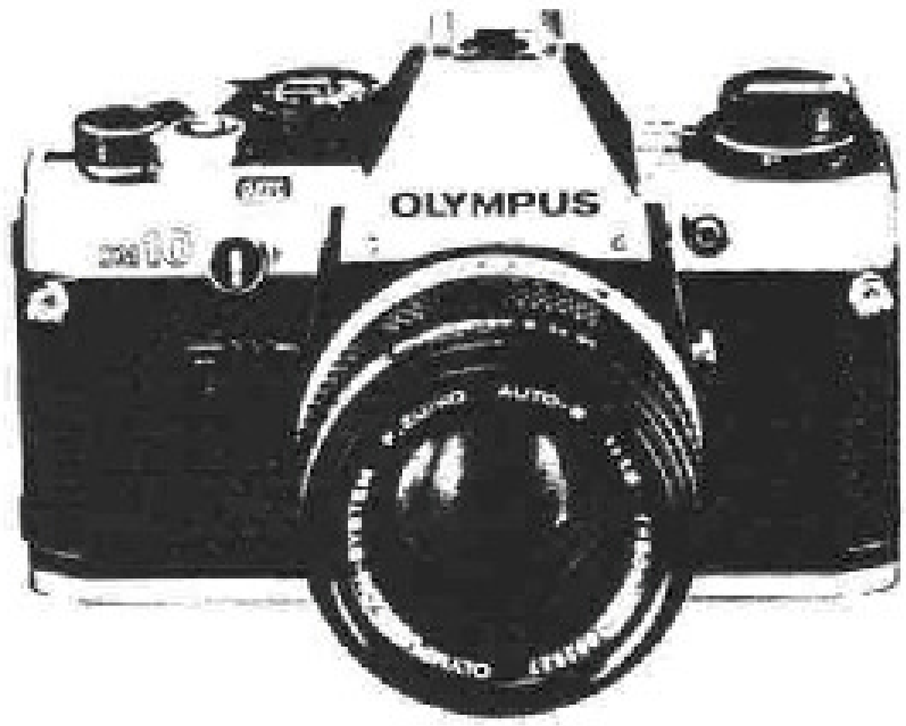
OLYMPUS

OM-10

REPAIR MANUAL



OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN

PARTS LIST

AND

EXPLODED PARTS DIAGRAM

EXPLANATION OF MARKS

① Indicates parts that are supplied both as a single piece and as an assembled unit. In the latter case, the single part is incorporated in the assembled unit indicated with the mark ①.
Exception: Parts in the mark ( ) are not supplied in single pieces.
(Parts that are supplied only in single pieces are not indicated with any mark. While parts that are supplied as an assembled unit are prefixed with "Z" or "U".)

] Several types of parts for the same position are available, from which most suitable one is to be selected.

✻ 3 Parts differ according to different models and types. This mark is used to indicate various combinations in a picture.

Left-handed screw. The mate screw hole is not marked particularly.

Indicates parts that should not be touched directly by bare hand because special surface treatment is applied. Wear fingerstalls or use tweezers.

★ Not supplied as a repair part.

Used exclusively for black finish models.

Indicates original parts. New, modified ones are not indicated with this mark. Both original and modified parts are supplied.

No more available parts due to design change or out of stock.

A correction mark. Parts with this mark are not available.

〈 2 〉 Modified parts that are unable to show in the technical manual. The figure indicates reference page number.

2-A3 This notation is entered in the "Remarks" column of parts list and indicates parts position in the technical manual.

2-A3 → Parts position. The technical manual is divided into 16 equal sections. Each section can be identified by using A, B, C and D from left to right and 1, 2, 3 and 4 from top to bottom.

→ Indicates page number in which the technical manual appears. However, 1/1 (page 1 of 1) is not indicated particularly.

PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit
CA738100	STOPPER SCREW	4 - B4	(1)
CA796300	E RING	4 - C1	(2)
CA807600	TUBE	3 - A3	(2)
CA841800	STOPPER SCREW	8 - C2	(1)
CA841900	HOOKING LEVER	8 - B2	(1)
CA842100	HOOKING LEVER SPRING	8 - B2	(1)
CA842200	TUBE 2	8 - D2	(1)
CA842300	RETURNING	8 - C2	(1)
CA843100	TUBE 1		(1)
CA843400	HOOK SPRING	8 - C2	(1)
CA843700	MS SPRING	8 - C2	(1)
CA844600	M RING	8 - D2	(1)
CA844700	M SPRING	8 - D2	(1)
CA844800	CONNECTING LEVER SPRING	8 - D2	(1)
CA846300	E RING 0.8	5 - C1, 8 - B3	(2)
CA849900	B MASK	4 - D3	(1)
CA852300	PLATE L	4 - C1	(1)
CA852900	ROLLER B	4 - B1, 4 - C2	(2)
CA853100	TENSION NUT	4 - B4	(2)
CA853200	TENSION NUT STOPPER	4 - B4	(1)
CA858900	1st C, SPRING	5 - A2	(1)
CA859400	1st C, SPRING	5 - A2	(1)
CA859800	WASHER	3 - A1	(1)
CA871600	R COLLAR SPRING	7 - C1	(1)
CA872200	KEY SPRING	1 - D2	(1)
CA874600	LIGHT PROOF R	1 - A3	(1)
CA877000	SPOOL SPRING	2 - B2	(1)
CA881500	S TUBE SHAFT HOLDER	3 - D2	(1)
CA881600	GEAR NO.1	3 - D2	(1)
CA881700	GEAR NO.1 SCREW	3 - D2	(1)
CA881800	GEAR NO.1 SPRING	3 - D2	(1)
CA881900	K CLAW	3 - D2	(1)
CA882100	CHECKING LEVER	3 - D1	(1)
CA882400	LOCK LEVER	3 - D1 short	(1/2)
CA882600	LOCK SPRING	3 - D1, 3 - D2	(2)
CA882700	SHAFT NO.2	3 - C1	(1)
CA884000	S WINDING PLATE	3 - B2	(1)
CA884100	GEAR NO.4 BASE	3 - C2	(1)
CA884300	SHAFT NO.4	3 - B2	(1)
CA884800	KS SHAFT	3 - B2	(1)
CA884900	KS SPRING	3 - B2	(1)
CA885100	GEAR NO.3 SPRING	3 - B2	(1)
CA885200	SHAFT NO.4 SCREW	3 - C1	(1)
CA885400	S RING	3 - C2	(1)
CA885700	BASE PLATE SHAFT	3 - C2	(1)
CA885900	BULB PALTE SCREW	3 - C1	(1)
CA886100	RETURNING SPRING	3 - C1	(1)
CA886400	KL SHAFT	3 - B1	(1)
CA888800	MOUNT SPRING	6 - C4	(3)
CA889700	FP SYNCHRO CONTACT POINT	1-B2, 4-A3, 6-A1, 8-C3	(4)
CA890000	INSULATING PLATE	6 - B1	(1)
CA907000	C SCREW	3 - D3	(1)
CA908400	BUTTON SHAFT	3 - D4	(1)
CA910600	SHIM 1	t 0.01 6 - B2	(0 ~ 4/3)

PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit)
CA910700	SHIM 2	t 0.03 6 - B2	(0 ~ 4/3)
CA915400	LIGHT PROOF PADDING (UPPER)	6 - B2	(2)
CA915500	FORNT SCREW	6 - B2	(4)
CA915600	LIGHT PROOF PADDING	8 - B3	(2)
CA917000	SHIM 3	t 0.08 6 - B2	(0 ~ 4/3)
CA917400	L HOLDER	3 - D1	(1)
CA917500	M HOLDER	3 - D2	(1)
CA917600	L HOLDER WASHER	3 - D1	(1)
CA919200	ADJUSTING PLATE	3 - C2	(0~1)
CA937400	M LEVER SHAFT	3 - B1	(1)
CA937700	GUIDE	1 - B3	(1)
CA937900	3G SPRING HOLDER	3 - C2	(1)
CA938000	RUBBER BAND	8 - B2	(1)
CA938900	LOWER STOPPER	3 - C2	(1)
CA946400	BULB PLATE	Without punch 3 - C1	(1/2)
CA947200	SW WASHER	3 - A3	(0~1)
CA948800	RUBBER BAND 3	8 - C2	(2)
CA949100	LOCK LEVER 2	w/oval hole 3 - D1	(1/2)
CA949400	FELT C	4 - B4	(1)
CA961100	TAPE		(0~2)
CA965500	STOPPER PLATE	t 0.4 2 - C3	(0 ~ 1/2)
CA968800	BULB PLATE 2	With punch 3 - C1	(1/2)
CA989700	X CONTACT POINT	5 - C3	(1)
CE051400	TRIPOD SOCKET	1 - C4	(1)
CE057800	SR TUBE	8 - C1	(1)
CE057900	F CONTACT (UPPER)	6 - B1	(1)
CE058200	F SCREW	6 - B1	(2)
CE066500	INSULATOR	6 - B1	(1)
CE067300	B LIGHT PROOF	4 - D3	(2)
CE070600	COLLAR SPRING HOLDER	7 - C1	(1)
CE070700	R SPRING	7 - C1	(1)
CE071600	R COLLAR	1 - C2	(1)
CE073000	TUBE		(3)
CE081100	UPPER PLATE	5 - C1	(1)
CE082300	REAR SHAFT	5 - C2	(1)
CE086100	GEAR SCREW	5 - B1	(1)
CE086700	GEAR SHAFT	5 - B2	(1)
CE088300	MR SHAFT	5 - C3	(1)
CE088400	PLATE	3 - A1	(1)
CE089900	GEAR SHAFT	5 - B3	(1)
CE094000	TOOTH STOPPER 18	2 - C3	(3)
CE100100	T FASTENER	2 - C3	(1)
CE100200	T CONTACT A	2 - C3	(1)
CE100300	T CONTACT B	2 - D3	(1)
CE100400	T CONTACT C	2 - D3	(1)
CE112200	CELL PLATE	4 - A4	(1)
CE126600	LOWER BASE PLATE	2 - B3	(1)
CE126900	WINDING PIN	2 - B2	(1)
CE127000	WINDING GEAR 1	2 - C1	(1/2)
CE127200	RING	2 - C1	(4)
CE127400	SPRING	2 - C2	(1)

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PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit)
CE127500	SPRING	2 - C2	(1)
CE127600	SPRING	2 - C2	(1)
CE128200	IDLER 2	2 - B3	(1/3)
CE128300	FILM COUNTER GEAR	2 - B3	(1)
CE128600	FILM COUNTER SPRING 1	2 - C1	(1)
CE128700	FILM COUNTER LC	2 - A1	(1)
CE128800	FILM COUNTER SPRING 2	2 - A1	(1)
CE128900	FILM COUNTER STOPPER	2 - A1	(1)
CE129300	SPROCKET	3 - A2	(1)
CE129400	TAPE	t 0.5 2 - C3	(0 ~ 1/2)
CE129600	WASHER	2 - B1	(1)
CE129700	WINDING GEAR 12	2 - C1	(1/2)
CE129900	IDLER 22	2 - B3	(1/3)
CE130000	IDLER 23	2 - B3	(1/3)
CE200100	DIECAST BODY	Not on sale 1 - D3	(1)
CE200700	B RUBBER	1 - B2	(1)
CE200900	FW LEVER HOLDER	1 - A1	(1)
CE201000	FILM COUNTER COVER	1 - B2	(1)
CE201400	R KNOB	1 - D1	(1)
CE201600	R PLATE	1 - D1	(1/2)
CE201700	R SPRING	1 - C1	(1)
CE201800	R SCREW	1 - C1	(1)
CE202200	HOT SHOE	1 - B1	(1)
CE202400	M WASHER	1 - D2	(1)
CE202500	A BOARD WASHER	7 - B3	(1)
CE202800	H, SCREW	1 - B1, 7 - A2	(2)
CE203100	SW FASTENER	1 - B1	(1)
CE203200	A NAME PALTE	1 - B1	(1)
CE203300	KNOB FASTENER	1 - B1	(1)
CE203400	A BOARD STOPPER	7 - B3	(1)
CE203600	SW KNOB	1 - B1	(1)
CE203700	M PIN	6 - D1	(1)
CE203800	R.P. MARK	1 - C2	(1)
CE204100	DISK	1 - A1	(1)
CE204200	FW LEVER WASHER	1 - A2	(1)
CE204300	R PLATE 2	1 - D1	(1/2)
CE204400	SPRING	1 - B1	(1)
CE204700	SW CLICK	1 - B2	(1)
CE205000	U INSULATOR 1	1 - C2	(1)
CE205100	U INSULATOR 2	1 - C2	(1)
CE205400	U INSULATOR 3	1 - C2	(1)
CE210300	REAR LEATHER	1 - B2	(1)
CE210800	SHAFT	1 - A4	(1)
CE211000	KEY TAPE	1 - B3	(1)
CE211100	SIDE TAPE	1 - A4	(1)
CE211200	RUBBER TAPE	1 - B4	(1)
CE211300	UPPER TAPE L	1 - A3	(1)
CE211400	LOWER TAPE	1 - A4	(1)
CE211500	FRONT LEATHER L	6 - D2	(1)
CE211600	FRONT LEATHER R	6 - A2	(1)
CE211700	SPOOL B	2 - B3	(1)
CE211800	R SHAFT HOLDER	7 - C1	(1)
CE211900	R SHAFT	1 - B3	(1)

PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit)
CE212100	KEY COVER	1 - D3	(1)
CE212700	SPRING	4 - A4	(1)
CE212800	COVER	1 - B4	(1)
CE213100	BLACK TAPE	2 - B3	(2)
CE213300	STRAP EYELET	1 - D3	(1)
CE213400	SP 18	1 - C3	(1)
CE213500	LIGHT PROOF TAPE	2 - C3	(1)
CE214000	P LIGHT PROOF	1 - B3	(2)
CE214100	CELL BASE	4 - A4	(1)
CE220100	CC LEAD	3 - C4	(1)
CE220200	SPRING	3 - C3	(1)
CE220300	SPRING	3 - C4	(1)
CE220500	CC CAM HOLDER	3 - C2	(1)
CE221600	M RELEASE	5 - C3	(1)
CE222700	ME GUIDE	3 - C1	(1)
CE223100	TUBE	3 - A2	(1)
CE230300	T INSULATOR	2 - D2	(1)
CE230400	T TAPE	2 - C2	(1)
CE231400	L FRAME	7 - A1	(1)
CE232100	FPC HOLDER	2 - D2	(1)
CE232200	CONNECTOR 182	2 - C2	(2)
CE232400	JM FASTENER	2 - C3	(1)
CE236400	FILM COUNTER	2 - A1	(1)
CE236500	SPRING 2	2 - B2	(2)
CE240100	S UPPER PLATE	5 - C1	(1)
CE240200	GEAR BM	5 - B2	(1)
CE240300	GEAR AM	5 - B2	(1)
CE240800	SPRING	5 - C2	(1)
CE240900	SPRING	5 - C1	(1)
CE241300	MG BASE	5 - D3	(1)
CE241400	M HOOK	5 - A2	(1)
CE241600	M HOOK SPRING	5 - A2	(1)
CE241700	CLAW	5 - A2	(1/2)
CE241800	SHAFT	5 - A2	(1)
CE241900	KS WASHER	3 - C2	(1)
CE242000	CURTAIN SHAFT	4 - B2	(1)
CE242200	GUIDE	4 - B2	(2)
CE242300	CURTAIN SHAFT BM	4 - B2	(1)
CE244200	REAR RING	5 - C2	(1)
CE244400	PLATE	5 - C2	(1)
CE244600	U. STOPPER	4 - B1	(1)
CE244900	SPRING	5 - C2	(1)
CE245100	FELT D	4 - C4	(1)
CE245300	WASHER	5 - D3	(1)
CE245500	FELT A	4 - C4	(1)
CE245600	FELT B	4 - D3	(1)
CE246100	A LEVER SPRING	5 - C2	(1)
CE246200	B LEVER SPRING	5 - A2	(1)
CE246300	CLAW 2	5 - A2	(1/2)
CE246400	T TUBE	5 - C2	(1)
CE250200	1M TAPE	8 - A2	(2)
CE250300	F COVER 1	6 - C1	(1)
CE250400	F COVER 2	6 - A2	(1)
CE250500	S FRAME	7 - B2	(1)
CE250700	INDICATOR BASE	7 - A1	(1)

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PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit
CE250800	L INSULATOR	7 - A1	(1)
CE250900	U. MOLT	6 - D2	(1)
CE251100	MS TUBE	8 - C2	(1)
CE251400	MF INSULATOR	6 - B1	(1)
CE251500	LIGHTPROOF	8 - A2	(1)
CE251600	F INSULATOR	6 - B1	(1)
CE251700	F CONTACT	6 - B1	(1)
CE251800	M LEVER SHAFT	8 - C1	(1)
CE251900	SW TUBE	6 - B1	(2)
CE252600	L. COVER	6 - D2	(1)
CE252700	PC INSULATOR	6 - A1	(1)
CE253000	RIGHT SIDE COVER	8 - B3	(1)
CE253100	C COVER 2	7 - C2	(1)
CE253200	L COVER	6 - A2	(1)
CE253300	P FASTENER	7 - C2	(1)
CE253400	P FRAME	7 - C2	(1)
CE253500	F FASTENER	6 - D2	(1)
CE253600	F FASTENER 2	6 - C1	(1)
CE253700	F WASHER	t 0.2 7 - C3	(1/3)
CE253900	PC COVER	6 - A2	(1)
CE254500	FRONT COVER	6 - C3	(1)
CE254600	B MOUNT	6 - D3	(1)
CE254700	P COVER	7 - C2	(1)
CE254800	F WASHER 10	t 0.1 7 - C3	(1/3)
CE254900	F WASHER 35	t 0.35 7 - C3	(1/3)
CE255000	L MASK	7 - A2	(1)
CE255100	F COVER WASHER	6 - C2	(4)
CE260200	M STOPPER	8 - A3	(1)
CE260300	SPRING	8 - A3	(1)
CE260400	STOPPER SHAFT	8 - A3	(1)
CE261500	CUSHION	8 - A2	(1)
CE261600	45 RUBBER	8 - A2	(1)
CE261800	45 PLATE	8 - A3	(1)
CE261900	45 SCREW	8 - A3	(1)
CE262200	ML SPRING	8 - A3	(1)
CE262300	K STOPPER PLATE	8 - B3	(1)
LC408600	PENTAPRISM	7 - C2	(1)
LC409000	MIRROR (IM)	8 - B2	(1)
LC409100	M SPLIT	7 - C3	(1)
SC0155	B THREAD	Length 10m 6 - A3	(1)
SC0156	CLIP 15	8 - B3	(1)
SC0157	CLIP 20	2 - B3	(1)
SC0158	MR 90	1 - D1	(1)
ES1008	DIODE	D101 1SS53	(1)
ES5010	CdS CELL	P201	(1)
ES7001	PCV	SP101 7PB-206A	(1)

PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit)
DS8003	V. RESISTOR	RV103	(1)
DS8004	V. RESISTOR	RV203, 204, 205	(3)
KS0033	CONDENSER	C101	(1/4)
KS0034	CONDENSER	C101	(1/4)
KS0035	CONDENSER	C101 0.1μF 35V TANTALUM	(1/4)
KS0036	CONDENSER	C102, C204 3.3μF 6.3V TANTALUM	(2)
KS0037	CONDENSER	C103 6800pF 50V CERRAMIC	(1)
KS0038	CONDENSER	C104 1.5μF 6.3V TANTALUM	(1)
KS0039	CONDENSER	C105, C201 0.022μF TANTALUM	(2)
KS0040	CONDENSER	C202 10μF TANTALUM	(1)
KS0041	CONDENSER	C203 1000pF CERRAMIC TIP	(1)
KS0056	CONDENSER	C101	(1/4)
RS0120	RESISTOR	R201 C.1MΩ 1/8W	(1)
RS0121	RESISTOR	R202, R203 C.10MΩ 1/16W	(2)
RS0122	RESISTOR	R204 C.330KΩ 1/8W	(1)
RS0123	RESISTOR	R205 C.180KΩ 1/8W	(1)
RS0124	RESISTOR	R105 C.160Ω 1/8W	(1)
RBJ-A	LEAD WIRE (BLUE)	Length: 10m	
RBJ-B	LEAD WIRE (BLACK)	Length: 10m	
RBJ-C	LEAD WIRE (BROWN)	Length: 10m	
RBJ-D	LEAD WIRE (ORANGE)	Length: 10m	
RBJ-G	LEAD WIRE (GREEN)	Length: 10m	
RBJ-M	LEAD WIRE (VIOLET)	Length: 10m	
RBJ-R	LEAD WIRE (RED)	Length: 10m	
RBJ-W	LEAD WIRE (WHITE)	Length: 10m	
RBJ-Y	LEAD WIRE (YELLOW)	Length: 10m	
THJ-Y	TUBE (YELLOW)	Inside diameter: 0.7φ length: 5m	
TKJ-Y	TUBE (YELLOW)	Inside diameter: 1.0φ length: 5m	
TE-N	TUBE	Inside diameter: 3.0φ length: 5m	
ZC102700	4 GEAR ASS'Y	3 - B2	(1)
ZC102900	KS LEVER ASS'Y	3 - B2	(1)
ZC103000	3 GEAR ASS'Y	3 - C2	(1)
ZC104100	KM LEVER ASS'Y	3 - A1	(1)
ZC106700	M CHARGE LEVER ASS'Y	8 - C2	(1)
ZC107800	EYE PIECE ASS'Y	7 - C2	(1)
ZC133200	B PINCH ASS'Y	5 - A2	(1)
ZC135500	SIDE PLATE L ASS'Y	8 - C3	(1)
ZC137300	KL PLATE 3 ASS'Y	Pin 1.4φ 3 - A1	(1/2)
ZC137400	KL PLATE 3 ASS'Y	Pin 1.8φ 3 - A1	(1/2)
ZC138400	M LEVER ASS'Y	8 - C1	(1)
ZC161000	FX BASE ASS'Y	5 - C3	(1)
ZC162600	DIAPHRAGM LEVER ASS'Y	8 - B2	(1)
ZC164100	PRESSURE PLATE ASS'Y	1 - A2	(1/5)
ZC168900	LEVER ASS'Y	5 - C1	(1)
ZC182700	PRESSURE PLATE 4 ASS'Y	1 - A3	(1/5)
ZC182800	PRESSURE PLATE 5 ASS'Y	1 - A3	(1/5)
ZC182900	PRESSURE PLATE 6 ASS'Y	1 - A3	(1/5)
ZC183000	PRESSURE PLATE 7 ASS'Y	1 - A3	(1/5)
ZC200200	TOP COVER ASS'Y	1 - A2	(1)

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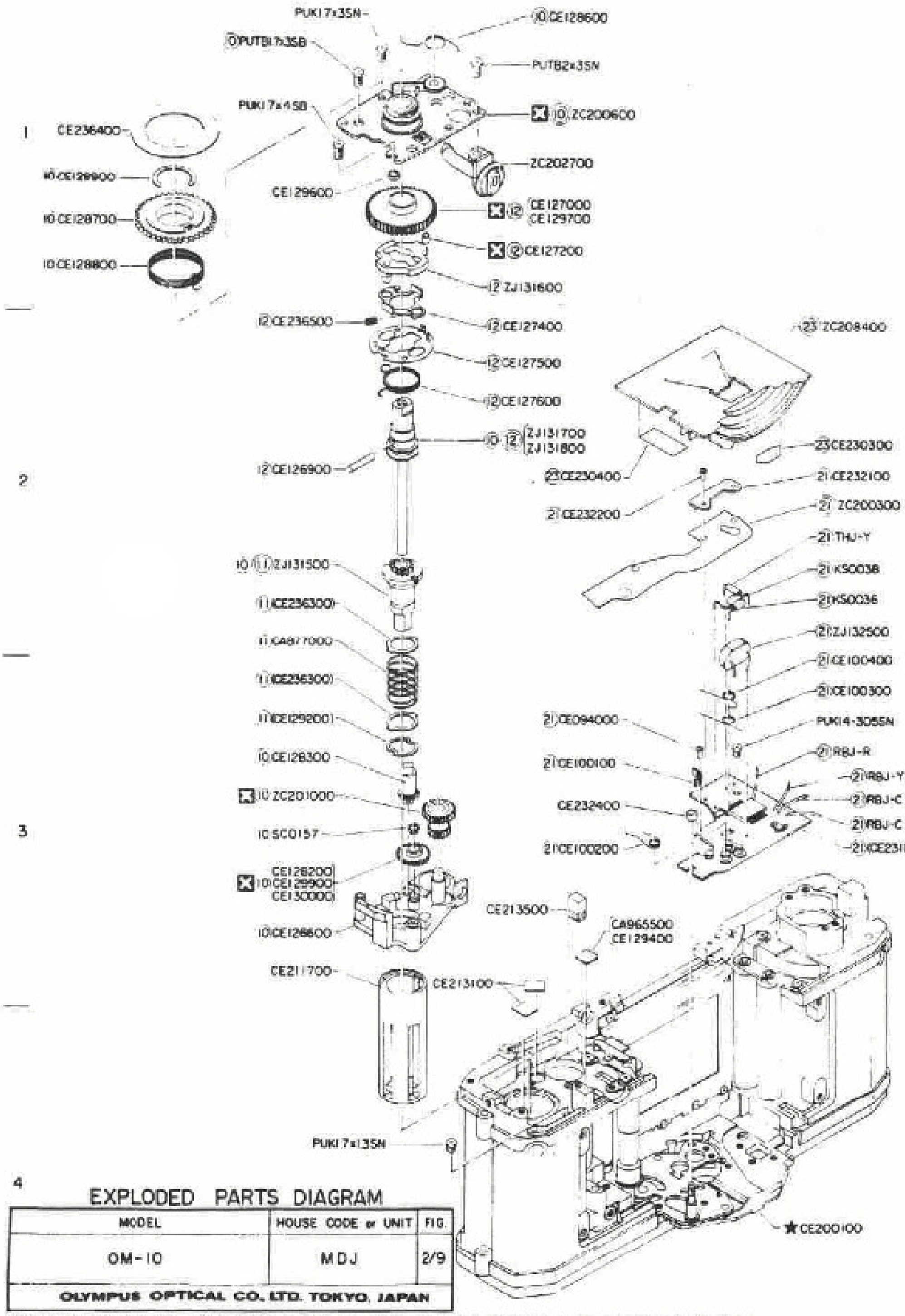
PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit)
ZC200300	FPC-1 ASS'Y	2 - D2, 7 - A1	(1)
ZC200500	REAR COVER ASS'Y	1 - A3	(1)
ZC200600	FW BASE ASS'Y	2 - C1	(1)
ZC200800	RELEASE PLATE ASS'Y	3 - D4	(1)
ZC201000	IDLER ASS'Y	2 - B3	(1)
ZC201200	KEY PLATE ASS'Y	1 - D3	(1)
ZC201400	U GUIDE ASS'Y	4 - B2	(1)
ZC201500	L GUIDE ASS'Y	4 - B2	(1)
ZC201600	SW 2 ASS'Y	5 - C3	(1)
ZC201700	2 GEAR SHAFT ASS'Y	3 - C1	(1)
ZC201800	A PINCH ASS'Y	5 - B2	(1)
ZC202100	FRAME ASS'Y	4 - D3	(1)
ZC202200	R CLAW A1 ASS'Y	No.1 L 7.8 5 - C1	(1/5)
ZC202300	R CLAW A2 ASS'Y	No.2 L 8.1 5 - C1	(1/5)
ZC202400	R CLAW A3 ASS'Y	No.3 L 8.4 5 - C1	(1/5)
ZC202500	R CLAW A4 ASS'Y	No.4 L 7.95 5 - C1	(1/5)
ZC202600	R CLAW A5 ASS'Y	No.5 L 8.25 5 - C1	(1/5)
ZC202700	K KNOB ASS'Y	2 - C1	(1)
ZC205100	SIDE PLATE R ASS'Y	8 - B3	(1)
ZC207200	WINDING LEVER ASS'Y	1 - A2	(1)
ZC207300	BUTTON ASS'Y	1 - B2	(1)
ZC207500	R LEVER ASS'Y	1 - D1	(1)
ZC207900	A HOLDER ASS'Y	7 - B2	(1)
ZC208000	SW BASE PLATE ASS'Y	3 - A3	(1)
ZC208100	F MASK ASS'Y	7 - C3	(1)
ZC208200	S FRAME ASS'Y	7 - B2	(1)
ZC208300	R KNOB ASS'Y	1 - D1	(1)
ZC208400	COVER PLATE ASS'Y	2 - D2	(1)
ZC208500	R CHANGE ASS'Y	1 - D1	(1)
ZJ128400	M BASE PLATE ASS'Y	8 - C1	(1)
ZJ130400	SIDE PLATE L ASS'Y	8 - C3	(1)
ZJ130600	CONNECTING RING ASS'Y	6 - B3	(1)
ZJ130700	SPRING HOLDER ASS'Y	6 - A2	(1)
ZJ130800	R SPRING ASS'Y	6 - B1	(1)
ZJ130900	M FRAME ASS'Y	8 - B2	(1)
ZJ131000	FRONT CASTING ASS'Y	6 - C2, 8 - B3	(1)
ZJ131100	MS BASE PLATE ASS'Y	6 - C1	(1)
ZJ131200	LED ASS'Y	6 - A1	(1)
ZJ131300	CC SHAFT ASS'Y	3 - C4	(1)
ZJ131400	CELL CASE ASS'Y	4 - A3	(1)
ZJ131500	SPOOL GEAR ASS'Y	2 - B2	(1)
ZJ131600	WINDING CLAW ASS'Y	2 - C1	(1)
ZJ131700	WINDING GEAR 1 ASS'Y	Diameter: < ZJ1318 2-C2	(1/2)
ZJ131800	WINDING GEAR 12 ASS'Y	Diameter: > ZJ1317 2-C2	(1/2)
ZJ131900	SP SHAFT ASS'Y	Diameter: < ZJ1320 3-B4	(1/2)
ZJ132000	SP SHAFT ASS'Y	Diameter: > ZJ1319 3-B4	(1/2)
ZJ132100	MG BASE ASS'Y	5 - D3	(1)
ZJ132200	TR PLATE ASS'Y	5 - C2	(1)
ZJ132300	S BASE PLATE ASS'Y	5 - B3	(1)
ZJ132400	CURTAIN J ASS'Y	4 - B1	(1)
ZJ132500	L BASE ASS'Y	2 - D2	(1)

PARTS NO.	NAME OF PARTS	NOTE	(Q'ty used/ per unit
ZJ132600	MINI JACK ASS'Y	1 - D2	(1)
ZJ132700	BOTTOM PLATE	Not on sale 1 - D4	(1)
ZJ132800	INSULATION WASHER ASS'Y	1 - B1	(1)
ZJ132900	FPC-3 ASS'Y	1 - B2	(1)
ZJ133000	BUTTON WASHER ASS'Y	1 - B1	(1)
ZJ133100	A KNOB ASS'Y	1 - B1	(1)
ZJ136100	F BOARD ASS'Y	Lead wire orange 6 - D3	(1/5)
ZJ136200	F BOARD ASS'Y	Lead wire blue 6 - D3	(1/5)
ZJ136300	F BOARD ASS'Y	Lead wire red 6 - D3	(1/5)
ZJ136400	F BOARD ASS'Y	Lead wire green 6 - D3	(1/5)
ZJ136500	F BOARD ASS'Y	Lead wire black 6 - D3	(1/5)
ZJ136600	A BOARD ASS'Y	Lead wire orange 7 - A2	(1/5)
ZJ136700	A BOARD ASS'Y	Lead wire blue 7 - A2	(1/5)
JZ136800	A BOARD ASS'Y	Lead wire red 7 - A2	(1/5)
ZJ136900	A BOARD ASS'Y	Lead wire green 7 - A2	(1/5)
ZJ137000	A BAORD ASS'Y	Lead wire black 7 - A2	(1/5)

PUK1.4 x 1SN	SCREW
PUK1.4 x 1.2SN	SCREW
PUK1.4 x 1.4SN	SCREW
PUK1.4 x 1.6SN	SCREW
PUK1.4 x 1.8SN	SCREW
PUK1.4 x 3SN	SCREW
PUK1.4 - 305SN	SCREW
PUK1.4 - 605SN	SCREW
PUK1.7 x 1.3SN	SCREW
PUK1.7 x 1.5SN	SCREW
PUK1.7 x 2.2SN	SCREW
PUK1.7 x 3SN	SCREW
PUK1.7 x 3.5SN	SCREW
PUK1.7 x 4SN	SCREW
PUK1.7 x 4SB	SCREW
PUK1.7 - 308SN	SCREW
PUK1.7 - 410SB	SCREW
PUK1.7 - 410SG	SCREW
PUK1.7 - 416SG	SCREW
PUK1.7 - 512SN	SCREW
PUK1.7 - 516SN	SCREW
PUK2 x 1.8SN	SCREW
PUK2 x 2SN	SCREW
PUK2 x 2.2SN	SCREW
PUK2 x 2.5SN	SCREW
PUK2 x 3SN	SCREW
PUK2 x 4.5BO	SCREW
3PUK1.4 x 1.8SN	SCREW
3PUK14. x 2.5SN	SCREW
3PUK1.4 x 4.5SN	SCREW
3PUK1.7 x 1.8SN	SCREW
3PUK1.7 x 2.8SN	SCREW
3PUK1.7 x 3.5SN	SCREW

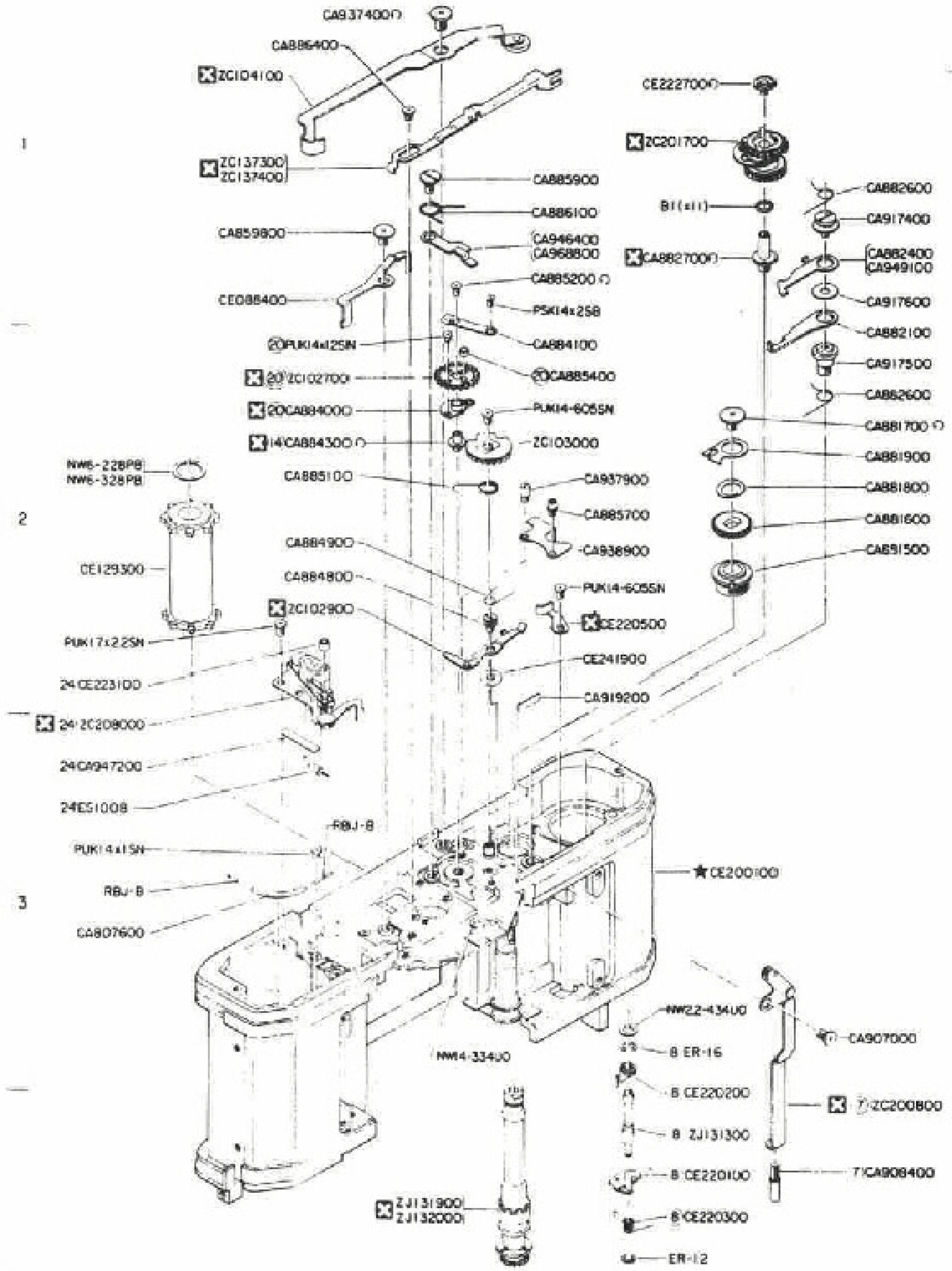
PSK1.4 x 2SN	SCREW
PSK1.4 x 2SB	SCREW
PSK2 x 2.2SN	SCREW
PSK2 x 2.8SN	SCREW
PSK2 x 3SN	SCREW
PSK2 x 4SE	SCREW
PUTB1.4 x 3SN	SCREW
PUTB1.7 x 3SN	SCREW
PUTB2 x 3SN	SCREW
NW1.4 - 334UO	WASHER
NW1.4 - 340UO	WASHER
NW15. - 425UO	WASHER
NW2.1 - 240UO	WASHER
NW2.2 - 434UO	WASHER
NW6 - 280PB	WASHER
NW6 - 380PB	WASHER
ER1.2	
ER1.6	
NN1.4BN	
B 1	BALL



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	2/9
OLYMPUS OPTICAL CO. LTD. TOKYO, JAPAN		

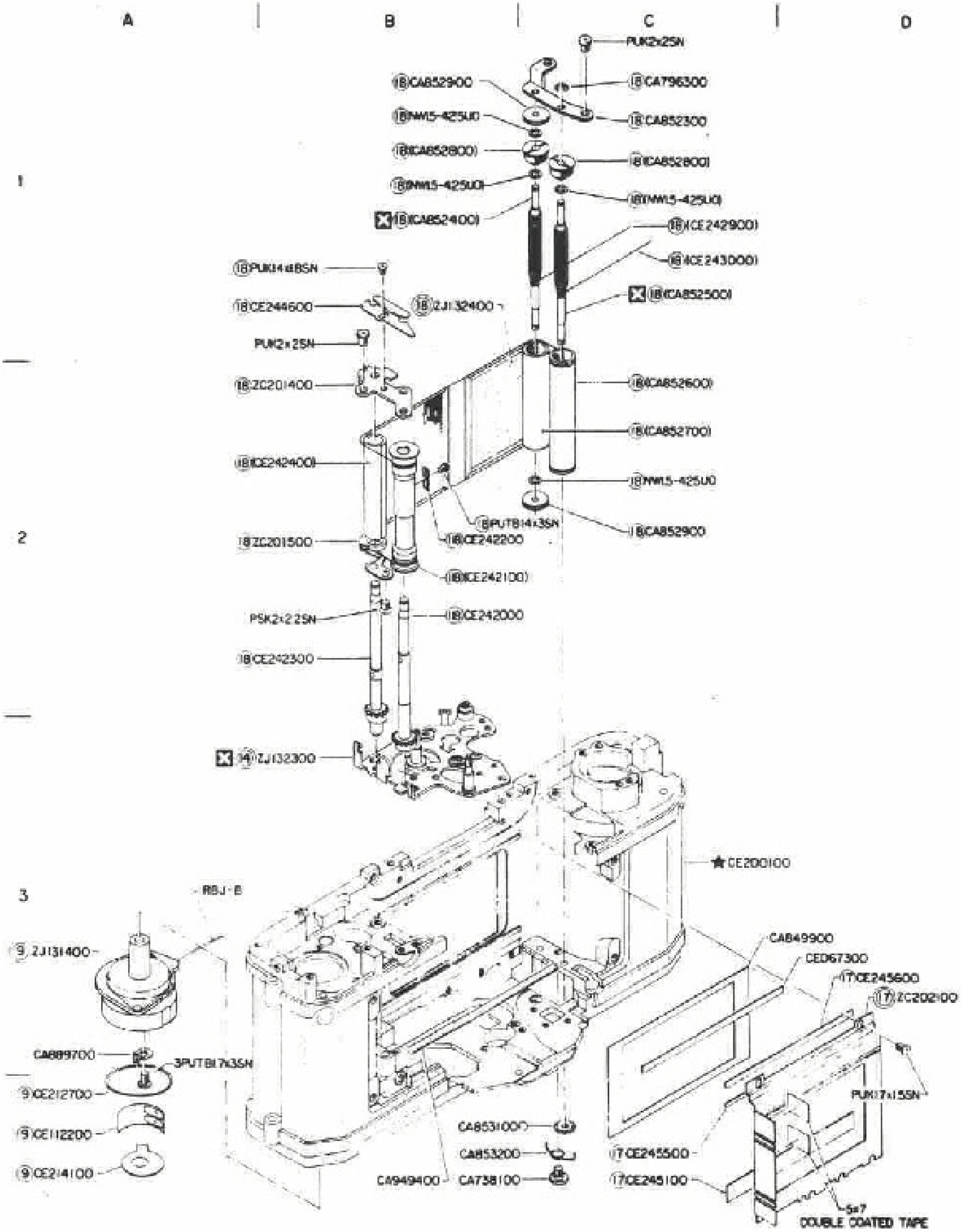
NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	3/9
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	4/9
OLYMPUS OPTICAL CO. LTD. TOKYO, JAPAN		

NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

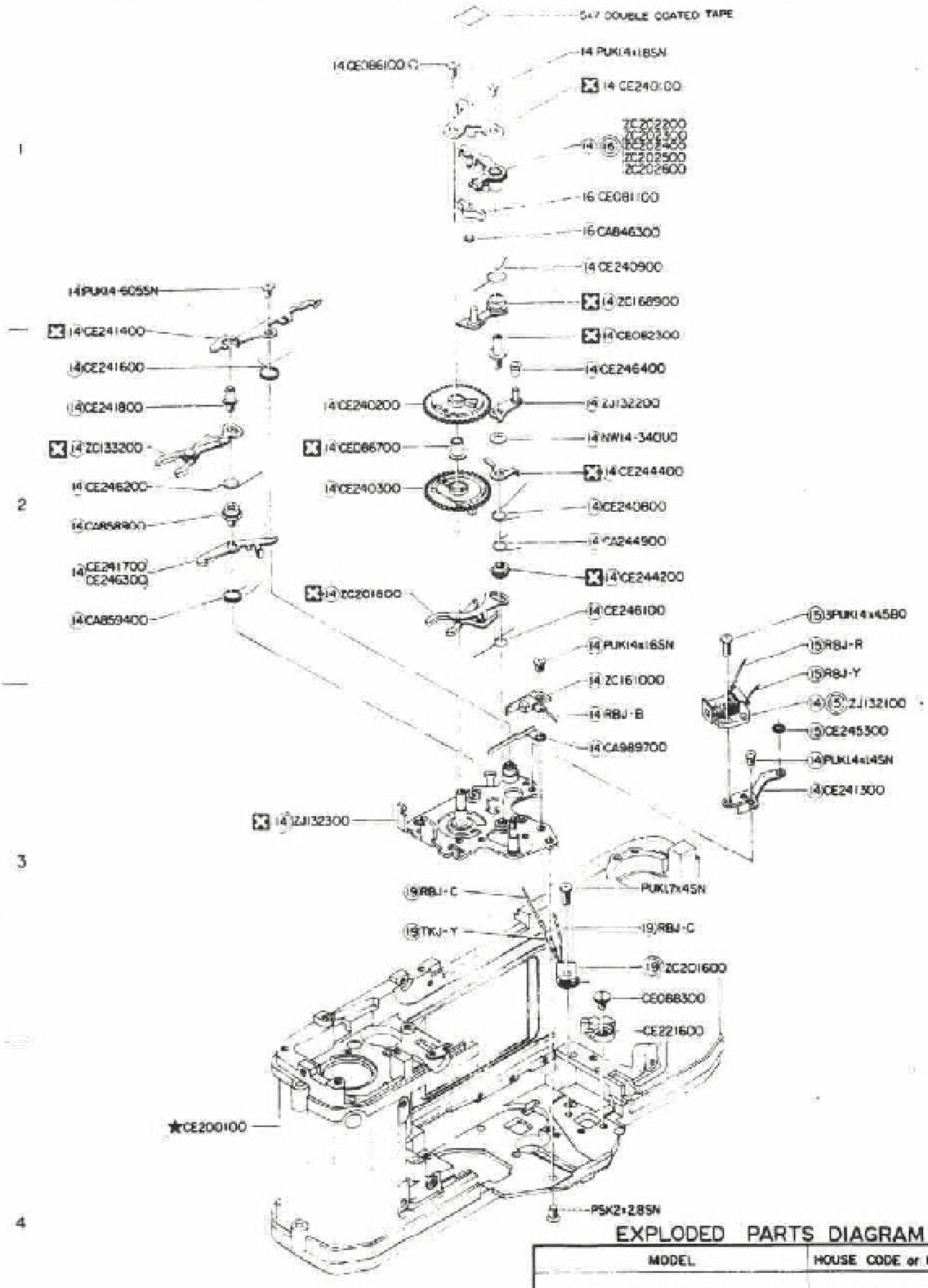
A B C D

1

2

3

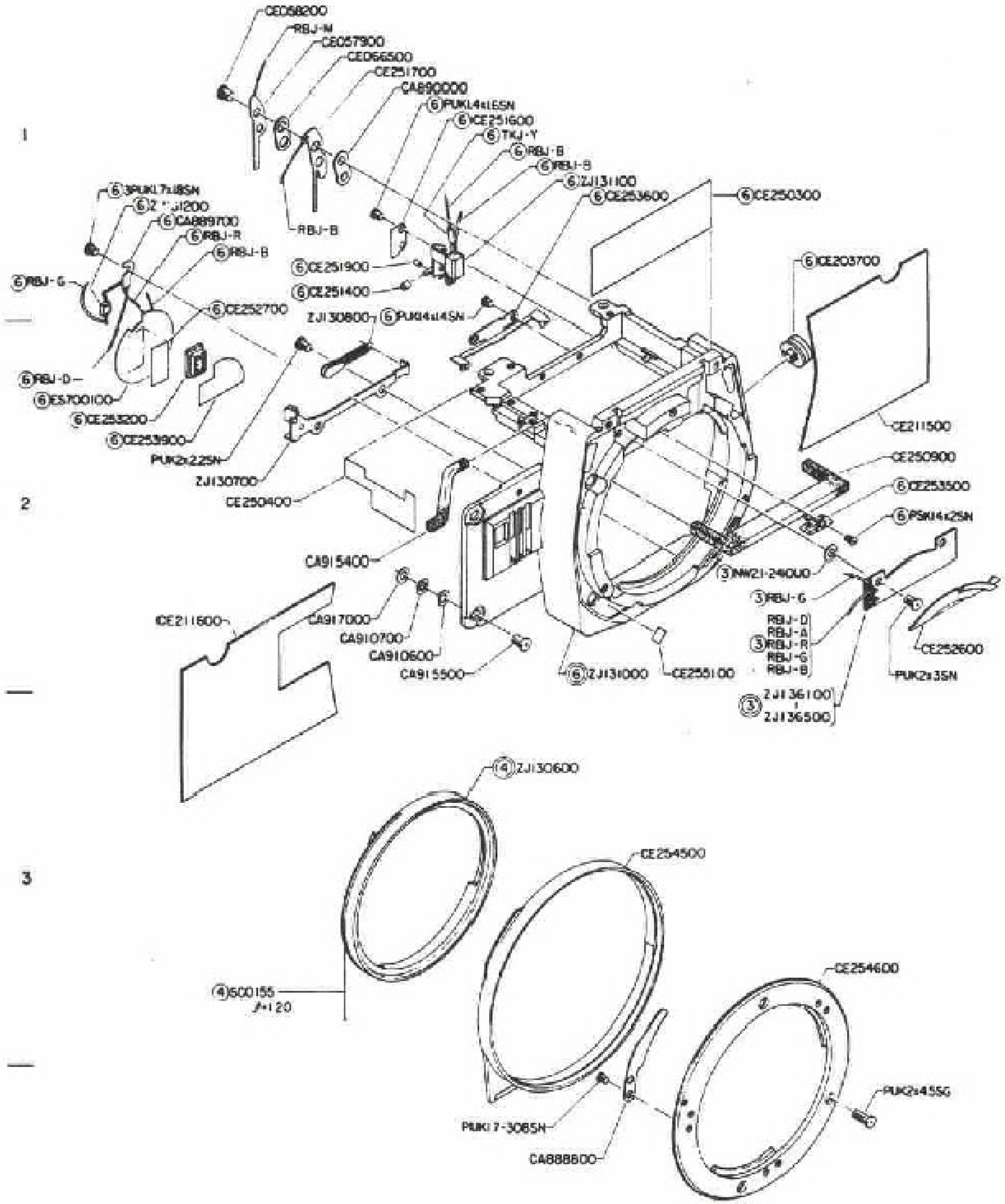
4



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	5/9
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.



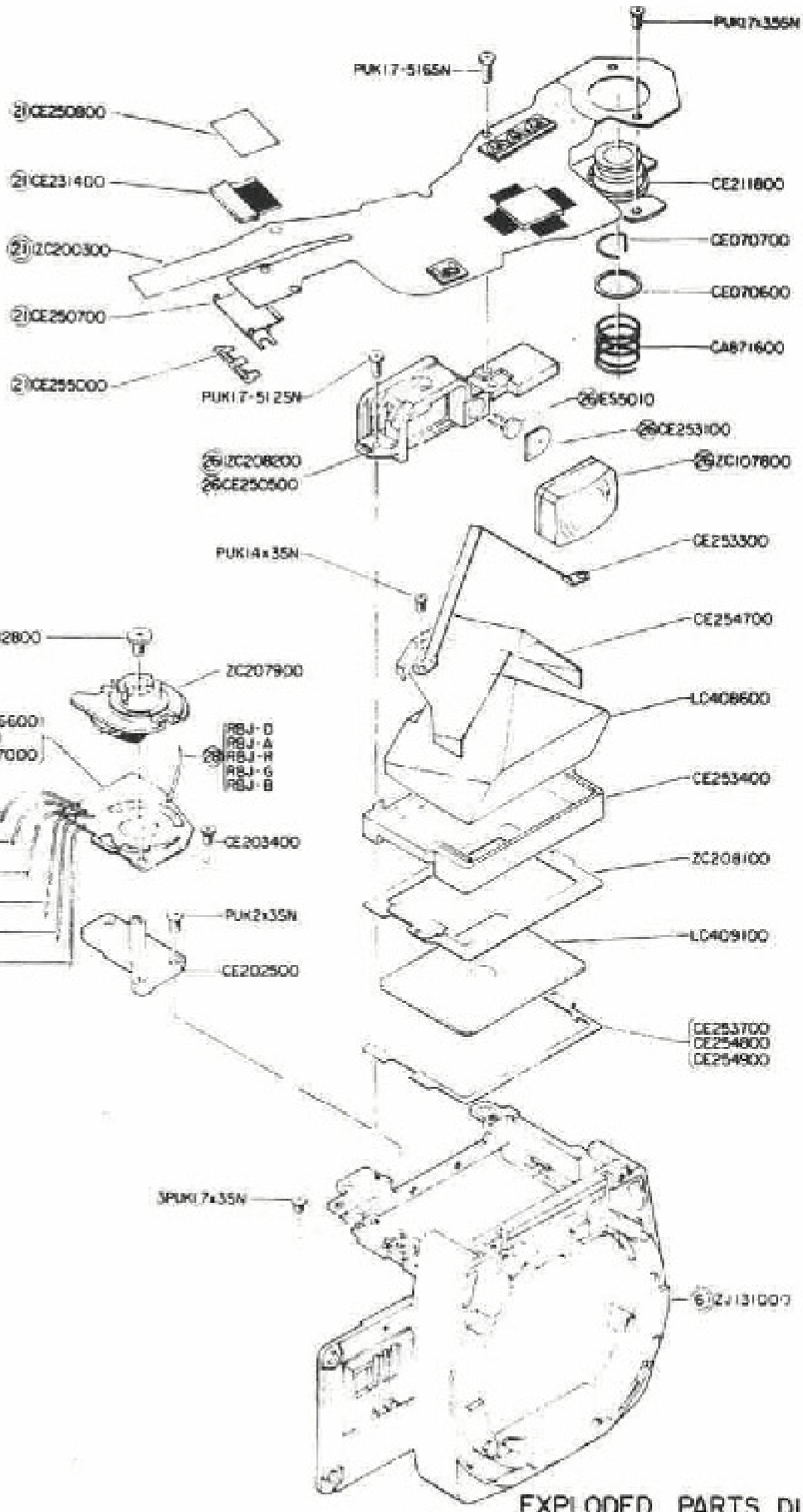
EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	6/9
OLYMPUS OPTICAL CO. LTD. TOKYO, JAPAN		

NOTE: WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

A | B | C | D

I



EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	7/9
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

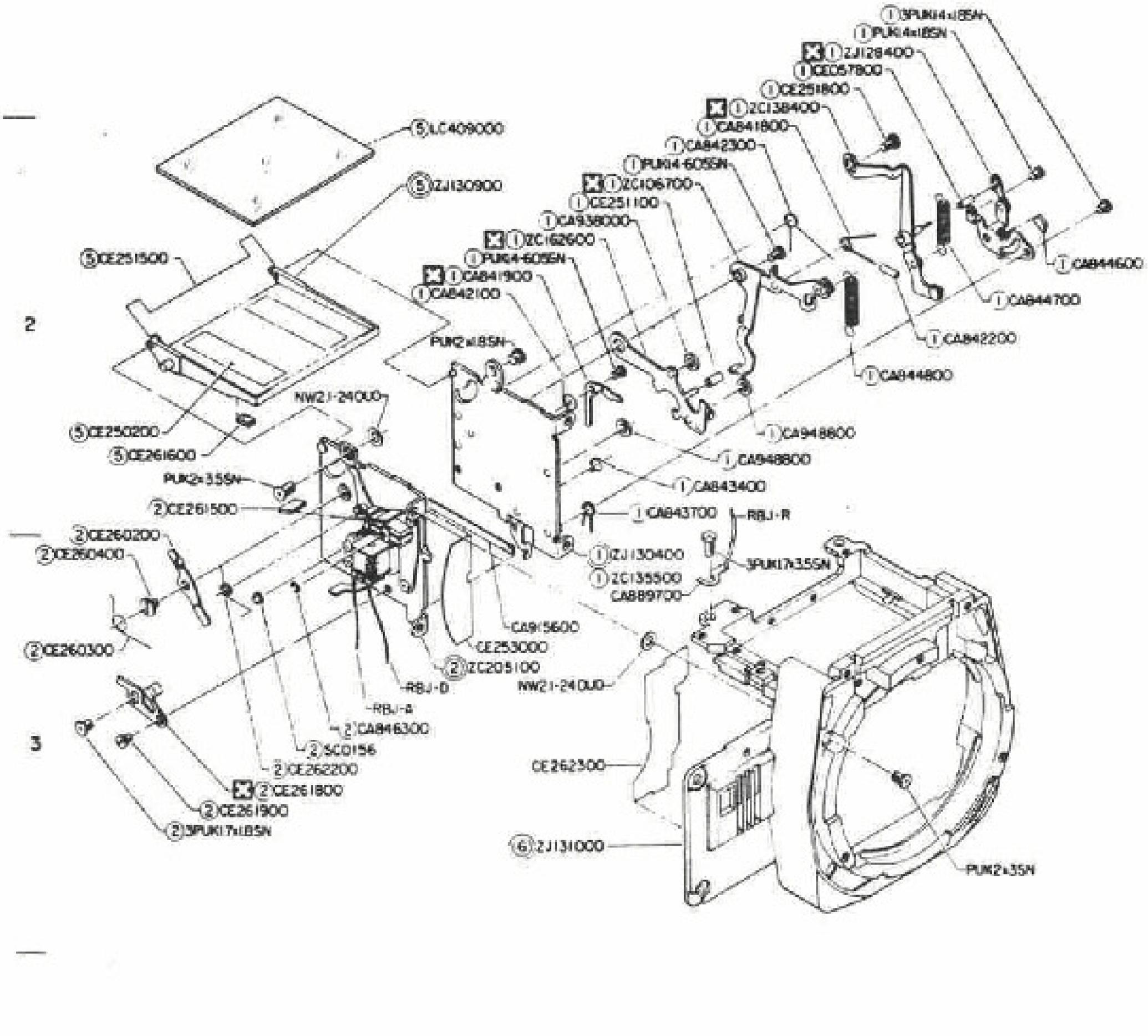
NOTE WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

A B C D

1

2

3



4

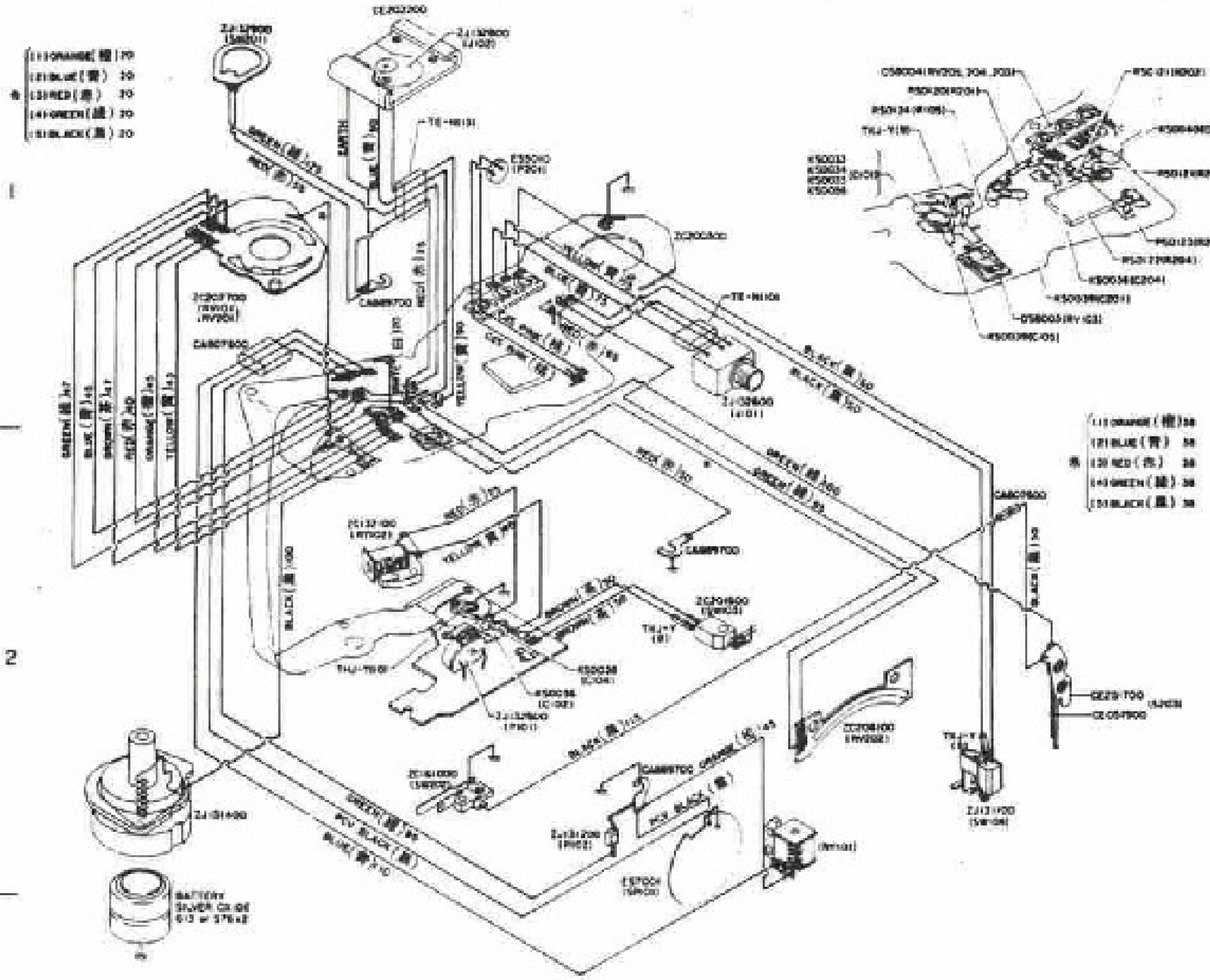
EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	B/9
OLYMPUS OPTICAL CO. LTD. TOKYO, JAPAN		

NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

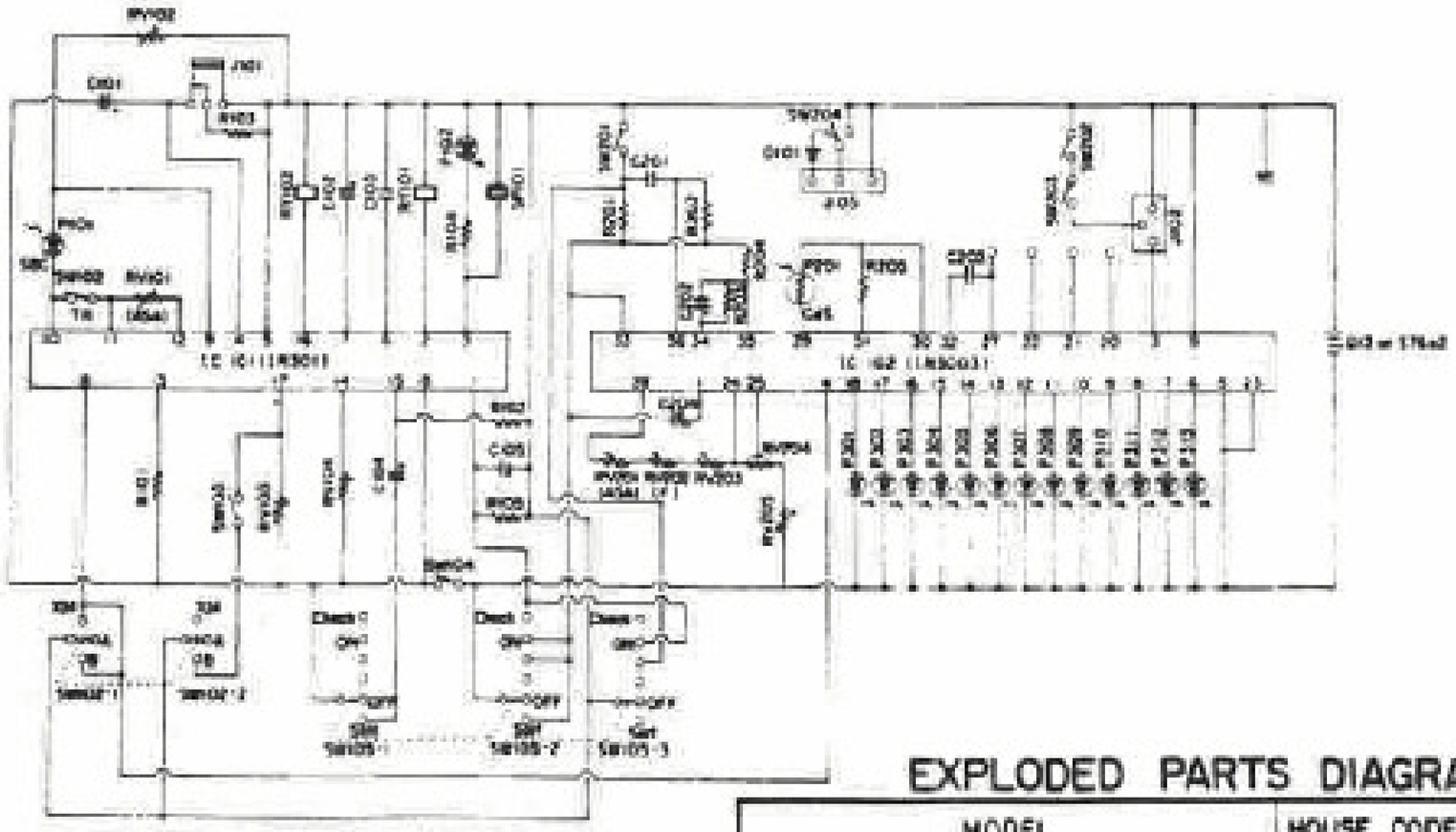
A B C D

1



2

3



4

EXPLODED PARTS DIAGRAM

MODEL	HOUSE CODE or UNIT	FIG.
OM-10	MDJ	9/9
OLYMPUS OPTICAL CO., LTD. TOKYO, JAPAN		

NOTE : WHEN ORDERING FOR SPARE PARTS, PLEASE CLARIFY A MODEL or HOUSE CODE, PARTS NUMBER AND QUANTITY.

GENERAL OUTLINE
AND
MECHANICAL FEATURES

A. GENERAL OUTLINE AND MECHANICAL FEATURES

1. MAIN SPECIFICATIONS

Camera type:
35 mm SLR single lens reflex camera with electronic control automatic exposure and focal palne shutter.

Image format:
24 x 36 mm.

Lens mount:
Olympus OM Mount, bayonet type.

Shutter:
Electronically controlled focal plane shutter.

Flash synchronization:
X contact. Direct contact only.

Automatic exposure control:
Aperture-priority electronically controlled shutter. TTL direct light measuring system. Light measuring range: EV— 0.5 to 17 from 2 sec. to 1/1000 sec. at normal temperatures and humidity with ASA 100 and F1.2 standard lens.
Exposure compensation: ±2 EV.

Film speed range:
ASA 25 to 1600

Battery checker:
Battery voltage can be checked by both LED and PCV. Mirror lock to limit drainage.

Power source:
Two 1.5V silver oxide batteries.
Eveready (or UCAR) EPX-76 or equivalents.

Viewfinder:
Pentaprism type.

Focusing screen:
Microprism/split image-matte type.

Finder View-field:
93% of actual picture field.

Viewfinder magnification:
0.92X with standard 50 mm lens at infinity.

Viewfinder information:
12-step shutter speed scale and flash charge indicated by LEDs.

Mirror:
Oversize, quick return mirror.

Film advance:
Lever type with 130° angle. It can be wound with one long or several short strokes. 30° pre-advance angle. Power winding is possible with the Olympus OM System Winder 1.

Self-timer:
Electronic self-timer with about 12 second delay.

Accessory shoe:
Built-in type, with direct contact.

Dimensions and weights:

Body only:

135 (W) x 84 (H) x 50 (D) mm	450 gr.
(5.3" x 3.3" x 2")	(15.9 oz)

With F1.8 lens:

135 (W) x 84 (H) x 81 (D) mm	620 gr.
(5.3" x 3.3" x 3.2")	(21.9 oz)

With F1.4 lens:

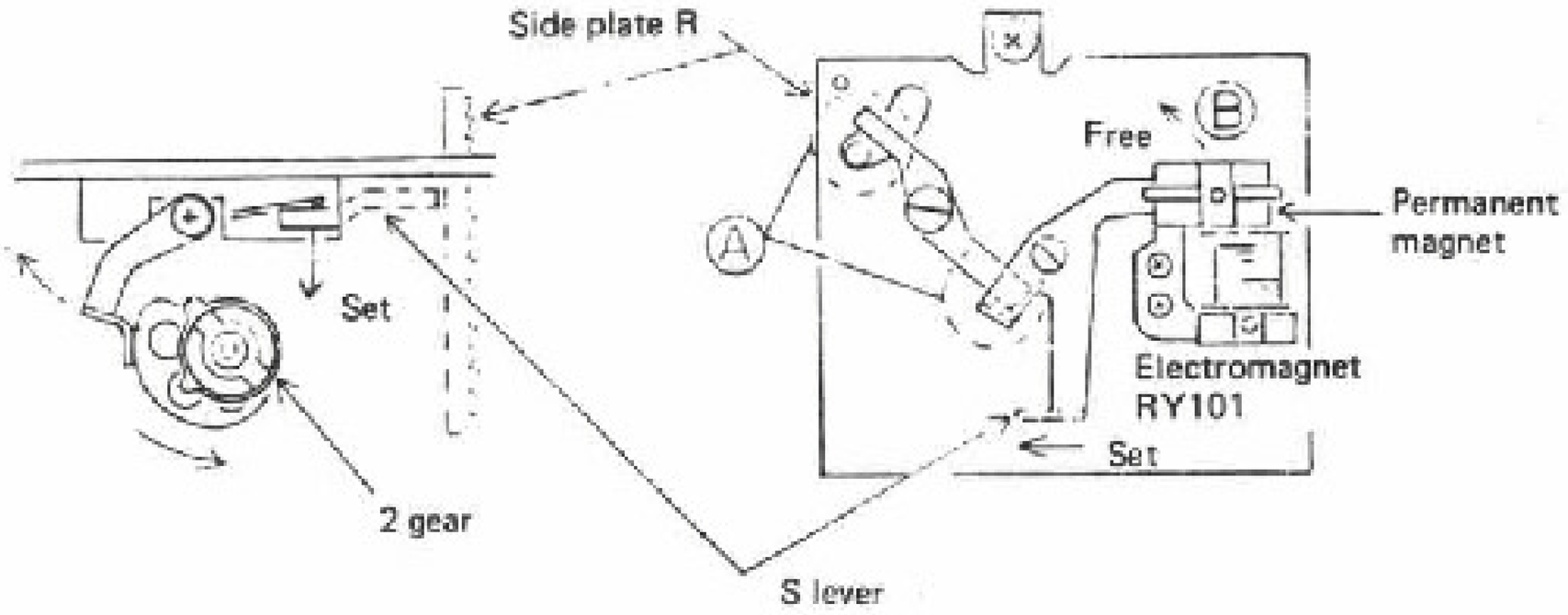
135 (W) x 84 (H) x 86 (D) mm	680 gr.
(5.3" x 3.3" x 3.4")	(24 oz)

* Specifications subject to change without notice.

2. MECHANICAL FEATURES

(1) SHUTTER LOCK MECHANISM (MIRROR LOCK MECHANISM)

This mechanism is so arranged that, when the shutter fails to operate in the normal manner because of such as battery trouble, the mirror becomes locked and, consequently, the shutter becomes locked.
It is due to this relationship that an electromagnet (RY101) is provided on the side plate R as a means of unlocking the mirror.



Sequential actions

1) By the cam of 2 gear, the mechanism gets set, that is, shifts to the condition shown on the above, in which the mirror is set in locked state.
2) As electromagnet RY101 gets energized, S lever disengages by moving in the direction Ⓑ thereby releasing the mirror from locked state. (The polarity of RY101 is the same as that of its permanent magent: when energized, it develops repulsive force.)

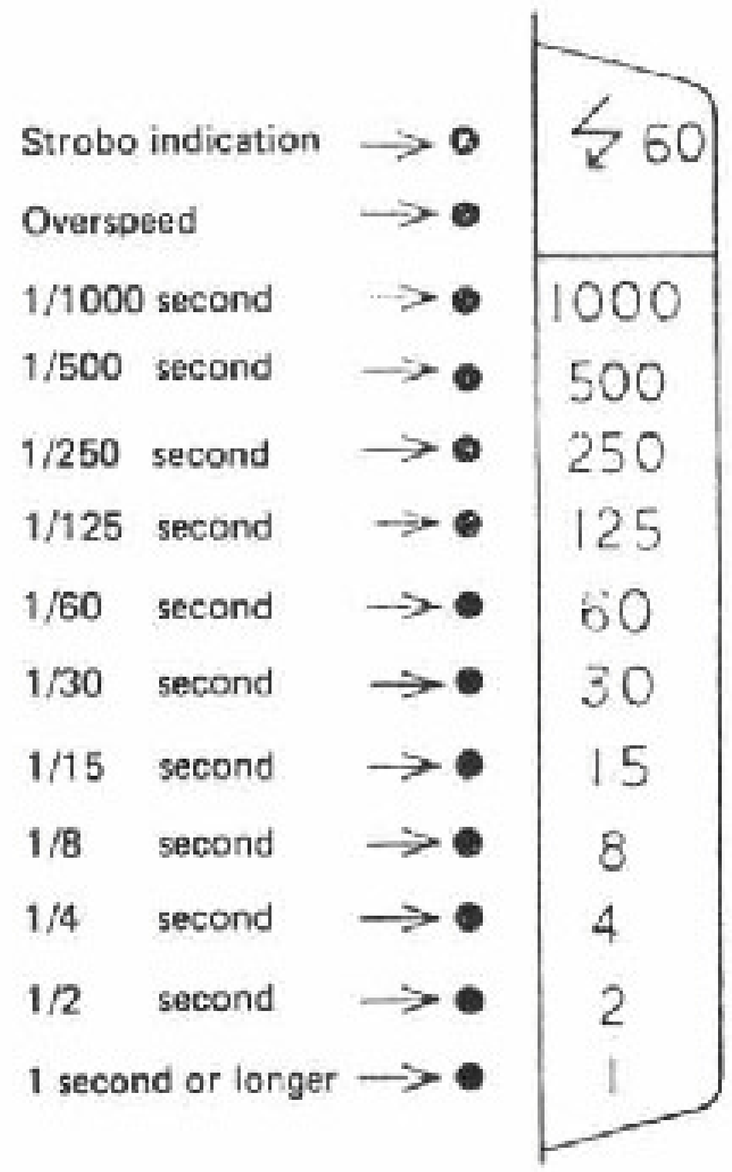
(2) FINDER INDICATION

1. **Shutter speed indication**
   The speed is indicated not as an analog quantity (as when a pointer is provided so that the user has to "read" speed from pointer position) but as a digital quantity. As illustrated on the right, one of the LEDs lights up to tell the speed.

2. **Strobo indication**
   With an exclusive-use strobo (such as T20) connected to the shoe, the light (shown in the illustration on the right) signifies either of the two consequences:

2-1. Light remaining on
This means that "strobo charging is completed."

2-2. Light flickers
This means that "flashing was satisfactory."



(3) RELATION BETWEEN STROBO T20 AND INDICATION INSIDE THE FINDER

1. Three on-off actions of LED

1-1. On-off cycles equal in number to that of strobo on-off cycles

This manner of lighting signifies that the main capacitor is taking more time than usual in getting recharged after a strobo flashing.

1-2. Flickering for about 1.5 seconds

This short flickering signifies that the strobo bulb did not produce enough light flux in flashing. (After each strobo flashing, the charge lamp will light up first, followed by the finder's LED: the charge lamp has priority over this LED.)

1-3. Flickering for less than 1.5 seconds

This manner of flicker could occur when two flashes have been made in succession. It means that the main capacitor is not charged adequately. If the shutter button is pressed under this condition, no flashing might occur. Whenever the LED ceases to flicker upon pressing down of the shutter button, it means inadequate recharging.

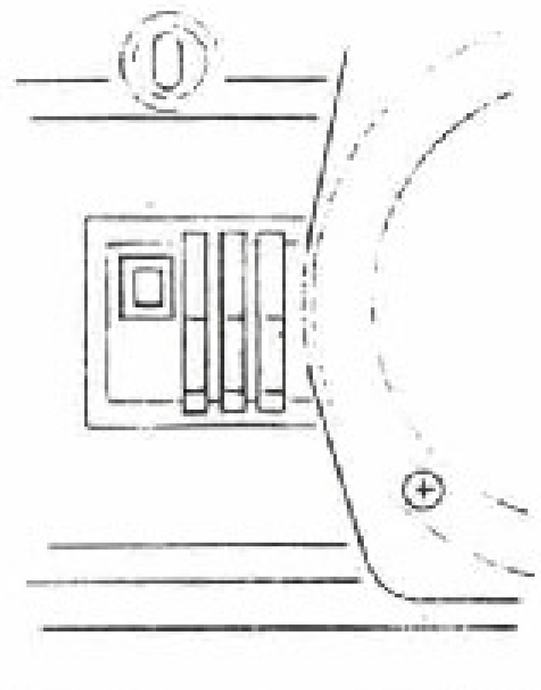
NOTE:
Under the condition of inadequate charge, the auto lamp on the strobo, too, stops flickering.
If X contact happens to be unsteady and should chatter, the flickering will cease even when the strobo has flashed satisfactorily. This is because such chatter produces the same effect as two contact closures in rapid succession.

