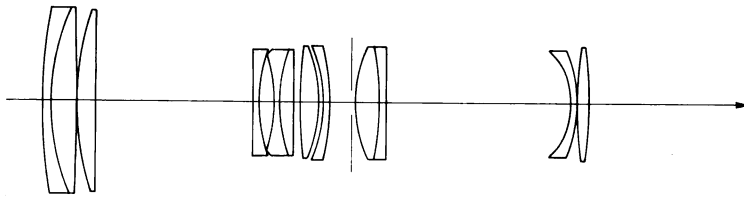


MINOLTA AF ZOOM 70-210mm F4 (2555-100)

MINOLTA MAXXUM AF ZOOM 70-210mm F4 (2555-600)

LENS



- Construction : 12 elements in 9 groups
Type : 3-component mechanical-compensation zoom lens
Coating : Minolta Achromatic
Angle of view : 34°-12°
Lens mount : Minolta A mount
Lens signal contact : 5 contacts
Diaphragm : Automatic preset diaphragm
f No. : Maximum...4
Minimum...32
Full-stop setting...6 stops
Diaphragm blade : 7 blades



FOCUSING

- Focusing : AF, FA, M
Type : Front-component focusing
Minimum focusing distance : 1.1 m

Distance scale : $\frac{4 \quad 4.5 \quad 5 \quad 6 \quad 7 \quad 8 \quad 10 \quad 15 \quad 30}{1.1 \quad 1.2 \quad 1.3 \quad 1.5 \quad 1.7 \quad 2 \quad 2.5 \quad 3 \quad 4 \quad 5 \quad 7 \quad 15} \frac{\text{(ft)}}{\text{(m)}}$

Infrared correction scale : ($\frac{210}{100} \frac{70}{}$)

Depth-of-field scale : No

With macro capability : 1/3.9× (max. magnification),
"AF" possible

DIMENSIONS & WEIGHT

- Dimensions : $\phi 72.5$ (max. diameter) ×
152 mm (max. length)
Weight : 695 g
Filter-thread diameter : $\phi 55$ mm (P=0.75)
Lens hood diameter : $\phi 55$ mm (clip-on)

ACCESSORIES

- Lens case (LH-1037)
Lens hood (6555-810)

ZOOMING

- Type : Mechanical-compensation
zoom lens, Rotary 2-ring
Zooming scale : 210 150 100 70
Zooming ratio : 3 ×

I N D E X

Part No.	Page	Part No.	Page	Part No.	Page
2555-0032-----	5	2514-1108-----	5	2555-1363-----	2
2555-0041-----	5	2555-1112-----	3	2555-1364-----	2
2555-0101-----	3,5	2555-1130-----	3	2555-1365-----	2
2555-0113-----	3	2555-1131-----	4	2555-1366-----	2
2555-0238-----	4	2555-1133-----	1	2550-1374-----	4
2555-0240-----	4			2555-1375-----	1
2555-0371-----	3	2555-1230-----	1	2555-1378-----	2
2555-0372-----	4	2555-1231-----	3	2555-1380-----	2
2555-0384-----	4	2555-1233-----	4	2555-1382-----	4
2555-0405-----	4	2555-1234-----	1	2514-1383-----	1
2555-0413-----	2	2555-1235-----	1	2555-1383-----	2
2555-0430-----	1	2555-1237-----	2	2514-1385-----	5
2555-0810-----	5	2555-1242-----	2	2555-1386-----	1
2555-0820-----	5	2555-1244-----	4	2555-1387-----	2
2514-1102-----	5	2555-1352-----	3		
2555-1103-----	5	2555-1361-----	2	2555-1402-----	4
2514-1104-----	5	2555-1362-----	2	2514-1416-----	5

Part No.	Page	Part No.	Page	Part No.	Page
2555-1419-----	3	2514-1453-----	3	Screw	
2555-1420-----	4	2514-1454-----	3	9611-1425-07-----	2
2555-1422-----	2	2514-1455-----	3	9611-2040-04-----	2
2550-1424-----	2				
2555-1431-----	1	2554-1501-----	4	9612-1616-07-----	2
0685-1432-----	1	2555-1502-----	4	9612-1620-07-----	4
2555-1432-----	4	2555-1503-----	4	9612-1635-07-----	4
2555-1433-----	1			9612-1640-07-----	1
2555-1438-----	4	2555-1635-----	1	9612-1645-07-----	4
2550-1444-----	4			9612-1655-07-----	2
2514-1446-----	3	2555-1803-----	5	9612-1670-07-----	2
2550-1446-----	4	2555-1804-----	5	9612-1690-07-----	4
2514-1447-----	3	2514-1811-----	5		
2514-1448-----	3	2514-1812-----	5	9614-1635-07-----	1
2514-1449-----	3				
2514-1450-----	3	0521-2107-----	5	9622-1625-02-----	3
2514-1451-----	3			9622-2050-02-----	1
2514-1452-----	3				

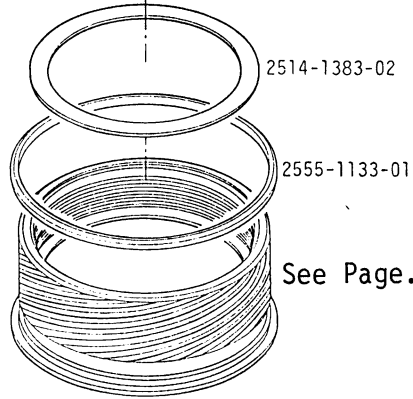
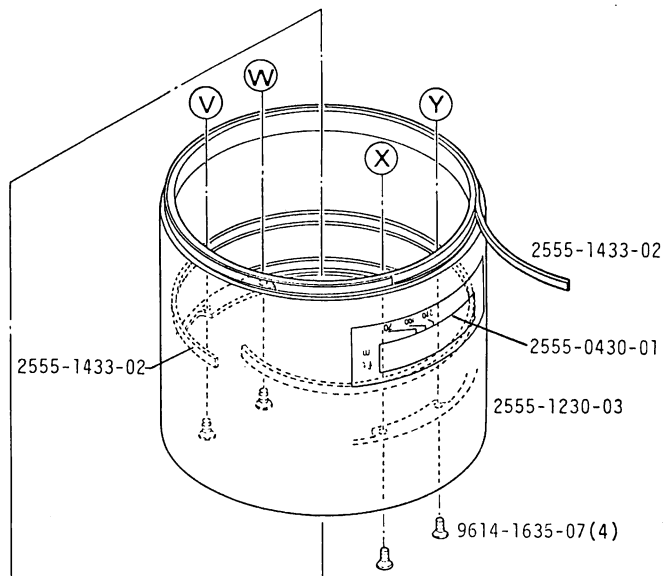
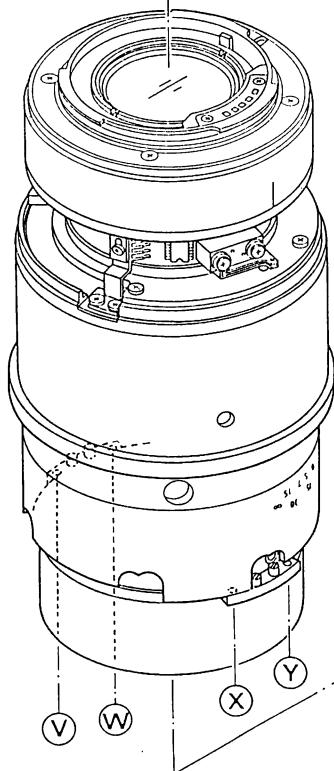
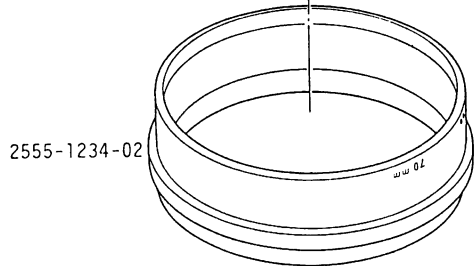
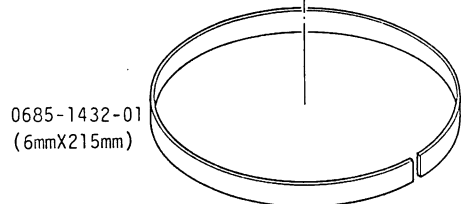
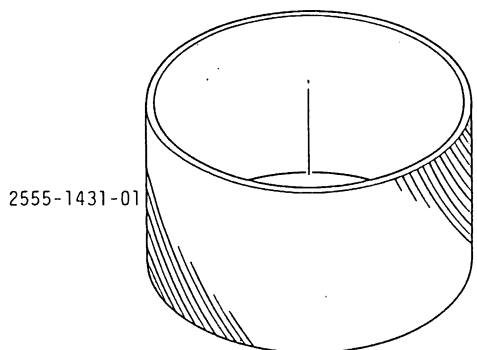
I N D E X

Part No.	Page	Part No.	Page	Part No.	Page
9762-1735-07-----	2				
9762-1740-07-----	2				
9763-1740-07-----	2				
E-ring					
9721-0120-13-----	4				
Washer					
9792-1528-40-----	2				
9792-1740-50-----	4				
9793-1740-50-----	4				
9796-1748-50-----	4				

