

作成承認印

配布許可印



AF Zoom-Nikkor ED 80-200/2.8D



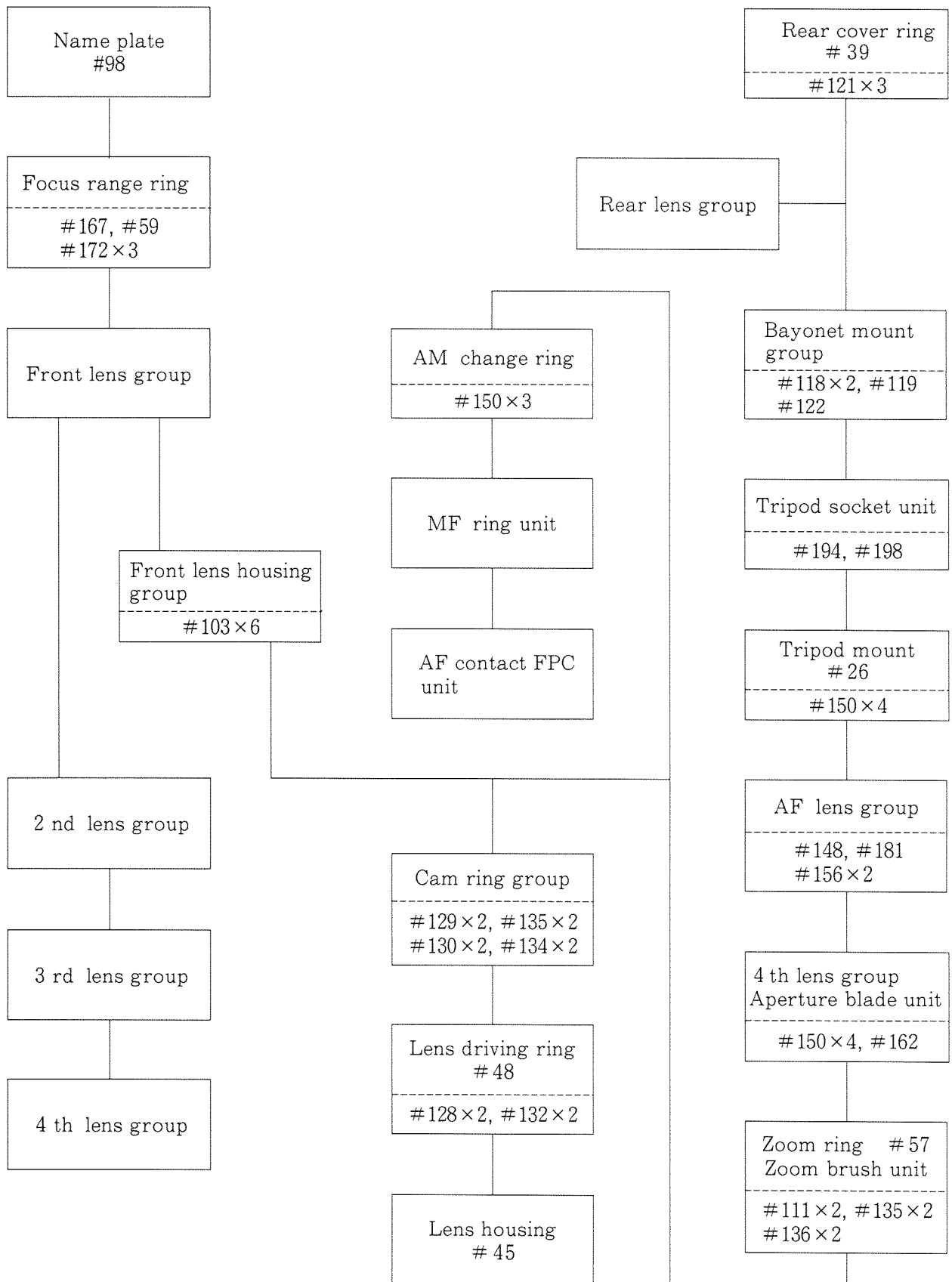
REPAIR MANUAL

Nikon | NIKON CORPORATION
Tokyo, Japan

Copyright © 1996 by Nikon Corporation.
All Rights Reserved.
無断転載を禁ず !!

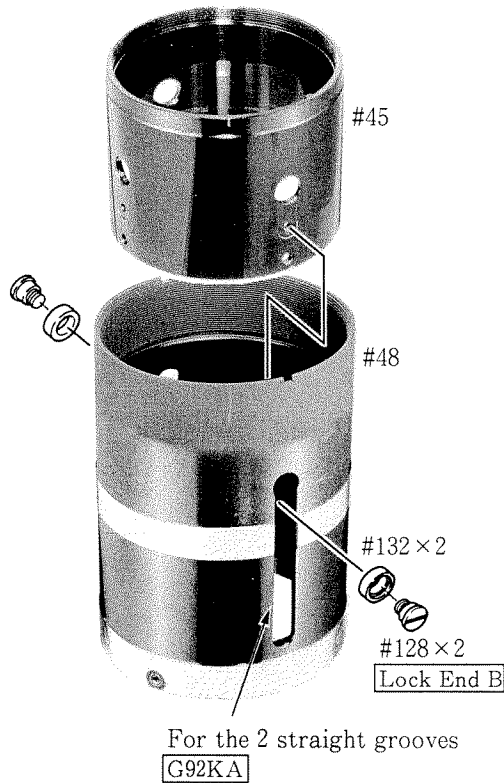
DISASSEMBLING / ASSEMBLING / ADJUSTMENT

1. DISASSEMBLING PROCEDURE



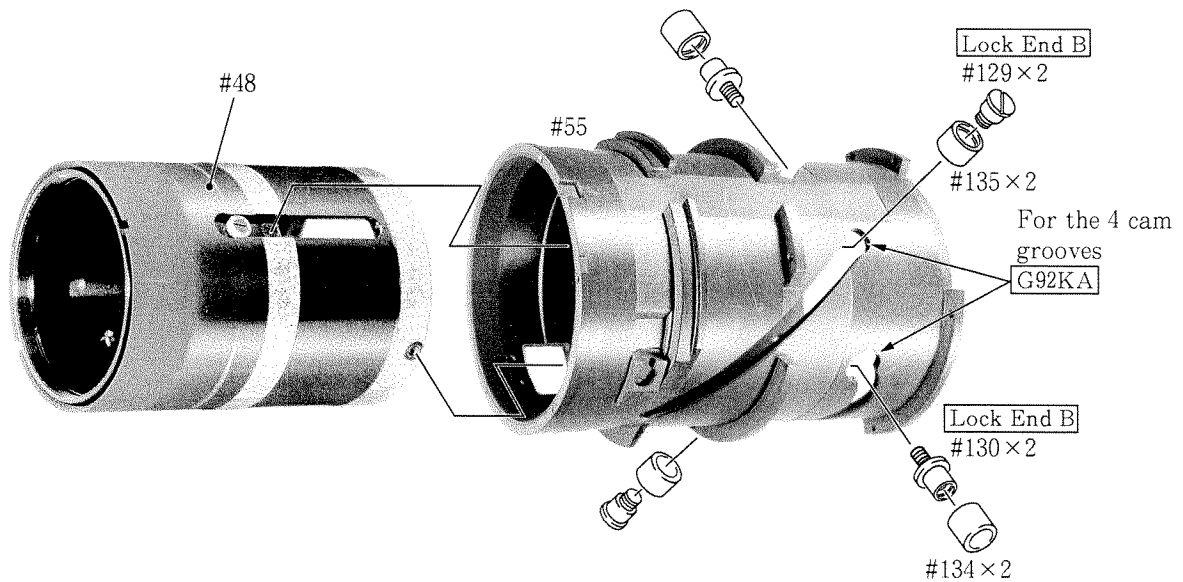
2. ASSEMBLING / ADJUSTMENT

LENS CHAMBER MOVABLE BARREL #45, #48



- Insert #45 into #48 and mount the guide ring in the best operative position.

