Mamiya

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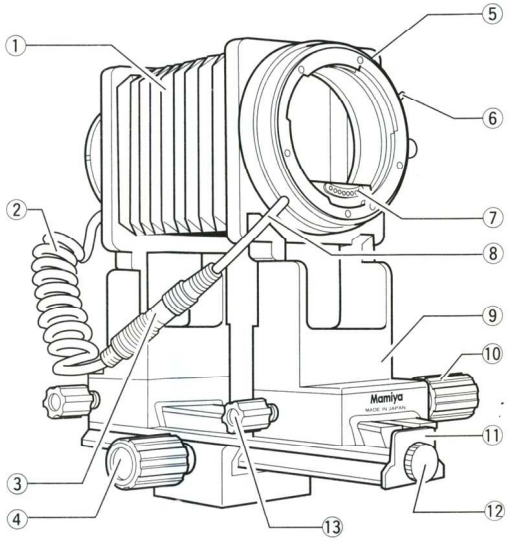
645AF

NC401 Auto Bellows

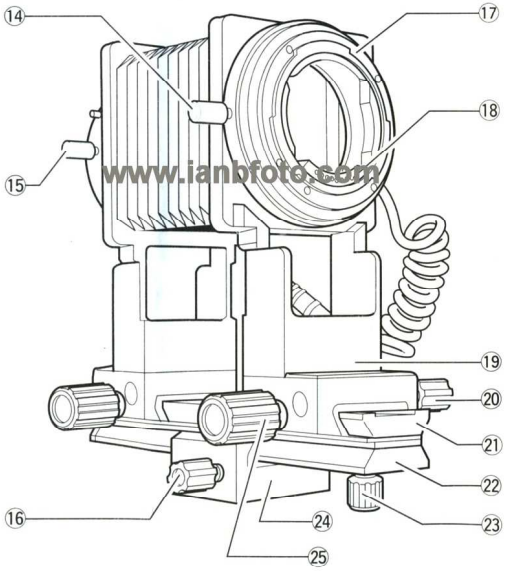
English Instructions

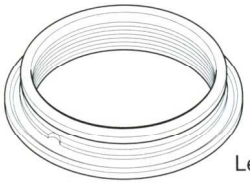
Names of Parts and Functions

①Bellows
②Camera connector cord
③Camera to Lens Connection
④Rail positioning knob
⑤Lens mounting ring
⑥Lens release lever
⑦Electronic contacts to lens
⑧Lens connector cord
⑨Front standard
⑩Front standard fine focus knob
⑪Lower rail endplate
⑫Lower rail endplate set screw
⑬Front standard focus lock knob



⑭Camera mounting ring lock knob
⑮Lens mounting ring lock knob
⑯Rail lock knob
⑰Camera mounting ring
⑱Electronic contacts to camera
⑲Rear standard
⑳Rear standard focus lock knob
㉑Upper rail
㉒Lower rail
㉓Upper/lower rail mount lock knob
㉔Tripod mounting block
㉕Rear standard fine focus knob





Lens reversal ring

Thank you for purchasing the Mamiya Auto Bellows NC401.

The NC401 Auto Bellows for the Mamiya 645 AF is a precision tool that is mounted between the camera and lens to provide the ability for macro photography. When the included lens reversal ring is used for magnification ratios higher than 1:1, you may record photographs with low aberration.

To ensure proper operation and a long life of service, please read this manual carefully before use of this product. After reading the manual, please store it in a readily accessible place.

For safe, proper use

- Be sure to read the "Safety Precautions" carefully before use to prevent injuries.
- The symbols and their meanings are described below for your reference:

⚠**CAUTION :** **This indicates instructions which if not heeded could lead to personal injury or damage to your equipment or materials.**

The instructions following the above symbol include important information on safety. Please regard the Safety Precautions for the safety of you and your equipment.

⚠CAUTION

- **Use a tripod that provides sufficient strength for the camera and lens. Also, do not transport the camera while mounted on a tripod. Doing so could damage the camera or cause personal injury.**
- **When the auto bellows is mounted on the camera, do not lift the camera holding only the lens or viewfinder. By holding the camera or auto bellow incorrectly, you risk damage to the camera. Always hold the camera's body and the auto bellows' rails simultaneously.**

Contents

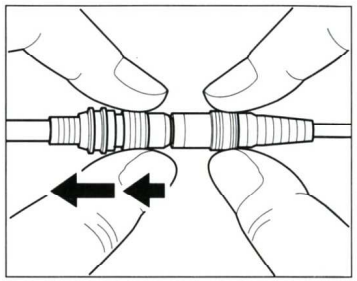
Functions of parts

Always support the body or auto bellows with your hands when performing these operations.

