the lens.
Be sure to place the camera on a tripod or on a flat, level, stable surface when you remove the lens.

1 Disconnect the pigtail cable from the lens connector.

Hold the connector of the pigtail cable and pull to unlock and release it from the lens connector.



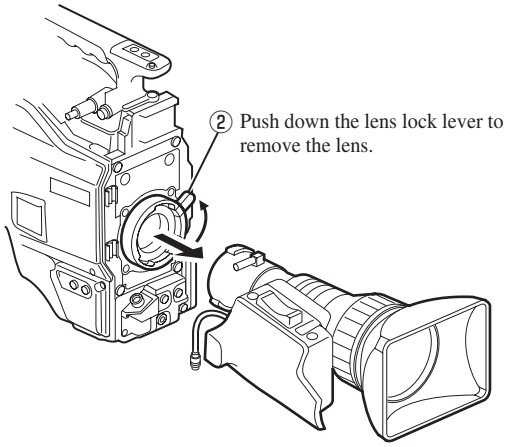
2 Remove the lens from the camera.

● *BTA mounting method*
Push down the lens lock lever and remove the lens from the camera horizontally.

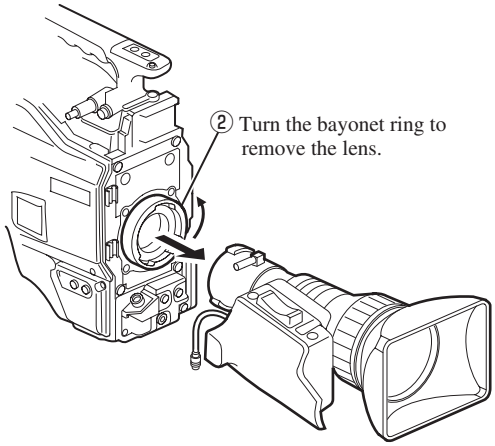
● *Ikegami mounting method*
Turn the bayonet ring counterclockwise and remove the lens from the camera horizontally.

Support the lens with your hand to prevent it from falling.

● BTA mounting method



● Ikegami mounting method



3 Remove the pigtail cable from the cable clamps.

4 Put the lens cap on to protect the lens from scratches.

Mounting and Removing the Viewfinder

■ *Mounting the Viewfinder*

This section explains how to mount the viewfinder (VF46HDB-S) to the camera.

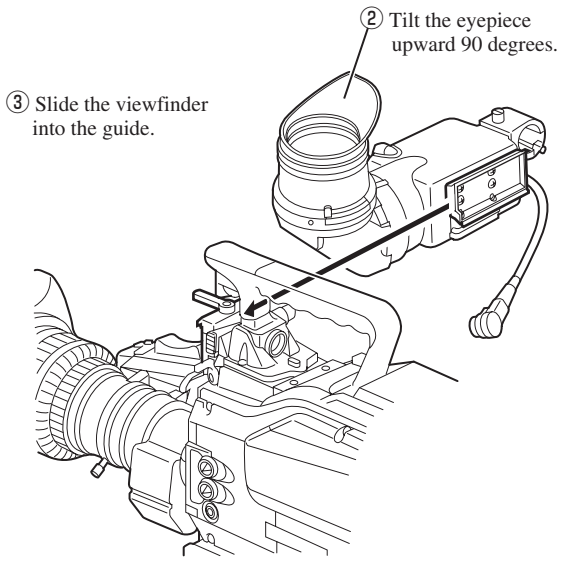
1 Make sure the camera power switch is OFF.

If the power switch is set to CCU or EXT, turn it OFF.

2 Tilt the viewfinder eyepiece upward 90 degrees.

3 Slide the rail on the rear of the viewfinder into the guide on the front of the camera from the left-hand side.

Slide the viewfinder until it clicks into position. When the viewfinder is locked to the camera by the lock pin, it clicks.

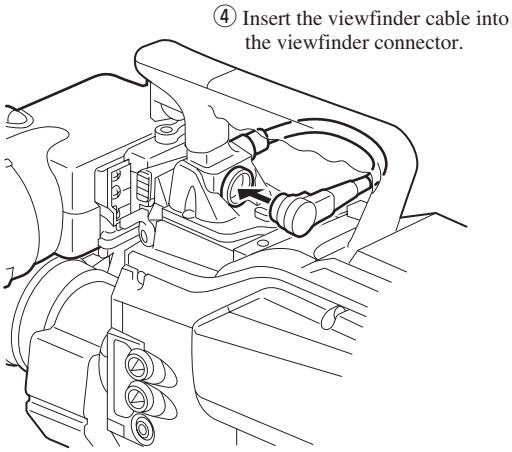


4 Connect the viewfinder cable to the viewfinder connector on the camera handle.

Align the pins on the viewfinder cable with the viewfinder connector and push until the connector lock button clicks.

CAUTION:

Be careful not to catch your fingers in the lock lever or guide-rail when attaching the viewfinder. Take caution to avoid injury.



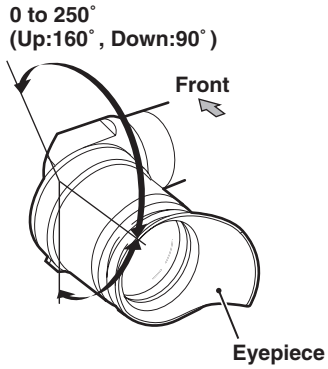
5 Adjust the viewfinder position.

●*Adjust the left and right positions of the viewfinder*
Turn the left-right lock lever on the camera counterclockwise to unlock the viewfinder. Move the viewfinder left and right to the desired position and lock.

●*Adjust the front and back positions of the viewfinder*
Loosen the front-back lock lever on the camera to unlock the viewfinder. Move the viewfinder back and forth to the desired position and lock.

●*Adjust the eyepiece angle*
Move the eyepiece to a proper position so that the image on the viewfinder is visible. The eyepiece can be rotated 160 degrees upward and 90 degrees downward. Adjust the eyepiece angle in accordance with the camera angle.

● Adjusting the eyepiece angle



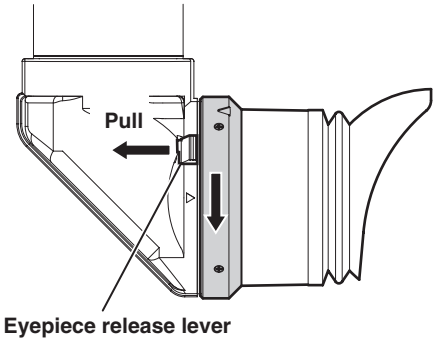
■ *Removing the Eyepiece*

This section explains how to remove the eyepiece from the viewfinder.

1 Pull the eyepiece release lever and rotate the eyepiece in the direction shown in the figure.

The eyepiece will be unlocked.

2 Pull out the eyepiece.



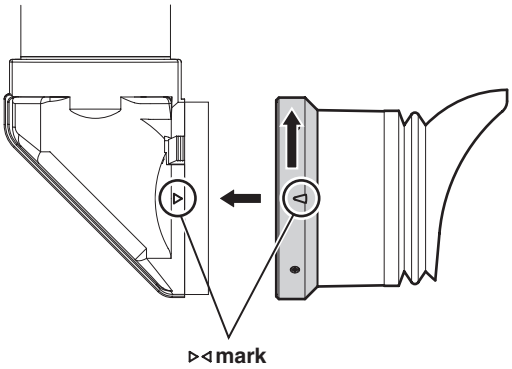
■ *Attaching the Eyepiece*

This section explains how to attach the eyepiece to the viewfinder.

1 Align ▷ mark on the viewfinder with ◁ mark on the eyepiece and insert the eyepiece into the viewfinder.

2 Rotate the eyepiece in the direction shown in the figure.

Rotate the eyepiece until it clicks. You will hear a click sound when the eyepiece is locked to the viewfinder.



Attaching the Microphone

The HDK-79EX is equipped with two microphone channels (MIC-1 and MIC-2). Please select depending on the operation. This section explains how to attach a microphone to the microphone holder on the viewfinder.

Note:

The microphone holder is optional. There are three options available depending on the diameter of a microphone: for 19mm, 21mm, and 19-21mm.

1 Make sure the microphone holder is attached to the viewfinder.

If the microphone holder is not attached, attach it to the microphone holder attaching mount of the viewfinder.