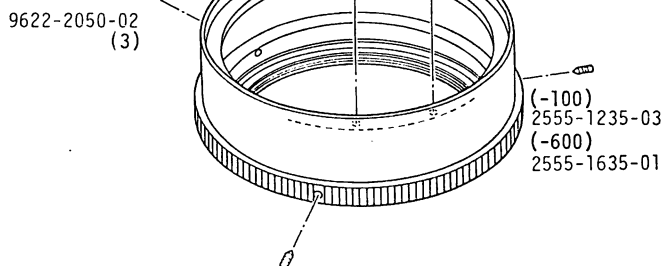
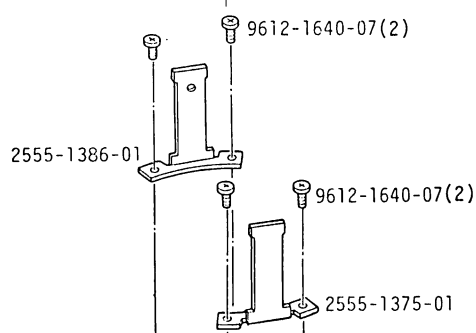
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AF ZOOM 70~210mm F4(32)
MAXXUM AF ZOOM 70~210mm F4(32)

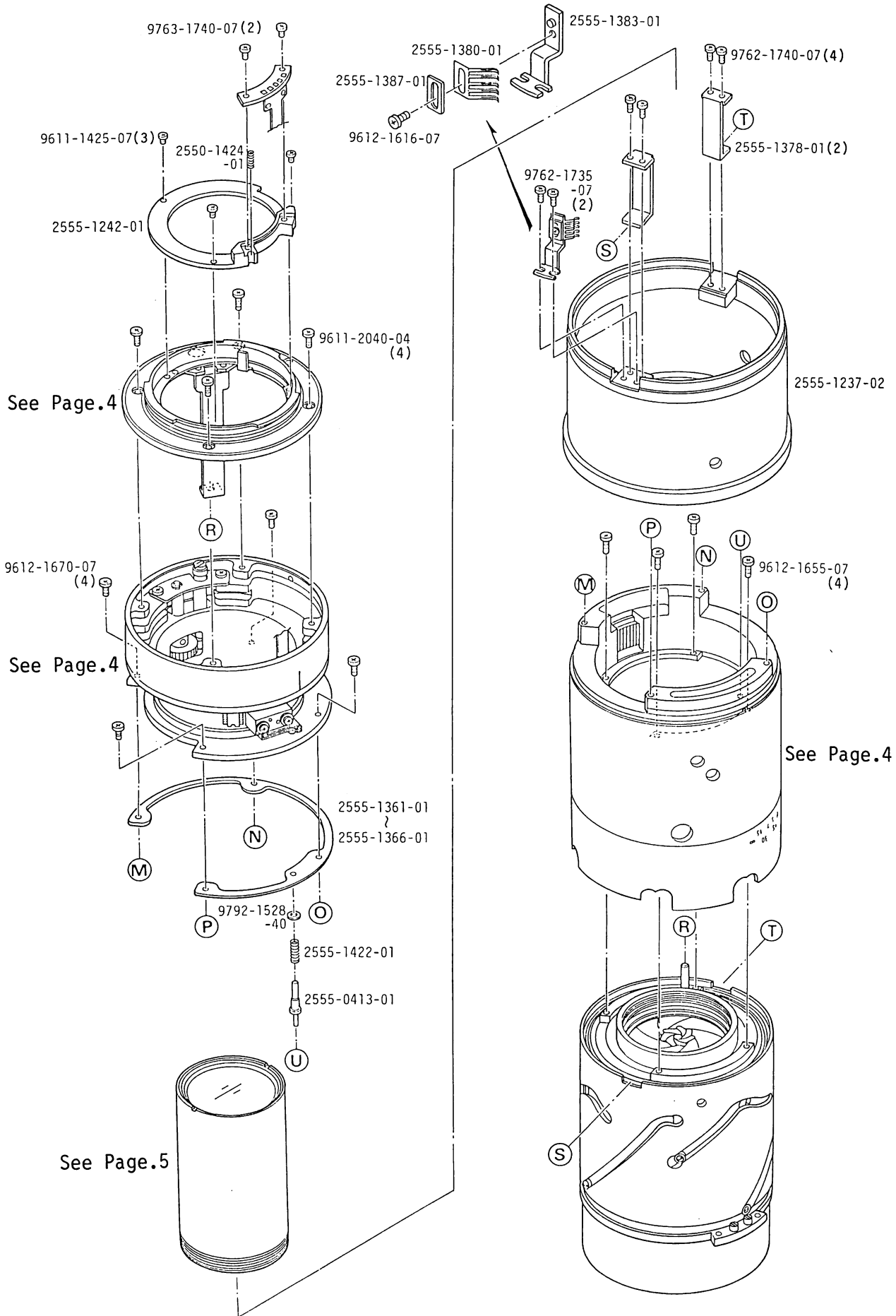
Code No.2555-100
Code No.2555-600



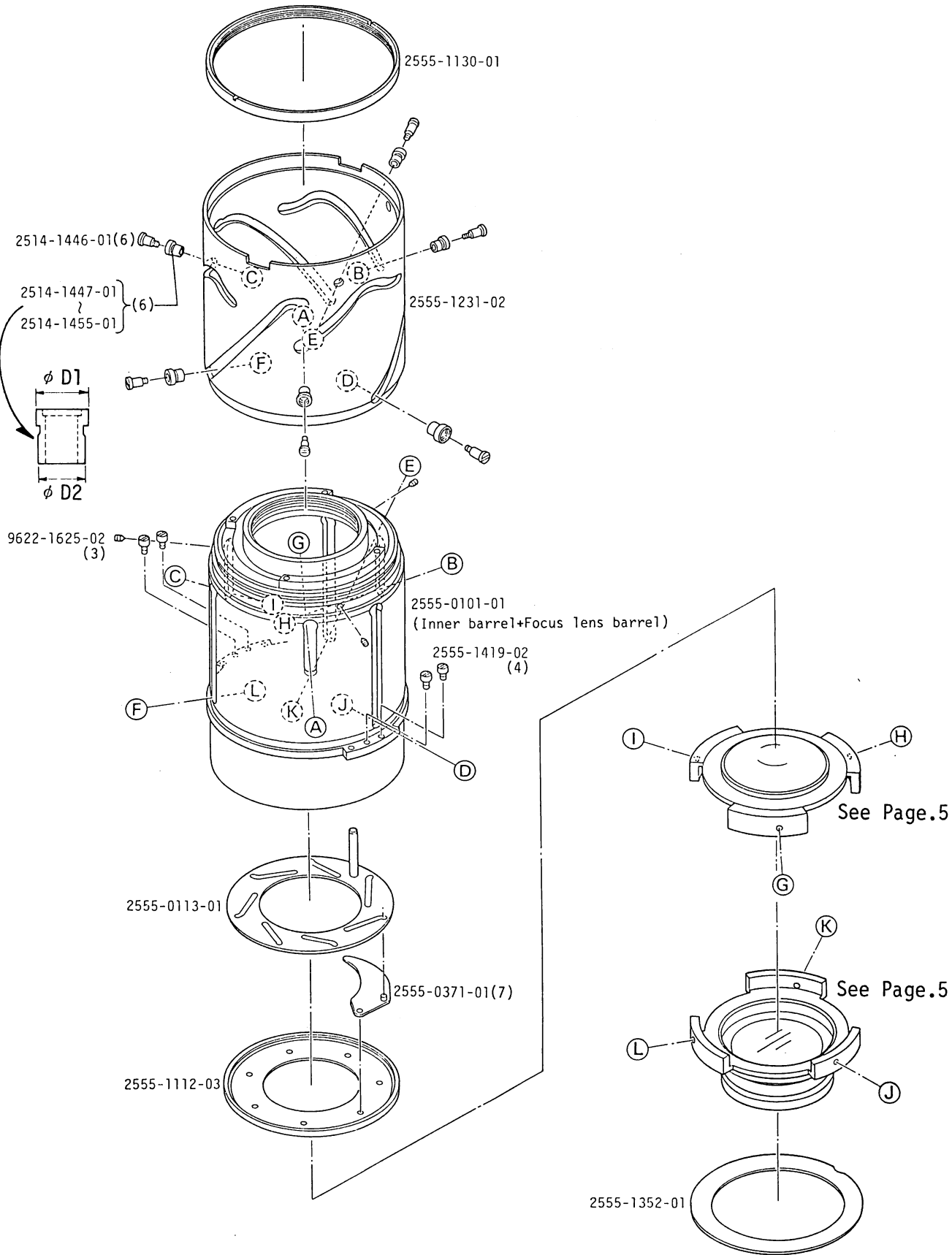
See Page.5



Part No.	Part Name		Qty.
✓ 2555-0430-01	Distance scale window set	距離表示窓セット	1
5 / 2555-1133-01	Focus lens barrel pressure	フォーカス玉枠押え	1
10 / ✓ 2555-1230-03	Outer ring	固定保持環	1
9 / 2555-1234-02	Zoom scale ring	ズーム目盛環	1
7 / ✓ 2555-1235-03	Focusing ring (-100)	距離リング	1
6 / 2555-1375-01	Focusing key - A	フォーカス直進キーA	1
5 / 2514-1383-02	Front light shield plate	前遮光板	1
4 / 2555-1386-01	Focusing key - B	フォーカス直進キーB	1
3 / 2555-1431-01	Rubber ring	ゴムリング	1
2 / (✓ 0685-1432-01	Tape (Per roll/30m)	補強テープ	1
1 / 2555-1433-02	Friction cloth B	摩擦布B	2
2555-1635-01	Focusing ring (-600)	距離リング	1
9612-1640-07	Phillips type screw	十字穴付なべ頭小ねじ	4
9614-1635-07	Phillips type screw	十字穴付半丸頭小ねじ	4
9622-2050-02	Screw	とがり先止めねじ	3



