

Canon

BCTV Zoom Lens

HDGC

KJ20x8.2B IRSD
KJ20x8.2B KRSD

OPERATION MANUAL “Lens”

Read this operation manual before using the product.

— FOREWORD —

Thank you for purchasing the Canon BCTV zoom lens.

This product comes with the following documents for the models mentioned below:

- Operation Manual "Before Using The Product" (Included with the product)
- Operation Manual "Regulations" (Included with the product)
- Operation Manual "Lens" (Web)
- Operation Manual "Information display" (Web)

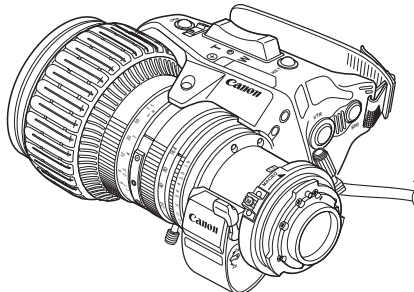
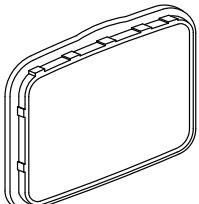
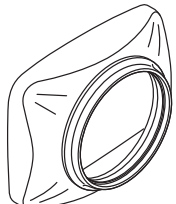
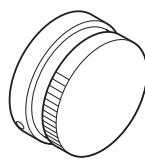
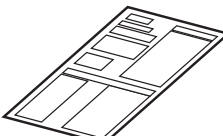
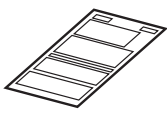
	Model
HDGc	KJ20x8.2B IRSD
	KJ20x8.2B KRSD

The illustrations in this manual are used as examples.

Actual forms may vary depending on models and specifications.

PRODUCT LIST

Make sure all of the following items are included in the packing box. If you find any item missing, please contact your Canon sales representative or dealer.

Lens body 	Hood cap 	Hood 	Dust cap 
	Operation Manual  Operation Manual "Before Using The Product"  Operation Manual "Regulations"		

Accessories other than those mentioned above may be required depending on the specifications of your unit.
For details, contact your Canon sales representative or dealer.

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 provided to guard against hazards 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.

This manual uses the following symbols and terms in the warning and caution notices for preventing accidents and protecting the safety of the customer and others.

 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. Be sure to heed all caution notices to ensure safe operation at all times.
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. Do not expose the product to strong impact. Striking or dropping the product may cause the malfunction of the product.
2. This product is not waterproof. Take measures to avoid direct contact with rain, snow, or moisture. Otherwise it may cause the malfunction of the product.
3. 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.
4. Take measures to avoid sudden changes in temperature where the lens is used, which may prevent operation temporarily if condensation forms in the lens.
5. Before use in particular environments, such as places where chemical products are used, contact your Canon sales representative or dealer. Using in particular environments may cause the malfunction of the product.

DEALING WITH ABNORMALITIES



WARNING

Should any of the abnormalities described below occur, immediately disconnect the cable, remove the product from the camera, and contact your Canon sales representative or dealer.

- Smoke, fumes, or unusual noises
- Entry of foreign objects (such as liquid or metal objects) inside the product

MAINTENANCE AND INSPECTION



WARNING

Be sure to disconnect the cable and remove the product from the camera before cleaning outside of the product. 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



WARNING

Always attach the lens cap (or hood cap) and dust cap before storage. Storing the lens without the caps attached poses a risk of fire if the lens concentrates light in direct sunlight.

NOTE

Immediately wipe off any moisture on the product from misty or foggy environments, using a dry cloth. Seal the product 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

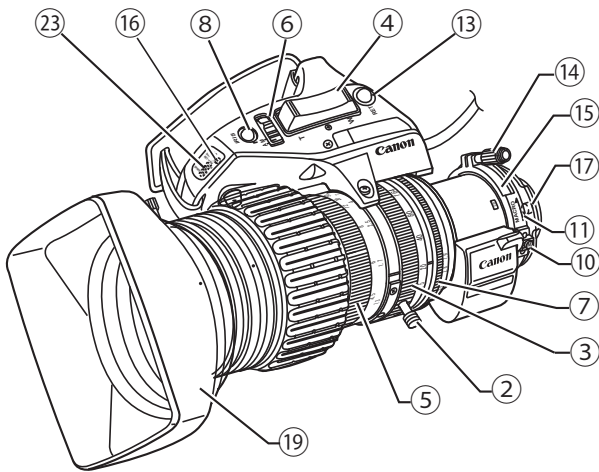
1. Canon shall bear no responsibility for damage resulting from improper operation of this product by the customer.
2. Canon shall make no guarantees about the product quality, functions, or operation manual and its marketability and suitability for the customer's purpose. Moreover, Canon shall bear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