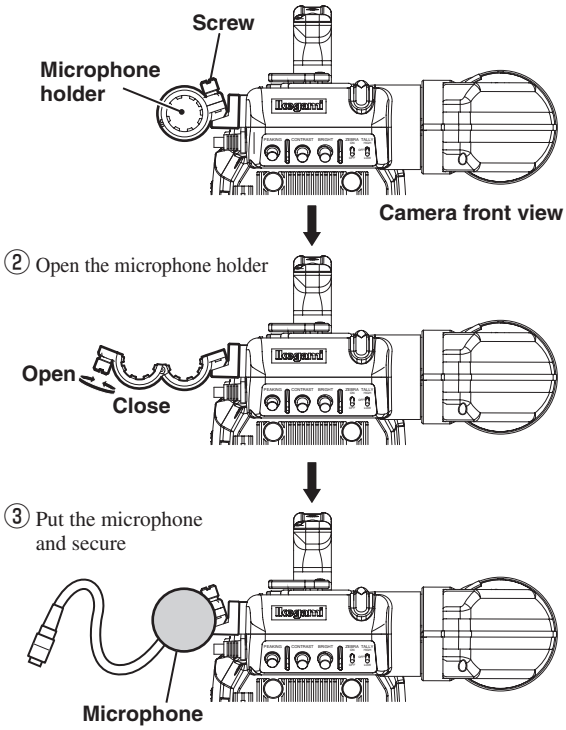
2 Loosen the screw on the microphone holder to open it.

3 Put the microphone in the opened microphone holder and tighten the screw to secure it in place.

4 Connect the microphone cable to the MIC-1 connector on the rear of the camera.

(This step is the same if the MIC-2 connector is used.)

5 Secure the microphone cable with the cable clamp to remove any slack.



Reference:

Power supply methods depend on the type of microphone used. Refer to "4 OPERATION", "Checking the Switch Positions" (page 84) for how to select the power supply.

For details on the microphone, refer to the instructions accompanying the microphone to be used.

Connecting the Headset

Two intercom lines (ENG and PROD) can be connected to the HDK-79EX. Please select the engineer intercom or producer intercom depending on the use. This section explains how to connect the engineer intercom to the camera.

1 Plug the headset connector into the ENG INCOM connector on the camera.

2 Turn the ENG MIC switch ON.

Note:

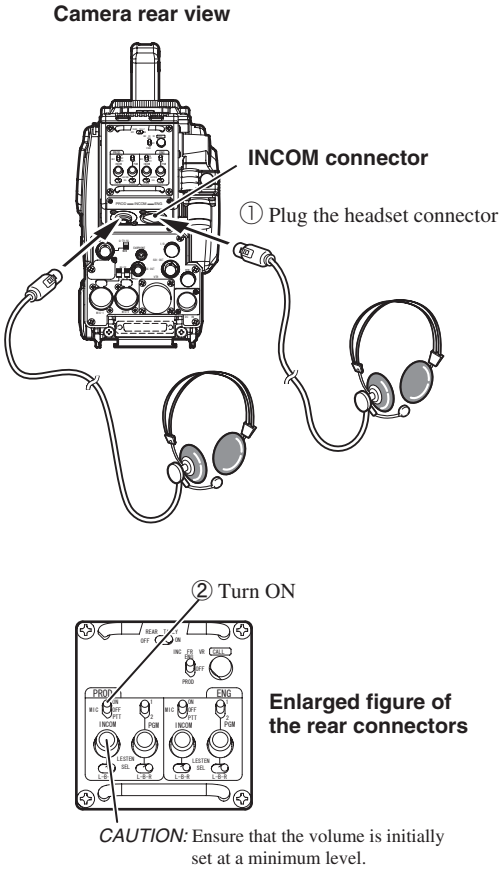
The ENG INCOM connector and PROD INCOM connector are compatible with the XLR series and 110-type phone jack connector.

CAUTION:

Do not set the volume of the intercom receiver to near maximum level from the beginning. Setting the volume too high with the intercom headset on your ears may damage your eardrums.

Reference:

Adjust the volume when the sound from the intercom receiver is hard to hear or too loud. Refer to "5. CAMERA SETTINGS AND ADJUSTMENT", "Headset Volume Control" (page 99) for how to control the intercom volume.



Attaching the Shoulder Belt

■ *Attaching the Shoulder Belt*

The HDK-79EX is equipped with the hooks to attach the shoulder belt. Attach or remove the shoulder belt depending on how you use the camera.

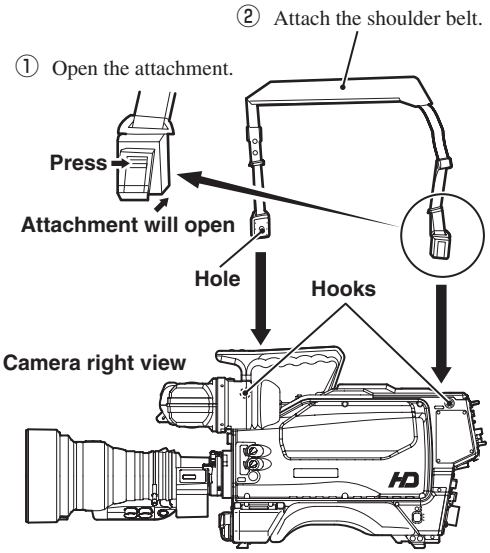
1 Open the attachment by pressing the upper part of each shoulder belt tab.

2 With the attachment open, align the hole in the attachment with the hook on the camera and lift the shoulder belt upward.

Make sure that the shoulder belt attachments are securely attached to the hooks.

CAUTION:

If the shoulder belt attachments are not securely attached to the hooks on the camera, the camera may fall while you are carrying or operating it, resulting in a damage to the camera or injury to the user.



3.3 Power Connection

There are three ways to supply power to the camera. Select the power supply according to the system configuration and operating system.

●*To supply from the AC pack*

Directly connect the camera and the AC pack via the DC POWER cable.

●*To supply from the CCU*

Connect the camera and the CCU via the fiber cable. The fiber cable contains a power conductor. The power of the camera and CCU can be turned ON/OFF from the OCP by connecting the OCP and CCU.

●*To supply from the remote controller such as RCU-79*

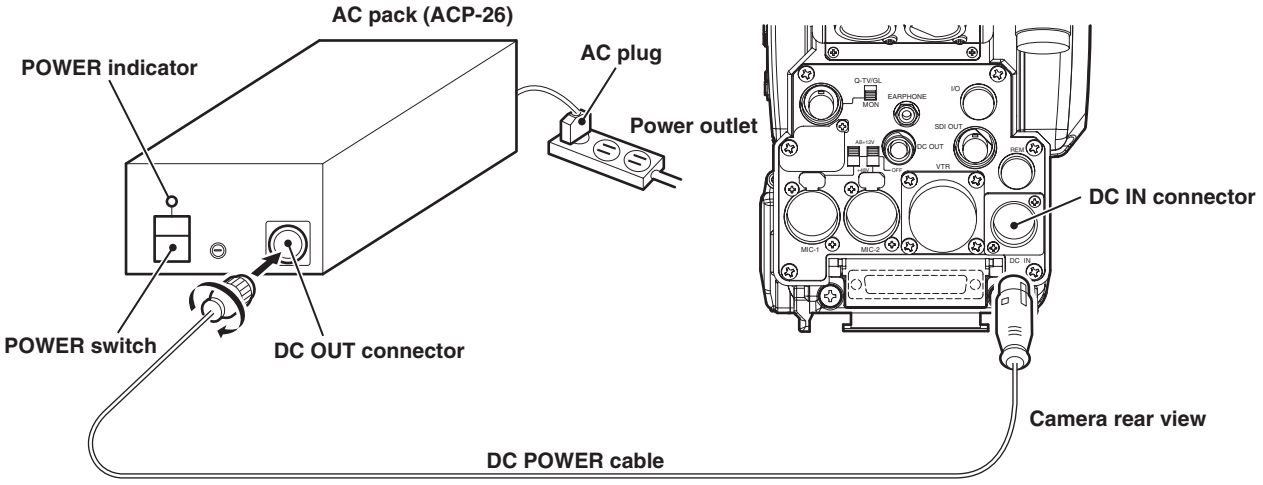
When videotaping on location, connect the camera and the remote controller via the VTR cable. The VTR cable contains a power conductor.

