

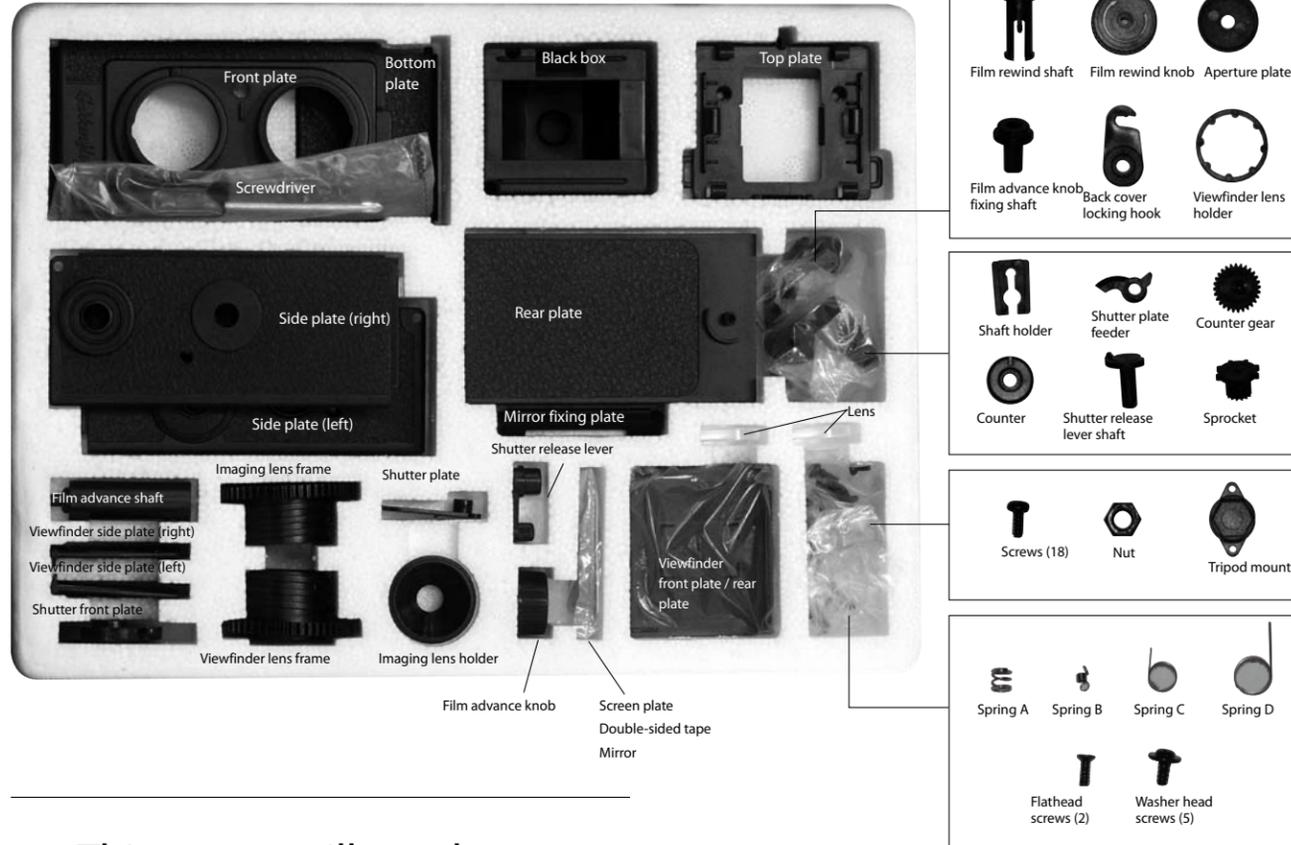
How to assemble and use the supplement

# 35mm Twin-Lens Reflex Camera

Assembly time: Approx. one hour



## Parts in the Kit



## Things you will need

35mm film (24 to 27 exposures), cellophane tape

### CAUTION

Please be sure to read the following instructions before assembling this kit.

- Take necessary caution when handling parts with pointed edges. There is a risk of injury.
- This kit includes screws and other small parts. Be careful not to swallow them. There is a risk of suffocation.
- Never attempt to look at the sun through the lens. This can damage your eyes.
- Be careful of moving vehicles when taking pictures near a street. A traffic accident can occur.
- Store the kit in a location out of the reach of small children.
- \* Please read the instructions and cautions thoroughly before use.
- \* For your safety, be sure to follow the instructions in this manual. In addition, do not use any parts that have become damaged or deformed during use.

## Notes for tightening screws

When tightening screws, firmly press the provided screwdriver straight against the screws and turn. It is said that 70 percent of the force applied is used for pushing against the screw and 30 percent for turning it. The types of screws used for the supplement are those that carve grooves into the plastic as they are inserted (self-threading). For this reason, the screw hole may be damaged if you exert too much force when tightening the screw. The supplied screwdriver comes with a magnetic tip. If the magnetic force of the tip is not strong enough, rub the tip along a magnet several times in the same direction.

### Plastic materials used in this kit

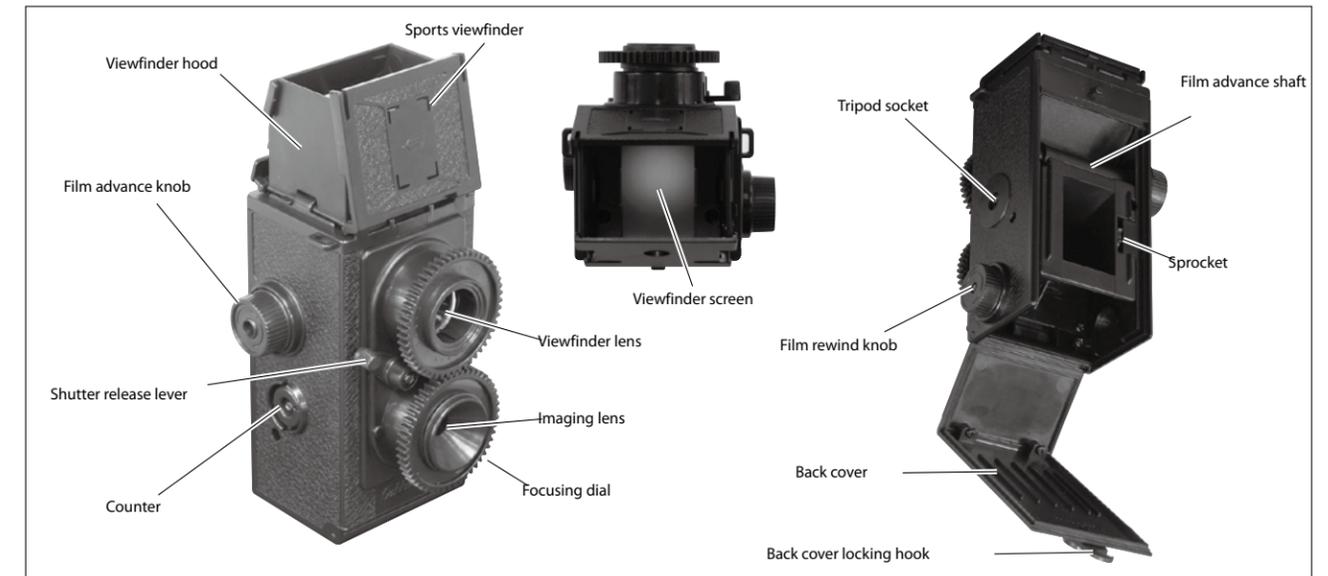
Top plate, shutter plate, shutter front plate, shutter plate feeder, shutter release lever shaft, film rewind shaft, back cover locking hook, viewfinder lens holder, shaft holder, counter gear, sprocket: POM  
 Lens: AS  
 Screen plate: PET  
 Mirror: PC  
 Screwdriver handle: PE  
 Other parts: ABS

### Metallic materials used in this kit

Springs A and B: Stainless steel  
 Springs C and D, screwdriver: Iron (nickel plated)  
 Screws: Iron

\* Please dispose of this product in accordance with local regulations.

