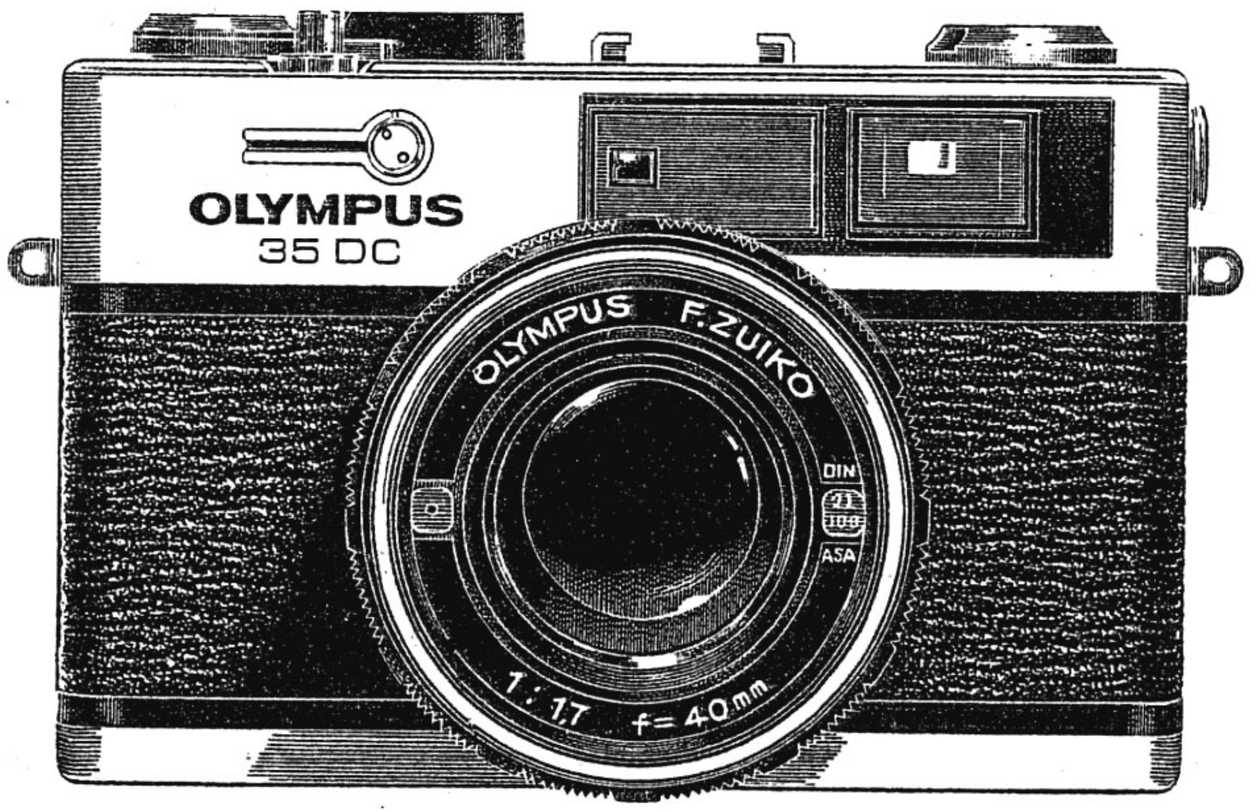
OLYMPUS
35 DC
REPAIR MANUAL

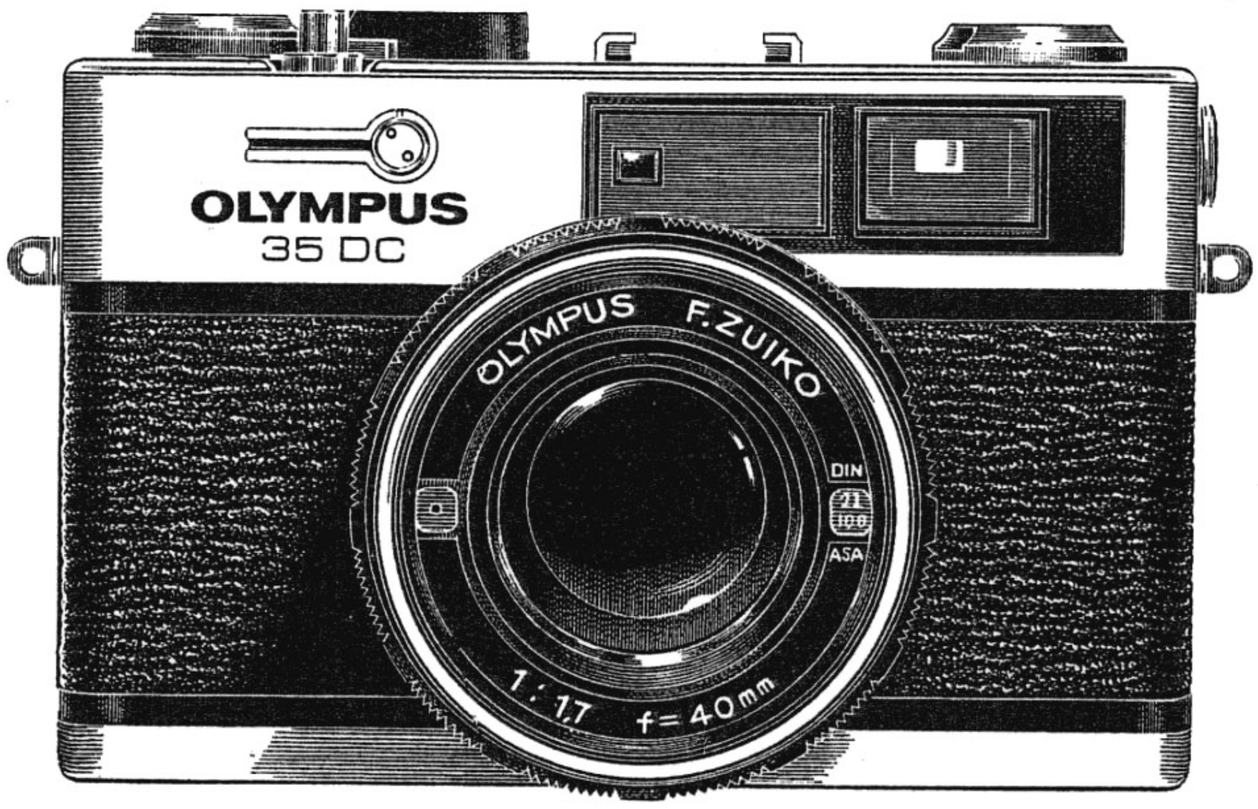


OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN

35 DC

CONTENTS

	Page
DRAWING AND PARTS LIST	1
OUTLINE OF THE PRODUCT	11
INSPECTION STANDARD	16
DISASSEMBLY PROCEDURE	21
TROUBLESHOOTING	26
PARTS WHERE OIL, GREASE, ETC., SHALL BE USED	67
SPECIAL TOOLS	74
OTHERS	76



DRAWING AND PARTS LIST

EXPLANATORY NOTES ON VARIOUS MARKS & NUMBERS USED IN IMPROVED PARTS TABLE

★ Only Body Die-Cast is not available in case of overseas.

❶ An assembled parts is supplied including parts marked with ①

① Single parts is supplied.

( ) Not to be supplied in single parts, but as an assembled parts.

Left-handed screw, (the mate screw hole is not marked particularly). All right-handed screws have no special indication.

< > Improved parts. Number shows INDEX in IMPROVED PARTS TABLE where more details are explained.

═══ No more available parts.

The place where parts have been improved.

[ ] Dimensions of improved parts and improved points.

♡♤◇♧ Replacing parts of no more available parts marked with ═

※ How to replace parts or how to repair.

—— Original parts are also usable instead of improved parts.

✕ Printing error. No parts are built-in cameras.

Clarify HOUSE CODE, PARTS NUMBER and QUANTITY in your ORDER SHEETS.

PARTS NO.	NAME OF PARTS	NOTE
CA 5509	CLUTCH SPRING	
5526	SPOOL HOLDER	
5527	C WASHER	
5709	E RING 3	
5767	COVERING PLATE	
5949	S GEAR SCREW	
5956	LEAD COIL	
6008	HINGE PIN	
6084	LEAD COIL C	
6344	SPOOL SPRING	
6345	BATTERY COMPARTMENT LID	
6590	KEY SPRING	
6970	LIGHT PROOF PADDING	
6977	KEY GUIDE	
7205	COIL HOLDER	
7315	LIGHT PROOF PADDING	
7329	STOPPER SPRING	
7334	R LEVER	3 parts 3 kinds
7336	R PINCH SHAFT	
7338	FRICTION SPRING	
7341b	SHOE CONTACT POINT	3 parts 3 kinds
7399	W LEVER COVER	
7410	RELEASE SCREW	
7469	M BASE SPRING	
7486	LIGHT PROOF PADDING	
7529	SPOOL A	
7559	R NUT	
7718	HINGE	
7721	STOPPER SCREW	
7732	FILM GUIDE PIN	
7921	STOPPER SCREW	
8008	P HOLDER	
8025	R SHAFT	
8038	SCREW GEAR	
8063	ST LEVER SCREW	
8072	LIGHT PROOF PADDING	
8099	LEVER NO.1	
8100	LEVER NO.1 SHAFT	
8102	M SPRING	
8103	AD SCREW	
8104	CONNECTING PIN	
8106	LIGHT PROOF SCREW	
8107	OB FRAME	
8109	VIEW FIELD STOPPER	
8110	MIRROR HOLDER	
8120	R SCREW	
8141	VIEW FINDER HOUSING	27 parts 26 kinds
8173	SET LEVER	
8203	LIGHT PROOF FRAME	2 parts 1 kind
8209	FOCUS RING	
8210	ASA RING	3 parts 3 kinds
8211	MOUNT RING	
8212	RING HOLDER	
8213	INSULATION RING SHAFT	

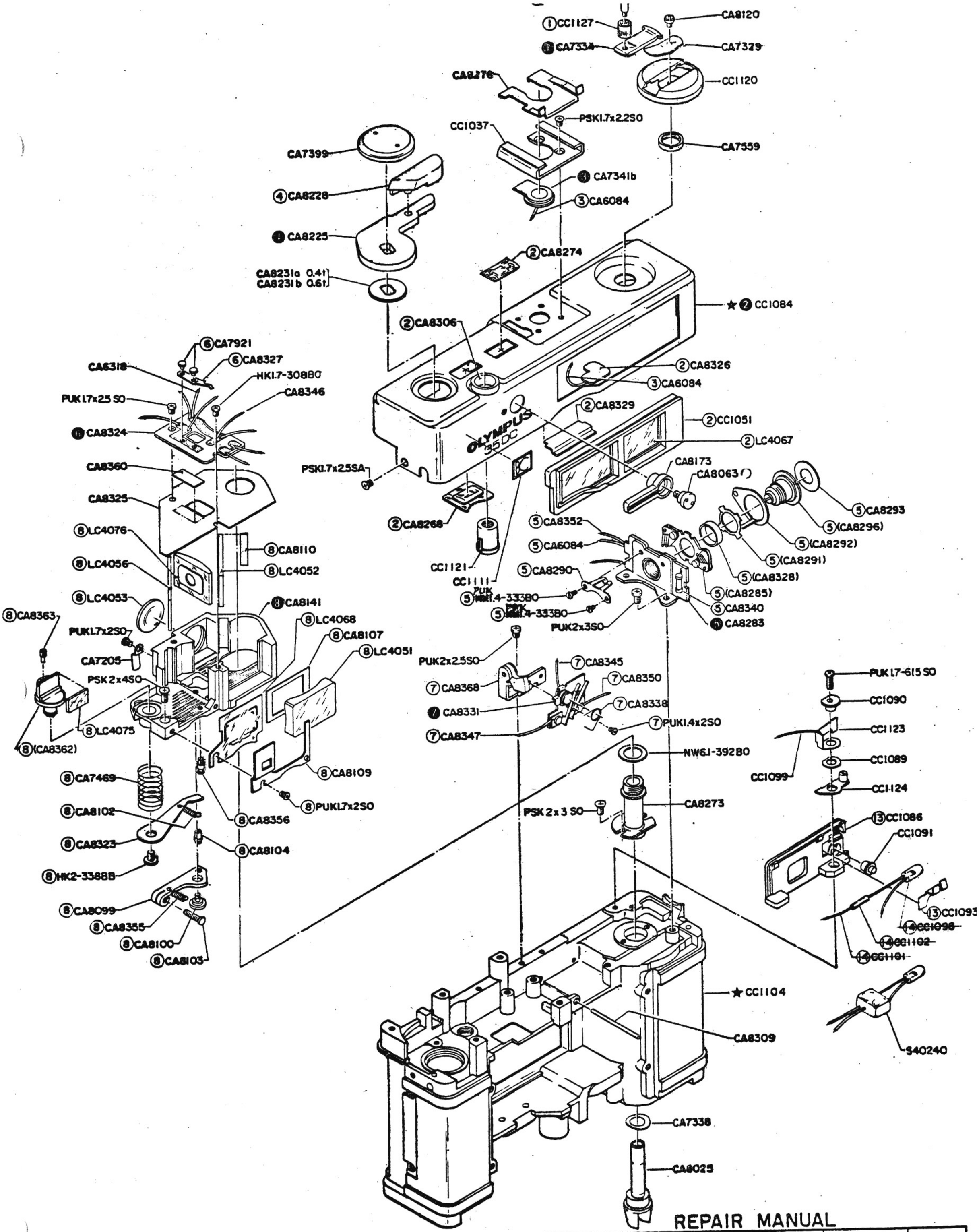
PARTS NO.	NAME OF PARTS	NOTE
CA 8214	INSULATION RING	10 parts 9 kinds
8215	R CONTACT POINT	
8218	FOCUS INDICATION RING	
8219	KEY PLATE A	
8222	PRESSURE PLATE	3 parts 3 kinds
8224	FILM ROLLER	
8225	FILM WINDING LEVER	2 parts 2 kinds
8227	FW SHAFT	
8228	FW LEVER COVER	
8230	FW PLATE	3 parts 3 kinds
8231	FW LEVER WASHER	
8232	FW SPRING	
8233	GEAR NO.1 WASHER	
8236	FW PLATE SPRING	
8237	GEAR NO.1	
8240	S GEAR	
8242	GEAR NO.1 SHAFT	
8243	S GEAR SHAFT	
8244	SPROCKET	2 parts 2 kinds
8245	S GEAR	
8246	SP SHAFT	
8249	FC BASE PLATE	18 parts 17 kinds
8251	FC SPRING	
8252	FC GEAR	
8254	FC PLATE	
8255	FRICTION RING	
8257	K IDLE 1	
8258	K IDLE 2	
8262	RETURNING SPRING 1	
8265	CLUTCH	
8266	S STOPPER SCREW	
8268	FC WINDOW	
8269	S LOWER HOLDER	
8270	SP UPPER HOLDER	
8271	SP LOWER HOLDER	
8272	R BUTTON	
8273	R SHAFT HOLDER	
8274	GN WINDOW	
8276	SHOE SPRING	
8277	BATTERY CASE	5 parts 5 kinds
8278	BUTTON FRAME	
8280	S CONTACT 2	
8283	MX BASE PLATE	25 parts 21 kinds
8290	MX CLICK	
8293	MX PLATE	
8304	STOPPER LEVER	
8306	BUTTON WASHER	
8308	GN PLATE	
8309	FOCUS PIN	
8310	FINDER NEEDLE	
8311	RIGHT SIDE LEATHER	
8312	LEFT SIDE LEATHER	
8313	REAR COVER LEATHER	
8316	INSURATION RING SHAFT	

PARTS NO.	NAME OF PARTS	NOTE
CA 8318	FOCUS PLATE	
8319	R RING	5 parts 4 kinds
8322	LIGHT PROOF PADDING	
8323	M LEVER	
8324	F BASE PLATE	4 parts 3 kinds
8325	F COVER	
8326	SHOE BASE PLATE	
8327	S CONTACT POINT	
8329	FRAME STOPPER	
8331	FM BASE PLATE	18 parts 16 kinds
8338	LEVER SPRING	
8340	M RESISTOR	
8341	BUTTON SPRING	
8343	R SLIDER	2 parts 2 kinds
8345	LEAD COIL	45mm long, Yellow
8346	LEAD COIL	165mm long, Yellow
8347	LEAD COIL	25mm long, Black
8350	LEAD COIL	55mm long, Brown
8352	LEAD COIL	45mm long, Red
8355	SPRING NO. 1	
8356	HOOK	
8358	STOPPER SCREW	
8359	TAPE	
8360	F TAPE	
8363	MIRROR SCREW	
8364	SET WASHER	
8366	GEAR NO.2	3 parts 3 kinds
8368	FM SWITCH	4 parts 4 kinds
CB 1299	STRAP RING	
CC 1037	SHOE	
1051	OBJECTIVE FRAME	8 parts 8 kinds
1058	BOTTOM PLATE	
1086	EYE PIECE FRAME	3 parts 3 kinds
1089	INSULATION PLATE 1	
1090	INSULATION PLATE 2	
1091	BC BUTTON	
1092	BASE PLATE	5 parts 5 kinds
1093	L HOLDER	
1094	TRANSISTOR	
1095	VARISTOR	
1096	RESISTOR 1	
1098	LAMP	
1099	LEAD COIL	165mm long, Violet
1100	LEAD COIL	40mm long, Violet
1101	LEAD COIL	185mm long, Green
1102	TUBE	
1104	(CAMERA BODY)	Not available
1111	MARK	
1113	REAR COVER	12 parts 11 kinds
1115	C RING	
1117	FILM WINDING BASE PLATE	
1120	R KNOB	
1084	Top cover	8 parts 8 kinds

PARTS NO.	NAME OF PARTS	NOTE
CC 1121	BUTTON	
1122	S BUTTON	
1123	CONTACT POINT A	
1124	CONTACT POINT B	2 parts 2 kinds
1126	KEY COVER	
1127	R PINCH	
LC 4051	OBJECTIVE NO.1	
4052	HALF MIRROR	
4053	EYE PIECE LENS	
4056	MIRROR NO.1	
4057	COVERING GLASS	
4068	VIEW FIELD MASK	
4075	MIRROR NO.2	
4076	MAGNIFIER	3 parts 3 kinds
OLX 41-01	FRONT LENS HOLDER	
41-02	INNER LENS BARREL	3 parts 3 kinds
41-03	REAR LENS BARREL	3 parts 3 kinds
41-04	REAR LENS HOLDER	
41-G1	FRONT LENS	
BS-18-19	SHUTTER ASS'Y	
NO.953	SELF TIMER ASS'Y	
NO.207	EXPOSURE METER ASS'Y	
	SET SCREW, WASHER, BAIL	
PUK	1.4 x 2 SO	
	1.4 x 2.5 SO	
	1.4 - 333 SO	
	1.4 - 404 SO	
	1.7 x 1.8 SO	
	1.7 x 2 SO	
	1.7 x 2.2 SO	
	1.7 x 2.5 SO	
	1.7 x 3 BA	
	1.7 - 308 SO	
	1.7 - 615 SO	
	2 x 2.5 SO	
	2 x 3 SO	
	2 x 3.5 SO	
	2 - 211 SO	
PSK	1.4 x 2 SO	
	1.4 x 2.5 SO	
	1.4 x 3 SO	
	1.7 x 2.2 SO	
	2 x 2.5 SA	
	2 x 3 SO	
	2 x 4 SO	

PARTS LIST 35DC

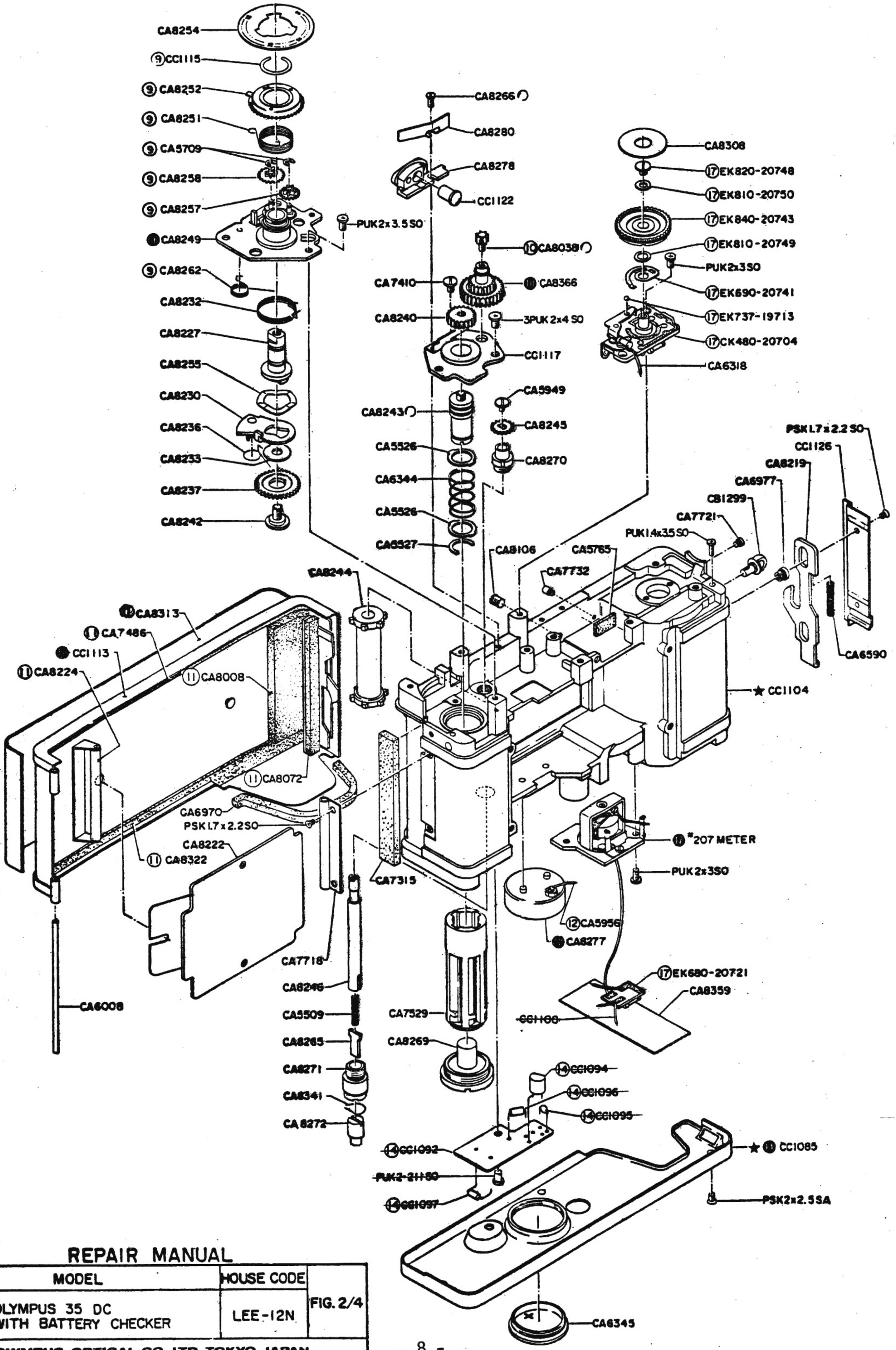
PARTS NO.	NAME OF PARTS	NOTE
	3PUK 2 x 3 SO 2 x 4 SO HK 2 - 338 .BB NW 6.1 - 392 BO NU 1.7 - 2 UB B 1/16	



REPAIR MANUAL

MODEL	HOUSE CODE	FIG. 1/4
OLYMPUS 35 DC WITH BATTERY CHECKER	LEE-12N	
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

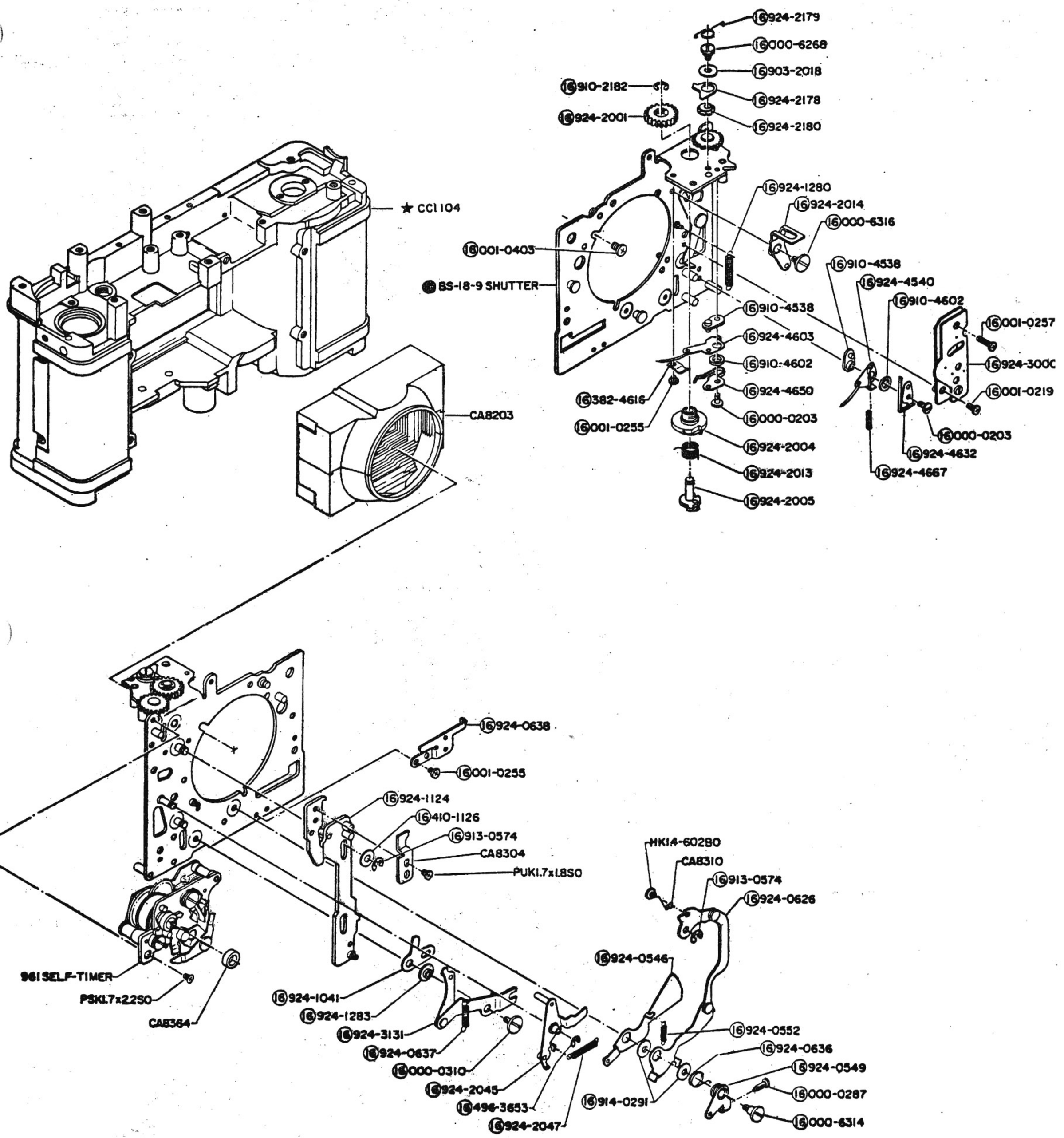
NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL, PARTS NUMBER AND QUANTITY



REPAIR MANUAL

MODEL	HOUSE CODE	FIG. 2/4
OLYMPUS 35 DC WITH BATTERY CHECKER	LEE-12N	
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

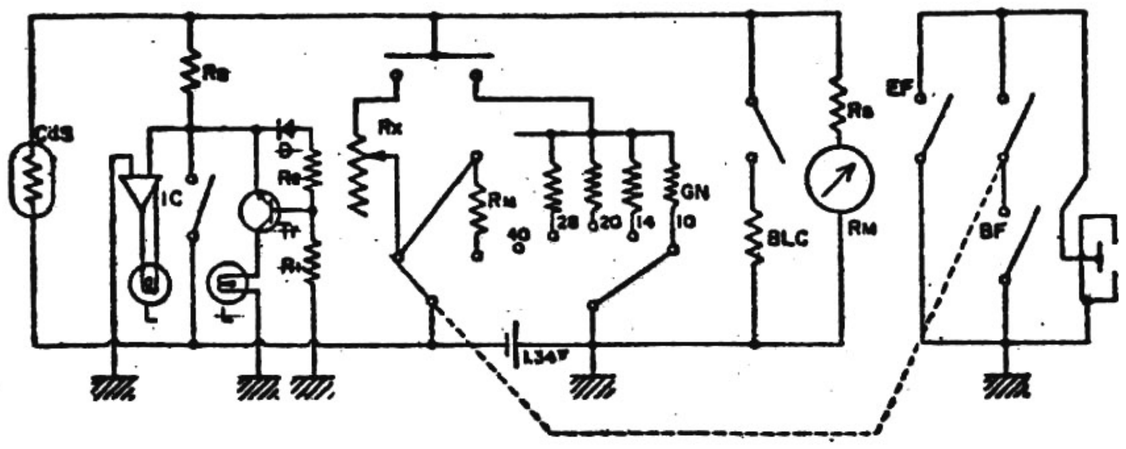
NOTE: WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL, PARTS NUMBER AND QUANTITY

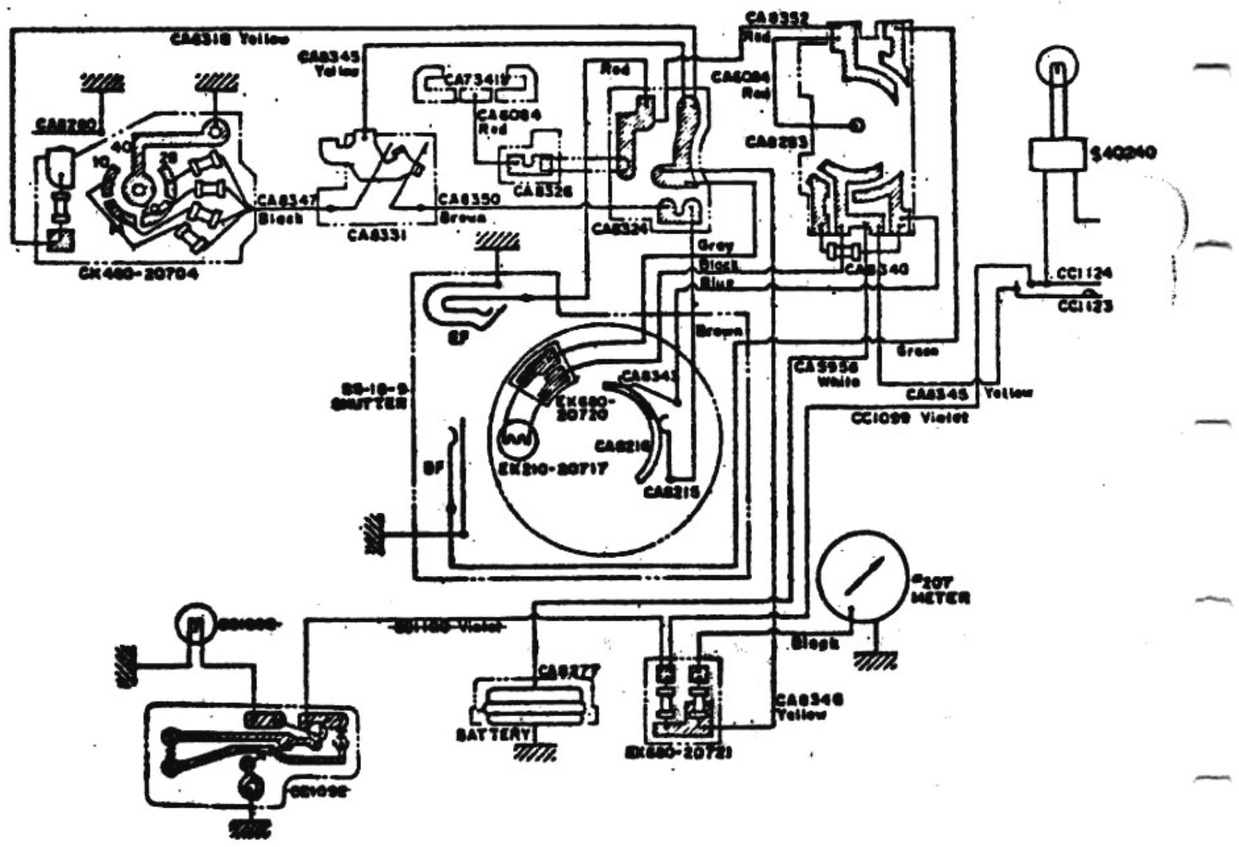


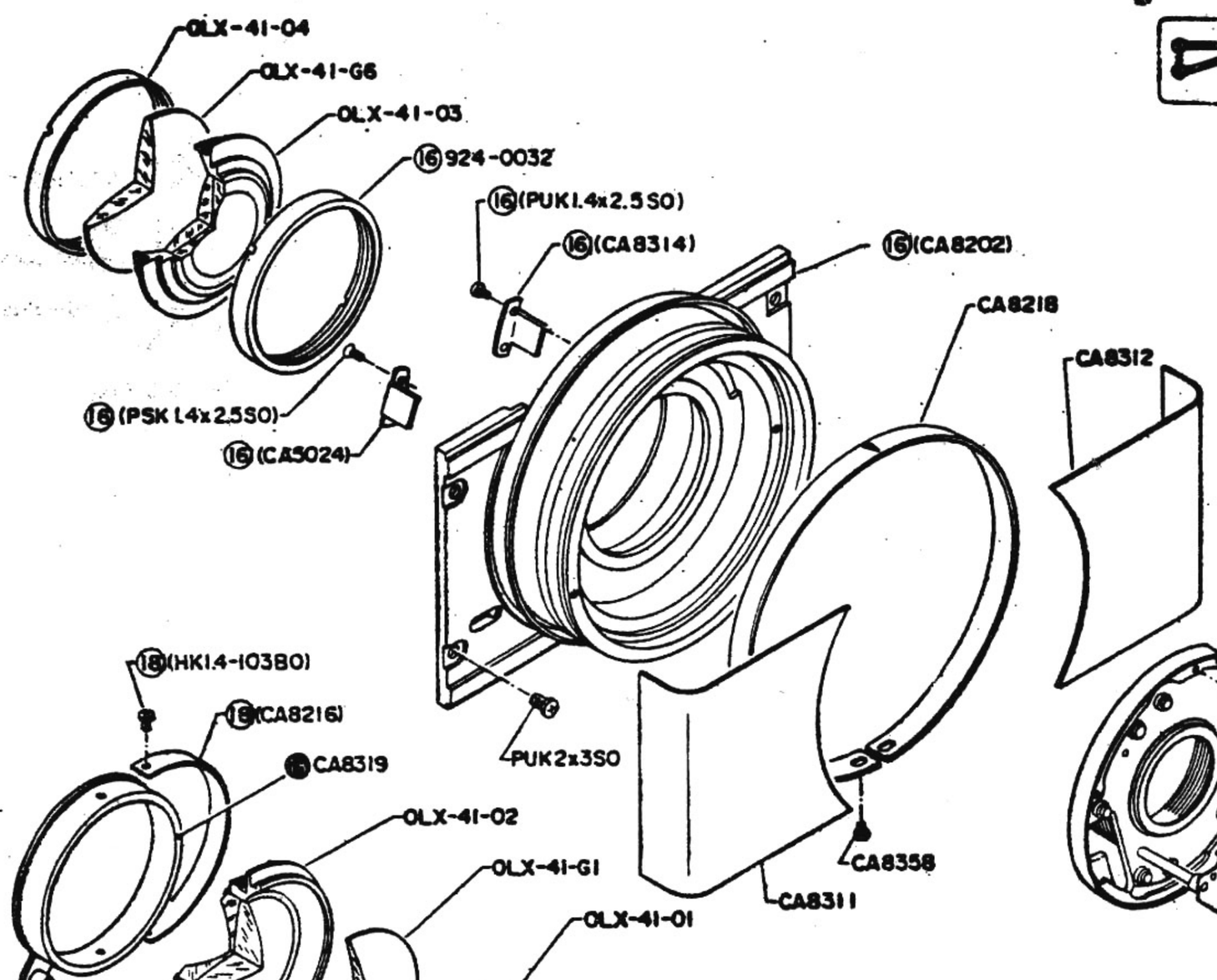
REPAIR MANUAL

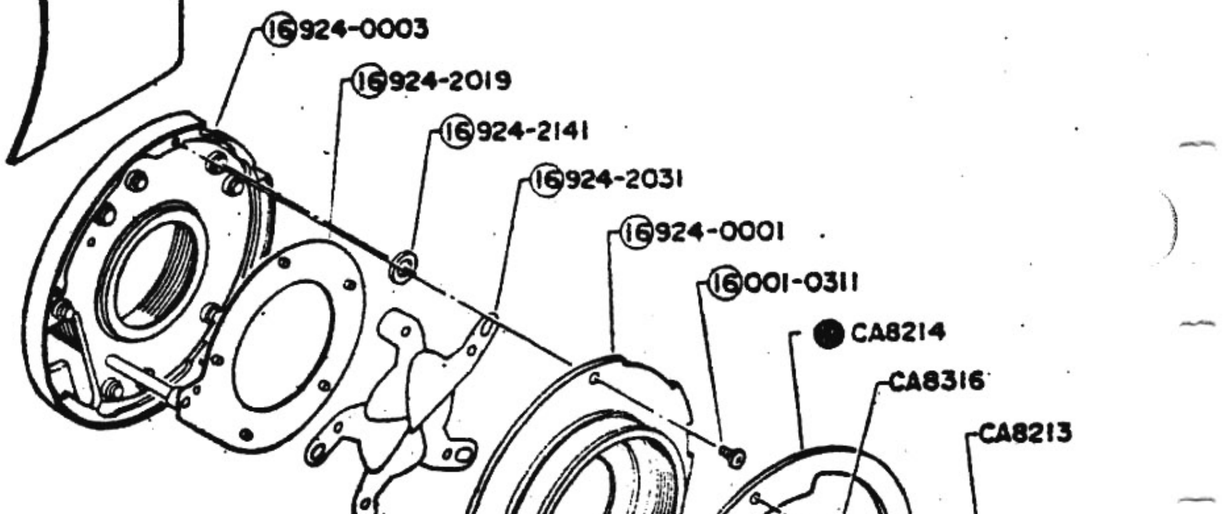
MODEL	HOUSE CODE	FIG. 3/4
OLYMPUS 35 DC WITH BATTERY CHECKER	LEE-12N	
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL, PARTS NUMBER AND QUANTITY









