INC
JAA75651－R.3388.A

作成承認印	配布許可印
ニコンカメラサービス部 GM	

AF Zoom-Nikkor 24-50/3.3-4.5 D

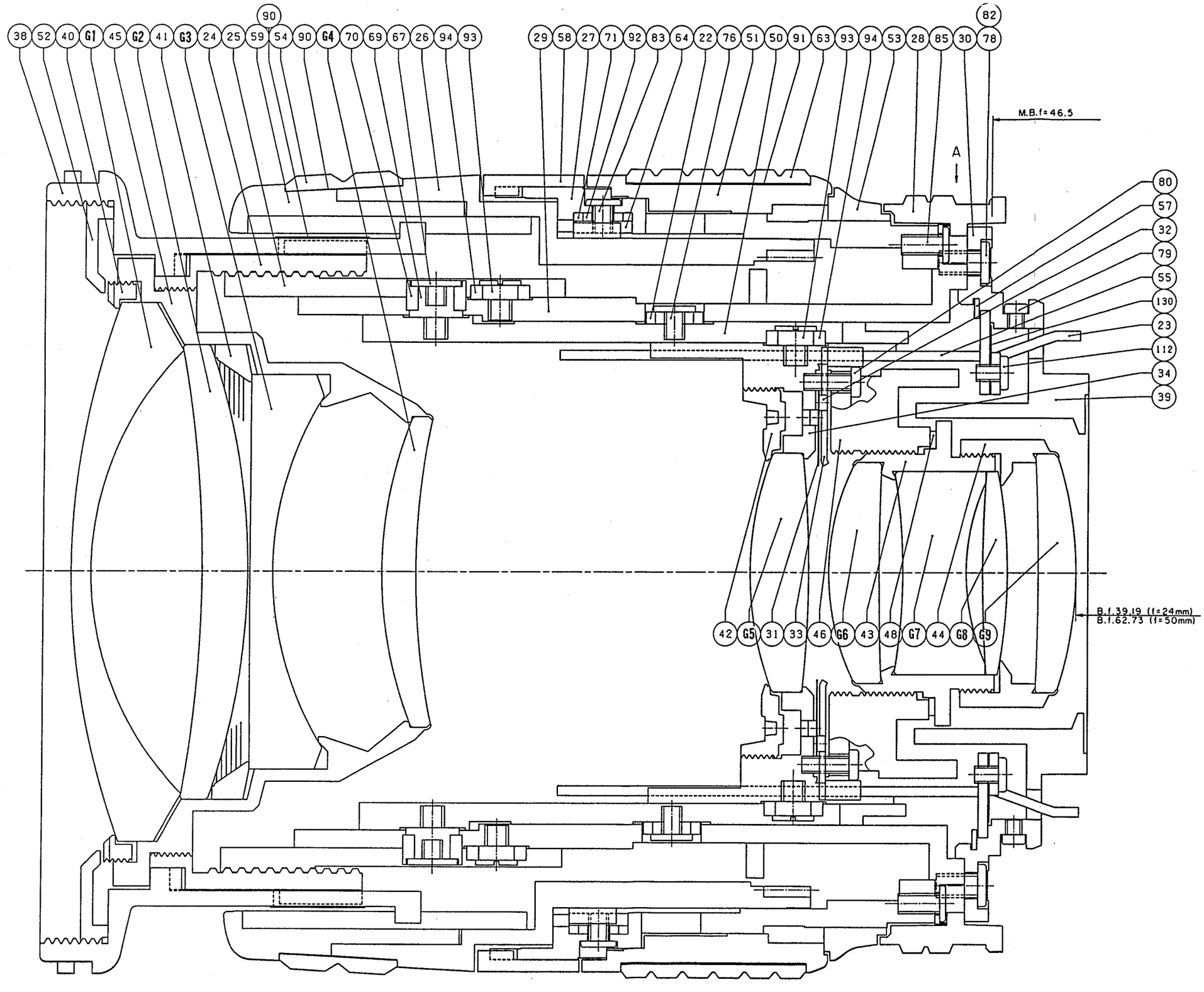
Ai-S

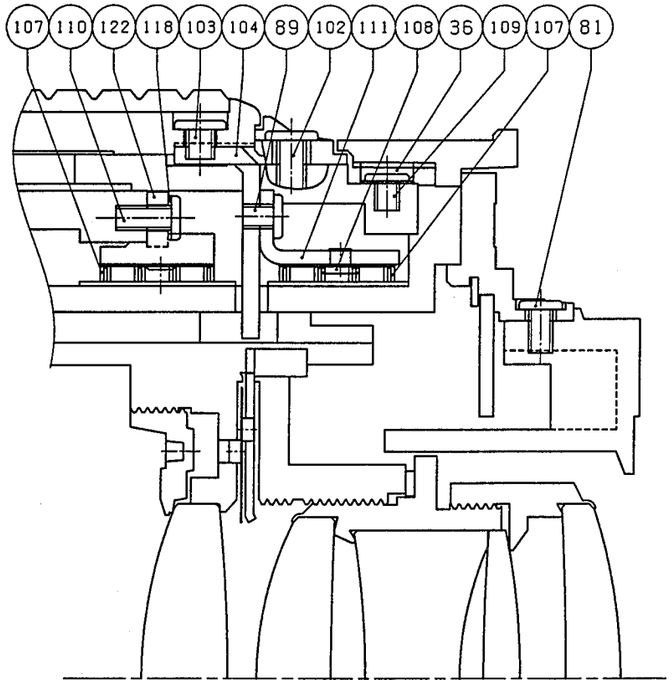
REPAIR MANUAL
修　理　指　針

Nikon | NIKON CORPORATION
Tokyo, Japan

Printed in Japan November 1995

組立図 Constrcution of the Lens

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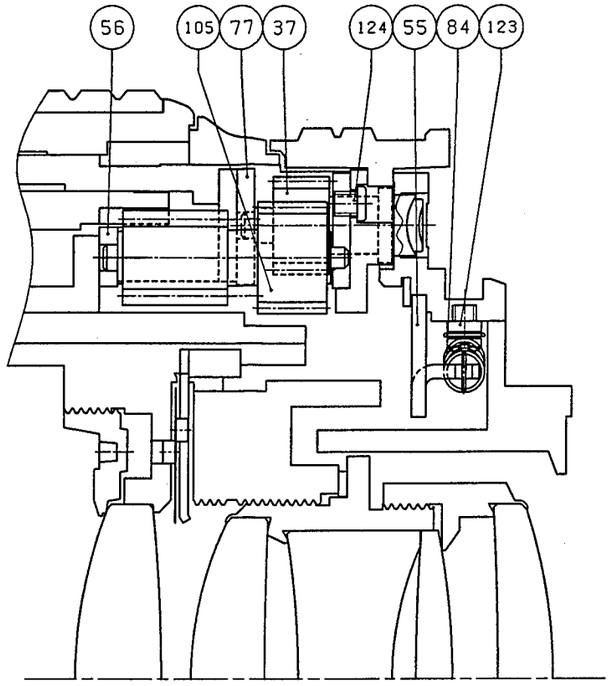
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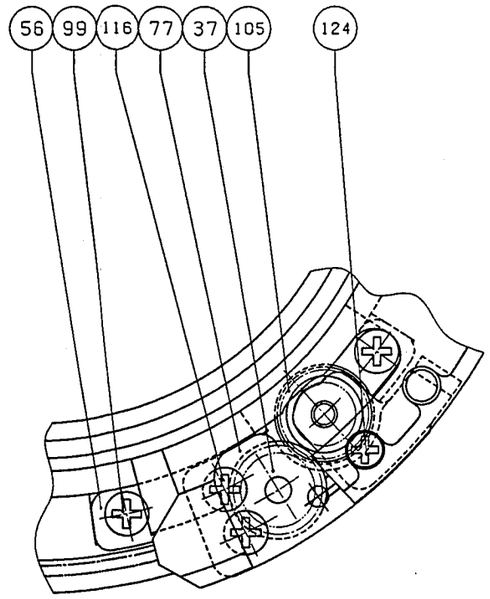