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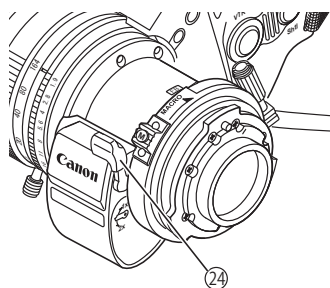
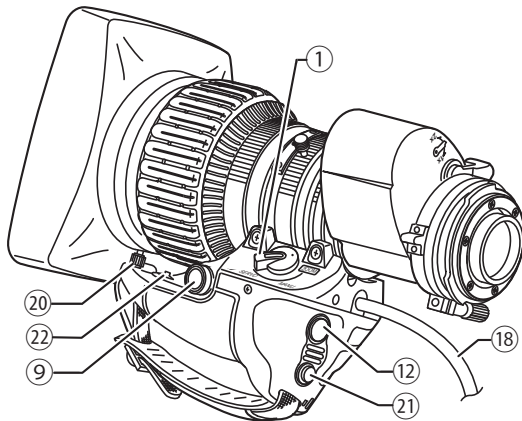
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1 Part Names



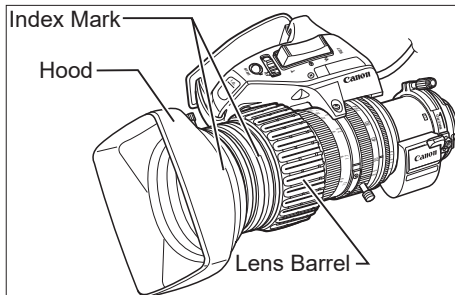
- ① Zoom Operation Change-over Knob
- ② Zoom Lever
- ③ Zoom Ring
- ④ Zoom Rocker Seesaw
- ⑤ Focus Ring
- ⑥ Iris Operation Mode Change-over Switch
- ⑦ Iris Ring
- ⑧ Instant Auto-Iris Switch
- ⑨ Connector for Remote Zoom Control
- ⑩ Macro Button
- ⑪ Macro Ring
- ⑫ VTR Switch
- ⑬ RET Switch
- ⑭ Flange Back Lock Screw
- ⑮ Flange Back Adjusting Ring
- ⑯ Iris Gain Adjusting Trimmer
- ⑰ Locating Pin
- ⑱ Power / Iris Control Cable
- ⑲ Hood
- ⑳ Hood Lock Knob
- ㉑ Shut Button
- ㉒ Memory button
- ㉓ Dip Switch
- ㉔ Extender Lever (IRSD type only)



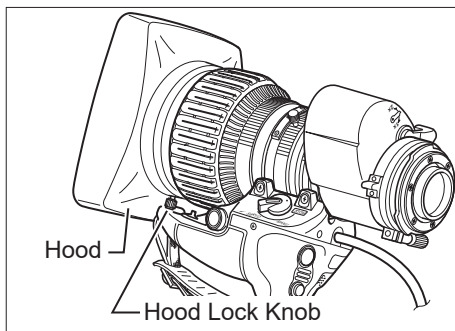
2 Mounting and Connection

2-1. Mount the hood on the lens

If the lens cap is attached, please remove the cap first.



- 1** Fit the hood on the front of the lens barrel.
- 2** Align the index marks.
- 3** Turn the hood lock knob clockwise to tighten the hood securely.

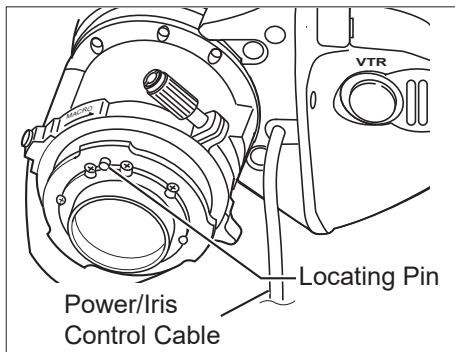


NOTE

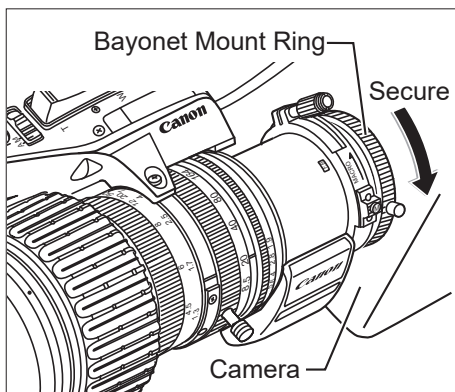
Be sure to keep the caps in a safe place so as not to lose them.

