Canon

BCTV Zoom Lens
广播电视变焦镜头

UHD-DIGISUPER

UJ90x9B
UJ86x9.3B
UJ27x6.5B

取　扱　説　明　書
OPERATION MANUAL
使　用　说　明　书

ご使用の前に必ずこの取扱説明書をお読みください。
なお、取扱説明書は必要に応じてご覧になれるよう大切に保管してください。

Read this operation manual before using the product.
Keep the manual in place for future reference.

在使用本产品之前，请务必先仔细阅读本使用说明书。
请务必妥善保管好本书，以便日后能随时查阅（保留备用）。
请在充分理解内容的基础上，正确使用。

J/E/C

FCC REGULATIONS

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

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

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

Do not make any changes or modifications to the equipment unless otherwise specified in the manual. If such changes or modifications should be made, you could be required to stop operation of the equipment.

Canadian Radio Interference Regulations

CAN ICES-3(B)/NMB-3(B)

CE

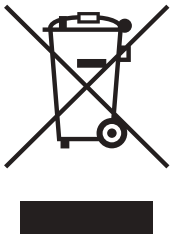
We, Canon Inc., in Japan and CANON EUROPE LTD., in U.K., confirm that the BCTV zoom lens is conformity with the essential requirements of EC Directive(s) by applying the following standards:
EN55032 and EN55103-2

Note:

a) Applicable Electromagnetic Environments:
E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors) and E4 (controlled EMC environment, ex. TV studio).
b) Use of shielded cable is required to comply with limits specified by above standards.

Dieses Produkt ist zum Gebrauch im Wohnbereich, Geschäfts- und Gewerbebereich sowie in Kleinbetrieben vorgesehen.

Only for European Union and EEA (Norway, Iceland and Liechtenstein)



This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2012/19/EC) and national legislation. This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.
For more information regarding return and recycling of WEEE products, please visit
www.canon-europe.com/weee

PREFACE

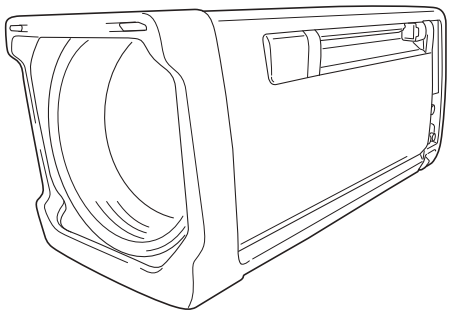
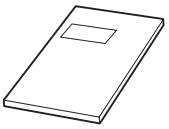
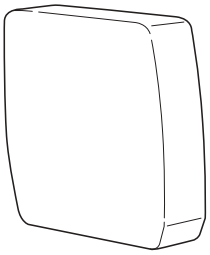
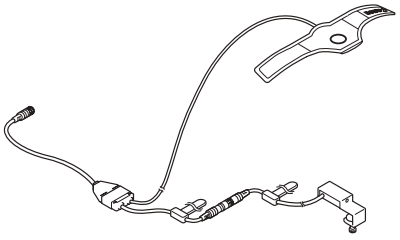
Thank you for purchasing the Canon BCTV zoom lens. This operation manual explains the functions and operating instructions for the Canon BCTV zoom lens. It also describes precautions for handling the lens. Read this operation manual carefully before using the product. Also, keep this manual in a safe place where it can easily be referenced whenever necessary.

This operation manual is applicable for the following models:

Model name	Operation system	Interface
UJ90x9B UJ86x9.3B UJ27x6.5B	IESD	BB HH IH PH SB SH

PRODUCT CONFIGURATION

Make sure that the following items are included in a package.
(If you find any item missing, please contact the dealer from whom you purchased this product.)

<table>
<tr><td>Lens Body
  </td><td colspan="2">Oparation Manual (this booklet)
  </td></tr>
<tr><td rowspan="2"></td><td>Dust Cap
(attached to the lens)
  </td><td>Connector Cap
(attached to the lens) *1
  </td></tr>
<tr><td colspan="2">Hood Cap (attached to the lens)
  </td><td>IS Operation Unit *2
  </td></tr>
</table>

*1 The connector cap is provided to protect the interface connector(s) between the lens and the camera.
*2 The IS operation unit comes only with models with the IS function as an option.

- Accessories other than those mentioned above may be required depending on the specifications of your unit. For more details, contact our sales representative.
- The illustrations shown on this page and subsequence pages are those of standard UX90x9B. Shpaes of lens may be slightly different between models.
- The illustrations of accessories shown in this booklet are those of standard specifications. Shapes may be slightly different between specifications.
- Options are not available for some specifications.

GENERAL SAFETY INFORMATION

The safety warnings and cautions provided on the product or in this operation manual must be observed.
Failure to observe these warnings and cautions may result in injury or accident.
Read this operation manual carefully to familiarize yourself with its contents and ensure that you can operate the product properly.
Also, store this manual in a safe place where it can easily be referenced whenever necessary.

This operation manual uses the following symbols and terms to identify hazards in order to prevent accidents.

⚠ **WARNING**	This indicates a potentially hazardous situation which, if not heeded, may result in death or serious injury to you or others. Be sure to heed all warning notices to ensure safe operation at all times.
⚠ **CAUTION**	This indicates a potentially hazardous situation which, if not heeded, may result in a minor injury to you or others, or damage to property.
*** (NOTE)**	This indicates cautions and recommendations for operation. It contains information which, if not heeded, may result in this product failing to function properly. These notices also contain useful information for operation.

HANDLING THE PRODUCT

⚠ WARNING

1. Do not get this product wet or allow liquid inside. If water gets inside, stop using the product immediately. Continuing to use the product under this condition may cause a fire or electric shocks.
2. Do not stare at the sun or other bright objects through the lens. It may injure your eyes.
3. Be sure to hold the connector when disconnecting the cable. Pulling on the cable may sever or damage it and pose a risk of a fire or electric shocks from a short circuit.

⚠ CAUTION

1. Be careful not to drop the product when carrying it. Dropping the product may cause injury.
2. Ensure that all mountings are securely tightened. If a mounting becomes loose, parts may fall off and cause injury.
3. Inspect mountings regularly (about every six months to one year) to ensure they are securely tightened. If a mounting becomes loose, parts may fall off and cause injury.
4. When this product is used under a blazing sun, the inside of the unit may be heated to high temperature. When it is expected that the unit is exposed to elevated temperature, take measures against heat as appropriate on the customer's side.

* (NOTE)

1. When service is required, contact your dealer or Canon's representative.
2. Striking or dropping the lens may cause the malfunction of the product.
3. This product is not waterproof. Take measures to avoid direct contact with rain, snow, or moisture. Otherwise it may cause the malfuction of the product.
4. In dusty environments, cover the lens mount when using, attaching or removing the lens. If dust enters inside, it may cause the malfunction of the product.
5. Take measures to avoid sudden changes in temperature where the lens is used, which may prevent operation temporarily if condensation forms in the lens.
6. Before use in particular environments, such as places where chemical products are used, contact your Canon representative.
7. Many glass components and precision parts are to be found inside of the product. Be sure to heed the following cautions to avoid the damage by the vibration or the shock.
   - Be sure to keep the horizontal position (sideways-facing) as same as it is used when tranporting the product. Exposing the product in the vertical (upright) position to the strong impact may cause the damage by the shock or the vibration. Also ask the capable forwarder for transportation. And inform the forwarder in advance that the product is the precision device.
   - Before use the product with the carrying case arranged separately, contact your dealer or Canon representative.

DEALING WITH ABNORMALITIES

⚠ WARNING

1. Should any of the abnormalities described below occur, immediately dismount the lens from the camera and contact Canon's representative or the dealer listed below.
   - Smoke, fumes, or unusual noises
   - Entry of foreign objects (such as liquid or metal objects) inside the product

MAINTENANCE AND INSPECTION

⚠ WARNING

1. Be sure to disconnect the cable and remove the lens from the camera before cleaning outside of the lens. Do not use benzene, thinner, or other flammable substances to clean the product. Otherwise it may cause a fire or electric shocks.

