REPAIR MANUAL AND PARTS LIST

INTERCHANGEABLE LENSE FOR ST701, ST801, ST901

EBC FUJINON–F 2.8/16mm

FUJI FILM

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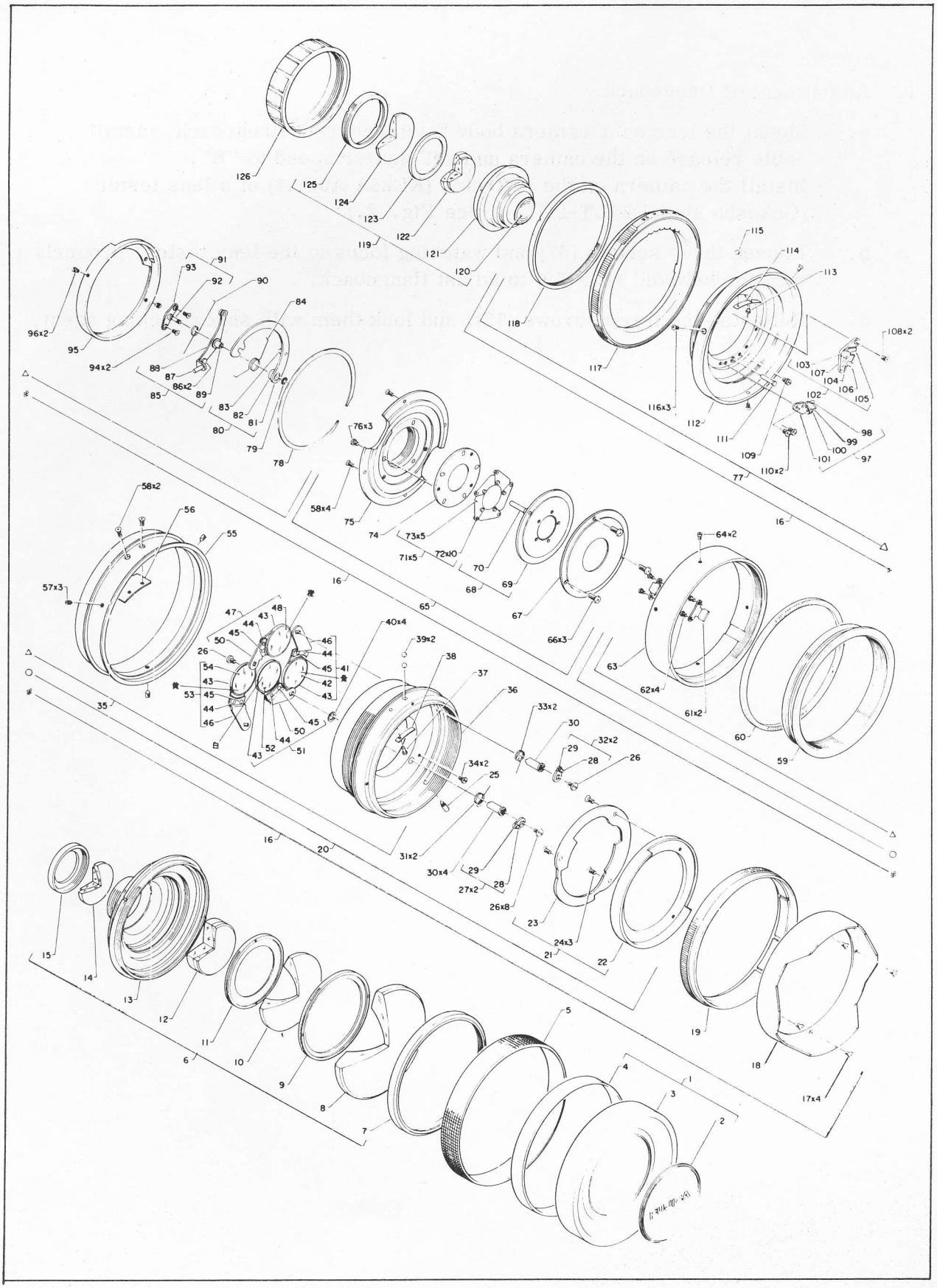
26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

INDEX

I DISASSEMBLY

1. Mount ring
   a. Remove the rear lens assembly (119).
   b. Remove the mount ring assembly (77).
   c. Remove the component parts.
2. Aperture
   a. Remove the mount ring assembly (77) as described in I-1 above.
   b. Take out the aperture assembly (65).
   c. Remove the component parts.
3. Filters
   a. Remove the aperture assembly (65) as described in I-2 above.
   b. Remove each filter assembly (41, 47, 51 and 53), and disassemble them.
4. Helicoid
   a. Remove the filter assemblies (41, 47, 51 and 53) as described in I-3 above.
   b. Remove the front lens assembly (6).
   c. Remove the hood (18) and filter selector ring (19).
   d. Remove the cam ring assembly (21), and remove four shafts (30) and relative parts.
   e. Remove the focusing ring (55) and helicoid guides (61), and disassemble the helicoid assembly (35).

Fig. 1



Ⅱ REPAIR AND ADJUSTMENT

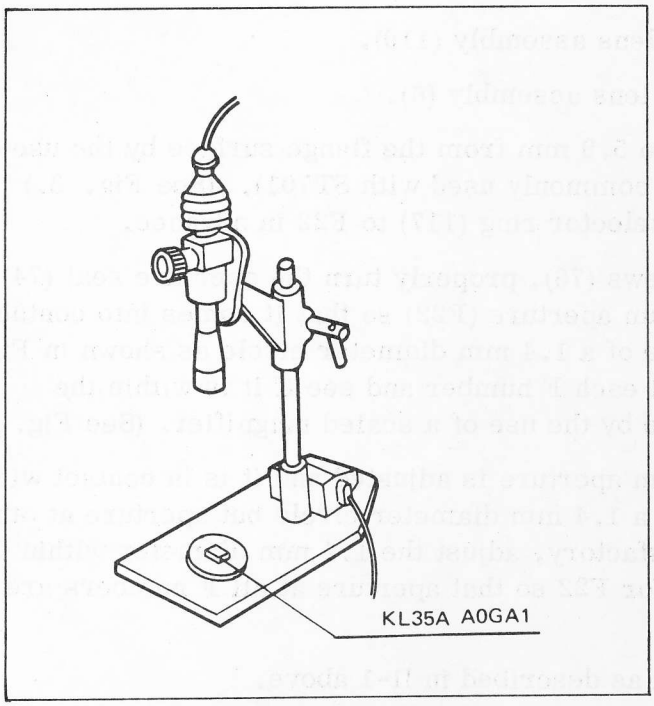
1. Adjustment of flangeback

   a. 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.)

   b. Loosen three screws (57) and watching focus in the lens tester, properly turn the helicoid ring (59) to adjust flangeback.

   c. Retighten the three screws (57), and lock them with screw locking agent.