2-2. Mount the lens on the camera

Before mounting the lens on the camera, make sure that the camera's power is turned off.



- 1** Position the camera horizontally or slightly upward.
- 2** Turn the bayonet ring of the camera counterclockwise as viewed from the lens. Remove the dust cap from the camera mount.
- 3** Remove the dust cap from the lens.
- 4** Align the locating pin on the lens mount with the slot on the camera mount, and fit the lens into the camera mount surface.
- 5** Turn the bayonet ring clockwise until the lens mount is firmly fixed in place.
- 6** Connect the power/iris control cable connector on the back of the drive unit to the appropriate receptacle on the camera head.



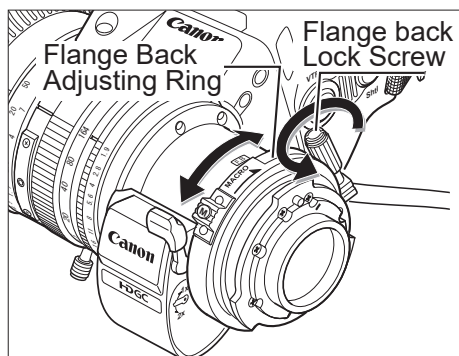
2-3. Turn it on

Turn on the camera, and the power of the lens will be supplied.

3 Adjustment

3-1. Back focus adjustment of the lens

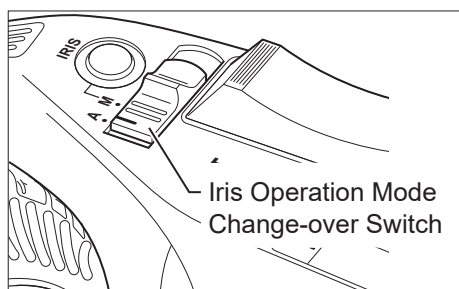
If the relationship between the image plane of the lens and the image plane of the television camera is incorrect, the object goes out of focus when the lens is zoomed. Adjust lens back focus as follows.



- 1** Select an object at an appropriate distance (approx. 2 to 5 m). Use any object that offers sharp contrast to facilitate the adjustment work.
- 2** Set the iris fully open.
- 3** Set the lens to the telephoto end by turning the zoom ring.
- 4** Bring the object into focus by turning the focus ring.
- 5** Set the lens to the widest angle by turning the zoom ring.
- 6** Loosen the flange back lock screw, and turn the flange back adjusting ring to bring the object into focus.
- 7** Repeat steps 3 to 6 a few times until the object is brought into focus at both the widest angle and telephoto.
- 8** After making sure that the object is in sharp focus, tighten the flange back lock screw.

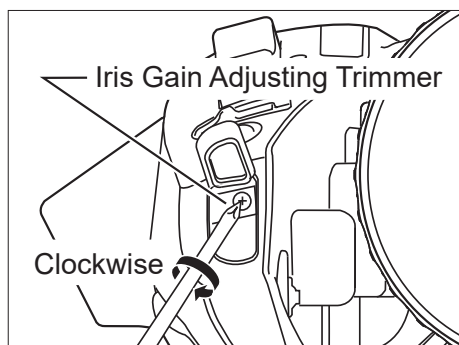
3-2. Iris gain adjustment

An iris gain adjusting trimmer is located on the front of the lens drive unit. The iris gain is set at middle of range at the factory. However, if you wish to change the iris gain, adjust the trimmer through the procedure described below.



- 1** Set the iris operation mode change-over switch to "A" (auto).
- 2** Turn over/ remove the rubber cap which is attached here.
- 3** Turn the iris gain adjusting trimmer, using a small screwdriver to set the level as desired.

C.W. : higher sensitivity
C.C.W. : lower sensitivity



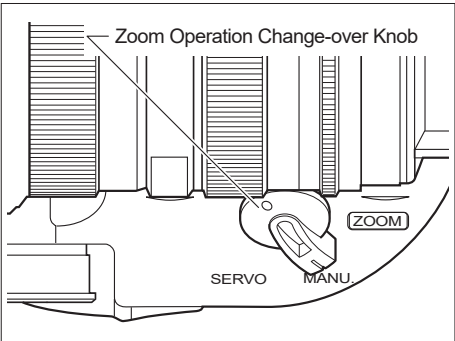
As you watch the lens iris ring, adjust to a suitable gain at which "focus hunting" does not occur.

- 4** After the iris gain adjustment is completed, put the rubber cap back.

