

REPAIR MANUAL AND PARTS LIST

INTERCHANGEABLE LENSE FOR ST801, ST901

EBC FUJINON 1.4/50mm



FUJI PHOTO FILM CO., LTD.

29-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

INDEX

I DISASSEMBLY

1. HELICOID	1
2. APERTURE	1
3. MOUNT RING	1

II REPAIR AND ADJUSTMENT

1. ADJUSTMENT OF FOCUSING	3
2. HELICOID	5
3. APERTURE	7
3.1 Adjustment	7
3.2 Aperture blades jammed with oil	11
3.3 Aperture seat	11
3.4 Lever in mount ring assembly	13
4. APERTURE SELECTOR RING	15
4.1 Deformed aperture selector ring	15
4.2 Unsmooth cam ring operation	15
5. APERTURE TRANSMISSION PIN	17

III PART LIST	20
---------------------	----

I DISASSEMBLY

1. Helicoid

- a. With the focusing ring set to the minimum distance, loosen three screws (4) and remove the filter ring (3) and name ring (2).
- b. Remove the front lens assembly (5) and rear lens assembly (89).
- c. Remove the stop ring (14), and remove the aperture assembly (15).
- d. Remove three screws (88), and remove the helicoid assembly (29).
- e. Remove the rubber ring (96), and remove the focusing ring assembly (30) after removing three screws (34).
- f. Remove helicoid guides (36) and (38) after removing two screws (37) and two screws (39) respectively.
- g. Disassemble the helicoid assembly to male helicoid (35), helicoid ring (40), knurled ring (41) and female helicoid (42).

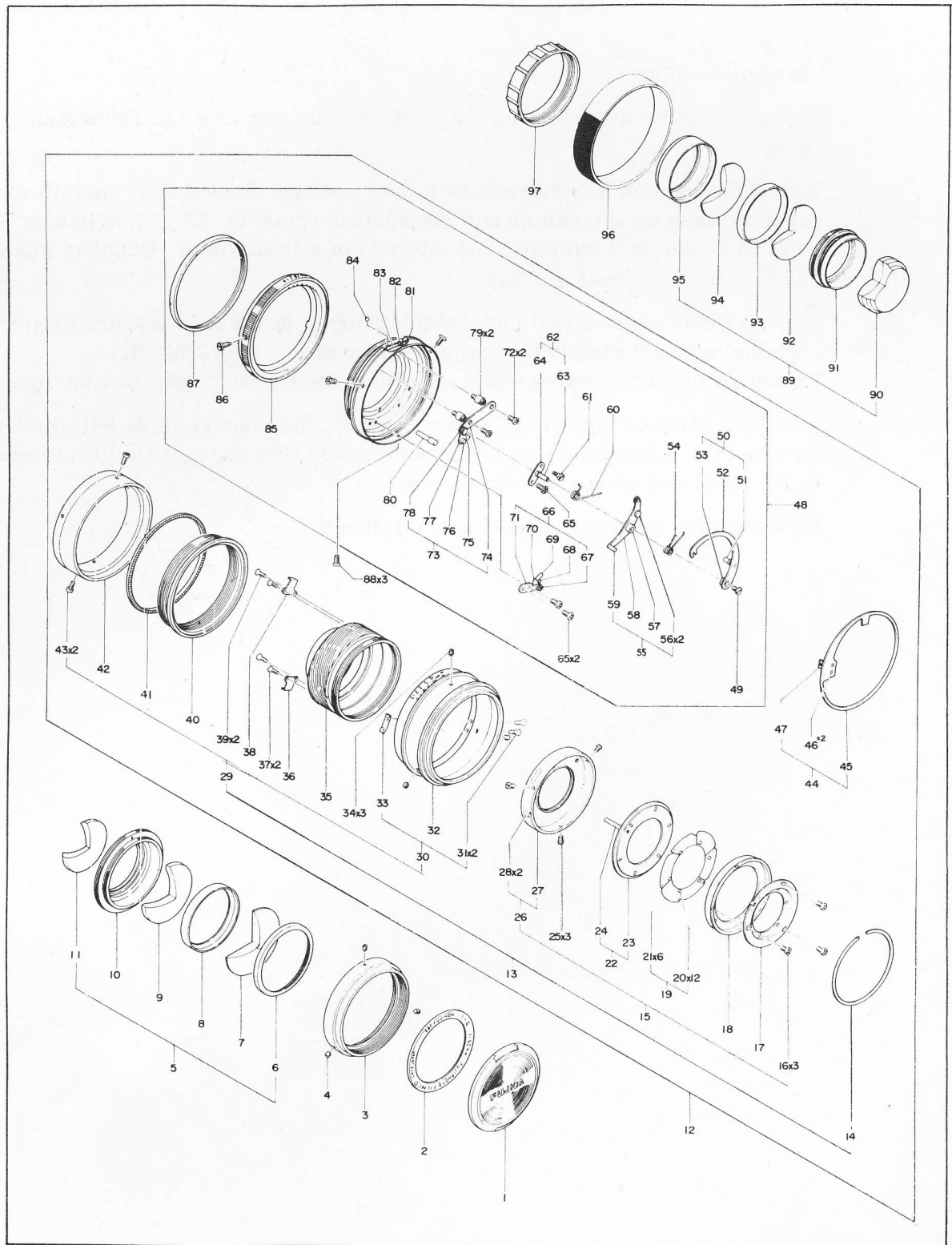
2. Aperture

- a. Remove the aperture assembly (15) as described in I-1-a, b and c above.
- b. Remove three screws (25), and disassemble the aperture assembly into each component part.

3. Mount ring

- a. Remove three screws (88), and remove the mount ring assembly (48) and cam ring assembly (44).
- b. Remove the screw (49), and remove the rotary lever assembly II (50) and rotary lever assembly I (55).
- c. Remove the pin (61) and screw (65), and remove the seat plate assembly (62).
- d. Remove two screws (65), and remove the crank assembly (66).
- e. Remove two screws (72), and remove the bellcrank assembly (73).
- f. Remove two columns (79).
- g. Remove the screw (86) and hold ring (87), and remove the aperture selector ring (85).

Fig. 1



II REPAIR AND ADJUSTMENT

1. Adjustment of focusing

- a. Disassemble as described in I-1-a above, and remove the rubber ring (96).
- b. Mount the lens on a camera body having correct flangeback. Install a cable release on the camera and set shutter speed to "B". Install the camera on the reflector (KL35A A0GA1) of a lens tester (Gokosha Model 24LT-2D). (See Fig. 2.)
- c. Loosen three screws (34) and watching focus in the lens tester, properly turn the helicoid ring (40) to adjust flangeback. (See Fig. 3.) Retighten the three screws (34), and lock them with screw locking agent.
- d. Install the filter ring (3) and name ring (2), and secure them with three screws (4). Check the name ring and insure that characters "FUJ" are in the positions shown in Fig. 4.
- e. Reinstall the rubber ring (96) with Pliobond.