Fig. 2



2. Aperture

2.1 Adjustment

a. Remove the rear lens assembly (119).

b. Remove the front lens assembly (6).

c. Set the pin (111) to 5.9 mm from the flange surface by the use of a gauge (L52-GA2, commonly used with ST701). (See Fig. 3.)
Set the aperture selector ring (117) to F22 in advance.

d. Loosen three screws (76), properly turn the aperture seat (74), and adjust the minimum aperture (F22) so that it comes into contact with the circumference of a 1.4 mm diameter circle as shown in Fig. 4. Check aperture at each F number and see if it is within the permissible range by the use of a scaled magnifier. (See Fig. 5.)

e. When the minimum aperture is adjusted and it is in contact with the circumference of a 1.4 mm diameter circle but aperture at other F number is unsatisfactory, adjust the 1.4 mm diameter within the range permitted for F22 so that aperture at all F numbers are satisfactory.

f. Adjust flangeback as described in II-1 above.

Fig. 3

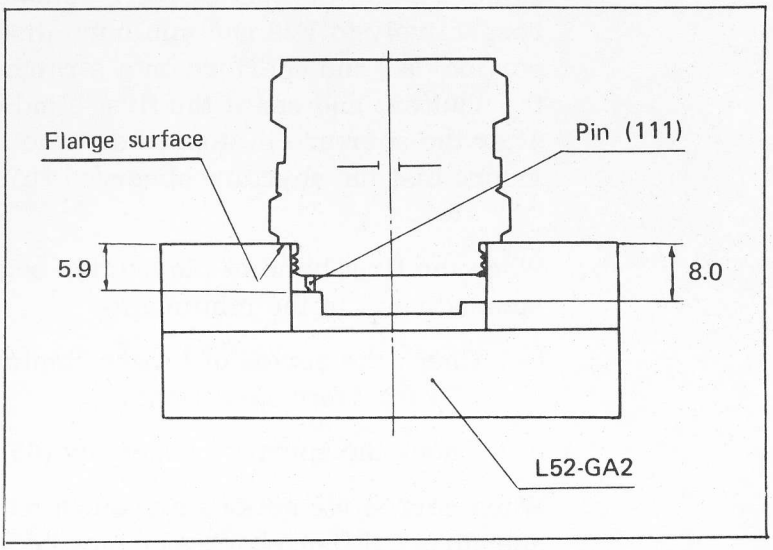


Fig. 4

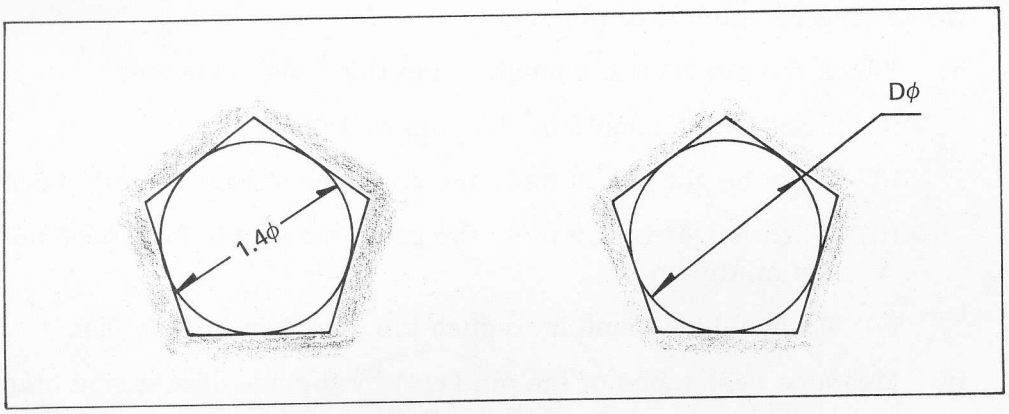


Fig. 5

F. No.	Permissible diameter range
F 4	6.97ϕ ~ 8.98ϕ
F5.6	4.97ϕ ~ 6.26ϕ
F 8	3.48ϕ ~ 4.38ϕ
F 11	2.49ϕ ~ 3.13ϕ
F 16	1.64ϕ ~ 2.32ϕ
F 22	1.17ϕ ~ 1.66ϕ

When aperture is F2.8, the openeing should be a true circle (circle of the lens barrel fitting), and no aperture blade should be seen in the circle.

2.2 Adjustment of time lag

a. 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 F22 and minimum distance at the lens, watch the portion "A" and aperture on a straight line as seen in Fig. 6, release the shutter, and see if the first blind of the shutter 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.

b. When the first blind of the shutter begins to run before the aperture is stopped sown to the minimum:

b-1 Check the series of levers employed in the mount ring assembly (77) for their operations.

b-2 Check the aperture assembly (65) for smoothness of operation.

c. When corrective actions are taken as described in 2.2-b above, adjust aperture and flangeback as described in II-1 and II-2-2.1 above.

2.3 Height and resistance of pin (111)

a. Check the pin (111) 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.

b. Measure resistance of the pin (111) by the use of a spring balancer and insure that:

i) It is 300 grams or less when turning the aperture selector ring to F2.8.

ii) It is 100 grams or less when turning the aperture selector ring to F22. (See Fig. 3.)

2.4 Aperture blades jammed with oil

a. Remove the aperture blade assembly (71). (Refer to I-2 above.)

b. Thoroughly clean all the disassembled parts of the aperture assembly (65) with perchloroethylene. In addition, wipe inner wall of the male helicoid (36) to which the thrust ring (75) is fitted with a piece of cloth or paper impregnated with perchloroethylene.

c. Adjust aperture and flangeback as described in II-1 and II-2-2.1 above. (See Fig. 7.)