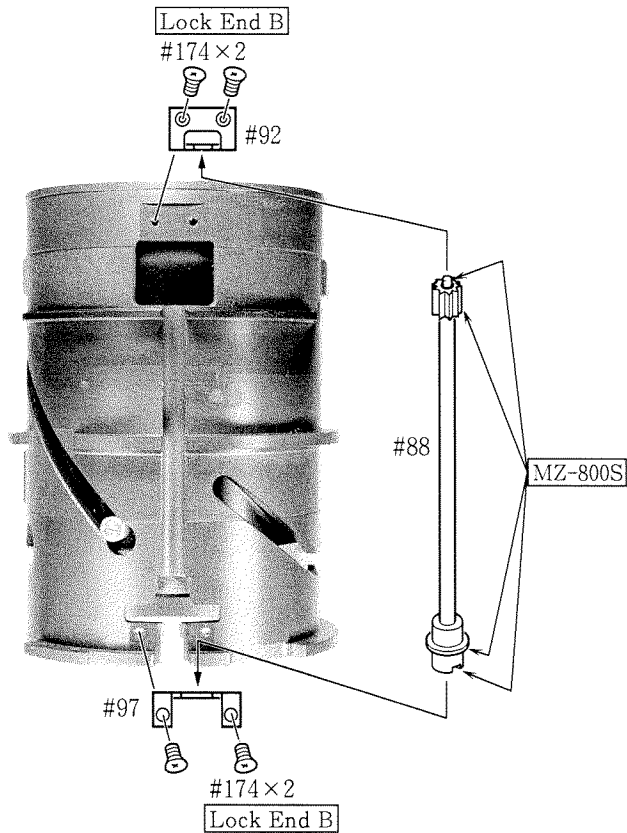
CAM BARREL UNIT #55



- First, mount #130 (2 pcs.) and #134 (2 pcs.) and then mount #129 (2 pcs.) and #135 (2 pcs.).

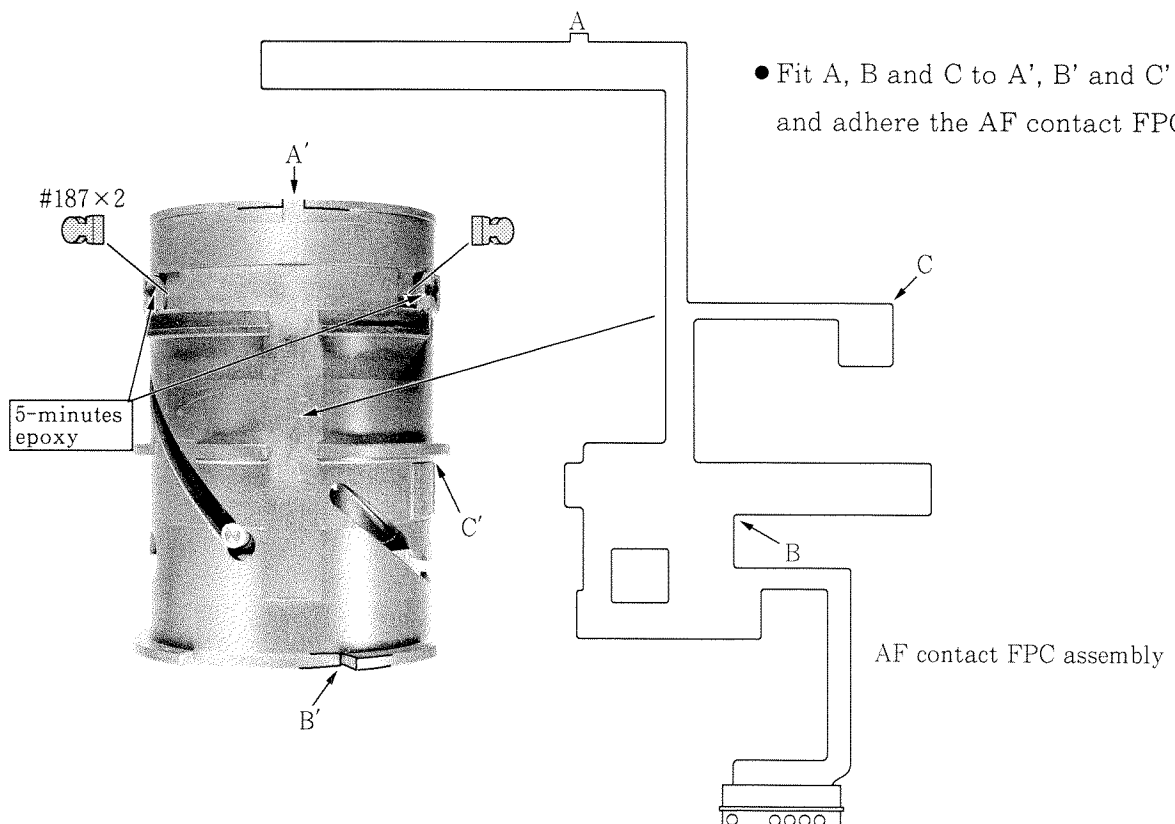
Inspection: Turn #48 and check the operation.

CLUTCH GEAR ASSEMBLY



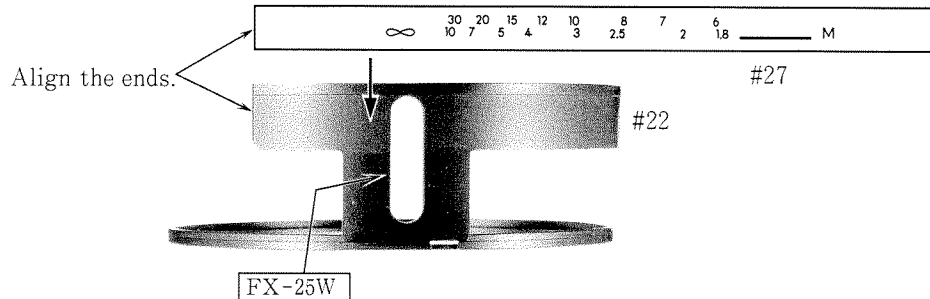
Inspection: Turn the gear unit and check the operation.