Fig. 2

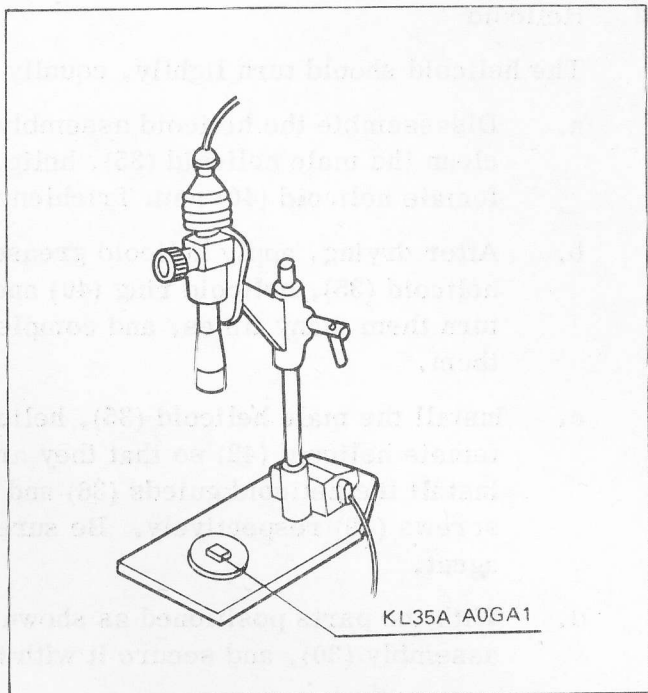


Fig. 3

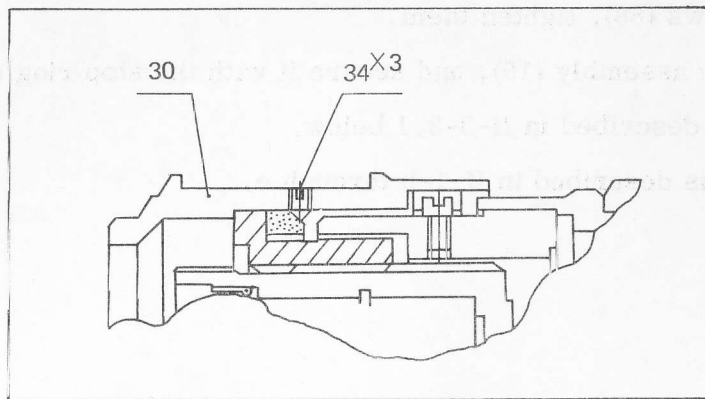
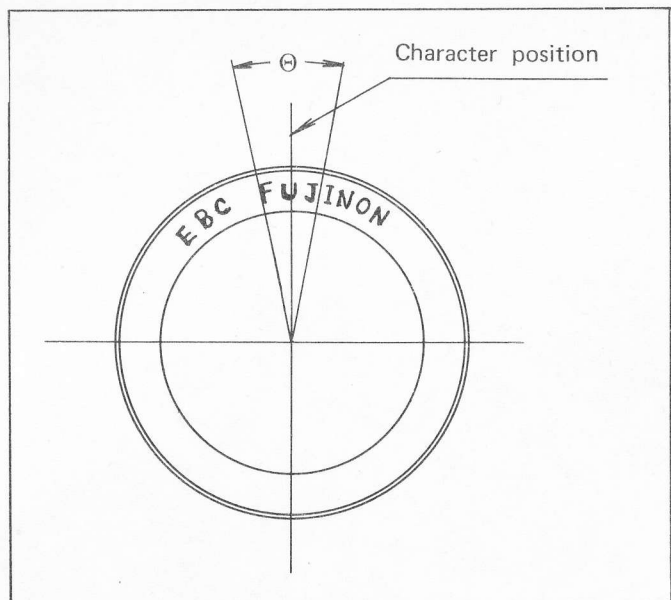


Fig. 4



Characters "FUJ" should be within angle Θ .

2 Helicoid

The helicoid should turn lightly, equally and smoothly. If not;

- a. Disassemble the helicoid assembly as described in I-1, and thoroughly clean the male helicoid (35), helicoid ring (40), knurled ring (41) and female helicoid (40) with Trichlene.
- b. After drying, apply helicoid grease (Losoid grease 6304-4) to the male helicoid (35), helicoid ring (40) and knurled ring (41), assemble them, turn them many times, and completely wipe out grease come out from them.
- c. Install the male helicoid (35), helicoid ring (40), knurled ring (41), and female helicoid (42) so that they are positioned as shown in Fig. 5, and install the helicoid guides (36) and (38) with two screws (37) and two screws (39) respectively. Be sure to lock the screws with screw locking agent.
- d. With the parts positioned as shown in Fig. 5, install the focusing ring assembly (30), and secure it with three screws (34). (See Fig. 6.)
- e. Install the mount ring assembly (48), and after applying screw locking agent to three screws (88), tighten them.
- f. Install the aperture assembly (15), and secure it with the stop ring (14).
- g. Adjust aperture as described in II-3-3.1 below.
- h. Adjust flangeback as described in II-1-b through e.

