Canon

BROADCAST TELEVISION LENS

# DIGI SUPER 25 XS

***XJ25x6.8B IE 6.8-170mm 1:1.5***

## OPERATION MANUAL

Read this operation manual before using the product.
Keep the manual safe so that it can be referenced when it is neede.

E

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

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

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## CE

We, Canon Inc., in Japan and Canon Europa N. V., in The Netherlands, confirm that the **XJ25x6.8B** series zoom lens is conformity with the essential requirements of EC Directive(s)
by applying the following standards

EN55103-1, and EN55103-02

Note:

a) Applicable Electromagnetic Environment:
   E1 (Residential area)
   E2 (Commercial and light industrial area)
   E3 (Urban outdoors area)

b) Use of shielded cable is required to comply with limits specified by above standards.

NOTE : Above declaration is applicable to 12V DC input zoom lenses.

## CE

We, Canon Inc., in Japan and Canon Europa N. V., in The Netherlands, confirm that the **XJ25x6.8B** series zoom lens is conformity with the essential requirements of EC Directive(s)
by applying the following standards

EN60065, EN55103-1, and EN55103-02

Note:

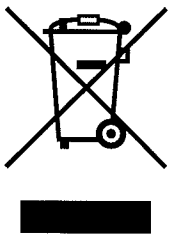
a) Applicable Electromagnetic Environment:
   E1 (Residential area)
   E2 (Commercial and light industrial area)
   E3 (Urban outdoors area)

b) Park inrush current : not measured, since this unit in not directly connected to the 230V AC commercial power outlet.

C) Use of shielded cable is required to comply with limits specified by above standards.

NOTE : Above declaration is applicable to 230V AC input zoom lenses.

European Union (and EEA) only.



This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. 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.

Your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources and will avoid incurring administrative sanctions according to art. 50 and following of Italian legislative decree 22/97.

For more information regarding return and recycling of WEEE products, please visit www.canon-europe.com/environment.

(EEA: Norway, Iceland and Liechtenstein)

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 电气实装部分 | × | O | × | O | O | O |
| 金属部件 | × | O | O | O | O | O |

O：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

FOR P.R.C. ONLY

本标志适用于在中华人民共和国销售的电子信息产品、标志中央的数字代表产品的环保使用期限。

# PREFACE

Thank you for purchasing the Canon XJ25x6.8B series TV zoom lens.

This operation manual explains the functions and operating instructions for the XJ25x6.8B series lens. It also describes precautions for handling the lens.
Please read this manual carefully, before using the lens, and keep it in a safe, and easy to access place, so that, you may refer to it whenever necessary.

# OVERVIEW

The XJ25x6.8B HDTV-ready zoom lens for studio use pushes optical performance to the limits with the adoption of the newly developed Power Optical System.

Thanks to the adoption of the Power Optical System, this studio lens, with a zoom ratio of 25x and a 6.8mm wide-shot focal length, reaches the highest optical specifications for its class in a compact and lightweight unit.

The utilization of digital control in the ZOOM/FOCUS servo system permits extremely precise reproducibility, and the zoom and focus characteristics can be changed at the touch of a switch. Furthermore, the CAFS control system, which eliminates fluctuations in the angle of view caused by focusing and which proved to be very popular in the DIGI SUPER 21, has been enhanced so that it is effective over the entire zooming range.

# TABLE OF CONTENTS

# ⚠ GENERAL SAFETY INFORMATION

Be sure to observe the safety warnings and cautions provided on the product and in this operation manual.
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 | Indicates potentially hazardous situations which, if not heeded, may result in death or serious injury to you or other persons. |
| ⚠ CAUTION | Indicates potentially hazardous situations which, if not heeded, may result in minor or moderate injury to you or other persons, or property damage. |
| ※ (NOTE) | Emphasizes essential information which, if not heeded, may make the product unworkable or cause it to function improperly.<br>Helpful information for operation is also provided. |

# HANDLING THE PRODUCT

## ⚠ WARNING

1. Never allow water or other liquids to enter or be spilled on the product.
   Immediately stop using the product if water or other liquids get inside the product.
   Otherwise, fire or electric shock could result.
2. Do not stare at the sun or any other source of high-intensity light through the lens.
   Doing so could injure your eyes.

## ⚠ CAUTION

1. Always grasp the specified portions of the lens when transporting the lens, or when attaching or detaching it to or from the camera head.
   Otherwise, the lens may fall, possibly causing injury.
2. All mountings must be tightened securely. If any of the mountings become loose, the lens may fall, possibly causing injury.
3. Always grasp the connector itself when connecting or disconnecting the demand cable.
   Pulling on the cable portion may result in damage to the cable, such as exposure or breakage of the conductors.
   Power leaking from a damaged cable may present a fire or electric shock hazard.
4. Check periodically (for instance, every 6 months to 1 year) that all mountings are securely tightened.
   If any of the mountings become loose, the lens may fall, possibly causing injury.
5. If it becomes necessary to disassemble, modify or make adjustments not mentioned in this operation manual, contact Canon's representative or the dealer who originally supplied the lens for the proper service training.
   The lens contains high-voltage parts that may cause electric shock.

## ※ (NOTE)

1. Protect the lens from strong impacts of shocks. Striking or dropping the lens could damage it.
2. Since the lens is not completely waterproof, avoid directly exposing the lens to rain or snow.
   When the lens has to be used in rain or snow, provisions should be made to prevent the lens from getting wet.
3. Under dusty conditions, the lens should be mounted or dismounted with a cover placed over the mount so as to prevent dust from entering the inside.
4. Do not bring the lens from an area with a very cold ambient temperature abruptly into a warm room, as the lens may fog on the inside.
   If this happens, the lens cannot be used until the condensation clears.
   Take adequate countermeasures to ensure that condensation does not form.
5. Consult with Canon's representative before using the lens in adverse environments, such as in a chemical-laden atmosphere.

# DEALING WITH ABNORMALITIES

## ⚠WARNING

1. Should any of the abnormalities described below occur, immediately remove the lens from the camera, then contact Canon's representative or the dealer who originally supplied the lens.
   - Smoke, unusual smell or unusual noise
   - Entry of foreign objects (including metals or liquids) inside the lens.

# MAINTENANCE AND INSPECTION

## ⚠WARNING

1. Unplug the demand cable and remove the lens from the camera, before attempting to clean the lens. Never use flammable substances such as benzene or thinner for cleaning, as this may present a serious fire or electric shock hazard.

## ※ (NOTE)

1. Dust or fingerprints on the lens surface
   Gently blow or brush away dust or dirt on the lens surface using a lens blower or a soft lens brush.
   Remove any fingerprints or other stains with a soft clean cotton cloth moistened with lens cleaning fluid or lens cleaning paper (Shilbon paper, etc.).
   Gently swirl the cloth or paper over the lens surface. Start first at the center area of the lens and rub with a circular motion, then gradually shift the circle until whole lens surface has been covered.
   Be careful not to rub dust across the lens, as the lens surface may be scratched.

2. Periodic inspection
   A periodic inspection (about once a year) is recommended.
   The inspection and maintenance interval depends on the operating conditions, the frequency of use, and the environment. If required, overhaul the lens.

# STORAGE

## ⚠CAUTION

1. Always attach the hood cap and the dust cap before storing the lens.
   Storing the lens without these caps attached may present a fire hazard due to light convergence effect.

## ※ (NOTE)

1. If moisture enters the lens due to mist or light rain, etc., immediately wipe away any water with a dry cloth and then seal the lens in a vinyl bag together with a desiccant ( as fresh as possible) to completely remove the moisture from inside the lens.

# 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 or the operation manual.
4. The product specifications, configuration, and appearance are subject to change without prior notice.
5. Repairs or modifications of this product, or adjustments not mentioned in this operation manual require special service manuals and training in some cases. For further information on these adjustments, repairs or modifications, 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.

Contact :
Broadcast Equipment Group
Canon Inc.
23-10 Kiyohara Kogyo Danchi,
Utsunomiya-shi, Tochigi-ken, 321-3298, Japan
TEL: 81-(028)-667-5711
FAX: 81-(028)-667-8672

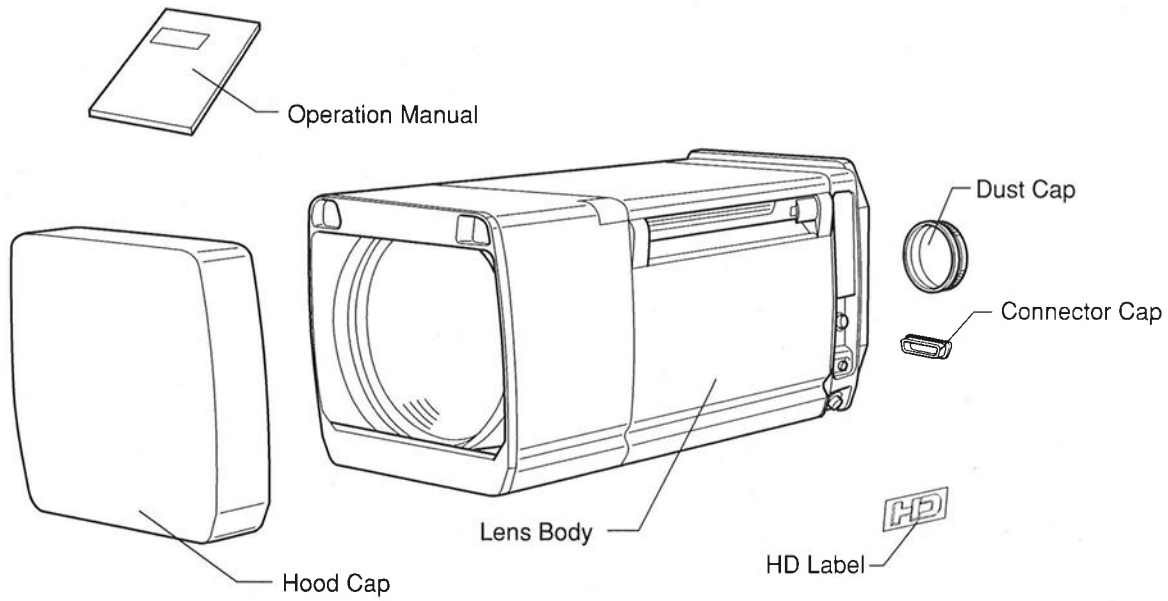
# § 1. STANDARD COMPOSITION

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

| Unit | Q'ty |
|---|---|
| Lens Body | 1 |
| Hood Cap (attached to the lens) | 1 |
| Dust Cap (attached to the lens) | 1 |
| Connector Cap (attached to the lens) | 1(＊1) |
| Spare PP Lamp Unit | 1(＊2) |
| HD Label | 2 |
| Operation Manual (this booklet) | 1 |

(＊1): The connector cap is provided to protect the interface connector(s) between the lens and the TV camera. So, for some lens models two (2) pieces are provided.

(＊2): Supplied with lens with built-in pattern projector.




※ (NOTE): Storage environment

Make sure the place where the lens is stored satisfies the following condition.

1) Store the lens under the following ambient condition.
   - Ambient temperature : -30℃ to +60℃
   - Ambient humidity : up to 60% RH (no condensation)
2) Do not subject the lens to strong physical shock or vibration.
3) If the lens is kept in a very cold ambient temperature storage, do not bring it abruptly into a warm room, as the lens may fog on the inside or experience condensation problem.

## § 2. ACCESSORIES USED FOR THE LENS OPERATION

Depending on the operation system, the following accessories will be required, in addition to the standard composition mentioned in the previous page (see the chapter "1. STANDARD COMPOSITION")
These accessories are supplied separately as optional units.
Please consult with Canon or Canon's representative for applicable models.

| Unit | Q'ty |
|---|---|
| (A) For manual (flexible) operation system | |
| Flexible Focus Control Unit | 1 set |
| Flexible Zoom Control Unit | 1 set |
| Flexible Cable | 2 pcs |
| Flexible Module | 2 pcs |
| Switch Box Unit | 1 set |
| (B) For full servo operation system | |
| Focus Servo Demand Unit | 1 set |
| Zoom Servo Demand Unit | 1 set |
| Servo Module | 2 pcs |
| (C) For semi-servo operation system | |
| Flexible Focus Control Unit | 1 set |
| Flexible Cable | 1 pc |
| Flexible Module | 1 pc |
| Zoom Servo Demand Unit | 1 set |
| Servo Module | 1 pc |

Besides those accessories listed above, the following accessories are available for special or specific applications. So, please consult with Canon or Canon's representative for further information, if necessary.