AF CONTACT FPC ASSEMBLY, FOCUS STOPPER RUBBER #187

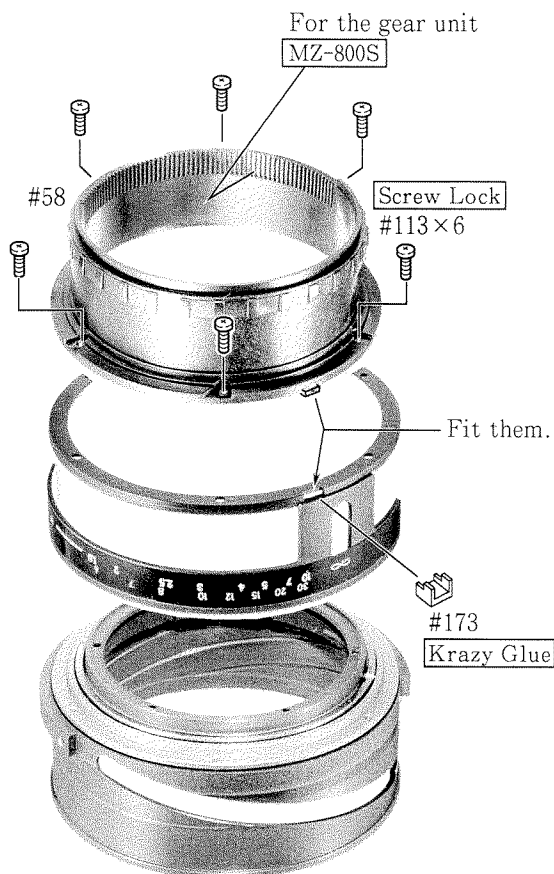


FRONT LENS GROUP UNIT

1. Adhesion of the distance scale #27



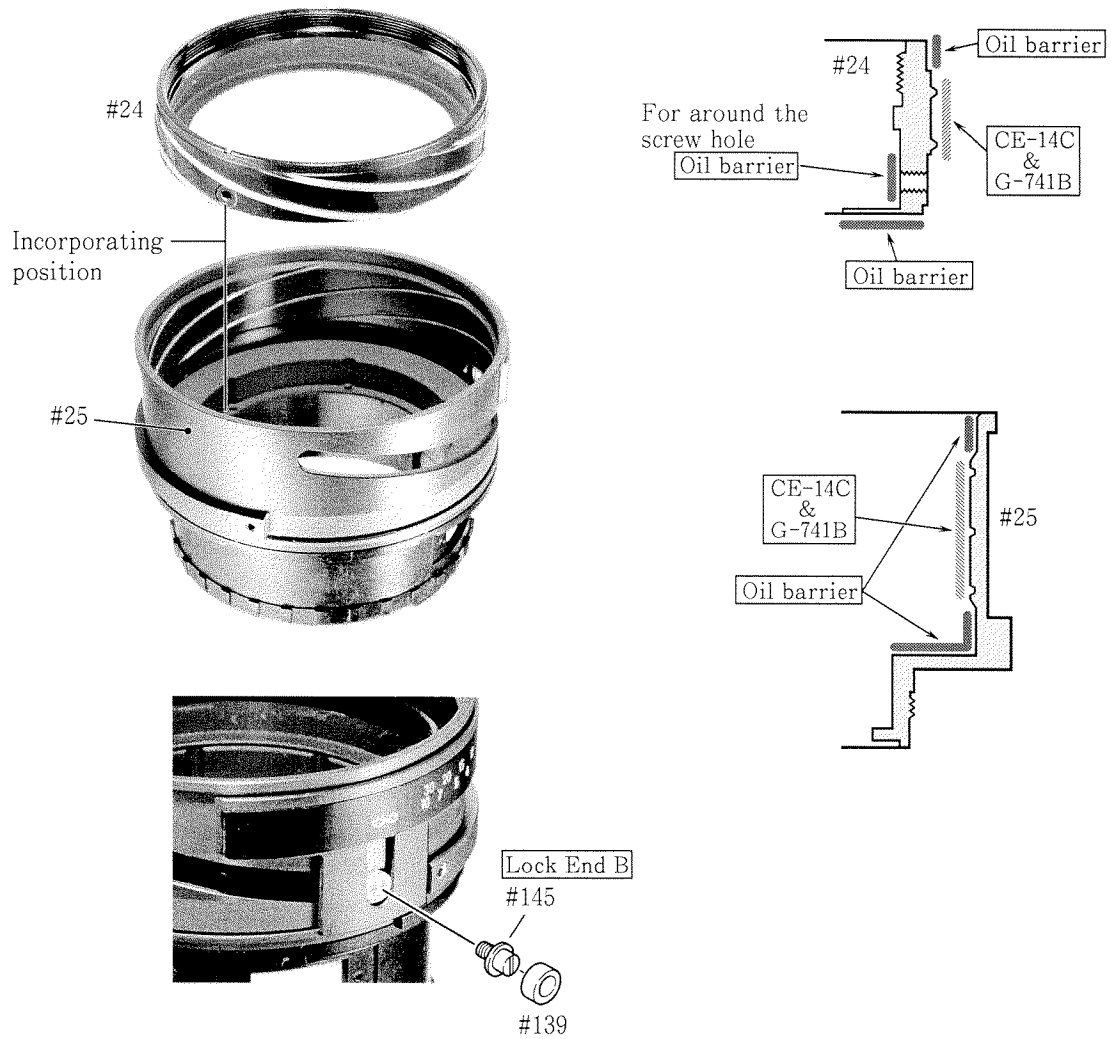
2. Incorporation



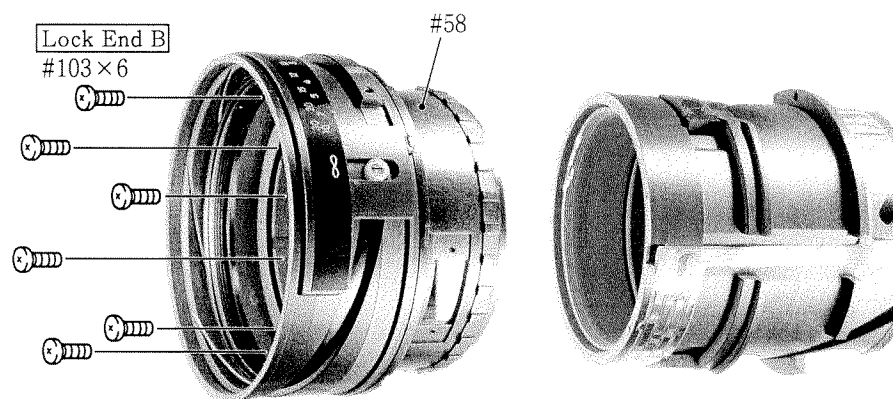
- Fit the groove of the focus distance ring #22 to the convex of the gear ring #58 and then adhere the stopper rubber #173.

Inspection: Turn the gear ring #58 and check the operation.

3. Front movable ring #24



4. Incorporation of the front lens group chamber unit

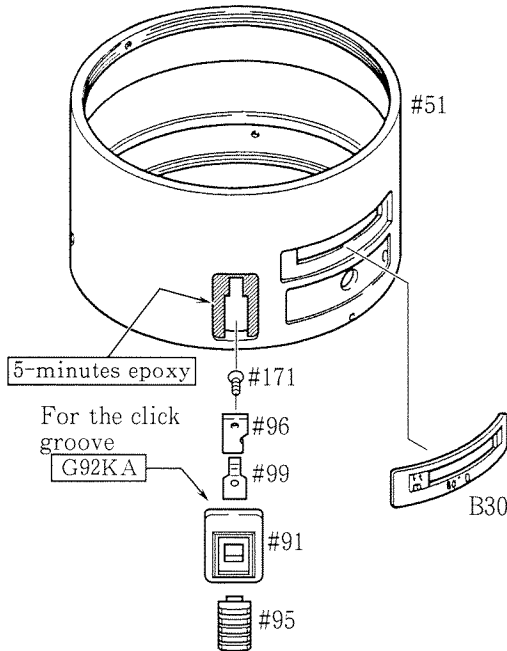


Caution: Don't adhere the grease of the gear ring to the encoder of FPC when incorporating the front lens group chamber unit.

Inspection: Turn the gear ring #58 and check the operation.

FOCUS RANGE RING #51

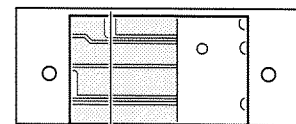
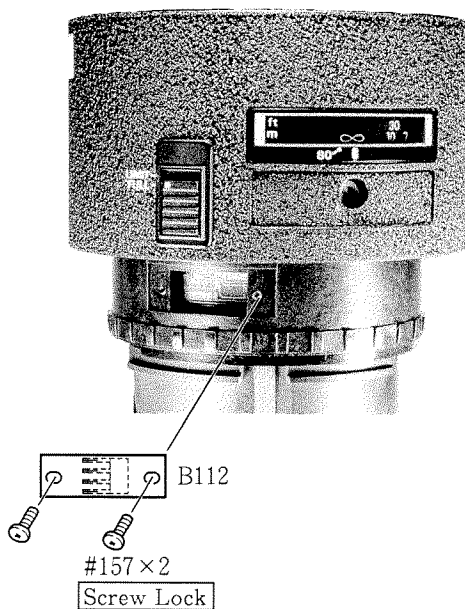
Caution: When incorporating, move the distance scale ring in the arrow direction because #96 may contact and damage it.



ADJUSTMENT OF DISTANCE ENCODER BRUSH POSITION

• Adjustment of the distance brush position

- ① Align the index with the "∞" mark.
- ② In the above status, mount the distance brush B112 with the screws #157 (2 pcs.) to contact with the line as illustrated below.

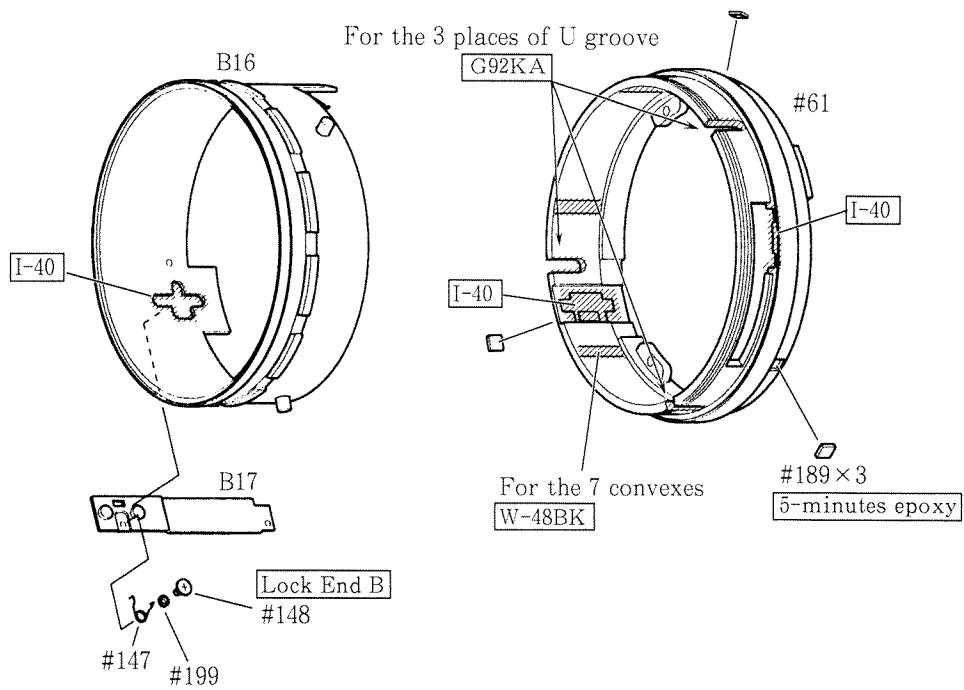


The brush must contact with this line.