Fig. 6

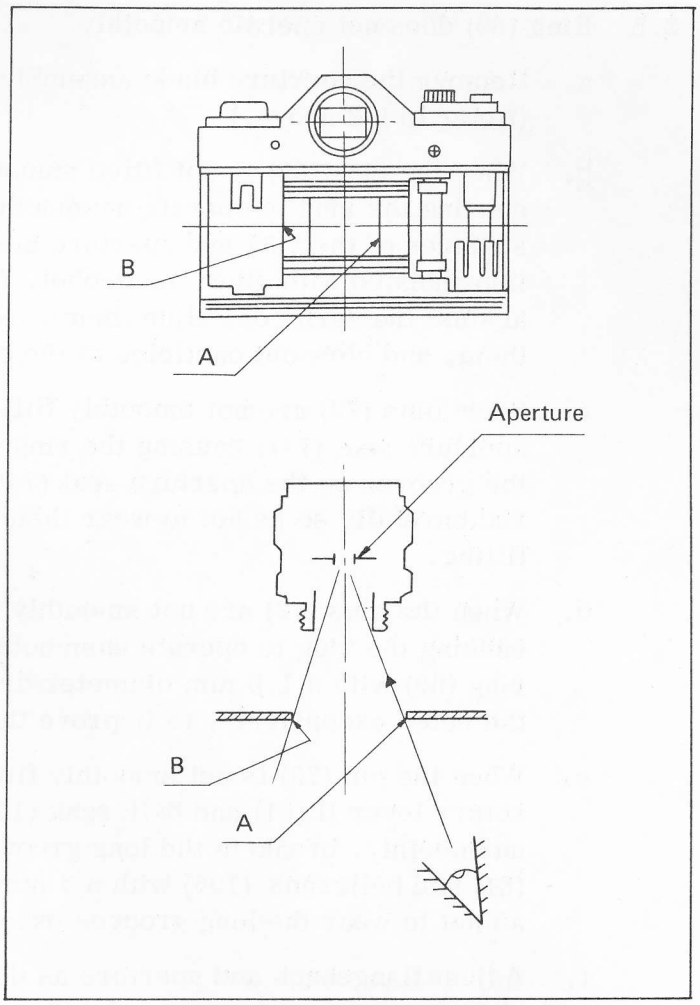
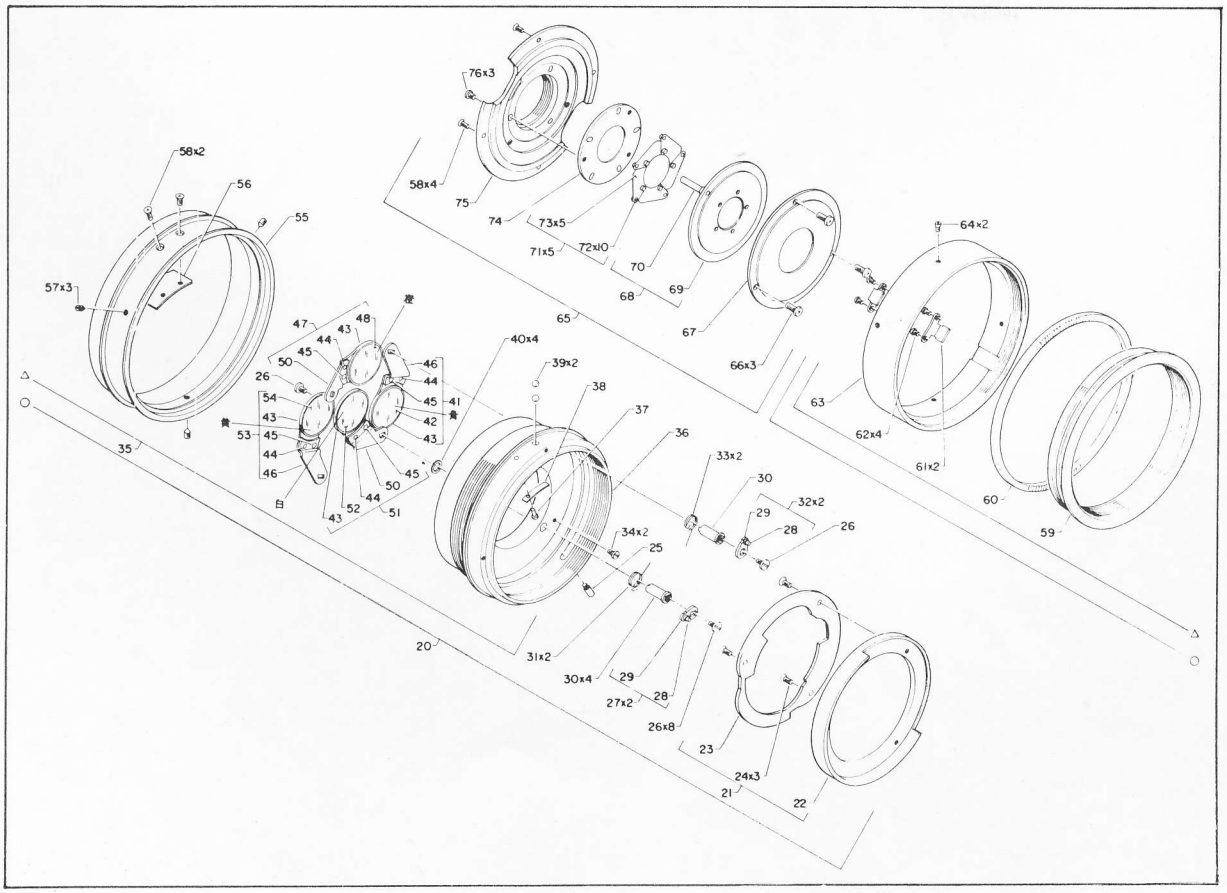

B
A
Aperture
B
A

Fig. 7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2.5 Ring (69) does not operate smoothly

a. Remove the aperture blade assembly (71) and check it. (Refer to I-2 above.)

b. When the ring (69) is not fitted smoothly to the aperture seat (74), causing the ring to operate unsmoothly, thoroughly clean the sliding surfaces of the ring and aperture seat with a piece of cloth or 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.