Note:

Make sure that the camera POWER switch is OFF before connecting the power. Refer to "Make Sure the Power Switch is OFF" (page 49) for how to check the power.

Power Supply from AC Pack

This section explains how to supply power from the AC pack (ACP-26).



1 Make sure the POWER switch on the AC pack is OFF.

2 Insert the AC plug of the AC pack into the power outlet.

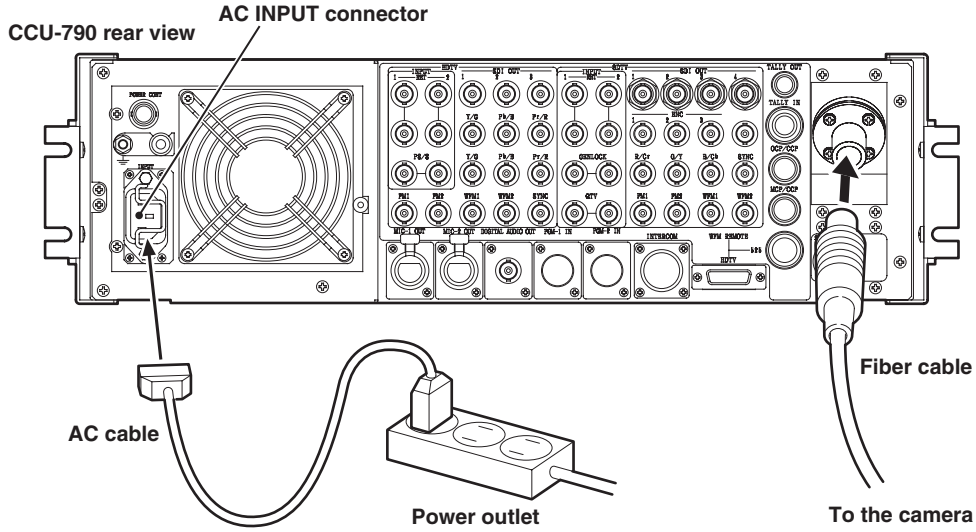
3 Connect the DC OUT connector on the AC pack and the DC IN connector on the camera via the DC POWER cable.

4 Turn the POWER switch on the AC pack ON.

The POWER indicator on the AC pack will light.

Power Supply from CCU

This section explains how to supply power from the CCU-790 or CCU-790A. While the explanation is given for the CCU-790 as an example, the same procedures apply to the CCU-790A.



1 Make sure the CCU-790 MAIN POWER switch is OFF.

2 Connect the AC cable to the AC INPUT connector on the rear of CCU-790.

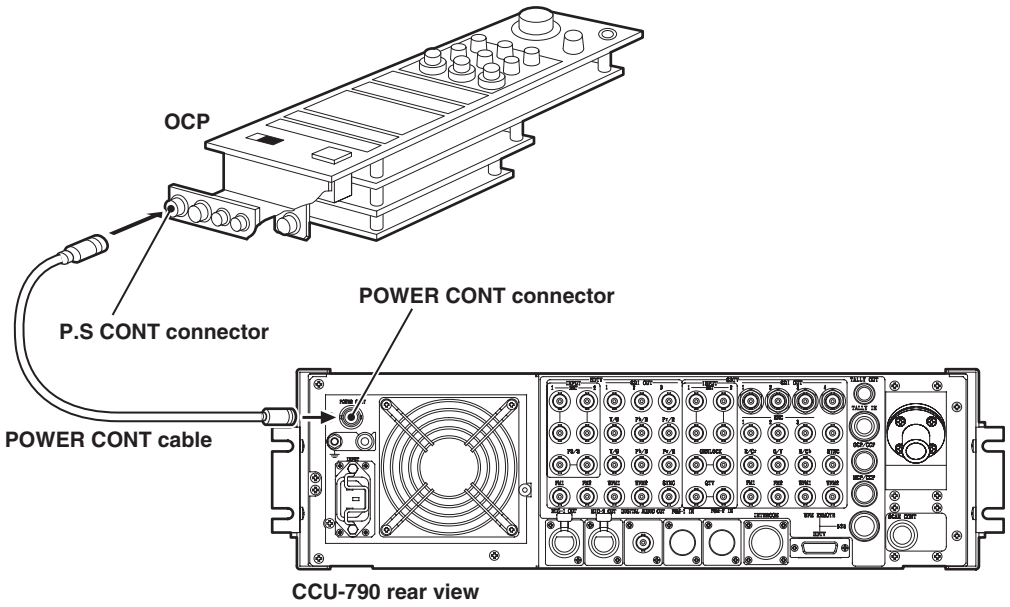
3 Insert the AC plug into the power outlet.

4 Connect the CCU-790 and the camera via a fiber cable.

This completes the procedure for connecting power from the CCU-790 to the camera. Proceed to the next step if you want to control the power ON/OFF from the OCP.

■ *To Control Power ON/OFF from OCP*

You can control the power ON/OFF of the camera and CCU from the OCP.



5 Connect the POWER CONT connector on the rear of CCU-790 and the P.S CONT connector on the OCP via the POWER CONT cable.

6 Set the POWER REMOTE/LOCAL switch on the front of CCU-790 to REMOTE.

After completing the above procedures, set the camera POWER switch to CCU and the CCU-790 MAIN POWER switch to ON to enable the OCP to turn the camera and CCU power ON/OFF.

3.4 Monitor Connection

This section explains how to connect the HDK-79EX or peripherals to the monitor.

Connecting Camera and Monitor

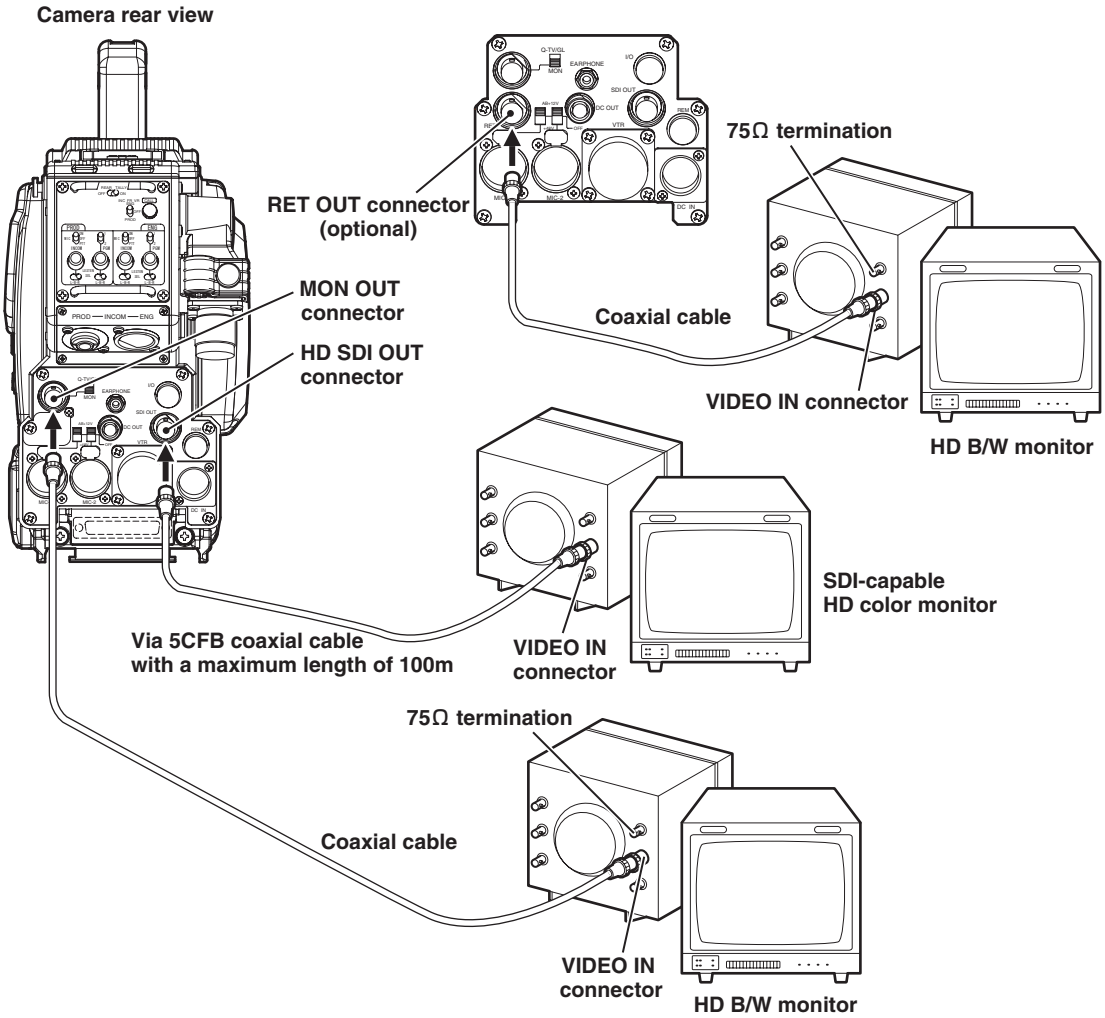
There are three connectors on the rear of the camera to output various video signals. The type of video signal output from each connector is different. Be sure to connect to a correct connector via a coaxial cable in accordance with the monitor to be used.