Zoom Preset Box with Focus Servo Demand
Lens Supporter
Power Module
Dust Cover
Switch Box with Iris Control

# § 3. INSTALLATION

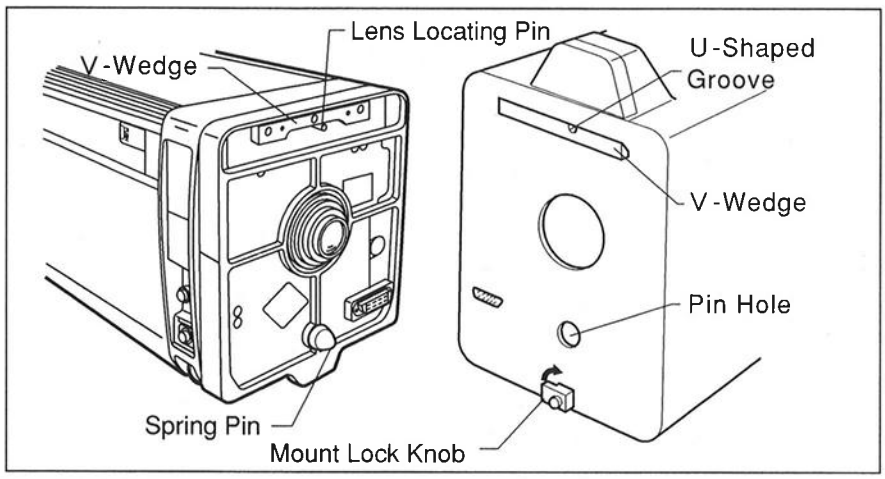
## 3-1. Mounting the Lens onto the TV Camera

(1) Make sure that the panning and tilting mechanism of the pan & tilt head on the tripod/ pedestal are securely locked.
(See the operation manual provided by the its manufacturer how to lock or unlock these mechanism)

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

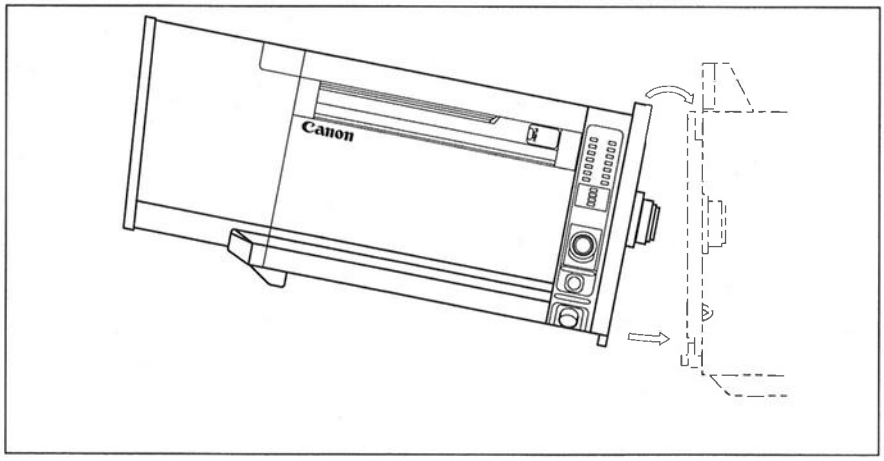
(3) Remove the connector cap(s) put on the "Connector to camera" on the rear surface of the lens.

(4) Carefully holding the lens with both hands, mount it by hooking 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 spring 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 above figure) to secure the lens to the camera.



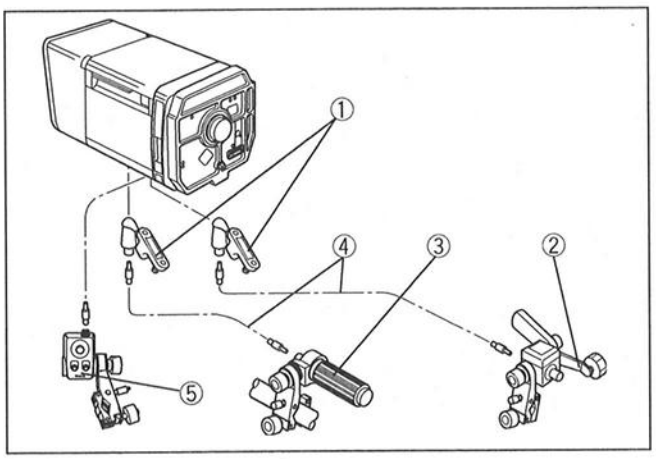
※ (NOTE) : The connector(s) on the lens and the camera are connected automatically by performing steps (4) and (5). If an attempt is made to connect them forcibly without lining up the spring pin with the pin hole as described in step (5), the lens and camera connectors may be damaged.

※ (NOTE) : After installing all units, including the operation's accessories mentioned in the next section 3-2, on tripod or pedestal, adjusting work for balance of the pan & tilt head is required.
Refer to the operation manual of the head provided by its manufacturer for this adjustment work.

## 3-2. Mounting the Accessories onto the Lens

### (A) Mounting and connecting the manual (flexible) operation's accessories

- Mount and connect the flexible zoom and focus control units as shown in the figure. Follow the installation procedures described below.




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

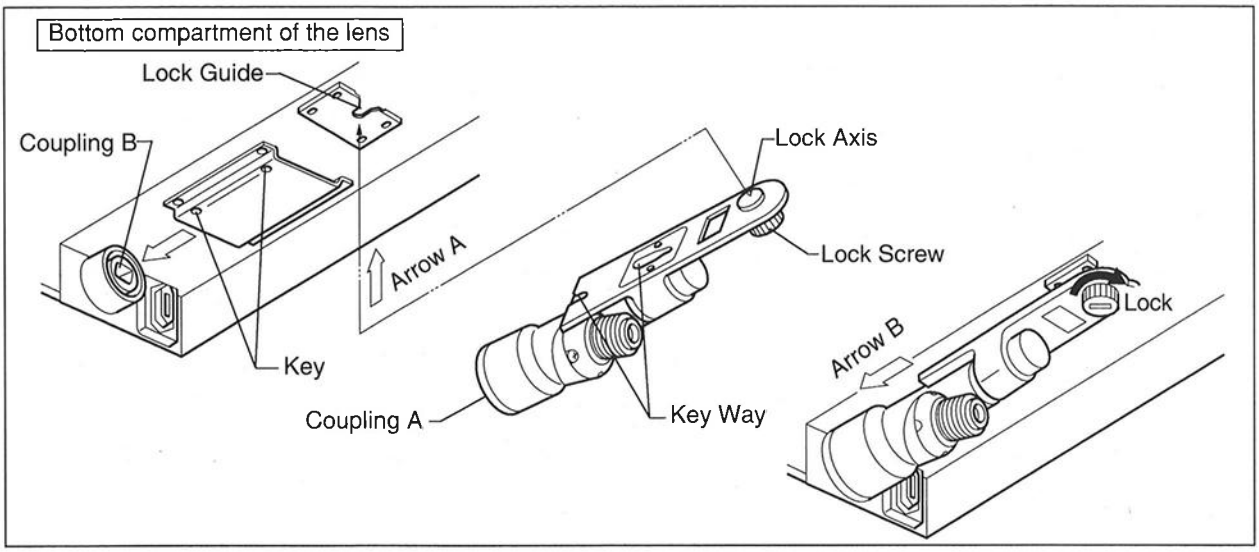
### (A-1) Mounting the flexible module onto the lens

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 max. length.
(2) Press the module in the direction of arrow "A", so that the keys on the lens are inserted in the key ways 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, or a keystone tip screwdriver, tighten firmly the lock knob.

If the module is mounted to the focus coupling first, please repeat the same procedures to mount the module to the zoom coupling, or vice versa.




## (A-2) Mounting the flexible zoom control unit onto the pan bar of the pan & tilt head, and connecting the flexible cable

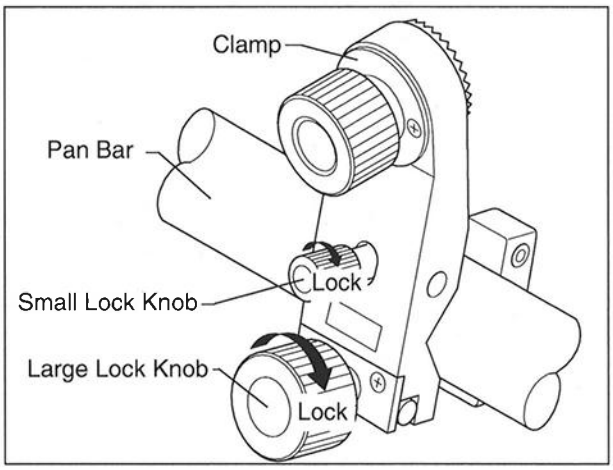
The flexible zoom control unit consists of the flexible zoom controller and the clamp. After mounting it onto the pan bar, connecting the flexible cable between the flexible module of the zoom side and the zoom controller is required.

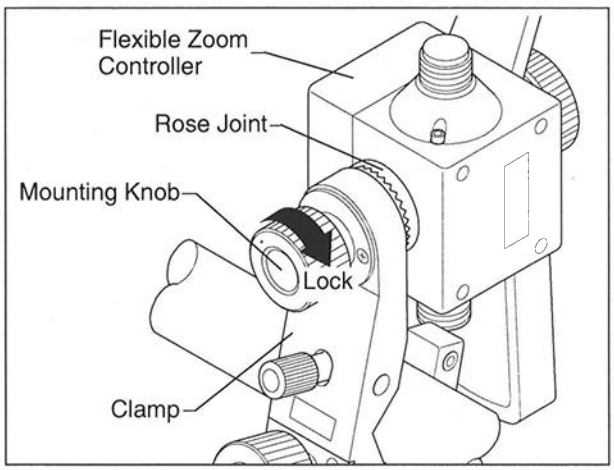
(1) Loosen the large and small lock knobs of the clamp, and then mount it to the pan bar at right hand side.

(2) After mounting the clamp to the pan bar,tighten the large and small lock knobs to secure the clamp.

(3) Mate the rose joint of the flexible zoom controller with the rose joint of the clamp.

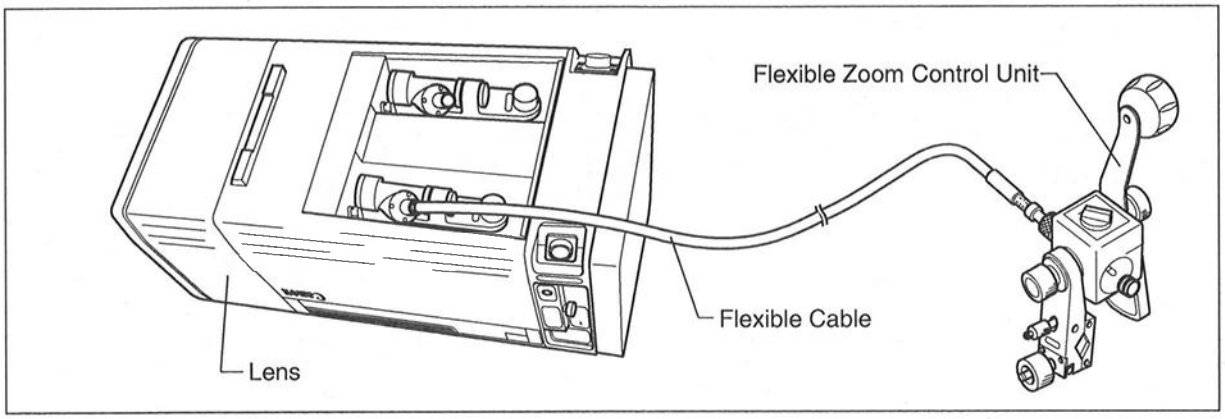
(4) Tighten the mounting knob of the clamp to secure the flexible zoom controller firmly.




※ (NOTE) : The mounting angle of the flexible zoom controller can be adjusted, according to how the rose joints are mated.

(5) Insert an end of the flexible cable into the outlet of the flexible module mounted to the zoom coupling of the lens, and tighten the flexible cable by turning the collar of the flexible cable clockwise.
Insert the other end of the flexible cable into the outlet of the flexible zoom controller, and tighten the flexible cable by turning the collar of the flexible cable clockwise.




(A-3) Mounting the flexible focus control unit onto the pan bar of the pan & tilt head, and connecting the flexible cable.

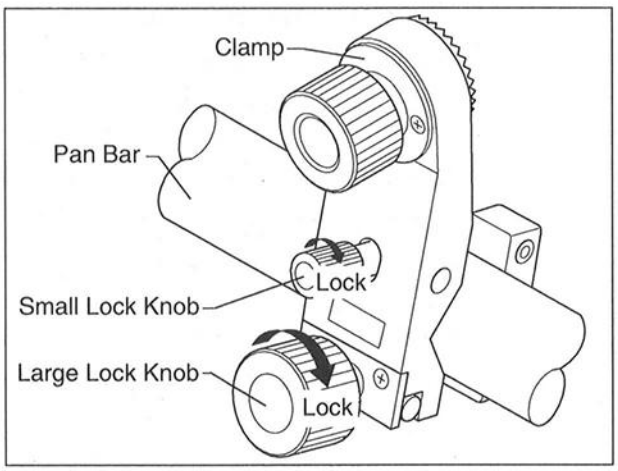
The flexible focus control unit consists of the flexible focus controller and the clamp. After mounting it onto the pan bar, connecting the flexible cable between the flexible module of the focus side and the focus controller is required.

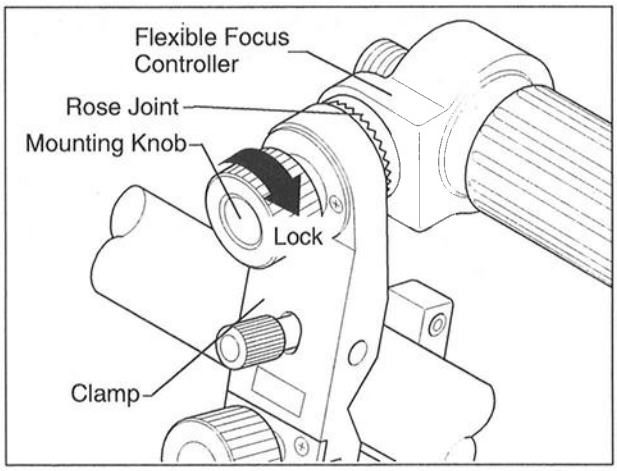
(1) Loosen the large and small lock knobs of the clamp, and then mount it to the pan bar at left hand side.

(2) After mounting the clamp to the pan bar tighten the large and small lock knobs to secure the clamp.

(3) Mate the rose joint of the flexible focus controller with the rose joint of the clamp.