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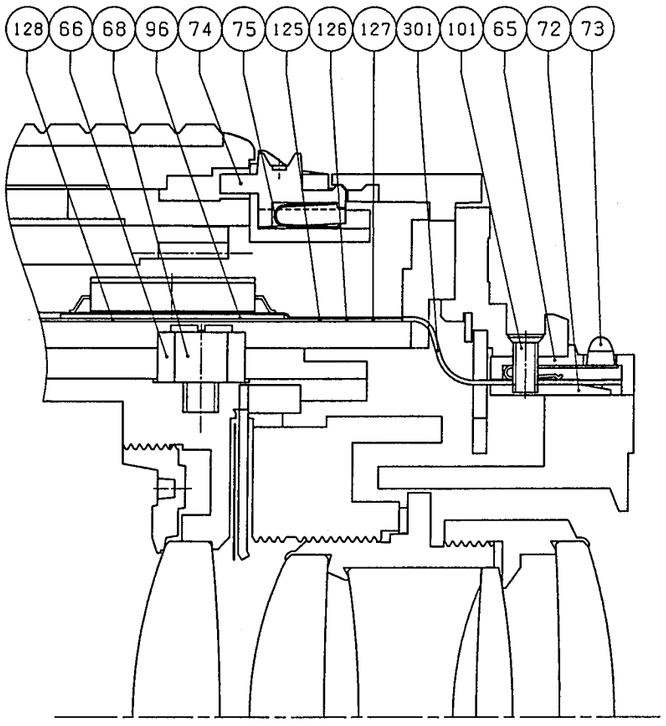
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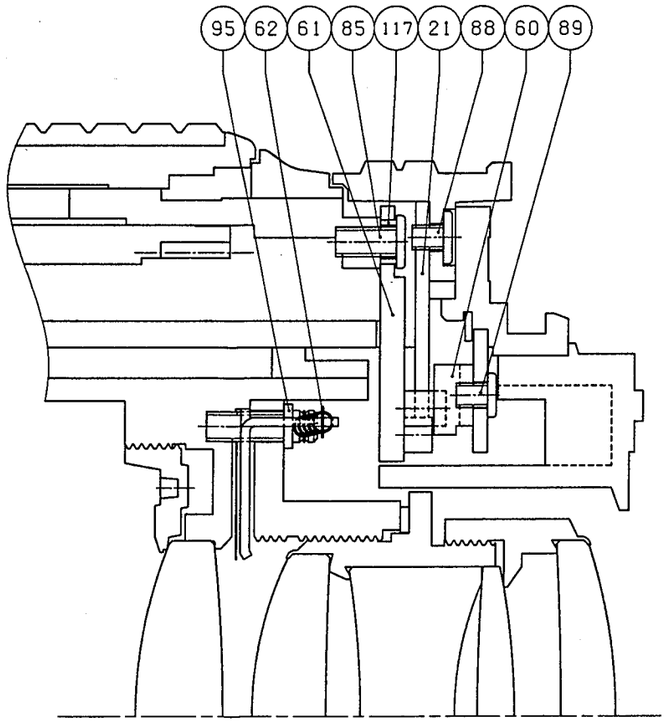
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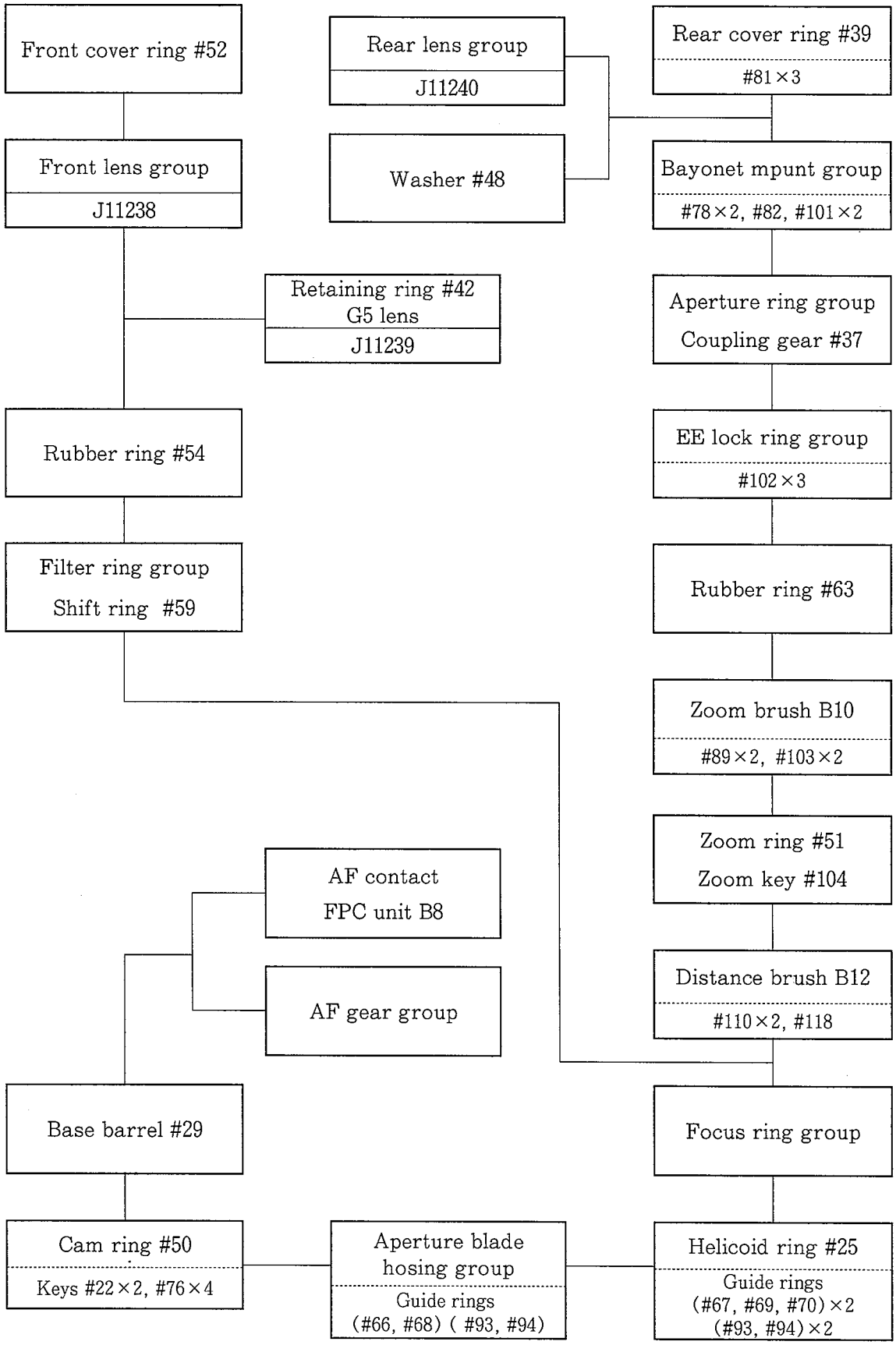
DISASSEMBLING/ASSEMBLING/ADJUSTMENT

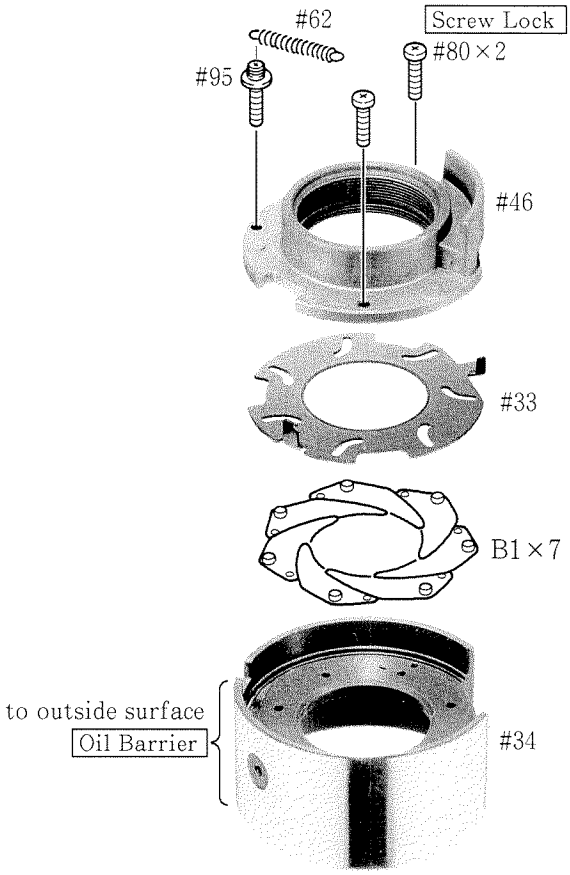
1. DISASSEMBLING PROCEDURE CHART



＊Refer to "Assembling" section for details on disassembling.