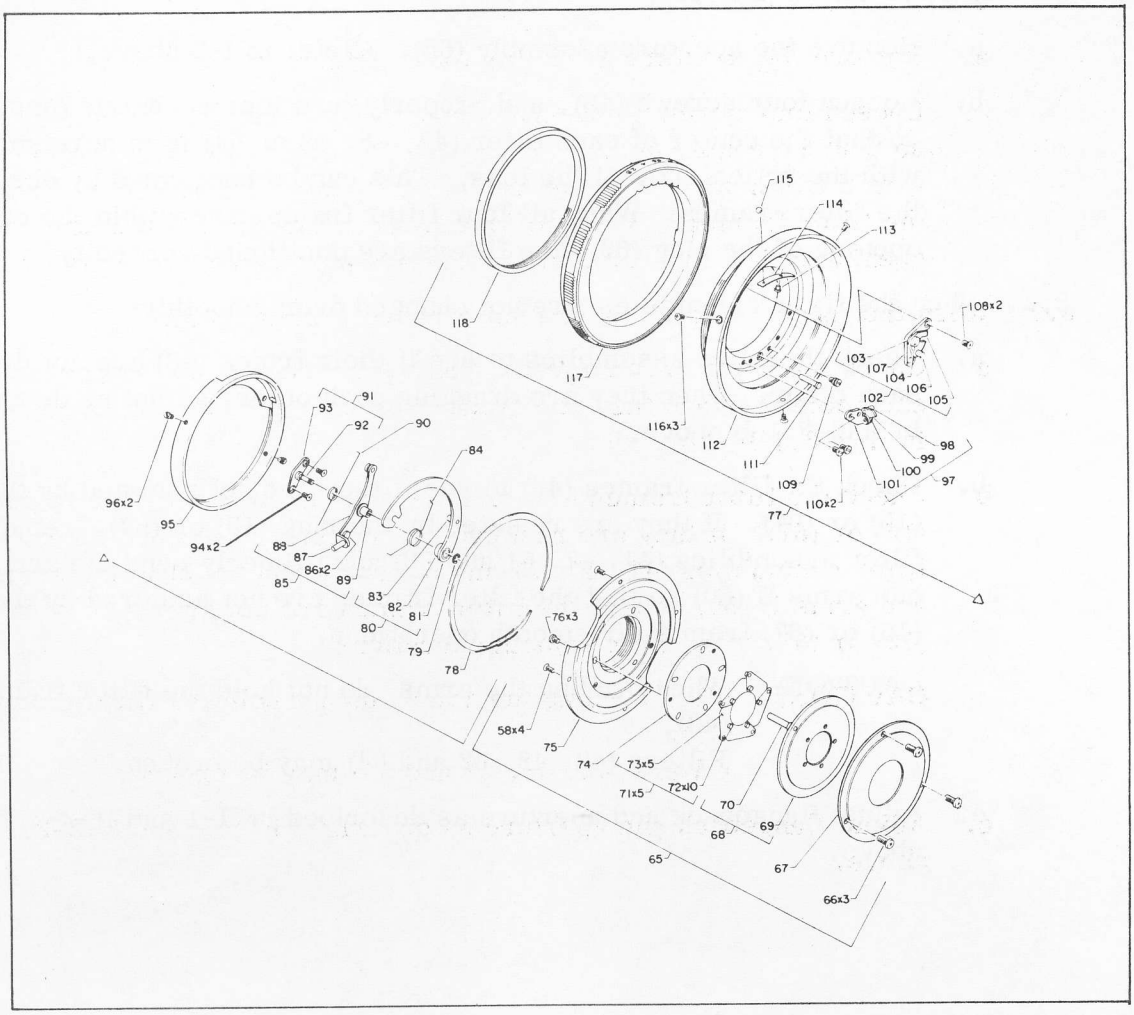
c. When pins (72) are not smoothly fitted into the long grooves on the aperture seat (74), causing the ring to operate unsmoothly, break-in the grooves on the aperture seat (74) with a 1.5 mm diameter drill rod carefully so as not to wear them excessively, so improve the fitting.

d. When the pins (72) are not smoothly fitted into holes on the ring (69), causing the ring to operate unsmoothly, break-in the holes on the ring (69) with a 1.5 mm diameter drill rod carefully so as not to wear the holes excessively, to improve the fitting.

e. When the pin (70) is not smoothly fitted into the long grooves on the rotary lever II (81) and bellcrank (105), causing the ring to operate unsmoothly, break-in the long grooves on both the rotary lever II (81) and bellcrank (105) with a 2 mm diameter drill rod carefully so as not to wear the long grooves excessively, to improve the fitting.

f. Adjust flangeback and aperture as described in II-1 and II-2-2.1 above.

Fig. 8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3. Filter assembly

3.1 When the filter assemblies (41, 47, 51 and 53) are deviated from the optical axis of the lens:

a. Remove the aperture assembly (65). (Refer to I-2 above.)

b. Loosen four screws (45), and properly turn four eccentric pins (44) so that the center of each filter (42, 48, 52 or 54) is in agreement with the optical axis of the lens. This can be confirmed by checking the filter frames. When all four filter frames are within the center opening of the ring (69), the filters are positioned correctly.

3.2 When the filter assemblies are not changed over smoothly:

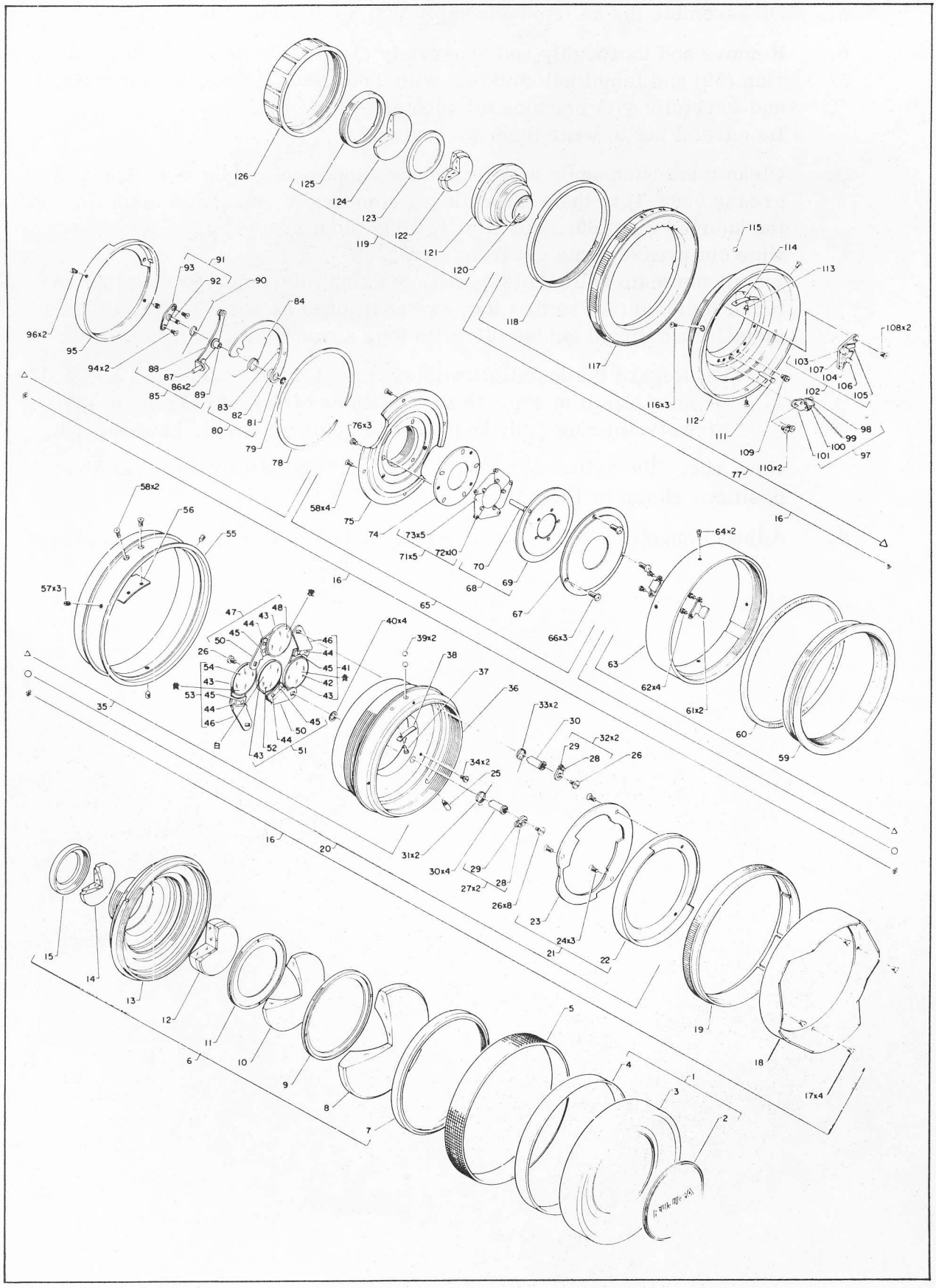
a. Check the filter assemblies to see if their frmes (43) are not dragging each other. When they are dragging each other, adjust as described in II-3-3.1-b above.