- Q-TV/GL, MON OUT connector : Selection between Q-TV/GL and MON OUT is made by the Q-TV/GL, MON OUT SELECT switch.
  If Q-TV/GL is selected, this connector outputs the Q-TV signal when the camera is connected to the CCU, or it inputs an external synchronization signal (GENLOCK) when the camera is used stand-alone.
  On the other hand, if MON is selected, it outputs the camera video signal (Y, R+G+B, R/G/B) selected from the menu to the monitor.

  Reference:
  Refer to "5. CAMERA SETTINGS AND ADJUSTMENT", "VIDEO OUTPUT MODE" (page 140) for how to set the video output mode.

- HD SDI OUT connector : Outputs the digital serial video signal. Applicable to the HDTV SDI signal (not applicable to the NTSC SDI signal).

- RET OUT connector (optional) : Outputs the return video signal from the CCU. Selectable between HDTV Y and HDTV SDI signal (not applicable to the NTSC signal).

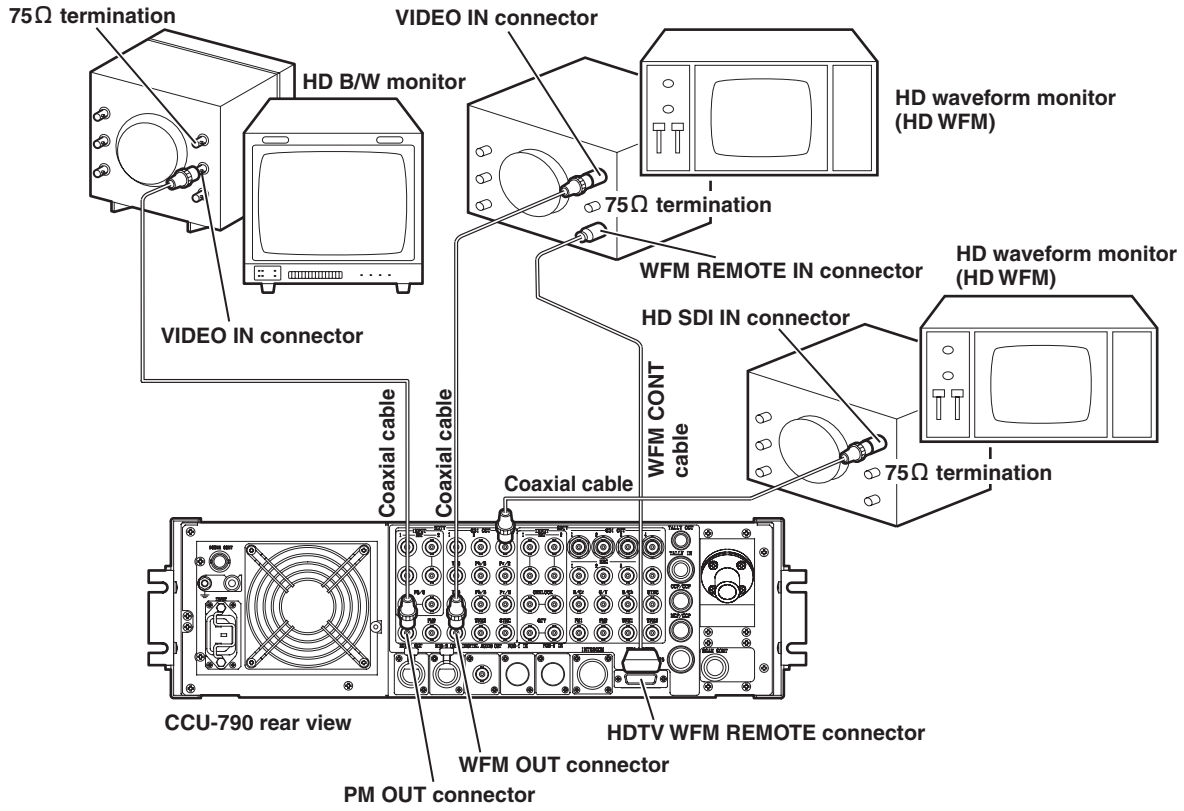


Connecting CCU and Monitor

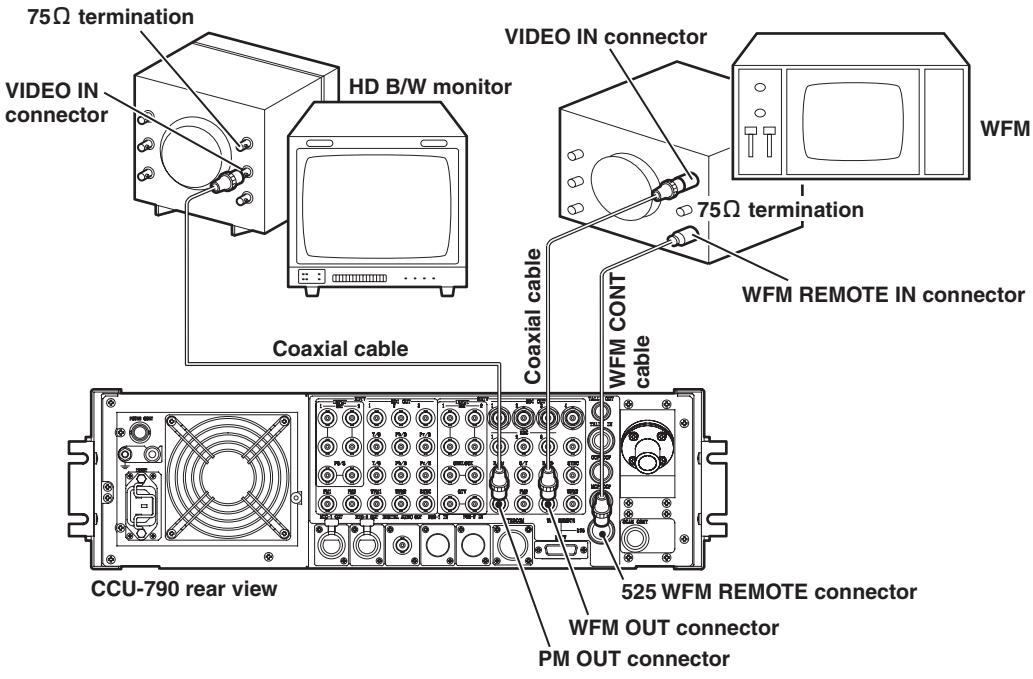
The CCU-790 and CCU-790A can be connected to the ND monitor or NTSC monitor. The location of the rear connectors are different between the CCU-790 and CCU-790A. Be sure to connect to the correct connectors when connecting to the monitor.