4 Operation

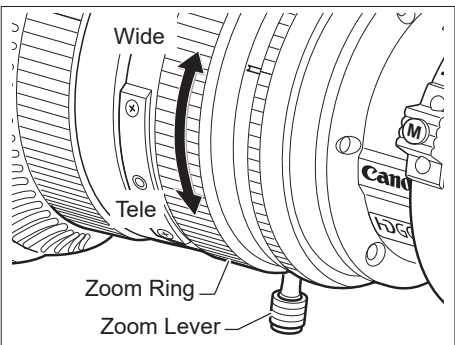
4-1. Zoom operation

4-1-1. Manual Zoom Operation



- 1 Set the zoom operation change-over knob at the bottom of the lens drive unit to "MANU." position.
- 2 Turn the zoom ring (itself or with the zoom lever).

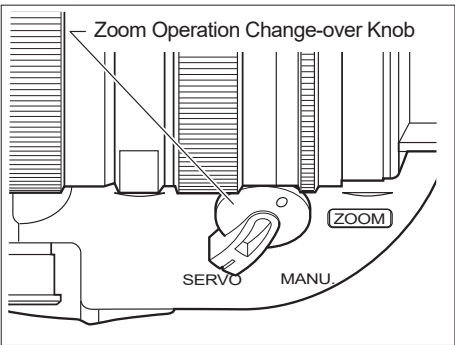
As viewed from the camera side
C.W. : to zoom out (to widest angle)
C.C.W. : to zoom in (to telephoto)



NOTE
The zoom operation change-over knob must be set to the "MANU." position before performing manual zoom operations.
The lens may be damaged if manual zoom operations are forcibly performed with the knob at the "SERVO" position.

4-1-2. Servo Zoom Operation

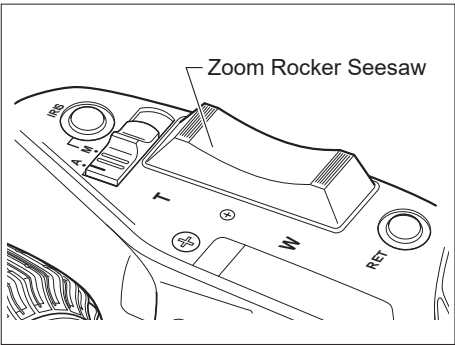
The built-in motor in the drive unit can also be used to zoom.



- 1 Set the zoom operation change-over knob at the bottom of the lens drive unit to "SERVO" position.
- 2 The zoom can be operated by pressing the zoom rocker seesaw located on the top of the lens drive unit.

Operation direction	Zoom direction
T W	Zoom out (To widest angle)
T W	Zoom in (to telephoto)

The zoom speed changes according to how far down the rocker seesaw is pressed.



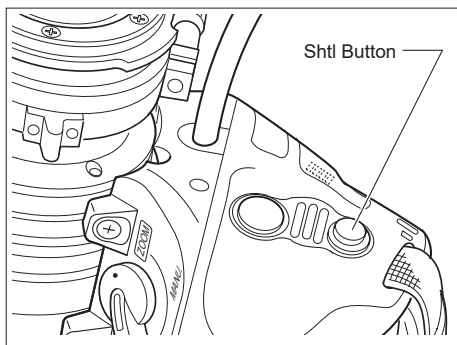
NOTE
If slow speed operation is unstable in servo zoom operation*1, perform the operation of zooming in and out about 10 to 100 times. At this time, press the zoom rocker seesaw to the maximum position.
*1 Slow speed operation may become unstable if servo zoom operation has not been performed for a long period of time.

4-1-3. Shuttle-Shot

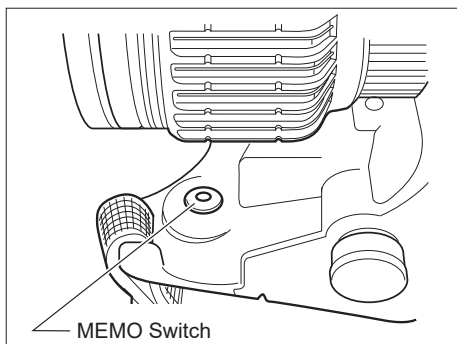
While shooting, the Shtl button allows the zoom shuttle between two zoom positions (shuttle and original positions) at the maximum speed.

A. How to set the shuttle position

Any desired zoom position can be stored.



Zoom in or out to a position to set. At the desired position to store, press the the Shtl button while holding down the Memo switch.



NOTE

The stored zoom position remains in the memory even after the power is turned off.

B. How to move to the shuttle position

When holding down the Shtl button, the zoom moves toward the shuttle position at the maximum speed, and stops at the shuttle position. So long as the Shtl button is held down, the zoom stays at the shuttle position. When the Shtl button is released, the zoom returns to the original position.