b. Check the filter frames (43) to see if they are not resisted by the ring (15) or (67). If they are resisted by the ring (15) or (67), remove the filter assemblies (41, 47, 51 and 53) and properly bend the arms I (46) and arms II (50) so that the filter frames are not hindered by the ring (15) or (67) from their smooth operations.

CAUTION: When bending the arms, do not hold the filter frames (43).
Filters (42, 48, 52 and 54) may be broken.

c. Adjust flangeback and aperture as described in II-1 and II-2-2.1 above.

Fig. 9



4. Helicoid

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

a. Disassemble the helicoid assembly (35) as described in I-4 above.

b. Remove and thoroughly and separately clean male helicoid (36), helicoid ring (59) and femal helicoid (63) with Trichlene. Next, lap them lightly and carefully with machine oil such as spindle oil.
Be careful not to wear them excessively.

c. Clean them once again with Trichlene, apply helicoid grease (Losoid grease 6304-4) to them after drying completely, assemble them through the knurled ring (60), and after turning them many times, completely wipe out grease come out from them.
Install the male helicoid (36), helicoid ring (59), knurled ring (60) and femal helicoid (63) so that they are positioned as seen in Fig. 10, and install the helicoid guides (61) with four screws (62).

(NOTE) Regard the installation tolerances 1.8±0.1 mm and 19.3±0.375 mm shown in Fig. 10 for positions of the male helicoid (36), helicoid ring (59), knurled ring (60) and female helicoid (63).

Now, check the helicoid guide (61) and screws (64) for their relative positions shown in Fig. 10.

d. Adjust flangeback and aperture as described in II-1 and II-2-2.1 above.

Fig.10

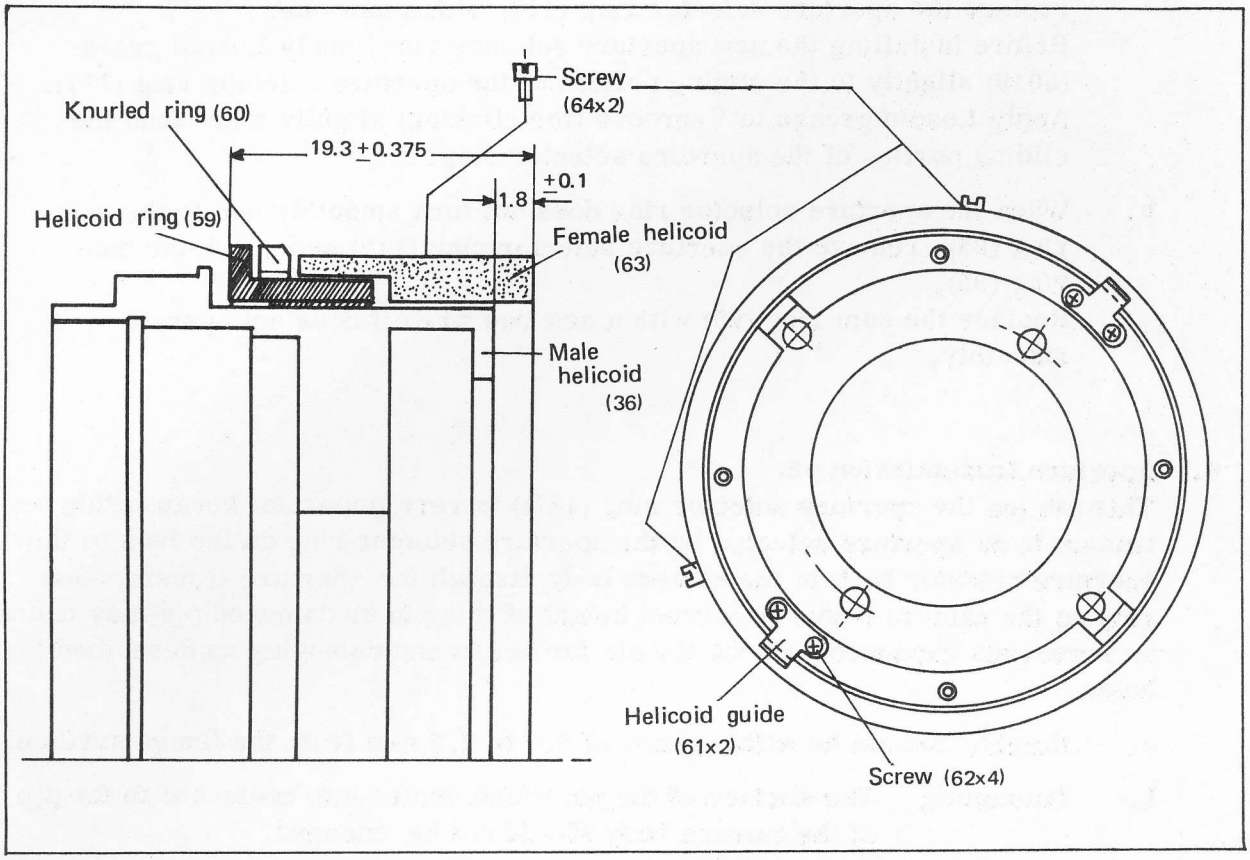
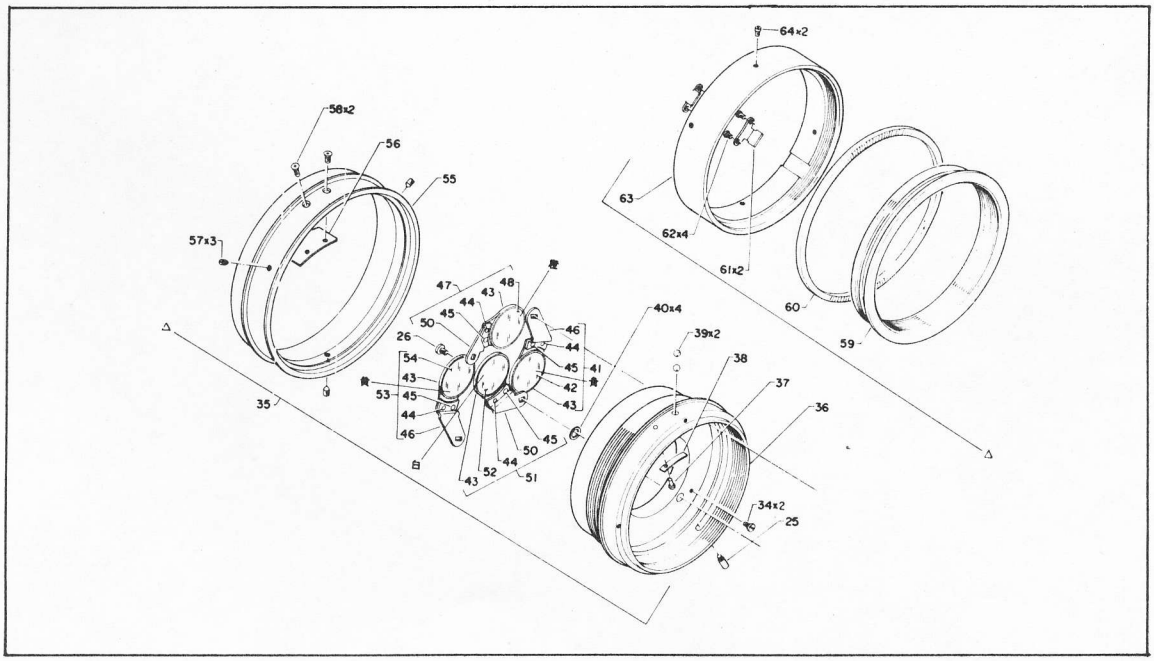