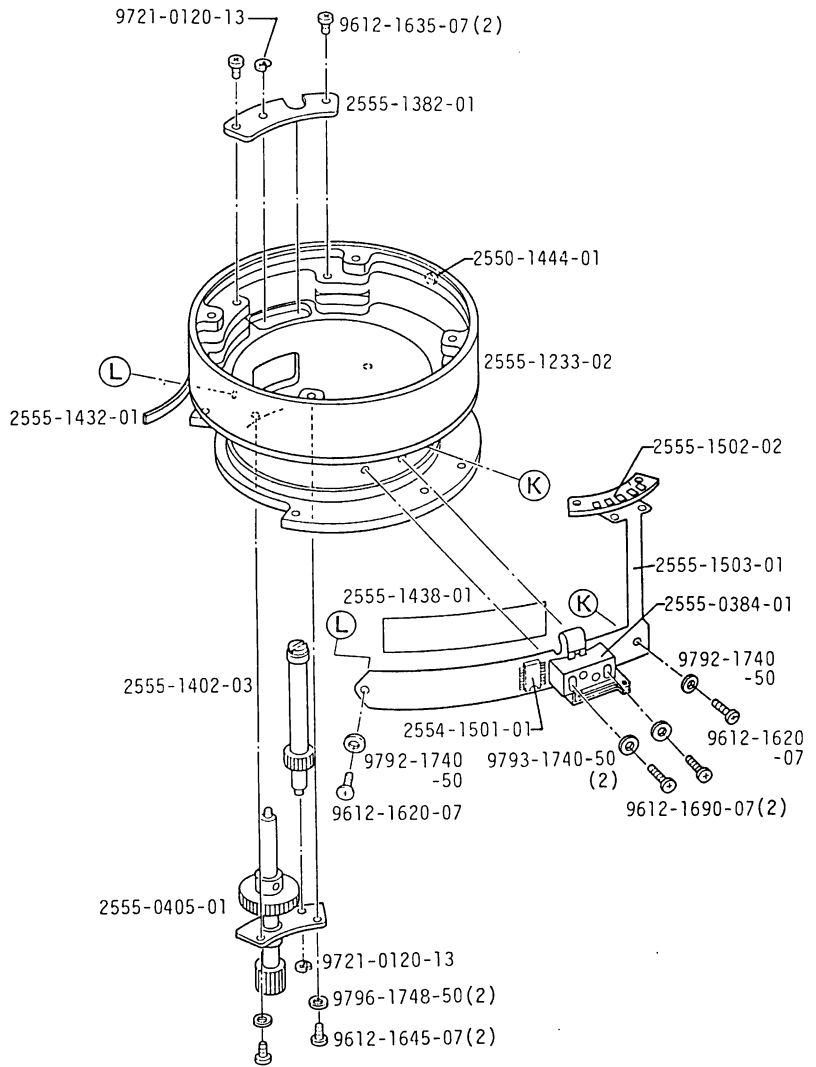
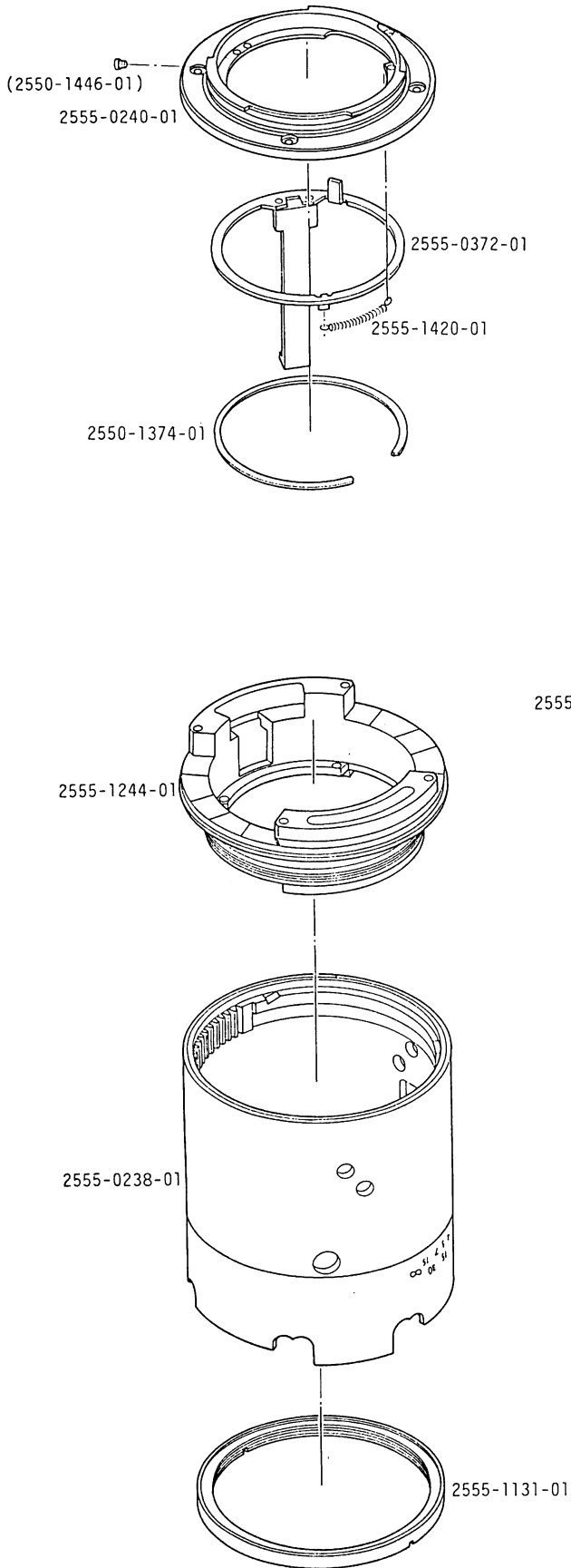
Part No.	Part Name		Qty.
2555-0413-01	Contact pin set	接片ピンセット	1
2555-1237-02	Zoom ring	ズームリング	1
2555-1242-01	Light shield ring	遮光筒	1
2555-1361-01	Back washer - A(t=0.05)	バックワッシャーA	} Some
2555-1362-01	Back washer - B(t=0.07)	バックワッシャーB	
2555-1363-01	Back washer - C(t=0.1)	バックワッシャーC	
2555-1364-01	Back washer - D(t=0.2)	バックワッシャーD	
2555-1365-01	Back washer - E(t=0.5)	バックワッシャーE	
2555-1366-01	Back washer - F(t=1)	バックワッシャーF	
2555-1378-01	Zoom operation lever	ズーム操作レバー	2
2555-1380-01	Brush	ブラシ	1
2555-1383-01	Brush connecting plate	ブラシ連動板	1
2555-1387-01	Brush pressure plate	ブラシ押え板	1
2555-1422-01	Contact spring	接片スプリング	1
2550-1424-01	Spring	アーススプリング	1
9611-1425-07	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
9612-1616-07	Phillips type screw	十字穴付なべ頭小ねじ	1
9612-1655-07	Phillips type screw	十字穴付なべ頭小ねじ	4
9612-1670-07	Phillips type screw	十字穴付なべ頭小ねじ	4
9762-1735-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	2
9762-1740-07	Tap tite screw	十字穴付なべ頭タップタイトねじ	4
9763-1740-07	Tap tite screw	十字穴付半丸頭タップタイトねじ	2
9792-1528-40	Washer	薄ワッシャー	1



Part No.	Part Name		Qty.
2555-0101-01	Inner barrel set	内筒セット	1
2555-0113-01	Diaphragm operation plate set	絞り操作板セット	1
2555-0371-01	Diaphragm blade set	絞り羽根セット	7
2555-1112-03	Diaphragm pressure plate	絞り押え環	1
2555-1130-01	Zoom cam barrel pressure	ズームカム環押え	1
2555-1231-02	Zoom cam barrel	ズームカム環	1
2555-1352-01	Light shield plate	中遮光板	1
2555-1419-02	Focusing stopper	フォーカスストッパー	4
2514-1446-01	Guide pin	案内ピン	6
2514-1447-01	Guide roller - A(D1=φ4.53)(D2=φ4.03)	案内ローラーA	} 6
2514-1448-01	Guide roller - B(D1=φ4.53)(D2=φ4.02)	案内ローラーB	
2514-1449-01	Guide roller - C(D1=φ4.53)(D2=φ4.01)	案内ローラーC	
2514-1450-01	Guide roller - D(D1=φ4.52)(D2=φ4.03)	案内ローラーD	
2514-1451-01	Guide roller - E(D1=φ4.52)(D2=φ4.02)	案内ローラーE	
2514-1452-01	Guide roller - F(D1=φ4.52)(D2=φ4.01)	案内ローラーF	
2514-1453-01	Guide roller - G(D1=φ4.51)(D2=φ4.03)	案内ローラーG	
2514-1454-01	Guide roller - V(D1=φ4.51)(D2=φ4.02)	案内ローラーV	
2514-1455-01	Guide roller - W(D1=φ4.51)(D2=φ4.01)	案内ローラーW	
9622-1625-02	Screw	とがり先止めねじ	3

