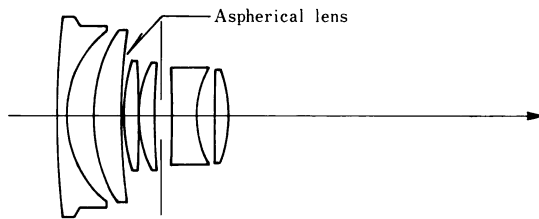


MINOLTA AF ZOOM 35-70mm F4 (2551-100)

MINOLTA MAXXUM AF ZOOM 35-70mm F4 (2551-600)

LENS



Construction : 6 elements in 6 groups
Type : 2-component mechanical-compensation zoom lens
Coating : Minolta Achromatic
Angle of view : 63°-34°
Lens mount : Minolta A mount
Lens signal contact : 5 contacts
Diaphragm : Automatic preset diaphragm
f No. : Maximum...4
Minimum...22
Full-stop setting...5 stops
Diaphragm blade : 7 blades

FOCUSING

Focusing : AF, FA, M
Type : Front-component focusing
Minimum focusing distance : 1m
Distance scale : $\frac{3.5 \ 4 \ 5 \ 7 \ 10 \ 15 \ 30}{1 \ 1.2 \ 1.5 \ 2 \ 3 \ 5 \ 10} \begin{matrix} \text{(ft)} \\ \text{(m)} \end{matrix}$
Infrared correction scale : $\left(\frac{1}{70} \ \frac{1}{50} \ \frac{1}{35} \right)$
Depth-of-field scale : No
With macro capability : $\frac{1}{4} \times$ (max. magnification),
"AF" impossible



ZOOMING

Type : Mechanical-compensation zoom lens, Rotary 2-ring
Zooming scale : 70 50 35
Zooming ratio : 2 ×

DIMENSIONS & WEIGHT

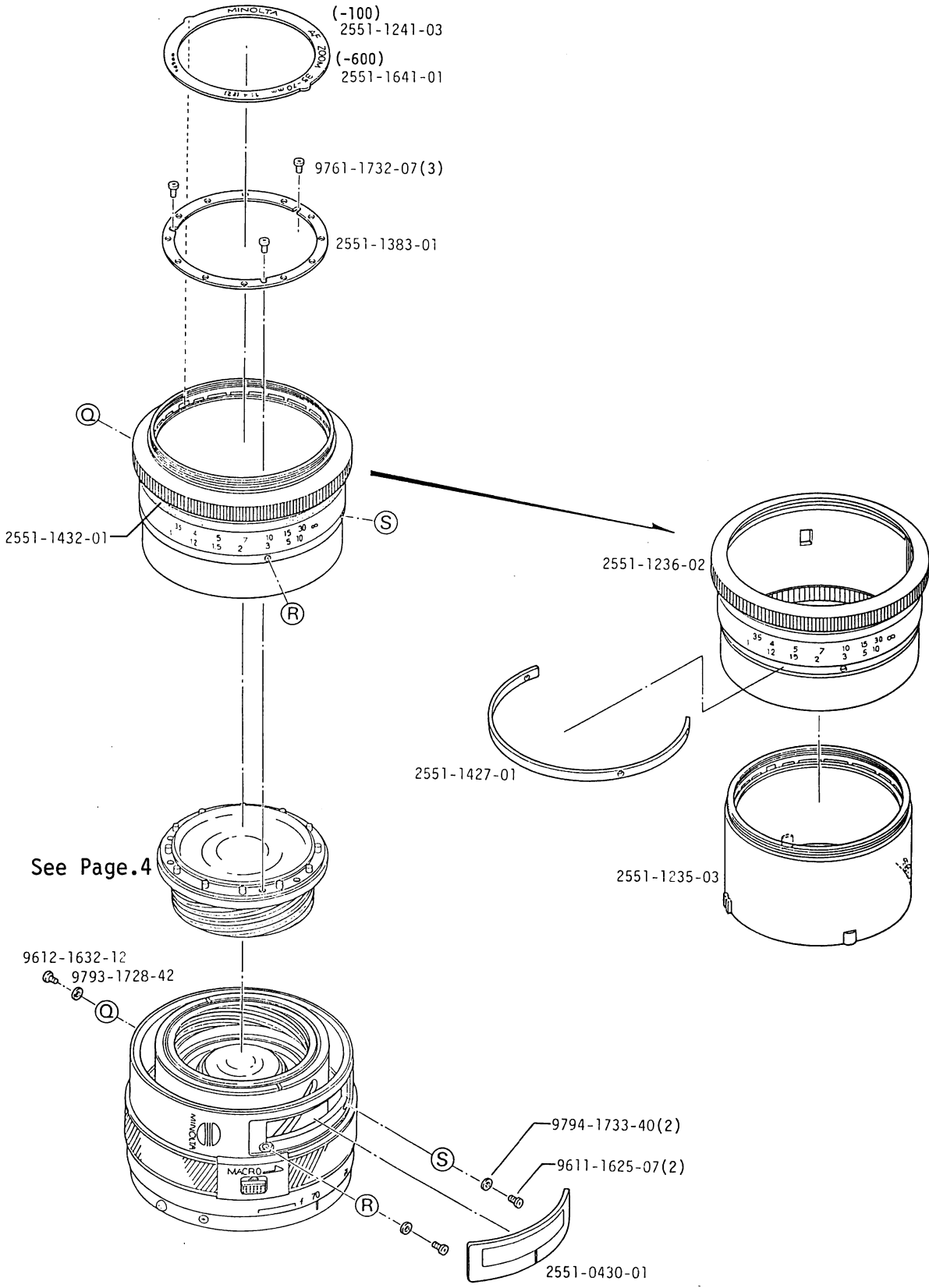
Dimensions : $\phi 68$ (max. diameter) \times
52 mm (max. length)
Weight : 255 g
Filter-thread diameter : $\phi 49$ mm (P=0.75)
Lens hood diameter : $\phi 49$ mm (clip-on)

ACCESSORIES

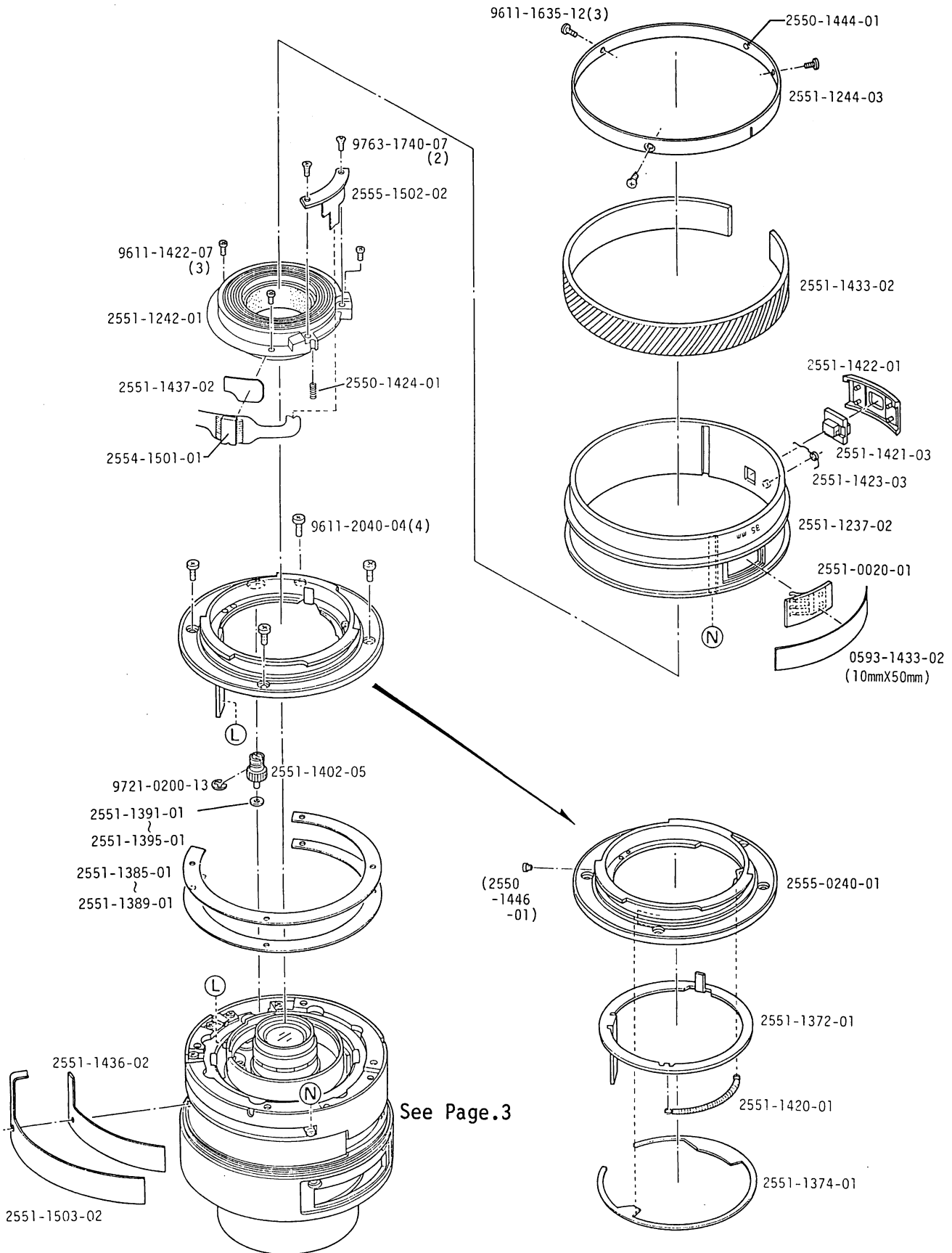
Lens case (LH-1031)
Lens hood (6551-810)