Fig. 5

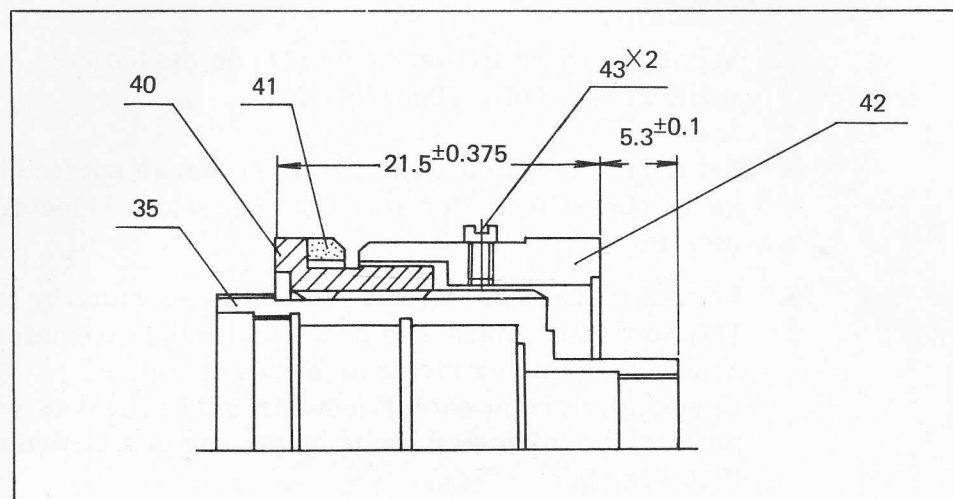
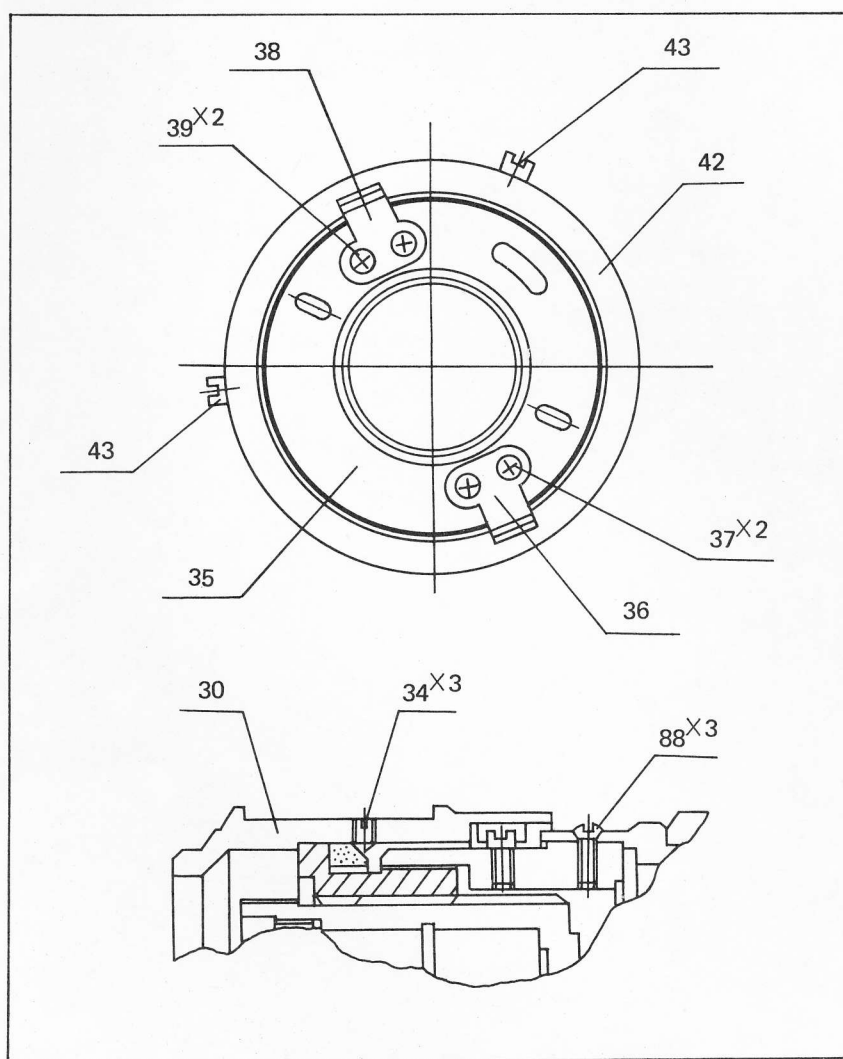


Fig. 6



3. Aperture

3.1 Adjustment

- a. Install the aperture assembly (15) on the helicoid assembly (29) with the stop ring (14). (See Fig. 1.)
- b. Set the pin (80) to 5.9 mm from the flange surface by the use of a gauge (L52-GA2) after setting the aperture selector ring to F16. (See Fig. 7.)
- c. Loosen three screws (16), and adjust aperture by turning the ring (17) so that it comes into contact with the circumference of a 2.10 mm diameter circle as shown in Fig. 8.
Check aperture at each F number and see if it is within the permissible diameter range by the use of a scaled magnifier. (See Fig. 9.)