* (NOTE)

1. Clean off any dust on the lens surface using a lens blower or a soft lens brush. In case of getting fingerprints or stains on the lens, use a clean cotton cloth moistened with commercial lens cleaning fluid, or use lens cleaning paper. Gently wipe in a spiral pattern from the center of the lens. Be careful not to rub dust across the lens, which may scratch the lens surface

2. Routine inspection about once a year is recommended, depending on the conditions and environment of use. Request overhaul, if needed.

STORAGE

⚠ CAUTION

1. Always attach the lens cap, hood cap, dust cap or covers before storage. Storing the lens without the caps or covers attached poses a risk of fire if the lens concentrate light in direct sunlight.

* (NOTE)

1. Immediately wipe off any moisture on the lens from misty or foggy environments, using a dry cloth. Seal the lens in a plastic bag with a desiccant (preferably new) to prevent moisture inside. Otherwise it may cause the mold or the malfunction of the product.

TO THE CUSTOMER

1. Canon shall bear no responsibility for damage resulting from improper operation of this product by the customer.
2. Canon shall make no guarantees about the product quality, functions, or operation manual and its marketability and suitability for the customer's purpose. Moreover, Canon shall bear no responsibility for any damage, direct or incidental, that results from usage for the customer's purpose.
3. Canon shall make no guarantees about the results obtained using this product.
4. The product specifications, configuration, and appearance are subject to change without prior notice.
5. For further information on repairs, maintenance, or adjustments not mentioned in this operation manual, contact your Canon dealer or your Canon sales representative.
6. Note that Canon may be unable to undertake servicing or repair of a product if it is modified without consulting Canon or your Canon sales representative.

CANON INC.
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1 HOW TO MOUNT

1-1 Mounting the Lens onto the Camera

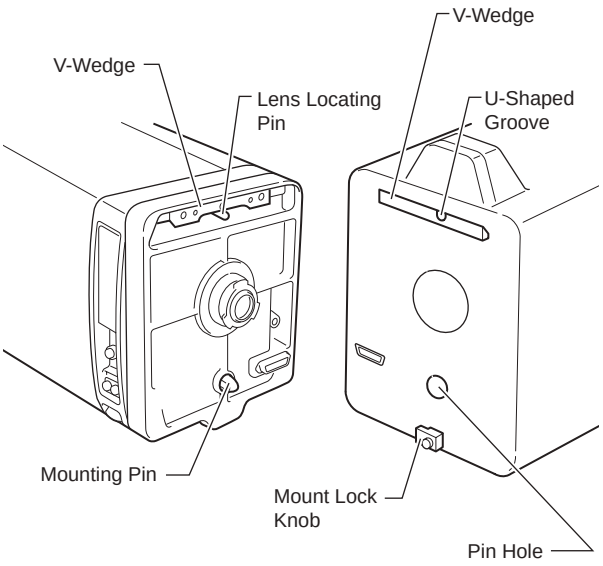
Mounting the Lens onto the Large-sized Camera

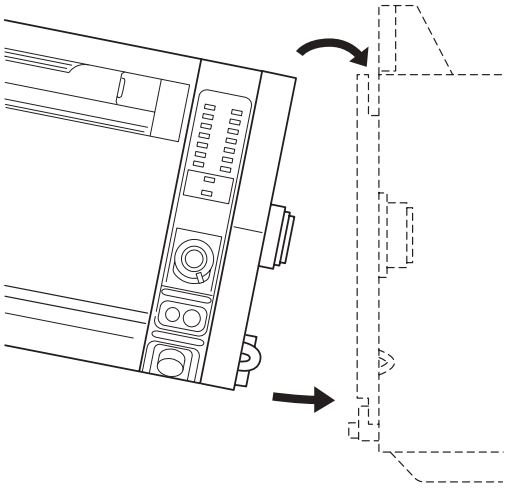
1 Make sure that the panning and tilting mechanism of the cam head on the tripod/pedestal is securely locked.

2 Turn the mount lock knob of the camera 90 degrees counterclockwise as viewed from the lens. Also, remove the protection plate/cap from the camera.

3 Remove the connector cap(s) on the rear surface of the lens and the dust cap.

4 Carefully holding the lens with both hands, mount it by hanging the V-wedge of the lens over that of the camera, with aligning the lens locating pin of the lens with U-shaped groove of the V-wedge of the camera.

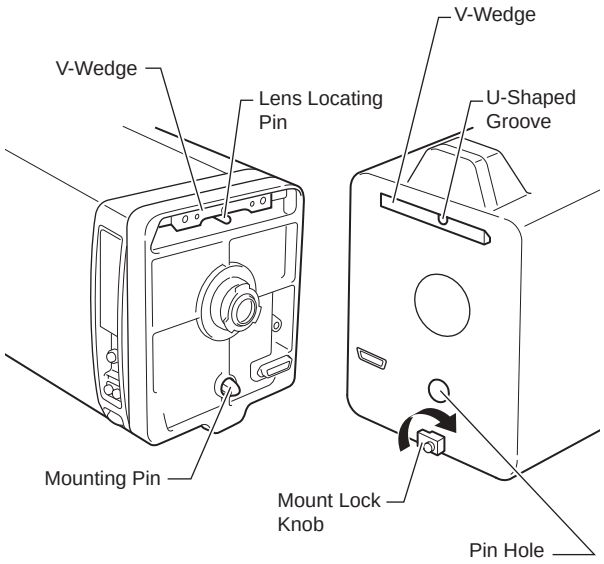




⚠ CAUTION

The lens is quite heavy. When lifting the lens, use both hands to hold two recessed handles on both side of the lens shroud, and assure the correct lifting posture.
Failure to do so may cause the lens to drop, resulting in damage to the lens and/or injury.

5 After lining up the lens correctly, press the lens toward the camera, and at same time make sure that the mounting pin at the bottom of the lens mount is fitted securely into the corresponding pin hole on the camera. Then, turn the mount lock knob of the camera clockwise (to the direction indicated by the arrow/see the figure below) to secure the lens to the camera.



* (NOTE)

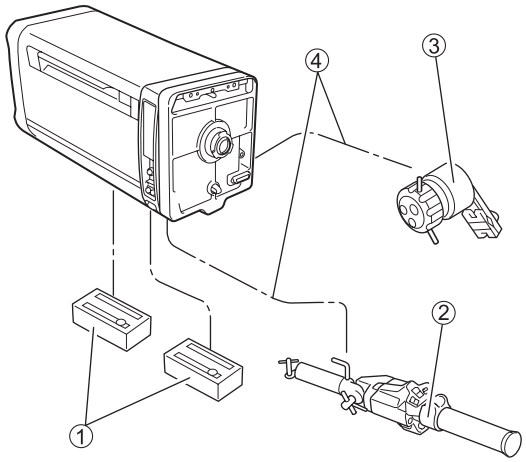
- The connector(s) on the lens and the camera are connected automatically by performing steps **4** and **5**. If an attempt is made to connect them forcibly without lining up the spring pin with the pin hole as described in step **5**, the lens and camera connectors may be damaged.
- After installing all units, including the operation's accessories, on tripod or pedestal, adjusting work for balance of the cam head is required.

Mounting the Lens onto the Portable Camera

When using the portable camera, the supporter to mount the lens is required.
Depending on the camera models, the supporters which can be used with a camera differ. For details, contact your Canon dealer or your Canon sales representative.

1-2 Mounting the Accessories for Full-servo Operation

The servo demand is mounted and connected as shown in the figure below. When mounting the various demands, refer to the operation manual for the respective demand.



① Servo module
② Zoom servo demand
③ Focus servo demand
④ Demand cable

Mounting the Servo Module onto the Lens

It is necessary to mount the servo module to the zoom and focus couplings located in the bottom compartment of the lens.

