

作成承認印

配布許可印



AF Zoom-Nikkor 35-70mm f/3.3-4.5

Ser.# 4,000,001-



PARTS LIST (REVISED-1)
修理部品表 (改訂 - 1)

Nikon | NIKON CORPORATION
Tokyo, Japan

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Sep. 15, 1995

部品表 Parts List

AF 35~70/3. 3~4. 5

JAA72703-R. 3271. E

部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単 Q'ty p order
1K006-010	67	Screw	2		A1	○		10
*1K010-002-1	81	タップタイト小ネジ Screw	3		D3	○		10
*1K010-058	109	タップタイト小ネジ Screw	2		D1	○		10
*1K010-089	101	タップタイト小ネジ Screw	2		D3	○		10
1K010-171	85	タップタイト小ネジ Screw	3		D2	○		10
1K010-172	102	タップタイト小ネジ Screw	3		B3	○		10
*1K063-007-1	57	止め輪 Retaining ring	1		C3	○	RP-9041	5
1K063-023								
1K063-013	48	止め輪 Retaining ring	1		C1	○		5
1K110-310	54	ゴムリング Rubber ring	1		A1	○		5
1K110-311	63	ゴムリング Rubber ring	1		B3	○		5
1K110-312	86	テープ (6.8x200) Tape	1		A1	×	TA-0012	
1K115-951-1	92	テープ (5.5x30) Tape	2		A3	×	TA-0012	
*1K120-012	79	Screw	2		D3	○		10
*1K120-034 (1K120-002)	90	Screw	2		B1	○	RP-9119 OLD	10
*1K120-041	112	Screw	2		C3	○		10
*1K120-093	89	Screw	1		A3 C3	○		10
*1K120-155	80	Screw	2		C1 D2	○		10
*1K120-218	78	Screw	2		D3	○		10

部品表 Parts List

JAA72703-R. 3271. B

部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
*1K120-247	124	Screw	2		A2	○	RP-9020	10
*1K120-331								
1K120-303	76	Screw	4		B1	○		10
1K120-304	82	Screw	1		D3	○		10
1K120-305	103	Screw	2		A3	○		10
1K120-323	88	Screw	2		B3	○		10
1K130-425	58	段付小ネジ Screw	1		D2	○		10
1K130-425-1		段付小ネジ Screw	1		D2	○	RP-9020 RP-9113	10
*1K133-006	123	溝付小ネジ Screw	1		C3	○		10
1K133-059	95	溝付小ネジ Screw	1		B2	○		5
1K146-133	69	段付小ネジ Screw	2		A2	○	OLD	5
1K146-133-1		段付小ネジ Screw	2		A2	○	RP-9226 92F-1004	5
1K160-914	129	Washer	1		C2	○		5
1K208-097	74	EEロックボタン EE lock button	1		B3	○		5
*1K225-152-1 (1K225-152)	84	引張バネ Spring	1		C3	○		10
1K225-195	62	引張バネ Spring	1		B2	○		10
*1K240-563	75	板バネ Leaf spring	1		B3	○		5
*1K240-587	36	クリックバネ	1		D1	○	RP-9036	56
*1K240-587-1		Click spring						
1K260-482	37	カップリングギア Coupling gear	1		B2	○		1

部 品 表 Parts List

JAA72703-R. 3271. B

部品番号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販 売 区 分 Term of Delivery	備 考 Remarks	要 求 単 位 Q'ty per order
1K277-104	105	平歯車 Grar	1		B2	○		1
1K300-086	21	絞りカム板 Aperture cam plate	1		B3	○		5
1K314-399	55	絞り連動板 Aperture lever actuating plate	1		C3	○		1
1K400-311	38	フィルター取付環 Filter ring	1		B1	○		1
1K400-311-2		フィルター取付環 Filter ring	1		B1	○	RP-9119	1
*1K404-085-4 (1K404-085-2)	30	バヨネット Bayonet	1		D3	○		1
1K437-187	22	キー W=5.00 Key	0-2		B2 B1	○	OLD RP-9226 94F-1004	5
1K437-200								
1K437-188		キー W=4.99 Key	0-2		B2 B1	○	OLD RP-9226 94F-1004	5
1K437-201								
1K437-189		キー W=4.98 Key	0-2		B2 B1	○	OLD RP-9226 94F-1004	5
1K437-202								
1K437-195	64	キー Key	2		B1	○	OLD RP-9119	5
1K475-439	26	距離環 Focus ring	1		C2	○		1
1K475-440-1	28	絞り環 Aperture ring	1		A3	○	RP-9294 Serial No. 5000000~	1
1K999-114		絞り環 Aperture ring	1		B3	○	RP-9294 Serial No. 4000000~	1
1K475-441	51	ズーム環 Zoom ring	1		B2	○		1
1K485-178	53	ロック環 EE lock ring	1		A1	○		1
*1K515-188-1 (1K515-188)	45	G7, G8 分離環 G7, G8 spacer ring	1		B2	○		1
1K521-016	41	G1 押え環 G1 retaining ring	1		A1	○		1

部 品 表 Parts List

JAA72703-R. 3271. B

部品番号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販 売 区 分 Term of Delivery	備 考 Remarks	要 求 単 位 Q'ty per order
1K521-017	46	G8 押え環 G8 retaining ring	1		C2	○		1
1K535-374-2	24	ヘリコイド環 Helicoid ring	1		C1	○	RP-9119	1
*1K600-673-1 (1K600-673)	130	遮光板 light baffle plate	1		C3	○		5
1K600-959	60	制限板 Stopper plate	1		C3	○		5
1K600-960	77	軸受け板 Bearing plate	1		B3	○		5
1K600-961	91	カバー板 Cover plate	1		A3	○		1
1K600-962 1K600-962-1	106	軸受け板 Bearing plate	1		A2	○	RP-9020	5
*1K610-906	23	絞りレバー Aperture lever	1		C3	○		5
1K611-424	56	軸受け板 Bearing plate	1		A3	○		5
1K611-425	104	ズーム連動レバー Zooming lever	1		A3	○		5
1K611-427-2	127	ナット Nut	2		B1	○△	RP-9226 92F-1004	5
1K640-951	39	後部保護環 Rear cover ring	1		D1	○		1
1K640-952	52	丸 環 Ring	1		A1	○△		1
1K640-955	70	ガイド環 φ4.98 Guide ring	0-2		A1	○		5
1K640-956		ガイド環 φ4.97 Guide ring	0-2		A1	○		5

部 品 表 Parts List

JAA72703-R. 3271. B

部品番号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販 売 区 分 Term of Delivery	備 考 Remarks .	要 求 単 位 Q'ty per order
1K681-153	35	ガイド板 Guide plate	2		C2	○		5
1K681-154	61	絞りガイド板 Aperture guide plate	1		D2	○		5
A1-17020FA	116	Screw	2		B3	○		50
A1-17028FA	99	Screw	2		A2	○		10
*1G105-018-2 *1G105-018-2	G8	G8レンズ G8 lens element	1		C2	○		1
*1G203-022-2 (1G203-022-1)	G7	G7レンズ G7 lens element	1		B2	○	◆	1
*1G207-026-1	G2	G2レンズ G2 lens element	1		B1	○	◆	1
*1G247-028-2	G1	G1レンズ G1 lens element	1		B1	○		1

部 組 品 表 Assembly List

JAA72902-R. 3285. B

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	構 成 部 品 番 号 Constituent Parts	参照 図番 Fig.	備 考 Remarks	要 求 単 位 Q'ty per order
1B001-903	B107	エンコーダブラシ Encoder brush	1		A3		1
1B001-904-7	B29	ズーミングカム筒組 Zooming cam tube unit	1		B2	RP-9226 92F-1004	1
1B060-426	B301	AF 接点組 AF contact unit	1		D3		1
1B100-529	Z40	G3 レンズ室組 G3 Lens housing	1		B1	OLD	1
1B100-529-1		G3 レンズ室組 G3 Lens housing	1		B1	RP-9226 92F-1004	1
1B100-530	Z42	G4-G6 レンズ室組 G4-G6 LENS HOUSING	1		B1		1
*1B570-059-1 (1B570-059)	B31	絞り羽根 Aperture blade	7		C1		10
1B630-049	B27	社名環 Name ring	1		D2		1
1B630-049-1		社名環 Name ring	1		D2	MADE IN THAILAND RP-9294	1
1B999-561		社名環 Name ring	1		D2	MADE IN JAPAN	1
			7				1
1B999-403		ガイド環 φ5.00 Guide ring	0-1	1K116-990-1 1K130-426-1	B2	RP-9116	5
1B999-404		ガイド環 Guide ring	0-1	1K116-991-1 1K130-426-1	B2	RP-9116	5
1B999-405		ガイド環 Guide ring	0-1	1K116-992-1 1K130-426-1	B2	RP-9116	5
1B999-406		ガイド環 Guide ring	0-1	1K116-993-1 1K130-426-1	B2	RP-9116	5
1B999-407		ガイド環 Guide ring	0-3	1K116-994-1 1K130-427	A1 A2	RP-9116	5
1B999-408		ガイド環 Guide ring	0-3	1K116-995-1 1K130-427	A1 A2	RP-9116	5
1B999-409		ガイド環 Guide ring	0-3	1K116-996-1 1K130-427	A1 A2	RP-9116	5
1B999-410		ガイド環 Guide ring	0-3	1K116-997-1 1K130-427	A1 A2	RP-9116	5

〔 1 〕 仕 様

焦 点 距 離	35 ～ 70 mm
最 大 口 径 比	1 : 3.3 ～ 4.5
レ ン ズ 構 成	7 群 8 枚
画 角	62° ～ 34° 20′
焦 点 目 盛	35, 50, 70
距 離 目 盛	∞ ～ 0.5 m, 2 ft (併記)
ズ ー ミ ン グ	回 転 式 (回 転 角 71° 52′)
フ ォ ー カ シ ン グ	回 転 式 (回 転 角 119° 47′)
絞 り 目 盛	3.3, 5.6, 8, 11, 16, 22
絞 り 方 式	自 動 絞 り (最 小 絞 り ロ ッ ク 可 能)
測 光 方 式	開 放 測 光
マ ウ ン ト	ニ コ ン F マ ウ ン ト
ア タ ッ チ メ ン ト サ イ ズ	52mm (P = 0.75)
大 き さ	φ66.5mm (最 大 径) × 57mm (全 長)
重 量	約 240g

[1] SPECIFICATIONS

Focal length:	35 ~ 70mm
Maximum aperture:	1 : 3.3 ~ 4.5
Lens construction:	7 elements in 8 groups
Picture angle:	62° ~ 34° 20'
Focal length scale:	35, 50, 70
Distance scale:	∞ ~ 0.5m, 0.85 ft
Zooming:	Rotating angle
Focusing:	Rotating angle
Aperture scale:	3.3, 5.6, 8, 11, 16, 22
Diaphragm:	Fully automatic Minimum aperture lock is possible
Metering:	Full-aperture measurement
Mount:	Nikon F mount
Attachment size:	52mm (P = 0.75)
Dimensions:	φ66.5mm (dia.) × 57mm (long)
Weight:	Approx. 240g
Macro focus device:	It is possibility macro shooting in every zoom range.