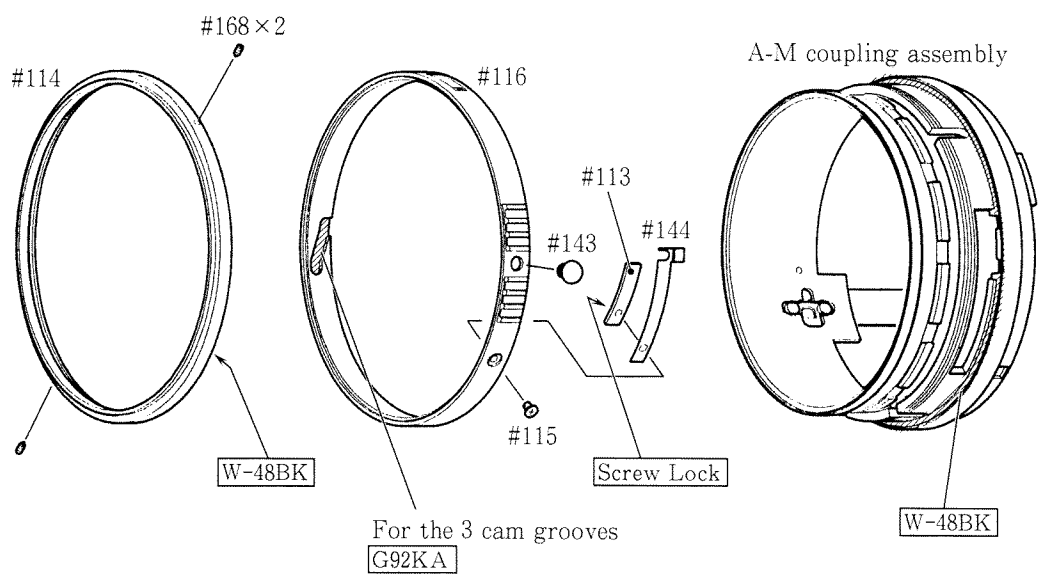
- ③ Fix the screws #157 (2 pcs.) with the screw lock.

A-M SWITCH UNIT

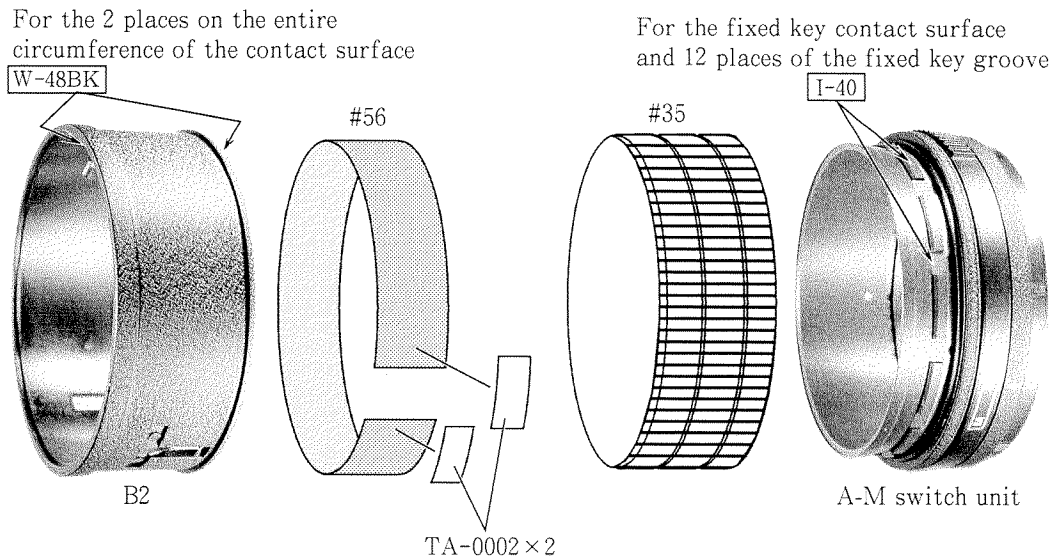
1. A-M switch coupling unit



2. A-M ring



3. MF ring



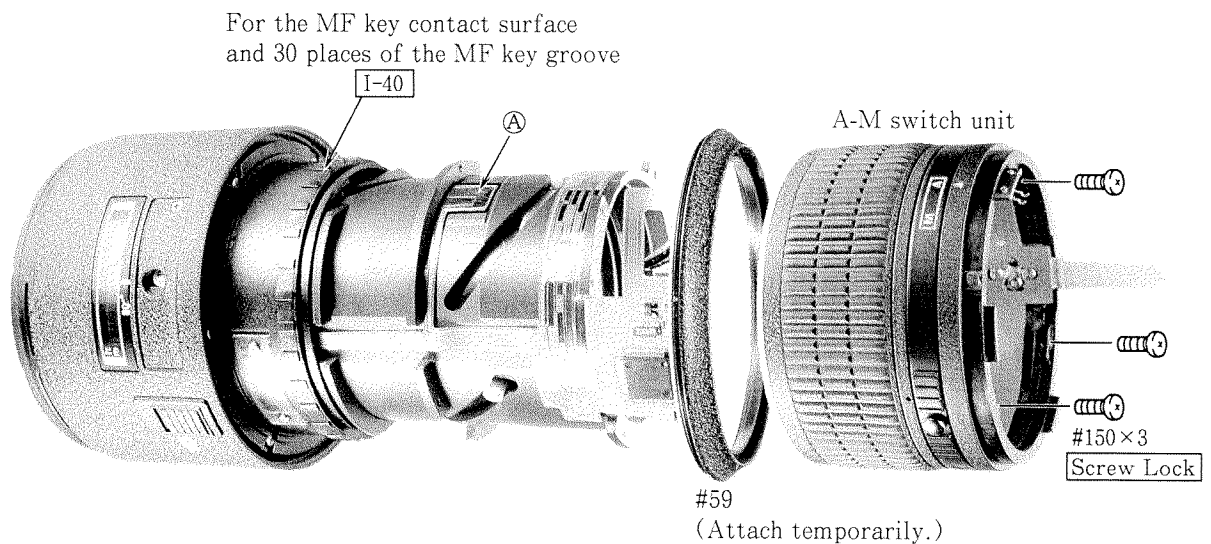
Inspection: Turn the MF ring and check the operation.

4. Incorporation

- Incorporate the A-M switch unit as moving it left and right to keep away from the AF contact FPC or zoom guide.

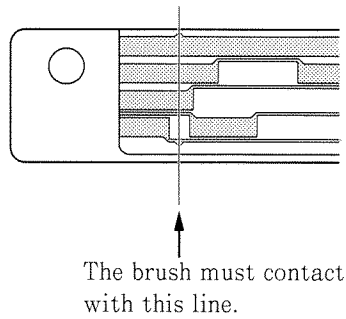
Caution: Set the A-M brush in the A position as taking care for its bend.

Inspection: Check the operation of the A-M switch and MF ring.

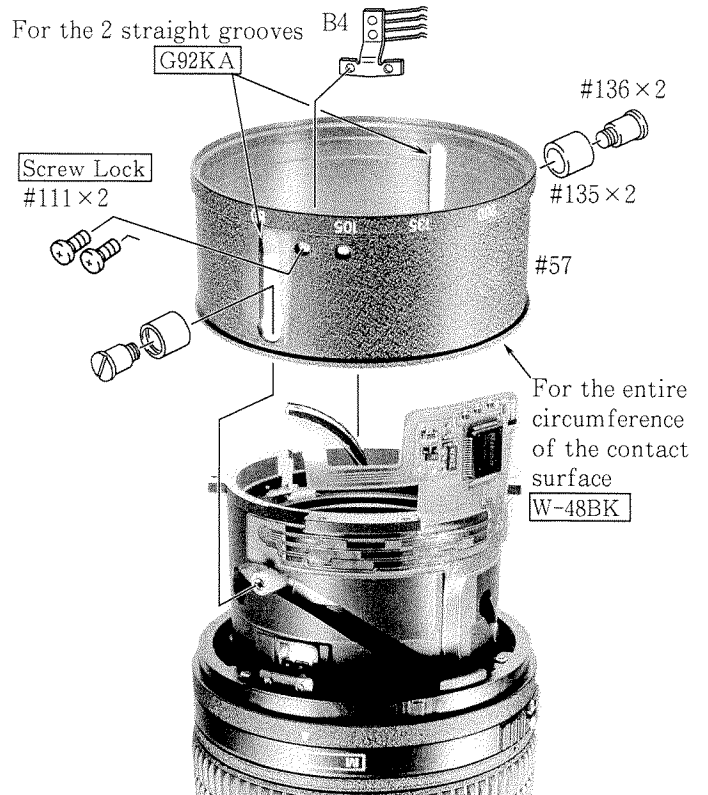


ZOOM RING UNIT

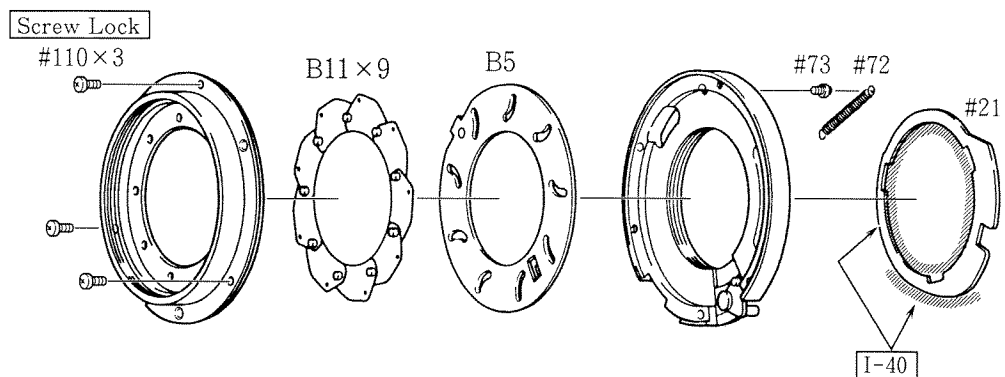
Adjustment of zoom encoder brush position