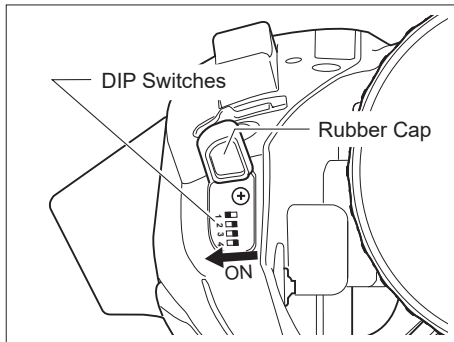
NOTE

Since operation with the Shtl button is given priority, Operation cannot be performed with the zoom rocker seasaw while the Shtl button is held down.

C. How to set the DIP switches

DIP switches are located on the front of the lens drive unit.

By setting these switches, the Shtl button functions can be assigned to the VTR switch and RET switch functions. The shuttle shot function can be set to off if not needed.



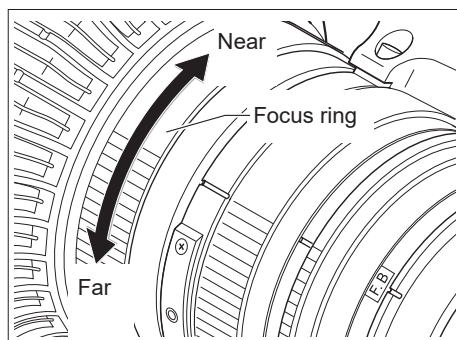
- 1** Turn over the rubber cap.
- 2** The various function settings available are listed below. Set the DIP switches to the desired settings.
- 3** Upon completion of the settings, re-set the rubber cap in place.

Setting Items	Function Selection	DIP Switch Settings (DIP Switch No. : position)
Turning ON or OFF the Shuttle-Shot function	ON	1 : ON
	OFF	1 : OFF
Assigning a function as the RET switch	Return (RET)	2 : OFF
	Shuttle-Shot (Shtl)	2 : ON
Assigning a function as the VTR switch	VTR-Start/ Stop (VTR)	3 : OFF
	Shuttle-Shot (Shtl)	3 : ON
Spare (Not used.)		4 : OFF

: Factory Settings

4-2. Focus operation

Turn the focus ring of the lens manually.



Turn the focus ring to focus on the object.

As viewed from the camera side

C.W. : to Near end
[to focus on a closer object]

C.C.W. : to Far end
[to focus on a farther object]

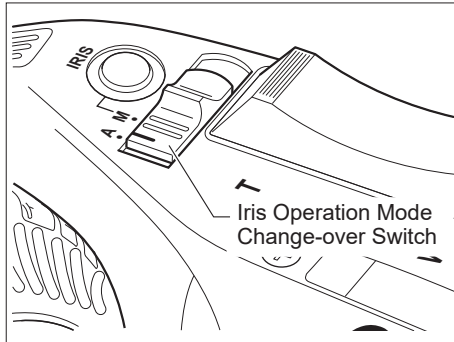
4-3. Iris operation

The iris can be operated automatically or manually by changing the iris operation mode change-over switch.

A (Automatic) : Automatic iris operation from the camera.

M (Manual) : Manual iris operation by rotating the iris ring.

4-3-1. Automatic iris operation

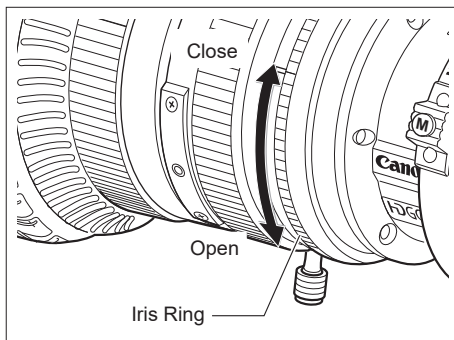


Slide the iris operation mode change-over switch to the "A" position.

The iris ring rotates automatically (driven by a motor in the drive unit) according to a camera signal.

The video level is automatically adjusted by the camera.

4-3-2. Manual iris operation



Slide the iris operation mode change-over switch to the "M" position for performing manual iris operations.

Adjust exposure by rotating the iris ring of the lens manually.

Turn the iris ring.