AF Zoom Nikkor 35-70mm f/3.3-4.5



Disassembling / Assembling / Adjustment

〔 4 〕 部品对照表 Parts Number Reference Table

補助番号 Auxiliary Number	部 品 番 号 Parts Number	補助番号 Auxiliary Number	部 品 番 号 Parts Number	補助番号 Auxiliary Number	部 品 番 号 Parts Number
G1	1G247-028-2	53	1K485-178	94	1K116-994~997
G2	1G207-026-1	54	1K110-310	95	1K133-059
G3	1G147-023-1	55	1K314-399	99	A1-17028FA
G4	1G110-030-1	56	1K611-424	101	1K010-089
G5	1G140-030	57	1K063-007-1	102	1K010-172
G6	1G210-018	58	1K130-425	103	1K120-305
G7	1G203-022-2	60	1K600-959	104	1K611-425
G8	1G105-018-2	61	1K681-154	105	1K277-104
		62	1K225-195	106	1K600-962
		63	1K110-311	107	1K240-716
21	1K300-086	64	1K437-195	108	1K371-456
22	1K437-187~189	65	1K680-643-1	109	1K010-058
23	1K610-906	66	1K116-990~993	111	1K611-426
24	1K535-374	67	1K006-010	112	1K120-041
25	1K302-052	68	1K130-426	116	A1-17020FA
26	1K475-439	69	1K146-133	123	1K133-006
27	1K630-649	70	1K640-953~956	124	1K120-247
28	1K475-440	71	1K160-919	125	1K110-313
29	1K630-650	72	1K680-651-1	126	1K110-314
30	1K404-085-4	73	1K240-469-1	127	1K611-427
31	1K570-062	74	1K208-097	128	1K160-913
32	1K370-004-2	75	1K240-563	129	1K160-914
33	1K572-142	76	1K120-303	130	1K600-673-1
34	1K574-134	77	1K600-960		
35	1K681-153	78	1K120-218		
36	1K240-587	79	1K120-012	B107	1B001-903
37	1K260-482	80	1K120-155	B29	1B001-904
38	1K400-311	81	1K010-002-1	B301	1B060-426
39	1K640-951	82	1K120-304	Z40	1B100-529
40	1K500-762	84	1K225-152-1	Z42	1B100-530
41	1K521-016	85	1K010-171	B31	1B570-059-1
42	1K500-763	86	1K110-312	B27	1B630-049
45	1K515-188-1	88	1K120-323		
46	1K521-017	89	1K120-093		
48	1K063-013	90	1K120-034		
50	1K530-048	91	1K600-961		
51	1K475-441	92	1K115-951-1		
52	1K640-952	93	1K130-427		