Mounting on a tripod

Position the Auto Bellows' mounting block over the tripod head, align the tripod screw with the female threads on the mounting block and tighten the screw securely.

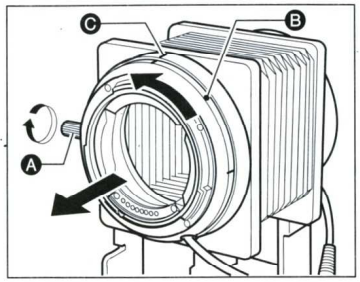
Disconnecting the connectors



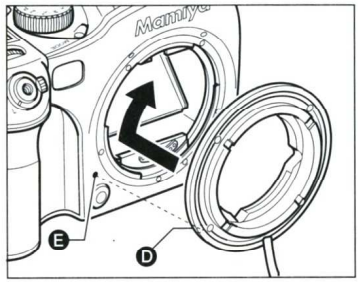
Always disconnect the connectors before detaching the camera or the lens.

★Before making any exposures, make sure the lens and camera connectors are securely connected to one another.

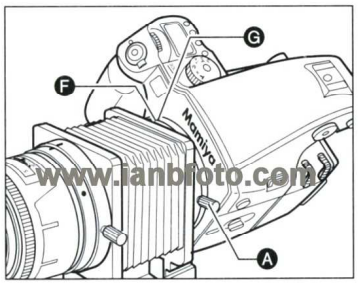
Mounting the camera



1. Loosen the camera mounting ring lock knob Ⓐ fully until it stops, line up the mark Ⓑ on the camera mount ring with the mark Ⓒ on the auto bellows, and then remove the camera mounting ring from the auto bellows.

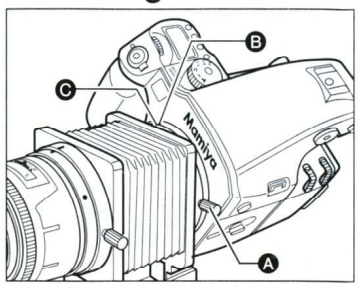


2. Line up the mark Ⓓ on the camera mount ring with the camera's lens mount mark Ⓔ, insert the ring, then turn the ring clockwise until it stops. The camera mount ring is properly mounted to the camera when a click is heard.

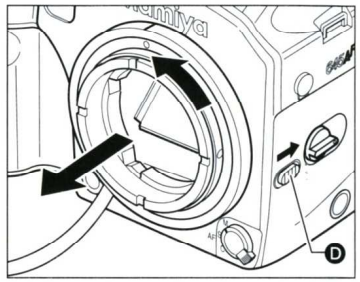


3. Line up the mark Ⓕ on the auto bellows with the mark Ⓖ on the ring mounted on the camera, and insert into the camera mount in the auto bellows. Select the horizontal or vertical position and fasten in place using the camera mounting ring lock knob Ⓐ.

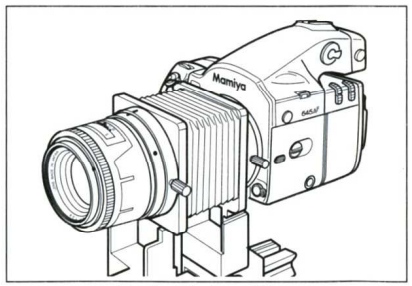
Detaching the camera



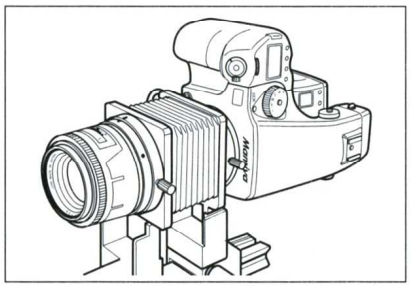
1. Loosen the camera mounting ring lock knob Ⓐ, line up the mark Ⓑ on the camera mounting ring with the mark Ⓒ on the auto bellows, then remove the camera from the auto bellows.



2. Slide and hold the lens release button Ⓓ towards the rear of the camera, then turn the camera mount ring counter-clockwise and remove it from the body.