AF ZOOM 70~210mm F4(32)
MAXXUM AF ZOOM 70~210mm F4(32)

Code No.2555-100
Code No.2555-600



AF ZOOM 70~210mm F4(32)

Code No.2555-100

4

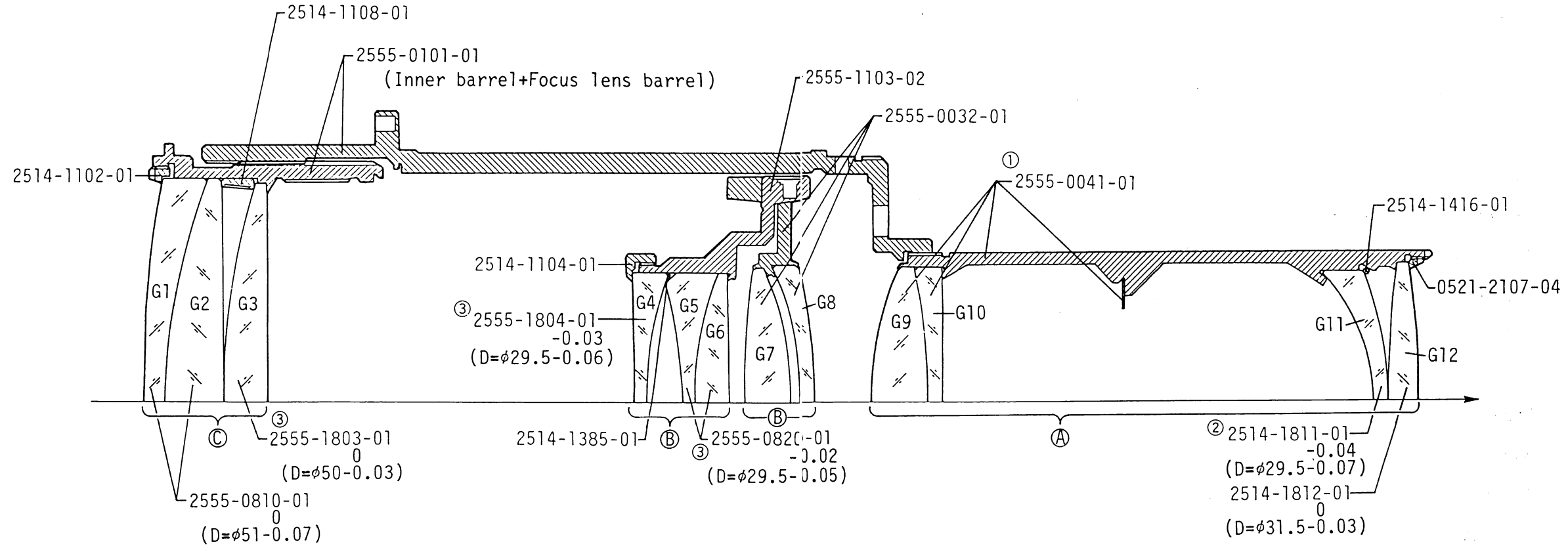
MAXXUM AF ZOOM 70~210mm F4(32) Code No.2555-600

Part No.	Part Name		Qty.
2555-0238-01	Distance scale ring set	距離目盛環セット	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
2555-0372-01	Preset ring set	プリセットリングセット	1
2555-0384-01	Distance switch set	距離スイッチセット	1
2555-0405-01	Gear set	ギヤーセット	1
2555-1131-01	Distance scale ring pressure	距離目盛環押え	1
2555-1233-02	Outer barrel	外筒	1
2555-1244-01	Connecting barrel	連結筒	1
2550-1374-01	Preset ring pressure	プリセットリング押え	1
2555-1382-01	Gear base plate - B	ギア台板B	1
2555-1402-03	Coupler	カプラー	1
2555-1420-01	Main spring	メインSP	1
2555-1432-01	Friction cloth - A	摩擦布A	1
2555-1438-01	Tape	テープ	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
2555-1503-01	Flexible PC board	フレキ	1
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
9612-1690-07	Phillips type screw	十字穴付なべ頭小ねじ	2
9721-0120-13	E - ring	Eリング	2
9792-1740-50	Washer	薄ワッシャー	2
9793-1740-50	Washer	薄ワッシャー	2
9796-1748-50	Washer	薄ワッシャー	2

AF ZOOM 70~210mm F4(32) Code No.2555-100
 MAXXUM AF ZOOM 70~210mm F4(32) Code No.2555-600

- When repairing following parts, must be checked resolving power by projection.
- ①: The influential lens element in the lens performance. (Number shows in order.)
- Ⓐ: The influential lens group in the lens performance. (Influence: In alphabetical order)

- 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: レンズ性能によく影響するレンズ。(数字は順位を示す)
- Ⓐ: 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.	Part No.	Part Name	Qty.
2555-0032-01	2nd. moving barrel set	1	2514-1108-01	G2,G3 spacer	1
2555-0041-01	Master lens barrel set	1	2514-1385-01	Washer	1
2555-0101-01	Inner barrel set	1	2514-1416-01	Spring washer	1
2555-0810-01	Lens - G1,G2 set	1	2555-1803-01	Lens - G3	1
2555-0820-01	Lens - G5,G6 set	1	2555-1804-01	Lens - G4	1
2514-1102-01	G1,G2 pressure ring	1	2514-1811-01	Lens - G11	1
2555-1103-02	1st. moving barrel	1	2514-1812-01	Lens - G12	1
2514-1104-01	G4 pressure ring	1	0521-2107-04	G7 pressure ring	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 —

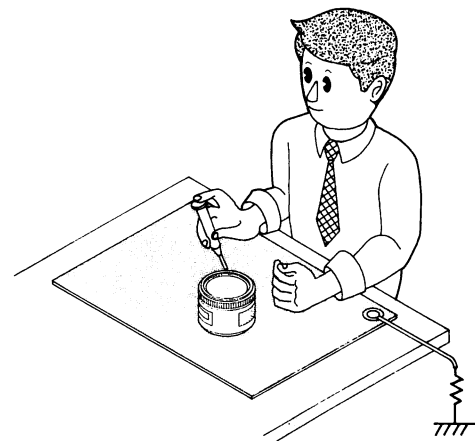
- B : Adhesive
- S : Solvent
- A : Anti-diffusion compound
- G : Lubricant
- T : Tool
- : Point of assembling and general caution

■ Assembling and adjusting procedure

	Page
1 Inner barrel, Zoom cam barrel, Diaphragm blade set assembling	1
2 Distance scale ring, Connecting barrel, Zoom operation ring assembling	2
3 Outer barrel, Gear set, Coupler, Flexible PC board set assembling	3
4 Bayonet mount assembling	3
5 Back washer, Outer barrel set, Bayonet mount set, Rear lens group, Light shield ring assembling	4
■ Aperture diameter adjusting (including pre-check)	4
6 1st moving barrel set, 2nd moving barrel set assembling	5
7 Outer ring, Focus lens barrel, Focusing ring, Zoom scale ring, Rubber ring assembling	6
■ Focus shift/flange back adjusting	6
■ Brush position adjusting	6
■ Projection resolving power checking	6
■ Aperture diameter checking	6
■ General function checking	6
■ Flexible PC board set replacing	7
■ Description of focusing and zooming	8
■ Wiring schematic diagram and Printed wiring diagram	9