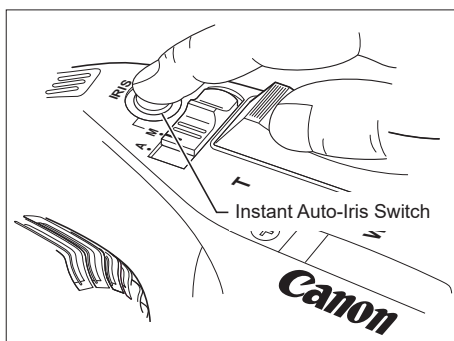
As viewed from the camera side

C.W. : closing down

C.C.W. : opening up

NOTE

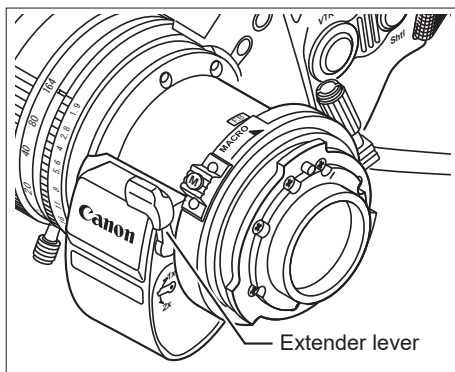
The iris operation mode change-over switch must be set to the "M" position before performing manual iris operations. The lens may be damaged if manual iris operations are forcibly performed at the "A" position.



Instant auto-iris switch

When the instant auto-iris switch is pressed during manual iris operation mode, the iris changes to automatic operation mode while the switch is held down.

4-4. Extender operation (IRSD type only)



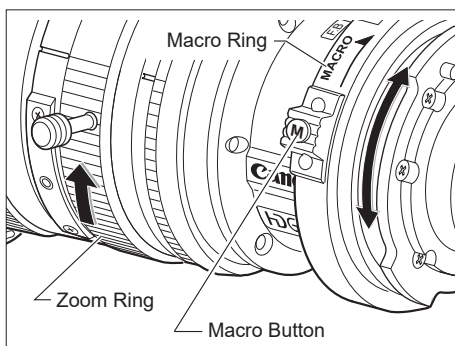
Lenses with a built-in extender are equipped with a 2 × extender. Use the extender lever to switch between 1 × and 2 ×.

NOTE

Using an extender reduces brightness by an amount corresponding to the magnification, depending on the iris compensation setting.

4-5. Macro operation

This mode is used for shooting small subjects at closer range than the normal minimum object distance. At the macro position and the wide-angle end, close-ups can be as close as 10mm from subjects.



- 1 Manually or with servo, zoom to the wide-angle end.
- 2 Press the macro button to unlock it, then turn the macro ring to bring the subject into focus.

NOTE

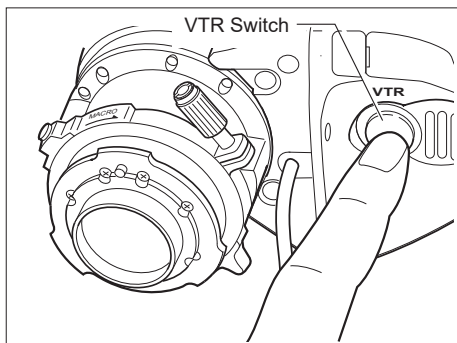
Macro operations are also possible when zoomed to a position other than the wide-angle end, but this will increase the subject distance.

Multi-point focus shooting

As a technique that relies solely on zooming to shift the focal point within the same scene, multi-point focus shooting employs a characteristic of macro shooting – specifically, zooming changes both the focal length and the focal point. To use this technique, shoot as follows.

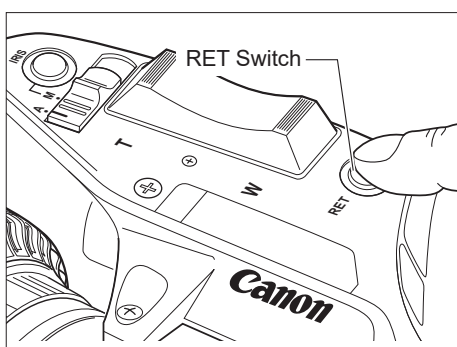
- 1 Zoom in to a distant subject and bring it into focus by focusing as usual.
- 2 Zoom out to a near subject and bring it into focus with the macro ring.
- 3 Leaving the macro button unchanged from step 2, zoom in to the distant subject again and bring it into focus again by focusing as usual.

4-6. VTR and RET switch operations



VTR switch

Press the VTR switch to execute the operation of VTR and press it again to stop the operation of VTR.