2. ASSEMBLING

APERTURE BLADE HOUSING GROUP

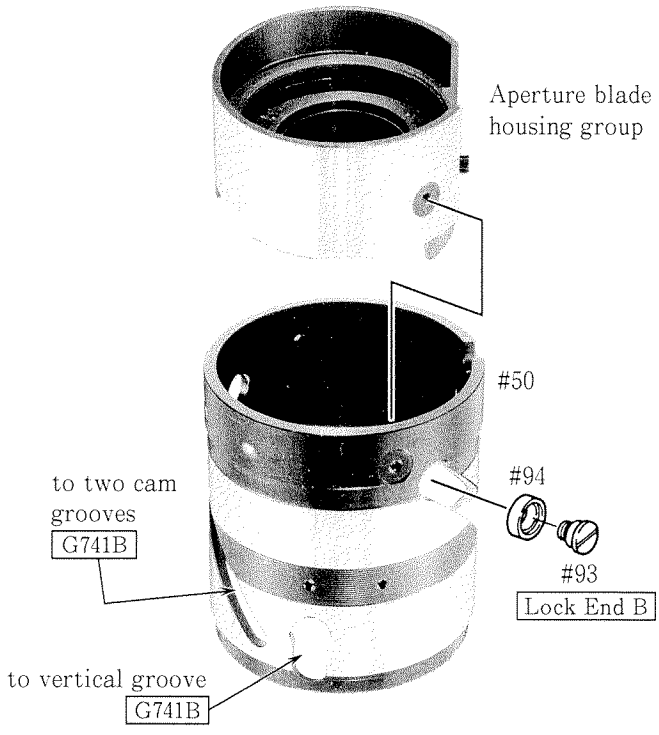


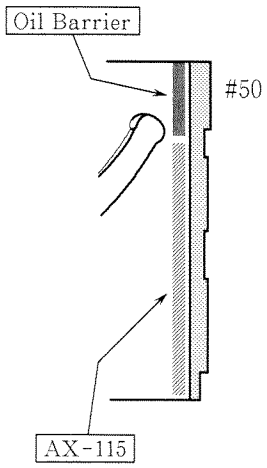
- When replacing part #33 with a new part, make the cam grooves smooth by passing a rod (ϕ1.3mm) (such as handle of drill) through the cam groove.

- When replacing part #34 with a new part, make the aperture blade pin holes smooth by passing a rod (ϕ1.3mm) through the hole.

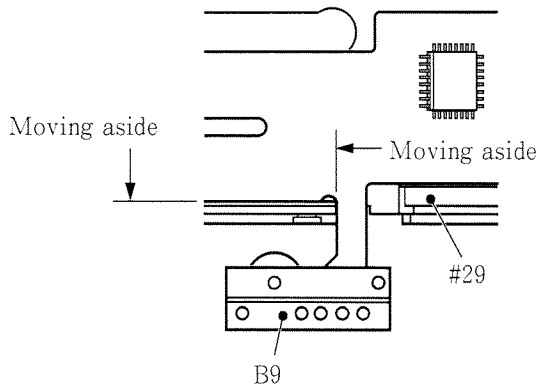
Inspection: Move part #33 and confirm that the aperture blade moves smoothly.

CAM RING #50



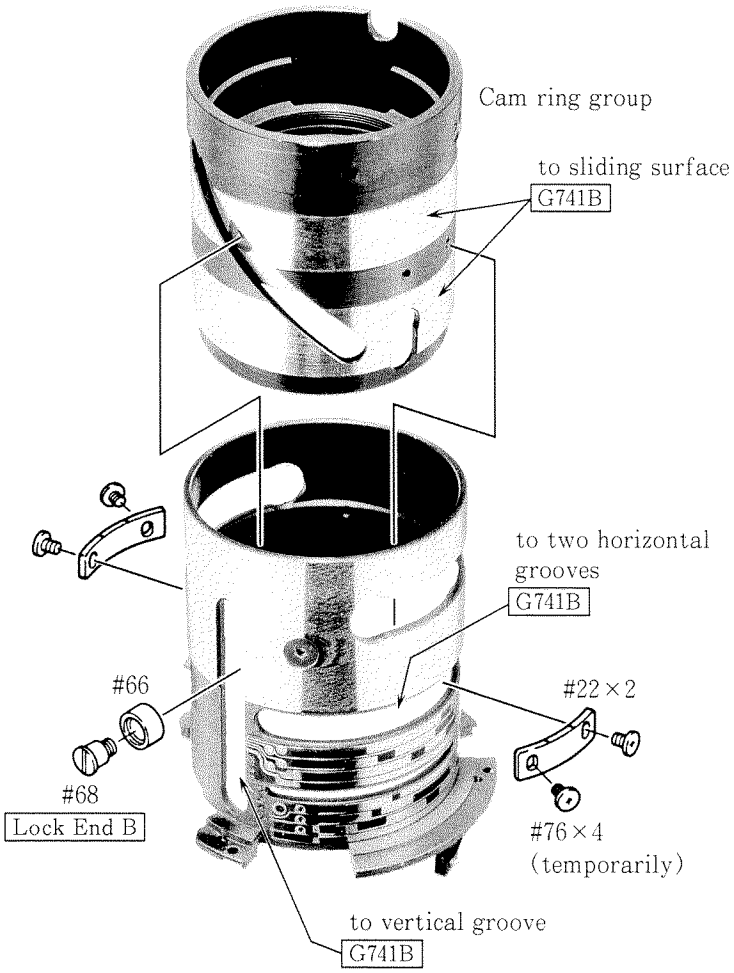


BASE RING #24, AF CONTACT FPC UNIT B9



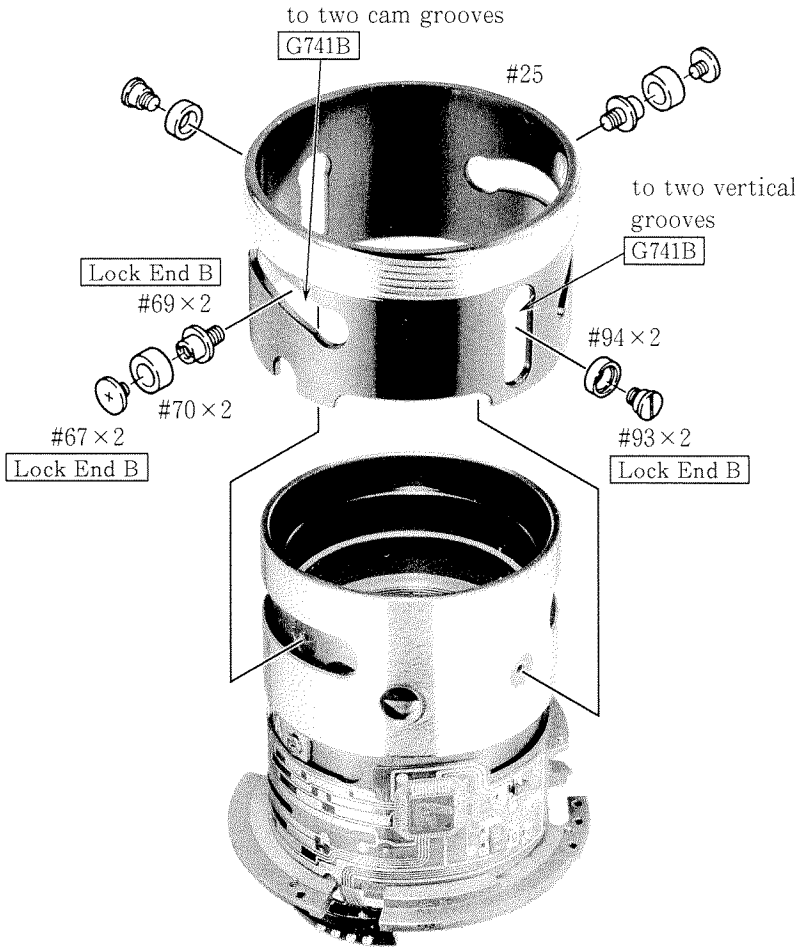
- Attach the AF contact FPC unit B9 on #29 by moving it aside as shown in figure.