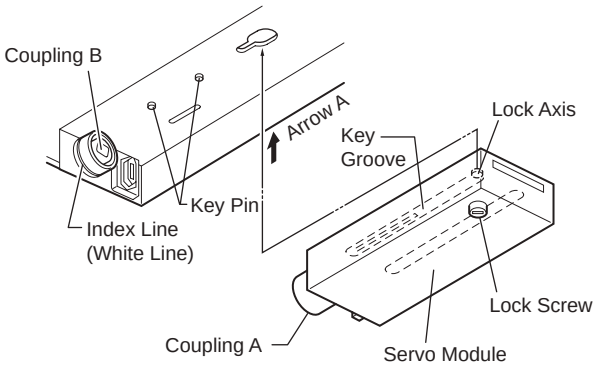
* (NOTE)

The same servo module is used for both zoom and focus couplings. So, it can be mounted on either the zoom or focus coupling.

1 Before mounting a module to the lens, turn the lock screw of the module counterclockwise until the lock axis comes out to its a half way of length.

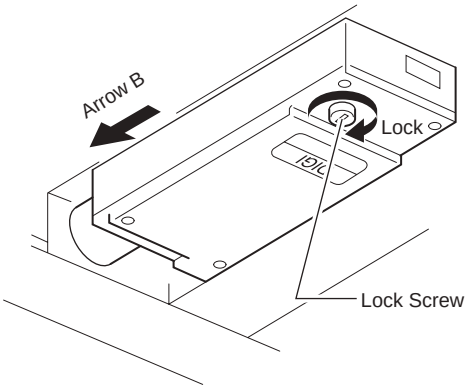
2 Press the module in the direction of arrow “A”, so that the key pins on the lens are inserted in the key grooves of the module.

Bottom compartment of the lens



3 Mate the coupling A of the module with the coupling B of the lens. And then, fully push the module in the direction of arrow “B” until it stops.

4 Finally, turn the lock screw of the module clockwise to secure it. By using a coin, tighten firmly the lock knob.



Next, as the same procedure, install the servo module on the other joint. It does not matter which is installed first, either the zoom or the focus.

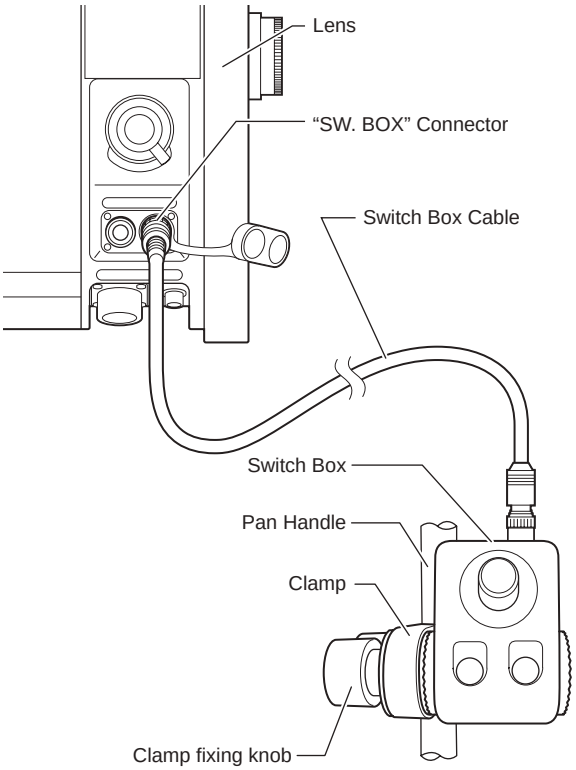
* (NOTE)

When mating couplings A and B, push the servo module in completely, so that the index line (white line) on the circumference of coupling B is entirely hidden. If index line is not completely hidden, the servo module may fail to operate, or it may generate abnormal acoustic noise.

Mounting the Switch Box (Option)

1 Mount the switch box to the panhandle of the tripod, using the attached clamp.

2 Connect the switch box to the lens, using the included cable.

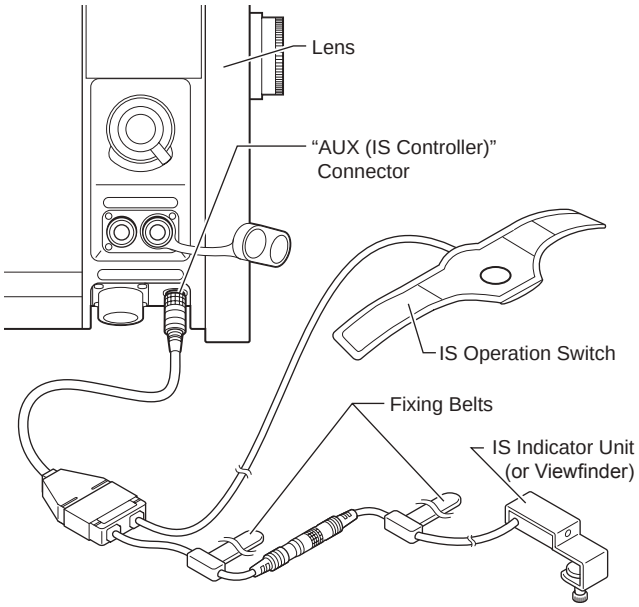


Mounting the Accessories for IS Operation (Only Models with IS Function)

Mounting the IS operation unit

1 Plug the connector of the IS operation unit into the receptacle labeled “AUX” on the left side of the lens (as viewed from the camera).

2 The IS Indicator unit on the other branch of the cable comes with an anchoring screw. Mount it to the location (such as on the edge of the viewfinder) where the ON/OFF status of the LEDs can be observed. The IS indicator unit is not necessary for the camera equipped with display function.



Seeing the IS operating statuses in the viewfinder

When using a camera provided with a function for receiving the signals indicating that the IS function is operating or stopped from the lens side and displaying this operating status on its viewfinder, it is possible to connect only the IS Operation Switch and operate it to perform these functions. Remove the IS indicator unit that is connected partway along the cable from the IS operation unit.

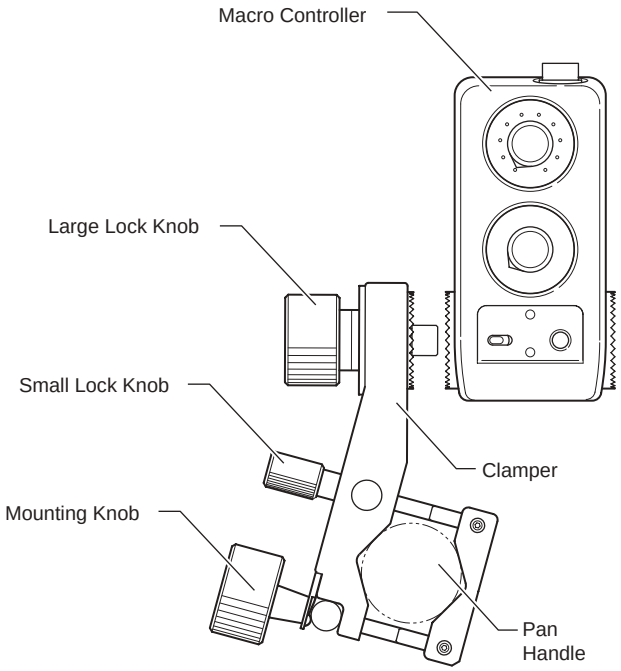
Mounting the Macro Controller (Option)

1 Loosen the large and small lock knobs of the clamper, then mount the clamper to the left pan handle of the tripod.

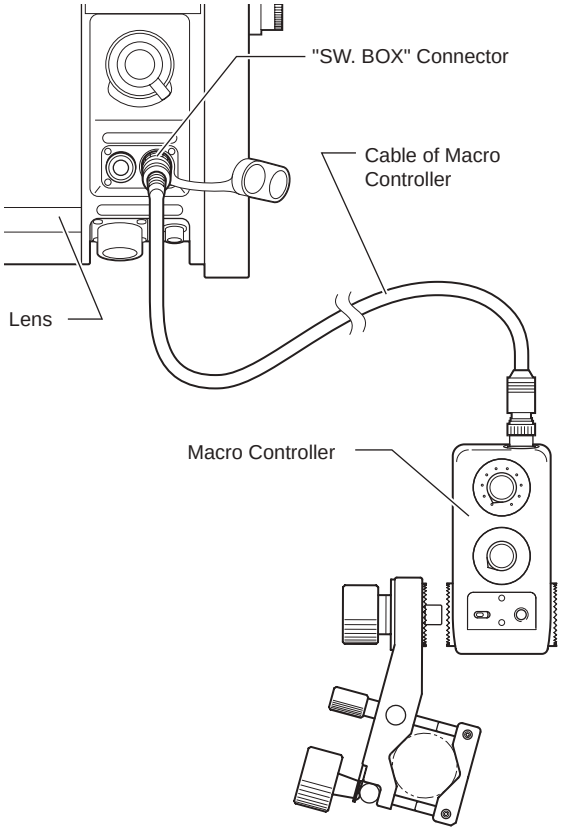
2 After mounting the clamper to the pan handle of the tripod, tighten the large and small lock knobs of the clamper to secure the clamper.