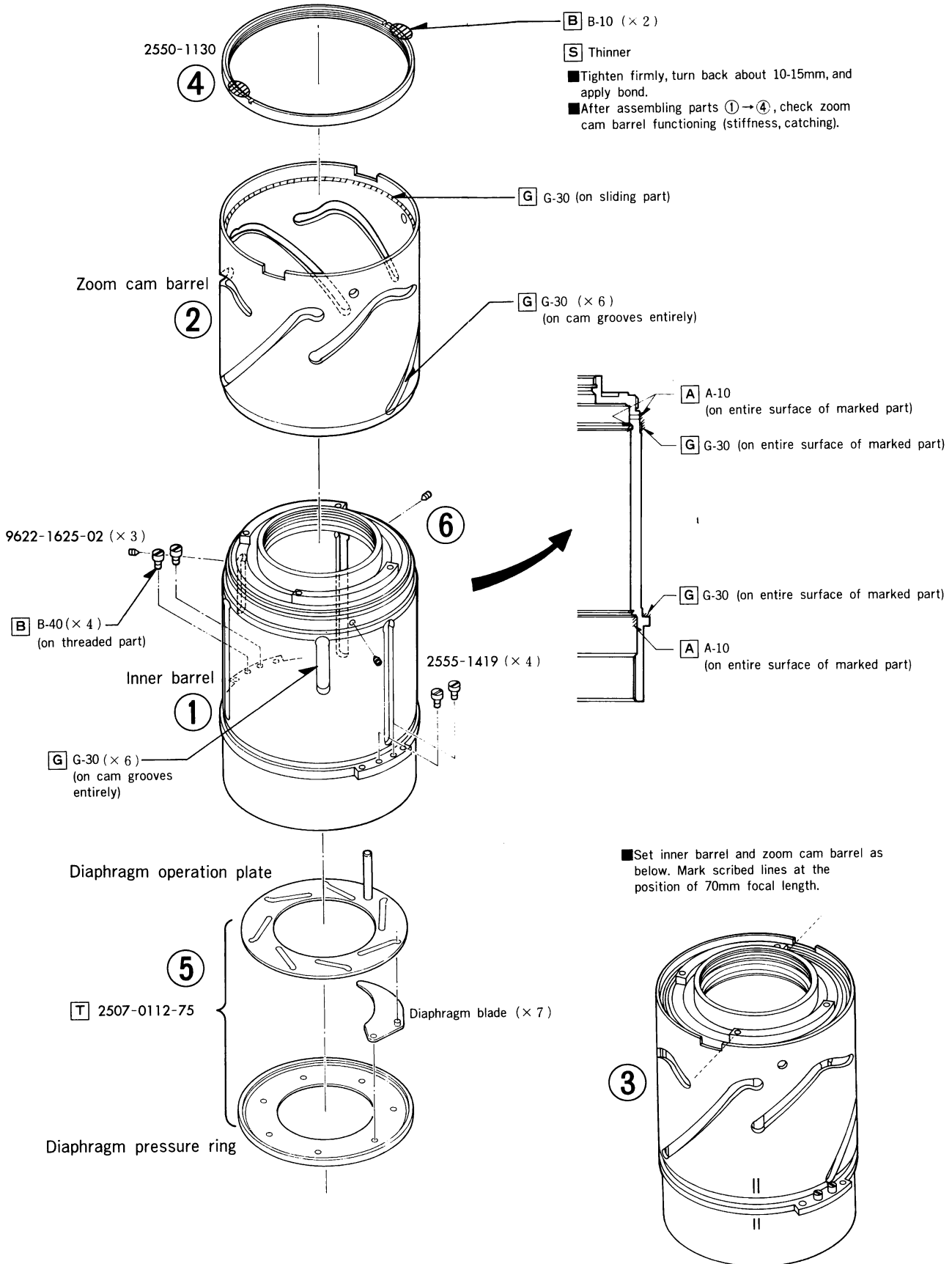
■ Precautions

- 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 precautions about static electricity. When performing repairs, use the conductive mat without fail, as shown.



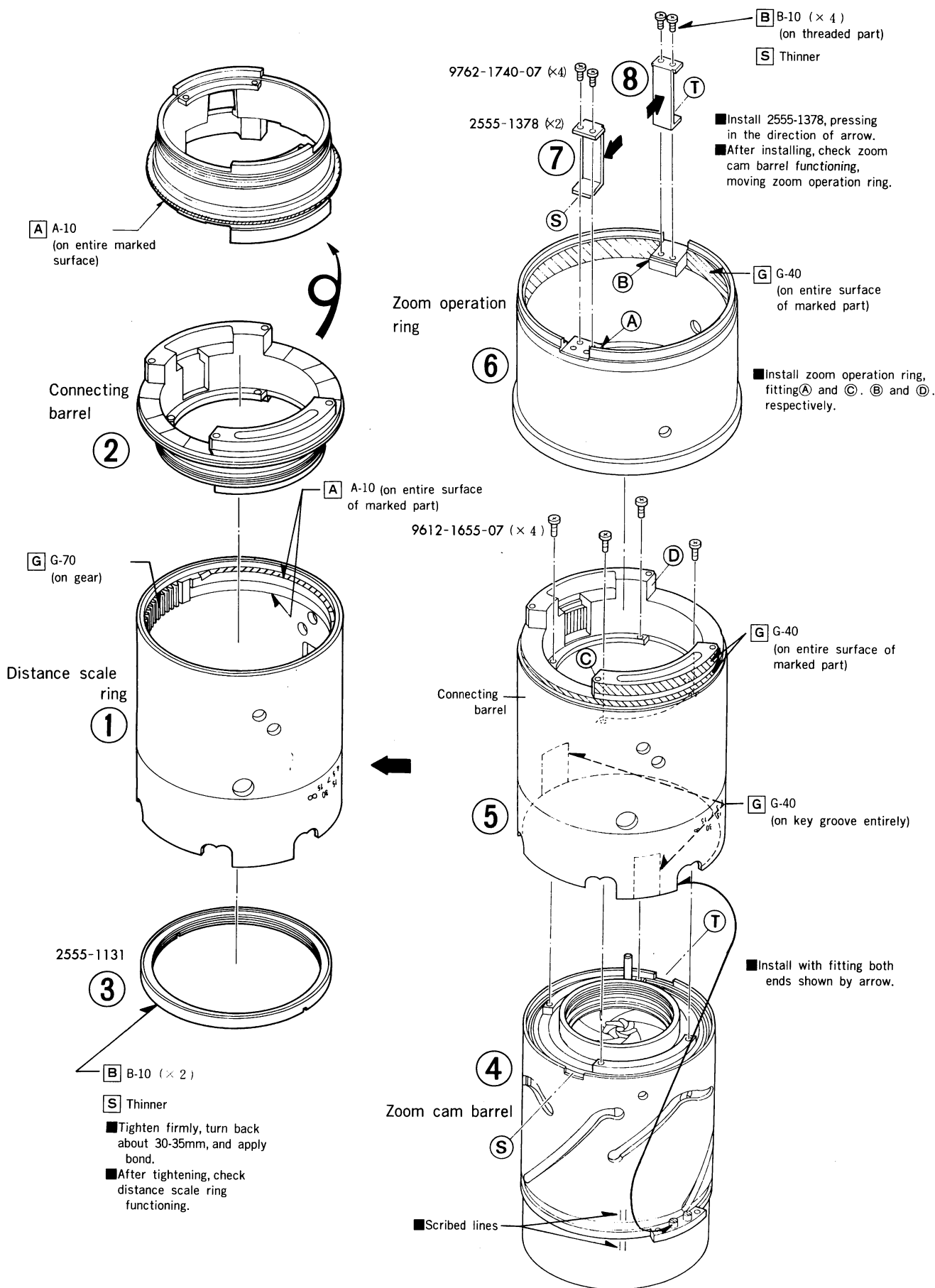
1 Inner barrel, Zoom cam barrel, Diaphragm blade

■ Assemble the parts in the order of ①→⑥. After assembling, check diaphragm blade functioning.



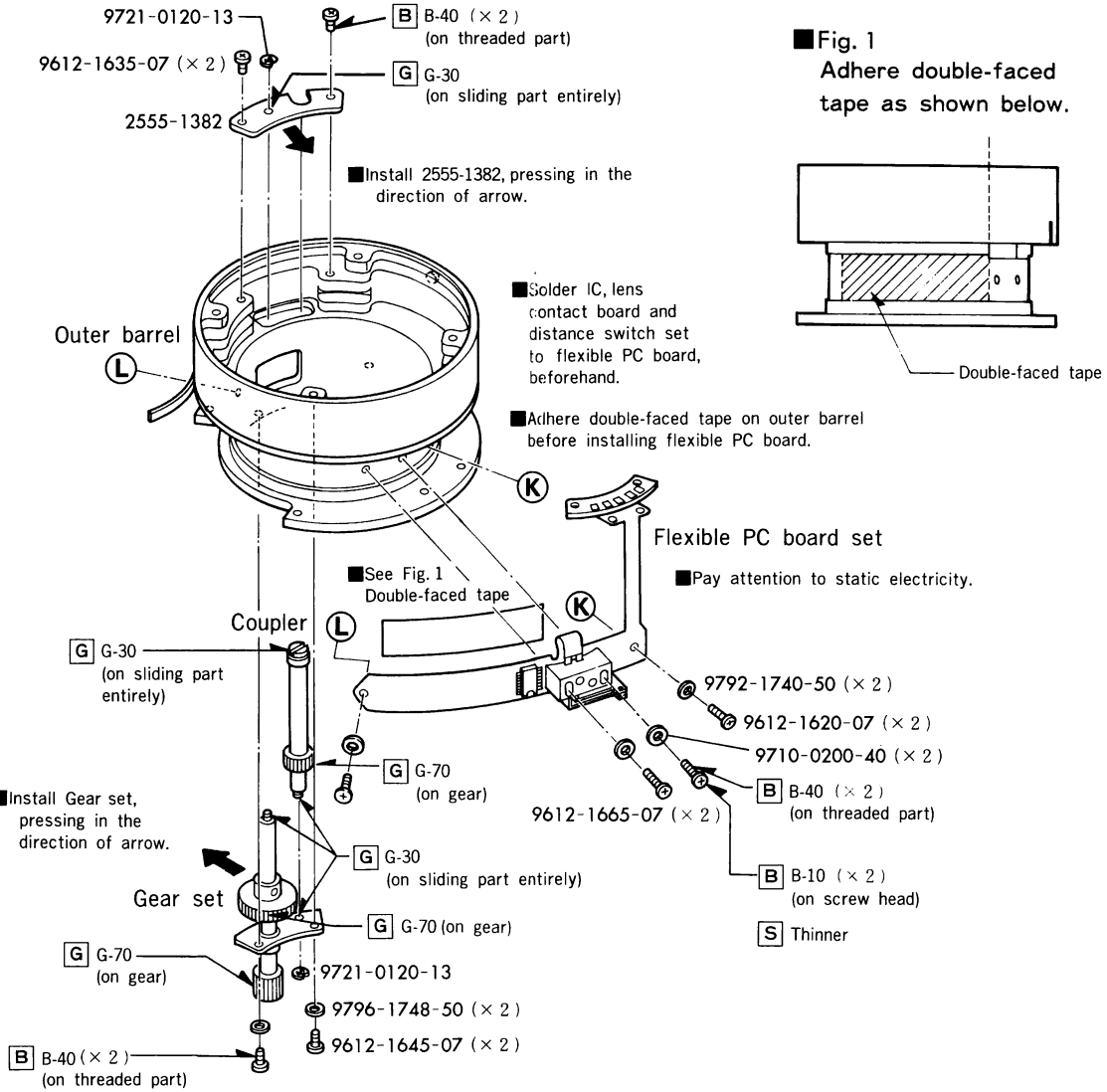
2 Distance scale ring, Connecting barrel, Zoom operation ring