Note: Do not reuse the peeled-off AF contact FPC unit B9.



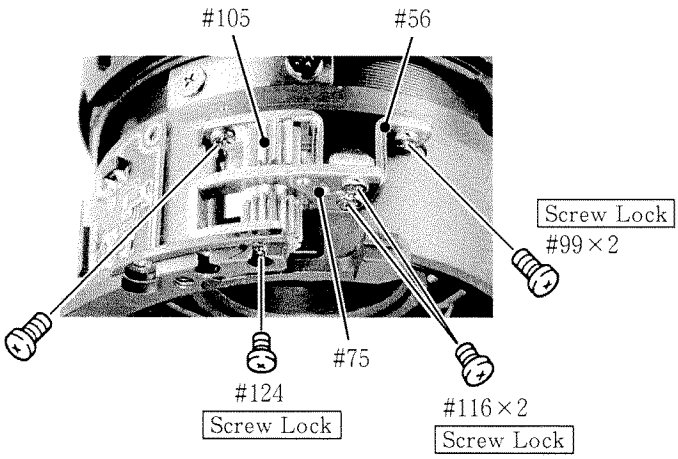
Inspection: Check operation by rotating the cam ring #50.

HELICOID RING #25

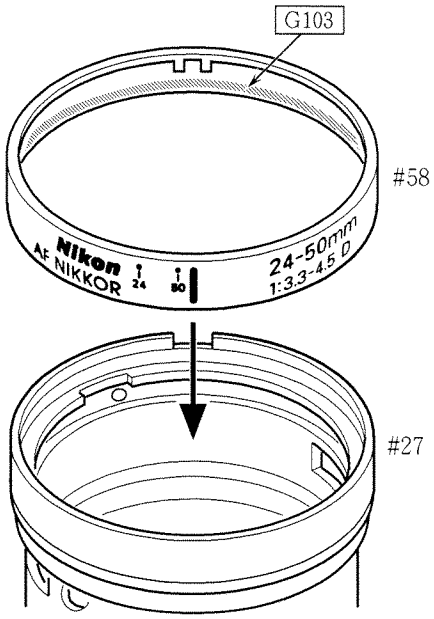


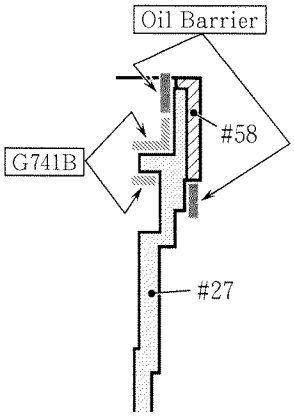
Inspection: Check operation by rotating the cam ring #50.

AF GEAR GROUP

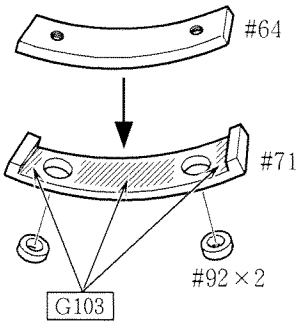


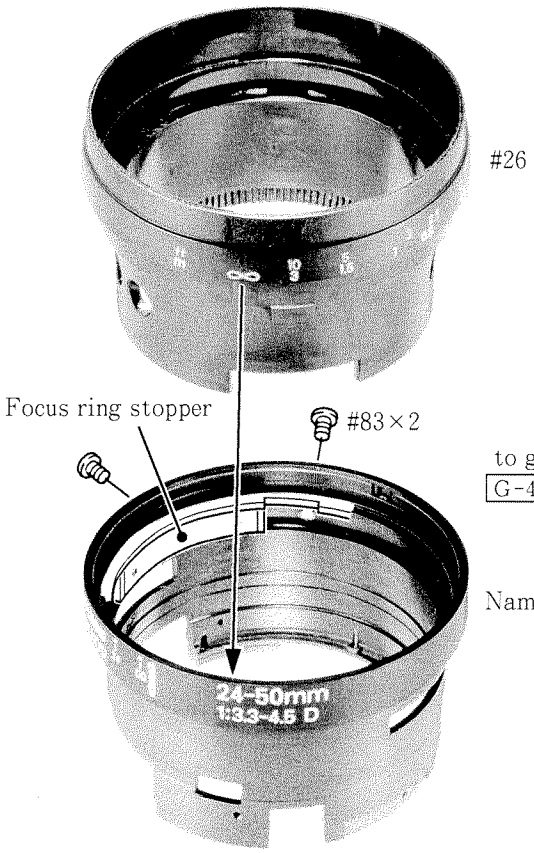
NAME RING GROUP, FOCUS RING STOPPER

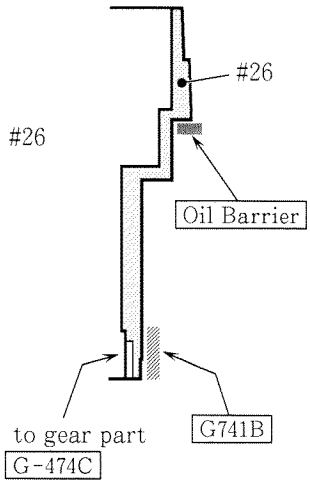




Assembling focus ring stopper





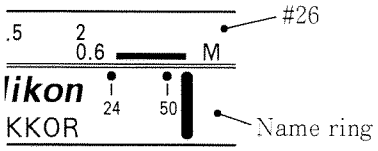


Name ring group

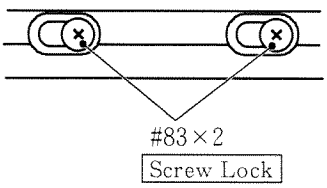
① Mount the focus ring stopper on the name ring group and set it as shown in the picture.

② Mount focus ring #26 on the name ring group as shown in the picture.

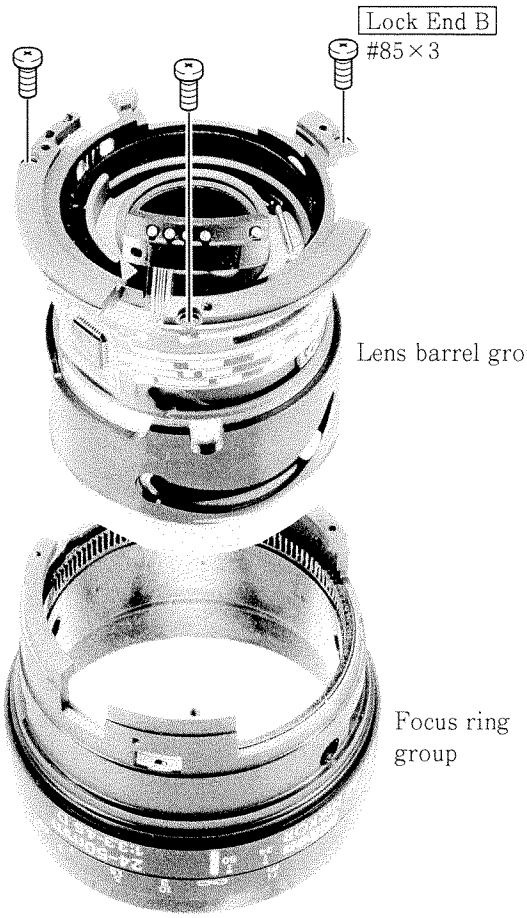
③ Rotate the focus ring clockwise up to the position shown in the figure below. (The screw hole on the focus ring stopper aligns with the name ring group.)



④ Attach part #26 so that screws #83×2 come to the right end of the long-hole on the name ring group. Then secure them using Screw Lock.