Screw
(64x2)
Knurled ring (60)
19.3 ±0.375
±0.1
1.8
Helicoid ring (59)
Female helicoid
(63)
Male
helicoid
(36)
Helicoid guide
(61x2)
Screw (62x4)

Fig. 11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5. Aperture selector ring

   a. When the aperture selector ring does not turn smoothly due to deformation, replace the aperture selector ring (117) with a new one.
   Before installing the new aperture selector ring, apply Losoid grease (5019) slightly to the sliding portion of the aperture selector ring (117).
   Apply Losoid grease to V-groove (for clicking) slightly more than the sliding portion of the aperture selector ring.

   b. When the aperture selector ring does not turn smoothly due to the cam ring (95), remove the aperture selector ring (117) and check the cam ring (95).
   Replace the cam ring (95) with a new one when it does not operate smoothly.

6. Aperture transmission pin
This pin (on the aperture selector ring (117)) 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 (117) with a new one.

Fig.12

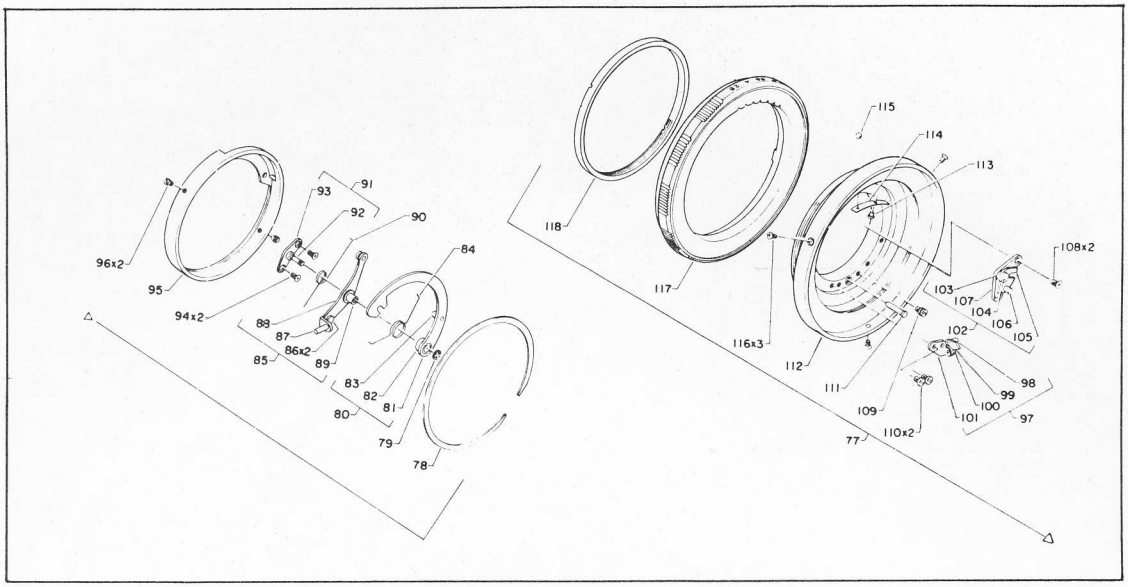


Fig.13

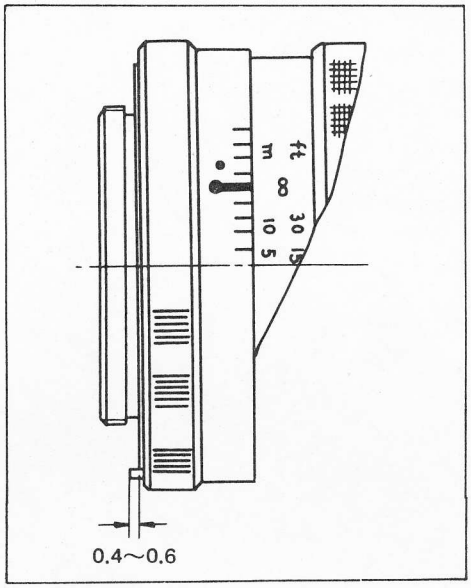
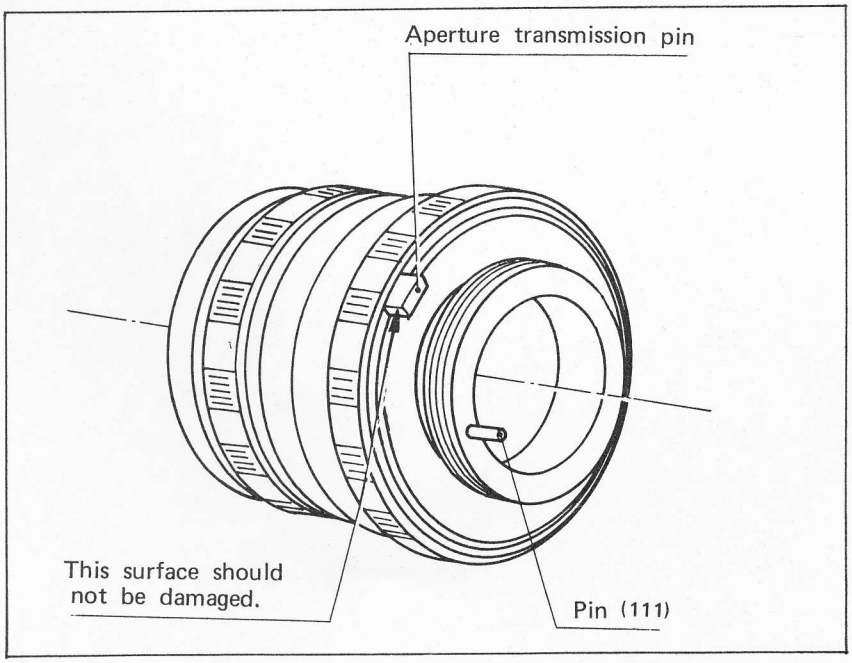