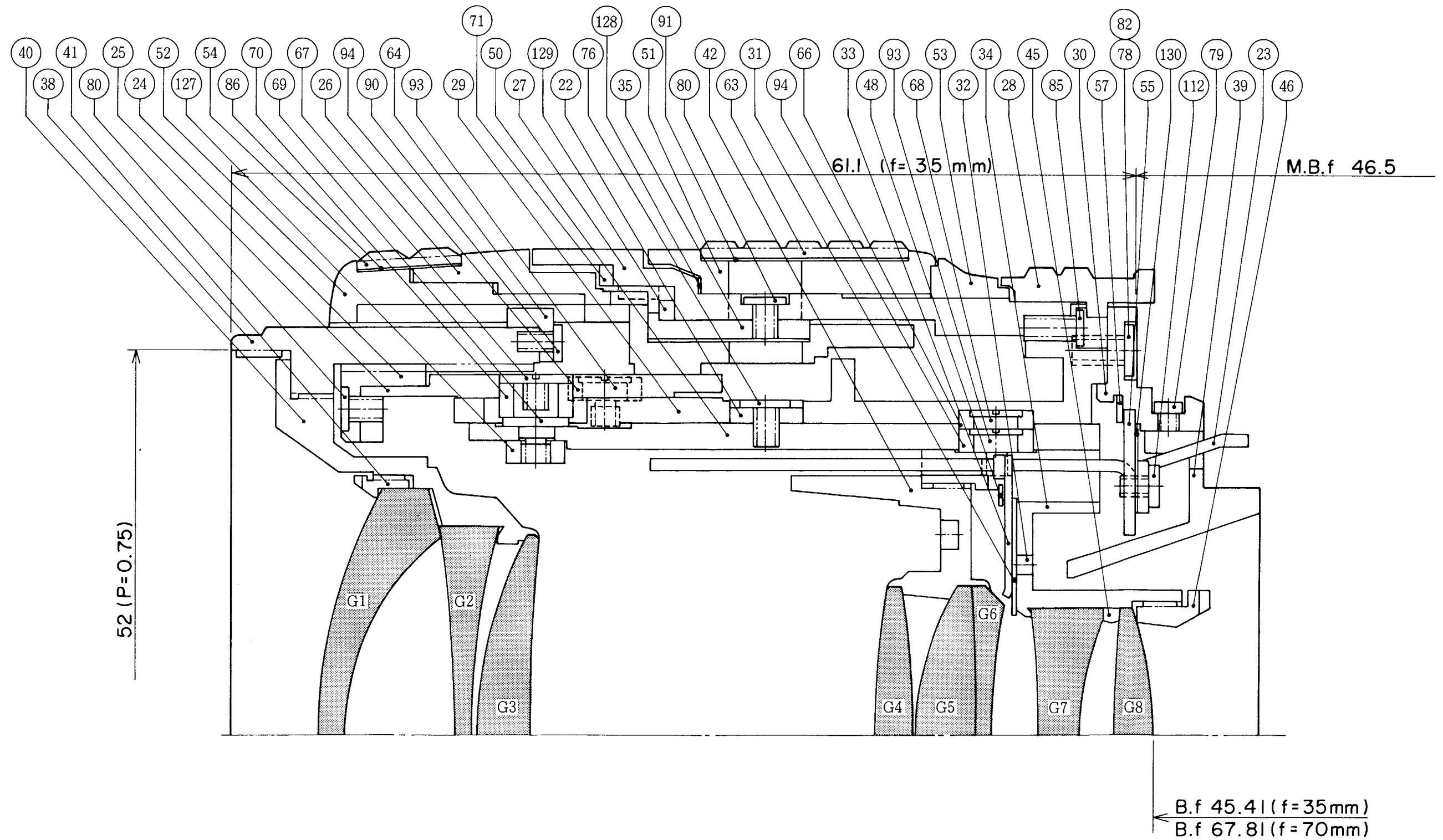


Fig. 2

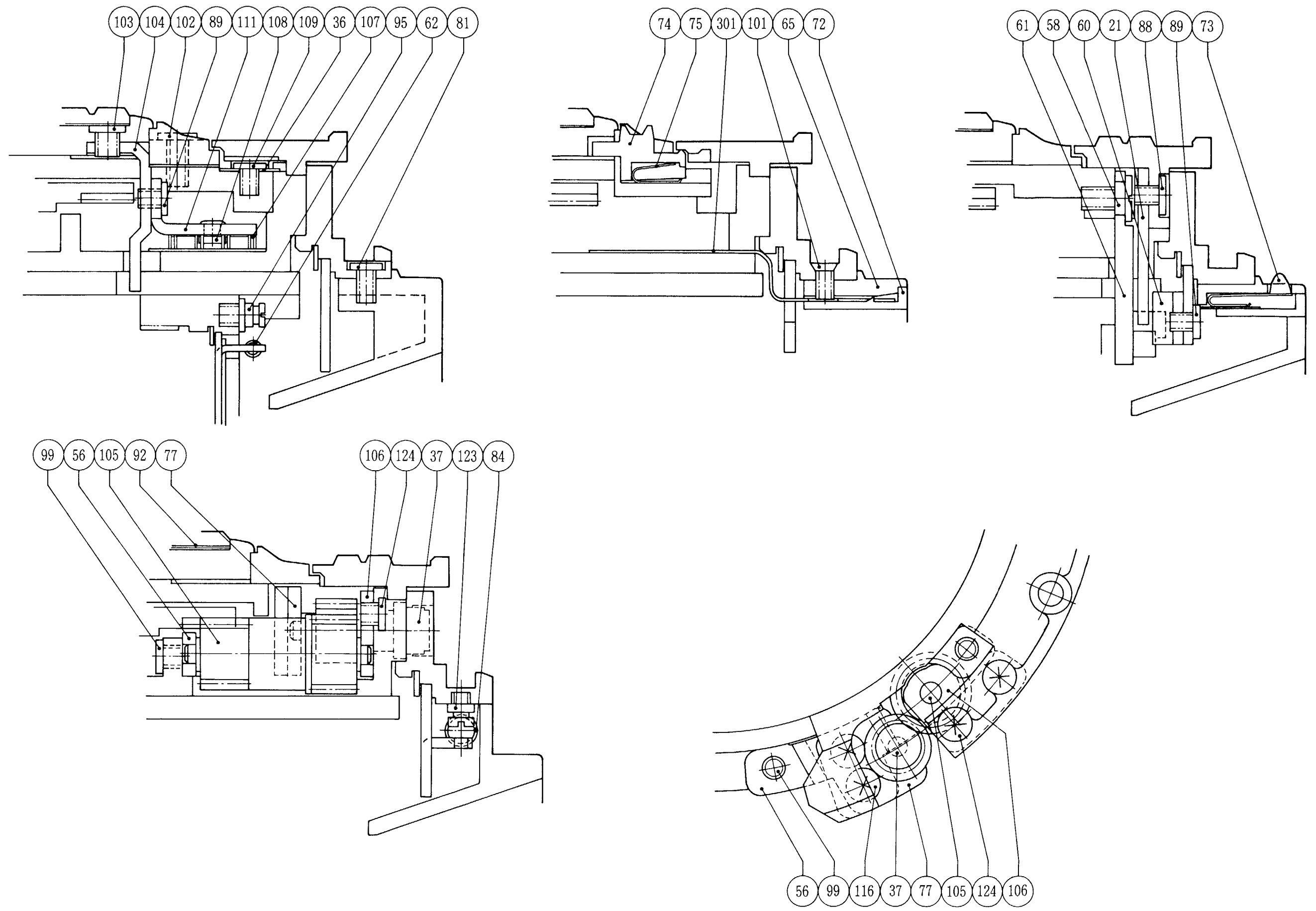


Fig. 3

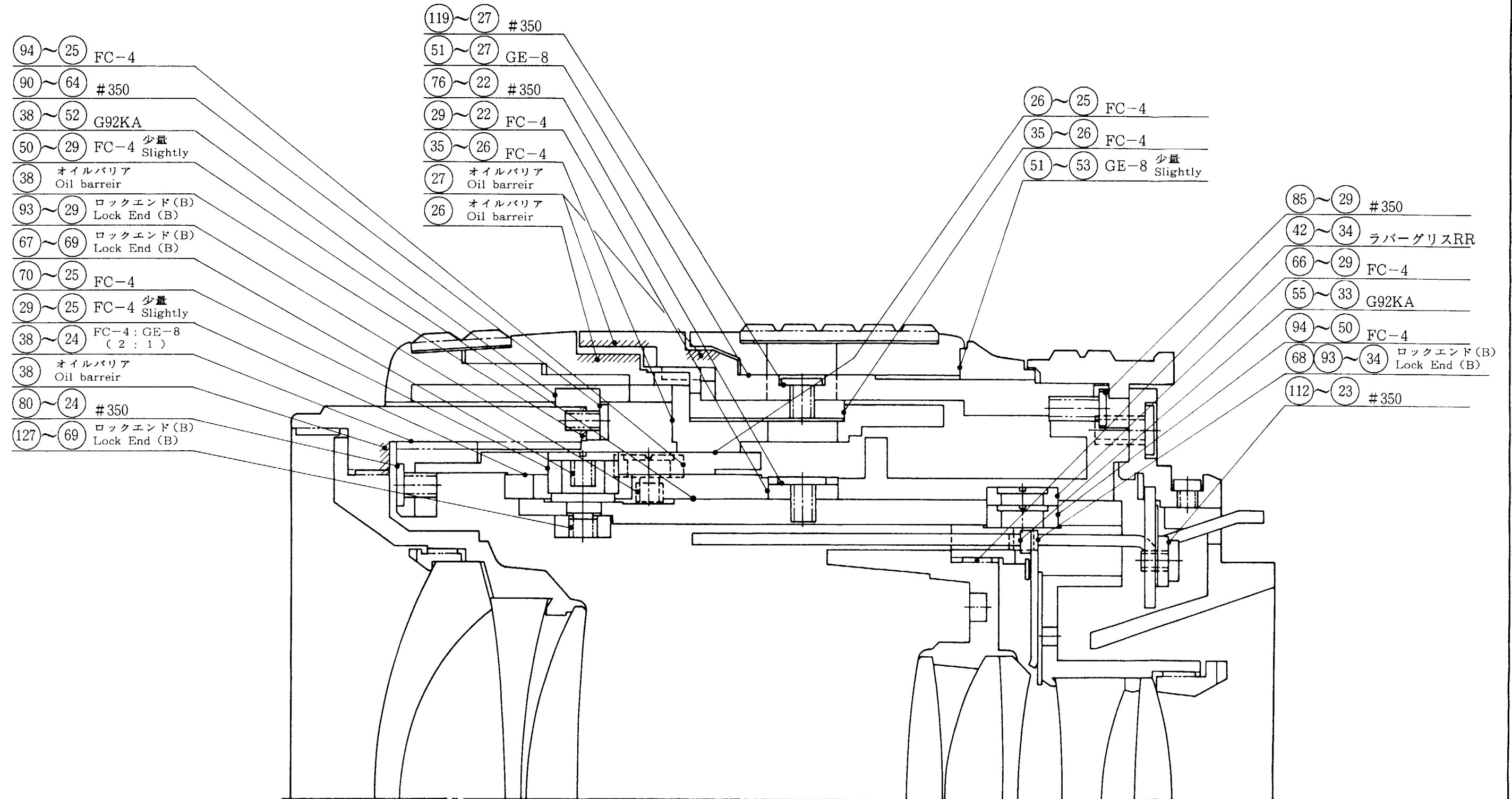


Fig. 4

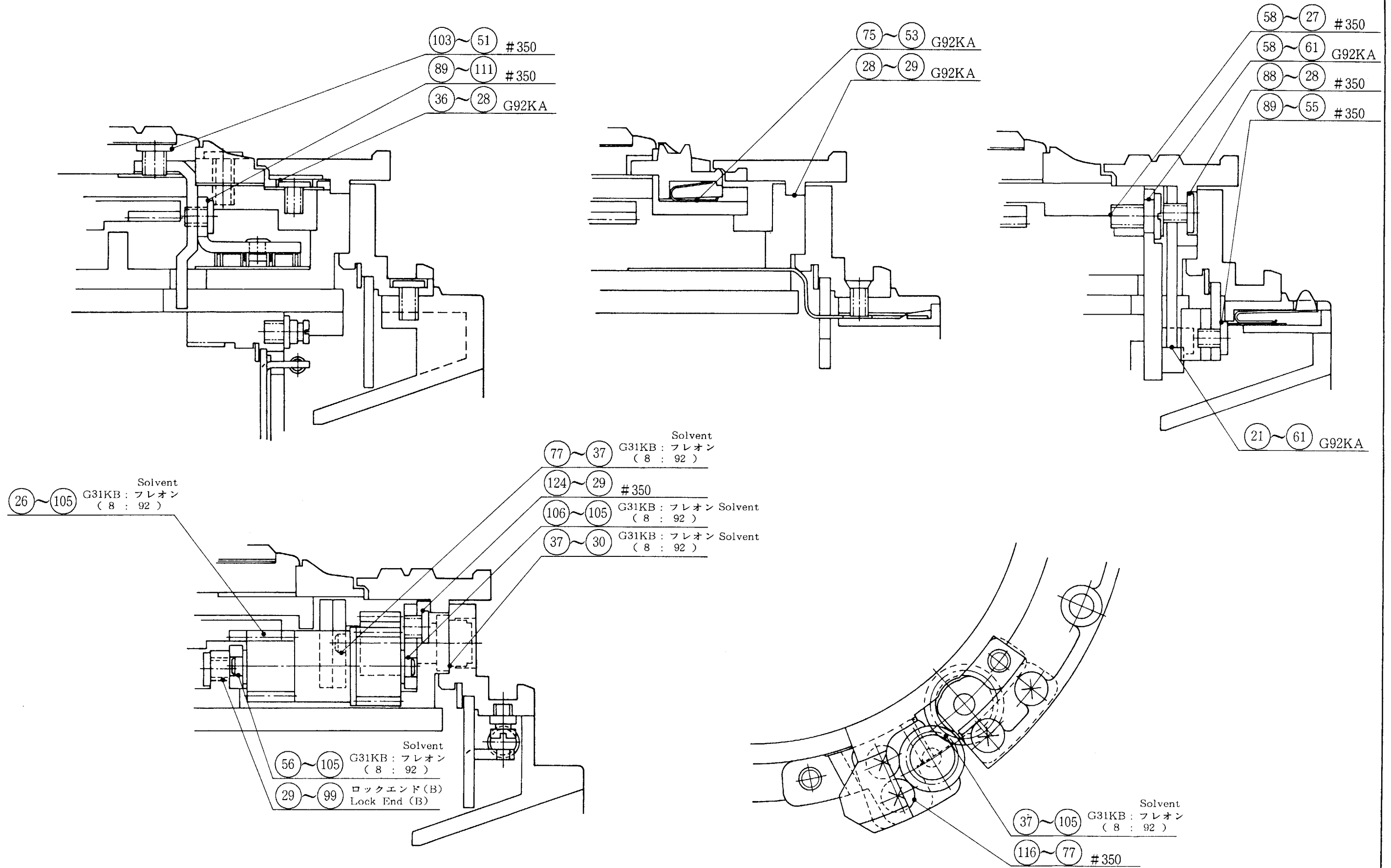


Fig. 5

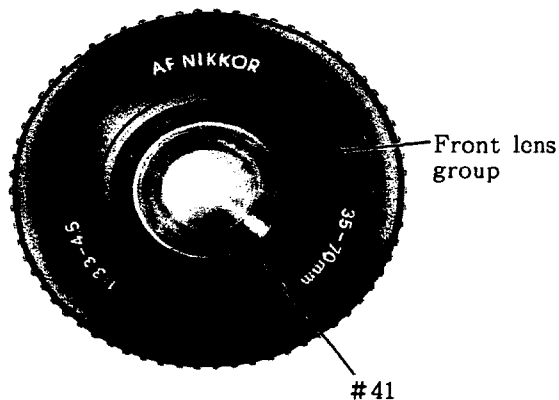
The diagram illustrates the exploded view of a camera body, showing the following components and their assembly relationships:

