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**Mamiya**  
**M645**

# **Auto Extension Rings**

**No.1, No.2, and No.3-S**

*Auto KDS 65*  
**Instructions**

  
**Mamiya**  
CAMERA CO., LTD.

To take close-up photographs from a distance shorter than the minimum permissible photographing distance of your lens, use these Auto Extension Rings, whereby close-up photography or reproduction can be accomplished as easily as taking conventional photographs.

Mamiya Auto Extension Rings are available in three types (No.1, No.2, and No.3-S), and each ring interlocks with the automatic diaphragm of the lens. The same operating procedure applies to all three types.

## CAUTION

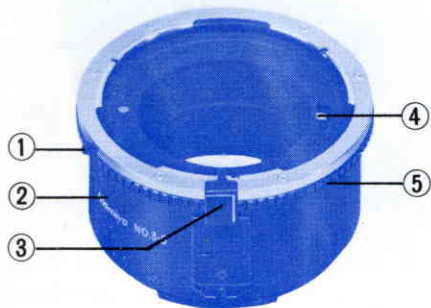
★ These auto extension rings are designed for use with the 80mm f/1.9 and f/2.8 lenses. When used with other lenses vignetting may result.

### ★ No.3 & No.3-S Rings

The No.3 ring is designed for exclusive use with the 80mm f/2.8 lens. It should not be used on the f/1.9 lens as it may result in vignetting. The No.3-S ring is designed for use with either of the 80mm lenses. When using other rings together with the No.3-S ring, always place the No.3-S ring closest to the camera body.

## ● Names of Parts

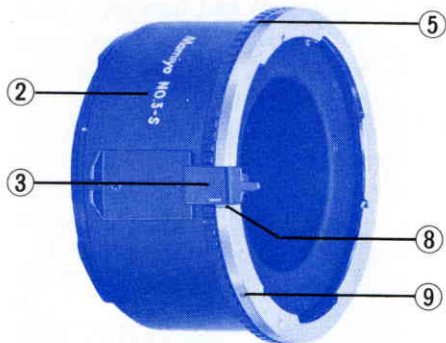
1. Lens release button
2. Coupler ring
3. Aperture ring coupler
4. Diaphragm actuating lever
5. Knurled ring
6. Diaphragm actuating pin



7. Alignment red line for camera body
8. Alignment red line for coupler
9. Alignment dot for lens



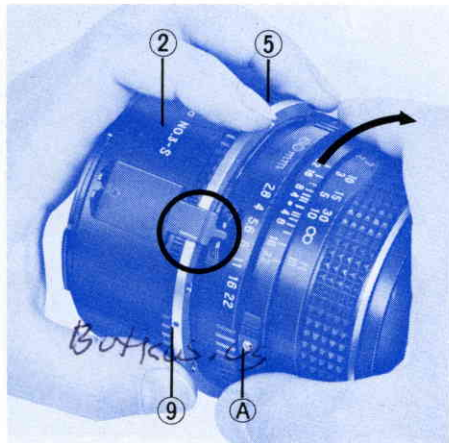
## ● Attaching the Extension Ring



1. While gripping the knurled ring (5) of the extension ring in one hand, and rotating the coupler ring (2) with the other hand, align the position of the aperture ring coupler (3) with the alignment

line (8) as shown in the photograph.

2. By rotating the aperture ring, set it at the widest aperture (f/1.9 or f/2.8).



3. When the extension ring and the lens are fitted after aligning the alignment dot (A) of the lens with the alignment dot (9) of the extension ring, the couplers of the extension ring and the lens will also be set simultaneously. (The role of this coupler is to interlock with the exposure meter when the PD or CdS prism finder is employed. When the PD or CdS prism finder is not employed, connecting the coupler is unnecessary.)

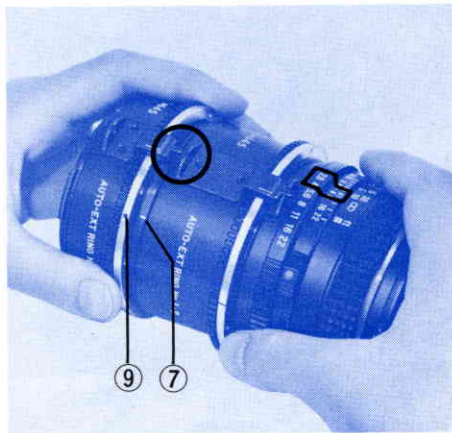
4. When the extension ring and the lens have been aligned and fitted, rotate the lens clockwise until it stops. (When the lens is rotated up to the stop position, the lens release button (1) pops