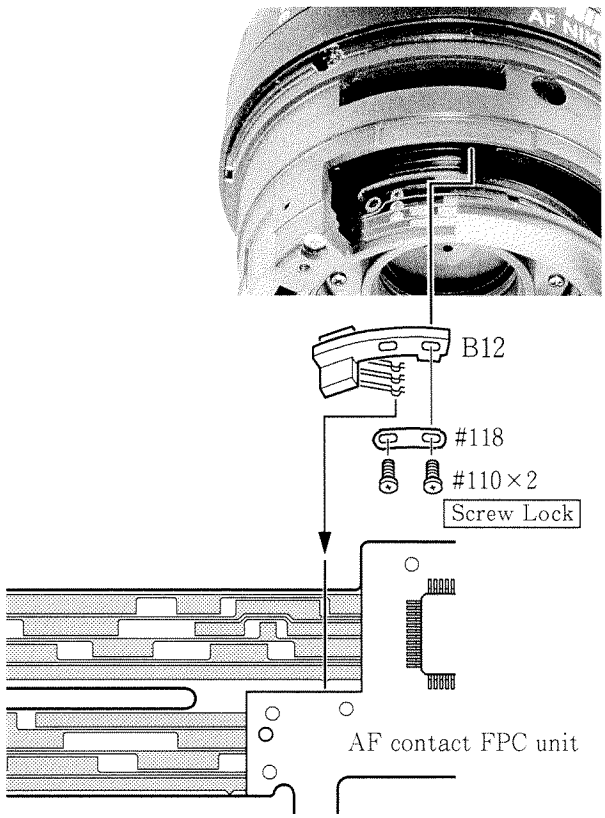


Inspection: Check operation by rotating by focus ring #26.



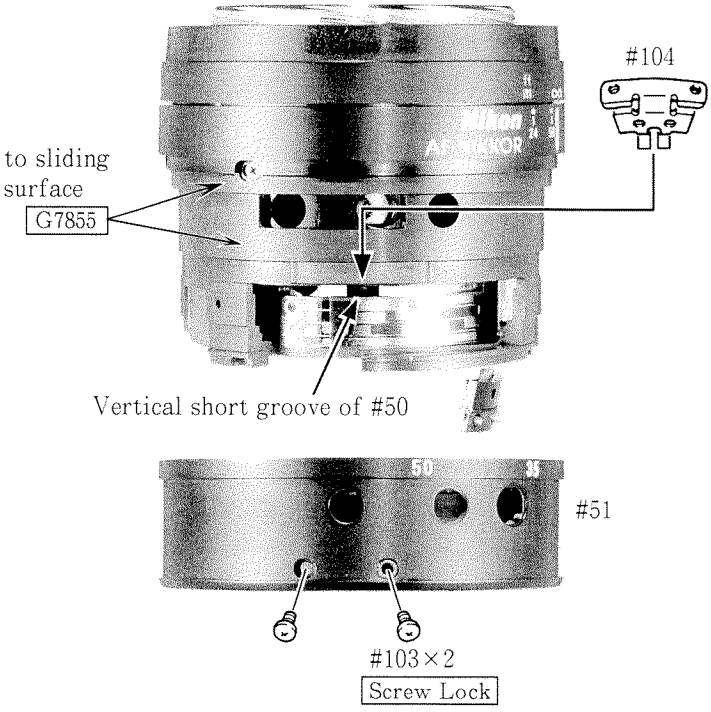
Inspection: Rotate the focus ring to check operation of AF gear. If it does not move properly, adjust the AF gear attaching position.

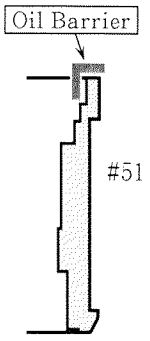
DISTANCE BRUSH B12



- Set the focus ring to the close distance, then attach distance brush B12.
- Adjustment of distance brush position
  ① Adjust the position of the distance brush so that the distance brush comes into contact with the line as shown in the figure at left, when set the focus ring to infinity (∞).
  ② Check to make sure that the distance brush stops are positioned at the specified place when repeatedly rotating the focus ring from "close distance" to "infinity" and "infinity" to "close distance".
  ④ Secure screw #110×2 using Screw Lock.

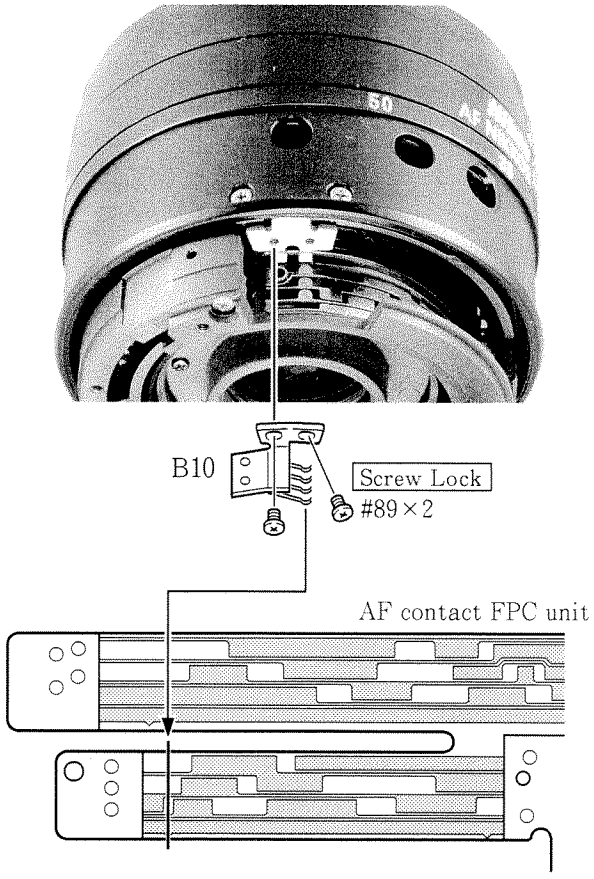
ZOOM RING #51





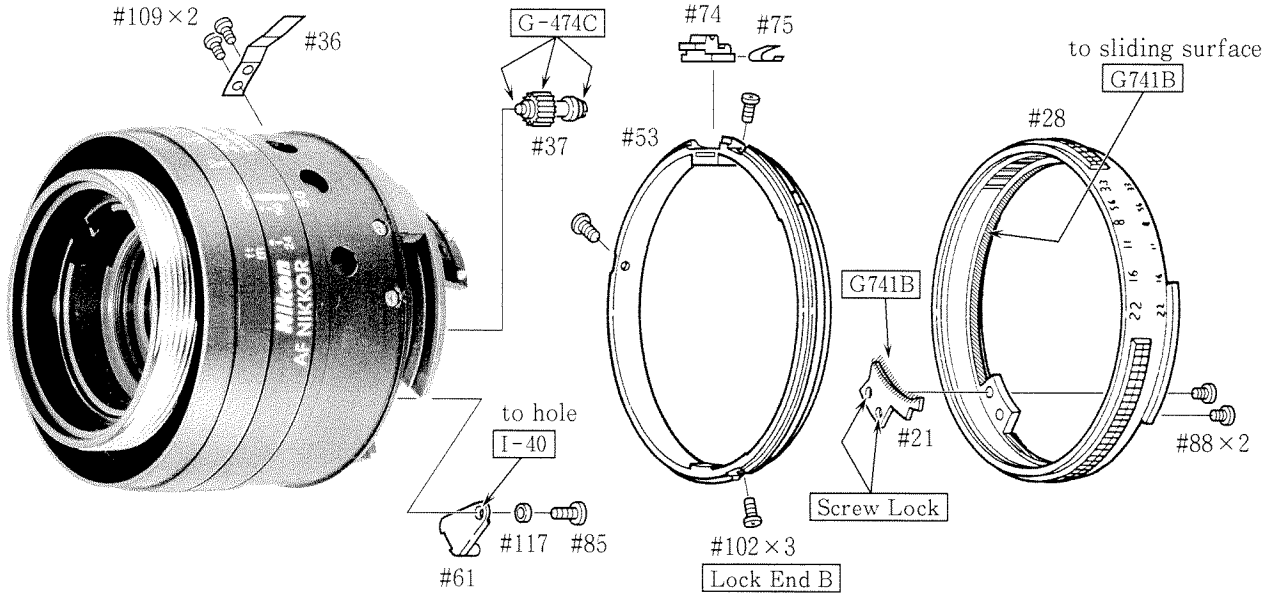
- Mount the zoom ring #51 after inserting the zoom key #104.