- Front lens group** (top left) connects to **G4~G6 lens housing Z42**.
- G4~G6 lens housing Z42** connects to **Tube #52**.
- Tube #52** connects to **Filter ring #38**.
- Filter ring #38** connects to **Helicoid ring #24** and **Key #64x2**.
- Helicoid ring #24** connects to **Washer #129** and **Focus ring #26**.
- Washer #129** connects to **Focus ring #26**.
- Focus ring #26** connects to **Guide plate #35x2** and **Name ring B27**.
- Guide plate #35x2** connects to **Name ring B27**.
- Name ring B27** connects to **AF contact unit B301**.
- AF contact unit B301** connects to **Zooming cam tube unit B29**.
- Zooming cam tube unit B29** connects to **Aperture blade** and **AF gear**.
- Aperture blade** connects to **AF gear**.
- Rear cover ring #39** (top right) connects to **Bayonet mount #78x2, #82** and **Rear lens group**.
- Bayonet mount #78x2, #82** connects to **Aperture lever** and **Aperture ring #28**.
- Aperture lever** connects to **Aperture ring #28**.
- Aperture ring #28** connects to **EE lock ring #55**.
- EE lock ring #55** connects to **Zoom ring #51**.
- Zoom ring #51** connects to **Encoder brush B107** and **Washer #128**.
- Encoder brush B107** connects to **Zooming lever #104**.
- Washer #128** connects to **Zooming lever #104** and **Name ring B27**.
- Zooming lever #104** connects to **Name ring B27**.

- Note:** ① The tone of pictures may be different from actual one. Make sure of the shape of parts when disassembling and assembling.
- ② The mark ∇ shows the position of index.
- ③  : Disassembling/assembling
 : Adjustment
 : Additional work
- ④ Screws with a dot are tap-tight screws.

2. DISASSEMBLING

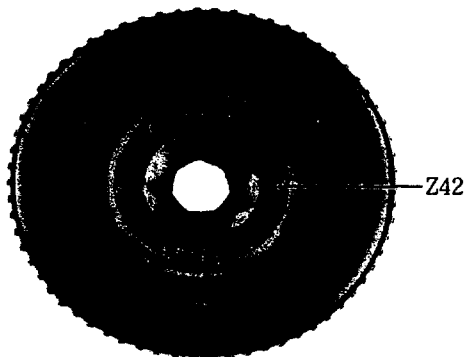
FRONT LENS GROUP (Z40, G1, G2, #41)



Remove front lens group using a rubber pad. If not possible, remove tube #52 and filter ring #38, rotate the front lens group clockwise from the rear of the filter ring.

Note: Be careful not to erase printed characters or damage lenses.

G4~G6 LENS HOUSING Z42



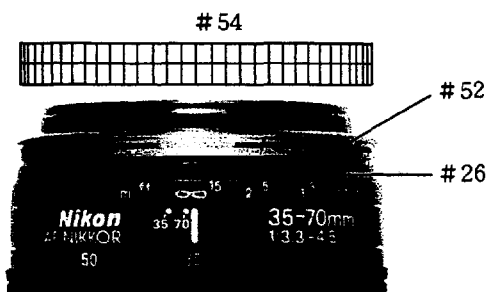
Remove Z42 using a tool (J11204).

* About the tool (J11204).

Pin side: For JAA72703 (this lens).

Plate side: For new type of JAA72701.

TUBE #52



- ① Remove rubber ring #54.
- ② Peel of tape fixing #52 and #26.
- ③ Remove #52.

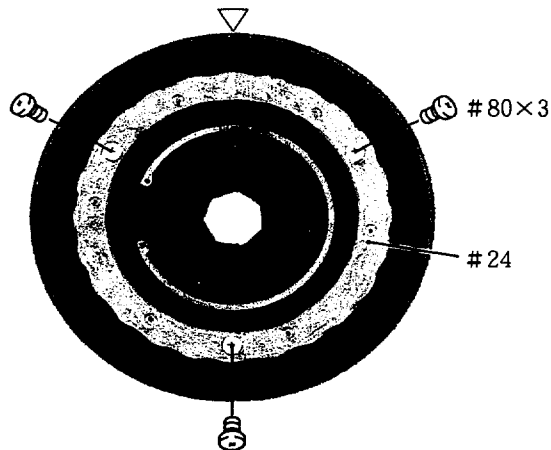
FILTER RING #38



Note: Set focus ring at ∞ and zoom ring at 35mm before removing #38. Fasten screw #38 fully (left-hand screw) and put an identification mark at this position.

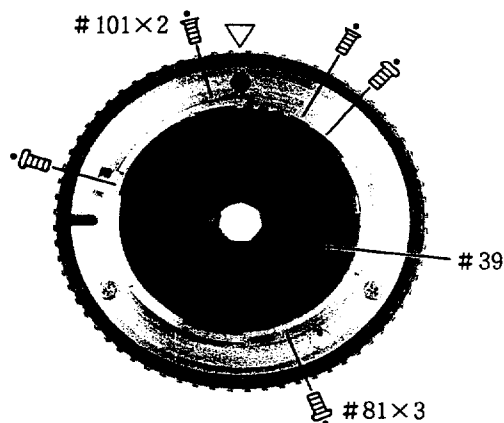
* You are not required to remove #64 on #38 unless necessary for replacing parts.

HELICOID RING #24

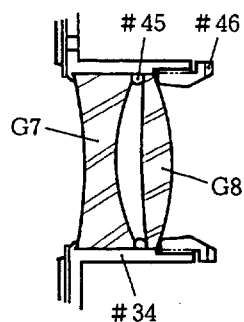


Remove #24 after putting a mark.

REAR COVER RING #39

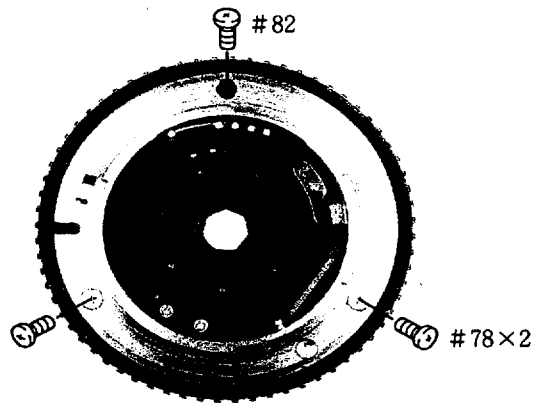


REAR LENS GROUP (G7, G8, #45, #46)

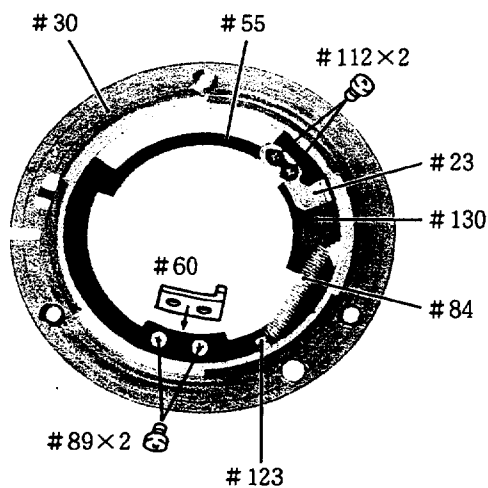


* You are not required to remove these parts unless necessary for replacing or cleaning.

BAYONET MOUNT



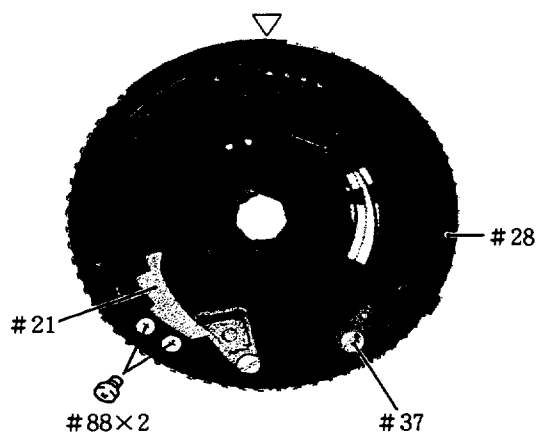
APERTURE LEVER GROUP



#55 can be removed if retaining ring #57 is removed.

* You are not required to remove these parts unless necessary for replacing parts. Adjustment is necessary if you remove #23 and #60.

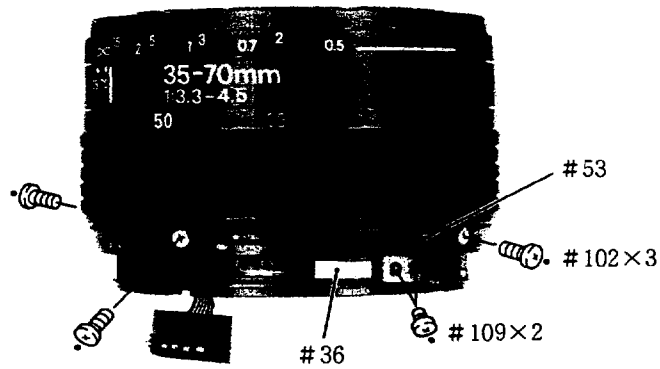
APERTURE RING #28



Coupling gear #37 can be removed if aperture ring #28 is removed.

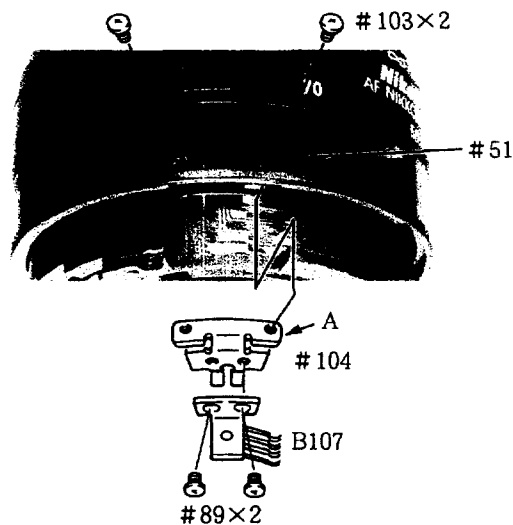
* You are not required to remove #21 unless necessary for replacing parts.