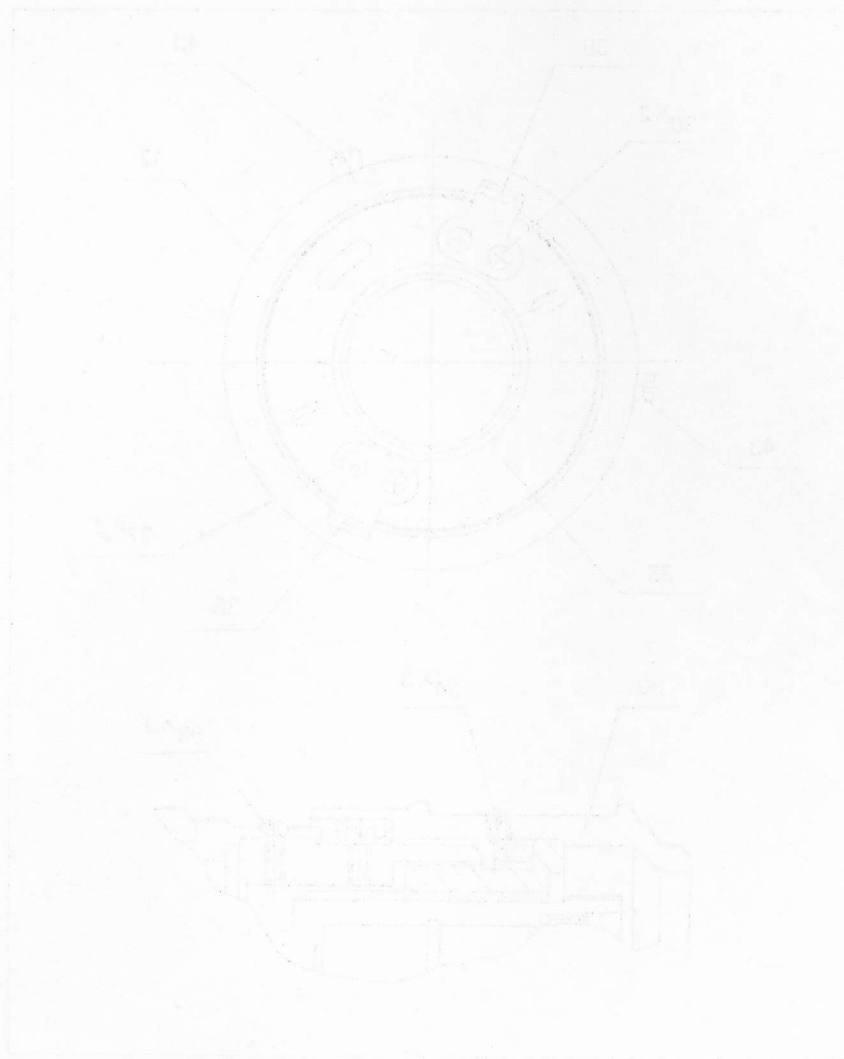


Fig. 7

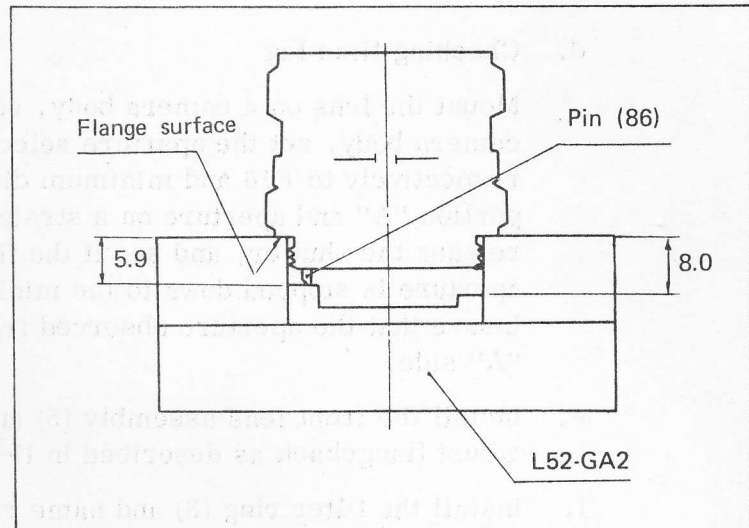


Fig. 8

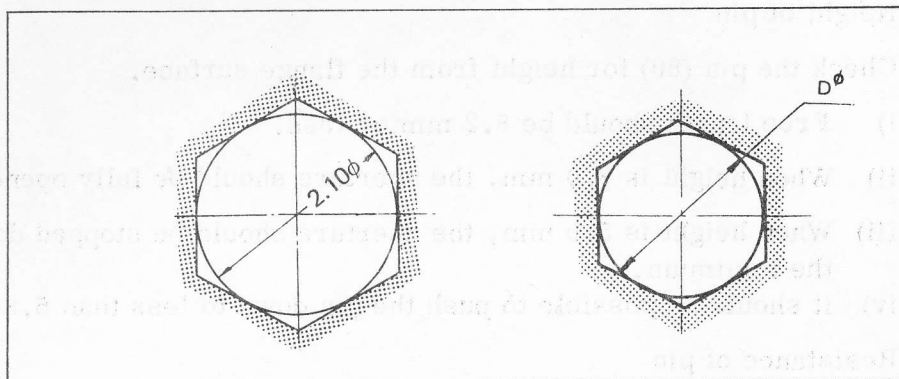


Fig. 9

FNO	Permissible diameter range	
2	15.38φ	19.50φ
2.8	10.79φ	13.65φ
4	7.59φ	9.59φ
5.6	5.34φ	6.75φ
8	3.76φ	4.75φ
11	2.66φ	3.35φ
16	1.88φ	2.36φ

d. Checking time lag

Mount the lens on a camera body, set shutter speed to 1/1000 at the camera body, set the aperture selector ring and focusing ring respectively to F16 and minimum distance at the lens, watch the portion "A" and aperture on a straight line as seen in Fig. 10, release the shutter, and see if the first blind begins to run after the aperture is stopped down to the minimum.

Insure that the aperture observed from the "B" side is the same as "A" side.

e. Install the front lens assembly (5) and rear lens assembly (89), and adjust flangeback as described in II-1 above.

f. Install the filter ring (3) and name ring (2), and secure them with three screws (4).

g. Height of pin

Check the pin (80) for height from the flange surface.

i) Free length should be 8.2 mm or less.

ii) When height is 8.0 mm, the aperture should be fully opened.

iii) When height is 5.9 mm, the aperture should be stopped down to the minimum.

iv) It should be possible to push the pin down to less than 5.8 mm.

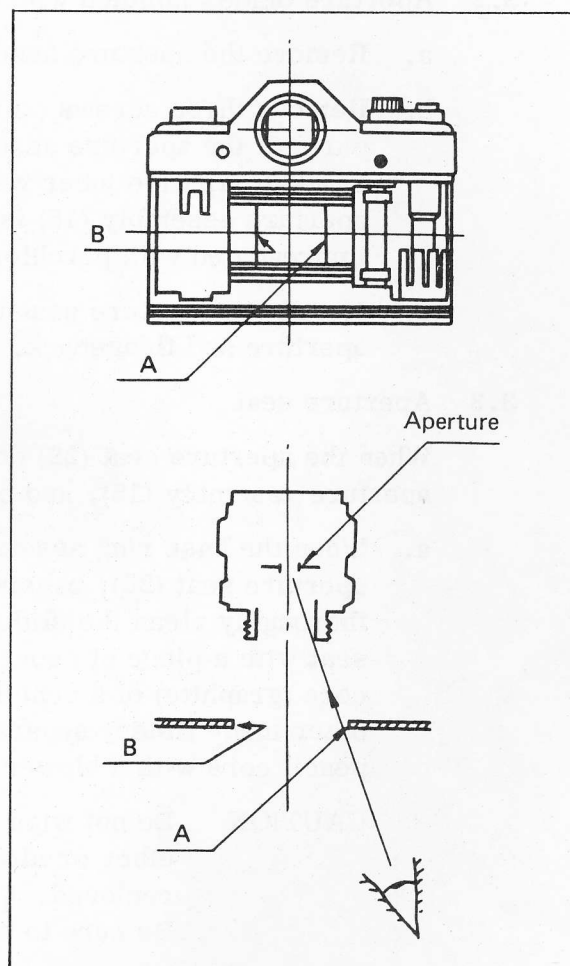
h. Resistance of pin

Check the pin (80) for resistance by the use of a spring blancer.

i) It should be 300 grams or less when turning the aperture selector ring to F1.4.

ii) It should be 100 grams or less when turning the aperture selector ring to F16.

Fig.10



3.2 Aperture blades jammed with oil

- a. Remove the aperture assembly (15).
- b. Remove three screws (25), and thoroughly clean all the disassembled parts of the aperture assembly (15) with perchloroethylene.
In addition, wipe inner wall of the male helicoid (35) to which the aperture assembly (15) is fitted with a piece of cloth or paper impregnated with perchloroethylene.
- c. Install the aperture assembly (15) after reassembling it, and adjust aperture and flangeback.

3.3 Aperture seat

When the aperture seat (22) does not operate smoothly, remove the aperture assembly (15), and check it.