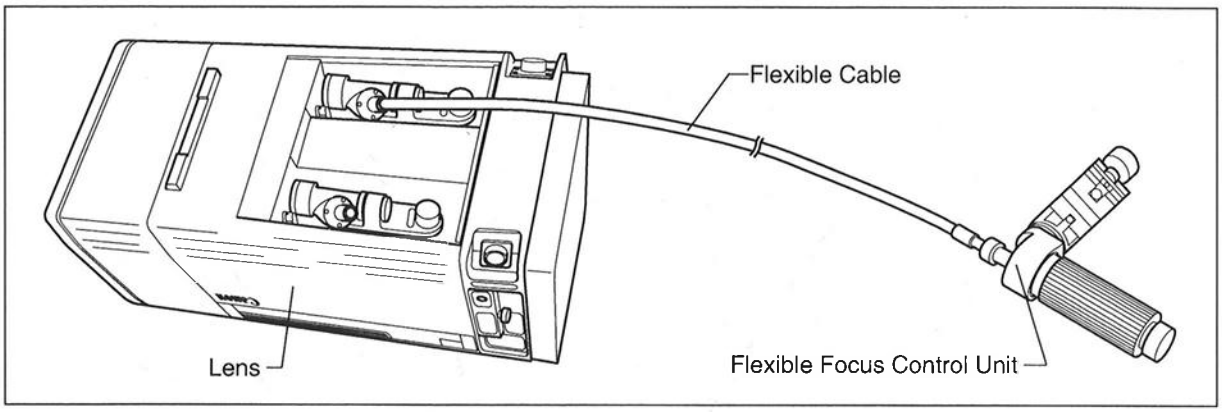
(4) Tighten the mounting knob of the clamp to secure the flexible focus controller firmly.




※ (NOTE) : The mounting angle of the flexible focus controller can be adjusted, according to how the rose joints are mated.

(5) Insert an end of the flexible cable into the outlet of the flexible module mounted on the focus coupling of the lens, and tighten the flexible cable by turning the collar of the flexible cable clockwise.
Insert the other end of the flexible cable into the outlet of the flexible focus controller, and tighten the flexible cable by turning the collar of the flexible cable clockwise.




(A-4) Mounting the switch box unit onto the pan bar of the pan & tilt head, and connecting the cable

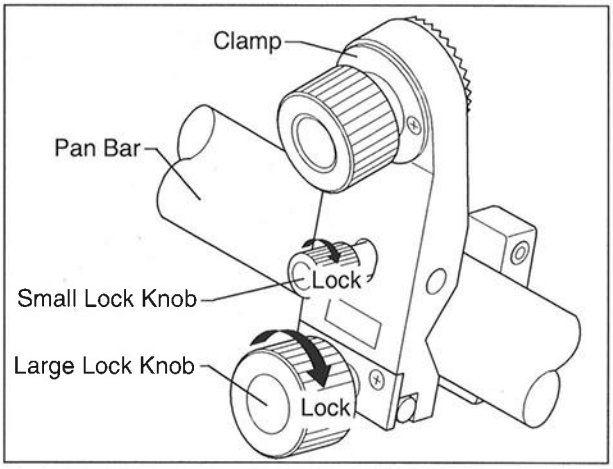
The switch box unit consists of the switch box, the clamp and the switch box cable. Follow the procedures described below how to mount this unit.

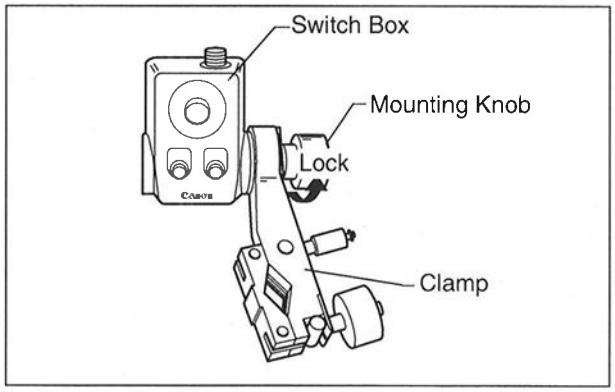
(1) Loosen the large and small lock knobs of the clamp, and then mount it to the pan bar at preferable hand side.

(2) After mounting the clamp to the pan bar, tighten the large and small lock knobs to secure the clamp.

(3) Mate the rose joint of the switch box with the rose joint of the clamp.

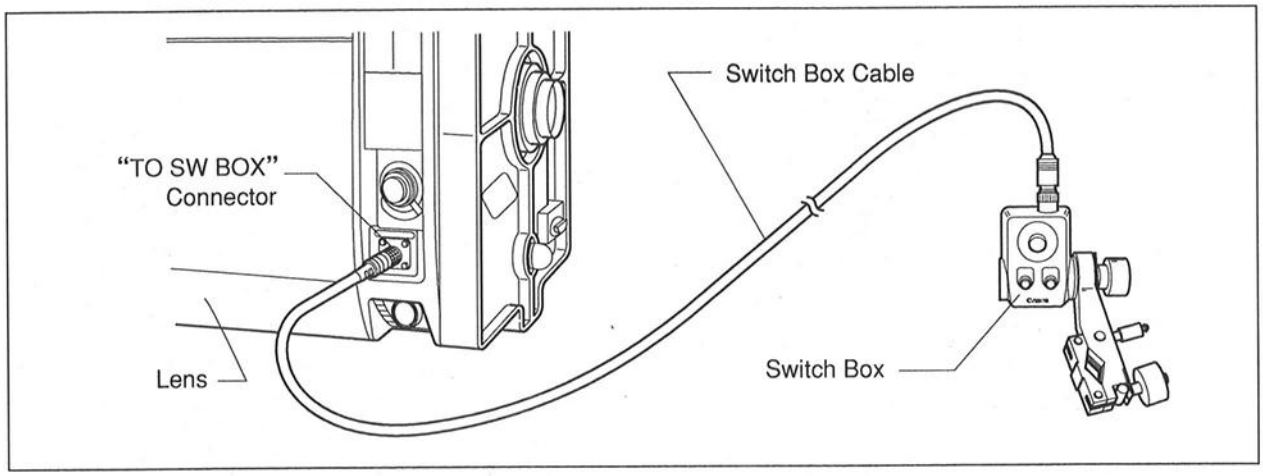
(4) Tighten the mounting knob of the clamp to secure the switch box firmly.



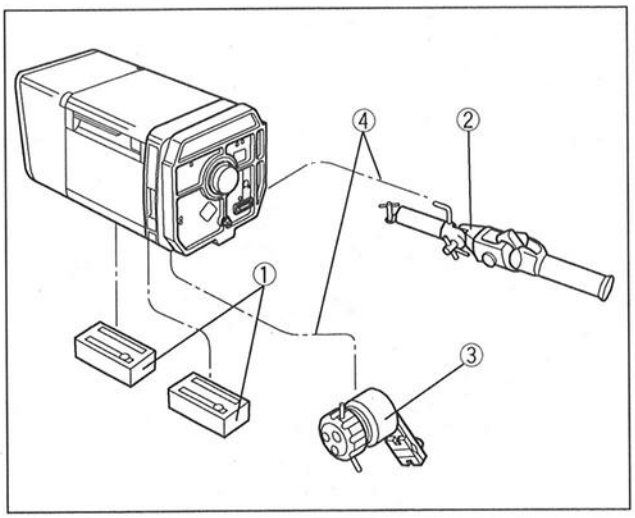




※ (NOTE) : The mounting angle of the switch box can be adjusted, according to how the rose joints are mated.

(5) Plug the female connector of the switch box cable to the receptacle on the switch box. And then plug the other end (male connector side) of the cable to the receptacle labeled "TO SW BOX" at the bottom rear of the lens.
(Usually "TO SW BOX" receptacle is protected by a plastic cap, so that before plugging in the connector, the cap has to be removed.)




(B) Mounting and connecting the full servo operation's accessories
The servo demand is mounted and connected as shown in the figure below. For details, see the mounting and connecting procedure starting on the next page.




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

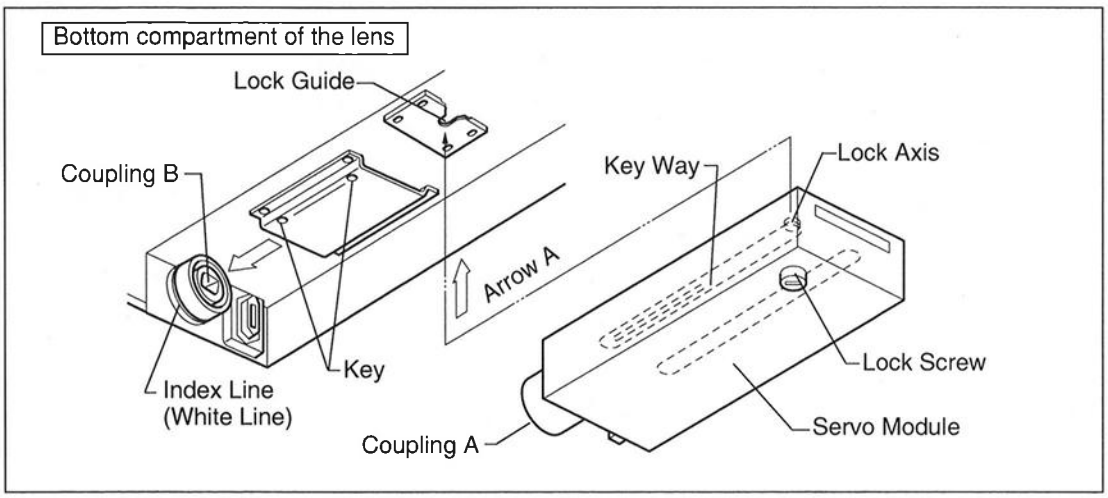
(B-1) Mounting the servo module onto the lens

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.

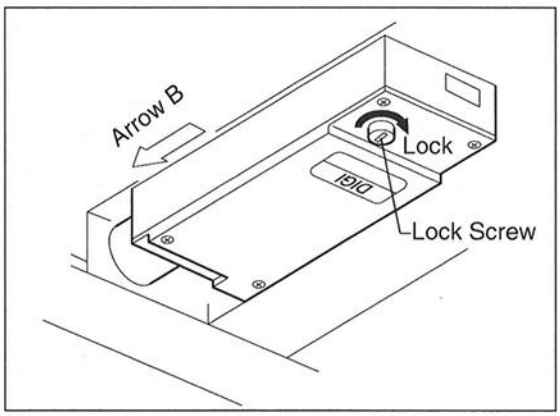
(1) Before mounting a module to the lens, turn the lock screw of the module counterclockwise until the lock axis comes out to its max. length.

(2) Press the module in the direction of arrow "A", so that the keys on the lens are inserted in the key ways 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, or a keystone tip screwdriver, tighten firmly the lock knob.




If the module is mounted to the focus coupling first, please repeat the same procedures to mount the module to the zoom coupling, or vice versa.

※ (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.

(B-2) Mounting the zoom servo demand onto the pan bar of the pan & tilt head, and connecting the demand cable

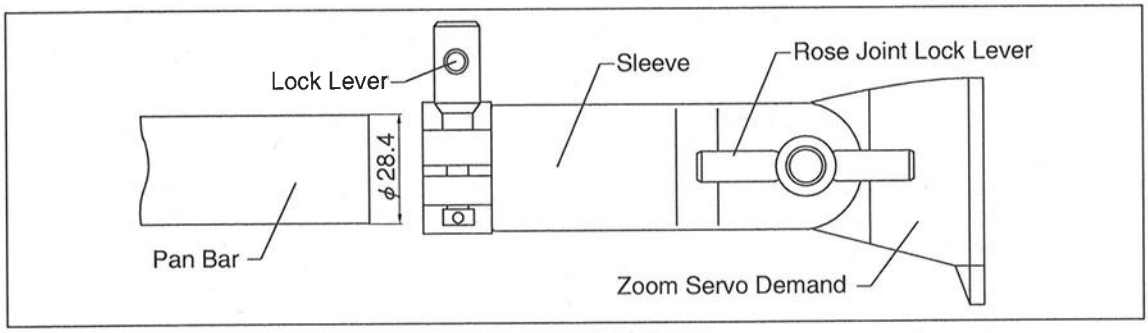
There are three methods to mount the zoom servo demand onto the pan bar of the pan & tilt head. And choice depends on what type of the pan bar is used, or customer's preference.

(B-2-a) For the demand which is slipped over the pan bar. This is applicable to the pan bar with 28.4mm (slightly less than 1 & 1/8inch) diameter.

(1) Turn the lock lever counterclockwise to slip the sleeve of the zoom servo demand over the pan bar.

(2) Slip the sleeve over the pan bar of the pan & tilt head, and turn the lock lever clockwise to secure the zoom servo demand.

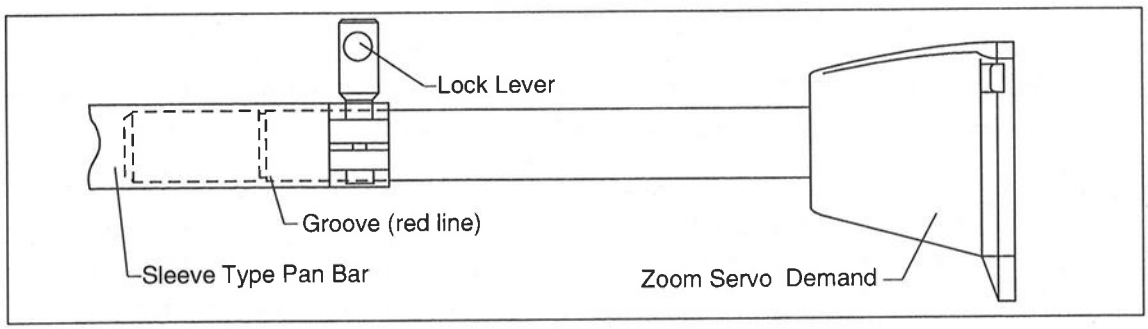
(3) Turn the rose joint lock lever counterclockwise to loose the engagement of the rose joint, and adjust the mounting angle of the demand at desirable position by re-engagement of the rose joint.
Then, tighten the demand firmly by turning the rose joint lock lever clockwise.