2. Signal patterns

(4) SELF-TIMER

Timing action of the self-timer is electrically induced. With the power on-off switch set in SELF-TIMER position, pressing the release button does not result in energization of the electromagnet RY101 for releasing the mirror from locked condition, so that the mirror remains locked.

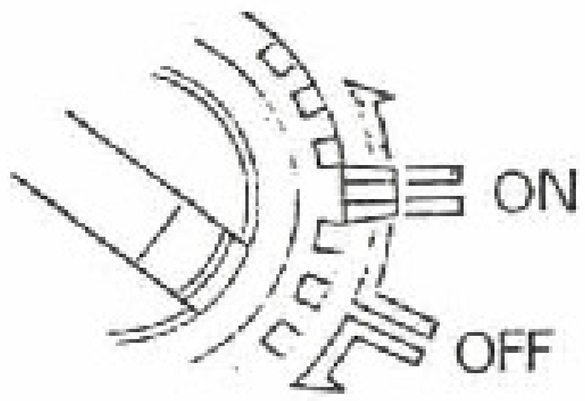
As the self-timer times out, the electromagnet becomes energized to unlock the mirror and then the shutter operates to make an exposure. While the self-timer is clocking, the LED (shown in the illustration on the right) flickers and concurrently a buzzer sound issues forth.



Indicating window of self-timer.

(5) Power saving circuit for shutter speed indicating LED unit in viewfinder

In order to minimize power consumption by the shutter speed indicating LED unit in the viewfinder, the circuit is designed to automatically turn off the LED unit in about 1.5 minutes even if the LED unit switch is kept turned on.



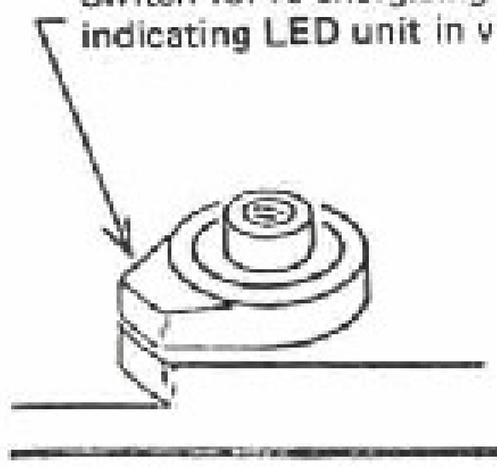
Switch for shutter speed indicating LED unit in viewfinder

(6) Switch for re-energizing shutter speed indicating LED unit in viewfinder

The shutter releasing button seat serves as the switch.

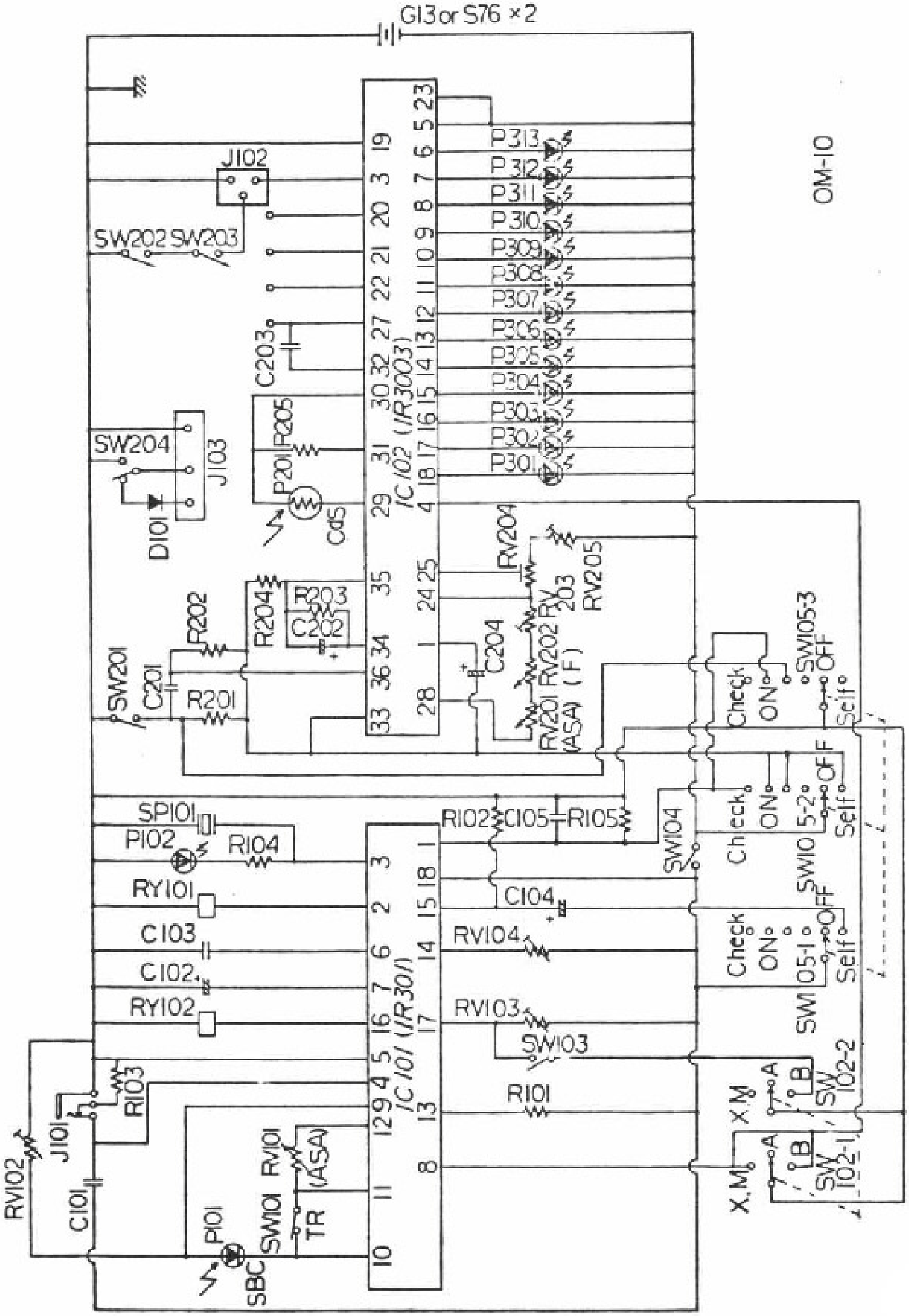
When the LED unit is turned off by the power saving circuit described in (5) above, the LED unit can be turned on again by slightly touching the shutter releasing button seat.

- The power saving circuit is automatically cut off in about 1.5 minutes after the LED unit is turned on.
- The circuit will be cut off in about 1.5 minutes, even if the shutter releasing button seat is kept pressed.



Switch for re-energizing shutter speed indicating LED unit in viewfinder

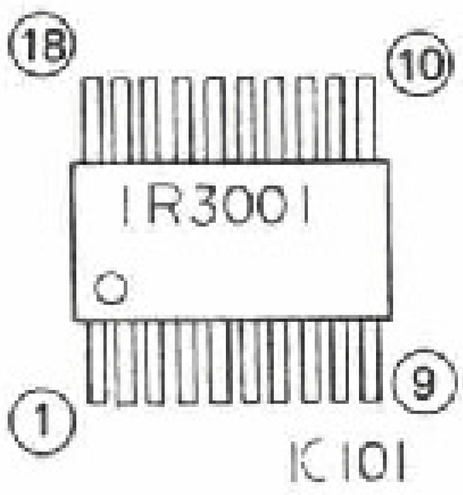
(7) CIRCUIT DIAGRAM



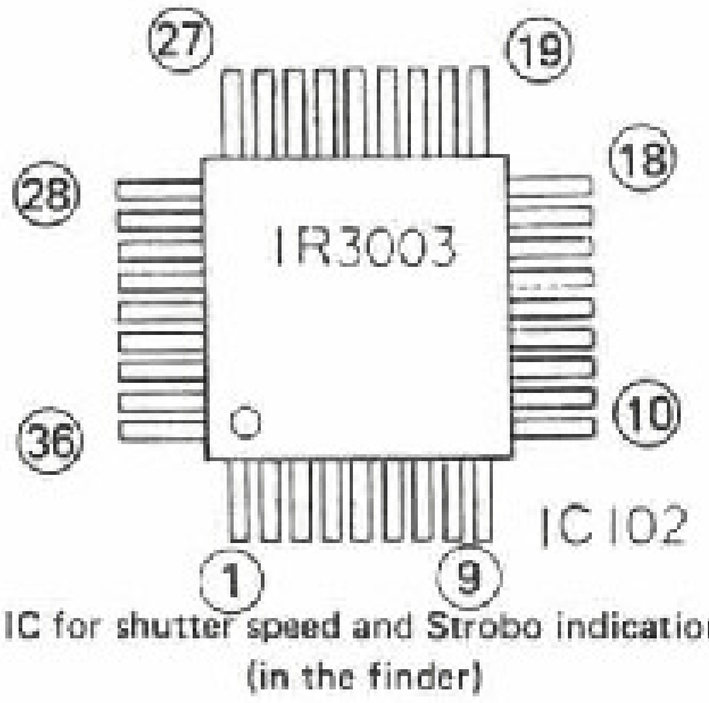
(8) CIRCUIT DESCRIPTION

1. Circuitry

The circuitry may be viewed as being composed of a shutter circuit and a finder indication circuit. In terms of hardware, these circuits are implemented by ICs soldered to a printed-circuit board. The IC for shutter circuit is IC101 (IR3001), and that of finder indication circuit is IC102 (IR3003). It is inside these ICs that the two circuits are formed respectively.



IC for shutter circuit



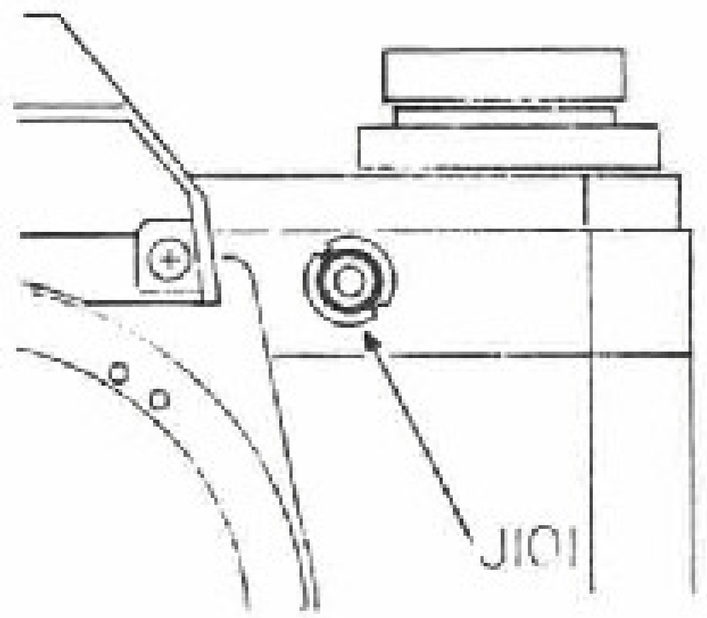
IC for shutter speed and Strobo indication (in the finder)

2. Circuit elements and parts

2-1. Terminals

1) J101 (manual adaptor jack)
When the manual adaptor is not inserted, R103 is in service and, by this resistor, the effective timing action is that of X (X timing). Inserting the adaptor into this jack, however, cuts R103 out of the circuit but places a resistor corresponding to a speed of 1 second up to and including 1/1000 second. The ohmic values of the resistors, one of which goes into the circuit, are as follows:

Shutter speed		Resistor
1 sec.	——	8.3 MΩ
1/2 sec.	——	4.15 MΩ
1/4 sec.	——	2.1 MΩ
1/8 sec.	——	1.0 MΩ
1/15 sec.	——	0.52 MΩ
1/30 sec.	——	0.26 MΩ
1/60 sec.	——	0.13 MΩ
1/125 sec.	——	65 KΩ
1/250 sec.	——	32 KΩ
1/500 sec.	——	16 KΩ
1/1000 sec.	——	8 KΩ

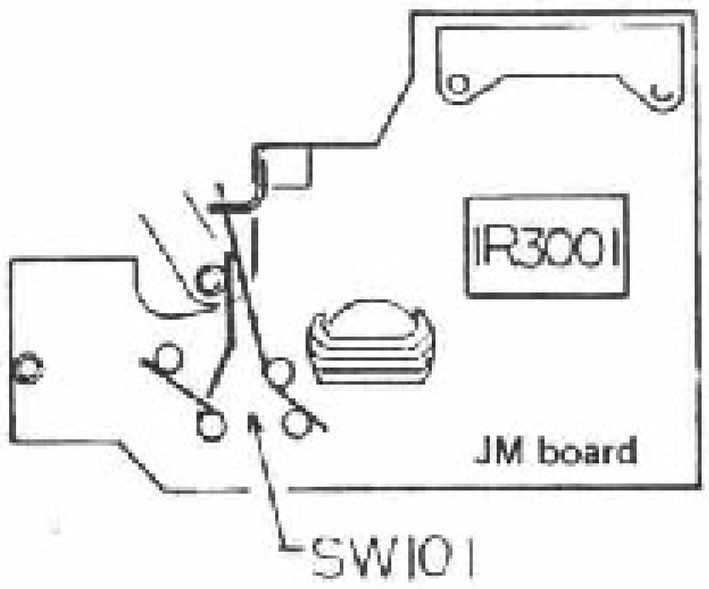


2) J102 (shoe)
The shoe has a terminal for the flasher and another for the indication inside the finder. The only synchro contact is X.

3) J103 (winder contacts)
Diode D101 is included in J103 to keep motor drive out of service. (Do not cut motor drive into service even with the diode removed.)

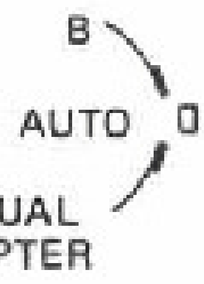
2-2. Switches

1) SW101 (trigger switch)



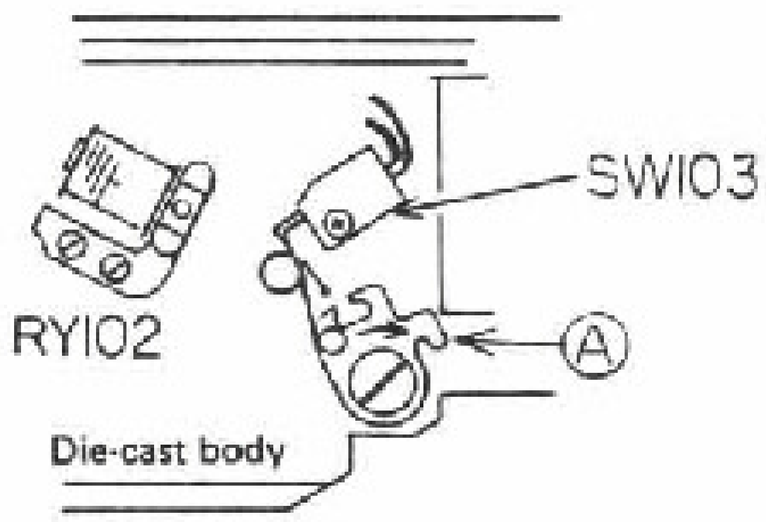
This switch is on JM board. It closes on shutter charging and opens on shutter releasing. The moment the shutter is released for exposure, light measuring action commences.

2) SW102 (mode selector switch)



This switch is located near ASA dial on the upper plate. It has three positions: B (for bulb), AUTO and MANUAL. With this switch set in MANUAL, the timed duration for X is about 1/45 second.

3) SW103 (bulb switch)



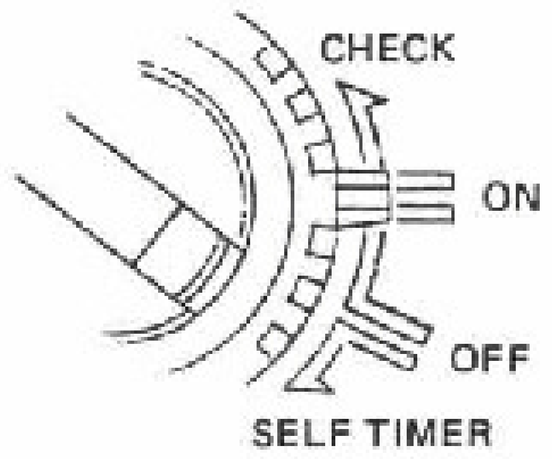
This switch is secured to the die-cast body of the camera by means of a screw, and is accessible when JM board is removed. Pressing the release button causes the actuator Ⓐ to turn in the arrow direction, thereby closing the switch; releasing the button opens the switch.

As long as this switch (SW103) is on, the shutter stays in released condition because M.G. (RY102) remains on.

4) SW104 (main switch)

Interconnected to the lever for automatic aperture control, this switch closes when the aperture begins to be narrowed. By its closure, the shutter circuit is energized to operate the shutter.

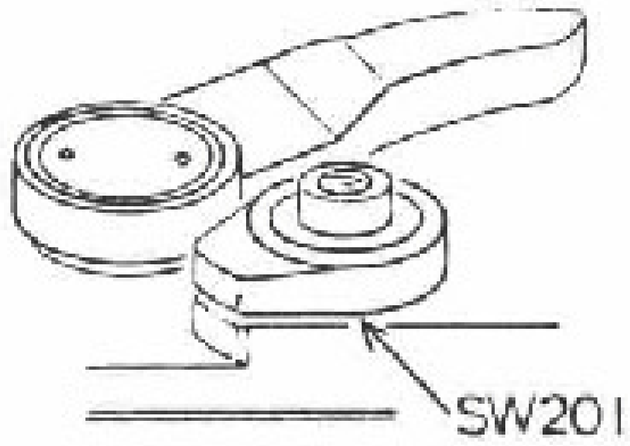
5) SW105 (power on-off switch)



Located below R knob, this switch has four positions:

OFF .....Finder indication is off.
ON .....Finder indication is on.
CHECK .....Battery is checked, resulting in LED lighting and buzzer sounding if the battery is satisfactory.
SELF-TIMER ....The timer starts clocking for the self-timed duration of about 12 seconds.

6) SW201 (indication starting switch)



The seat of the shutter release button has this switch built in it. Actually, the switch is a pressure-sensitive element, which presents an ohmic resistance of several megohms when it is in relaxed (not pressed) state. Even a small thumb pressure causes its resistance to decrease drastically, making the element conductive.

7) SW202 (X contact)
Interconnected to the leading curtain brake, this switch turns on (closes) instantly when the shutter has opened fully (not over 1/60 second) following the running of the leading curtain. (The same as in OM-1 and OM-2.)

8) SW203 (OFF switch for X contact)
This switch is interconnected to the movable mirror. It closes when the mirror goes UP, and opens when the mirror goes DOWN. (This action is the same as that of FP contact in OM-2.)
Switch 203 is in series with switch 202, mentioned above: it is provided because SW202 remains on after the shutter is released.

9) SW204 (winder switch)
This switch operates in conjunction with the movable mirror. It has two positions: wind-up side (D101 side) and brake side (body ground side). On mirror DOWN, it moves to wind-up side; on mirror UP, it moves to brake side. (This feature is the same as in OM-1 and OM-2.)

NOTE:
Closure on wind-up side does not set motor drive in operation because a diode (D101) is provided on that side. (This feature, too, is the same as in OM-1 and OM-2.)

2-3. Capacitors

1) C101 (manual-timing capacitor)
This capacitor is secured to the flexible board above the penta prism by soldering. The timed duration for X timing and manual timing is determined by this capacitor.

2) C102 (2-Hz oscillation capacitor)
Installed on and secured by soldering to JM board, this capacitor times the flickering action of the LED during the clocking action of the self-timer.

3) C103 (3-KHz oscillation capacitor)
This capacitor, too, is soldered to JM board; it takes part in generation of buzzer sound during the clocking action of the self-timer (and also for B CHECK).

4) C104 (self-timer capacitor)
Pressing the shutter release button on self-timing initiates recharging of this capacitor and, when its charging voltage rises to about 1.8 volts, the shutter gets released to make an exposure. The timed duration terminates with the capacitor voltage reaching the level of 1.8 volts. This capacitor is soldered to and installed on JM board.

5) C105 (anti-misoperatio capacitor)
Soldered to the flexible board above the penta prism, this capacitor serves to prevent the battery checker circuit from misoperation upon turning on of main switch.

6) C201 (indication-start capacitor)
Soldered to the flexible board above the penta prism, this capacitor permits current to flow upon turning on of SW105 or SW201, in order to bring up indication inside the finder. This current persists until C201 becomes fully charged, even when SW105 or SW201 remains on. For this reason, it is located in the subsequent stage. The indication disappears in about one minute and a half as a result of the action of time-constant circuit.

7) C202 (indication time-constant capacitor)
This capacitor is located close to the gang of three variable resistors on the flexible board, and secured to the board by soldering. It takes part in timing the 1 and 1/2 minutes duration for indication in the finder.
Its recharging commences with the turning on of SW105 (power on-off switch) and, before C201 becomes charged, it becomes fully charged. Its discharging action takes place after C201 gets fully charged: the 1 and 1/2 minute duration corresponds to the time this capacitor takes to discharge.

8) C203 (anti-resonance capacitor)
This capacitor, too, is soldered to the flexible board above the penta prism, and prevents IC102 from developing resonance.

9) C204
This capacitor for preventing misoperation in strobo flashing. It is secured to the flexible board above the penta prism by soldering.

2-4. Resistors

1) R101 (bias resistor)
This is a printed resistor on JM board. It reduces the input current of the comparator inside IC101.

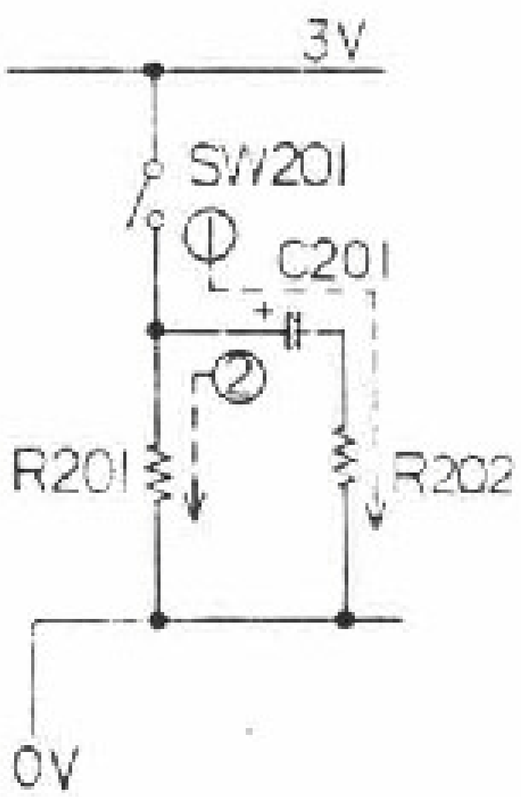
2) R102 (self-timer resistor)
This, too, is a printed resistor on JM baord. It is associated with C104 for the time constant for the timing action of the self-timer.

3) R103 (X timing resistor)
Printed on JM board, this resistor works with C101 to time the X duration.

4) R104 (LED resistor)
This resistor is soldered to JM board. It is used to adjust the brightness of LED turned on for and at the time of self-timing or battery checking.

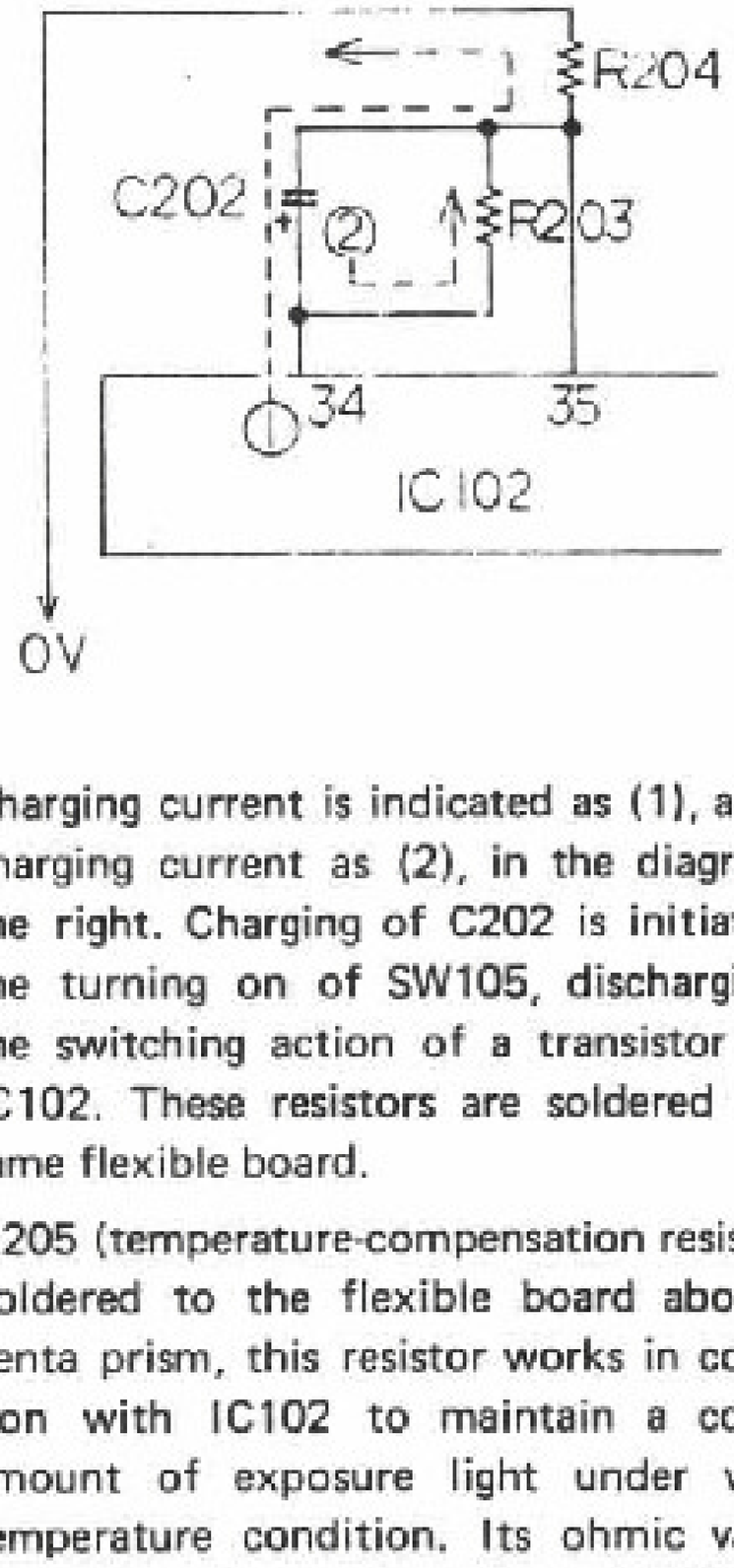
5) R105 (alternative resistor for combination M.G.)
This resistor is soldered to the flexible board above the penta prism. It serves as a substitute for the combination M.G. during B checking since no current flows in the M.G. dur this duration.
The ohmic value of this resistor is just about equal to that of the M.G. As the M.G. becomes energized, the supporting plate separates to defeat mirror locking, thereby taking the self-timer out of service: this is the reason why the M.G. is not energized during B checking.

6) R201 (discharging circuit resistor)
R202 (charging circuit resistor)



Both R201 and R202 are soldered to the flexible board above the penta prism. With the turning on of SW201, charging current flows through R202 into C201. With the turning off of SW201, discharging current flows through R201.

7) R203 (discharging circuit resistor)
R204 (charging circuit resistor)

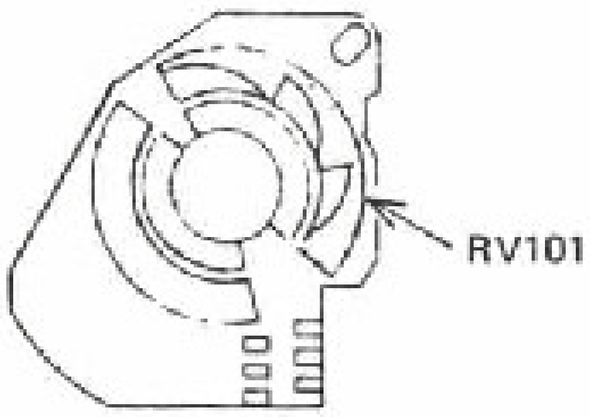


Charging current is indicated as (1), and discharging current as (2), in the diagram on the right. Charging of C202 is initiated by the turning on of SW105, discharging by the switching action of a transistor inside IC102. These resistors are soldered to the same flexible board.

8) R205 (temperature-compensation resistor)
Soldered to the flexible board above the penta prism, this resistor works in conjunction with IC102 to maintain a constant amount of exposure light under varying temperature condition. Its ohmic value is approximately equal to that of CdS at the battery voltage of 9.5 volts (BV 9.5).

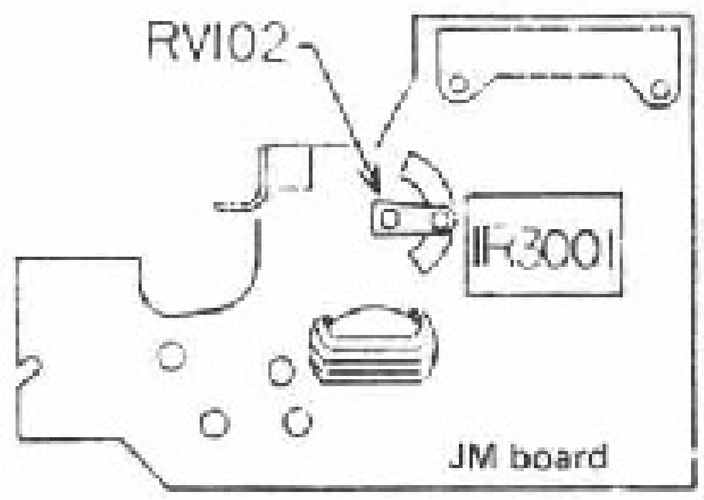
2-5. Variable resistors

1) RV101 (Auto ASA resistor)



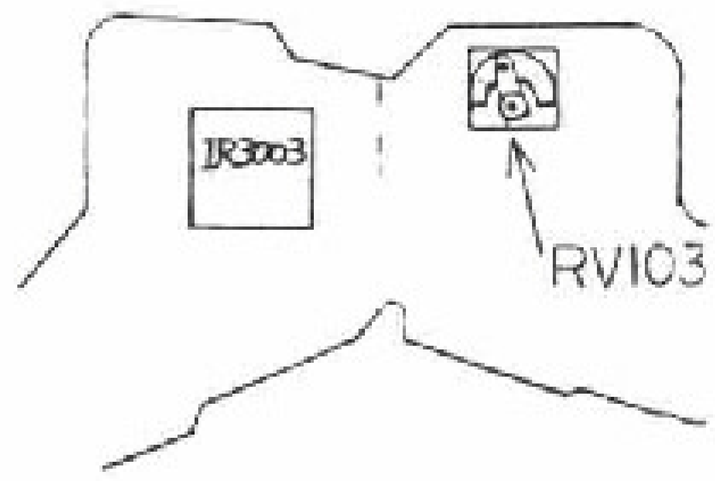
This resistor is printed on the board (A board) under the ASA dial. The ASA sensitivity depends on the setting of this variable resistor in AUTO.

2) RV102 (mirror locking voltage adjusting resistor)



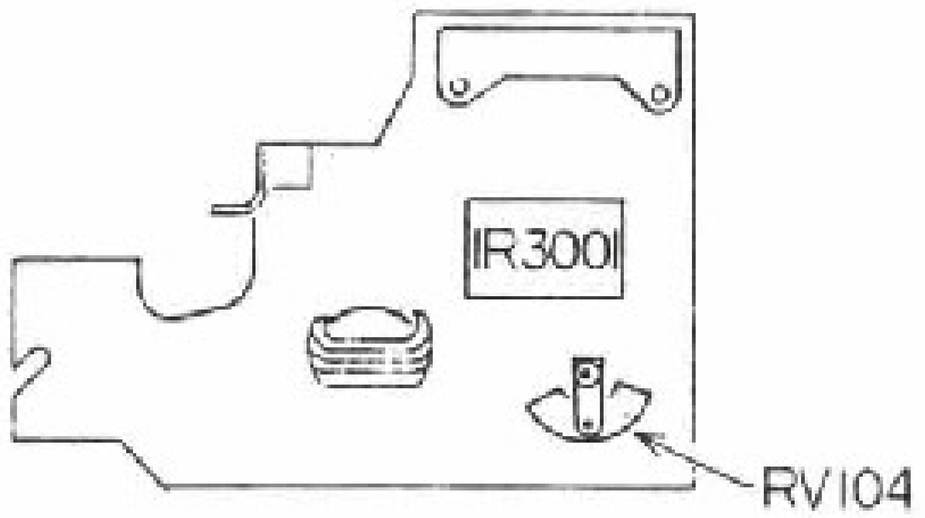
This variable resistor, too, is printed on JM board. The locking voltage can be adjusted by means of this resistor.

3) RV103 (EE level adjusting resistor)



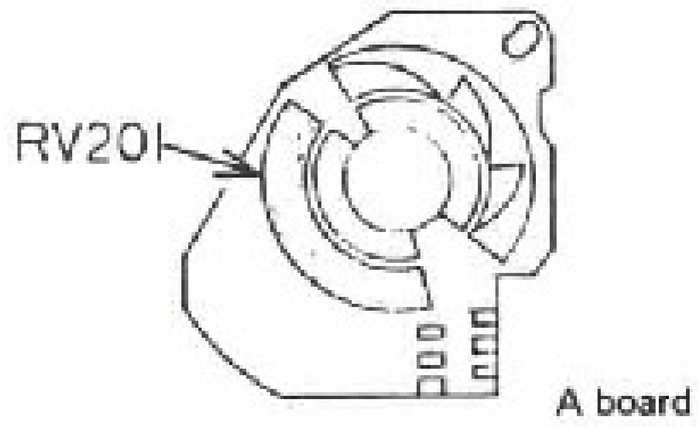
Soldered to the flexible board above the penta prism, this variable resistor serves as the means of adjusting the EE level.

4) RV104 (offset variable resistor)



RV104 is a printed variable resistor on JM board. The offset in the AUTO comparator is adjusted by means of this resistor.

5) RV201 (ASA resistor for indication)

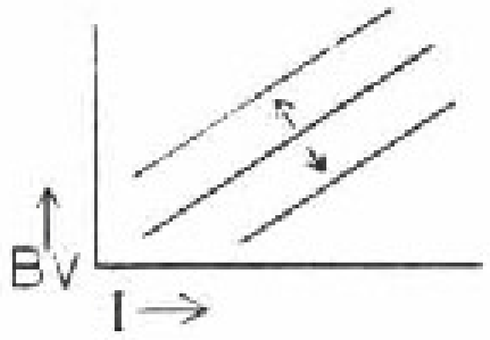


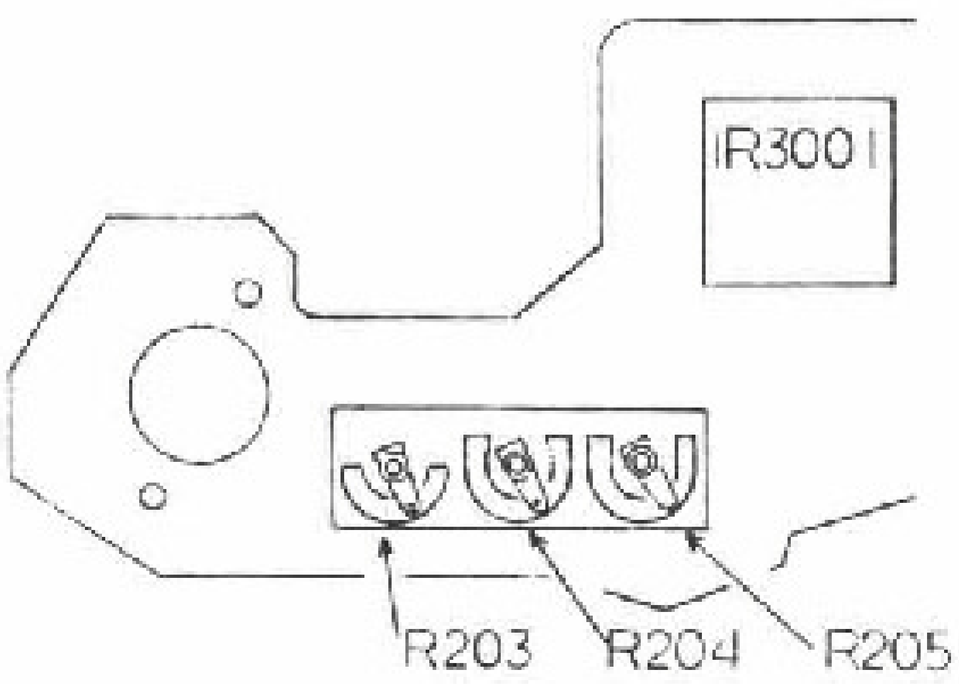
RV201 is a printed variable resistor on A board under the ASA dial. ASA sensitivity for indication inside the finder is adjusted by means of this resistor.

6) RV202 (F resistor)

This variable resistor is printed on F board under the ZJ130600 (CONNECTING RING). It is a means of translating the lens aperture setting into an ohmic value to related the aperture ring to the LED inside the finder.

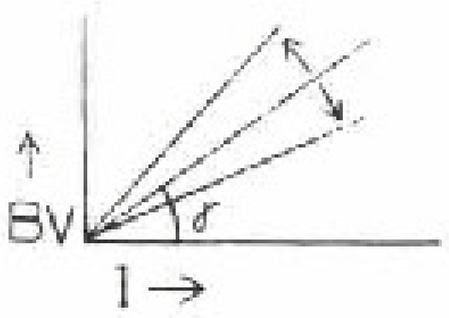
7) RV203 (level adjusting resistor)





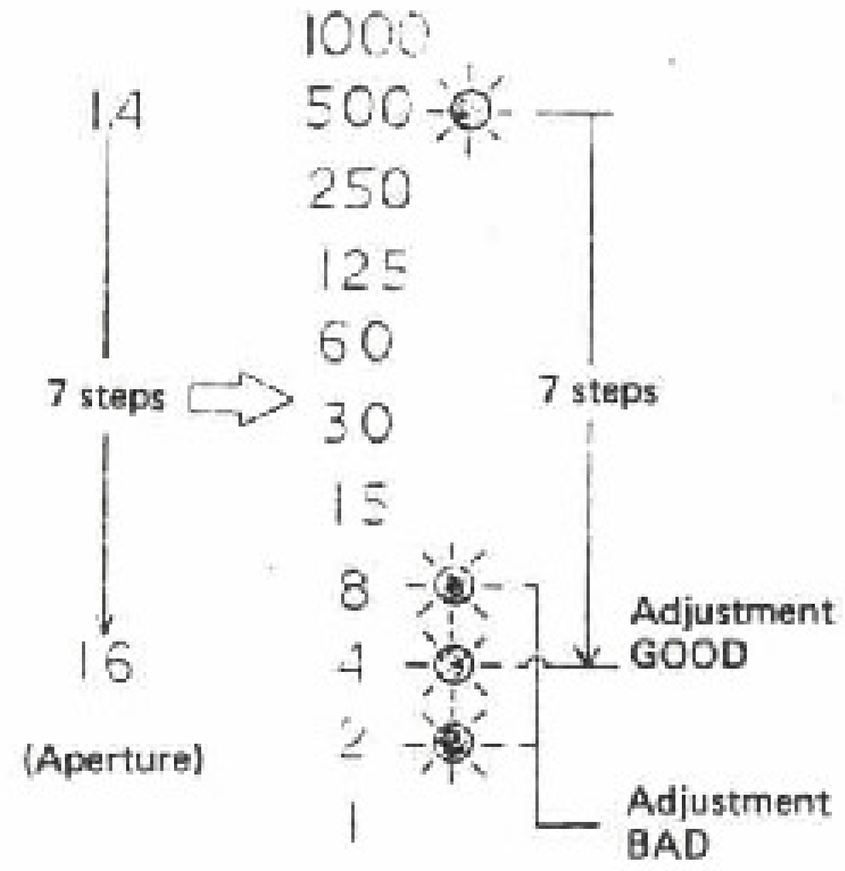
This is one of the three variable resistors forming a gang on the flexible board. The setting of this resistor is to be changed to adjust the brightness of the LEDs inside the finder. Changing its ohmic value shifts the lighting level for all of the LEDs at a uniform rate, as will be noted in this graph:

8) RV204 (gamma adjusting resistor)



This variable resistor is located right next to R203, as shown above. It is used to compensate the current for changes in the intensity of light falling on CdS. In other words, it is a variable resistor for gamma compensation.

9) RV205 (aperture resistance matching resistor)

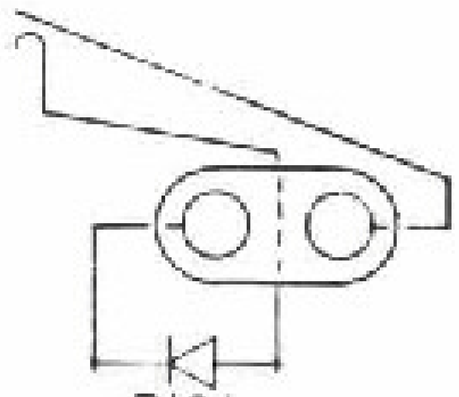


Match the number of aperture stops to the LED steps.

Located right next to R204, shown above, this variable resistor is used to match the successive aperture positions to the corresponding successive steps of indication inside the finder. (This matching adjustment is necessary because of some variations that are unavoidable in resistance values (on F board) and also in IC102.)

2-6. Diodes

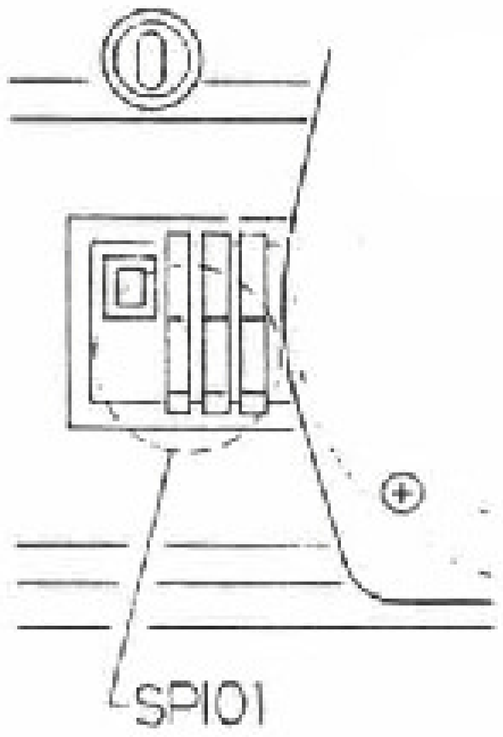
1) D101 (motor drive diode)



Winder contact circuit

This diode is provided on the winder contact. During winding action, current flows in the normal direction (through this diode). Motor drive needs current in reverse direction, but diode D101 blocks this current so that the motor does not run.
The camera itself does not withstand such a fast drive as 5 frames per second. In this regard, D101 is a safety device.

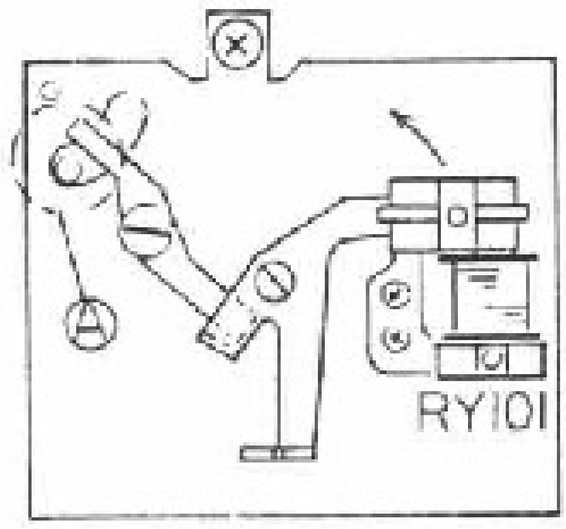
2-7. SP101 (piezoelectric element)



This element is built on the front casting, at the location indicated on the right. When voltage is impressed in a rapid on-off manner upon this element, it physically expands and contracts in rapid succession to make a buzzing sound. The frequency of this sound is set at a level of about 3 KHz by means of capacitor C103.

2-8. Relays (M.G.)

1) RY101 (combination magnet)

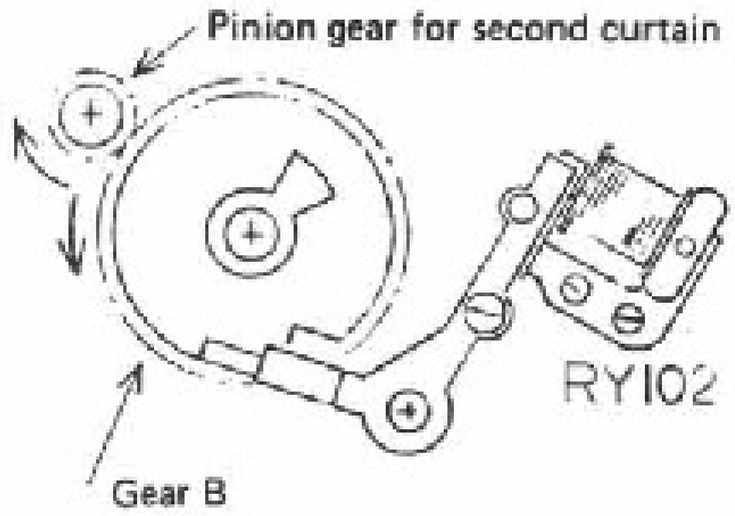


Mirror locking action is made at Ⓐ. Emergizing RY101 causes the support plate move in the arrow direction to separate itself from the hook, thereby unlocking the mirror.

Composed of a permanent magent and an electromagent, this relay (RY101) is mounted on the side plate R. With this relay in de-energized state, pressing the shutter release button results in mirror locking: the shutter refuses to be released. As the electromagnet becomes energized, the mirror then gets unlocked, allowing the shutter to be released for making an exposure.

(The polarity of the electromagnet is such that, when it is energized, it kicks up the permanent magnet on the lever arm, thereby separating the supporting plate.)

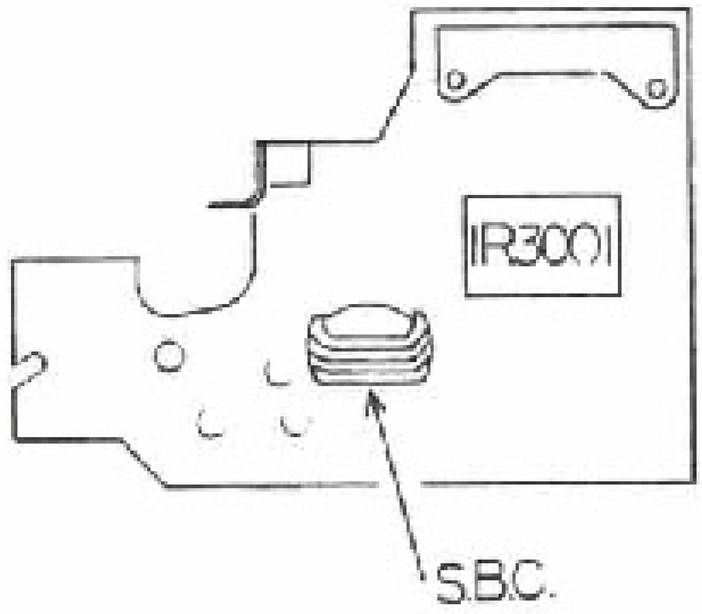
2) RY102 (Second curtain magnet)



This electromagnet is secured to "S" plate by mounting screws. It is this magnet by which the second curtain in charged condition is held up. De-energizing RY102 frees the second curtain, allowing it to run for making an exposure.

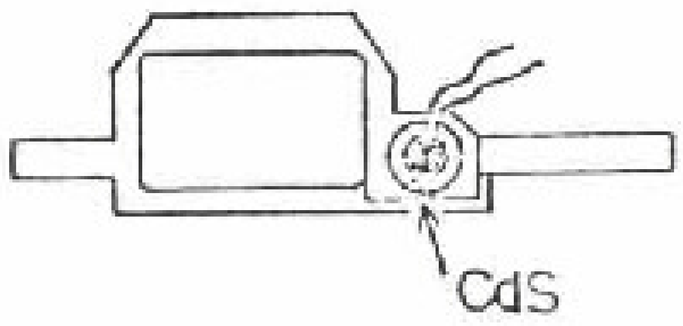
2-9. Light receivers

1) P101 (S.B.C.)



This photoelectric element is located at the middle of JM board. It is a part of the automatic circuit.

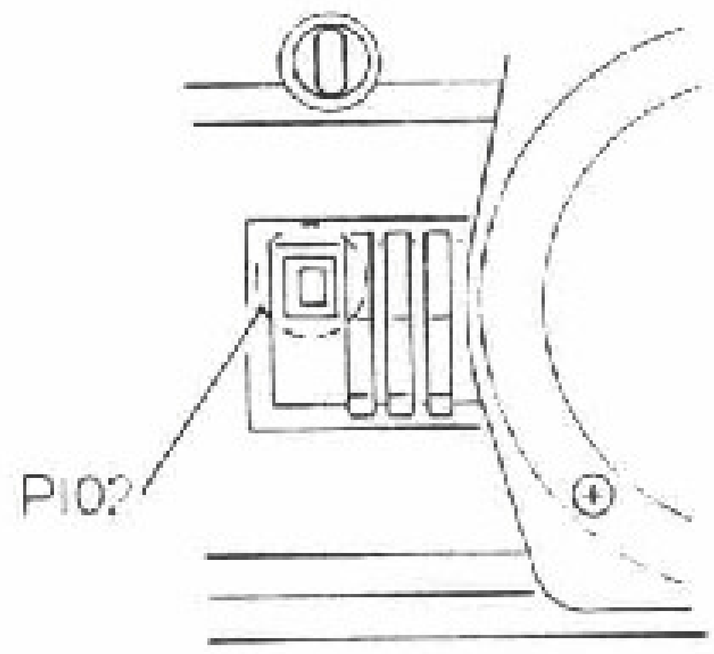
2) P201 (CdS)



This photocell is on the left-side part of the frame. It has two lead wires. It is the light receiver for indication inside the finder. Matching for high and low intensities of light (brightness) is effected by means of R203 and R204.

2-10. LEDs (light-emitting diodes)

1) P102 (self-timer LED)



The location of this LED is as shown on the right, that is, on the front plate. It flickers with a frequency of 2 Hz when the self-timer is running. It remains lit during B (battery) checking.

2) P302 ~ P312 (shutter speed indicating LEDs)

These LEDs are installed on and soldered to the flexible board. The numerical value next to a speed indicating LED is a denominator, whose numerator is unity. When LED P302 is on, for example, it means that the shutter speed is 1/1000 second.

P313 ..... ● ≤ 60
P301 ..... ● (OVER)
P302 ..... ● 1000
P303 ..... ● 500
P304 ..... ● 250
P305 ..... ● 125
P306 ..... ● 60
P307 ..... ● 30
P308 ..... ● 15
P309 ..... ● 8
P310 ..... ● 4
P311 ..... ● 2
P312 ..... ● 1
(LED)

3) P301 (overspeed LED)

This LED is included in the array of speed indicating LEDs and, by lighting up, signifies overspeeding, that is, a shutter speed faster than 1/1000 second. It lights up whenever this maximum speed is exceeded.

4) P313 (flash indicating LED)

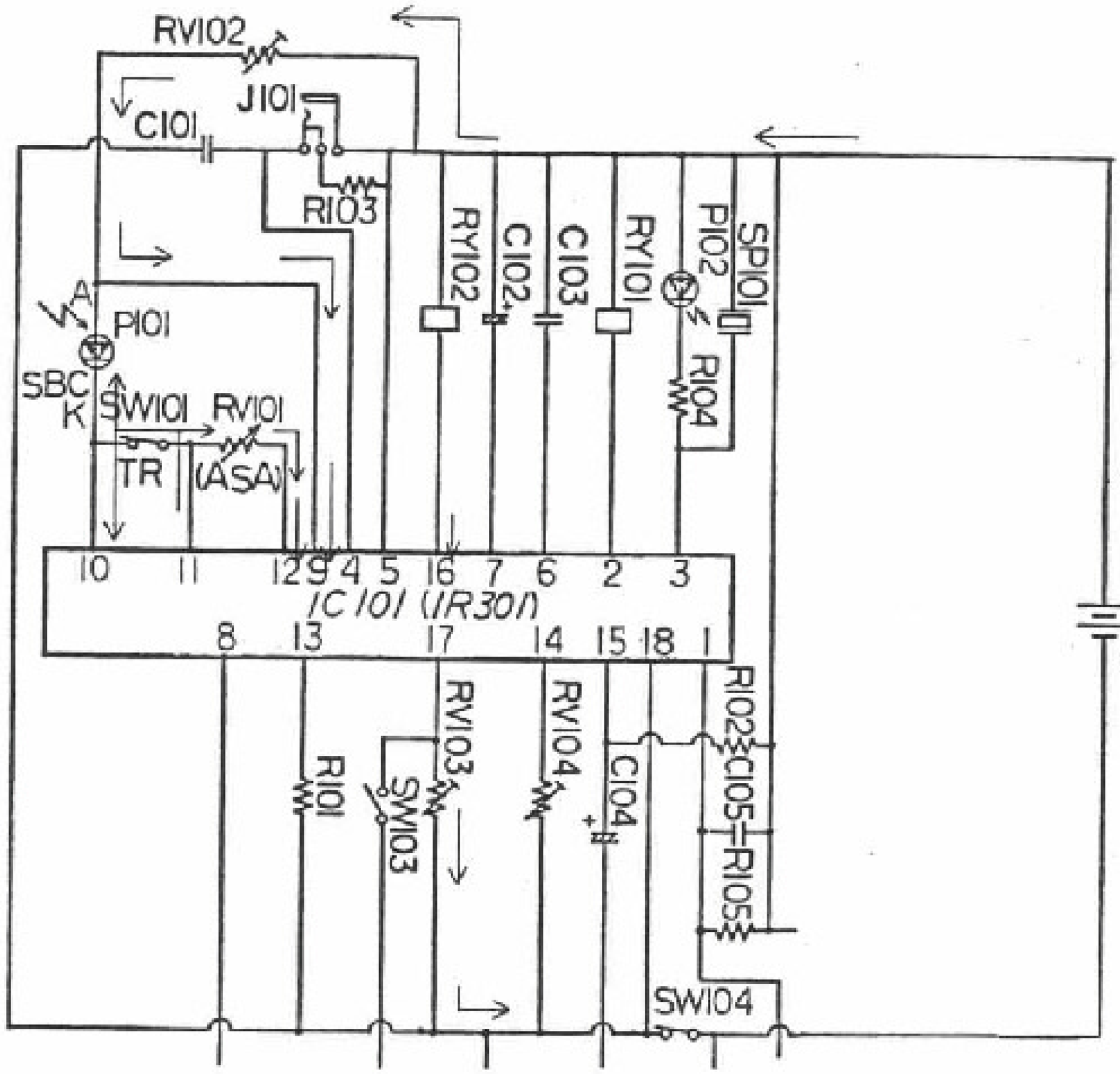
As one of the array of speed indicating LEDs, this one is effective when an exclusive-use strobo (such as T20) is connected to the camera. It remains on or flickers to signify the action related to strobo flashing:

(a) P313 remains on to mean that the strobo has been charged.

(b) P313 flickers to mean that the flashed exposure was satisfactory.

3. Operational description of circuits

3-1. AUTO Circuit



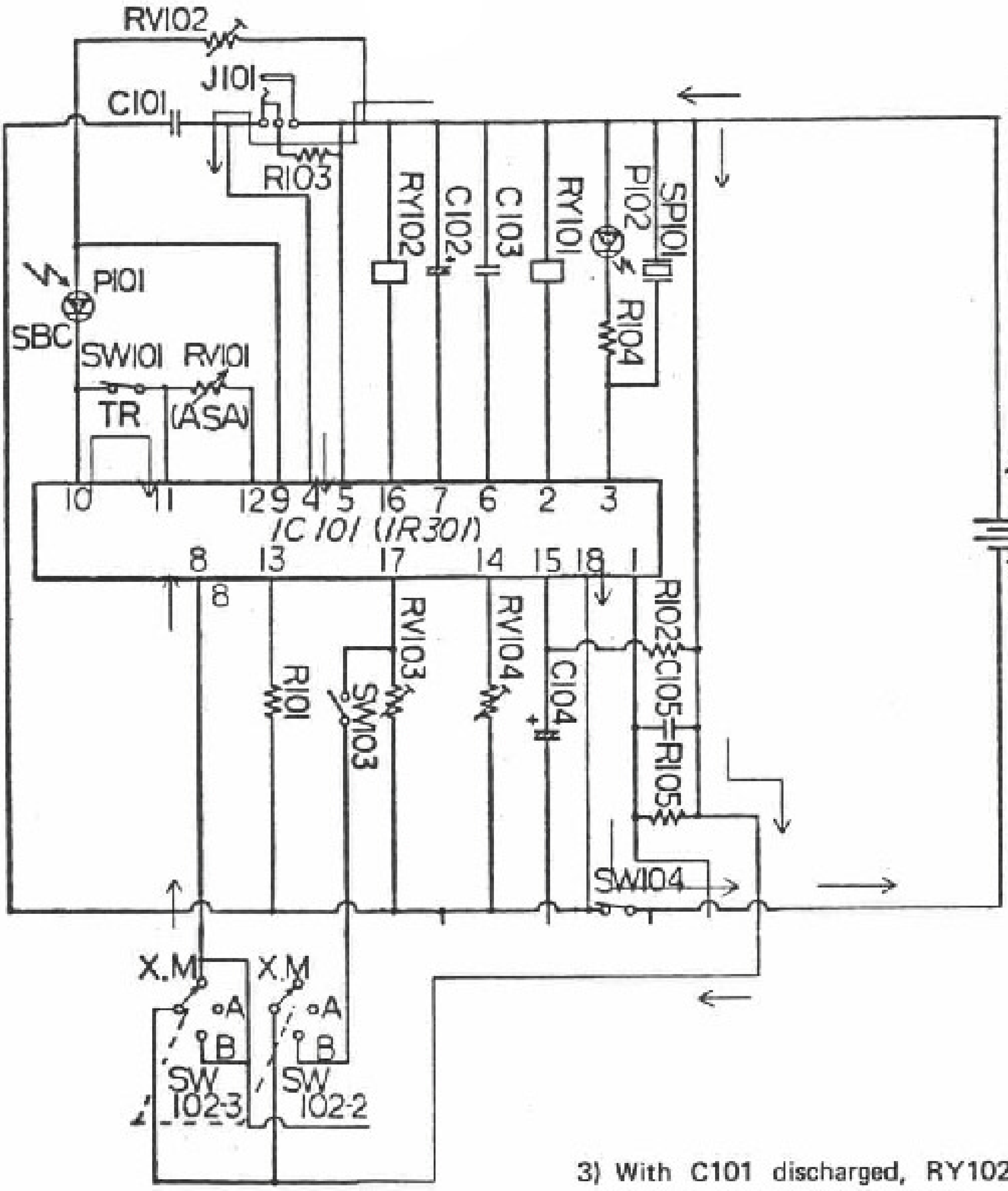
1) Main switch (SW104) closes as the shutter is released. From the moment of this closure to the moment of turning-off of trigger switch (SW101), S.B.C. becomes charged from terminal 11 through switch (SW104). Note that the cathode side of S.B.C. is indicated as K and the anode side as A. (After each picture-taking, the potential of K side is low.)

2) As the leading curtain runs to turn off switch (SW101), current begins to flow through S.B.C.: this is equivalent to discharging. As a result, the potential of K side gradually falls. This means that the potential of terminal 10 falls. The speed of this potential fall is proportional to the light intensity.

3) On the other hand, terminal 12 (which is connected to terminal 11 through RV101) has been lower in potential than terminal 10. When the potential of terminal 12 is low, RY102 is in closed condition (ON) and holds fast the trailing curtain.

4) As discharging action proceeds in S.B.C., terminals 12 and 10 become equal in potential level. When this occurs, the potential of terminal 16 reaches 3 volts to turn off RY102, thereby closing the shutter.

3-2. X Timing Circuit



1) Turning the switches (SW102) to X.M. position isolates S.B.C. and RV101 from the rest of the circuit and, at the same time, connects C101 to R103. (In other words, MANUAL is selected by applying voltage (+) to terminal 8.

2) From the moment of turning-on of SW104 (following the shutter releasing) to the moment of turning-off of SW101, terminal 4 remains connected to terminal 18: during this period, C101 is in discharged state.

3) With C101 discharged, RY102 is on and holds fast the trailing curtain.

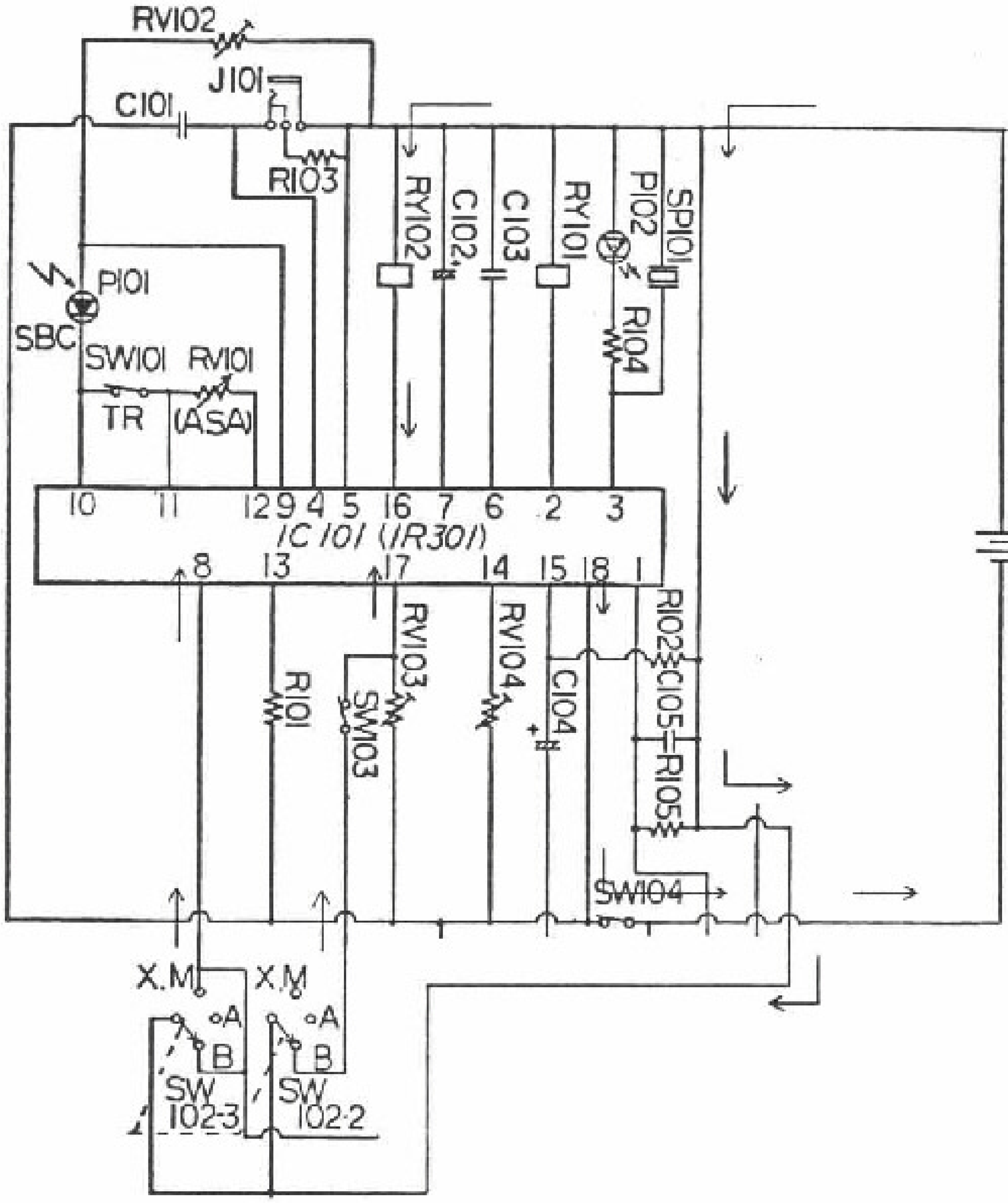
4) As the leading curtain runs to turn off SW101, terminal 4 becomes disconnected from terminal 18, and C101 gets charged through R103.

5) While the charging of C101 is in progress, terminals 10 and 4 become equal in potential level. When this equality occurs, the potential of terminal 16 reaches 3 volts to turn off RY102, thereby closing the shutter. The time that C101 takes to get charged is about 1/60 second.

3-3. MANUAL Timing Circuit

This circuit is essentially the same as the X timing circuit, the difference being that a manual adaptor is inserted into J101. Each exposure time is obtained by varying the resistance corresponding to that of R103.

3-4. Bulb

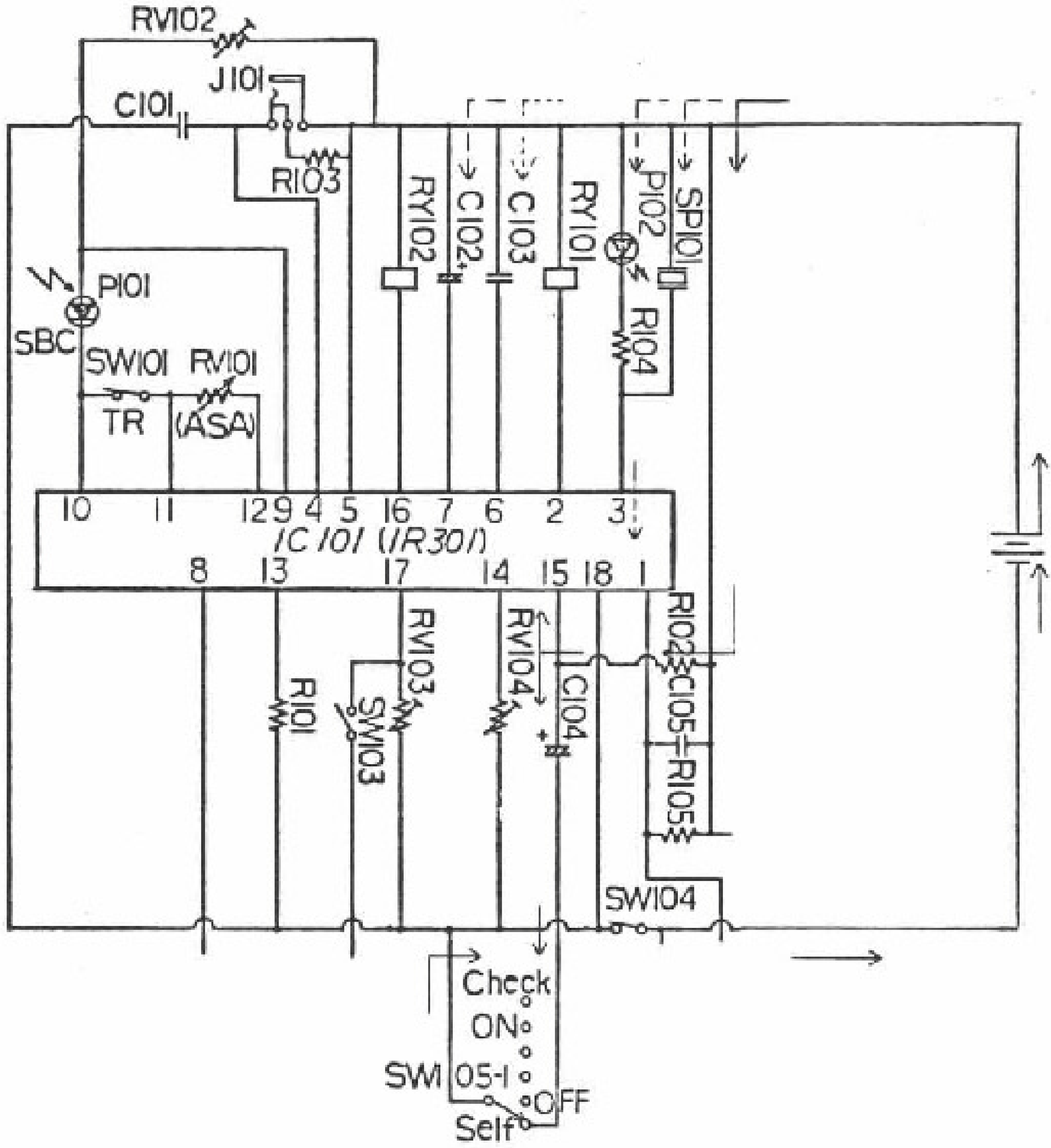


1) Turning the switches (SW102) to B position applies 3 volts to terminal 8, and this alters the internal circuit of IC101, thereby introducing a manual circuit in this IC. (If the manual adaptor is off, manual control is completed in about 1/45 second of X timing and, thereafter, RY102 comes under control of SW103.)

2) With IC101 set for MANUAL, application of 3 volts to terminal 7 turns on RY102, so that the trailing curtain becomes held up rigidly to leave the shutter in released state.

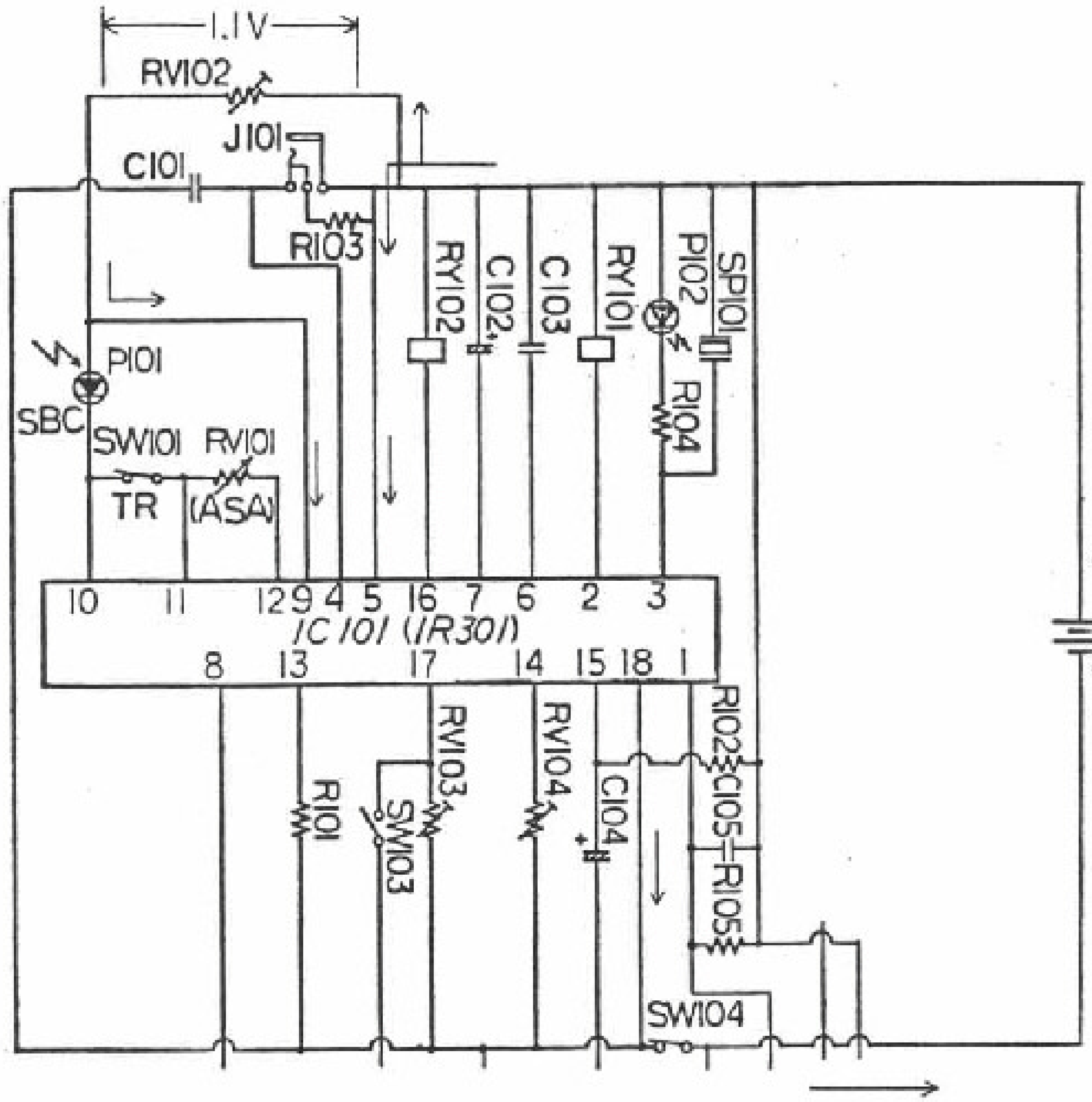
3) Removing the finger from the release button opens SW103, causing the shutter to close.

3-5. Self Timer



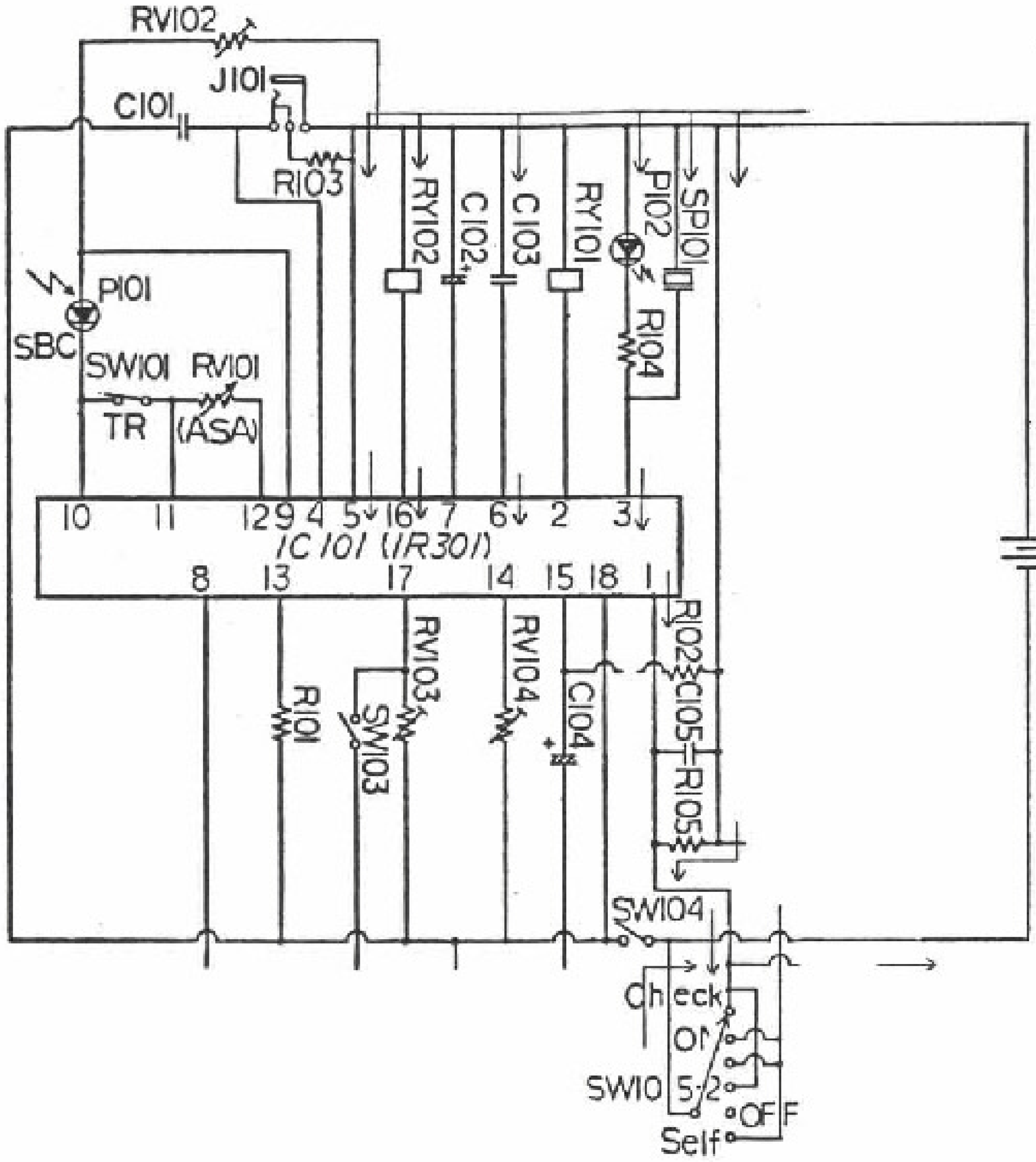
1) C104 is in discharged condition, so that terminal 15 is at a lower potential. Turning the switch (SW105) to Self position under this condition allows terminal 2 to reach a potential level of 3 volts to turn off RY101, thus introducing a mirror-lock condition. At the same time, current begins to flow through terminal 3, causing the Self LED to flicker and the beep sound to issue forth.
2) As the voltage of C104 getting charged rises to about 1.8 volts, terminal 2 goes down to 0 volt to turn on RY101, thus unlocking the mirror and releasing the shutter. When this occurs, both the flicker of LED and the beep sound cease.
3) Inside the circuit of IC101, 2-Hz oscillation is induced by C102 connected to terminal 7 and 3-kHz oscillation by C103 connected to terminal 6. These oscillations are combined in IC101 to make the LED flicker and produce the beep sound by means of piezo-electric element.