I N D E X

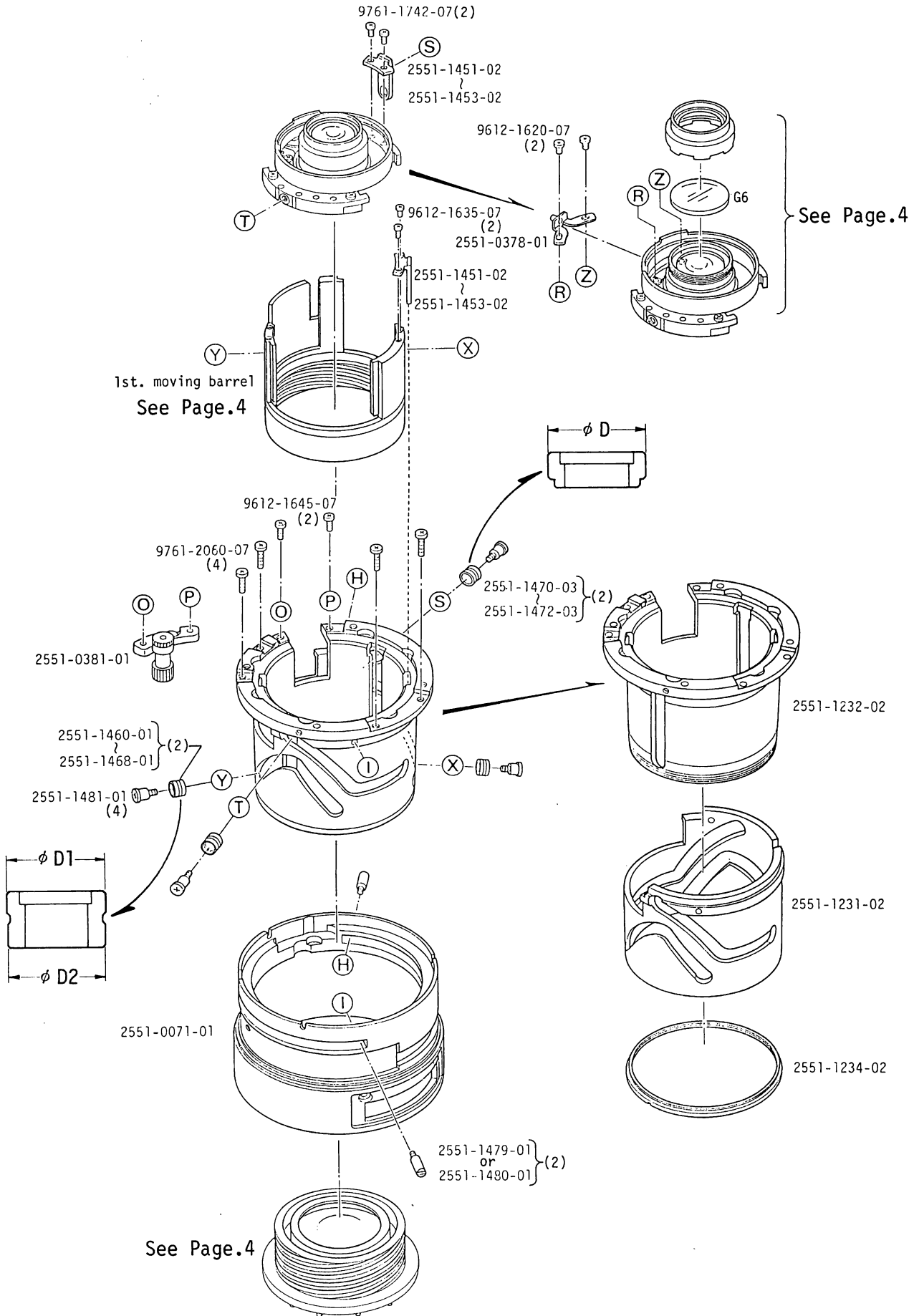
Part No.	Page	Part No.	Page	Part No.	Page
2551-0020-----	2	2551-1394-----	2	2551-1479-----	3
2551-0071-----	3	2551-1395-----	2	2551-1480-----	3
2551-0091-----	4			2551-1481-----	3
2551-0233-----	4	2551-1402-----	2		
2555-0240-----	2	2551-1420-----	2	2554-1501-----	2
2551-0378-----	3	2551-1421-----	2	2555-1502-----	2
2551-0381-----	3	2551-1422-----	2	2551-1503-----	2
2551-0430-----	1	2551-1423-----	2		
		2550-1424-----	2	2551-1641-----	1
2551-1105-----	4	2551-1427-----	1	2551-1806-----	4
		2551-1432-----	1		
2551-1231-----	3	0593-1433-----	2	Screw	
2551-1232-----	3	2551-1433-----	2	9611-1422-07-----	2
2551-1234-----	3	2551-1436-----	2	9611-1625-07-----	1
2551-1235-----	1	2551-1437-----	2	9611-1635-12-----	2
2551-1236-----	1	2550-1444-----	2	9611-2040-04-----	2
2551-1237-----	2	2550-1446-----	2	9612-1620-07-----	3
2551-1241-----	1	2551-1451-----	3	9612-1632-12-----	1
2551-1242-----	2	2551-1452-----	3	9612-1635-07-----	3
2551-1244-----	2	2551-1453-----	3	9612-1645-07-----	3
		2551-1460-----	3	9761-1732-07-----	1
2551-1372-----	2	2551-1461-----	3	9761-1742-07-----	3
2551-1374-----	2	2551-1462-----	3	9761-2060-07-----	3
2551-1383-----	1	2551-1463-----	3	9763-1740-07-----	2
2551-1385-----	2	2551-1464-----	3		
2551-1386-----	2	2551-1465-----	3	E-ring	
2551-1387-----	2	2551-1466-----	3	9721-0200-13-----	2
2551-1388-----	2	2551-1467-----	3		
2551-1389-----	2	2551-1468-----	3	Washer	
2551-1391-----	2	2551-1470-----	3	9793-1728-42-----	1
2551-1392-----	2	2551-1471-----	3	9794-1733-40-----	1
2551-1393-----	2	2551-1472-----	3		



Part No.	Part Name		Qty.
2551-0430-01	Distance scale window set	距離表示窓セット	1
2551-1235-03	Filter ring	鏡頭環	1
2551-1236-02	Focusing ring	距離リング	1
2551-1241-03	Name plate (-100)	飾り板	1
2551-1383-01	Focusing ring set plate	鏡頭環締付板	1
2551-1427-01	Focus guide	フォーカスガイド	1
2551-1432-01	Friction cloth	摩擦布	1
2551-1641-01	Name plate (-600)	飾り板	1
9611-1625-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1632-12	Phillips type screw	十字穴付なべ頭小ねじ	1
9761-1732-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	3
9793-1728-42	Washer	薄ワッシャー	1
9794-1733-40	Washer	薄ワッシャー	2



Part No.	Part Name		Qty.
2551-0020-01	Brush set	ブラシセット	1
2555-0240-01	Bayonet mount set	バヨネットマウント セット	1
(2550-1446-01)	Screw	ストッパービス	1
2551-1237-02	Zoom ring	ズームリング	1
2551-1242-01	Light shield ring	遮光筒	1
2551-1244-03	Zoom ring set ring	ズームリング抜け止め リング	1
2551-1372-01	Preset ring	プリセットリング	1
2551-1374-01	Preset ring pressure	プリセットリング押え	1
2551-1385-01	Back washer - A (t=0.05)	バックワッシャーA	} Some
2551-1386-01	Back washer - B (t=0.07)	バックワッシャーB	
2551-1387-01	Back washer - C (t=0.1)	バックワッシャーC	
2551-1388-01	Back washer - D (t=0.2)	バックワッシャーD	
2551-1389-01	Back washer - E (t=0.5)	バックワッシャーE	
2551-1391-01	Coupler adjusting washer - A (t=0.05)	カプラー調整ワッシャーA	} Some
2551-1392-01	Coupler adjusting washer - B (t=0.07)	カプラー調整ワッシャーB	
2551-1393-01	Coupler adjusting washer - C (t=0.1)	カプラー調整ワッシャーC	
2551-1394-01	Coupler adjusting washer - D (t=0.2)	カプラー調整ワッシャーD	
2551-1395-01	Coupler adjusting washer - E (t=0.5)	カプラー調整ワッシャーE	
2551-1402-05	Coupler	カプラー	1
2551-1420-01	Main spring	メインスプリング	1
2551-1421-03	Macro changeover lever	マクロ切替レバー	1
2551-1422-01	Macro changeover lever pressure	マクロ切替レバー押え	1
2551-1423-03	Macro changeover lever spring	マクロレバースプリング	1
2550-1424-01	Spring	アーススプリング	1
0593-1433-02	Tape-A (Per roll/30m)	補強テープA	1
2551-1433-02	Leather	貼皮	1
2551-1436-02	Tape - A	テープA	1
2551-1437-02	Tape - B	テープB	1
2550-1444-01	Bayonet point	バヨネット標点	1
2554-1501-01	IC (TOSHIBA, MLOOE)	IC	1
2555-1502-02	Lens contact board	信号基板	1
2551-1503-02	Flexible PC board	フレキ	1
9611-1422-07	Phillips type screw	十字穴付なべ頭小ねじ	3
9611-1635-12	Phillips type screw	十字穴付なべ頭小ねじ	3
9611-2040-04	Phillips type screw	十字穴付なべ頭小ねじ	4
9763-1740-07	Tap tite screw	十字穴付半丸頭タップ タイトねじ	2
9721-0200-13	E-ring	Eリング	1