EE LOCK RING #53



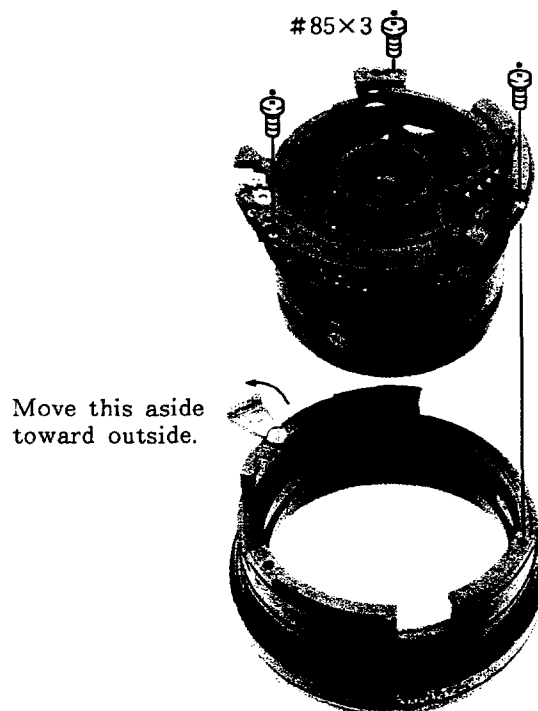
EE lock ring #53 can be removed without removing click spring #36.

ZOOM RING #51

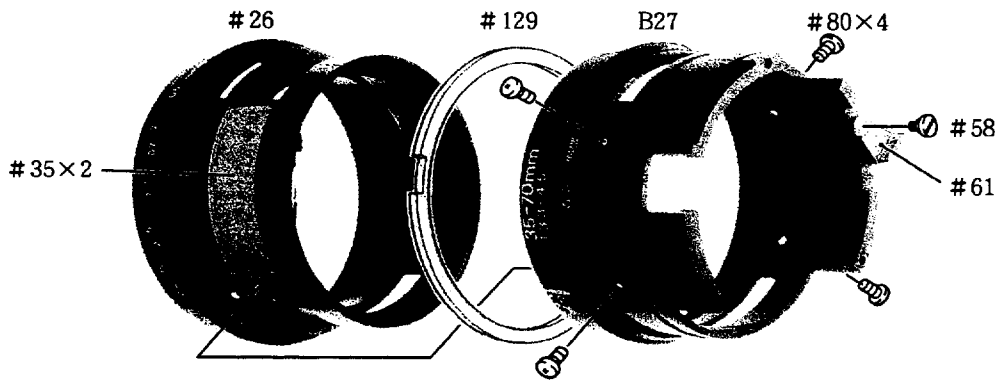


- ① Remove rubber ring #63 and cover plate #91.
- ② Unfasten screws #89x2 to remove encoder brush B107.
- ③ Unfasten screws #103x2 to remove zooming lever #104. Pull the portion A forward to remove the lever.
- ④ Zoom ring #51 and washer #128 can be removed.

ZOOMING CAM TUBE GROUP

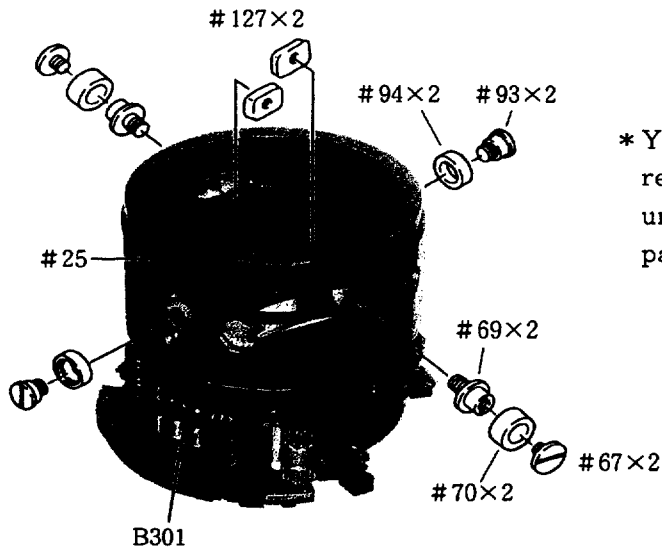


FOCUS RING #26, NAME RING B27



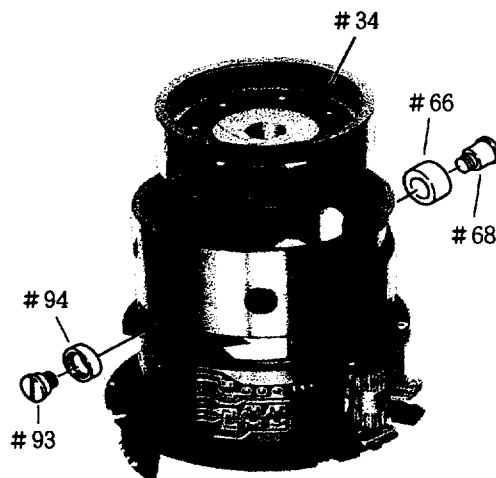
* You are not required to remove these parts unless necessary for replacing parts.

ZOOMING CAM TUBE UNIT B29 (#25), AF CONTACT UNIT B301

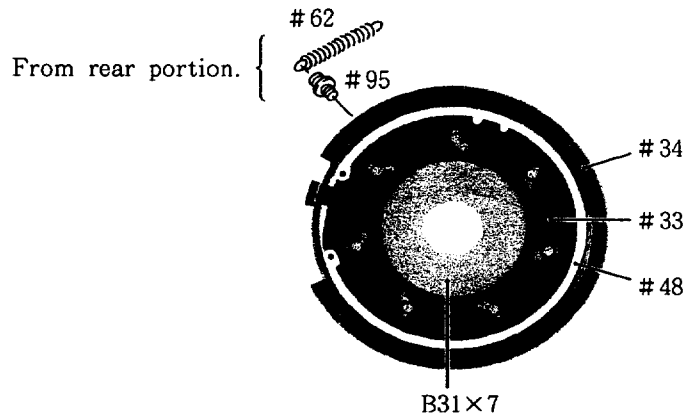


* You are not required to remove AF contact unit B301 unless necessary for replacing parts.

ZOOMING CAM TUBE UNIT B29 (#34)

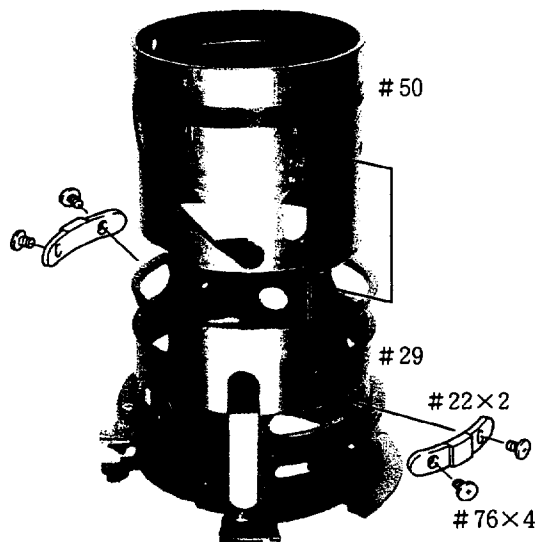


APERTURE BLADE GROUP

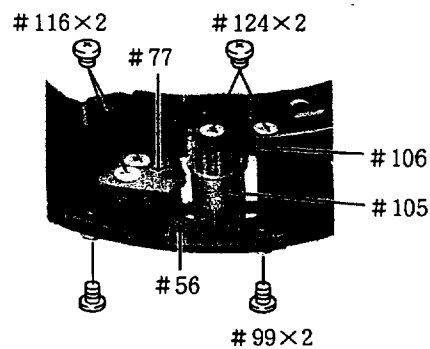


* You are not required to remove these parts unless necessary for replacing parts.

ZOOMING CAM TUBE UNIT B29 (#29, #50)



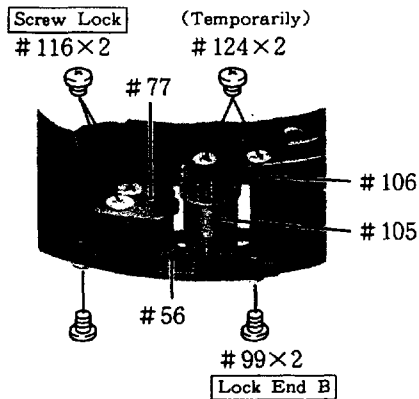
AF GEAR GROUP



* You are not required to remove these parts unless necessary for replacing parts. Otherwise it will cause malfunction in AF gear or generation of strange sound.

3. ASSEMBLING / ADJUSTMENT

AF GEAR GROUP

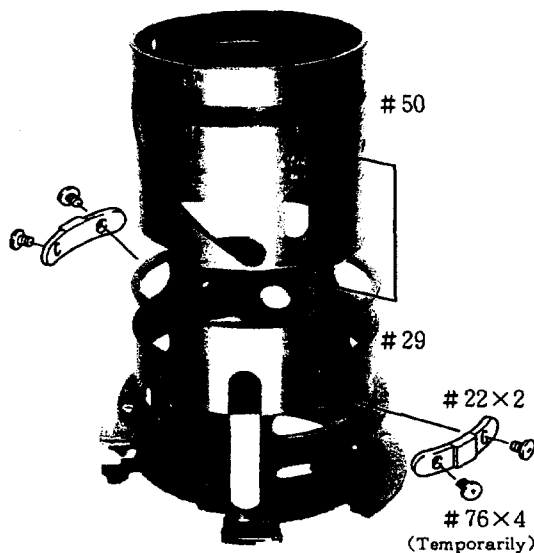


Portions to which oil 606Y-S should be applied:

- ① Bearing holes #56, #77, #106.
- ② Circular area of the gear of #105.