3 Mate the rose joint of the macro controller with the rose joint of the clamper.

4 Tighten the mounting knob of the clamper to firmly secure the zoom demand.



5 Connect the cable connector (female) of the macro controller to the connector of the macro controller. Then connect another side of the connector (male) of the cable to the "SW. BOX" connector on the rear side of the lens.

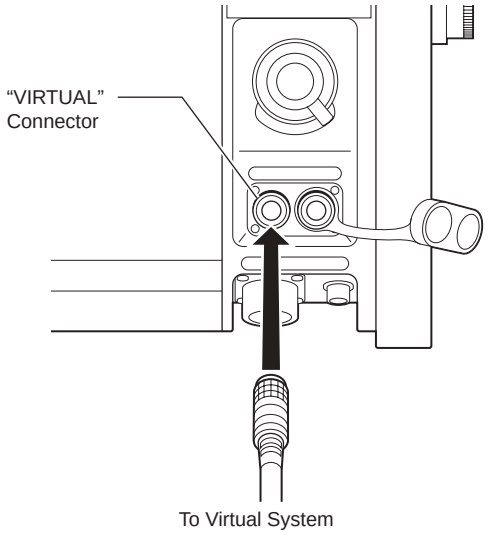


Connecting the “VIRTUAL” Cable (Only Models with "VIRTUAL" Connector)

The lens is equipped with the connector labeled “VIRTUAL” on its left side (as viewed from the camera). This connector can be used for connection with an interface to virtual systems. Zoom, focus and iris signals can be output in two types of communication data; encoder pulse train and RS-422.

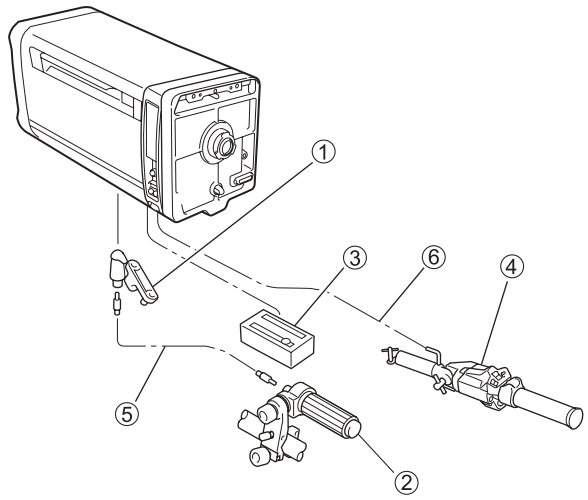
* (NOTE)

Connector location may vary by models.



1-3 Mounting the Accessories for Semi-servo Operation

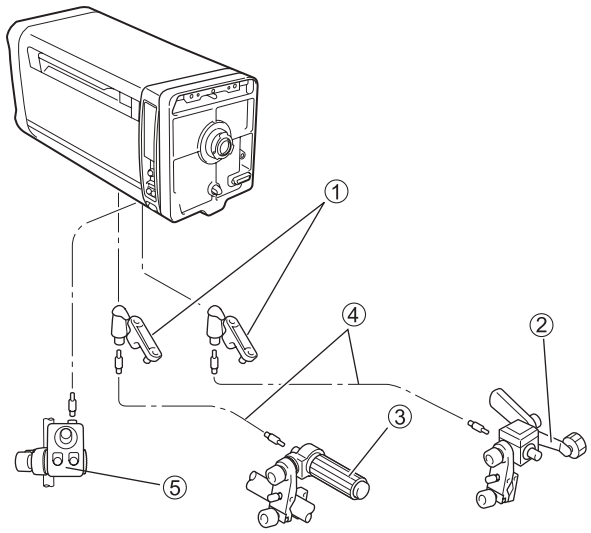
The zoom servo demand and the flexible focus control unit are mounted and connected as shown in the figure below.
When mounting the various demands, refer to the operation manual for the respective demand.



① Flexible module
② Flexible focus control unit
③ Servo module
④ Zoom servo demand
⑤ Flexible cable
⑥ Demand cable

1-4 Mounting the Accessories for Manual Control System

Mount and connect the flexible zoom and focus control units as shown in the figure.
When mounting the various demands, refer to the operation manual for the respective demand.



① Flexible module
② Flexible zoom control unit
③ Flexible focus control unit
④ Flexible cable
⑤ Switch box unit

Mounting the flexible module

It is necessary to mount the flexible module to the zoom and focus couplings located in the bottom compartment of the lens.

* (NOTE)

The same flexible module is used for both zoom and focus couplings. So, it can be mounted on either the zoom or focus coupling.

1 Before mounting the module to the lens, turn the lock screw of the module counterclockwise until the lock axis comes out to its a half way of length.

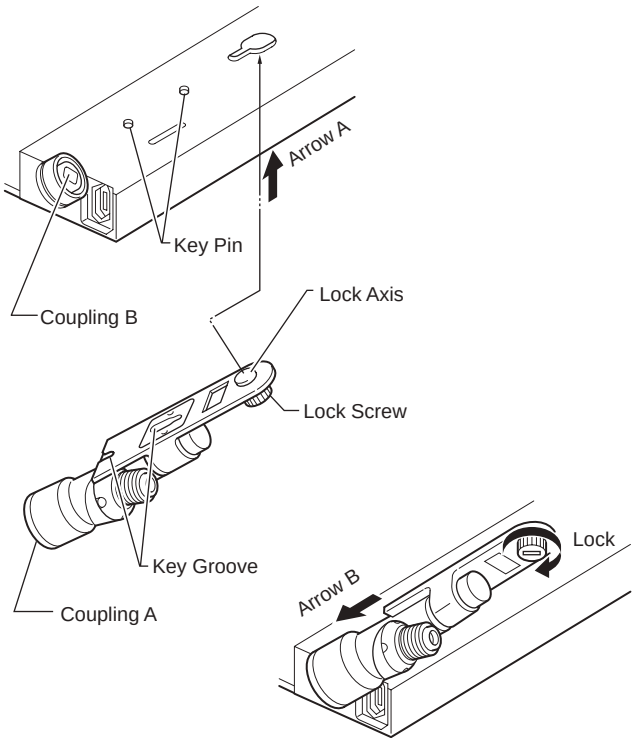
2 Press the module in the direction of arrow “A”, so that the key pins on the lens are inserted in the key grooves of the module.

3 Mate the coupling A of the module with the coupling B of the lens. And then, fully push the module in the direction of arrow “B” until it stops.

4 Finally, turn the lock screw of the module clockwise to secure it. By using a coin, tighten firmly the lock knob.

Next, as the same procedure, install the flexible module on the other joint. It does not matter which is installed first, either the zoom or the focus.

Bottom compartment of the lens



2 PREPARATION

2-1 Initialize Operation

This lens has a built-in encoder for a position sensor of zoom, iris and focus, and enables high-accuracy control and advanced for virtual interface. The correct position must be detected for these functions to operate correctly.

The ON [Auto]/OFF [Manual] setting of initialization can be set from the information display.

ON [Auto]	The lens is automatically initialized on power-up. (When in servo mode)
OFF [Manual]	After the power is turned on, position detection is performed when the lens passes the specific position (normally near the center) in the course of lens operation.

* Default setting at factory: OFF

For the detailed setting method, refer to the "**Display Operation Manual**" at the end of this Operation Manual.