Part No.	Part Name		Qty.
2551-0071-01	Outer ring set	固定保持環セット	1
2551-0378-01	Connecting plate set	絞り連動板セット	1
2551-0381-01	Gear set	ギヤ-台板セット	1
2551-1231-02	Zoom cam barrel	ズームカム環	1
2551-1232-02	Fixed barrel	固定筒	1
2551-1234-02	Pressure ring	カム環押えワッシャー	1
2551-1451-02	Key - B (D=5.03)	移動枠直進キーB	} 2
2551-1452-02	Key - C (D=5.02)	移動枠直進キーC	
2551-1453-02	Key - D (D=5.01)	移動枠直進キーD	
2551-1460-01	Guide roller II - A (D1= ϕ 5.14,D2= ϕ 5.04)	案内ローラーII A	} 2
2551-1461-01	Guide roller II - B (D1= ϕ 5.14,D2= ϕ 5.03)	案内ローラーII B	
2551-1462-01	Guide roller II - C (D1= ϕ 5.14,D2= ϕ 5.02)	案内ローラーII C	
2551-1463-01	Guide roller II - D (D1= ϕ 5.13,D2= ϕ 5.04)	案内ローラーII D	
2551-1464-01	Guide roller II - E (D1= ϕ 5.13,D2= ϕ 5.03)	案内ローラーII E	
2551-1465-01	Guide roller II - F (D1= ϕ 5.13,D2= ϕ 5.02)	案内ローラーII F	
2551-1466-01	Guide roller II - G (D1= ϕ 5.12,D2= ϕ 5.04)	案内ローラーII G	
2551-1467-01	Guide roller II - H (D1= ϕ 5.12,D2= ϕ 5.03)	案内ローラーII H	
2551-1468-01	Guide roller II - I (D1= ϕ 5.12,D2= ϕ 5.02)	案内ローラーII I	
2551-1470-03	Guide roller I - A (D= ϕ 5.14)	案内ローラーIA	
2551-1471-03	Guide roller I - B (D= ϕ 5.13)	案内ローラーIB	
2551-1472-03	Guide roller I - C (D= ϕ 5.12)	案内ローラーIC	
2551-1479-01	Zoom operation pin - A	ズーム操作ピンA	} 2
2551-1480-01	Zoom operation pin - B	ズーム操作ピンB	
2551-1481-01	Guide pin	案内ピン	4
9612-1620-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1635-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9612-1645-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9761-1742-07	Tap tite screw	十字穴付なべ頭タップタイト ねじ	2
9761-2060-07	Tap tite screw	十字穴付なべ頭タップタイト ねじ	4

AF ZOOM 35~70mm F4(22)
MAXXUM AF ZOOM 35~70mm F4(22)

Code No.2551-100
Code No.2551-600

■ When repairing following parts, must be checked resolving power by projection.

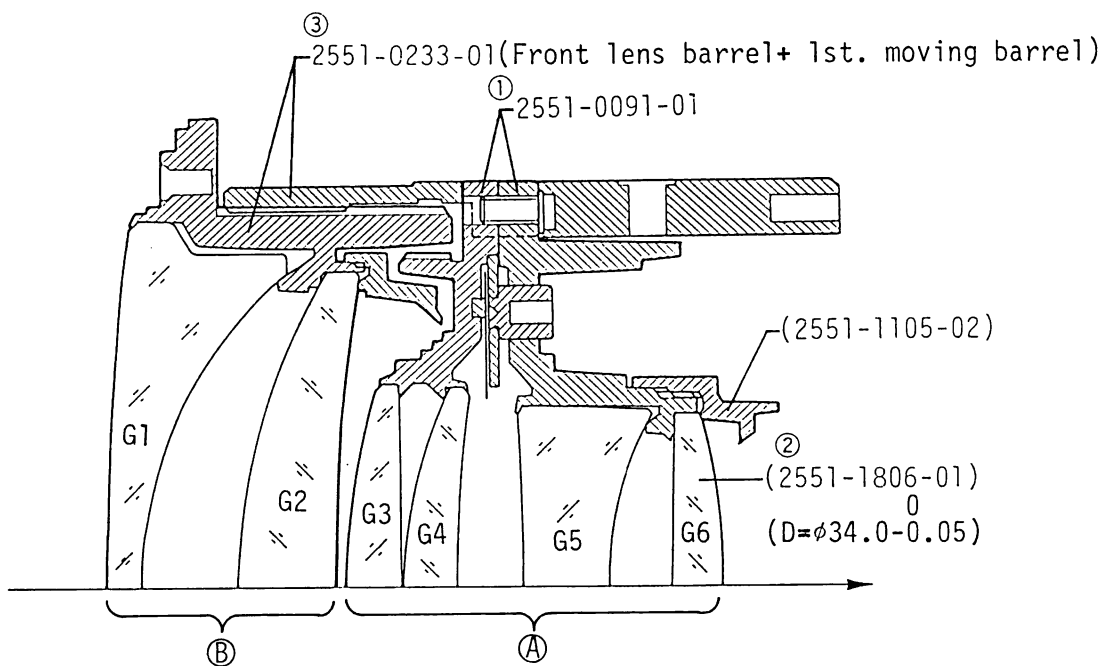
■ 下記部品を修理した場合は、必ず投影解像力を確認して下さい。

①: The influential lens element in the lens performance. (Number shows in order.)

①: レンズ性能によく影響するレンズ。(数字は順位を示す)

Ⓐ: The influential lens group in the lens performance. (Influence: In alphabetical order)

Ⓐ: レンズ性能によく影響するレンズ群。(影響度: アルファベット順)



Part No.	Part Name		Qty.
2551-0091-01	Rear lens group set	後玉群セット	1
(2551-1105-02)	G6 pressure ring	G6押え	1
(2551-1806-01)	Lens-G6	レンズG6	1
2551-0233-01	Front lens group set	前玉群セット	1

REPAIR GUIDE

■ The contents of this manual are in accordance with the assembling procedure. Therefore, follow the reverse procedure when disassembling.

— Description of marks used —

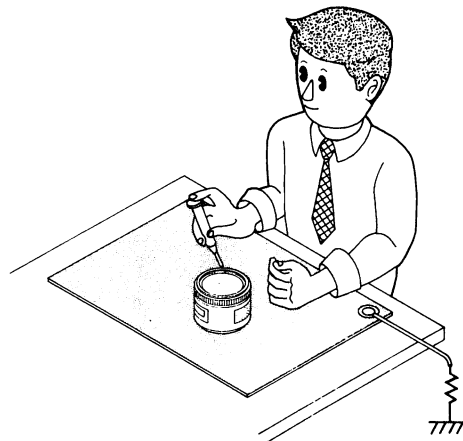
- B : Adhesive
- S : Solvent
- A : Anti-diffusion compound
- G : Lubricant
- T : Tool
- : Point of assembling and general caution

■ Assembling and adjusting procedure

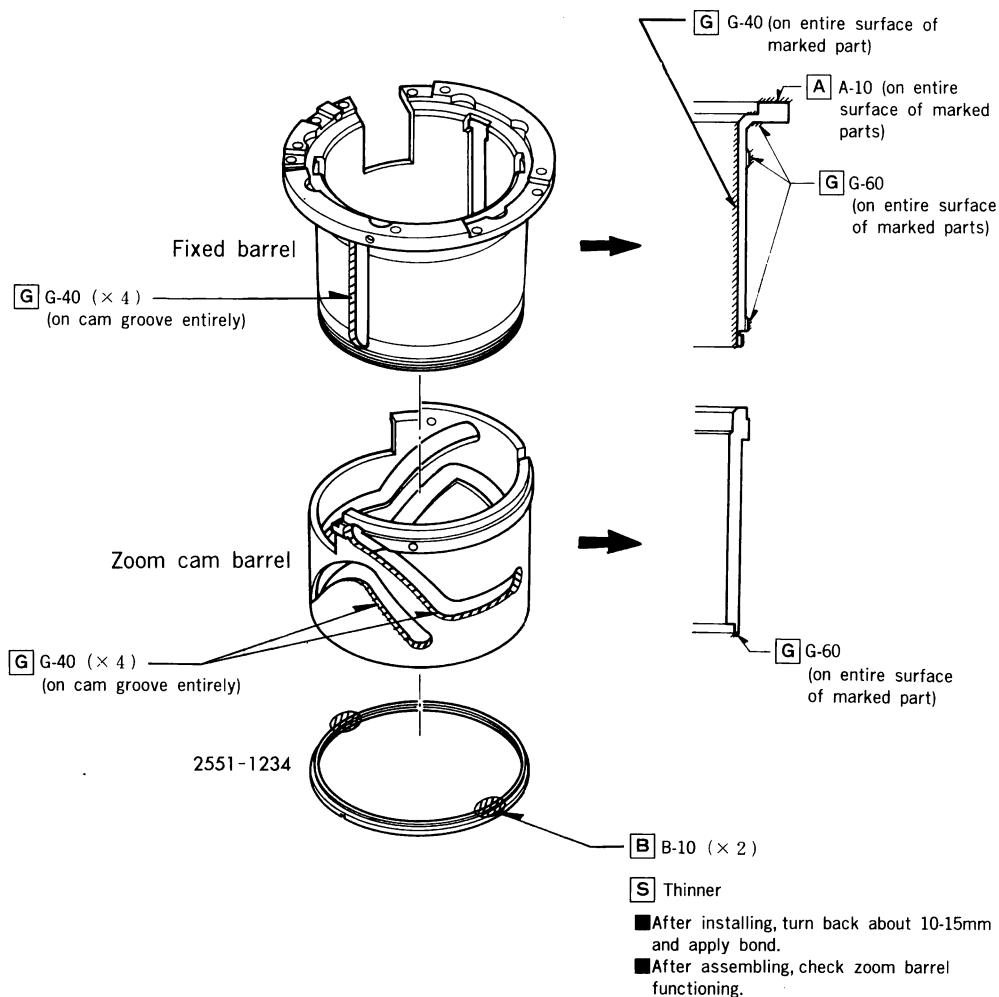
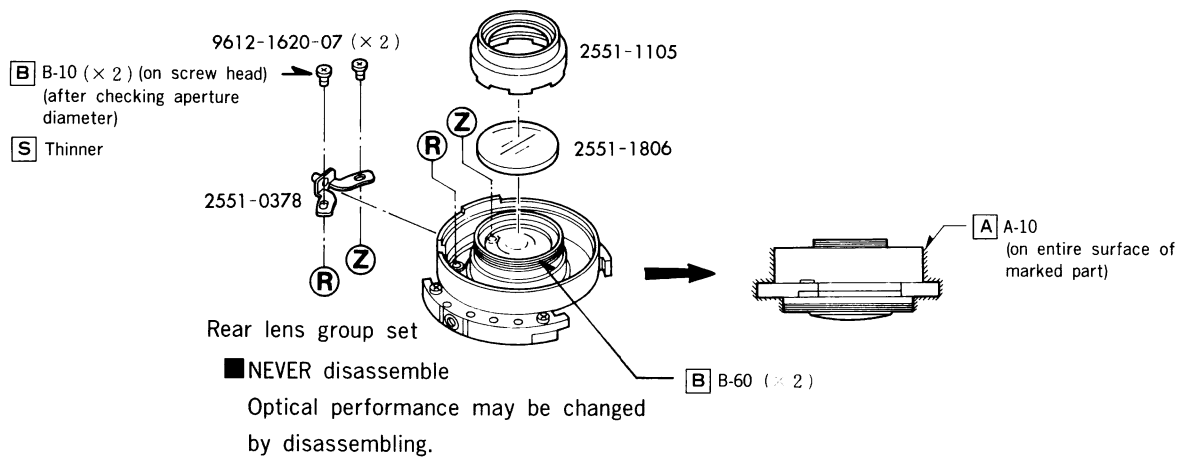
	Page
① Rear lens group set, Fixed barrel, Zoom cam barrel assembling	1
② Key, 1st moving barrel, Rear lens group set, Outer ring assembling	2
③ Light shield ring, Flexible PC board set, Bayonet mount assembling	3
④ Bayonet mount, Flexible PC board set, Coupler, Back washer assembling	4
⑤ Front lens group set, Focusing ring, Filter ring assembling	5
■ Focus shift/flange back adjusting	5
■ Projection resolving power checking	5
■ Aperture diameter checking/adjusting	5
■ Aperture diameter checking	6
■ Aperture diameter adjusting	7
⑥ Zoom ring, Zoom ring set ring, Brush, Name plate assembling	8
■ Brush position adjusting	8
■ General function checking	8
■ Back washer and coupler adjusting-washer replacing	9
■ Flexible PC board replacing	10
■ Assembling/disassembling with flexible PC board installed	11
■ Description of focusing and zooming	12
■ Wiring schematic diagram and printed wiring diagram	13