## Assembled Product and Part Names

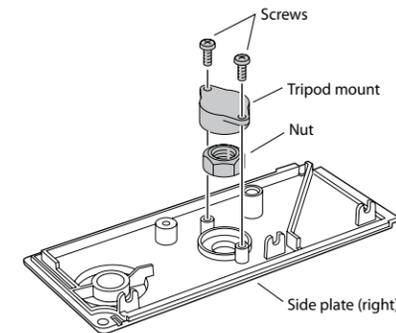


## Assembling the Body

### 1 Assemble the body side plate (right)

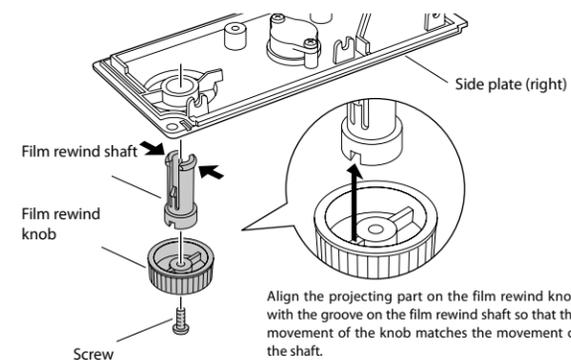
#### 1. Install the tripod mount

Insert the nut into the tripod mount, attach the tripod mount to the side plate (right), and secure with two screws.



#### 2. Install the film rewind knob

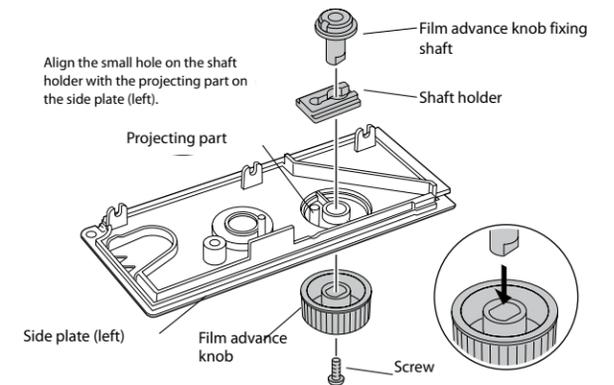
Secure the film rewind knob and film rewind shaft with a screw, and insert the film rewind shaft all the way into the side plate (right) while holding the tip of the shaft.



### 2 Assemble the body side plate (left)

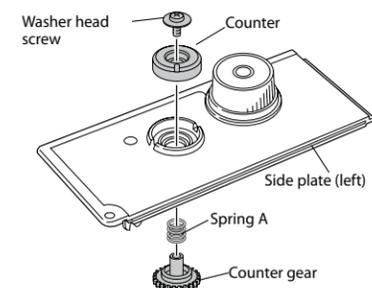
#### 1. Install the film advance knob

Insert the film advance knob fixing shaft into the large hole on the shaft holder, and align the shape of the film advance knob with the shape of the tip of the film advance knob fixing shaft so that the movement of the knob matches the movement of the shaft. Tighten the screw while making sure that the knob does not move.



#### 2. Install the counter

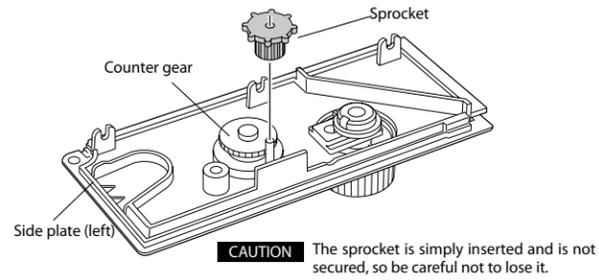
Place spring A on the counter gear, insert the gear into the side plate (left), place the counter on the other side of the side plate, and secure with a washer head screw so that there is no play between the parts. After tightening the screw, check that the gear rotates lightly and that the movement of the counter corresponds to that of the gear.



Tighten the screw while making sure that the counter gear does not move. It is recommended that you use a cloth to protect your fingers when holding down the gear.

### 3. Install the sprocket.

Insert the sprocket into the metallic shaft of the side plate (left) and allow it to catch on the counter gear.

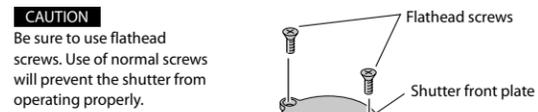


## 3 Assemble the body front plate

### Assembling the shutter

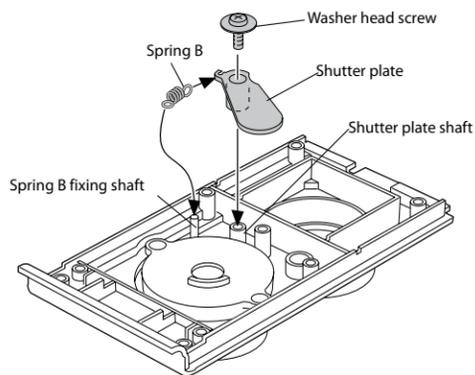
#### 1. Install the shutter front plate

Install the shutter front plate with the stopper section at the bottom, and secure with two flathead screws.



#### 2. Install the shutter plate

Install the shutter plate and spring B to the front plate, following the instructions in "How to install spring B" below. After securing the shutter plate, check that it moves smoothly. If it is difficult to move, loosen the washer head screw a bit. If it moves too much, tighten the washer head screw a bit.



#### How to install spring B

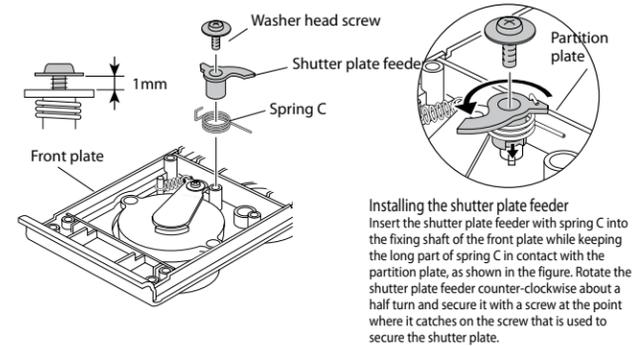
- Attach the ring of one end of spring B to the tab on the shutter plate.
- Insert the ring of the other end of spring B into the spring B fixing shaft and hold the head of the shaft with your finger so that it does not come off.
- Insert the shutter plate into the shutter plate shaft on the front plate. When doing so, be sure to insert it so that spring B does not stretch.