■ *Connecting CCU-790 and Monitor*

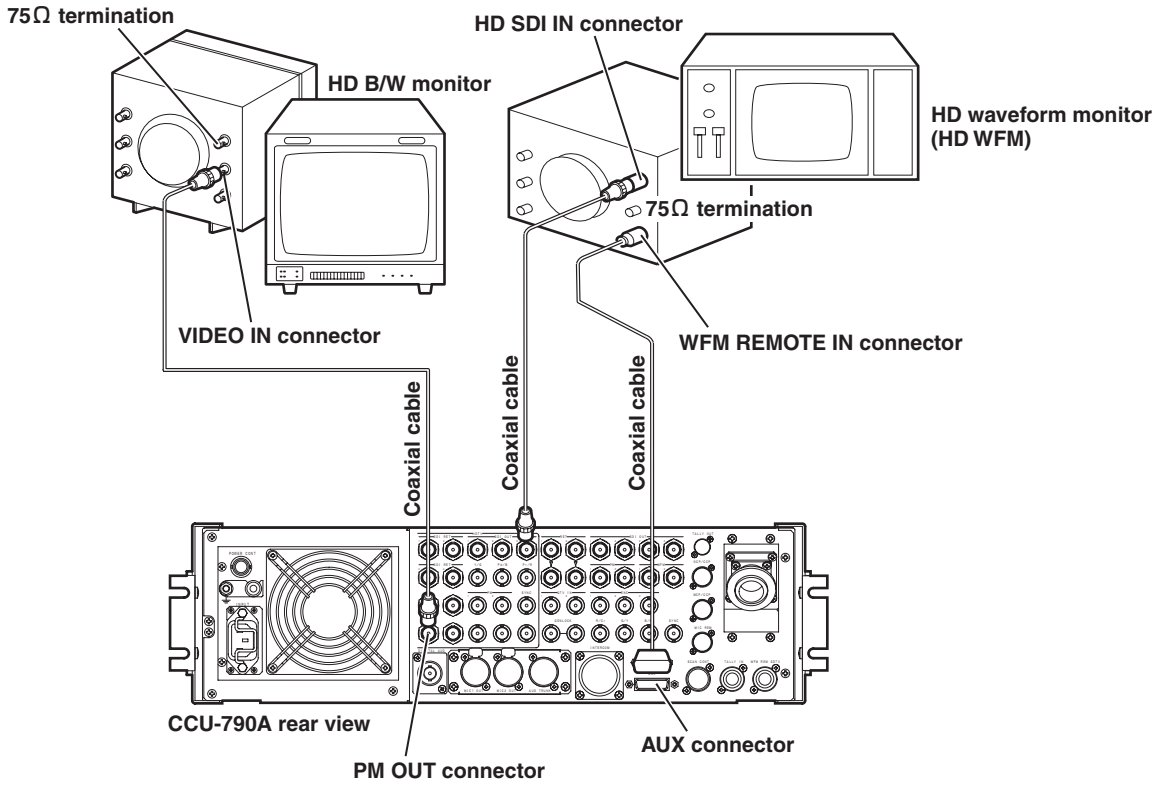
● *HD monitor*

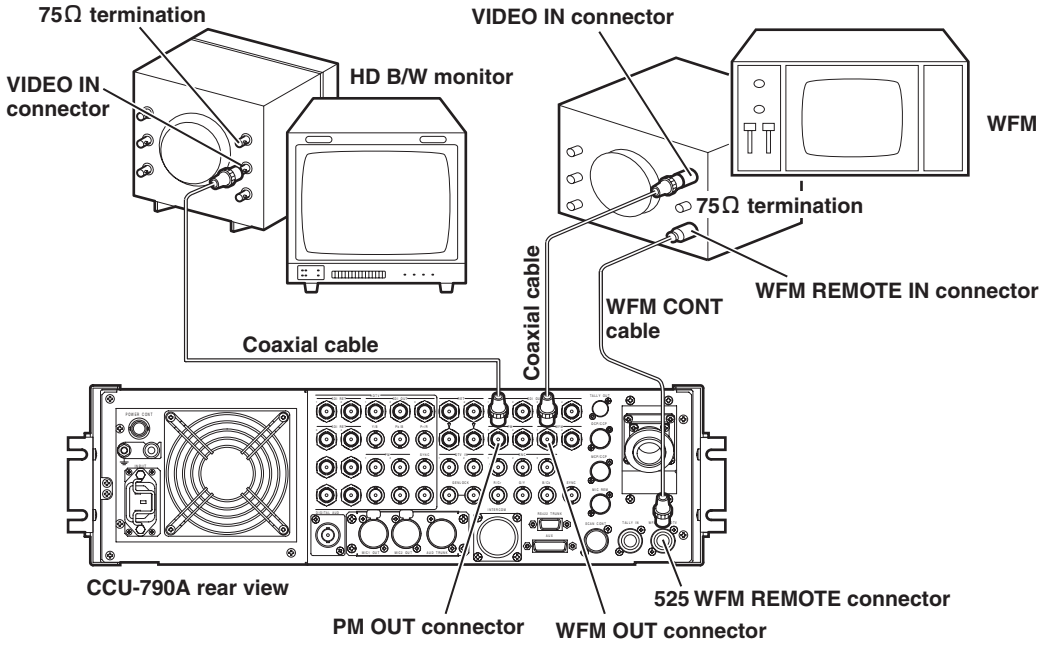


● *NTSC monitor*



■ *Connecting CCU-790A and Monitor*





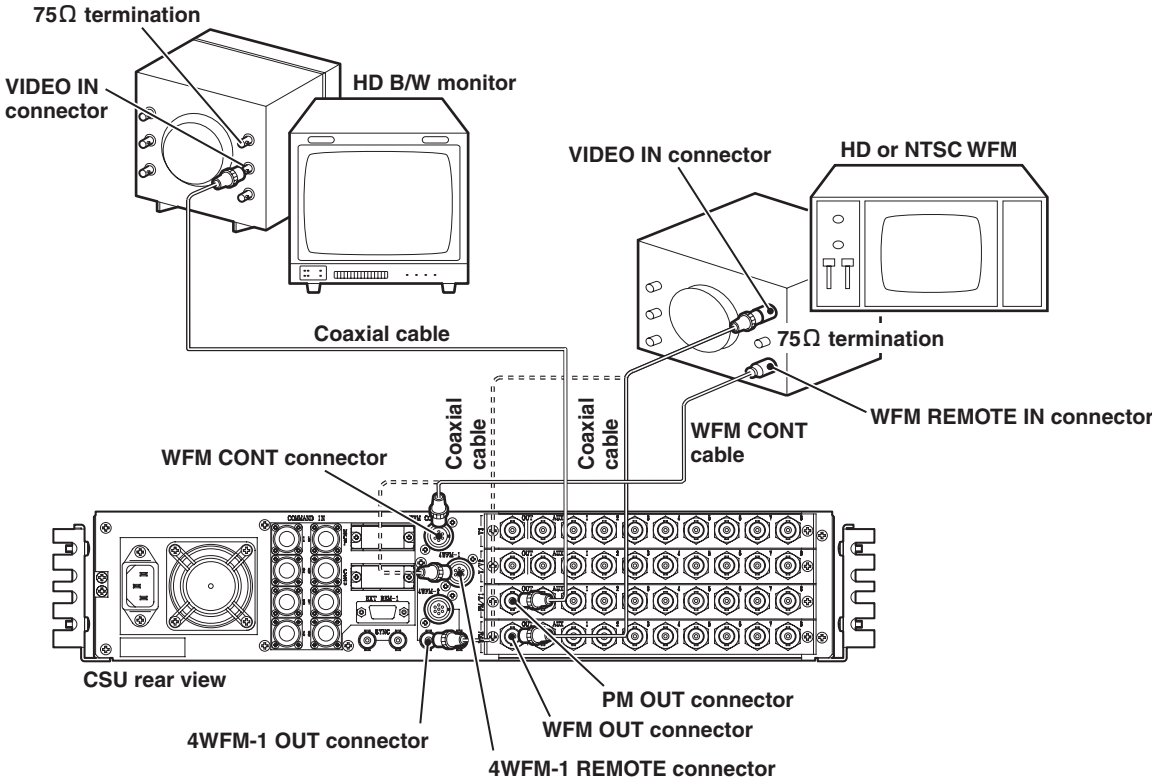
Connecting CSU and Monitor

The connectors located on the rear of the CCU for waveform monitoring are shown below. The type of waveform signal output from each connector is different. Be sure to connect to a correct connector via a coaxial cable in accordance with the monitor to be used. The video signal input from the CCU is output to the B/W monitor as it is.