■ Precautions

- Since this lens uses many resin parts, keep the following in mind when assembling and adjusting.
 - Use Flonsolve or alcohol when cleaning. Never use the thinner, ketone or ether.
- Since MOS-IC is used in this lens, it is necessary to take special precautions about static electricity. When performing repairs, use the conductive mat without fail, as shown.

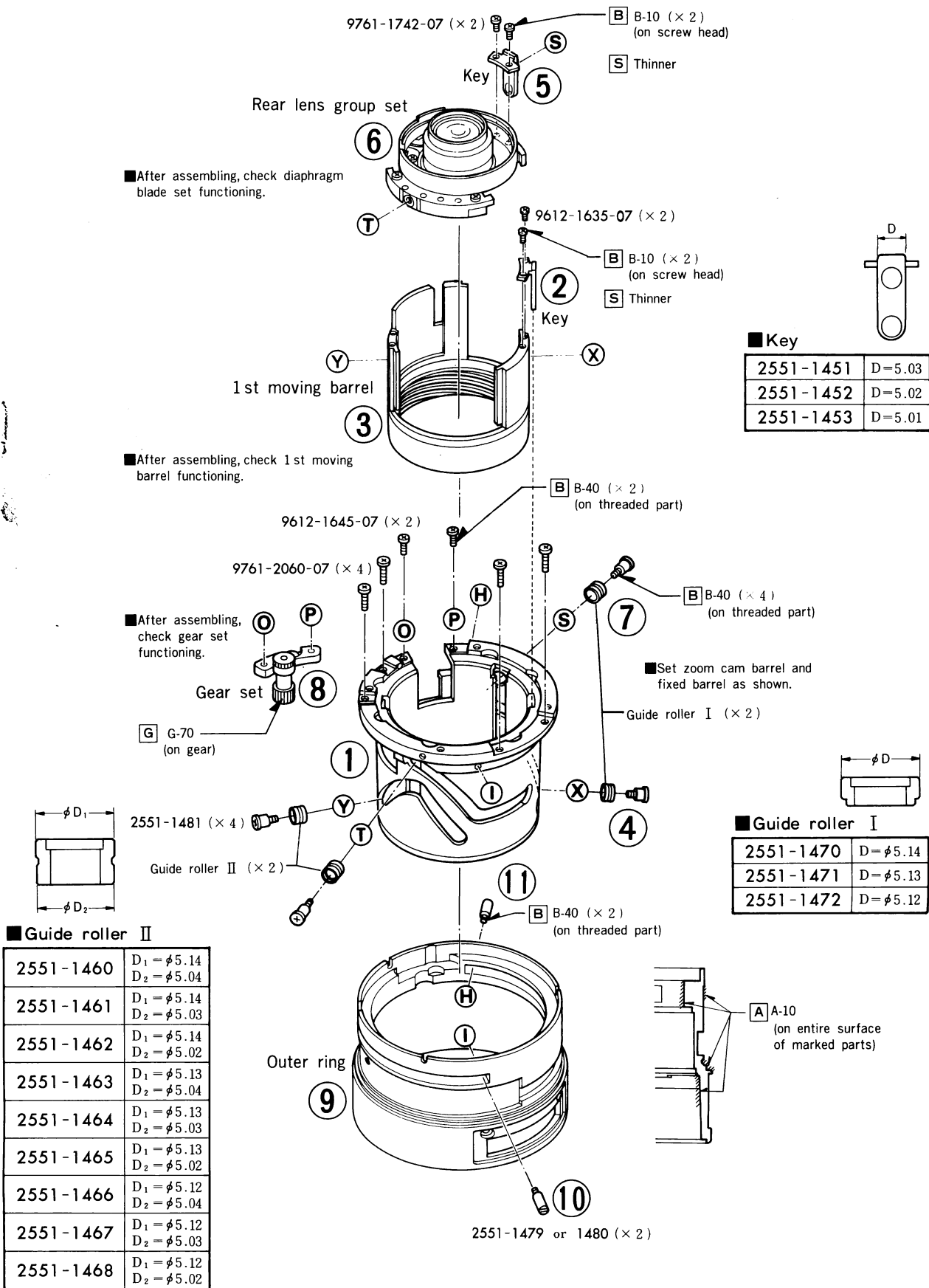


1 Rear lens group set, Fixed barrel, Zoom cam barrel



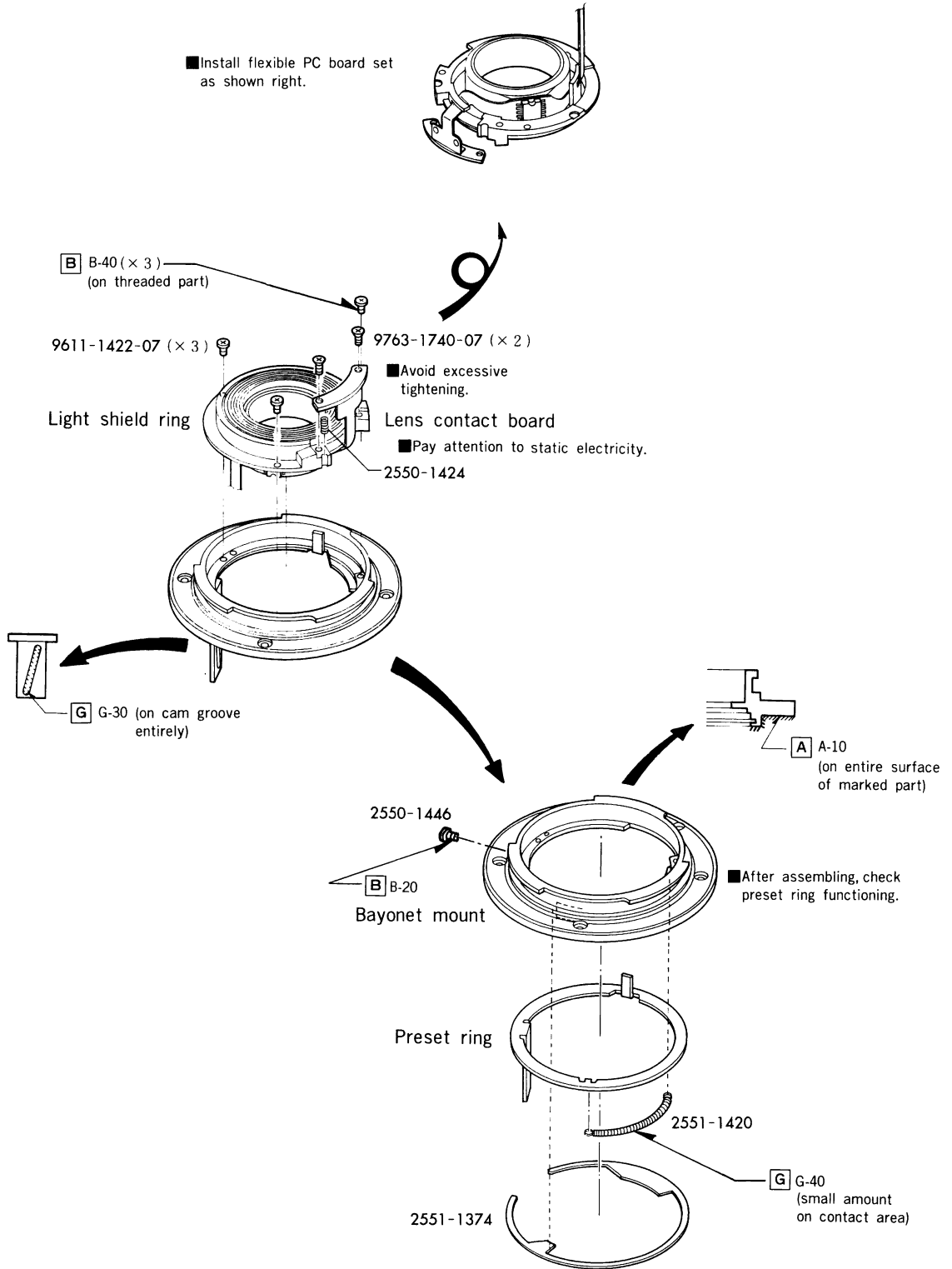
2 Key, 1st moving barrel, Rear lens group set, Outer ring

Assemble the parts in the order of ①→⑪.