(B-2-b) For the demand which is inserted into the sleeve of the pan bar
(This is applicable to the pan bar with the sleeve.)

(1) Turn the lock lever of the pan bar's sleeve counterclockwise to insert the tip of the zoom servo demand.

(2) Insert the tip of the demand into the mounting hole (sleeve) of the pan bar.
Then, secure the demand by turning the lock lever of the pan bar clockwise.




⚠ CAUTION : Insert the tip of the zoom servo demand, until the groove (red line) is completely hidden.

(B-2-c) For the demand which is mounted onto the pan bar with the clamp

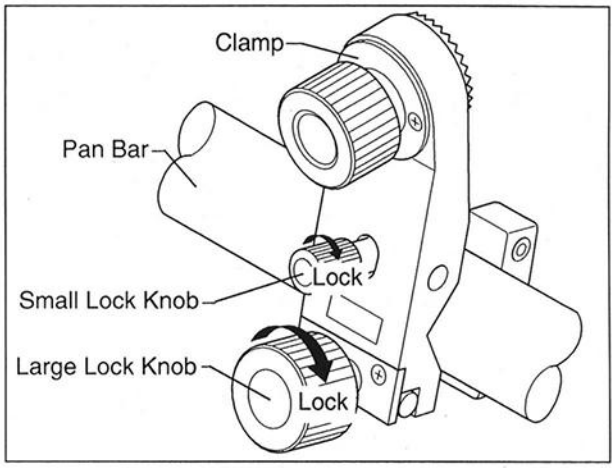
(1) Loosen the large and small lock knobs of the clamp, and then mount it to the pan bar.

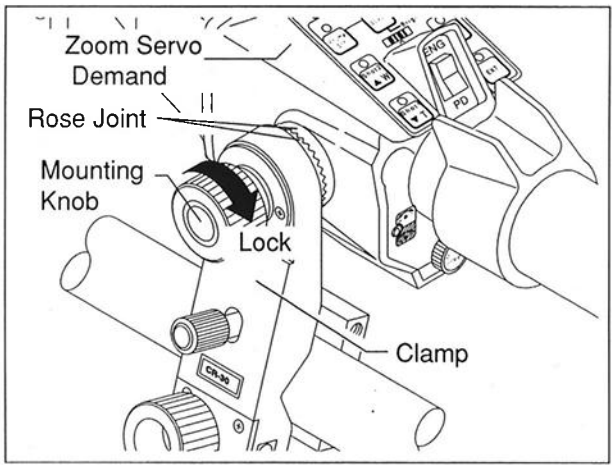
(2) After mounting the clamp to the pan bar, tighten the large and small lock knobs to secure the clamp.

(3) Loosen the rose joint lock lever completely and remove the sleeve unit from the demand.

(4) Mate the rose joint of the demand with the rose joint of the clamp.
(There are three rose joints on the demand.
Select the most suitable one and mate it with the counterpart of the clamp)

(5) Tighten the mounting knob of the clamp to secure the demand firmly.




※ (NOTE) : The mounting angle of the zoom servo demand can be adjusted, according to how the rose joints are mated.

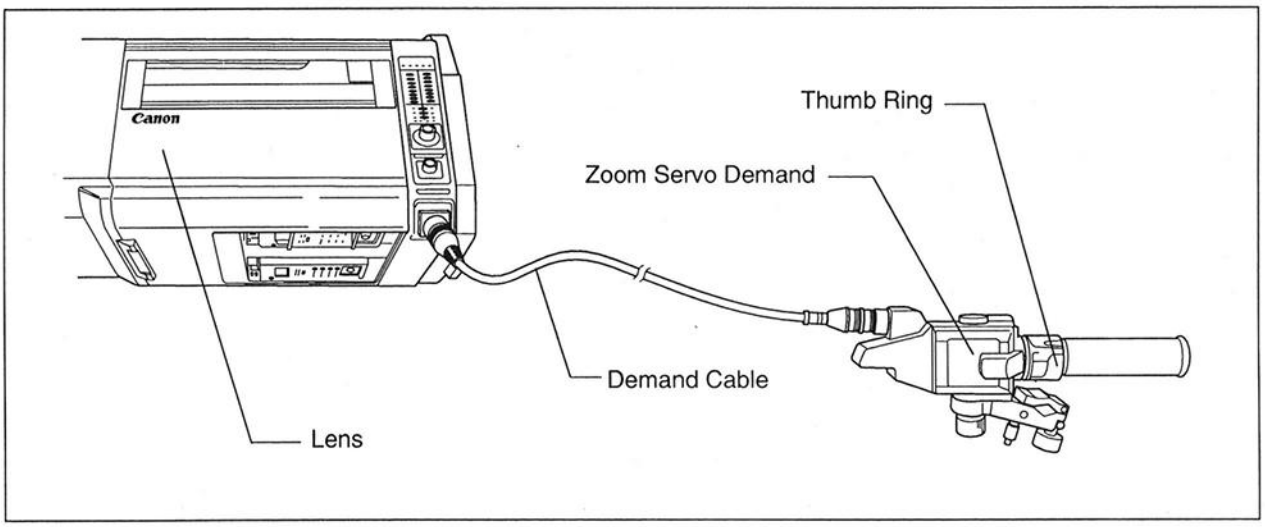
(B-2-d) Connecting the demand cable to the zoom servo demand

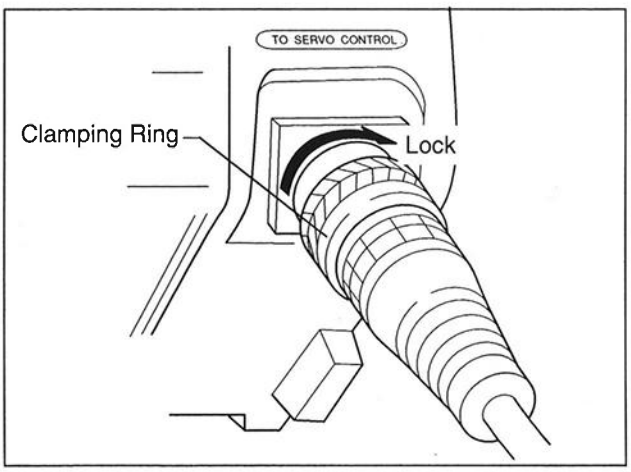
After attaching the zoom servo demand onto the pan bar by one of three methods mentioned previously, the connection of the demand cable is required.

(1) Plug in the female connector of the demand cable to the receptacle on the zoom servo demand.

(2) Plug in the other side of connector (male side) to the receptacle labeled "TO SERVO CONTROL" at the bottom rear of the lens, and turn the clamping ring of the connector clockwise to securely tighten the demand cable.

※ (NOTE) : For the demand connection, two receptacles are provided at the bottom rear right and left sides of the lens.
When the demand cable is connected to the lens, use either one of them.




⚠ CAUTION : When connecting the zoom servo demand, do not operate the thumb ring of the zoom servo demand.
Doing so may not initialize the digital servo system and result the zoom servo operation in malfunction.

※ (NOTE) : The zoom servo demand provides the function to control extenders.
So, the switch box unit is not required for the full servo and the semi-servo operation systems.

(B-3) Mounting the focus servo demand onto the pan bar of the pan & tilt head, and connecting the demand cable

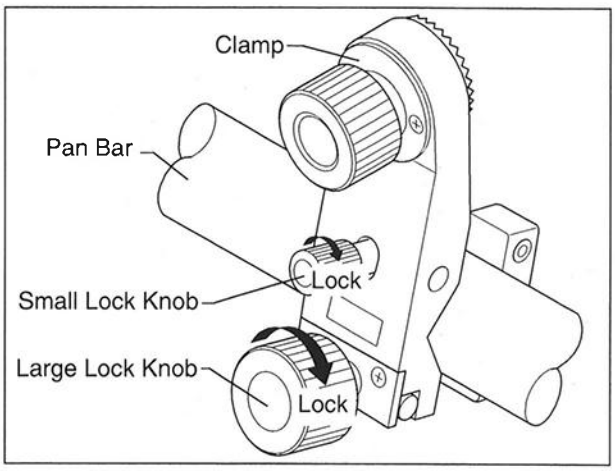
The focus servo demand consists of the focus servo demand, the clamp and the demand cable. Follow the procedures described below how to mount this unit.

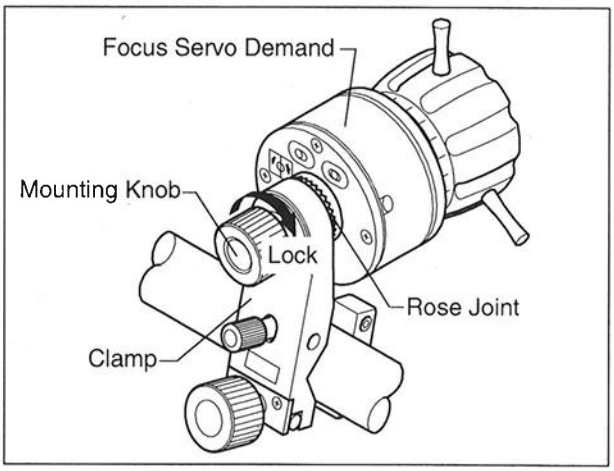
(1) Loosen the large and small lock knobs of the clamp, and then mount it to the pan bar.

(2) After mounting the clamp to the pan bar, tighten the large and small lock knobs to secure the clamp.

(3) Mate the rose joint of the focus servo demand with the rose joint of the clamp.

(4) Tighten the mounting knob of the clamp to secure the demand firmly.

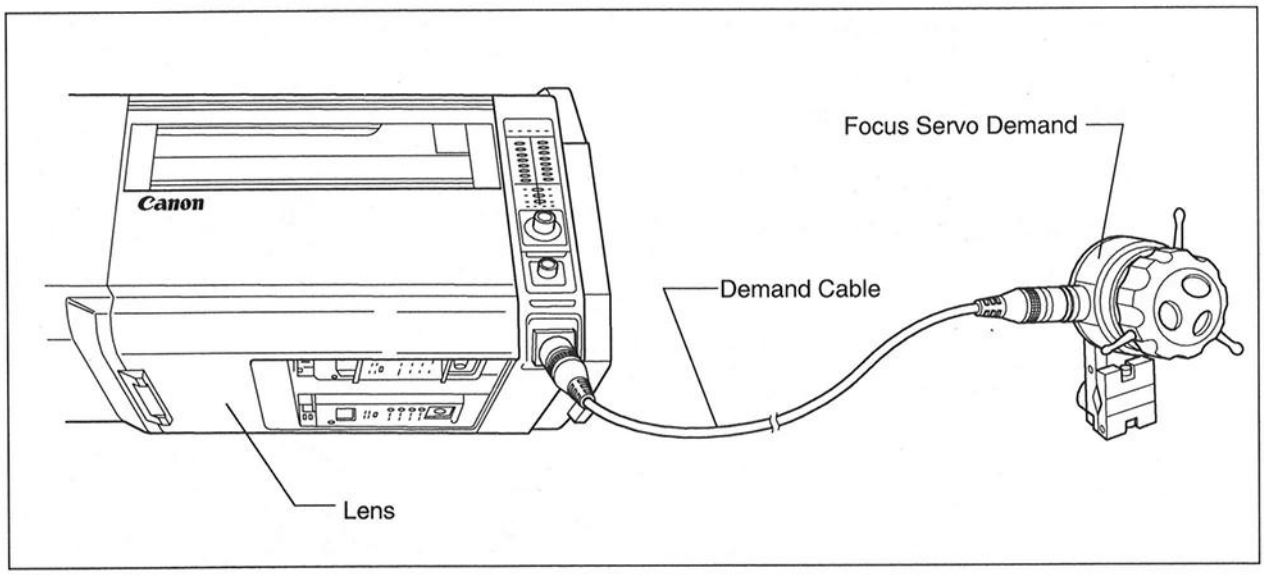


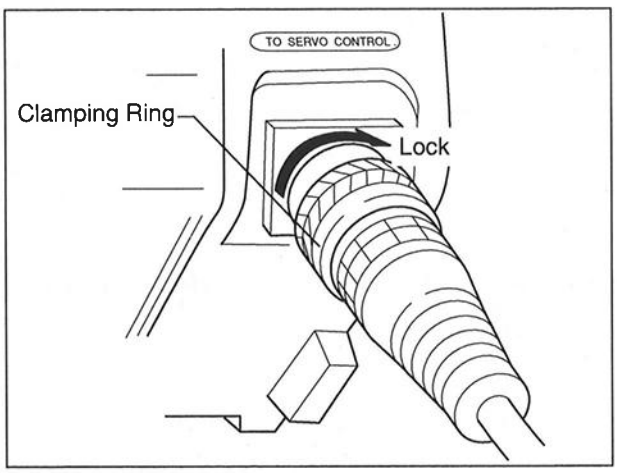




※ (NOTE) : The mounting angle of the focus servo demand can be adjusted, according to how the rose joints are mated.

(5) Plug in the female connector of the demand cable to the receptacle on the focus servo demand, and then turn the clamping ring of the connector clockwise to securely tighten the demand cable.