3-6. Shutter-Lock (Mirror-Lock) Circuit



1) The potential level of terminal 9 is maintained at a steady level lower by 1.1 volts than the plus side of the voltage source even when the battery voltage changes. It is the voltage regulator circuit inside IC101 and the resistance of RV102 that holds terminal 9 at the steady level.
2) The voltages of terminals 5 and 9 are compared inside IC101.
3) If the source voltage is 2 volts or higher, terminal 2 goes to 0 volt, turning RY101 on to defeat mirror locking.
4) If the source voltage is lower than 2 volts, terminal 2 comes up to the level of the source voltage. Under this condition, RY101 does not turn on.
5) If RY101 does not go on, as in the case 4) above, then the mirror refuses to get unlocked. Releasing results in mirror locking.

3-7. Battery Checker



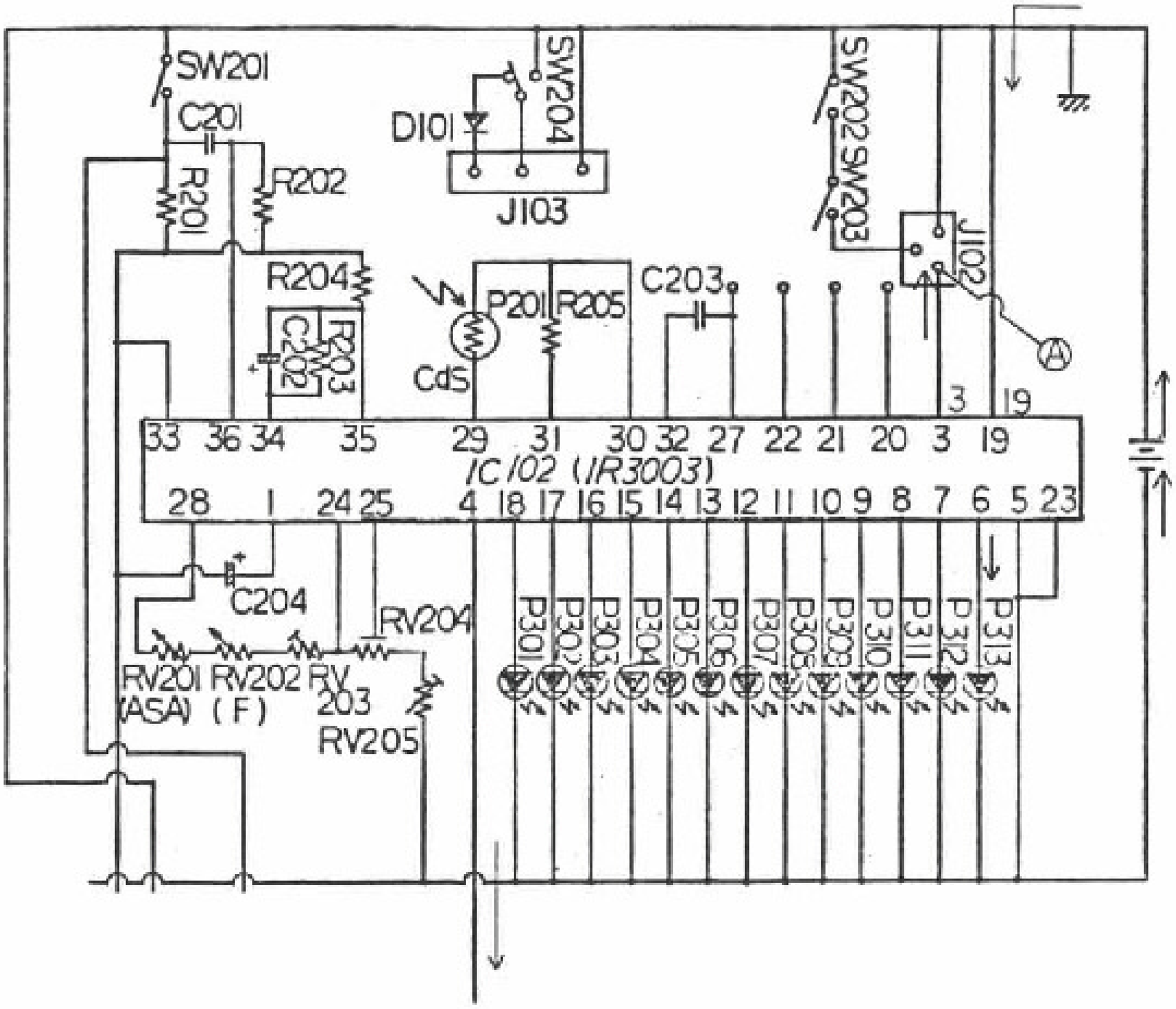
1) Turning the switch (SW105) to Check position, the internal circuit of IC101 goes into a condition close to full operating condition.

2) The resistance of R105 is approximately equal to the ohmic resistance of RY101. The moment SW105 goes into Check position, current starts flowing through R105.

3) In battery checking, RY101 becomes de-energized and current is permitted to flow through R105 instead of RY101. The reason of this scheme is as follows:

Once RY101 is energized, mirror lock becomes released. Thus, if SW105 is moved to Check position with RY101 kept energized, shutter lock as well as self-timer remains defeated after checking. In order to hold both shutter lock and self-timer effective, R105 is used in place of RY101.

3-8. Circuits Related to Strobo



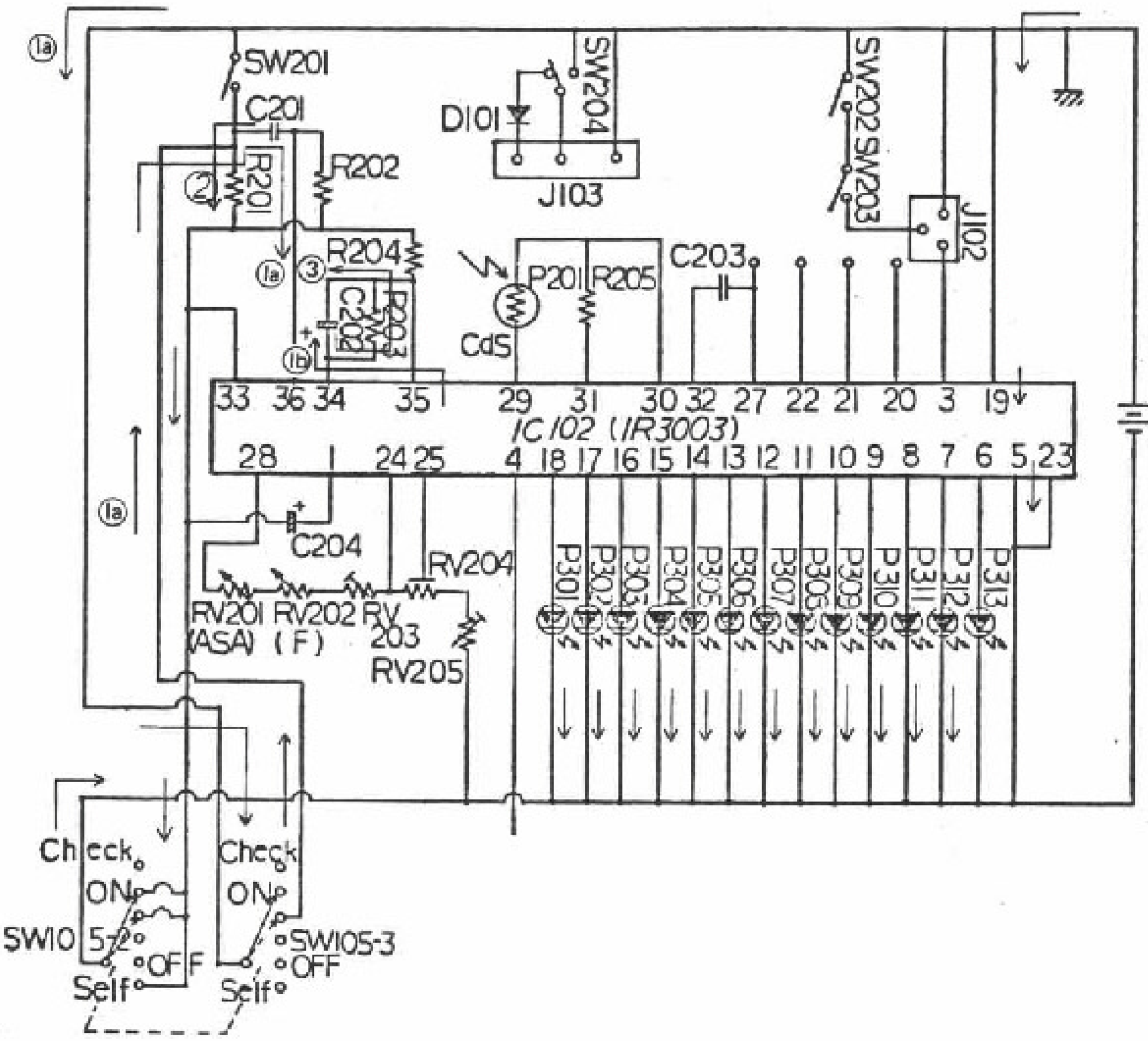
3-8-1. Automatic switch-over to X timing

1) Assume that a proper strobo (such as a T20 strobo) is attached to the camera. Turning on the strobo power on-off switch introduces current through the terminals of J102 (which the shoe of the camera), as shown by arrow lines.
2) As current flows from terminal 3 to terminal (A), the transistor connected to terminal 4 switches on, thereby establishing continuity from terminal 19 to terminal 4.
3) The voltage (3 volts) of terminal 4 applies to terminal 8 of IC101, and this automatically induces X timing.

3-8-2. Strobo-charge indication and light check indication

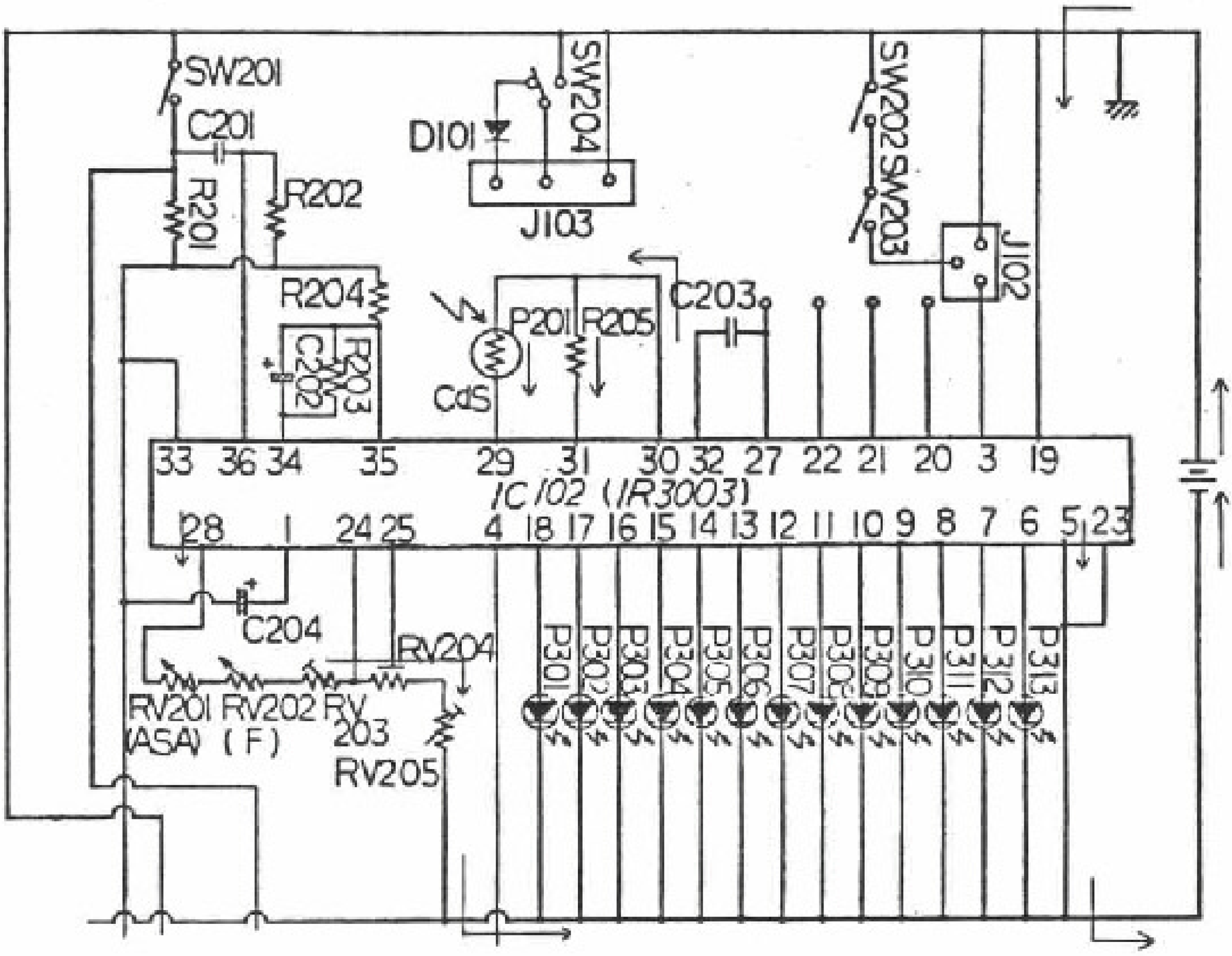
1) The current that flows from terminal 3 of IC102 to terminal (A) is small before strobo charging starts: since this current is small then, another transistor inside IC102, which is connected to terminal 6, does not switch on.
2) As the strobo becomes increasingly charged, the current, too, increases to switch on the transistor, thereby causing P313 to light up.
3) As the strobo checks the incident light, current flows intermittently to it and P313 flickers.

3-9. Indication Timing Circuit (for shutter speed indication)



1) Moving the switches (SW105) to ON position switches on the hold circuit inside IC102 by the current Ⓘa , which flows through C201 and SW105-3. The pulse generating circuit remains off. C202, too, gets charged at the same time by the current Ⓘb .
2) As the hold circuit gets switched on, the indicator circuit becomes energized to commence indication.
3) Also, with this switching-on of the hold circuit, C202 begins to discharge. The discharging current is indicated as 3). (The time constant circuit starts its action.)
4) As C202 becomes increasingly discharged, the potential of its positive (+) side goes down. When this falling potential reaches the reference level, the hold circuit becomes released. About a minute and a half will be required to release the hold circuit.
5) The releasing of the hold circuit puts out the indication.
6) The second indication is initiated by SW201 (the switch at the seat of release button).

3-10. CdS Light Sensing Circuit



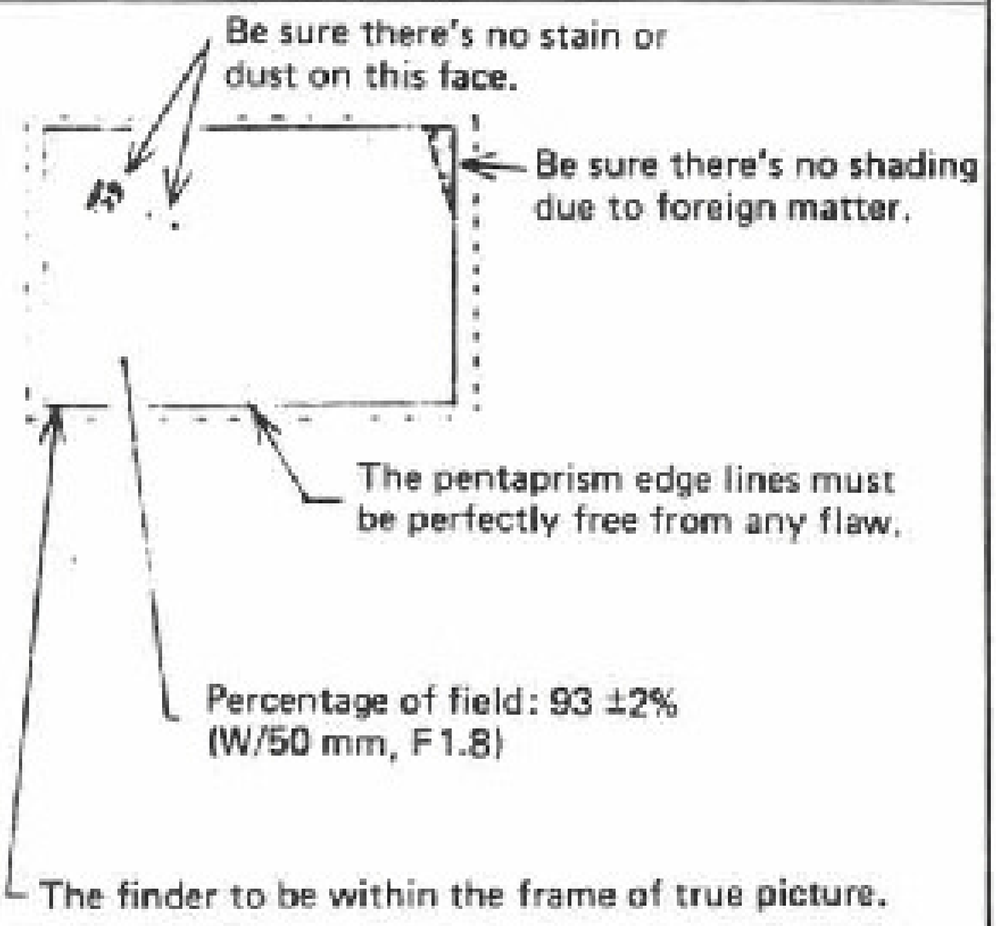
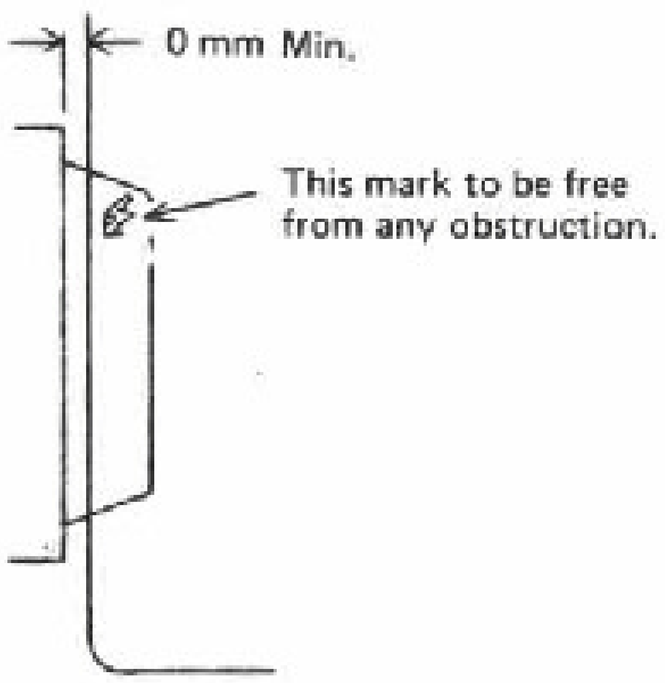
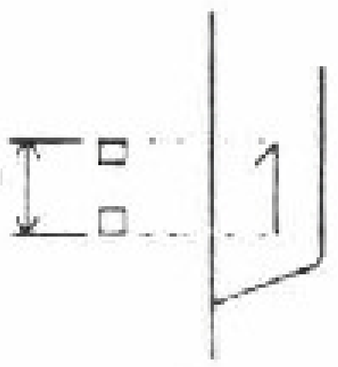
1) The path of current is from terminal 30 through CdS, terminals 29 and 28 and then through PV201, RV202 and RV203.
2) IC102 operates in such a way that, when the intensity of incident light is high, the voltage (through CdS) at terminal 29 is high, and vice versa.
3) This voltage at terminal 29 is checked and compared with the reference voltage at terminal 31 next to R205. It is according to the checked voltage that LEDs (P301 ~ P312) are lit.
4) P312 is the 1-second LED; P311 being the 1/2-second LED; . . . P302 is the 1/1000-second LED. P301 is for OVER indication. (P313 is for strobo indication.)

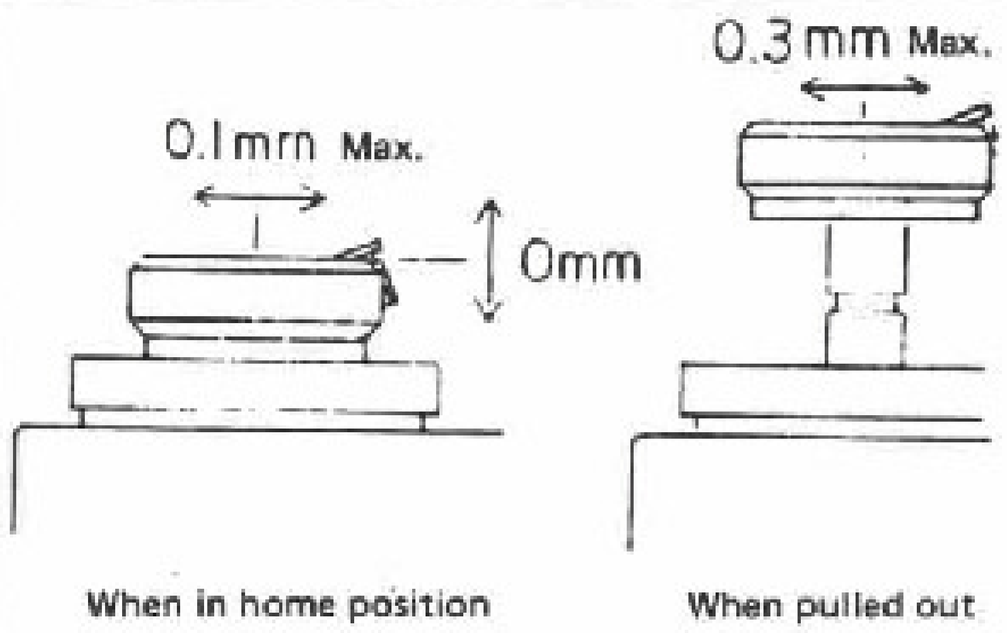
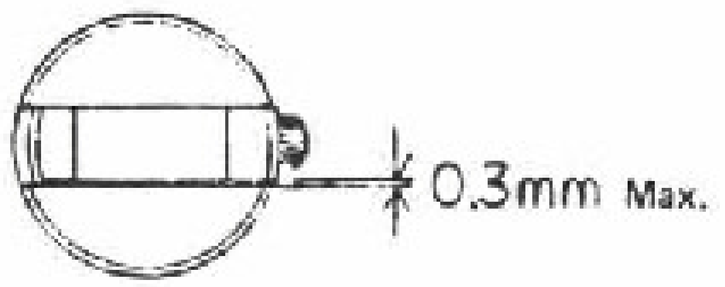
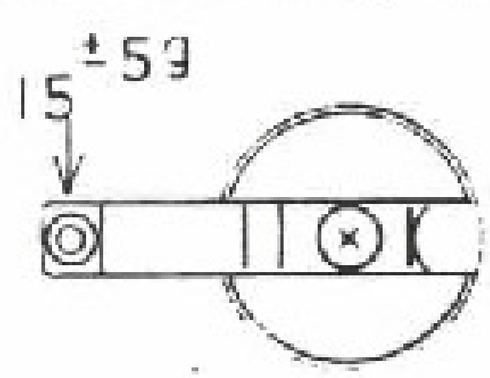
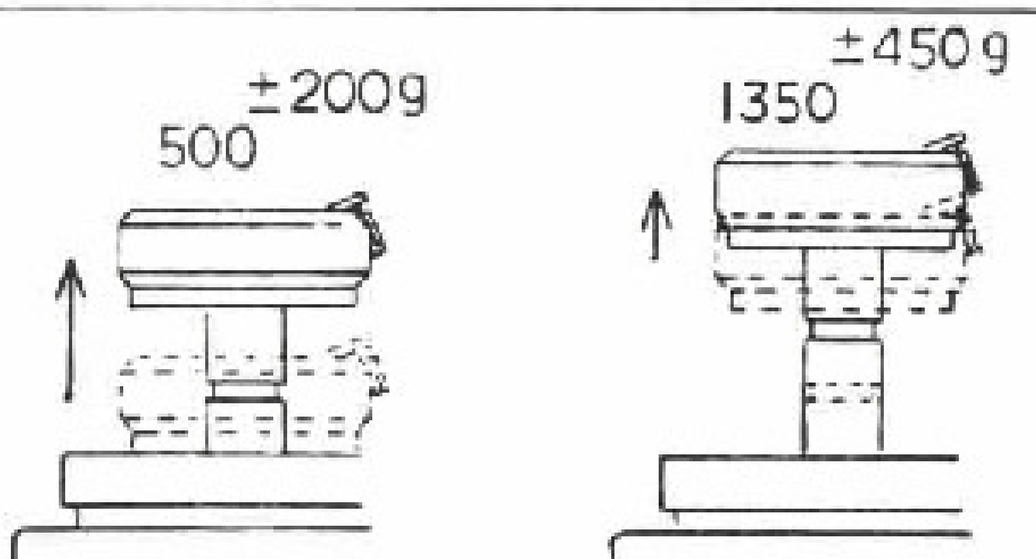
CHECK POINTS
(INSPECTION STANDARD)

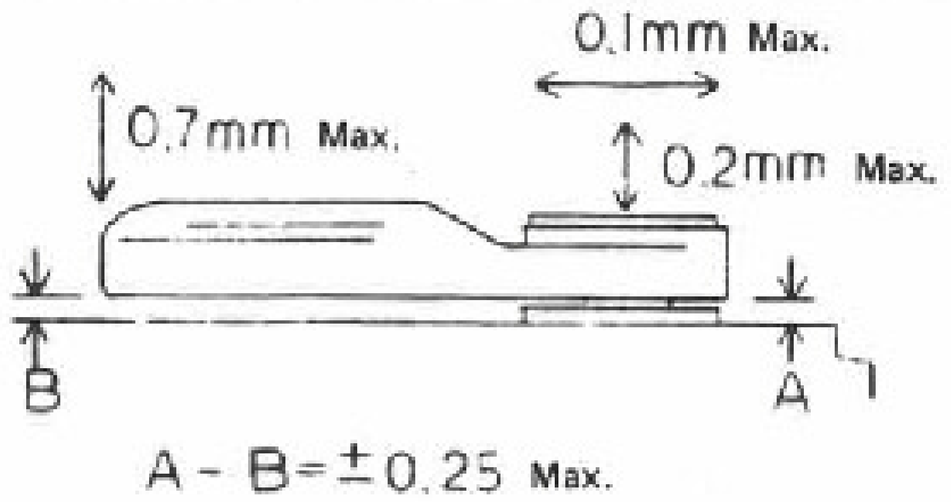
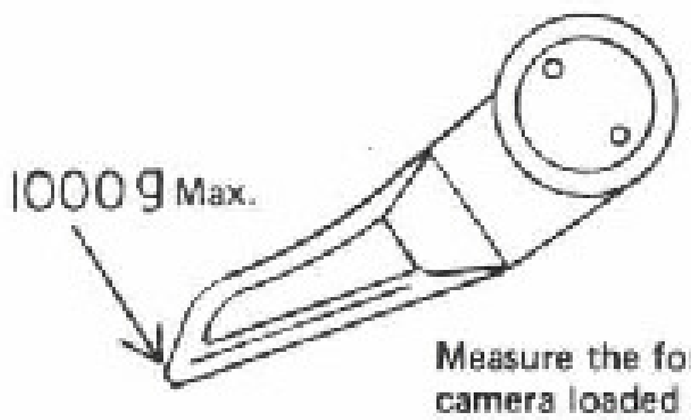
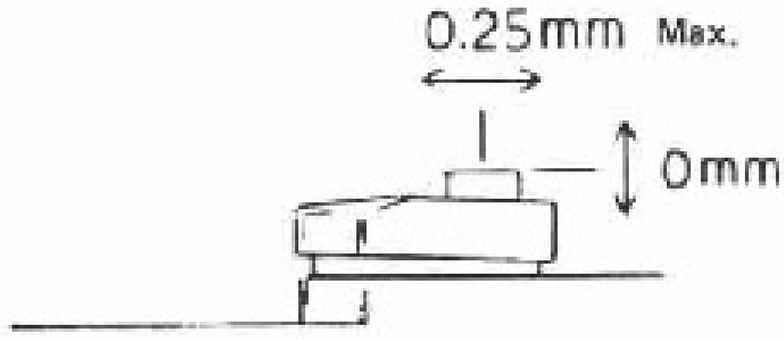
B. CHECK POINTS (INSPECTION STANDARD)

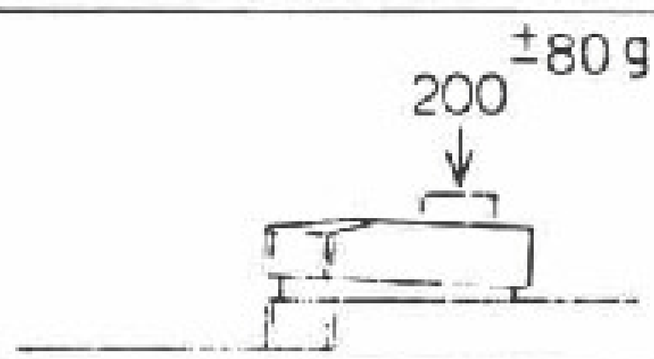
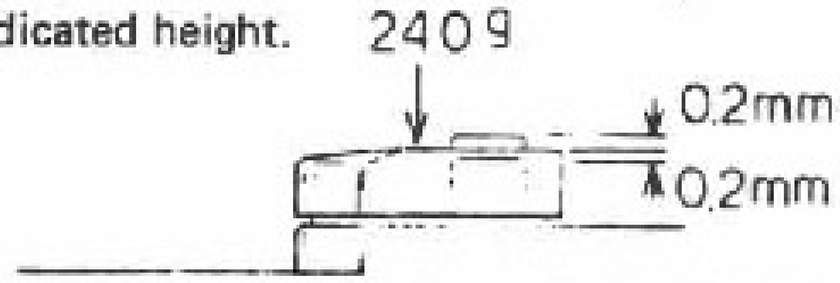
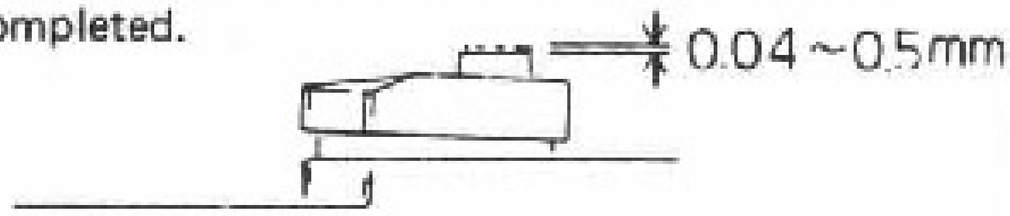
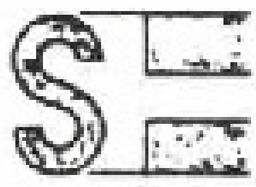
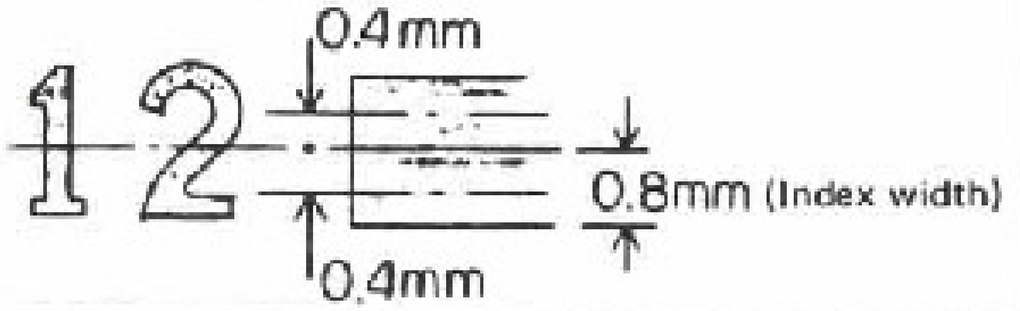
CONTENTS

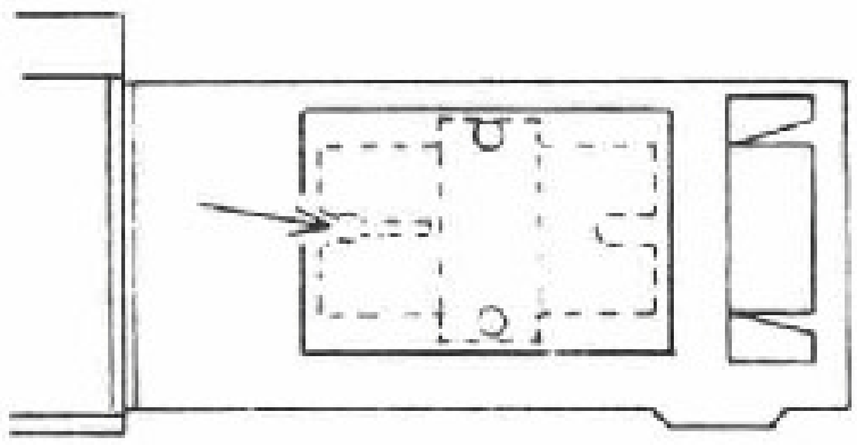
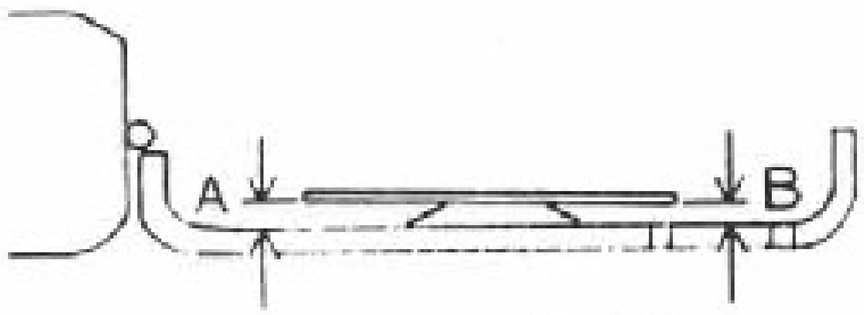
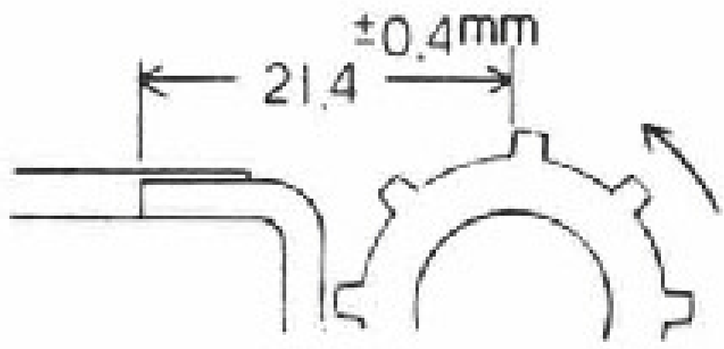
I. APPERANCE AND FUNCTIONAL QUALITY

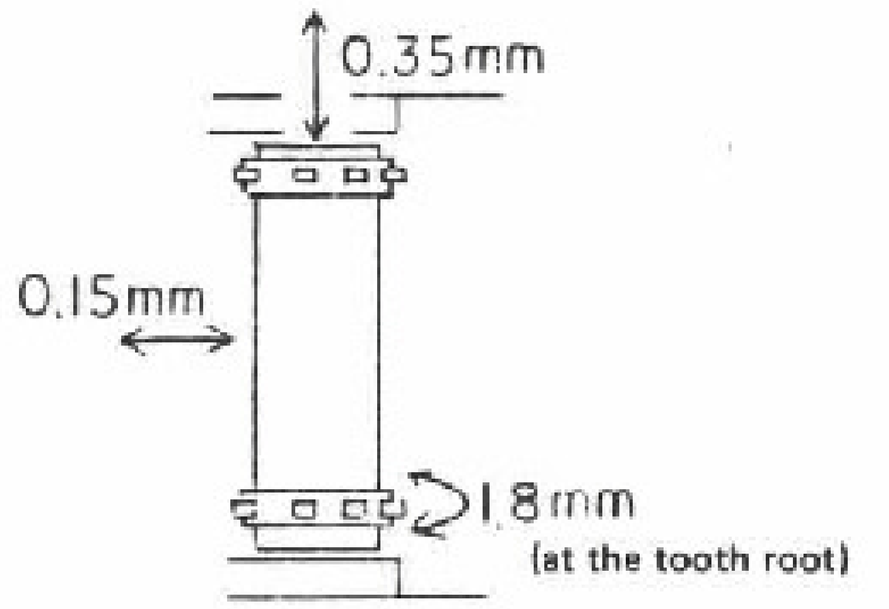
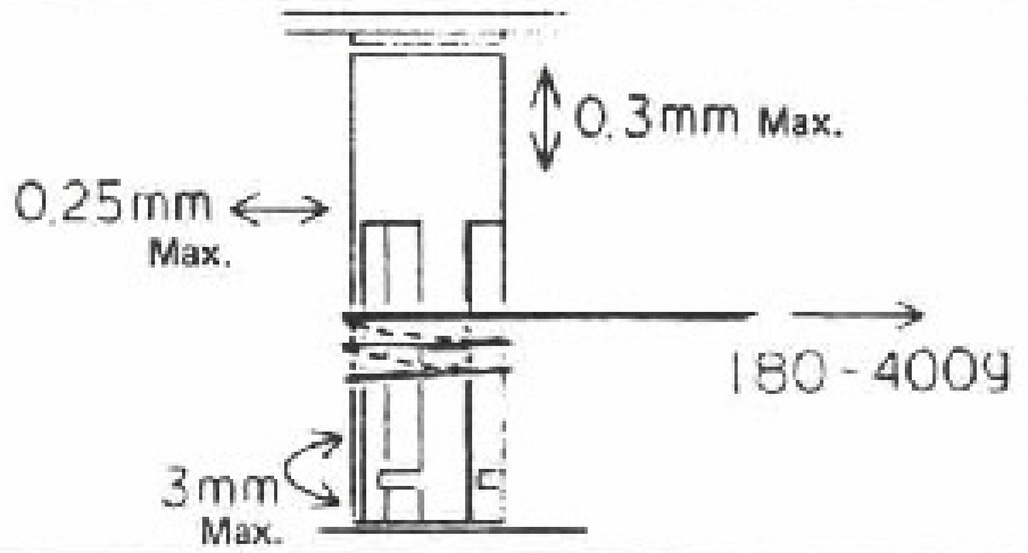
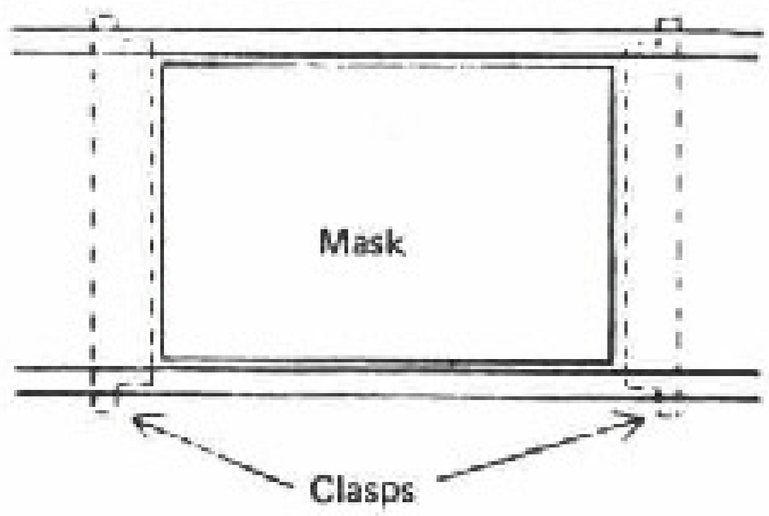
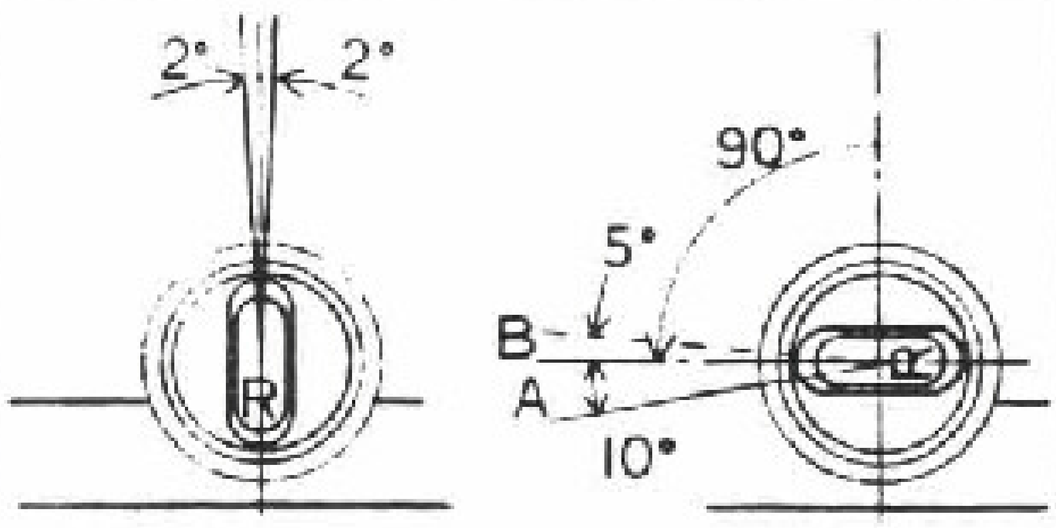
What to inspect	What to check	Checking method or criteria
1. Finder	1) Field of view	
	2) Indicating plate	 Be sure the plate is trued up as observed with naked eyes.
	3) Indicating LED	Position This dimension to be within the character width.  (1) Be sure that light comes on always at one point. (Sometimes at two points.) (2) With a prescribed strobo connected to camera, be sure that the indicating LED for the strobo lights up upon the charging up of the strobo, i.e., when the strobo power source is turned on. Also, be sure that this LED flickers when light-checking action is in progress after the release button has been pressed.

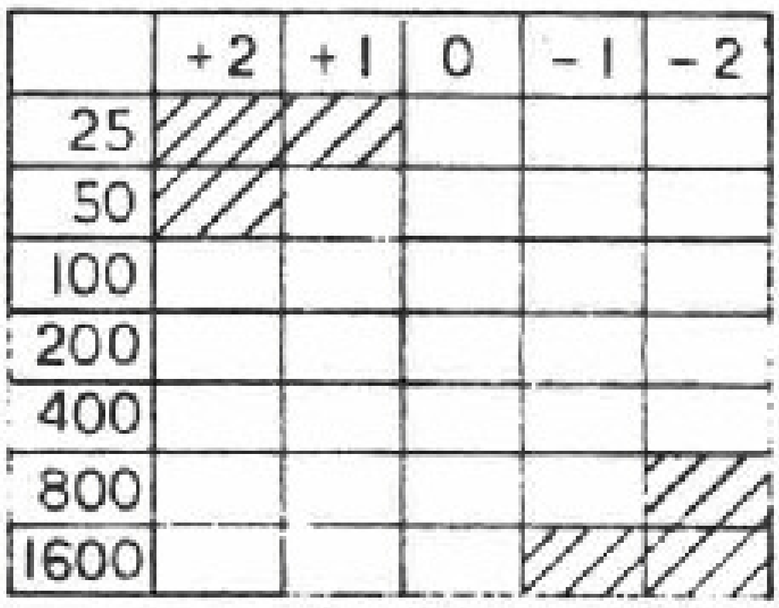
What to inspect	What to check	Checking method or criteria
2. R knob	1) R knob rattle	 When in home position / When pulled out
	2) Clearance between R knob and crank	
	3) Smoothness of re-winding motion	Whether the camera is loaded with film or not, this motion must be smooth, free of any sticking.
	4) Friction	With the film removed, be sure that no more cranking force than is indicated is required. 
	5) Force for pulling out the knob	 Be sure that the knob is capable of self-returning.
3. Winding lever	1) Lever retainer	 Be sure there is no evidence of galling at these parts.

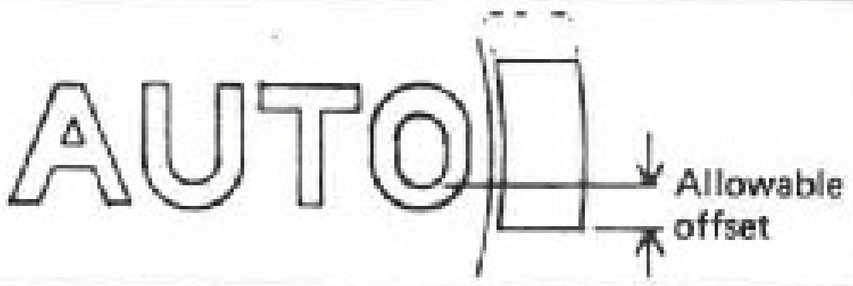
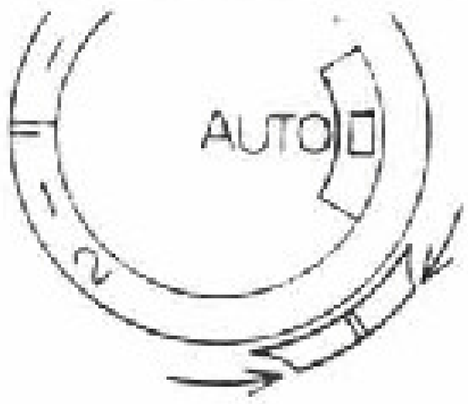
What to inspect	What to check	Checking method or criteria
(Winding lever)	2) Winding lever rattle	
	3) Accuracy of winding action	(1) Make sure that a single stroke of the lever accurately advances the film by one frame and charges the shutter and mirror.
		(2) Operate the lever rapidly to be sure that the shutter gets charged positively at each turning of the lever.
	4) Smoothness of winding action	There shall be no initial sticking; and the lever shall move without any abnormal noise, squeak or hitch through its full stroke.
	5) Operating force	 Measure the force, with the camera loaded with film.
	6) Accuracy of partial winding	Wind the film by operating the lever by repeating partial stroke, and be sure that each stroke advances the film by a corresponding amount and locking the film in partially advanced position.
4. Release button	1) Button rattle	
	2) Accuracy of releasing action	(1) Make sure that the shutter is positively released when the button is pressed.
		(2) Press the button hard and let it go gently to see the returning action occurs properly.
	3) Smoothness of releasing motion	Be sure that the button moves without any sticking, squeaking or hitch.
	4) Button rotation	Be sure that the button will not rotate.

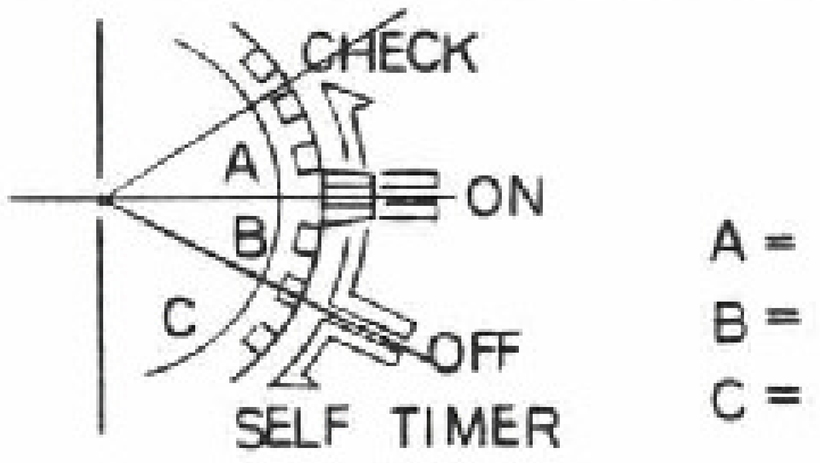
What to inspect	What to check	Checking method or criteria
(Release button)	5) Releasing force	
	6) Releasing position	Be sure that releasing action occurs when, with 240 grams applied to its boss, the button is pressed to the indicated height. 
	7) Locking position	Make sure that the button becomes locked at the indicated position before the winding action is completed. 
5. Film counter	1) Correspondence between index and graduated marks	(1) Where "S" letter is provided, be sure that the index is within the width of this letter, when the back lid is opened and closed. 
		(2) Where letter "S" or an odd number is used, the deviation, if any, must be within the value indicated. 
	2) "No.1" indication	After or before chargin, open and close the back lid and advance three frames of film to see if "No.1" indication occurs as it should.
	3) Stopping position	Requirement: Pointing to (37) and "E" clearly visible.
	4) Accuracy of returning action	Open the back lid to be sure that the counter returns to "S" from any position.
6. Rear cover	1) Condition of skin	(1) Clearance: 0.2 mm max.
		(2) Swells and dents: Not to be appreciably large.
		(3) Bond: The skin should be free from any evidence of coming off.

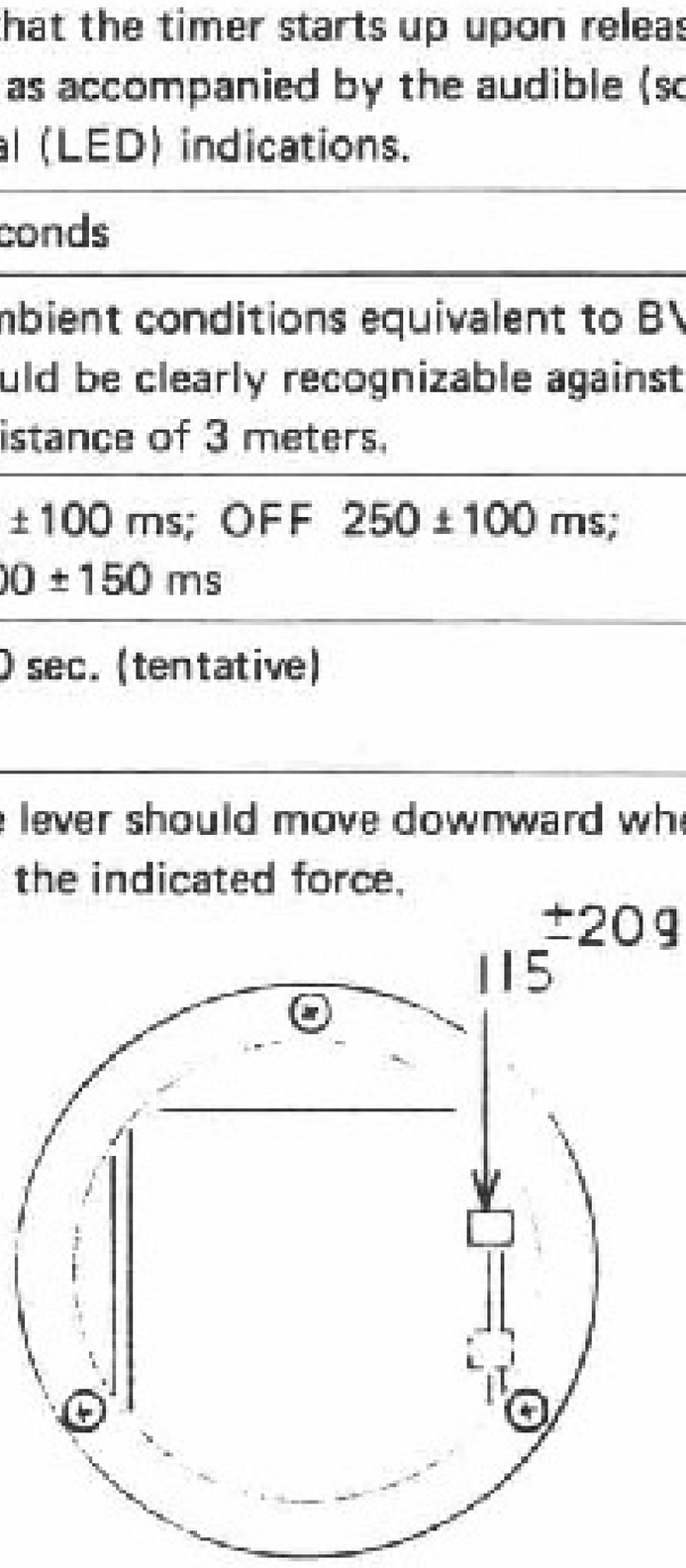
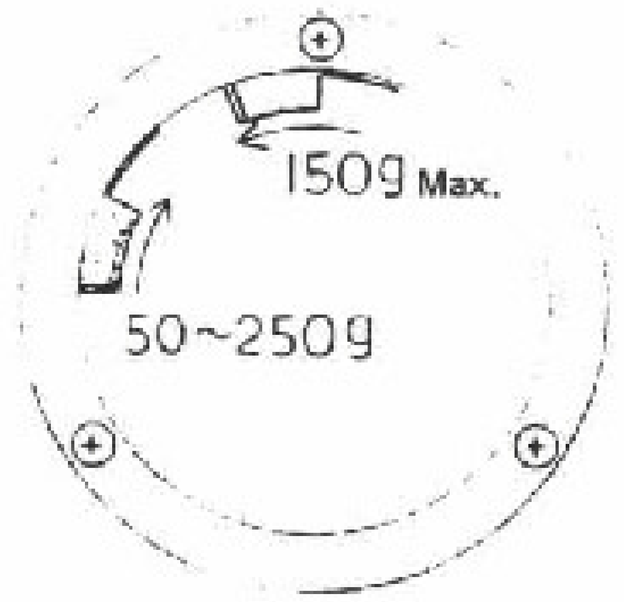
What to inspect	What to check	Checking method or criteria
(Rear cover)	2) Rattle in fore-aft direction at the time of locking	With or without patrone, the key part should have no rattle.
	3) Hinge rattle	(1) Wooble: There should be no rubbing of the edges of the camera body.
		(2) Vertical: 0.15 max.
	4) Smoothness of open-close movement	Be sure that the cover moves without any hitch and that it moves smoothly with its own weight.
7. Key	1) Accuracy of action	Make sure that pulling the winding knob out to second position opens the back cover positively and that releasing the pull-out knob allows the key to return home.
	2) Force for closing the rear cover	With the patrone in, a force of 1 to 2.5 kg applied to the patrone part of the cover should close the cover.
8. Pressure plate	1) Direction of plate in place	Be sure that the fixed side is on the hinge side. 
	2) Trueness of plate in place	 A − B = 2mm Max.
9. Sprocket	1) Tooth position	 Measure the amount of rattle by pushing it to the mask side.

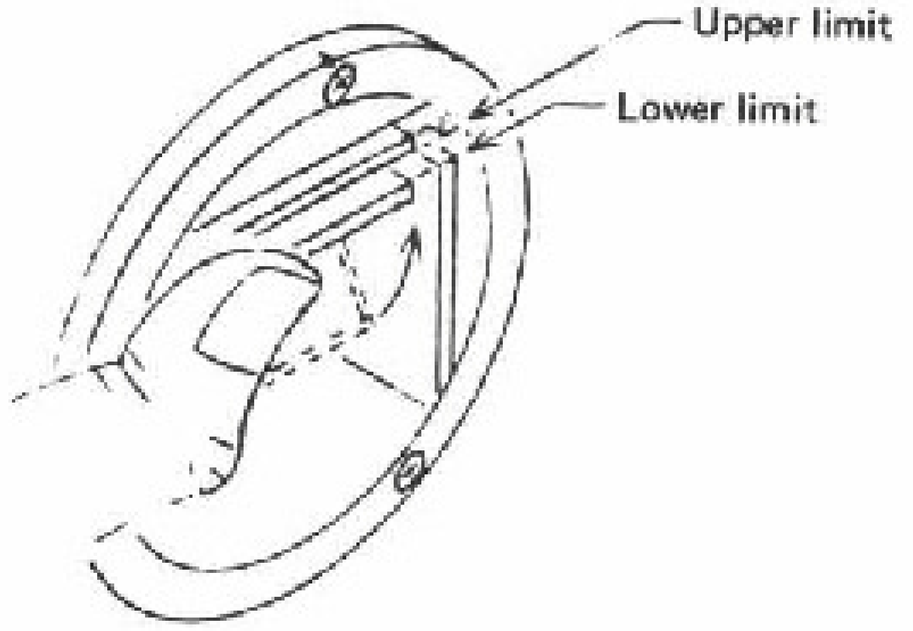
What to inspect	What to check	Checking method or criteria
(Sprocket)	2) Rattle	
10. Spool	1) Rattle	
	2) Preload	
11. Shutter curtains	1) Curtain frame position	 Be sure that, before and after charging, the clasps shy away from the mask.
	2) Blur, fading and moire due to leading curtain	There should not be any appreciable blur, fading or moire.
	3) Curtain tensioning	Make sure that the curtain is neither tilted nor sagged and that it is properly tensioned.
12. Rewinding clutch	1) Trueness of rewinding clutch	 A = ordinary range B = (seldom)

<table>
<tr><th>What to inspect</th><th>What to check</th><th>Checking method or criteria</th></tr>
<tr><td rowspan="3">(Rewinding clutch)</td><td>2) Accuracy of setting on R side</td><td>Be sure that the clutch, when turned by more than 90°, stays firmly set without any tendency to move back.
(The clutch should so stay also during winding.)</td></tr>
<tr><td>3) Reliability of clutch action</td><td>Be sure that, with the clutch set on R side, its sprocket freewheels.</td></tr>
<tr><td>4) Smoothness of action</td><td>Make sure that the clutch restores itself smoothly when the subsequent winding action is started.</td></tr>
<tr><td rowspan="5">13. Mode knob</td><td>1) Reliability of ASA dial</td><td> 

Each blank box represents a combination. Be sure that all combinations are available.</td></tr>
<tr><td>2) Offset between index and graduation mark</td><td> 
</td></tr>
<tr><td>3) Accuracy of mode lever action</td><td>Make sure that a switch-over occurs for certain at each click position.</td></tr>
<tr><td>4) Smoothness of mode lever motion</td><td>The lever should move without any hitch.</td></tr>
<tr><td>5) Mode lever operating force</td><td> 

The mode lever should get out of arresting (click) position when acted on with a force of 0.57 ~ 0.82 kg at the arrowhead.</td></tr>
<tr><td>14. Select knob</td><td>1) Angle of selecting action</td><td> 
</td></tr>
</table>

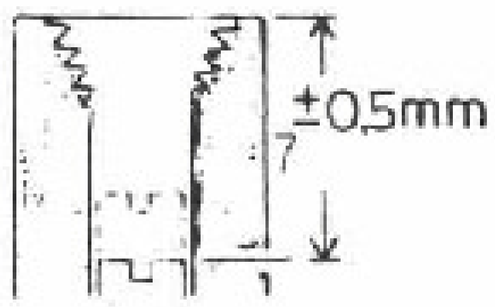
What to inspect	What to check	Checking method or criteria
(Select knob)	2) Knob operating force	Force for disengagement from arresting position (click): 350 ±50g Force for turning from one arresting position to another: 90 ±20g
	3) Confirmation of ON-OFF action	Be certain that the indicating LED in the finder lights up when the change is being made from OFF to ON.
	4) Reliability of CHECK action	Audible sounding and LED lighting should occur without fail.
	5) Reliability of self-timer action	Be sure that the timer starts up upon releasing and operates as accompanied by the audible (sound) and visual (LED) indications.
	6) Self-timer delay	12 ±3 seconds
	7) LED brightness	In the ambient conditions equivalent to BV15, the light should be clearly recognizable against the sun from a distance of 3 meters.
	8) Flickering interval for SELF mode	ON 250 ±100 ms; OFF 250 ±100 ms; Total 500 ±150 ms
	9) Indication limiter time	45 ~ 120 sec. (tentative)
15. Aperture lever	1) Operating force	Aperture lever should move downward when subjected to the indicated force. 
16. Aperture link ring	1) Operating force	

What to inspect	What to check	Checking method or criteria
17. Movable mirror	1) Smoothness of movement	There should be no hesitation, abnormal noise or hitch in its movement.
	2) Shutter releasing position	
	3) Mirror rebound upon rising	
18. B mount	1) Condition of mount screw	Be sure that the screw is free from any sign of stripping or other malcondition.
	2) Smoothness of removal and fitting	Check to be sure that the reference lens fits and comes off smooth, without any sticking or abrading tendency.
	3) Turning effort	The force required to turn the reference lens should be from 4 to 7 kg-cm (tentative).
19. Mounting seat of manual adaptor	1) Nicks and scratches	There should be neither nicks nor scratch marks in the mounting parts.
	2) Force for pushing in the adaptor	500 ~ 1400 g
	3) Force for pulling out the adaptor	400 ~ 1300 g
20. Release lock	1) Lock voltage	2 ±0.05 V
	2) Accuracy of locking	Operate the select switch on and off and check to be sure that, at any position of SELF, — (a) Releasing is possible at any voltage from 3.2 V down to the lock voltage indicated above. (b) Locking occurs positively at a voltage level below the lock voltage.
21. Winder	1) Contact	(1) Be sure that the point face is below the contact seat by 0 ±0.05 mm.
		(2) Contact seat should be below the lower plate by 0.1 ±0.2 mm.

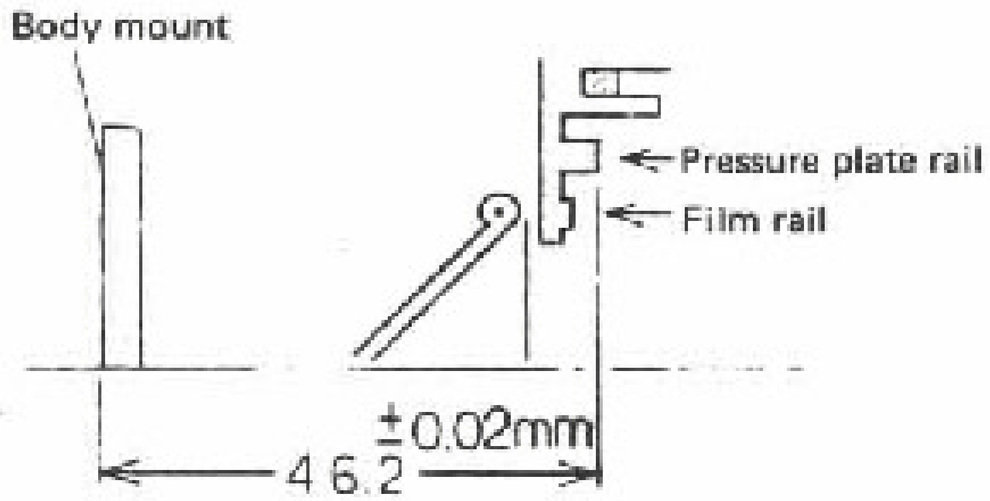
What to inspect	What to check	Checking method or criteria
(Winder)	2) Reliability of action	Check to be sure that no action occurs when the motor drive is attached and that the action takes place for certain when the winder is attached.
	3) Circuit continuity between contact points and insulation resistance	(1) Continuity to be noted with not more than 0.2 ohm indicated by the tester. (2) Insulation resistance to be at least 50 megohms at 500 volts.

II. FUNCTIONAL PERFORMANCE QUALITY

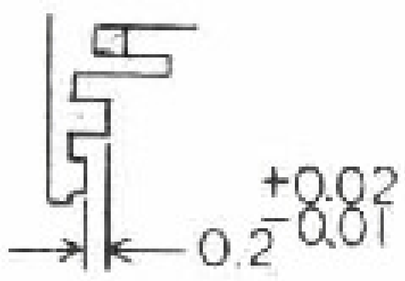
1. **Depth for initiating release in the core**
   Releasing action to be initiated at the indicated depth.



2. **Flange back**
   From pressure plate to film rail face

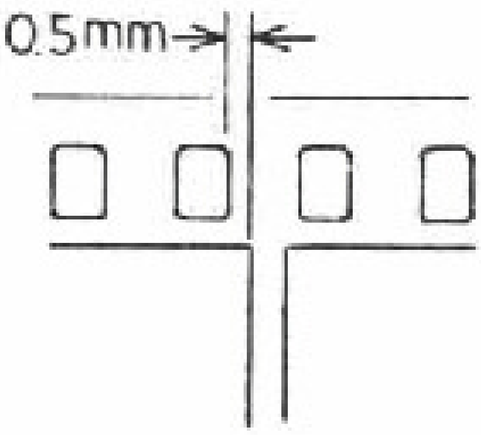


3. **Tunnel distance**

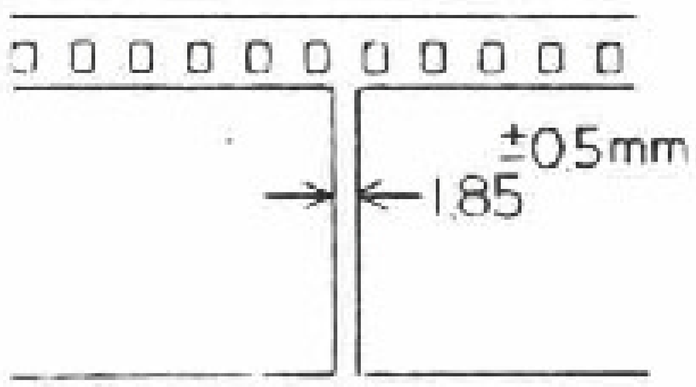


4. **Vertical deviation of picture image face**
   The picture image face (frame) to be off perforations.

5. **Perforation position**
   Picture frame must be at least 0.5 mm off the perforation.



6. **Distance between picture frames**



7. Indicating accuracy of exposure meter

7-1. Test conditions:

Voltage: 3.15 ±0.005 V
Previous illumination: 20,000 lux for 30 minutes or longer
K value of light source box: K = 1.3

7-2. Indicating accuracy requirement:

LEDs should light for the combinations, as follows:

(a) Brightness accuracy (ASA100 F5.6)

Brightness	BV4	BV6	BV8	BV10	BV12	BV14	BV15
LED	1	2	8	30	125	500	1000

(b) Aperture actuating accuracy (ASA100 BV10)

Aperture	F1.8	F2	F2.8	F4	F5.6	F8	F11	F16
LED	250	250	125	60	30	15	8	4

Alternatively (ASA100 BV12)

Aperture	F1.8	F2	F2.8	F4	F5.6	F8	F11	F16
LED	1000	1000	500	250	125	60	30	15

(c) ASA conversion accuracy (F5.6 BV10)

ASA	25	50	100	200	400	800	1600
LED	8	15	30	60	125	125 250 500	250 500 1000

Alternatively (F5.6 BV12)

ASA	25	50	100	200	400	800	1600
LED	30	60	125	250	500	500 1000 and over	1000 and over

8. **Curtain speed**

Standard speed: 12.0 ms

Difference in speed between first curtain and second curtain to be 0^{+8}_{-15}, with the former being faster.

9. **MANUAL timing**

With the tool manual adaptor, whose error is not greater than 1%, the following requirements should be met:

Time in second	Reference value for adjustment	Requirement on camera in use
1/8	74.8~209 ms (±0.75)	(Same as the left)
1/500	1.17~3.27 ms (±0.75)	(Same as the left)
1/1000	0.5 ~ 2 ms (±1.0)	(Same as the left)
MINI	0.3 ~ 2.0 ms	
X	15 ~ 3- ms	

(Tentative)

10. **Exposure time variation**

1 ~ 1/1000 sec.
X
AUTO
} 0.35 EV max.

(Use the tool manual adaptor to check for 1 ~ 1/1000 second range.)

11. **Erratice exposure**

12. **Delay time**

The first curtain to start closing immediately upon the full opening of second curtain; and the switching-in to occur within 1.5 ms.

13. **Contact efficiency**

50% or greater for Int. 1 ms; the permissible minimum being 40%.

14. **Contact resistance**

The resistance is statisfactory if continuity can be noted at 3 volts.

15. **Insulation resistance**

At least 30 megohms at 50 volts

16. **MANUAL exposure time where voltage varies**

Time variation for 3.2 V down to lock voltage should be within 0.3 EV.

17. **Auto exposure accuracy**

The following requirements should be satisfied under the conditions of ASA100, F5.6, two new batteries of 3.15 ±0.01 V and no previous illumination:

Brightness	Center value	Reference value for adjustment	Requirement on camera in use
BV 15	+0.3	−0.15 ~ +1.2 EV	−0.45 ~ +1.5 EV
BV 14	+0.3	−0.15 ~ +1.2 EV	−0.45 ~ +1.5 EV
EV 12	+0.1	−0.5 ~ +0.9 EV	
EV 11	0	−0.6 ~ −0.85 EV	−0.75 ~ +1.0 EV
EV 10	−0.1	−0.7 ~ +0.75 EV	
EV 8	−0.25	−0.9 ~ +0.65 EV	−1.0 ~ +0.75 EV
BV 6	−0.3	−1.2 ~ +0.4 EV	

18. **ASA selecting accuracy**
The following tabulated requirements are deviations from actually measured value under BV8, F5.6 and ASA 100:

ASA selected	Reference value for adjustment	Requirement on camera in use
400	−0.35 ~ +0.65EV	−0.35 ~ +0.65EV
800 *1	−0.75 ~ +1.25EV	−0.75 ~ +1.25EV
1600 *2		

NOTE:
*1. There must be a deviation of at least EV from actually measured value at ASA400.
*2. There must be a deviation of at least 0.3 EV from actually measured value at ASA800.

19. **Temperature characteristics**
Deviations from the values at normal temperature must be within the following limits:
1) MANUAL and X exposure
0.2 EV max. at −10°C
2) AUTO (ASA25 ~ 400)
At −20°C ~ +50°C
Equivalent of 1/250 and under 0.3 EV
Equivalent of 1/500 and under 0.4 EV
ASA800 ~ 1600
The limit is higher by 0.3 EV than the above-indicated limit.

20. **Humidity characteristics**
Leave the camera in a controlled atmosphere held at 20°C ~ 25°C and 90 ±5% relative humidity for 2 hours, after which the exposure time is to be measured to determine the deviation from the reference value noted before the camera is put to the test.
The deviation must be not greater than 1 EV for equivalent of AUTO, ASA100, 2 sec.
NOTE:
There should be no evidence of abnormal condition with respect to releasing action and speed.

21. **Release lock voltage**
2 ±0.05 V

22. **Battery check voltage**
This voltage to be not lower than the lock voltage but not higher than 2.2 volts.
(Check indication should cease in the above voltage range.)

23. **Change in exposure for voltage change**
This change must be less than 0.3 EV for the range from 3.2 V to pre-lock voltage in both AUTO and MANUAL modes.

24. **Current consumption**

Selector switch position	Current
OFF	mA
ON	mA
CHECK	mA
SELF TIMER	mA

25. **Leakage current**
Not greater than 1 μA when selector switch is OFF.

26. **Protective circuit**
Put in the batteries the other way around to reverse the polarity: under this condition, no rupture should occur in IC and capacitor.

27. **Maximum exposure time**
The shutter should close in 2 to 20 seconds in complete dark when operated in AUTO and ASA100.

28. **Finder-indication limiter time**
45 ~ 120 sec. (tentative)

29. **Self-timer interval**
12 ±3 sec.

30. **SELF flicker interval**
ON 250 ±100 ms; OFF 250 ±100 ms; and Total 500 ±150 ms.

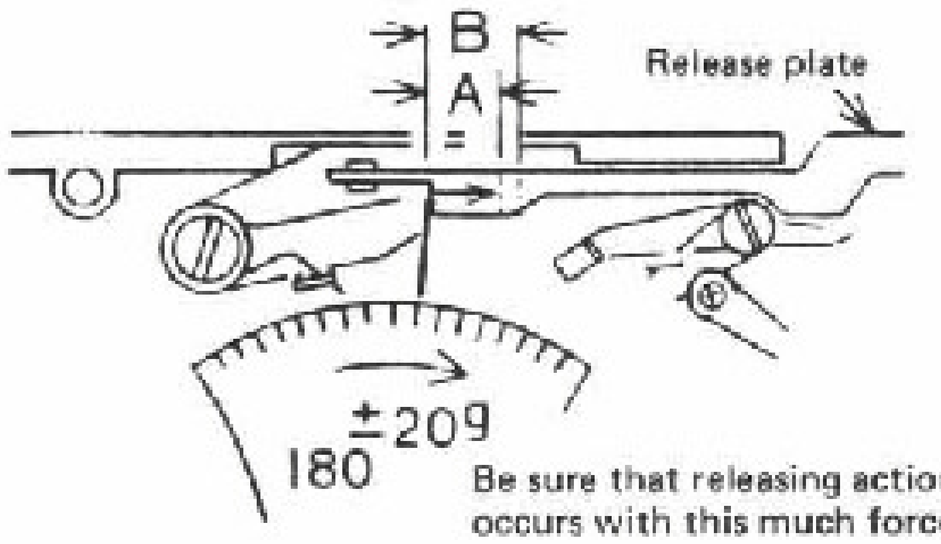
31. **Finder viewing**
−0.5 dioptric value

32. **One-side blur**
Not greater than 0.25 mm as compared to the center.

33. **Accuracy of focal plane position**
Optical difference between film rail race and focal plane to be within the following limit:
1) When tool is fitted. . . . . .+0.51 ±0.02 mm
2) At center, when optical path is through focussing glass.+0.05 ±0.02 mm

34. **Winder**
Operating force and stroke of release plate. (Check with bottom plate removed.)

A = Shutter releasing position . . . . . 2 ±0.4 mm
B = Stopping position . . . . . 2.5 mm max.



Be sure that releasing action occurs with this much force.