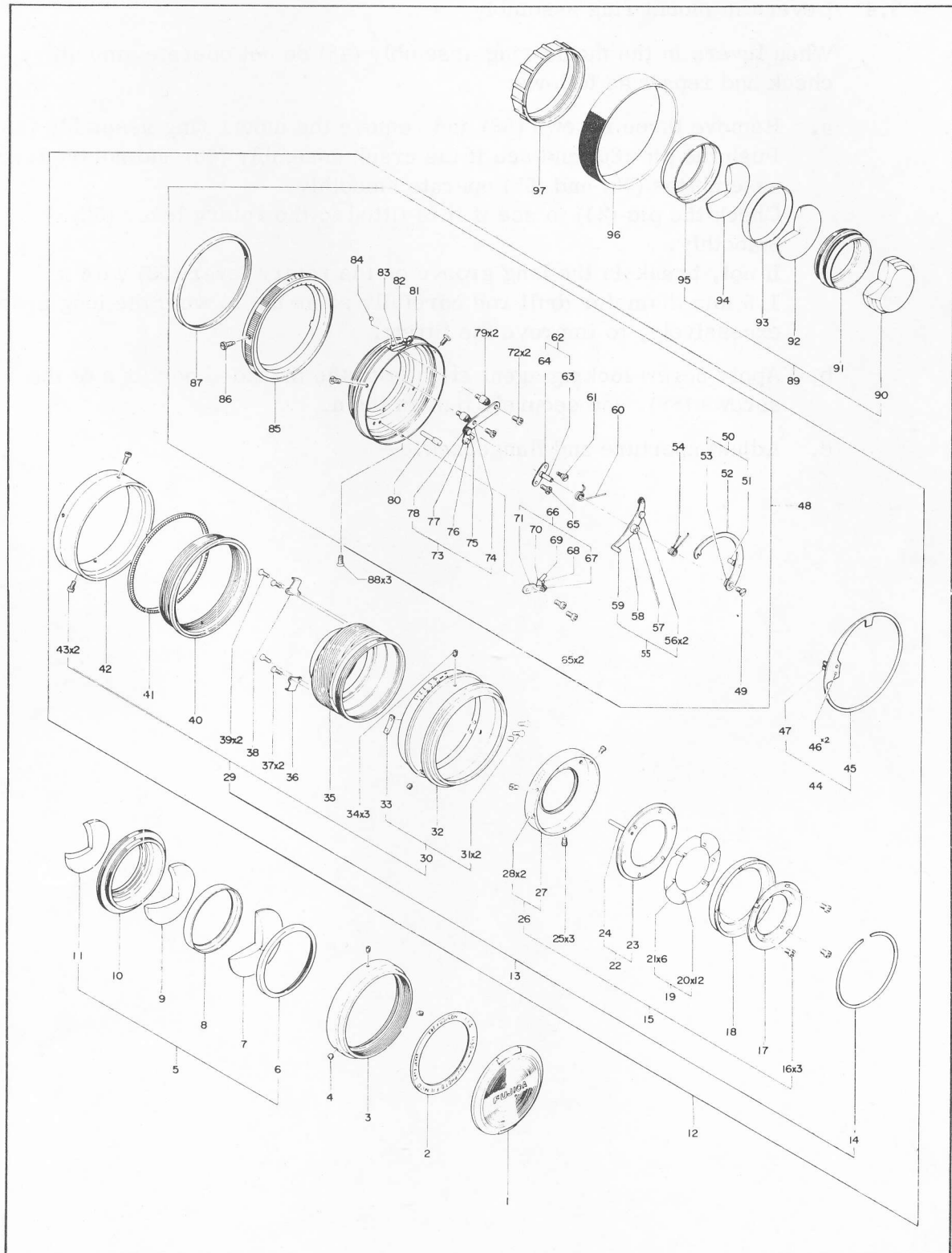
- a. When the base ring assembly (26) is not fitted smoothly to the aperture seat (22), causing the aperture seat to operate unsmoothly, thoroughly clean the sliding surfaces of the base ring and aperture seat with a piece of paper impregnated with ether or alcohol, rub core (graphite) of a pencil against the surfaces, slide them each other many times, separate them, and blow out particles of the pencil core with a blower.

CAUTION: Do not wipe sliding surface of the aperture seat with ether or alcohol hard. The surface treatment may be removed.

Be sure to wipe it lightly and carefully.

- b. When pins (20) on the aperture blades (19) are not fitted into grooves on the aperture seat (22), causing the aperture seat to operate unsmoothly, break-in the grooves on the aperture seat (22) with a 1.5 mm diameter drill rod carefully so as not to wear them excessively, to improve the fitting.
- c. When pins (20) on the aperture blades (19) are not fitted into holes on the ring (17), causing the aperture seat to operate unsmoothly, break-in the holes on the ring (17) with a 1.5 mm diameter drill rod carefully so as not to wear them excessively, to improve the fitting.
- d. Assemble the aperture assembly (15), and adjust aperture and flangeback.

Fig.11

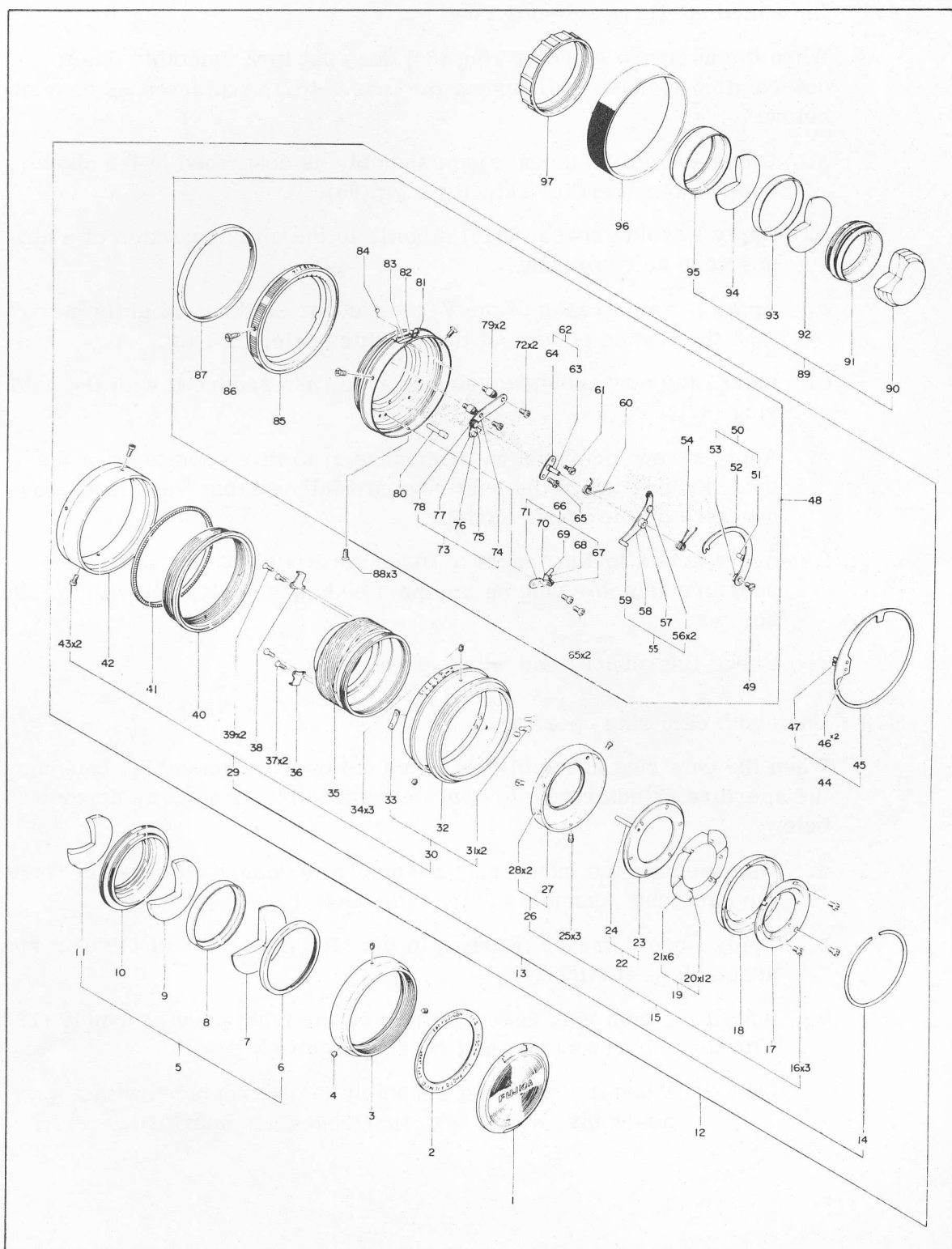


3.4 Levers in mount ring assembly

When levers in the mount ring assembly (48) do not operate smoothly, check and repair as follows:

- a. Remove three screws (88) and remove the mount ring assembly (48). Push the pin (80) and see if the crank assembly (66) and rotary lever assemblies (50) and (55) operate smoothly. Check the pin (24) to see if it is fitted to the rotary lever (52) smoothly.
If not, break-in the long groove on the rotary lever (52) with a 1.5 mm diameter drill rod carefully so as not to wear the long groove excessively, to improve the fitting.
- b. Apply screw locking agent slightly to the threaded portions of the screws (88), and securely tighten them.
- c. Adjust aperture and flangeback.