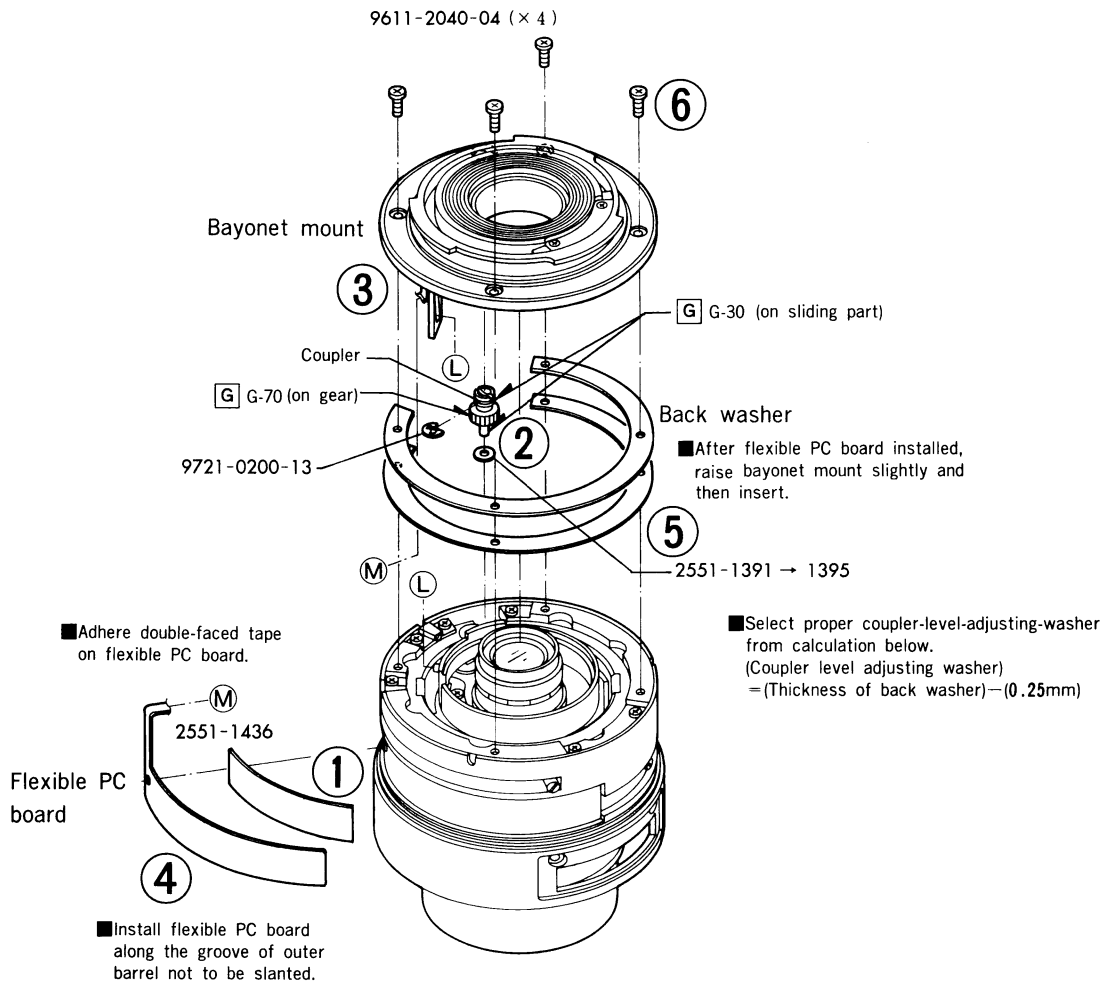
3 Light shield ring, Flexible PC board set, Bayonet mount

■ Solder IC and lens contact board on flexible PC board, beforehand.



4 Bayonet mount, Flexible PC board set, Coupler, Back washer

■ Assemble the parts in the order of ①→⑥. (Set focal length at $f=35\text{mm}$.)



■ Back washer

2551-1385	t=0.05
2551-1386	t=0.07
2551-1387	t=0.1
2551-1388	t=0.2
2551-1389	t=0.5

■ Coupler-level-adjusting-washer

2551-1391	t=0.05
2551-1392	t=0.07
2551-1393	t=0.1
2551-1394	t=0.2
2551-1395	t=0.5

5 Front lens group set, Focusing ring, Filter ring

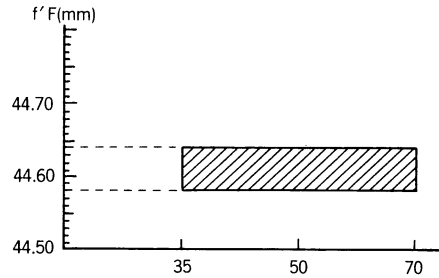
■ Assemble the parts in the order of ①→⑧.

■ After assembling the parts in the order of ①→⑧ and ①→⑤ of the page 8, perform the following checking/adjusting.

(1) Adjust focus shift/flange back

(referring to General checking/adjusting procedure on p. 3).

Allowable range	f (mm)	f' F (mm)
	35	44.58 ^{+0.06} ₀
	50	44.58 ^{+0.06} ₀
	70	44.58 ^{+0.06} ₀

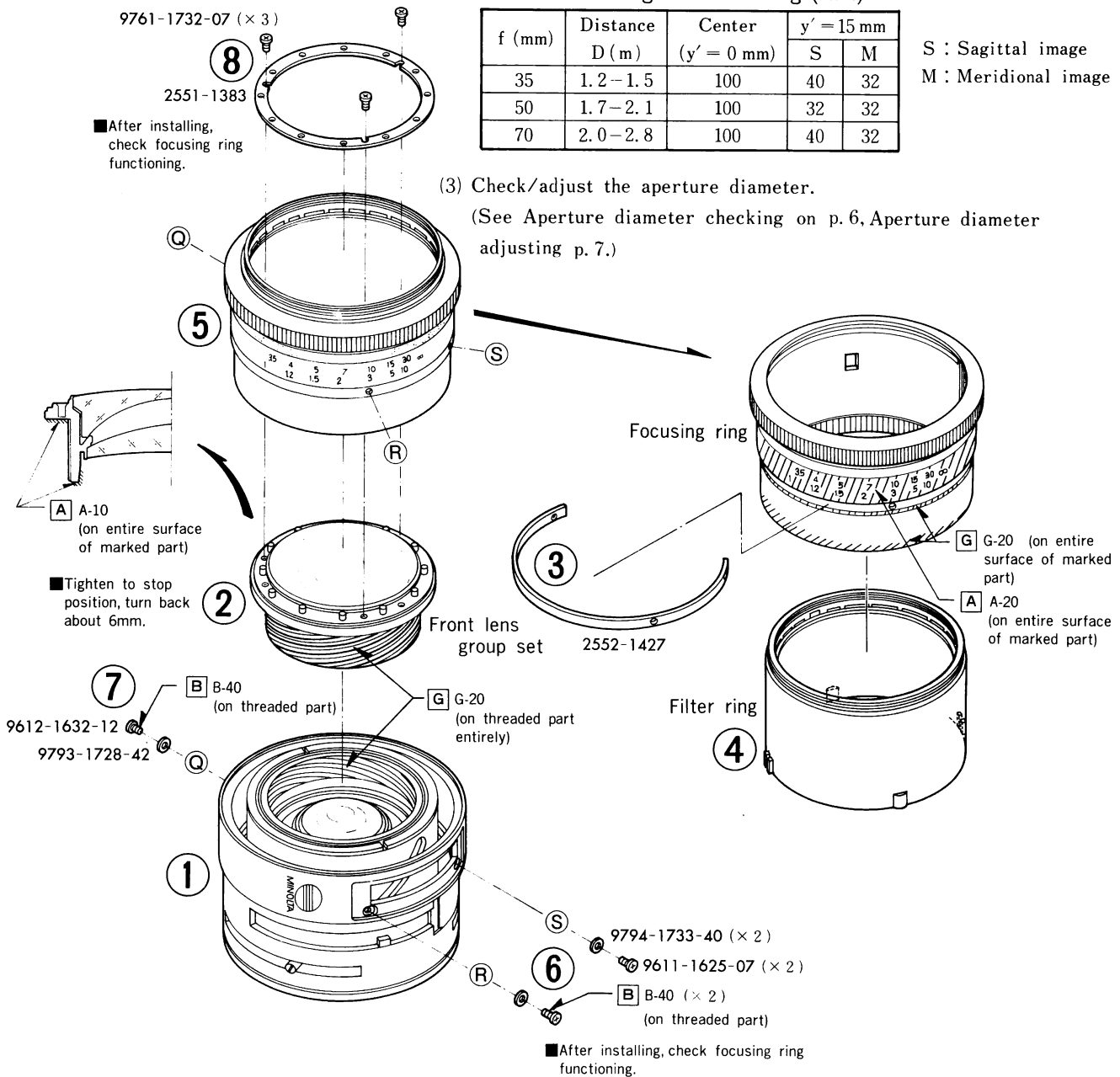


(2) Check projection resolving power (referring to General checking/adjusting procedure on p. 6).