REPAIR MANUAL

MODEL	HOUSE CODE	
OLYMPUS 35 DC WITH BATTERY CHECKER	LEE-12N	FIG. 4/4
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE: WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL, PARTS NUMBER AND QUANTITY

LEE-12 OUTLINE OF THE PRODUCT

Product Name LEE-12

Model Name OLYMPUS 35DC

Main Features

Picture Size: 24 x 36mm (35mm full size)

Lens: F Zuiko F1.7 f=40mm (6 elements in 4 groups, Gauss type)

Picture Angle: 55°

Shutter: Olympus program shutter

1/15 - 1/500 sec. (nominal), stepless program (SEIKO BS18-9)

Synchro: ↯ (electronic flash) (M bulb) manually selectable

Guide Number: 10 - 40(m) 32 - 130 (ft) flashmatic system

Finder: Bright frame finder, 0.6 magnification, parallax correction mark, shutter speed scale, f/stop scale, under-exposure zone in red

Film Winding: Lever type, one-stroke winding, winding angle 135°, preparatory angle 35°, multiple-stroke winding available, self-cocking, double winding prevention, double exposure prevention

Frame Counter: Forward counting, automatic zero returning

Film Rewinding: Crank system, Rewind button set type

Focusing: Double image coincidence type single-eye range finder, Distance 0.9 - ∞ (in meters), Effective base length 18.6mm

Exposure Adjustment: Automatic (EE), Exposure coefficient conversion (backlighting compensation) (+1.5EV)

Light Sensor: Point eye CdS

Light Receiving Angle: Approx. 50°

Power Supply: Mercury cell JIS H-D 1 pc or HS-D 1 pc

Film Sensitivity Scale: ASA25 - 800 (DIN 15 - 30)

Self-timer: Lever type (90°) Approx. 10 sec delay action

Rear Cover: Hinge type

Accessory Shoe: Cordless contact

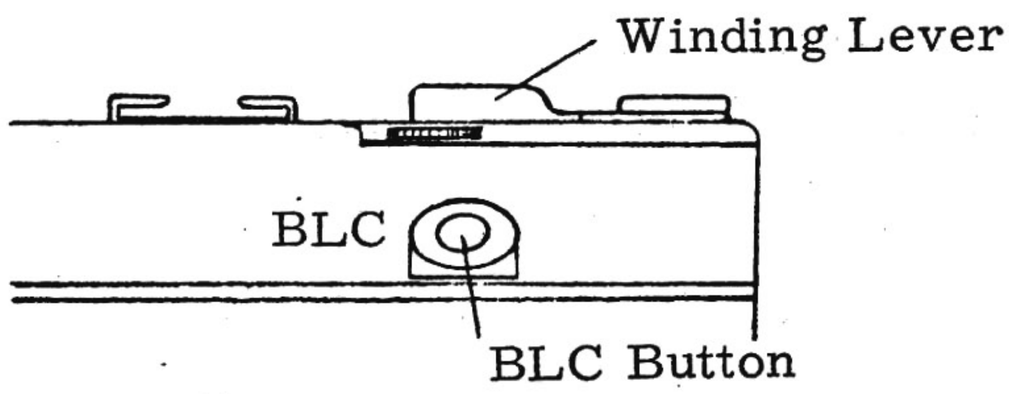
Filter Mounting: $49\phi^{p=0.75}$ screw-in type

Battery Check: Checker lamp

Dimensions and Weight: 114(W) x 71(H) x 57(D)mm, 480g

1. BLC (Back Light Control) Button

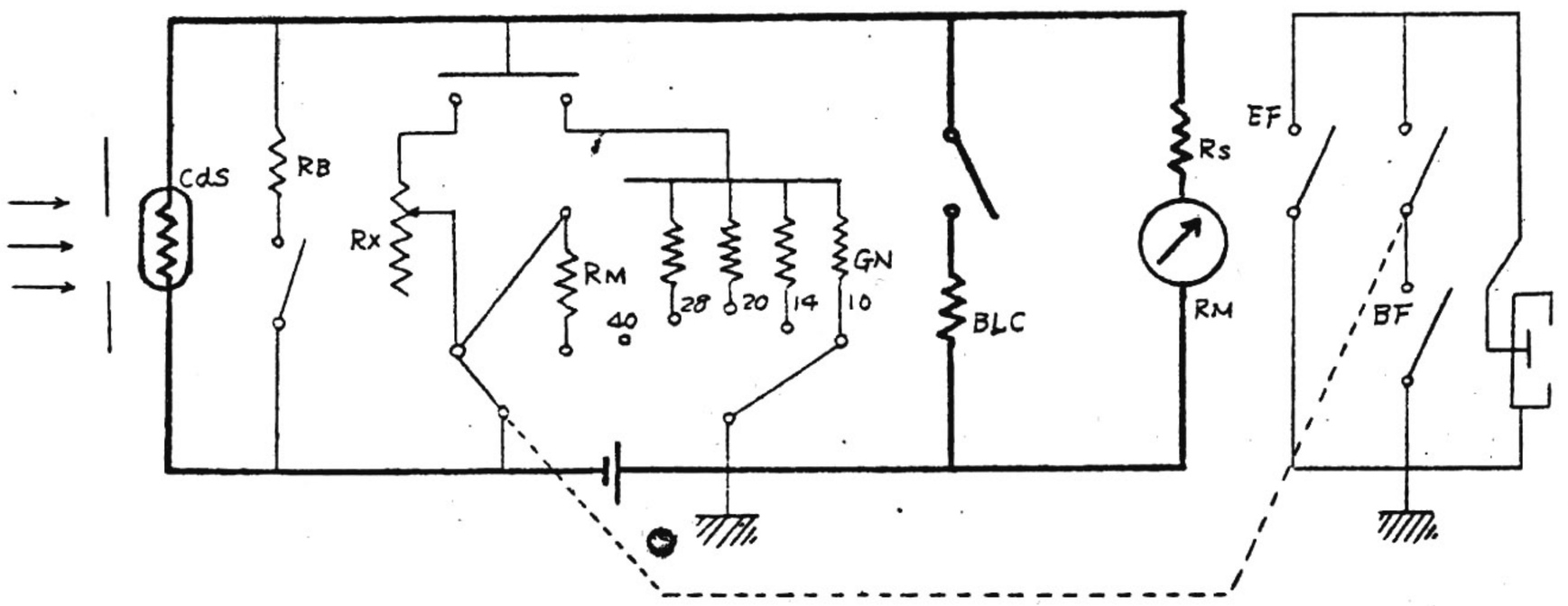
This is a button provided at the back of the winding lever. When it is depressed, over exposure of about 1.5EV is compensated for back-light shooting at all EV levels.
However, it is not a complete back-light correction method as the spot measurement with the SP (LES-6). (The S button is common with LES-6.)



2. BLC Circuit (Exposure Correction)

This is a circuit in which a fixed resistor becomes connected in parallel with the EE meter by the depression of the S button, and forcibly deviates the meter about 1.5EV insufficient under any condition in AUTO mode. Thus, exposure is made over by about 1.5EV.

BLC Circuit Diagram



3. Synchro Contact

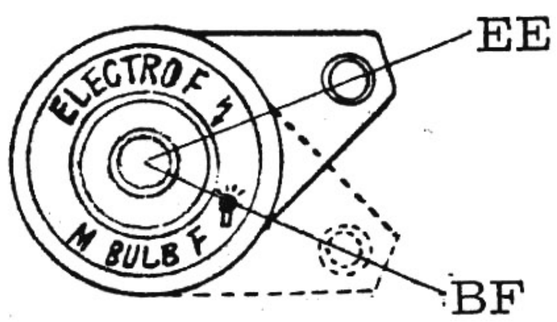
1) EF (Electronic Flash) Contact

a. For use with an electronic flash unit.

b. Function --- Similar to "X" contact.

The "X" contact permits the use of flash bulbs at the low shutter speeds; but the LEE-12 is not available in the manual mode and instead is provided with the program shutter, thus the f/stop and the shutter speed are varied automatically and simultaneously. Therefore, manual shutter speed selection is impossible and a flash bulb can not be used.

Because of the above reason, it is particularly called "EF", the contact used exclusively for an electronic flash. For the setting to the EF, match the MX to the mark .



2) BF (Bulb Flash) Contact

a. For use with a flash bulb

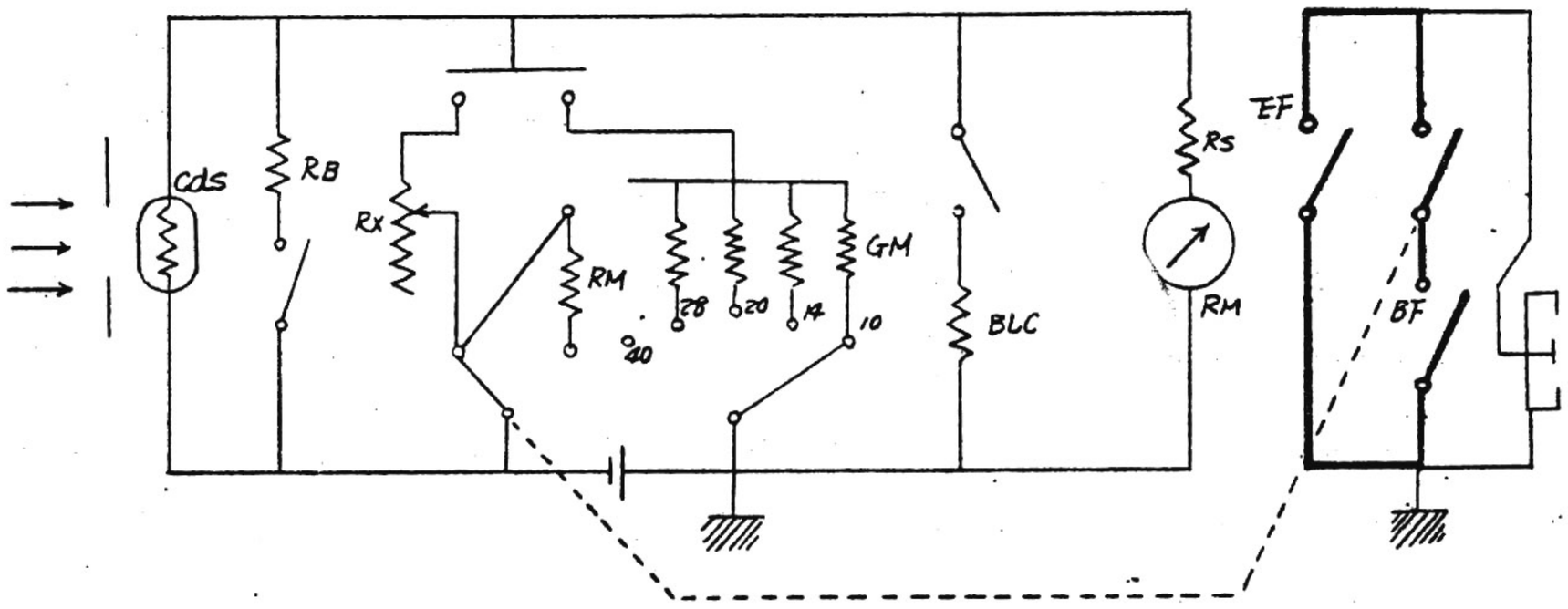
b. Function --- Similar to "M" contact.

This contact is exclusively for use with M bulbs but, due to programmed shutter, it does not synchronize unless the time lag is corrected for each BV by the timing of switch-in and varying full-open time; as a result, this contact does not satisfy the JIS time lag standard (18 $\pm$3m sec) designated for the M contact. So, it is specifically called "BF". To set the BF contact, set the MX lever to the mark . (See the above illustration.)

4. Synchro Circuit (BF/EF Selector)

The BF and EF circuits are contained in the LEE-12, the selection of which is done with the MX lever. The BF and EF contacts are made at every shutter button depression. Since the BF contact is closed earlier than the EF contact, the BF circuit should be turned OFF in case of the EF setting.

Synchro Circuit Diagram



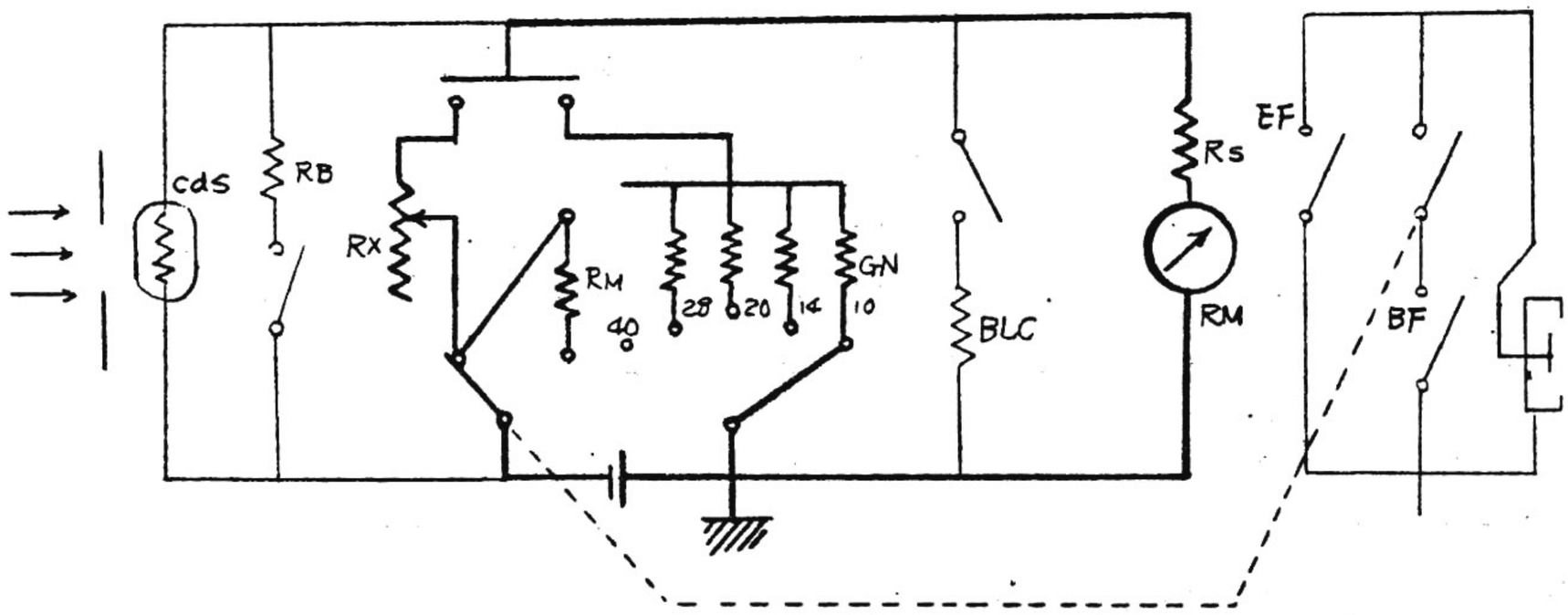
5. Flashmatic

This is a mechanism which, when a flash unit is connected to the camera, automatically selects correct exposure after the photographer has set the selector lever (⚡ or 💡), guide number and subject distance. With the cordless type or clip-on type flash, the synch circuits are automatically completed when the flash is mounted on to the accessory shoe. However, in case of the side-mounting bracket type flash, insert a match stick into the groove in the right side of the accessory shoe to push down the black lever into the shoe.

6. FM (Flashmatic) Circuit

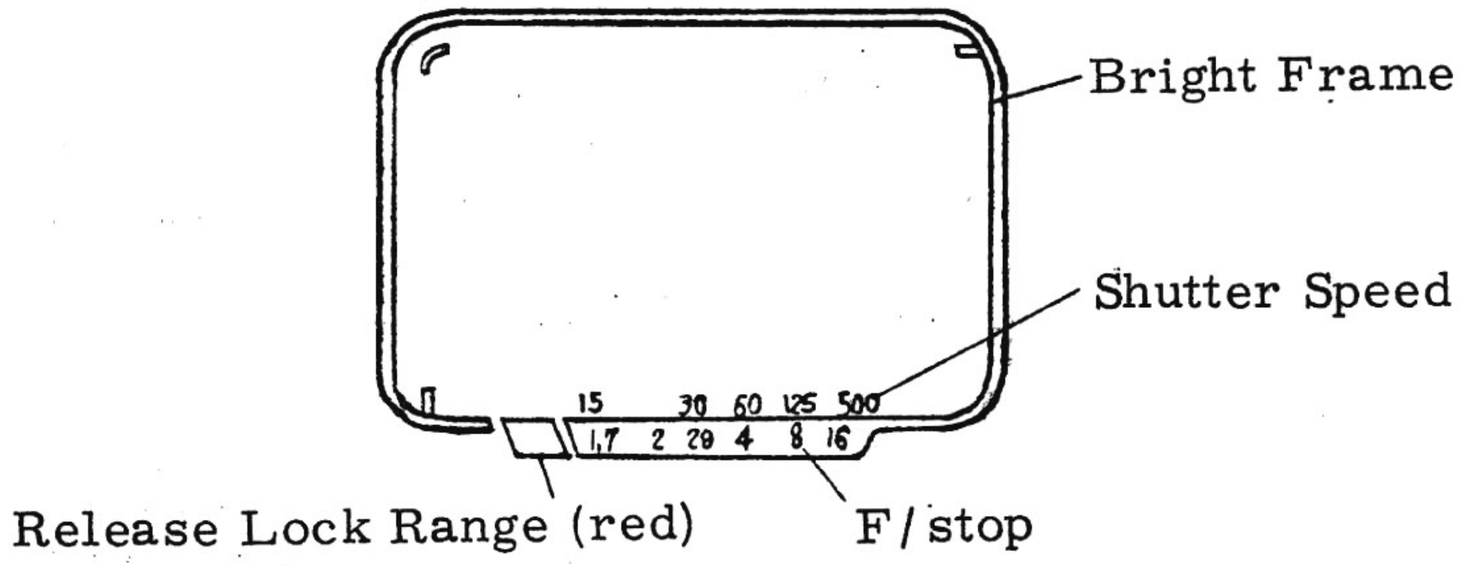
This is a circuit which electrically deflects the meter for determining correct lens aperture. When the FM switch is depressed, the resistor (a sliding resistor whose value is varied by the distance ring rotation) parallel with CdS and the GNO selector resistor parallel with the meter become connected to deflect the meter. By the setting of the MX lever, the BF (for M-class bulbs) or EF (for electronic flash) circuit is selected. In the case of BF setting, the resistor M is connected in series with the resistor (RX) and the meter deflection is made insufficient as compared with the case of EF setting, even under the same conditions (same subject distance and GNO).

FM Circuit Diagram

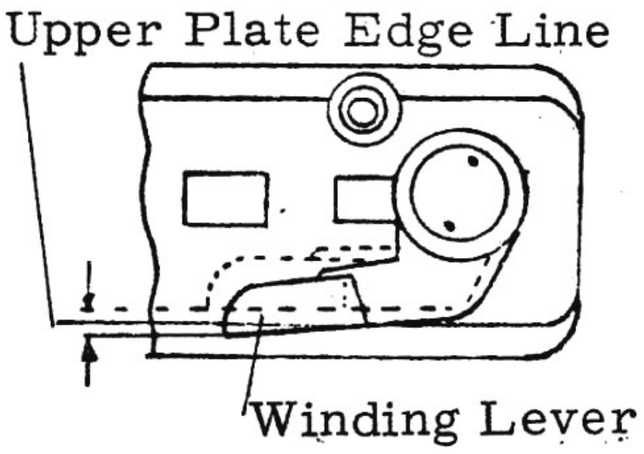


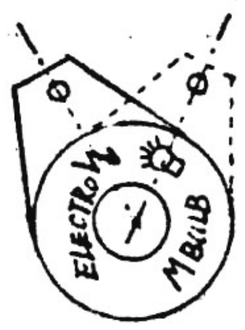
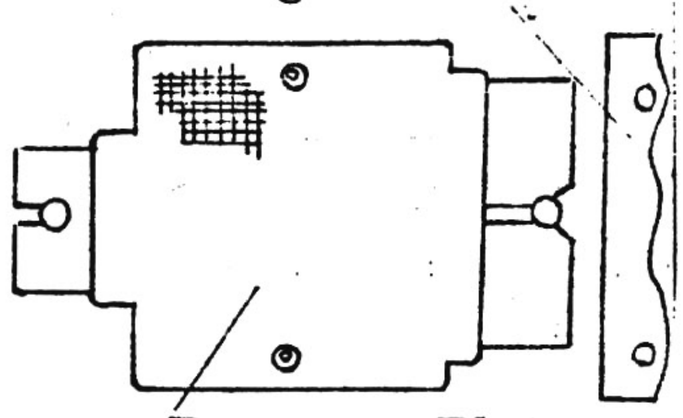
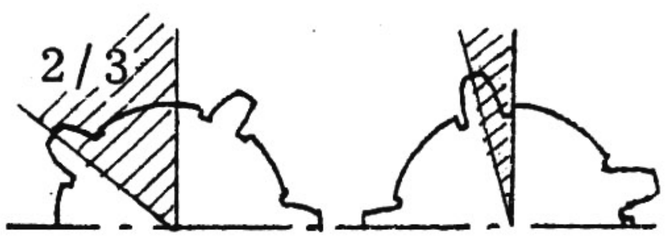
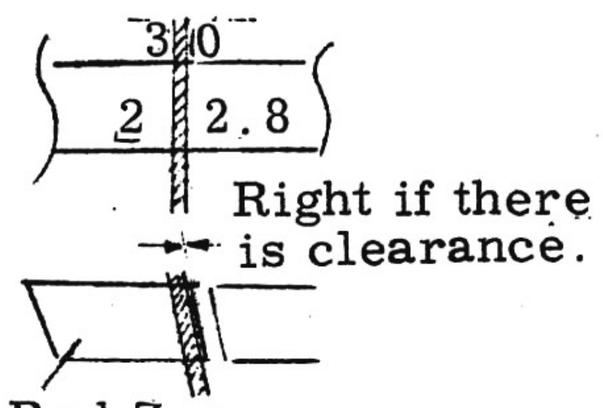
7. Information Finder

The information finder is a finder in which the "shutter speed " and "f/stop" indexed on the bright frame are indicated by the pointer at the time of shutter release. (The needle movement is controlled by the needle cam.)



INSPECTION STANDARD

Check Items	Descriptions	Remarks
1. Winding smoothness and load	When winding with the film loaded, there is no rattle, uneveness and hooking and winding load is less than 750g at the lever tip.	
2. Accuracy of winding	Either one-stroke or multiple-stroke winding is surely done.	
3. Double winding prevention	Next winding should not be effected unless the shutter is released, and possible when the shutter is released.	
4. Shutter release button	o Height: 1 ± 0.4mm with respect to the button base. o Load: Less than 700g. o Allowance after Depression: More than 0.3mm	
5. Lever storing position	Within 1.5mm at the winding lever tip with respect to the upper plate edge.	
6. Shutter operation	Should not be released unless the F button (shutter lock Free button) is depressed when the incident light is 0. The shutter speed and f/stop should be varied depending on the change in the brightness of field (confirmed by the shift of the pointer needle).	

Check Items	Descriptions	Remarks
7. Accordance of index	The center of the MX lever dowel should not be displaced from the mark.	
8. Film pressure plate mounting position	See the right illustration for the mounting direction.	Cartridge Holder  Pressure Plate
9. Position of sprocket tooth	Within the range of the right illustration when the sprocket is pushed to the mask side.	
10. Position of pointer needle	Moves smoothly without hooking and the needle tip is lying on the shutter speed numeral. The needle should enter the red zone when under-exposure.	
11. Zero S release	o When the shutter lock free button is depressed, the shutter should be released in any condition. o The shutter should not be released as long as the F button is not depressed.	Confirm by quietly depressing the release button.
12. Accuracy of range finder coupling	∞ : 0 ± 0.05 Closest Distance: $+0.03 \pm 0.05$	Measure by using a 600mm collimator.

<table>
<tr><th>Check Items</th><th>Descriptions</th><th>Remarks</th></tr>
<tr><td>13. Displacement of range finder</td><td>Lateral Displacement: Within 1'
Vertical Displacement: Within 1'30"
Image Inclination: Within 1'
Magnification Difference: Within 1'30"</td><td>Should be within 1 line width when the 600mm collimator is used.</td></tr>
<tr><td>14. EE accuracy</td><td colspan="2">Should be within the range shown in the Table below.
k = 1.55
<table>
<tr><th colspan="4">EE Tester</th><th colspan="4">Camera</th></tr>
<tr><th>cd/m^2</th><th>BV</th><th>BV</th><th>ASA</th><th>ASA</th><th>Standard</th><th>BLC Effect</th><th>Remarks</th></tr>
<tr><td>10000</td><td>15</td><td>15</td><td>100</td><td>100</td><td rowspan="3">$\pm$0.75 EV</td><td rowspan="3">+1.5 $\pm$0.5EV</td><td rowspan="3"></td></tr>
<tr><td>1500</td><td>12</td><td>12</td><td>100</td><td>100</td></tr>
<tr><td>200</td><td>9</td><td>10</td><td>100</td><td>100</td></tr>
<tr><td>9</td><td>6</td><td>6</td><td>100</td><td>100</td><td>+0.75 EV
-1.25 EV</td><td></td><td>Some are release locked.</td></tr>
<tr><td>200</td><td>9</td><td>10</td><td>50</td><td>50</td><td rowspan="2">$\pm$1.0 EV</td><td></td><td></td></tr>
<tr><td>200</td><td>9</td><td>10</td><td>400</td><td>400</td><td></td><td></td></tr>
</table>
Since the illuminance (BV or Cd/m^2) differs depending on the EE tester, apply the table corresponding to the brightness.
The power supply voltage used should be 1.34V or greater.</td></tr>
<tr><td>15. Deflection of pointer needle</td><td>The pointer needle is laid over the numeral 500 (sec) upon ASA 800 and BV 16.</td><td>Confirm by depressing the release button directing the camera to the EE tester or a fluorescent lamp.</td></tr>
<tr><td>16. Contact resistance</td><td>When the EF or BF is set to GNO 40 and the distance of 0.85m, the</td><td>Confirm by a tester with the use of KC-</td></tr>
</table>

<table>
<tr><th>Check Items</th><th>Descriptions</th><th>Remarks</th></tr>
<tr><td></td><td>both socket and shoe are conductive at 3V and incidence light of 0.</td><td>CA7731G socket base T.</td></tr>
<tr><td>17. Contact efficiency</td><td>When the EF or BF is set to GNO.40 and the distance of 0.85m, the both socket and shoe are as follow with the incidence light 0.
EF 1ms More than 40%
BF 2.5ms More than 60%
BF 6ms More than 80%</td><td>Confirm by using KC-CA7731G socket base T.</td></tr>
<tr><td>18. Insulation resistance</td><td>With the incidence light 0 for both EF and BF. the socket and shoe are both more than 500V 30M Ω .</td><td>Confirm by an insulation resistance meter with the use of KC-CA7731G socket base T.</td></tr>
<tr><td>19. FM accuracy</td><td>Should be within the following range by the use of an aperture area meter.
<table>
<tr><th>Camera GN</th><th>Contact</th><th>Distance</th><th>Area Meter Knob</th><th>Standard</th><th></th></tr>
<tr><td>10</td><td>⚡</td><td>2m</td><td>4</td><td>2.6 - 4.6</td><td></td></tr>
<tr><td>14</td><td>"</td><td>"</td><td>"</td><td>3.6 - 5.6</td><td>$4.6^{\pm1}$</td></tr>
<tr><td>20</td><td>"</td><td>1m</td><td>6</td><td>5.7 - 8.0</td><td>$7.0^{\pm1}$</td></tr>
<tr><td>28</td><td>"</td><td>2m</td><td>"</td><td>5.5 - 7.5</td><td>$6.5^{\pm1}$</td></tr>
<tr><td>20</td><td>☀</td><td>"</td><td>5</td><td>4.0 - 5.7</td><td>$5.05^{\pm0.6}$</td></tr>
</table>
The f/stops corresponding to the numerals of the area meter knob are as follow.
2.8 -------- 3</td><td>Measuring Procedure
1. See 0 - I-H 1 for the operation of the aperture area meter.</td></tr>
</table>

Check Items	Descriptions	Remarks
	4 -------- 4 5.6 -------- 5 8 -------- 6 11 -------- 7 Example Measured value +0.6 with the knob set to 4: 4.6 Measured value -0.4 with the knob set to 6: 5.6	2. Set the standard value. Attach the Gauge No.2 to the OM-1 with F1.8 lens, set it to the area meter and adjust the FINE control so that +0.57 is obtained upon OFF SET and f 5.6. 3. Should be within the value in the left Table when measuring with the light sensor of the test camera covered and a match stick inserted into the shoe.

DISASSEMBLY PROCEDURE

(Note) The related parts are marked in the attached disassembly drawing.

Order of Disassembly

1 - 4 Disassembly of the upper section

5 - 6 Disassembly of the lens barrel and the shutter section

Disassembly Procedure of Each Part

1. Demounting of the upper plate
   1) Remove the setscrew (CA8063) ----- Use the tool KC-CA5528G.
   2) Then, the set lever (CA8061) is taken off.
   3) Remove the R knob assembly (CA8026) from the R shaft (CA8025).
   4) Remove the R nut (CA7559) ----- Use the tool KC-CA5541G.
   5) Remove the lever holder (CA7399) ----- Use the tool KC-CA7399G.
   6) Then, the following parts are taken off.
      CA8225 Winding Lever Assembly
      CA8231 Winding Lever Base
   7) Remove PSK1.7x2.5SA of the upper plate.
   8) Then, the following parts are taken off.
      CA8204 Upper Plate Assembly
      CA8305 Button

2. Demounting of Range Finder
   1) Remove HK1.7-308SO and PUK1.7x2SO of the F circuit board.
   2) Then, the F circuit board assembly (CA8324) is taken off.
   3) Loosen PUK1.7x2SO of the wire holder, and disconnect the lead wire from the wire holder.
   4) Remove two PUK2x2.5SO of the FM circuit board.
   5) Then, the FM circuit board (CA8331) is taken off.
   6) Take off the F cover (CA8325) with the F tape (CA8360) being attached.
   7) Remove three PSK2x4SO of the F main body.
   8) Then, the F main body assembly (CA8141) is taken off.

3. Demounting of Guide Base Plate

1) Remove three PUK2x3.5SO of the guide base plate.

2) Then, the guide base plate assembly (CA8249) and the 2-gear (CA8238) are taken off.

4. Demounting of GNO Circuit Board

1) Remove two PUK2x3SO of the GNO circuit board.

2) Then, the GNO circuit board assembly (CK480-20704) is taken off.

5. Demounting of Lens Barrel

1) Remove the letter holder (CA8212) ----- Use the tool KC-0049G.

2) Then, the light sensor assembly (EK840-20711) is taken off.

3) Dissolve the soldering of the CdS lead wire.

4) Remove three PSK1.4x3SO of the mount ring.

5) Then, the following parts are taken off.

CA8211 Mount Ring

CA8210 ASA Ring

6) Loosen NU1.7x2UB of the distance ring.

7) The distance ring (CA8209) is taken off.

(Note) It is recommendable to mark the helicoid when the distance ring is demounted.

8) Remove the front lens assembly (OLX-41-02).

9) Then, the R ring assembly (CA8319) is taken off.

10) Unsolder the lead wire from the insulation base assembly (CA8214) at the MX circuit board and F contact, and disconnect the wire.

11) Remove two posts (CA8213 and CA8316).

12) Then, the insulation base assembly (CA8214) is taken off.

(Caution) Take care not to pull the lead wire forcibly so as not to break it.

6. Disassembly of Shutter

1) Peel off the front leather R (CA8311) and the front leather L (CA8312).

2) Remove PUK2x3SO on the upper side of the shutter and four PUK2x3SO of the front plate.

3) Then, the shutter assembly is taken off.

4) Remove the rear lens assembly (OLX-41-03) ----- Use the tool KC-0066G.

5) Remove the clamp ring (924-0032).

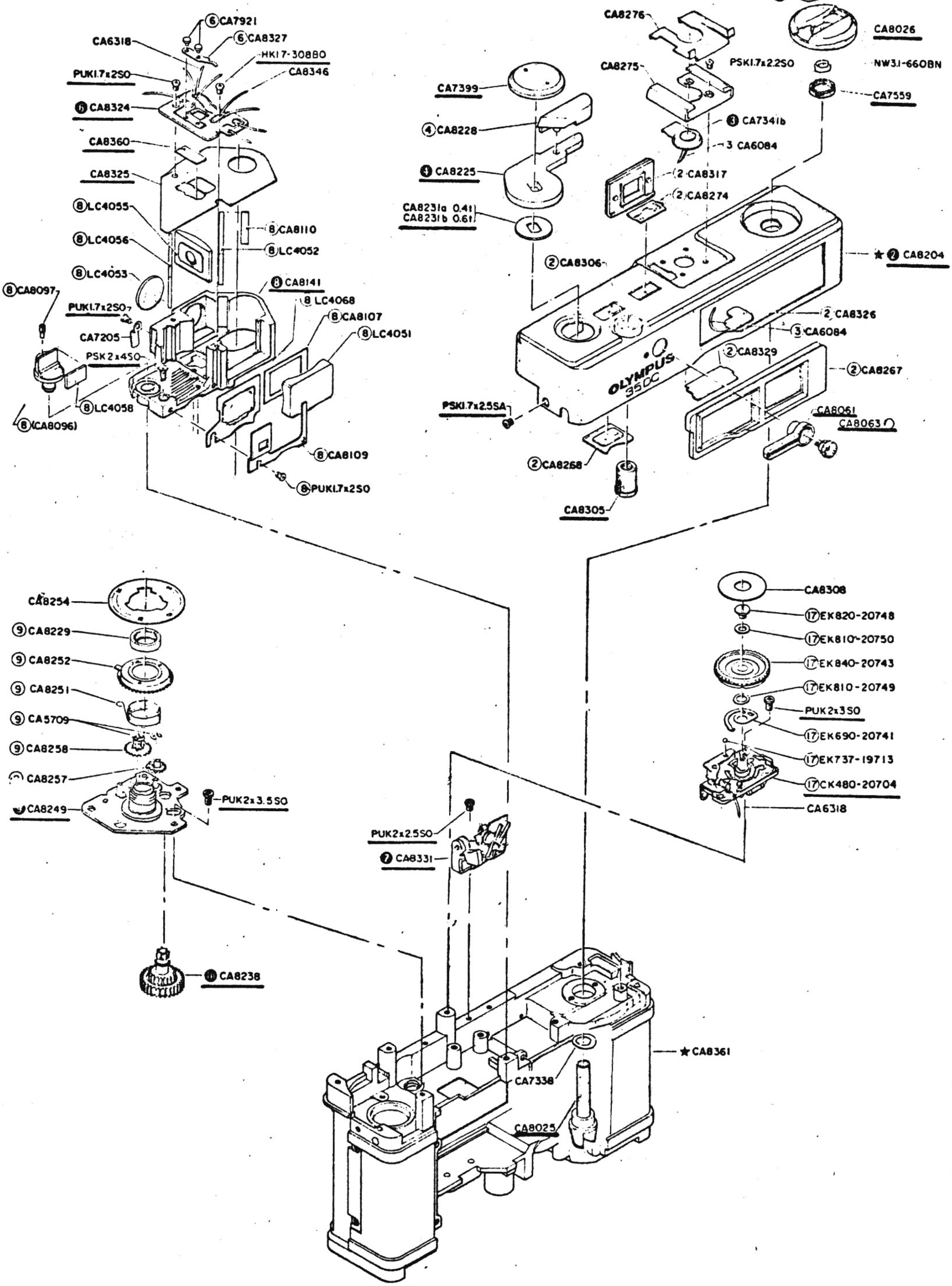
6) Then, the outer frame (924-0003) is taken off in the assembly form.