RET switch (video return switch)

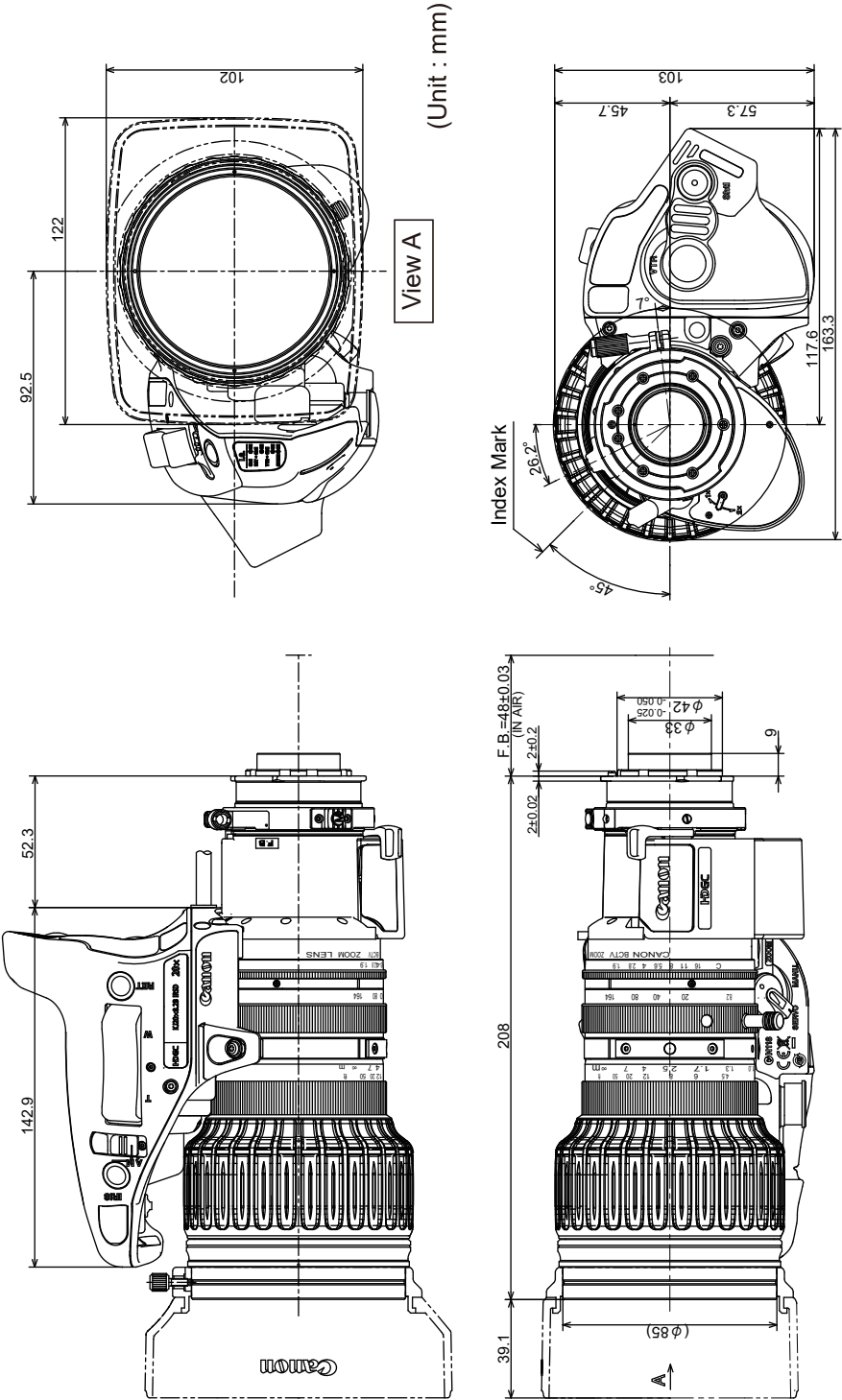
While the RET switch is held down, on air picture / being recorded picture can be seen in the view finder through camera control system when multiple cameras are connected to its system.