- CAUTION**
- Spring B is a delicate part and should not be pulled with too much force. If spring B becomes stretched, this can affect the movement of the shutter plate.
  - Spring B is a small part, so be careful not to let it fly off when installing it.

### 3. Install the shutter plate feeder

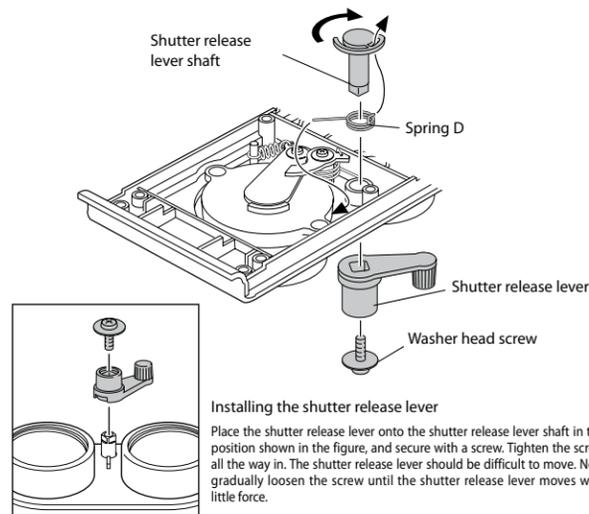
Place spring C on the shutter plate feeder, install to the front plate, and secure with a washer head screw. Tighten the washer head screw so that the screw head protrudes about 1 mm.



**Installing the shutter plate feeder**  
Insert the shutter plate feeder with spring C into the fixing shaft of the front plate while keeping the long part of spring C in contact with the partition plate, as shown in the figure. Rotate the shutter plate feeder counter-clockwise about a half turn and secure it with a screw at the point where it catches on the screw that is used to secure the shutter plate.

#### 4. Install the shutter release lever

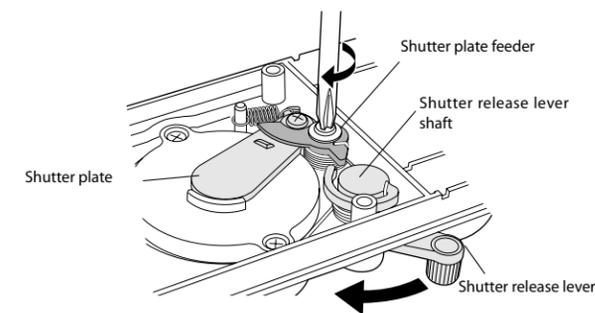
Attach spring D to the shutter release lever shaft and install it to the front plate. While rotating the shaft slightly clockwise, insert the shutter release lever from the front surface and secure with a washer head screw. After securing the shutter release lever, check that it moves smoothly. If it is difficult to move, loosen the washer head screw a bit. If it moves too much, tighten the washer head screw a bit.



**Installing the shutter release lever**  
Place the shutter release lever onto the shutter release lever shaft in the position shown in the figure, and secure with a screw. Tighten the screw all the way in. The shutter release lever should be difficult to move. Now gradually loosen the screw until the shutter release lever moves with little force.

#### 5. Adjust the screw of the shutter plate feeder

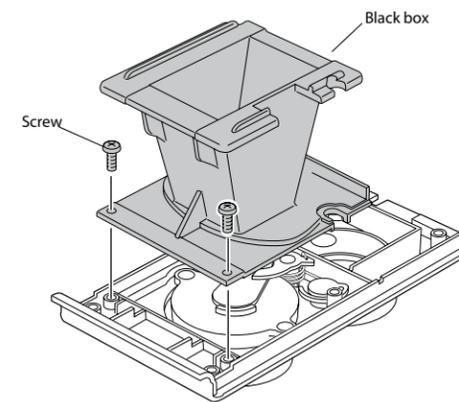
Gradually tighten the screw of the shutter plate feeder while operating the shutter release lever. As you tighten the screw, the shutter release lever shaft will move the shutter plate feeder. As you tighten the screw further, the shutter plate opens. Tighten the screw an additional one-quarter turn from the position where the shutter plate begins to open.



**Checking the operation of the shutter**  
Point the hole in the direction of light and operate the shutter release lever to check the operation of the shutter. The shutter should open and you should see a round hole for an instant. If not, double-check the assembly of the shutter. Operate the shutter release lever several times to check that the shutter opens reliably. If the shutter does not operate properly, check the shutter plate, shutter plate feeder, and shutter release lever screw.

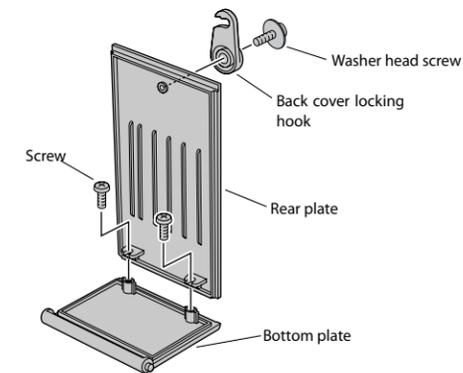
### Install the black box

Install the black box to the front plate, and secure tightly with two screws. When you tighten the screws, the side of the black box not secured with screws will rise, but this is not a problem.



## 4 Assemble the back cover

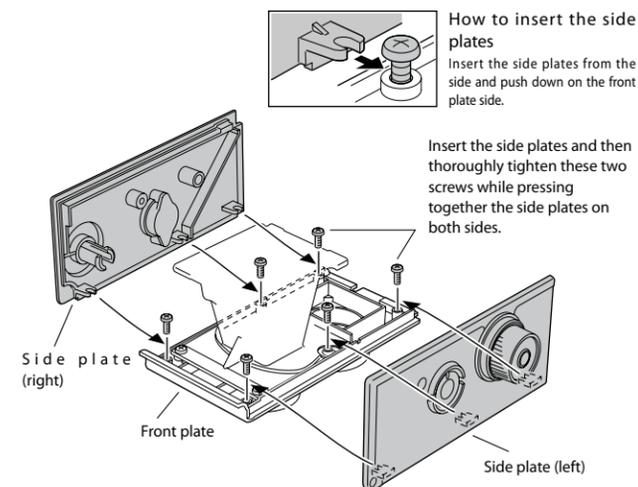
Install the back cover locking hook to the rear plate and secure with a washer head screw. Then assemble the rear plate and bottom plate and secure with screws. If the back cover locking hook is hard to move, loosen the washer head screw a bit. If the screw is loosened too much, the back cover will rise and allow light to enter.