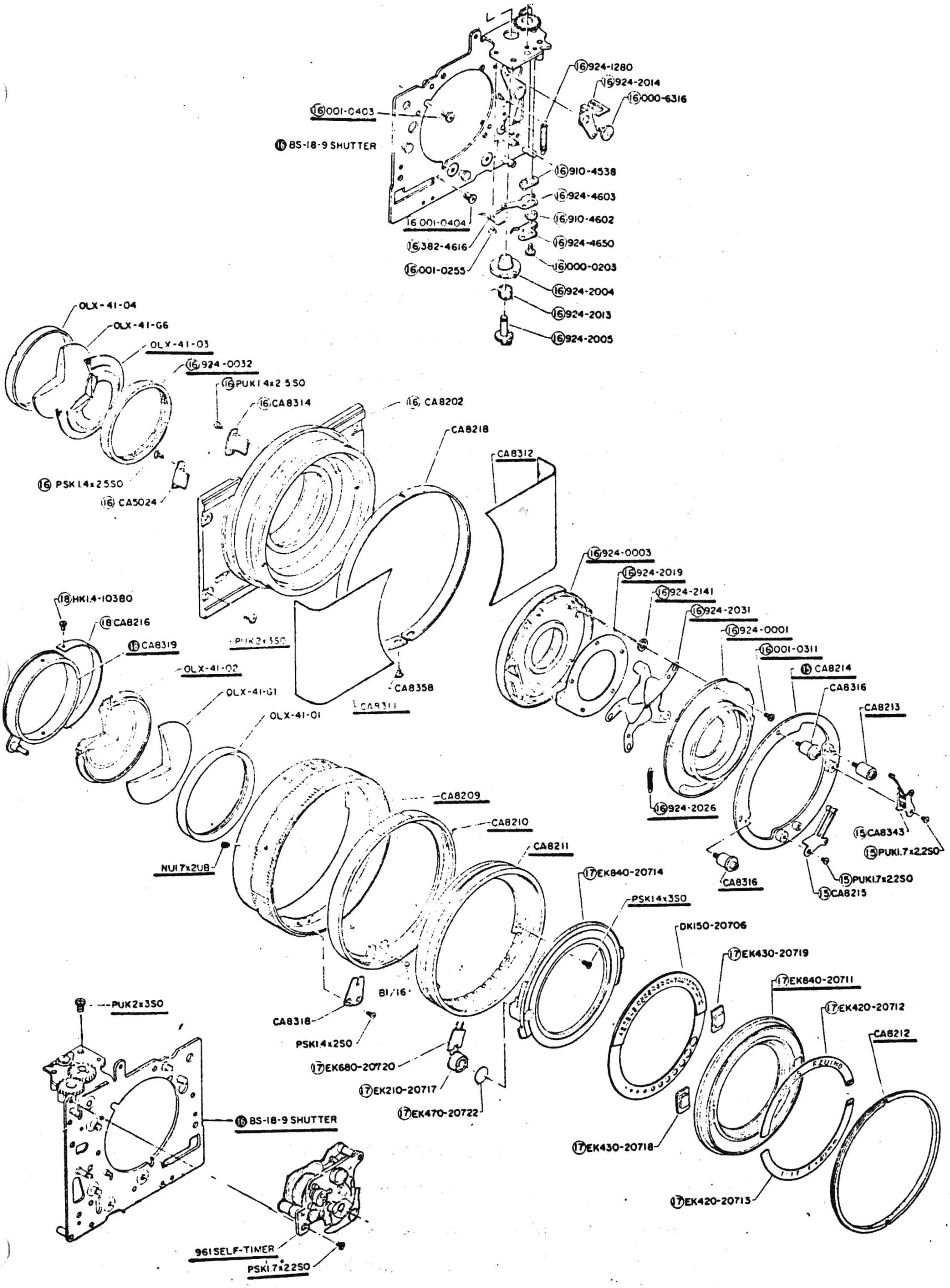
7) Remove the ring spring (942-2026).

8) Remove the base plate fixing screw (001-0311).

9) Then, the base plate (924-0001), the exposure blade (924-2031), the ring base (924-2141) and the ring (924-2019) are taken off from the outer frame (924-0003).

(Caution) If the screw (001-0404) and four screws (001-2141) fixing the front plate (CA8202) are removed from the base plate, the front plate and the base plate are separated, and the FM accuracy may become out of order, so that do not remove the above screws unnecessarily.


⑥CA7921
⑥CA8327
CA6318
HK17-30880
PUK1.7x2SO
CA8346
⑥CA8324
CA8360
CA8325
⑧LC4055
⑧CA8110
⑧LC4056
⑧LC4052
⑧LC4053
⑧CA8141
⑧CA8097
⑧LC4068
PUK1.7x2SO
⑧CA8107
CA7205
⑧LC4051
PSK2x4SO
⑧LC4058
⑧(CA8096)
⑧CA8109
⑧PUK1.7x2SO
CA7399
④CA8228
❺CA8225
CA8231a 0.4t
CA8231b 0.6t
①CA7336
①CA7335
❶CA7334
CA8120
CA7329
CA8276
CA8026
CA8275
PSK1.7x2.2SO
NW3.1-660BN
CA7559
❸CA7341b
3 CA6084
2 CA8317
2 CA8274
②CA8306
★❷CA8204
2 CA8326
3 CA6084
2 CA8329
②CA8267
OLYMPUS
35DC
PSK1.7x2.5SA
CA8061
CA8063
②CA8268
CA8305
CA8254
⑨CA8229
⑨CA8252
⑨CA8251
⑨CA5709
⑨CA8258
CA8257
CA8249
PUK2x3.5SO
⑩CA8238
PUK2x2.5SO
❼CA8331
CA8308
⑰EK820-20748
⑰EK810-20750
⑰EK840-20743
⑰EK810-20749
PUK2x3SO
⑰EK690-20741
⑰EK737-19713
⑰CK480-20704
CA6318
★CA8361
CA7338
CA8025


16 001-0403
16 BS-18-9 SHUTTER
16 001-0404
16 382-4616
16 001-0255
16 924-1280
16 924-2014
16 000-6316
16 910-4538
16 924-4603
16 910-4602
16 924-4650
16 000-0203
16 924-2004
16 924-2013
16 924-2005
OLX-41-04
OLX-41-G6
OLX-41-03
16 924-0032
16 PUK1.4x2.5S0
16 CA8314
16 CA8202
CA8218
16 PSK1.4x2.5S0
16 CA5024
CA8312
18 HK1.4-10380
18 CA8216
PUK2x3S0
18 CA8319
OLX-41-02
OLX-41-G1
OLX-41-01
CA8358
CA8311
16 924-0003
16 924-2019
16 924-2141
16 924-2031
16 924-0001
16 001-0311
18 CA8214
CA8316
CA8213
16 924-2026
15 CA8343
15 PUK1.7x2.2S0
CA8316
15 PUK1.7x2.2S0
15 CA8215
NUI.7x2U8
CA8209
CA8210
CA8211
17 EK840-20714
PSK1.4x3S0
DK150-20706
17 EK430-20719
17 EK840-20711
17 EK420-20712
CA8212
BI/16
CA8318
PSK1.4x2S0
17 EK680-20720
17 EK210-20717
17 EK470-20722
17 EK430-20718
17 EK420-20713
PUK2x3S0
16 BS-18-9 SHUTTER
961 SELF-TIMER
PSK1.7x2.2S0

TROUBLESHOOTING

CONTENTS

Page

I. Exposure Meter and Relateds

1. Shutter not released in AUTO mode 31
   1) Defective wiring and soldering 31
   2) Shortcircuit of the MX circuit board blue lead wire soldering portion and the meter body 31
   3) Shortcircuit of the MX circuit board black and white lead wires soldering portion and the upper plate 31
   4) Shortcircuit of the F circuit board yellow and gray lead wires soldering portions and the upper plate 32
   5) Defective meter 32
2. EE accuracy plus or minus 32
3. EE accuracy tending to extreme plus or minus 34
   1) FM switch is ON 34
   2) FM switch contact incompletely contacted 35
   3) F contacts 3 and 4 contacted 36
4. No change in the exposure quantity even upon the BLC button depressed 36
   1) Contact failure of S contact 2 and GN circuit board BLC contact 36
   2) Defective soldering of BLC 36
   3) Defective BLC 36

II. Flashmatic and Relateds

1. Shutter not released in FM (flashmatic) mode 37
   1) F circuit board brown lead wire soldering portion and the upper plate contacted 39
   2) Contact failure of FM switch and F contact . . . 40

Page

3) Contact failure of MX contact and MX circuit board 40
4) Defective meter 41

2. No change in FM accuracy even upon GNO varied in FM mode 41
1) Defective body grounding of GN circuit board . . . 41
2) Contact failure of GN circuit board and slide contact 42
3) Defective resistor of GN circuit board 42

3. Conductive in EF (⚡), but not in BF (💡) 42
1) Contact failure of MX circuit board and MX contact 42
2) Contact failure of the shutter BF contact . . . 43

4. No conduction at the shoe in both EF and BF 43
1) Contact failure of shoe circuit board and S contact 43

5. Over or under-exposure at close distance or far distance in both EF and BF 44
1) Resistance value variation 44

III. Range Finder and Relateds

1. Vertical ∞ displacement at infinity focus 45
1) Reflected image displaced upward 45
2) Reflected image displaced downward 45

2. Lateral ∞ displacement at infinity focus 45
1) Reflected image overrides 45
2) Reflected image short of superimposing position . . 46

3. Inoperative 46
1) Mirror base (CA8096) squeaks 46
2) Distance pin (CA8309) squeaks 47

Page

3) 1-lever (CA8099) squeaks 47

4) Disengaged springs 47

4. Displacement at close distance 47

1) Improper adjustment of close distance coupling . . 47

IV. Winding and Relateds

1. Winding impossible 48

1) 1-gear (CA8237) bending 48

2. Winding with rattle, unevenness and squeak 49

1) Improper engagement of 2-, 3-gear (CA8238) and shutter intermediate gear 49

V. Shutter and Relateds

1. Sector inoperative 49

1) Sector tenacious 49

2. Electronic flash or bulb flashes upon winding 50

1) Contacted EF contact 50

VI. Lens and Relateds

1. Defective focusing 51

1) Shutter crushed 51

2) Lens foggy 51

3) Lens loosened 51

4) Distance ring loosened 51

VII. Power Supply and Relateds

1. Battery exhausted abnormally in short period 51

1) Shortcircuit of F contact 3 (CA8298) and the body 51

2) Shortcircuit of F contact 4 (CA8299) and the body 51

Page

3) Shortcircuit of MX circuit board black and white lead wires soldering portion and the body 51

4) Shortcircuit of F circuit board yellow and gray lead wires soldering portions and the upper plate 51

VIII. Others

1. Arrangement of the lead wires in the main body and the F main body 53

2. Each lead wire combining position and direction 54

3. Arrangement of the lead wire on the upper side of the F main body 55

4. Handling of each contact 55

5. How to release the shutter without the battery 55

6. Locational relation between the pointer needle and the needle cam in brightness indication 56

7. Dimensions of the helicoid (in case it is erroneously removed) 56

8. How to fully open the sector 56

9. Relation between the self-timer and the release . . . 57

10. Operation range of the self-timer 57

11. Precautions on tentative winding 58

12. Position of the needle receiver after EE adjustment 58

LEE-12 Circuit Diagram 59

13. Strap ring breakage 60

Page

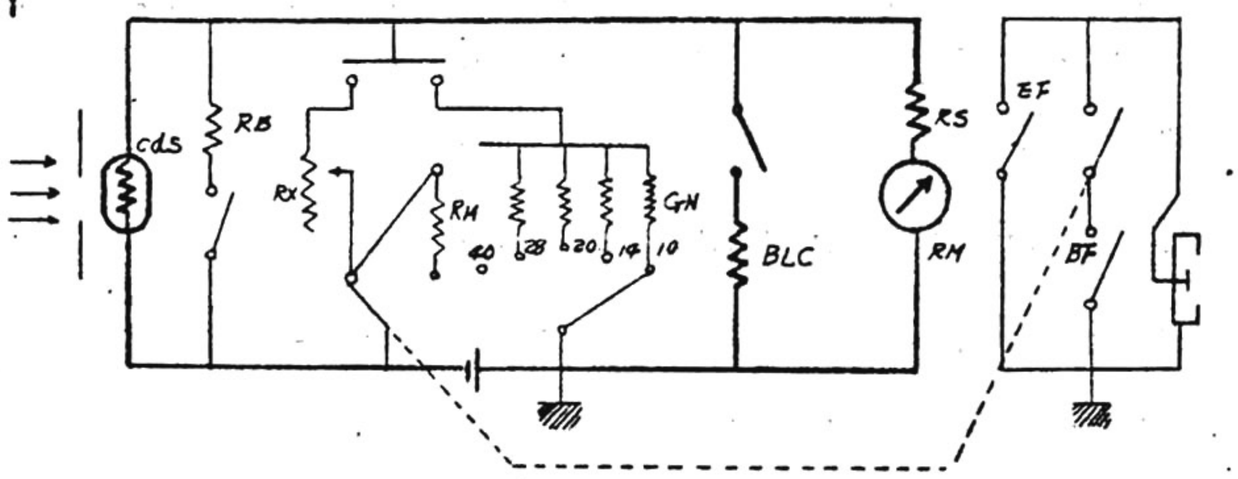
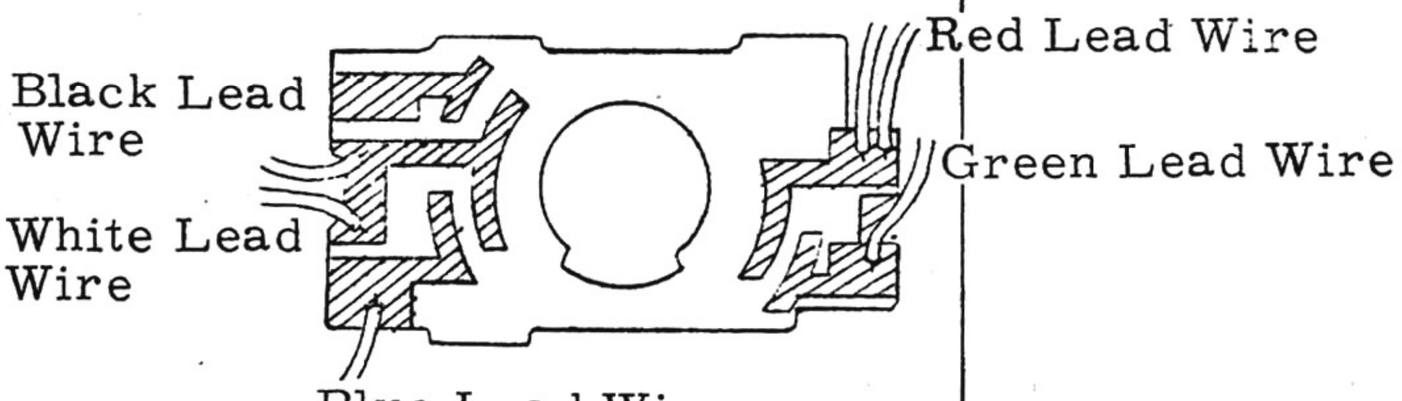
LEE-12N

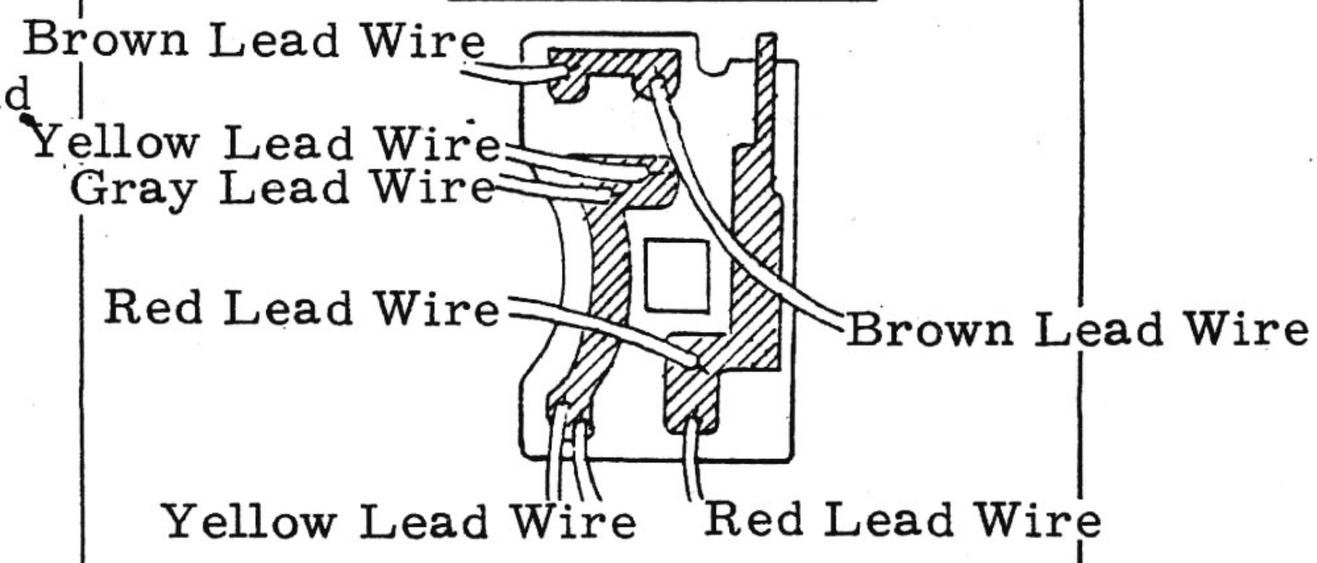
I. Adjustment of Battery Checker 61

II. Actual Wiring Diagram 64

I. Exposure Meter and Relateds

1. Shutter not released in AUTO mode

Cause	Remedy	Confirmation
1) Defective wiring and soldering	Correct the defective part. EE Circuit and BLC Circuit 	Confirm on the EE and BLC circuit diagrams.
2) Short-circuit of the MX circuit board blue lead wire soldering portion and the meter body	Correct the soldered portion. The lead wire connecting directions are as illustrated below. Soldering is to be done taking care not to make excessive solder deposition. MX Circuit Board 	Confirm with a tester for the conduction between the blue lead wire soldered portion and the body. Normal if there is no conduction.
3) Short-circuit of the MX circuit board black	Correct the soldered portion. The lead wire connecting directions are as illustrated above. Soldering is to be done taking care not to make the excessive solder	Confirm with a tester for the conduction between the battery contact and the body. Normal if there is no

Cause	Remedy	Confirmation
and white lead wires soldering portion and the upper plate	deposition.	conduction.
4) Short-circuit of the F circuit board yellow and gray soldering portion and the upper plate	Correct the soldered portion. The lead wire connecting directions are as illustrated below. Soldering is to be done taking care not to make excessive solder deposition. 	
5) Defective meter	Replace the meter.	Should satisfy the EE accuracy and other related specifications.

2. EE accuracy plus or minus

Cause	Remedy	Confirmation
	If the displacement is exceeding ±1.2EV, rotate the meter movable part to make it within ±1.2EV, and then rotate the needle cam adjustment screw (000-0287) for fine	Since the brightness (cd/m^2 or BV) varies depending on the EE tester, use the corresponding bright-

Cause	Remedy	Confirmation
	adjustment. When the needle cam adjustment screw is rotated more than 45°, the FM accuracy and the pointer needle indication are changed, so take care not to rotate it excessively. For the meter which requires the excessive rotation of the adjustment screw, replace the meter itself. When the iris screw is rotated: Clockwise EE (-) Counter-clockwise EE (+)	ness in the Table.

EE Accuracy Check Points

k=1.55

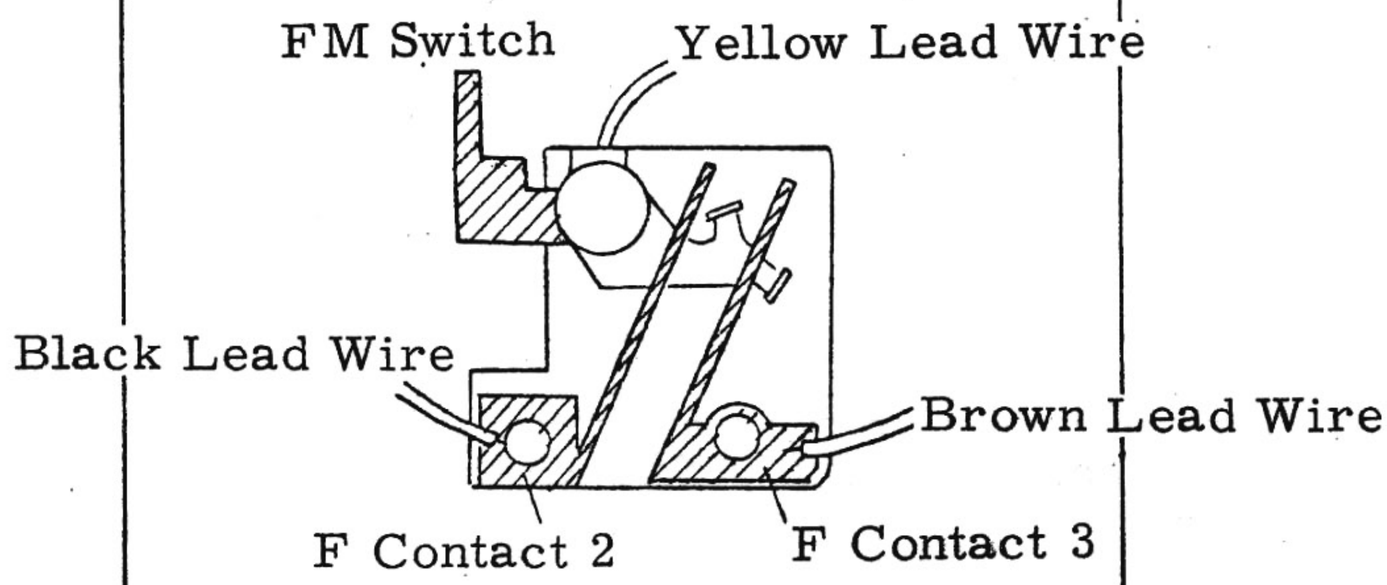
EE Tester				Camera			
cd/m^2	BV	BV	ASA	ASA	Standard	BLC Effect	Remarks
10000	15	15	100	100	$\pm 0.75^{EV}$	$+1.5^{\pm 0.5^{EV}}$	
1500	12	12	100	100			
200	9	10	100	100			
9	6	6	100	100	$+0.75^{EV}$ -1.25^{EV}		Some are release locked.
200	9	10	50	50	$\pm 1.0^{EV}$		
200	9	10	400	400			

When 1 - 2 points are out of the standards, do the checking with the camera ASA sensitivity changed by 1/3 stop.
If the checking result is within ± 0.6EV, it is to be considered zero.

Example: (-) standard displaced at ASA 100 --- Check with the ASA sensitivity set to 80.

Example: (+) standard displaced at ASA 100 --- Check with the ASA sensitivity set to 125.

3. EE accuracy tending to extreme plus or minus

Cause	Remedy	Confirmation
1) FM switch is ON	Correct the contact in the direction to be set to OFF by means of a pincette. The lead wire soldering directions are as illustrated below. Soldering is to be done taking care not to make excessive solder deposition. FM Circuit Board  	Confirm with a tester for the conduction of the brown lead wire, the black lead wire and the yellow lead wire of the FM switch. Normal if no conduction is detected.

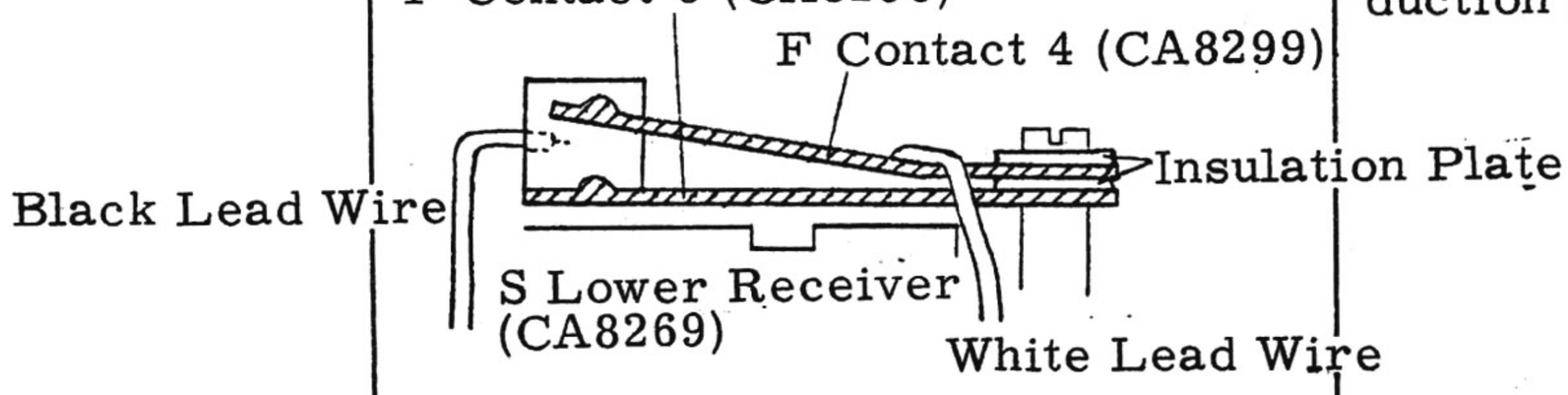
2. EE accuracy plus or minus (continued)

Cause	Remedy	Confirmation
1) Meter deflection angle varied with time	Replace the CdS or the filter. Replacement Procedure 1) Unsolder two feet of the CdS. 2) Demount the CdS from the fixing ring (EK840-20714) (the demounting is not easy because glue is applied). 3) Replace the filter in front of the CdS. 4) If the filter is hard to taken out, demount the fixing ring from the letter ring (EK840-20711), and	Confirm by the EE tester.

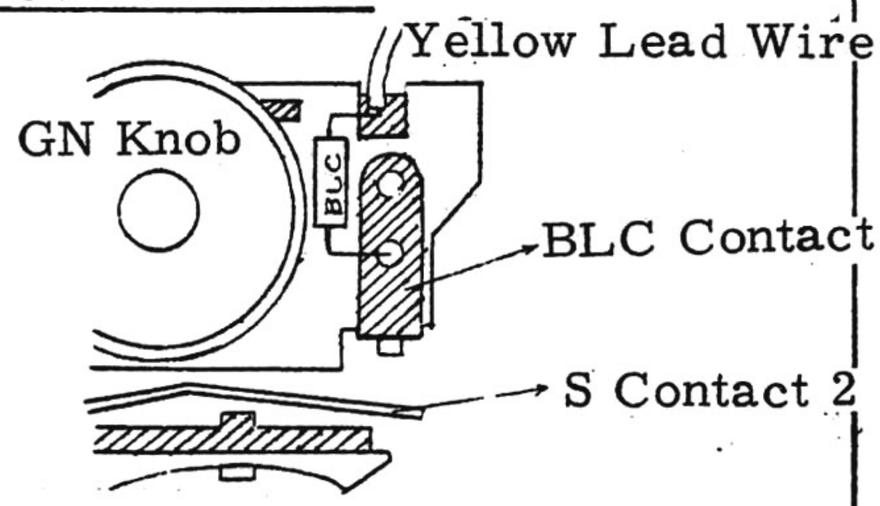
Cause	Remedy	Confirmation
	push the filter from the front side, then the filter can be easily taken out. The filter is available in the following four kinds.	

Part Number	Name	Transmission Factor (%)
EK-470-20722	Filter 5	50
" 23	" 6	65
" 24	" 7	75
" 25	" 8	85

	(Caution) The adjustment is possible also by varing the resistance value of the resistor RS. However, when the resistance value is varied, the FM accuracy is affected as well as the meter deflection angle, and thus the variation of the resistance value is not recommendable.	
2) FM switch incompletely contacted	Correct the contact by means of a pincette. (Caution) Take care not to bend the contact excessively to prevent the ineffective shutter release in the FM mode.	

Cause	Remedy	Confirmation
3) F contact 3 and 4 contacted	Correct the shapes of the F contacts 3 (CA8298) and 4 (CA8299) by means of a pincette. 	Confirm by a tester for the conduction of the F contacts 3 and 4. Normal if no conduction is detected.

4. No change in the exposure quantity even upon the BLC button depressed

Cause	Remedy	Confirmation
1) Contact failure of S contact 2 and GN circuit board BLC contact	Clean the contacting portion of the S contact and GN circuit board BLC contact, correct the spring pressure of the S contact 2 in the pressure increasing direction by means of a pincette.	The exposure should be changed by about 1.5EV when the BLC button is depressed.
2) Defective soldering of BLC	Do the soldering again.	Same as the above.
3) Defective BLC	Replace it. GN Circuit Board 	Same as the above BLC is 7 ~ 8 KΩ.

II. Flashmatic and Relateds

1. Shutter not released in FM (flashmatic) mode

The aperture diameter in the flashmatic mode is to be confirmed within the range of the following Tables by the use of the EE tester.

(Caution)
The luminance of the EE tester is now set in three kinds, so use the corresponding table among the three below. (The measurement is to be done with the light sensor covered and a match stick or the like inserted into the shoe.)
The measurement can be done also by the aperture area meter. In this case, see the Inspection Standard, 19) FM accuracy in 6 - V-B3.

4P3L34 k=1.55 a.c.

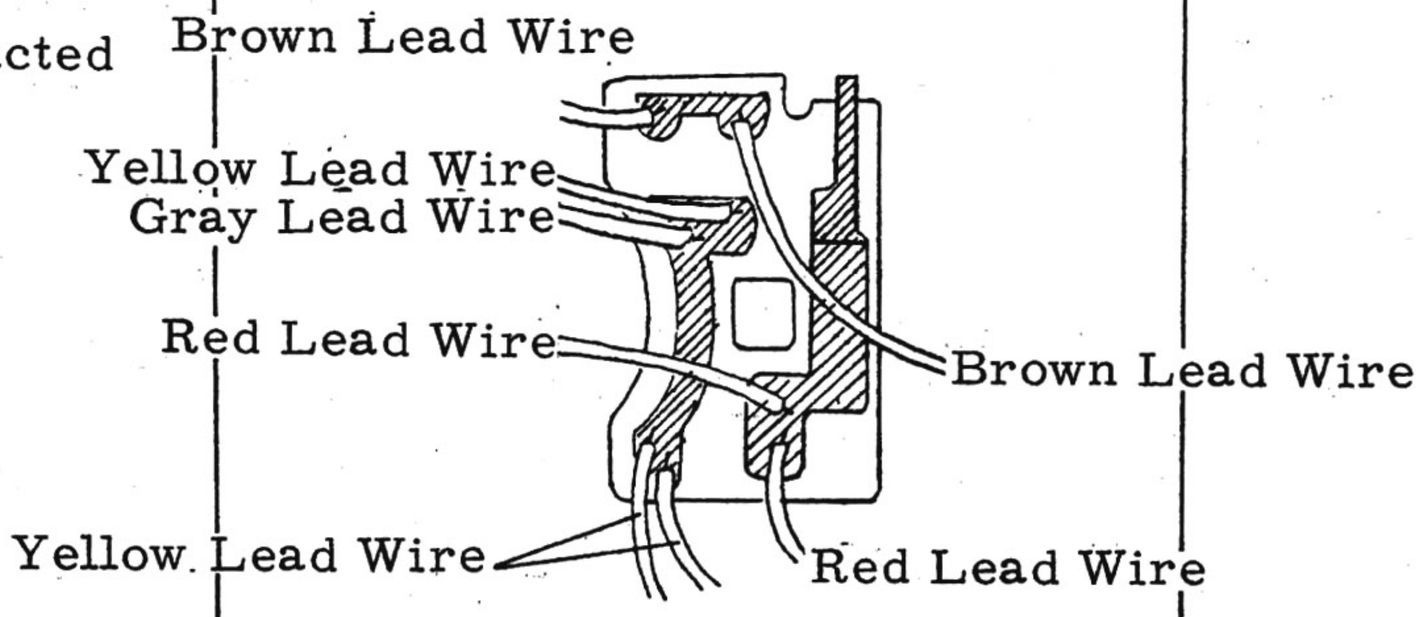
Each Set Position

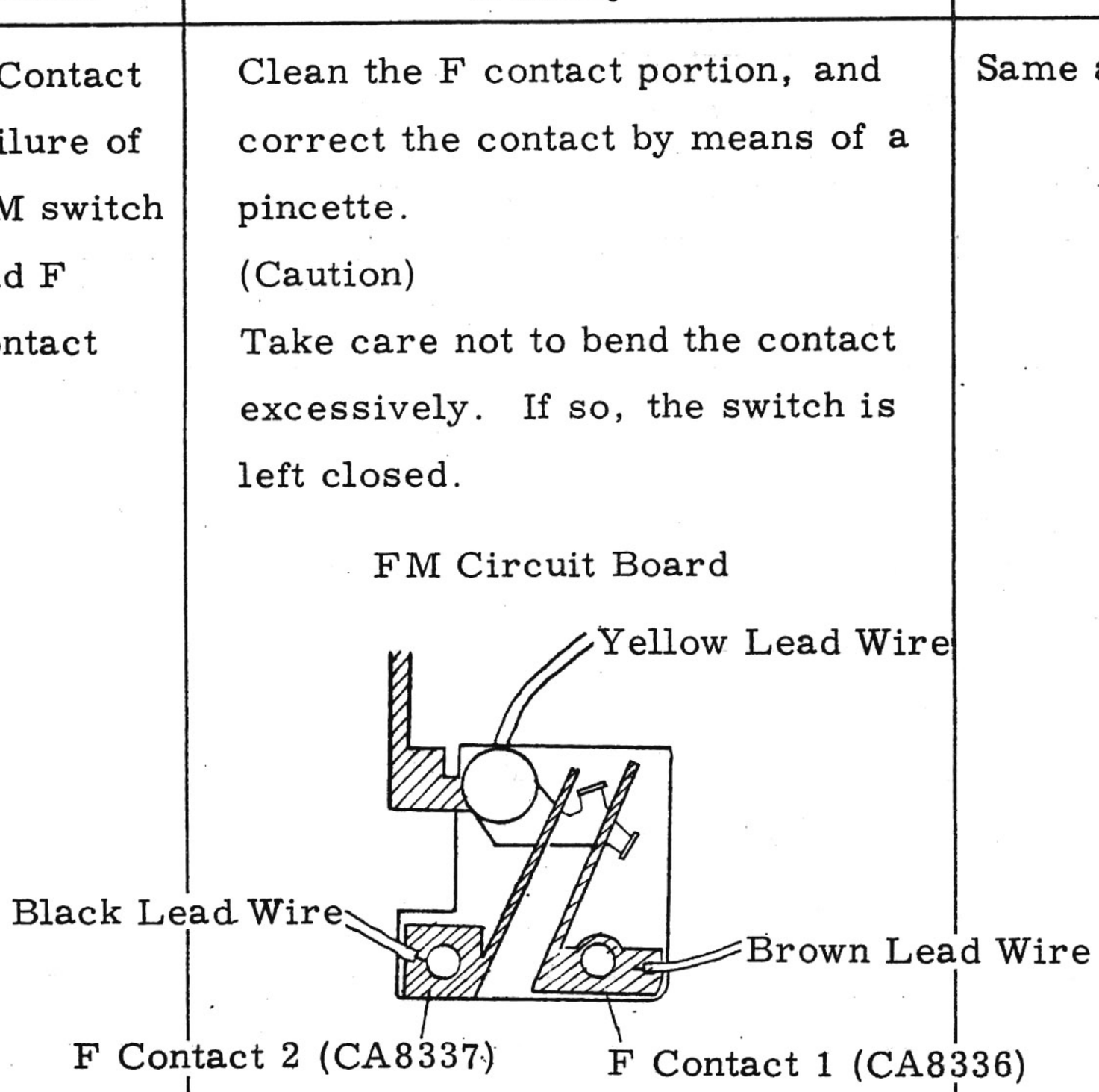
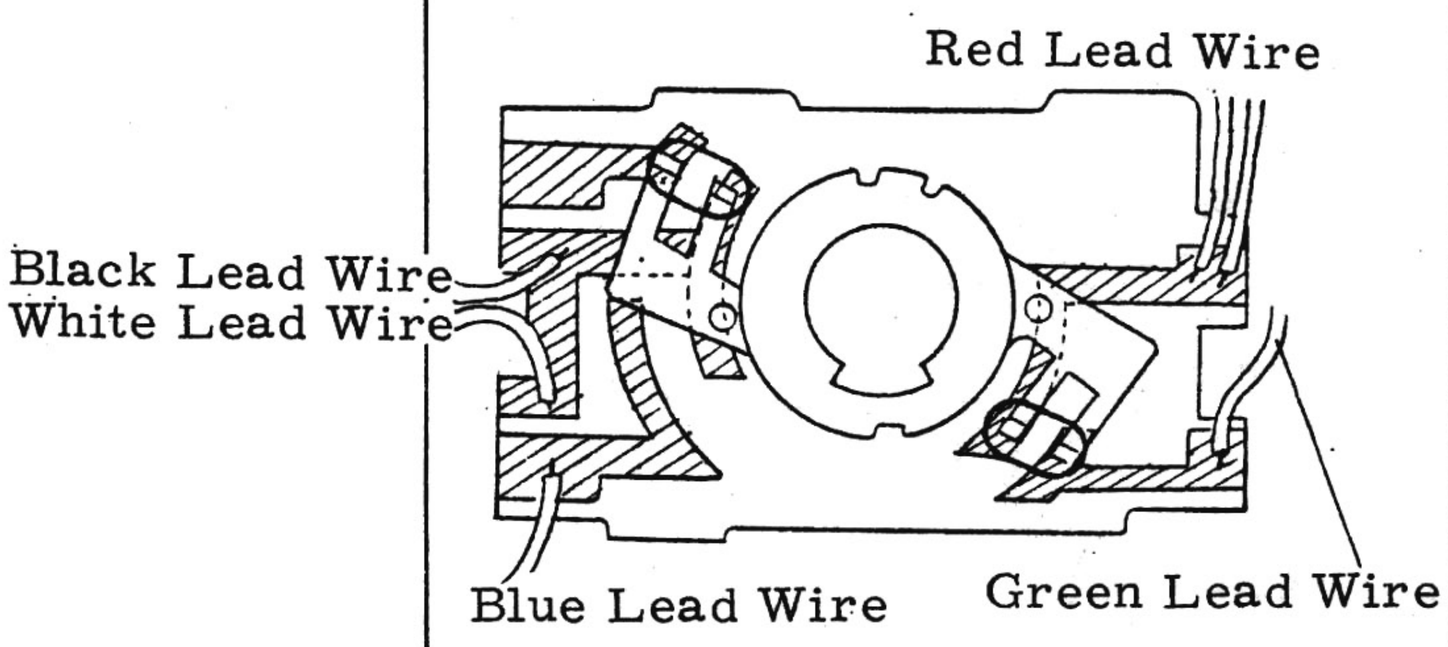
EE Tester Side		Camera Side			
ASA	BV	GNO	ASA	m	Standard
50	12	14EF	50	2	$-0.01^{\pm 1.0}$ (-1.01 ~ +0.99)
100	15	20EF	100	1	$+0.48^{\pm 1.0}$ (-0.52 ~ +1.48)
200	12	20EF	200	2	$+0.25^{\pm 0.8}$ (-0.55 ~ +1.05)
100	12	20EF	100	3	$+0.16^{\pm 0.8}$ (-0.64 ~ +0.96)
100	10	20EF	100	5	$+0.34^{\pm 1.0}$ (-0.66 ~ +1.34)
100	12	20BF	100	2	$+0.26^{\pm 0.8}$ (-0.54 ~ +1.06)
50	12	20BF	50	3	$+0.09^{\pm 0.8}$ (-0.71 ~ +0.89)
50	15	28EF	50	2	$+0.21^{\pm 1.0}$ (-0.79 ~ +1.21)