Fig.12



4. Aperture selector ring

4.1 Deformed aperture selector ring

When the aperture selector ring (85) does not turn smoothly due to deformation (caused by dropping the lens, etc.), replace it as described below:

- a. Disassemble the mount ring assembly as described in I-3 above, and remove the aperture selector ring (85).
- b. Apply Losoid grease (5019) slightly to the sliding portion of a new aperture selector ring.
- c. Apply Losoid grease to the V-groove (for clicking) slightly more than the sliding portion of the aperture selector ring.
- d. Install the new aperture selector ring, and secure it with the hold ring (87).
- e. Apply screw locking agent (Hermeseal) to three positions of the threaded portion of the hold ring carefully so that Hermeseal does not stick on the flange surface.
- f. Apply screw locking agent to three screws (88), and secure the aperture selector ring on the main body assembly (12) with the three screws.
- g. Check flangeback, and adjust if necessary.

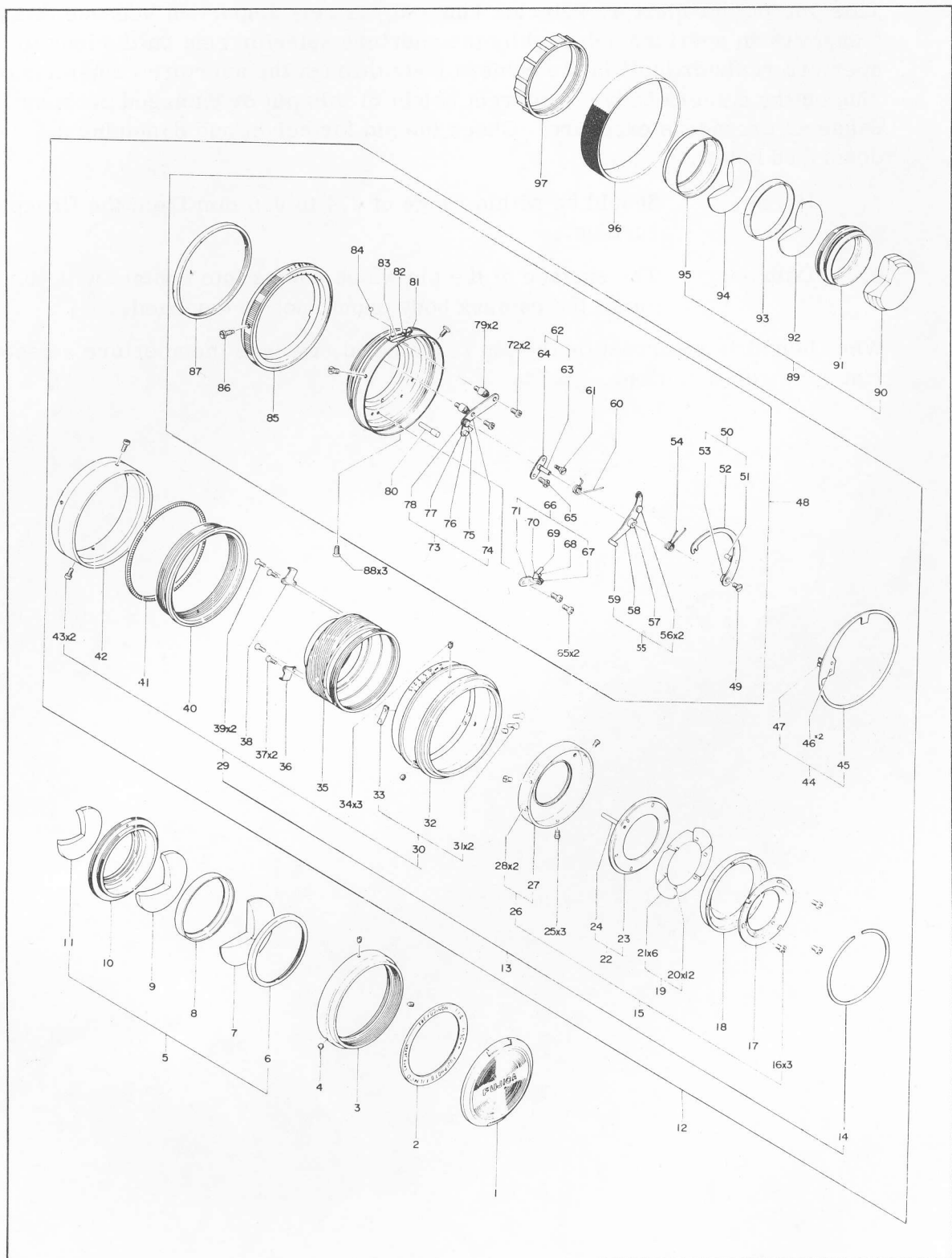
4.2 Unsmooth cam ring operation

When the cam ring assembly (44) does not operate smoothly, causing the aperture selector ring to operate unsmoothly, repair as described below:

- a. Disassemble the mount ring assembly as described in I-3 to remove the cam ring assembly (44), and check it.
- b. Apply Losoid grease (6304-4) to the sliding surface of the cam ring assembly (44) slightly.
- c. Install the cam ring assembly (44) on the main body assembly (12) with three screws (88), and check flangeback.

NOTE: When the cam ring assembly (44) is replaced with a new assembly, adjust both flangeback and aperture.

Fig.13



5. Aperture transmission pin

This pin (on the aperture selector ring (85)) is very important because this pin transmits an aperture selected by the aperture selector ring on the lens to the aperture resistor built in the camera body through the aperture transmission ring on the camera body. Incorrect height of this pin or damaged pin may cause an erroneous exposure. Check the pin for height and damaging as described below.

- a. Height: Should be within range of 0.4 to 0.6 mm from the flange surface.
- b. Damaging: The surface of the pin which comes into contact with the pin of the camera body should not be damaged.

When height is incorrect or the pin is damaged, replace the aperture selector ring (85) with a new one.