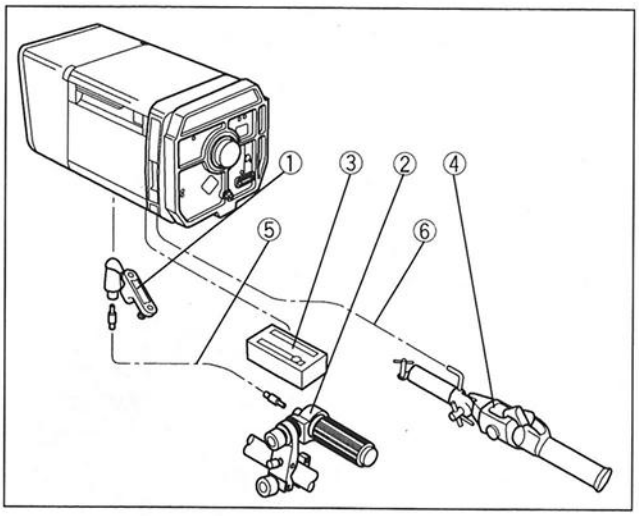
(6) Plug in the other side of connector (male side) to the receptacle labeled "TO SERVO CONTROL" at the bottom rear of the lens, and turn the clamping ring of the connector clockwise to securely tighten the demand cable.
The lens provides two receptacles labeled "TO SERVO CONTROL" at bottom rear right and left sides. However either side of the receptacle is already connected the demand cable for the zoom servo demand described in the section (B-2-c).
So, use the other side of the receptacle for the connection of the demand cable from the focus servo demand.



(C) Mounting and connecting the semi-servo operation's accessories

- Mount and connect the flexible focus control units and the zoom servo demand, as shown in the figure below.




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

For mounting and connecting above accessories, refer to the following sections mentioned in the "3-2 (A) Mounting and connecting the manual (flexible) operation's accessories" and "3-2 (B) Mounting and connecting the full servo operation's accessories" .

Mounting the flexible module to the focus coupling of the lens ..... Section 3-2 (A-1)
Mounting and connecting the flexible focus control unit ..... Section 3-2 (A-3)
Mounting the servo module to the zoom coupling of the lens ..... Section 3-2 (B-1)
Mounting and connecting the zoom servo demand ..... Section 3-2 (B-2)

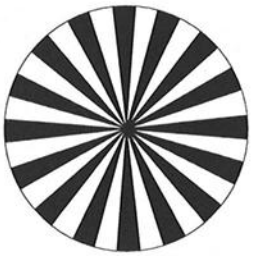
# § 4. ADJUSTMENT

## 4-1. Flange Back Adjustment of the Lens

If the relationship between the image plane of the lens and the image plane of the television camera are incorrect, the object goes out of focus when the lens is zoomed.
In case of 3 CCD cameras, the CCDs are permanently fixed and unable to move, so that only the lens can do this adjustment.
Follow the procedure below to adjust the flange back (distance from the mount surface to the image plane) of the lens.

(1) Select the green channel component video on the monitor.

(2) Determine an object at an appropriate distance (10 to 15 meters recommended), or at the actual distance in which the lens is most frequently used.
If a Siemens star chart is available, use it as an object since the adjustment work with the Siemens star chart gives easy work, but yet gives the best result.
But, if no such chart is available, use any object that offers sharp contrast to facilitate the adjustment work.



Siemens Star Chart

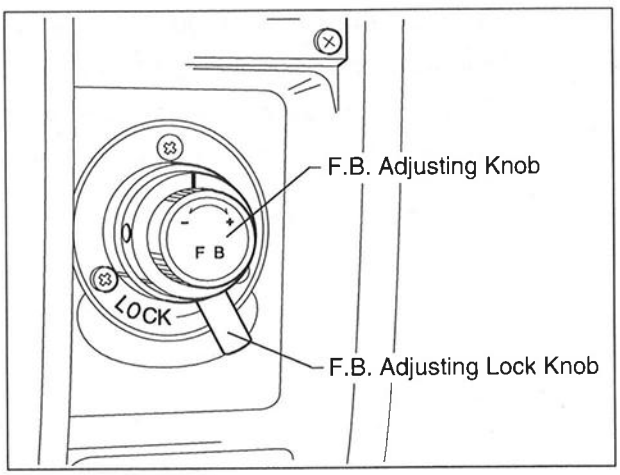
(3) Select the 1x extender position.

(4) Open the iris of the lens fully.
If the video level becomes too high, adjust to the proper level with ND filter built-in the camera or by lighting.

(5) Set the lens to the telephoto end by the zoom operation.

(6) Bring the object into focus by the focus operation.

(7) Set the lens to the wide end by the zoom operation.




(8) Loosen the F.B. lock knob on the left side of the lens (as viewed from the camera), and then turn the F.B. adjusting knob to bring the object into focus.

(9) Repeat steps (5) to (8) several times, until the object is brought into focus at both the wide and telephoto ends.

(10) After making sure that the object is in sharp focus at both ends, tighten the F.B. lock knob again.

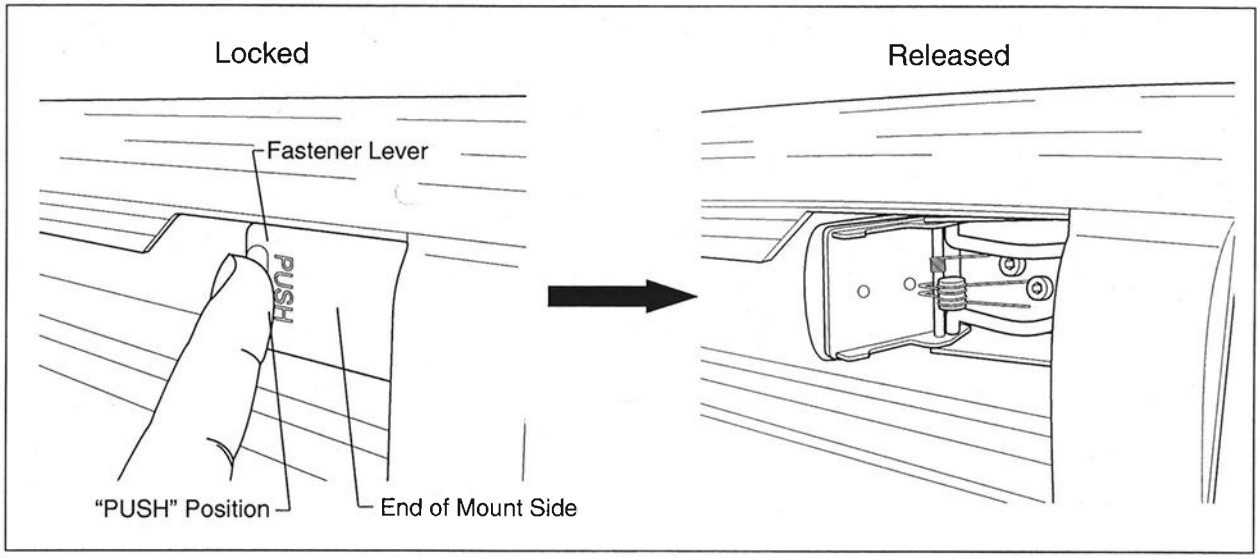
When above steps (1) to (10) is performed, the flange back adjustment of the lens is completed.

※ (NOTE) : When adjusting the flange back of the lens, do not use any of the extenders other than 1x.
However, after the adjustment is done, check that the object is brought into focus at both wide and telephoto ends with any of the other extender(s).

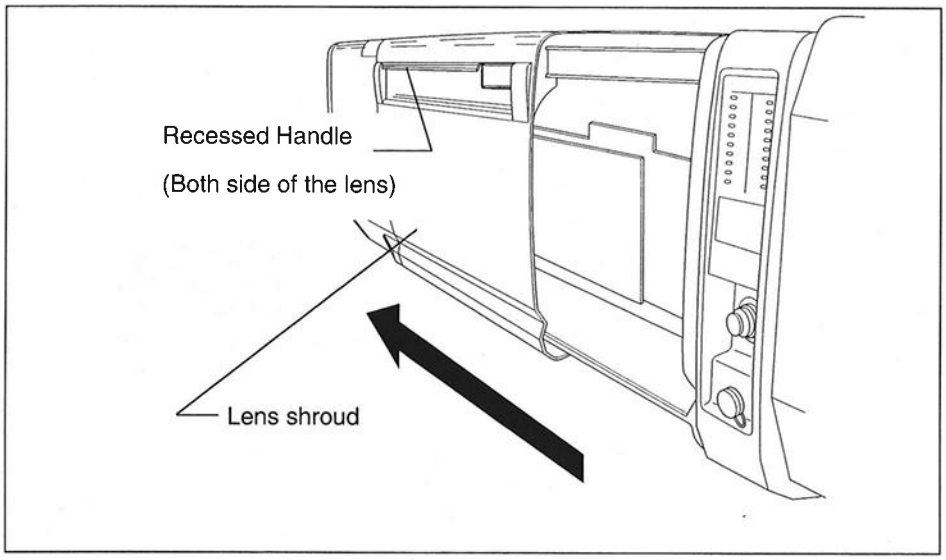
## 4-2. Opening and Closing the Lens Shroud

When any of electrical adjustment of the lens, such as the iris gain adjustment mentioned in the section 4-3, is required, it is necessary to open and close the lens shroud.
Follow the procedure below for opening and closing the lens shroud.

(1) Press the "PUSH" position of the shroud fasteners on both side of the lens shroud to release the lock mechanism.




(2) Hold two recessed handles on both side of the lens shroud, and then pull and remove the shroud from the lens body.




(3) When putting the lens shroud back on the lens body, align the shroud to the guide rails of the lens body, and then push the shroud until it is stopped 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 lens shroud fasteners are always locked.
If the fasteners are not completely locked, the lens shroud may be fallen off from the lens, when the lens/camera is tilted down.

## 4-3. Iris Gain Adjustment

The iris gain is properly set at the factory.
However, if the iris hunting occurs or the iris response is poor, re-adjustment of the iris gain is required, and follow the steps below.

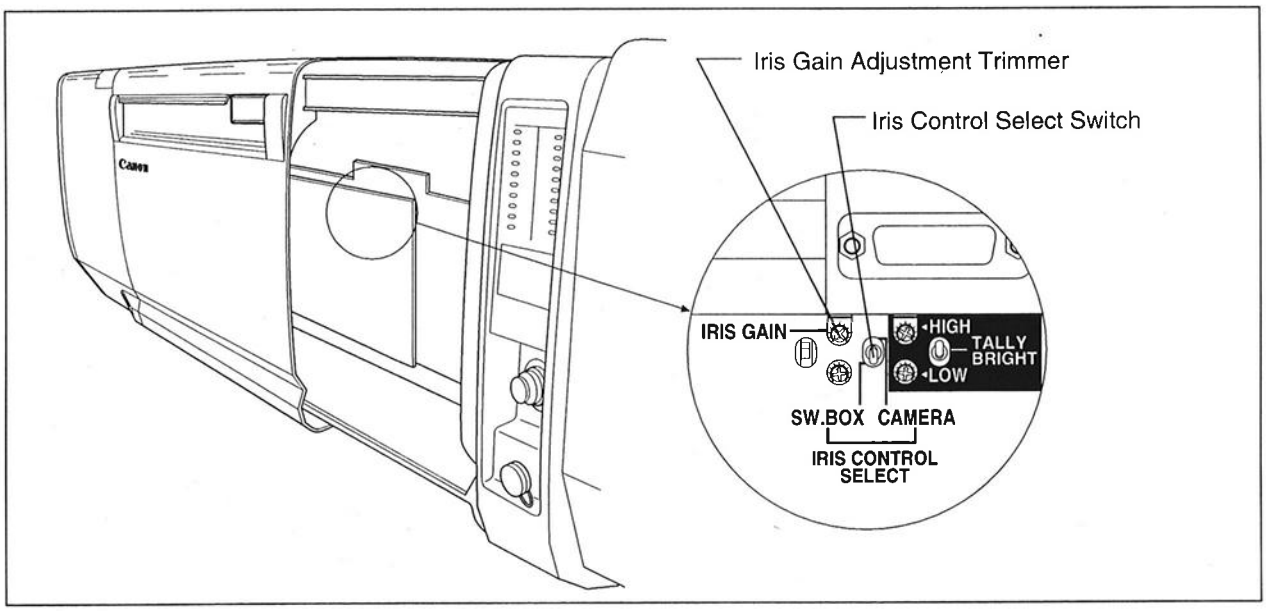
※ (NOTE) : Other iris adjustment, such as ends adjustment, level adjustment with an extender and so on, requires service manual and training in some cases.
So, consult with Canon or Canon's representative for other iris adjustment.

(1) Open the lens shroud.
(See the section 4-2 in previous page to open and close it.)

(2) Make sure that the iris control select switch is set to "CAMERA" position.
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 "CAMERA" position.
For the detailed settings, refer to the iris mode table on the next page.

(3) Adjust the iris gain to proper level by turning the iris gain adjustment trimmer on the circuit board. Turn it clockwise to increase the gain, or turn it counterclockwise to decrease the gain.

(4) After the adjustment done, put the lens shroud back to the lens body.




The iris control select switch is set to "CAMERA" position at the factory. But, if you want to control the iris from the switch box (special version), it has to be set to "SW. BOX" position. See the table in the next page 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 Iris control select switch inside the lens body
   (CAMERA/SW.BOX)

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

| Position of the Iris control Select switch | Command signal from camera | | Iris Control signal from | Iris mode |
|---|---|---|---|---|
| | IRIS ENF | IRIS A/R | | |
| Camera | On | Auto | Camera | Auto iris |
| Camera | On | Remote | Camera | Remote iris |
| Camera | Off | Auto | Camera | Auto iris |
| Camera | Off | Remote | Camera | Remote iris |
| Switch box | On | Auto | Camera | Auto iris |
| Switch box | On | Remote | Camera | Remote iris |
| Switch box | Off | Auto | Switch box | Remote iris |
| Switch box | Off | Remote | Switch box | Remote iris |

## 4-4. Tally Lights and Indicator On/Off, and Brightness Adjustment of the Tally lights

The tally lights and the indicator on the lens are able to be turned on or off by a switch, and the brightness of tally lights are adjustable.