Allowable range for servicing (min.)

f (mm)	Distance D (m)	Center (y' = 0 mm)	y' = 15 mm	
			S	M
35	1.2-1.5	100	40	32
50	1.7-2.1	100	32	32
70	2.0-2.8	100	40	32

S : Sagittal image
 M : Meridional image



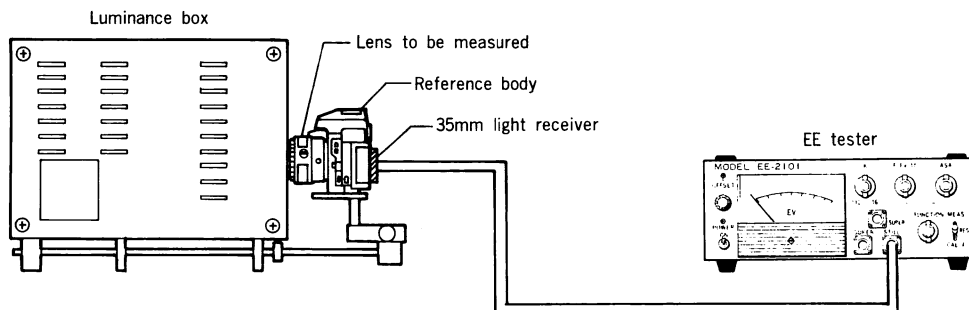
Aperture diameter checking

Since aperture diameter checking procedure of this model differs from one of regular A-lens, General checking/adjusting procedure is not usable. Therefore, check aperture diameter following procedure below.

- **Measuring instruments** : Luminance box (Model L-2101, L-222*, L-223*) ※Discontinued model
 : EE tester (Model EE-2101, EE-2111)
 : 35mm light receiver
 : Reference body (Select following General checking procedure on p.9.)

Preparation

1. Set measuring instruments as below.



● **Luminance box**

K value : 1.2
Luminance : EV 11

● **Lens to be measured**

Distance scale ring : ∞ (infinity)
Zoom operation ring : 70mm

● **Reference body**

Mode : M
Shutter speed setting : bulb
Aperture : f/11
Focus mode : M

● **EE tester**

FUNCTION : 35
ASA : F
K value : 1.2
MEAS-CALF : CALF
F : 11

Checking procedures

1. Release the shutter several times and take the average of reading values.
2. Make sure that aperture diameter error, which is calculated as below, is within the allowable range.

$$\boxed{\text{Aperture diameter error}} = \boxed{\text{Average of reading values}} - \boxed{\text{Reference value}}$$

(Refer to General checking/adjusting procedure p. 9.)

Allowable
range

$(0 \pm 0.4) \text{EV}$

Aperture diameter adjusting

Since aperture diameter adjusting procedure of this model differs from one of regular A-lens, General checking/adjusting procedure is not usable. Therefore, adjust aperture diameter following procedure below.

1. Set focal length at $f=70\text{mm}$.
2. Remove 2 screws of lens contact board and 3 screws of light shield ring, and then lens contact board and light shield ring. (See Fig. 1.)
3. Loosen diaphragm-connecting-plate-screws ($\times 2$), keep preset lever at full open position where preset lever touches bayonet mount.
4. Adjust inscribed circle diameter of aperture at 18mm, moving diaphragm connecting plate. (See Fig. 2)
5. Tighten diaphragm-connecting-plate-screws temporarily, set light shield ring and lens contact board temporarily.

Check aperture diameter. (See Aperture diameter checking p. 6.)

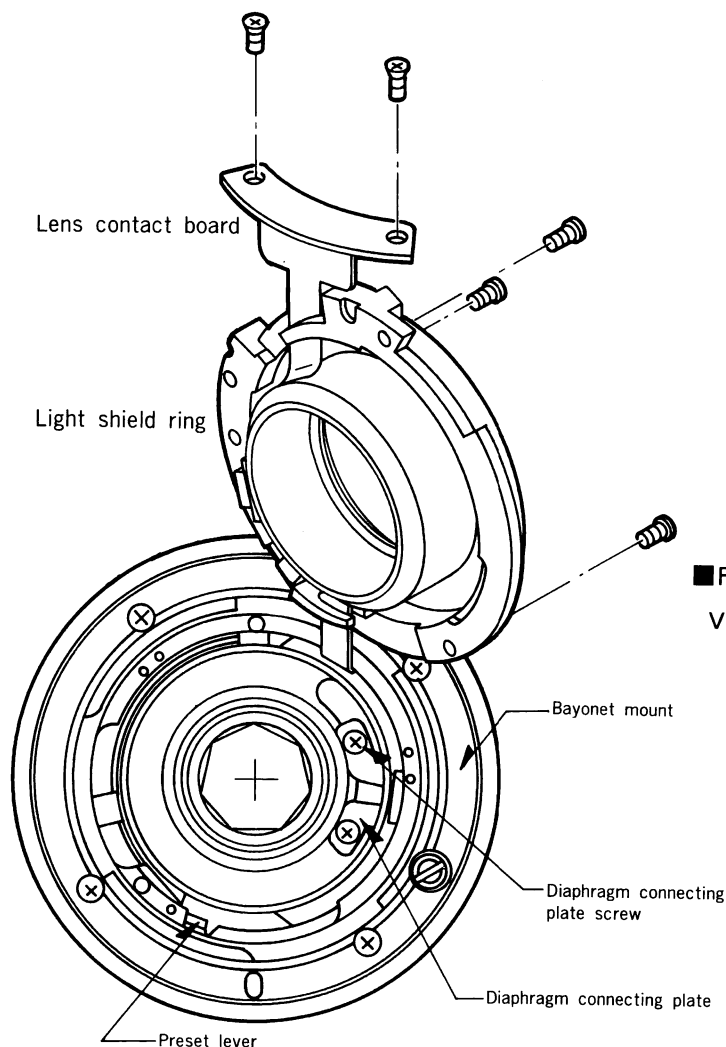
6. Make sure that aperture diameter is in allowable range, tighten diaphragm-connecting-plate-screw*.

Apply bond on head of the screws.

Set light shield ring and lens contact board.

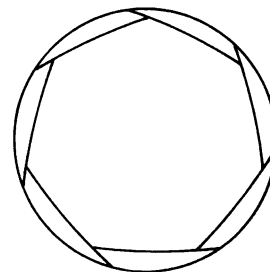
※Avoid excessive tightening.

■ Fig. 1



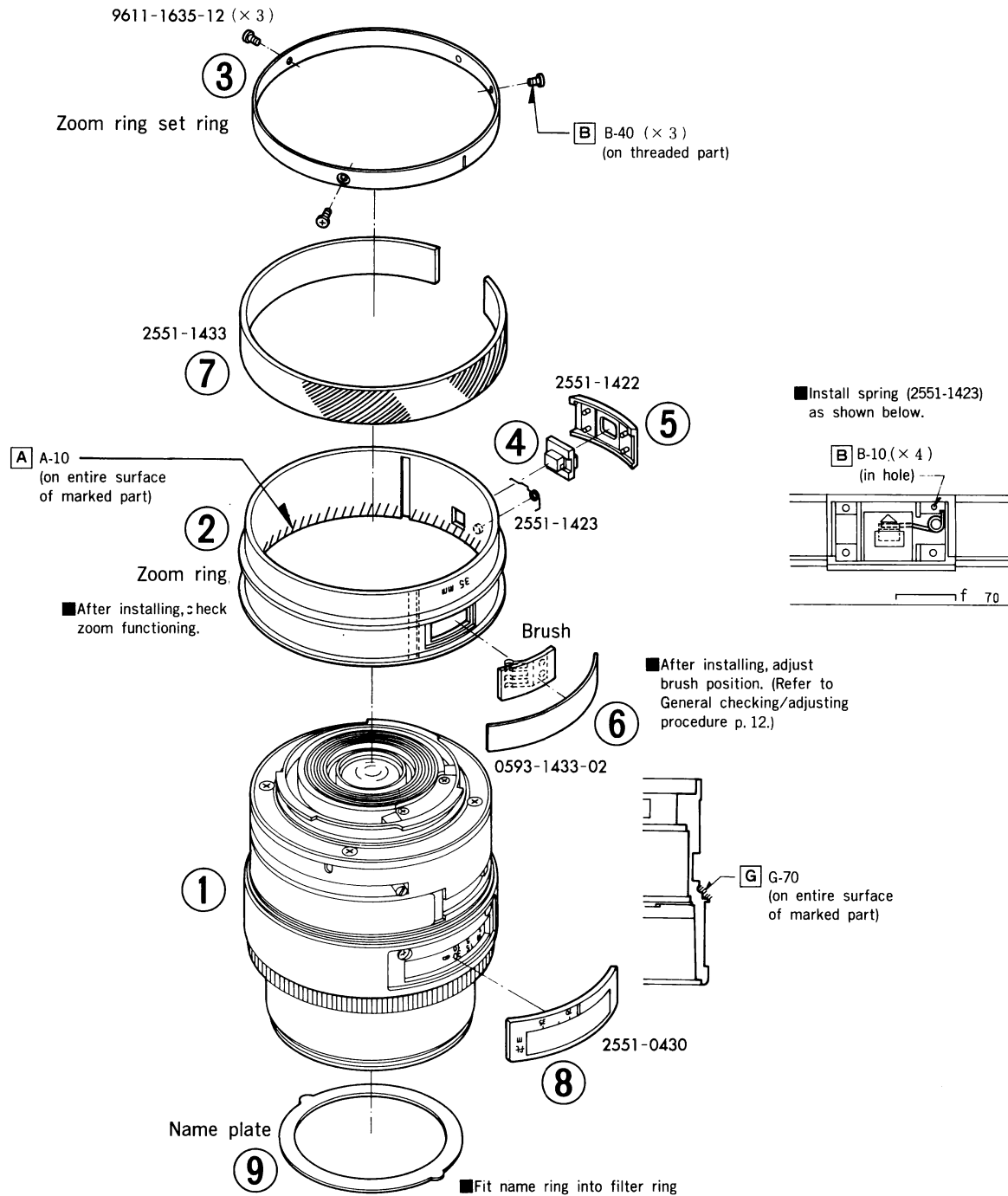
■ Fig. 2

View from bayonet mount side



6 Zoom ring, Zoom ring set ring, Brush, Name plate

- Assemble the parts in the order of ①→⑨.
- After assembling ①→⑥, check general functioning.
(Refer to General checking/adjusting procedure p. 14.)