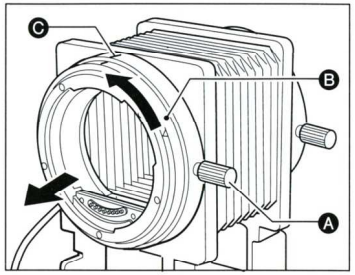


Horizontal position

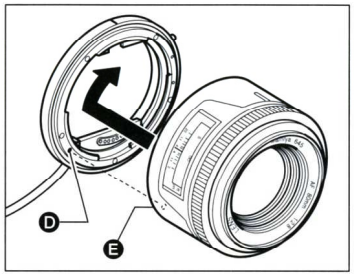


Vertical position

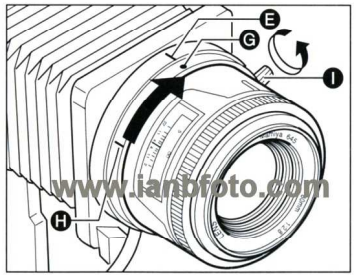
Mounting the lens



1. Loosen the lens mounting ring lock knob Ⓐ fully until it stops, line up the mark Ⓑ on the lens mounting ring with the mark Ⓒ on the auto bellows, then remove the lens mounting ring from the auto bellows.

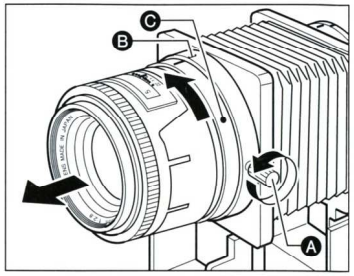


2. Line up the mark Ⓓ on the lens mounting ring with the lens' mount mark Ⓔ, insert the lens into the lens mounting ring, and turn the lens clockwise until it stops.

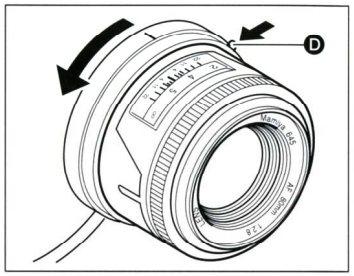


3. Line up the mark Ⓔ on the auto bellows with the mark Ⓖ on the ring mounted on the lens, and insert into the auto bellows. Line up the mark Ⓗ on the lens mounting ring with the mark Ⓕ on the auto bellows, and lock in place using the lens mounting ring lock knob Ⓘ.

Detaching the lens



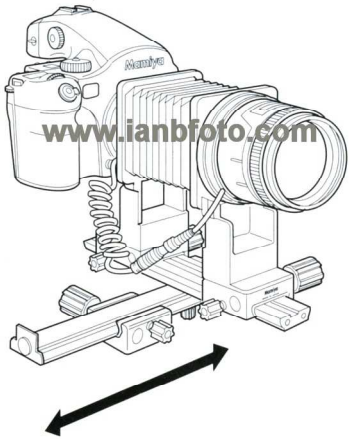
1. Lens mounting ring lock knob Ⓐ fully until it stops, line up the mark Ⓑ on the lens mounting ring with the mark Ⓒ on the auto bellows, then remove the lens mounting ring.



2. While pressing the lens detach button Ⓓ, turn the lens mounting ring counter-clockwise and remove it.

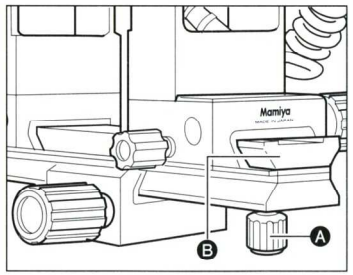
Operating the auto bellows' rails

When focusing, it is possible to move the entire auto bellows forward and backward on the rails instead of moving the tripod's position.

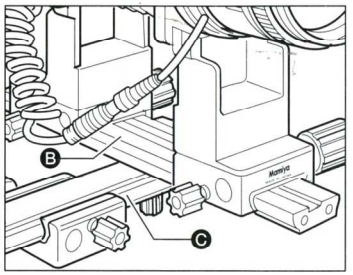


When shooting wide objects

When the upper and lower rails are positioned at right angles, the entire auto bellows can be moved in a parallel action to the left and right while maintaining a perpendicular position to the subject. For example: Use this to take two equal magnification photographs of long objects that do not fit on a single photograph.