4P3L34 k=1.55					
Each Set Position					
EE Tester Side		Camera Side			
ASA	BV	GNO	ASA	m	Standard
50	12	14EF	50	2	$-0.01^{\pm 1.0}$ (-1.01 ~ +9.99)
100	15	20EF	100	1	$+0.48^{\pm 1.0}$ (-0.52 ~ +1.48)
200	12	20EF	200	2	$+0.25^{\pm 0.8}$ (-0.55 ~ +1.05)
100	12	20EF	100	3	$+0.16^{\pm 0.8}$ (-0.64 ~ +0.96)
200	9	20EF	200	5	$+0.29^{\pm 1.0}$ (-0.71 ~ +1.29)
100	12	20BF	100	2	$+0.26^{\pm 0.8}$ (-0.54 ~ +1.06)
50	12	20BF	50	3	$+0.09^{\pm 0.8}$ (-0.71 ~ +0.89)
50	15	28EF	50	2	$+0.21^{\pm 1.0}$ (-0.79 ~ +1.21)

4P3L1 k=1.55					
Each Set Position					
EE Tester Side		Camera Side			
ASA	cd/m^2	GNO	ASA	m	Standard
200	200	14EF	200	2	$+0.23^{\pm 1.0}$ (-0.77 ~ +1.23)
50	10000	20EF	50	1	$+0.24^{\pm 1.0}$ (-0.76 ~ +1.24)
100	1500	20EF	100	2	$+0.4^{\pm 0.8}$ (-0.4 ~ +1.2)

4P3L1 k=1.55					
Each Set Position					
EE Tester Side		Camera Side			
ASA	cd/m^2	GNO	ASA	m	Standard
50	1500	20EF	50	3	$+0.31^{\pm 0.8}$ (-0.49 ~ +1.11)
50	200	20EF	50	5	$-0.35^{\pm 1.0}$ (-1.35 ~ +0.65)
100	1500	20BF	100	2	$+0.41^{\pm 0.8}$ (-0.39 ~ +1.21)
25	1500	20BF	25	3	$+0.06^{\pm 0.8}$ (-0.74 ~ +0.86)
200	1500	28EF	200	2	$+0.23^{\pm 1.0}$ (-0.77 ~ +1.23)

Cause	Remedy	Confirmation
1) F circuit board brown lead wire soldering portion and the upper plate contacted	Correct the soldered portion. The lead wire connecting directions are as illustrated below. Soldering is to be done taking care not to make excessive solder deposition. F Circuit Board 	The shutter should be released when the FM switch is depressed with the GNO ring set to the maximum, the distance ring set to the closest and the CdS covered.

<table>
<tr><th>Cause</th><th>Remedy</th><th>Confirmation</th></tr>
<tr><td>2) Contact failure of FM switch and F contact</td><td>Clean the F contact portion, and correct the contact by means of a pincette.
(Caution)
Take care not to bend the contact excessively. If so, the switch is left closed.

</td><td>Same as the above.</td></tr>
<tr><td>3) Contact failure of MX contact and MX circuit board</td><td>When they are not conductive, correct the MX contact by means of a pincette, clean the contacting portion of the MX contact and the MX circuit board and apply thin coat of conductive agent (Electro-lub, Echo, etc).

</td><td>Confirm with a tester for the conduction of the white and black lead wire soldered portions and the blue lead wire soldered portion of the MX circuit board when the MX lever is set to the EF (ϟ) mode.
Normal if the conduction is detected.

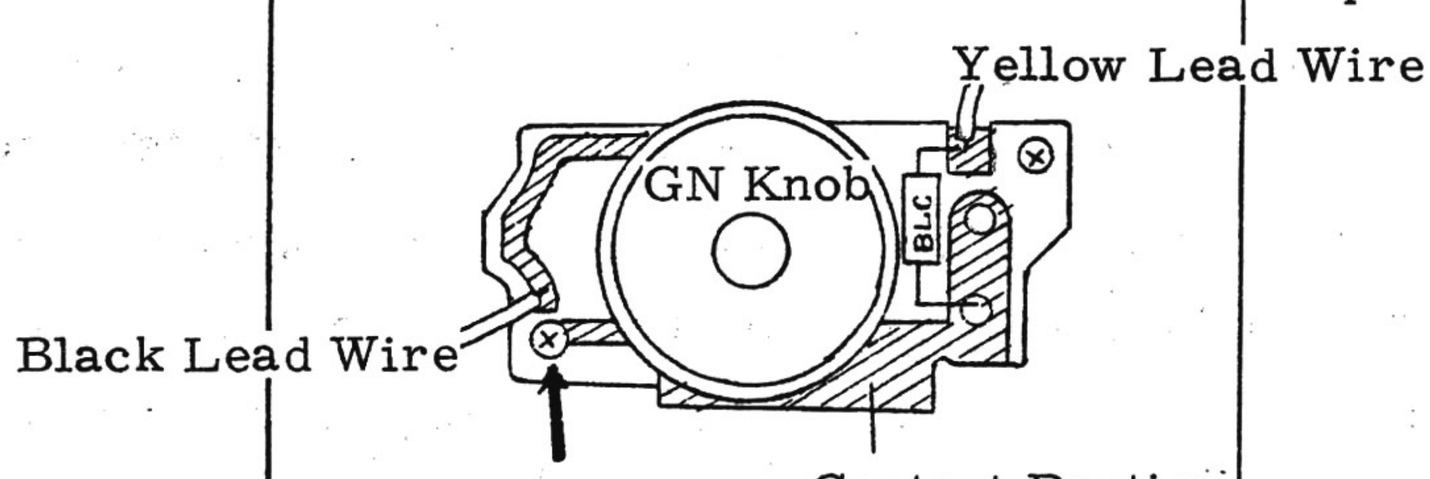
Confirm with a tester for the conduction of the yellow and red lead wire soldered</td></tr>
</table>

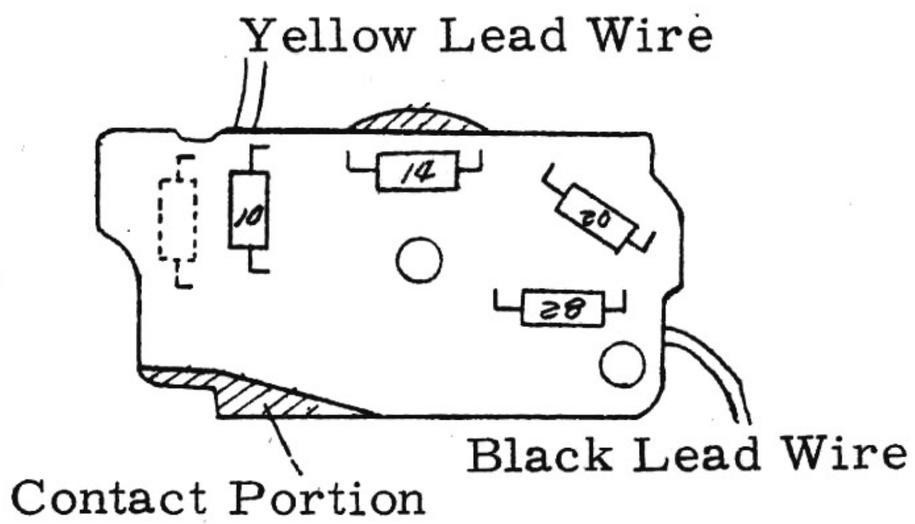
Cause	Remedy	Confirmation
		portions and the green lead wire soldered portion of the MX circuit board when the MX lever is set to the BF ( ) mode. Normal if the conduction is detected.
4) Defective meter	Replace the meter.	

2. No change in FM accuracy even upon GNO varied in FM mode

Cause	Remedy	Confirmation
1) Defective body grounding of GN circuit board	Clean the contacting portion of the GN circuit board and the left side fixing screw (arrow marked in the illustration below), and then tighten it again completely. If the conduction is still incomplete even after the sufficient tightening of the screw, replace the GN circuit board.	Normal if the conduction is detected when confirming with a tester for the conduction of the black lead wire soldered portion of the GN circuit board and the body with the FM switch depressed.

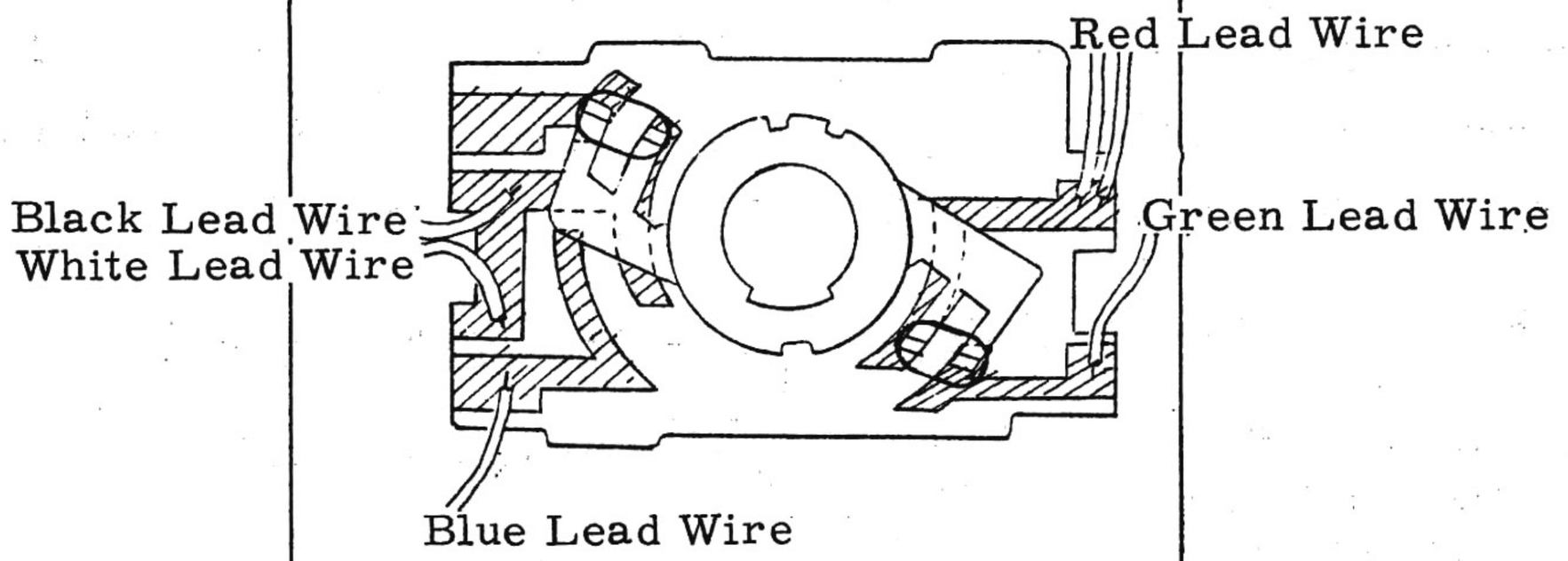
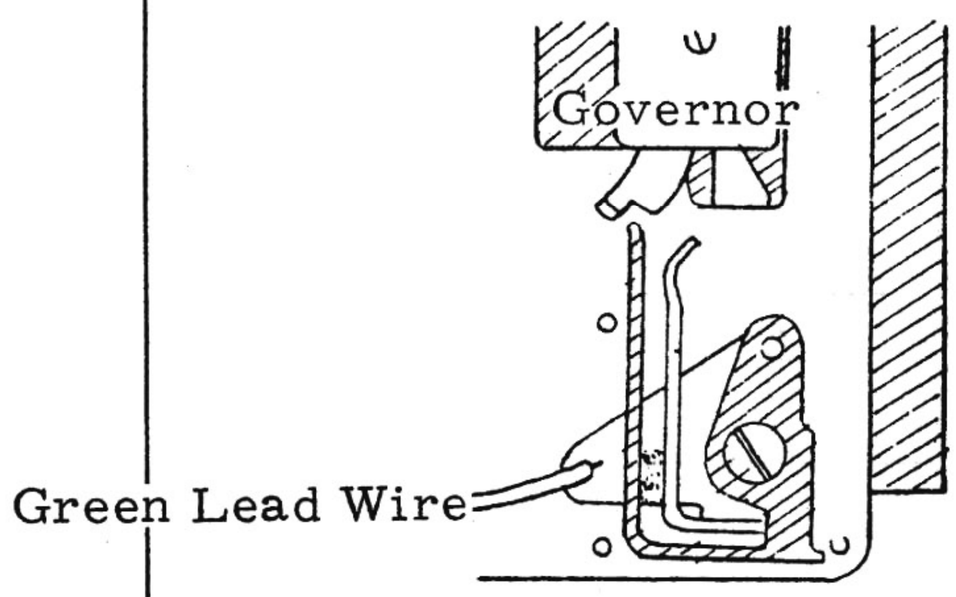
GN Circuit Board .



<table>
<tr><th>Cause</th><th>Remedy</th><th>Confirmation</th></tr>
<tr><td>2) Contact failure of GN circuit board and slide contact</td><td>Correct the slide contact in the contact pressure increasing direction by means of a pincette, clean the GN circuit board and the sliding portion of the slide contact, and apply thin coat of conductive agent.</td><td>Same as the above.</td></tr>
<tr><td>3) Defective resistor of GN circuit board</td><td>Replace the defective resistor.
<u>GN Circuit Board Back Surface</u>

</td><td>Confirm the change in the resistance value by rotating the GN knob while applying the tester probes to the black lead wire soldered portion of the GN circuit board and the body. Take the following values as a reference for the resistance value change.
<table>
<tr><td>GNO</td><td>10</td><td>14</td><td>20</td><td>28</td><td>40</td></tr>
<tr><td>K Ω</td><td>1</td><td>1.8</td><td>4.5</td><td>12</td><td>∞</td></tr>
</table></td></tr>
</table>

3. Conductive in EF (⚡), but not in BF (💡)

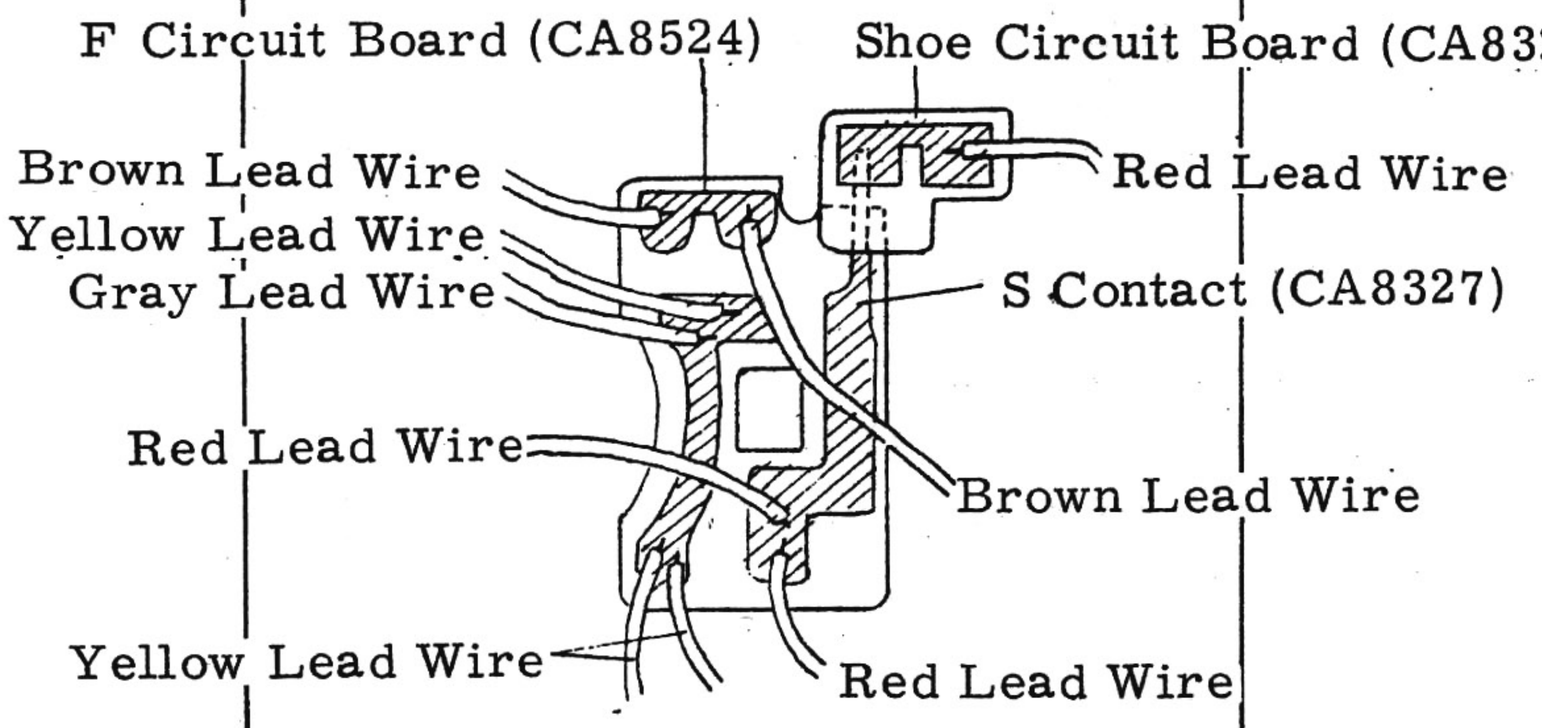
Cause	Remedy	Confirmation
1) Contact failure of MX circuit board and MX contact	When not conductive, correct the MX contact with a pincette, clean the contacting portion of the MX contact and the MX circuit board and apply thin coat of conductive agent.	Normal if the conduction is detected when checking with a tester for the conduction of the yellow and red lead wire soldered portions of the MX circuit board.

Cause	Remedy	Confirmation
		
2) Contact failure of the shutter BF contact	When not conductive, clean the contacting portion of the BF contact and apply thin coat of conductive agent. (Caution) Take care not to bend the BF contact, because it affects the FM accuracy. BF Contact Contacting Portion 	Normal if the conduction is detected across the green lead wire and the body when the shutter is released.

4. No conduction at the shoe in both EF and BF

Cause	Remedy	Confirmation
1) Contact failure of	Correct the S contact in the spring pressure increasing direction by	When an electronic flash with a cordless

Cause	Remedy	Confirmation
shoe circuit board and S contact	means of a pincette, and then clean the contacting portion of the shoe circuit board and the S contact.	contact is mounted, it should emit flash light properly.



5. Over- or under-exposure at close distance or far distance in both EF and BF

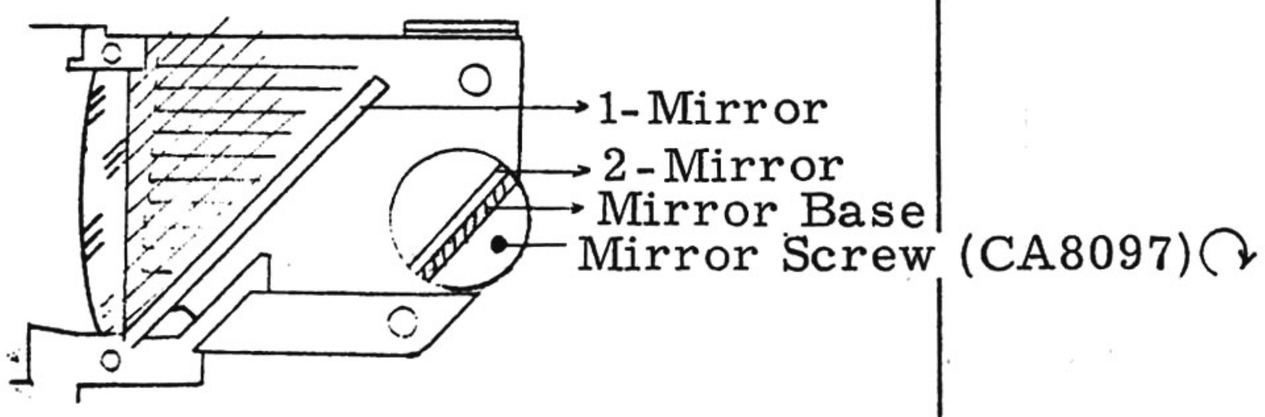
Cause	Remedy	Confirmation
1) Resistance value variation	Replace the resistor (CA8216).	Confirm by the EE tester.

Sliding Resistance Value

Distance Ring	Resistance Value ±20%	
Distance Scale	EF K	BF K
10	30	31.5
5	9.1	10.6
3	4.3	5.8
2	2.75	4.25
1.5	2.1	3.6
1.2	1.8	3.3
1	1.6	3.1
0.85	1.4	2.9

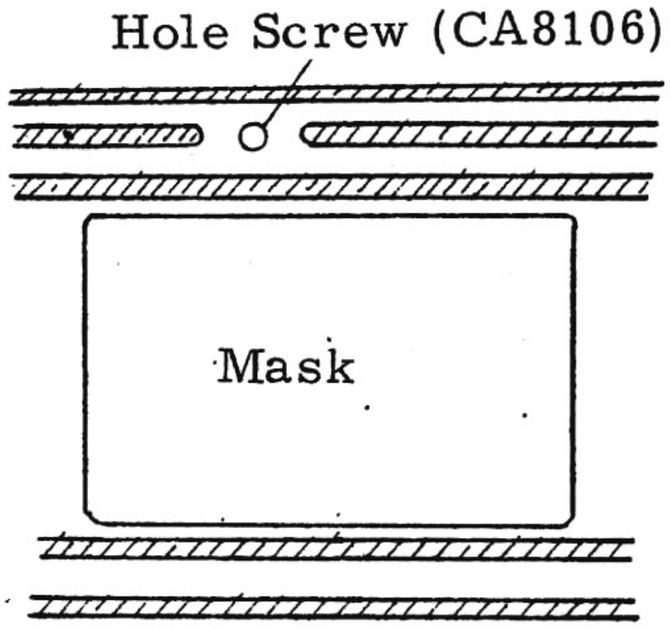
III. Range Finder and Relateds

1. Vertical ∞ displacement

Cause	Remedy	Confirmation
1) Reflected image displaced upward	When the reflected image is displaced upward with respect to the transmitted image in viewing through the collimator with the mirror and lens cement not removed, turn the mirror screw (CA8097) clockwise.  	Should not be displaced more than one line when checking by the collimator (f=600mm).
2) Reflected image displaced downward	Turn the mirror screw in the inverse direction to the above.	Same as the above.

2. Lateral ∞ displacement at infinity

Cause	Remedy	Confirmation
1) Reflected image overrides	When the reflected image is displaced leftward against the transmitted image in viewing through the collimator with the mirror and lens cement not removed, turn the AD screw (CA8130) clockwise.	

Cause	Remedy	Confirmation
	(Caution) The AD screw is the screw found inside when the hole screw (CA8106) on the main body rail surface is removed.  	
2) Reflection image short of superimposing position	Turn the AD screw in the inverse direction to the above.	Same as the above.

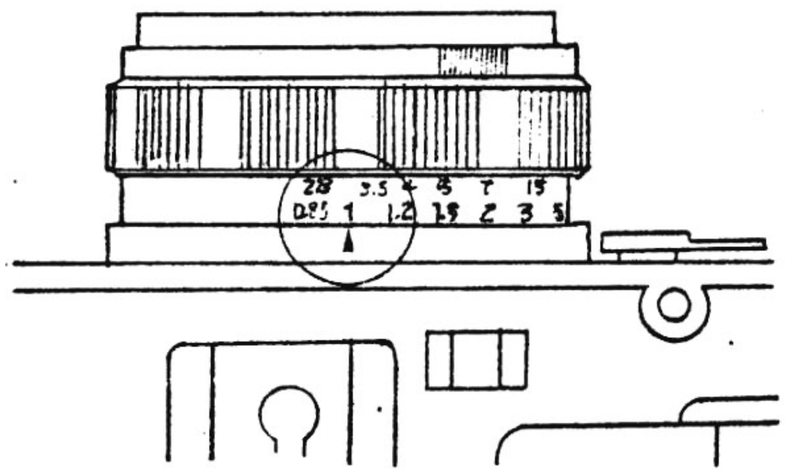
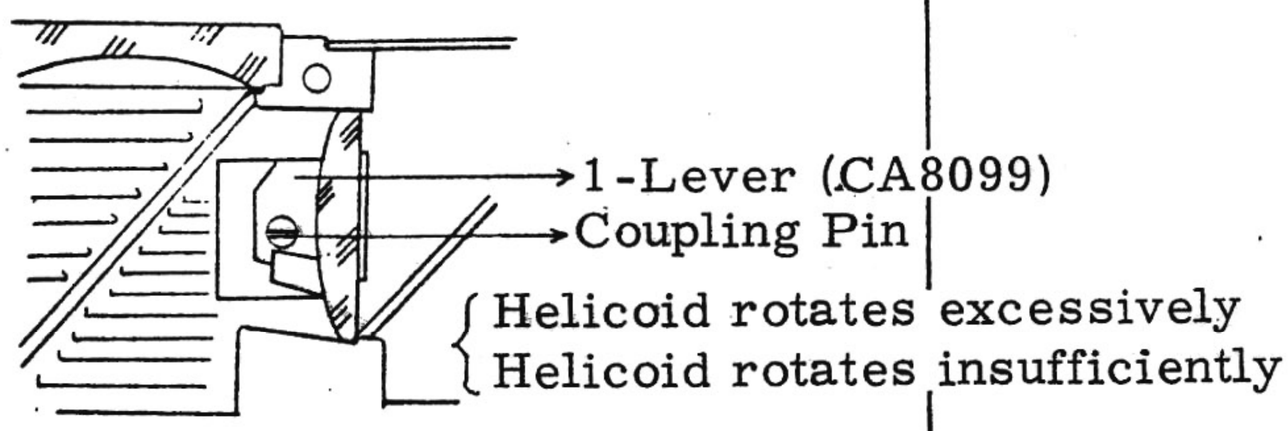
3. Inoperative range finder

Cause	Remedy	Confirmation
1) Mirror base squeaks	The sliding portion of the mirror base (CA8096) and the F main body (CA8141) are coated with cosmolbluck. When squeaking is generated due to the lubricant shortage or dust, remove the mirror base, clean the sliding portion and apply thin coat of cosmolbluck.	The range finder should surely operate even when the distance ring is moved quickly or quietly.

Cause	Remedy	Confirmation
	(Caution) All the mounting holes of the mirror base and the M lever (CA8233) are round, so it is recommendable to mark them before demounting.	
2) Distance pin (CA8099) squeaks	Correct the squeak.	
3) 1-lever (CA8099) squeaks	Correct the squeak.	
4) Disengaged springs	Re-engage the springs.	

4. Displacement at close distance

Cause	Remedy	Confirmation
1) Improper adjustment of close distance coupling	When the transmitted image and the reflected image are displaced at the close distance (1m) in the normal operation of the range finder, while no displacement at ∞, rotate the coupling pin (CA8104) of the 1-lever (CA8099) by the small extent for adjustment. At this time, if the rotary force of the coupling pin is extremely	At 1m $^{+0.03}_{\pm 0.05}$

Cause	Remedy	Confirmation
	weak, remove the 1-lever and caulk the pin once more. (1-lever rotary force: Less than 1.2kg/mm) o Helicoid rotates excessively ($\Delta 1\infty$): Turn the coupling pin clockwise o Helicoid rotates insufficiently ($1\Delta\infty$): Turn the coupling pin counter-clockwise.  	

IV. Winding and Relateds

1. Winding impossible (hooked)

Cause	Remedy	Confirmation
1) Gear (CA8237) bent	Replace the 1-gear.	Winding should be done without hooking.

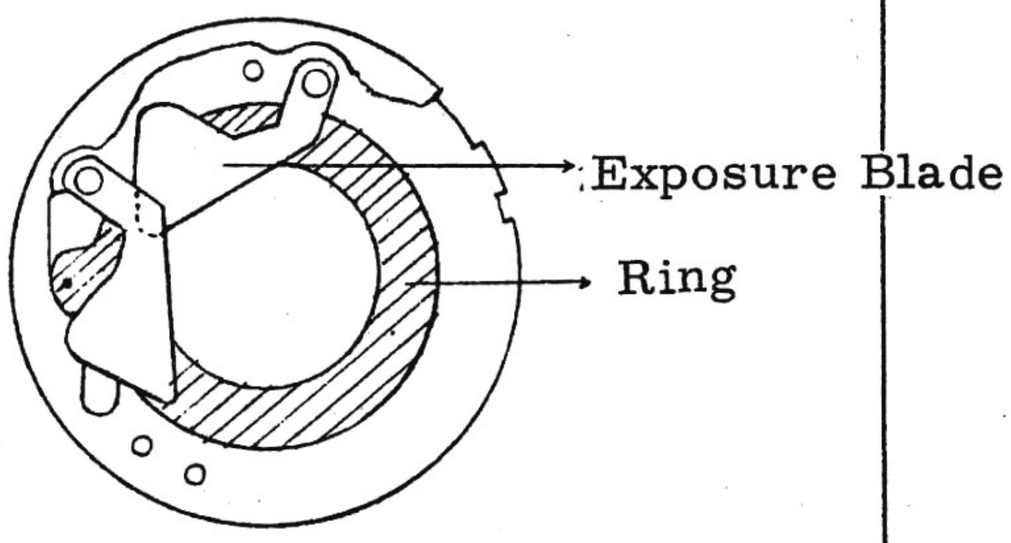
2. Winding with rattle, unevenness and squeak

Cause	Remedy	Confirmation
1) Improper engagement of 2-, 3-gear (CA8238) and shutter intermediate gear (at gear between Set Gear 924-2001 and 2-Gear CA8238)	Find the position where the engagement with the shutter intermediate gear is done properly while loosening the the winding base plate fixing screw (CA7496) and changing the position of the winding base plate (CA8226).	Same as the above.

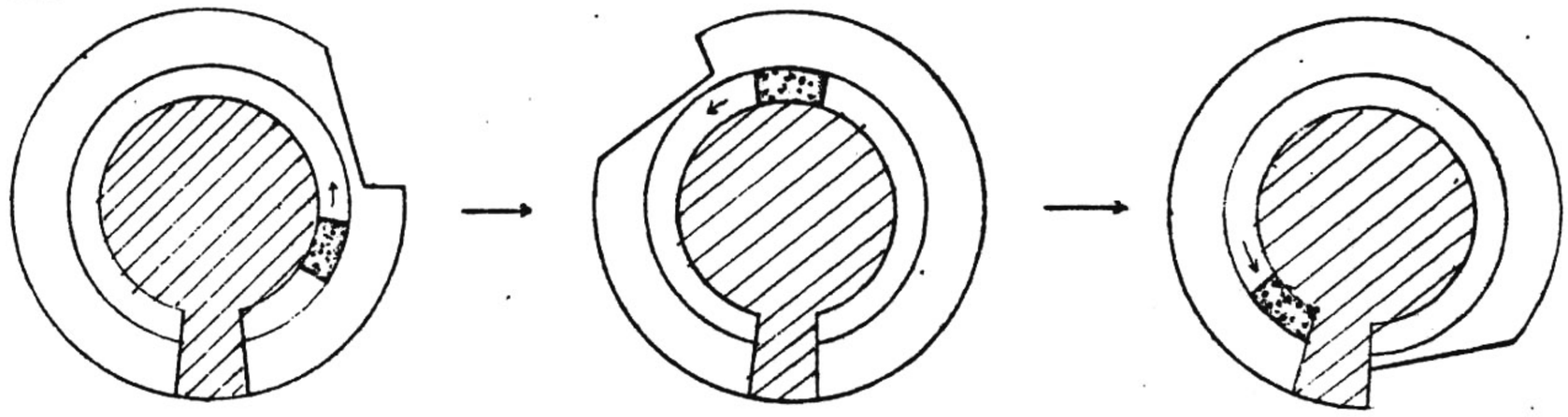
V. Shutter and Relateds

1. Sector inoperative

Cause	Remedy	Confirmation
1) Sector tenacious	Disassemble the shutter according to the disassembly procedure (Demounting of Shutter), and clean the lubricant exuding to the exposure blade (924-2031), external frame (924-0003), base plate (924-0001), ring base (924-2141) and ring (924-2019). The exposure blade mounting procedure is as shown in the illustration below.	Sector should surely operate.