ZOOM BRUSH B10

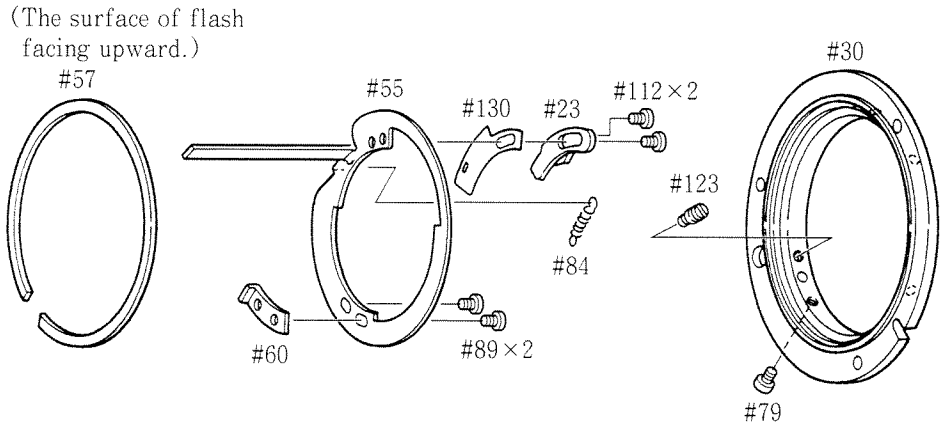


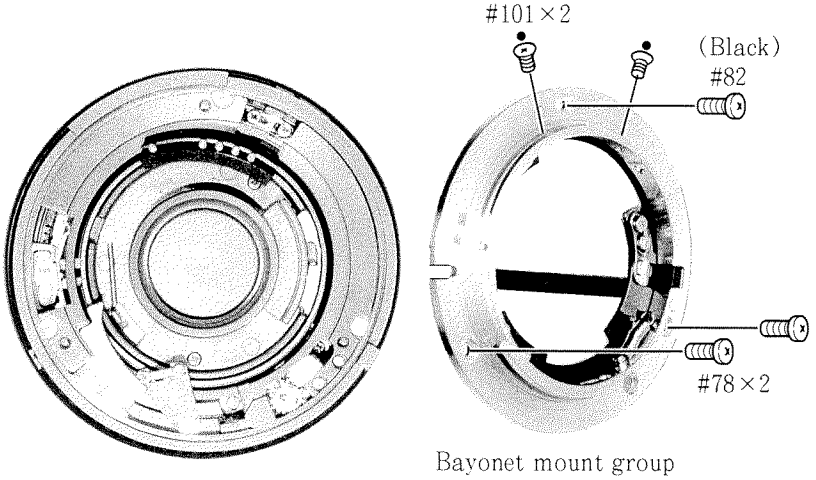
- Adjustment of zoom brush position
  - ① Rotate the zoom ring until it comes to a stop at the stopper on the WIDE (f=24mm) side.
  - ② Attach the zoom brush with screws #89×2 so that the zoom brush comes into contact with line as shown in the figure, when above state.
  - ③ Check to make sure that the zoom brush stops positioned at the specified place when repeatedly rotating the zoom ring from "WIDE" to "TELE" and "TELE" to "WIDE".
  - ④ Secure screws #89×2 using Screw Lock.

EE LOCK RING #53, APERTURE RING #28



BAYONET MOUNT GROUP





Bayonet mount group

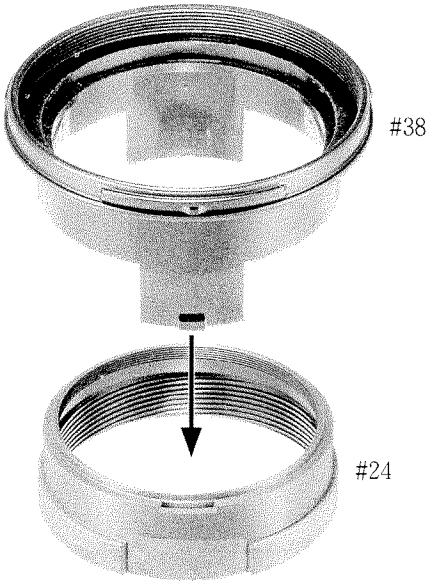
Inspection:

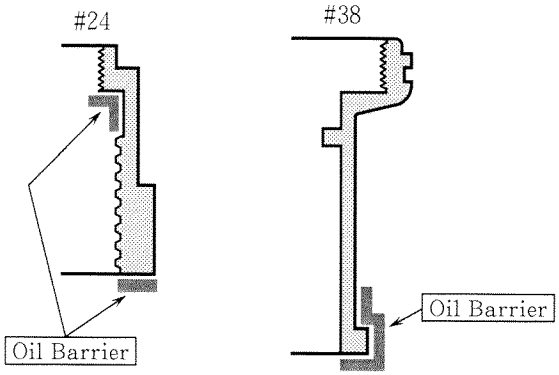
① Check operation of aperture by moving the aperture lever and the aperture ring.

② Check operation of AF gears by rotating the focus ring.

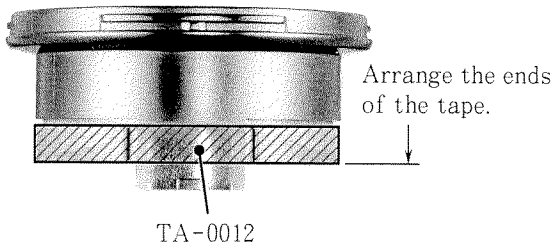
FILTER RING GROUP

1. Filter ring #38, Helicoid ring #24

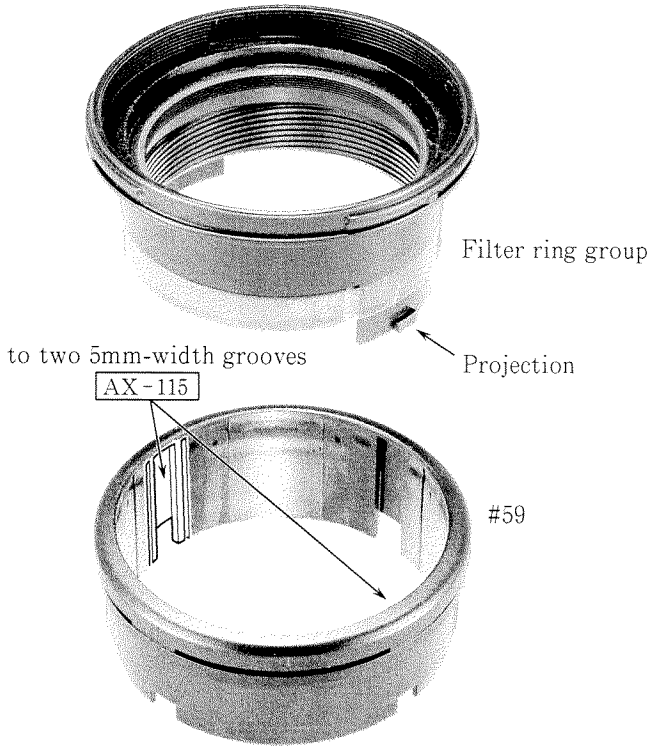




- Wrap tape TA-0012 around to secure helicoid ring #24 and filter ring #38.



2. Shift ring #59



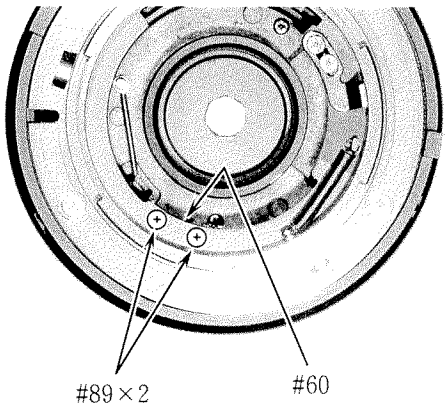
- Modify Shift ring #59 and insert the projection of the filter ring into a 5mm-width groove (with grooves on both sides) on the shift ring.

3. Mounting the filter ring group

① Set the zoom ring to WIDE (24mm) and the focus ring to infinity (∞) positions.
② Align the portion A on the filter ring (the location where lens food bayonet and the projection are aligned) with a 1m scale on the focus ring, then mount the filter ring group.
③ Screw in the filter ring group lightly as far as it goes, then return it by approx. 80° to align the index line with portion A.
④ Temporarily secure the shift ring and focus ring using tape TA-0012.

Inspection: Check operation by rotating the focus ring.