## 5 Assemble the body

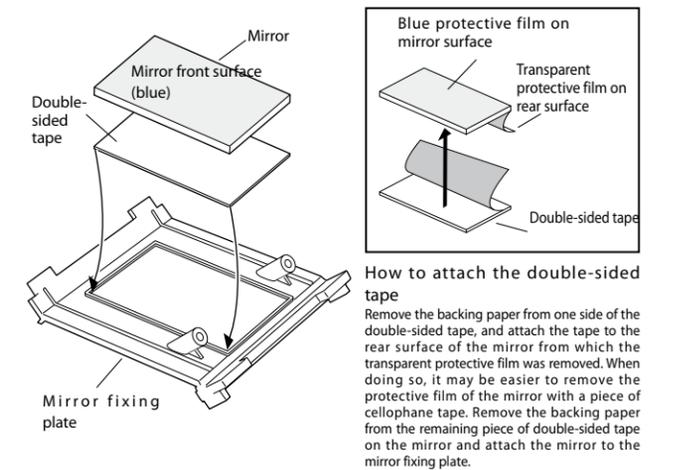
#### 1. Install the side plates to the front plate

Beforehand, lightly tighten the screws into the six holes on the front plate, and then install the side plates to the front plate. At this point, thoroughly tighten only the two screws on the top plate side and leave the other four screws only partially tightened.



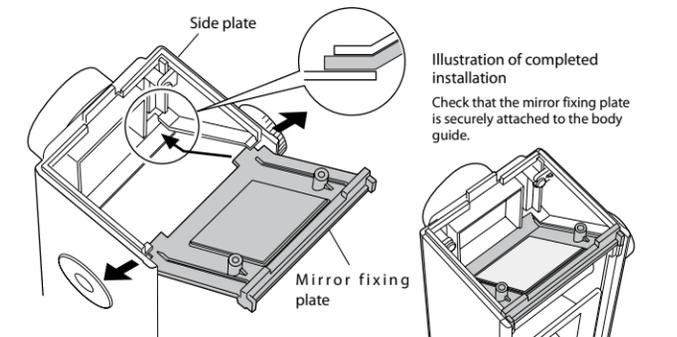
### 2. Install the mirror to the mirror fixing plate

Remove the transparent protective film from the rear surface of the mirror, attach the double-sided tape, and attach the mirror, aligning it to the frame of the mirror fixing plate.



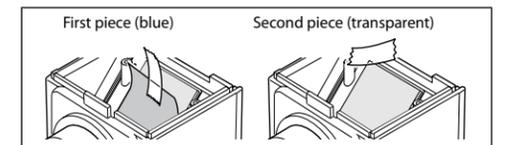
### 3. Install the mirror fixing plate to the body

Insert the mirror fixing plate while pushing against the side plates to the left and right. After properly installing the mirror fixing plate, remove the protective film of the mirror (two pieces). Insert the lower part of the fixing plate into the slit on the side plate.



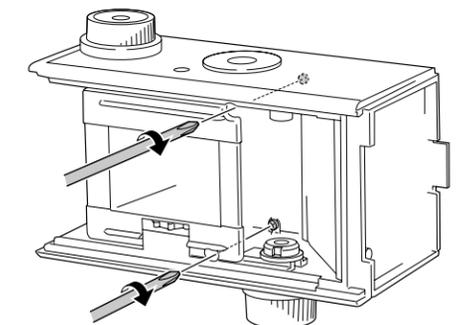
#### How to remove the protective film

The mirror has two pieces of protective film. By attaching a piece of cellophane tape to the protective film, the film can be more easily removed. However, the two pieces of film may come off at the same time when removing the first piece of film. To keep the mirror clean when removing the second piece of film, try attaching a piece of cellophane tape to the edge of the film and pulling it off. Do not touch the mirror with your fingers after removing the protective film.



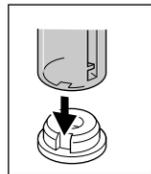
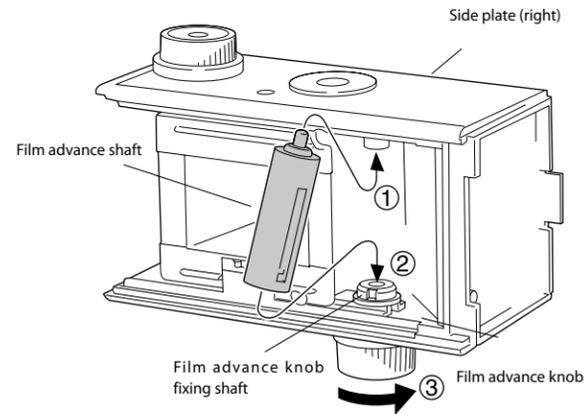
#### 4. Secure the center section of the body side plate

Insert the screwdriver through the holes and openings on the black box, as shown in the figure, and tighten the two screws for securing the side plates, located at the center section of the front plate.



## 5. Install the film advance shaft

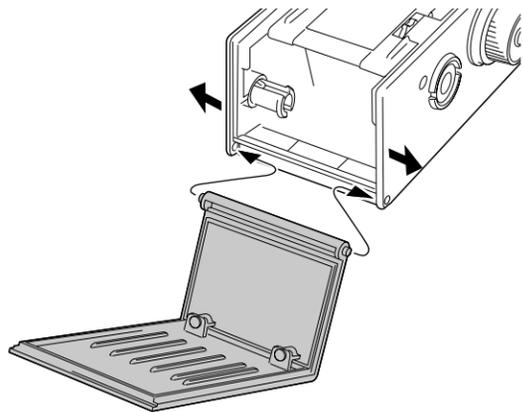
- (1) Insert the tip of the film advance shaft into the socket on the side plate (right).
- (2) While gently pushing against the side plates by hand, insert the film advance shaft onto the top of the film advance knob fixing shaft.
- (3) While turning the film advance knob, align and connect the projecting parts and openings on the film advance shaft and the film advance knob fixing shaft.



Turn the film advance shaft so as to align and connect the projecting part on the film advance shaft with the opening on the film advance knob fixing shaft.

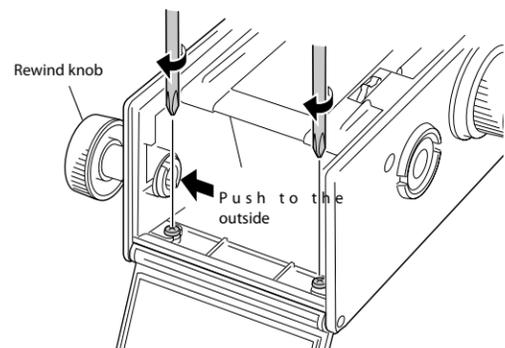
## 6. Install the back cover to the body

Insert the back cover into the body while gently pushing against the side plates by hand.



## 7. Secure the body side plates

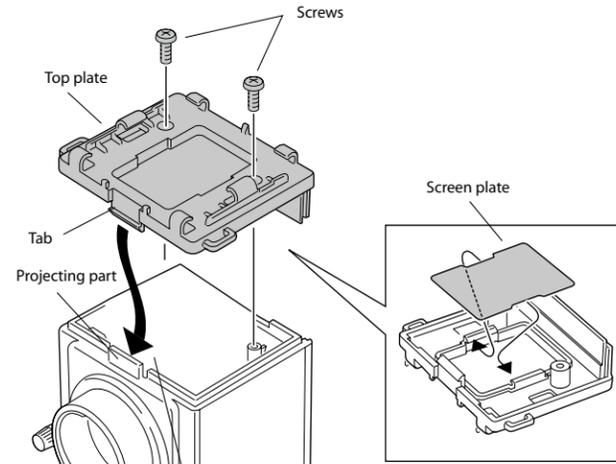
While pressing together the side plates on both sides, secure the side plates by tightening the screws for securing the side plates, located at the lower part of the front plate. The rewind knob will get in the way, so push the shaft to the outside.