- WFM OUT connector : Outputs the waveform signal, which is input from the CCU, to the waveform monitor as it is.
- WFM CONT connector : Outputs the control signal for the WFM OUT.
- 4WFM-1/-2 OUT connector : Outputs four waveforms to the waveform monitor in a time-sharing manner. To output the four waveforms simultaneously, the Y signal is input to the Y/V2 connector.
- 4WFM-1/-2 REMOTE connector : Outputs the control signal for the 4WFM-1/-2 OUT.

Note:

The waveform signal output from the 4WFM-1/-2 OUT connector can only be monitored by the waveform monitor capable of 4-waveform signal.



======= : Connection for 4 waveform signal

■ *To Output the Waveform Signal input from the CCU*

1 Connect the WFM OUT connector on the rear of the CSU to the waveform monitor via the coaxial cable.

2 Connect the WFM CONT connector on the rear of the CSU to the waveform monitor via the WFM CONT cable to output the waveform control signal.

■ *To Output the 4 Waveform Signal*

1 Connect the 4WFM-1/-2 OUT connector on the rear of the CSU to the waveform monitor capable of 4-waveform signal via the coaxial cable.

2 Connect the 4WFM-1/-2 REMOTE connector on the rear of the CSU to the waveform monitor via the WFM CONT cable to output the control signal for 4-waveform signal.

■ *To Output the Video Signal*

1 Connect the PM OUT connector on the rear of the CSU to the HD or NTSC B/W monitor via the coaxial cable.

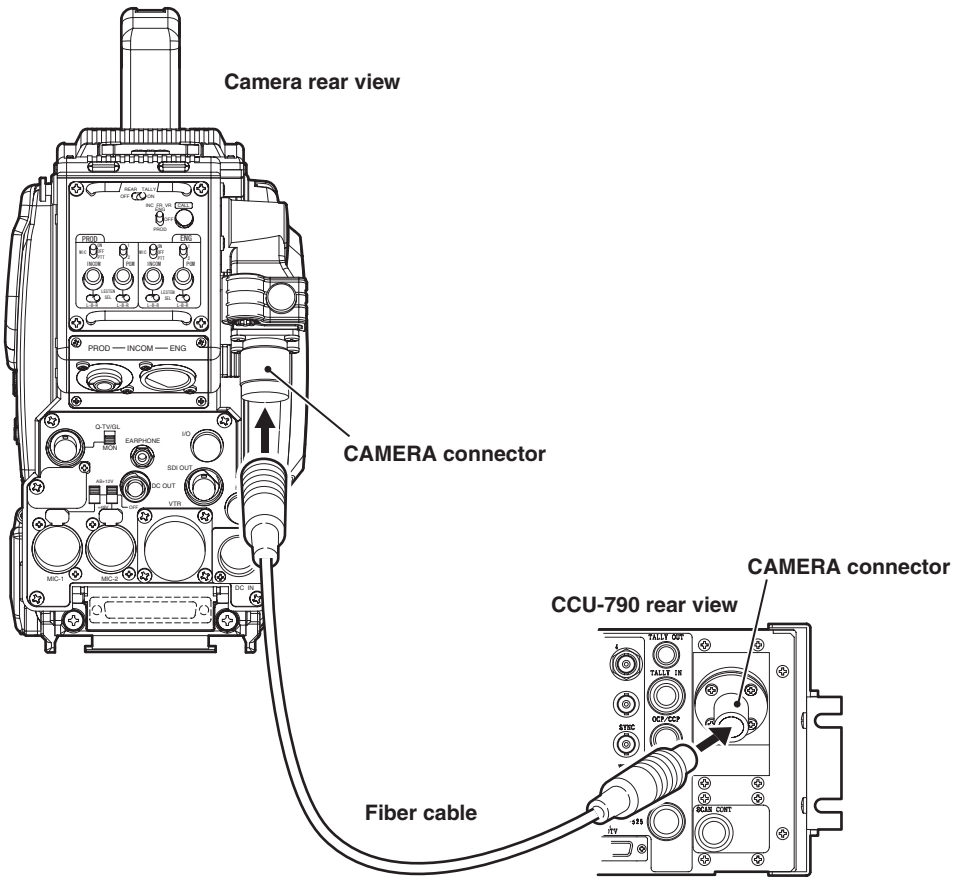
3.5 CCU Connection

This section explains how to connect the HDK-79EX to the CCU.
Two types of fiber cables are available in different shapes.

- Fiber cable (2-core single mode) : Diameter 9.2mm or 16mm, Maximum length 3000m (when CCU-790 or CCU-790A is used)

Connecting Camera and CCU

While the explanation is given for the CCU-790 as an example, the same procedures apply to the CCU-790A.



1 Connect the CAMERA connector on the rear of the CCU-790 to the CAMERA connector on the rear of the camera via a fiber cable.

CAUTION:

- The fiber cable has a male plug connector on one end and a female plug connector on the other end. Be sure to connect the female plug connector to the camera and the male plug connector to the CCU.

- Secure the fiber cable with the CAMERA CABLE clamp on the left side of the camera to remove any slack. Refer to "SAFETY PRECAUTIONS" described at the beginning of this manual for how to secure the cable with the cable clamp and how to handle the fiber cable.

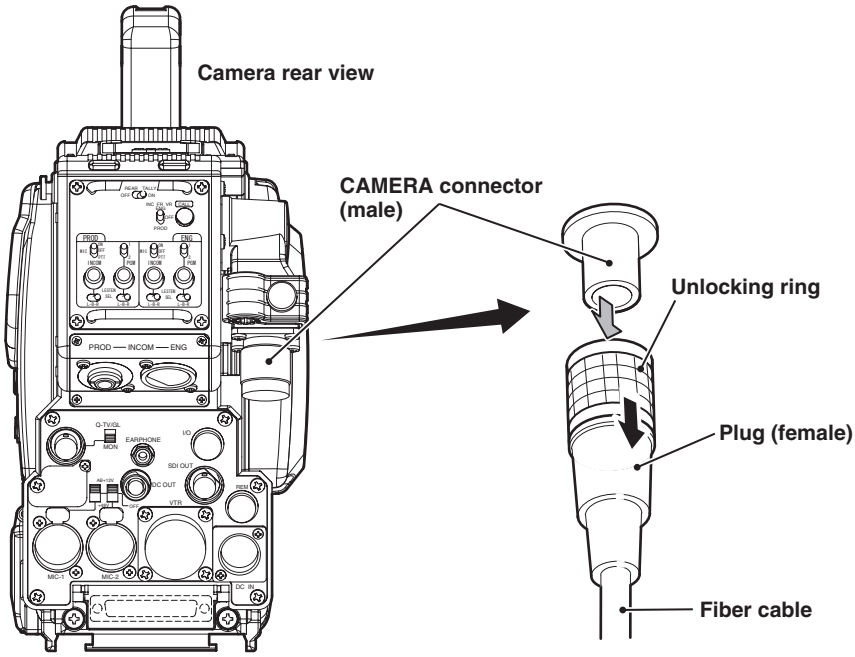
■ *Removing the Fiber Cable*

This section explains how to remove the fiber cable.

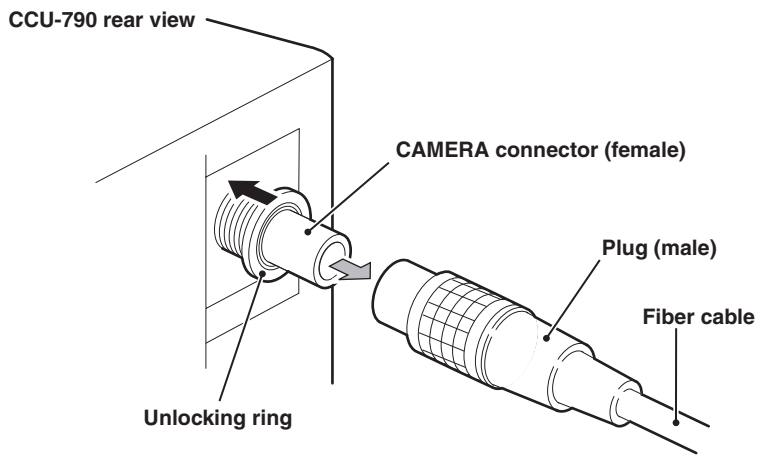
CAUTION:

When you remove the cable, be sure to hold the plug and pull. Failure to do so may damage the fiber in the cable.