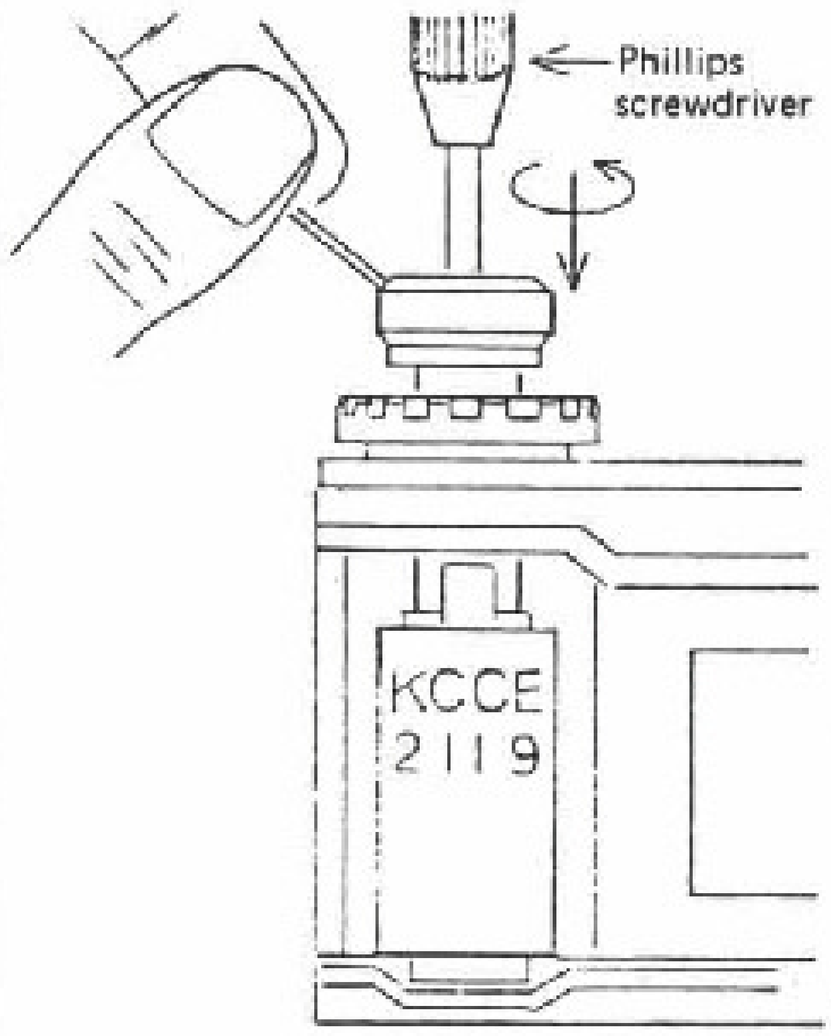
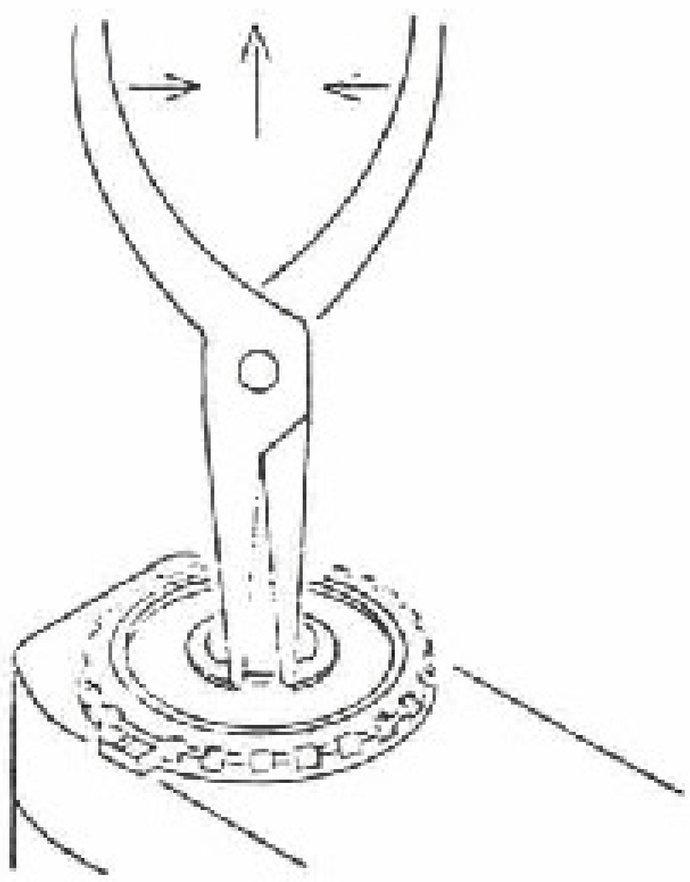
ORDER OF DISASSEMBLY

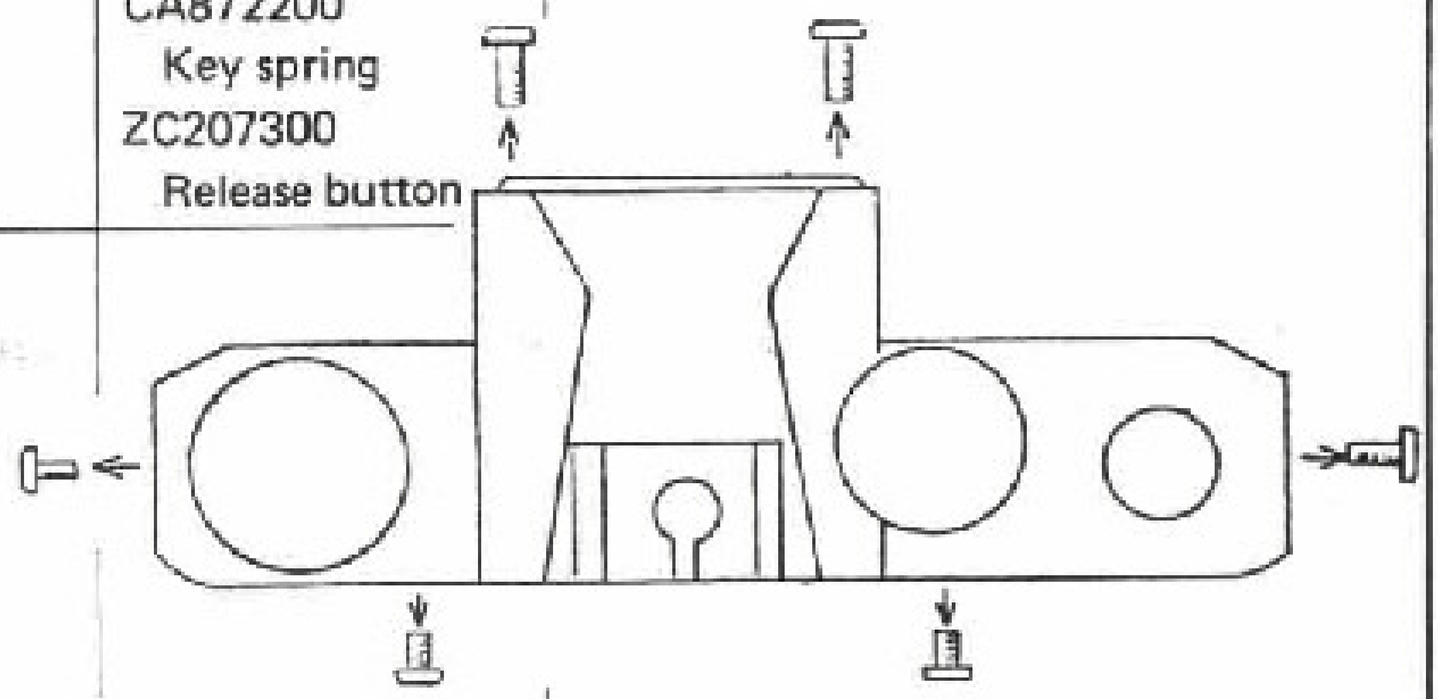
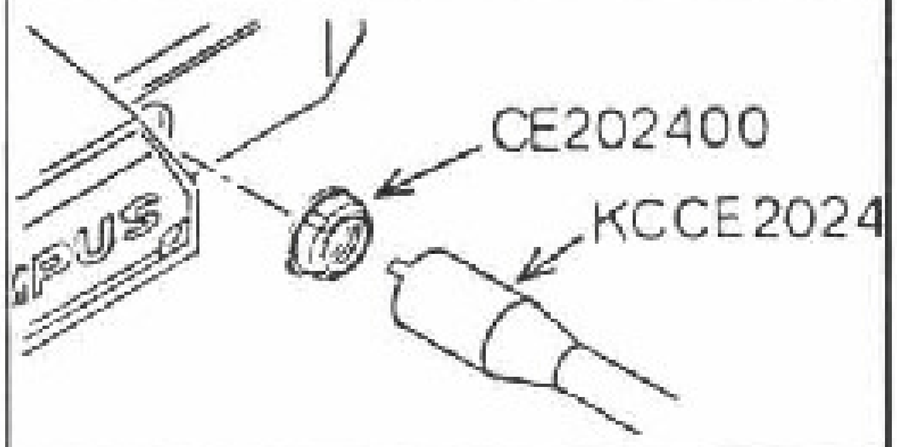
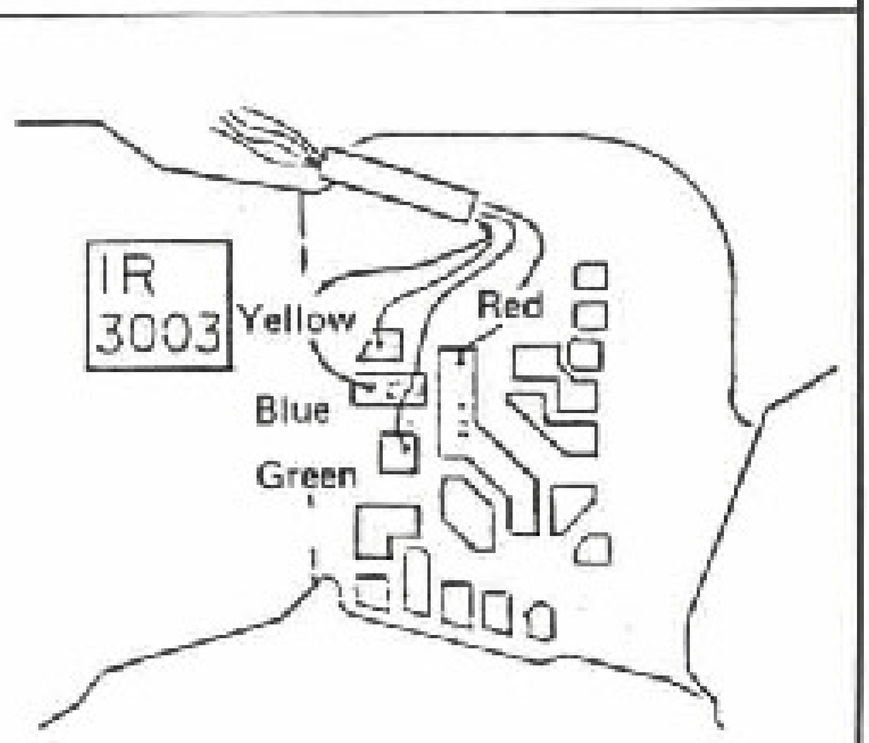
C. ORDER OF DISASSEMBLY

CONTENTS

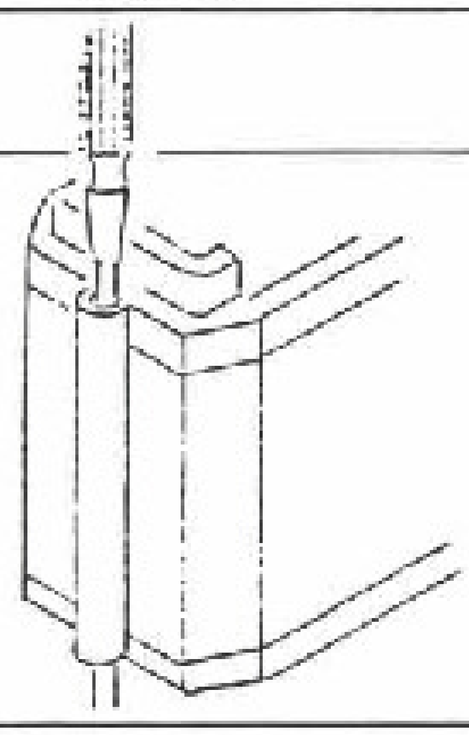
NOTE: Indicates parts that should not be touched directly by bare hand because special surface treatment is applied. Wear fingerstalls or use tweezers.

1. ZC200200 Top Cover

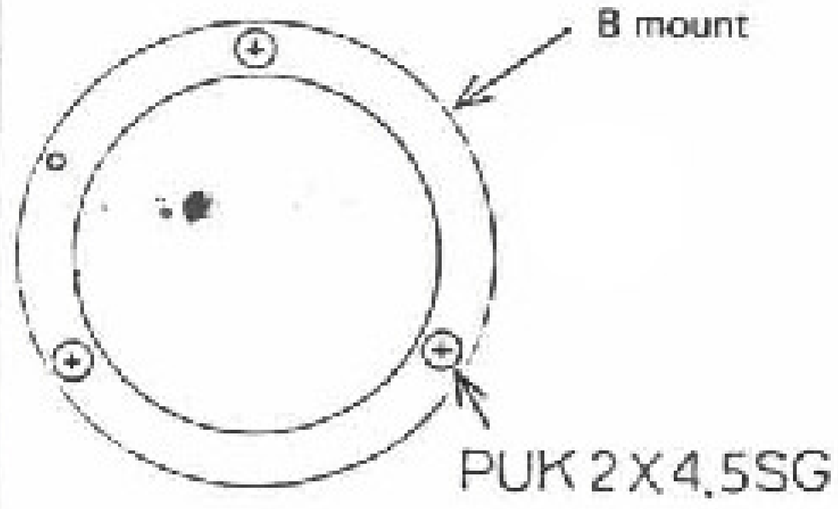
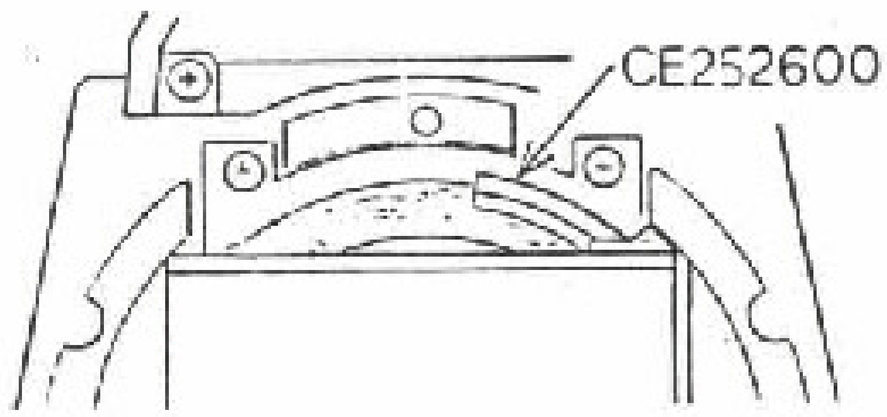
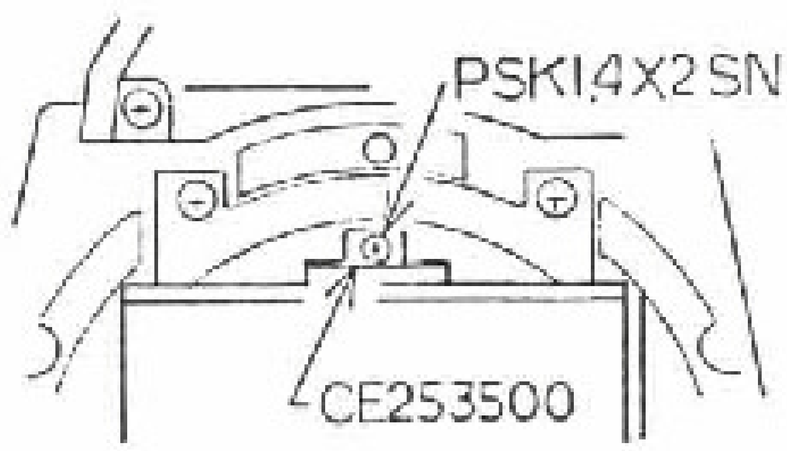
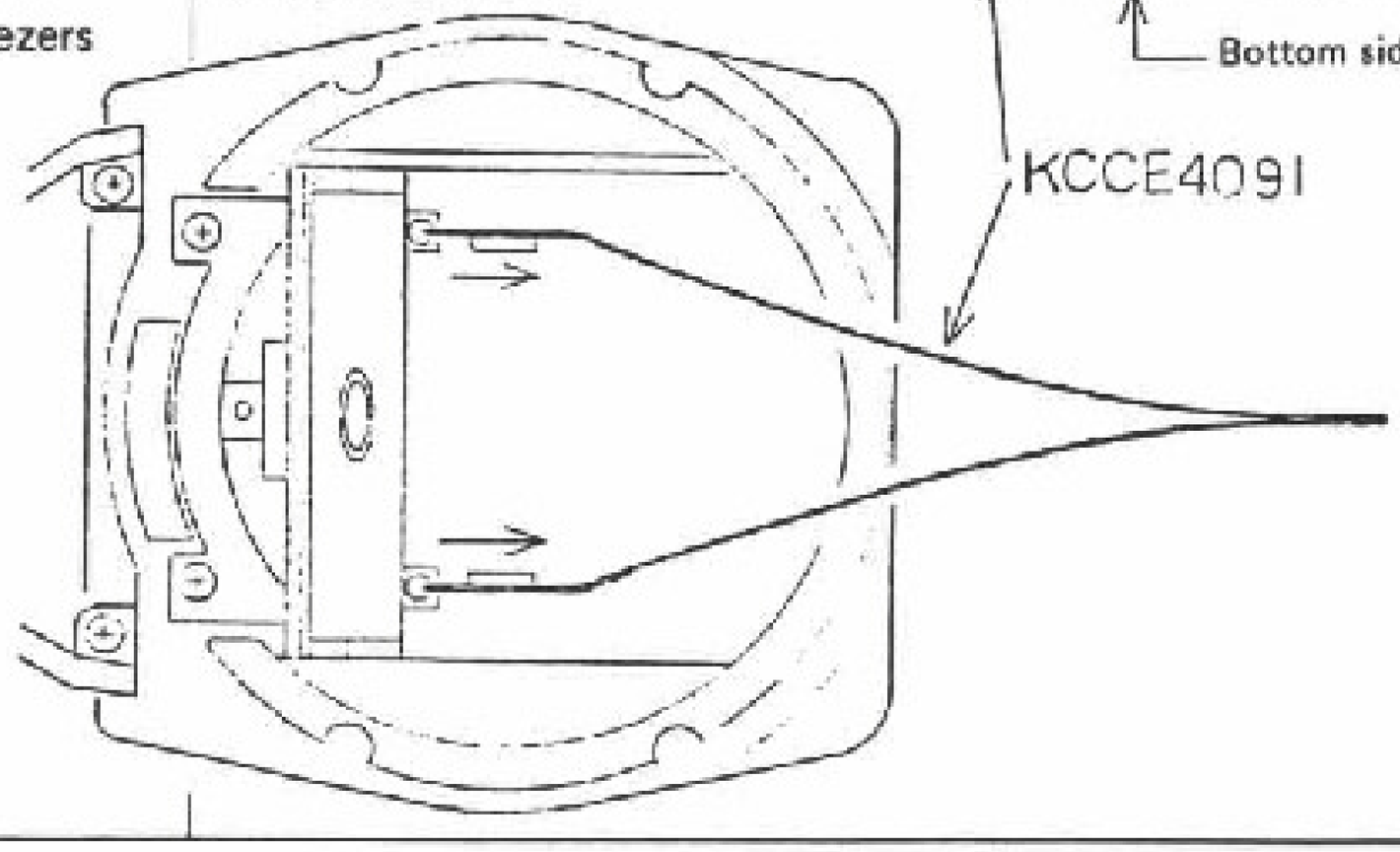
Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
CE200900 FW lever holder	1	KCCE 2009	ZC207200 Winding lever CE204200 FW lever washer	
CE201800 R screw	1	KCCE2119 R shaft holder	CE201700 R spring ZC208300 R knob	
SC0158 MR90	1	OT0065 Stop ring pliers	CE201600 (204300) R plate ZC208500 R change	

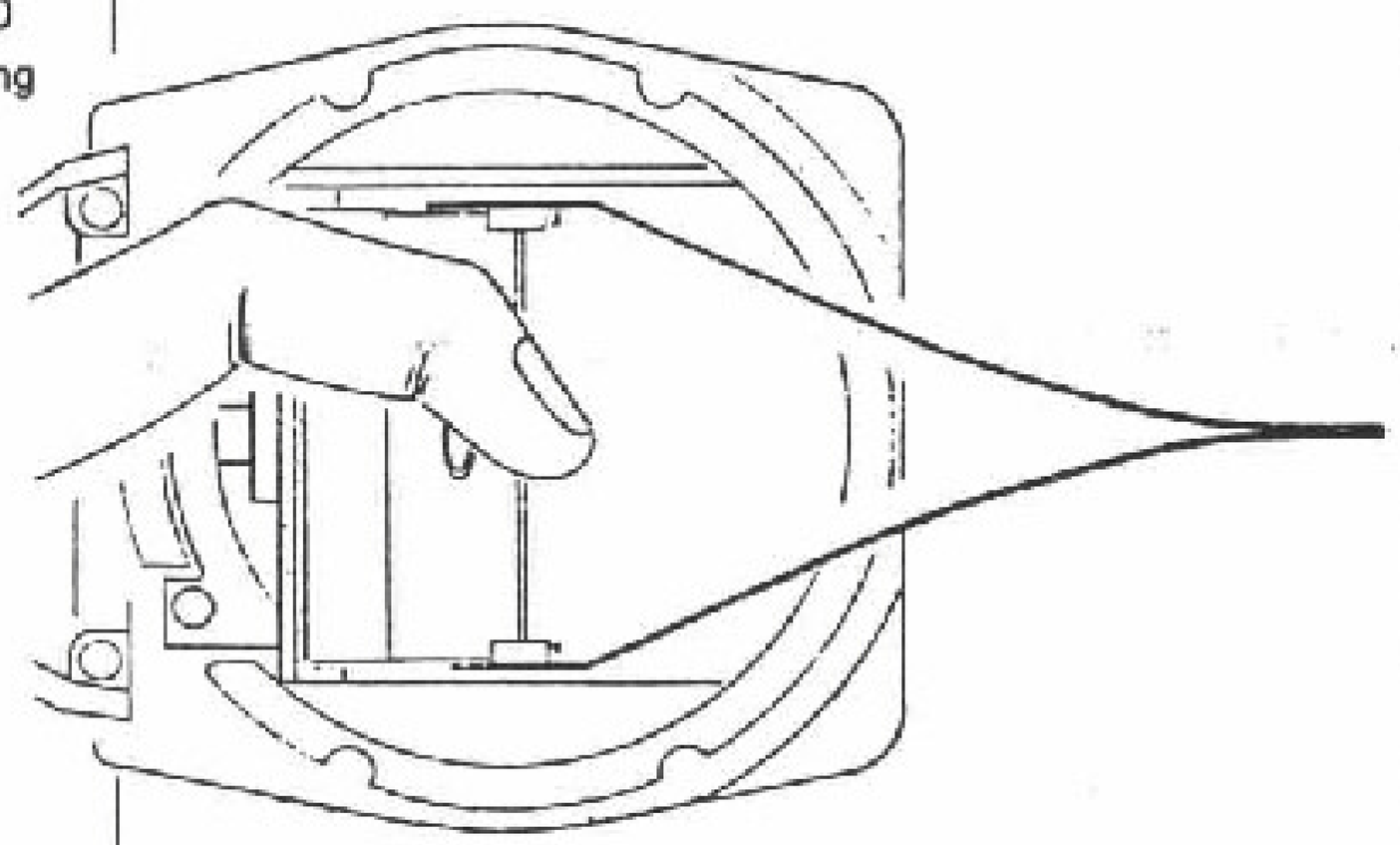
Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK1.7–410SG Screw	4		CA872200 Key spring ZC207300 Release button	
PUK1.7–416SG M washer	2			
CE202400 M washer	1	KCCE2024 Driver		
Undo soldered connection of FPC.	4		ZC200200 Top cover	
CAUTION: Be sure to refer to VI-2, in which how to put on the top cover is explained. Putting on this cover incorrectly is likely to give rise to trouble.				

2. ZC200500 Rear Cover (Top cover, ZC200200, is assumed to be off.)

Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
PSK2x4SE Screw	2		ZJ133700 Bottom plate	
CE210800 Shaft	1	No. 2 screwdriver	ZC200500 Rear cover	

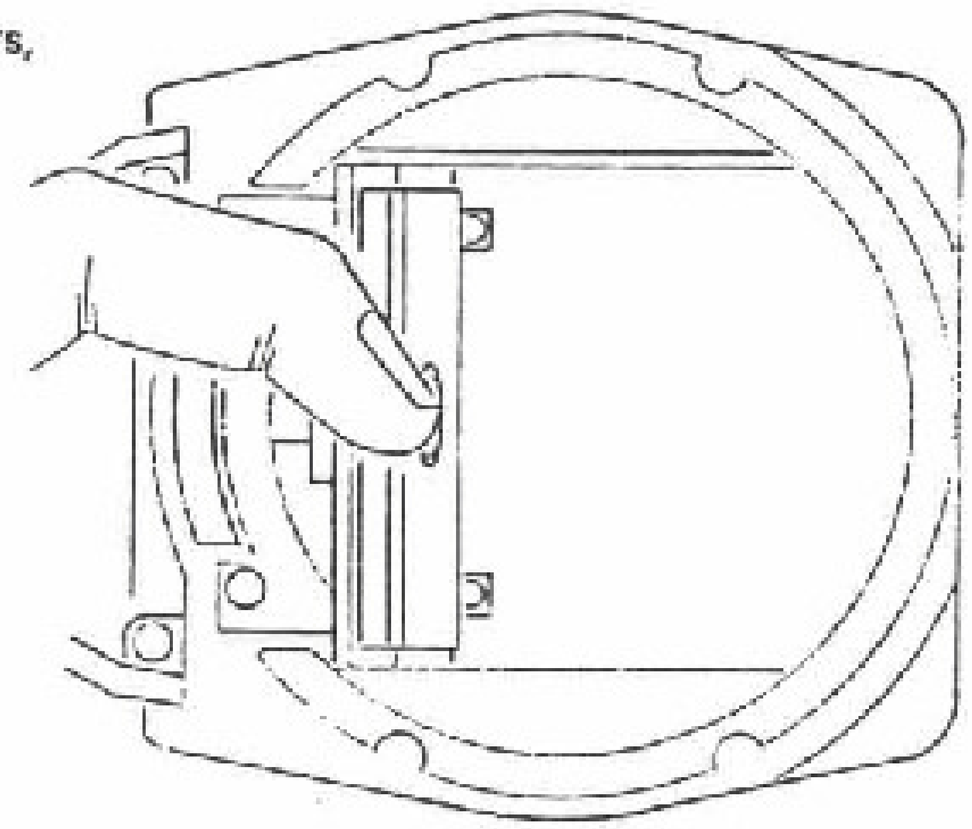
3. LC409100 Focussing Screen

Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK2x4.5SG Screw	3		CE254600 B mount CE254500 Front cover ZJ130600 Connecting ring	
CE252600 L cover	1		CE252600 L Cover might not come off easily because it is attached with PLYOBOND. To facilitate its removal, apply a small amount of the mixture liquid.	
PSK1.4x2SN Screw	1		CE253500 F fastener	
LC409100 Focussing screen	1	KCCE4091 Screen tweezers	Lay the camera down on its side to facilitate work.	

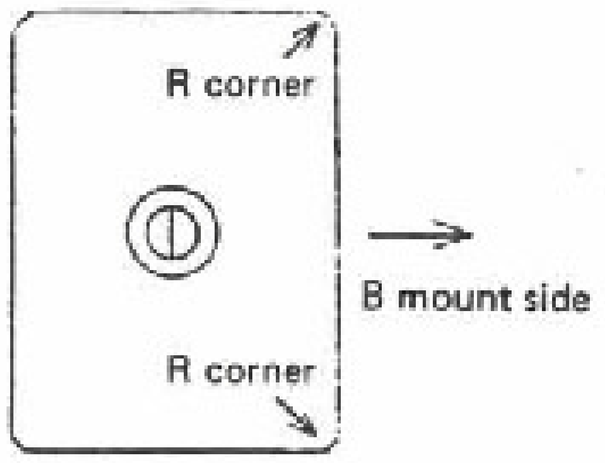
Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
		LC409100 Focussing screen		Pick the focussing screen with the forceps, as shown, and pull it up.

Fitting and setting the focussing screen in place.

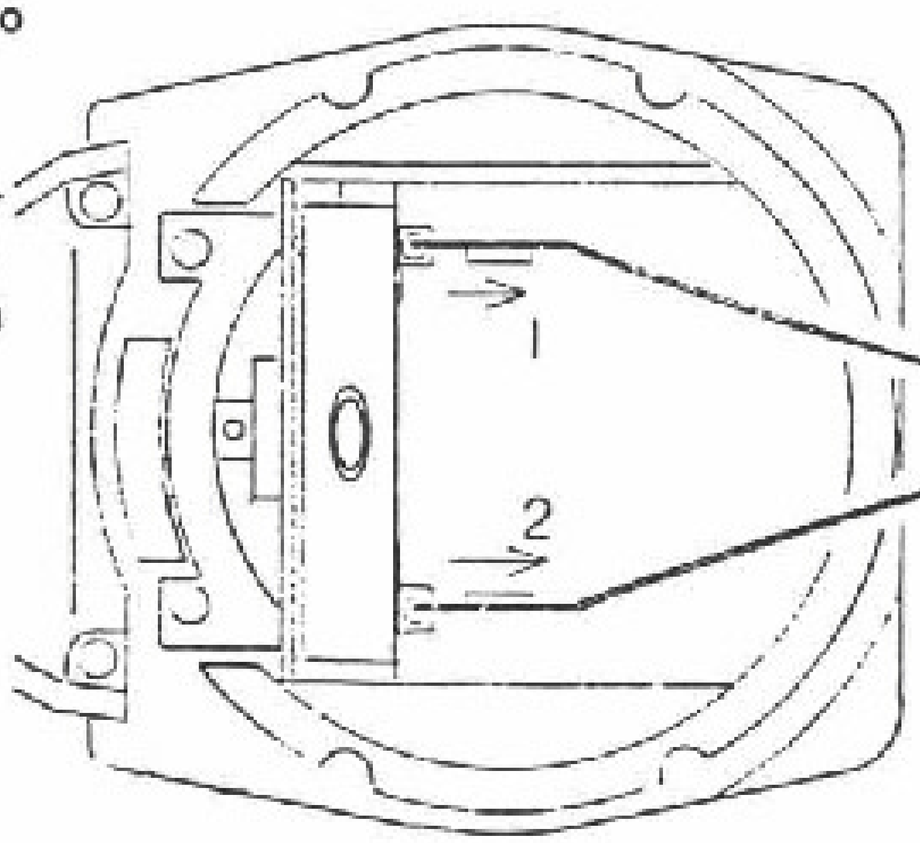
(1) Using the tweezers, set the screen in place, as shown.



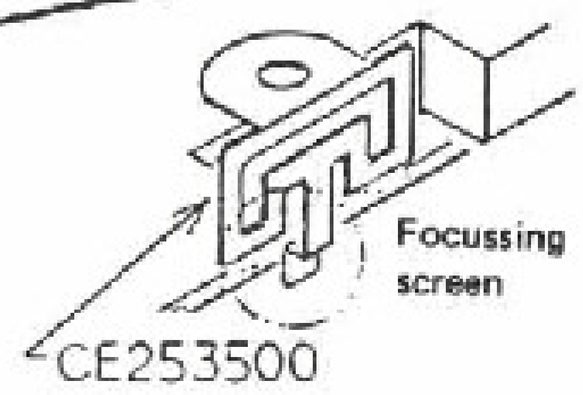
Position the screen with its matted face coming on pentaprism side, and insert it as shown.



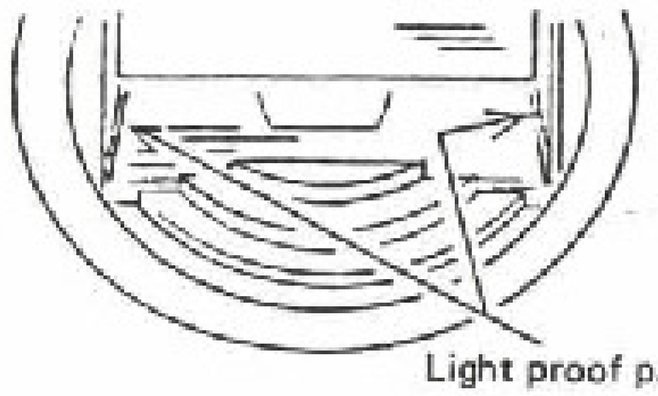
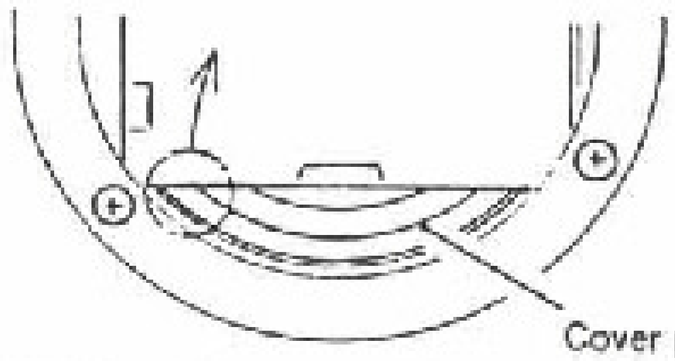
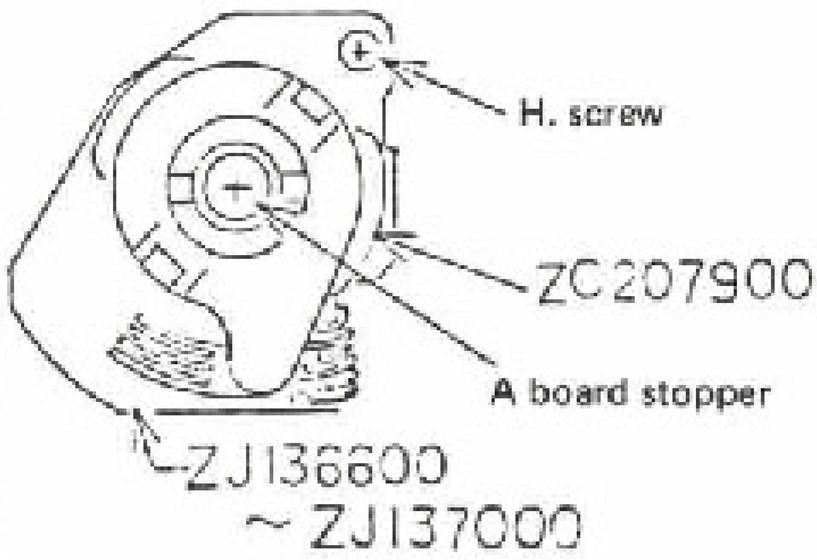
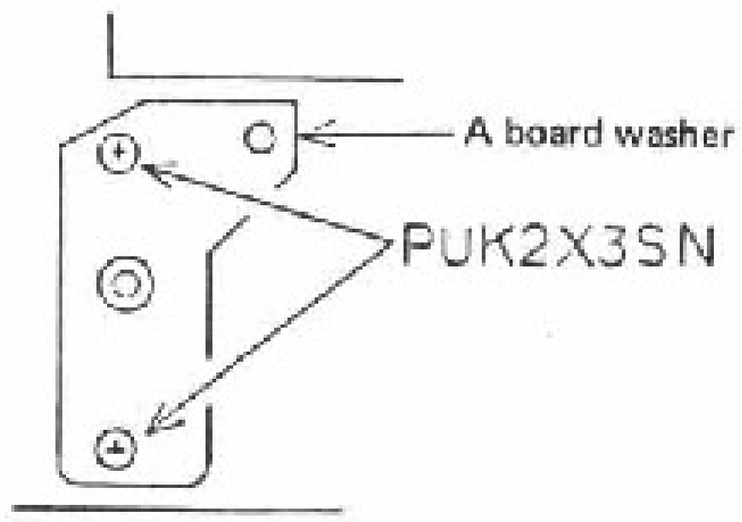
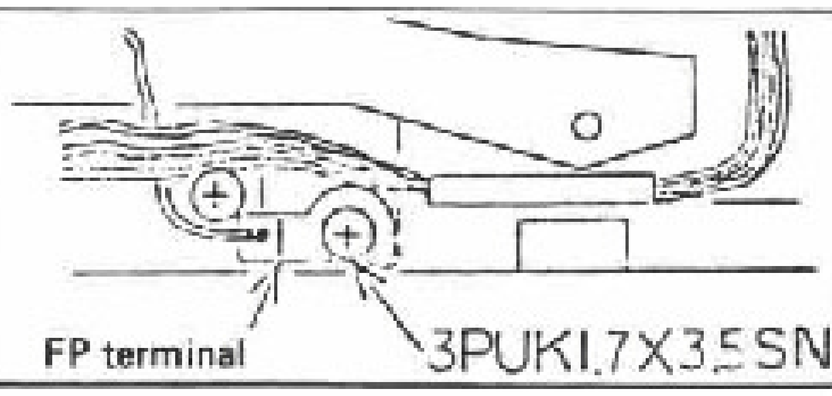
(2) Hitch the tweezers to holes 1 and 2, and give a pull to these holes in the numbered order in order to true up the screen in place.

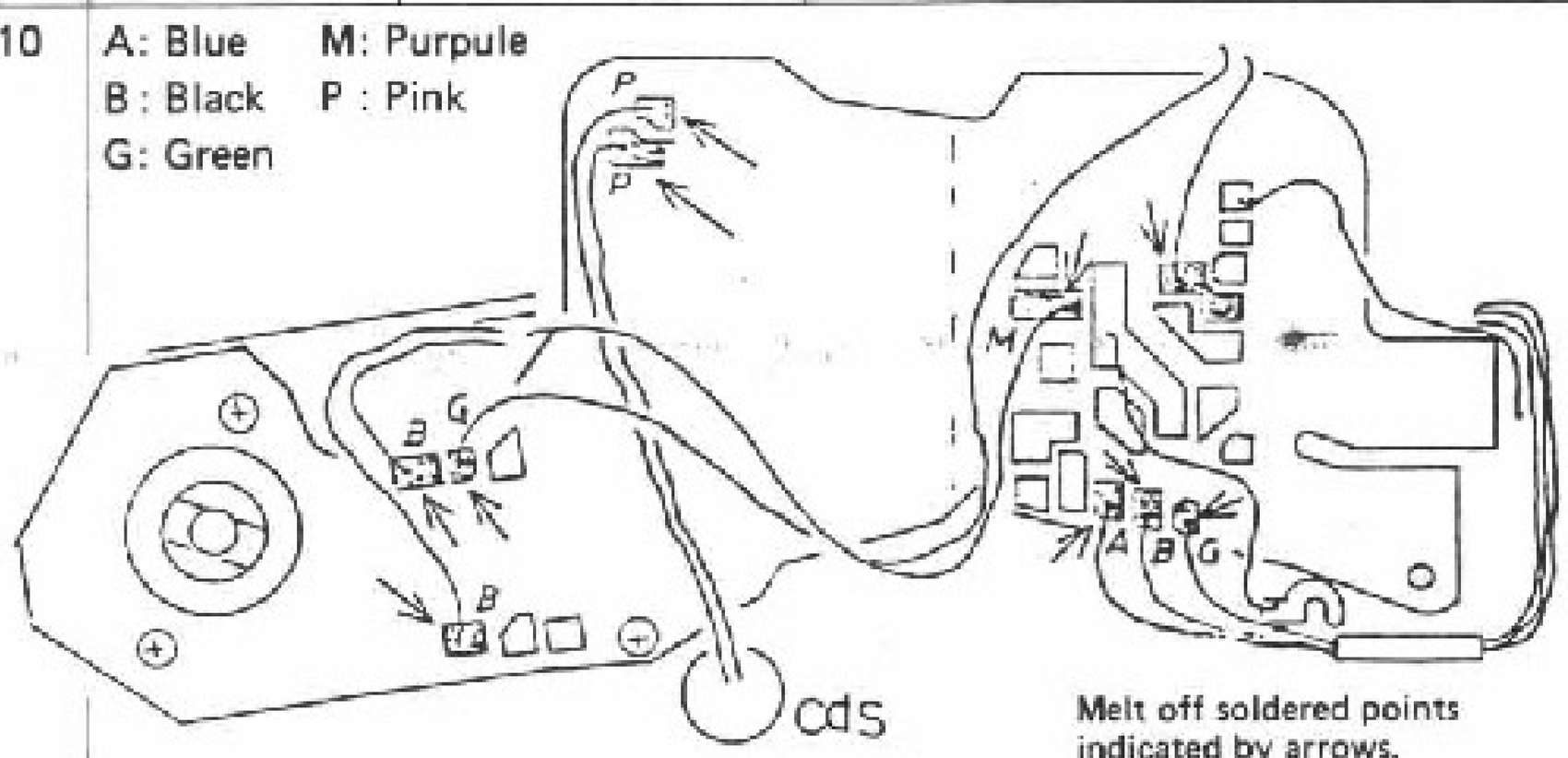
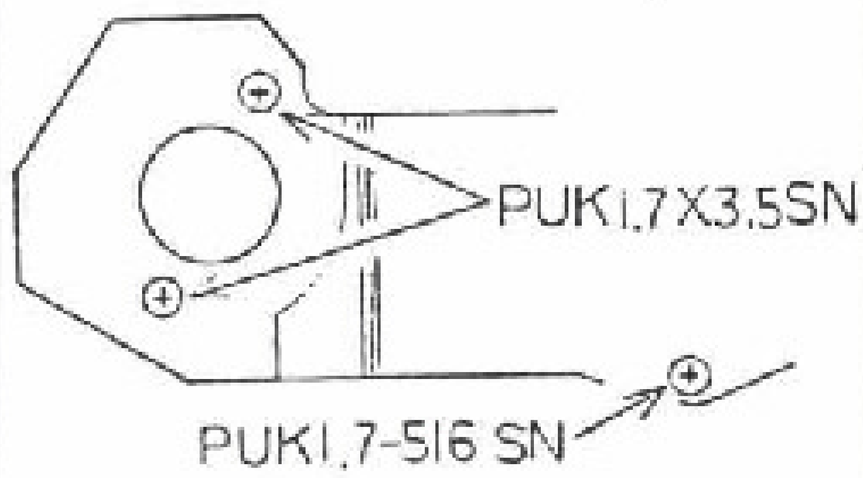
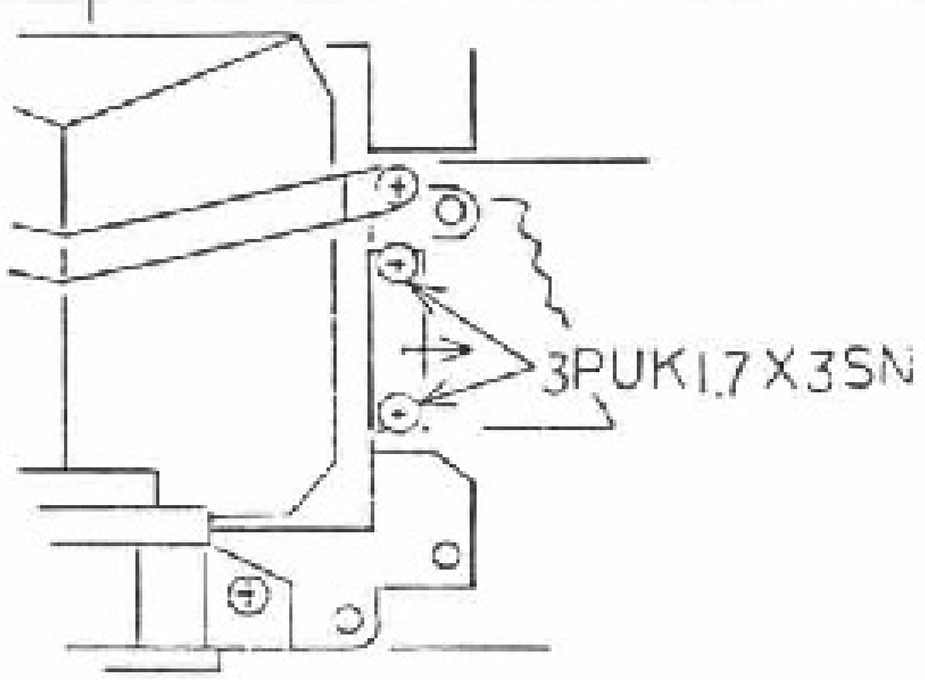
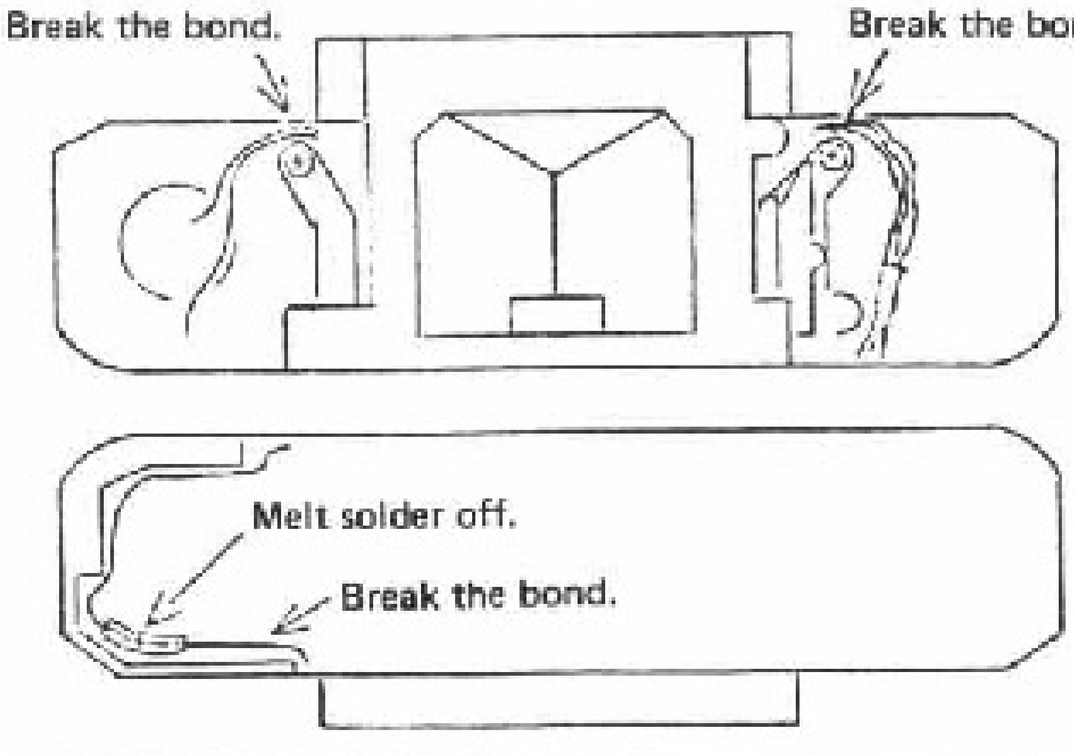


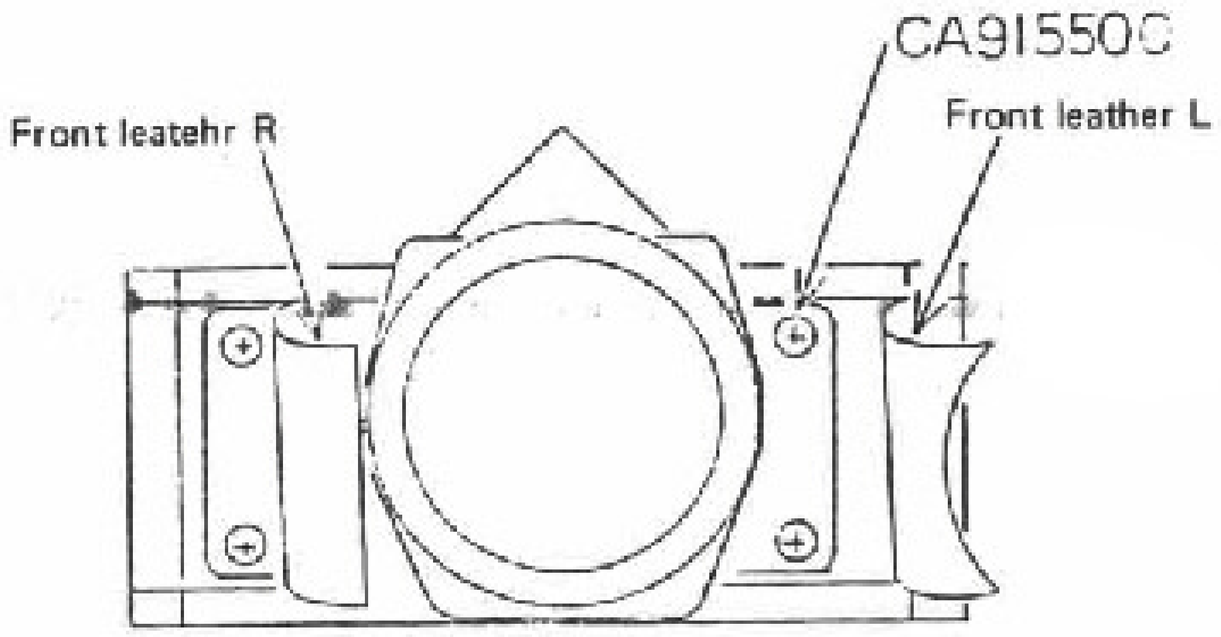
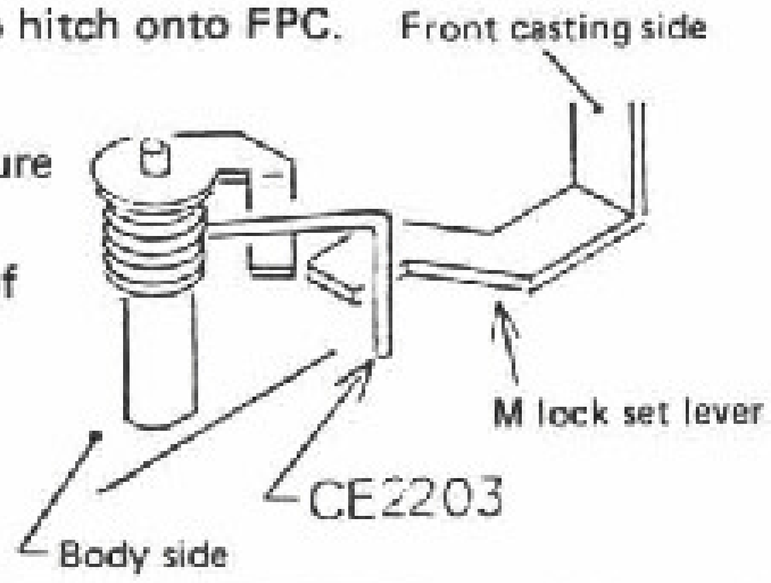
(3) Position CE253500 F Fastener, as shown below:



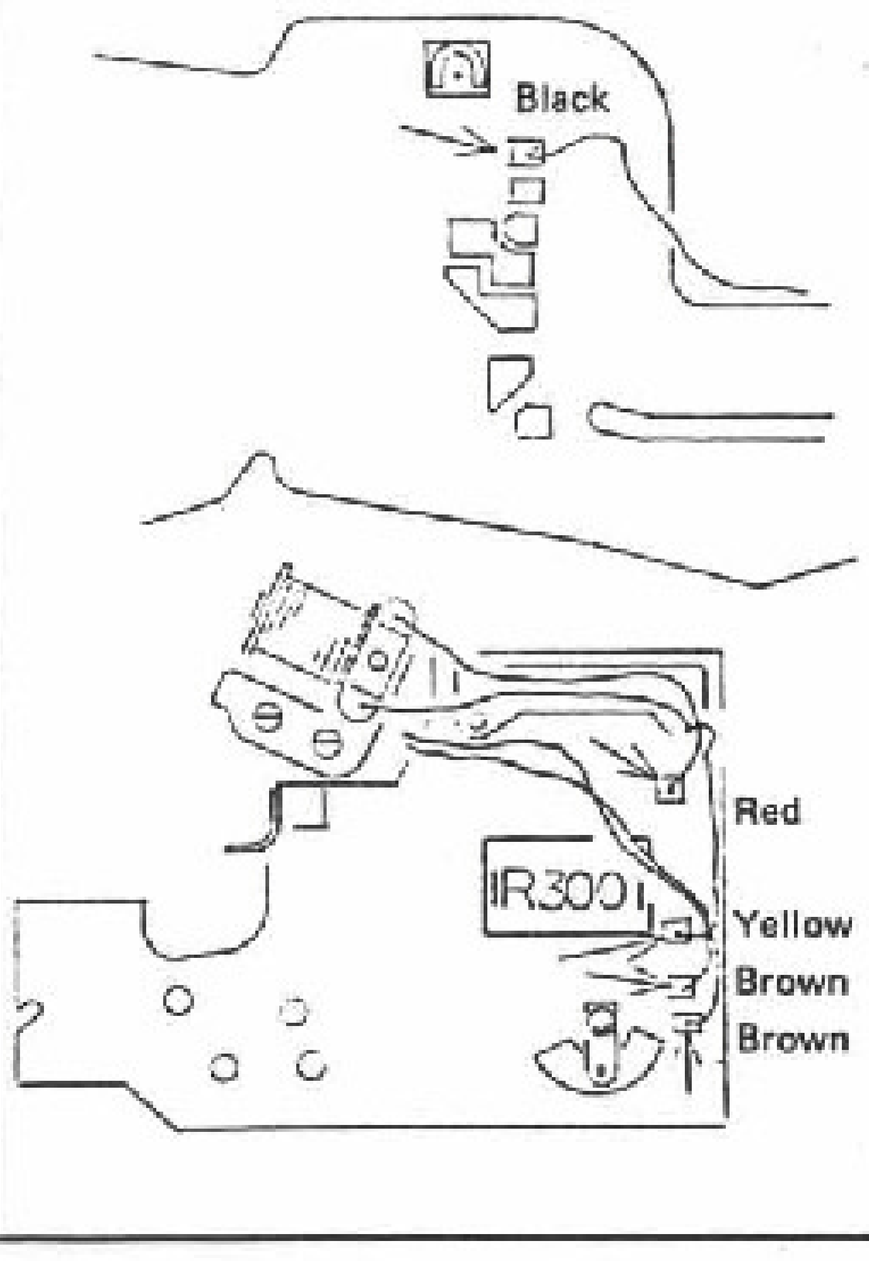
4. ZJ131000 Front Casting (Top cover, ZC2002, is assumed to be off.)

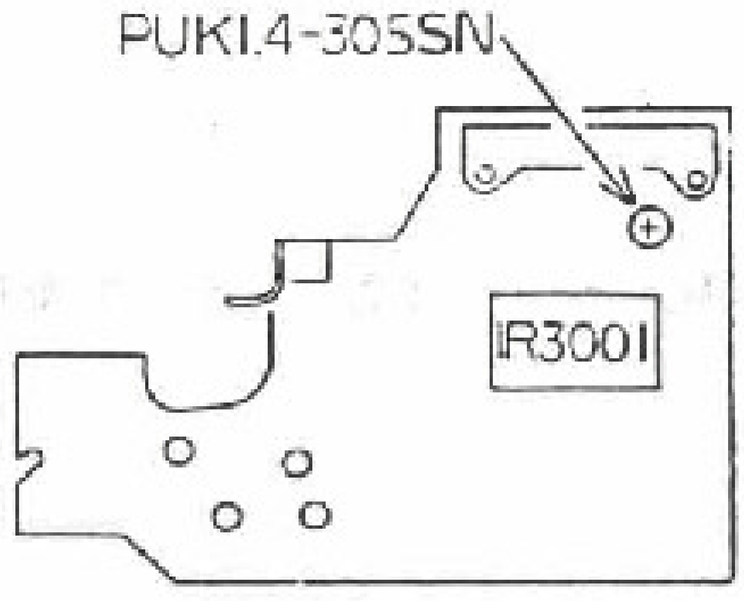
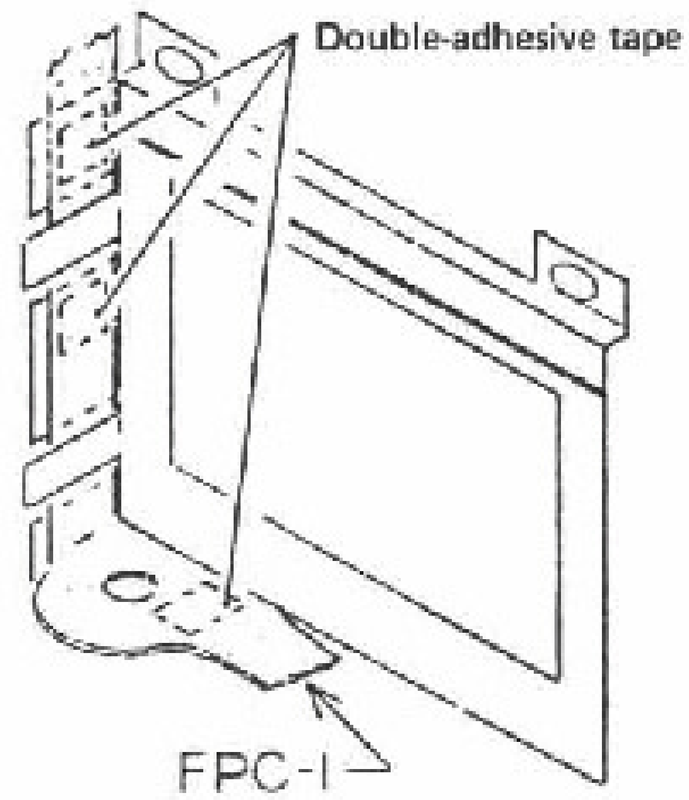
Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
CA915600 Light proof padding	2			 Light proof padding
ZC208400 Cover plate	1			1. Push up the mirror with a fingertip. (Be sure that the shutter is not in charged condition.)  Cover plate 2. Lift it in the arrow direction and take it out.
CE202800 H. screw CE203400 A board stopper	1 1		ZC207900 A holder ZJ136600 ~ ZJ137000 A board	 H. screw ZC207900 A board stopper ZJ136600 ~ ZJ137000
PUK2x3SN Screw	2		CE202500 A board washer	 A board washer PUK2X3SN
3PUK1.7x3.5SN (Be sure to remove this.)	1		CA889700 FP terminal	 FP terminal 3PUK1.7X3.5SN

Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
Undo soldered connections and disconnect lead wires.	10	A: Blue M: Purpule B : Black P : Pink G: Green		Melt off soldered points indicated by arrows.
PUK1.7x3.5SN Screw 2 PUK1.7–516SN Screw 1			CE211800 R shaft holder CE211900 R shaft Others	
3PUK1.7x3SN Screw 2			CE231400 L frame	
Break the bond securing lead wires. 3 Undo sholdered connections. 1				

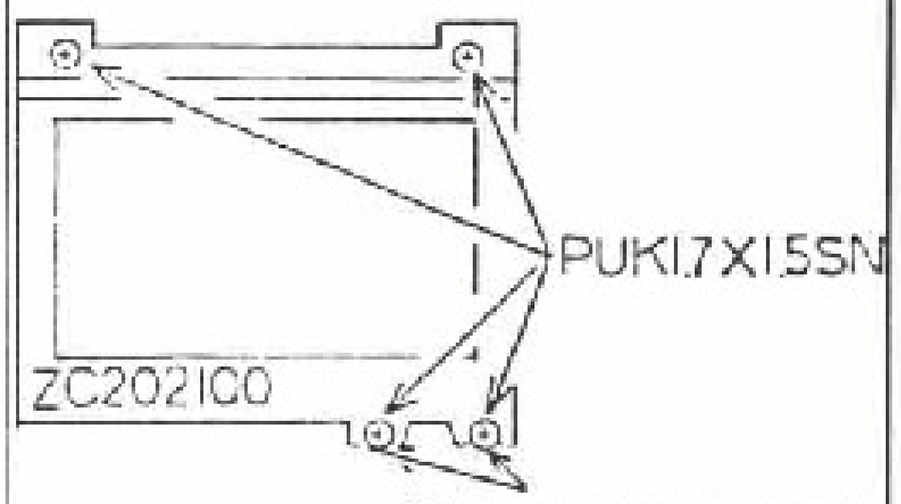
Parts to remove	Q'ty	Tool to use	Parts coming off	Remarks
CE211500 Front leather L CE211600 Front leather R CE915500 Front screw	1 1 4			 • Remove the fornt cover by pulling it out from top side. • Be sure not allow it to hitch onto FPC. **NOTE:** When reassembling, be sure to hitch the M set lock lever onto the free end of CE220300. 

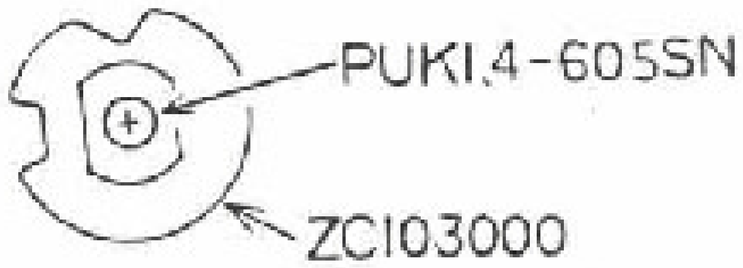
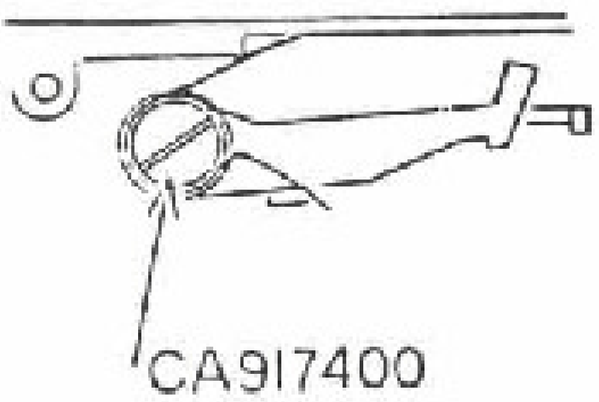
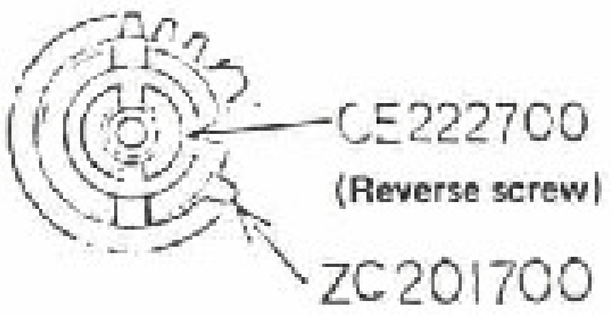
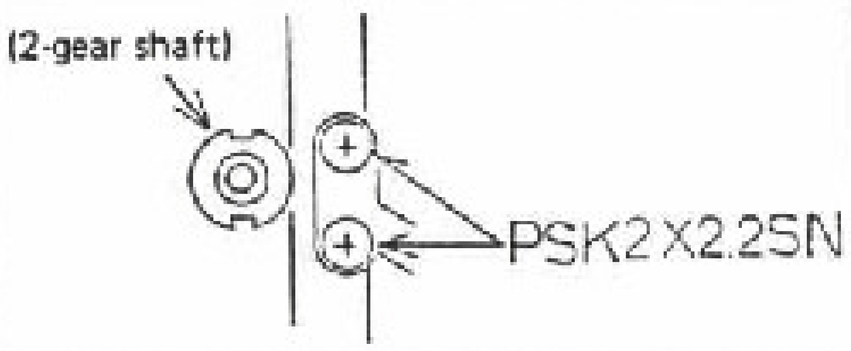
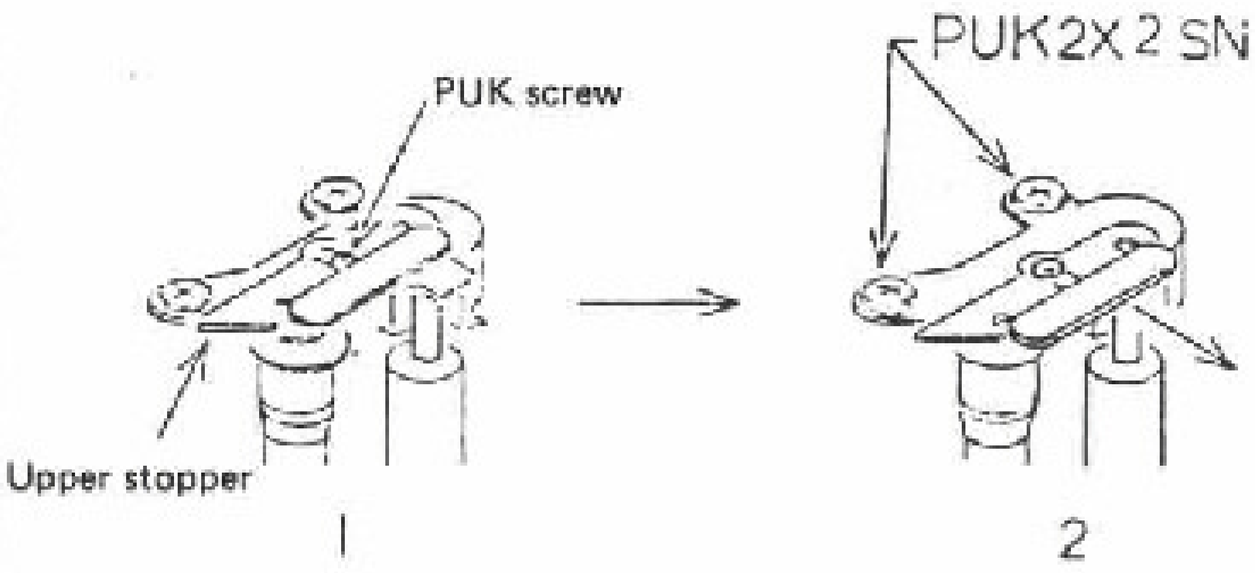
5. ZC200300 FPC-1 (ZJ131000 Front casting is assumed to be off.)

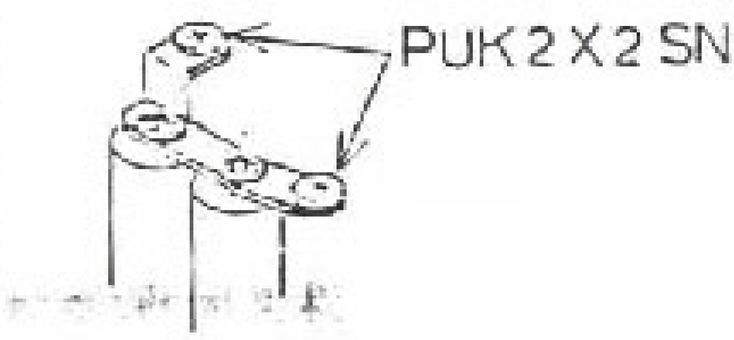
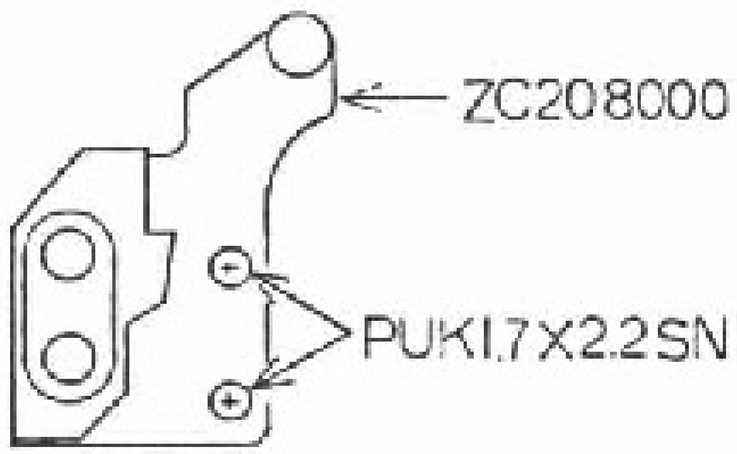
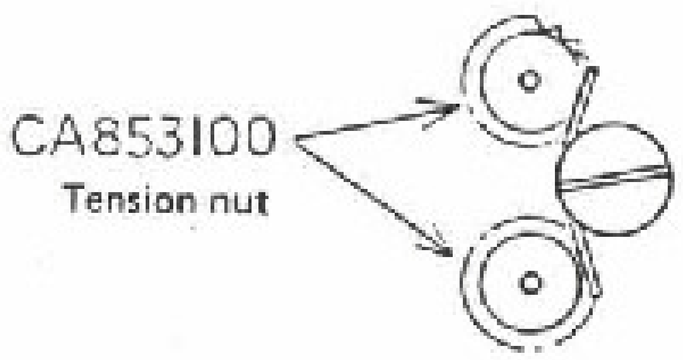
Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
Undo soldered connections and disconnect lead wires.			(Brown lead wires need not be discriminated from each other when soldering them to the spots indicated.)	

Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK1.4–305SN Screw	1		ZJ200300 FPC-1 (Bear in mind that tape whose both faces are adhesive is used in securing FPC-1 at the indicated locations.)	 

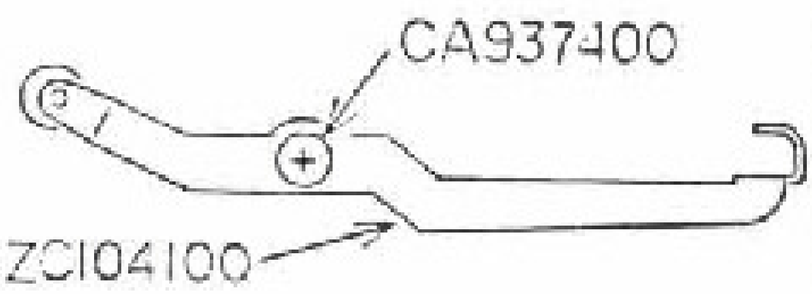
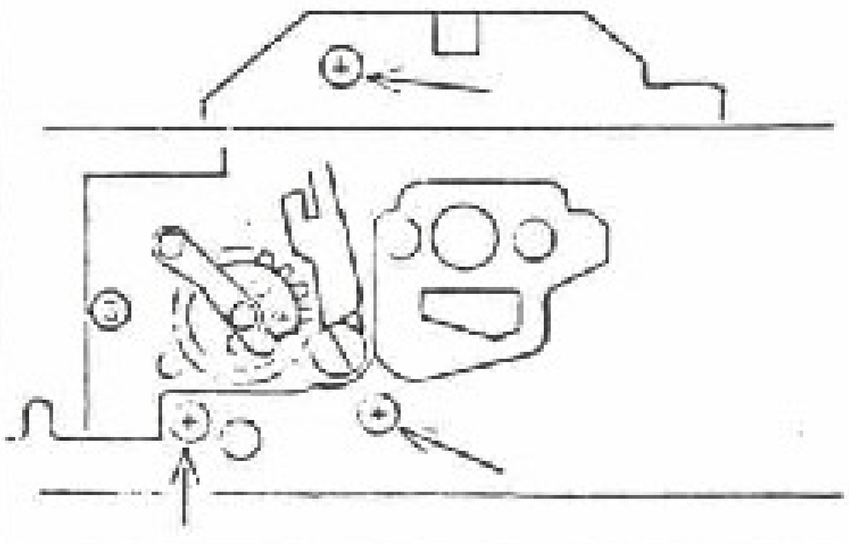
6. ZJ132400 Shutter Curtains (Be sure that ZJ200300 FPC-1 is in place.)

Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK1.7x1.5SN Screw	4		ZK202100 Frame	 (Just loosen these screws.)

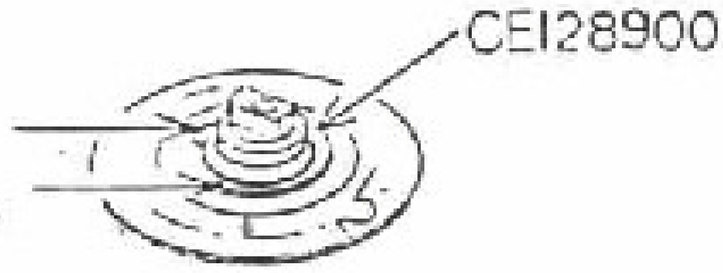
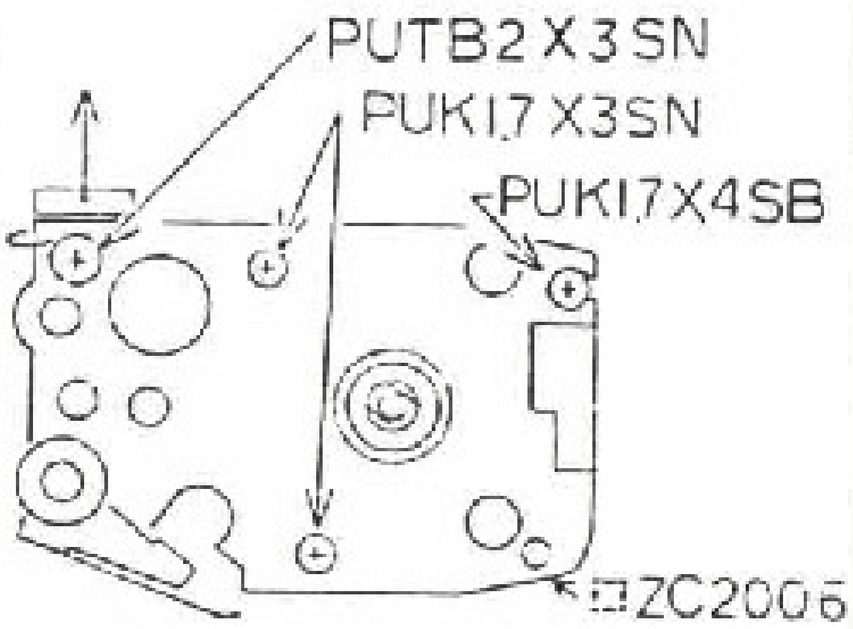
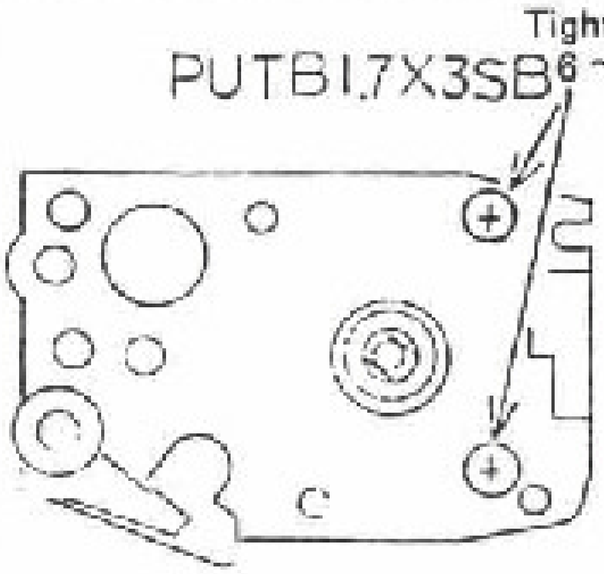
Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK1.4–605SN Screw	1		ZC103000 3 gear CA885100 3 gear spring	
CA917400 L holder	1		CA882600 Lock spring CA882400 Lock lever CA917600 L holder washer CA882100 Lock spring	
CE222700 ME guide	1		ZC201700 2 gear B1 (11 pieces)	
PSK2x2.2SN Screw	2			
PUK2x2SN Screw	2			 Displace the upper stopper in sliding direction while securing A and B; and then remove the two screws, PUK2x2SN.