How to detect the position of ZOOM

Initialize operation	How to detect the position
ON (Auto)	When the power is turned on, the lens automatically detects the position. Then, it returns to the position where it used to be when the power was turned on.
OFF (Manual)	Immediately after the power is turned on, the lens operates at a temporary position, and the position is corrected when the lens passes the specific position and the position is detected.

How to detect the position of FOCUS

Initialize operation	Demand	How to detect the position
ON (Auto)	Connected	When the power is turned on, the lens automatically detects the position. Then, it returns to the position instructed by command from the demand.
	Not connected	When the power is turned on, the lens automatically detects the position. Then, it returns to the position where it used to be when the power was turned on.
OFF (Manual)	Connected	When the power is turned on, the lens automatically detects the position. Then, it returns to the position instructed by command from the demand.
	Not connected	The lens does not automatically detect the position when the demand is not connected. When the demand is connected, the lens automatically detects the position. Then, it returns to the position instructed by command from the demand.

When position detection is failed:

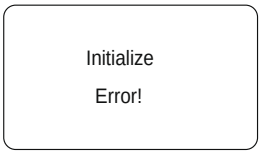
- The position signal sent from the lens to the camera and its indication on the information display will be incorrect.

Notes

- Iris is always initialized when powered on regardless of auto mode or manual mode.
- During initialization, lens operation is disabled. After initialization is completed, the lens returns to the position where it used to be before initialization. However, if the lens is operated in the position servo mode, the lens moves to the currently controlled position.
- The initialization operation can be enabled/disabled on the information display. When any initialization operation is changed, turn off then on the power for the changes to take effect.

The "Initialize Error!" message appears **when the servo module is not mounted correctly**, the lens is forcibly locked, or some other reason.
In such case, check the lens condition, clear the problem, and then turn off and on the power again.

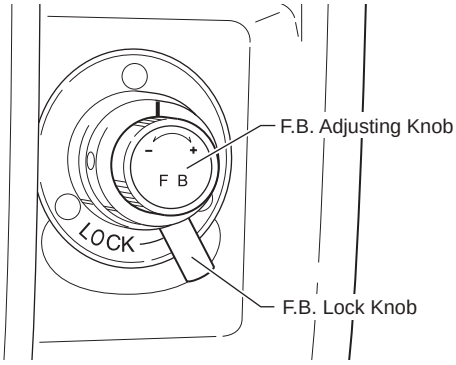
Initialize Error! message



2-2 Back Focus Adjustment

If the relationship between the image plane of the zoom lens and that of the television camera is incorrect, the object goes out of focus when the lens is zoomed. Follow the steps below to adjust the back focus of the lens.

1. Select an object at an appropriate distance (UJ90x/UJ86x: 10 to 15 m, UJ27x: 3 to 5 m recommended). Use any object with sharp contrast to facilitate the adjustment work.
2. Set the lens to 1x [status without using an extender].
3. Set the iris fully open.
4. Set the lens to the telephoto end.
5. Bring the object into focus by focus operation.
6. Set the lens to the widest angle.
7. Loosen the F.B. lock knob, and then turn the F.B. adjusting knob to bring the object into focus.



8. Repeat steps **4** to **7** several times, until the object is brought into focus at both the widest angle and telephoto ends.
9. After making sure that the object is in sharp focus, tighten the F.B. lock knob.

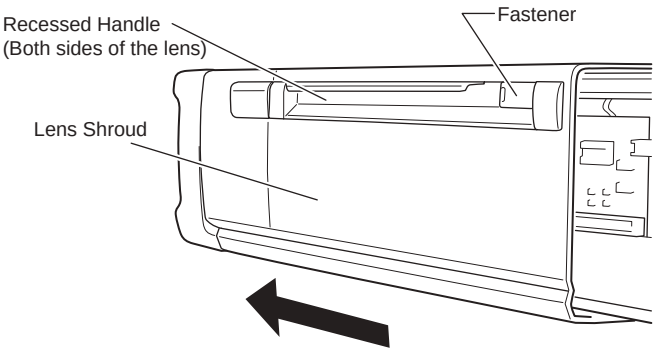
The adjustment procedure is now completed.

2-3 Removing and Installing the Lens Shroud

When any electrical setting or adjustment is required, remove and install the lens shroud following the steps below.

Fastener type

1. Release the fasteners on both sides of the lens shroud, then pull the shroud forward to remove from the lens body.
2. When installing the lens shroud back in place, align the shroud to the guide rails of the lens body, and then push the shroud until it stops at the end of the mount. Press the shroud fasteners near to the end of the mount side to lock the shroud.



*** (NOTE)**

Make sure that the fasteners of the lens shroud are always locked when it is mounted on the lens.

2-4 Iris Gain Adjustment

The iris gain is set to the middle of the adjusting range at the factory. However, if the iris gain needs to be changed for some reason, follow the steps below. These steps can be taken by the trimmer adjustment or on the information display. (The setting implemented last takes precedence)

*** (NOTE)**

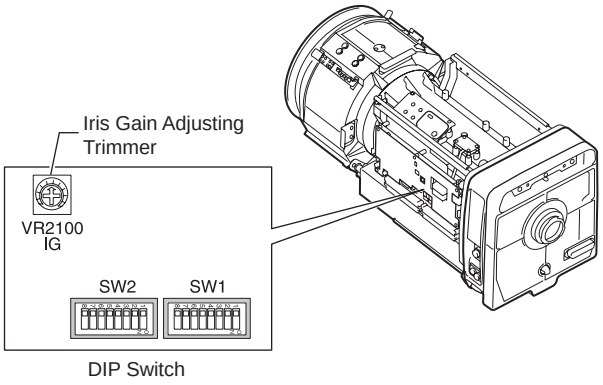
For other iris adjustment such as iris ends adjustment or video level adjustment when the extender is used, contact Canon dealer or your Canon sales representative.

Trimmer Adjustment

1 Remove the lens shroud from the lens body.

2 Check that DIP switch (iris control select switch) SW2 No. 4 is set to the “OFF” position (I.CAMERA). Depending on the command signals from the camera, the iris would not be set to auto iris mode although the switch was set to the “OFF” position. For details, refer to the “Iris mode” table in 2-5 “Iris Mode Setting (Option)”.

3 Turn the iris gain adjusting trimmer for the gain adjustment. To increase the gain, turn the trimmer clockwise. To decrease the gain, turn the trimmer counterclockwise.



Making Adjustments on the Information Display

1 Perform “Trimmer Adjustment” steps **1** and **2**.

2 Information display operation procedure:

a. Push the DISPLAY switch to bring up the display.

(a)

IG: 50	▸CODE0000	
[Iris]	TAL	ON
[Zoom]	IND	ON
[Focus]	[CAFS]	ON
IS	Info	

b. When the screen starts flushing by pushing the cursor button, move the ◀ (left) or ▶ (right) cursor button until the value to be set appears on the screen.

Selection item	01	–	99
Function	Minimum gain		Maximum gain

Default value: 50

(b) IG: 50 → IG: 51

* (NOTE)

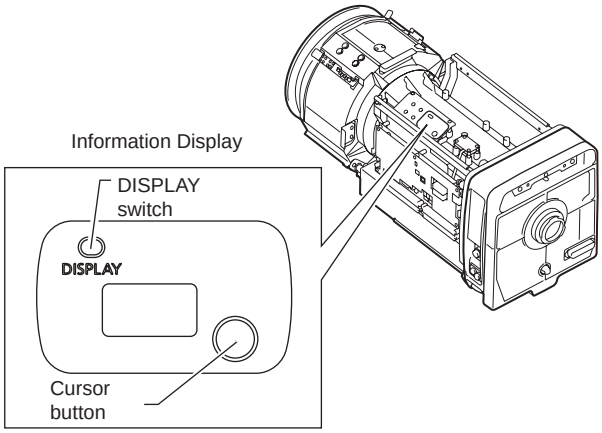
- To perform the gain adjustment while checking the iris operation, set the iris mode of the camera to the [AUTO] position.
- To determine the maximum gain, set the trimmer at a level where no hunting occurs.

c. Push the cursor button. This completes the adjustment.