- ① Contact the zoom ring with the stopper of the TELE side.
- ② Unfasten screws #111×2 and let the brush tip come into contact with the line as shown in the figure.
- ③ Fasten screws #111×2 and turn the zoom ring several times to check the location of the brush.
- ④ Secure screws #111×2 using Screw Lock.



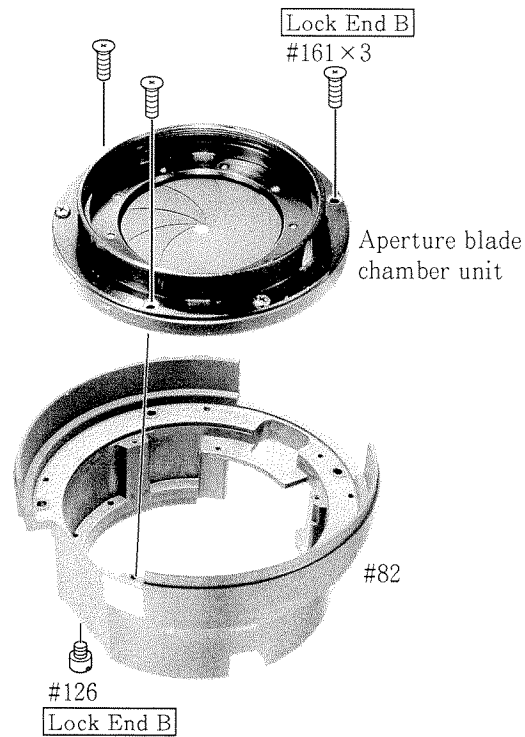
APERTURE BLADE CHAMBER UNIT



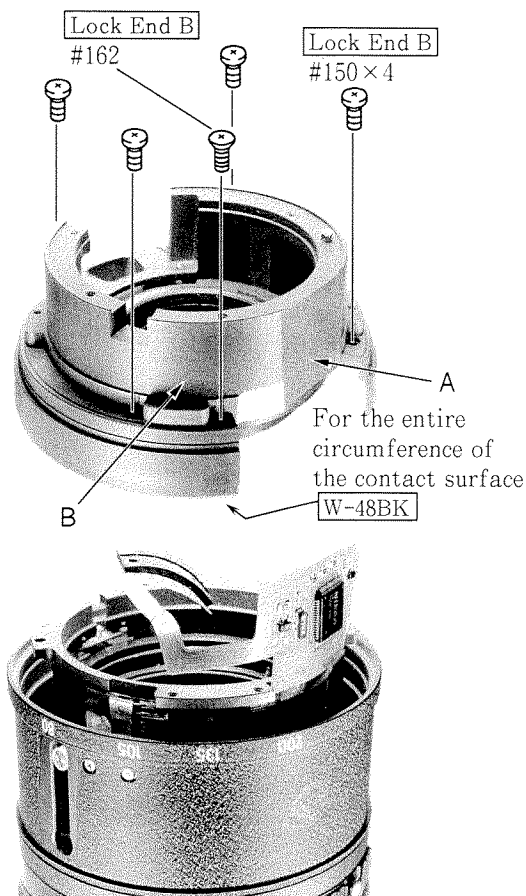
Inspection: Move #21 and B5 and check the operation of the aperture blade.

INCORPORATION OF THE APERTURE BLADE CHAMBER UNIT

1. Fixed barrel

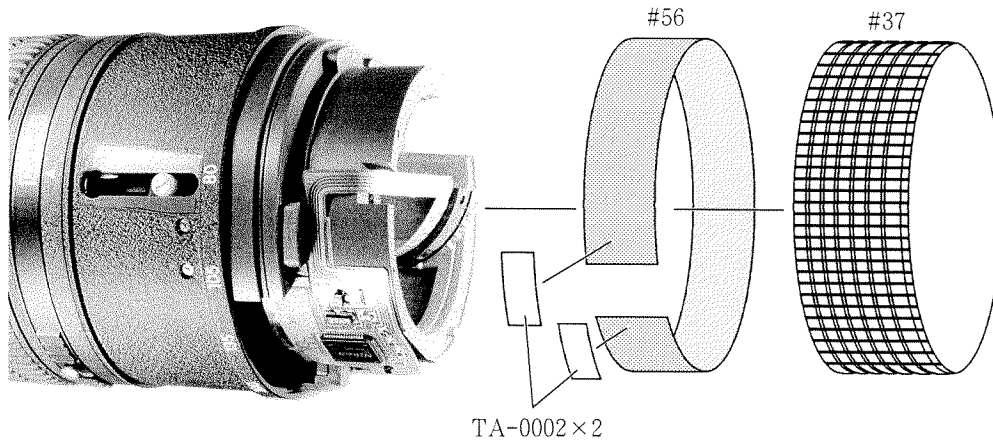


2. Incorporation

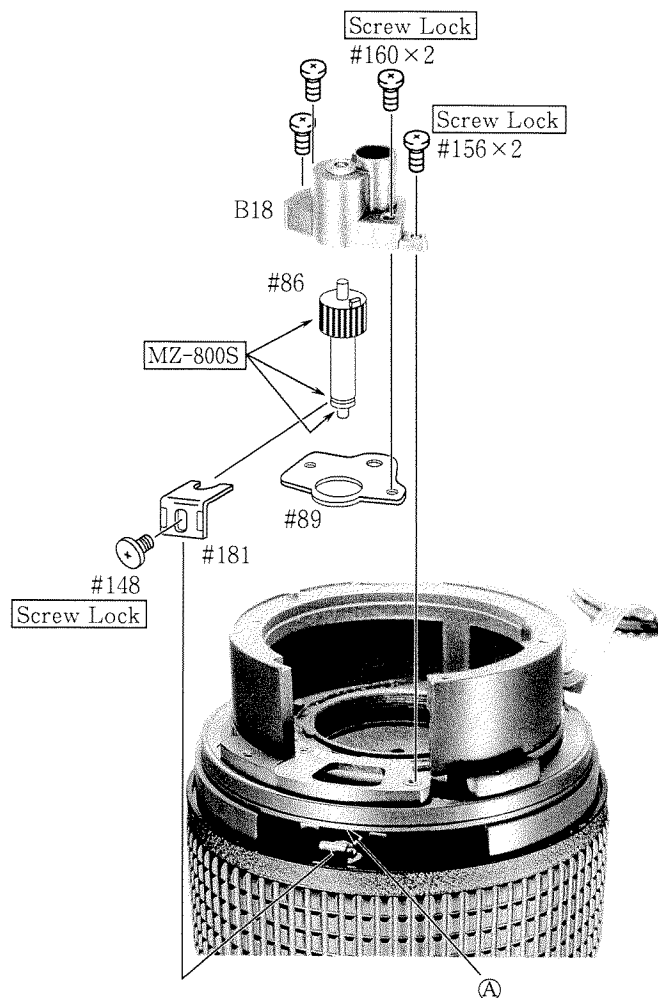


- Adhere the AF contact FPC to A and B of the fixed barrel #82.