5 Specifications

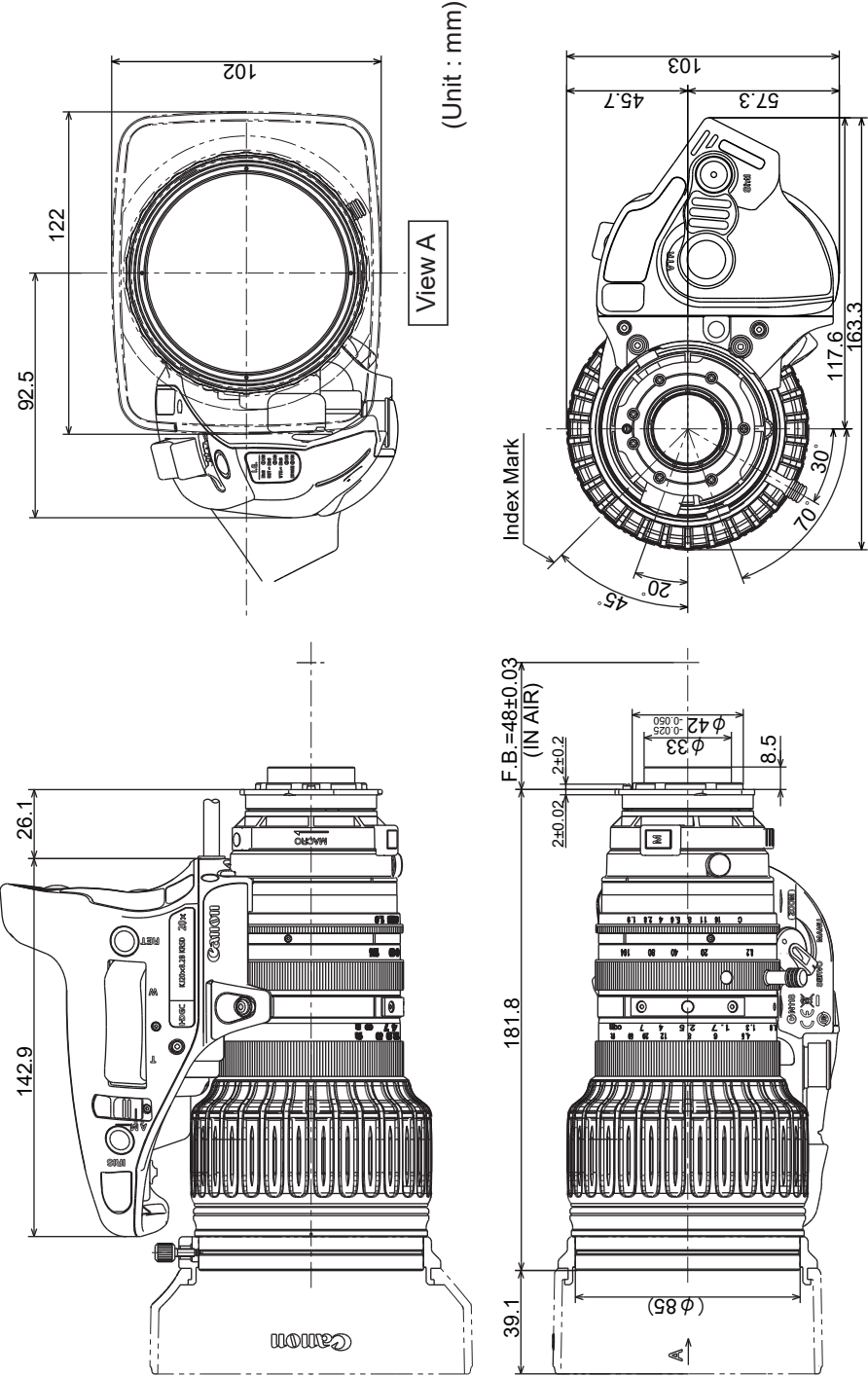
		KJ20x8.2B IRSD		KJ20x8.2B KRSD
		16 : 9		
Extender		1 ×	2 ×	N/A
Image Size		2/3"		
Focal Length		8.2 - 164 mm	16.4 - 328 mm	8.2 - 164 mm
Zoom Ratio		20 ×		
Maximum Relative Aperture (F-Number)		1:1.9 at 8.2 - 115.4 mm 1:2.7 at 164 mm	1:3.8 at 16.4 - 230.8 mm 1:5.4 at 328 mm	1:1.9 at 8.2 - 115.4 mm 1:2.7 at 164 mm
Image Format		9.6 mm × 5.4 mm (11 mm diagonal)		
Angle of View (H × V)	Wide	60.7° × 36.5° at 8.2 mm	32.6° × 18.7° at 16.4 mm	60.7° × 36.5° at 8.2 mm
	Tele	3.4° × 1.9° at 164 mm	1.7° × 0.9° at 328 mm	3.4° × 1.9° at 164 mm
Minimum Object Distance (M.O.D.)		0.9 m (10 mm from the front lens vertex in macro mode)		
Object Dimensions at MOD (H × V)	Wide	98.2 cm × 55.2 cm at 8.2 mm	49.1 cm × 27.6 cm at 16.4 mm	98.2 cm × 55.2 cm at 8.2 mm
	Tele	5.0 cm × 2.8 cm at 164 mm	2.5 cm × 1.4 cm at 328 mm	5.0 cm × 2.8 cm at 164 mm
Size (W×H×L)		Approx. 163.3 mm × 103.0 mm × 208.0 mm		Approx. 163.3 mm × 103.0 mm × 181.8 mm
Weight		Approx. 1.42 kg		Approx. 1.25 kg
Flange Back		48 mm (in air)		
Thread for Filters		ϕ 82 mm P0.75		
Power Source/Current Consumption		DC12 V (DC10 - 17 V) 225 mA		
Operating Environment Conditions		-10°C – +45°C		

External views

KJ20x8.2B IRSD



KJ20x8.2B KRSD





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