## 6 Assemble the viewfinder

### 1. Install the top plate

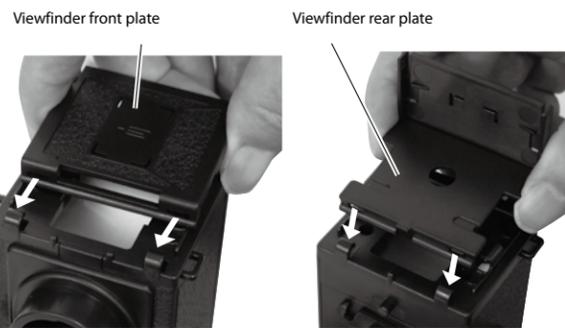
Insert the screen plate (there is no front or back) into the top plate, and secure it to the body with two screws.



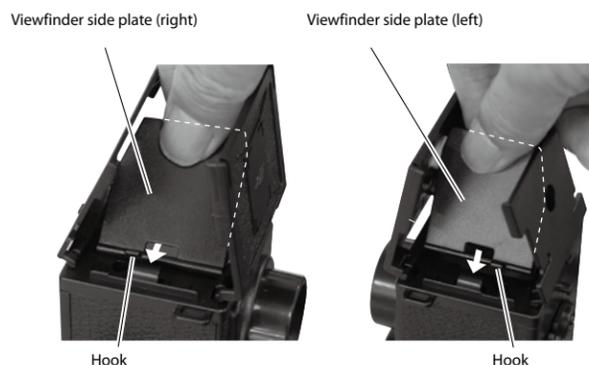
Insert the front surface of the top plate while allowing the tab on the front of the top plate to push against the inside of the projecting part on the body. After the front surface is inserted, press in the top plate firmly to seat it into the body.

### 2. Install the viewfinder hood

The viewfinder hood consists of four pieces: the front plate, rear plate, side plate (left), and side plate (right). Be sure to install in the correct order. First, insert the viewfinder front plate and rear plate onto the top plate at an angle.

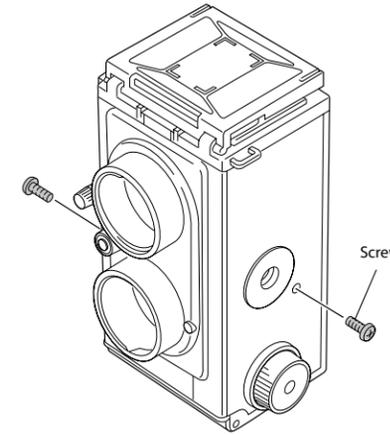


Insert the viewfinder side plates (left and right) onto the top plate at an angle while keeping the viewfinder front and rear plates in a raised position by hand. With the hooks on the viewfinder side plates facing outward, install the left and right side plates in the correct position so that they come from the rear of the body.



### 3. Secure the body side plates

Secure the body side plates with two screws from the side plate side.

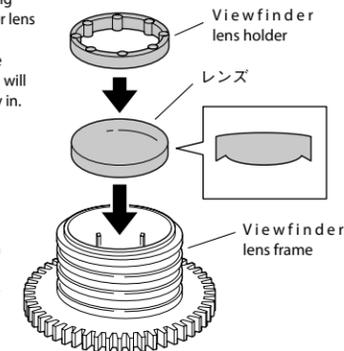


## 7 Assemble the lenses

### 1. Assemble the viewfinder lens

Insert one lens into the viewfinder lens frame (the surface with printed characters) in the correct direction, and secure the lens by attaching the viewfinder lens holder. The two lenses are identical, so you may use either lens.

Insert the lens with the side that has a projecting part on the edge facing down. Also, attach the viewfinder lens holder with the smooth surface facing toward the lens. Using the imaging lens holder to press it in will allow it to be inserted all the way in.

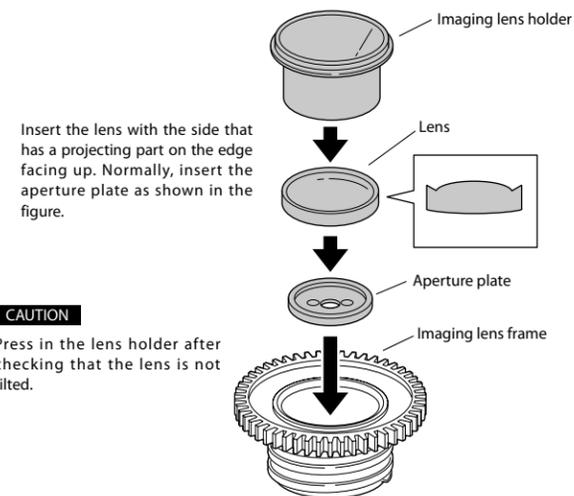


#### CAUTION

Do not touch the surface of the lens with your hands. Also, be careful not to scratch or tilt the lens when pressing in the viewfinder lens holder frame. After inserting the lens, shake the lens frame by hand to check that there is no rattling.

### 2. Assemble the imaging lens

Insert the aperture plate into the imaging lens frame, insert the lens in the correct direction, and secure the lens by attaching the imaging lens holder.