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

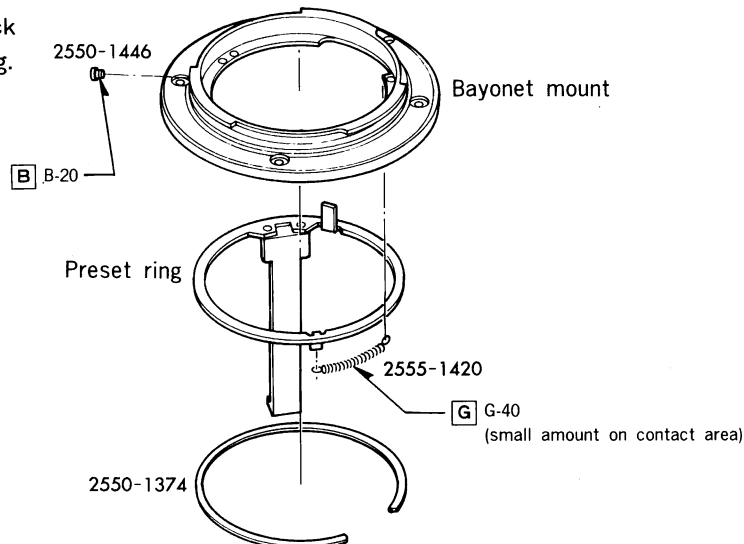


3 Outer barrel, Gear set, Coupler, Flexible PC board set

- When installing Flexible PC board set, pay attention to the followings.
 - (1) Do not admit air between Flexible PC board set and double-faced tape.
 - (2) Do not install Flexible PC board set slanted.



■ After assembling, check preset ring functioning.

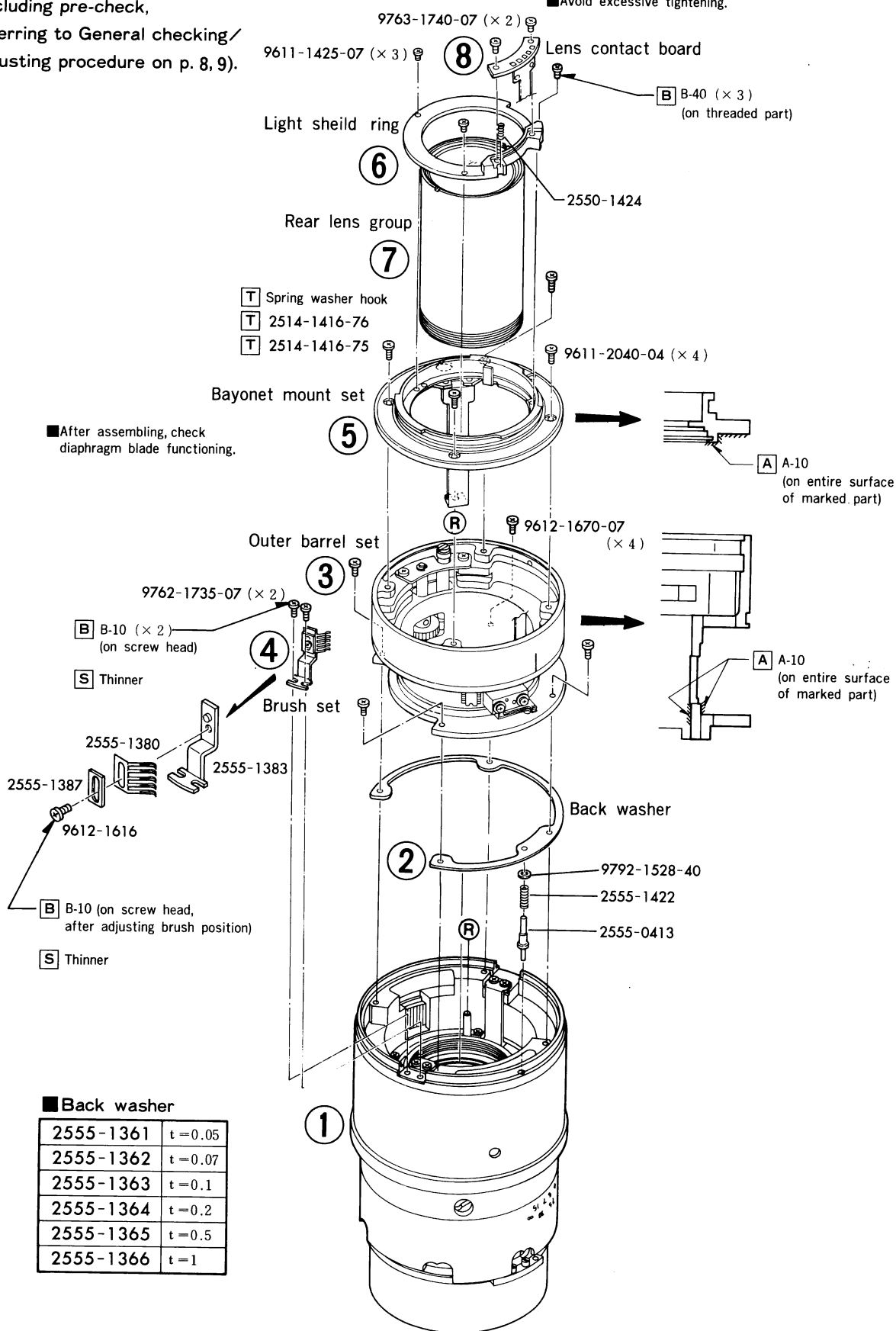


5 Back washer, Outer barrel set, Bayonet mount set, Rear lens group, Light shield ring

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

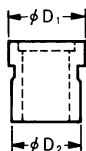
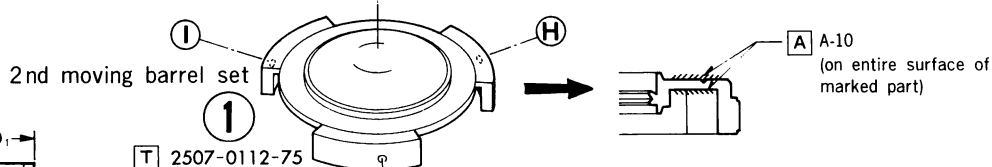
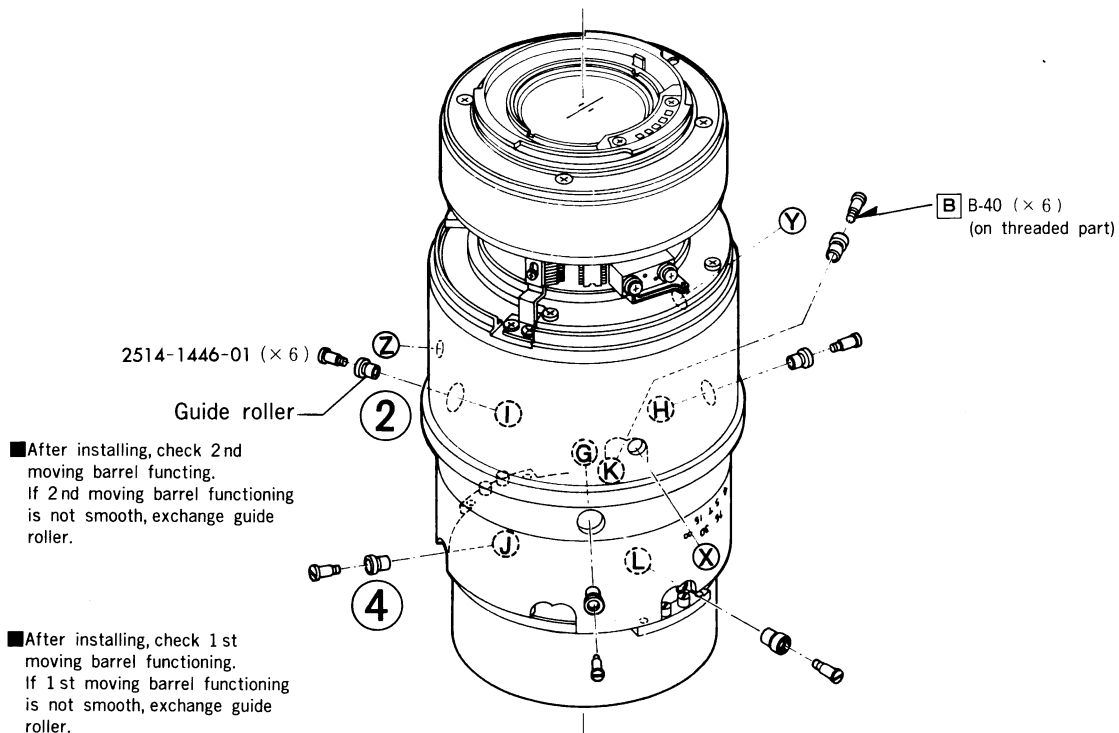
■ After assembling, perform aperture diameter adjusting (including pre-check, referring to General checking/adjusting procedure on p. 8, 9).