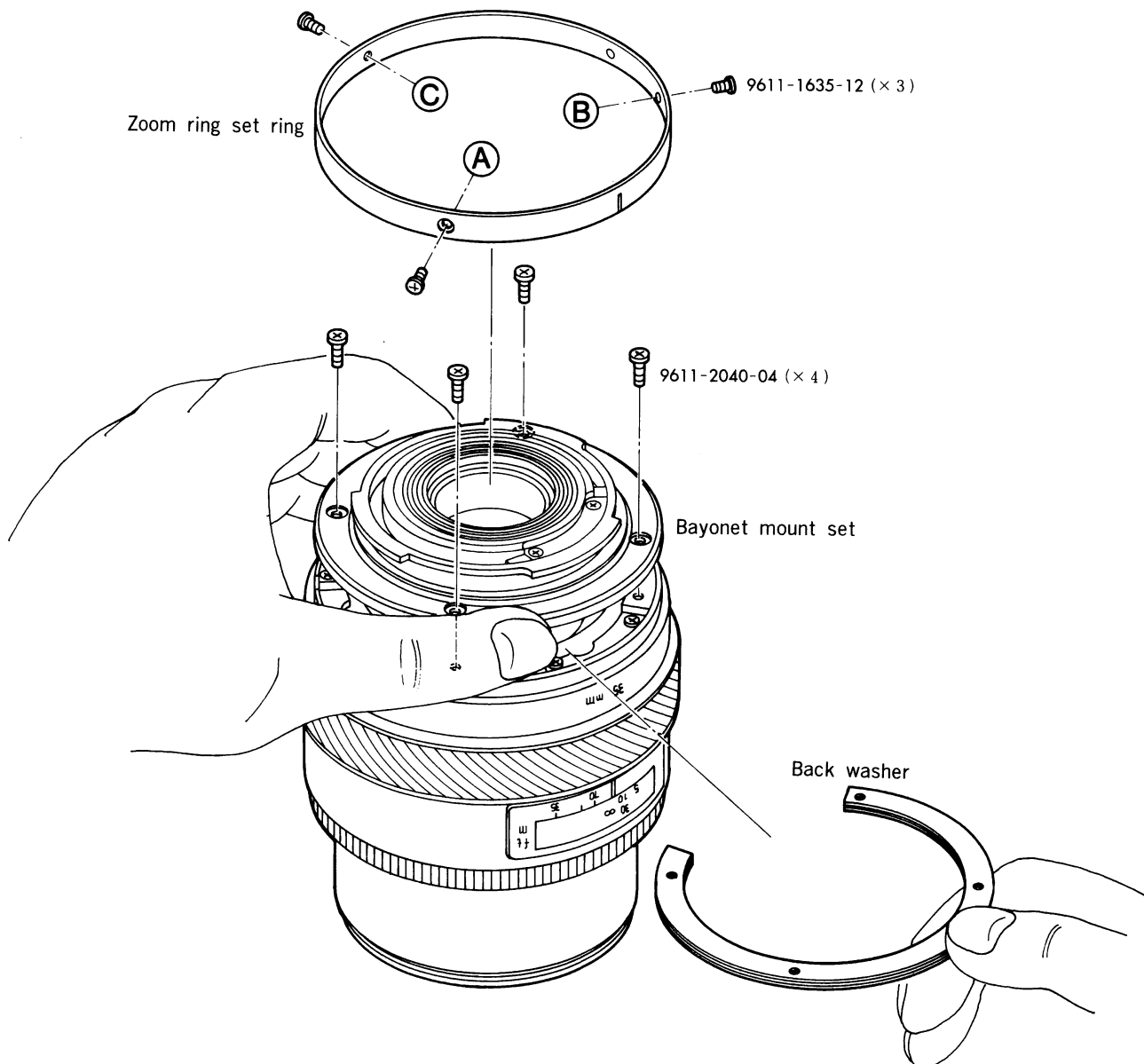


■ Back washer and coupler adjusting washer replacing

When flange back adjusting is needed, adjust level of back washer and coupler after flange back measuring.

1. Set focal length at $f=35\text{mm}$.
2. Remove bayonet mount screws (9611-2040-04).
3. Raise bayonet mount slightly, pull back-washer out.
4. Prepare back washer which thickness is calculated by flange back adjusting.
(See General checking/adjusting procedure p. 3.)
5. Replace coupler adjusting-washer.
 $(\text{Coupler adjusting-washer}) = (\text{Thickness of back washer}) - (0.25\text{mm})$
6. Install back washer referring Fig.1. (Install it above flexible PC board without fail.)
7. Tighten bayonet mount screws, measure flange back and make sure it is within the allowable range.

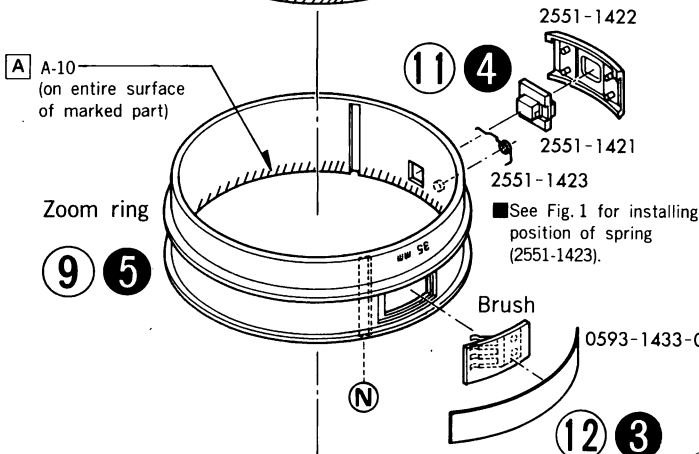
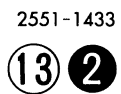
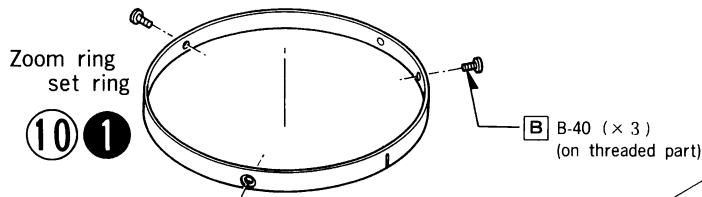
■ Fig. 1



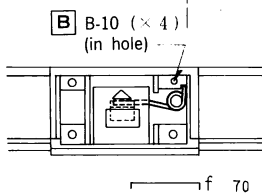
Flexible PC board replacing

- Disassemble the parts in the order of ①→⑫. (Set focal length at $f=35\text{mm}$.)
- Assemble the parts in the order of ①→⑬.
- After assembling, check general functioning.
 (Refer to General checking/adjusting procedure p. 14.)

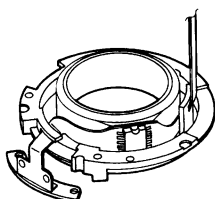
9611-1635-12 (× 3)



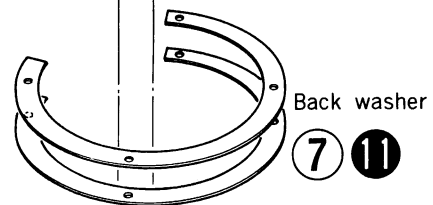
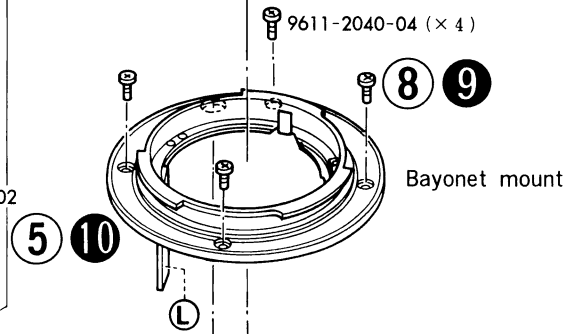
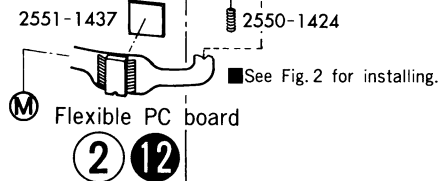
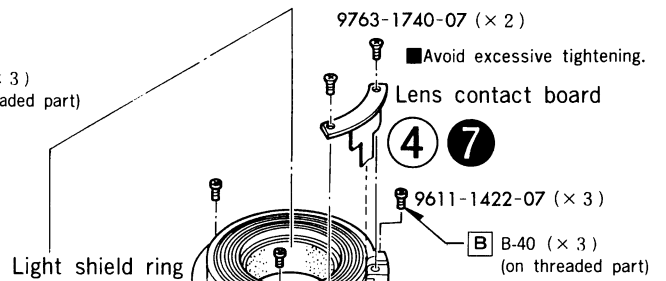
■ Fig. 1



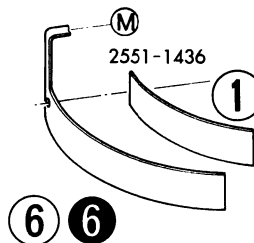
■ Fig. 2



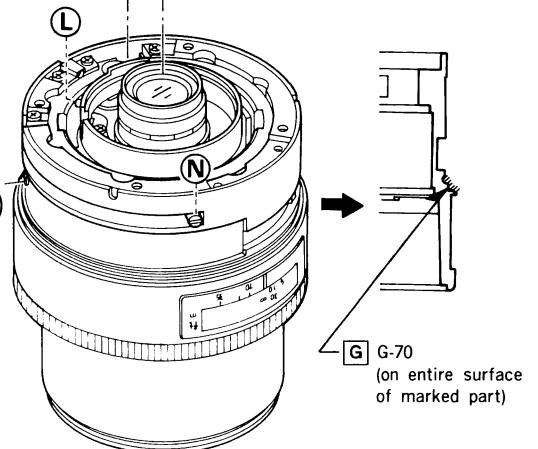
※ Solder IC and lens contact board to flexible PC board, beforehand.