(c)

IG: 51	▸CODE0000	
[Iris]	TAL	ON
[Zoom]	IND	ON
[Focus]	[CAFS]	ON
IS	Info	

For the detailed setting method, refer to the “**Display Operation Manual**” at the end of this Operation Manual.



2-5 Iris Mode Setting

DIP switch (iris control select switch) SW2 No. 4 was set to the “OFF” position at the factory.
See the table below to find the relationship between the position of the switch and signals.

Iris mode

Iris control and operation depend on the following three signals

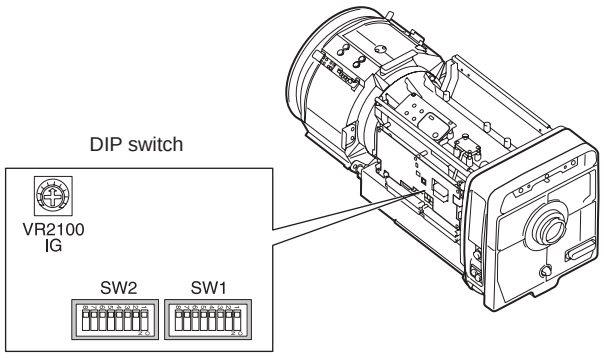
1. Enforced auto iris command signal from the camera system (IRIS ENF)
(Some camera models are not capable to provide this signal.)

2. AUTO/REMOTE iris command signal from the camera system (IRIS A/R)

3. Setting position of DIP switch (SW2) No. 4 inside the lens body
(“ON” position: I.LOCAL/“OFF” position: I.CAMERA However, I.LOCAL may not be usable depending on the specifications.)

The table below lists the relationship between these three signals and iris mode.

Position of the DIP switch	Command signal from camera		Iris Control signal from	Iris mode
	IRIS ENF	IRIS A/R		
OFF	ON	Auto	Camera	Auto iris
OFF	ON	Remote	Camera	Remote iris
OFF	OFF	Auto	Camera	Auto iris
OFF	OFF	Remote	Camera	Remote iris
ON	ON	Auto	Camera	Auto iris
ON	ON	Remote	Camera	Remote iris
ON	OFF	Auto	Switch box	Remote iris
ON	OFF	Remote	Switch box	Remote iris



2-6 Setting on the Information Display

The table below shows the functions that can be set from the information display. For the detailed setting method, refer to the “**Display Operation Manual**” at the end of this Operation Manual.

Functions that can be set from the information display			Reference page in appendixes
Lens name	Lens code setting		E4
Initialize operation	Initialize operation setting		E4
Iris control	Iris gain	Setting the auto iris gain	E4, E5
		Setting the remote iris gain	E5
	Setting the iris correction to ON/OFF		E5
	Setting the iris close detection to ON/OFF		E6
Zoom control	Setting the zoom servo start characteristics		E6
	Setting the zoom servo stop characteristics		E6
	Setting the zoom mechanism end stop characteristics		E6
	Preset	Setting the zoom servo start characteristics	E7
		Setting the zoom servo stop characteristics	E7
	Setting the analog demand curve characteristics		E7
	CAM mode settings		E8
	Setting the servo mode type from the zoom demand		E8
Focus control	Focus demand curve characteristics		E9
Tally	Setting the tally lamp ON/OFF		E6
	Tally lamp light quantity setting		E11
Indicator	Setting the indicator ON/OFF		E8
CAFS	Setting the CAFS ON/OFF		E9
IS*	IS mechanical lock setting		E10
	IS operation switch setting		E10
	IS mode setting		E10
Other	Encoder output setting		E11
	Setting the camera serial communication to ON/OFF		E11
	Adjusting the Camera Fol Voltage		E12
Reset operation	Reset to default values		E1

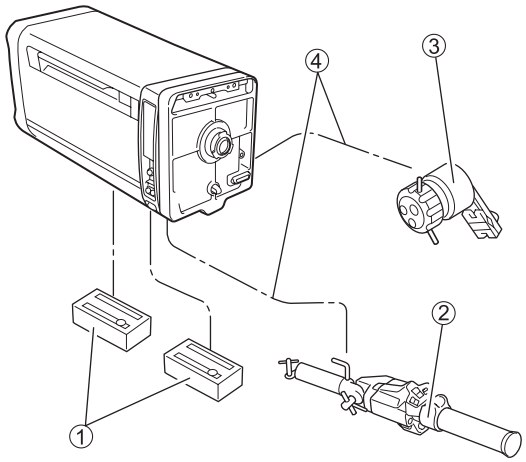
***Only Models with IS Function**

3 OPERATION

3-1 Zoom and Focus Operation

Full-servo System Operation

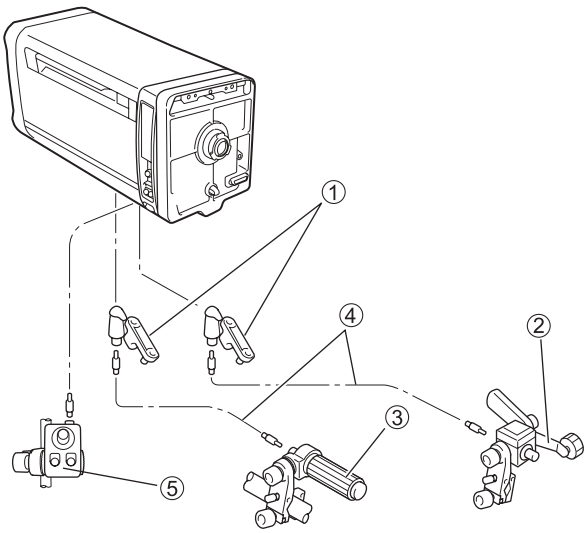
Zoom and Focus operations are performed based on a configuration as shown in the figure below.
For the operating procedure, refer to the operation manual for the respective unit.



① Servo module
② Zoom servo demand
③ Focus servo demand
④ Demand cable

Manual System Operation

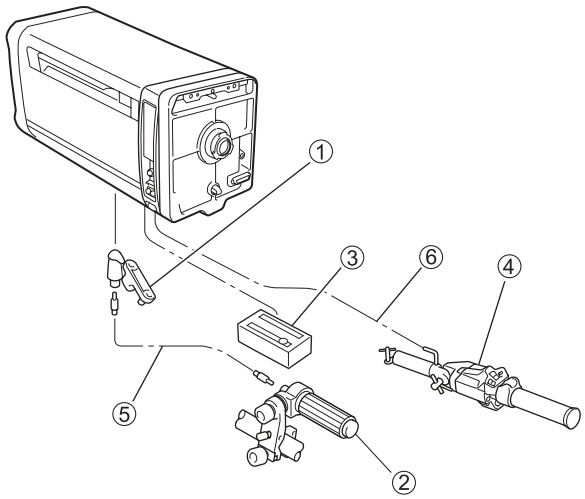
Zoom and Focus operations are performed based on a configuration like that shown in the figure below. For the operating procedures, refer to the operation manual for the respective unit.



① Flexible module
② Flexible zoom control unit
③ Flexible focus control unit
④ Flexible cable
⑤ Switch box unit

Semi-servo System Operation

Zoom and Focus operations are performed based on a configuration like that shown in the figure below.
For the operating procedures, refer to the operation manual for the respective unit.



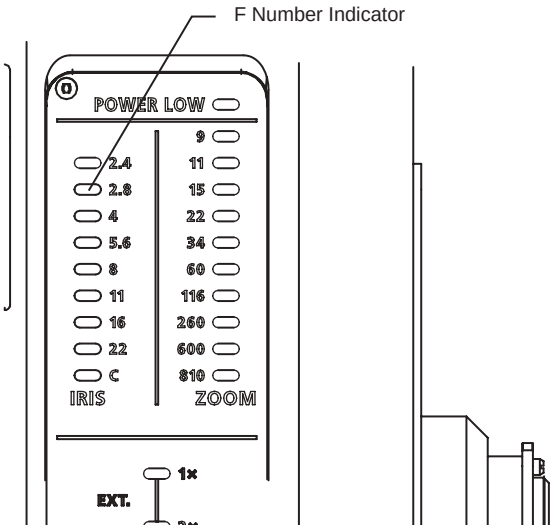
① Flexible module
② Flexible focus control unit
③ Servo module
④ Zoom servo demand
⑤ Flexible cable
⑥ Demand cable

3-2 Iris Operation

Normally, lens iris operation is performed by the position servo control method using commands from the camera CCU. Control can be switched between auto iris control and remote iris control.
The camera operator can also perform remote iris control using a switch box (special version) as a special specification.