Fig.14



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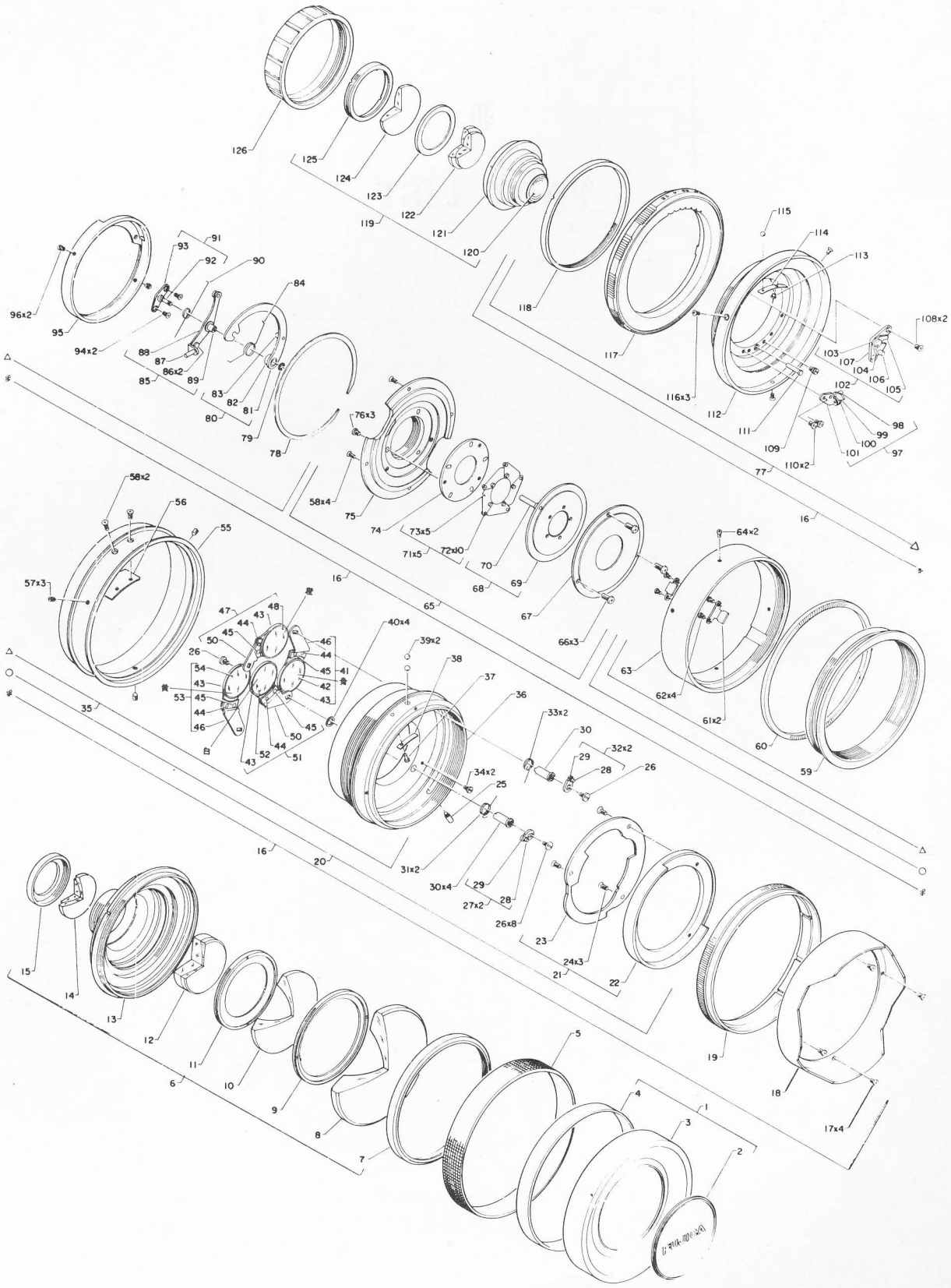
PART LIST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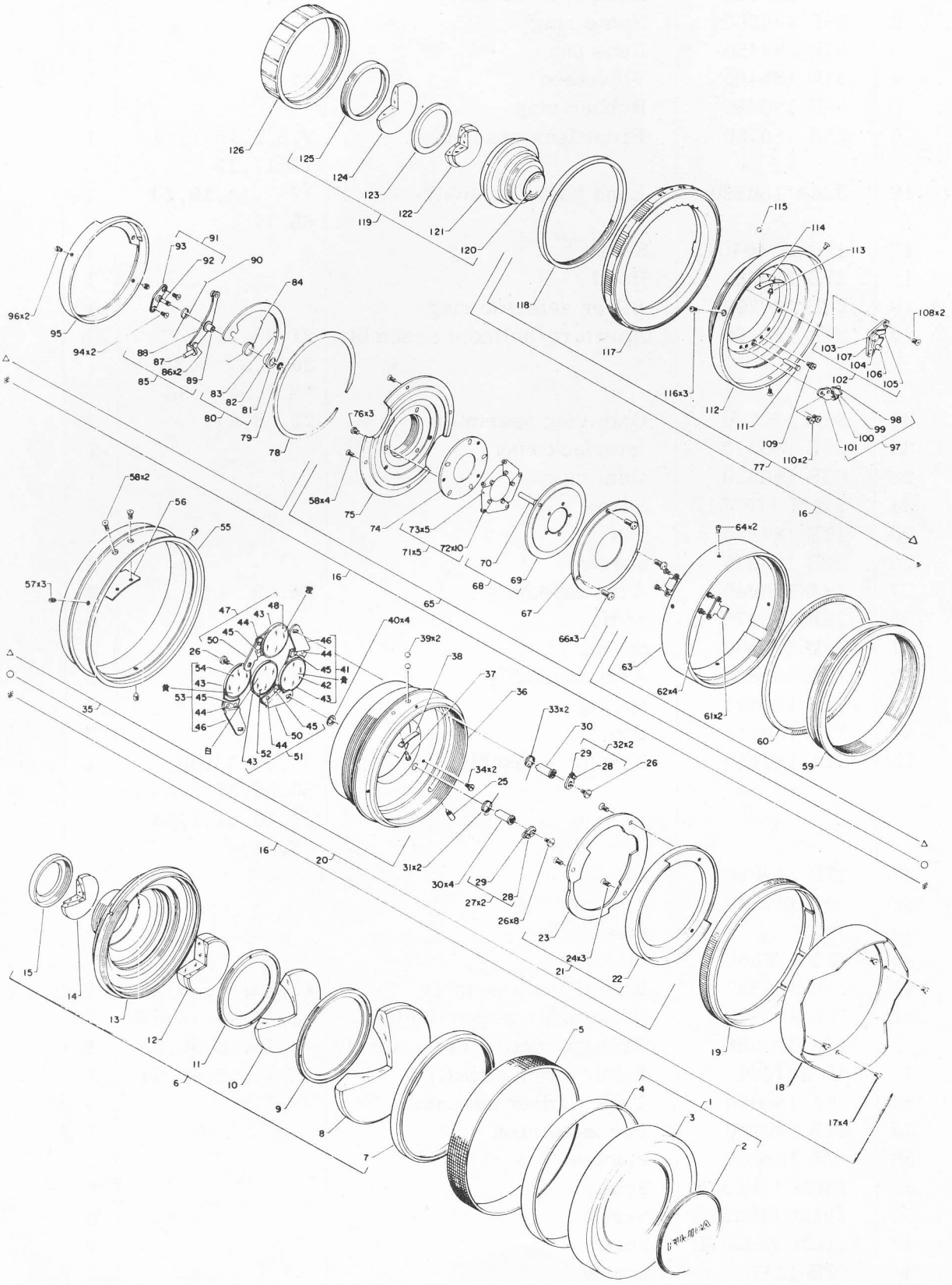
REF. NO.	PART NO.	PART NAME	ASSEMBLED REF. NO.	O'TY	REMRAKS
1	57A 180830	Lens cap assembly	2,3,4,	1	
2	58B 146360	Name ring		1	
3	57B 180450	Lens cap		1	
4	51B 180460	Velveteen		1	
5	59B 180480	Rubber ring		1	
6	21A 180730	Front lens assembly	7,8,9,10,11,12 13,14,15	1	
16	324A 180990	Lens body assembly	17×4,18,19,20 65,77	1	
17	110M 140401B	Screw		4	
18	27B 180260	Hood		1	
19	23B 180290	Filter selector ring		1	
20	21A 180790	Aperture/helicoid assembly	21,25,26×8,27×2 30×4,31×2,32×2 33×4,34×4,35	1	
21	35A 180770	Cam ring assembly	22,23,24	1	
22	23B 180490	Interlock ring		1	
23	35B 180320	Cam ring		1	
24	111M 170351B	Screw		3	
25	17B 180330	Pin		1	
26	53B 180370	Screw		8	
27	18A 180840	Arm assembly	28,29	2	
30	32B 180370	Shaft		4	
31	50B 180400	Spring		2	
32	18A 180890	Arm assembly	28,29	2	
33	50B 180500	Spring		4	
34	17B 180410	Pin		2	
35	21A 180780	Hlicoid assembly	36,37,38,39×2 55,56,57×3,58×2 59,60,61×2,62×4 63,64	1	
37	17B 146090	Rivet		1	
38	50B 112540	Leaf spring		1	
39	200M 24	Steel ball		2	
40	55B 180360	Washer		4	
41	18A 180880	Blue filter assembly	42,43,44,45,46	1	
47	18A 180870	Orange filter assembly	43,44,45,48,50	1	
51	18A 180850	Transparent filter assembly	43,44,45,50,52	1	
52	4B 667560	Filter (transparent)	43,44,45,46,54	1	
53	18A 180860	Yellow filter assembly		1	