● *Camera*



● *CCU*



1 Remove the cable from the camera while pulling the unlocking ring on the fiber cable plug (female) toward you.

If the connector tip is locked, the fiber cable will not be removed. If it is locked, push the fiber cable toward the CAMERA connector, and then remove as described above.

2 Remove the cable from the CCU-790 while pushing the unlocking ring of the CAMERA connector on the rear of CCU-790.

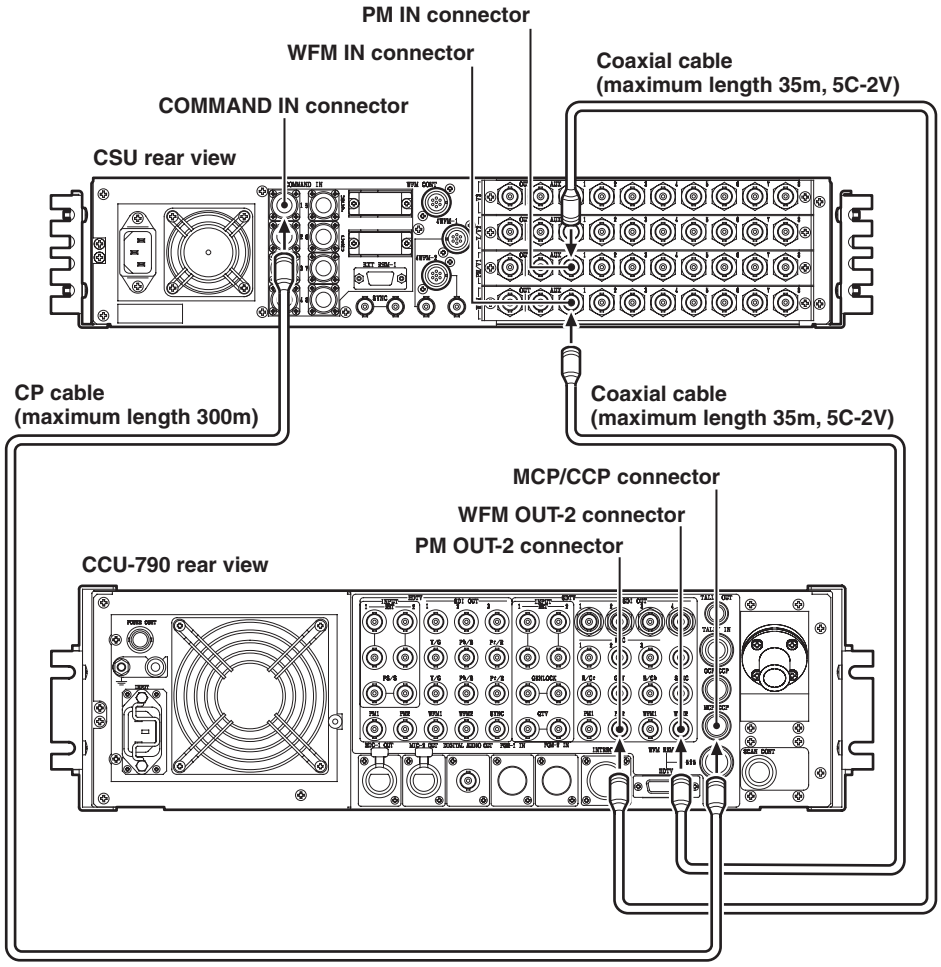
If the connector tip is locked, the fiber cable will not be removed. If it is locked, push the fiber cable toward the CAMERA connector, and then remove as described above.

3.6 CSU Connection

Various cables are connected to the CSU to control the camera and the monitor from the MCP. Up to 8 CCUs can be connected to one CSU. By connecting 2 or more CSUs, 9 or more cameras can be controlled. Up to 5 CSUs can be connected.

Connecting CSU and CCU

This section explains how to connect the CSU to the CCU.
Repeat the steps to connect more than one CCU (up to 8) to the CSU. While the explanation is given for the CCU-790 as an example, the same procedures apply to the CCU-790A.



1 Connect the PM IN connector on the CSU to the PM OUT-2 connector on the CCU via the coaxial cable.

2 Connect the WFM IN connector on the CSU to the WFM OUT-2 connector on the CCU via the coaxial cable.

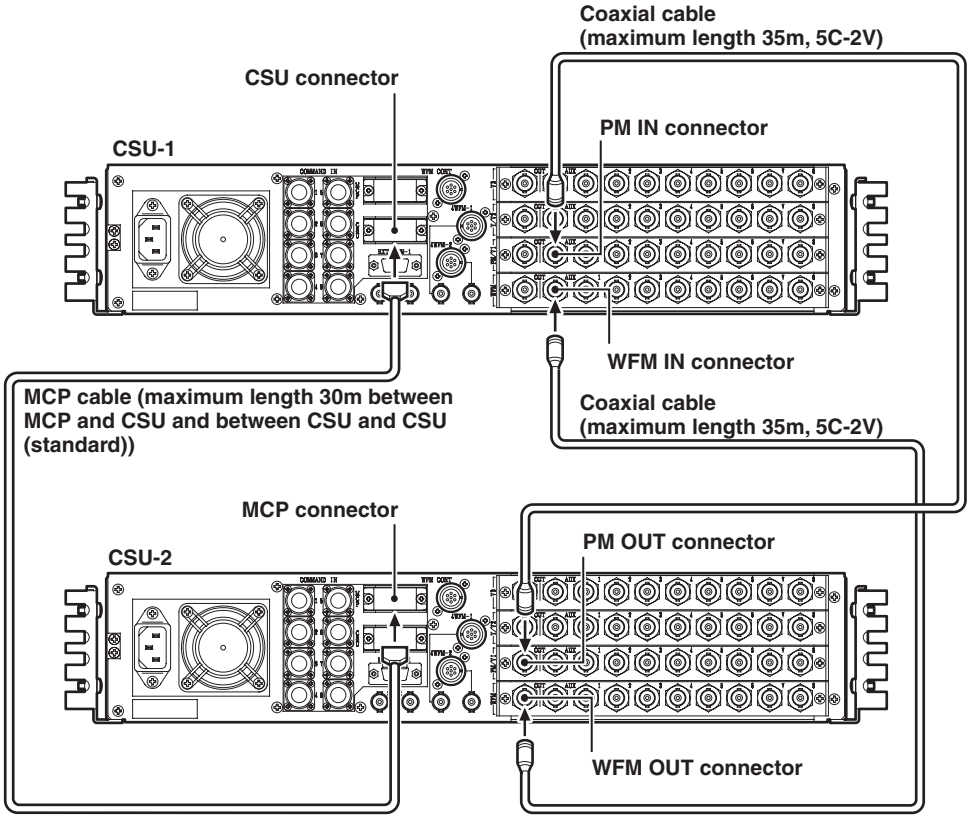
3 Connect the COMMAND IN connector on the CSU to the MCP/CCP connector on the CCU via the CP cable.

Note:

Be sure to connect the coaxial cable and CP cable to the connector position corresponding to the CCU number to be connected. For example, the CCU-1 is to be connected to the COMMAND IN-1 connector, and the CCU-8 to the COMMAND IN-8 connector, etc. If they are connected to wrong connectors, the CSU SELECT function from the MCP does not function properly.

Connecting between CSUs

This section explains how to connect the CSUs each other.



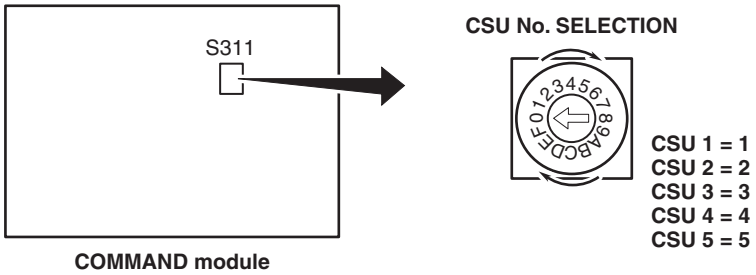
1 Connect the CSU connector on the CSU-1 to the MCP connector on the CSU-2 via the MCP cable.