ZOOM RING RUBBER RING #37



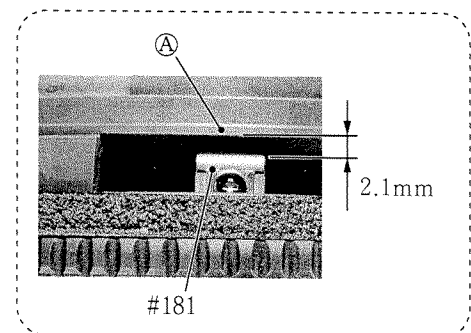
AF GEAR UNIT



● Adjustment of the connecting plate

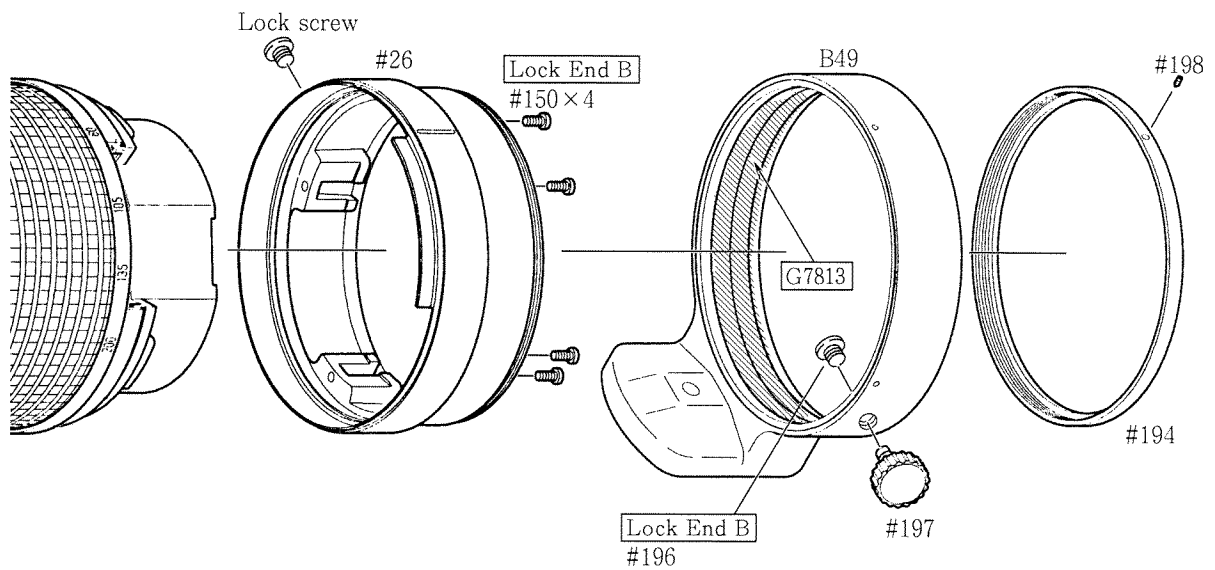
#181 position

- ① Set the A-M switch to "M".
- ② Adjust so that there may be 2.1mm between "A" and the connecting plate #181 (as illustrated below).



Inspection: Check the operation of the idle gear #86.

TRIPOD SOCKET UNIT

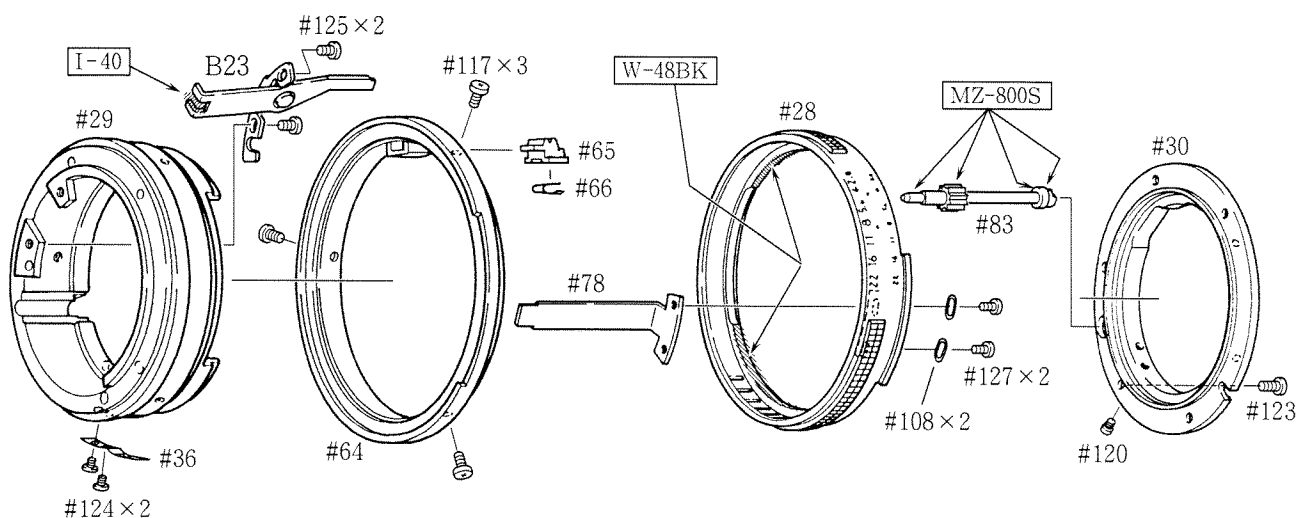


- Fit the lock groove of the tripod socket to the lock screw and then incorporate it.

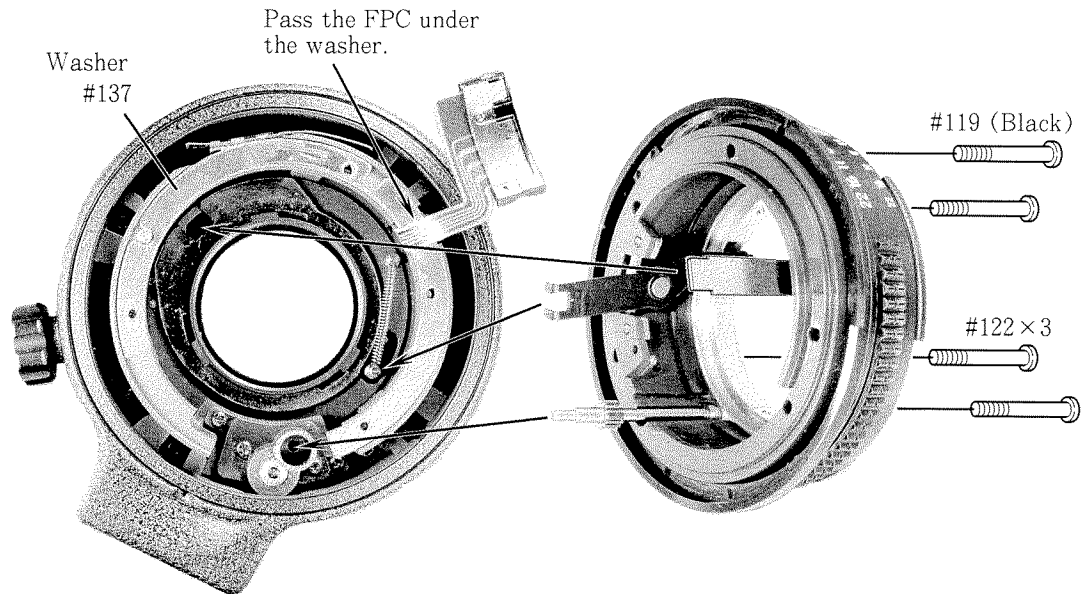
Inspection: Turn the tripod socket B49 and clamp screw #197. Check the operation.

BAYONET MOUNT UNIT

1. Aperture ring unit



2. Incorporation

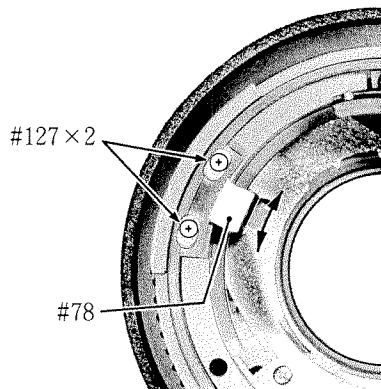


Caution: If there are two or more washers #137, put a thin washer between the thick washers.

Inspection:

- ① Actuate the aperture ring and aperture lever and check the operation of aperture.
- ② After setting the A-M ring to "A", turn the coupling gear #83 and check the operation of the AF gear.

ADJUSTMENT OF THE APERTURE DIAMETER



- ① Remove only the bayonet mount #30.
- ② Adjust by loosening the 2 screws #127 and moving #78.

Reference:

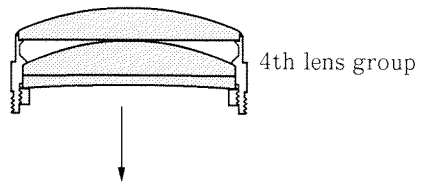
- (a) If the aperture is full ($f/2.8$), the aperture diameter must be a little larger than the inside diameter of the aperture action plate B5. (28.5mm)
- (b) If the aperture is minimum ($f/22$), a bar of dia. 3mm can get through the aperture diameter and a bar of dia. 4mm cannot get through it.