Fig.14

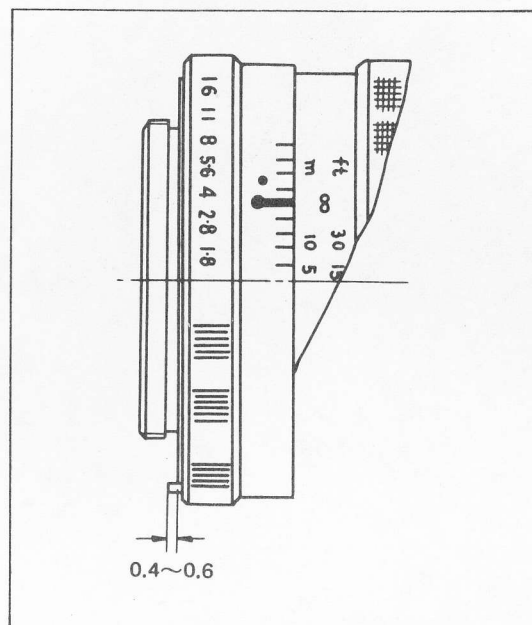
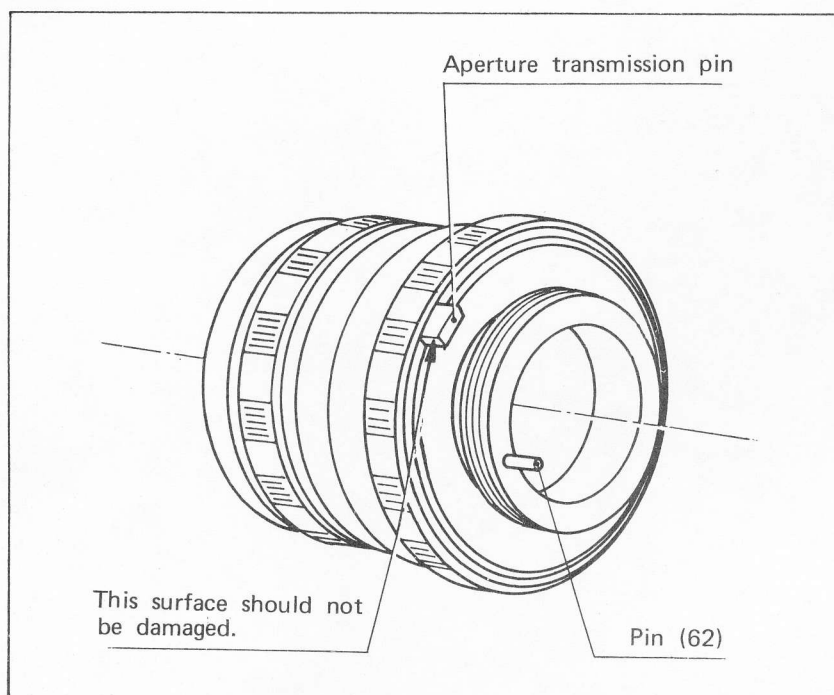