Control from the Camera

Both automatic and remote iris control are usually operated from the CCU. (Refer to the camera operation manual on how to operate.)
During the shooting, an approximate F number (iris value) can be checked with the indicator panel on the left side of the lens, as viewed from the camera.



The value indicated by the indicator varies depending on the model.

Setting the iris control select switch

The DIP switch (SW2) No. 4 was set to the “OFF” position (I.CAMERA) at the factory prior to shipment so that the iris can be operated from the camera. If the iris operation is disabled, follow the steps below to check the setting position of DIP switch (SW2) No. 4.

“OFF” position: Iris operation is enabled from the camera.
“ON” position: Iris operation is enabled from such as switch box.

1 Remove the lens shroud.

2 Check that DIP switch is set to the “OFF” position. If the switch is set to “ON” position, change the setting to the “OFF” position.

Control from the Switch Box

When a switch box which is capable to control the iris function of the lens is mounted, the iris function of the lens is controlled by it.

Setting the iris control select switch

Settings must be performed at the lens side in order for the iris to be controlled from the switch box. Follow the setting steps below.

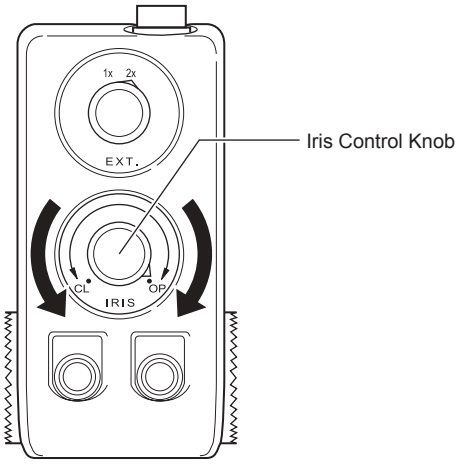
1 Remove the lens shroud.

2 Change the DIP switch setting to the “ON” position (I.LOCAL).

Controlling

Control the iris by turning the iris control knob as set forth below.

Turning the knob clockwise:
The iris moves in the opening direction.
Turning the knob counterclockwise:
The iris moves in the closing direction.



As when the iris is to be controlled from the camera, the approximate F number can be monitored on the indicator panel.

* (NOTE)

- See the section “Mounting the Switch Box” (p. E4) for details of how to mount and connect the switch box.
- Refer to the table “Iris mode” in the section 2-5 “Iris Mode Setting” to understand the relationship among the command signals from camera, iris control device, and the position of the iris control select switch.

3-3 Extender Operation

Remote Operation

Remote controlling from the zoom servo demand and switch box

Remote extender control can be performed from the zoom servo demand, switch box, and other accessories.

Remote controlling from the camera

On the camera equipped with the extender control function, remote extender control can be performed from the extender control device mounted on the CCU or the camera head. Refer to the operation manual for the respective TV camera.

* (NOTE)

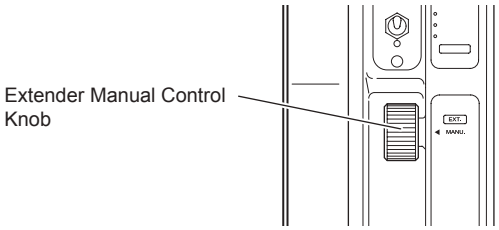
- When the zoom servo demand or the switch box is used together, the extender is controlled by the command from the last operated device.
- The extender(s) can be selected by the extender manual control knob even during remote control.

Manual Operation

In case of emergency such as when the remote extender control is failed, or when any of above three extender control devices is unavailable, the extender(s) can be controlled manually.

Controlling

Manually turn the extender manual control knob to operate the extender(s).
The current extender position is shown by the LED on the indicator. (All the extender LEDs on the indicator panel remain off while operations are being performed.)



3-4 Operating the IS Function (Only Models with IS Function)

Knowing the Basic Operation

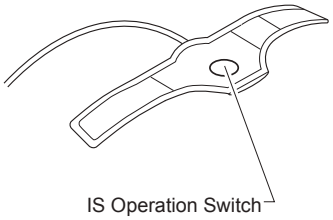
If the image shakes noticeably, turn on the IS function to stabilize the image.
Some IS characteristics may cause the image to move in an unnatural manner and not as intended when panned or tilted quickly. This is because the panning or tilting motion is mis-detected as a vibration, and the IS function is activated to correct it. Select the operating characteristics (STD) so that unnatural movements from panning and tilting are minimized. In addition, note that image stabilizing performance may not be fully delivered during the warming up time.

Setting the IS Preferences

During shooting, the IS function can be turned ON/OFF using the IS operation switch or other accessory.

Using the IS operation switch

Press, release, or hold down the center button to control the IS function.



Using the accessories with IS operation switch function

When using an accessory with IS operation function, refer to the operating instructions of the accessory.

* (NOTE)

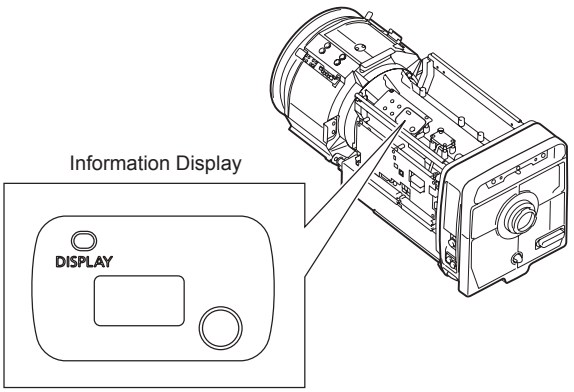
The IS function activated by pressing, releasing or holding down the button varies according to the lens setting.

Setting the IS operation switch

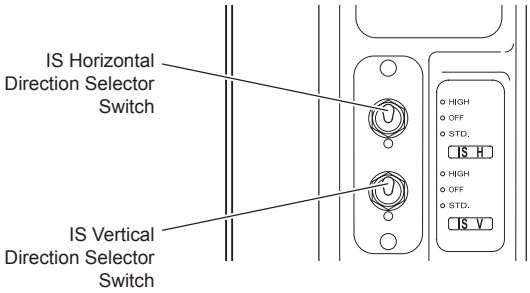
ALT	The IS function state alternates between “IS SW-ON” and “IS SW-OFF” each time the IS operation switch is pressed.
MON	The IS function state is momentarily set to “IS SW-ON” while the IS operation switch is held down.

“Alt” is set by default.

Change the setting on the information display.
For details on the information display, refer to the "**Display Operation Manual**" at the end of this Operation Manual.



Setting the Image Stabilizing Direction and Characteristics



To select one of the following modes, operate the IS horizontal (or vertical) direction selector switch.

Standard characteristics (STD.)	This mode minimizes unnatural movements by implementing special processing for the low-frequency shaking caused by slow camera work and allows smooth operation during regular camera operation.
Maximum characteristics (HIGH)	This item is set to ensure that the shaking in all the frequency bands is stabilized at the maximum characteristics. If low-frequency shaking is a concern with stationary shots, the anti-vibration effect is enhanced by selecting the maximum characteristics.
Stop (OFF)	This stops the IS function.

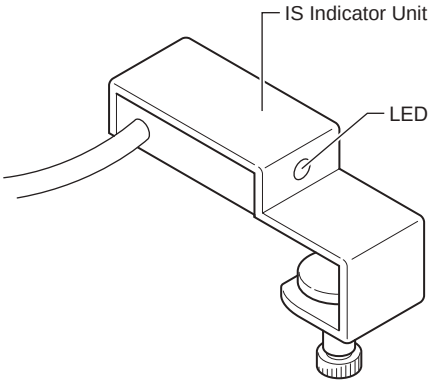
Advanced settings of IS function

Change the setting on the information display.
For details on the information display, refer to the "**Display Operation Manual**" at the end of this Operation Manual.

