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

Notes for tightening screws
When tightening screw, firmly press the provided screwdriver straight against the screws and turn. It is said that 79 percent of the force applied is transferred 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 screws. 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. 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.

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 gear counter, insert the gear into the side plate (left), 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.

Assembled Product and Part Names

<table>
<thead>
<tr>
<th>Part Name</th>
<th>Diagram</th>
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<tbody>
<tr>
<td>Top plate</td>
<td><img src="image" alt="Top plate" /></td>
</tr>
<tr>
<td>Counter gear</td>
<td><img src="image" alt="Counter gear" /></td>
</tr>
<tr>
<td>Tripod socket</td>
<td><img src="image" alt="Tripod socket" /></td>
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<tr>
<td>Mirror</td>
<td><img src="image" alt="Mirror" /></td>
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<tr>
<td>Aperture plate</td>
<td><img src="image" alt="Aperture plate" /></td>
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<tr>
<td>Film advance shaft fixing shaft</td>
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<td>Film advance knob</td>
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<tr>
<td>Film rewound knob</td>
<td><img src="image" alt="Film rewound knob" /></td>
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<tr>
<td>Shutter release lever</td>
<td><img src="image" alt="Shutter release lever" /></td>
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<tr>
<td>Focus ring</td>
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<tr>
<td>Shutter plate</td>
<td><img src="image" alt="Shutter plate" /></td>
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<tr>
<td>Counter plate</td>
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<td>Spring A</td>
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<td>Spring C</td>
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<td>Spring D</td>
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<tr>
<td>Washer head screw</td>
<td><img src="image" alt="Washer head screw" /></td>
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<tr>
<td>Black box</td>
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<td>Film advance knob fixing shaft</td>
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<tr>
<td>Tripod socket</td>
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<tr>
<td>Back cover</td>
<td><img src="image" alt="Back cover" /></td>
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<tr>
<td>Back cover locking hook</td>
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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.

Side plate (left)

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.

Flathead screws
Shutter front plate

CAUTION
Do not use flathead screws. Use of normal screws will prevent the shutter from operating properly.

2. 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.

Spring B fixing shaft
Shutter plate

How to install spring B
(1) Attach the ring of one end of spring B to the side plate. (2) 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. (3) Insert the fixing 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.

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.

Washer head screw
Spring C
Shutter plate feeder

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 shutter release lever from the front surface and securing 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.

Washer head screw
Shutter release lever
Shutter release lever shaft

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 screws, 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.

Washer head screw
Shutter plate feeder
Shutter release lever
Shutter release lever shaft

4 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.

Black box

5 Assemble the body
1. Install the side plates to the front plate
Definitely, tightly tighten the screws into the six holes on the front plate, and then install the side plates to the front plate. As this point, thoroughly tighten only the two screws on the top plate side and leave the other four screws only partially tightened.

Shutter plate
Shutter release lever

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. After the front plate is put on, remove the protective film of the mirror with a pair of scissors. Remove the protective film from the remaining piece of cellophane tape from the mirror and attach the screw to the mirror body.

Mirror fixing plate
Double-sided tape

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.

Mirror fixing plate
Double-sided tape

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.

4. Secure the center section of the body side plate
Insert the screwscrew 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.

First piece (blue)
Second piece (transparent)

Illustration of completed installation:
Check that the mirror fitting plate is securely attached to the body (gray).
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.

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.
2. Install the viewfinder knob
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.

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.

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.

3. Assemble 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.

4. 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.

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.

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.

8. Assemble the viewfinder
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3. Secure the body side plates
Secure the body side plates with two screws from the side plate side.

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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.
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.

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.

Be sure to insert the film in the correct direction.

2. Insert the 35mm 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).

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.

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.

One frame amount

Turn the imaging lens frame to focus on the subject.

2. Focus on the subject

(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 applying your finger on the hooks, and open the viewfinder side plates to the left and right to secure the viewfinder hood.

(3) Position your left hand on the imaging lens frame and your right hand on the film advance knob.

(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.

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 viewing the subject in the viewfinder, 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.

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 recorded, 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.

CAUTION
- The counter does not have a display indicating the number of exposures.
- Be careful not to hold the film rewind knobs or the counter when turning the film advance knobs.
- Turning the film advance knobs 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 knobs can be turned easily, this indicates that the film is fully rewound.
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.

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:

3. Take pictures using a tripod

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

Q&A

Q: How can’t I 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.

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. 6).

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 side plate are tight.

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.

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 shutter does not open properly

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

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.

A: Some photo development services are unable to print pictures that do not have uniform frame sizes.

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 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.

A: Some photo development services are unable to print pictures that do not have uniform frame sizes.

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-lens reflex camera” (p. 7) for tips on how to securely hold the camera.

A: Use of a tripod is recommended when taking pictures of landscapes.