2 Connect the PM IN connector on the CSU-1 to the PM OUT connector on the CSU-2 via the coaxial cable.

3 Connect the WFM IN connector on the CSU-1 to the WFM OUT connector on the CSU-2 via the coaxial cable.

4 Set the rotary switch S311 on the COMMAND module in the CSU to the CSU number to be used.

If the CSU is connected as CSU-2, its CSU number is "2".



5 Repeat the above steps as many times as the number of connecting CSUs.

Reference:

For details on the location of modules in the CSU and switches, refer to the instructions accompanying the CSU to be used.

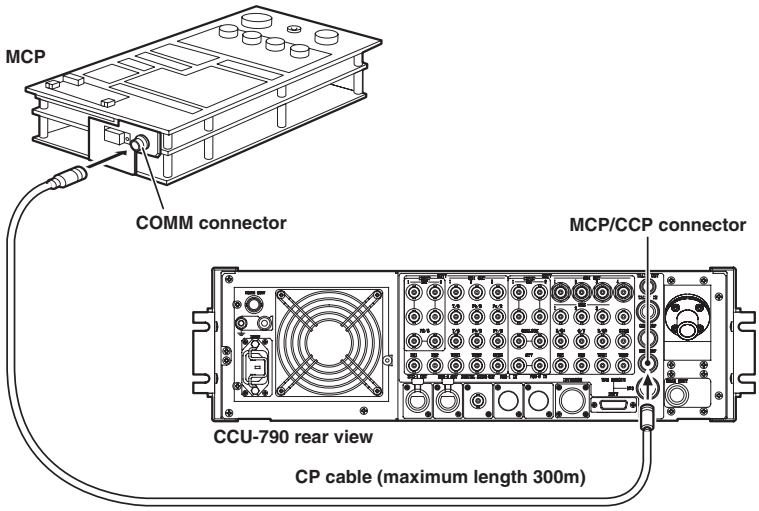
3.7 MCP Connection

Three operation patterns are available for the MCP. Choose one of the following operation patterns depending on the system configuration and operating system.

- Self-contained operation in which the MCP is contained in the carrying box and directly connected to the camera
- Operation in which the MCP is connected to the CCU
- Centralized control system operation in which the MCP is connected to the CSU

Connecting MCP and CCU

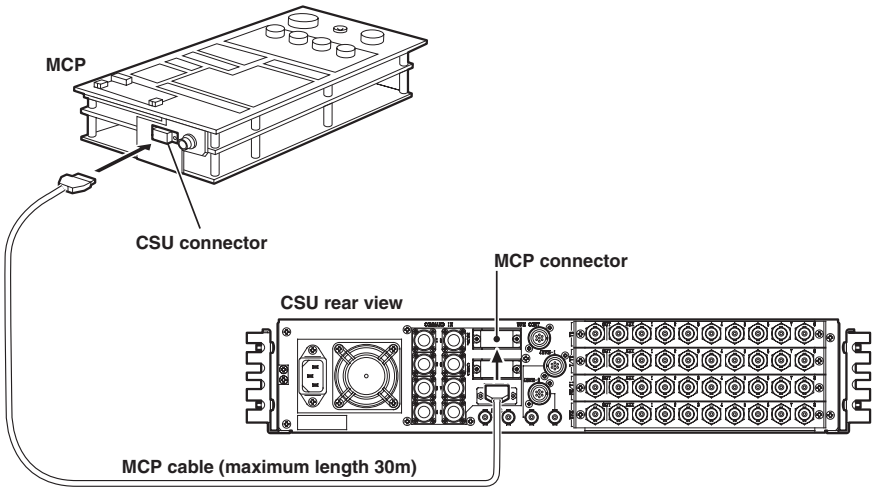
This section explains how to connect the MCP to the CCU.
While the explanation is given for the CCU-790 as an example, the same procedures apply to the CCU-790A.



1 Connect the COMM connector on the MCP to the MCP/CCP connector on the CCU via the CP cable.

Connecting MCP and CSU

This section explains how to connect the MCP to the CSU.



1 Connect the CSU connector on the MCP to the MCP connector on the CSU via the MCP cable.

3.8 OCP Connection

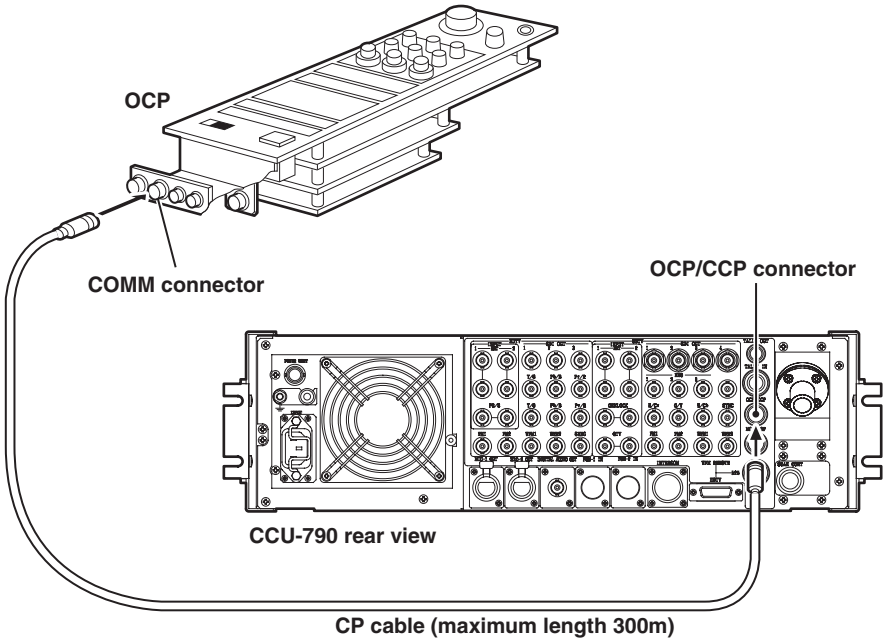
Two operation patterns are available for the OCP. Choose either operation pattern depending on the system configuration and operating system.

- Self-contained operation in which the OCP is directly connected to the camera
- Operation in which the OCP is connected to the CCU

When multiple OCPs are connected in the multi-camera system, color matching among the cameras is enabled by transferring data among the OCPs.

Connecting OCP and CCU

This section explains how to connect the OCP to the CCU.
While the explanation is given for the CCU-790 as an example, the same procedures apply to the CCU-790A.



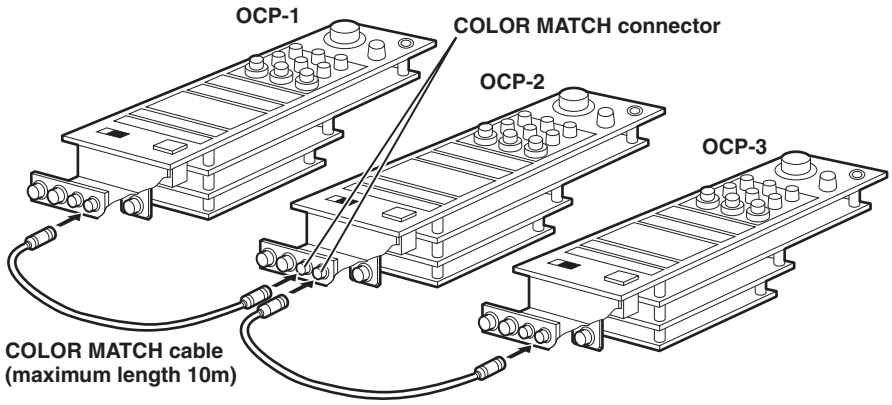
1 Connect the COMM connector on the OCP to the OCP/CCP connector on the CCU via the CP cable.

Reference:

The power of the camera and CCU can be turned ON/OFF from the OCP. For connection details, refer to "3.3 Power Connection", "Power Supply from CCU" (page 67).

■ *Multiple OCPs Performing Color Matching*

This section explains how to perform color matching by transferring data among OCPs.



1 Connect the COLOR MATCH connector on the OCP-1 to the COLOR MATCH connector on the OCP-2 via the COLOR MATCH cable.

Since there is no distinction between IN and OUT for the COLOR MATCH connector, the COLOR MATCH cable can be connected to either port of the connector.

2 Repeat the above step as many times as the number of OCPs that perform color matching and make bridge connections.