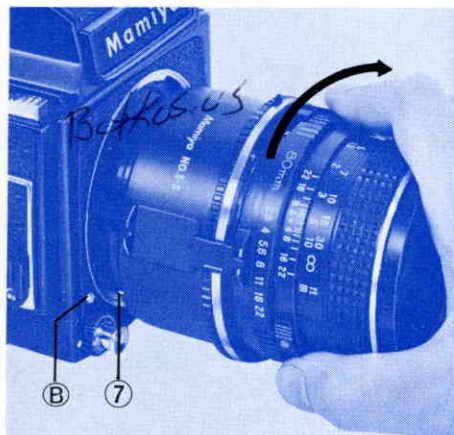
out to lock it.)

## CAUTION:

When rotating the lens, always grip the knurled ring (5) of the extension ring. Should the coupler ring (2) also be gripped simultaneously, the lens cannot be rotated.

5. When combined with an additional extension ring, the added ring must also be preliminarily set as described in Item 1. Connect the two extension rings after aligning the alignment line (7) of the front extension ring with the alignment dot (9) of the rear ring; then rotate the front ring clockwise until it stops. (In this instance, grip the knurled ring of the rear ring.)





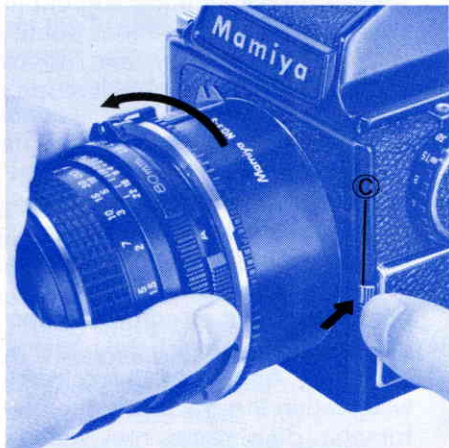
6. When attaching the rings and lens to the camera body, attach them after aligning the alignment line (7) with the alignment dot (B) of the camera body, and rotate the lens clockwise until it stops.

### CAUTION:

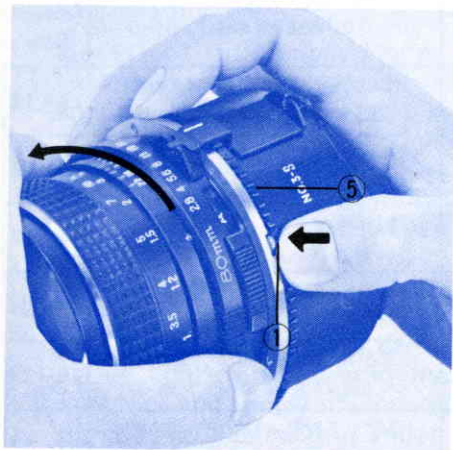
When two or three extension rings are employed in combination, grip the lens and rotate it clockwise until it stops, and then proceed with photography. If photography is attempted when the lens/ring are slightly dislocated by turning counterclockwise within the backlash, the automatic diaphragm may occasionally fail to interlock completely.



## ● Removing the Extension Ring



1. When removing the lens, initially remove the extension ring from the camera body combined with the lens. To remove the extension ring, rotate the extension ring counterclockwise until it stops, while depressing the release button (C) of the camera body.



2. The lens can be removed from the extension ring by rotating the lens counterclockwise until it stops, while gripping the knurled ring (5) of the extension ring and depressing the lens release button (1).

# ● Close-up Photography Table (for 80mm f/1.9)

| Ring combination        | Magnification | Distance                                 | Subject size   | Exposure factor |
|-------------------------|---------------|--|--|-----------------|
| No.1                    | 0.15 — 0.30   | 1' 10-3/8" — 11-9/16"<br>(56.8 — 29.4cm) | 11-1/8" × 1'3" — 5-1/2" × 7-1/4"<br>(28.2 × 38.0 — 14.0 × 18.4cm)      | 1.3 — 1.5       |
| No.2                    | 0.29 — 0.44   | 11-11/16" — 8-1/16"<br>(29.6 — 20.5cm)   | 5-9/16" × 7-1/2" — 3-11/16" × 4-15/16"<br>(14.1 × 19.0 — 9.3 × 12.6cm) | 1.5 — 1.8       |
| No.3-S                  | 0.44 — 0.59   | 8-1/8" — 6-5/16"<br>(20.6 — 16.0cm)      | 3-11/16" × 5" — 2-3/4" × 3-3/4"<br>(9.4 × 12.7 — 7.0 × 9.5cm)          | 1.8 — 2.2       |
| No.1 + No.3-S           | 0.59 — 0.74   | 6-5/16" — 5-1/4"<br>(16.0 — 13.3cm)      | 2-3/4" × 3-3/4" — 2-3/16" × 3"<br>(7.0 × 9.5 — 5.6 × 7.6cm)            | 2.2 — 2.5       |
| No.2 + No.3-S           | 0.74 — 0.89   | 5-1/4" — 4-1/2"<br>(13.3 — 11.5cm)       | 2-3/16" × 3" — 1-7/8" × 2-1/2"<br>(5.6 × 7.6 — 4.7 × 6.3cm)            | 2.5 — 2.9       |
| No.1 + No.2<br>+ No.3-S | 0.88 — 1.03   | 4-9/16" — 4"<br>(11.5 — 10.2cm)          | 1-7/8" × 2-1/2" — 1-9/16" × 2-1/8"<br>(4.7 × 6.3 — 4.0 × 5.4cm)        | 2.9 — 3.3       |