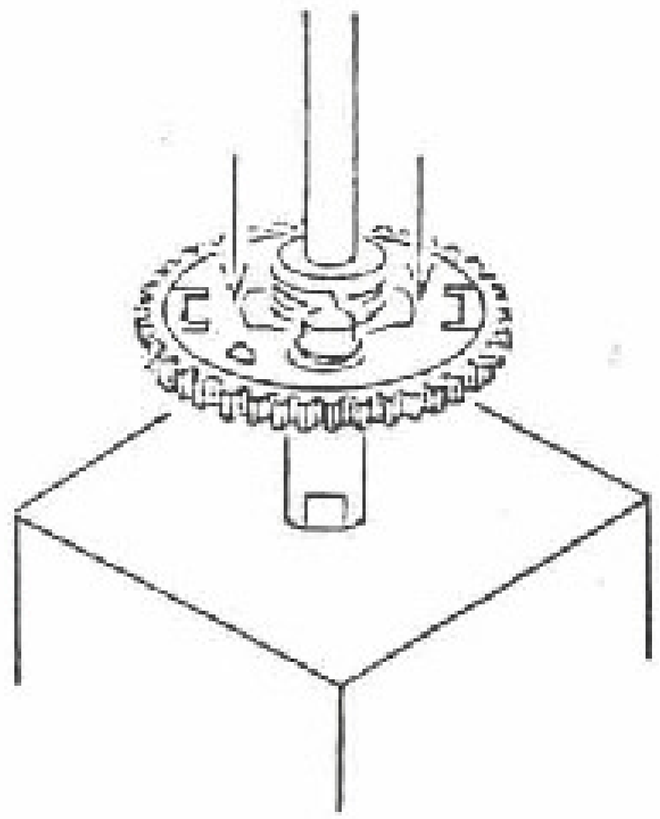
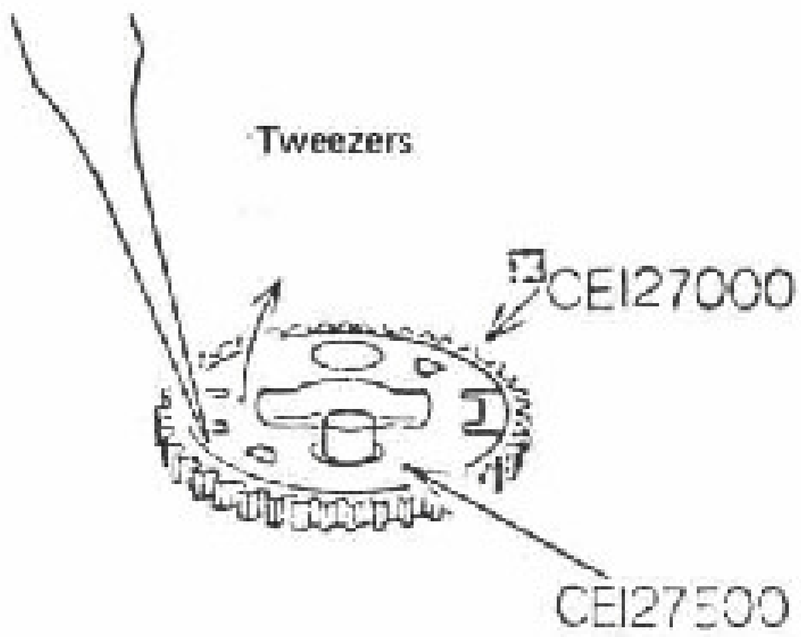
Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
PUK2x2SN Screw	2			
PUK1.7x2.2SN Screw	2		ZC208000 SW base plate	
CA853100 Tension nut	2		ZJ132400 Shutter curtain CA852900 Roller B NW1.5–425UO	 CA853100 Tension nut is secured rigid by means of ALON ALPHA, and may not come off easily: if so, prise it with No.4 screwdriver and break the shaft to permit its removal.

7. ZJ132300 S base plate(The parts mentioned in the preceding pages are assumed to be all off.)

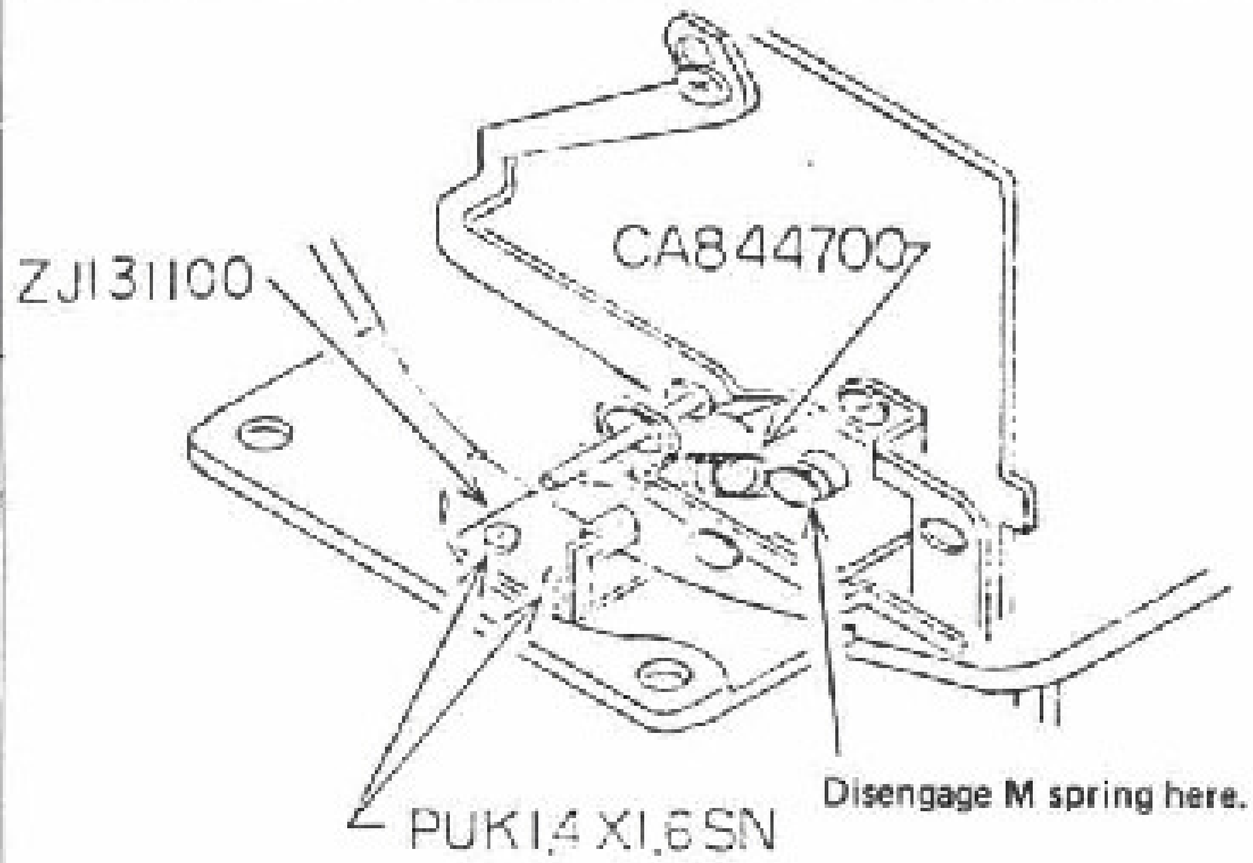
Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
CA937400 M lever shaft	1		ZC104100 KM lever	
PSK2x2.8SN Screw	3		ZJ132400 S base plate	
Undo the soldered connection of the black lead wire.	1			

8. CE127000 Winding Gear (ZC200200 Top cover is assumed to have been removed.)

Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
CE128900 Film counter stopper	1		CE236400 Fil counter CE128800 Film counter spring 2	 1. Push out CE128900 in the arrow direction. 2. Raise CE236400 Film counter and then let it go to remove tension from Film counter spring. 3. Raise lug plate again, and take out lug spring. 4. For the method of reassembly, refer to the repair procedure.
PUK1.7x3SN Screw PUK1.7x4SB Screw PUTB2x3SN Screw	2 1 1		☒ ZC200600 FW base ZC202700 K knob	 Pull out K knob in the arrow direction, and pick out FW base.
PUTB1.7x3SB Screw	2		CE126600 Lower base plate ZJ131700 Winding gear 1 ZC201000 Idler CE128300 Film counter gear	Tightening torque: 6 ~ 8 kg-mm  Removal of the screws indicated allows Upper base plate and Lower base plate to separate.

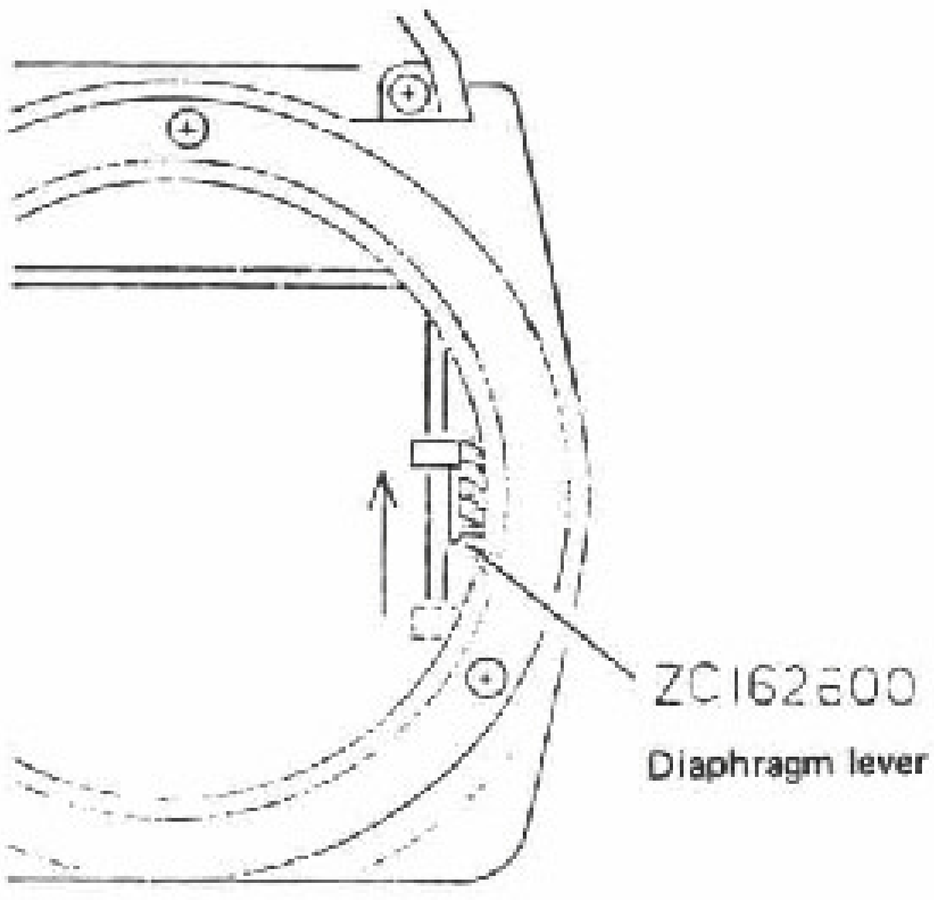
Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
			Winding shaft and widing gear come off.	 1. Rest the winding shaft on the block, as shown. 2. Using such as forceps, push down the gear by putting the forceps to the two spots indicated by arrows.
			CE127500 Roll spring CE236500 Roll spring 2 CE236400 Film counter CE127400 Spring ZJ131600 Winding pawl ☒ CE127000 Winding gear	 Using tweezers, lift CE127500 Roll spring and pick it out. For the method of reassembly, refer to the repair procedure.

9. ZJ131100 MS Base Plate (Main Switch) (ZJ131000 Front casting is assumed to be off.)

Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
CE058200 F screw	2		CE057900 F contact CE066500 Insulator CA890000 Insulation washer	
CA844700 M spring (Disengage only one end of the spring, as shown.)	1/2			
PUK1.4x1.6SN Screw	2	ZJ131100 MS base plate		

9-1

Tips on removal of ZJ131100 M base plate:
Have the diaphragm lever, ZC162600, raised as shown on the left before removing ZJ131100 M base plate.



Diaphragm lever

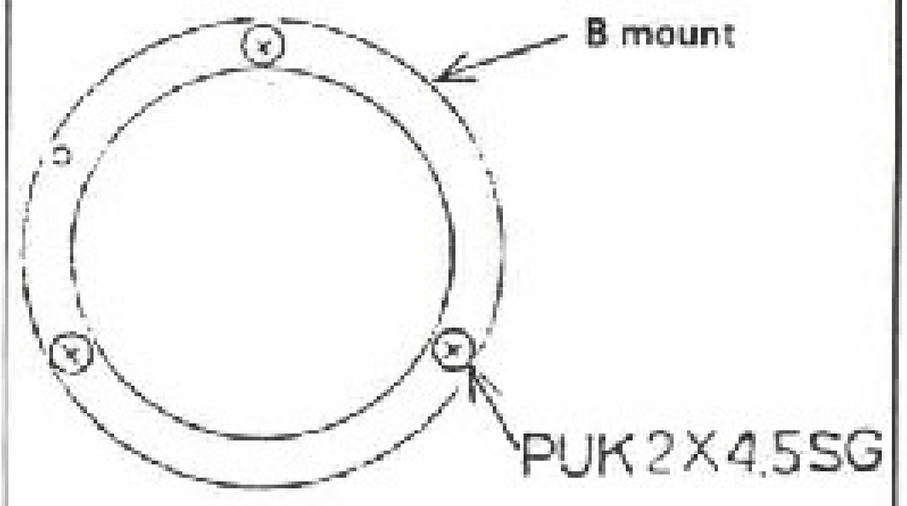
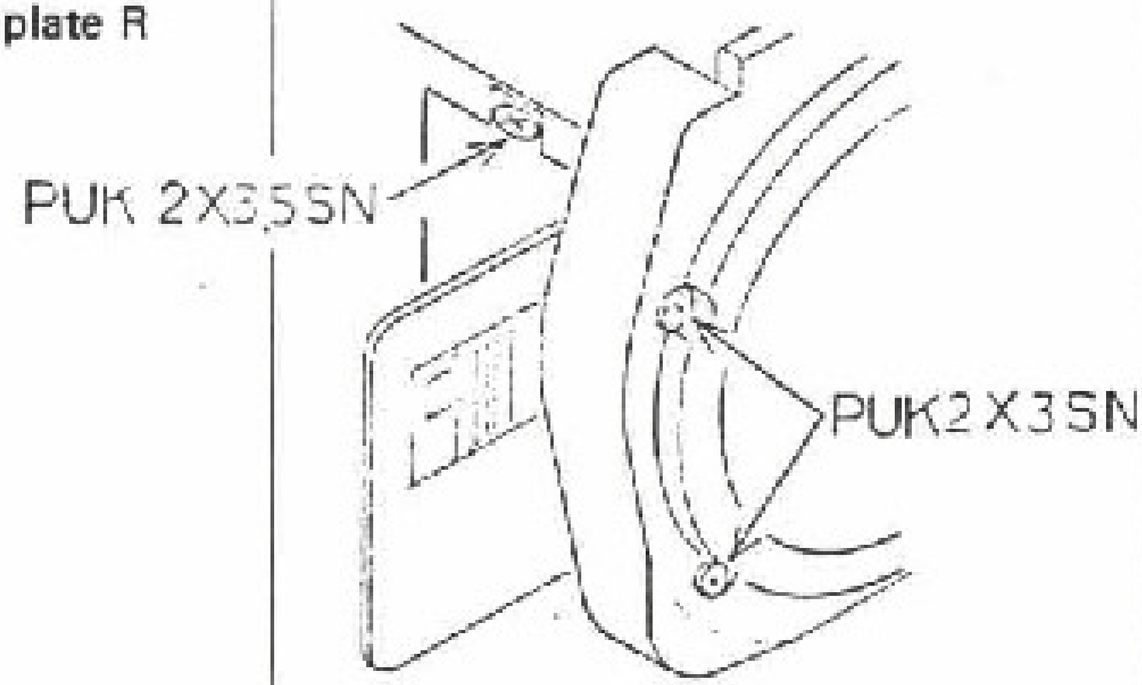
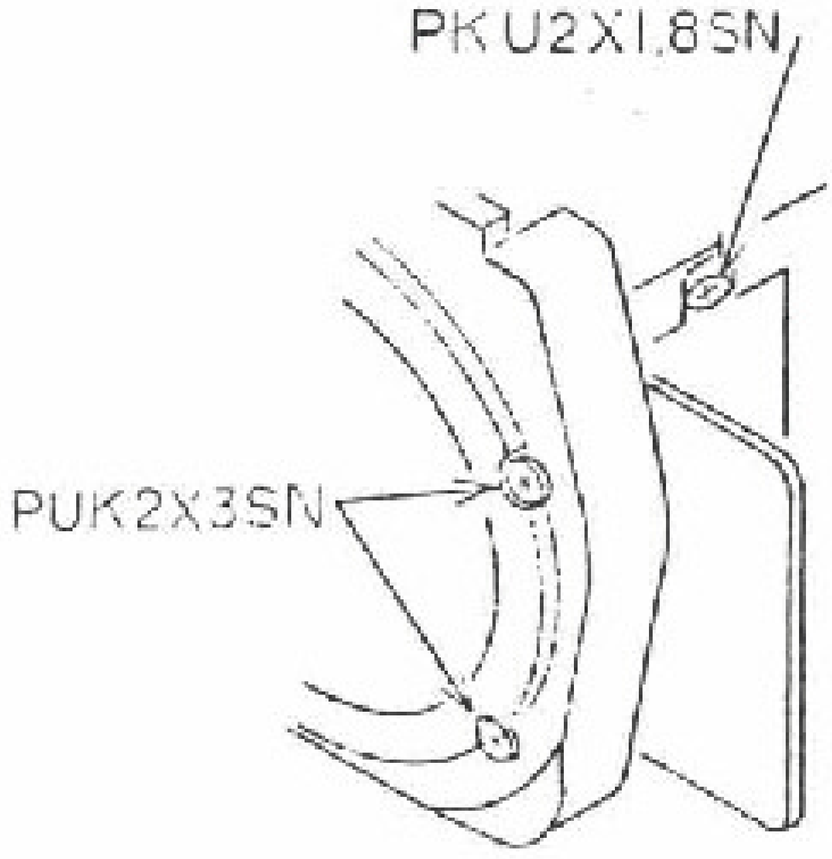
9-2

The job of re-hitching the hook eye of M spring, CA844700, onto the stud will be facilitated if a tool like this one is used.

Spring hitching tool

(Use this when re-hitching M spring.)

10. ZJ130400 Side Plate L, ZK205100 Side Plate R (ZJ131000 Front casting is assumed to be off.)

Parts of remove	Q'ty	Tool to use	Parts coming off	Remarks
(PUK2x4.5SG) Screw	3		CE254600 B mount CE254500 Front cover	
PUK2x3SN Screw PUK2x3.5SN Screw	2 1		ZC205100 Side plate R	
PUK2x3SN Screw PUK2x1.8SN Screw	2 1		ZJ130400 Side plate L	

OUTLINE OF REPAIR

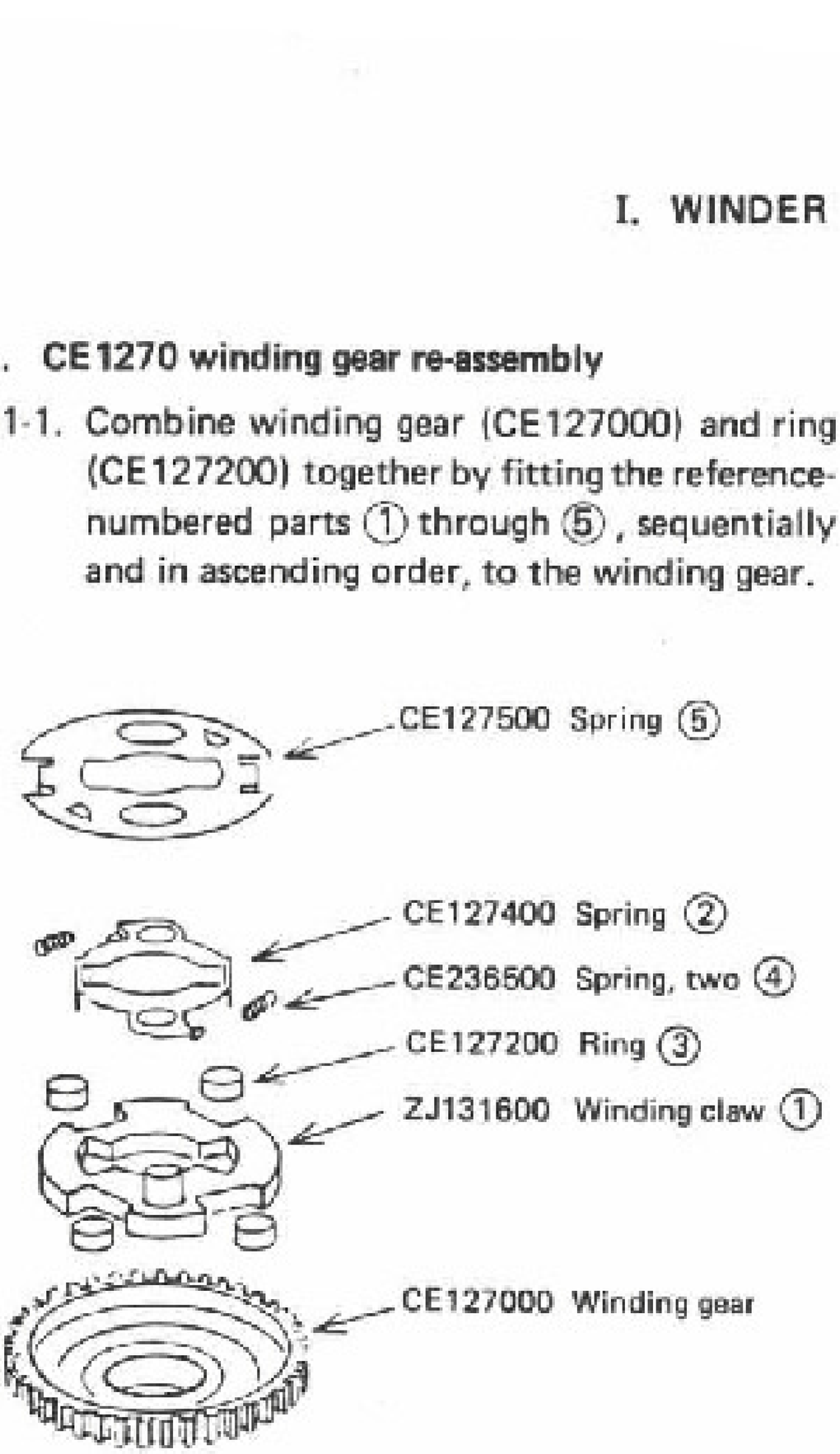
D. OUTLINE OF REPAIR

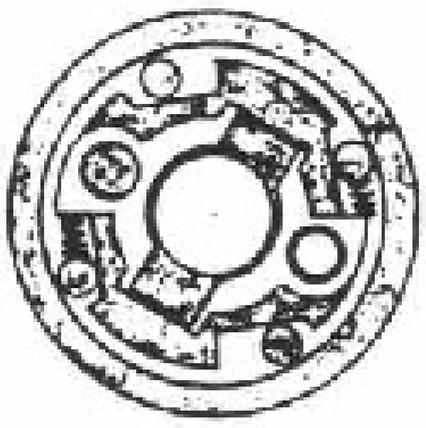
CONTENTS

I. WINDER MECHANISM

1. CE1270 winding gear re-assembly

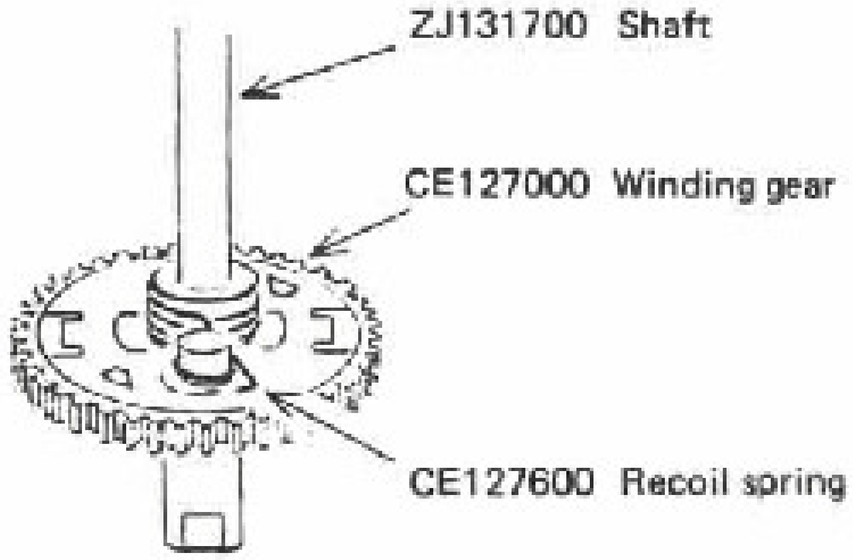
1-1. Combine winding gear (CE127000) and ring (CE127200) together by fitting the reference-numbered parts ① through ⑤, sequentially and in ascending order, to the winding gear.



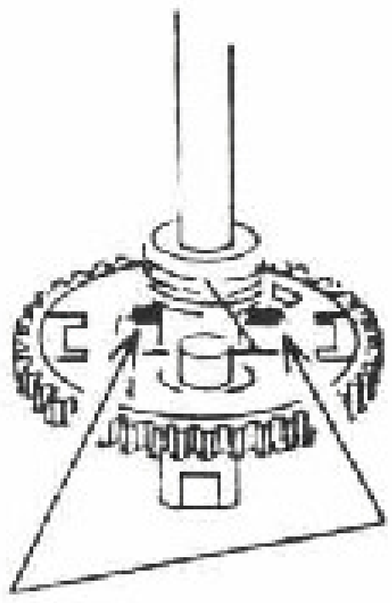


NOTE:
Assembly of ① , ② , ③ and ④.

1-2. Insert winding shaft (ZJ131700) into the winding gear assembled as above, and mount spring (CE127600), hitching its free end onto the stud, as shown, to produce a proper biasing force.

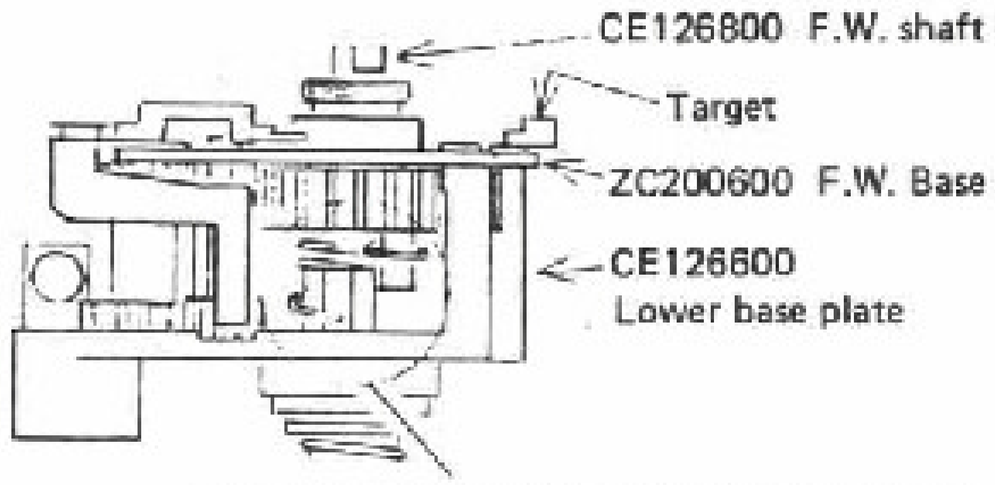


NOTE:
So that the winding gear will not break apart when hitching the return spring, hold down the roll spring and set the spring as shown.



NOTE:
Equalize the amounts of protrusions, right and left, and push in the winding shaft.

1-3. Insert F.W. shaft sub-assembly (CE126800) into lower base plate (CE126600), put on F.W. base (ZC200600), and fasten down the base with screws.

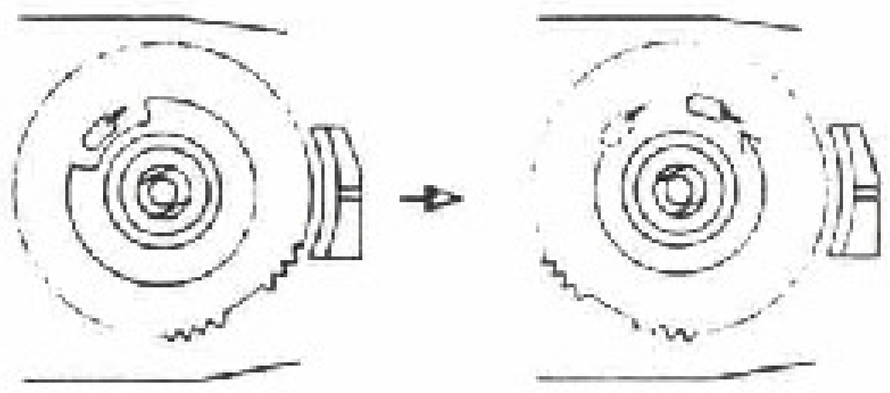


Returning spring (CA886100) is shown here as hitched onto the protrusion.

NOTE:
There are two protrusions. Be sure to hook the spring onto the one shown.

1-4. Referring to the above sketch, hitch spring (CE127600) onto the protrusion of lower base plate (CE126600).

1-5. Put on film counter spring (CE128800) and film counter LC (CE128700), and tension the counter spring.

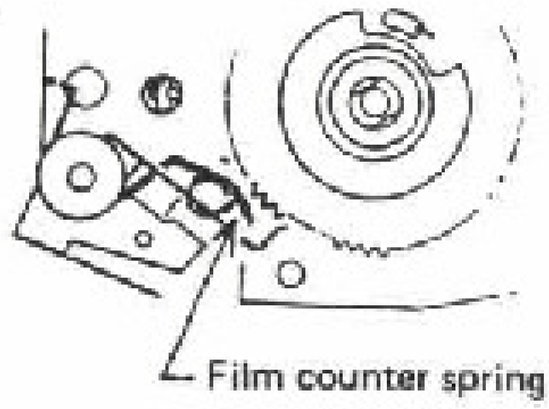


Hitch film counter spring onto the notch formed of film counter LC.

Turn the counter LC about one rotation to override the stopper and set it beyond the stopper.

1-6. Push film counter stopper (CE128900) into the groove of washer (CE126700), guiding the stopper through the recess formed of film counter LC (CE128700).

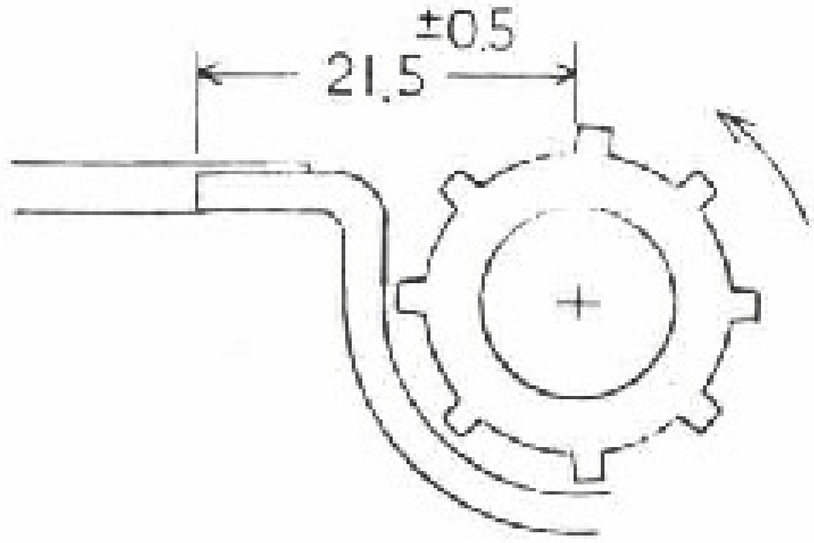
1-7. Put on film counter spring 1 (CE128600).



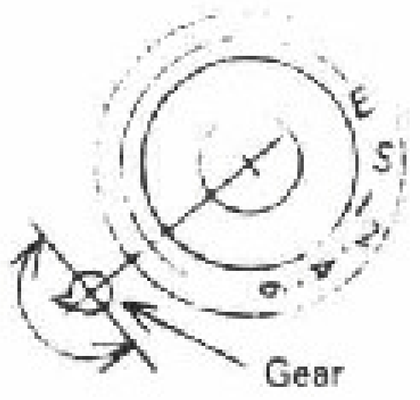
2. Sprocket positioning

Positioning adjustment is to be made by displacing gear No. 2 (CA883400) in place. To do so, gear No. 1 (CA881600) must be removed.

NOTE:
Check the dimensions while urging the gear toward mask side.



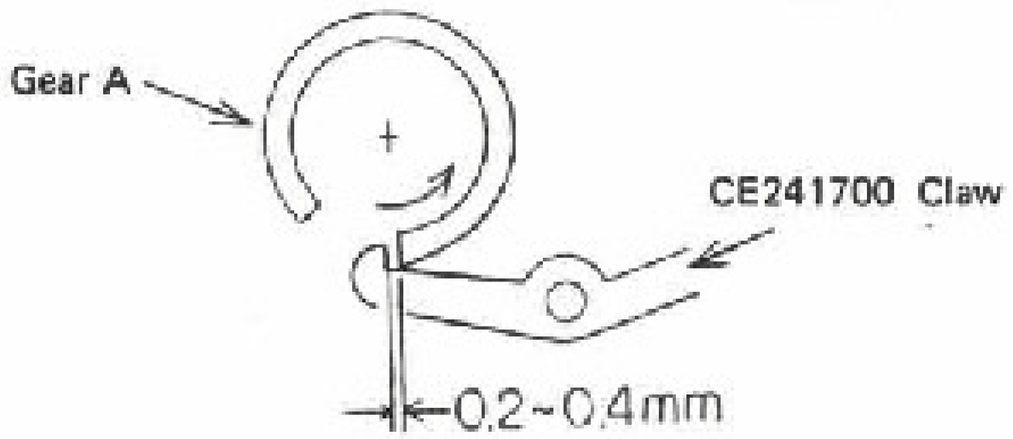
NOTE:
Locate the gear as shown here.



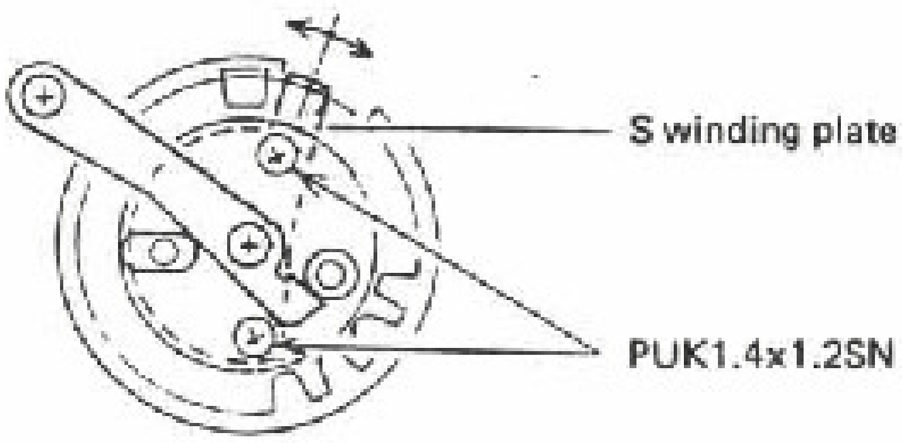
Position the gear so that its protrusion will come within the range indicated by arrows.

3. Adjusting marginal clearance on Gear A

Gently wind up to see if the clearance, indicated in the sketch, occurs after the leading claw (CE241700) has passed over the end of gear A; if not, make the following adjustment to produce the indicated amount of clearance.



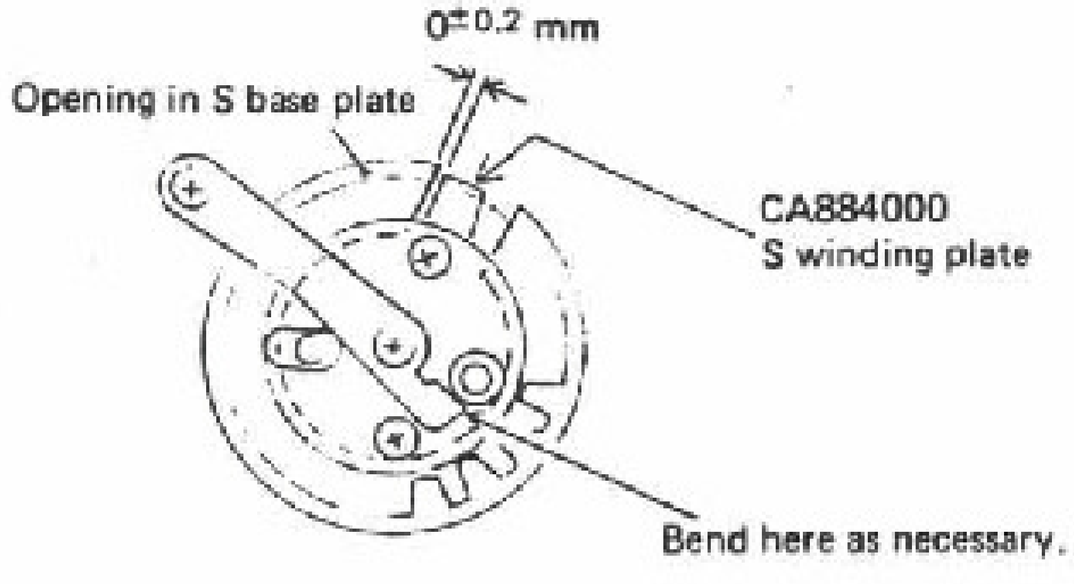
To adjust, reposition S winding plate (CA-884000) in the following manner:



Loosen two screws (PUK 1.4 x 1.2 SN), and angularly displace S winding plate to produce a clearance of anywhere between 0.2 and 0.4 mm.

NOTE:
After completing the adjustment, lock with ALON ALPHA.
To be locked are:
Two PUK1.4x1.2SN and slot (indicated by an arrow).

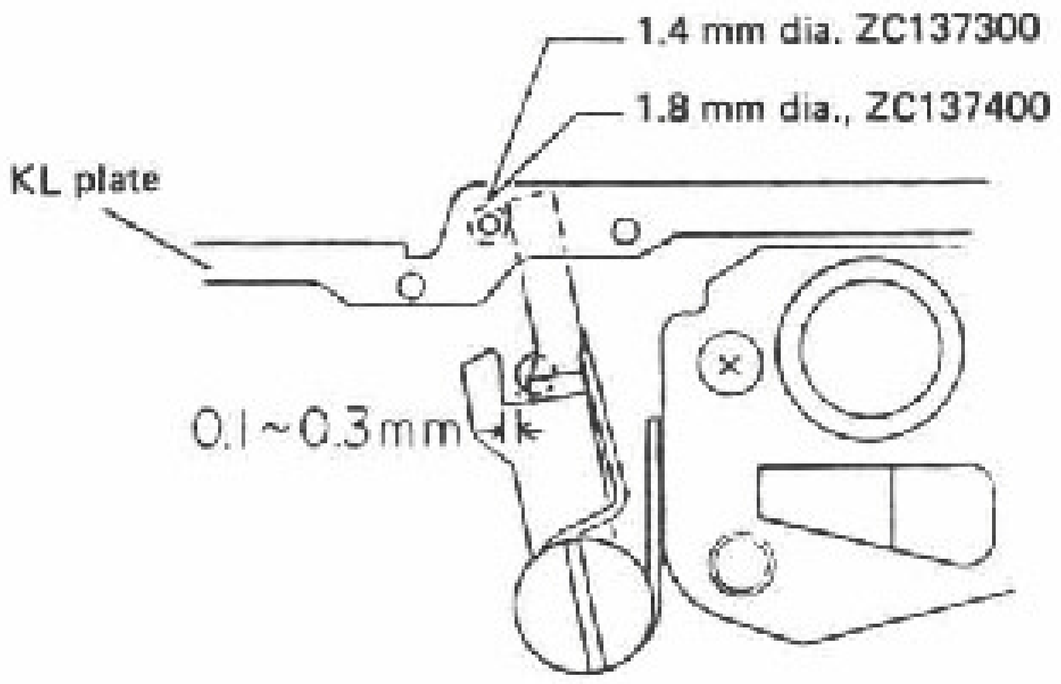
4. Positional adjustment of 4-gear (ZC102700)



The clearance of S winding plate (CA884000) relative to the hole edge of S base plate should be 0±0.2 mm; if not, bend the 4-gear stopper.

NOTE:
After making this adjustment, make sure the bent portion will not rub the high spots of 4-tooth gear.

5. Adjustment of bulb plate (CA946400) and KL plate pin



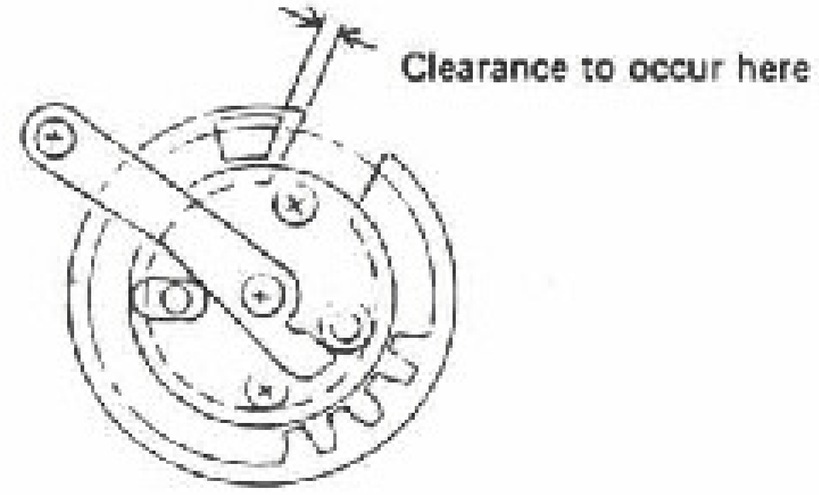
5-1. Obtain the clearance (0.1 ~ 0.3 mm) by using a KL plate (ZC137300 or ZC137400) whose pin is of the right size for keeping the clearance between 0.1 and 0.3 mm.

5-2. If the above adjustment is not possible, replace plate CA968800.

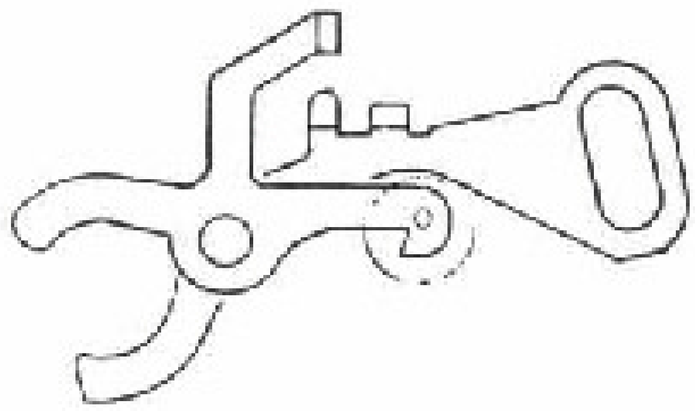
6. First curtain adjustment

This brake is not provided with an eccentrically shaped means for adjusting the braking force, but its A pinch (ZC201800) is of such a shape that no contact occurs between the protrusion of gear A and S base plate.

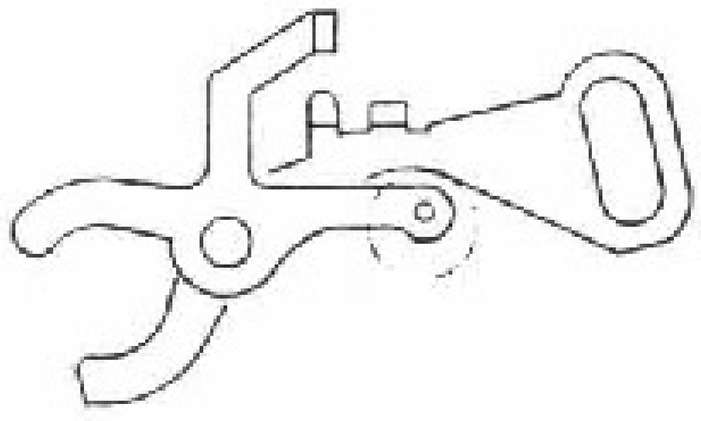
1) Check to be sure that, after shutter releasing, a clearance occurs at the indicated location.



2) Brake replacement
There is no interchangeability between the first curtain brake of OM-10 and those of other models. See the difference in the two sketches:



A pinch for OM-10
(ZC201800)

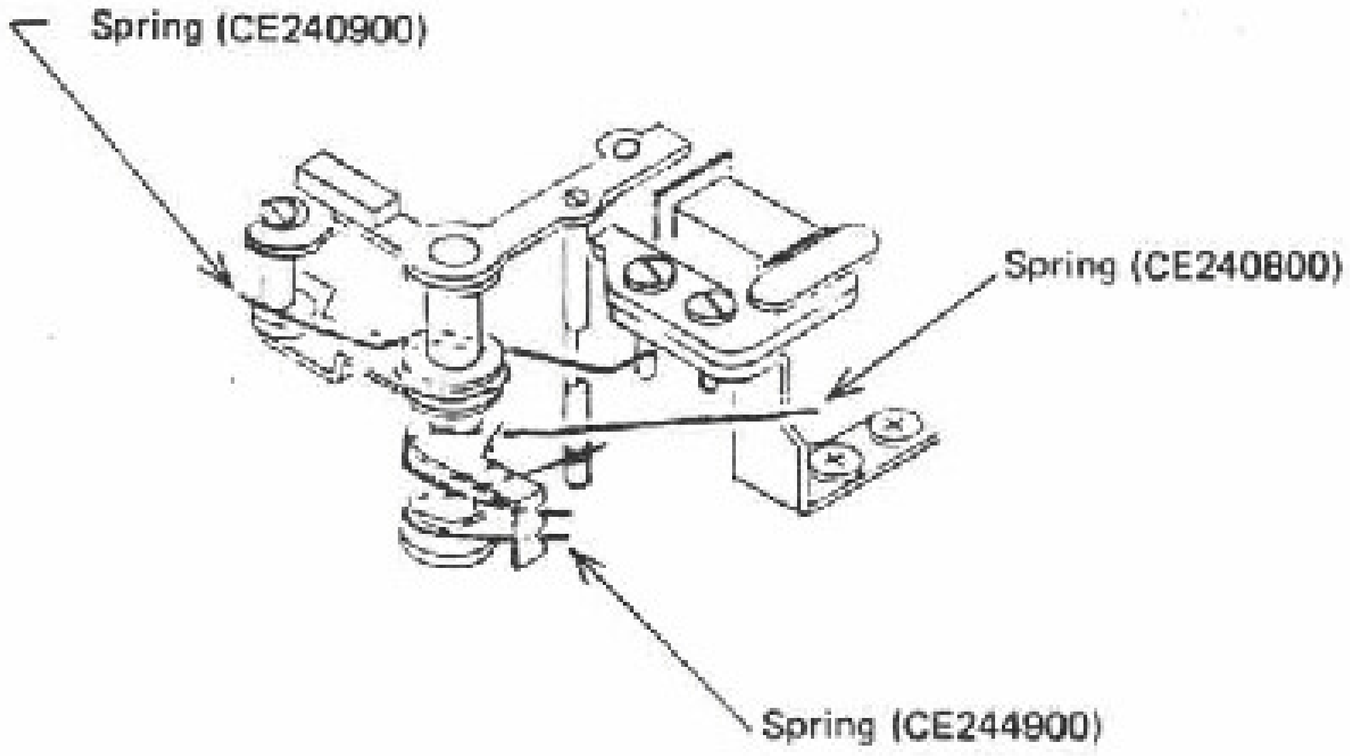


A pinch for OM-1 and OM-2

II. ADJUSTMENTS RELATED TO S BASE PLATE (ZJ132300)

1. How to hitch springs

Hitch the three spring as illustrated.



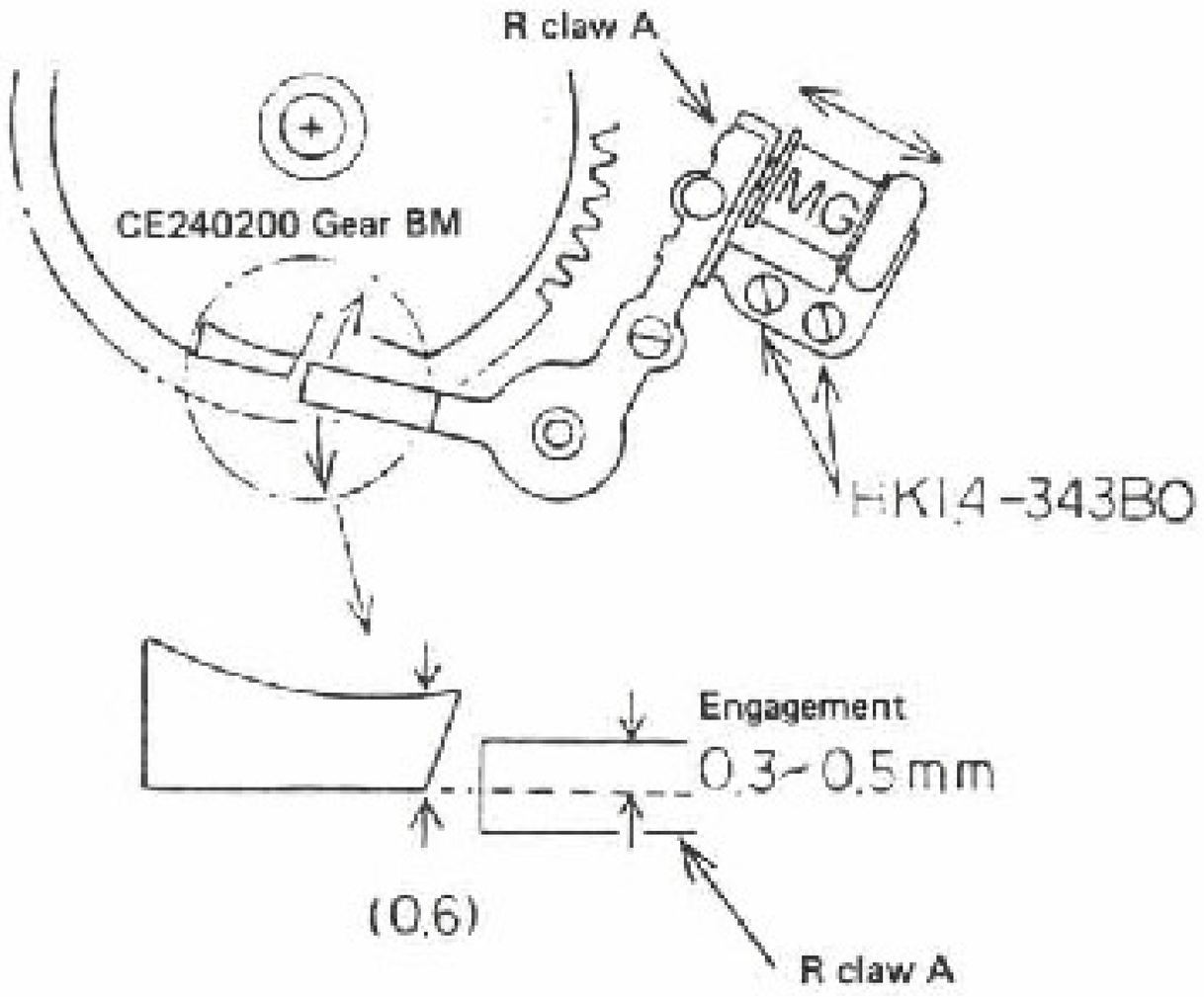
2. Positional adjustment of gear BM (CE240200) and R claw

2-1. Adjusting the amount of claw engagement

The prescribed amount of engagement is from 0.3 to 0.5 mm, as shown. To obtain this much engagement of the claw with gear BM (CE240200), displace the magnet.
Loosening the magnet securing screws (HK 1.4 - 343 BO) permits the magnet to be moved.

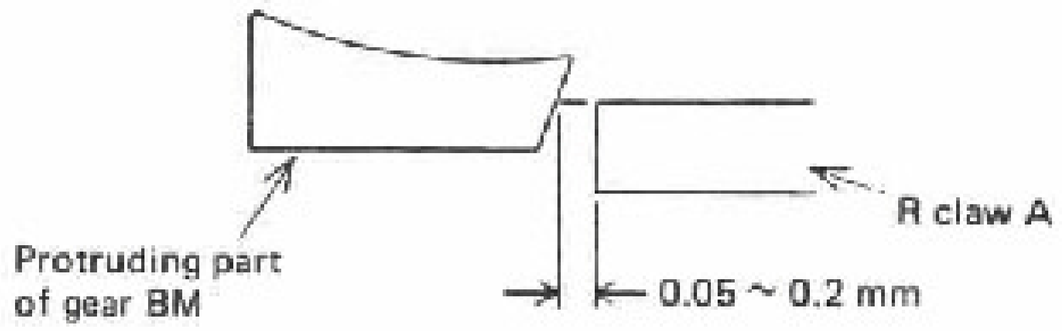
NOTE:

After repositioning the magnet in place, be sure that the magnet and upper plate (CE-081100) are nearly parallel to each other, and that the contact is made under spring force.



2-2. Clearance adjustment

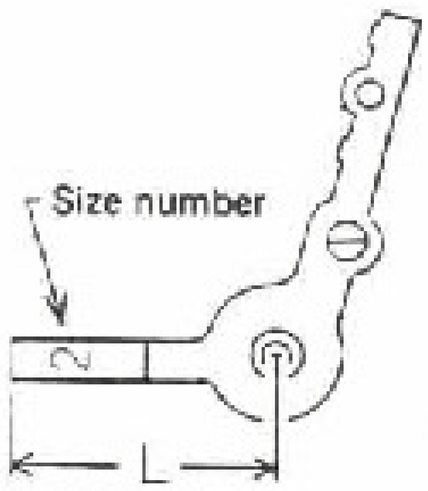
R claw A is available in five sizes listed below. Use the one that will provide the prescribed clearance (0.05 ~ 0.2 mm).



R claw A1	(ZC202200)	L = 7.8
R claw A2	(ZC202300)	L = 8.1
R claw A3	(ZC202400)	L = 8.4
R claw A4	(ZC202500)	L = 7.95
R claw A5	(ZC206000)	L = 8.25

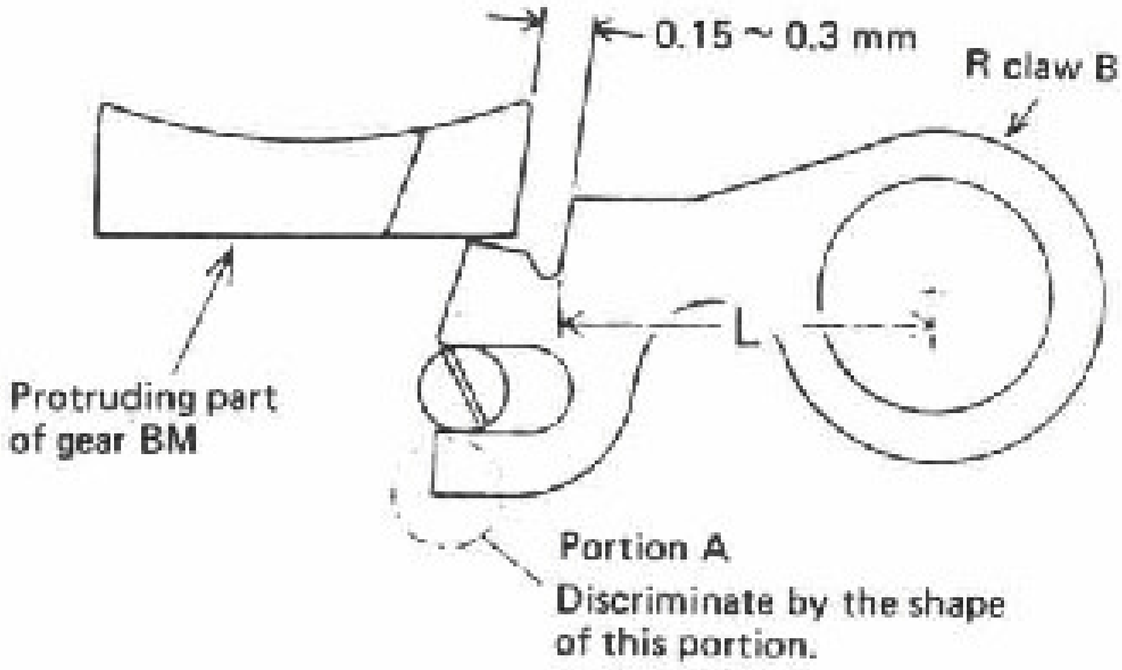
NOTE:

- Check this clearance upon winding up.
- Trailing R claw A is constructed as shown below. It is combined with trailing R claw B. Selection must be made by taking R claw B into account.
- L dimension and size number.



3. Positional adjustment of gear BM and R claw B

R claw B is available in five sizes listed below. Use the one that will provide the prescribed clearance (0.15 ~ 0.3 mm) between the protruding part of gear BM and R claw B.



R claw A1 and R claw B1 (CE243600) L = 6.65
R claw A2 and R claw B2 (CE243700) L = 6.95
R claw A3 and R claw B3 (CE243800) L = 7.25
R claw A4 and R claw B4 (CE245900) L = 6.8
R claw A5 and R claw B5 (CE246000) L = 7.1

The two are punched. Consider the balance between the two in replacing the claw.

NOTE:
To check the clearance, wind up and remove R claw A from gear BM.
The portion A of is shaped as follows:


CE243600


CE243700


CE243800

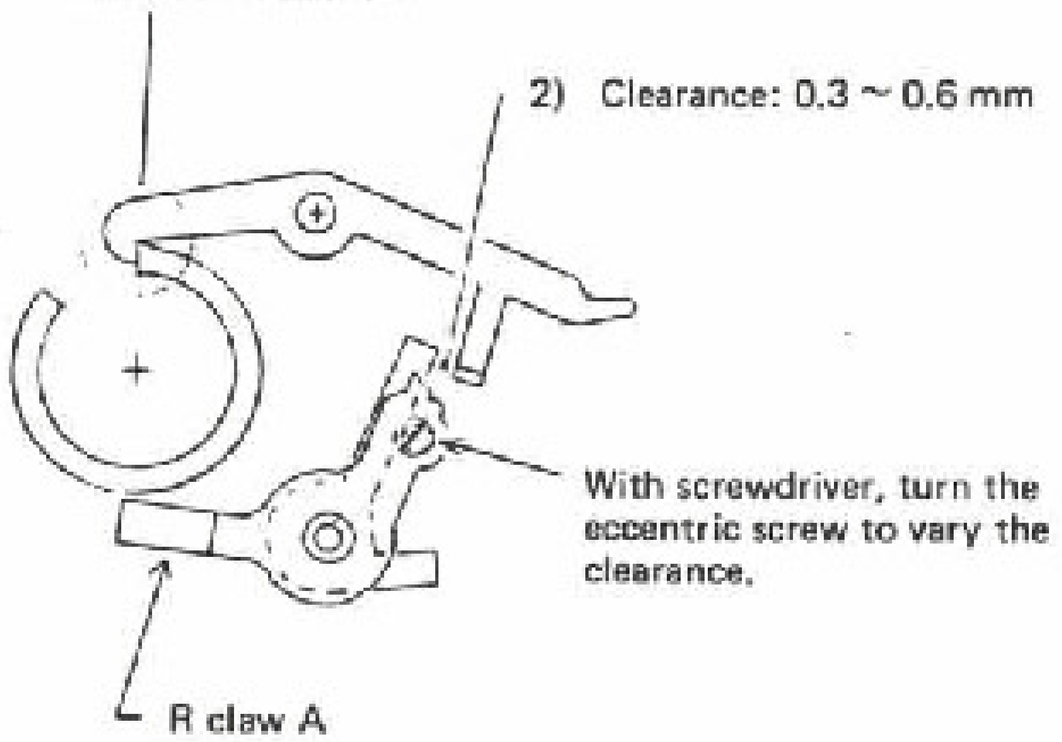

CE245900


CE246000

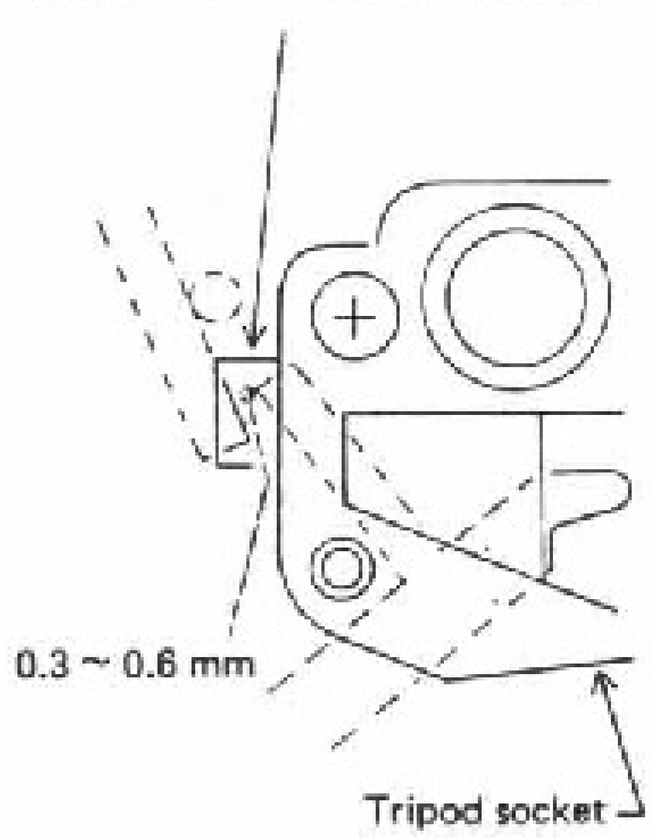
4. Adjustment of clearance between claw (CE-241700) and plate (CE244400)

1) The claw should hitch all the way to the hilt.

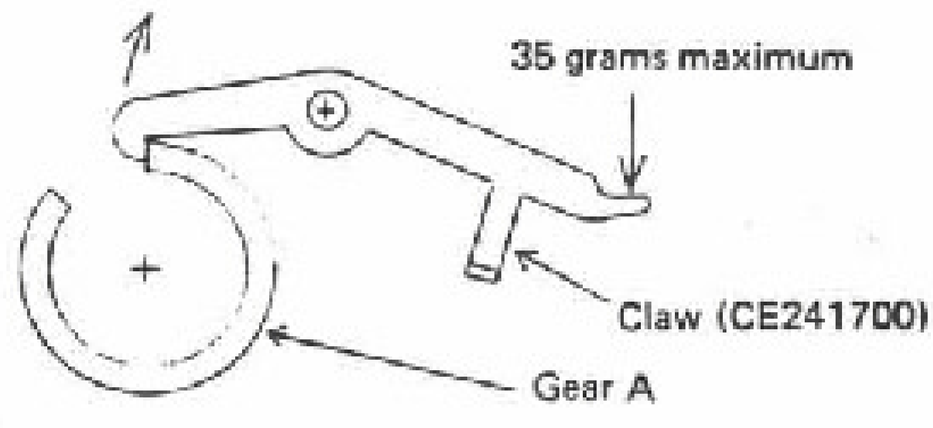
2) Clearance: 0.3 ~ 0.6 mm



NOTE:
Check the clearance by observing through the side hole of tripod socket (CE051400).

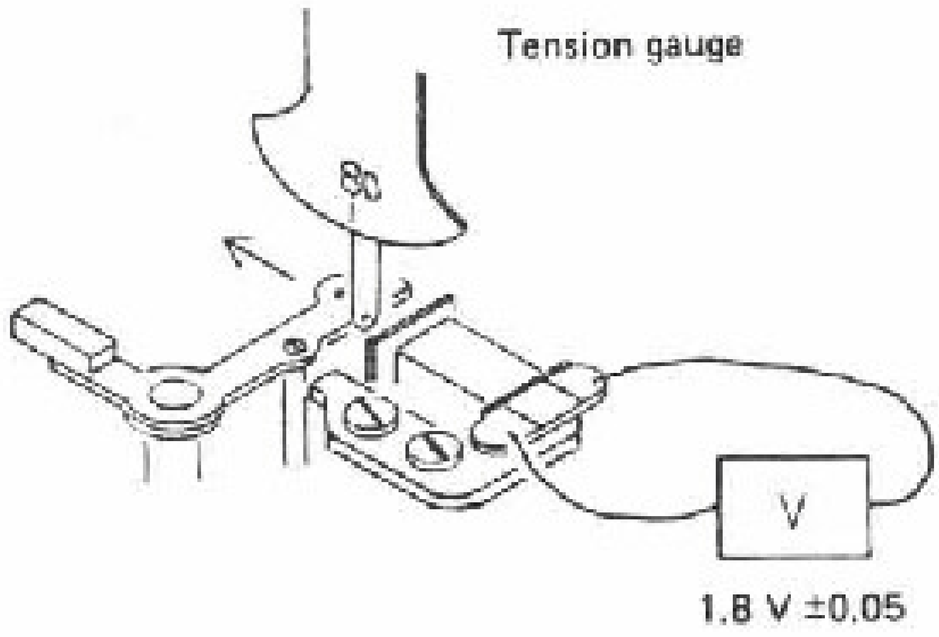


5. Checking the releasing force required of claw (CE241700)



NOTE:
Check to be sure that no greater force than 35 grams is needed to disengage the claw from gear A.
Be sure, also, that leading pawl disengages too easily.
Use a tension gauge to measure this force.

6. Testing the electromagnet for attractive force and continuity



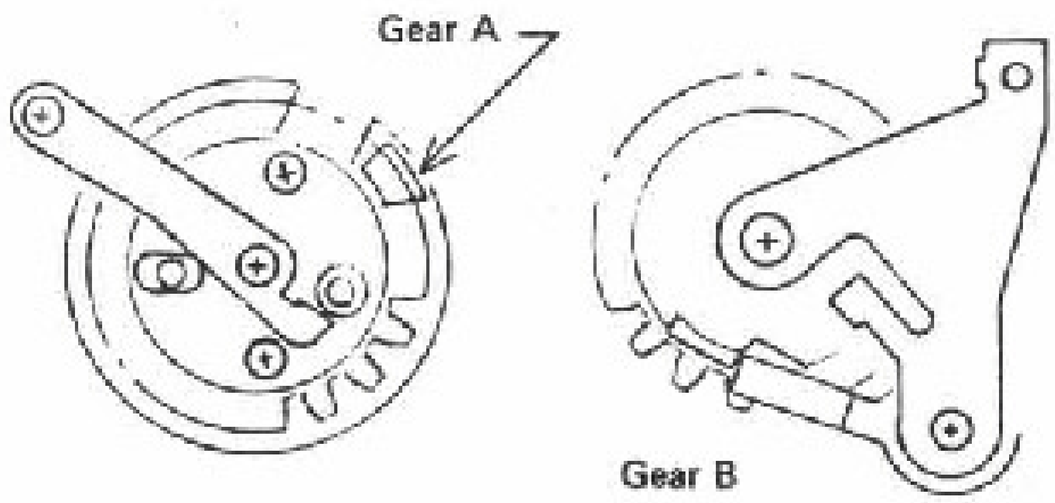
NOTE:
From a regulated-voltage power source, apply 1.8 ±0.05 volts to the electromagnet. In this condition, the electromagnet should develop a force of at least 80 grams, as measured with a tension gauge.
To check the circuit continuity through the coil, measure its ohmic resistance with a circuit tester. The coil is in sound condition if the tester shows 600 ohms or thereabout on its 100X range.

III. SHUTTER MECHANISM

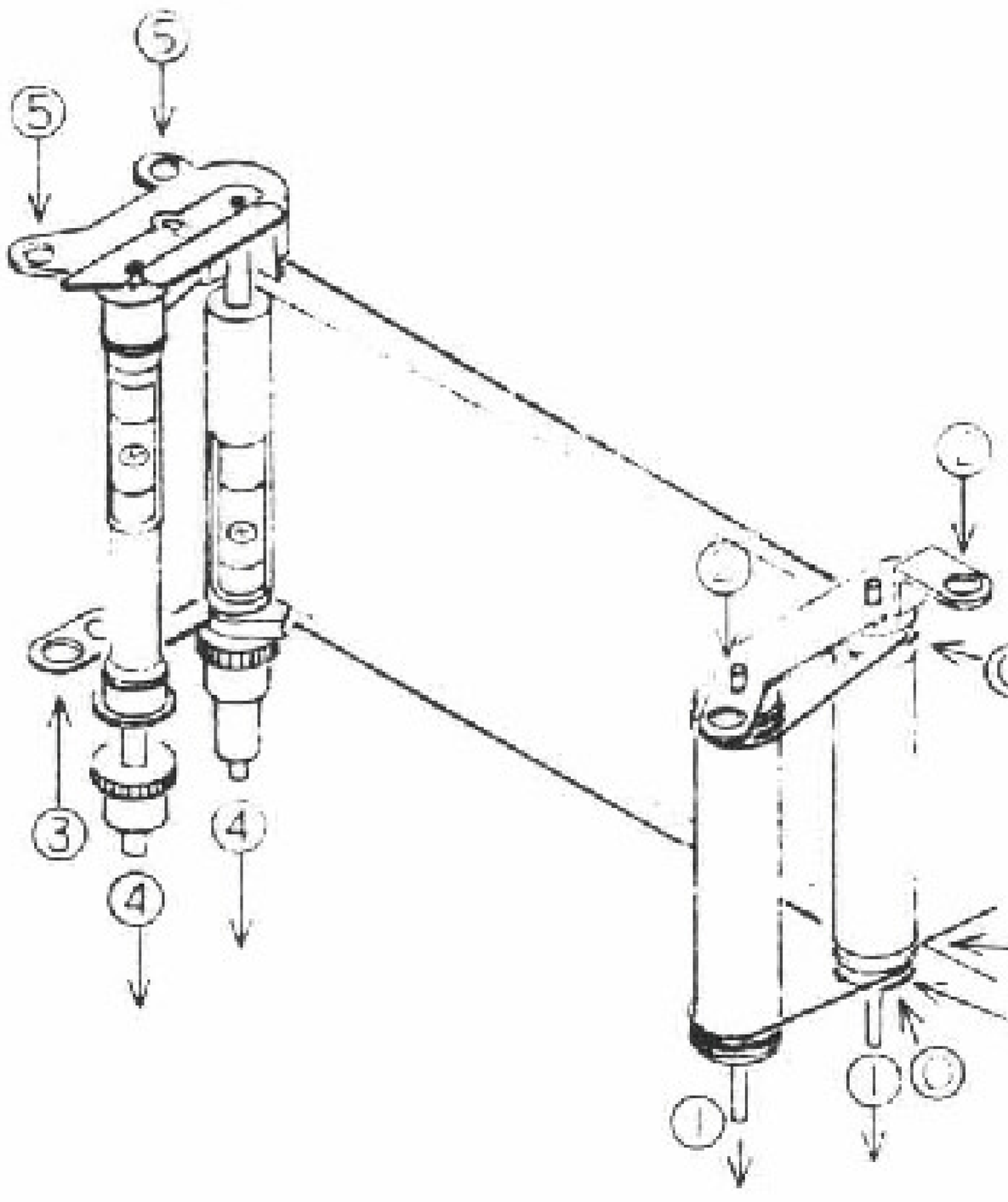
1. Shutter curtain replacement

1-1. Assuming that the existing curtains are in faulty condition and are to be replaced, it may occur that the tension nut (CA853100) will not come off. In such a case, raise the nut by prising it with a screwdriver and break the curtain shaft to permit removal of the curtains.

1-2. Positions of gear A and gear B



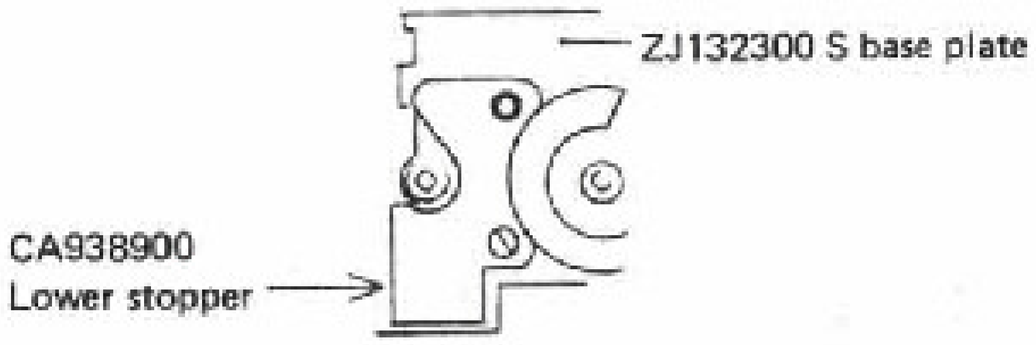
1-3. Install the replacement curtains in the following order:
The parts to be set in the camera body are given reference numbers in this sketch according to the sequential order of installation: part ① goes in first, for example. After installing the curtains, be sure to apply BELL LOCK to each screw.



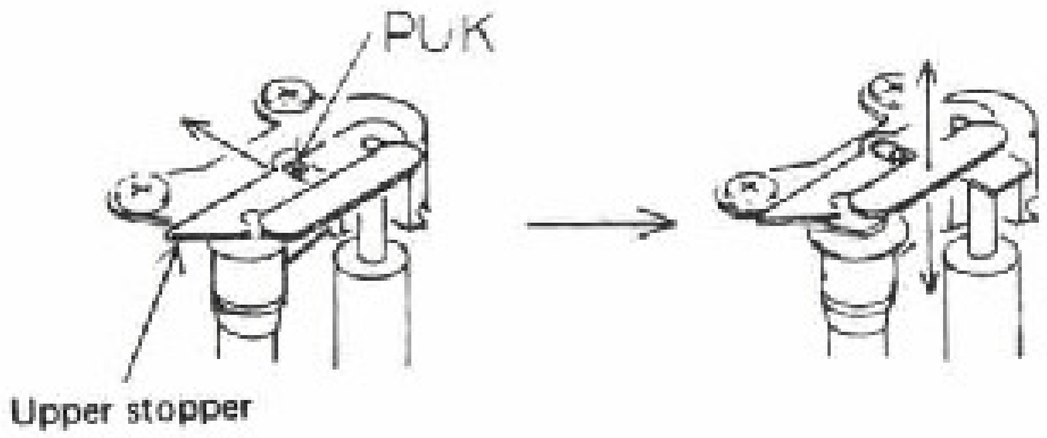
NOTE:
Apply a small amount of COSMOLUBRIC to the indicated portions.

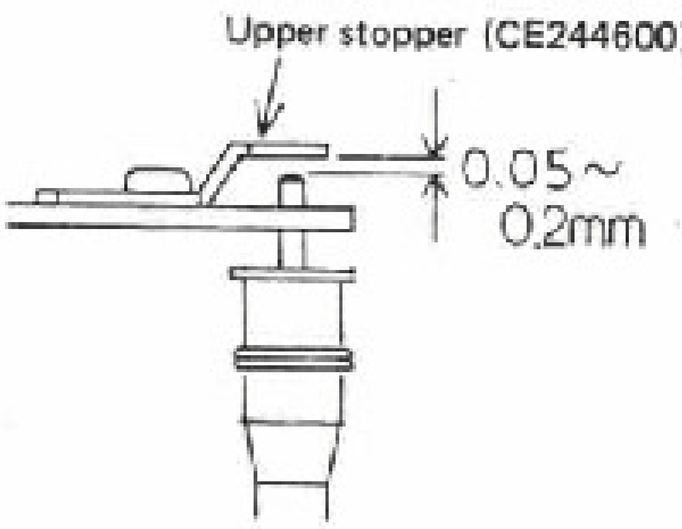
No distinction between top and bottom is made here.

1-4. Install lower stopper (CA938900), as shown.