■ Avoid excessive tightening.



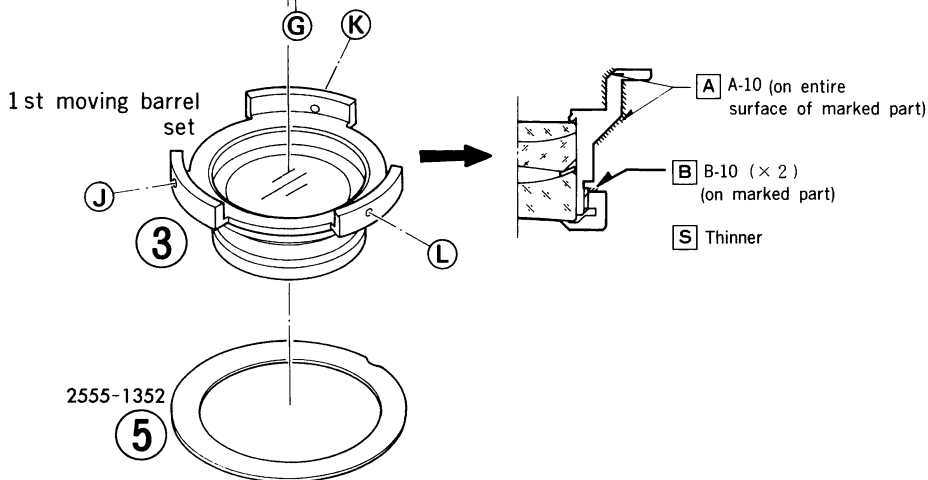
6 1st moving barrel set, 2nd moving barrel set

- Before assembling the parts in the order of ①→⑤, set distance scale ring at infinity (∞) setting, zoom operation ring at $f=70\text{mm}$.
- When assembling, install guide on original position.



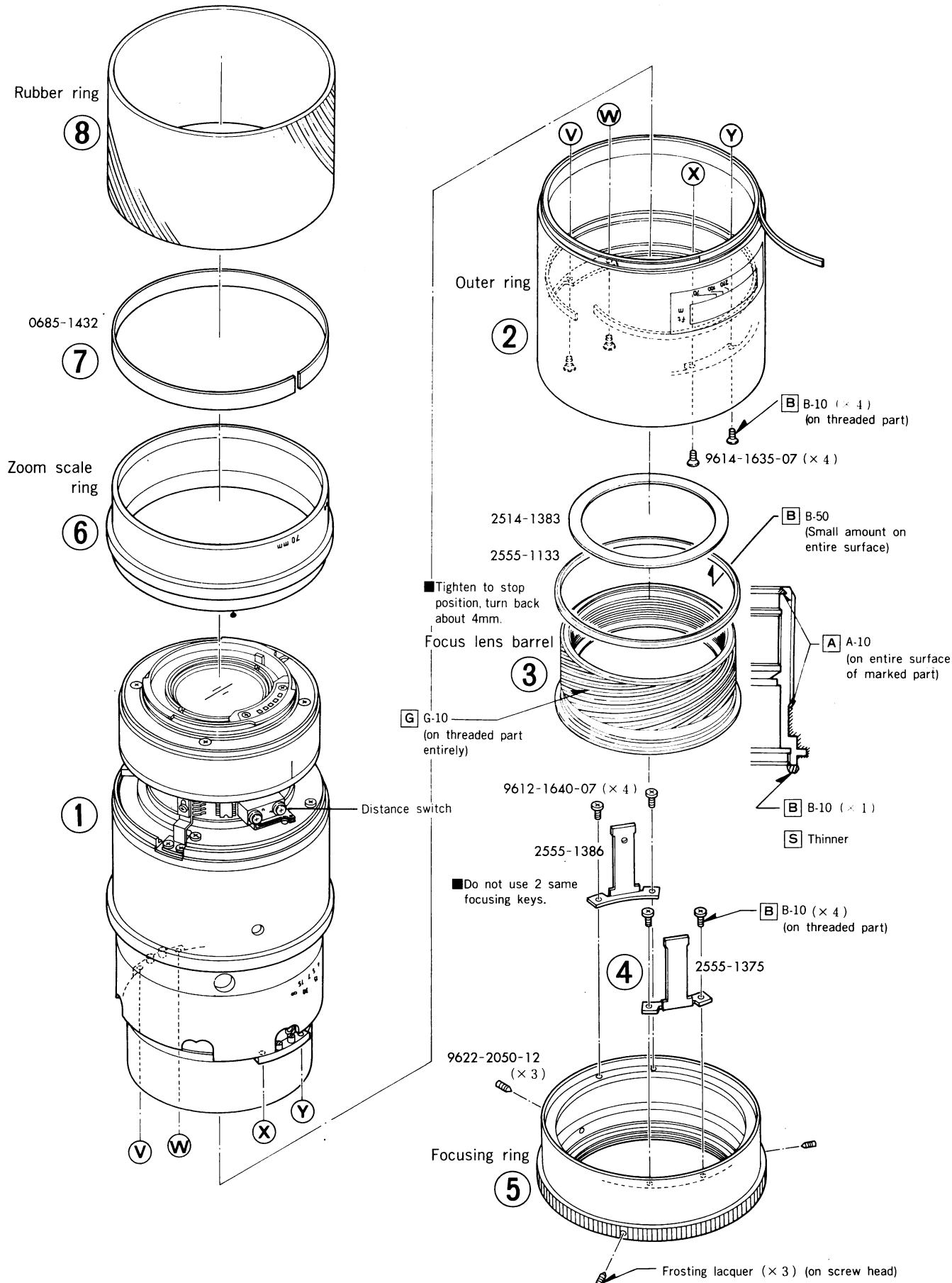
■ Guide roller

2514-1447	D ₁ = ϕ 4.52 D ₂ = ϕ 4.02
2514-1448	D ₁ = ϕ 4.52 D ₂ = ϕ 4.01
2514-1449	D ₁ = ϕ 4.52 D ₂ = ϕ 4.00
2514-1450	D ₁ = ϕ 4.51 D ₂ = ϕ 4.02
2514-1451	D ₁ = ϕ 4.51 D ₂ = ϕ 4.01
2514-1452	D ₁ = ϕ 4.51 D ₂ = ϕ 4.00
2514-1453	D ₁ = ϕ 4.50 D ₂ = ϕ 4.02
2514-1454	D ₁ = ϕ 4.50 D ₂ = ϕ 4.01
2514-1455	D ₁ = ϕ 4.50 D ₂ = ϕ 4.00



7 Outer ring, Focus lens barrel, Focusing ring, Zoom scale ring, Rubber ring

Assemble the parts in the order of ①→⑧.

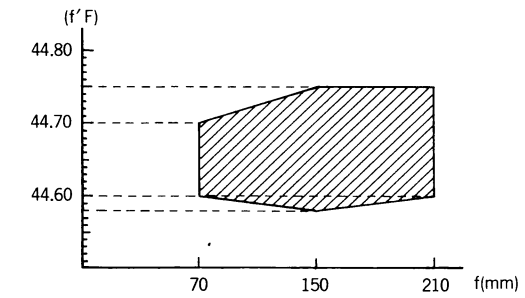


After assembling the parts in the order of ①→⑤, perform the following checking/adjusting.

- (1) Check distance switch set functioning.
 - Near side ↔ 3m : ON
 - 3m ↔ infinity (∞) side : OFF
- (2) Adjust focus shift/flange back (referring to General checking/adjusting procedure on p. 3).

Allowable range

f (mm)	f' F (mm)
70	44.60 ^{+0.10} ₀
150	44.58 ^{+0.17} ₀
210	44.60 ^{+0.15} ₀



- (3) 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
70	2.0—3.2	100	40	32
150	4.0—6.3	100	40	32
210	5.0—8.5	100	32	32