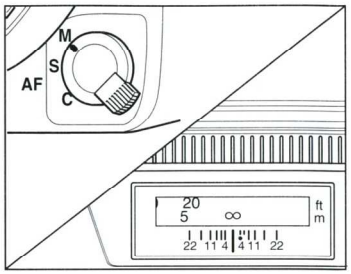
1. Fully loosen the upper/lower rail mount lock knob Ⓐ and pull the upper rail Ⓑ towards you to detach it.



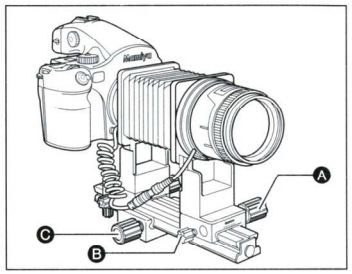
2. Turn the upper rail Ⓑ on the lower rail Ⓒ until they are perpendicular and then tighten the upper/lower rail mount lock knob.

★ There are two rail mount positions, as seen at left.

Focusing



1. Turn the focus mode selector lever on the 645 AF body and select "**M**" (manual focus mode).
Turn the lens' distance ring and set it to "∞".



2. Turn the front standard fine focus knob Ⓐ, move the front standard forward along the rails, to the proper foous/magnification and lock it in place with the front standard focus lock knob Ⓑ.

★ First determine the shooting magnification, the shooting range or the distance to the object, then use the close-up photography tables (page 13) to determine the lens extension distance.

3. Use the rail positioning knob Ⓒ to move the entire camera forward or backward and adjust the focus.

★ Loosen the respective lock knobs before operating the camera, lens or rail extension knob. Once the motion has been performed, be sure to re-tighten the lock knob.

★Note about focus: When the distance from the film back to the subject changes, the magnification and perspective changes. All fine focusing should be performed with the front standard fine focus knob.

Using the camera's "mirror up" function prevents camera vibration during long exposures and/or macro photography.
(Refer to the section on taking photos with the mirror up in the 645 AF (body) owner's manual.)

Setting the exposure

1. In the AE (Autoexposure) mode.

Set the exposure mode setting dial on the body to aperture priority AE ("Av") mode. Half-press the shutter release button and look into the viewfinder's at its LCD display for an exposure reading. If the "-u-" and "-u-" indicators are flashing, you are outside the the camera's exposure metering range and it is not possible to achieve a proper exposure reading. Try a wider aperture and/or more intense lighting.

★ **NOTE: The "P" (Program AE) and "Tv" (Shutter Priority AE) modes are not available using the auto bellows.**

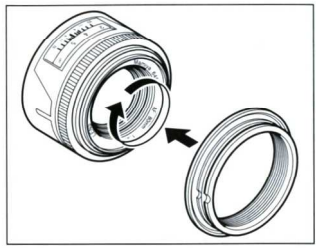
2. In the M (Manual) mode.

Set the aperture and shutter speed as desired, then half-press the shutter release button. The difference between the set value and the measured value is displayed in the viewfinder's LCD panel.

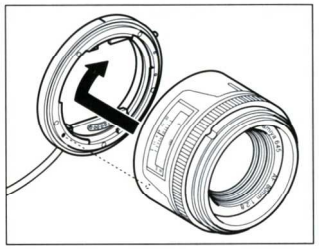
★ **Set the lens' aperture to between F11 and F22. If the aperture is too wide, the depth of field will be extremely shallow.**

At magnifications greater than 1.0, mount the lens in the reverse direction using the included lens reversal ring to achieve photographs with increased performance.

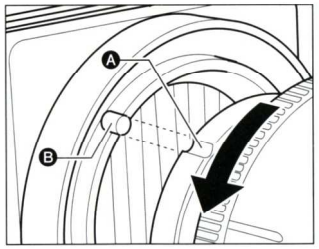
Mounting the lens reversal ring



1. Screw the lens reversal ring into the filter threads on the front of the 80mm f/2.8 AF lens.



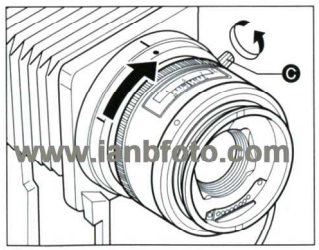
2. Install the lens mounting ring on the rear of the lens.