Cause	Remedy	Confirmation
		

2. Electronic flash or bulb flashes upon winding

1) Contacted EE contact		
	When the EF contact is contacted in the cases other than the above illustration " 4 Release depressed", adjust the contact with a pincette so that it has slight clearence at the time of the above illustration 2 (Winding under proceeding).	When winding with the electronic flash clipped on, it should not flash.

VI. Lens and Relateds

1. Defective focusing

Cause	Remedy	Confirmation
1) Shutter crushed	Replace the shutter.	Should satisfy each function.
2) Lens foggy	Clean the lens.	
3) Lens loosened	Tighten the loose lens sufficiently.	
4) Distance ring loosened	Focus the lens while viewing through the collimator, and set the distance ring again at the best position.	At infinity with the maximum aperture, and on the optical axis: $0^{\pm 0.05}$

VII. Power Supply and Relateds

1. Battery exhausted in short period

Cause	Remedy	Confirmation
1) Short-circuit of F contact 3 (CA8298) and the body	Insulate the shortcircuited portion.	Normal if no conduction is detected when checking with a tester for the conduction between the F contact 3 and the body.
2) Short-circuit of F contact 4 (CA8299)	Insulate the shortcircuited portion.	Normal if no conduction is detected when checking with a tester for the conduction

Cause	Remedy	Confirmation
and the body		between the F contact 4 and the body.
3) Short-circuit of MX circuit board black and white lead wires soldering portions and the body	Make the solder deposition small to prevent the shortcircuit.	Normal if no conduction is detected when checking with a tester for the conduction between the battery contact and the body.
4) Short-circuit of F circuit board yellow and gray lead wires soldering portion and the upper plate	Make the solder deposition small to prevent the shortcircuit.	Normal if no conduction is detected when checking with a tester for the conduction between the yellow lead wire soldered portion of the R circuit board and the body.

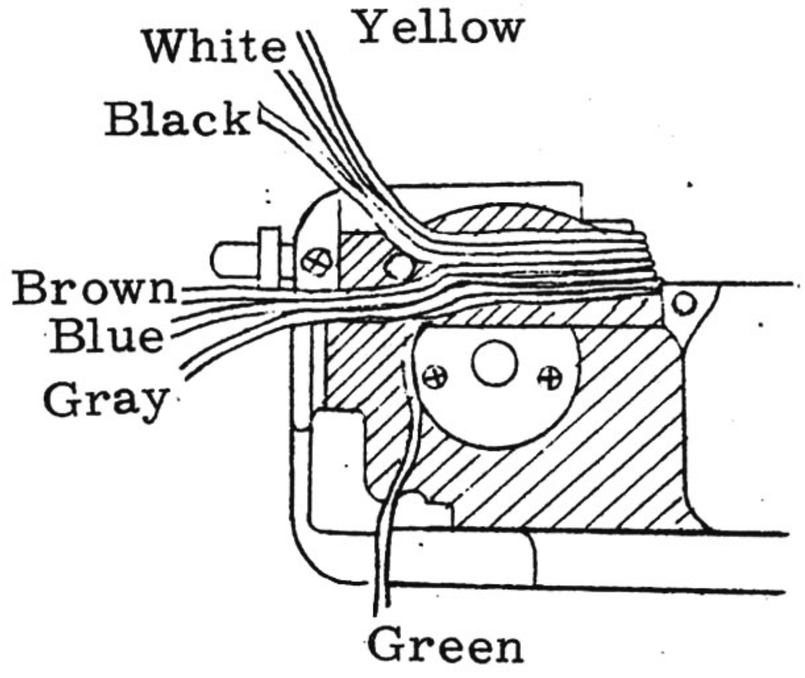
VIII. Others

Since the camera is designed compact, if each lead wire is not arranged neatly, the wires may be pinched by the upper plate or the F main body causing wire breakage. Thus, the wires should be neatly arranged as shown in the illustration.

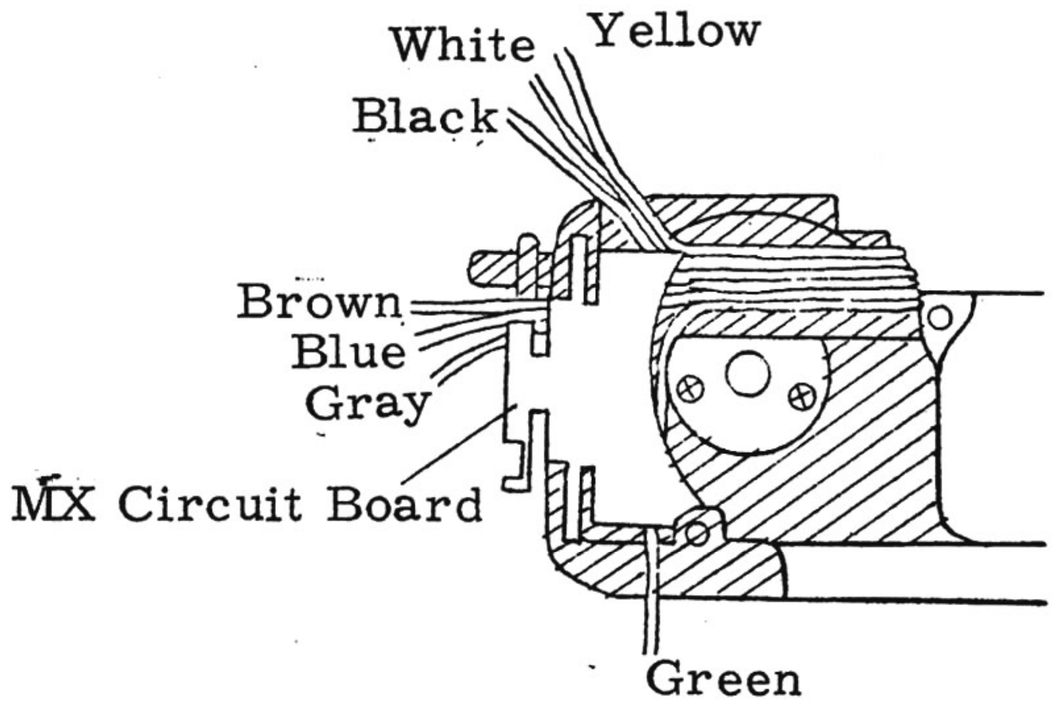
1. <u>Arrangement of the lead wires within the main body and the F main body</u>

o Arrange in the illustrated order with the helicoid set to the closest distance.

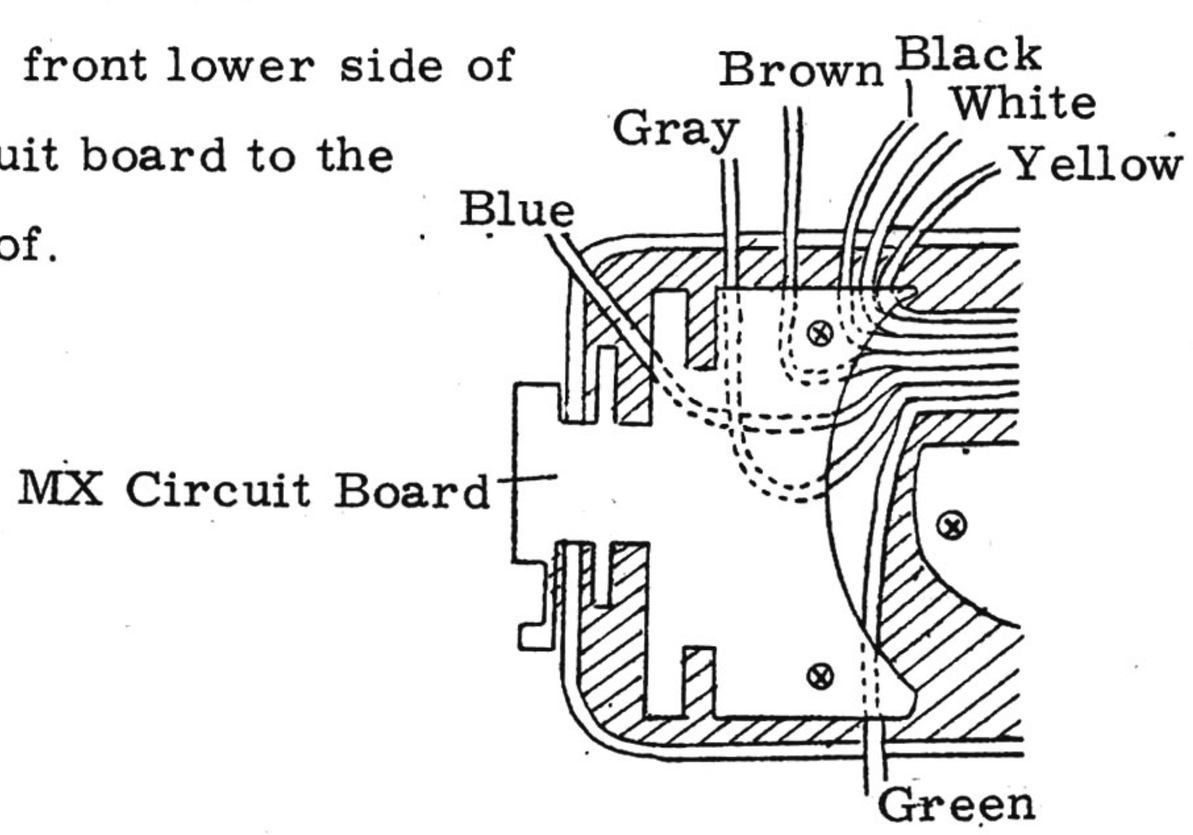
Glue the wires aligning laterally in the main body groove as illustrated.



Mount the MX circuit board.



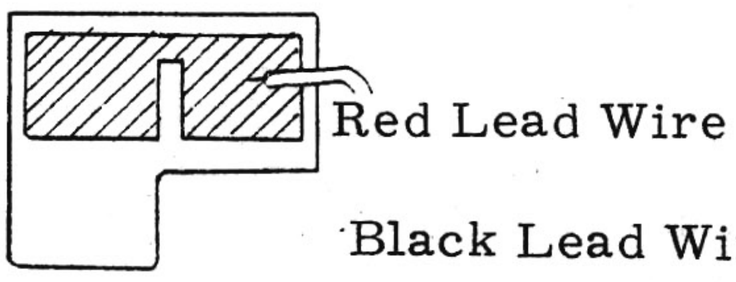
Arrange the lead wires to come out from the front lower side of the MX circuit board to the inside thereof.



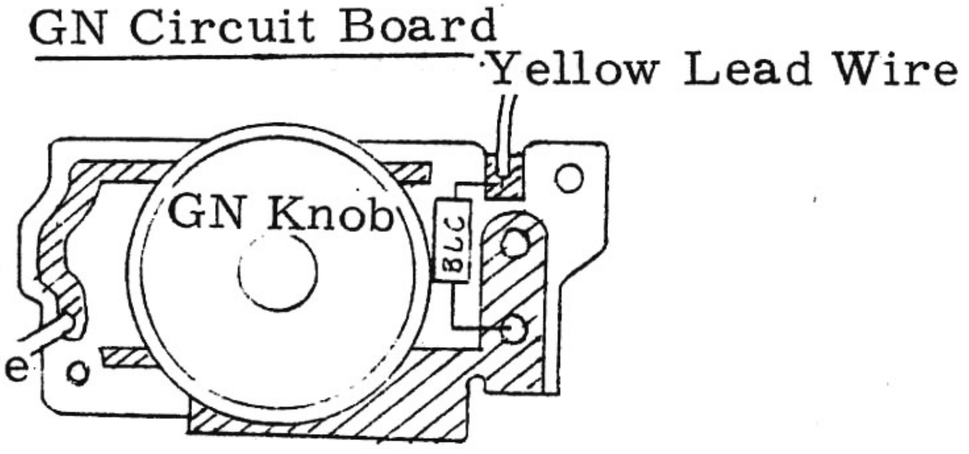
2. Each leading wire combining position and direction

If the position and direction of each lead wire is wrong, defective operation and shortcircuit may be caused. Thus, take sufficient care for the combining position and direction of each wire if the soldering of each wire is removed for the repairing.

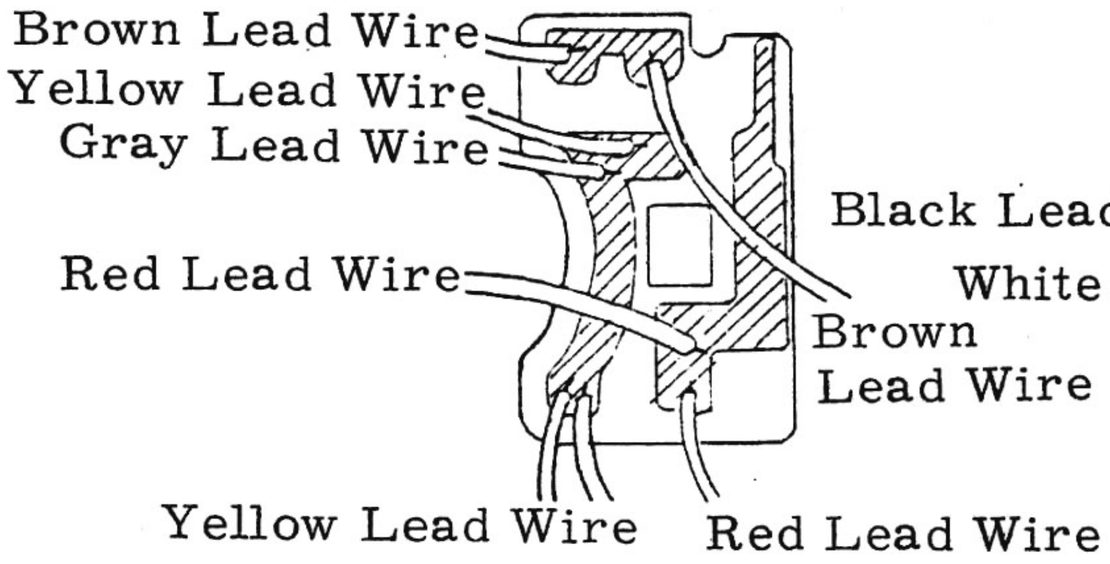
Shoe Circuit Board



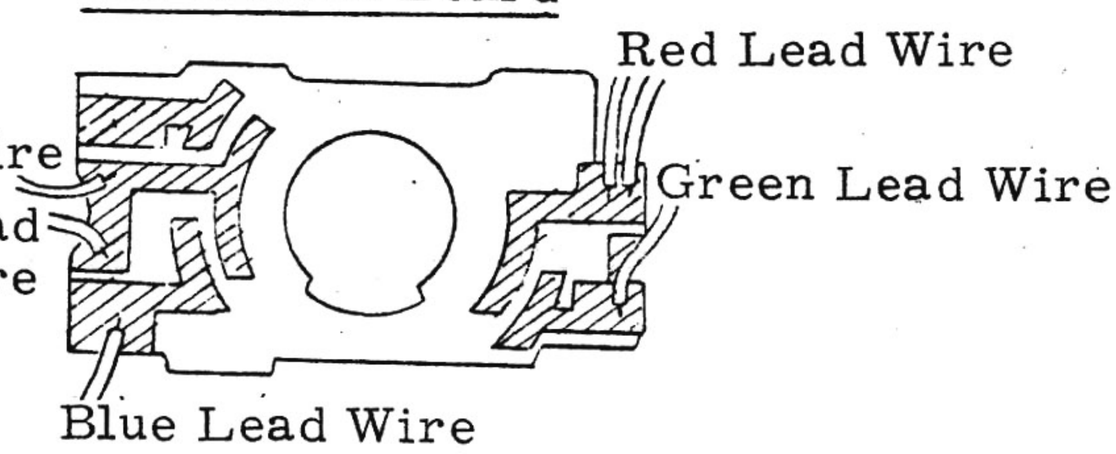
GN Circuit Board



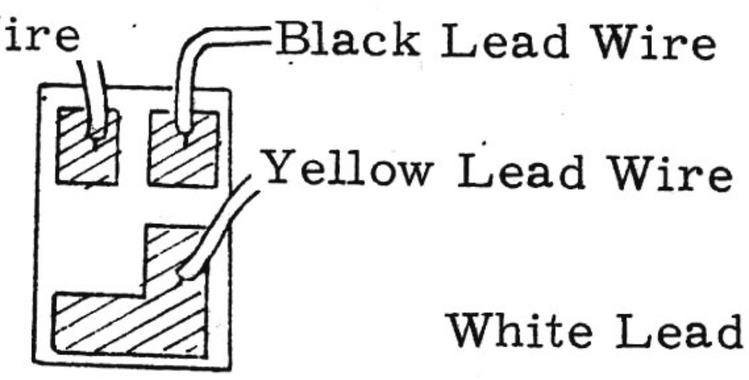
F Circuit Board



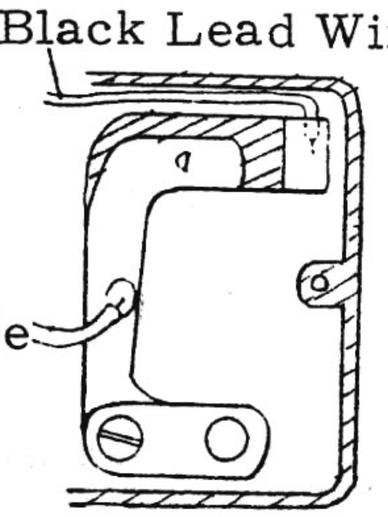
MX Circuit Board



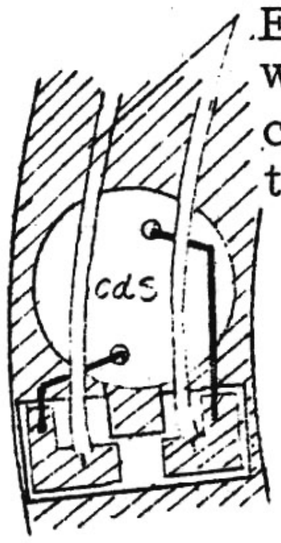
R Circuit Board



F Main Body Switch Portion

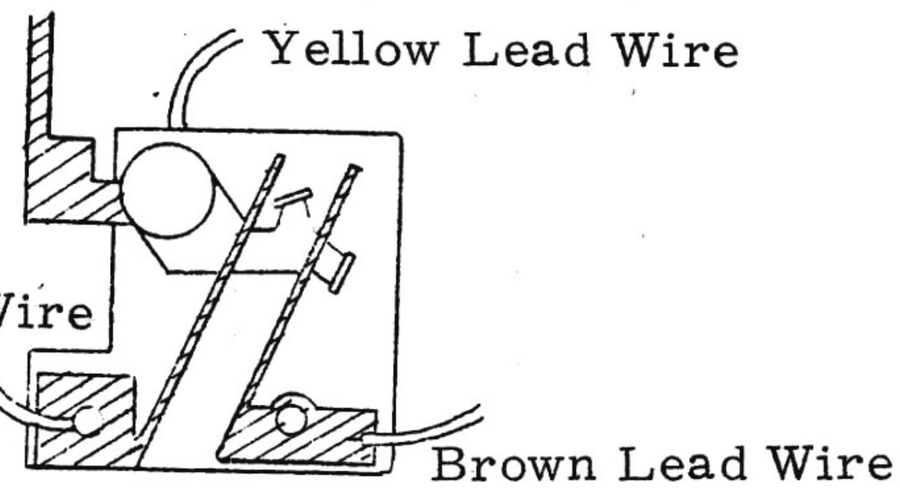


CdS Circuit Board

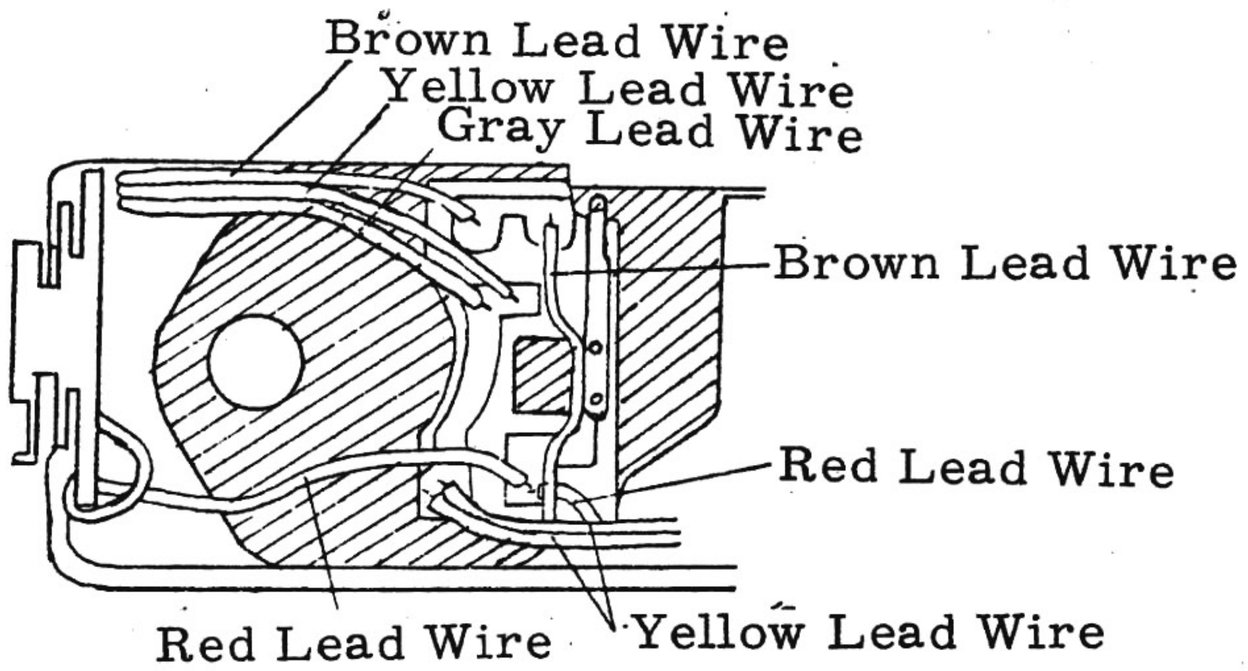


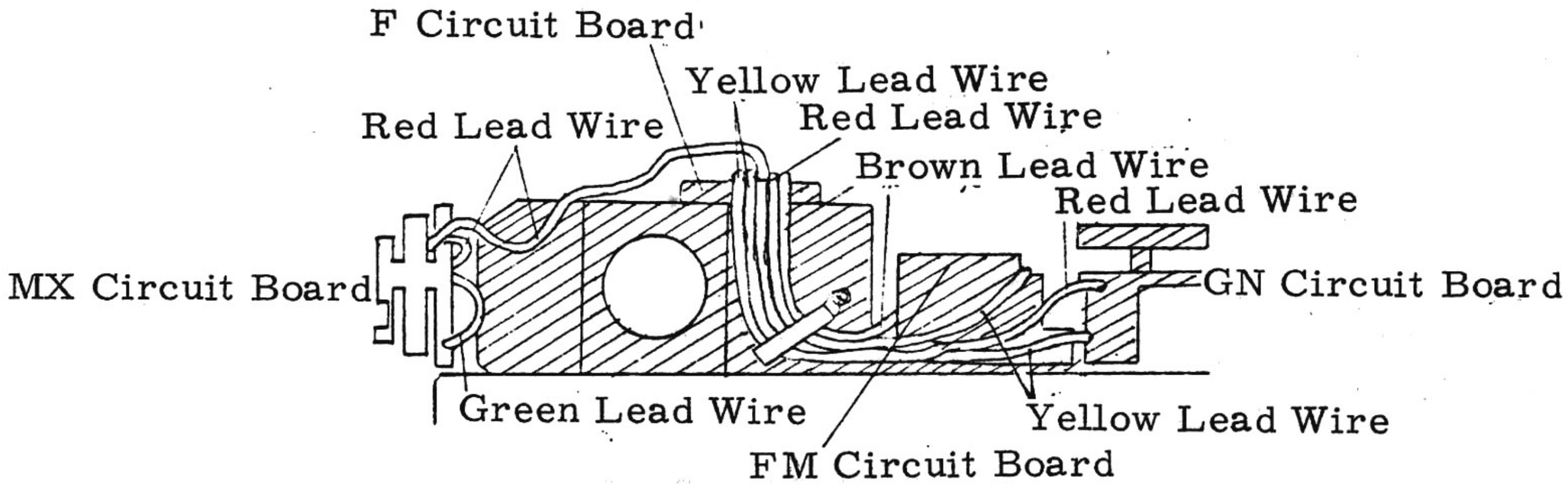
Either black or white lead wire can be connected to the right or left.

FM Circuit Board



3. Arrangement of the lead wires on the upper side of the F main body



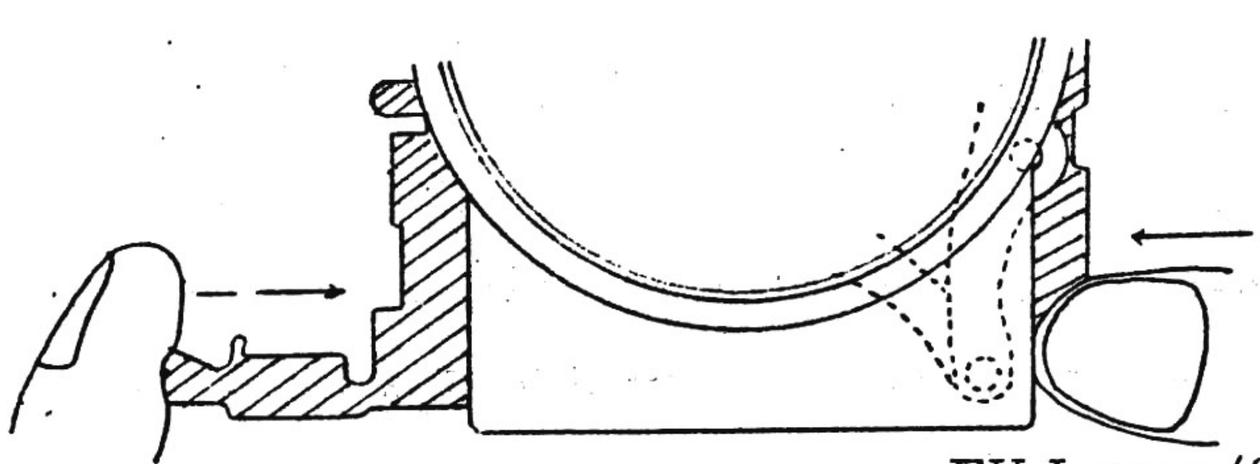


4. Handling of each contact

Do not directly touch your fingers to each contact. Particularly, the BF and EF contact equipped to the shutter directly affect the FM accuracy if they are bent.

5. How to release the shutter without the battery

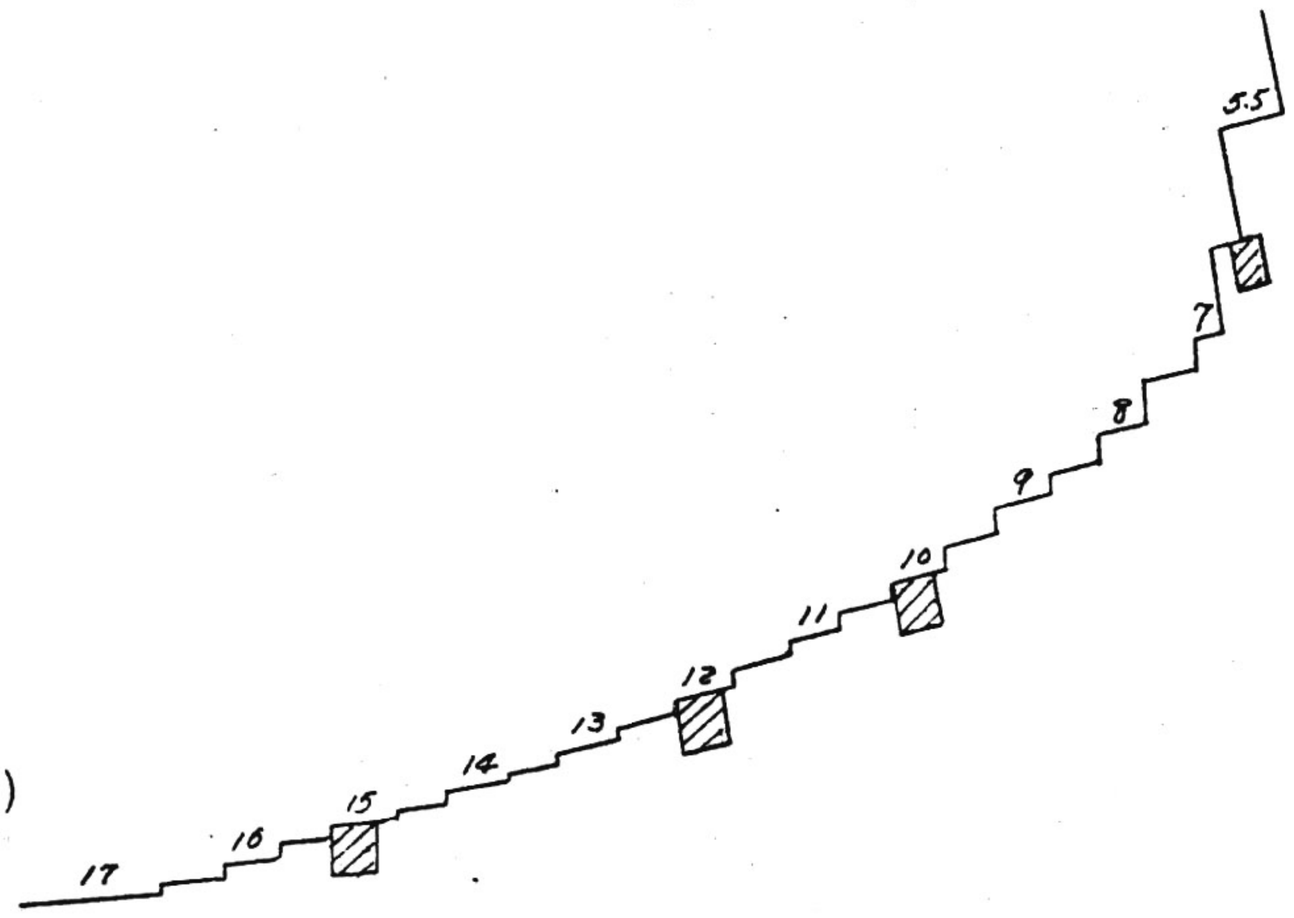
Apply your fingers to the illustrated positions after winding, and release while holding the EV lever (924-3131) so as not to make it come down.



EV Lever (924-3131)

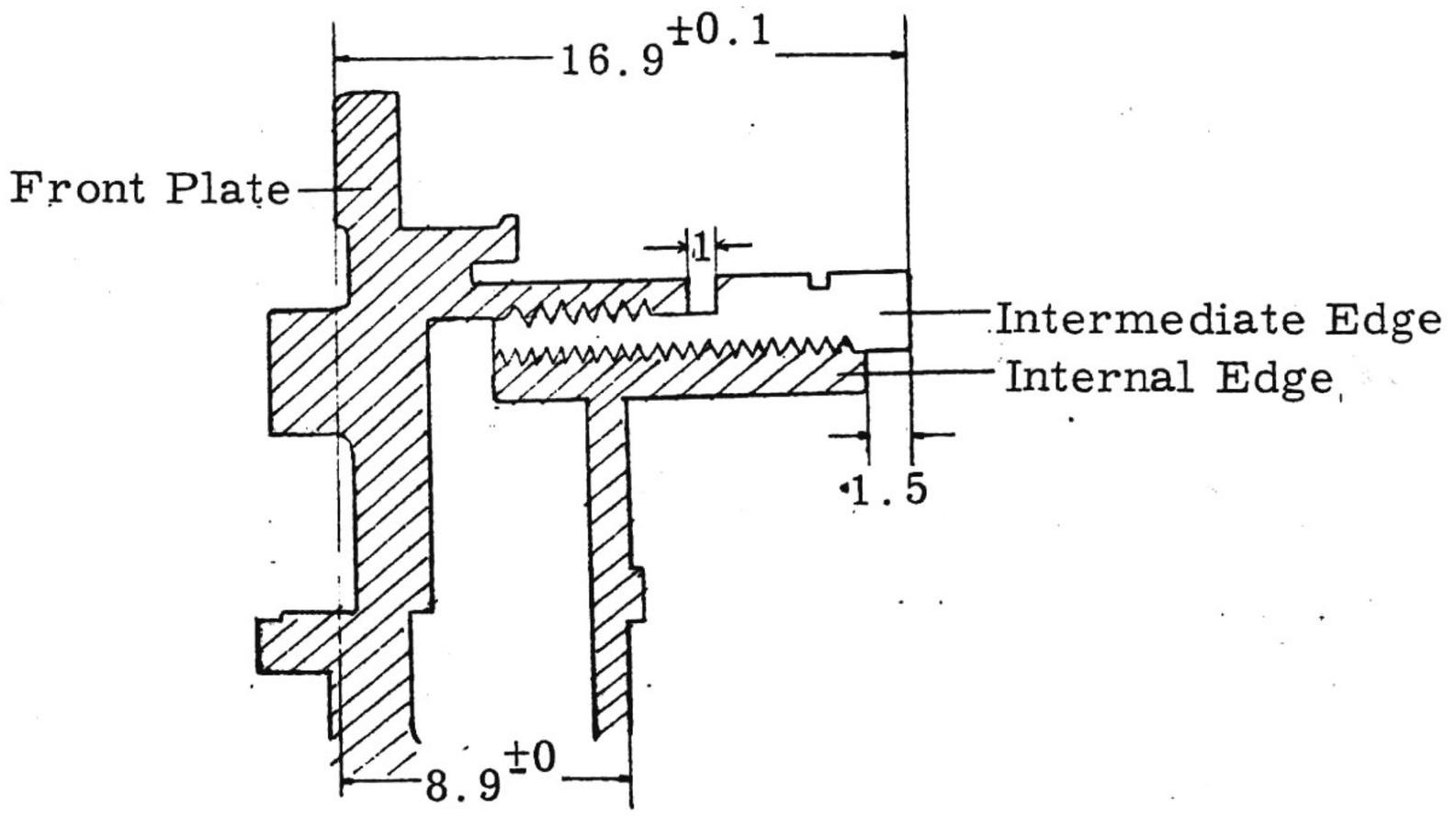
6. Locational relation between the pointer needle and the needle cam in brightness indication.

(ASA 100)



7. When the helicoid is mistakenly removed, mount it in the illustrated dimensions.

961 Helicoid Dimensions



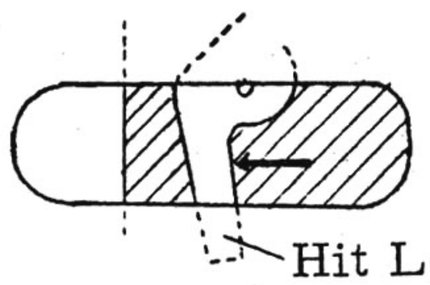
8. How to fully open the sector

Since this camera works based on the full EE mechanism and no B (bulb) is provided, peel off the front leather R, and then lock the sector fully opened at the base plate end through the slot of the front plate.

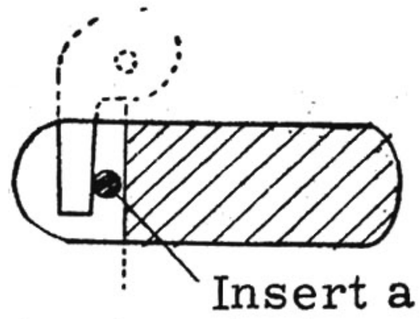
(Caution)

Take care not to disengage the spring of the hit lever when setting to B.

1 Push the hit lever with a pin.



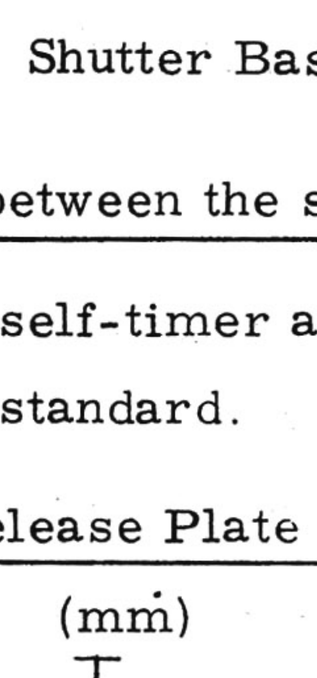
2 Insert a pin between the base plate end and the hit lever.



9. Relation between the self-timer and the release

Since the self-timer and the release are related, they must meet the following standard.