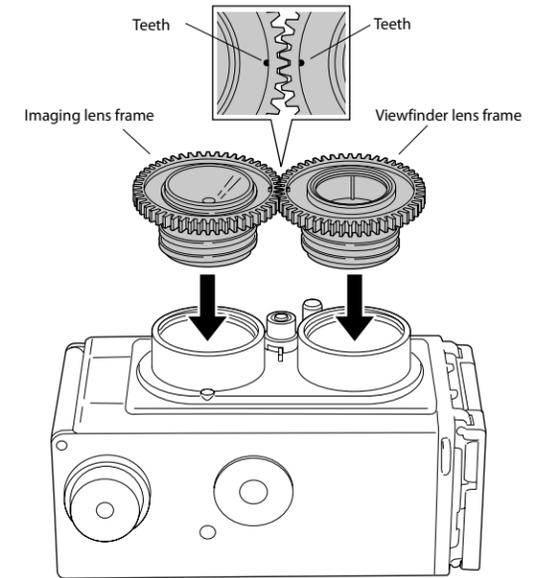


#### CAUTION

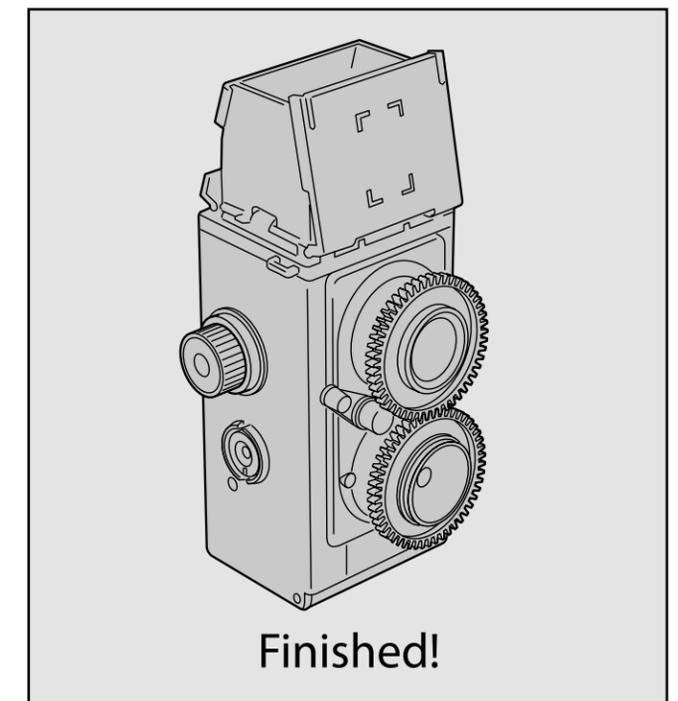
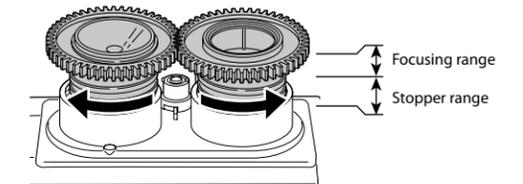
Press in the lens holder after checking that the lens is not tilted.

### 3. Install the viewfinder lens and imaging lens to the body

Install the viewfinder lens and imaging lens to the body while aligning the teeth on the imaging lens frame and viewfinder lens frame. Install the viewfinder lens frame in the opening on the body closest to the viewfinder.



Insert the imaging lens frame and viewfinder lens frame while rotating them in the directions of the arrows shown in the figure below. The lens frames will become difficult to rotate, but continue to rotate them into position. After you rotate the lens frames a short while, they will become easier to rotate and will smoothly turn. The area where the lens frames can be smoothly turned is the focusing range, and the area where the lens frames become difficult to turn is the stopper function that prevents the lenses from coming off.

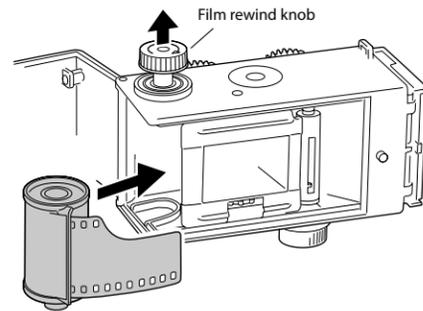


# Taking Pictures (Basics)

## 1 Load the film

### 1. Insert the 35mm film

Unlock the back cover locking hook, open the back cover, pull up the film rewind knob, and insert the film.

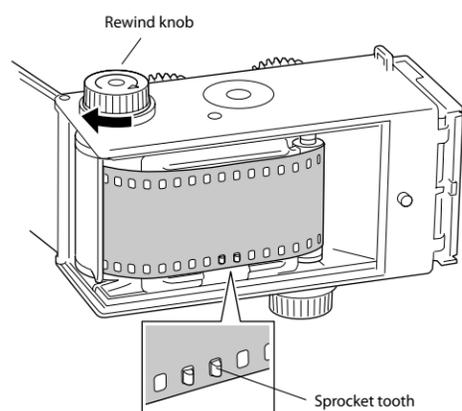
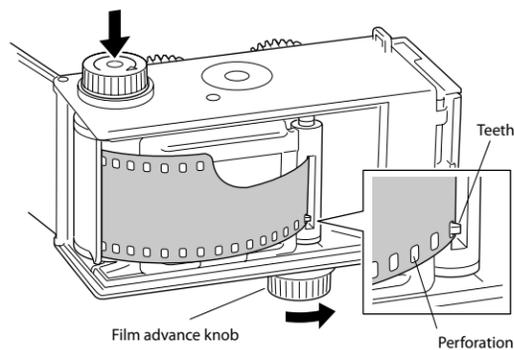


Use commercially available 35mm film. Be sure to insert the film in the correct direction.

**CAUTION**  
● It is recommended to use ISO 400 negative film (with 24 to 27 exposures).

### 2. Load the 35mm film

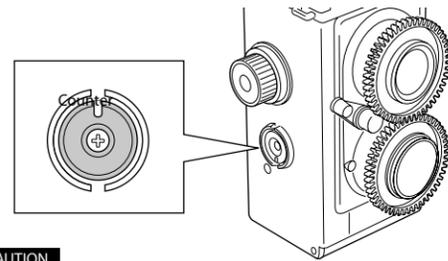
Push down the film rewind knob to secure the film. Insert the edge of the film into the slit on the film advance shaft, allow the tooth to catch on the second or third perforation (hole) on the film, and turn the film advance knob one full rotation.



Check that the film is taut and that the sprocket tooth is catching on a perforation (hole), and then turn the rewind knob a little to take up any excess film.

### 3. Close the back cover and set the counter

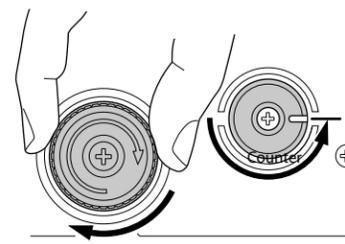
Close the back cover, lock the locking hook, and align the groove on the counter with either notch on the top or bottom.



**CAUTION**  
● Be careful not to turn the film advance knob or film rewind knob when setting the counter.

### 4. Advance the film to ready the camera

Turn the film advance knob to advance the film by two frames. The camera is now ready to take a picture.

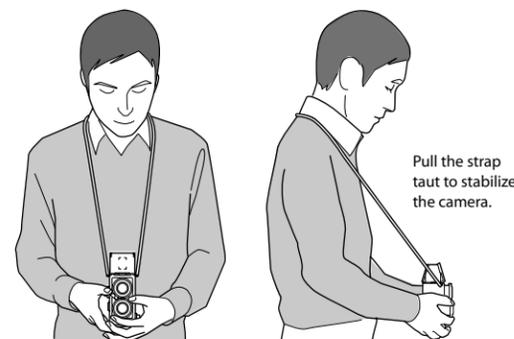


One frame amount

**How to advance the film**  
Advance the film by turning the film advance knob while watching the counter. A half turn of the counter indicates that the film has been advanced by one frame.

**CAUTION**  
● The counter moves easily, so be careful not to accidentally touch it.  
● Do not forget to advance the film. It is recommended that you decide in advance either to advance the film right after taking a picture or right before taking the next picture.  
● If the counter is not in position before you advance the film, return the counter to the correct position, and then advance the film.

### Basic method of taking a picture with a twins-reflex camera

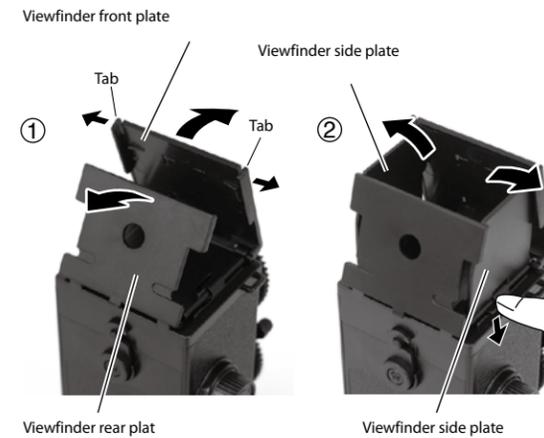


- (1) Open the viewfinder hood.
- (2) Look through the viewfinder from above and check that the subject is in focus. When checking the focus, position your eyes about 20 to 30 cm from the screen plate. If you are too close to the screen plate, you will not be able to see the composition easily. The image on the screen plate appears horizontally inverted.
- (3) Position your left hand on the imaging lens frame and your right hand on the shutter release lever.
- (4) When taking pictures, use the strap to stabilize the camera whenever possible. You can stabilize the camera by passing the strap through both sides of the camera and pulling the camera gently against the strap when taking pictures.
- (5) Press your arms against your side and gently push down on the shutter release lever to take the picture. Be careful not to move the camera when releasing the shutter.