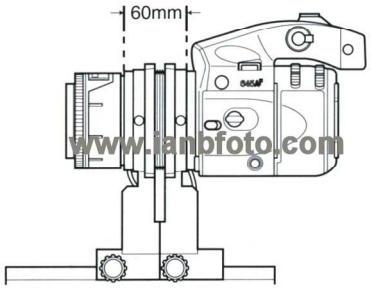
3. Line up the notch Ⓐ on the lens reversal ring with the pin Ⓑ on the auto bellows and lock it in place using the lock knob Ⓒ.

4. Focus and metering are performed in the same way as described on pages 10 and 11 for normal orientation of the lens.

★ **If the distance scale is hard to see, loosen the lock knob Ⓒ, move the cord so that it does not hamper your view, and turn to a position at which the distance scale is easy to see. Lock the lock knob Ⓒ when finished.**

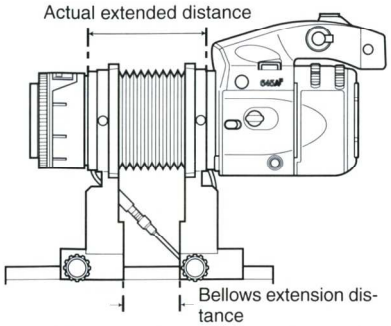


Extension distance/close-up photography tables



The width of this auto bellows when compressed is 60 mm.
The actual extended distance from the rear of the lens mount to the front of the 645 AF body can be caluculated by adding 60mm to the bellows extension distance (found on the focusing rail).

★ When the reversal ring is mounted,



add 55 mm to find the actual extended distance.

For example, to take photographs at a magnification of 1.0, refer to the scale on the rail and set the bellows extension distance to 20.1 mm.

★ One mark on the rail's scale corresponds to 1 mm.

645AF auto bellows close-up photography table - 80 mm f/2.8

Actual Extended Distance (mm)	Bellows Extension Distance (mm)	Magnification	Subject Distance(mm)	Area Coverd (mm)	Exposure Factor
60.0	0	0.75	146.8	74.8 x 55.4	1.6
64.1	4.1	0.80	141.1	70.0 x 51.9	1.7
80.1	20.1	1.00	121.1	56.0 x 41.5	2.0
96.1	36.1	1.20	107.7	46.7 x 34.6	2.3
112.2	52.2	1.40	98.2	40.0 x 29.6	2.5
128.2	68.2	1.60	91.0	35.0 x 25.9	2.7
144.2	84.2	1.80	85.5	31.1 x 23.1	3.0
160.2	100.2	2.00	81.0	28.0 x 20.8	3.2
176.3	116.3	2.20	77.4	25.5 x 18.9	3.3
180.0	120.0	2.25	75.5	24.9 x 18.5	3.4

Reversal ring close-up photography table - 80 mm f/2.8

Actual Extended Distance (mm)	Bellows Extension Distance (mm)	Magnification	Subject Distance(mm)	Area Coverd (mm)
55.0	0	0.93	146.6	60.5 x 44.8
61.0	6.0	1.00	140.2	56.0 x 41.5
77.0	22.0	1.20	126.8	46.7 x 34.6
93.0	38.0	1.40	117.3	40.0 x 29.6
109.0	54.0	1.60	110.1	35.0 x 25.9
125.1	70.1	1.80	104.5	31.1 x 23.1
141.1	86.1	2.00	100.1	28.0 x 20.8
157.1	102.1	2.20	96.5	25.5 x 18.9
173.1	118.1	2.40	93.4	23.3 x 17.3
175.0	120.0	2.42	93.1	23.1 x 17.1

*Vignetting may occur around the edges of the picture if the magnification is over 2x.

Handling precautions

- Do not let the bellows get wet or accidentally crushed. Doing so may deform the bellows permanently.
- Do not attempt to disassemble the auto bellows or modify them in any way. If you need assistance with this accessory, please contact the nearest Mamiya service center.
- Oil, dust, fingerprints or water on the electronic contacts could result in malfunction or corrosion. Wipe such substances off with a clean lens cloth.
- Do not expose the auto bellows to chemicals or gases for long periods of time. Doing so will damage the surfaces and materials.
- Do not use solvents. Exposure to such will damage the surfaces of the auto bellows. To clean, wipe gently with a soft, dry cloth.
- When the camera has not been used for a long period of time or before taking important photographs, either take a trial photograph to check that the camera is functioning normally or contact your nearest Mamiya office or service center for an inspection.