Release Plate Operating Direction



Lock on the halfway winding: Within 2.2
Lock at improper exposure: Within 2.2

Self start position: 2.4

Release lock position: 2.6

S release position: 3.2 +0.3
-0.2 (3.0 - 3.5)

Allowance after S release: More than 0.15

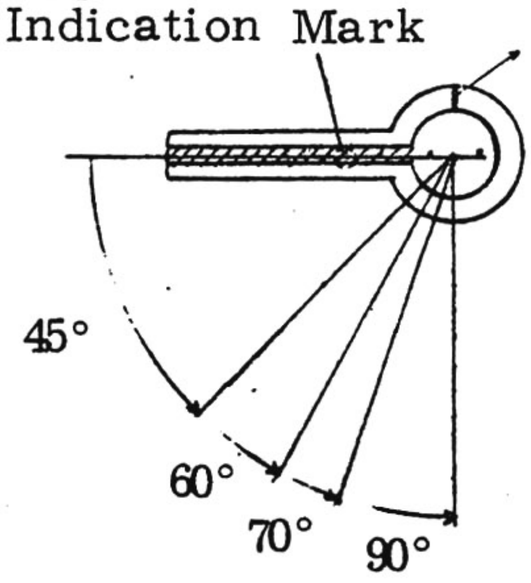
Self operating time: 7 - 15 sec.

10. Operation range of the self-timer

The self-timer operation is governed by the extent of self-timer winding angle.

Self Lever Indication Mark

Upper Plate Indication Mark



0 - 45°	Set impossible
45° - 60°	Set possible The starting operation is effected, but the shutter is not released.
60° - 70°	Starting operation is not effected.
70° - 90°	Normal operation.

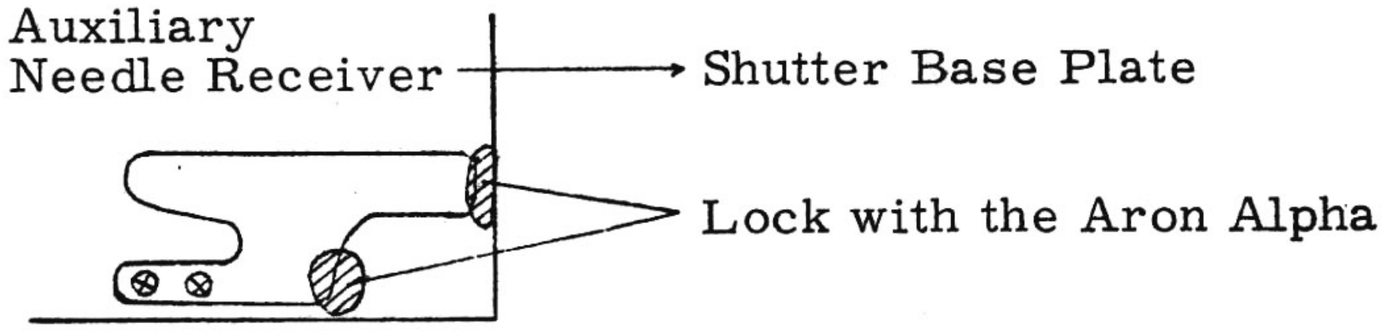
11. Precautions on tentative winding

When the tentative winding is performed by mounting the winding lever (CA8225) after disassembling, the winding lever base (CA8231) must be mounted under the winding lever.

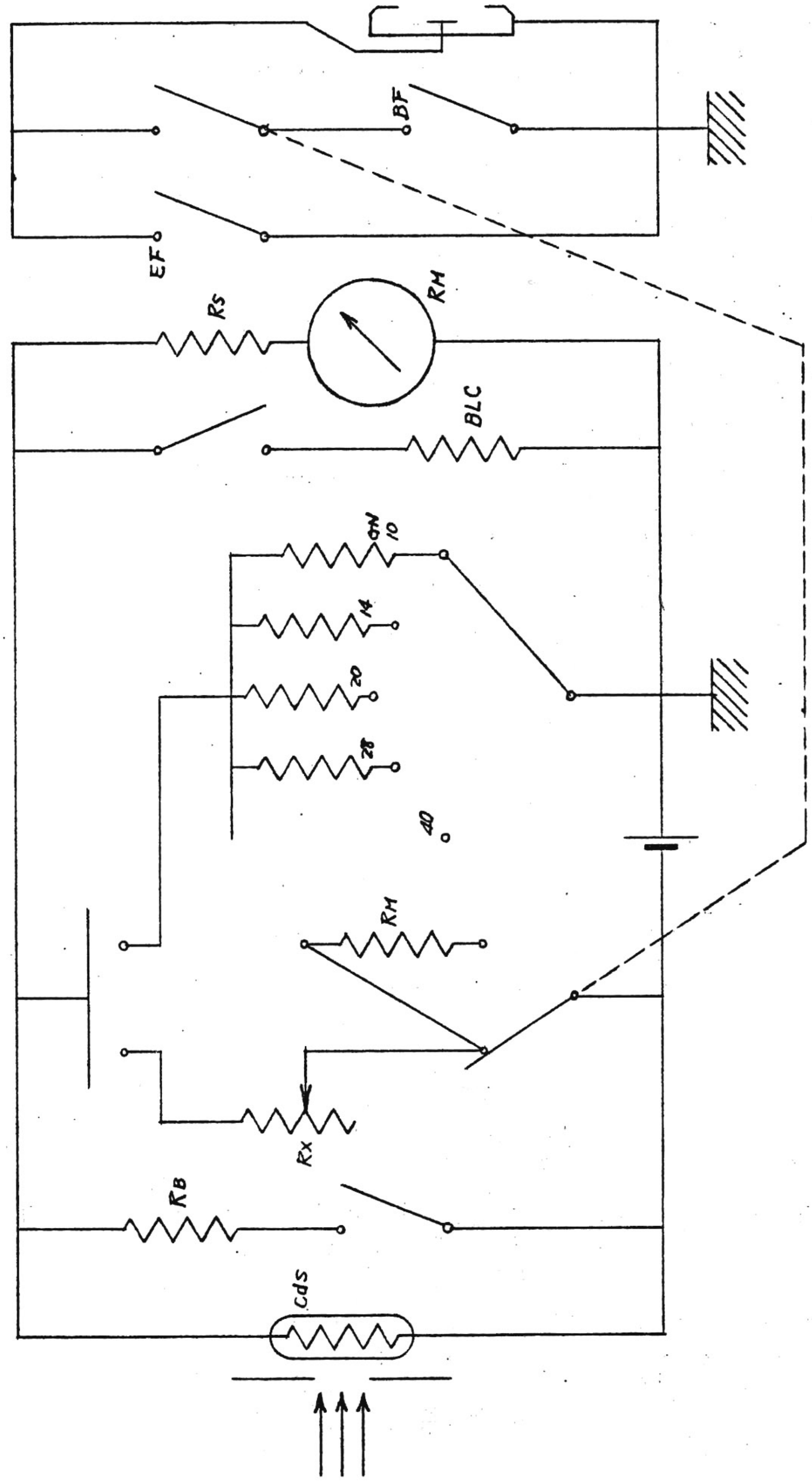
(Caution)
If the winding lever base is not applied, the winding shaft (CA8227) is lowered to cause friction of the gears resulting in damage.

12. Position of the needle receiver after EE adjustment

The high brightness plus or minus is to be adjusted by the needle receiver (924-0628) (in case of the high brightness plus, the needle receiver is lifted in its left side viewed from the front). After the adjustment, take care not to project the needle receiver exceeding the shutter base plate. If the needle receiver is projected, it will hit against the base plate (CA8205) causing the change in the EE accuracy.

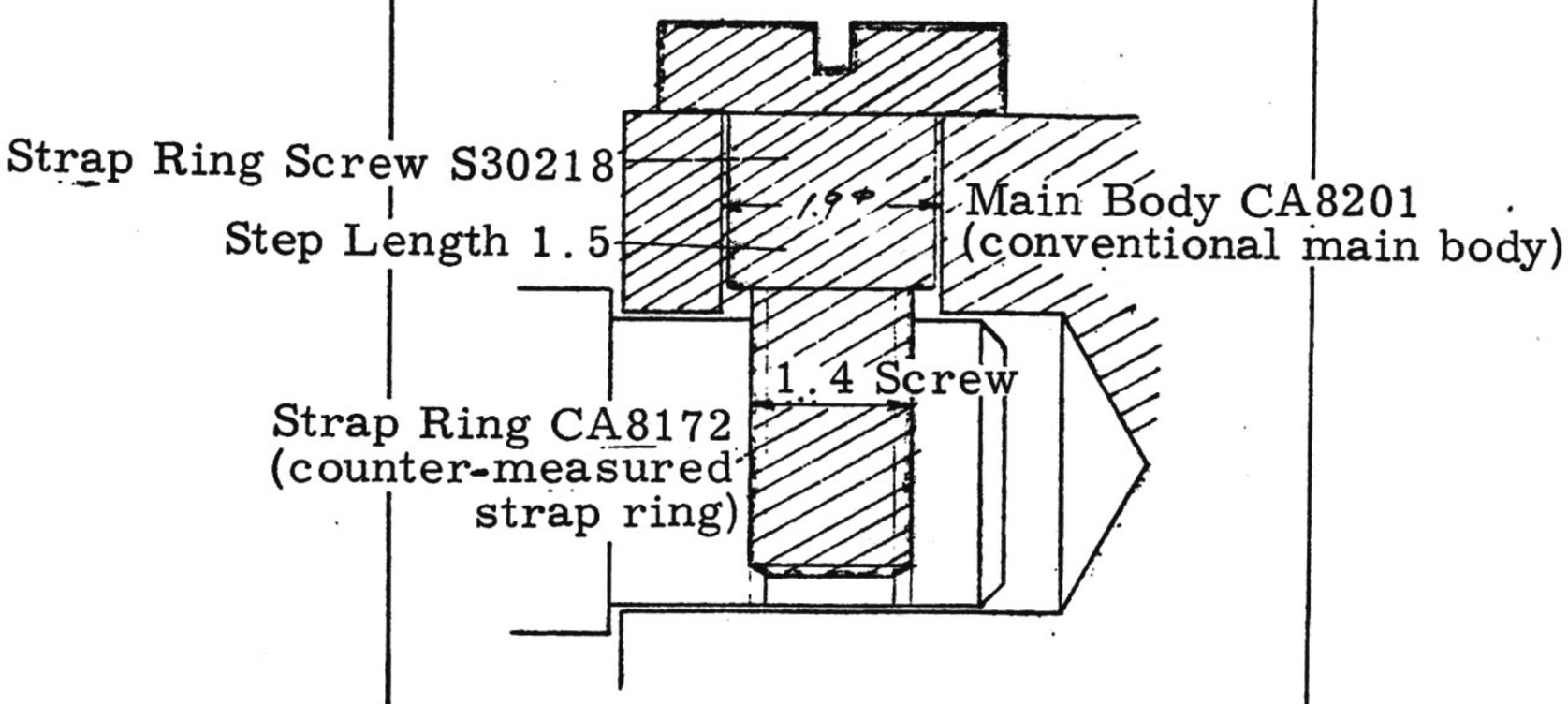


LEE-12 Circuit Diagram



13. Strap ring breakage

Cause	Remedy	Confirmation
1) Strap ring breakage (easy-to-break due to 1.7ϕ screw hole in the strap ring of 2.6ϕ)	Although the main body (CA8361), the strap ring (CA8172) and PUK1.4x4SO (strap ring screw) are described in PR and RM, the main body (CA8201), the strap ring (CA8011) and PUK1.7x4SO (strap ring screw) are actually used as in the LEE-11. This strap ring is easy-to-break because of the left described reason. When the strap ring is broken, repair it in the following manner. o Replace the broken ring by the strap ring CA8172. o Mount the ring on the main body with the strap ring screw while leaving the main body as it is.	

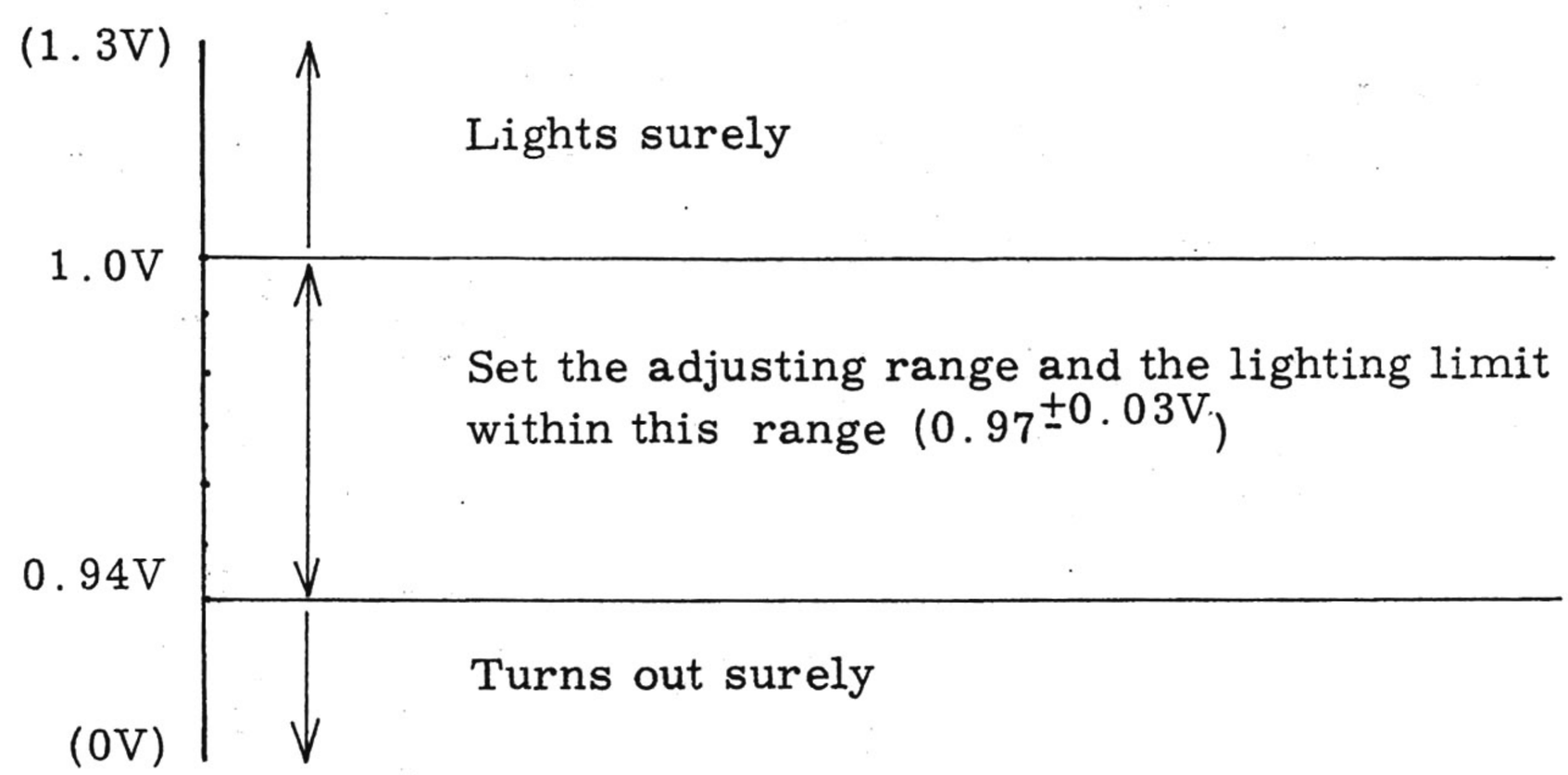


Adjustment of Battery Checker

1. Adjust the lighting voltage limit as follow.

   The assembly part has been already adjusted. However, when the lamp is replaced, the readjustment of the lighting voltage limit is necessary.

   The adjustment is done by varying the value of the resistor 2 (CC1097) (see Figs. 1 and 2). The resistor 2 (CC1097) is replaceable by a resistor for the EE adjustment, so use it for the substitution.



2. Connection Diagram upon the Adjustment (The following illustration indicates the connection diagram with the circuit board CC1092 not removed from the body.)

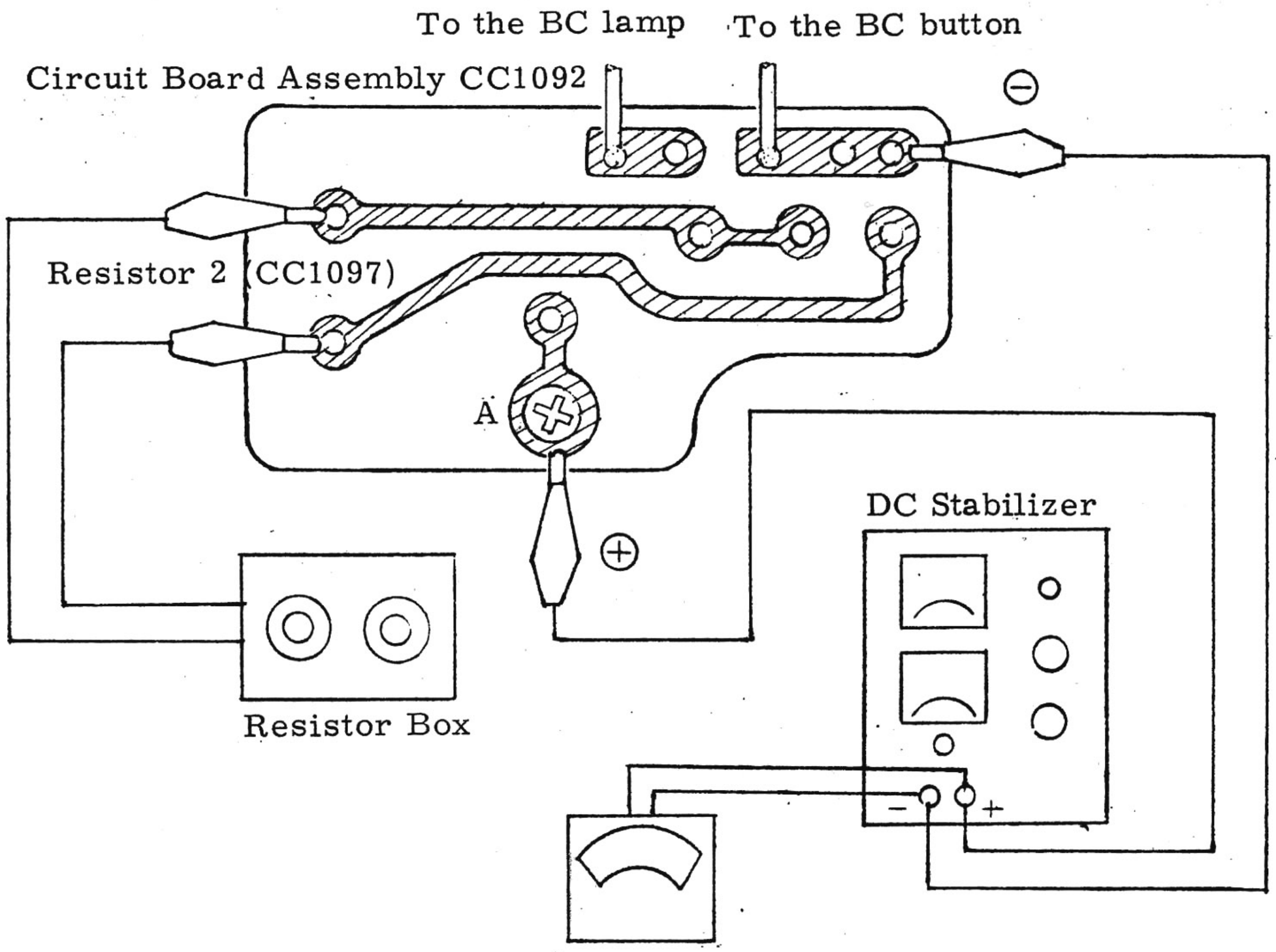


Fig. 1

(Cautions)

1. Remove the resistor 2 when connecting the resistor box.
2. Ground the part A to the body when the adjustment is done with the circuit board CC1092 removed from the body.

3. Adjusting Procedure

   1) Connect as described in the Item 2.

   2) Set the DC stabilizer to 1V. (Confirm with the microvolt meter.)

   3) Confirm that the BC lamp of the camera is lighting by the Procedure (2).

If the lamp is not lighting, the resistance value of the resistor box is too large. The adjusting range is 1KΩ - 3.6KΩ .

4) Set the DC stabilizer to 0.96V. (Confirm with the microvolt meter.)
Can be set more correctly than the central 0.97V.

5) Increase the resistance value of the resistor box until the BC lamp turns out.

6) Confirmation of the operation
Set the DC stabilizer to 1V, and confirm that the BC lamp is lighting.
Set the DC stabilizer to 0.94V, and confirm that the BC lamp turns out.

7) Solder a resistor with the same resistance value as that of the resistor box in the Procedure (5). This completes the adjustment work. To assure the adjustment, repeat the confirmation of the Procedure (6).

4. Mounting of Each Part

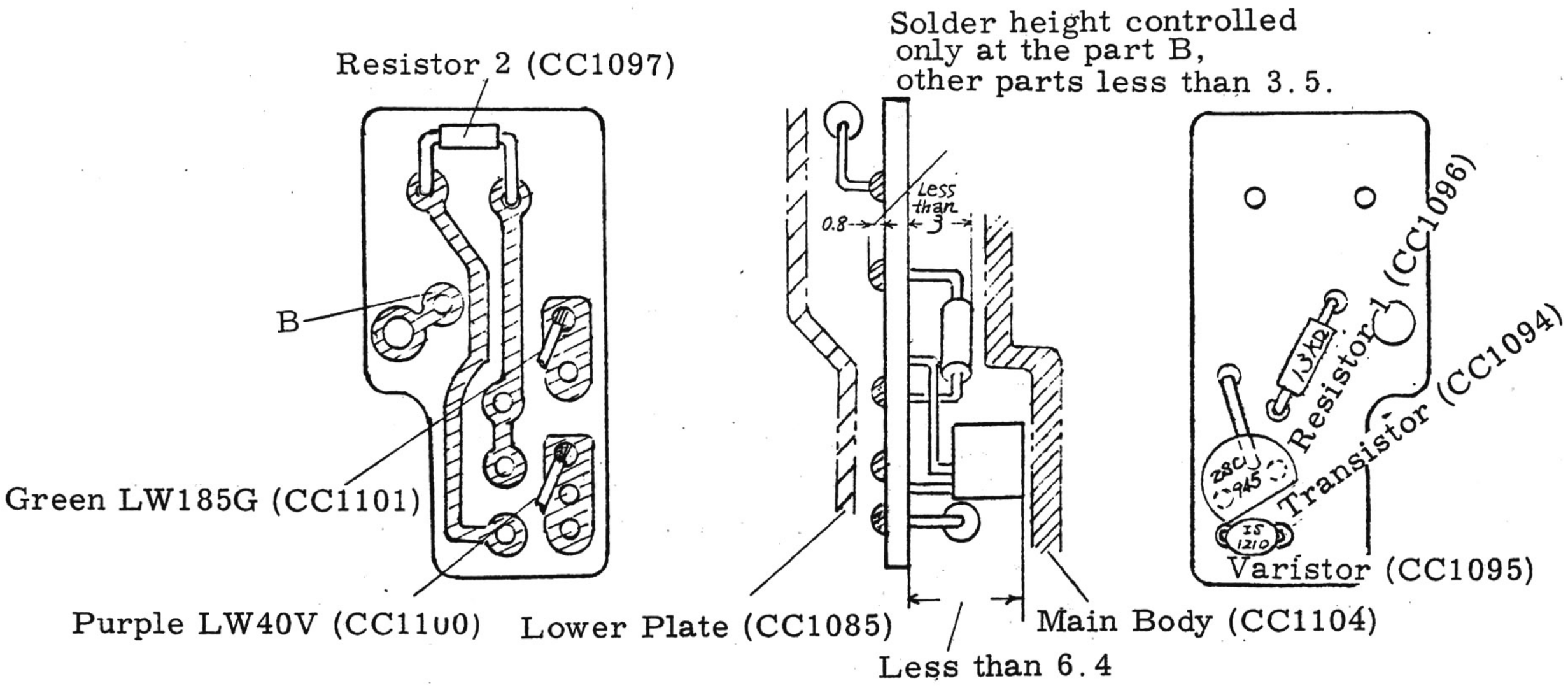
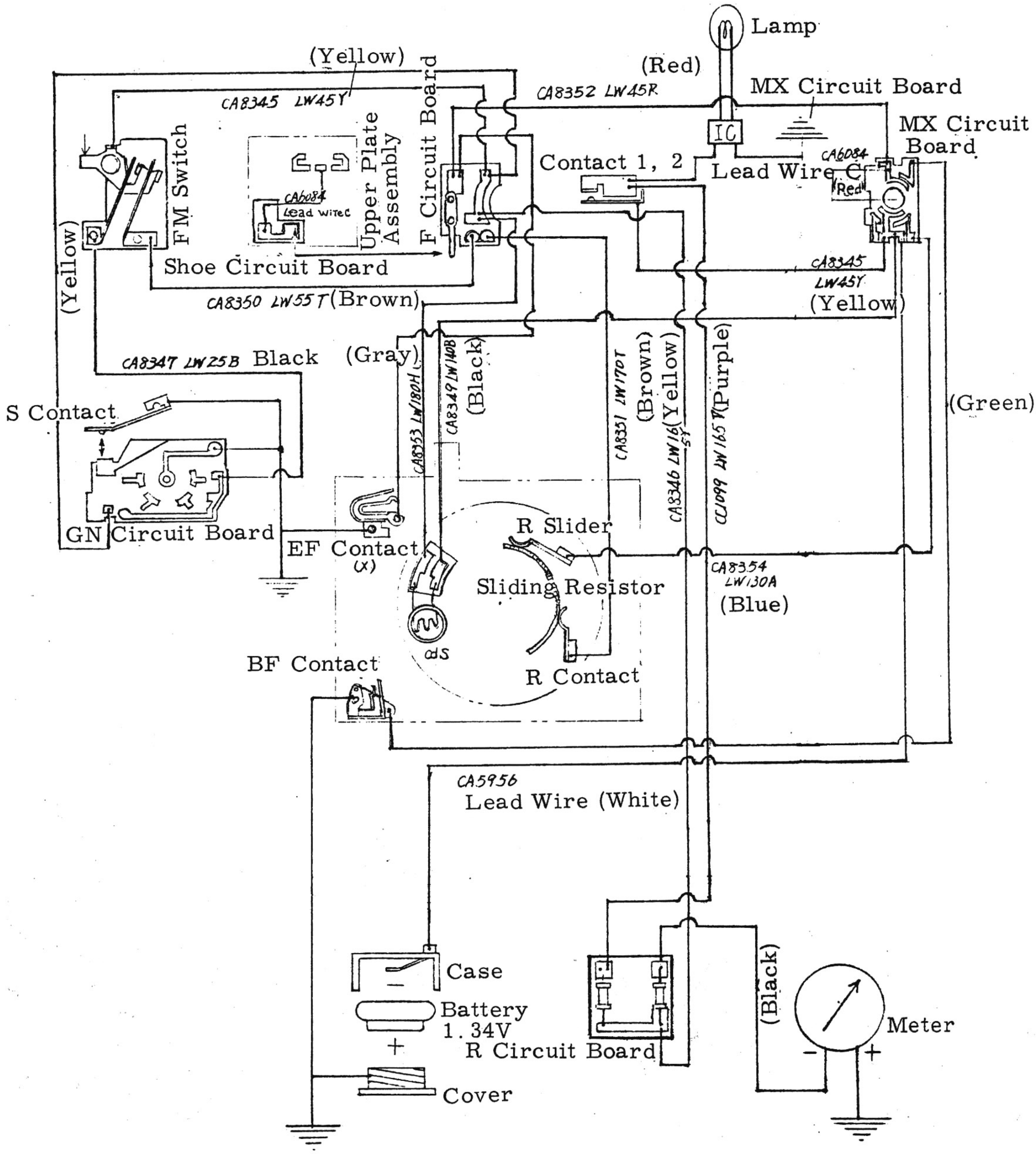


Fig. 2

LEE-12 Actual Wiring Diagram



The IC has been adjusted to $0.97V^{\pm 0.03}$

(Caution)

1. The lead wire not numbered is provided for the semi-finished parts.
2. The earth side is directly connected to the main body.

Use of IC in Place of Conventional Printed Board for LEE-12 Battery Checker

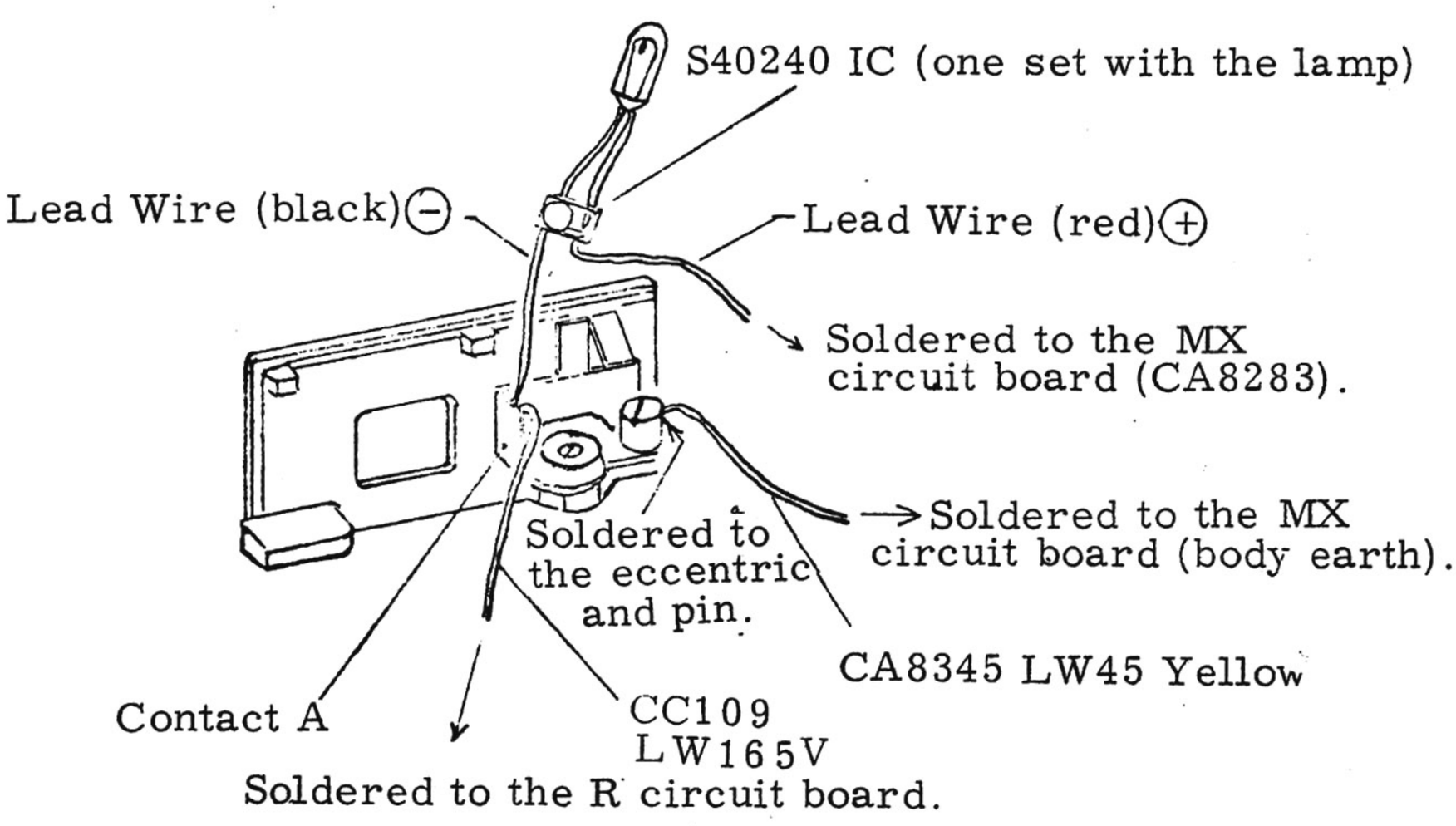
(1) Advantage with IC

With the IC, the processes for the adjustment of the lighting voltage limit are remarkably decreased as compared with the case of the printed board. Moreover, in case of the IC, the fluctuation of the lighting voltage is about ±0.01V (resistor base board: approx. 0.03V) and sufficiently durable for high temperatures.

(2) Troubleshooting

1. Mounting of IC

In case of the lamp blown off, replace it together with the IC and make the wiring as follow.



2. Replacement of the printed board by the IC

1. Remove LW40V (CC1100) from the R circuit board (EK680-20721).
2. Remove the lead wire of the lamp and the LW185G (CC1101).

3. Remove PUK2-211SO fixing the printed board (CC1092) to demount the board.
4. Disconnect the lamp lead wire from the MX circuit board (CA8283) to remove the lamp.
5. Wire the IC and the lamp as illustrated in the (3), 2, and fit the lamp in the L holder and fix it with Pliobond.

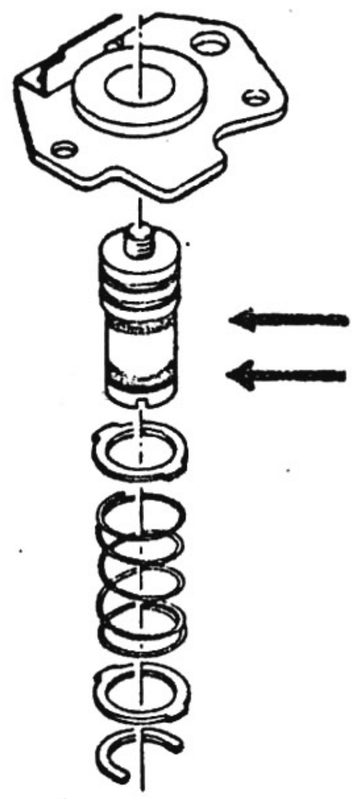
(Caution)

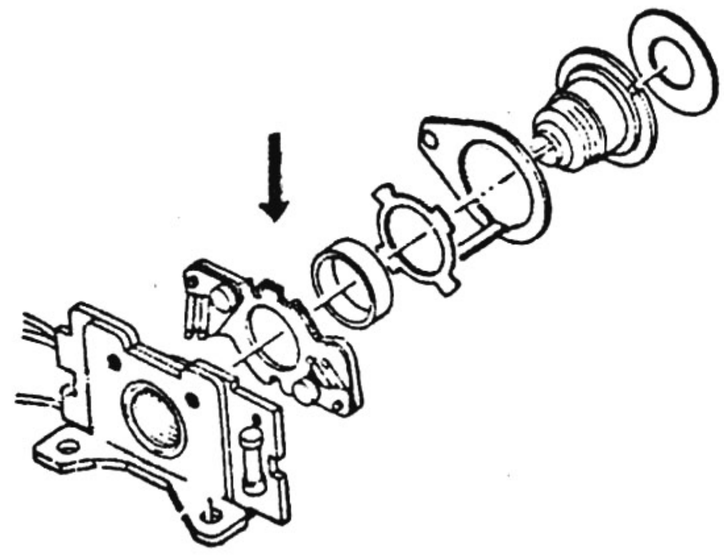
The lamp for the printed board and the one for the IC differ in the current value, so take care not to misuse them.