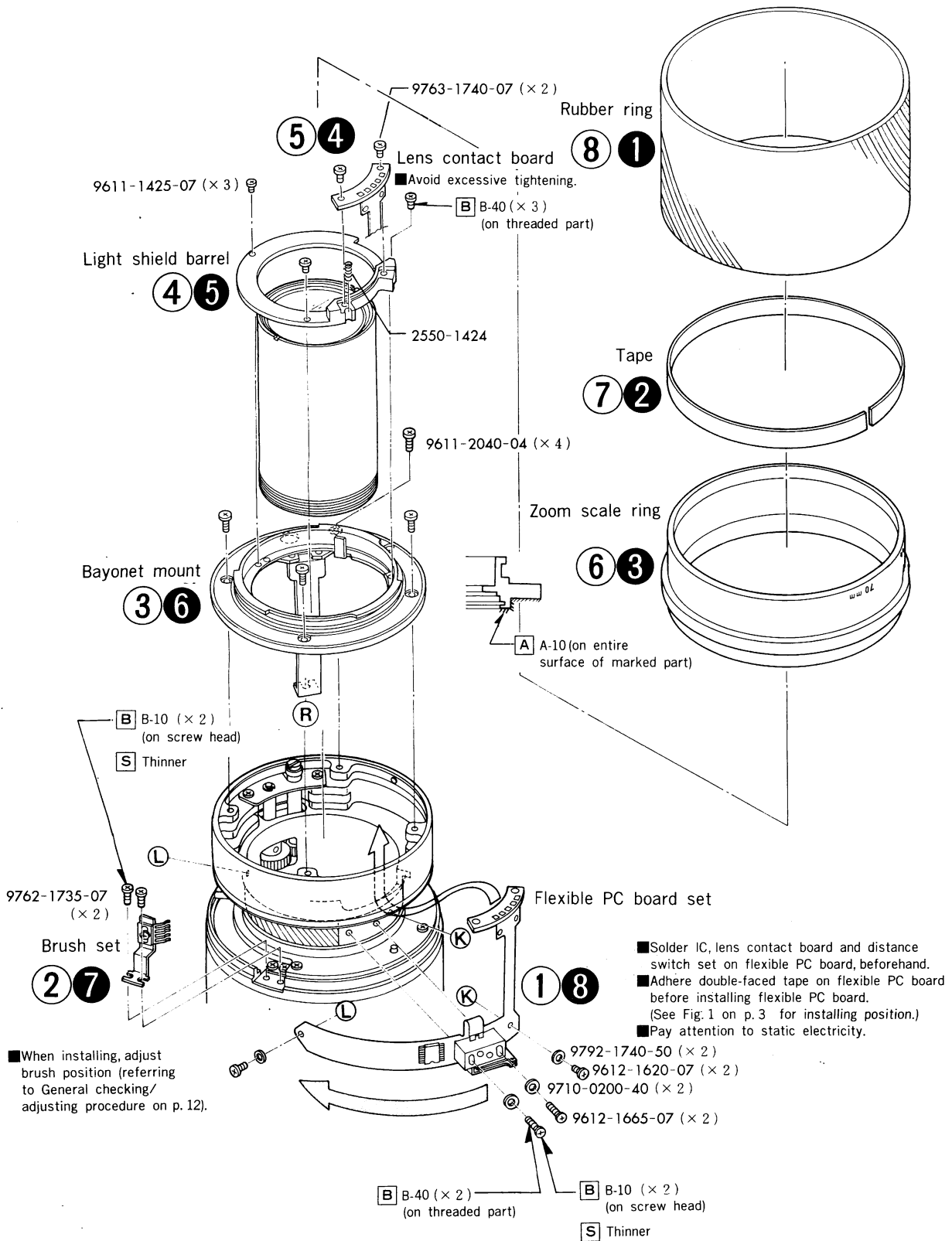
S : Sagittal image
 M : Meridional image

- (4) Adjust brush position (referring to General checking/adjusting procedure on p. 12).
- (5) Check aperture diameter (referring to General checking/adjusting procedure on p. 9).

Check general function (referring to General checking/adjusting procedure on p. 14).

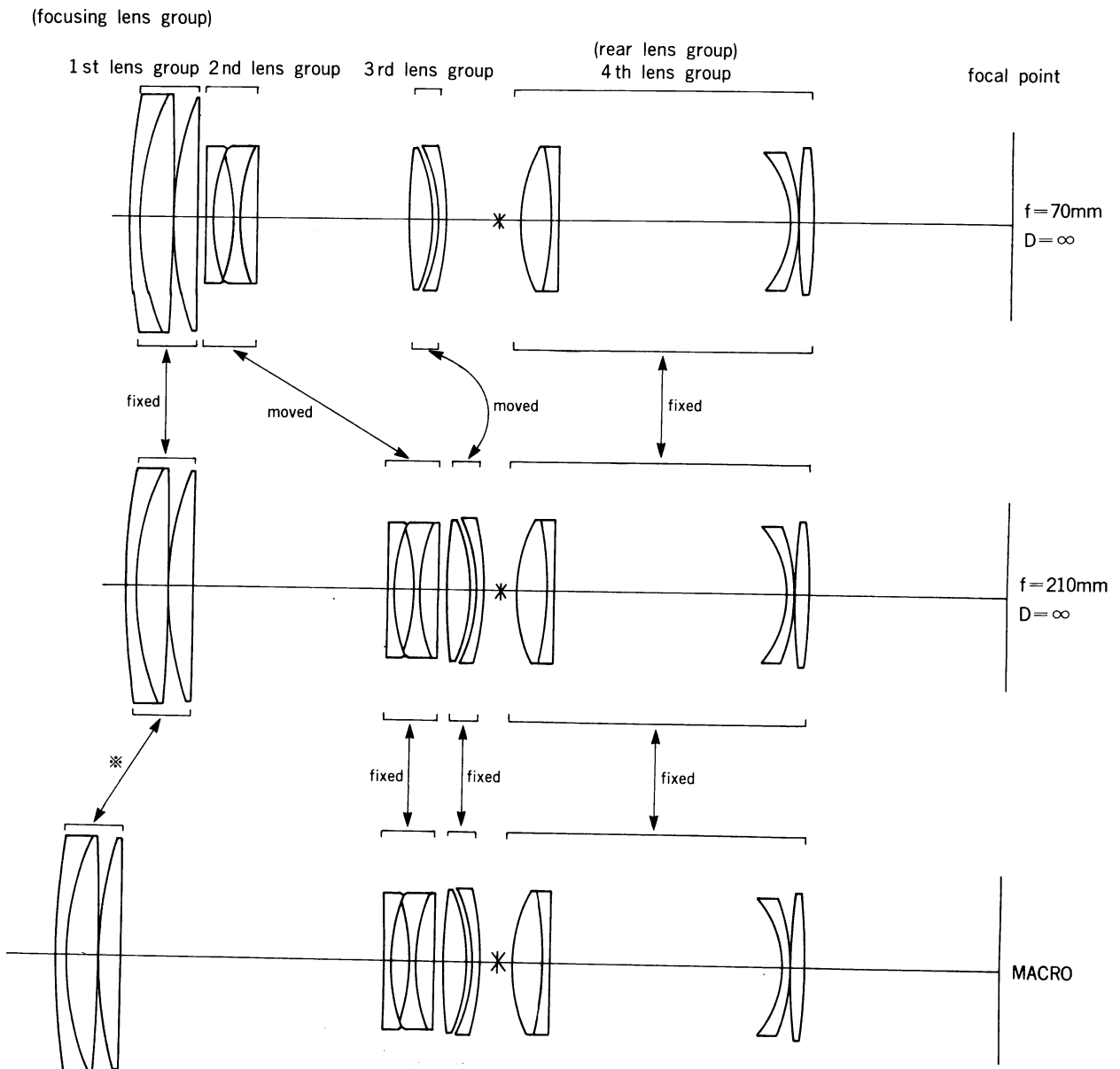
Flexible PC board set replacing

- Disassemble the parts in the order of ① → ⑧.
- Assemble the parts in the order of ① → ⑧.
- After assembling, check general function. (Refer to General checking/adjusting procedure on p. 14)
- When installing Flexible PC board set, pay attention to the followings.
 - (1) Do not admit air between Flexible PC board set and double-faced tape.
 - (2) Do not install Flexible PC board set slanted.



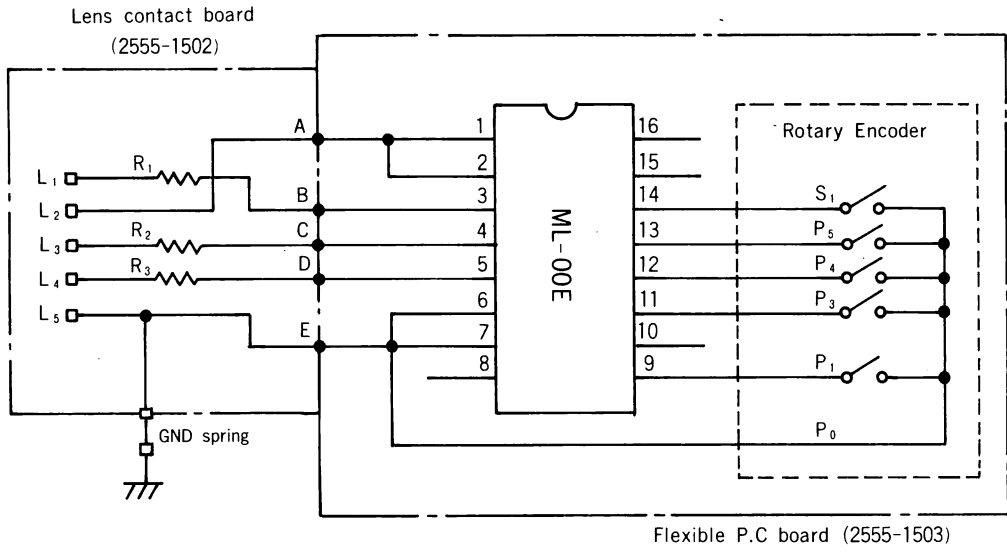
■ Description of focusing and zooming

- 3-component mechanical-compensation zoom lens (positive, negative, positive and positive).
When zooming, 2nd and 3rd lens group are moved individually by rotating zoom operation ring. And total length of lens and full aperture f-number are not varied.
- When focusing, 1st lens group (focusing lens group) is moved by rotating AF coupler or focusing ring.
- Magnification, which is obtained by rotating focusing lens group, is 1 : 3.9 at subject-to-camera distance (D)=1.1m, f=210mm.



※ Moved by rotating AF coupler or focusing ring.

■ Wiring schematic diagram, printed wiring diagram



- L₁₋₅ : Lens signal contact
- R₁₋₃ : Printed resistor
- ML-00E : ROM-IC
- A-E : Soldering point
- S₁ : Distance switch (∞ ↔ 3m : OFF, 3m ↔ minimum distance : ON)
- P₀₋₅ : Rotary encoder pattern switch (ON/OFF at certain zooming point)