# ● Close-up Photography Table (for 80mm f/2.8)

| Ring combination      | Magnification | Distance                               | Subject size   | Exposure factor |
|-----------------------|---------------|--|--|-----------------|
| No.1                  | 0.15 — 0.30   | 1'11-1/8" — 1'3/16"<br>(58.7 — 31.0cm) | 11-1/8" × 1'3" — 5-1/2" × 7-3/8"<br>(28.2 × 38.1 — 13.9 × 18.7cm)      | 1.3 — 1.7       |
| No.2                  | 0.29 — 0.45   | 1'3/8" — 8-3/4"<br>(31.5 — 22.2cm)     | 5-9/16" × 7-1/2" — 3-11/16" × 4-15/16"<br>(14.1 × 19.0 — 9.3 × 12.6cm) | 1.7 — 2.1       |
| No.3-S                | 0.44 — 0.60   | 8-13/16" — 6-15/16"<br>(22.4 — 17.7cm) | 3-11/16" × 5" — 2-3/4" × 3-11/16"<br>(9.4 × 12.7 — 7.0 × 9.4cm)        | 2.1 — 2.6       |
| No.1 + No.3-S         | 0.59 — 0.74   | 7" — 5-7/8"<br>(17.8 — 15.0cm)         | 2-13/16" × 3-3/4" — 2-3/16" × 2-15/16"<br>(7.1 × 9.5 — 5.5 × 7.5cm)    | 2.6 — 3.1       |
| No.2 + No.3-S         | 0.73 — 0.89   | 5-15/16" — 5-3/16"<br>(15.1 — 13.2cm)  | 2-3/16" × 3" — 1-13/16" × 2-7/16"<br>(5.6 × 7.6 — 4.6 × 6.2cm)         | 3.1 — 3.6       |
| No.1+No.2<br>+ No.3-S | 0.88 — 1.04   | 5-1/4" — 4-3/4"<br>(13.3 — 12.0cm)     | 1-7/8" × 2-1/2" — 1-9/16" × 2-1/8"<br>(4.7 × 6.3 — 4.0 × 5.4cm)        | 3.6 — 4.2       |

1. Distances shown in the close-up photography table indicate distance from the front edge of the lens barrel to the subject.

2. Figures in the left column of the table indicate the lens when unextended. Figures on the right indicate the lens extended to the closest focusing distance.

The Auto Extension Ring interlocks with the automatic diaphragm of the lens, whereby pic-

ture taking is effected in the same manner as for conventional photography. However, when the lens is extended for close-up photography, and distance between the lens and film plane increases beyond normal, image brightness on the film plane decreases, requiring an increase in exposure. To adjust the exposure, refer to the exposure factor prescribed in the close-up photography table.

The relationship between the exposure factor and the amount of exposure increase is shown below.

|                         |        |   |     |   |       |   |
|-------------------------|--------|---|-----|---|-------|---|
| Exposure factor         | (X)    | 1 | 1.5 | 2 | 3     | 4 |
| Aperture opening degree | (stop) | 0 | 1/2 | 1 | 1-1/2 | 2 |

There is no need to make exposure calculations when using the PD or CdS Prism Finder. However, since the amount of light reaching the film varies in accordance with the lens extension, be sure to make the exposure measurement AFTER focusing the lens. Moreover, always keep your eye close to the eyecup whenever making an exposure measurement to prevent the possibility of extraneous light from entering the eyepiece and unduly influencing the reading, resulting in underexposure.

Since even very slight camera movement affects picture sharpness, mirror lock-up photography is recommended. Stop down the aperture to f/11 or smaller to obtain satisfactory lens performance.