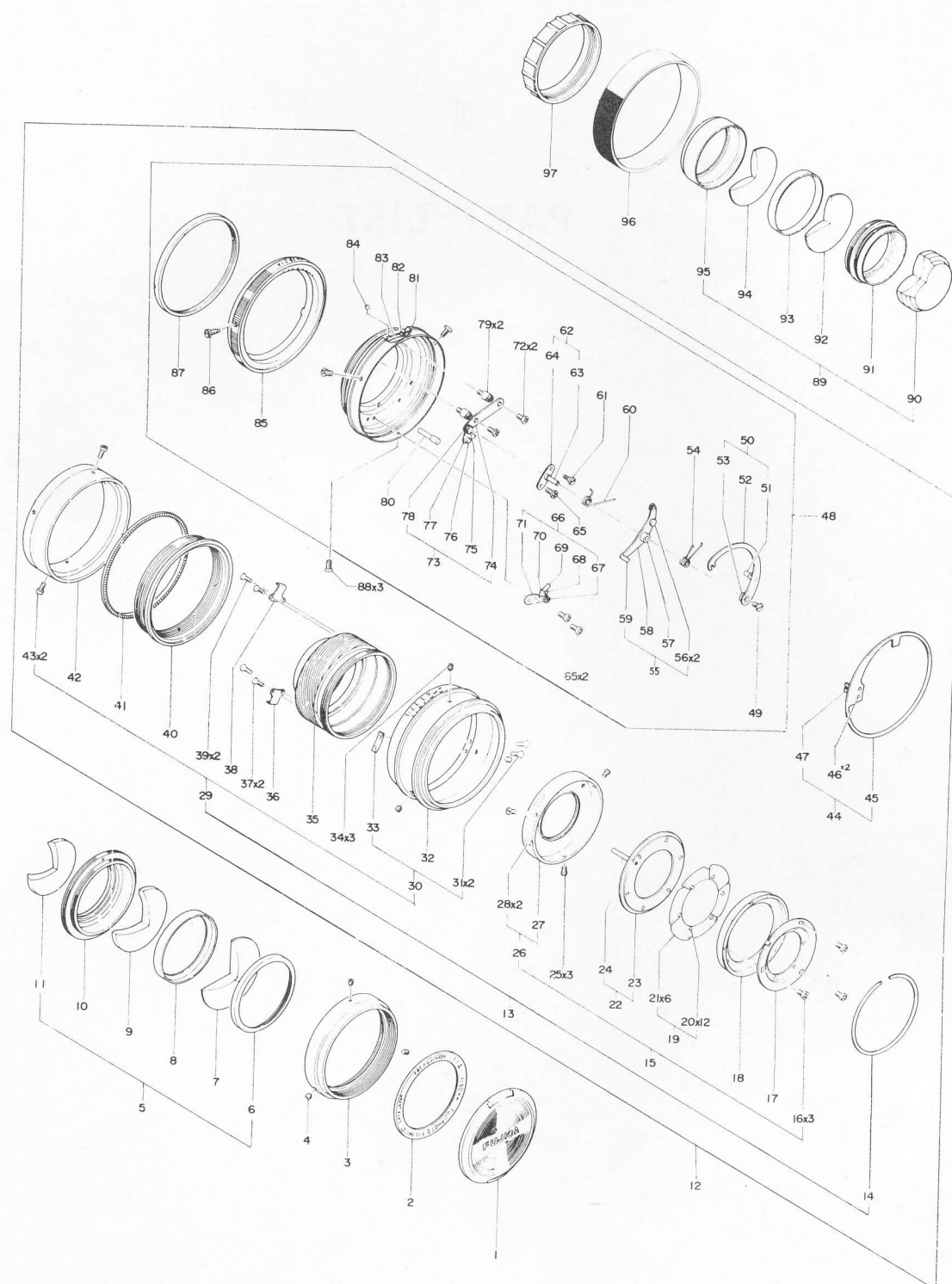
Fig.15



Ⅲ

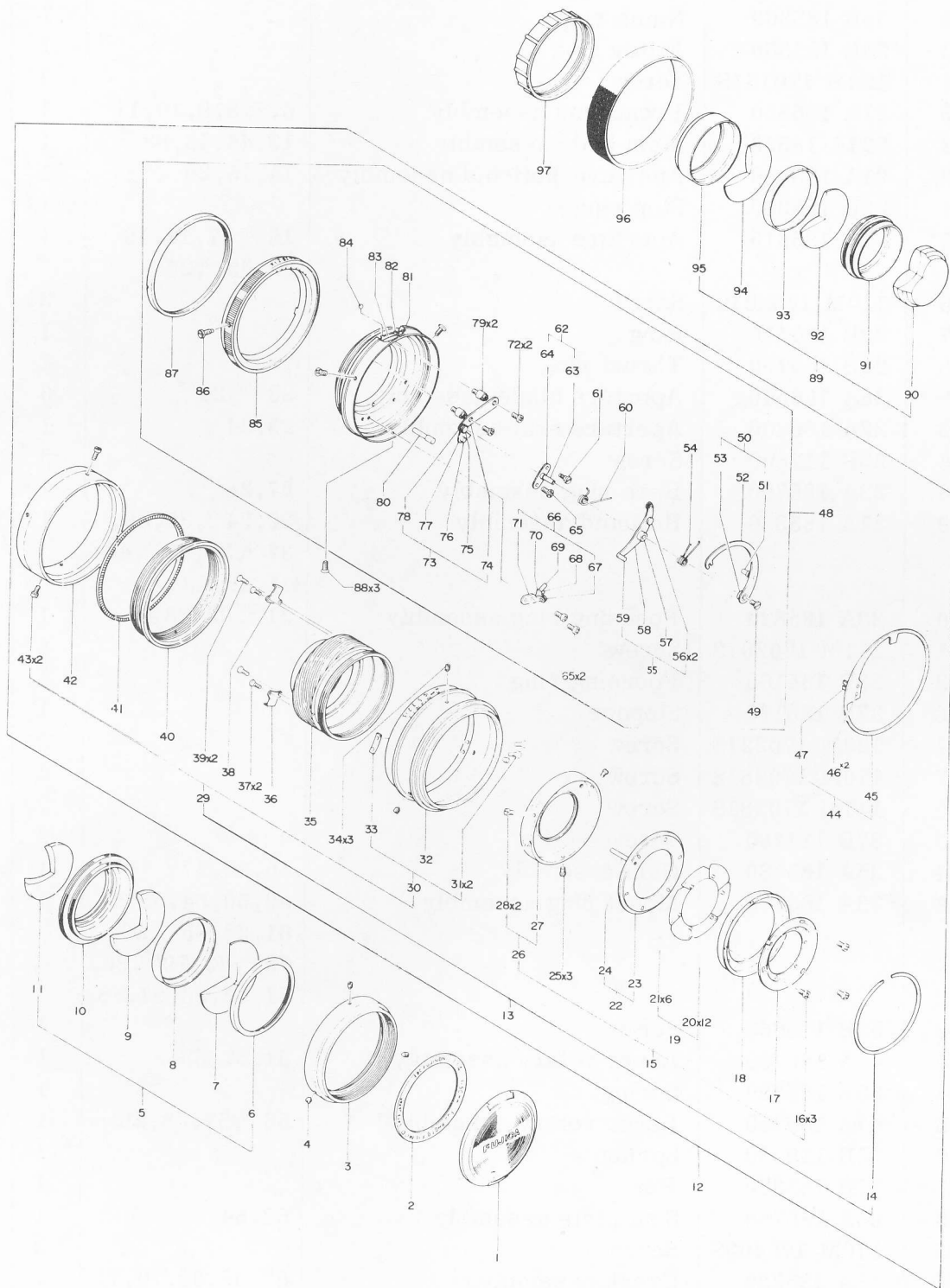
PART LIST

PART LIST
EBC FUJINON 1.4/50mm LENS ST801 • ST901



REF.NO.	PART NO.	PART NAME	ASSEMBLED REF NO.	O'TY	REMARKS
1	57A 146380	Lens cap		1	
2	58B 185360	Name ring		1	
3	23B 185350	Filter ring		1	
4	120M 170151S	Screw		3	
5	21A 185850	Front lens assembly	6, 7, 8, 9, 10, 11	1	
12	324A 185990	Main body assembly	13, 44, 48, 88 ^{×3}	1	
13	21A 185840	Aperture/helicoid assembly	14, 15, 29	1	
14	25B 185380	Stop ring		1	
15	22A 185810	Aperture assembly	16 ^{×3} , 17, 18, 19 22, 25 ^{×3} , 26	1	
16	110M 170201S	Screw		3	
17	23B 185110	Ring		1	
18	22B 185100	Thrust ring		1	
19	26A 156540	Aperture blade assembly	20 ^{×12} , 21 ^{×6}	6	
22	22A 185800	Aperture seat assembly	23, 24	1	
25	53B 112800	Screw		3	
26	23A 185790	Base ring assembly	27, 28 ^{×2}	1	
29	21A 185830	Helicoid assembly	30, 34 ^{×3} , 35, 36, 37 ^{×2} , 38, 39 ^{×2} , 40, 41, 42, 43 31 ^{×2} , 32, 33	1	
30	23A 185820	Focusing ring assembly		1	
31	111M 170201S	Screw		2	
32	23B 185160	Focusing ring		1	
33	87B 185170	Stopper		1	
34	120M 170221S	Screw		3	
37	110M 170281S	Screw		2	
39	111M 170281S	Screw		2	
43	87B 114780	Screw		2	
44	35A 185780	Cam assembly	45, 46, 47	1	
48	23A 185770	Mount ring assembly	49, 50, 54, 55, 60 61, 62, 65 ^{×3} , 66, 72 ^{×2} , 73, 79 ^{×2} , 80, 81, 85, 86, 87, 88	1	
49	53B 115660	Screw		1	
50	47A 185760	Lever rotary assembly II	51, 52, 53	1	
54	50B 185390	Spring		1	
55	47A 185750	Lever rotary assembly I	56 ^{×2} , 57, 58, 59	1	
60	50B 115520	Spring		1	
61	17B 185310	Pin		1	
62	85A 185740	Seat plate assembly	63, 64	1	
65	110M 170403S	Screw		3	
66	48A 185730	Crank assembly	67, 68, 69, 70, 71	1	
72	110M 170253S	Screw		2	
73	47A 185720	Bellcrank assembly	74, 75, 76, 77, 78	1	
79	32B 185220	Column		2	
80	26B 185370	Pin		1	
81	23B 185190	Mount ring		1	

EBC FUJINON 1.4/50mm LENS ST801・ST901



REF.NO.	PART NO.	PART NAME	ASSEMBLED REF NO.	O'TY	REMARKS
82	50B 112540	Leaf spring		1	
83	17B 146090	Rivet		1	
84	200M 20	Steel ball		1	
85	23B 185330	Aperture selector ring		1	
86	53B 185340	Screw		1	
87	23B 131530	Hold ring		1	
88	112M 170401S	Screw		3	
89	21A 185860	Rear lens assembly	90,91,92,93,94 95	1	
96	59B 185180	Rubber ring		1	
97	57B 112790	Rear lens cap		1	