Shaded sections ▭ indicate that the IS indicator unit LED is lighted.

IS mode setting	IS SW-ON (Switch is pressed when set to MON) → Selector switch status is applied		IS SW-OFF (Switch is not pressed when set to MON)
	H	V	
OFF (Default setting)	Hi	Hi	OFF
	STD	Hi	OFF
	OFF	Hi	OFF
	STD	STD	OFF
	OFF	STD	OFF
	OFF	OFF	OFF
STD	Hi	Hi	STD
	STD	Hi	STD
	OFF	Hi	STD
	STD	STD	STD
	STD	OFF	STD
	Hi	OFF	STD

* When the power is turned on, the IS function is in IS SW-ON state if the IS operation switch mode is set to "ALT", and in IS SW-OFF state if set to "MON".



Checking with the viewfinder

The IS function activation state can also be checked with the viewfinder, if the camera is equipped with the viewfinder capable of indicating it.

For details, refer to the operation manual for the camera.

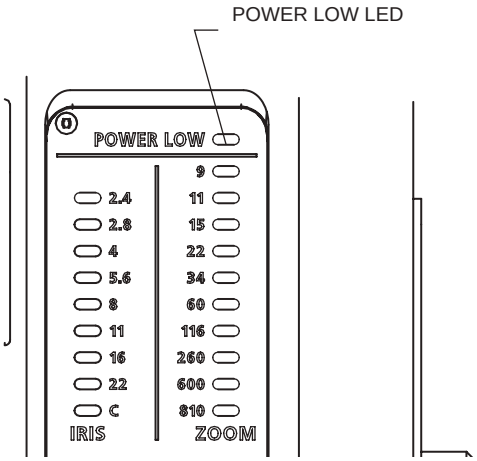
4 Other Functions and Options

4-1 Checking for Low Power

The power low LED, used to indicate low power supply warning, is provided on the indicator panel at the left side of the lens, as viewed from the camera.
According to the supplied voltage, LED indicates:

Lit red:	10V or less
Off:	Supplies sufficient voltage

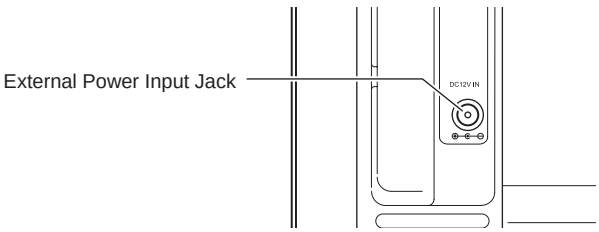
So, when the LED is lit red, countermeasures to raise the supply voltage to 10.5V or above is necessary. Otherwise, the lens may malfunction.



The value indicated by the indicator varies depending on the model.

4-2 Using an External Power Source

An external power input jack is provided at the right side of the lens, as viewed from the camera. In case the combination of portable camera and the lens with semi or full servo operation, 12V DC (10-17V DC) should be supplied to the lens through this jack since portable camera does not have enough power consumption to drive semi or full servo operation.

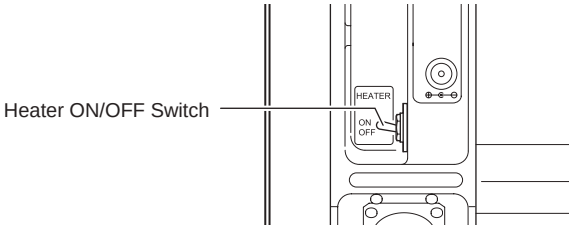


4-3 Heater System (Option)

The heater system for warming up the lens to prevent clouding inside the lens can be mounted on the lens. The heater system is operated as follows.

1 Set the heater ON/OFF switch, which is located on the right side of the lens as seen from the camera, to the ON position.

2 To shut down the heater, set the heater ON/OFF switch to the OFF position.



*** (NOTE)**

A great deal of power is consumed when the heater switch is ON. For this reason, the circuitry is designed to disable servo zoom operations and servo focus operations.
To perform servo operations, stop using the heater.

4-4 Nitrogen Gas Filling (Option)

To prevent fog or condensation on the internal surface of the lens, you can fill the lens barrel with nitrogen gas.
Nitrogen gas should be refilled at the periodic overhaul, and before the critical event.

*** (NOTE)**

To refill nitrogen gas, gas canister and filling tool are required.
Contact your Canon dealer or your Canon sales representative.

5 SPECIFICATIONS

■ IESD

			UJ90x9B	UJ86x9.3B
Focal Length		1x	9–810 mm	9.3–800 mm
		2x	18–1620 mm	18.6–1600 mm
Zoom Ratio			90×	86×
Maximum Relative Aperture		1x	1:2.4 (at 9–486 mm) 1:4.0 (at 810 mm)	1:1.7 (at 9.3–340 mm) 1:4.0 (at 800 mm)
		2x	1:4.8 (at 18–972 mm) 1:8.0 (at 1620 mm)	1:3.4 (at 18.6–680 mm) 1:8.0 (at 1600 mm)
Image Format			9.6 × 5.4 mm (Diagonal 11 mm)	
Angular Field of View	Wide	1x	56.1º × 33.4º (at 9 mm)	54.6º × 32.4º (at 9.3 mm)
		2x	29.9º × 17.1º (at 18 mm)	28.9º × 16.5º (at 18.6 mm)
	Tele	1x	0.68º × 0.38º (at 810 mm)	0.69º × 0.39º (at 800 mm)
		2x	0.34º × 0.19º (at 1620 mm)	0.34º × 0.19º (at 1600 mm)
Minimum Object Distance (M.O.D.)			3.0 m (from lens vertex)	
Object Dimensions at M.O.D.	Wide	1x	287.9 × 161.9 cm (at 9 mm)	271.9 × 152.9 cm (at 9.3 mm)
		2x	144.0 × 81.0 cm (at 18 mm)	136.0 × 76.5 cm (at 18.6 mm)
	Tele	1x	3.3 × 1.9 cm (at 810 mm)	3.3 × 1.9 cm (at 800 mm)
		2x	1.7 × 1.0 cm (at 1620 mm)	1.7 × 1.0 cm (at 1600 mm)
Zoom Speed			Max. speed in all range: 0.6 ± 0.1s	
Focus Speed			Max. speed in all range: 0.8 ± 0.1s.	
Iris Speed			0.8 ± 0.15s	
Mount			B4	
Input Voltage			DC12V (DC10 to 17V)	
Power Consumption			24W Max.	
Operating Temperature			-20°C to +45°C	
Dimensions			See external view	
Flange back			See external view	

			UJ27x6.5B
Focal Length		1x	6.5–180mm
		2x	13–360mm
Zoom Ratio			27 ×
Maximum Relative Aperture		1x	1:1.5（at 6.5–123mm） 1:2.2（at 180mm）
		2x	1:3.0（at 13–246mm） 1:4.4（at 360mm）
Image Format			9.6 × 5.4mm （Diagonal 11 mm）
Angular Field of View	Wide	1x	72.9º × 45.1º（at 6.5mm）
		2x	40.5º × 23.5º（at 13mm）
	Tele	1x	3.1º × 1.7º (at 180mm)
		2x	1.5º × 0.9º（at 360mm）
Minimum Object Distance (M.O.D.)			0.6m (from lens vertex)
Object Dimensions at M.O.D.	Wide	1x	106.1 × 59.7cm（at 6.5mm）
		2x	53.1 × 29.9cm（at 13mm）
	Tele	1x	3.8 × 2.1cm（at 180mm）
		2x	1.9 × 1.1cm（at 360mm）
Zoom Speed			Max. speed in all range: 0.5±0.1s
Focus Speed			Max. speed in all range: 0.8±0.1s
Iris Speed			0.8 ± 0.15s
Mount			B4
Input Voltage			DC12V（DC10V ～ 17V）
Power Consumption			24W Max.
Operating Temperature			-20℃～ +45℃
Dimensions			See external view
Flange back			See external view