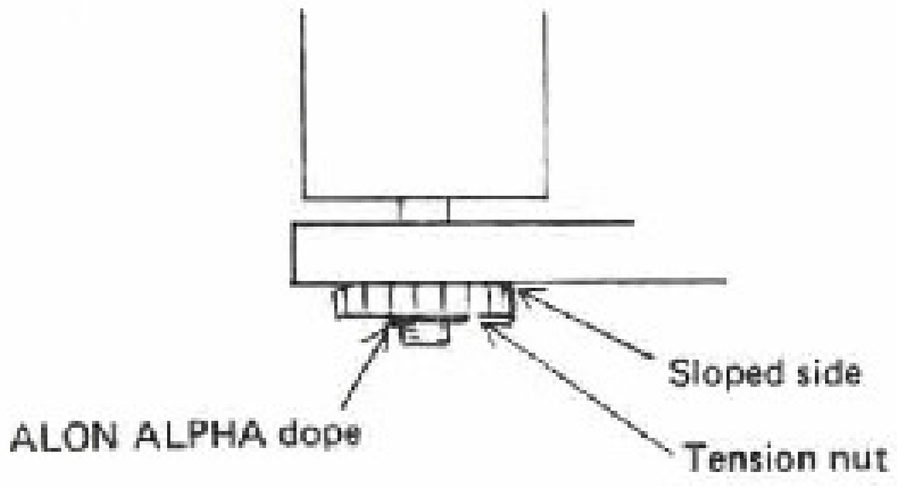


1-5. Displace upper stopper (CE244600), as shown, to eliminate the rattle, if any, of the curtain shaft.

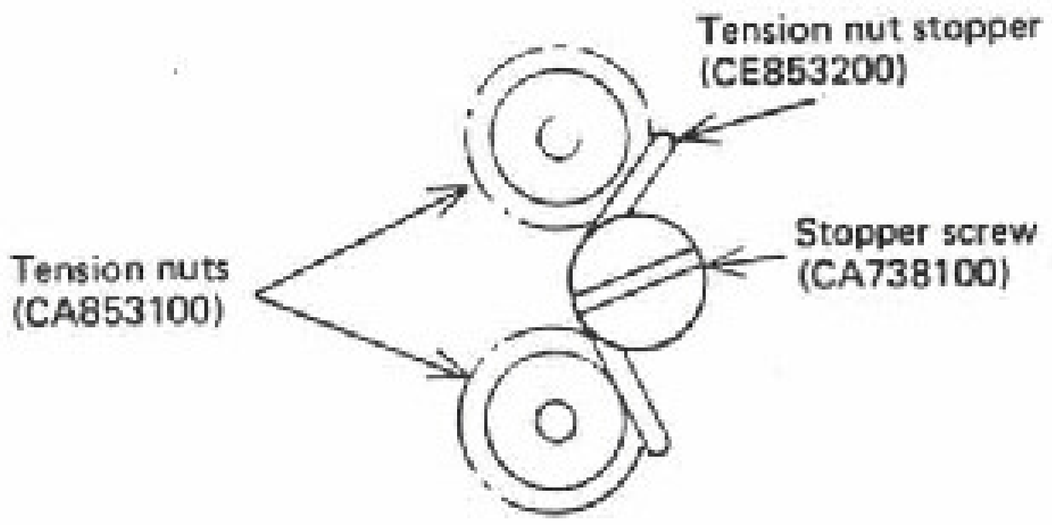




1-6. Fit the tension nut. After tightening this nut, lock it by applying ALON ALPHA 202. (There are two tension nuts to tighten. Be sure to apply ALON ALPHA in a dot amount.)

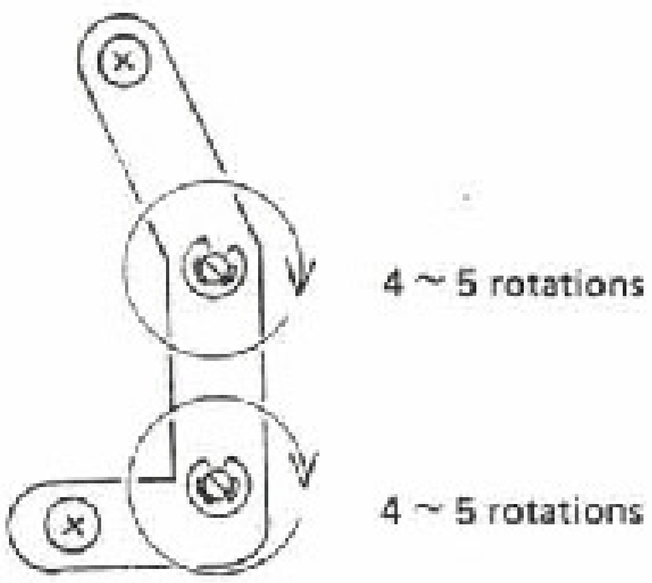


1-7. Install tension nut stopper (CA853200) and stopper screw (CA738100), as shown.

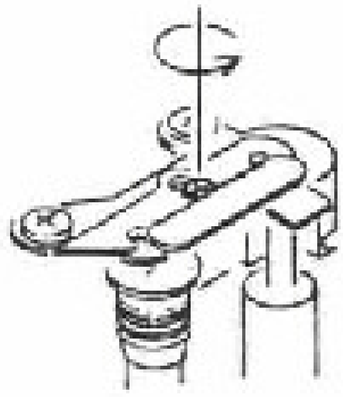


1-8. Tentatively position the curtains in the following sequence of steps:

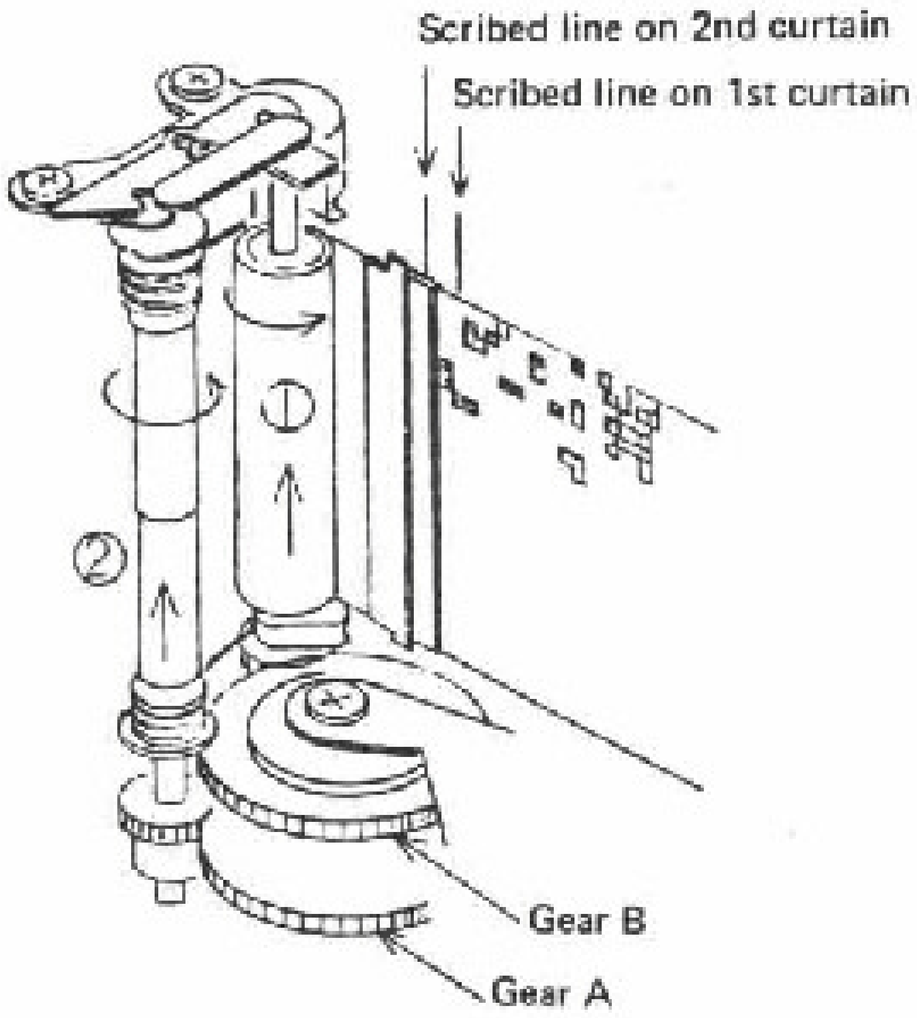
1) Tension first curtain and second curtain by making 4 to 5 rotations: this is tentative tensioning.



2) Loosen PUK screw holding down upper stopper (CE244600).

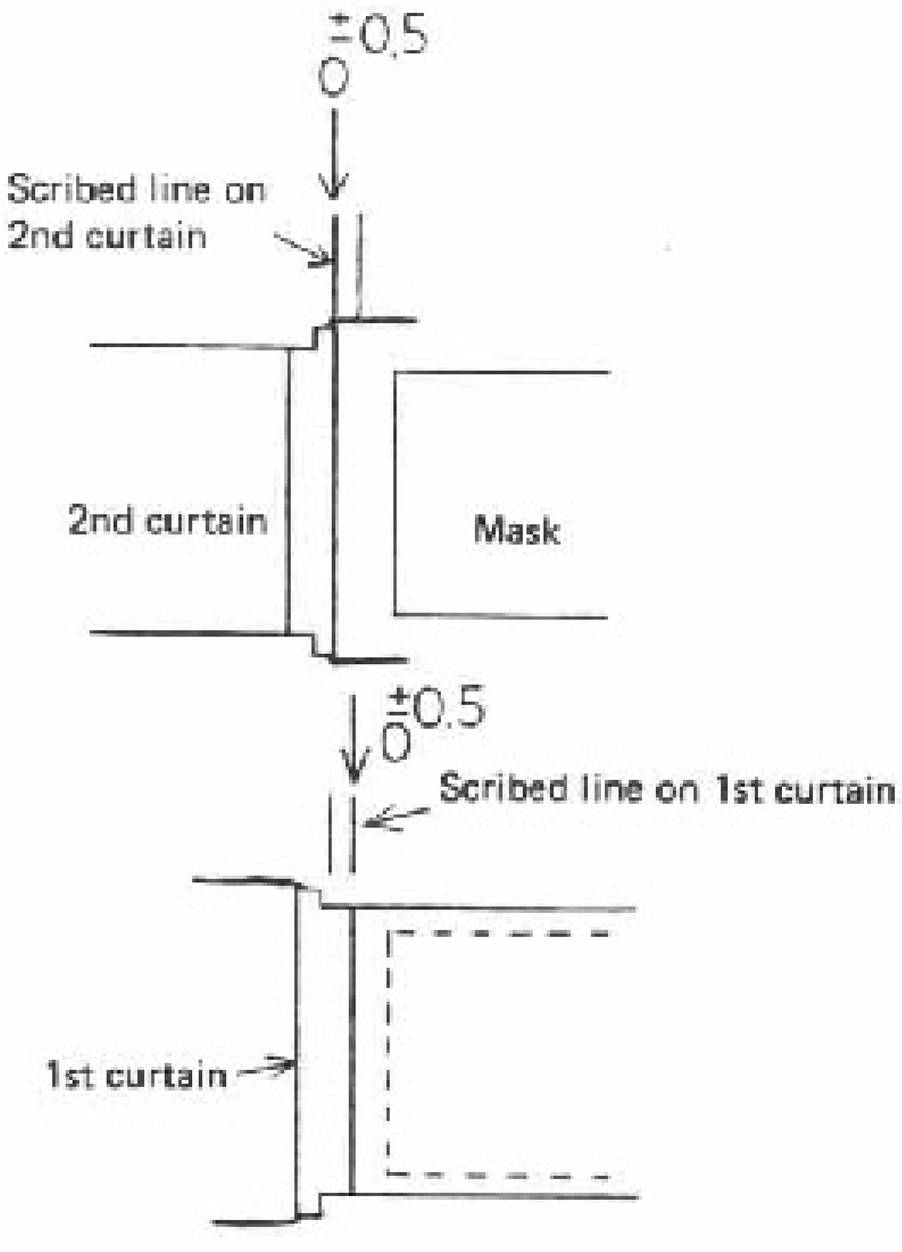


3) Disengage curtain shaft B (CE242300) from gear B, and adjust 2nd curtain: this is for coarse positional adjustment. Next, similarly adjust curtain shaft A and gear A.

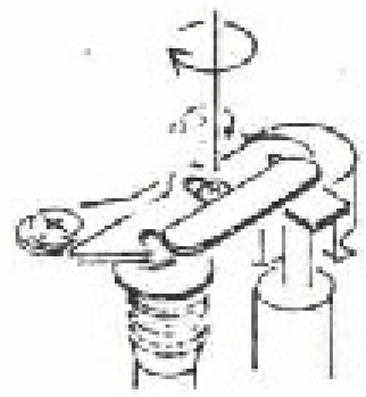


Each tooth of the shaft corresponds to a 1.4-mm displacement.

NOTE:
Coarse positioning of curtains is illustrated in the sketches below:

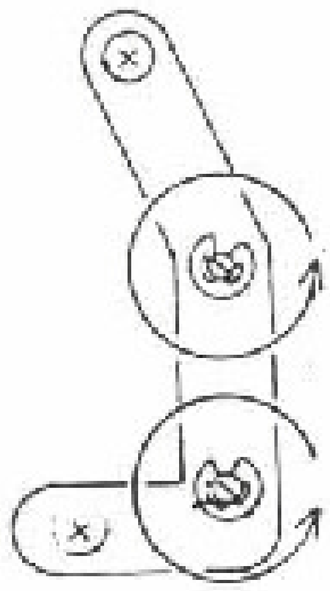


4) Tighten PUK screw to secure upper stopper (CE244600).



1-9. The curtains have been roughly positioned. The next step is to position them accurately (fine adjustment), in the following manner:

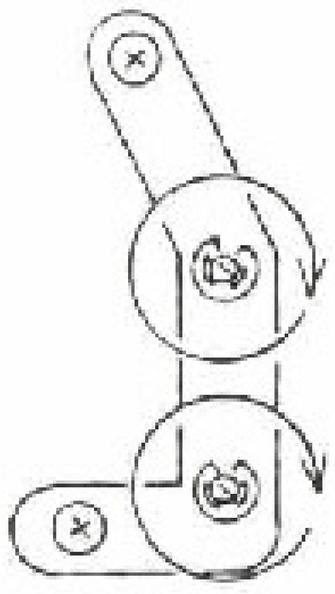
1) Reduce the tension to naught (zero) by turning back, as shown.



4 ~ 5 rotations . . . . . .
Turn back until 1st curtain becomes slackened.

4 ~ 5 rotations . . . . . .
Turn back until the curtain string (CA8531) slackens.

2) Tension both curtains by turning exactly 5 and 7 rotations, as shown.

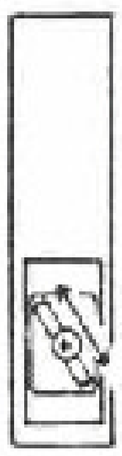


5 rotations
(1st curtain)

7 rotations
(2nd curtain)

3) Position the curtains accurately (fine adjustment).

1.

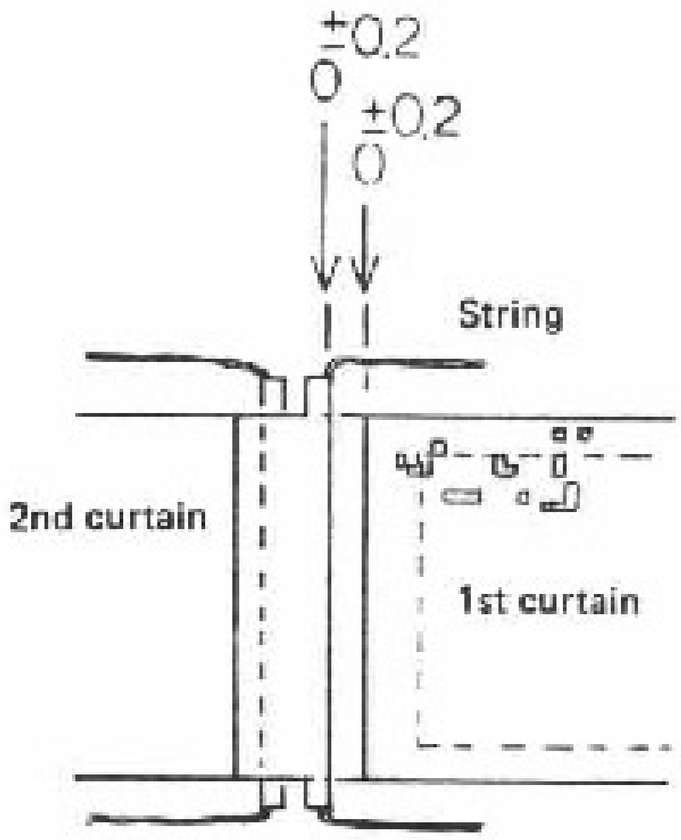


2nd curtain adjustment

2.

1st curtain adjustment

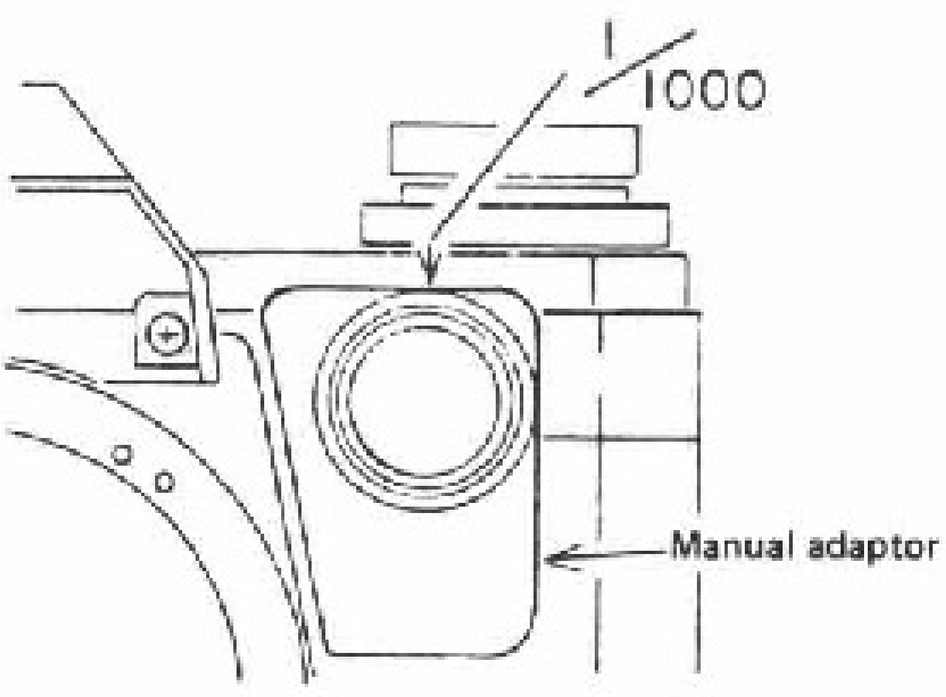
NOTE:
Refer to the scribed lines.



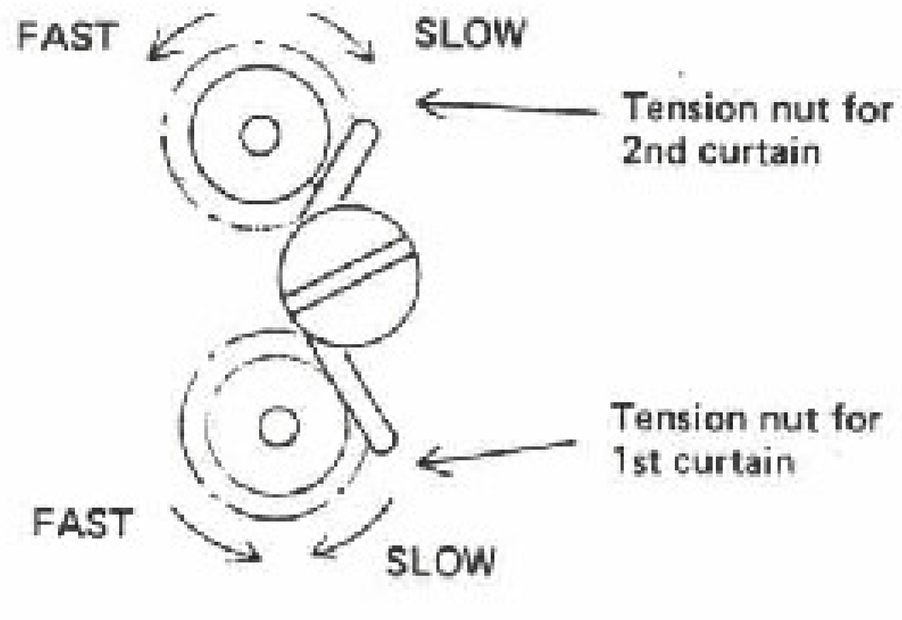
2. Manual timing adjustment

2-1. Curtain speed adjustment

1) Fit the manual adaptor, and set the speed at 1/1000 sec.



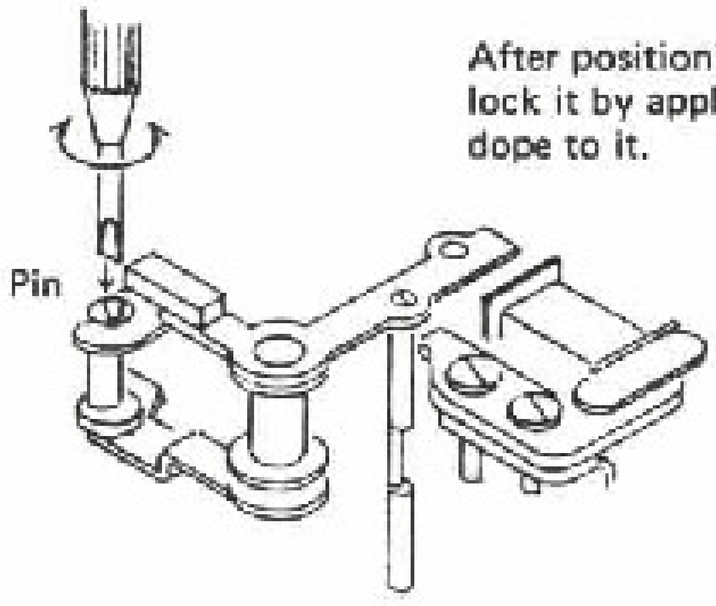
2) Turn tension nuts to set the respective speeds to the values stated on the right.



NOTE:
2nd curtain speed: 12.0 ±0.1 milliseconds
1st curtain speed: 12.0 ±0.1 milliseconds

2-2. Timing adjustment

1) Turn the pin to set the timed duration to MANUAL 1/1000 second.



After positioning the pin, lock it by applying bonding dope to it.

NOTE:
If disturbed curtain speed is complained of the camera brought in, adjust the speed in the foregoing manner.

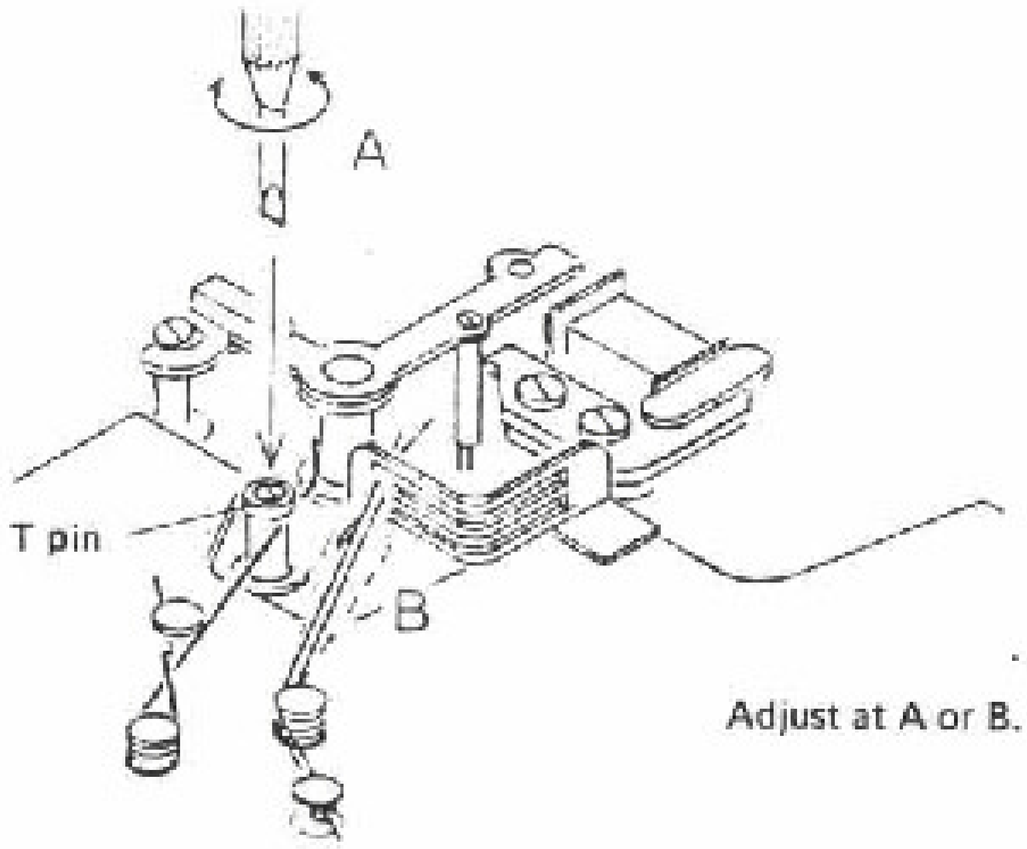
If adjustment by the pin is not successful, replace the trailing pawl assembly. (Refer to page D-6 and D-7.)

Adjust to anywhere between 0.5 and 2 mS.

2) Check AUTO MINI time.
Adjust by means of the pin, as before, distinct from 1/1000-second adjustment.

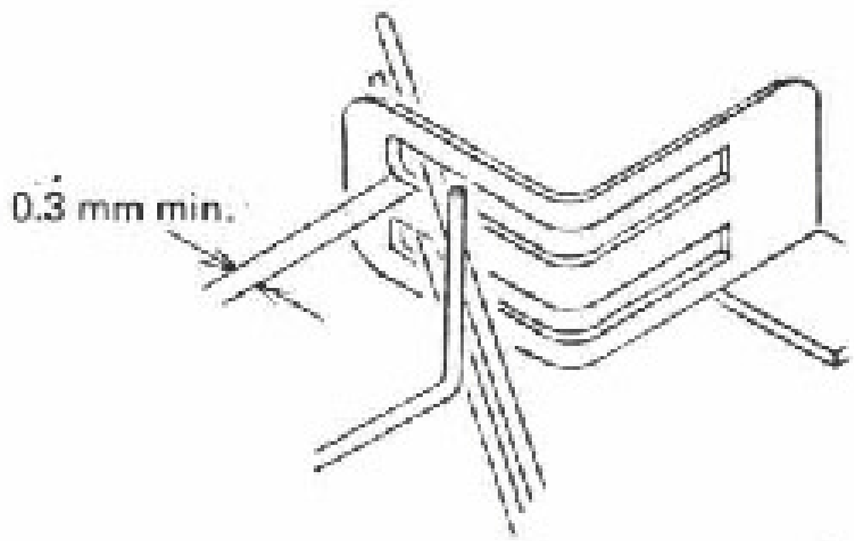
NOTE:
Be sure that AUTO mini time (center exposure time) is between 0.3 and 2 mS.

3) Turn T pin to adjust for 1/500 second. (If this pin will not rotate, bend the trigger piece.)



Adjust at A or B.

NOTE:
Adjust to anywhere between 1.17 ~ 3.27mS.



Of this two, refer to the narrow one.

4) Check the 1/1000-second adjustment again and if necessary, repeat the steps 1) through 3), above.

5) Check each timing to be sure that the shutter speed is within the specified range:

Timing	Speed
1/1000 second	0.5 ~ 2 milliseconds
1/500 second	1.17 ~ 3.27 milliseconds
1/8 second	74.8 ~ 209 milliseconds
X timing	15 ~ 30 milliseconds
Mini timing (Check on AUTO.)	0.3 ~ 2.0 milliseconds

2-3. Manual timing adjustment where front casting is not attached

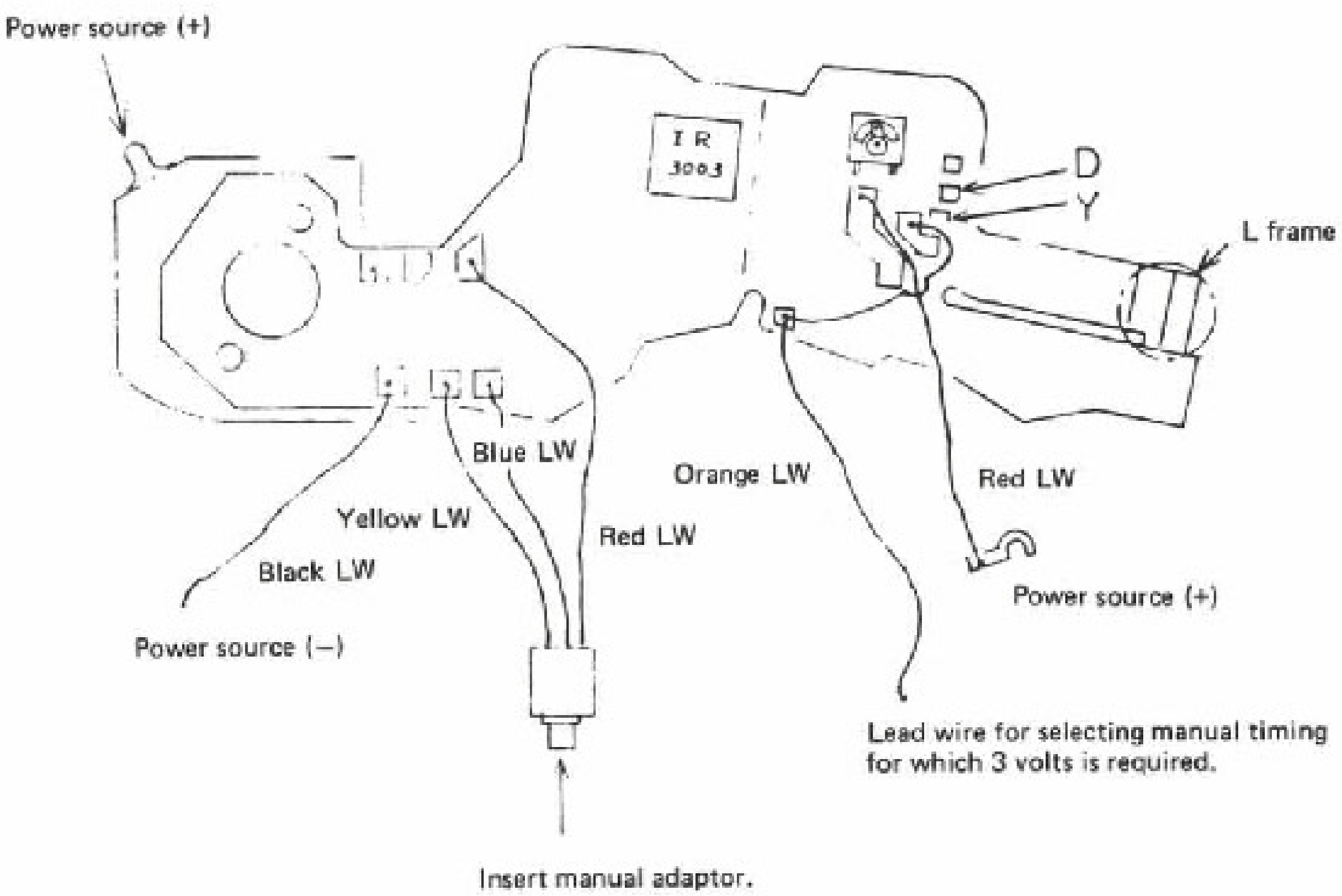
1) Wiring

a. Connect the body and red lead wire to voltage source 3 V (+).

b. Connect black lead wire to voltage source 0 V (−).

c. Insert manual adaptor.

d. Connect orange lead wire to 3 V (+), as shown.



2) Carry out adjustment for each timing in a manner already explained for the case in which the front casting is attached.

3) In making this adjustment, take these precautions:

a. Do not allow lead wires and terminals to touch one another or come in contact with the shutter tester.

b. Handle L frame carefully: this frame is easy to injure.

c. Note that the shutter will be left open if the power source voltage is too low.

NOTE:

In the case of AUTO timing.

a. Same as in MANUAL.

b. Same as in MANUAL.

c. Manual adaptor pulled out.

d. Orange lead wire disconnected from (+).

4) MINI time checking and adjustment

Referring to the diagram above, disconnect orange LW from 3 V; insert 6.8-kilohm resistor (ASA100) between Y and D; and check to see if adjustment is necessary.

NOTE:

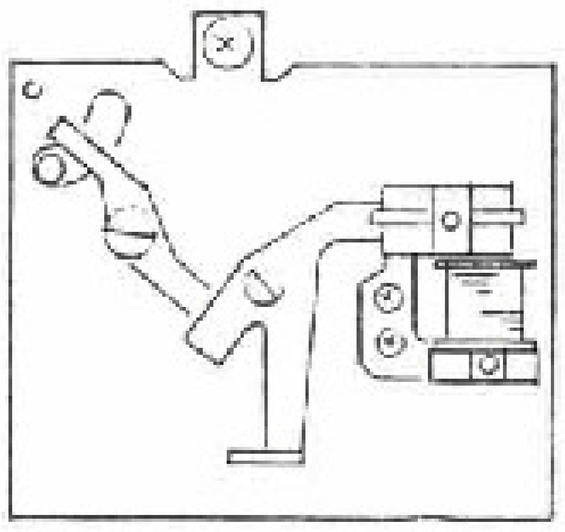
Refer to page D-20, 1-15, and solder at A on the board.

This permits omission of soldering orange LW and 6.8-kilohm resistor.

IV. FRONT CASTING

1. Side plate R (ZC205100)

1-1. If side plate R (ZC205100) is in faulty condition, replace the plate and what are on it. This is because the permanent magnet does not lend itself to easy adjustment: when malcondition is noted in this section, it is better to replace the whole as a set.



1-2. Check to be sure that —

1) Winding-up motion will lock the mirror if the battery is absent.

2) The electromagnet will exhibit about 380 ohms when tested for continuity through its coil by using a tester on 10X ohmic range.

(Internal resistance of the magnet.)

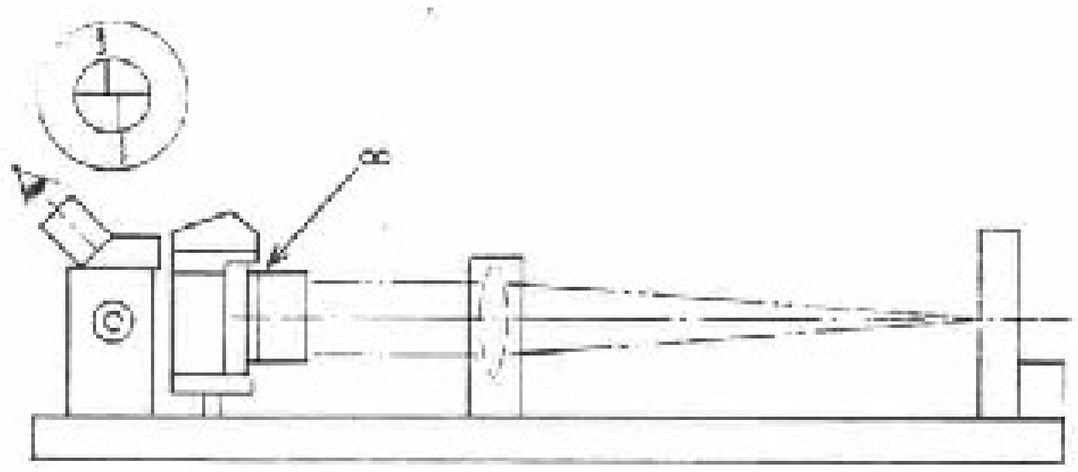
3) The mirror will get unlocked (released) when 2 volts is applied to the blue lead wire (—) of RY101 and to the die-cast body.

NOTE:
While measuring, do not turn the regulated source voltage on and off.

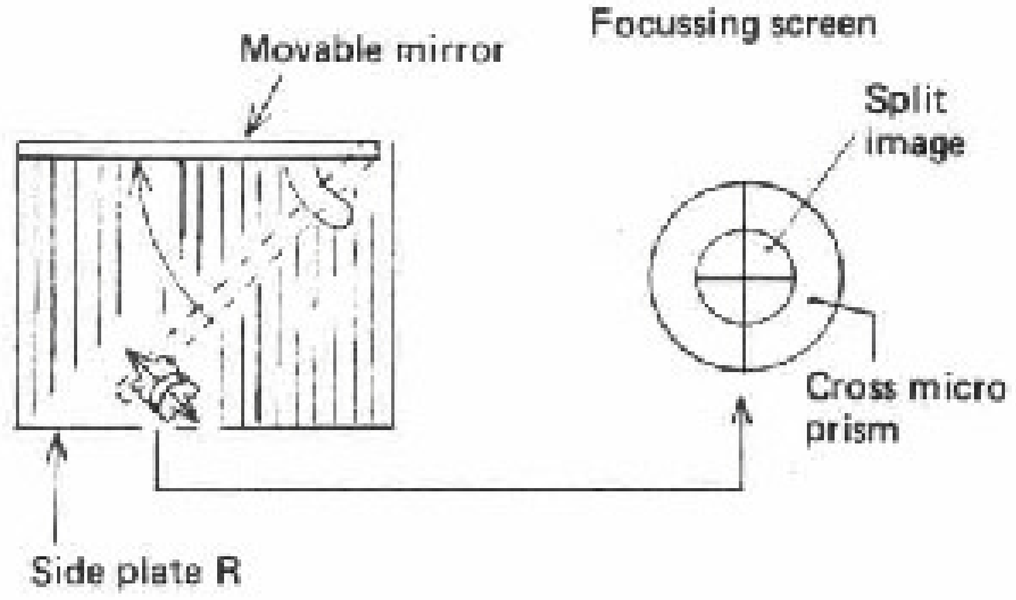
2. Finder Focussing

2-1. Normal finder focus adjustment

2-1-1. Attach the focussing lens (adjusting tool) to the camera, mount the camera on the collimator, and measure focussing error.



2-1-2. Adjust the 45° position of movable mirror to line up the split images straight in the finder.



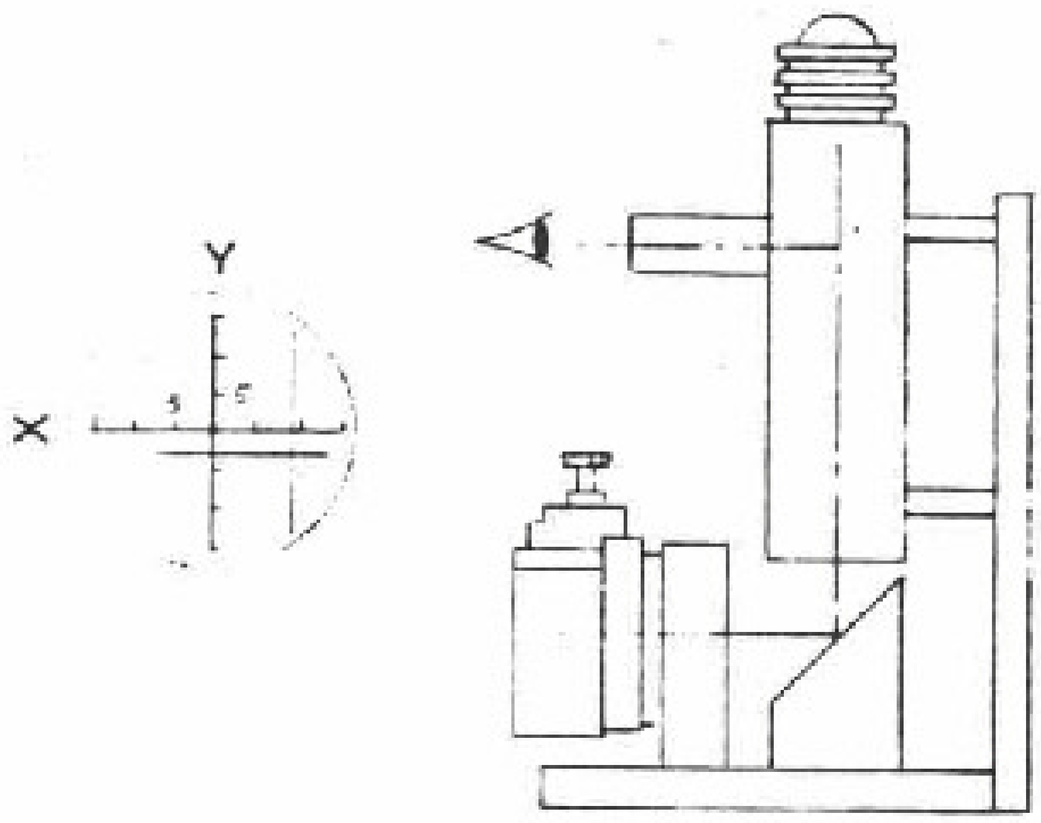
Use the collimator as explained in 2-1-1 to make this adjustment.

NOTE:
Displace the 45° position and if blur on one side exceeds ±30′ in Y direction, replace washer.

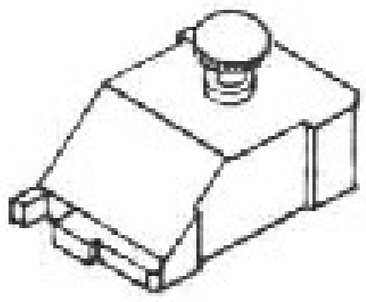
Displacing the focus position by 0.01mm shifts one-side blur by 1.2′.

2-2. Finder focussing adjustment involving CE-253700 F washer adjustment.

2-2-1. Remove CE253700 F washer. Put on test mirror to locate the 45° position. (This is to be effected for Y direction only.)

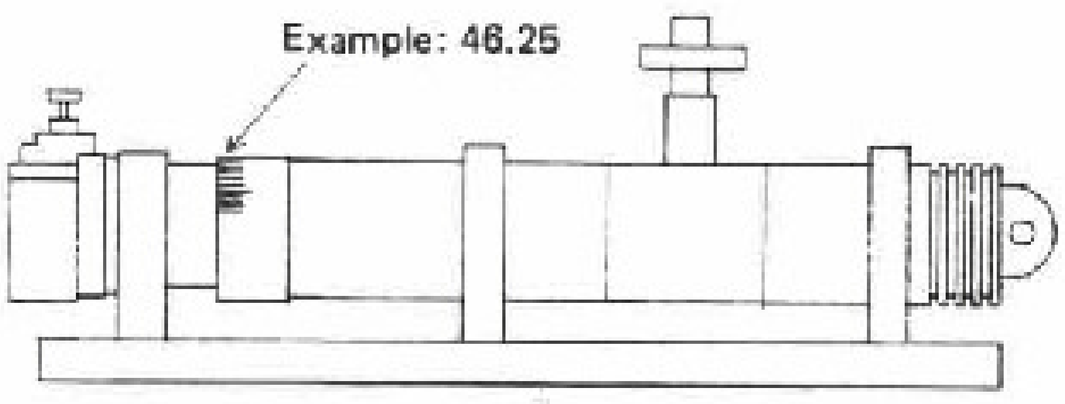


NOTE:
Approximately within ±5'.
(No need to adjust for X direction.)

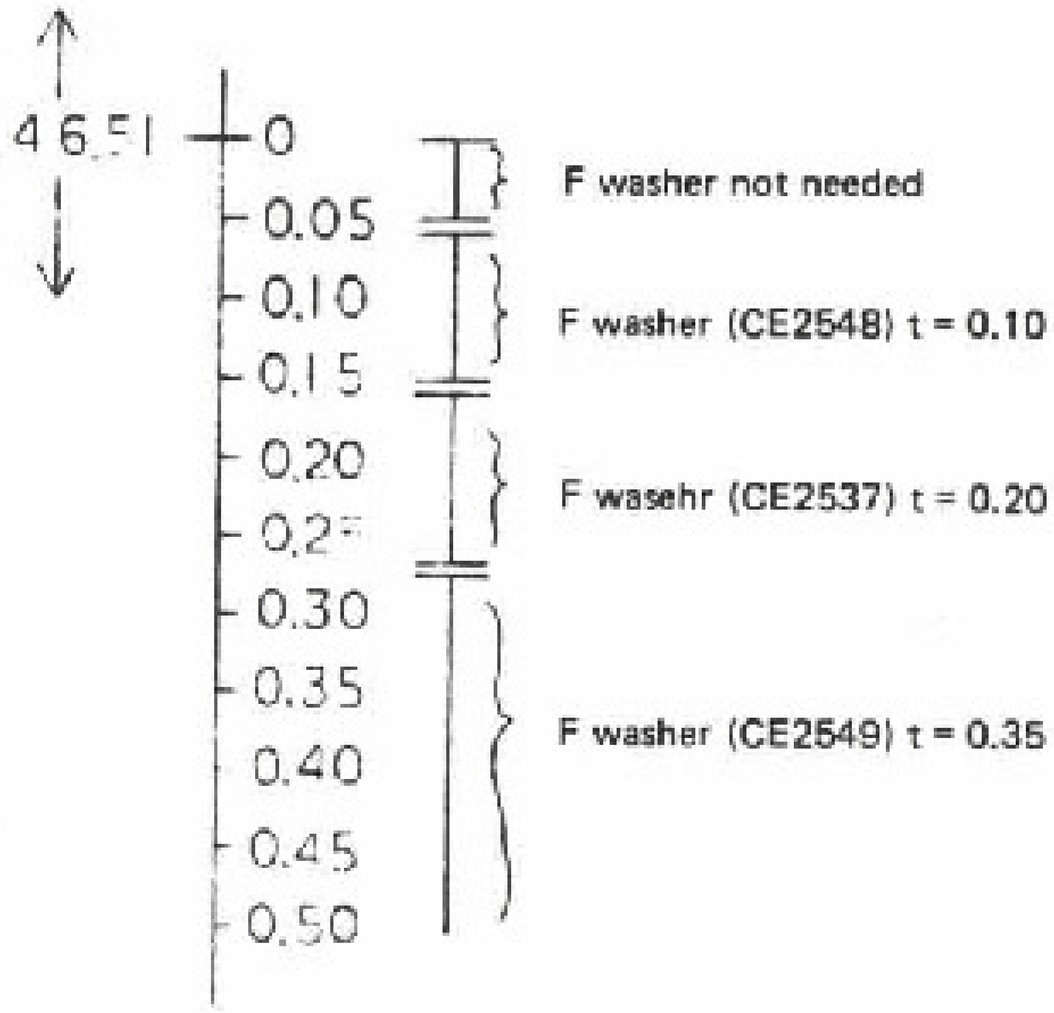


Test mirror

2-2-2. Mount the camera on the photoelectric collimator, put on the test mirror, and measure the focus position.



2-2-3. Select the washer by referring the measurements taken in 2-2-2. to the table below.
Example: t = 0.20



NOTE:
If t = 0.50 or larger, check on one-side blur after adjusting the focus.
The blur must be within ±30'.

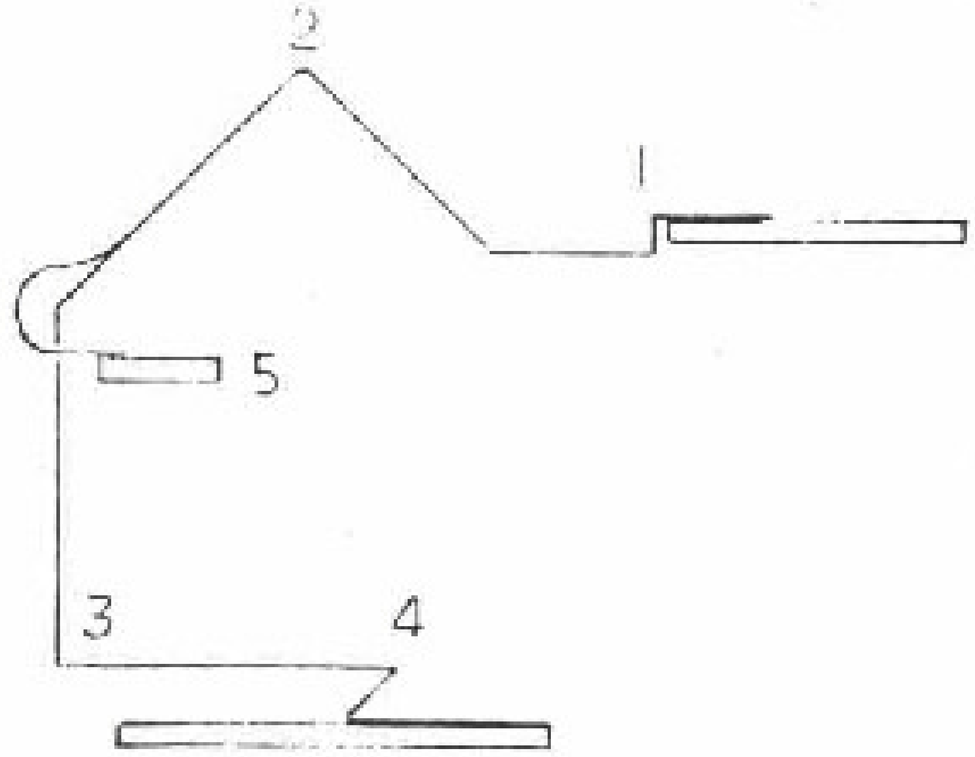
2-2-4. Install F washer, focussing screen, F mask (ZC2081), P frame (CE2534), penta prism, P cover (CE2547) and P retainer (CE 2533).

2-2-5. Determine the focus by normal finder focus adjustment. Refer to 2-1.

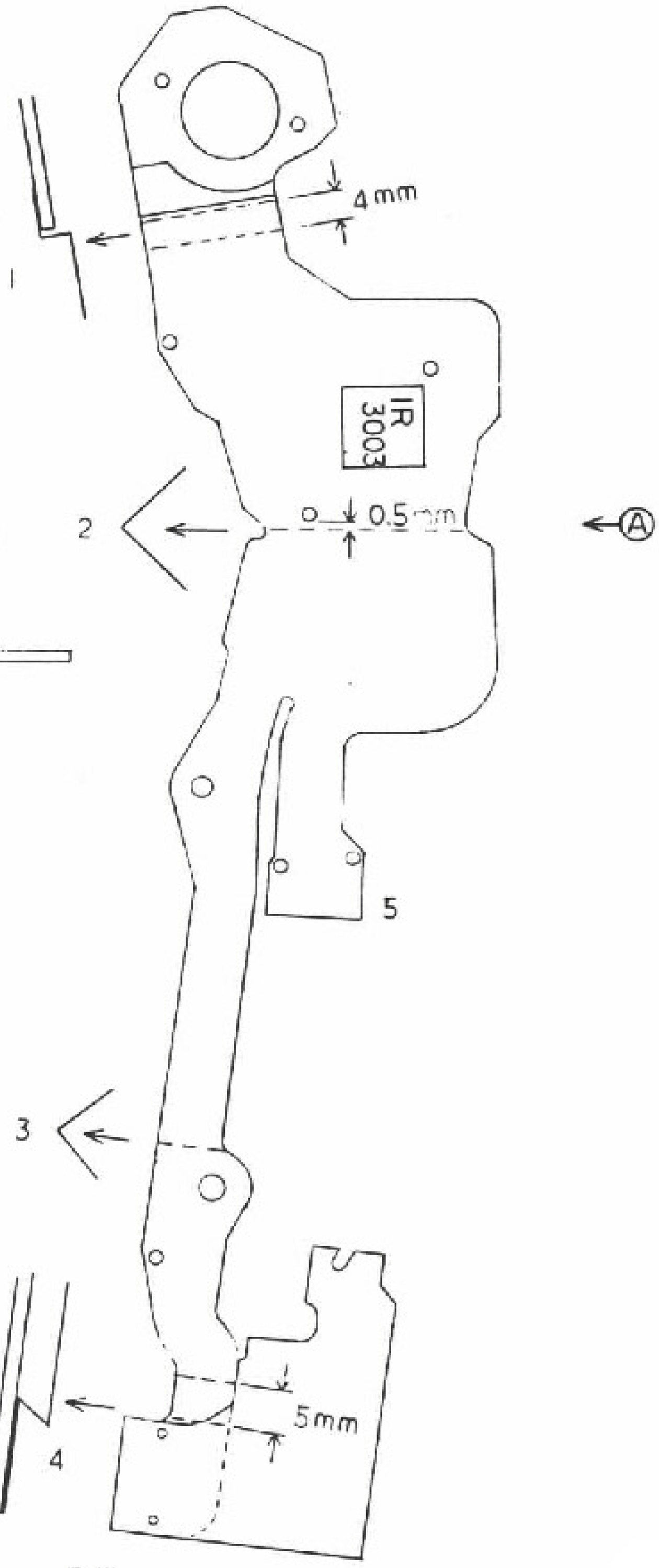
V. DOCKING AND SUBSEQUENT ADJUSTMENT

1. FPC installation

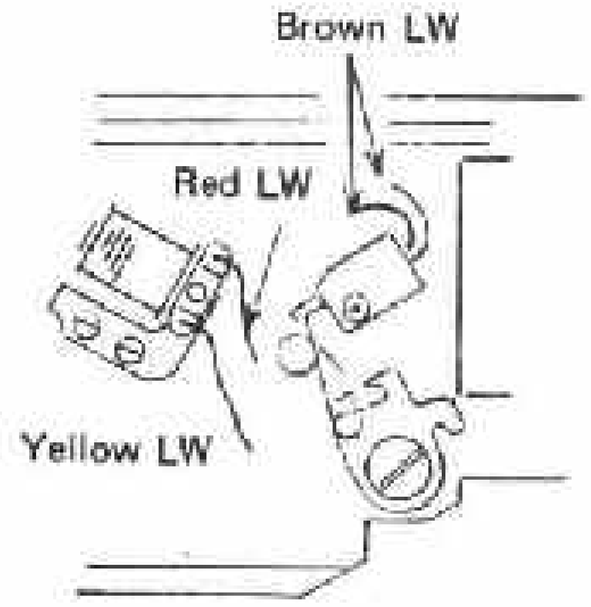
1-1. Bend as shown on the right.



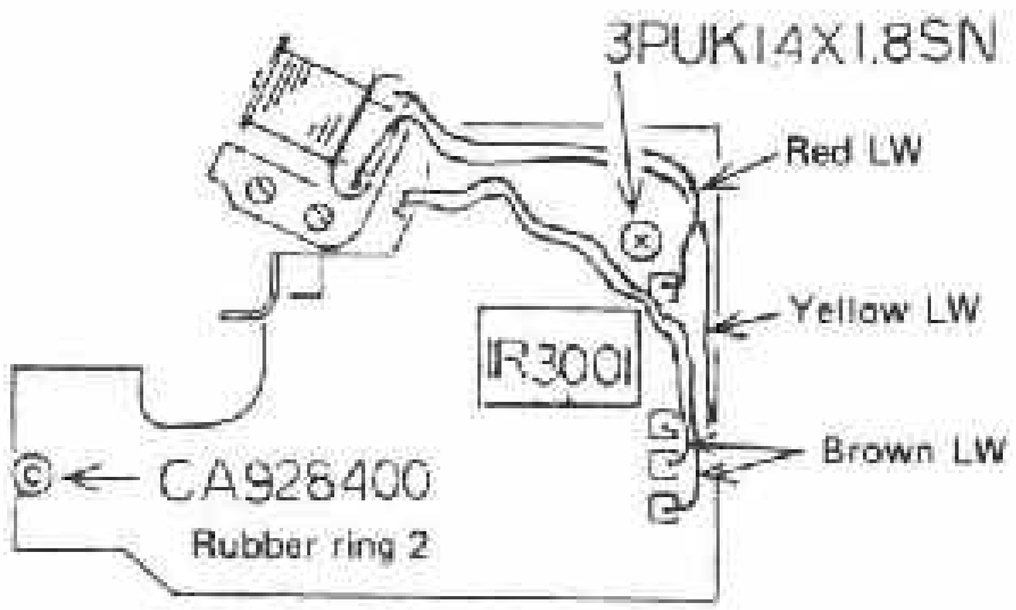
As seen in the arrow (A) direction.



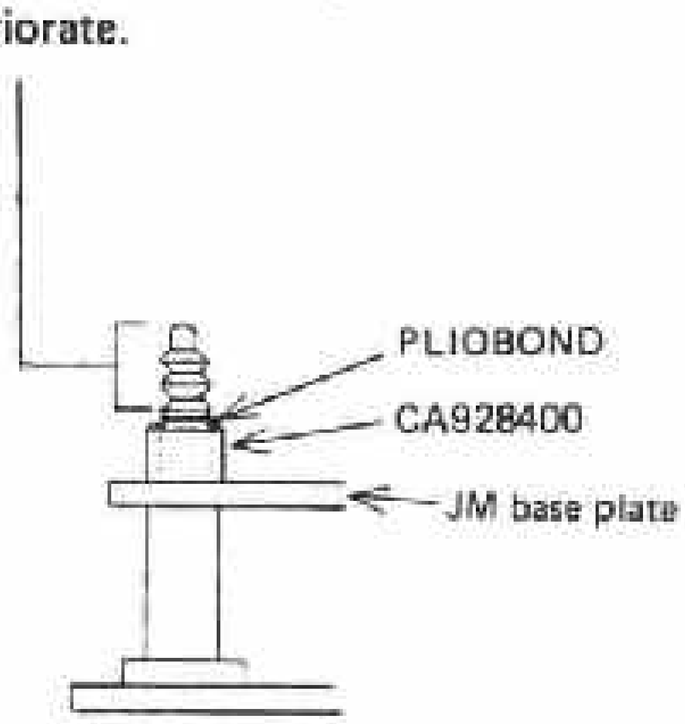
1-2. Connect lead wires (see the sketch) by soldering.



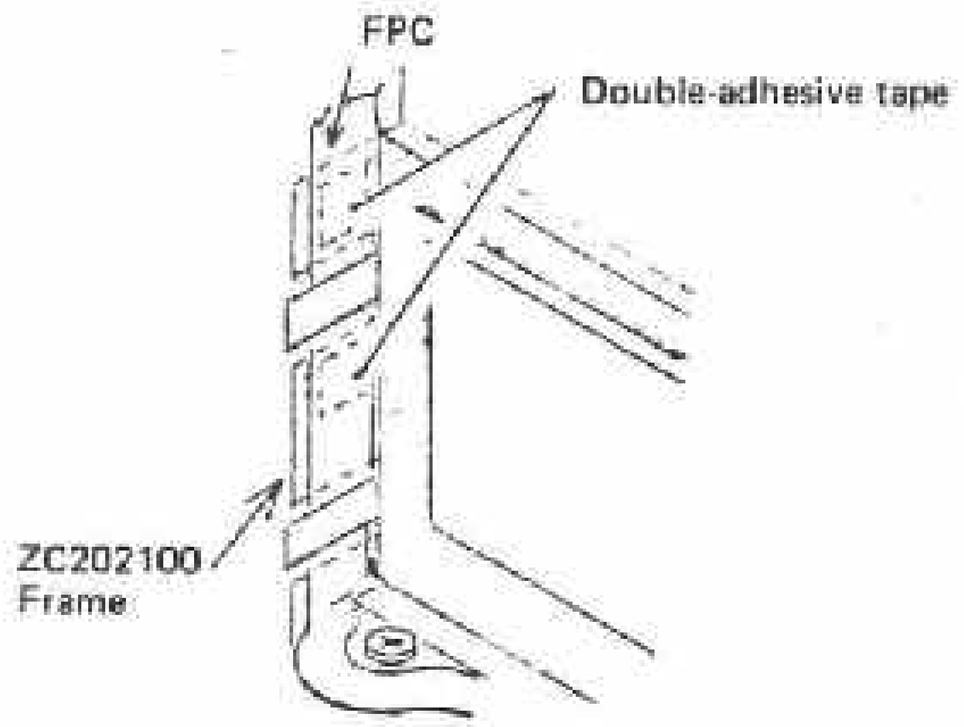
1-3. a. Route the lead wires neatly.
b. Secure JM board by tightening the screw (3PUK1.4x1.8SN) and rubber ring 2 (CA928400).



NOTE:
Do not use a bonding dope or electrical continuity to cover plate (ZC208400) will deteriorate.

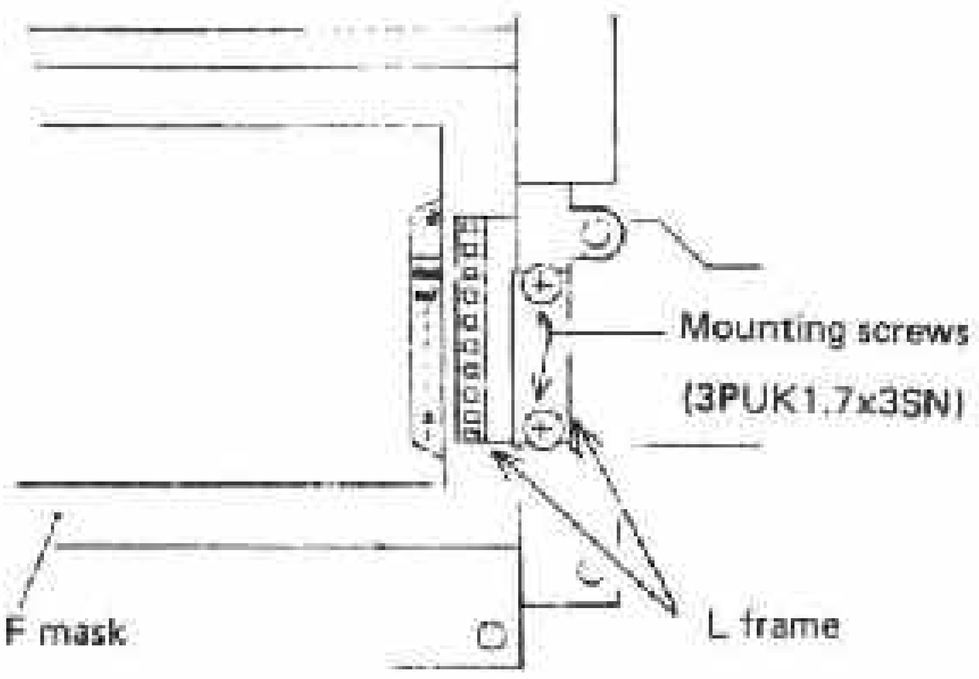


1-4. a. Stick pieces of double-adhesive tape to frame (ZC202100).
b. Insert FPC into frame (ZC202100) in an inserting manner.
c. Stick FPC to the adhesive tape.

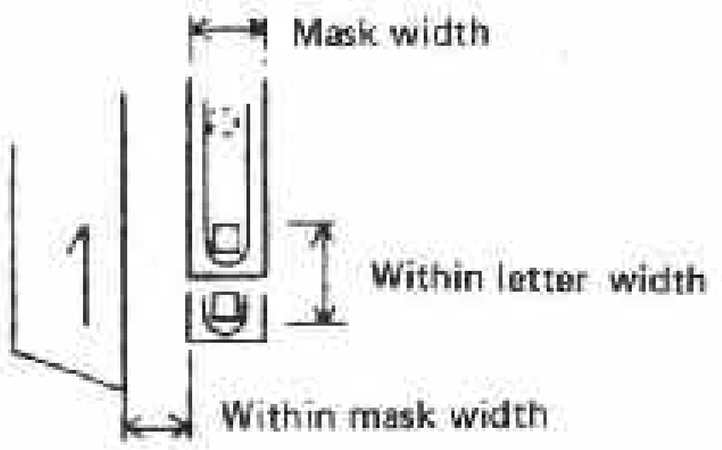


1-5. Fit front casting to die-cast body.

1-6. Position L frame in place and secure it.
Positioning of L frame will be easier when the prism has been removed.



NOTE:
When positioning L frame, be sure to:—
a. True it up.
b. Observe these limits:



- Corner radius portion of the screen comes on B mount side.
- Bring F mask toward right-hand front.

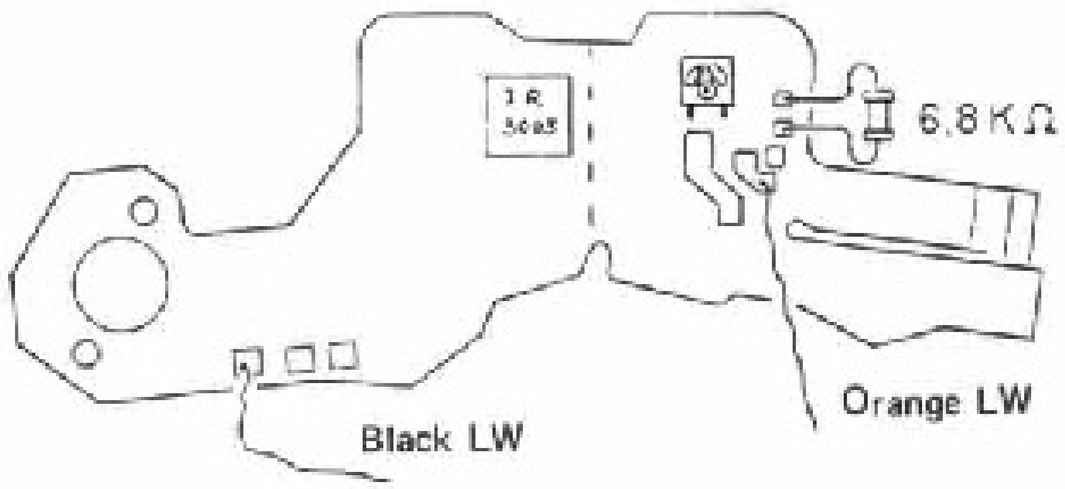
1-7. Install the prism.

1-8. Rest FPC on R shaft bearing, and secure it with two screws (PUK1.7x3.5SN).

NOTE:
Be sure that FPC is properly formed.

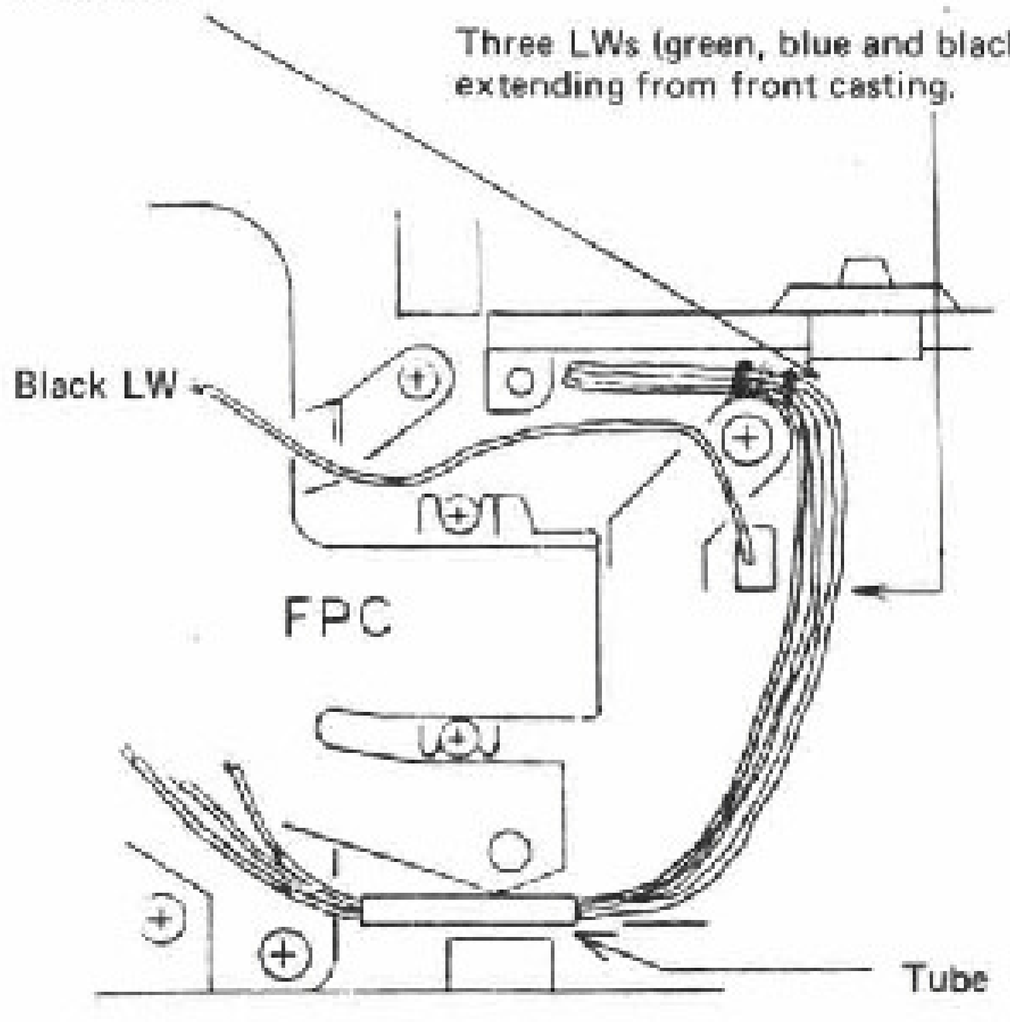
1-9. Fasten down FPC by tightening PUK1.7-516SN screw.

1-10. Disconnect the two lead wires and 6.8-kilohm resistor.

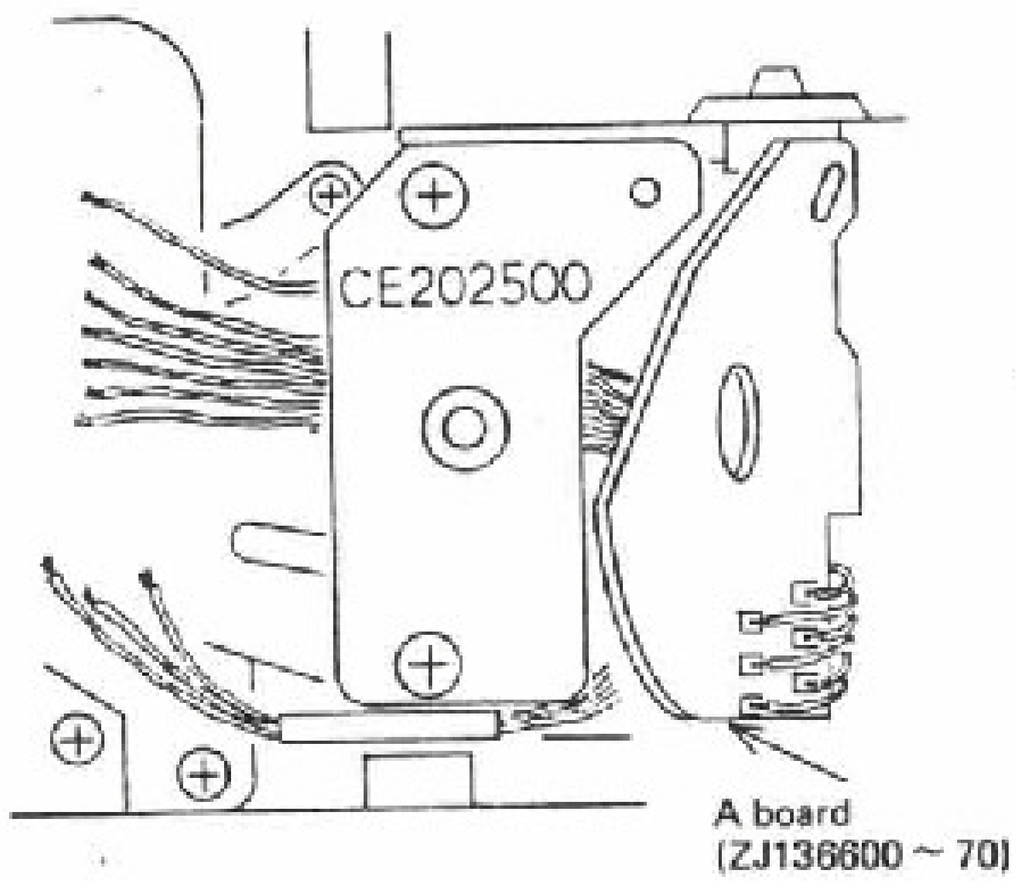


1-11. Route the lead wires neatly.

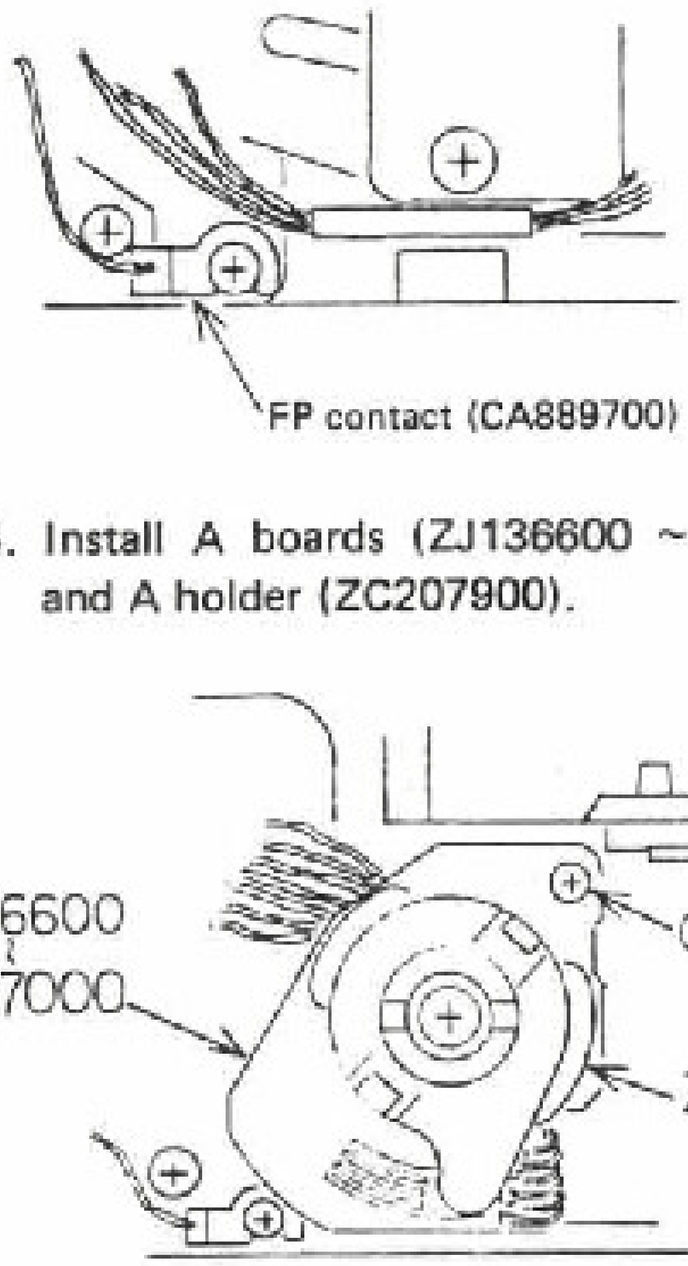
Using PLIOBOND, stay lead wires here.



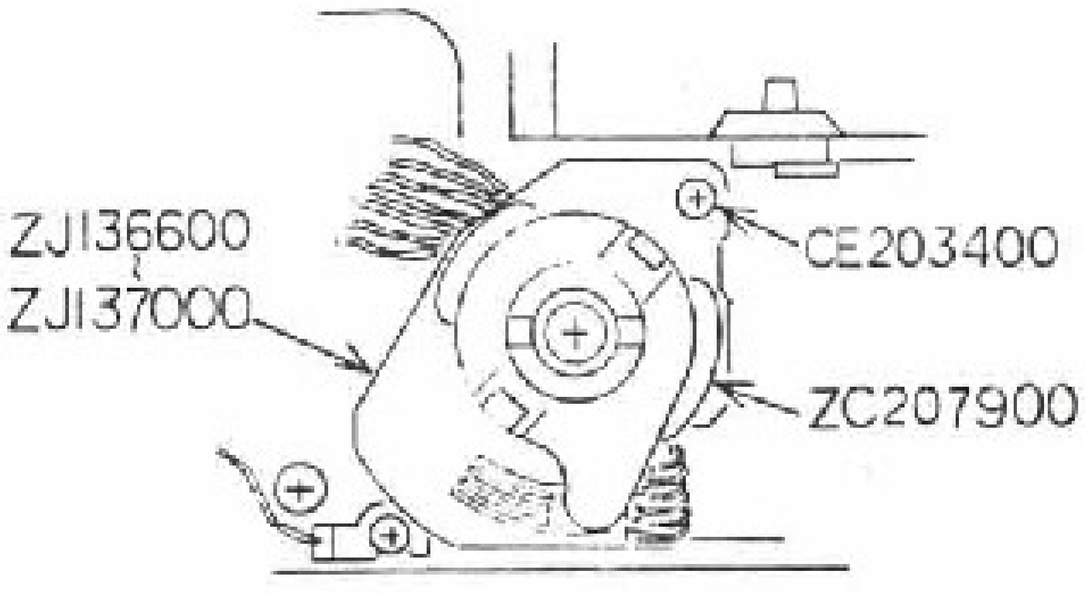
1-12. Install A board washer (CE202500). Route A board lead wires through under the washer, making sure that these wires do not cross over one another.