ADJUSTMENT OF APERTURE OPENING

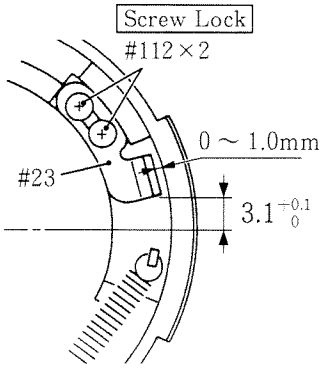


Aperture setting	Inscribed circle diameter (mm)	Tolerance (mm)
3.3	17.90	16.96 ~ 18.95
(4)	14.06	13.02 ~ 15.19
5.6	9.70	8.64 ~ 10.89
8	6.80	6.06 ~ 7.63
11	4.80	4.11 ~ 5.60
16	3.39	2.91 ~ 3.95
22	2.39	2.05 ~ 2.79

① Unfasten the screws #89×2 and adjust the aperture diameter by moving the #60. As a guide to adjustment, make aperture diameter (f/3.3) should be the same size at the inside diameter of aperture actuating plate #33.
- Check to see that the aperture diameter stays within tolerance range when the aperture ring is moved forward and backward.
- Check to see that the aperture diameter stays within tolerance range when the aperture lever is 'snapped', (using your finger), or when not 'snapped'.

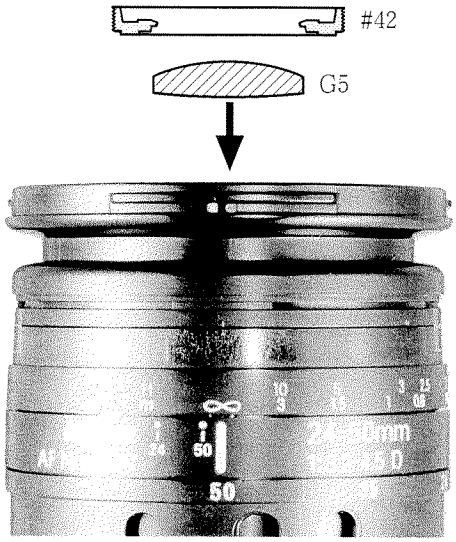
② After adjustment, secure screws #89×2 using Screw Lock.

ADJUSTMENT APERTURE LEVER #23 POSITION



- Unfasten screws #112×2 to adjust the position of the aperture lever #23 so that it comes into the rated value of $3.1^{+0.1}_{0}$ to bring the aperture diameter within rated value at full aperture (f/3.3). Together with this, adjust the gap between bayonet mount and aperture lever #23 be 0mm to 1.0mm.
  After adjustment, secure screws #112×2 using Screw Lock.
  Reference: When adjusting the rated value of $3.1^{+0.1}_{0}$, set the aperture ring to f/3.3 and mount the tool J18004-1 on the bayonet mount. It becomes much easier to adjust if you mount the aperture lever #23 based on the groove of the tool as a reference.

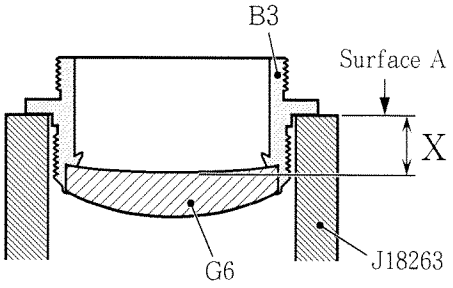
G5 LENS, RETAINING RING #42



- Attach the retaining ring #42 using tool J11239.

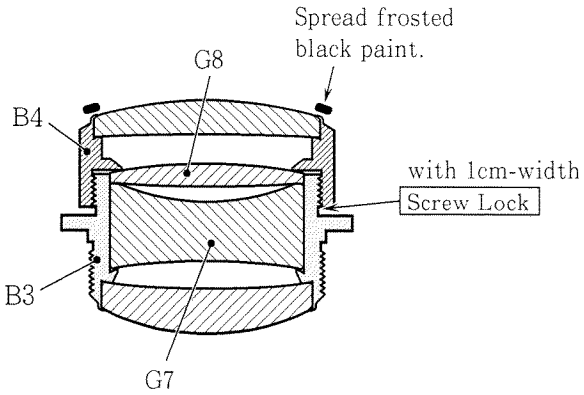
REAR LENS GROUP

1. Measure X distance

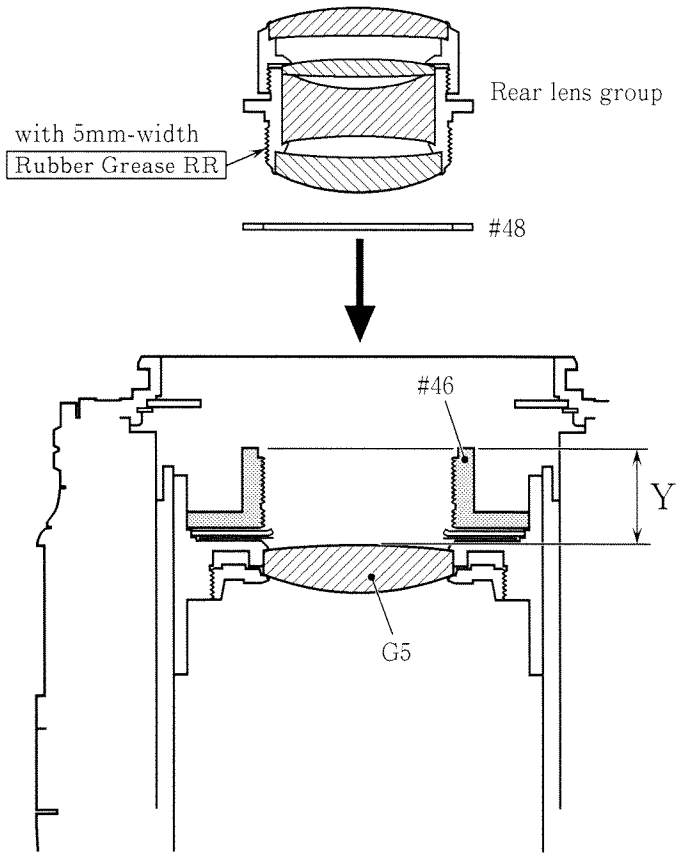


① Put G6 lens unit B3 on the measuring stand J18263.
② Mount the test probe of the digital micrometer on the center of the G6 lens, then reset display.
③ Remove the G6 lens unit from the measuring stand, mount the test probe of the digital micrometer on the surface A. Measure X distance between the rear of the G6 lens and the surface A, and record the data.

2. Assembling rear lens group



3. Measure Y distance, Mounting rear lens group



① Measure Y distance between the G5 lens and the rear lens group mounting surface of #46.

② Calculate the following equation.
Unit: mm

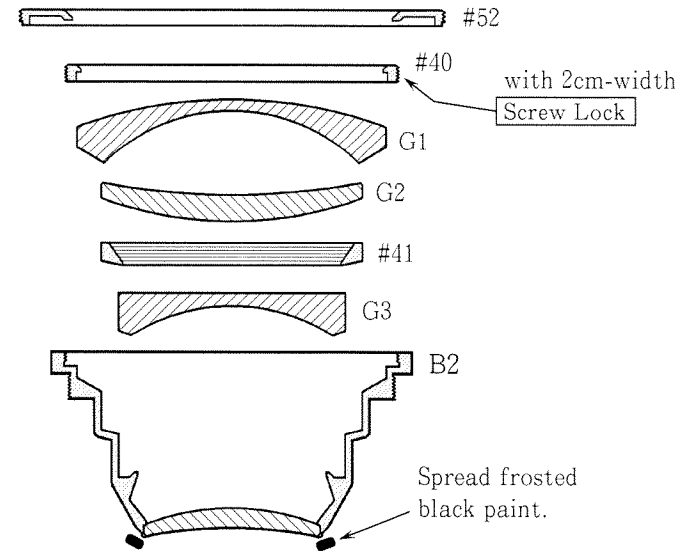
$W = 5.95 - (Y - X)$

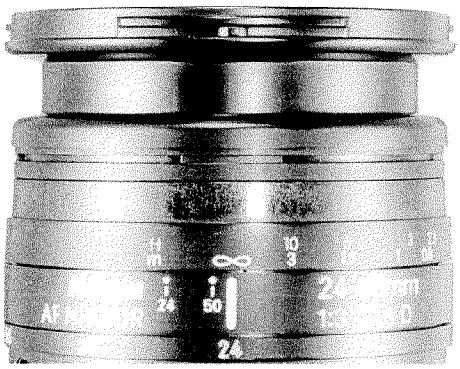
$= 5.95 - Y + X$

W: Thickness of washer #48

③ Mount the washer #48 and rear lens group.