At the factory, the lens is set to both, tally lights and indicator, "ON" and the brightness of the tally lights "HIGH" positions. But, by any reason that these have to be turned off or that adjustment of the tally light's brightness is required, follow the steps below :

(1) The tally light and indicator on/off switch is located on the side of the lens (right side as viewed from the camera). The functions corresponding to the setting positions for this switch are shown below.

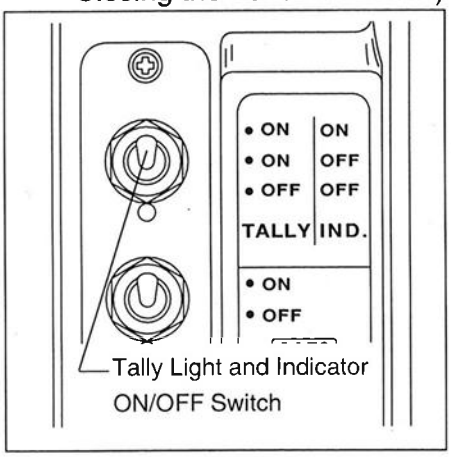
Top (ON/ON): Both the tally lights and indicator are lit.

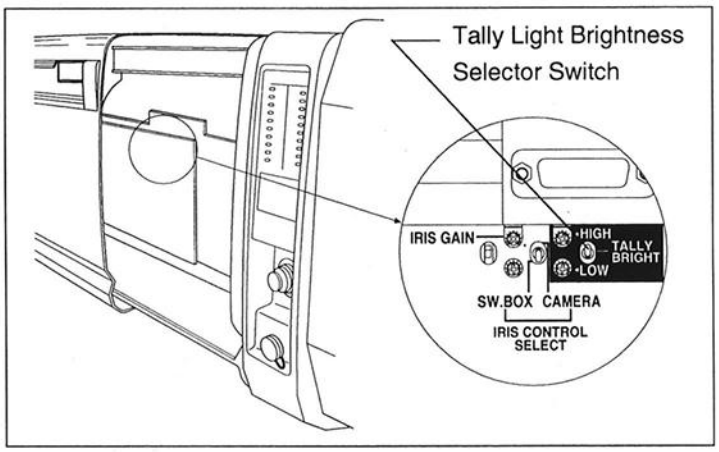
Middle (ON/OFF): The tally lights are on, but the indicator is off.

Bottom (OFF/OFF): Both the tally lights and indicator are off.

(2) Remove the lens shroud from the lens.

(For details on opening and closing the lens shroud, see section 4-2, "Opening and Closing the Lens Shroud" .)




(3) A tally light brightness selector switch is located on the side of the lens (left side as viewed from the camera). This switch can be used to set the tally brightness to high or low by making the appropriate selection below.

Set the switch to "HIGH" : Brighter

Set the switch to "LOW" : Darker

Also, these brightness is adjustable to desirable level by turning the trimmers next to the switch.

(4) After above settings are done, put the lens shroud back to the lens body.

※ (NOTE) : 1) If the camera does not provide the command signal for tally on/off, or if the lens is "IX12" or "SX12" models, these switches function only as the indicator on/off. (The tally lights are always out.)

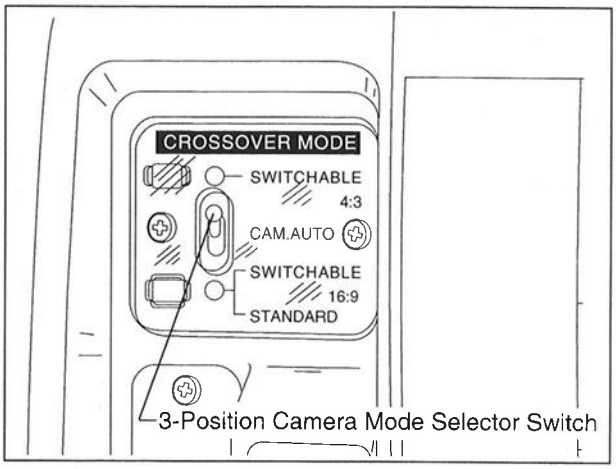
2) The brightness of the tally lights are adjusted to a recommendable levels for both "HIGH" and "LOW" positions at the factory.

## 4-5. Camera Mode Switching (Optional Function)

This optional function is provided with the XJ25x6.8B WES series models and applicable to use with the switchable TV camera.
(Note : XJ25x6.8B IES series models do not have this function.)

Whether the switchable camera provides the command signal for the automatic mode switching or not, the 3-position camera mode selector switch has to be set, according to the table below.

The 3-position camera mode selector switch on the "CROSS OVER MODE" panel is located at the right side of the lens (as viewed from the camera).




| TV camera | | Lens | | |
|---|---|---|---|---|
| Camera type | Command/Automatic mode switching | Switch's position | | Remarks |
| Switchable | Provided | CAM. AUTO | Middle | Automatically switched by the camera's command |
| | Not Provided | SWITCHABLE 4 : 3 | Upper | Set to switchable 4:3 mode |
| | | SWITCHABLE 16:9 / STANDARD | Lower | Set to 16:9 mode |
| Normal 16:9 aspect | | SWITCHABLE 16:9 / STANDARD | | Set to normal 16:9 mode |
| Normal 4:3 aspect | | | | Set to 4:3 mode |

When a switchable 4:3 mode is selected, LED indicator at upper position of the "CROSS-OVER MODE"panel is lit red. However, when other mode (switchable 16:9, normal 16:9, or normal 4:3 mode) is selected, LED indicator at lower position of the "CROSSOVER MODE" panel is lit yellow.

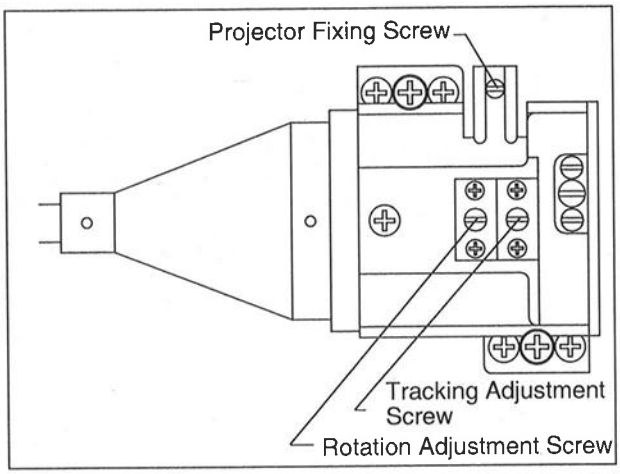
※ (NOTE) : The extender(s) can be controlled from the zoom servo demand, or the switch box, after above setting is done.
However, 1x and 2x figures indicated on the zoom servo demand or the switch box correspond to 1x and 2.4x respectively for the switchable 4:3 mode.

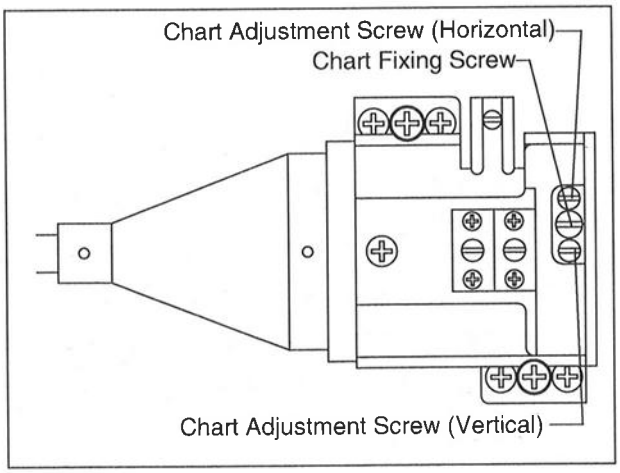
## 4-6. Pattern Projector Adjustment (Optional Function)

This optional function is used for simplifying the auto setup when the lens is used together with the pattern projector and a camera such as the Ikegami HK388. This function is turned on and off by command signals from the camera control unit (CCU).

※ (NOTE): Be sure that you understand the procedure for turning the pattern projector on and off that is described in the camera (including CCU) instruction manual provided by the camera manufacturer.
Example: Normally, two buttons on the CCU unit, "Auto Setup" and "Diascope On", are used to operate the pattern projector. Use the "Diascope On" button for the pattern projector adjustment described in this section.

The image created by the pattern projector must be properly positioned with respect to the camera's CCD imaging elements and the brightness must be adjusted to a prescribed level. In addition, the lamp that is used in the camera has a limited service life. Be sure to replace it when necessary.

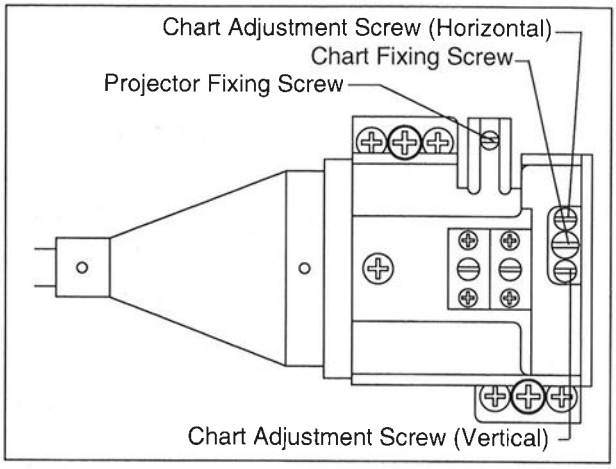



A. Adjusting the position and brightness

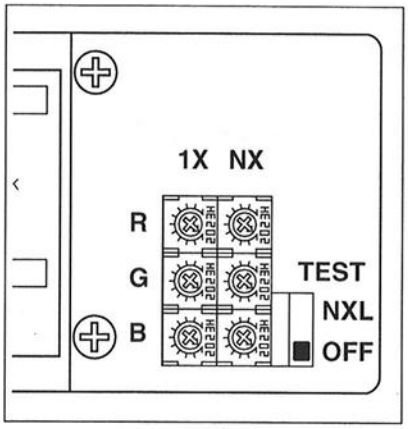
1. Remove the lens shroud from the lens. The pattern projector unit is incorporated at the top of the lens. (For details on opening and closing the lens shroud, see section 4-2, "Opening and Closing the Lens Shroud" .)
2. Send command signals from the CCU to turn on the pattern projector.
3. The mechanism for adjusting the position is located at the top of the projector unit.
4. First, loosen the projector fixing screw by turning it counterclockwise so that adjustment is possible.
5. Turn the tracking adjustment screw to adjust the focus.
6. Turn the rotation adjustment screw to adjust the rotation direction of the pattern image.
7. Once the tracking and rotation adjustments are finished, tighten and secure the fixing screw by turning it clockwise.
8. Loosen the chart fixing screw by turning it counterclockwise so that horizontal and vertical adjustment is possible.

9. Turn the chart adjustment screws (horizontal and vertical) to adjust the position of the chart image in the horizontal and vertical directions.
10. Tighten the chart fixing screw after the best position is obtained.




※ (NOTE): Once the focus and position adjustments described above are completed, be sure to always recheck that both the projector fixing screw and chart fixing screw have been tightened.

11. Adjust the 1x light quantity for the R, G, and B channels. Use the procedure below. (Before adjusting the light quantity, check the filters in the camera head. The ND filter should be a clear filter, and the CC filter should be a 3200K filter. Reset the filters if necessary.)



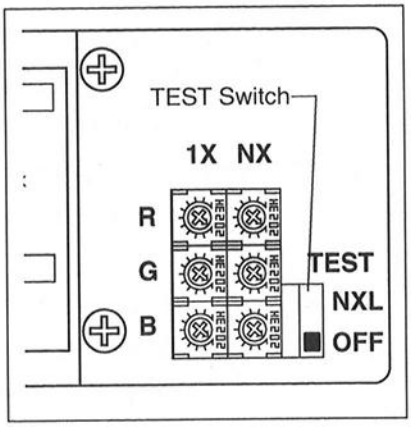

    11-1. Turn the G trimmer ( "G" in the "1X" column) to adjust the video level of the G (green) channel to 100%.
    11-2. Turn the R trimmer ( "R" in the "1X" column) to adjust the video level of the R (red) channel to 100%.
    11-3. Turn the G trimmer again to adjust the video level of the G (green) channel to 100%.
    11-4. Turn the R trimmer again to adjust the video level of the R (red) channel to 100%.
    11-5. Turn the B trimmer ("B" in the "1X" column) to adjust the video level of the B (blue) channel to 100%.
    11-6. Check that the video level of the G (green) channel is 100%. The 1x light quantity adjustment is finished when it becomes 100%. If it is not 100%, readjust using the above procedure.
12. Next, adjust the Nx light quantity for the R, G, and B channels.

※ (NOTE): The Nx high-brightness pattern image may be needed for certain camera systems. You can skip step 12 if the pattern image is not needed. If it is needed, refer to the camera system's instruction manual and select the N value for Nx so that the Nx video level is 100% or less when the ND filter in the camera head is changed. If the clear filter is left in the camera, the video level will become saturated and adjustment cannot be performed.

12-1. A TEST switch is located next to the six trimmers for adjusting the light quantity. Change the setting of this switch from OFF to NXL.