55	23B 180190	Focusing ring		1	
56	87B 180200	Stopper		1	
57	120M 170251B	Screw		3	
58	111M 170221B	Screw		6	
62	110M 140251B	Screw		4	
64	87B 114780	Screw		2	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REF. NO.	PART NO.	PART NAME	ASSEMBLED REF. NO.	O'TY	REMRAKS
65	23A 180820	Aperture assembly	58×4, 66×3, 67, 68 71×5, 74, 75, 76×3	1	
66	110M 200351B	Screw		3	
67	23B 180510	Ring		1	
68	41A 180800	Ring assembly	69, 70	1	
71	26A 180810	Aperture blade assembly	72×10, 73×5	5	
74	22B 180090	Aperture seat		1	
75	23B 180110	Thrust ring		1	
76	110M 170251B	Screw		3	
77	23A 180720	Mount ring assembly	78, 79, 80, 85, 91 94×2, 95, 96×2, 97, 102, 108×2, 109, 112, 113, 114, 115, 116×3, 117, 118	1	
78	25B 180240	Stop ring		1	
79	191M 12	E-clip		1	
80	47A 155590	Lever assembly (II)	81, 82, 83	1	
84	50B 112690	Spring		1	
85	47A 155580	Lever assembly (I)	86×2, 87, 88, 89, 90	1	
91	85A 155570	Seat plate assembly	92, 93	1	
94	111M 140251B	Screw		2	
95	35B 180230	Cam ring		1	
96	17B 112750	Pin		2	
97	48A 155600	Crank assembly	98, 99, 100, 101	1	
102	85A 155560	Seat plate assembly	103, 104, 105, 106 107	1	
108	111M 140351B	Screw		2	
109	17B 112570	Pin		1	
110	100M 140223B	Screw		2	
111	26B 146190	Pin		1	
112	23B 180210	Main ring		1	
113	17B 146090	Rivet		1	
114	50B 112540	Leaf spring		1	
115	200M 20	Steel ball		1	
116	112M 170351B	Screw		3	
117	23B 180220	Aperture selector ring		1	
118	23B 131530	Ring		1	
119	21A 180740	Rear lens assembly	120, 121, 122, 123 124, 125	1	
126	57B 112740	Rear cap		1	