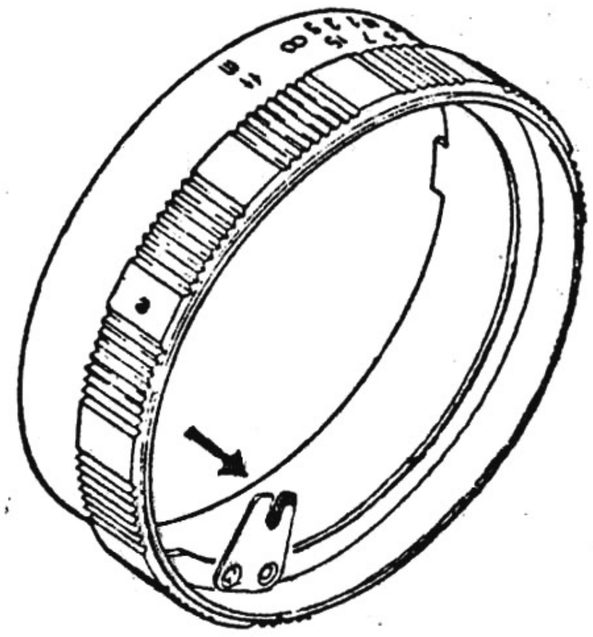
PARTS WHERE OIL, GREASE, ETC., SHALL BE USED

MOLYKOTE TYPE U

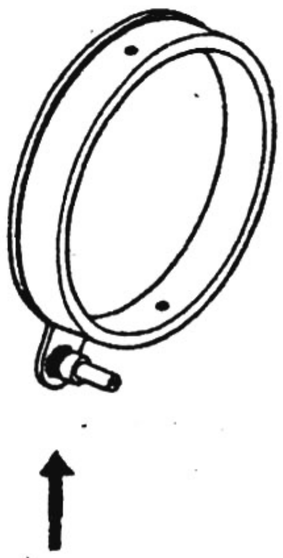


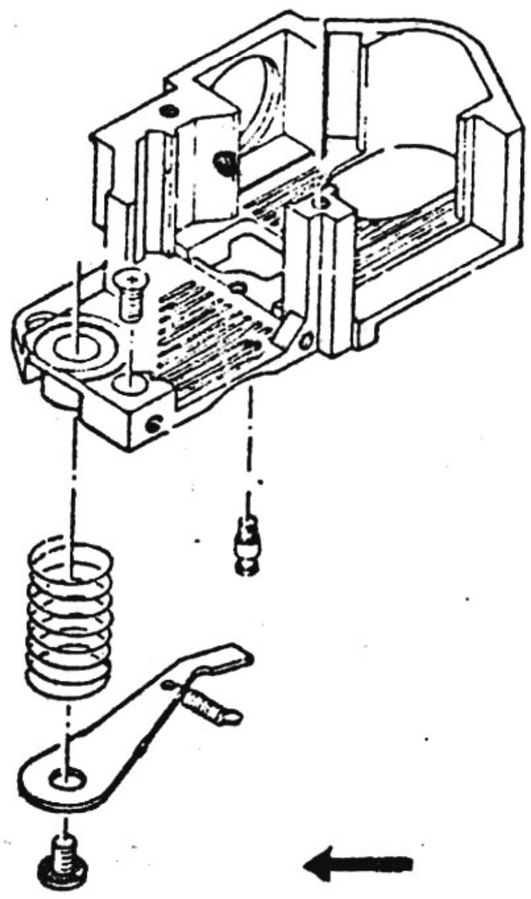


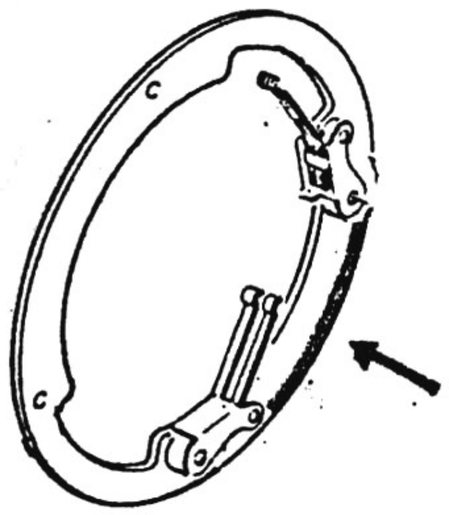




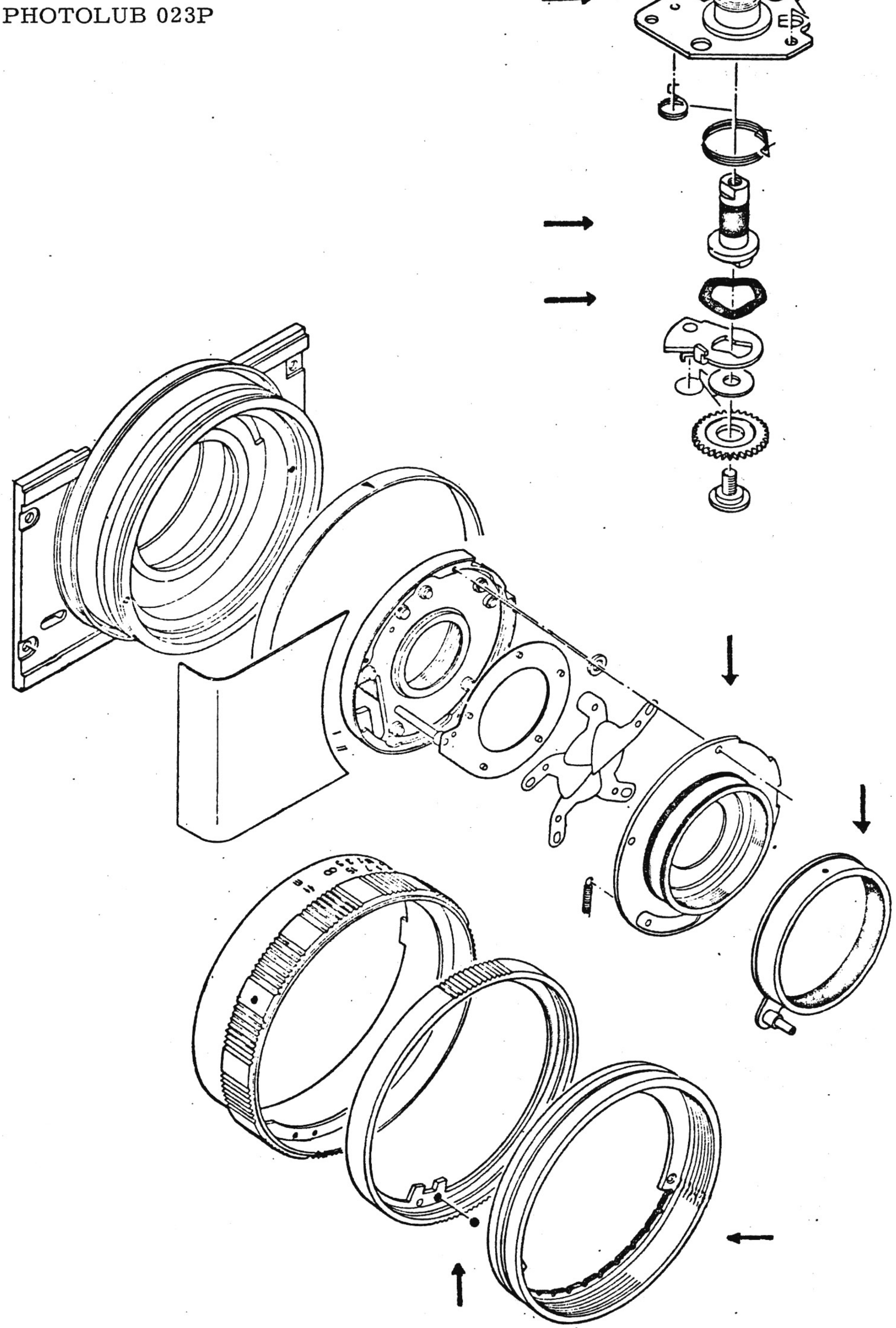
ARON ALPHA



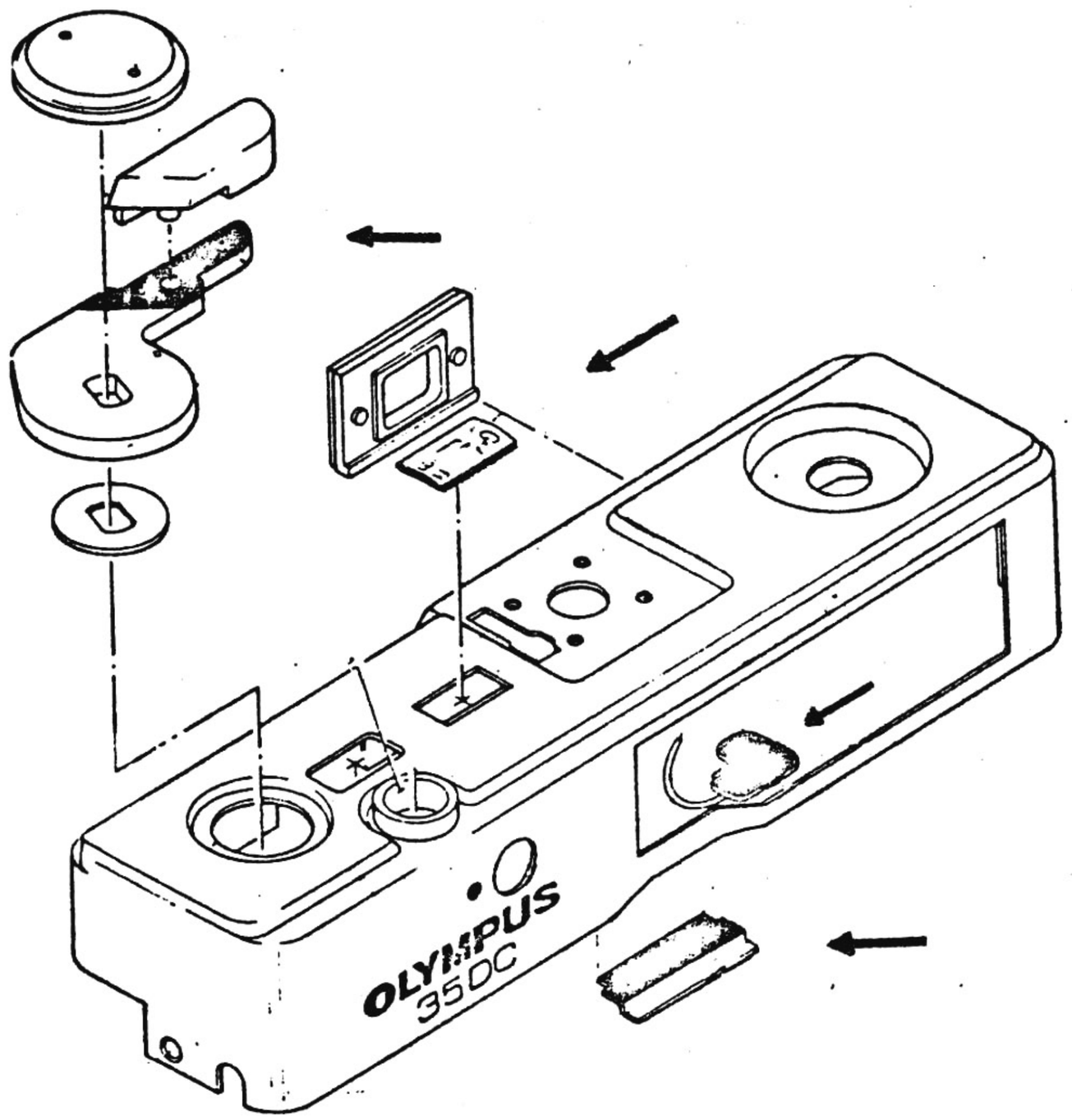


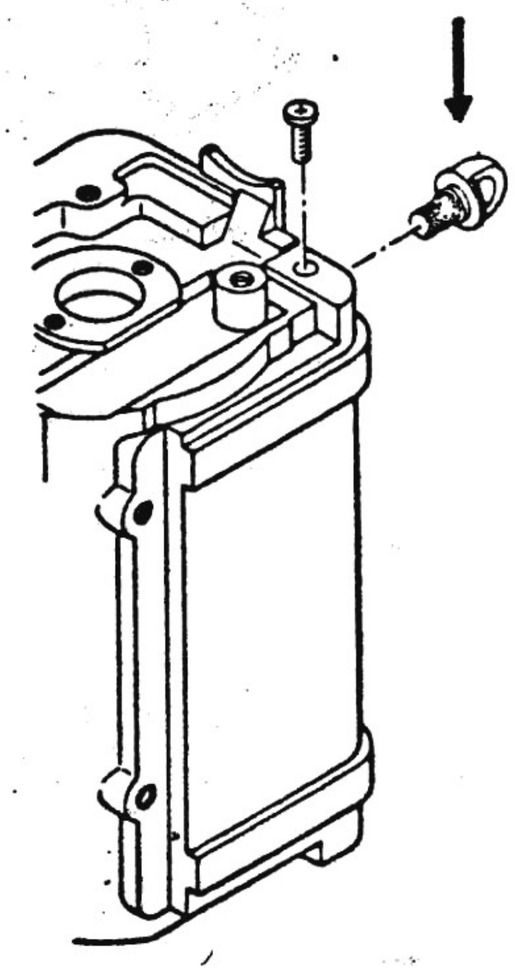


PHOTOLUB 023P

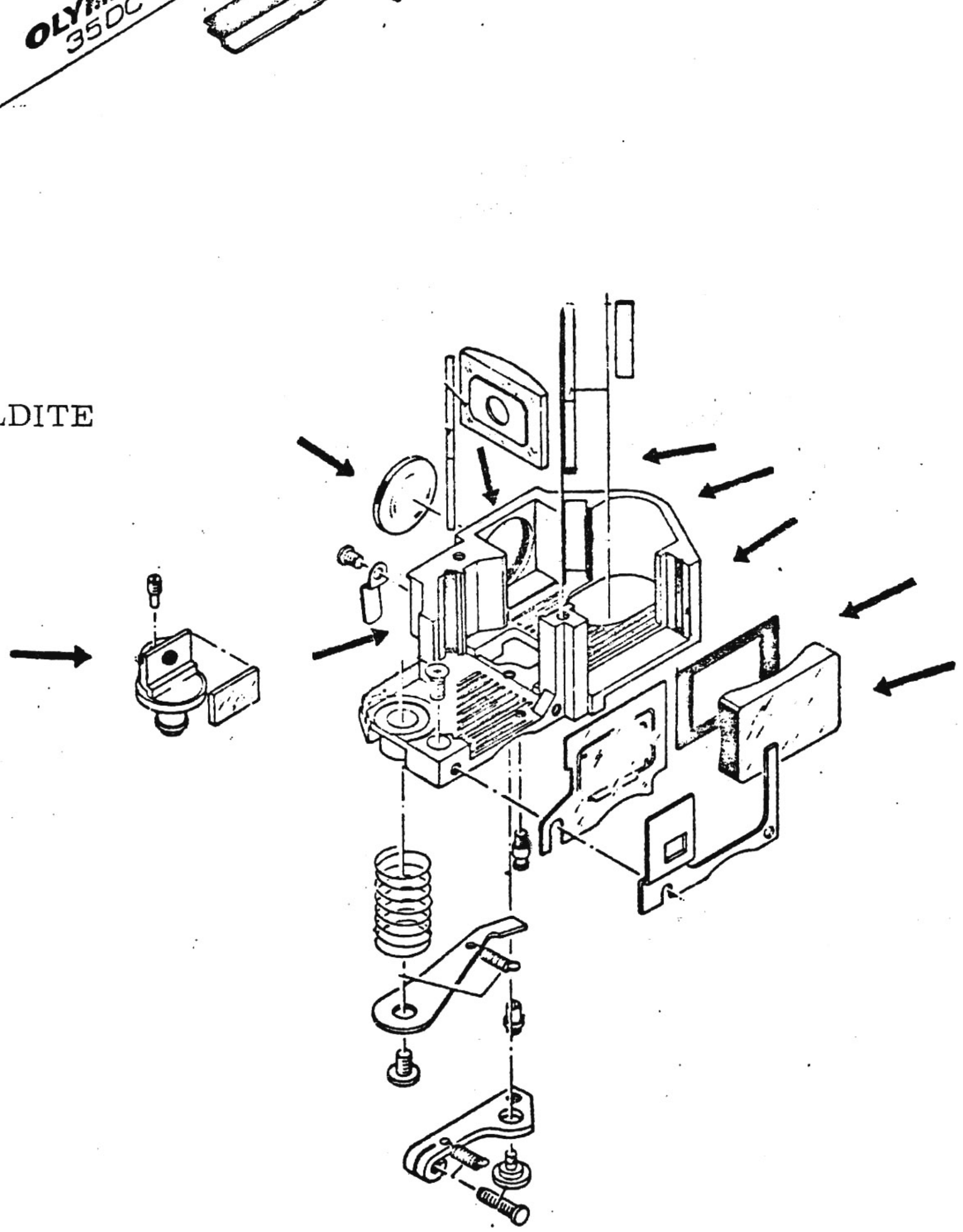


WHITE ARALDITE

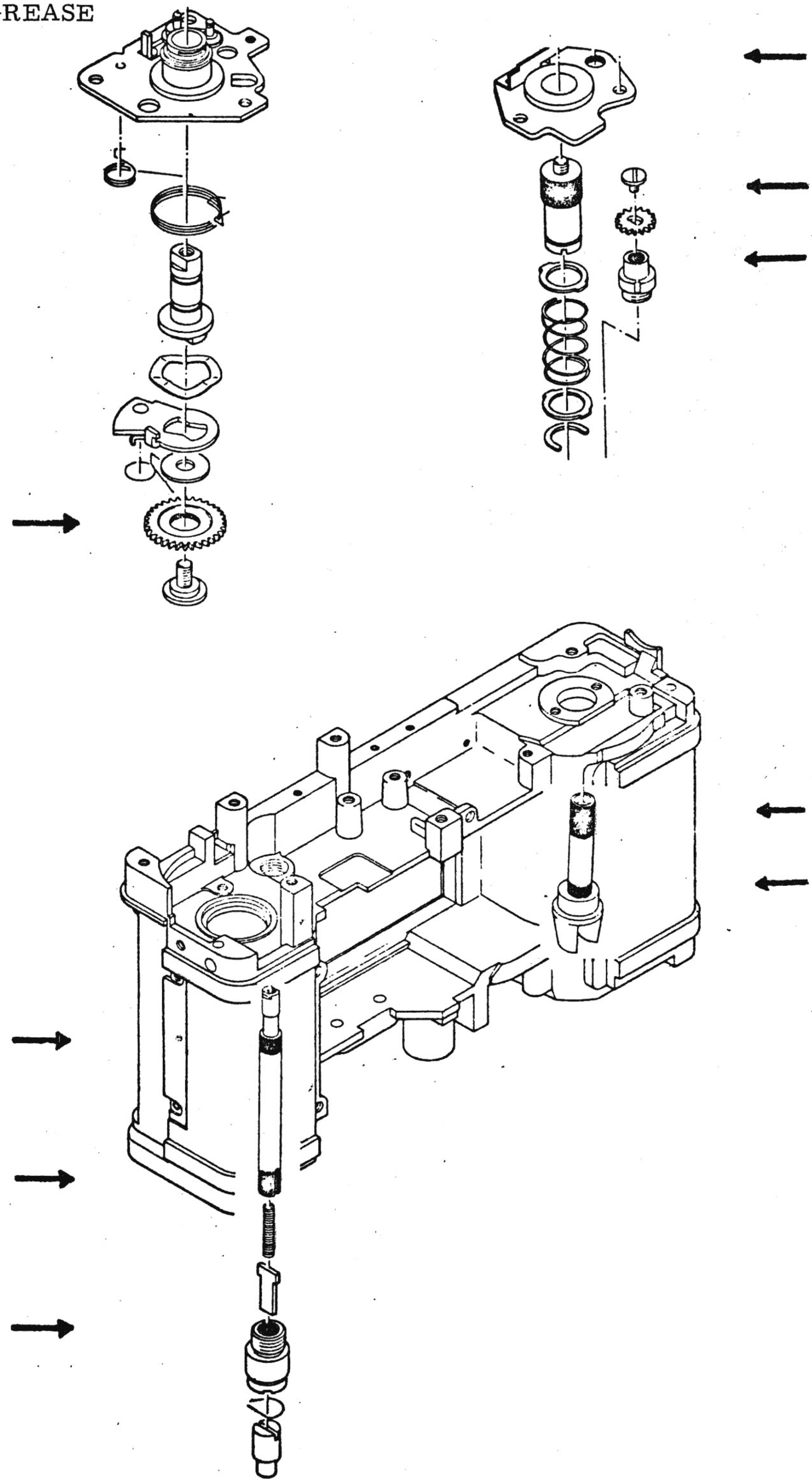




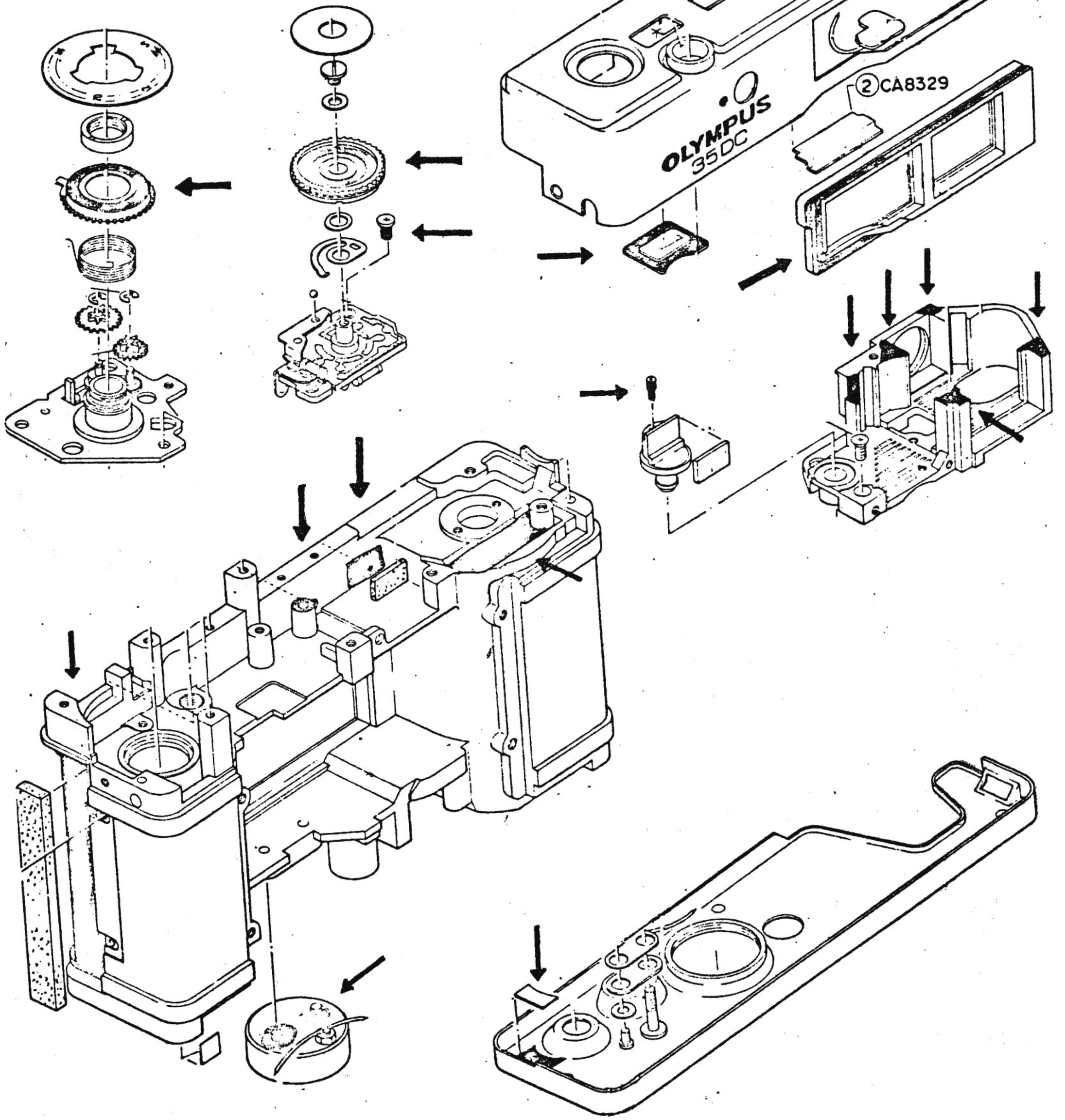
BLACK ARALDITE



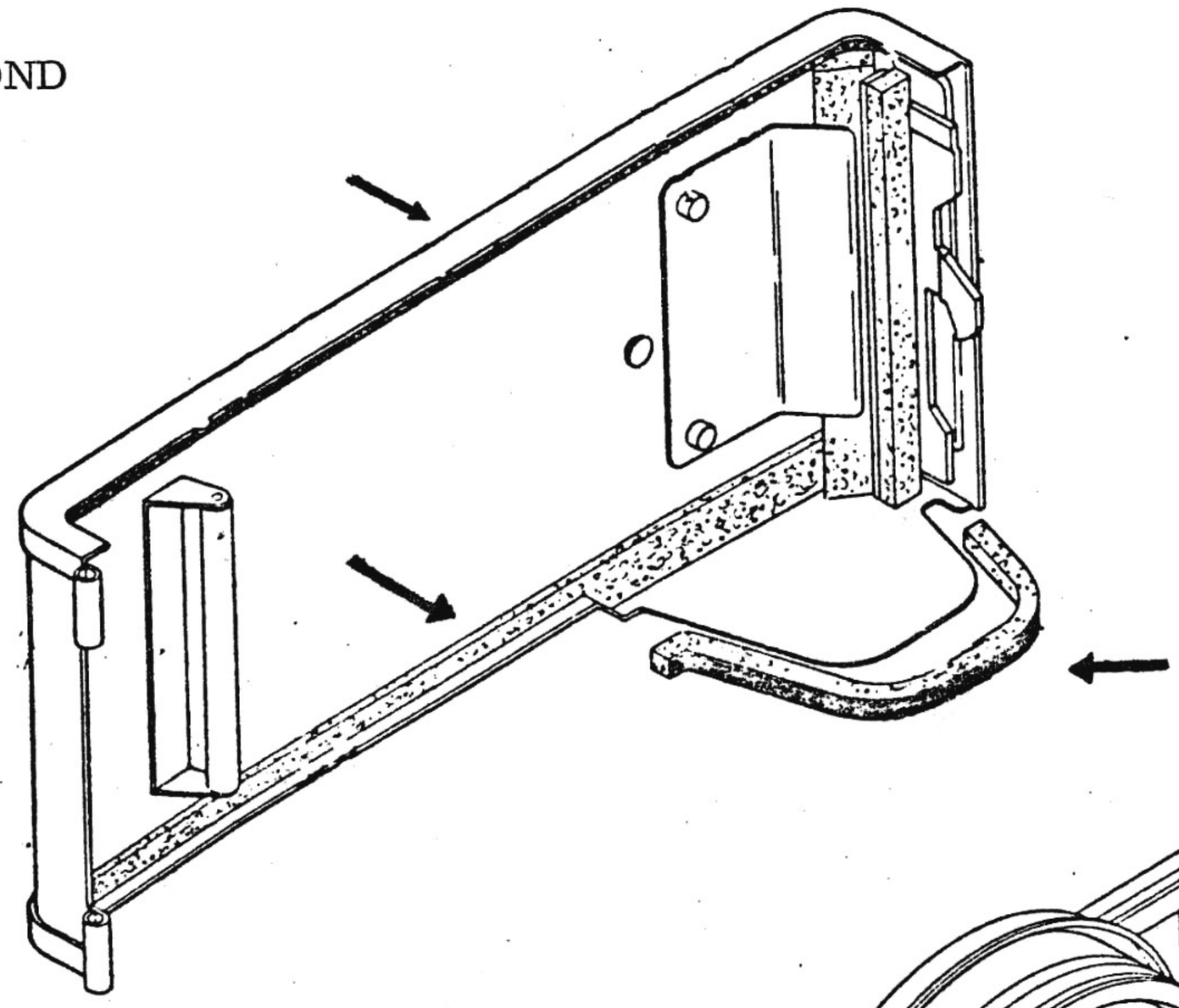
EP GREASE



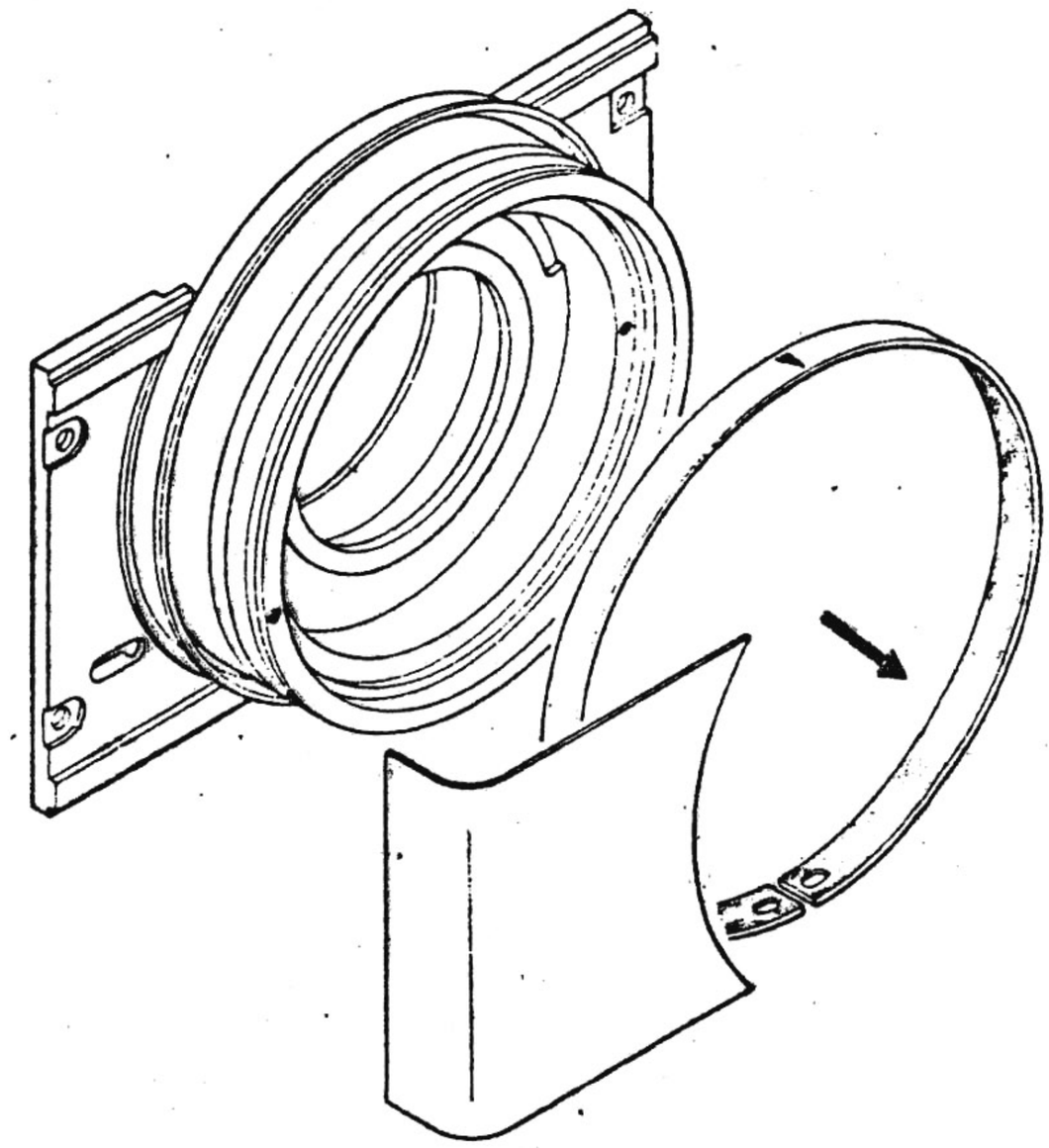
PLIOBOND

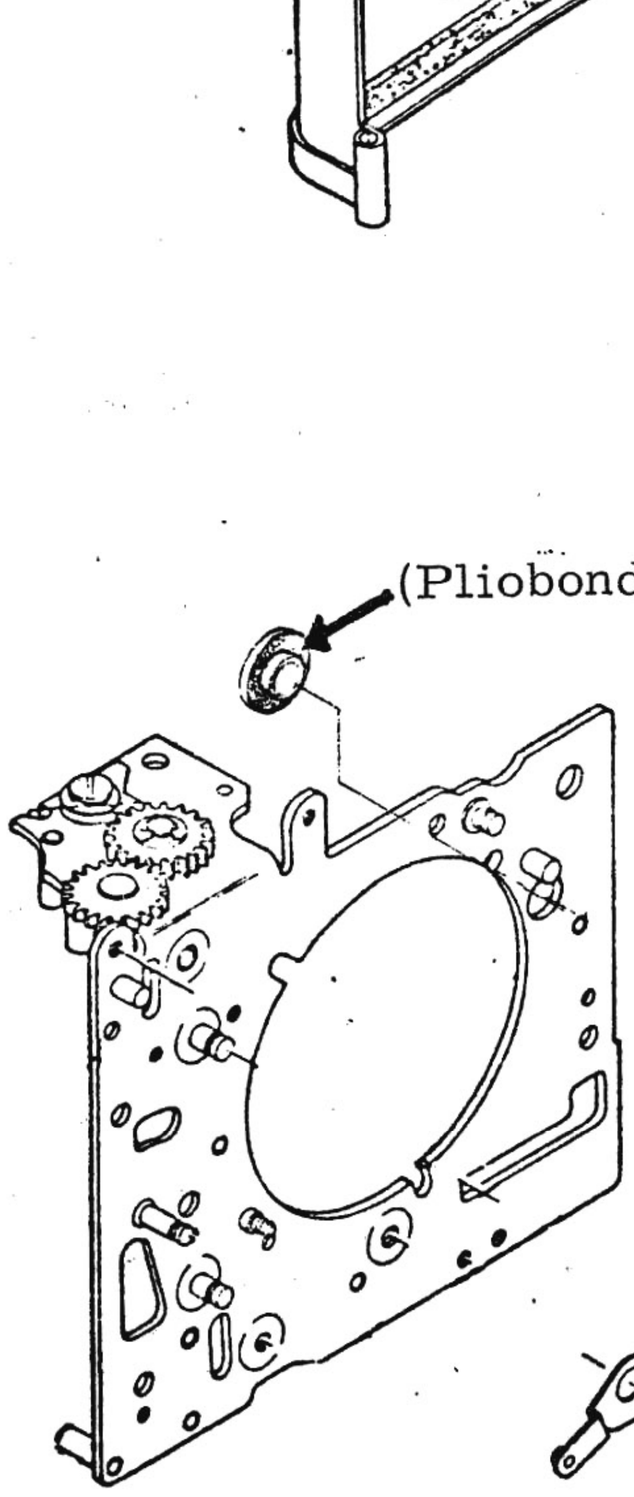


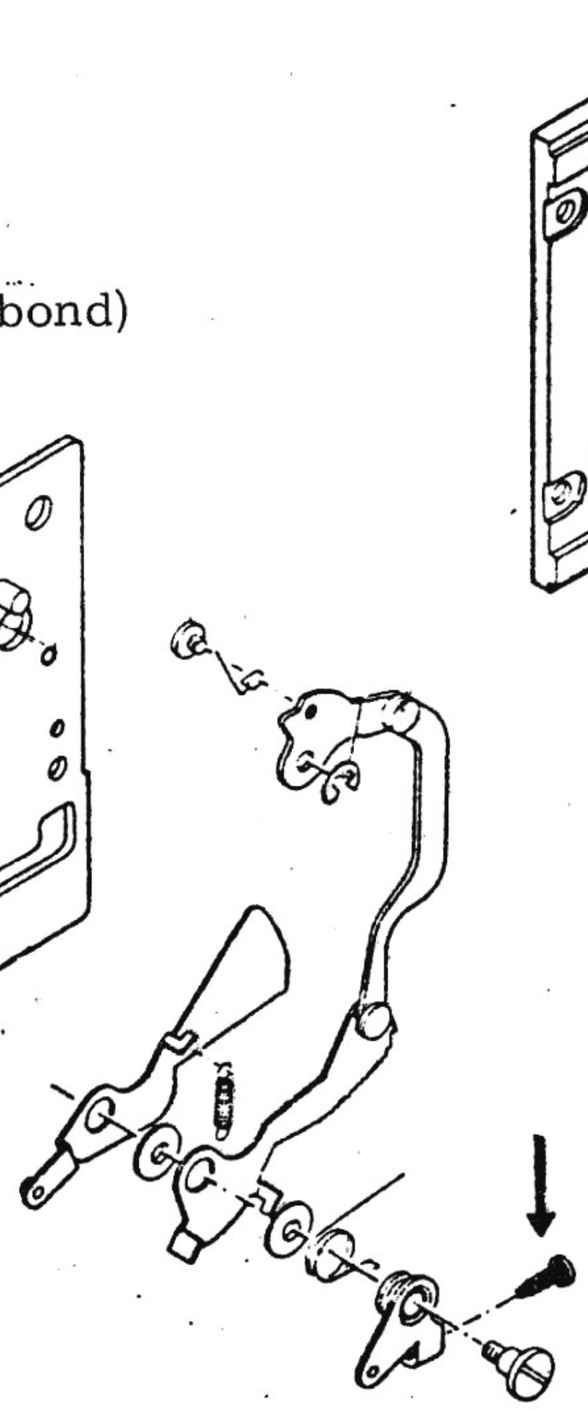
PLIOBOND

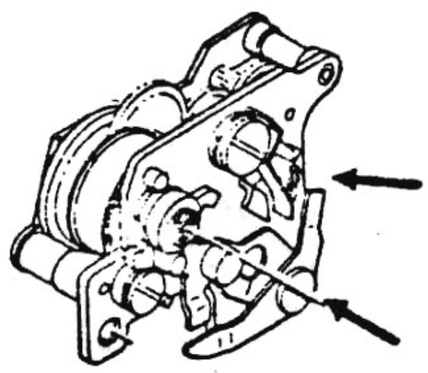


(Pliobond)

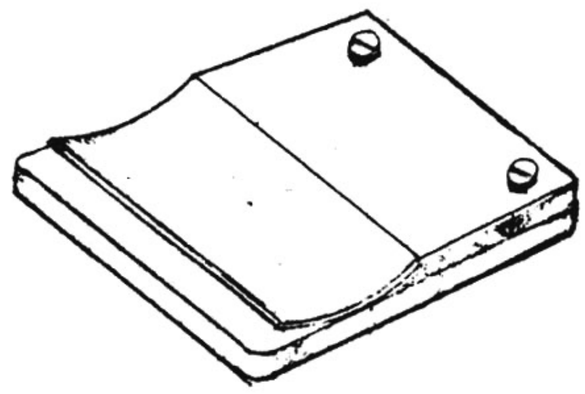
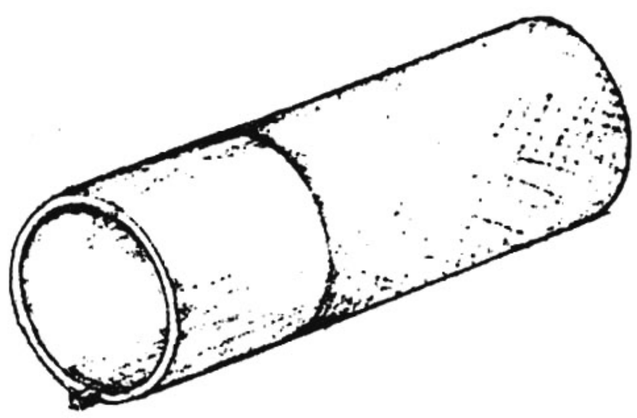








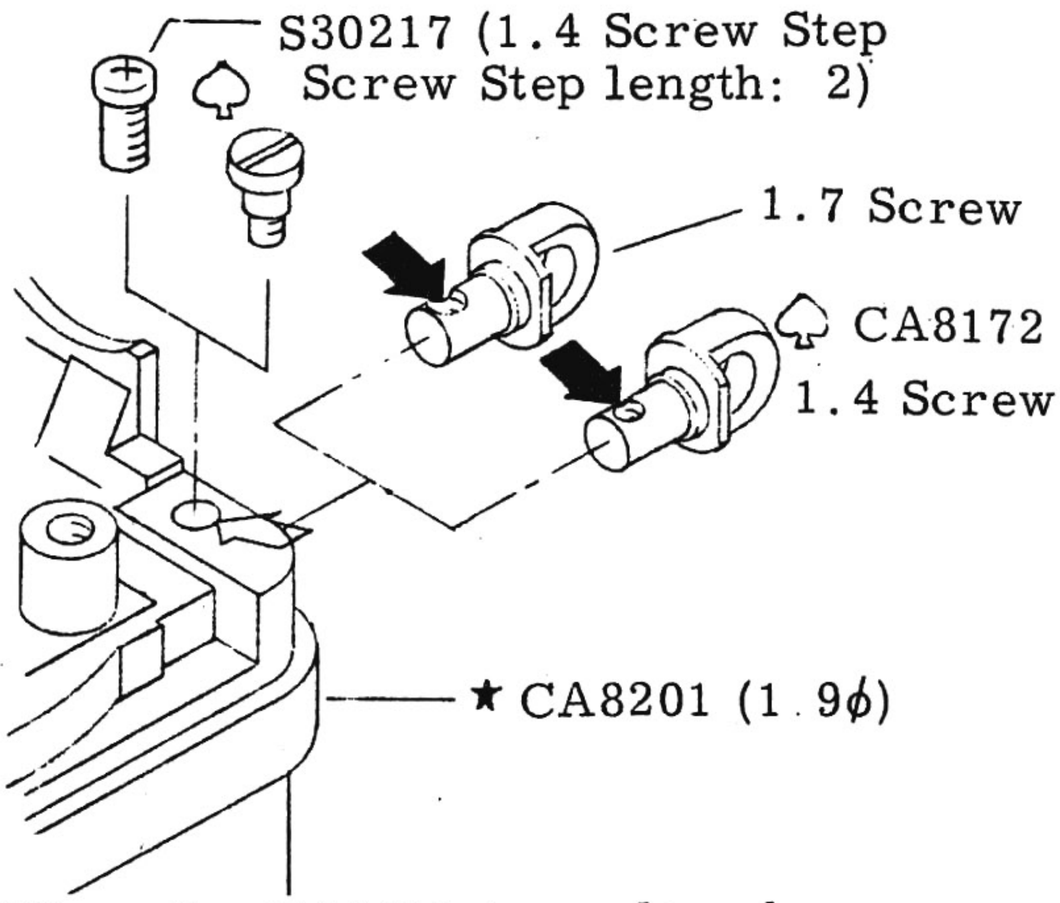
LOCTITE AV

Tool Name	Using Place and Manner	Remarks
Mounting Base (Measuring Tool) KC-CA7731G 	Used by fitting to the shoe CA8275.	Common with LEE-8C.
Rear Frame S (Spanner) KC-CA0066G 	For the part DLX-41-03 (rear frame).	Newly manufactured.