## 2 Take a picture

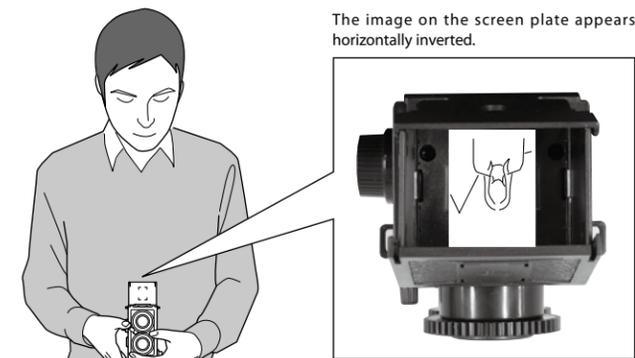
### 1. Open the viewfinder hood

- (1) Open and pull up both sides of the viewfinder front plate, and then pull up the viewfinder rear plate.
- (2) While holding open the viewfinder front and rear plates, lift up the viewfinder side plates by catching your finger on the hooks, and open the viewfinder side plates to the left and right to secure the viewfinder hood.



### 2. Focus on the subject

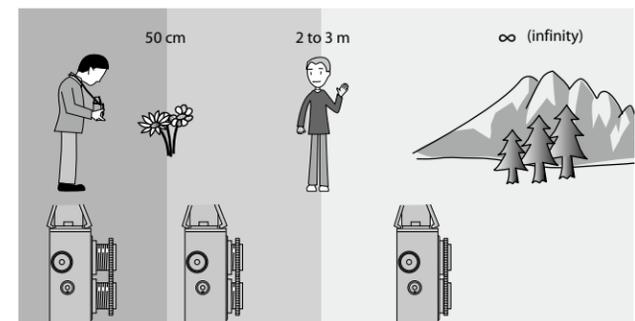
Turn the imaging lens frame to focus on the subject.



The image on the screen plate appears horizontally inverted.

**CAUTION**  
When viewing the subject in the viewfinder, position your eyes about 20 to 30 cm from the viewfinder. If you are too close to the viewfinder, you will not be able to determine if the subject is in focus.

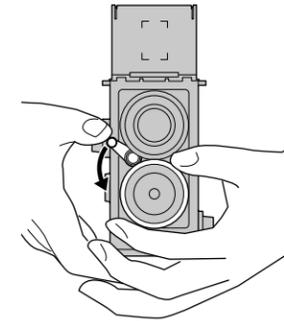
### Focusing range



If the lens is positioned all the way toward the body, the position where the lens is focused at an infinite distance may be exceeded, resulting in a blurred picture. It may be difficult to use the viewfinder to determine the correct focus for distant subjects, so a good rule of thumb is to focus on a location (several meters) closer than the actual subject.

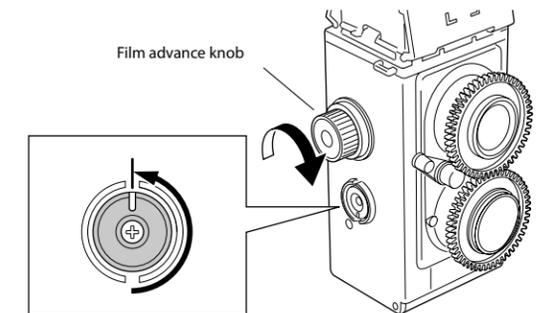
### 3. Lower the shutter release lever to take a picture

Press your arms against your side to prevent camera shake, and gently push down on the shutter release lever.



### 4. Advance the film

Turn the film advance knob to advance the film.

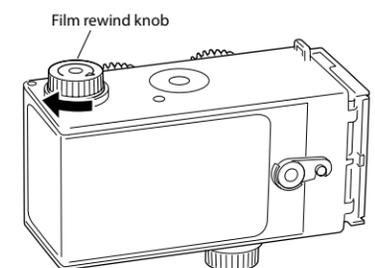


A half (180°) turn of the counter indicates that the film has been advanced by one frame. If the film advance knob cannot be turned, this indicates that the film has no more remaining exposures.

**CAUTION**  
● The counter does not have a display indicating the number of exposures.  
● Be careful not to hold the film rewind knob or the counter when turning the film advance knob.  
● Turning the film advance knob with excessive force after the film is done can cause the film to break.

### 5. Rewind the film

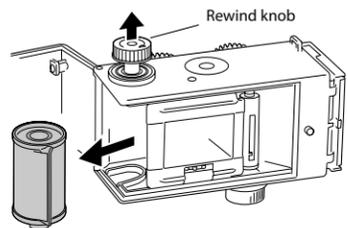
After the film is done, turn the film rewind knob to rewind the film back into its cartridge. When the film rewind knob can be turned easily, this indicates that the film is fully rewound.



**How to check that the film is fully rewound**  
When rewinding of the film is completed, the film advance knob and counter will not rotate even if the film rewind knob is turned.

## 6. Remove the film

Unlock the back cover locking hook, open the back cover, pull up the film rewind knob, and remove the film. The removed film can now be developed and printed.



### Precaution when using a photo development service

● Film used in this camera is manually advanced and, therefore, the size of each frame will not be uniform. If this film is processed by an automatic printing machine at a photo development service, images may appear cut in the middle. In order to avoid the problem, explain to the photo development service representative that the film has been manually advanced and request that the film be developed manually.

## Fine-tuning the lenses

### 1 Take test pictures and check the results

Once you are familiar with the basics of taking pictures with your camera, it is recommended that you first take test pictures and check the results.

Try taking pictures of subjects at various distances.



#### Check items

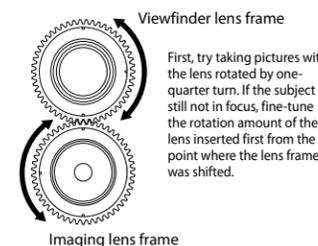
- Is any light entering the camera?
- Is the subject that is in focus in the viewfinder also in focus in the pictures?
- At what range can you focus on subjects?
- Is the brightness in the pictures adequate?
- Did the film advance properly? (Are the frames spaced evenly?)

### 2 Adjust the positions of the lenses

If the subject is significantly out of focus in your test pictures, adjust the positions of the lenses. Use the following procedure to adjust the lenses.

#### When the point of focus is behind the subject

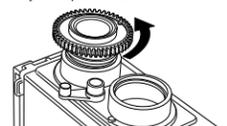
First rotate only the viewfinder lens frame, and then insert the imaging lens frame. The imaging lens sticks out a little.