1-13. Install FP contact.
Be sure that FP contact does not protrude from the body.

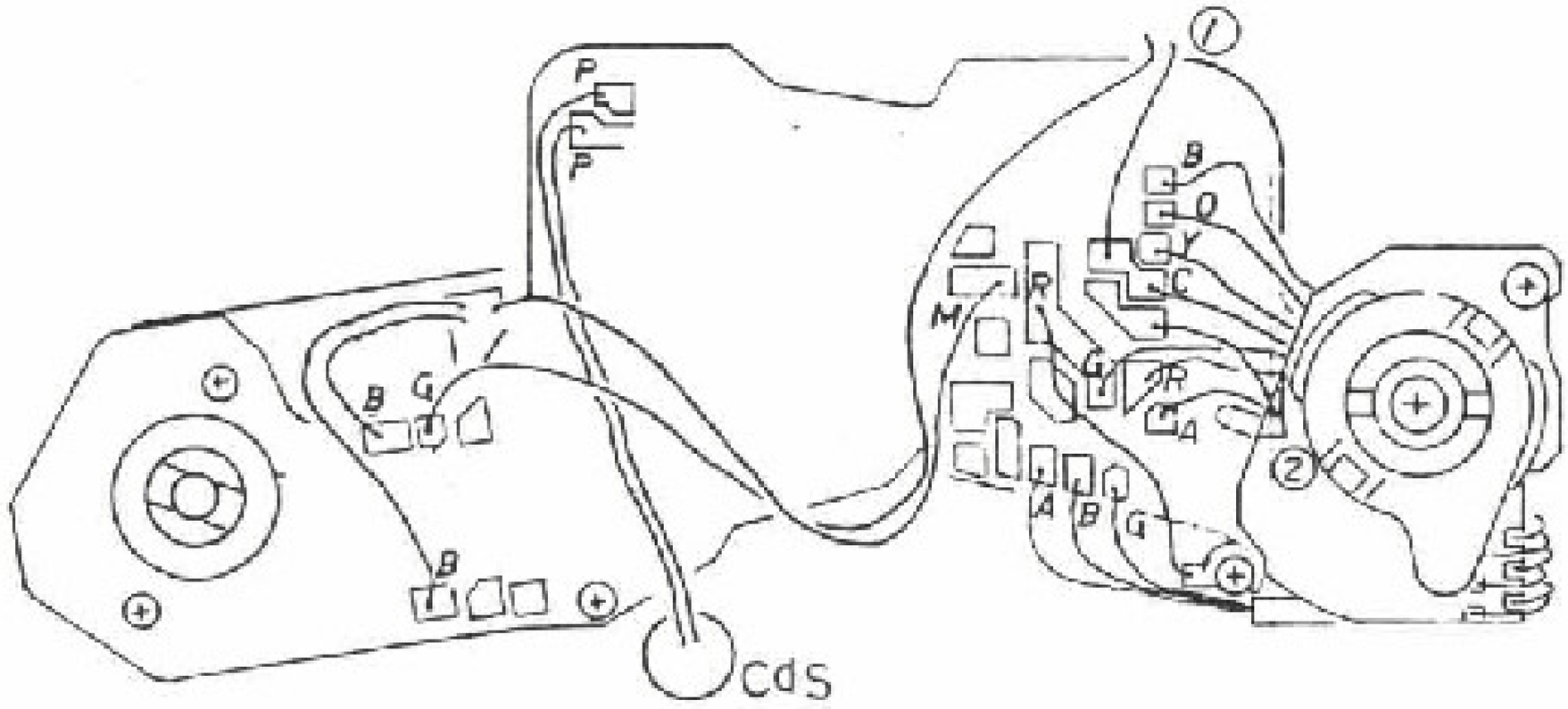


1-14. Install A boards (ZJ136600 ~ ZJ137000) and A holder (ZC207900).



NOTE:
Clean A board with DYFRON S3E before mounting it on A holder (ZC207900).

1-15. Solder lead wires.



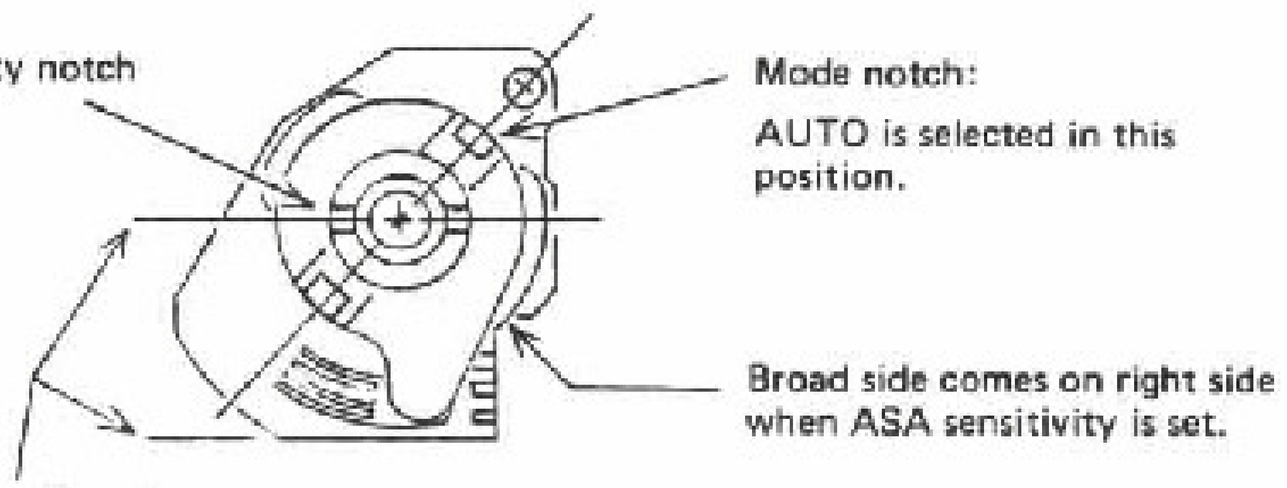
Refer to Page D-22 for lead wires ① and ②.

NOTE:
Letter symbols stand for lead wire colors:

A for blue LW
B for black LW
C for brown LW
G for green LW
M for purple LW
O for orange LW
P for pink LW
R for red LW

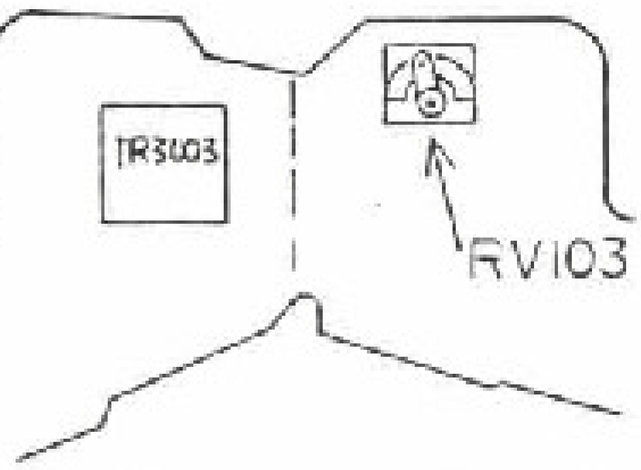
2. EE adjustment

2-1. Set the camera for AUTO and ASA 100.



ASA is 100 when these two lines are parallel.

2-2. Install temporary upper plate.
2-3. Install jig lens.
2-4. Be sure that DC 3 volts is available from the camera power source.
2-5. Check EE level with EE tester, and, as necessary adjust the level to the reference value by changing the setting of RV103.



Upper portion of penta prism

Criteria for adjustment

BV11 F5.6 ASA100 ±0.04 EV

- Measure five times, and be sure that 5 readings are within the above limits.
- Try to obtain zero readings.

Tentative

(In the absence of BV11, use BV12, set to +0.1 ±0.04 EV, and check the whole for balance.)

2-6. Vary the brightness under the conditions of ASA 100 and F5.6, and check the EE at each level of BV against the following reference values:

ASA 100	F5.6	BV 4	+0.2 EV −1.5 EV
ASA 100	F5.6	BV 8	+0.65 EV −0.9 EV
ASA 100	F5.6	BV14	+1.2 EV −0.15 EV
ASA 100	F5.6	BV15	+1.2 EV −0.15 EV
		(BV 6	+0.4 EV) −1.2 EV)
		(BV10	+0.75 EV) −0.7 EV)
		(BV12	+0.9 EV) −0.5 EV)
		(BV15	+1.2 EV) −0.15 EV)

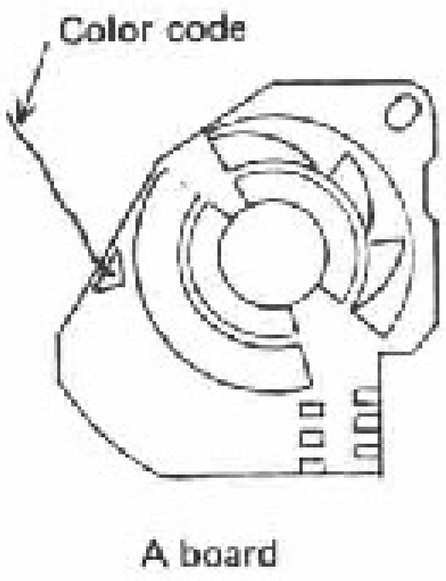
2-7. Check the accuracy of ASA sensitivity.
Be sure that actual measurements on ASA 100 F5.6 BV8 do not differ from the standard value by more than what are shown below:

ASA 400	F5.6	BV8	−0.35 ~ +0.65 EV
ASA 800	F5.6	BV8	−0.75 ~ +1.25 EV
ASA1600	F5.6	BV8	1) A distinct offset of at least 0.3 EV relative the actually measured value of ASA800 is required. 2) There should be no shuter jumping, sticking open, M locking, or any other erratic action.

NOTE:
When turning the ASA dial, hold down the temporary upper plate, so that the dial will not slide away from the set position.

3. Selective use of A board and F board

3-1. For A board, resistance values are in ranks, 1 through 5, identified by the colors of lead wires, as follows:



A board

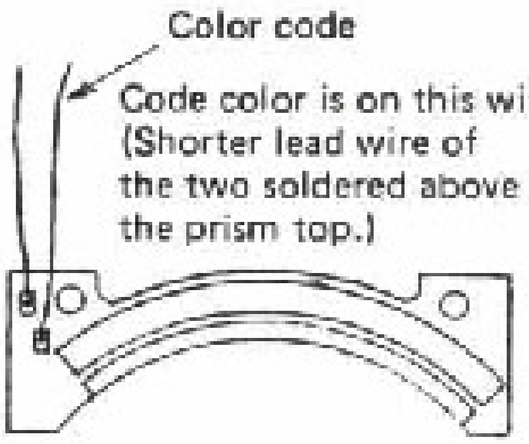
Rank	Set number	Color
1	ZJ136600	Orange
2	ZJ136700	Blue
3	ZJ136800	Red
4	ZJ136900	Green
5	ZJ137000	Black

(In camera of earlier production, colors are painted on the board and purple code color is used.)

NOTE: Rank and resistance

Rank	Resistance (KΩ)
1	2.86 ~ 3.06
2	3.06 ~ 3.26
3	3.26 ~ 3.46
4	3.46 ~ 3.66
5	3.66 ~ 3.86

3-2. Resistance values are similarly in for F board, as follows:



F board

Rank	Set number	Color
1	ZJ136100	Orange
2	ZJ136200	Blue
3	ZJ136300	Red
4	ZJ136400	Green
5	ZJ136500	Black

(In cameras of earlier production, color code is WHITE, which is painted.)

NOTE: Rank and resistance

Rank	Resistance (KΩ)
1	3.66 ~ 3.92
2	3.92 ~ 4.18
3	4.18 ~ 4.43
4	4.43 ~ 4.69
5	4.69 ~ 4.96

3-3. Combination of A board and F board

A BOARD		
Rank	Set number	Color
1	ZJ136600	Orange
2	ZJ136700	Blue
3	ZJ136800	Red
4	ZJ136900	Green
5	ZJ137000	Black

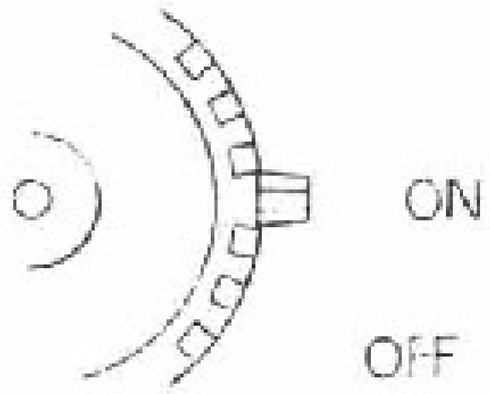
F BOARD		
Rank	Set number	Color
1	ZJ136100	Orange
2	ZJ136200	Blue
3	ZJ136300	Red
4	ZJ136400	Green
5	ZJ136500	Black

- Five combinations are indicated by solid lines drawn between the two tables, below. If necessary, however, different combinations may be formed as shown by dot lines. No other combinations are permitted.
- Wrong combinations will deteriorate the follow-up action of the indicating LED for each combination of brightness, ASA, aperture and S.S.

4. Finder indication matching

4-1. Preparation for matching

1) Remove top cover, so that the variable resistor can be adjusted.



2) Put in a new battery, and turn on power on-off switch.

3) Set the ASA dial to 100.

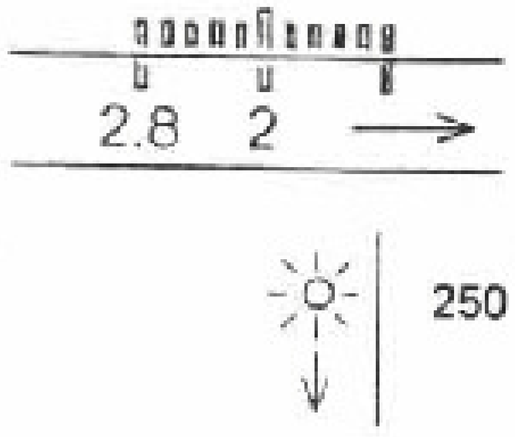
4) Install the matching jig lens.

4-2. F board aperture step matching (Matching of F board resistance to IC102.)

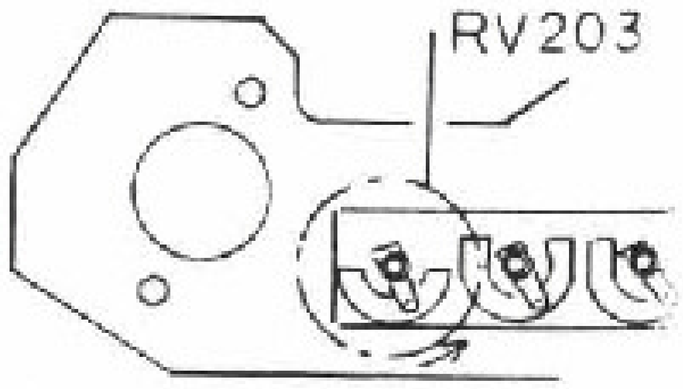
1) Set the brightness chamber to BV 11.

2) Starting from F2, squeeze the aperture slowly until the lighted finder LED shifts by one step.

(In this adjustment, the LED lighting position is permitted to be anywhere between 60 and 1000.)



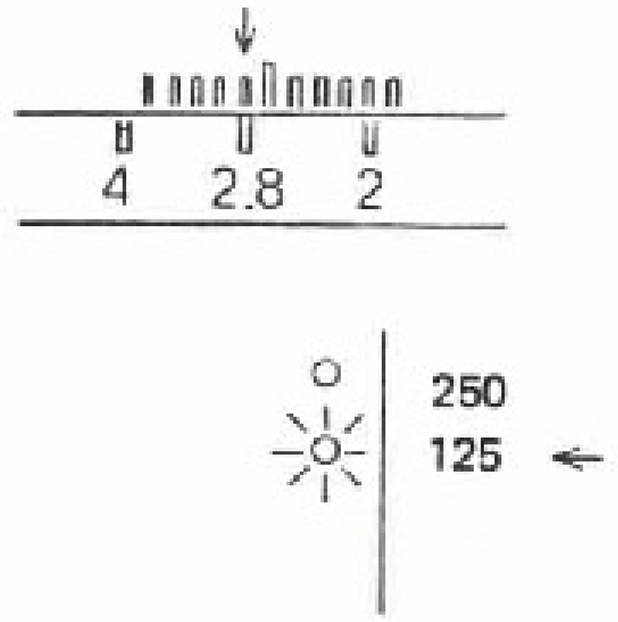
NOTE:
If the lighting position (which is shown at 250 on the above) is 1000 or higher, turn RV203 to bring the position down to and below 1000.



With whole matching work completed, LED for 125 lights up at BV10 and F2.8.

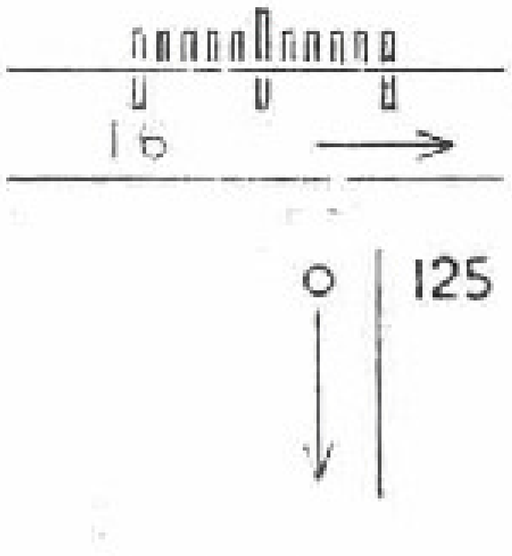
3) a. Just when the lighted LED has so shifted, read the aperture setting on the scale in reference to 0.1.

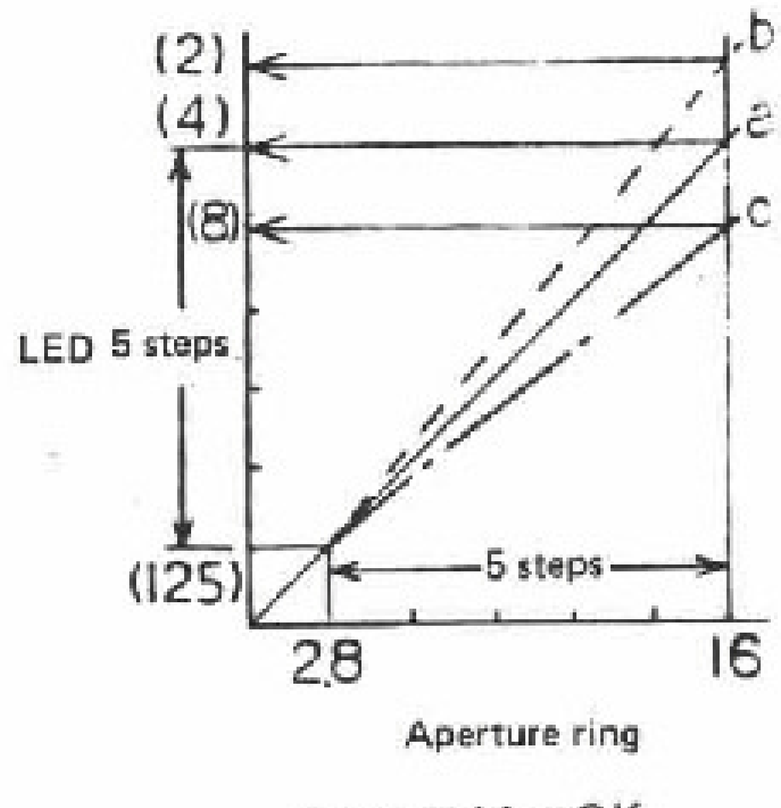
b. Memorize the position of the lighted LED. (In this example, the LED is 125.)



NOTE:
When checking the number of steps, one-step change will not occur with LED even if the aperture ring is turned from F1.4 to F2. (This is because of the principle involved in TTL number.)

4) Turn the aperture ring to shift the lighted LED shifts five times from the position noted in 3).



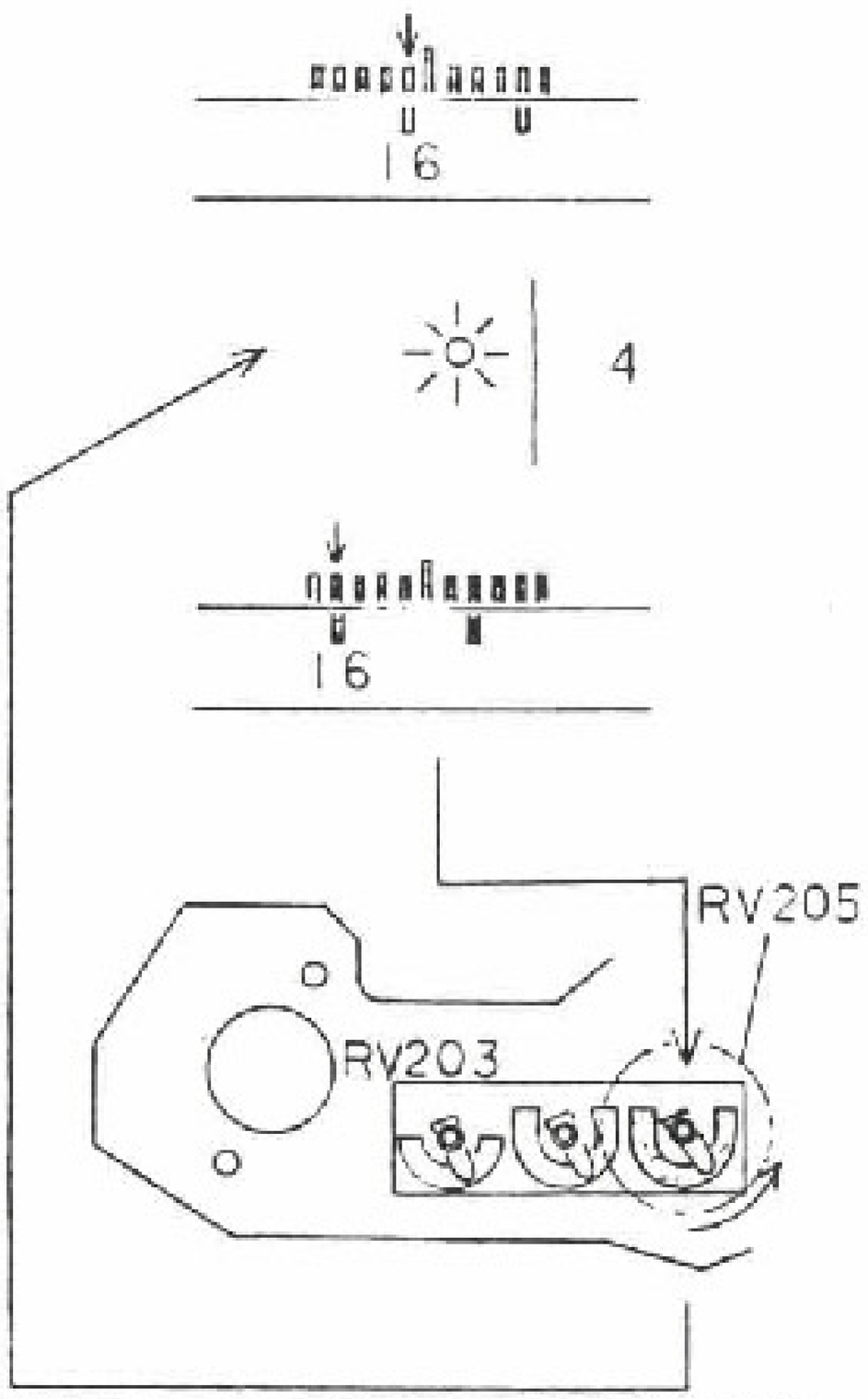


5) a. Upon making the 5-step change, read the F16 position on the scale.

Matching is satisfactory if the position of F16 comes to the same graduated mark as 3).

Read on reference to 0.1 aperture setting.

b. If F16 happens to be in the position indicated in this example, turn RV205 in the arrow direction.



a = matching OK
b = matching no good
c = matching no good

NOTE:

With whole matching work completed, LED for 4 lights up at BV10 and F16.

This adjustment is to be made with ±0.1 aperture.

6) Turn the aperture ring from F2.8 to F16 one more to check and see if the adjustment is satisfactory or not; if not, repeat the steps 2) through 5).

NOTE:
Limit error, if any, to within ±0.1 of aperture.

4-3. Matching lead lighting level

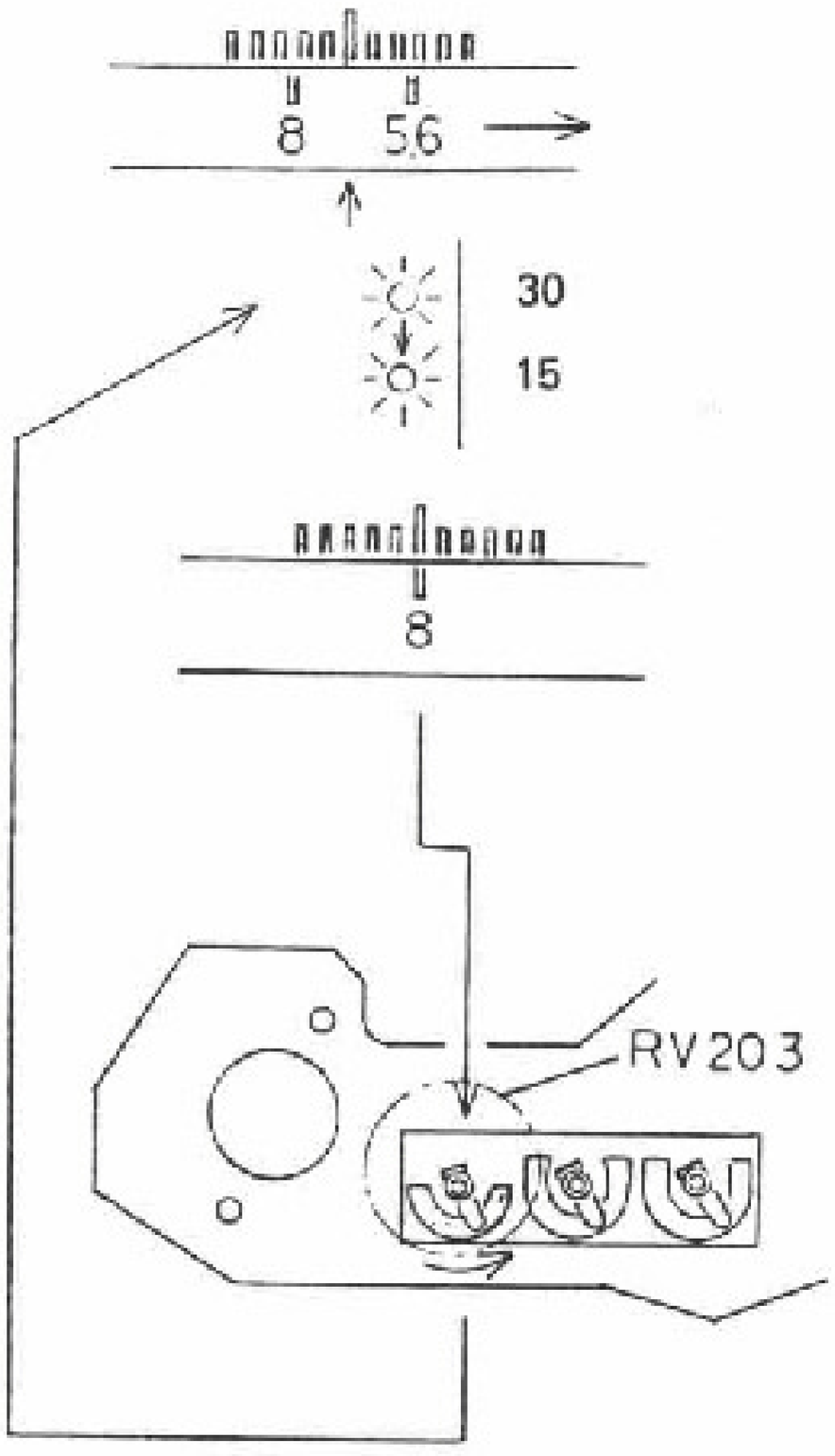
1) Set the brightness chamber to BV 10.

2) a. Squeeze from F5.6 to F8. See if the light shifts from 30 to 15 just when the aperture setting comes to the halfway point between 8 and 5.6; if so, the matching is satisfactory.

NOTE:
Read in reference to 0.1 aperture setting.

LED for 15 should slight up at F8.

b. If the shift occurs elsewhere, as shown in the example given here, change the setting of RV203 to shift the light as below.



NOTE:
Make this adjustment with (±0.1 of aperture.

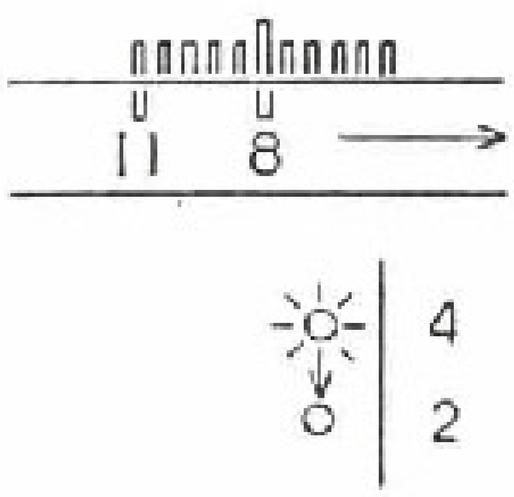
REFERENCE:
After RV203 has been adjusted, there is no need to make a re-adjustment in regard to the offset that will necessarily occur in the lighting position mentioned in 4-2.
Notwithstanding the offset, proceed to 4-4.

(Even when lighting position is deviated, no change will occur in the number of aperture steps or of lighting steps.)

4-4. CdS gamma adjustment

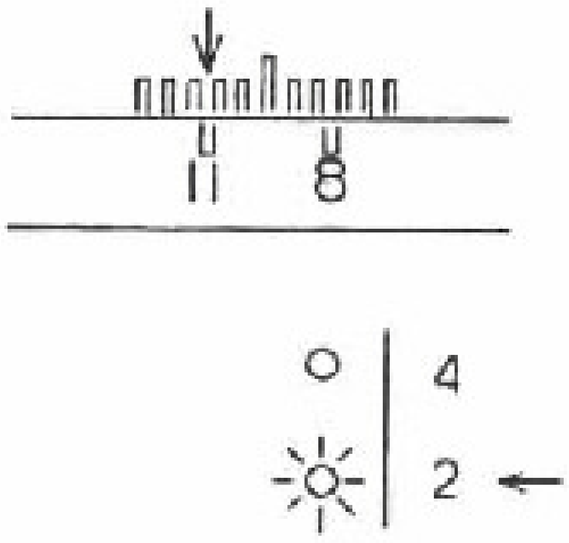
1) Set brightness to BV 8.

2) Start turning the aperture ring at F8 and keep on turning until the LED light in the finder shifts by one step.



3) Read the position of F8 on the scale just when the shift occurs, and memorize this reading.

Read in reference to 0.1 aperture setting.



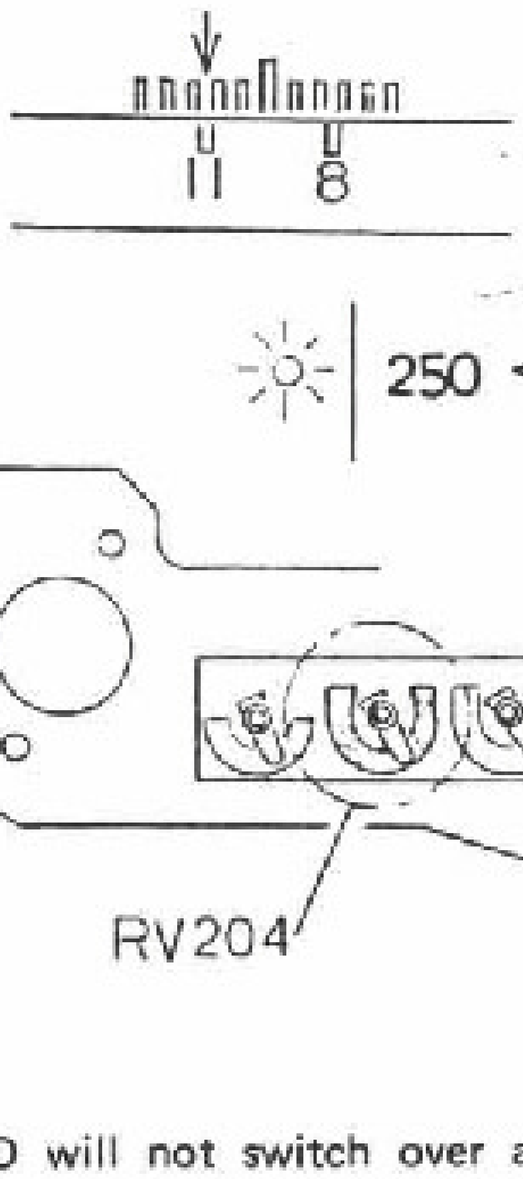
With whole matching work completed, LED switches over from 4 to 2 at a point intermediate between F8 and F11 when brightness (BV) is 8.
(LED for 2 should light up at F11.)

4) Set brightness to BV 15.

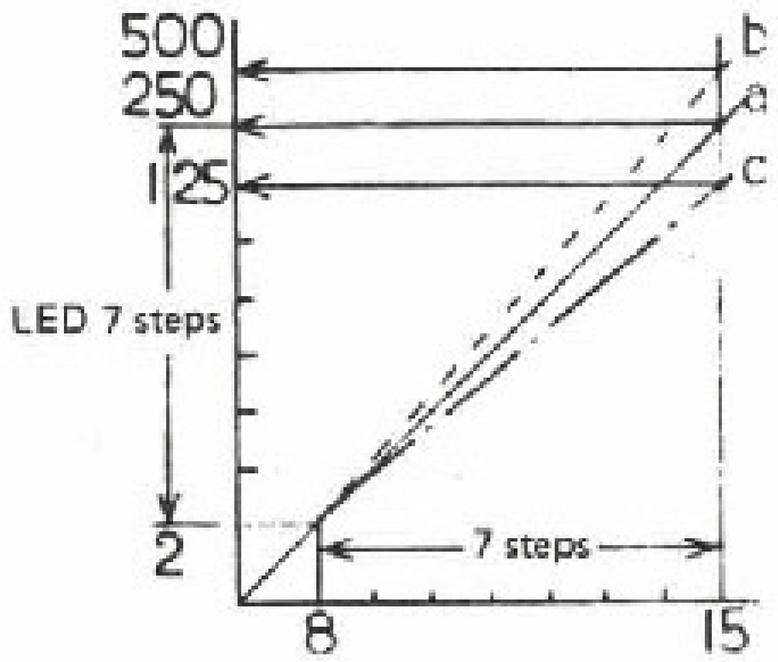
With BV15, switch-over should take place, as above, from 500 to 250.
(LED for 250 should light up at F11.)

5) a. Matching is satisfactory if the switch-over from 500 to 250 occurs at the same position that's shown in 3).
   b. Turn RV 204 clockwise if the shift occurs too early become coming to the said position.

If stroke is not enough, turn clockwise.
Adjust within ± 0.1 of aperture.



If LED will not switch over at a halfway point between F8 and F11, even with the gamma adjustment completed, it means that the lighting level is off the correct level. In such a case, adjust the level once again according to 4-3.



a = matching OK
b = matching no good
c = matching no good

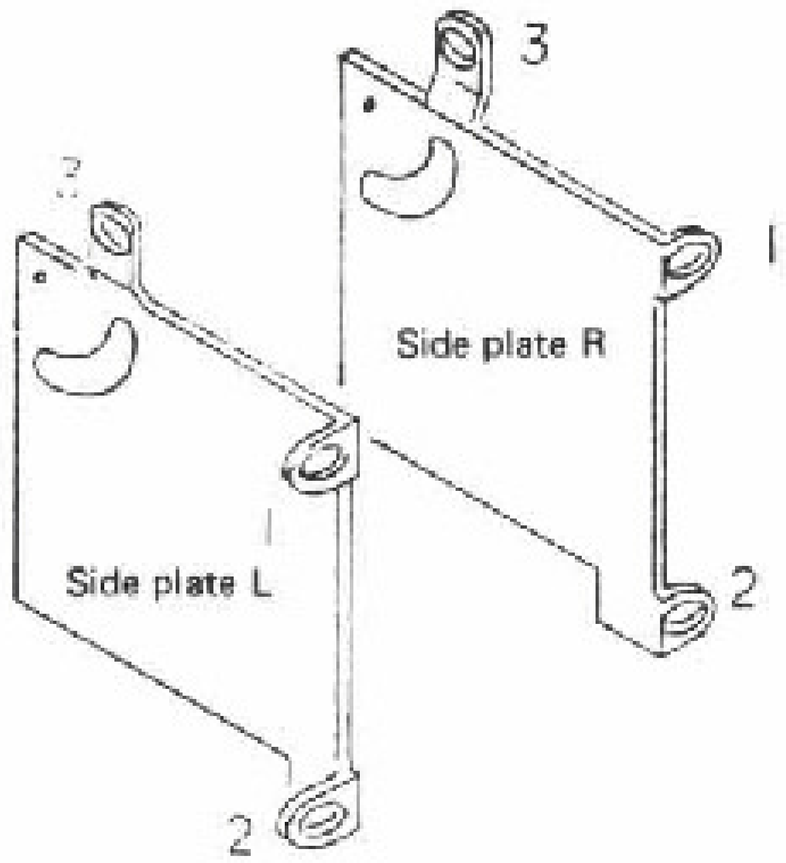
4-5. Confirm the step number of F board and also lighting level. If any deviation is noted, re-adjust from the deviated point down to 4-4.

NOTE:
Matching completed.

VI. OTHERS

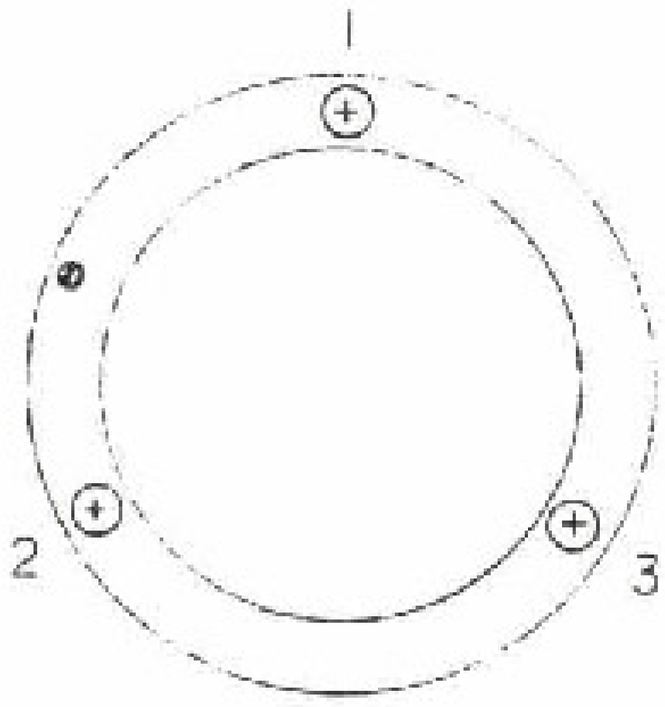
1. Sequence of tightening parts

1-1. Side plates L and R.



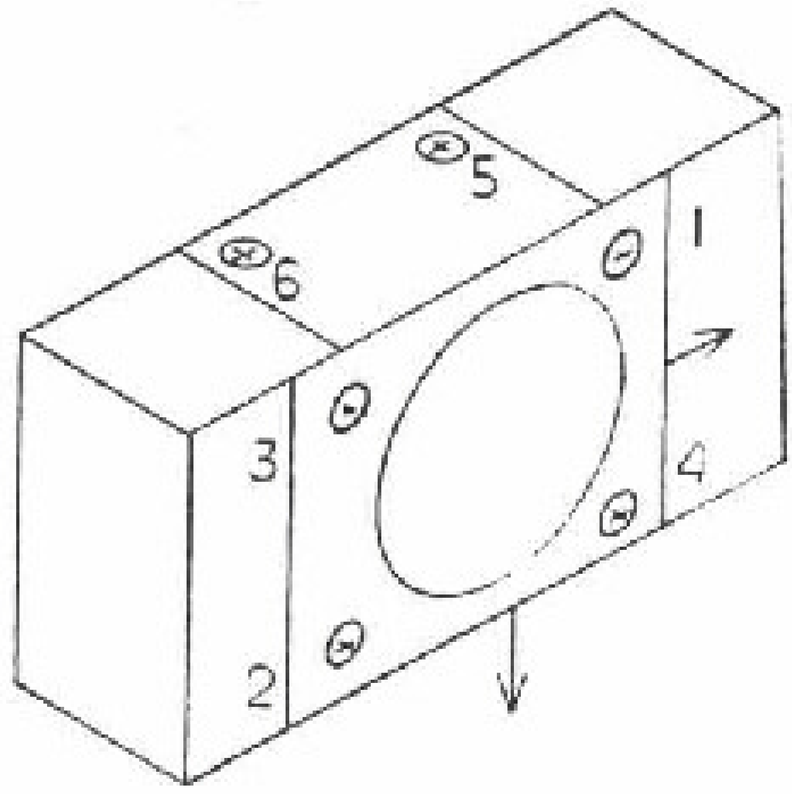
NOTE:
Tightening force: at least 20 kg-mm

1-2. Mount



NOTE:
Tightening force: at least 20 kg-mm

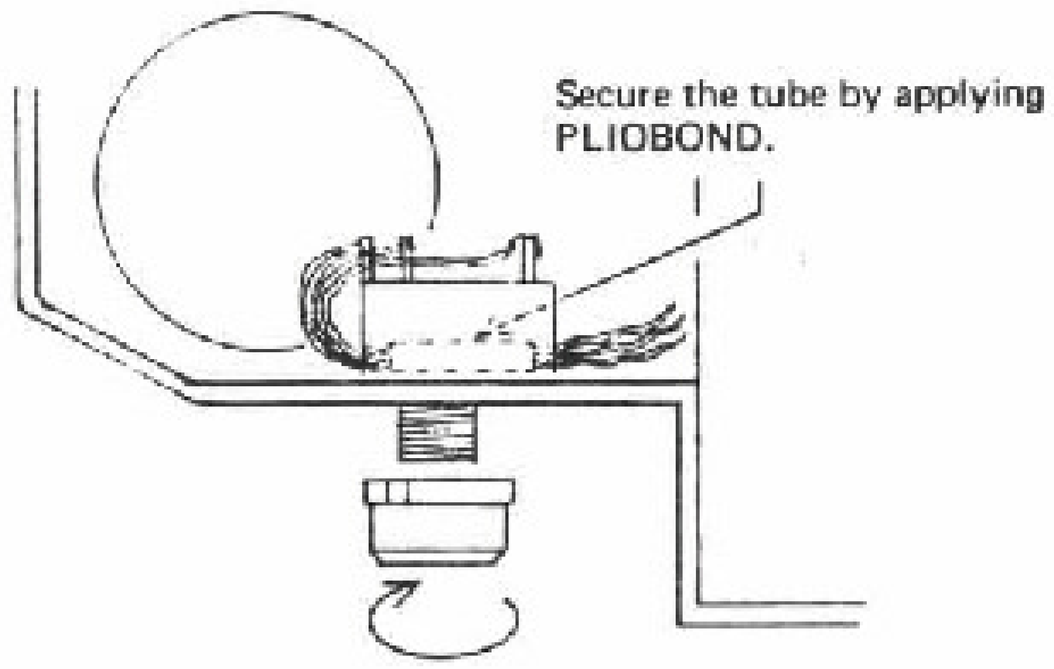
1-3. Front casting and die-cast body



NOTE:
Tightening force: at least 15 ~ 20 kg-m

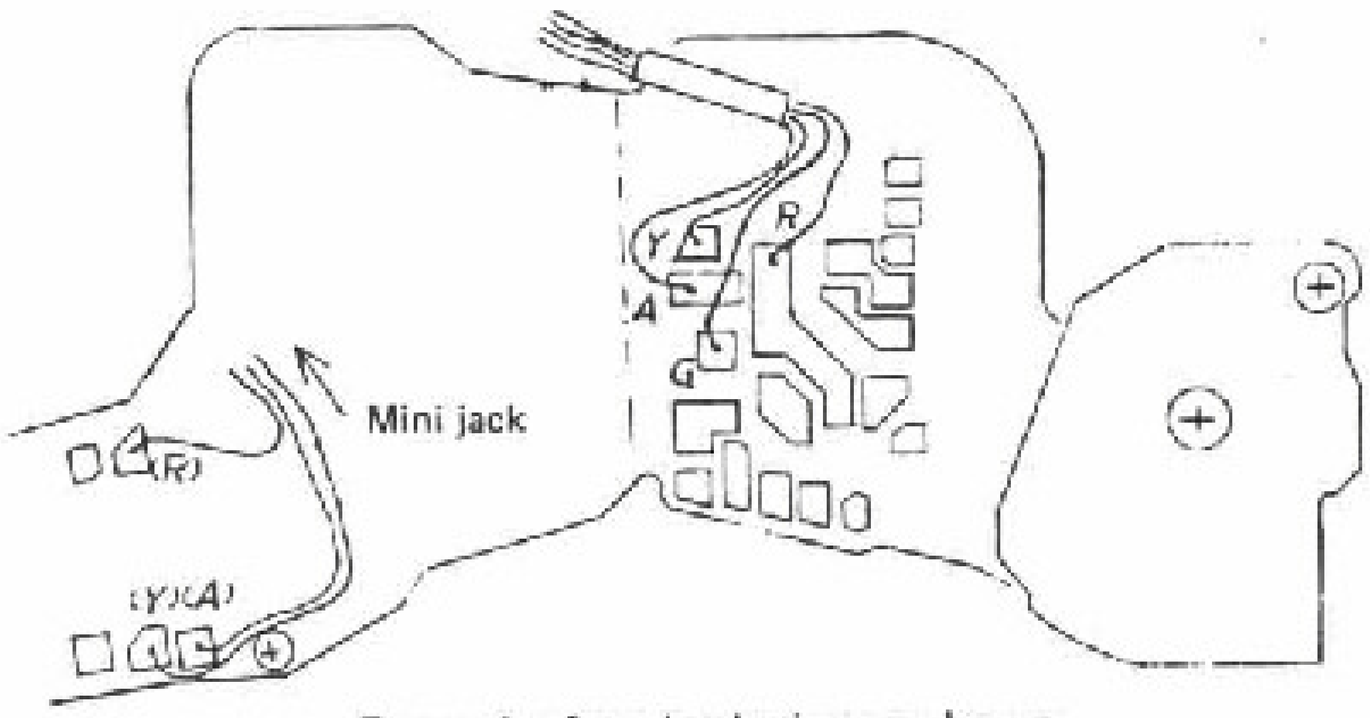
2. Installing top cover

2-1. Install mini jack (ZJ132600).



NOTE:
Overtightening could strip screw threads. Be careful when installing the mini jack.

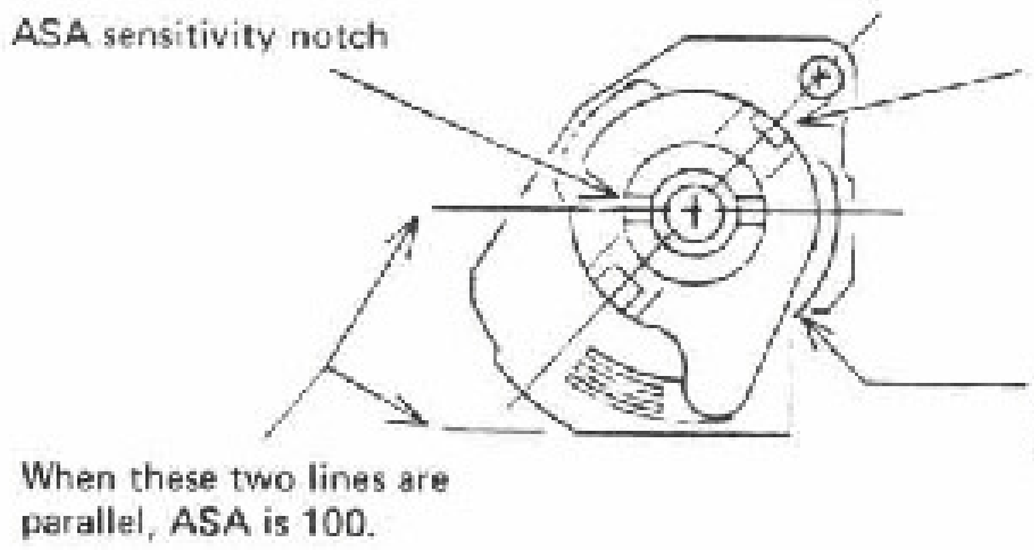
2-2. Solder lead wires (four) to upper plate.



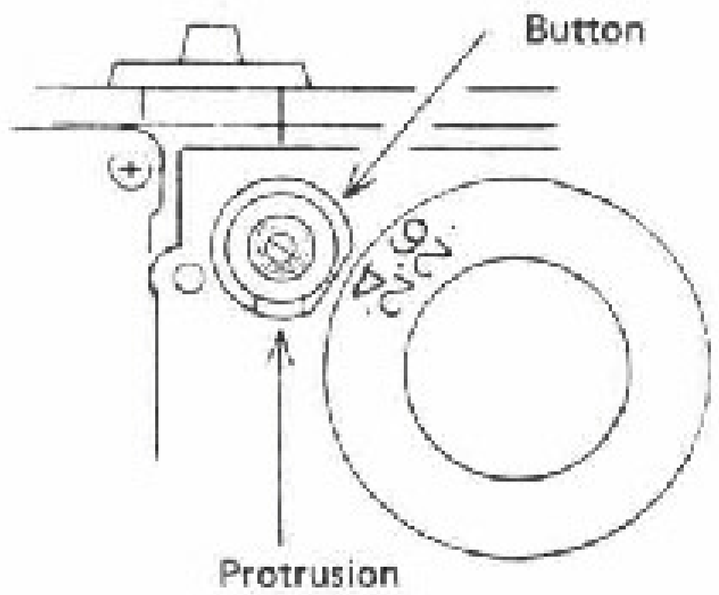
A — Blue
G — Green
R — Red
Y — Yellow

Form the four lead wires as shown.

2-3. Set A holder to ASA 100.

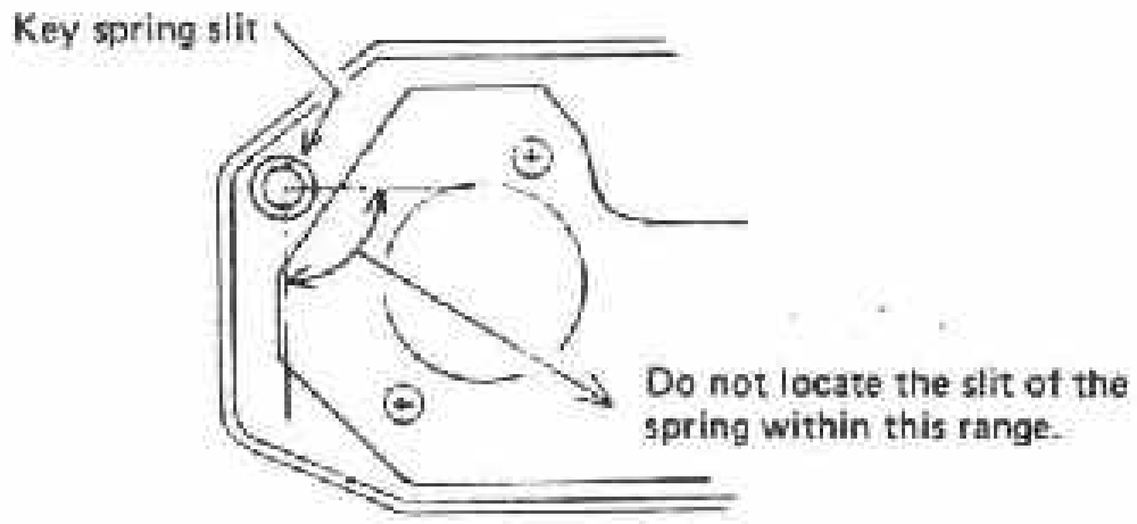


2-4. Fit button (ZC207300) to button shaft (CA908400).



Locate the protrusion of release button at the position indicated by the arrow.

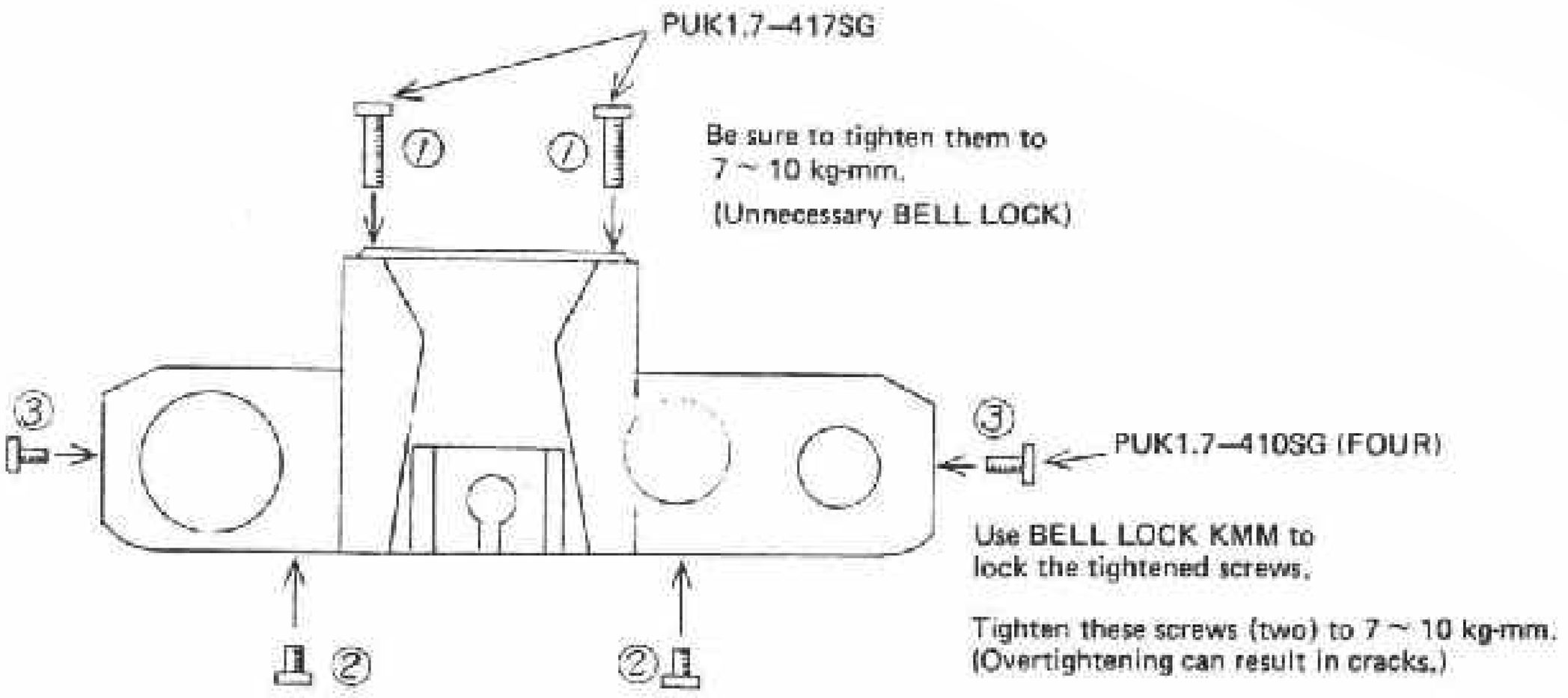
2-5. Set key spring (CA872200) in place, as shown.



NOTE:
Be sure that hook spring does not touch FPC board.

2-6. Put on top cover (ZC200200), brining it in from 8 mount side.

2-7. Secure the top cover with screws. Tighten them from ① to ③.



3. FPC board matching

3-1. Preparation for matching.

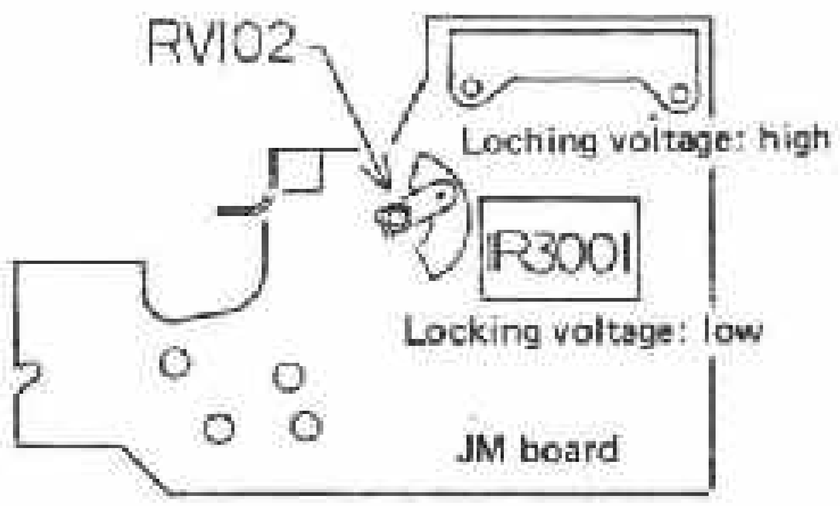
1) Check and match the board in installed condition.

2) Remove the battery and, instead, make necessary connections to apply power from a constant voltage source.

NOTE:
The source voltage should be variable.

3-2. Locking voltage adjustment

1) Set RV102 as shown.



Set RV102 on high locking voltage side.

2) Set the camera input voltage at 2.05 volts.

3) Lock the mirror by releasing.

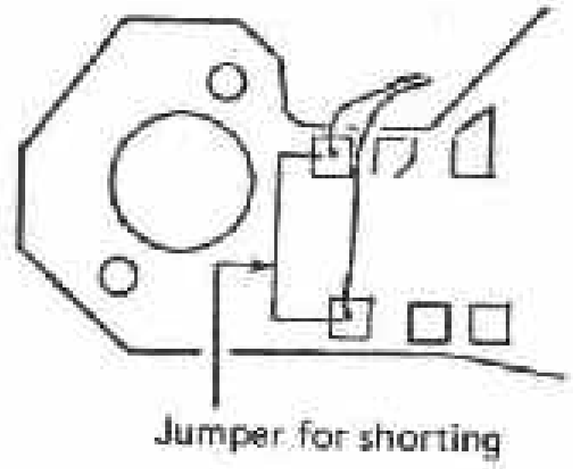
4) Turn RV102 slowly (see above) until the mirror becomes unlocked.
Use a non-conductor tool.

5) Change the input voltage to 2.00 volts to see if the mirror gets locked as it should.

3-3. Offset adjustment

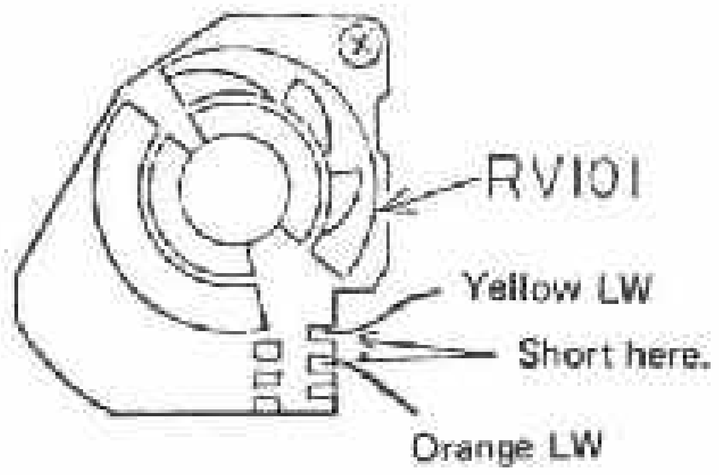
1) Set the camera input voltage at 3.1 volts.

2) Short the two black lead wires extending from main switch.

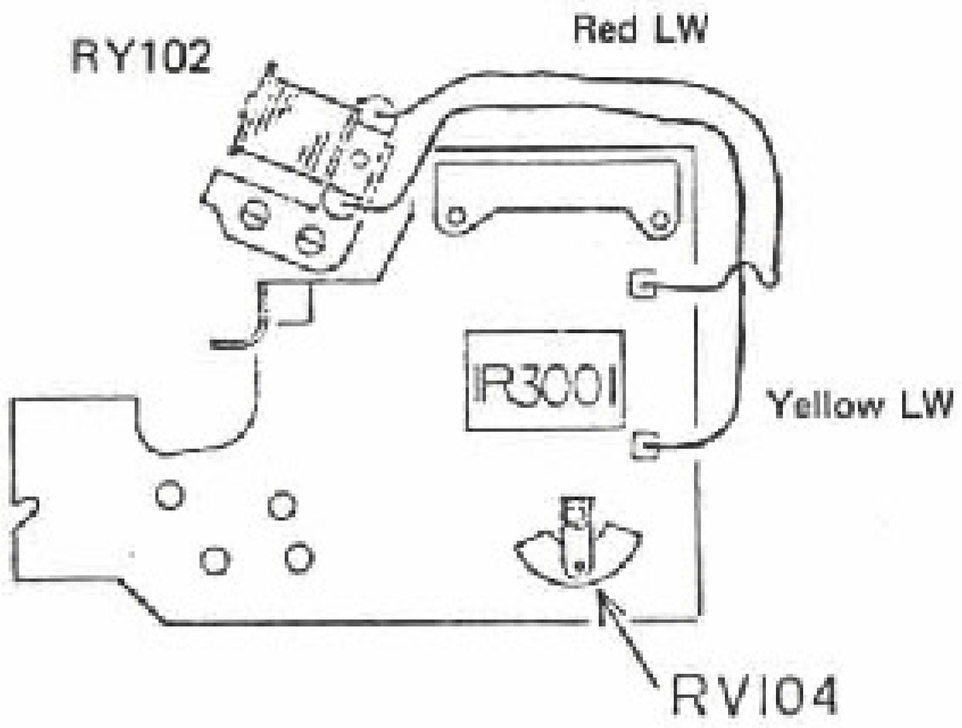


3) Turn on trigger switch.

4) Short the two ends of AUTO ASA resistor (RV101).



5) Turn RV104 until the voltage on RY102 changes from 3 V to 0 V or from 0 V to 3 V, and hold it there.



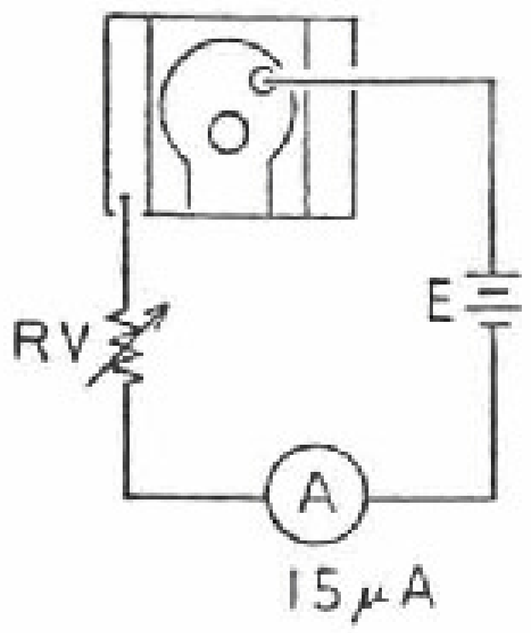
NOTE:
Accuracy is required of this adjustment because high ASA setting results in S locking.

This adjustment is not easy. If it is too difficult to make, then RV104 may be set in the following manner in lieu of the adjustment:
With lever (SW105) in SELF position, turn RV104 to the position past which the 2-Hz sound starts or stops.

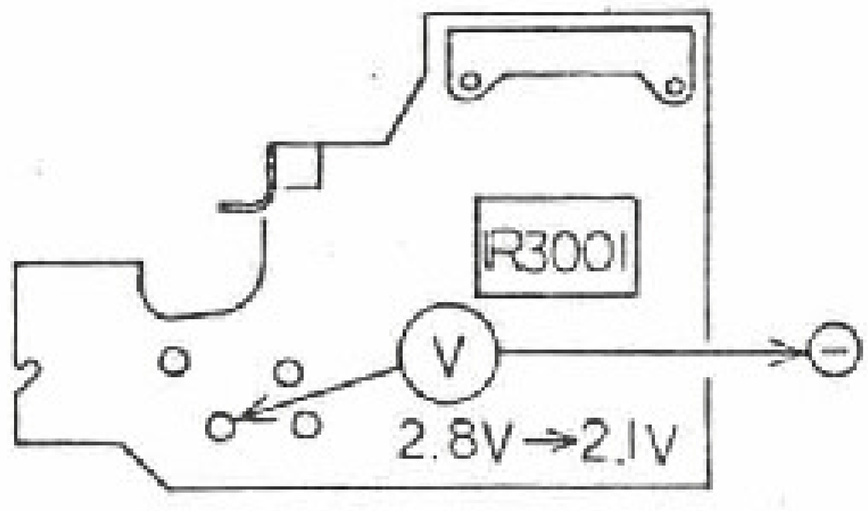
2-Hz sounding . . . . . RV102 OFF
No sounding . . . . . RY102 ON

3-4. Checking auto selection of strobo X timing

1) Form a test circuit, as shown, using an RV for regulating the current.



2) Be sure that, with 15 μA, the voltage should shift from 2.8 V to 2.1 V.

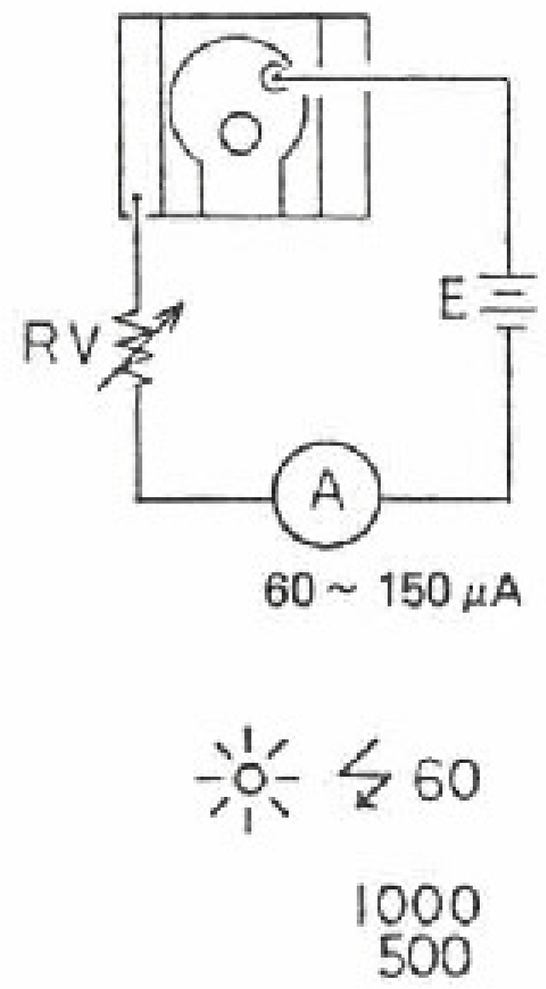


2.8 V. . . . . AUTO reference voltage
2.1 V. . . . . MANUAL reference voltage

NOTE:
15 μA is prescribed as the maximum current for inducing this voltage change.

3-5. Checking the LED for indicating strobo charging.

a. Form a test circuit, as shown. (The circuit is the same as that of (4) above.)
b. Be sure that the LED, shown, lights up in the finder with a current of anywhere between 60 and 150 μA.

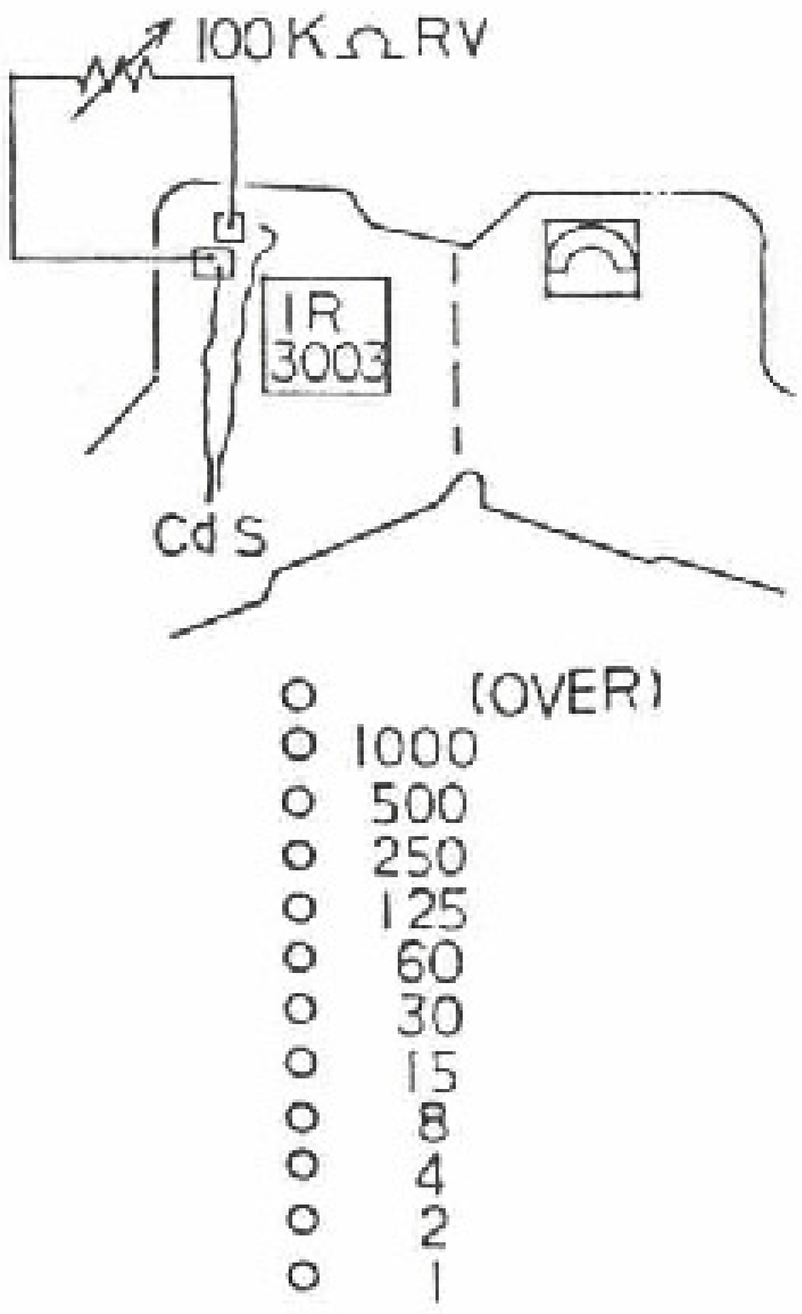


3-6. Checking LEDs for lighting action

a. Disconnect one of the CdS lead wires, and reconnect the wire with a 100 KΩ variable resistor inserted, as shown.

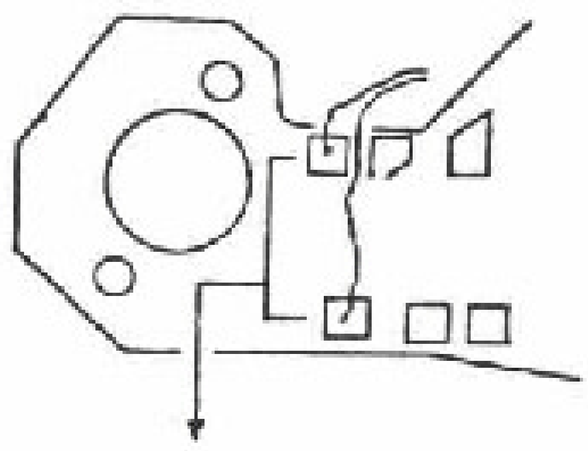
b. Turn the variable resistor gradually to see the LEDs light up sequentially, starting with OVER.
The LEDs are satisfactory if they lights up in the above-mentioned manner.

c. If sequential lighting ceases at a halfway point, ASA resistor (RV201) or F resistor (RV202) should be re-adjusted.



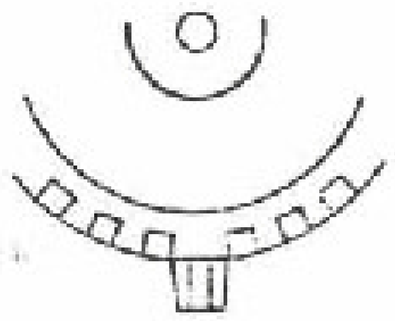
3-7. Self-timing action checking and adjustment

1) a. Remove the jumper used in step 3-3 -2).



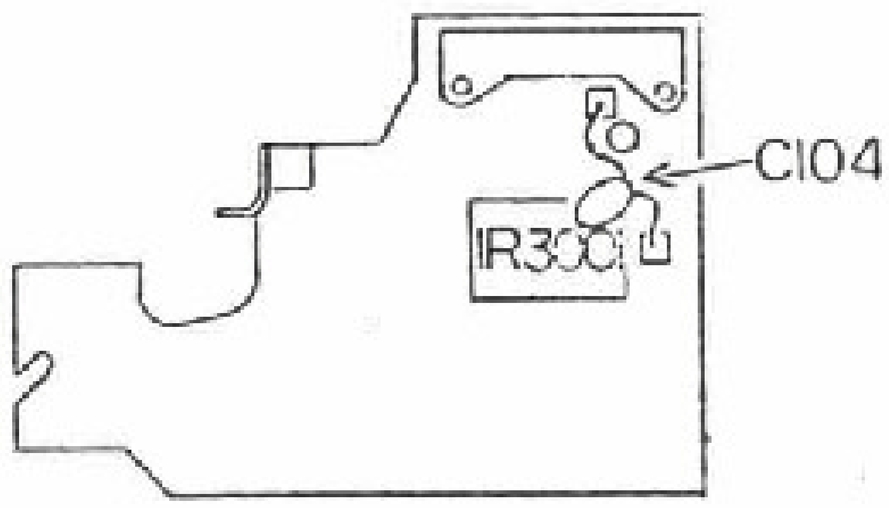
Remove the jumper.

b. Move power on-off switch to SELF TIMER.



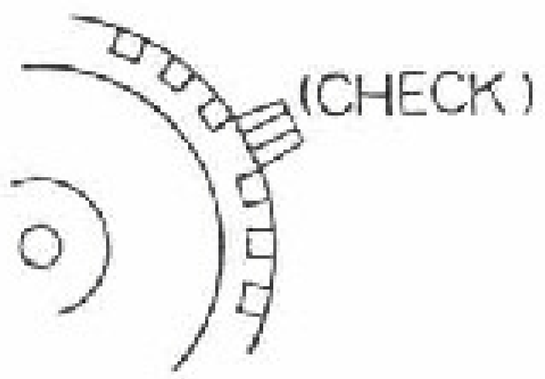
2) Release to turn on main switch. Check to be sure that the combination magnet becomes energized in 9 to 15 seconds of the turning on of main switch to run the shutter.

3) The duration of this delay is to be adjusted by means of C104.



3-8. Battery checking and adjustment

1) Move power on-off switch to CHECK side.



2) Lower the camera input voltage from 3 volts. Be sure the buzz ceases at about 2.07 volts of falling voltage.