* Fasten screws #124x2 temporarily.

ZOOMING CAM TUBE UNIT B29 (#29, #50)



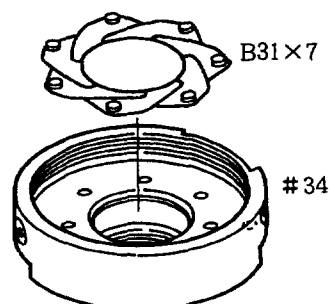
Portions to which oil FC-4 should be applied:

- ① Sliding surface between #50 and #29.
- ② Two portions on cam groove of #50.
- ③ Two portions on the groove of #29 for #22 and one portion of straight groove.

At the position as shown in the photo, mount #50 on #29. Mount the key #22x2 on #50 using screws #76x4. Fasten screws #76x4 temporarily.

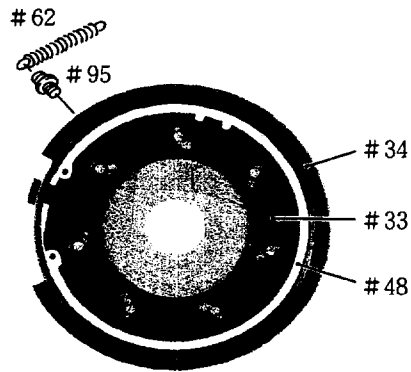
Inspection: Check to confirm if operation of #29 and #50 is proper.

APERTURE BLADE B31



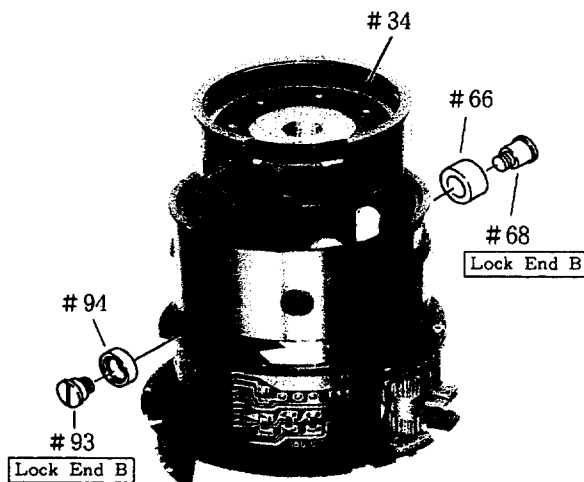
Mount aperture blade B31x7 on #34 as shown in the figure.

BLADE ACTUATING PLATE #33



Mount blade actuating plate #33 using retaining ring #48. Mount screw #95 and spring #62 on #34 from rear side.

ZOOMING CAM TUBE UNIT B29 (#34)



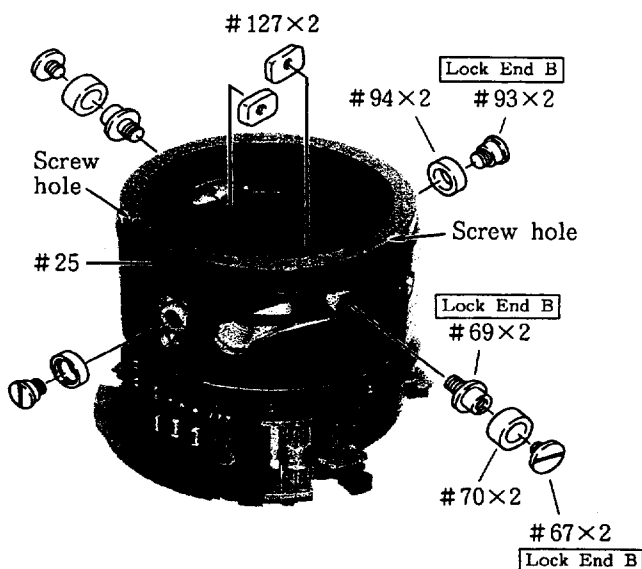
Portions to which oil FC-4 should be applied: Sliding surface between #34 and #50.

At the position as shown in the photo, mount #34. Mount #93 and #94 (thin) from the hole, and mount #68 and #66 (thick) from the straight groove on #34.

Note: Use #94 and #66 with the same diameters, or it may cause to fall the lens barrel.

Inspection: Check to confirm if operation of #34 is proper by moving it back and forth.

ZOOMING CAM TUBE UNIT B29 (#25)



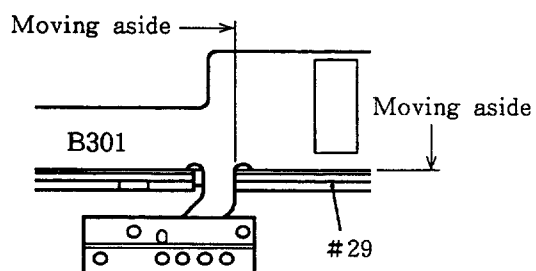
Portions to which oil FC-4 should be applied:

- ① Sliding surface between #29 and #25.
- ② Two portions on the cam groove of #22 and two portions of straight groove.

When mounting #25, the cam groove and screw hole should be positioned as shown in the photo. Mount #93 and #94 in the first place, and then mount #67, #69, #70 and #127.

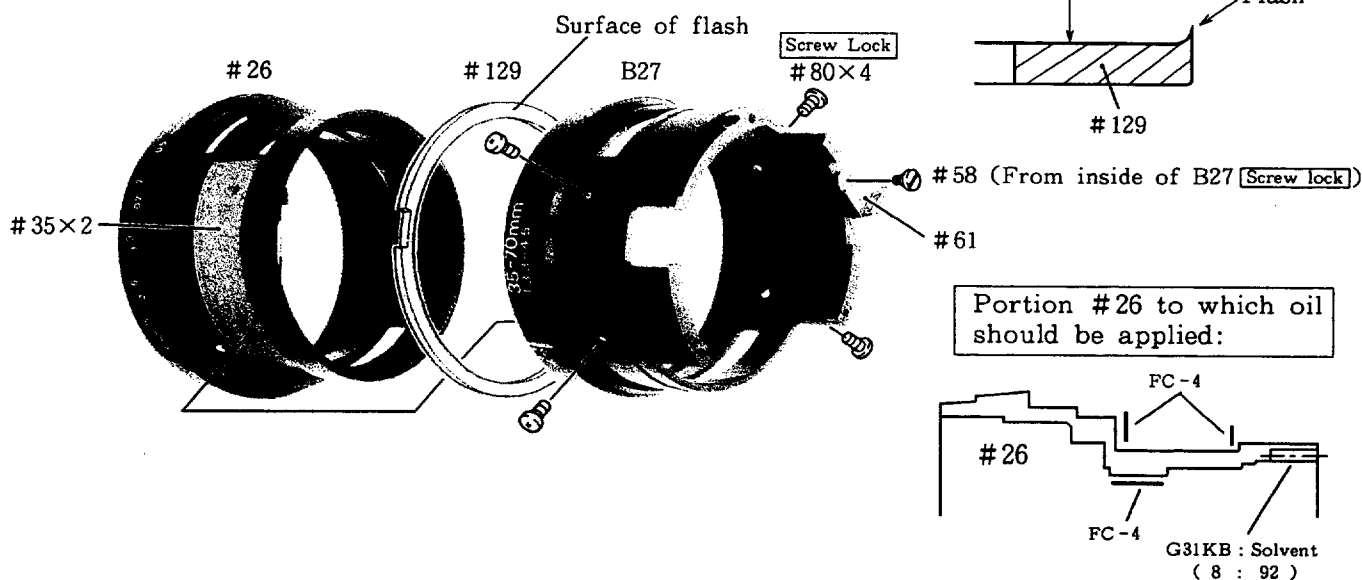
Note: Use two #94 with the same diameter.
Use two #70 with the same diameter.

AF CONTACT UNIT B301

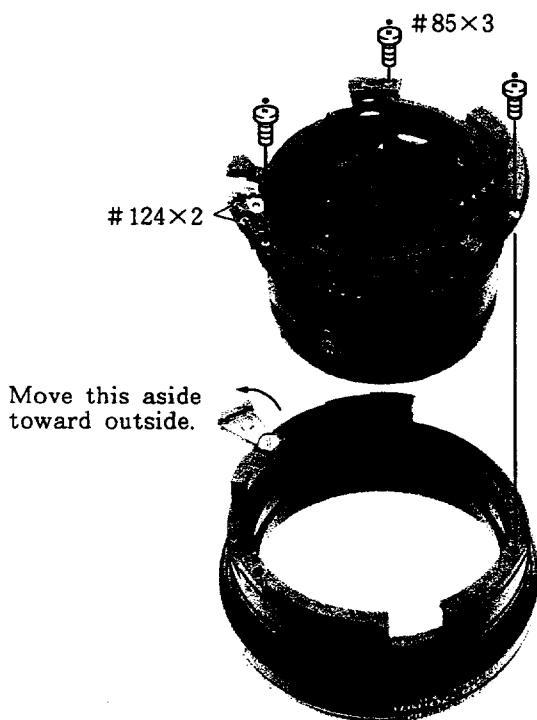


Stick AF contact unit B301 on #29 by moving it aside as shown in the figure.

FOCUS RING #26, NAME RING B27



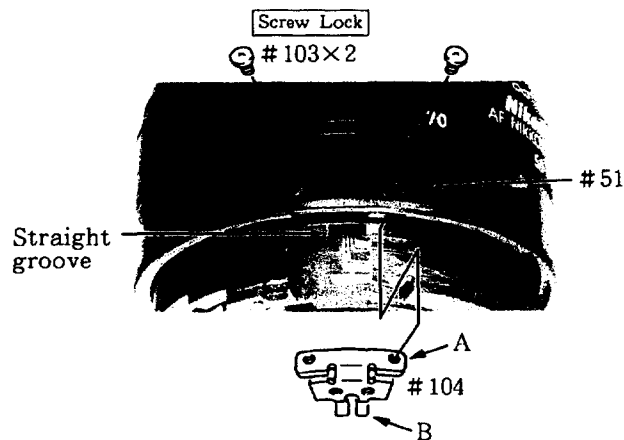
ZOOMING CAM TUBE GROUP



After mounting, rotate focus ring #26 to check operation of AF gear portion. Fasten screws #124×2 and fix it with Screw Lock.