■ Adhere double-faced tape on flexible PC board.

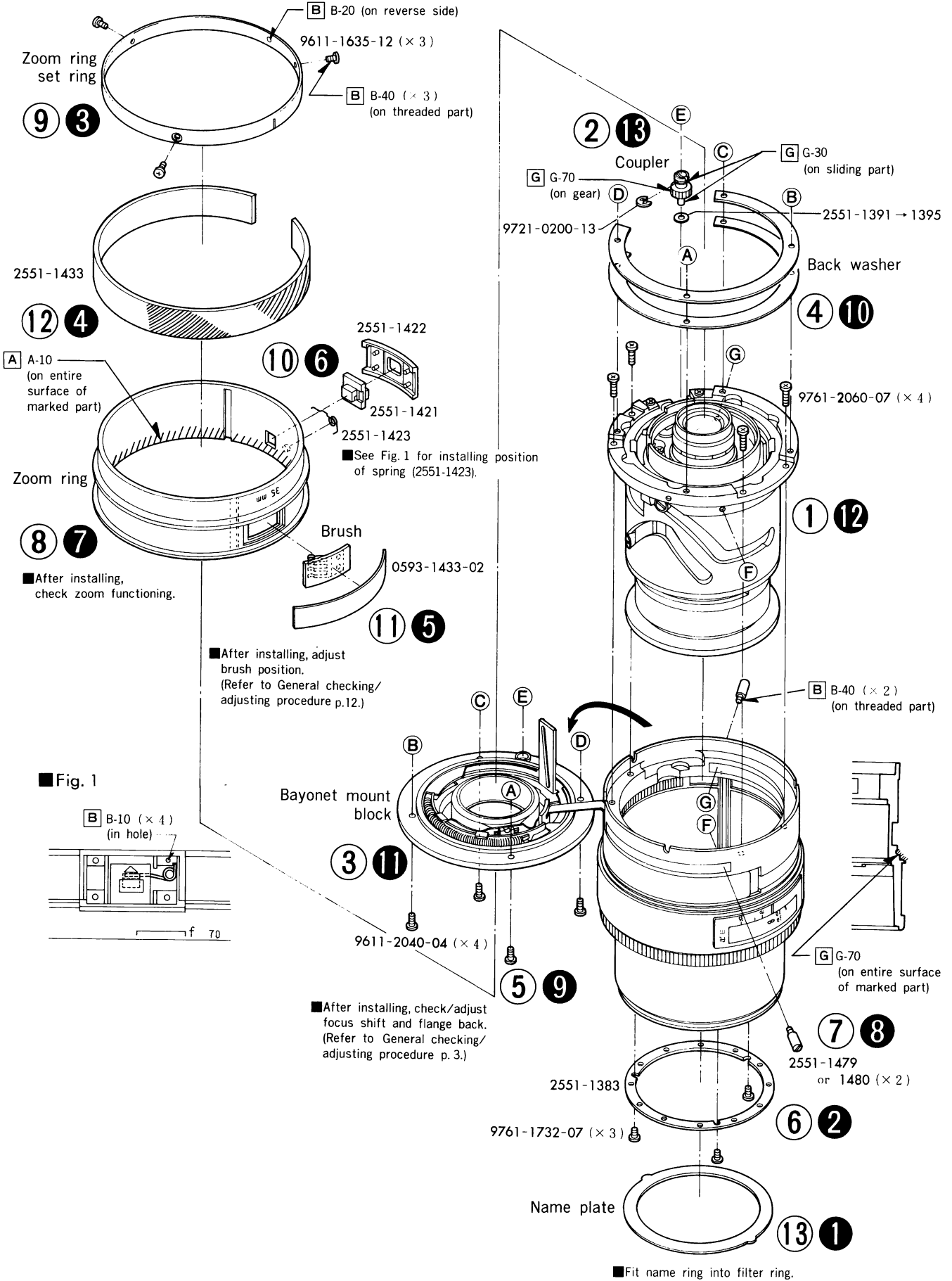


■ Pay attention to static electricity



Assembling/disassembling with flexible PC board installed

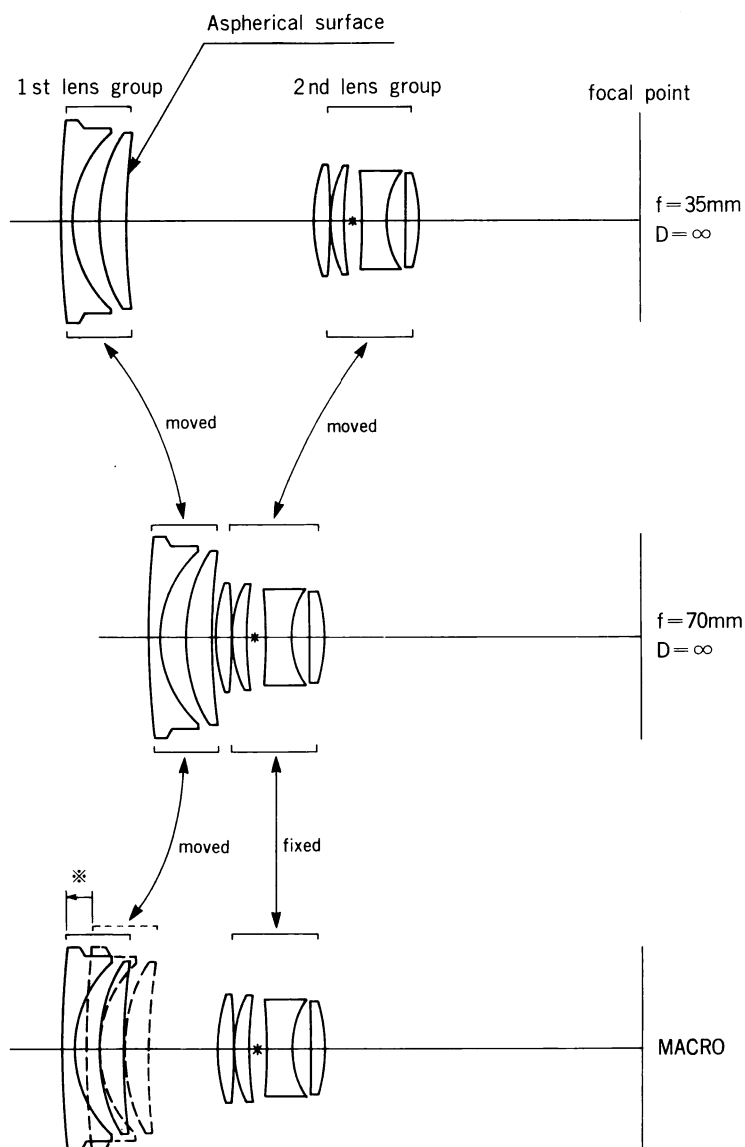
- Disassemble the parts in the order of ① → ⑬. Assemble the parts in the order of ⑬ → ①.
- After assembling, check general functioning. (Refer to General checking/adjusting procedure p. 14.)



■ Description of focusing and zooming

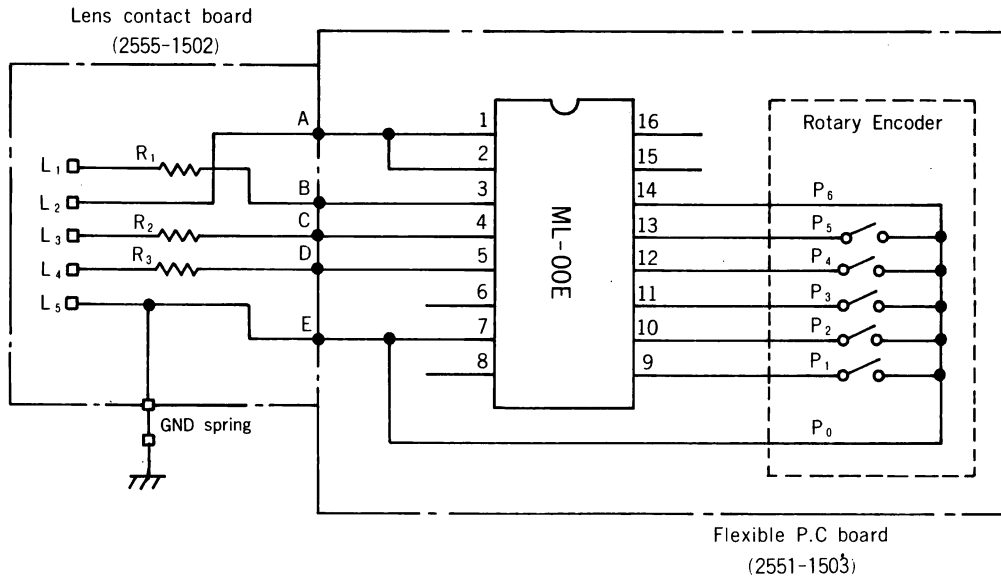
- 2-component mechanical-compensation zoom lens (negative component for 1st lens group, positive for 2nd)
- When zooming, 1st and 2nd lens groups are moved individually by rotating zoom operation ring.
- This lens has mechanical correction system of aperture diameter to prevent f-number variation by zooming.
- When focusing, 1st lens group (focusing lens group) is moved by rotating AF coupler or focusing ring.
- By rotating zoom operation ring from $f=70\text{mm}$ to macro side, 1st lens group is moved to make macro set.
 (subject-to-camera distance $(D)=1\text{m}$, magnification 1:4)

(focusing lens group)



※Moved by rotating focusing ring.
 (AF does not operate at macro set.)

Wiring schematic diagram, printed wiring diagram



- L₁₋₅ : Lens signal contact
- R₁₋₃ : Printed resistor
- ML-00E : ROM-IC
- A-E : Soldering point
- P₀₋₆ : Rotary encoder pattern switch (ON/OFF at certain point)