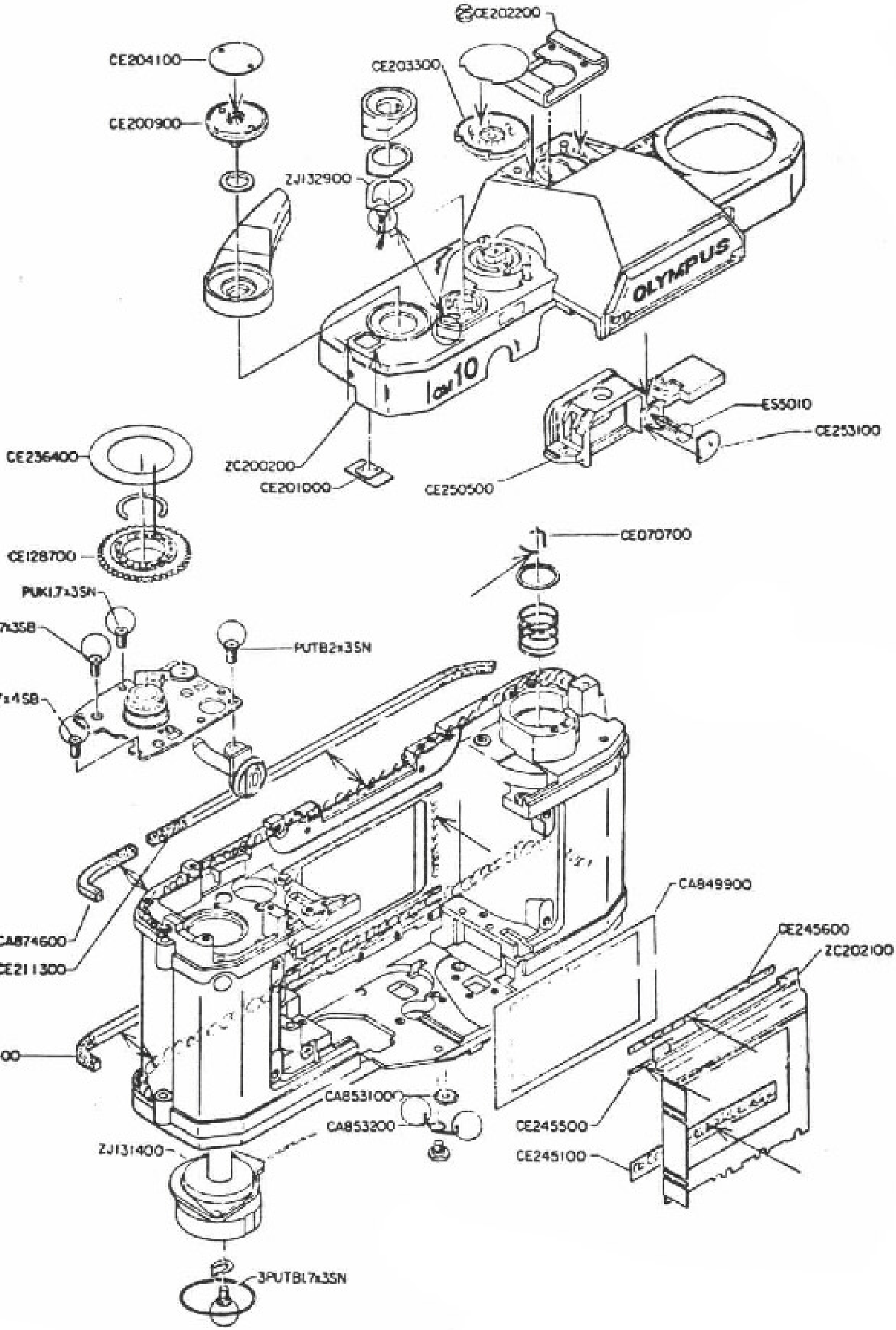
3) Adjust the buzzer with RV102 (also used for lock voltage adjustment), taking the lock voltage into account.

PARTS WHERE OIL, GREASE, ETC.
SHALL BE USED

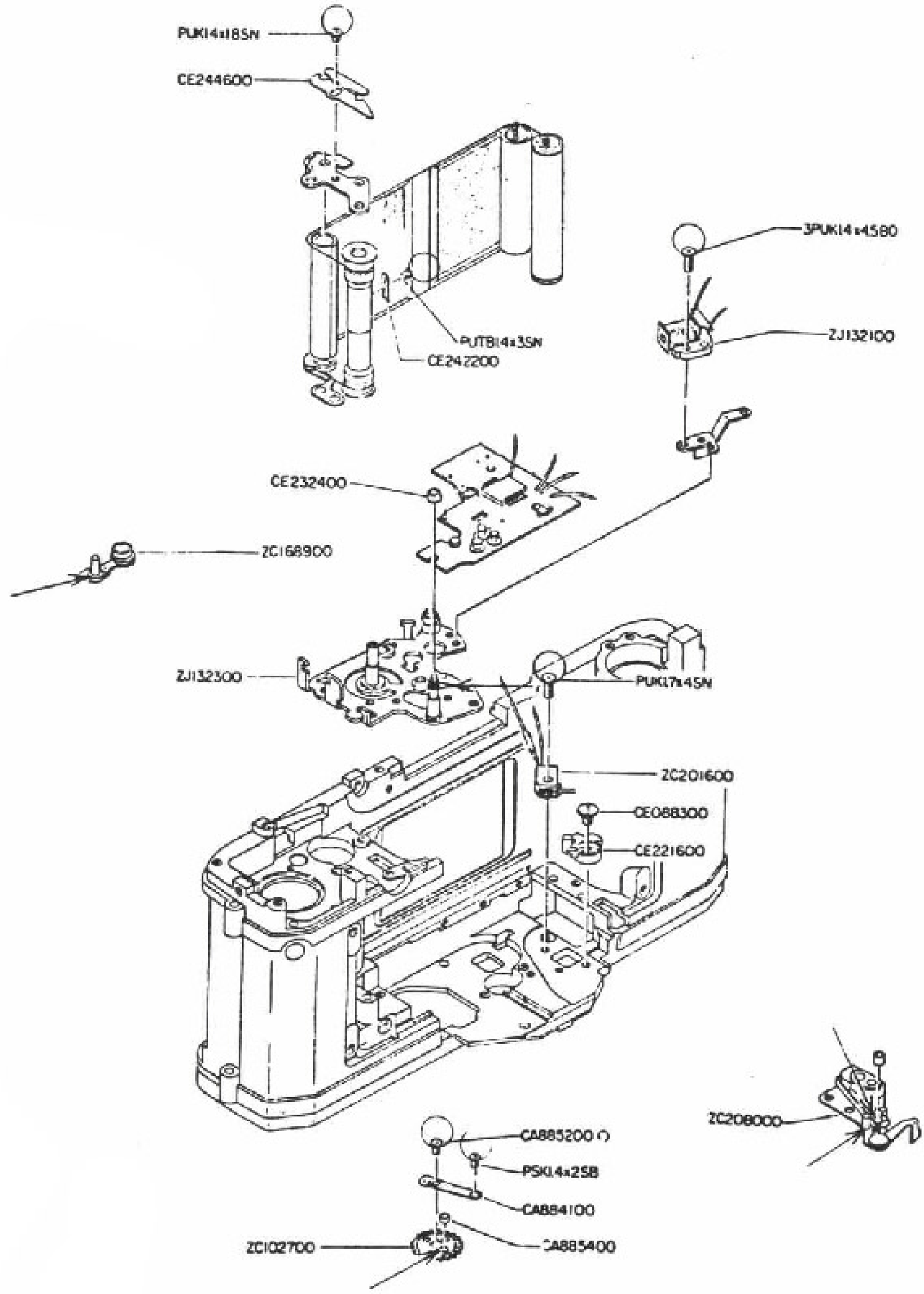
E. PARTS WHERE OIL, GREASE, ETC. SHALL BE USED

CONTENTS

PLIOBOND (Cement)



PLIOBOND (Cement)



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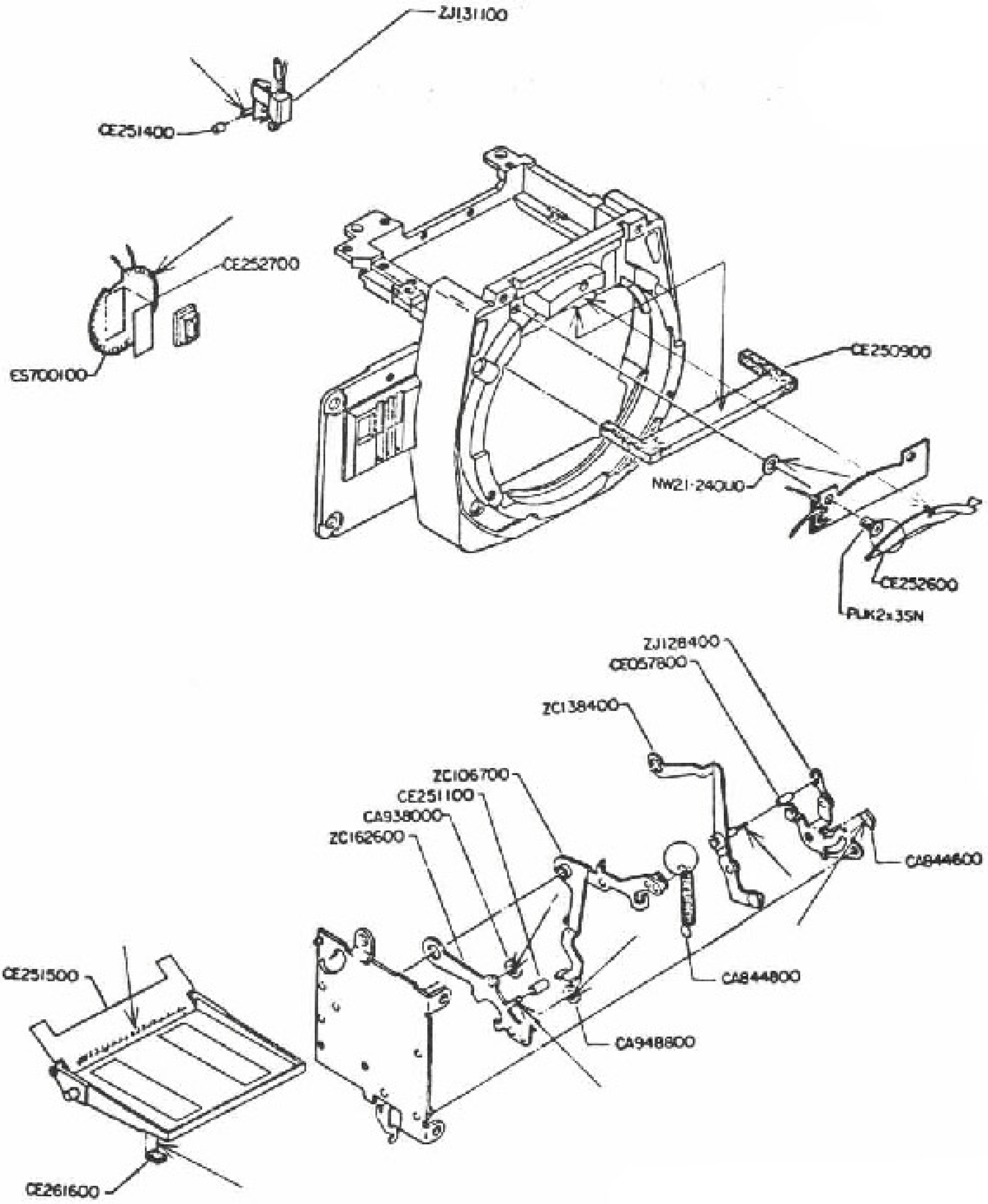
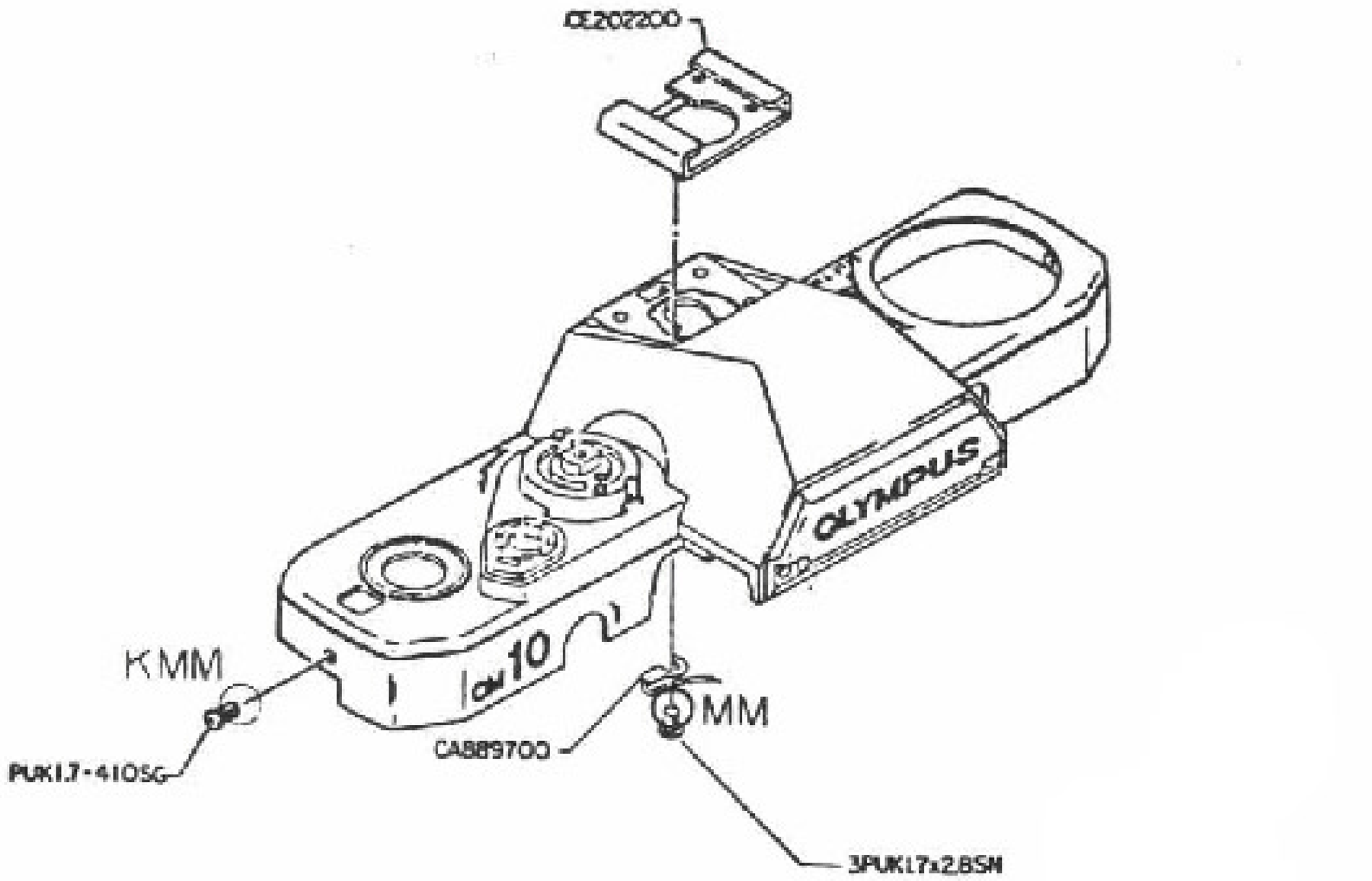
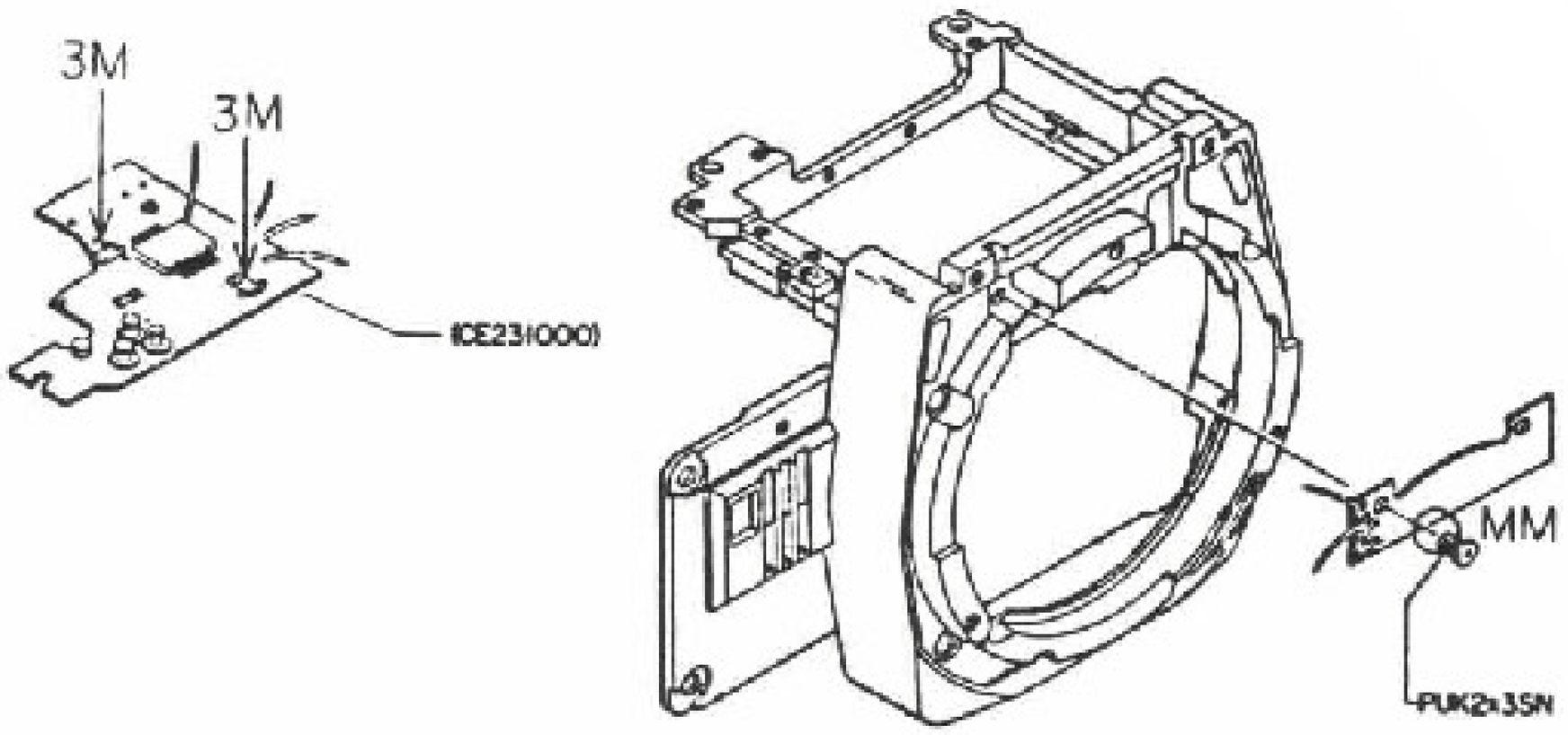
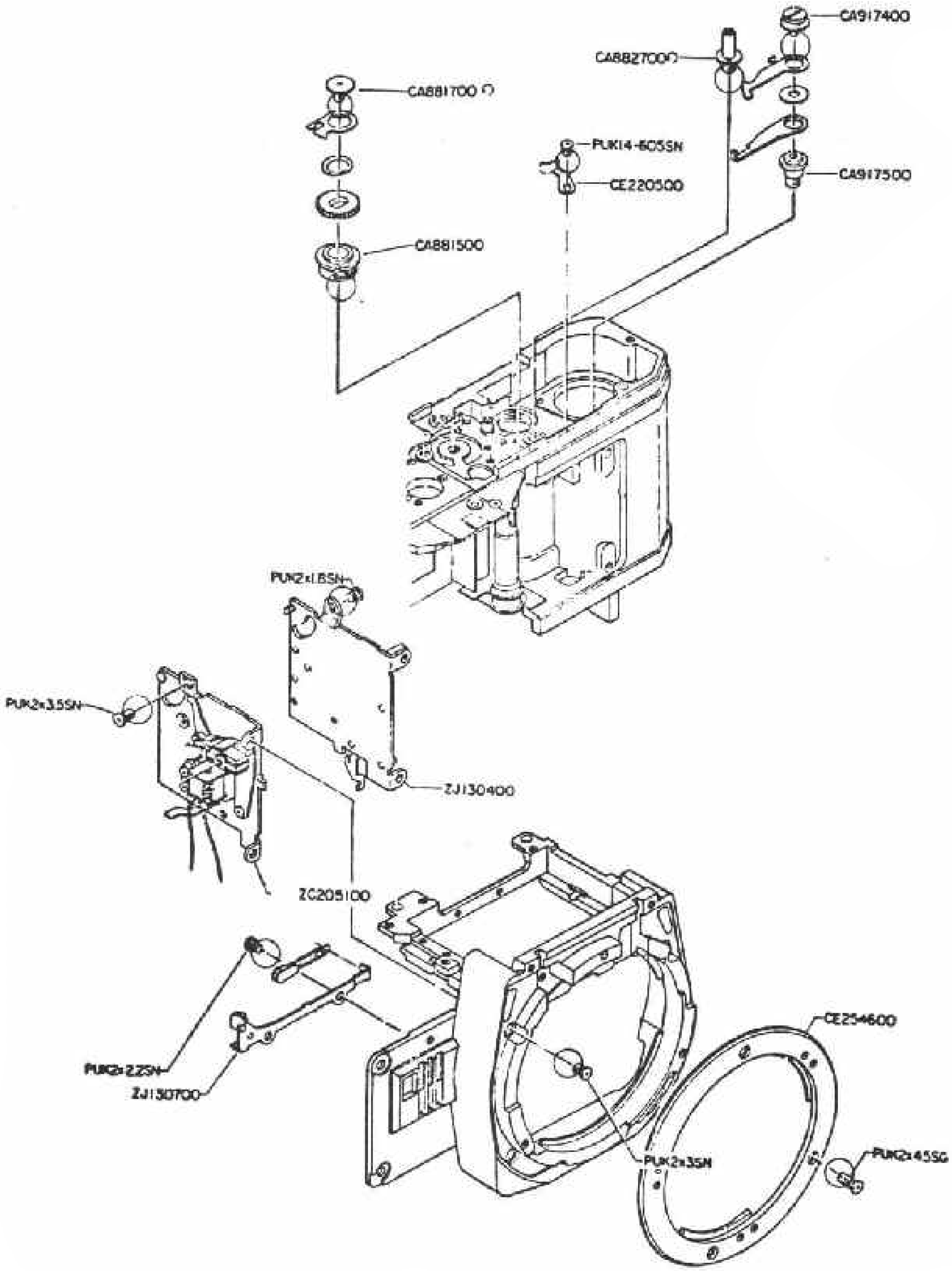


BELL LOCK MM (Cement)
BELL LOCK 3M (Cement)
BELL LOCK KMM (Cement)

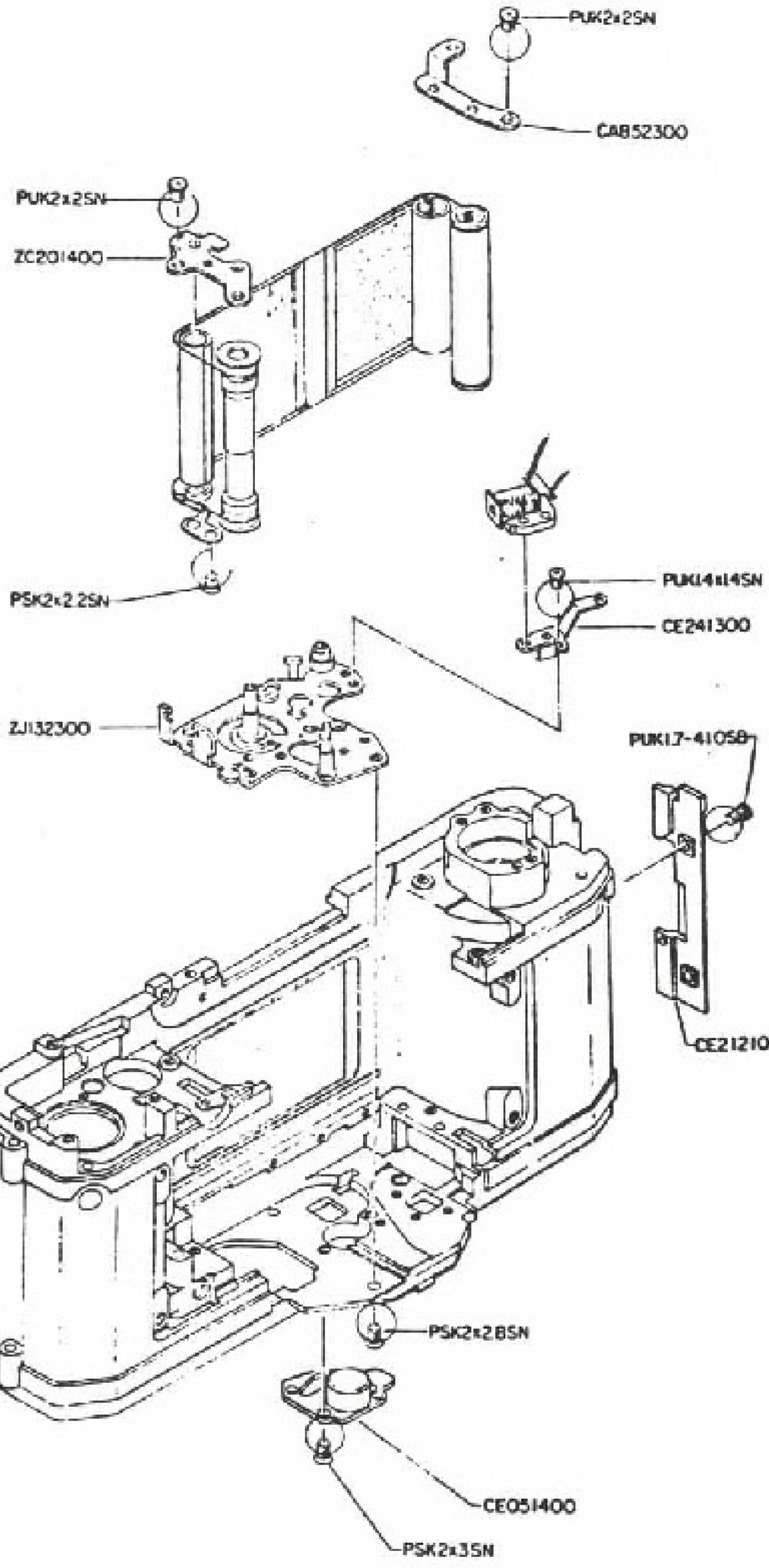




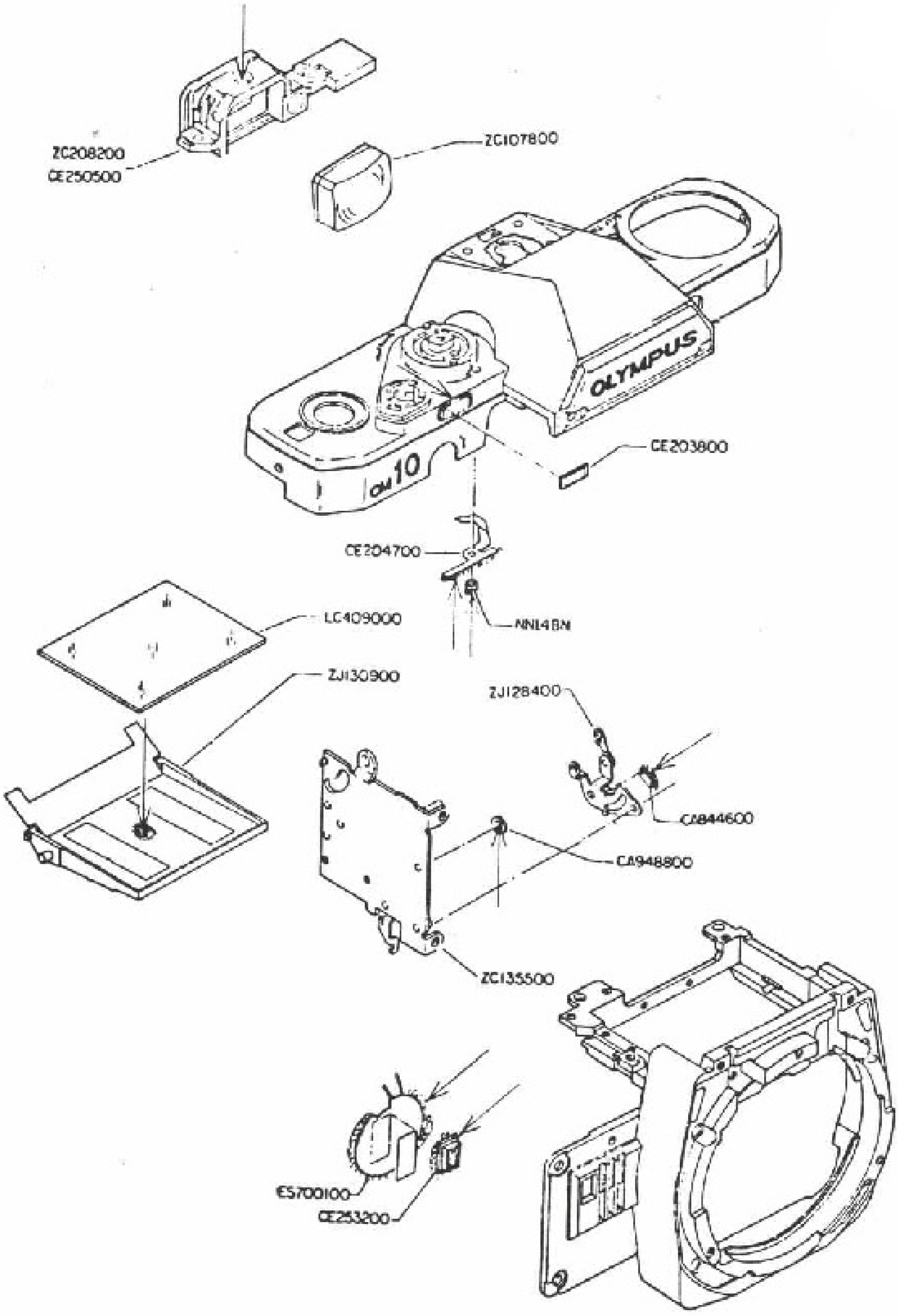
BELL LOCK SM (Cement)



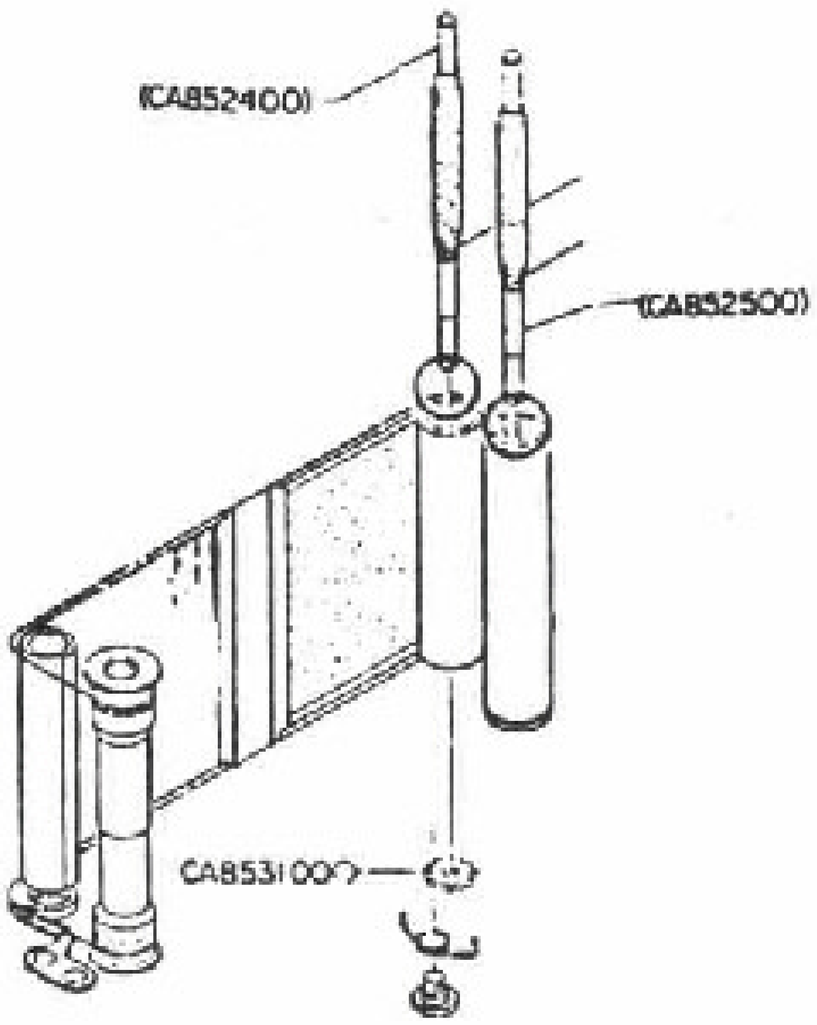
BELL LOCK SM (Cement)

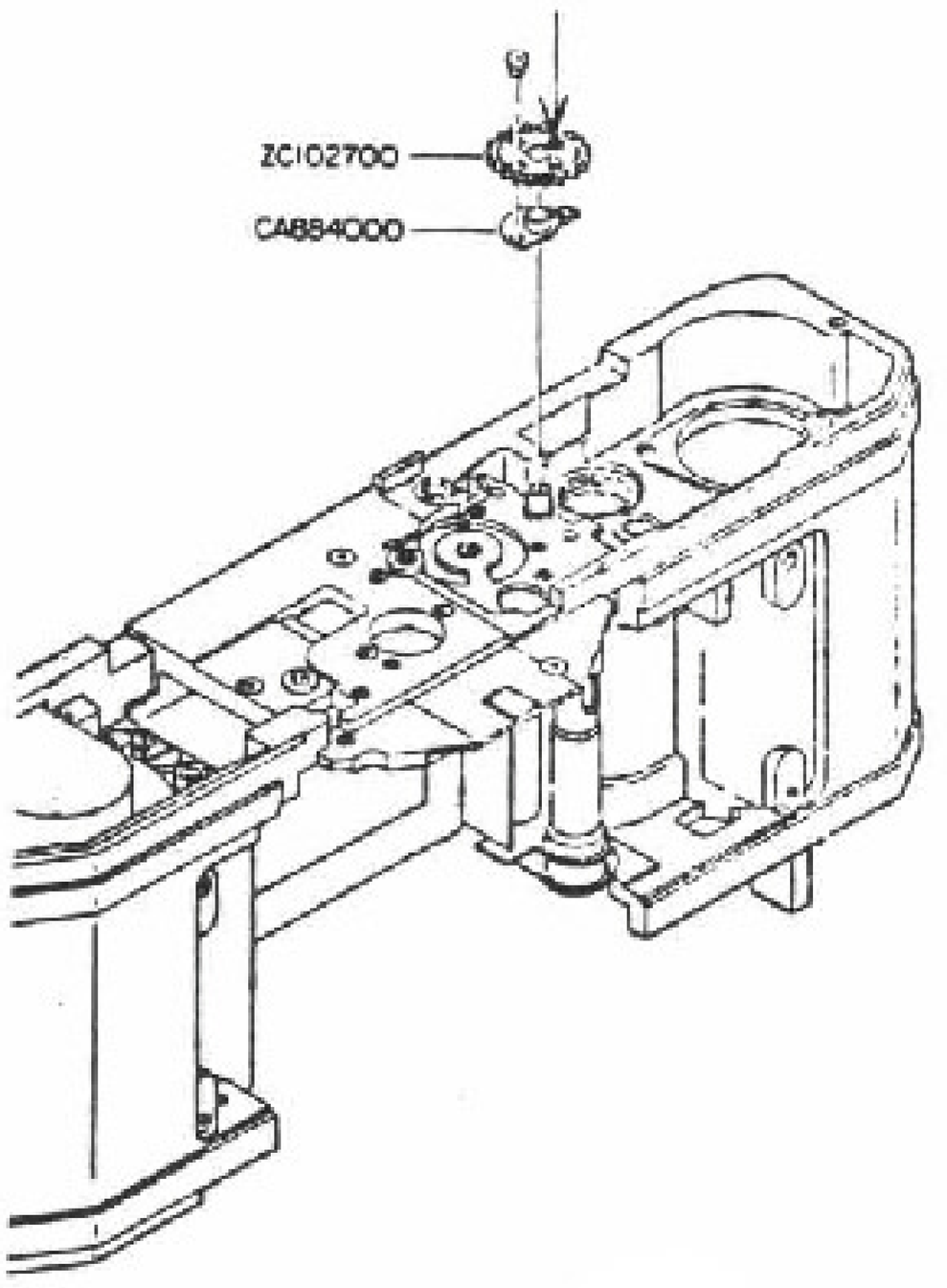


ARALDITE (Cement)

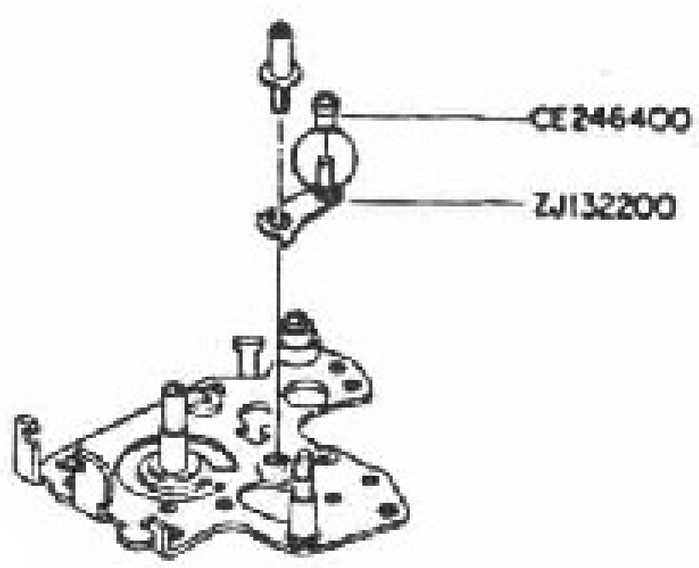


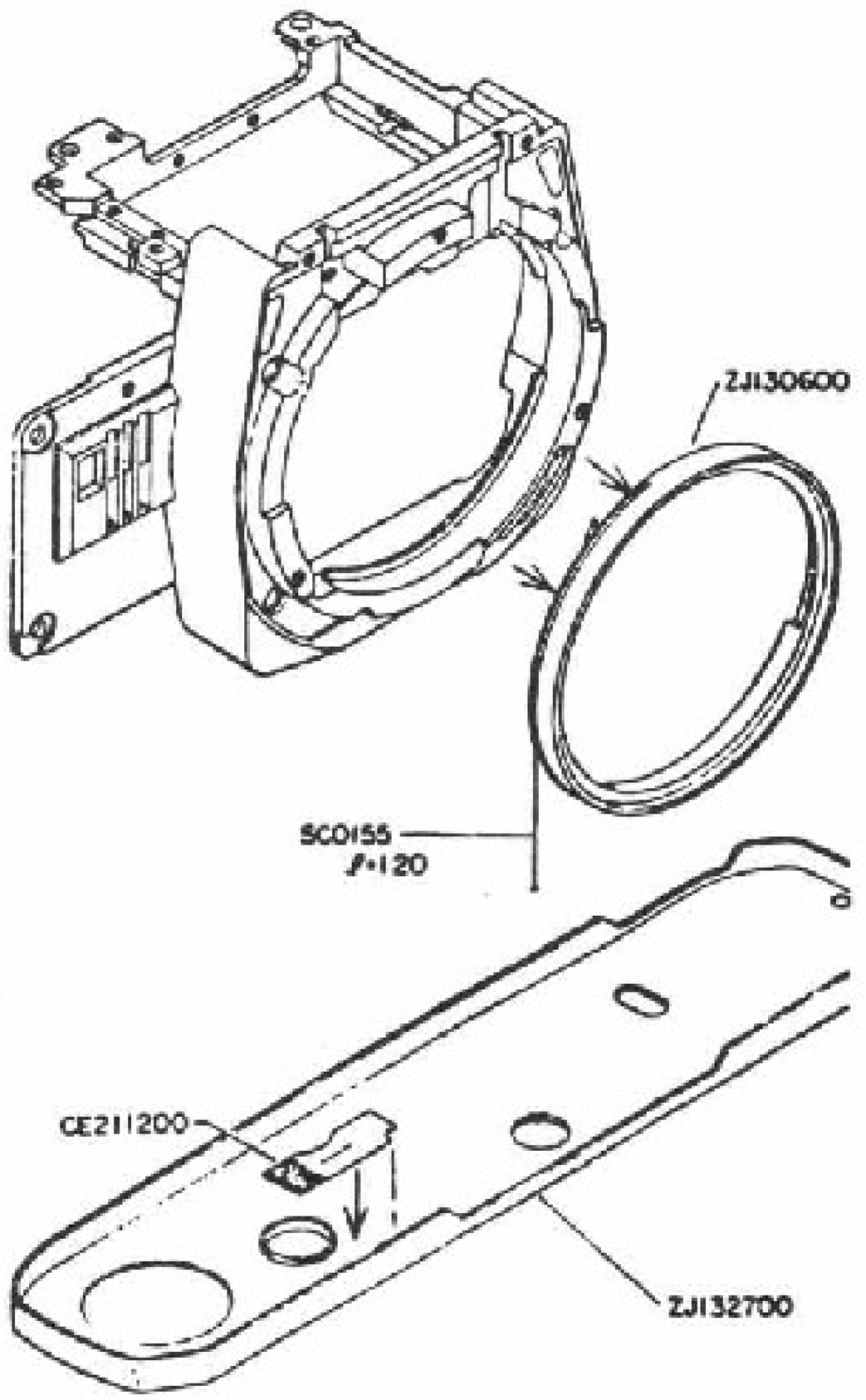
ALON ALPHA (Cement)





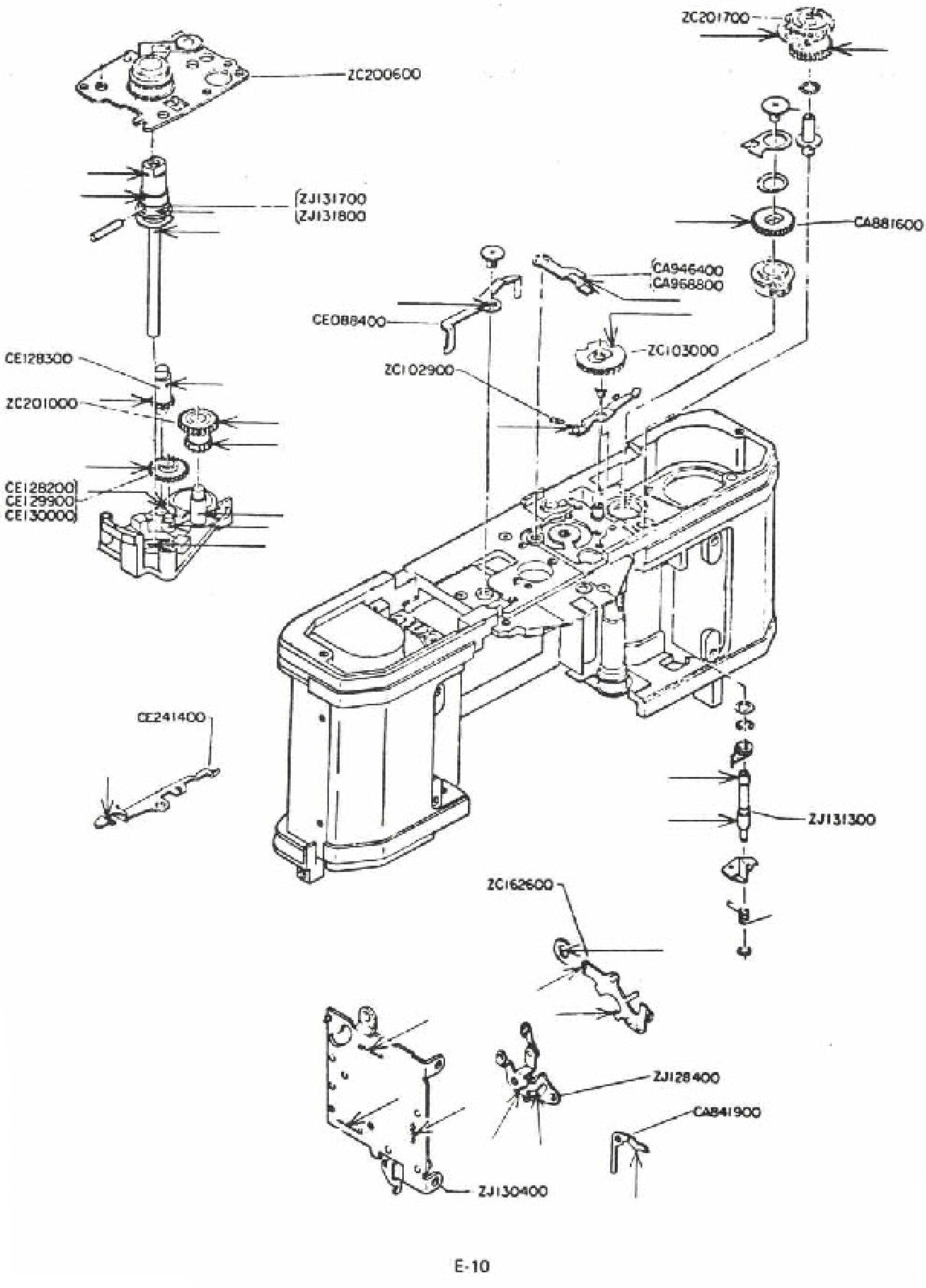
CEMEDINE 3000 (Cement)



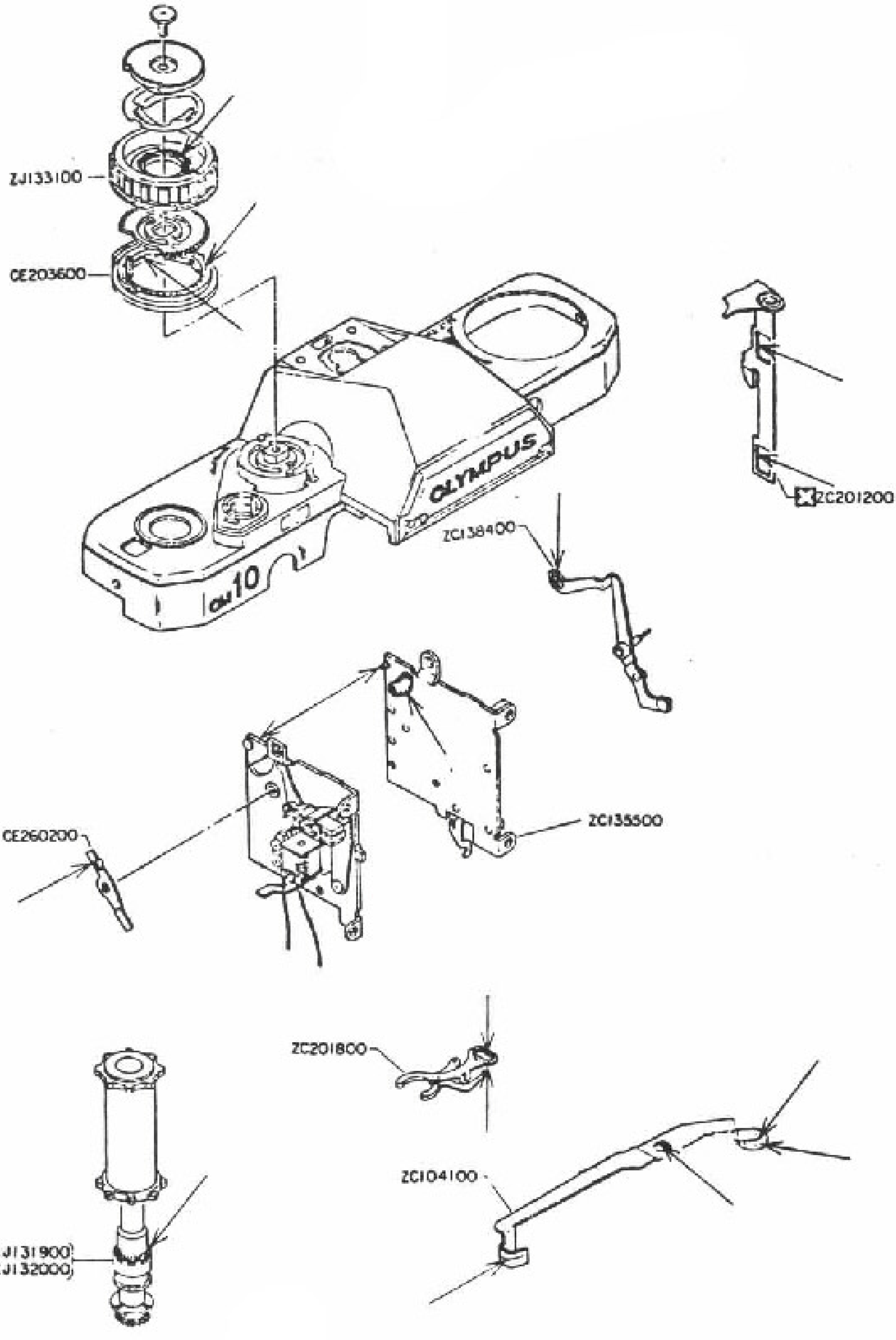


020P MOLYKOTE GREASE

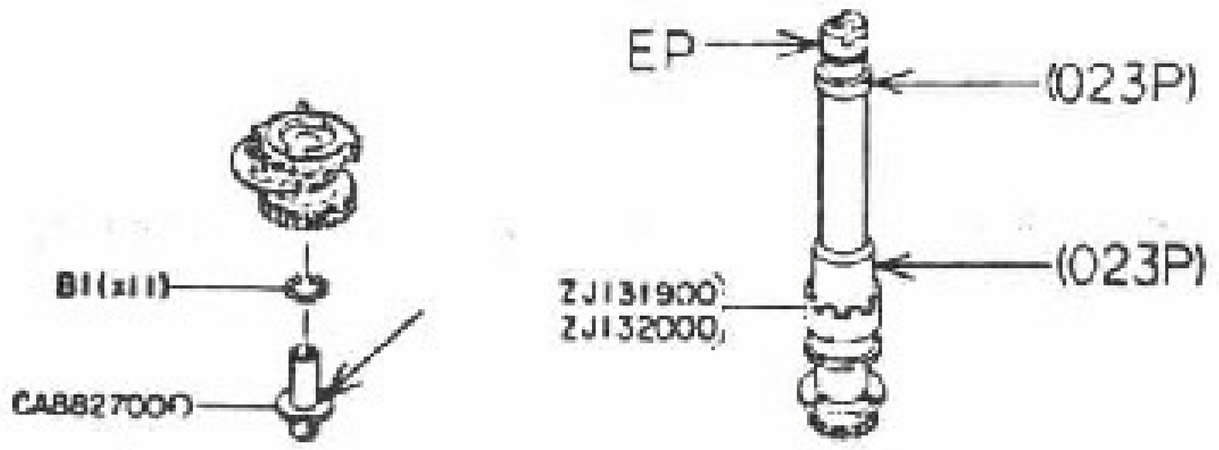
(017P 50% / 023P 50% + Molykote powder)



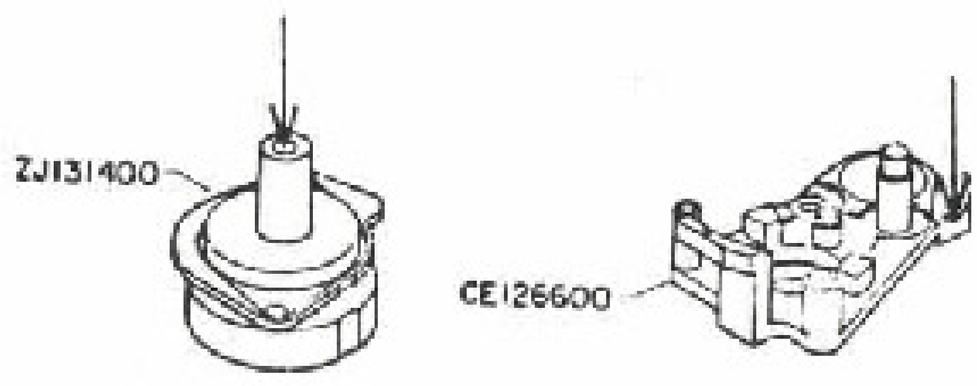
ED16 GREASE


ZJ133100
CE203600
OLYMPUS
OLY10
ZC201200
ZC138400
CE260200
ZC135500
ZC201800
ZC104100
ZJ131900
ZJ132000

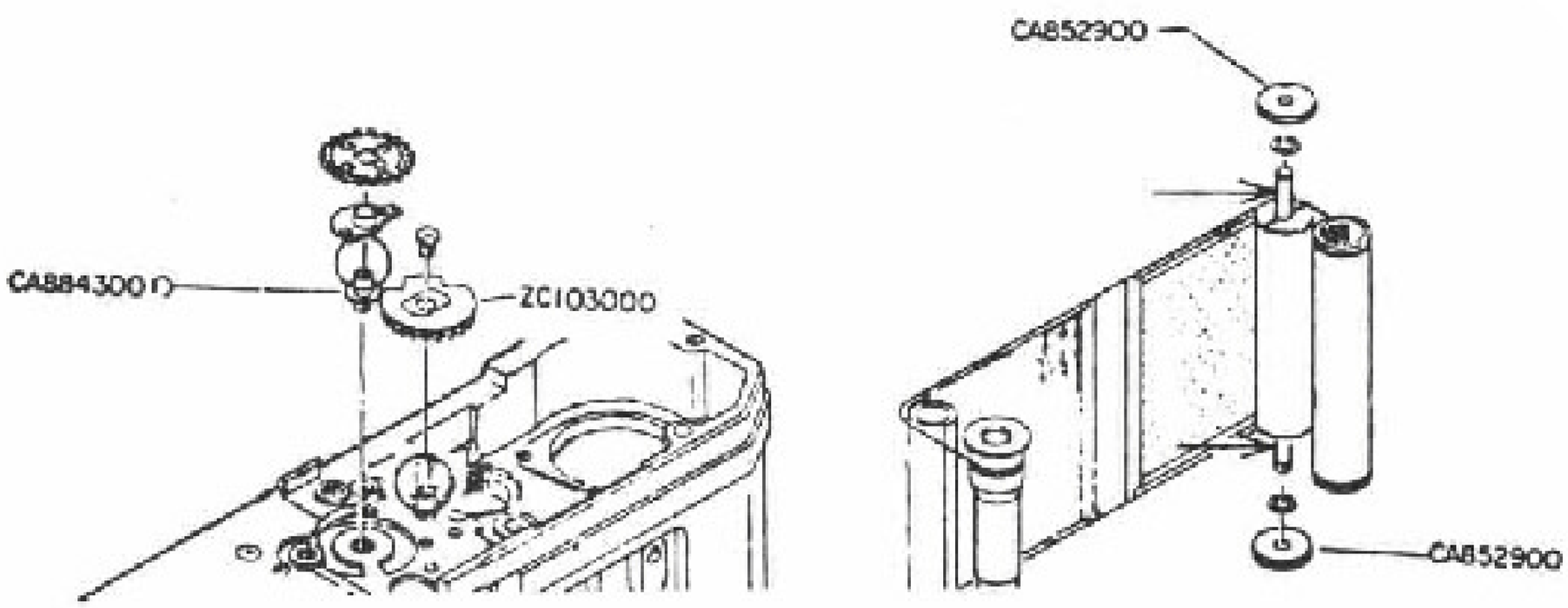
EP GREASE (EP)
PHOTOLUBE 023P (023P)



G50 GREASE

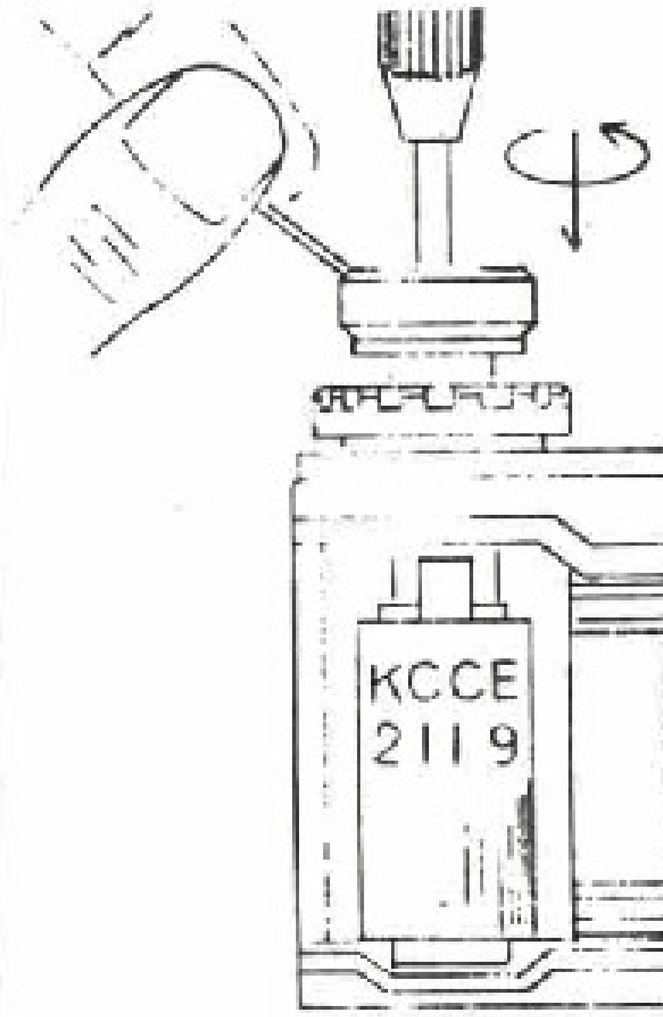
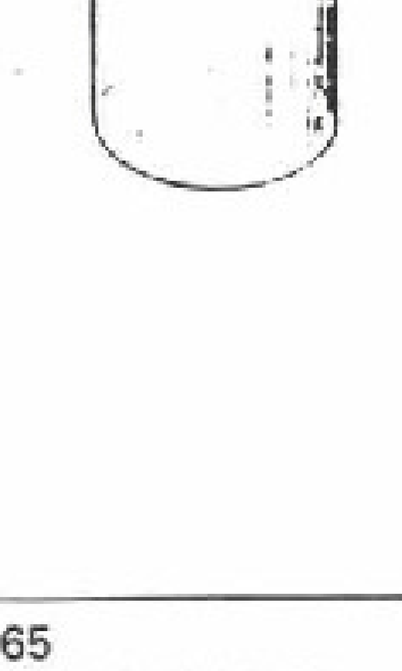
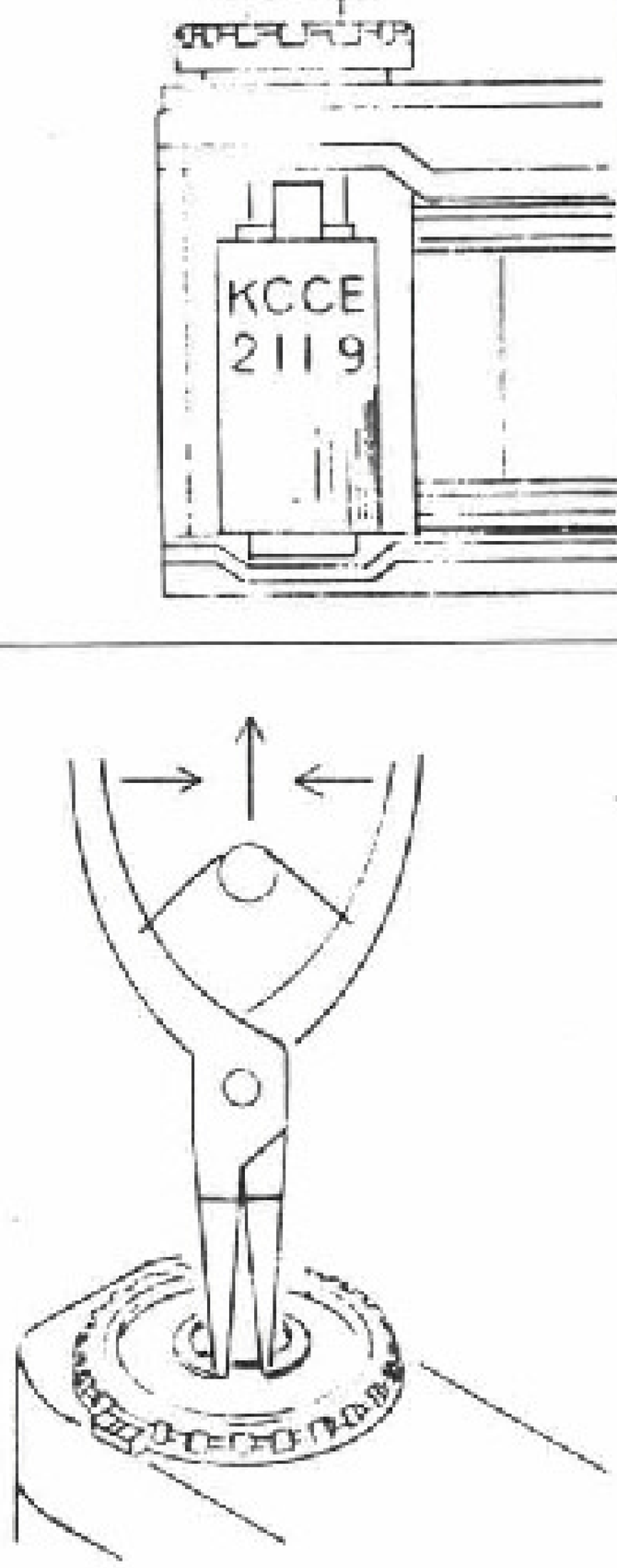
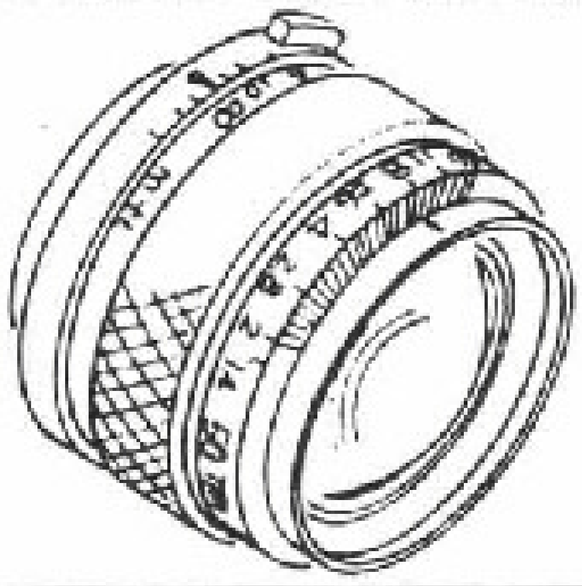


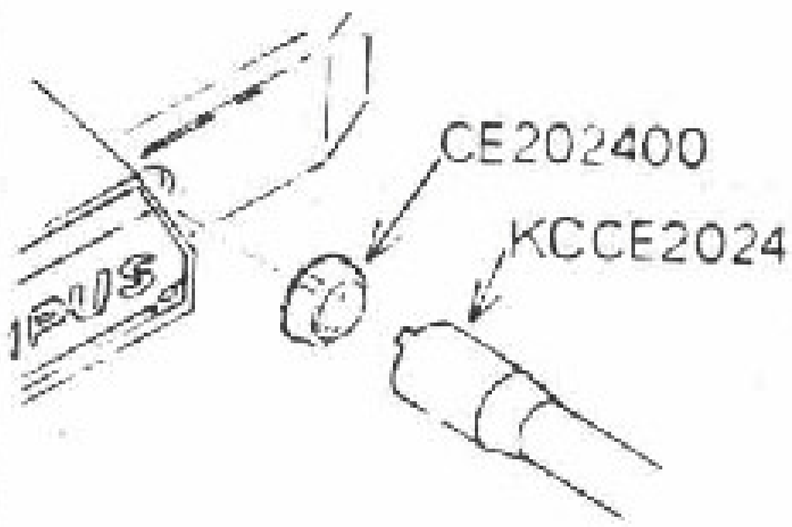
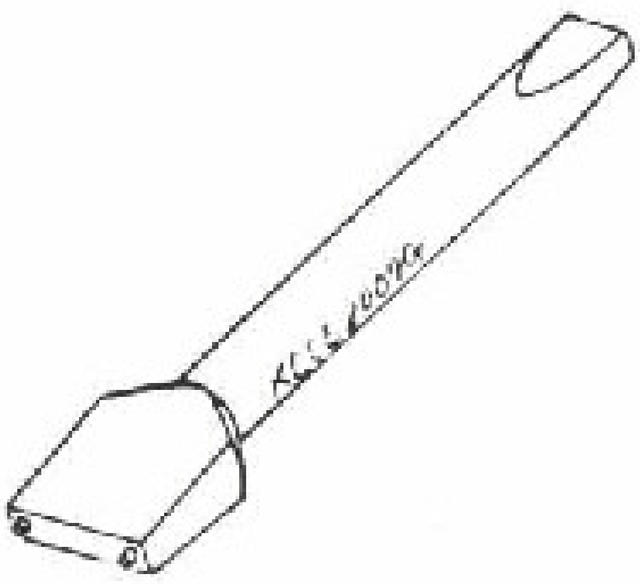
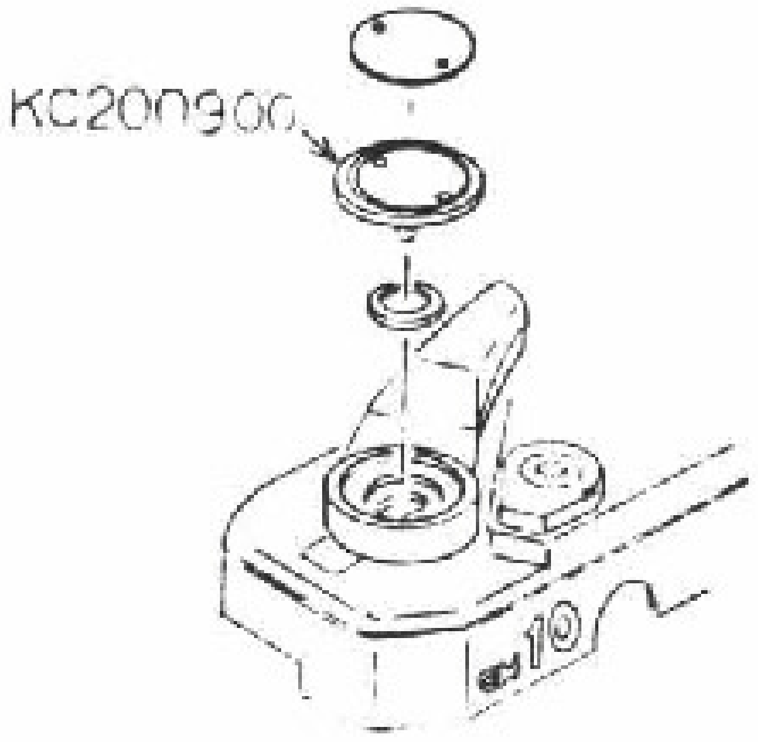
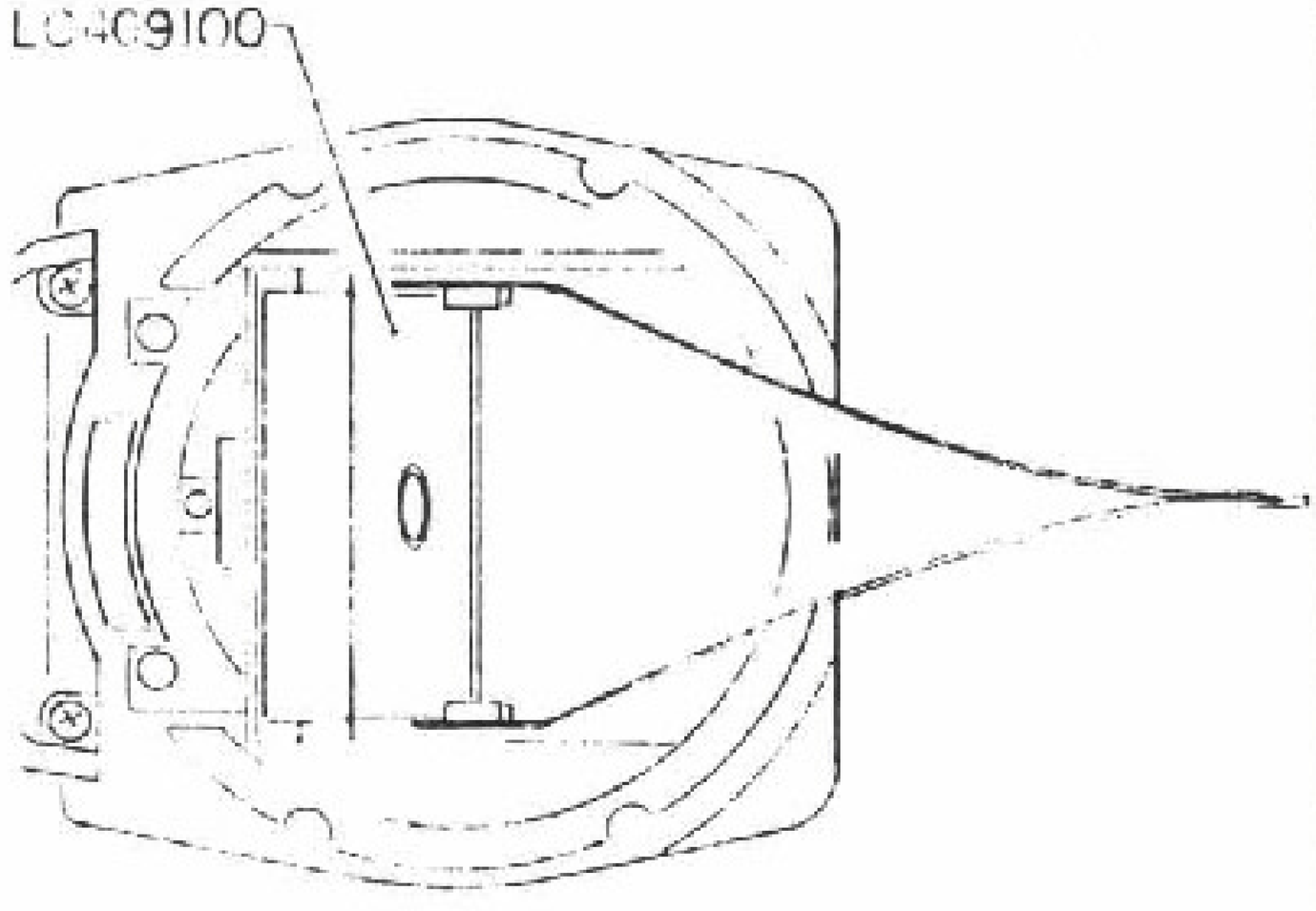
COSMORUBLIC 270A

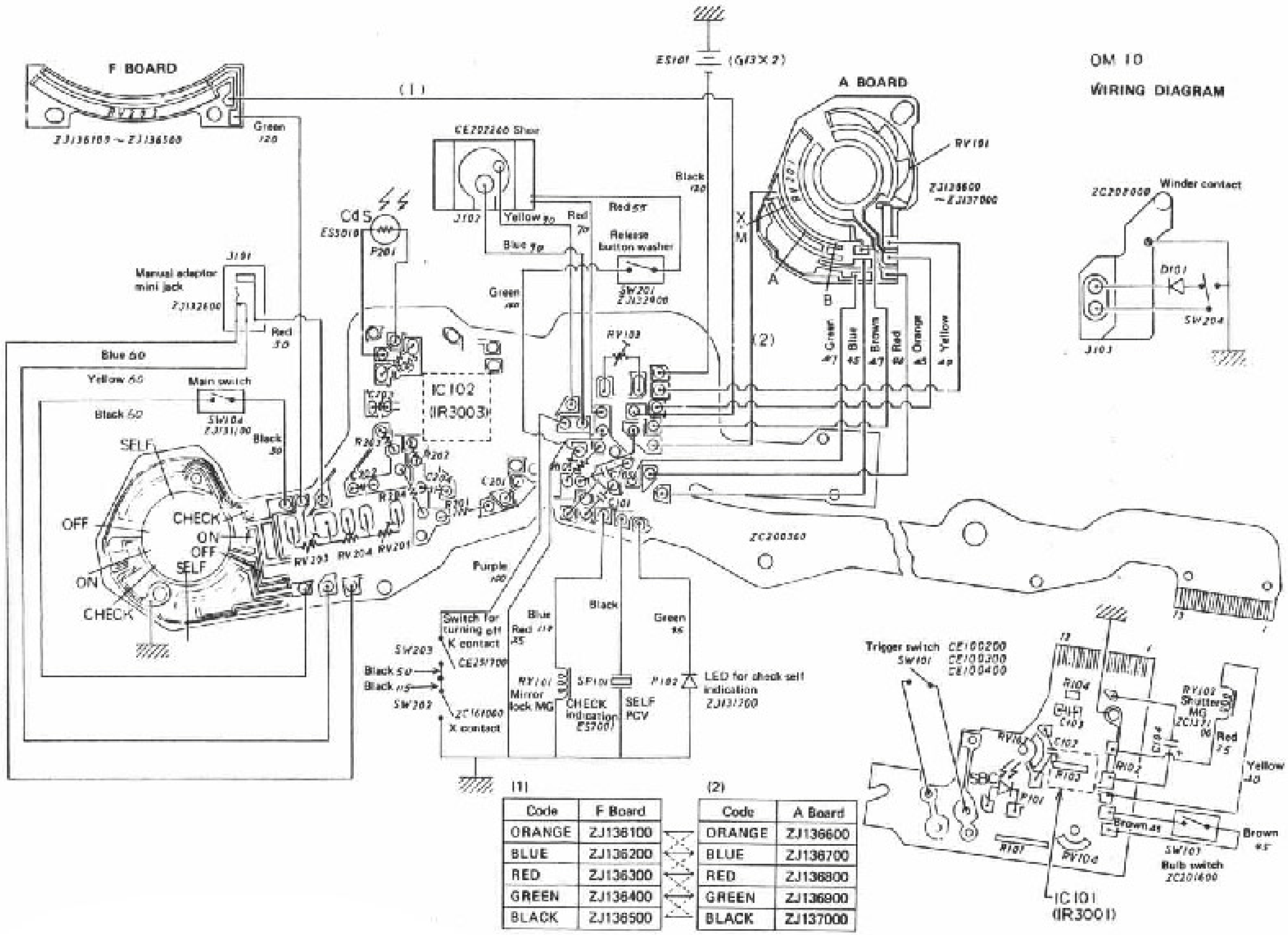


SPECIAL TOOLS

F. SPECIAL TOOLS

Tool No. & Name	Place Used & Usage	Remarks
KCCE2119 R. SHAFT HOLDER 		To be newly manufactured.
OT0065 STOP RING NIPPER 		New Tool
FINDER JIG LENS (OM-10) 	For use Finder indication matching. How to use is explained in REPAIR DATA.	To be newly manufactured.

Tool No. & Name	Place Used & Usage	Remarks
KCCE2024 DRIVER 		To be newly manufactured.
KCCE2009 DRIVER 		To be newly manufactured.
KCLC4091 SCREEN TWEEZERS 		To be newly manufactured. For the method of use, refer to the disassembly procedure.



(1)

Code	F Board
ORANGE	ZJ136100
BLUE	ZJ136200
RED	ZJ136300
GREEN	ZJ136400
BLACK	ZJ136500

(2)

Code	A Board
ORANGE	ZJ136600
BLUE	ZJ136700
RED	ZJ136800
GREEN	ZJ136900
BLACK	ZJ137000