Attention: Be careful not fasten the screw #85 too much or it will become ineffective for the material of B27 is made of plastic.

ZOOM RING #51



Portions to which oil FC-4 should be applied:

- ① Sliding surface between #51 and #53.
- ② Sliding surface between #27 and #51.

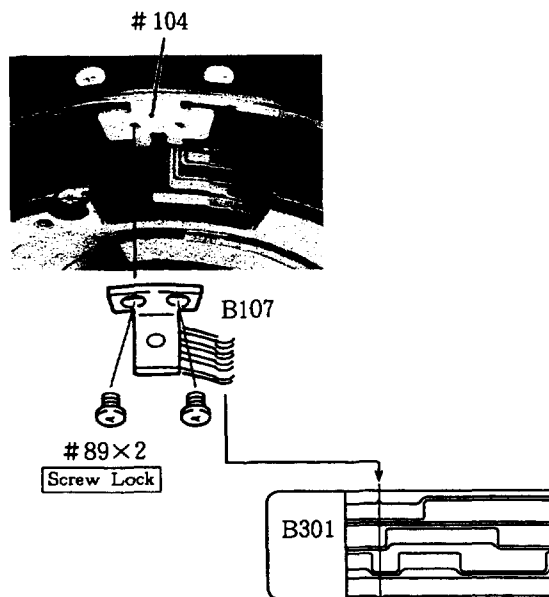
Mount #51 with washer #128.

Mounting instruction of #104.

- ① Set #51 at approx. $f=38\text{mm}$.
- ② Move the straight groove of #50 at the position as shown in the photo by moving the barrel in which rear lens group enters back and forth.
- ③ Place portion B of #104 in the straight groove, and then push portion A in #51.
- ④ Mount #104 using screws #103x2.

Inspection: Check operation by rotating #51.

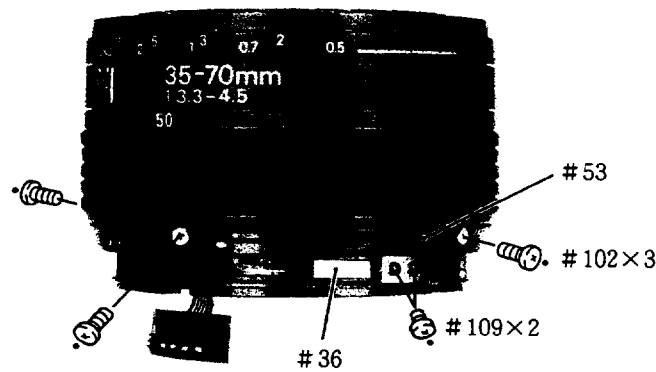
ADJUSTMENT OF ENCODER BRUSH B107 POSITION



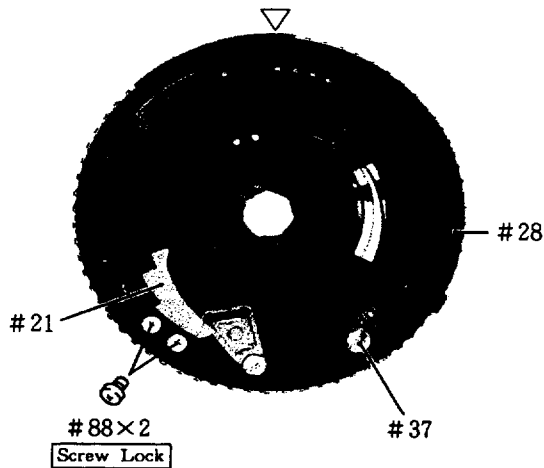
- ① Clean patterns of B301 and brush of B107 using alcohol.
- ② Attach zoom ring to the Wide (35mm) stopper.
- ③ Move the brush of B107 at the portion as shown in the figure, and fasten screws #89x2 temporarily.
- ④ Move the zoom ring #51 from Wide to Tele several times, and check to see if the brush comes into contact to the indicated position at Wide stopper.
- ⑤ Fasten screws #89x2 fully, and fix with Screw Lock.

Make sure that brush comes into contact to this line at the Wide stopper.

EE LOCK RING #53



APERTURE RING #28

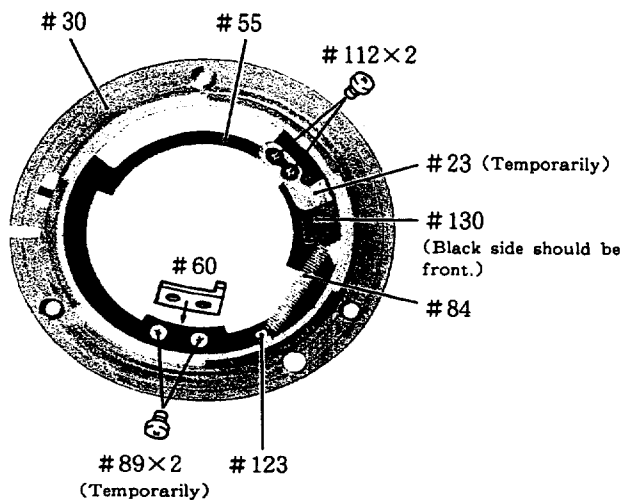


Portions to which oil should be applied:

- ① Sliding surface between #28 and #29.
(Use G92KA)
- ② Click groove of #28. (Use G92KA)
- ③ Sliding surface between #21 and #62.
(Use G92KA)
- ④ Gear portion of #37. (Use 606Y-S)
- ⑤ Sliding surface between #37 and #30.
(Mix G31KB with solvent)

8 : 92

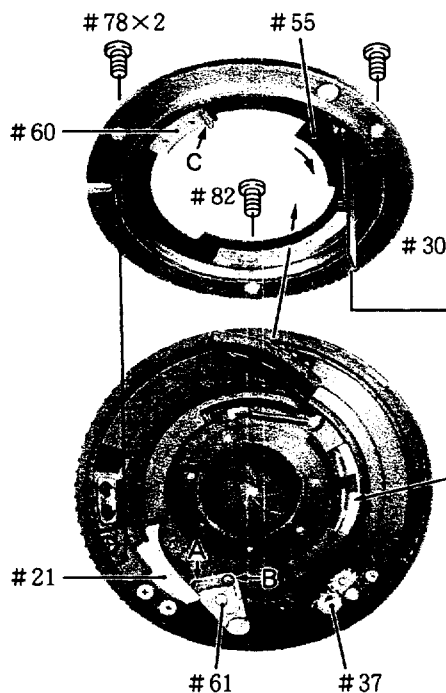
APERTURE LEVER GROUP



Mount #55 on #30 using retaining ring #57. Set the surface of flash of retaining ring to the incident light side.

Inspection: Check operation by moving #23.

BAYONET MOUNT



Portions to which oil G92KA should be applied:
Sliding surface between #55 and #33.

Mounting procedures

- ① Check to see if coupling gear #37 comes off.
- ② Set aperture ring #28 to f22. Attach the portion A of #61 to #21 as shown in the photo.
- ③ Move #55 in the direction indicated by arrow by approx. 10mm. (Be careful not to move too much or it may be detached spring #85.) In this state, mount bayonet mount through AF contact between #55 and #30. When coupling gear #37 enters in the hole of #30, set #55 in the free state. At this moment, Check to see if portion C of #60 attaches to portion B of #61.
- ④ Mount screws #78x2 and #82 temporarily. Make sure that #82 (black) must be mounted below index.

Inspection:

- ① Check operation of aperture by moving aperture ring and aperture lever.
- ② Check operation of AF gear by rotating focus ring #26.

ADJUSTMENT OF ANGLE $\theta 1$ AND $\theta 2$

Unfasten bayonet mounting screws #78x2 and #82. Set aperture ring #28 to full aperture (f3.3) and adjust $\theta 1$ and $\theta 2$.

After adjustment, fasten screws #78x2 and #82 fully.

Inspection: Check operation of aperture ring #28 and AF gears.

ADJUSTMENT OF APERTURE OPENING

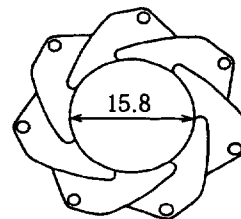
Unfasten screws #89×2, and adjust by moving #60 so that aperture diameter comes within the range of standard value. After adjustment, make sure to fix screws #89×2 using Screw Lock.

Reference:

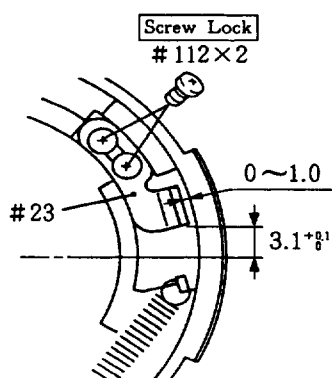
- ① Set aperture ring to f3.3. Set zoom ring to 70mm.
- ② Unfasten screws #89×2.
- ③ Use your fingers so that portion C of #60 and portion B of #61 will not be separated. Make the shape of aperture like a circle as shown in the figure by moving #55 or #23 (aperture diameter: Approx. 15.8mm). (Refer to page 28)
- ④ Fasten screws #89×2.
- ⑤ Check to see if aperture diameter changes by snapping aperture lever with your finger.
- ⑥ Check to see if aperture diameter changes by rotating zoom ring.
- ⑦ Set aperture ring to f22. Check to see if diameter of inscribed circle is around 2mm by inserting a screwdriver (2mm in diameter) into aperture.
- ⑧ Fix screws #89×2 using Screw Lock.