12-2. Perform the same procedure as described in step 11 using the three trimmers in the NX column so that the light quantity adjustment of the R, G, and B channels is set to the level that was calculated.
(For example, when the N in Nx is 3 and the 1/4 ND filter is used in the camera head:
3 x 0.25 (transmittance of the 1/4 ND filter) = 0.75
The result of 75% indicates that the video level for the three channels must each be adjusted to 75%.)

12-3. Once the adjustment is finished, return the TEST switch back to the OFF position.




13. Send the command signal from the CCU to turn off the pattern projector.

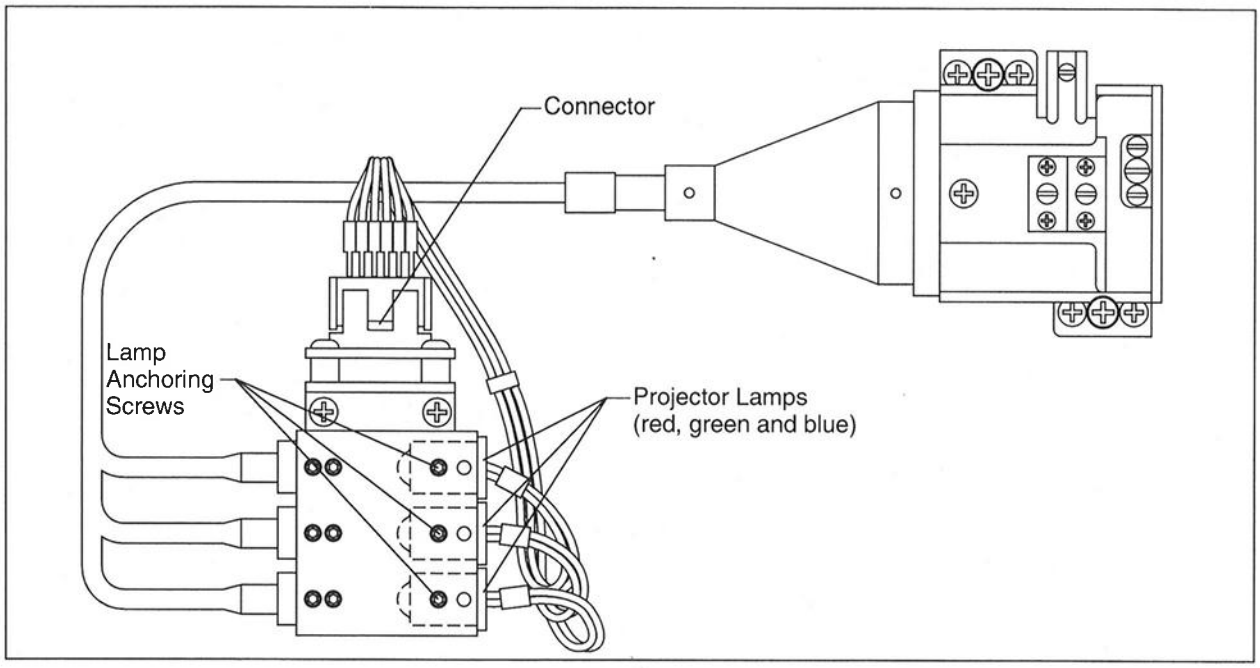
14. Remount the lens cover on the lens.

B. Replacing the lamp unit

The service life of the projector lamps is approximately 3,000 hours. Replace these lamps with spares as and when necessary. Even if only one of the three lamps needs to be replaced, replace all three with new ones at the same time.

To replace the lamps, follow the procedure below.

1. Remove the lens shroud from the lens. The pattern projector unit is incorporated at the top of the lens. (For details on opening and closing the lens shroud, see section 4-2, "Opening and Closing the Lens Shroud" .)
2. Loosen the three lamp anchoring screws used to anchor the lamps, and pull the lamps out. Pull out the lamp unit's connector as well.
3. Insert the lamp section of the new lamp unit for each of the display colors (red, green and blue) in turn, and tighten the lamp anchoring screws.
4. Plug in the connector.
5. Upon completion of the replacement, adjust the light quantity. (For details on adjusting the light quantity, refer to steps 2, 11, 12 and 13 of the previous section.)
6. Attach the lens shroud to the main lens unit.



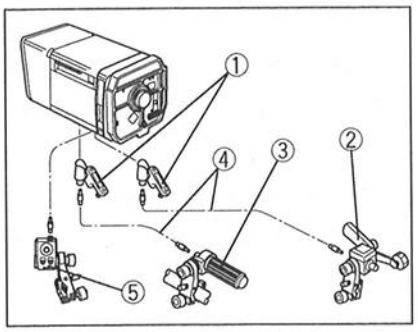
# § 5. OPERATION

## 5-1. Zoom and Focus Operation

### (A) Manual (flexible) system operation

Zoom and focus operations are performed based on a configuration like that shown in the figure below.

For the details on how to mount and connect to the lens body, refer to section "3-2 (A), Mounting and connecting the manual (flexible) operation's accessories". For the operating procedures, refer to the operation manual for the respective unit.

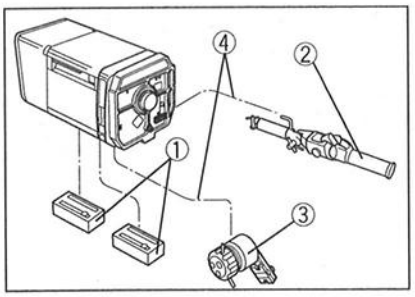



① Flexible module
② Flexible zoom control unit
③ Flexible focus control unit
④ Flexible cable
⑤ Switch box unit

### (B) Servo system operation

Zoom and focus operations are performed based on a configuration like that shown in the figure below.

For the details on how to mount and connect to the lens body, refer to section "3-2 (B), Mounting and connecting the full servo operation's accessories". For the operating procedures, refer to the operation manual for the respective unit.

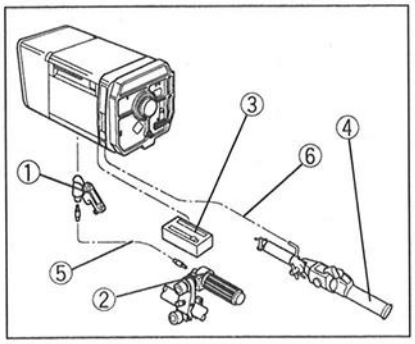



① Servo module
② Zoom servo demand
③ Focus servo demand
④ Demand cable

### (C) Semi-servo system operation

Zoom and focus operations are performed based on a configuration like that shown in the figure below.

For the details on how to mount and connect to the lens body, refer to section "3-2 (C), Mounting and connecting the semi-servo operation's accessories". 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

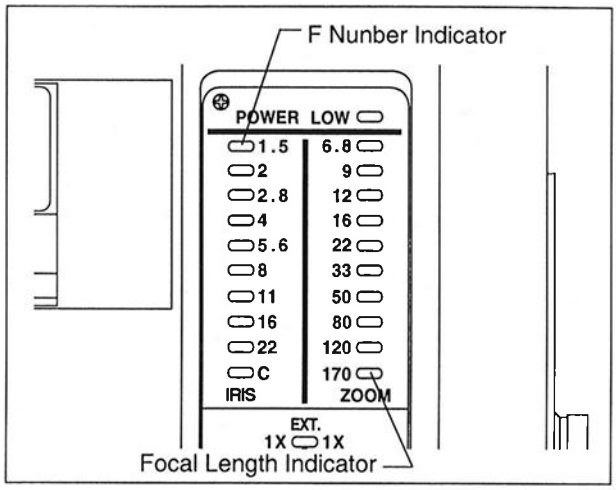
## 5-2. Iris Operation

The iris function of the lens is controlled by either the CCU or the switch box (special version).

### (A) Control from the CCU (Camera Control Unit)

Both automatic and remote iris control are usually operated from the CCU.
(Refer to the CCU operation manual 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.




(A-1) Setting the iris control select switch

The iris control select switch was set to the "CAMERA" position 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 iris control select switch.

"CAMERA" position : Iris operation is enabled from the camera.
"SW.BOX" position : Iris operation is enabled from such as switch box.

(1) Remove the lens shroud.
(Refer to the section "4-2. Opening and Closing the Lens Shroud" how to open and close the lens shroud.)

(2) Check that the iris control select switch is set to "CAMERA" position. If the switch is set to "SW.BOX" position, change the setting to the "CAMERA" position.

(3) After above checking and settings are done, put the lens shroud on the lens body.

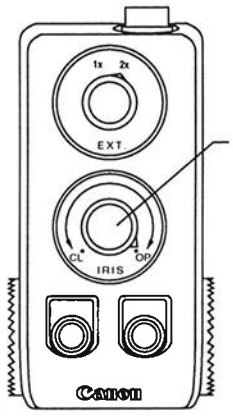
(B) Control from the switch box (special version)

When a special switch box which is capable to control the iris function of the lens, such as the SBJ-H01 or SBJ-H02, is mounted, the iris function of the lens is controlled by it.

(1) Open the lens shroud, and set the iris control select switch to "SW BOX" position. And then put the lens shroud back to the lens body.
(Refer to the section "4-2. Opening and closing the lens shroud" for how to open and close the lens shroud, and the section "4-3. Iris Gain Adjustment" to find where the iris control select switch is located.)

(2) Turn the iris control knob of the switch box clockwise to open the iris (to increase the video level), or turn it counterclockwise to close the iris (to decrease the video level).

As same as the above (A), an approximate F number can be checked with the indicator panel on the left side of the lens.



Shown the SBJ-H01 Switch Box

※ (NOTE) : 1) See the section "3-2 (A-4) Mounting the switch box ·····" for details of how to mount and connect the switch box.
2) Refer to the table "Iris Mode" in the section "4-3. Iris Gain Adjustment" to understand the relationship among the command signals from camera, iris control device, and the position of the iris control select switch.

## 5-3. Extender Operation

The extender(s) can be remotely controlled from the zoom servo demand, the switch box, or the camera. Also, in case of an emergency when the remote extender control is impossible, it can be manually controlled.

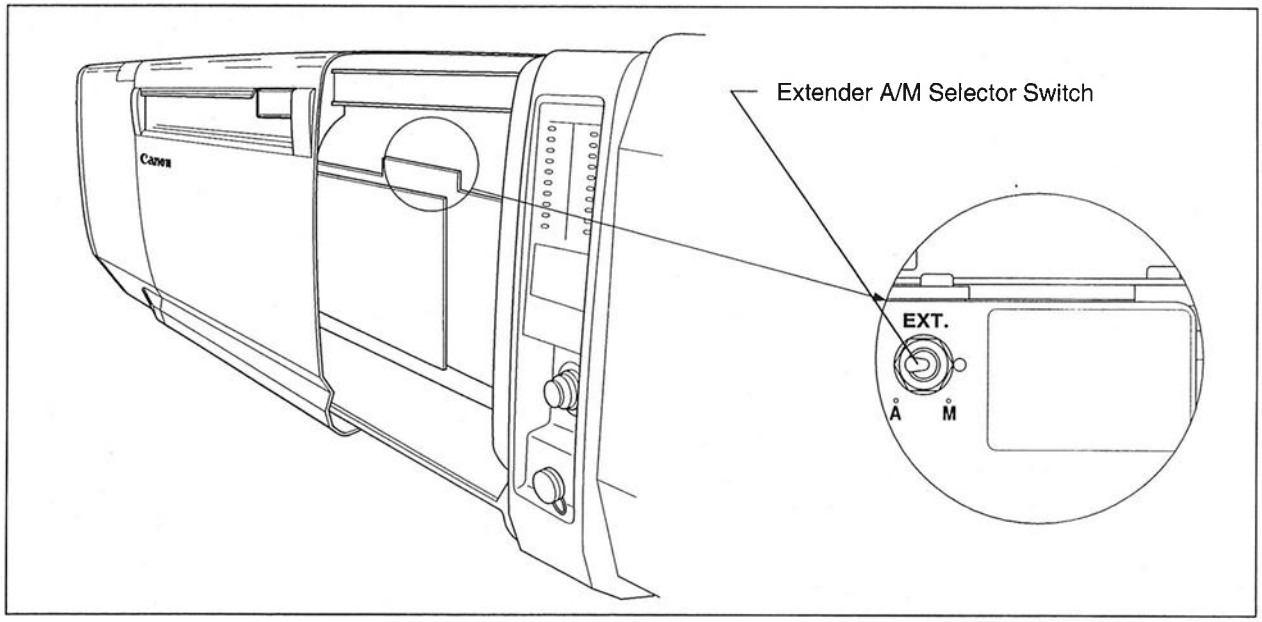
### (A) Remote operation

【Preparation】

The extender A/M selector switch is set to "A" (automatic) position at the factory. So, the zoom servo demand, the switch box or the camera is able to control extender(s) remotely. If extender(s) can not be controlled by one of above three method, check the position of the extender A/M selector switch by the following procedure.

(1) Open the lens shroud.
(Refer to the section "4-2. Opening and Closing the Lens Shroud" how to open and close the lens shroud.)

(2) Check the extender A/M selector switch on the upper right of the lens circuit board where it is set to "A" or "M". If it is set to "M" position, shift to "A" position.




(3) Close the lens shroud.

(A-1) Remote extender control by the zoom servo demand and switch box

Remote extender control can be performed from the zoom servo demand, switch box, and other accessories. For the details on how to mount and connect to the lens body, refer to section "3-2, Mounting the Accessories onto the Lens" . For the operating procedures, refer to the operation manual for the respective accessory.

(A-2) Remote extender control from the TV camera.

Some of the TV camera head or the CCU provide the remote extender control function, and the interface between the camera head and the lens is designed and manufactured accordingly.
In these cases, the extender(s) are able to be controlled by the extender selector mounted on the TV camera head or the CCU.