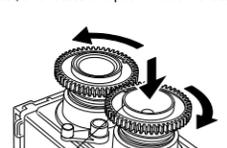
#### When the point of focus is in front of the subject

First rotate only the imaging lens frame, and then insert the viewfinder lens frame. The viewfinder lens frame sticks out a little.

Rotate the lens frame that was inserted first by one-quarter turn.



Mount the lens frame that was inserted last, and rotate and push in both lenses.



Place the lens frame that was inserted last so that the projecting part is positioned here.

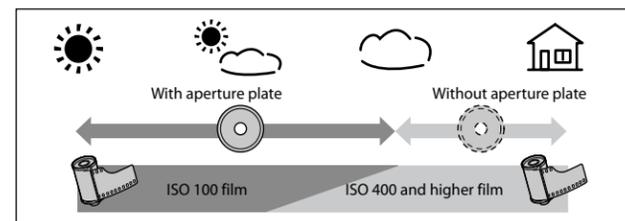
#### CAUTION

In the figure, the viewfinder lens is inserted first, but when the imaging lens is inserted first, turn the camera body around and use the same procedure.

## Taking Pictures (Advanced)

### 1 Use the appropriate aperture and film for better pictures

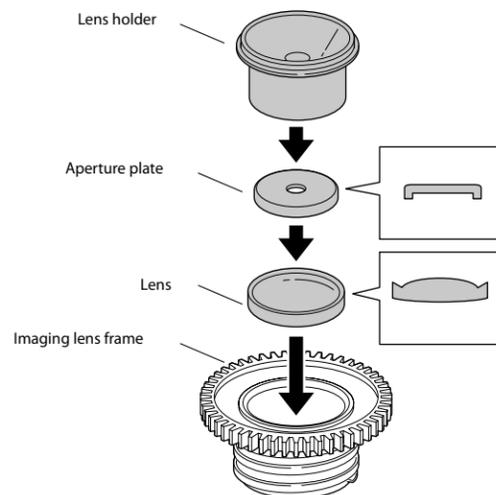
Use the aperture plate and the film with the appropriate sensitivity to suit your lighting. Negative film is useful because it has a wider recordable range (exposure latitude) and can be corrected somewhat at the time of printing.



Using the aperture plate to change the depth of field

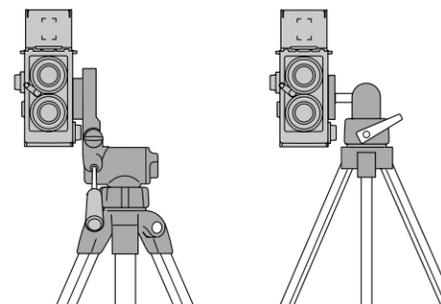
With the aperture plate, you can take pictures with the subject in focus over a wide range. Without the aperture plate, the background of the subject can be blurred effectively. You can also install the aperture plate in front of the lens to create a strong tunnel effect.

#### Installing the aperture plate in front of the lens



### 2 Take pictures using a tripod

A tripod can be used to take pictures without camera shake.



#### CAUTION

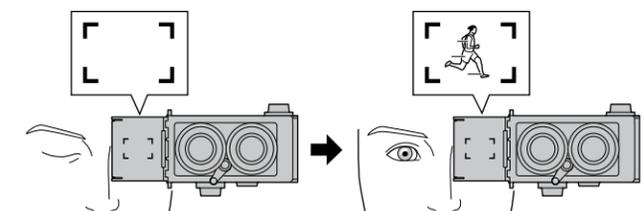
- The body has a tripod socket on the side plate (left), so the camera platform must be rotated 90° when mounting the camera to a tripod.
- You may not be able to mount the camera to some tripods.

### 3 Take pictures using the sports viewfinder

The sports viewfinder is convenient when taking pictures of a subject in focus that is moving. The sports viewfinder can also be used to take pictures with the camera in a horizontal position.

How to view the subject in the sports viewfinder

- (1) Close one eye, look through the opening on the viewfinder rear plate with your other eye, and look at the four corner slits on the viewfinder front plate.
- (2) Now open both eyes, look at both the background and the four corner slits at the same time, and check the shooting range.



## Q&A

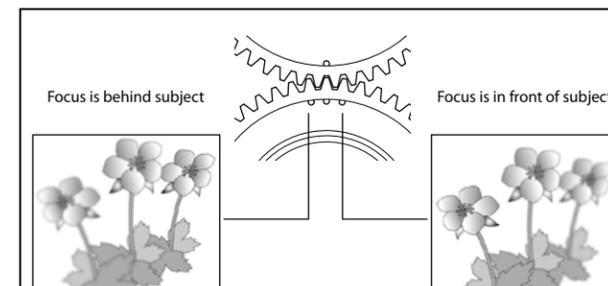
### Q: I can't focus on the subject

A: Check that the lens is installed straight and in the correct direction.

A: Move your eye back from the screen plate. If you are too close to the viewfinder, you will not be able to determine if the subject is in focus.

A: Check that the screen plate and mirror fixing plate are installed correctly.

A: Try fine-tuning the focus.



#### Fine-tuning the focus

If the subject is in focus in the viewfinder but not in the actual picture, try adjusting the position of the teeth of the imaging lens frame and viewfinder lens frame. When adjusting the lenses according to "Adjust the positions of the lenses" (p. 9), adjust the lens frame inserted first by the rotation amount.

### Q: The picture is dark and the color is poor

A: The exposure may be insufficient. Select the appropriate film and aperture while referring to "Use the appropriate aperture and film for better pictures" (p. 9).

A: The shutter may not be opening fully. Check the operation of the shutter while referring to "Checking the operation of the shutter" (p. 3).

### Q: The picture is too white

A: Check the negative. If the area around the frame is black, light may be entering the camera. Check that all screws on the body are secured tightly.

A: Fogging of the film may occur if it is left unused on the camera for an extended period of time. After loading film in the camera, use

up the film as soon as possible. If you must leave the film in the camera, store the camera in a cool, dark location.

### Q: The picture has multiple exposures

A: The counter may not be rotating properly. Adjust the spring position and screw tightness while referring to "Assemble the body side plate (left)" (p. 2).

### Q: The shutter does not open properly

A: Adjust all shutter parts while referring to "Assembling the shutter" (p. 3).

### Q: The counter does not move

A: Adjust the spring position and screw tightness while referring to "Assemble the body side plate (left)" (p. 2).

### Q: The film does not rewind

A: Check that the perforations on the film catch on the sprocket teeth.

A: With no film in the camera, check that the film advance knob and film rewind knob rotate lightly.

### Q: A photo development service cannot print my pictures

A: Some photo development services are unable to print pictures that do not have uniform frame sizes. When advancing the film, make sure that the counter stops exactly at the marked position.

A: The counter may not be rotating properly. Adjust the spring position and screw tightness while referring to "Assemble the body side plate (left)" (p. 2).

### Q: The picture is blurred

A: Camera shake can easily occur when operating the shutter release lever. See "Basic method of taking a picture with a twin-reflex camera" (p. 7) for tips on how to securely hold the camera. Use of a tripod is recommended when taking pictures of landscapes.