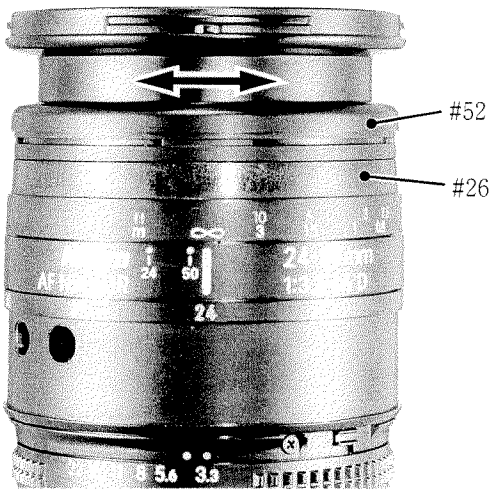
FRONT LENS GROUP





- Mount the front lens group using tool J11238.
- Attach the front cover ring #52 using rubber pad.

ADJUSTMENT AT BOTH ENDS OF FOCAL LENGTH



① Secure the focus ring with adhesive tape while aligning the infinity (∞) mark to the index line.

② Set the aperture to full aperture (f/3.3).

③ Peel of adhesive tape which temporarily secured #26 and #52.

④ Read the values at both WIDE (24mm) and TELE (50mm) sides. Make adjustment by rotating #52 so that the values of both WIDE and TELE sides become equal, as far as possible.

⑤ After adjustment, secure #52 and #26 with adhesive tape TA-0012. Wrap the adhesive tape one round.

⑥ Check to see that the values are correct.

ADJUSTMENT OF SHIFT (BACK FOCUS)

① Secure the focus ring with adhesive tape while aligning the infinity (∞) mark to the index.

② Set the zoom ring to WIDE (24mm), and set the aperture to full aperture (f/3.3).

③ Unfasten the screws #76×4 which fix the keys #22×2, from holes of zoom ring.

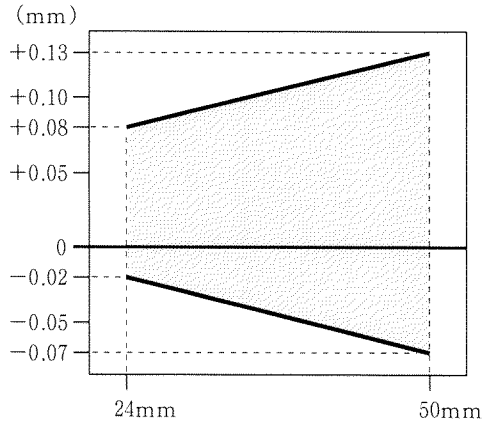
④ To adjust, move cam ring #50 back and forth using screw #76.

⑤ Fasten screws #76×4 and fix the keys #22×2.

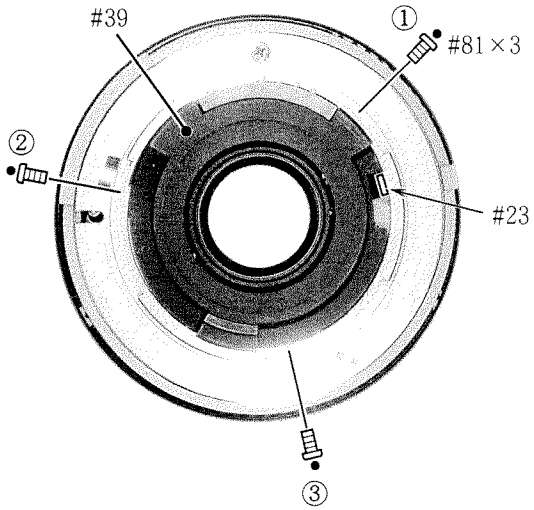
⑥ Read the values of WIDE and TELE sides. Check to see if they are within the standard value range.

⑦ Secure the screws #76×4 using Screw Lock.

Focal length	Standard (mm)
24mm	−0.02 ～ +0.08
50mm	−0.07 ～ +0.13

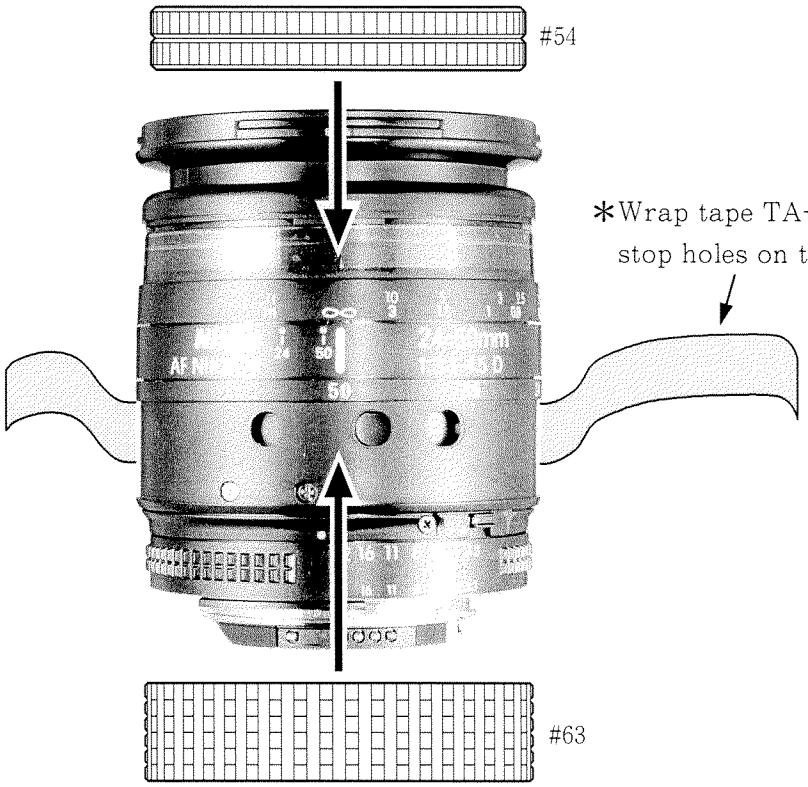


REAR COVER RING #39

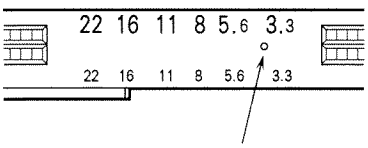


- Mount the rear cover ring #39 so that it becomes the full aperture stopper (the height of the aperture lever is $3.1^{+0.1}_{0}$mm) of the aperture lever #23.
- Fasten screws #81×3 in the order from ① to ③.

RUBBER RING #54 & #63



ATTACHING METER COUPLING SHOE



① Remove the aperture ring #28.

② Make hole ϕ1.1mm at the concave portion of the aperture ring. Mount the meter coupling shoe on the aperture ring and make another hole ϕ1.1mm based on the hole of the meter coupling shoe.

③ Attach the meter coupling shoe.

Meter coupling shoe	1K406－029 ×1
Screw	1K010－002－1 ×2 Change the length of screw from 2.5mm to 2.2mm.

④ Assembling.

INSPECTION OF ENCODER SIGNAL

＊Use an F90/N90 camera body and checking & adjustment programs for F90/N90 to display encoder signal on the computer monitor when making an inspection.

Inspection method

1. Start the checking & adjustment programs for F90/N90 and select "E. Checking of AF lens communication". Make inspection according to instructions as shown on the display.

2. Encoder signals should be as described in the table below when the distance scale is set to specified positions.

Zoom ring position / Distance scale position	f＝2 4mm			f＝3 5mm			f＝5 0mm		
	Encoder signal								
	1	2	3	1	2	3	1	2	3
∞	0 6	8 2	5 7	0 6	4 6	5 7	0 6	4 7	5 7
0．8m							4 7	4 7	5 7
Most close distance position							0 2	4 7	5 7

3. If encoder signal values are different from those shown in the table, following causes must be considered.
   Distance brush or zoom brush is mounted in the wrong position, brushes or FPC is defective, encoder patterns on the FPC are contaminated, or the FPC is fixed in the wrong position.