Inspection:

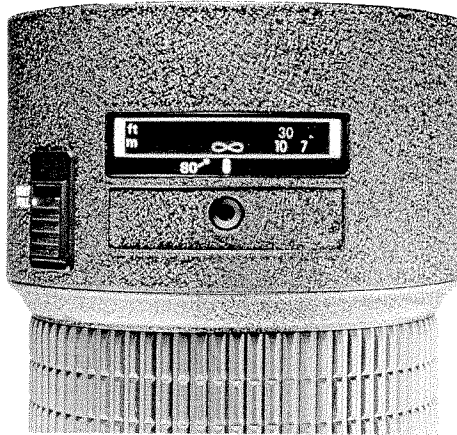
- (a) The aperture diameter must be within the allowable range even if the aperture ring is reciprocated.
- (b) The aperture diameter must be within the allowable range when the aperture lever is flipped by finger and when it is not so.
- ③ After adjustment, fix the 2 screws #127 with the screw lock.

Aperture value	Reference inscribed circle dia. (mm)	Allowable range (mm)
2.8	28.98	30.49 ~ 27.48
4	19.57	21.14 ~ 18.12
5.6	13.62	15.29 ~ 12.13
8	9.56	10.73 ~ 8.52
11	6.74	7.86 ~ 5.78
16	4.76	5.55 ~ 4.08
22	3.36	3.92 ~ 2.88

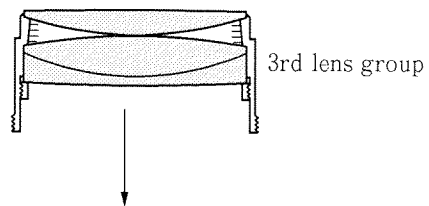
4th LENS GROUP



- Incorporate the 4th lens group by using the tool J11195B.



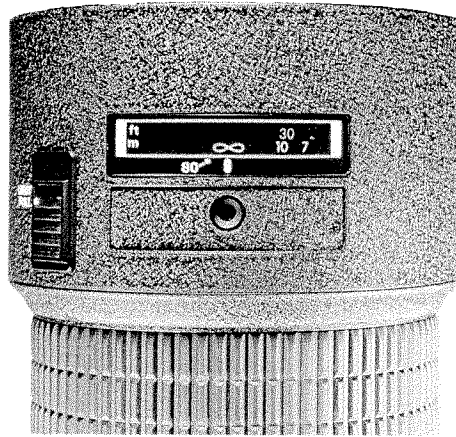
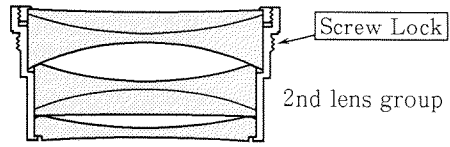
3rd LENS GROUP



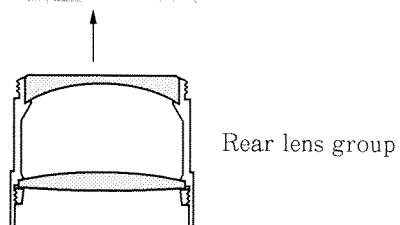
- Incorporate the 3rd lens group by using the tool J11195A.



2nd LENS GROUP



REAR LENS GROUP



ADJUSTMENT OF GAMMA (DIVISION OF TW)

- ① Align the index with the “∞” mark and set the aperture to “full” (f/2.8).
- ② Read the values of the Wide side (f=80mm) and the Tele side (f=200mm).

Caution: The index must be fit to the “∞” mark.

- ③ Calculate as follows.

$$\frac{T - W}{2.09} = A$$

T : Value of the Tele side (mm)

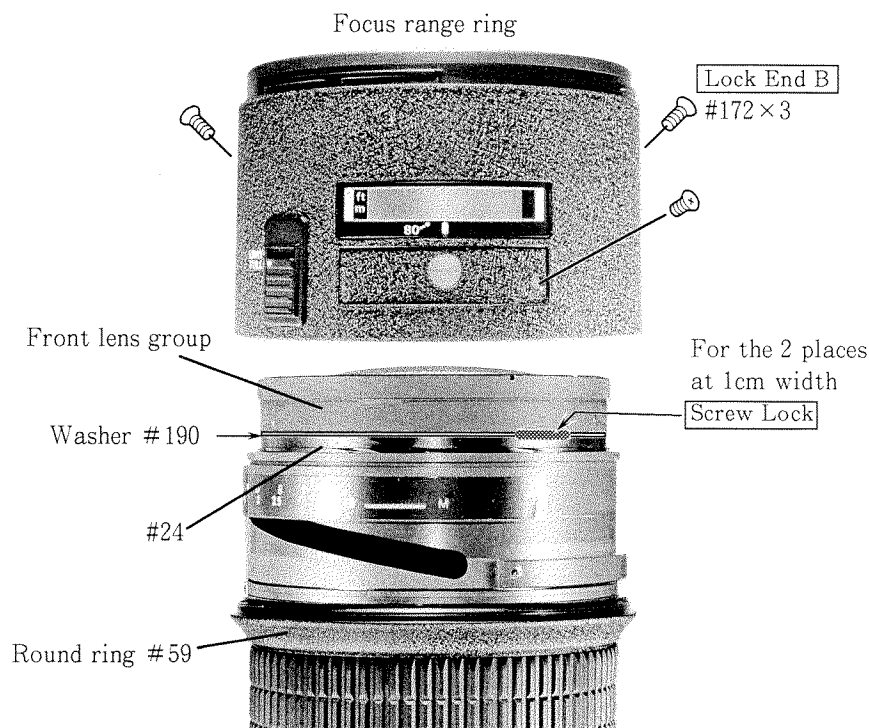
W : Value of the Wide side (mm)

A : Adjustment amount of the washer #190 (mm)

- ④ Adjust the thickness of the washer #190 according to “A” of the above formula. If “A” is positive, thin the washer by the amount of “A”. If “A” is negative, thicken it by the amount of “A”.

Caution: Put a thin washer between the thick washers.

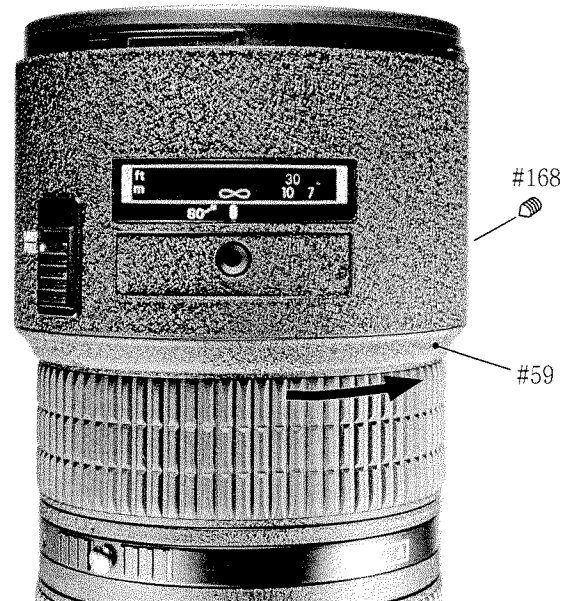
- ⑤ Incorporate the front lens group and washer #190 and make sure that the difference is 0.15mm or less between the Wide side and Tele side.
- ⑥ Remove the round ring #59 from the focus range ring. Next, remove the focus range ring and make sure that the washer #190 is set securely between the front lens group and #24. Then, fix the front lens group and washer #190 by using the screw lock. (Refer to the photograph below.)



- ⑦ Mount the focus range ring. Attach the lock end B to the screw #172 (3 pcs.).

Caution: Don't damage the distance scale.

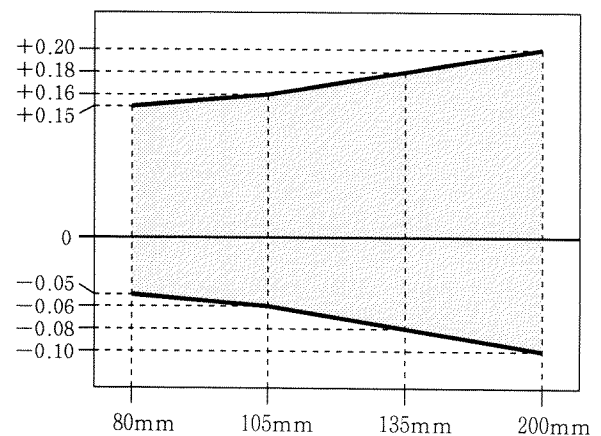
- ⑧ Screw the round ring #59 to the focus range ring and attach the set screw #168.