※ (NOTE) : See the operation manual of the TV camera and/or the CCU provided by the camera manufacturer for the details how to operate the extender(s) control from the TV camera head or the CCU.

※ (NOTE) : When the zoom servo demand, the switch box and/or the extender control device installed on the TV camera head or the CCU are used together, the last operated selector has priority.

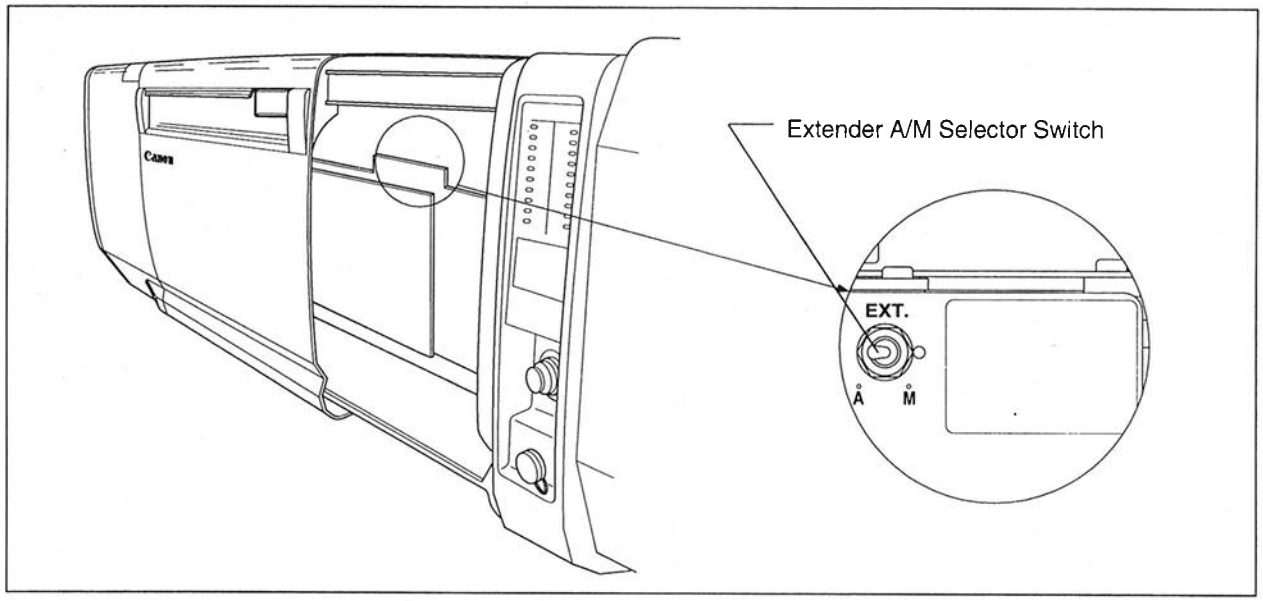
(B) Manual operation

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

Follow the procedure below to set up and operate the extender manually.

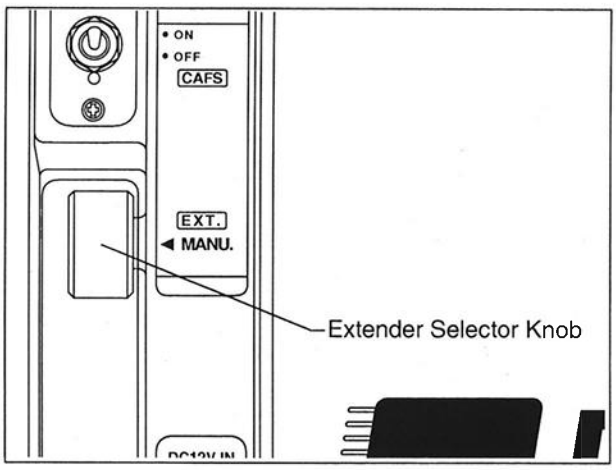
(1) Open the lens shroud.
(Refer to the section "4-2. Opening and Closing the Lens Shroud" how to open and close the lens shroud.)

(2) Change the extender A/M selector switch on the upper right of the lens circuit board from "A" position to "M" position




(3) Close the lens shroud.

(4) Extender operation :
Turn the extender selector knob on the right side of the lens, as viewed from the camera, to operate the extender(s).
Turn the knob counterclockwise, as viewed from the camera, to insert the NX extender into the lens optical system.
Turn the knob clockwise to remove the NX extender from the lens optical system.

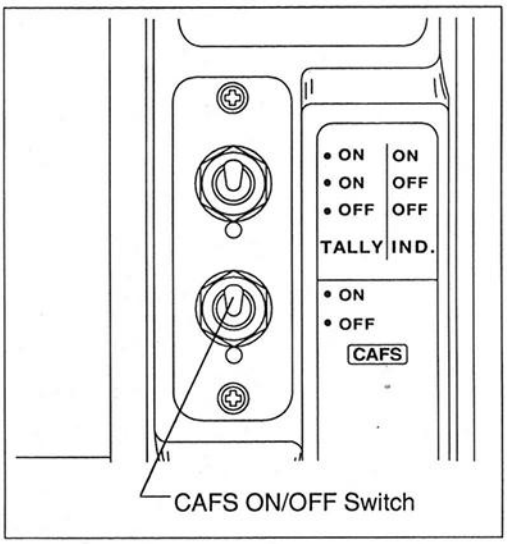


## 5-4. CAFS (Constant Angle Focusing System)

The lens is equipped with the CAFS function which suppresses the change of angular field of view that occurs during the focus operation.
Follow the steps below to activate this function.

(1) Set the CAFS ON/OFF switch to the ON position.

(2) The CAFS function is activated to reduce changes to the angular field of view during the focus operation.




※ (NOTE) : When any of analog zoom servo demand, such as the ZDJ-A01, is used and when this CAFS function has to be activated, please make sure that the zoom track setting switch on the demand is turned off.

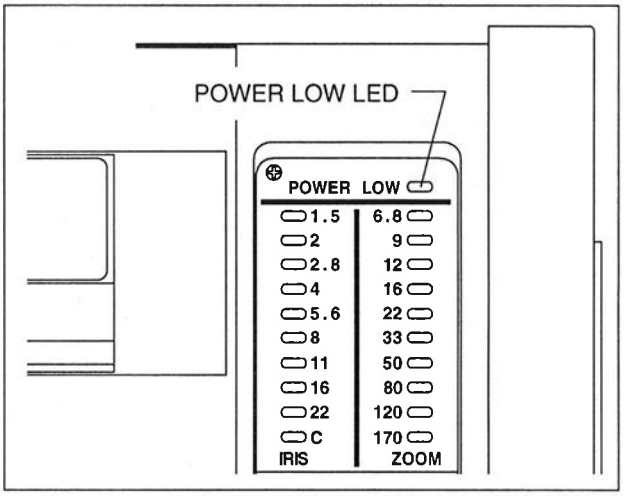
## 5-5. Other Operations

### (A) Warning LED for low power supply

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 :

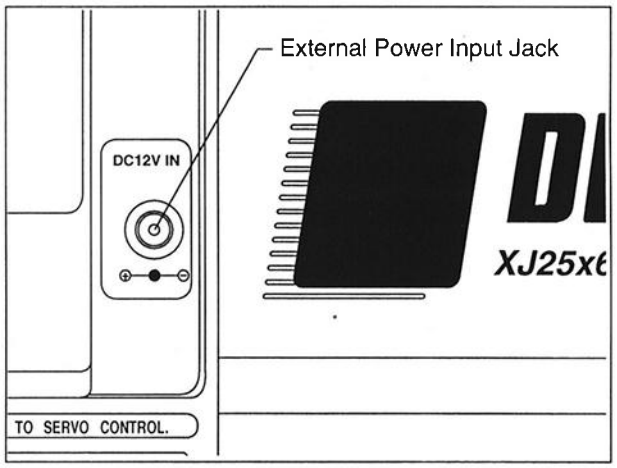
Lit red : 10V or less
Blinks red : 10V - 10.5V
Off : Supplies sufficient voltage

So, when the LED is lit red or blinking red, countermeasures to rise the supply voltage is necessary. Otherwise, the lens may malfunction.




### (B) External power input jack

For one of countermeasures to supply additional power to the lens, an external power input jack is provided at the right side of the lens, as viewed from the camera.
So, nominal 12V DC (11V-17V DC) power from the DC power supply, such as a battery, can be supplied to the lens through this jack.




Manufacturer : HOSIDEN
Model name : HEC0630-01-010
Canon part number : WS1-0394

※ (NOTE) : When this jack has to be used, please contact to either Canon Inc. or Canon's representative to consult how to set up the system.
Also, when this 25x lens will be used with a portable camera and supporter, other systems are available from Canon to supply 12V DC power.

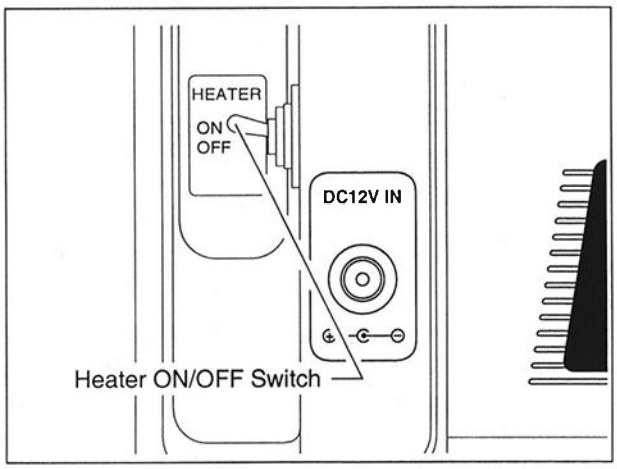
(C) Heater system (option)

The heater system is an option that can be mounted on the lens. Warming up the lens can prevent clouding or condensation inside 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) The heater starts warming the interior of the lens.

(3) 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.

(D) Charging the nitrogen gas (option)

Nitrogen gas can be charged inside the lens to minimize the clouding and condensation that may form inside the lens due to the moisture in the air.

The nitrogen gas must be re-charged when conducting the periodic overhaul. It is also recommended that the nitrogen gas be re-charged prior to an important event.

※ (NOTE) : Since you will need a gas cylinder and charging equipment to re-charge the nitrogen gas, consult a Canon representative or your dealer.

## § 6. LENS SPECIFICATION

| | Normal (4:3) mode | | 16:9 mode | |
|---|---|---|---|---|
| | 1x | 2x | 1x | 2x |
| Focal Length | 6.8 – 170 mm | 13.6 – 340 mm | 6.8 – 170 mm | 13.6 – 340 mm |
| Zoom Ratio | 25x | | | |
| Maximum Relative Aperture | 1:1.5 (6.8 – 122 mm)<br>1:2.1 (170 mm) | 1:3.0 (13.6 – 244 mm)<br>1:4.2 (340 mm) | 1:1.5 (6.8 – 122 mm)<br>1:2.1 (170 mm) | 1:3.0 (13.6 – 244 mm)<br>1:4.2 (340 mm) |
| Image Format | 8.8 x 6.6 mm (Diagonal 11 mm) | | 9.6 x 5.4 mm (Diagonal 11 mm) | |
| Angular Field of View (Wide)<br>(Tele) | 65.8° x 51.8°<br>3.0° x 2.2° | 35.9° x 27.3°<br>1.5° x 1.1° | 70.4° x 43.3°<br>3.2° x 1.8° | 38.9° x 22.5°<br>1.6° x 0.91° |
| Minimum Object Distance (M.O.D.) | 0.6 m | | | |
| Object Dimensions at M.O.D. (Wide)<br>(Tele) | 93.3 x 70.0 cm<br>3.6 x 2.7 cm | 46.1 x 34.6 cm<br>1.8 x 1.4 cm | 102.2 x 57.5 cm<br>3.9 x 2.2 cm | 50.4 x 28.4 cm<br>2.1 x 1.2 cm |

| | Switchable (4:3) mode | | |
|---|---|---|---|
| | 1x | 1.2x | 2.4x |
| Focal Length | 5.6 – 140 mm | 6.8 – 170 mm | 13.6 – 340 mm |
| Zoom Ratio | 25x | | |
| Maximum Relative Aperture | 1:1.5 (5.6 – 120 mm)<br>1:1.75 (140 mm) | 1:1.5 (6.8 – 122 mm)<br>1:2.1 (170 mm) | 1:3.0 (13.6 – 244 mm)<br>1:4.2 (340 mm) |
| Image Format | 7.2 x 5.4 mm (Diagonal 9 mm) | | |
| Angular Field of View (Wide)<br>(Tele) | 65.8° x 51.8°<br>3.0° x 2.2° | 55.8° x 43.3°<br>2.4° x 1.8° | 29.7° x 22.5°<br>1.2° x 0.91° |
| Minimum Object Distance (M.O.D.) | 0.6 m | | |
| Object Dimensions at M.O.D. (Wide)<br>(Tele) | 93.3 x 70.0 cm<br>3.6 x 2.7 cm | 75.5 x 57.5 cm<br>2.9 x 2.2 cm | 37.5 x 28.8 cm<br>1.5 x 1.1 cm |

Dimensions : See attached outside drawing.
Flange back : See attached outside drawing.
Zoom speed : 0.6 ± 0.1s Max.
Focus speed : 0.7 ± 0.1s Max.
Iris speed : 0.8 ± 0.1s
Mount : B3, B4
Input voltage : Ikegami dedicated lens : AC 220 V, Other : DC 12 V (10 V – 17 V)
Power consumption : Flexible system : 6 W Max., Servo system : 24 W Max.
Operating temperature : –20°C to +45°C

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