List of Changed Parts

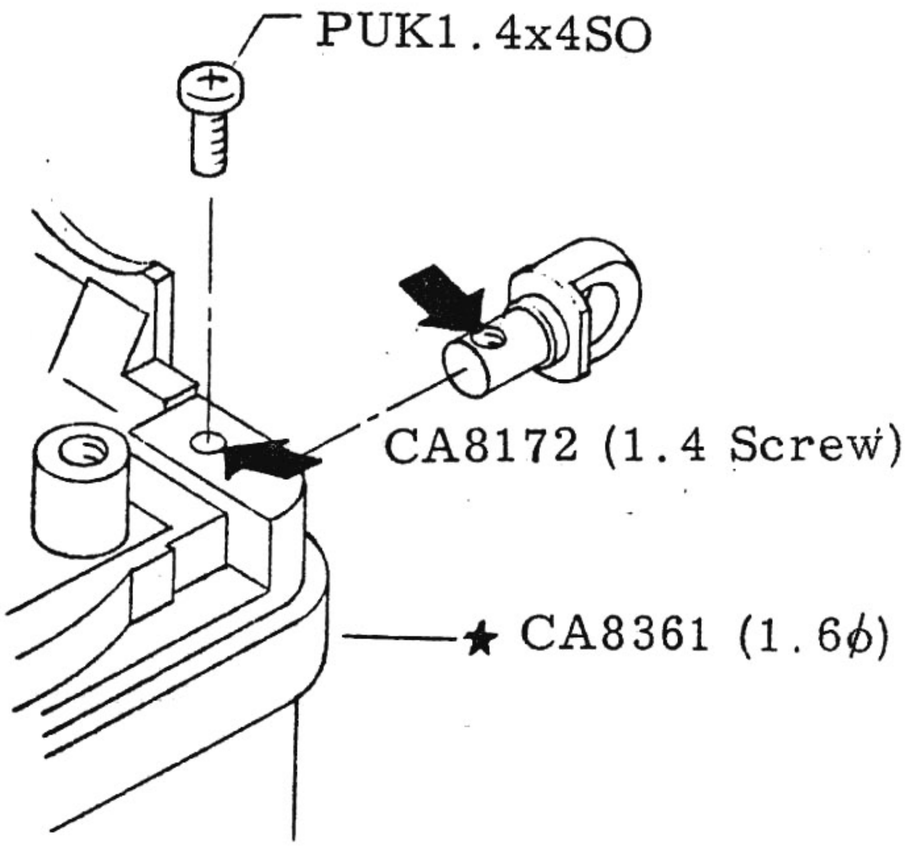
(1)

Fig. A

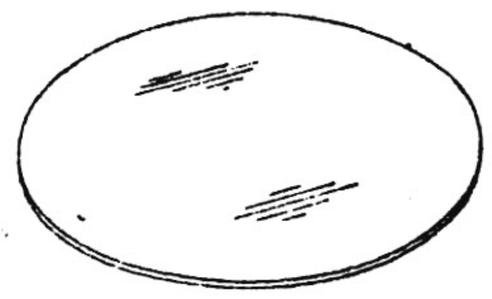


* When the CA8011 is replaced, replace it by the ♤ part and do the repairing.

Fig. B



(2)



EK470-20722 (Filter 5...Transmisson factor 50%)

EK470-20723 (Filter 6...Transmisson factor 65%)

EK470-20724 (Filter 7...Transmisson factor 75%)

EK470-20725 (Filter 8...Transmisson factor 85%)

(3)

Fig. A

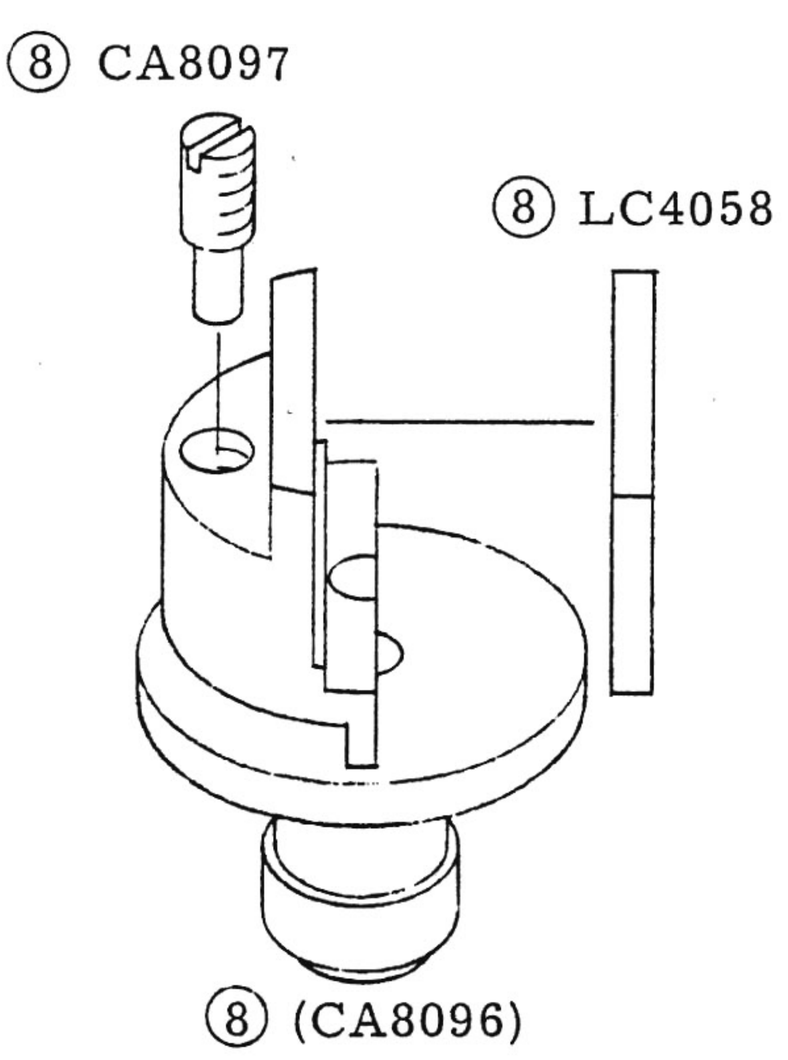
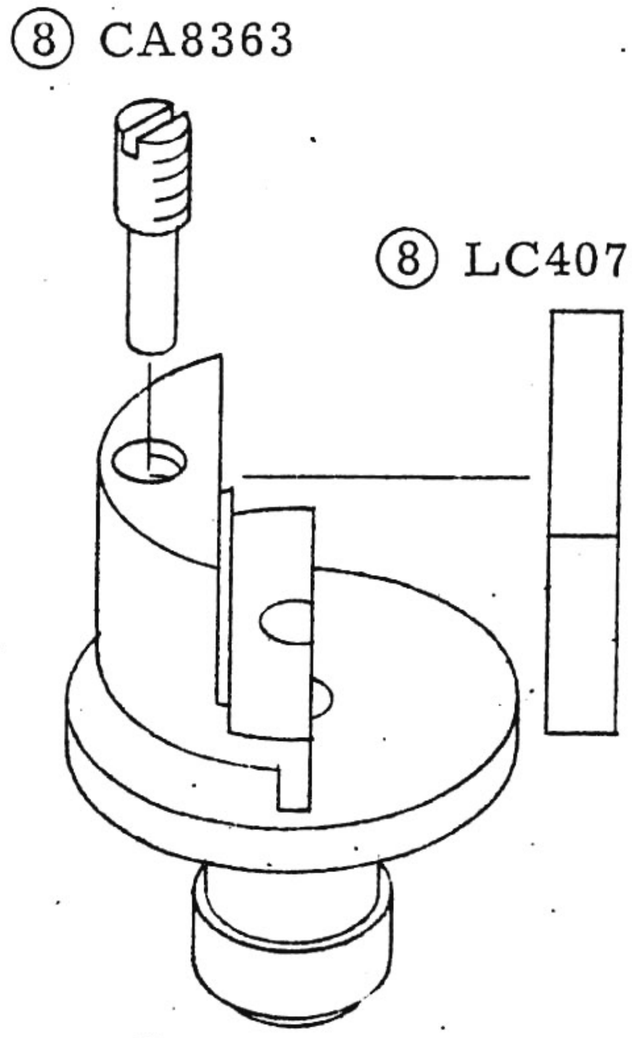


Fig. B



(4)

Fig. A

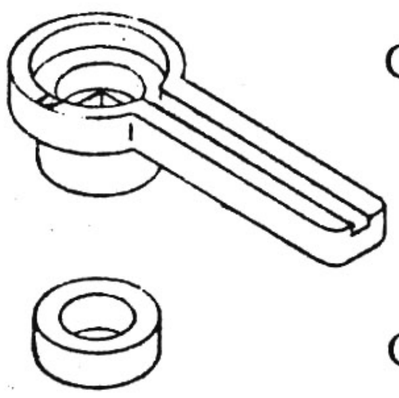
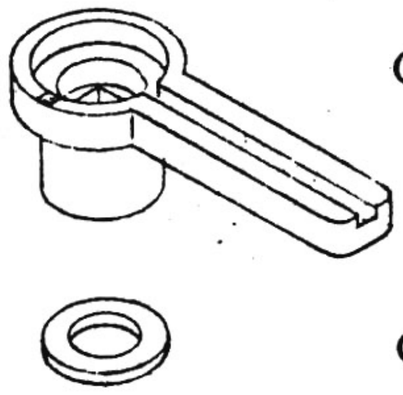


Fig. B



(5)

Fig. A

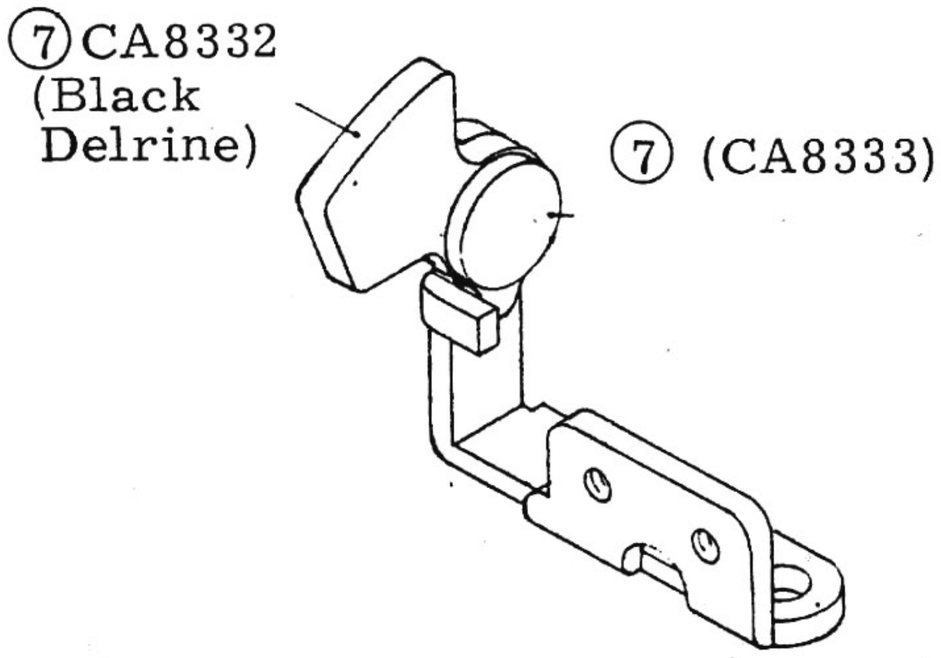
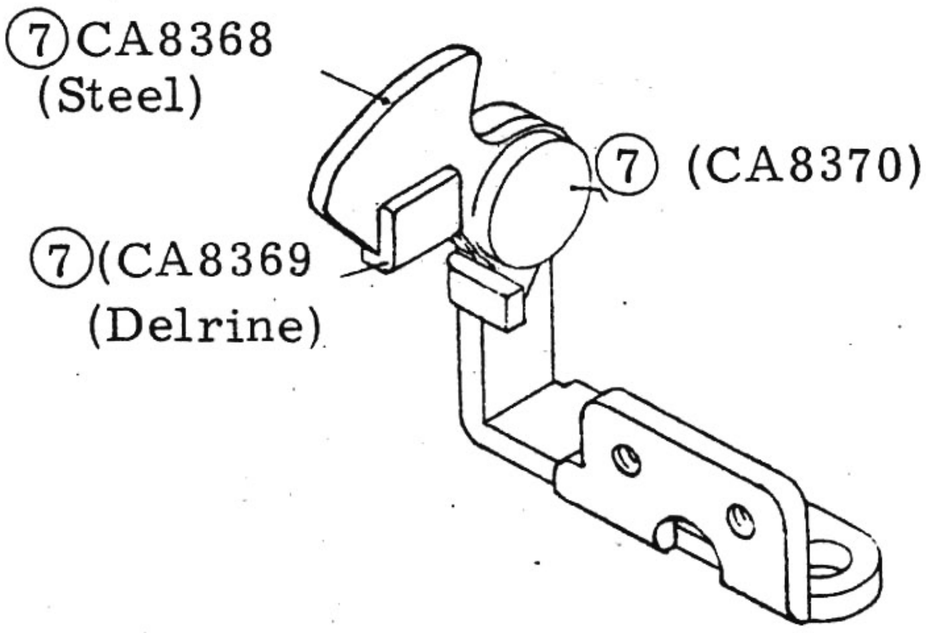
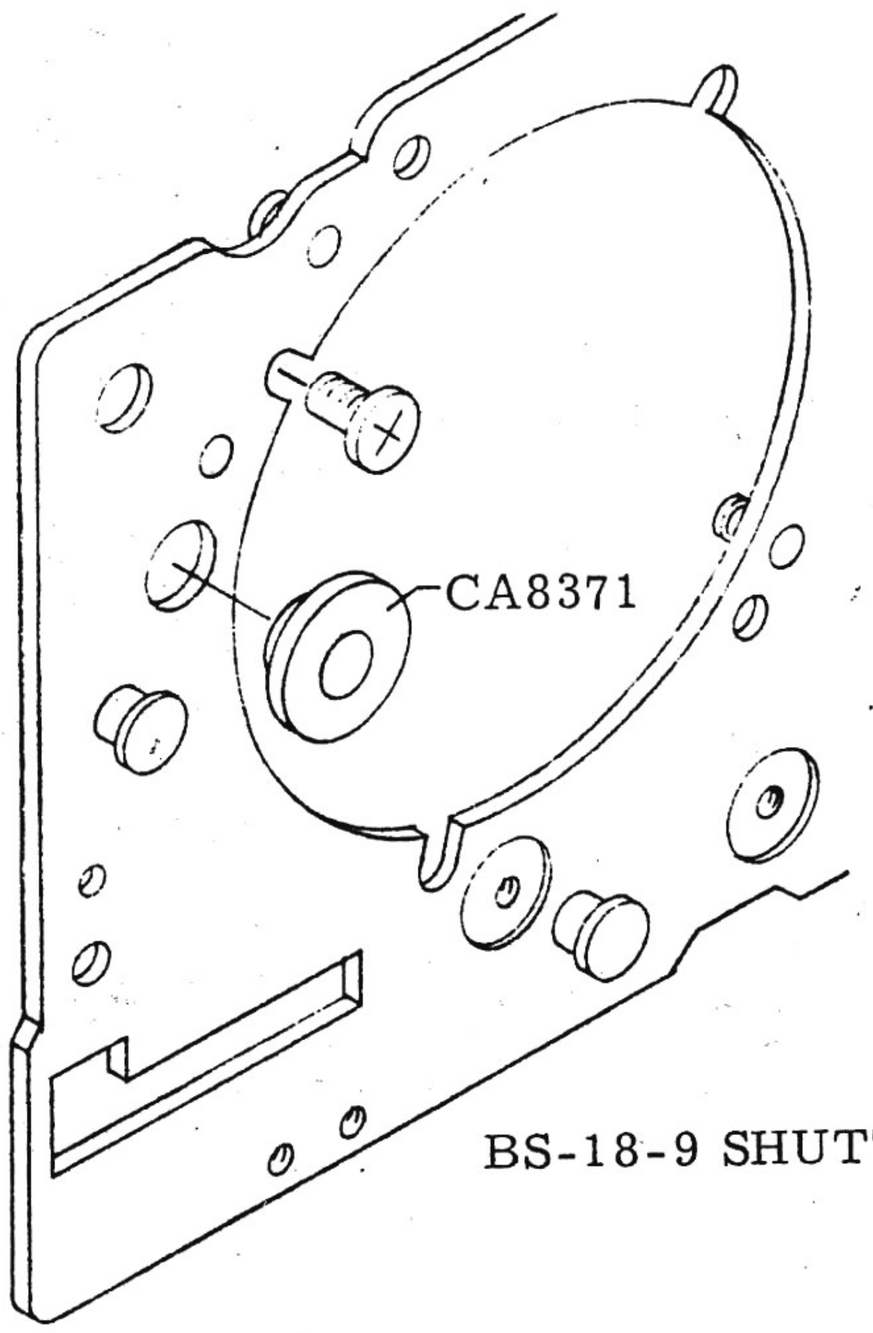


Fig. B



(7)

Fig. A



BS-18-9 SHUTTER

Fig. B

The same shutter as Fig. A without CA8371.

Fig. A

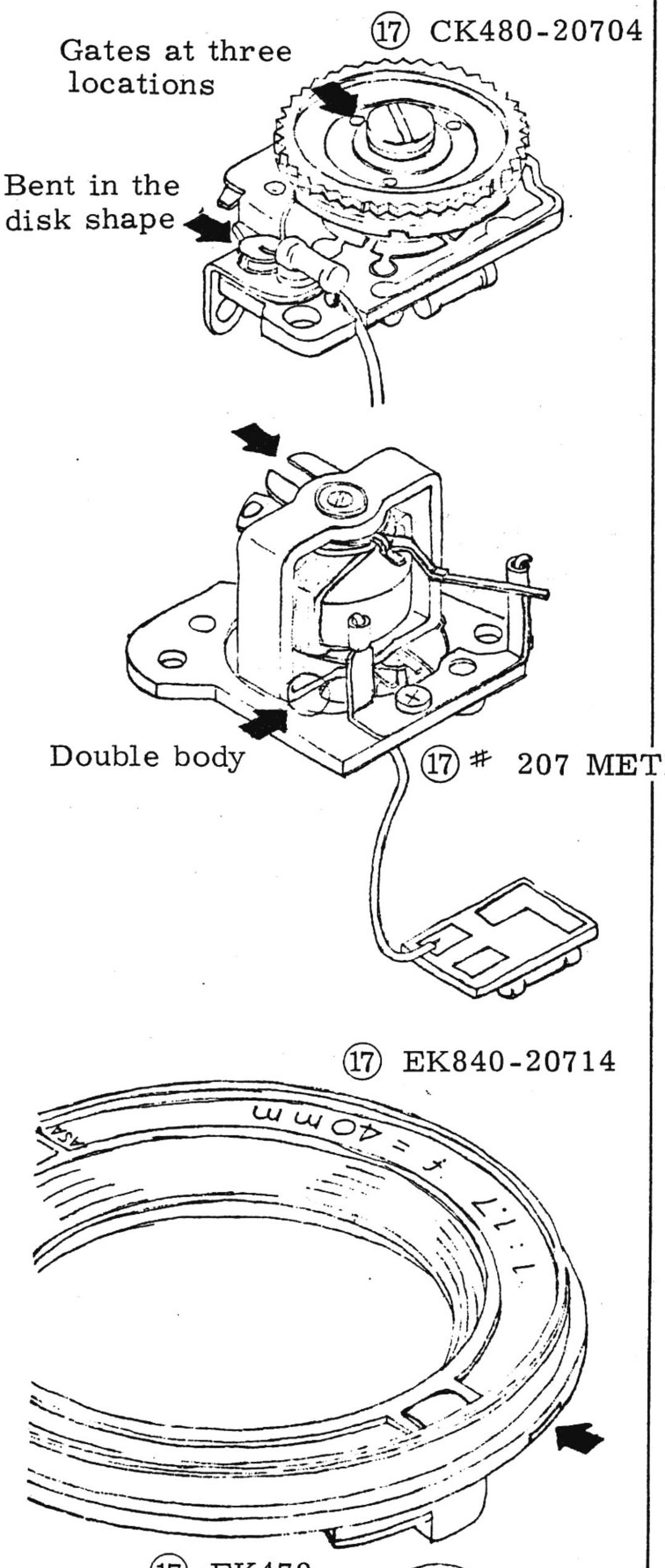

⑰ CK480-20704
Gates at three locations
Bent in the disk shape
Double body
⑰ # 207 METER
⑰ EK840-20714
⑰ EK470
-20722
-20723
-20724
-20725
⑰ EK210
-20717

Fig. B

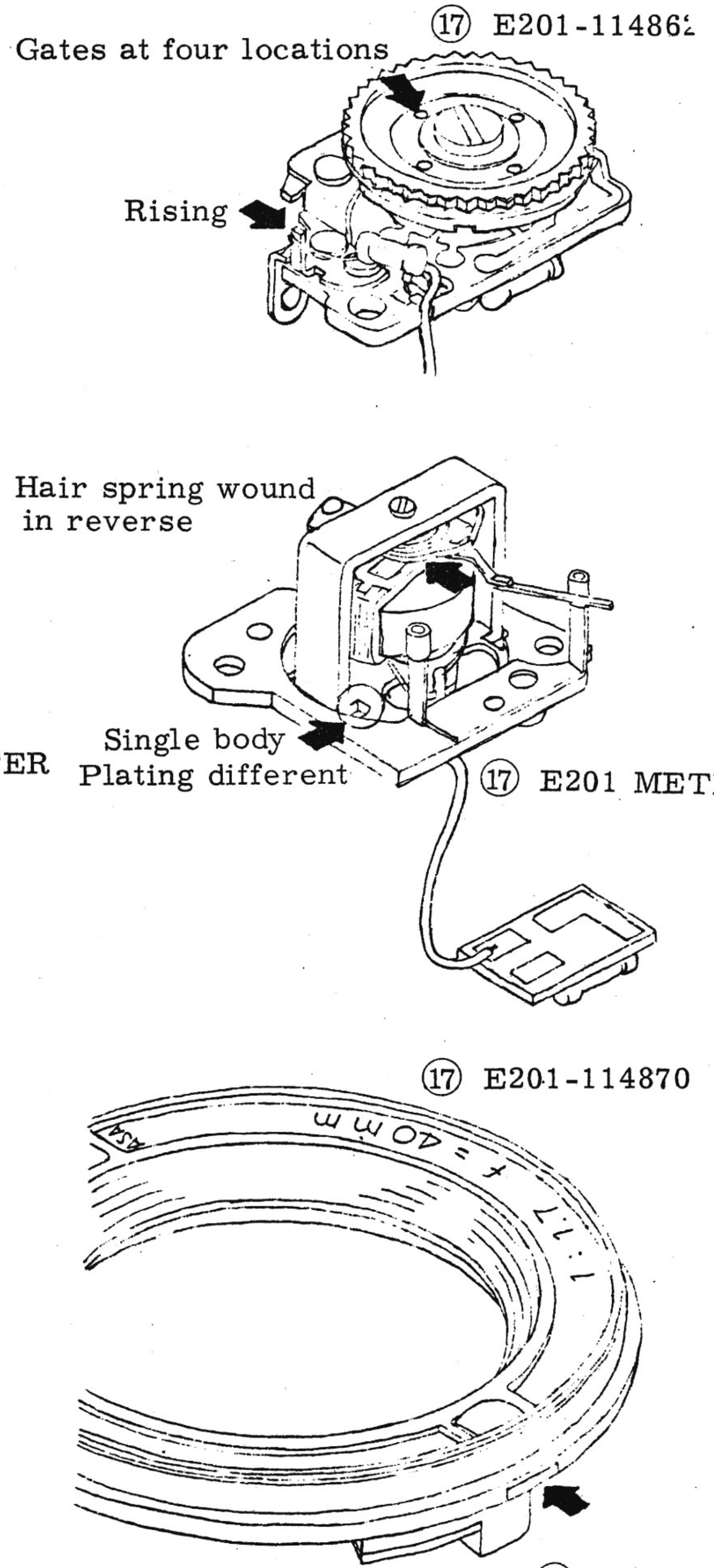
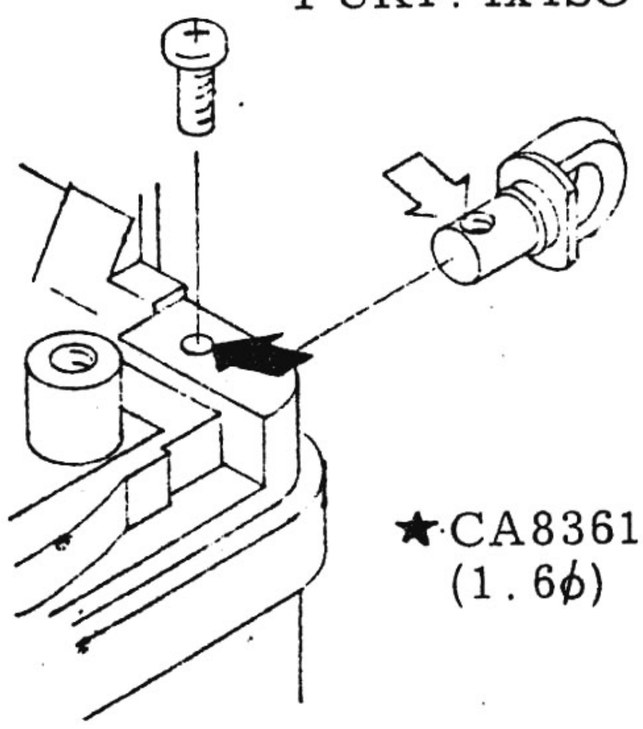

⑰ E201-114862
Gates at four locations
Rising
Hair spring wound in reverse
Single body
Plating different
⑰ E201 METER
⑰ E201-114870
Rotation stopper fitting part position changed
⑰ EK470
-20722
-20723
-20724
-20725
⑰ EK210
-20717

Fig. A

(7)

PUK1.4x4SO



* When the PUK1.4x4SO is broken enlarge the CA8361 1.6ϕ to 1.9ϕ and replace it by the part of (1) and do the repairing.

Fig. B

PUK1.7x3.5SO

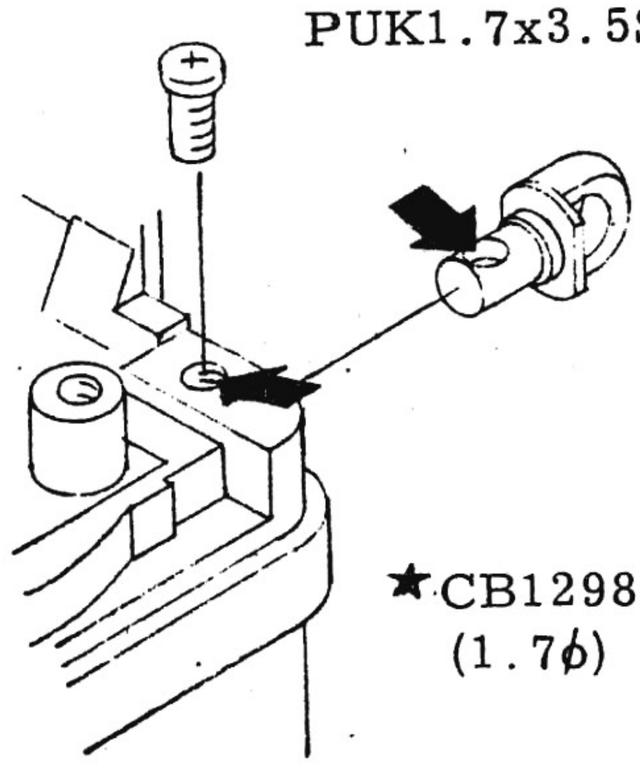


Fig. A

(8)

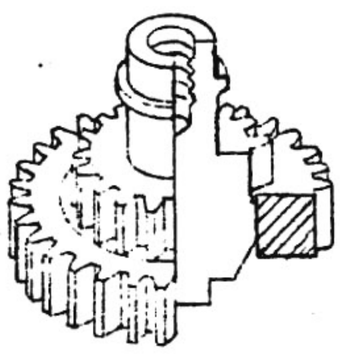


Fig. B

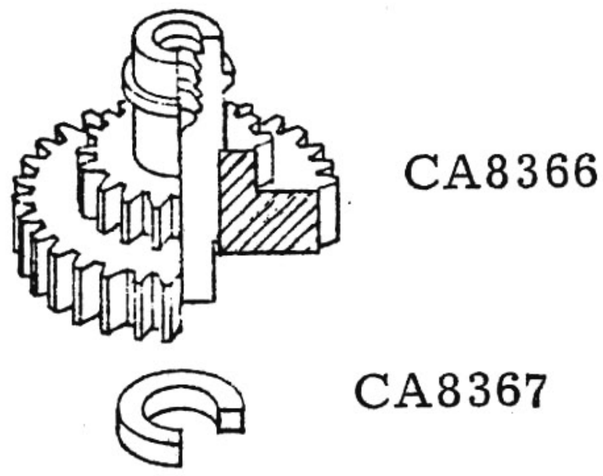


Fig. A

(9)

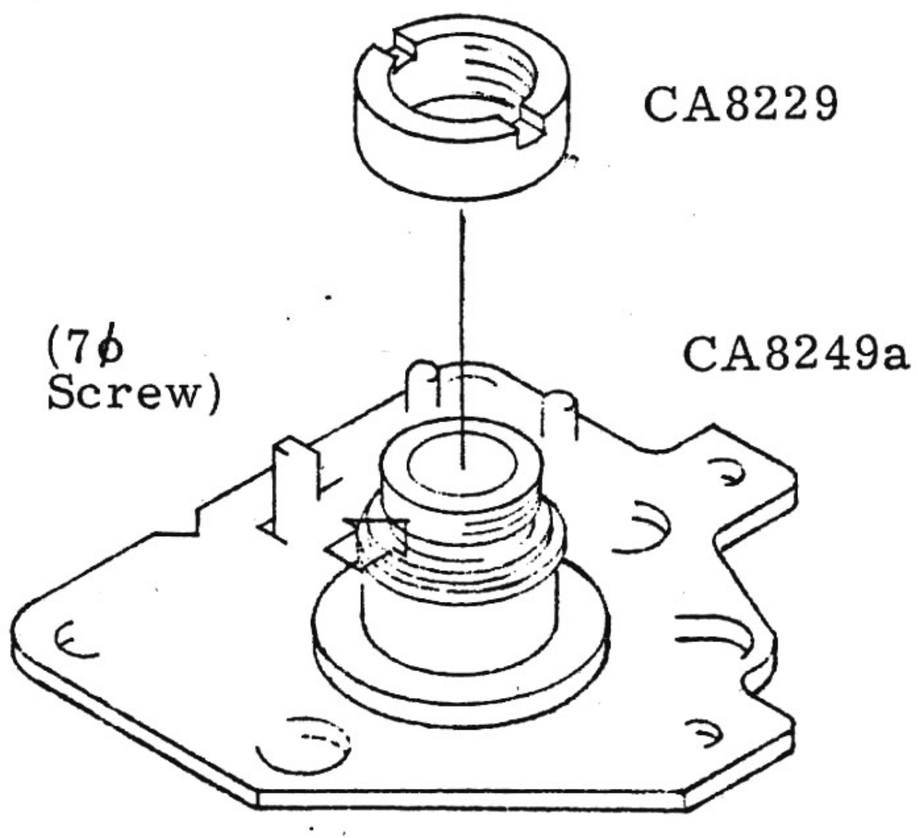


Fig. B