Unit: mm

Aperture setting	Inscribed circle diameter	Tolerance
3.3	15.77	16.84 ~ 14.91
4	12.76	13.76 ~ 11.83
5.6	8.70	9.76 ~ 7.75
8	6.07	6.81 ~ 5.41
11	4.27	4.98 ~ 3.66
16	3.03	3.52 ~ 2.60
22	2.13	2.48 ~ 1.83



ADJUSTMENT OF APERTURE LEVER #23 POSITION



Adjust aperture diameter so that the position of aperture lever #23 comes within standard value of $3.1^{+0.1}$ by unfastening screws #112×2 at full aperture. Adjust the gap between bayonet and #23 be 0 to 1.0mm.

Reference:

Set aperture ring to f3.3. Mount a tool (J18004-1) on bayonet. It is easy to find the position of $3.1^{+0.1}$ if you mount aperture lever #23 based on the groove of the tool.

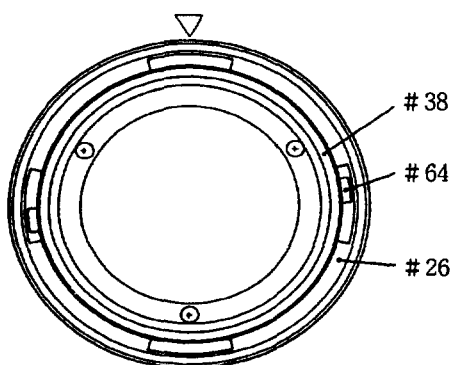
Ckt. No.	Initial type		New type	
	Part number	Pcs. Per Unit	Part number	Pcs. Per Unit
#38	1K400-298	1	1K400-311	1
#64	1K160-912	1	1K437-195	2
#90	G1-17030FA	4	1K120-034	2

Compatibility

If you replace initial type of parts with new ones, there will be compatibility with the lens unit if #38, #64 and #90 parts are all replaced with new ones.

But, there is no compatibility if you replace parts individually. Make sure that the mounting direction differs when these parts are replaced. Refer to the following descriptions.

FILTER RING #38 (New type)

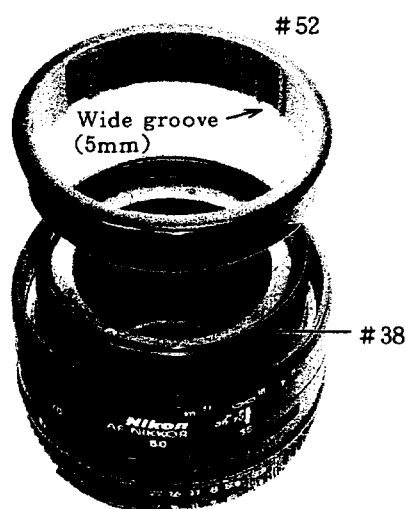


Mount keys #64×2 on #38 using screws #90×2. (Refer to figure of previous page) Set focus ring #26 at ∞ , and zoom ring at 35mm. Mount #38 so that it comes to the same position as when it was removed.

Confirm the position in the following way: Keys #64×2 come to the step of #26 as shown in the figure when #38 is fully screwed in. (Key #64 does not come under the index.)

Note: If the mounting position of #38 is incorrect, zoom ring does not rotate when focus ring is set at ∞ .

TUBE #52



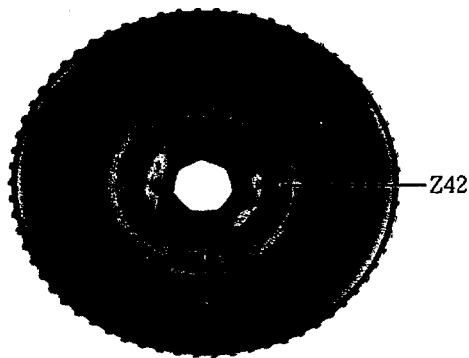
Portion to which oil should be applied:
Apply oil G92KA to tow wide grooves (5mm).

How to mount:

- ① Set focus ring at ∞ , and zoom ring at 35mm.
- ② Screw in #38 fully, and return it back by 3mm on external circumference.
- ③ Mount tube by aligning the wide groove (5mm) of #52 (with grooves on both sides) with the index of the lens unit in the direction shown in the photo. (If #38 is a new type, the key #64 enters into wide groove [5mm]).
- ④ Use tape to attach #52 and focus ring temporarily.

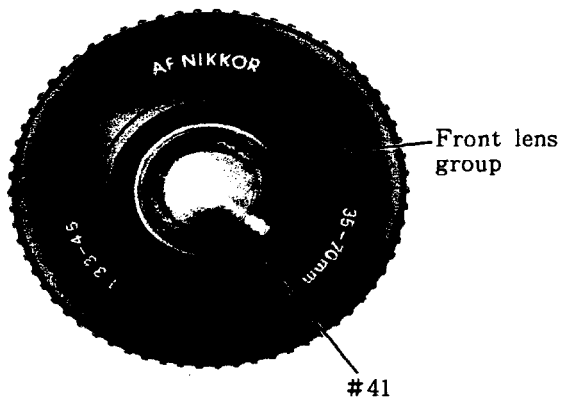
Inspection: Check operation by rotating focus ring and zoom ring.

G4 ~G6 LENS HOUSING Z42



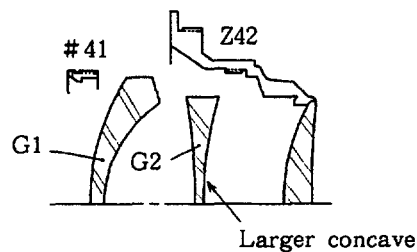
Attach Z42 using a tool (J11204).

FRONT LENS GROUP (Z40, G1, G2, #41)

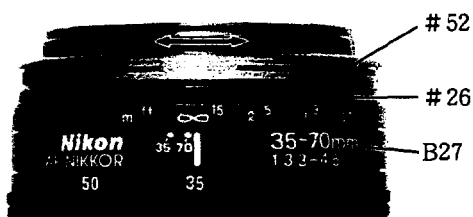


Attach front lens group using a rubber pad.

Note: Be careful not to erase printed characters or damage lenses.

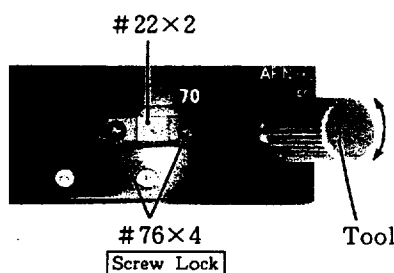


ADJUSTMENT OF SHIFT FOCUS



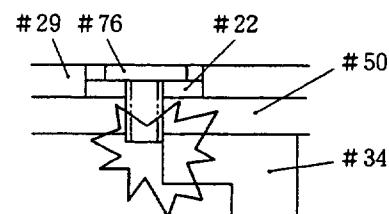
- ① Set focus ring #26 at ∞ , and attach it using B27 and tape.
- ② Peel tape used to attach #26 and #52 temporarily.
- ③ Read values on both Wide (35mm) and Tele (70mm) sides. Make adjustment by rotating #52 so that the values on Wide and Tele sides are as close as possible.
- ④ Fix #52 and #26 using tape (TA-0012). Wrap tape one round.
- ⑤ Check to see if the value correct after attaching #26 and #52 using tape.

ADJUSTMENT OF BACK FOCUS



- ① Set focus ring at ∞ , and attach using tape.
- ② Set zoom ring at Wide (35mm).
- ③ Unfasten screws #76 $\times$ 4 fixing keys #22 $\times$ 2 from portion A indicated by arrow A and opposite side.
- ④ Insert tool (J15284) as shown in the photo, and make adjustment by rotating the tool.
Note: Set the tool to hole of #50 and wide groove (5mm) of #29 correctly. Then rotate the tool to adjust the value.
- ⑤ Unfasten screws #76 $\times$ 4, and fix keys #22 $\times$ 2.

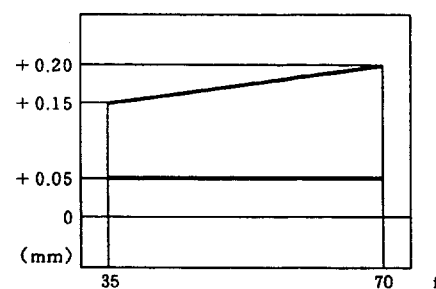
Caution: Do not fasten screw too much or key #22 will be collapsed, otherwise the tip of screw will penetrate through the inside of #50 and zoom operation becomes irregular.



Do not fasten screws repeatedly or key #22 will be broken and the above malfunction will happen. Immediately replace key #22 with new one when the above malfunction occurs.

- ⑥ Check to see if values on Wide and Tele are within the range of rating value.
- ⑦ Fix screws #76 $\times$ 4 with Screw Lock.

f	Standard (mm)
35	+ 0.05 ~ + 0.15
70	+ 0.05 ~ + 0.20

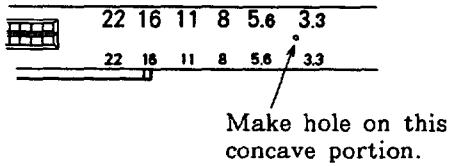


COVER PLATE #91, RUBBER RING #54, #63

Place cover plate #91 as it to cover the hole on zoom ring #51 and fix the plate using tape (TA-0012).

Mount rubber ring #54 and #53, and make inspection and clean each part.

ATTACH METER COUPLING SHOE



- (1) Take out aperture ring #28.
- (2) Make a hole ($\phi 1.1$) at the concave portion of aperture ring. Mount meter coupling shoe on the aperture ring and make another hole ($\phi 1.1$) based on the hole of meter coupling shoe.

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

- (3) Mount meter coupling shoe.

Note: Full aperture value of this lens is f3.3 at Wide side. If this lens is mounted on a camera in which full aperture value is set by using meter coupling shoe, the full aperture value is set to f3.5. As a result, it produces underexposure of 1/6EV.

- (4) Assembling.