ADJUSTMENT OF SHIFT (BACK FOCUS)

- ① Set the zoom ring to the Wide side ($f=80\text{mm}$).
- ② Align the index with the “ ∞ ” mark, set the aperture to “full” ($f/2.8$) and then read the value of M.B.f.
- ③ If the read value is beyond the standard, thicken the washer #137 by the excessive amount.
If the value is below the standard, thin the washer.
Remove the bayonet mount before adjusting the thickness of the washer #137.
(Refer to P.L13.)
- ④ Make sure that the value is within the standard.

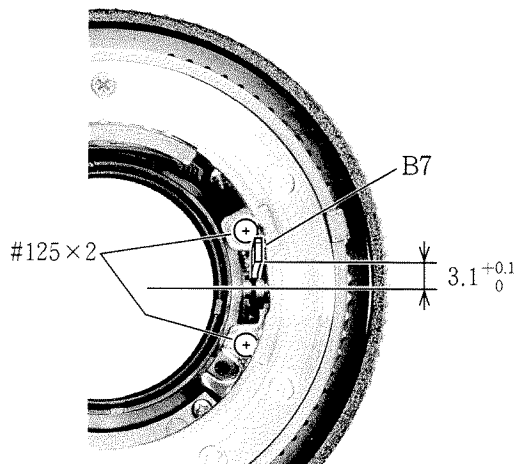
Focal length	Standard (mm)
80mm	-0.05 ~ +0.15
105mm	-0.06 ~ +0.16
135mm	-0.08 ~ +0.18
200mm	-0.10 ~ +0.20



NAME PLATE #98



ADJUSTMENT OF THE APERTURE LEVER B7 POSITION

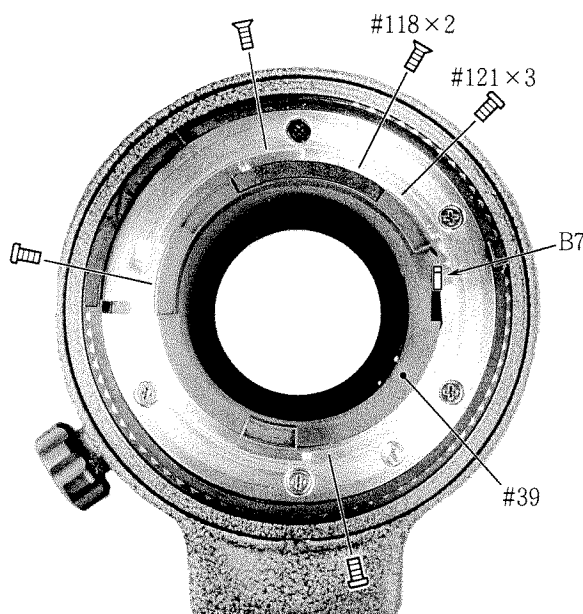


- By loosening the screws #125 (2 pcs.), adjust the position of the aperture lever B7 to be within the standard, $3.1^{+0.1}_0$, so that the aperture diameter may be proper when set to "full". At the same time, adjust the lateral position of the lever not to contact with the bayonet mount and rear cover ring. After adjustment, fix the screws #125 (2 pcs.) with the screw lock.

《Reference》

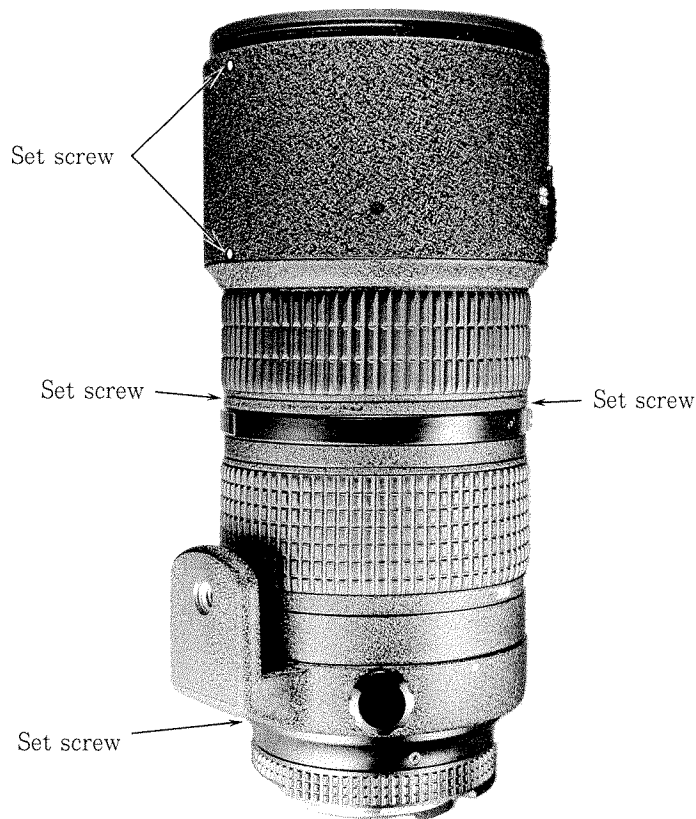
Set the aperture ring to "f/2.8" and attach the tool J18004-1 to the bayonet mount. It is easy to adjust if the aperture lever B7 is mounted on the basis of the groove of the tool. Rear cover ring #39

REAR COVER RING #39



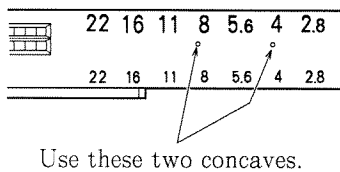
- Mount the rear cover ring #39 to be the full aperture range of the aperture lever B7 ($3.1^{+0.1}_0$).

APPLICATION OF THE BLACK PAINT



- Apply the black polishing paint to the heads of the set screws #168 (3 pcs.), #169 and #196.

MOUNTING THE COUPLING LATCH



- ① Take out the aperture ring #28.
- ② Make holes ($\phi 1.1$) at 2 concaves of the aperture ring.
- ③ Mount the coupling latch.

Coupling latch	1K406-029	× 1
Screw	1K010-002-1	× 2

- ④ Assemble the parts.

INSPECTION OF ENCODER SIGNAL

※ Use an F70(N70) camera body and AF nikkor lens inspection program for F70/N70 to display encoder signal on the computer monitor when making an inspection.

Inspection method

- Start the AF nikkor lens inspection program for F70/N70 and select "1.READING OF LENS ENCODER SIGNAL".

Make inspection according to instructions as shown on the display.

- Encoder signals should be as described in the table below when the zoom and distance scale are set to specified positions.

Encoder signal for CPU Version 0.1.1 △ (Additioanl)

• MF MODE

Zoom ring Distance scale position	f = 80mm			f = 105mm			f = 135mm			f = 200mm		
	Encoder signal											
	1	2	3	1	2	3	1	2	3	1	2	3
Infinity position	72h	49h	63h	72h	68h	63h	72h	41h	63h	72h	6Bh	63h
2.5m										57h	6Bh	63h
Most close distance position										36h	6Bh	63h

• AF MODE

Zoom ring Distance scale position	f = 80mm			f = 105mm			f = 135mm			f = 200mm		
	Encoder signal											
	1	2	3	1	2	3	1	2	3	1	2	3
Infinity position	72h	49h	63h									

◎ If encoder signal values are different from those shown in the table, following causes must be considered.

Distance brush is mounted in the wrong position, distance brush or FPC is defective, encoder patterns on the FPC are contaminated, or the FPC is fixed in the wrong position.

INSPECTION OF ENCODER SIGNAL

※ Use an F70(N70) camera body and AF nikkor lens inspection program for F70/N70 to display encoder signal on the computer monitor when making an inspection.

Inspection method

- Start the AF nikkor lens inspection program for F70/N70 and select "1.READING OF LENS ENCODER SIGNAL".

Make inspection according to instructions as shown on the display.

- Encoder signals should be as described in the table below when the zoom and distance scale are set to specified positions.

Encoder signal for CPU Version 0.2.0

- MF MODE

Zoom ring Distance scale position	f = 80mm			f = 105mm			f = 135mm			f = 200mm		
	Encoder signal											
	1	2	3	1	2	3	1	2	3	1	2	3
Infinity position	27h	98h	B2h	27h	39h	B2h	27h	90h	B2h	27h	BAh	B2h
2.5m										83h	BAh	B2h
Most close distance position										77h	BAh	B2h

- AF MODE

Zoom ring Distance scale position	f = 80mm			f = 105mm			f = 135mm			f = 200mm		
	Encoder signal											
	1	2	3	1	2	3	1	2	3	1	2	3
Infinity position	25h	98h	B2h									

◎ If encoder signal values are different from those shown in the table, following causes must be considered.

Distance brush is mounted in the wrong position, distance brush or FPC is defective, encoder patterns on the FPC are contaminated, or the FPC is fixed in the wrong position.

Additional page



June. 29. 2007

