
REPAIR MANUAL
&
PARTS LIST

FOR

FUJICA ST701



FUJI PHOTO FILM CO., LTD.
26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

Inside Front Cover
Blank Page

CONTENTS

I. INSTRUCTIONS FOR DISASSEMBLY

<p>PRECAUTIONS</p> <p>o: Adjustment is required when removed.</p> <p>x: No adjustment is required when removed.</p>
--

	PAGE	
1. Top cover (E1A).....	1	x Exercise care for engagement with the shutter resistor (Q1A). (Be sure to check meter for correct operation.)
2. Mount (D1A)	1	o Flange back and auto-timer operation.
3. Bottom cover (B69)	1	x
4. Shutter resistor (Q1A).....	3	x Check the meter for correct operation. Adjust when replaced. Check the lever safety device for correct operation.
5. Film counter (M1A).....	3	o Feeding and zero resetting.
6. Self-timer (T1A).....	3	o Off position and operating time.
7. Amplifier (K1A).....	5	x Check the meter for operation. Adjust when replaced.
8. Prism and photocell	5	x Check the meter for operation.
(S9A, S17A)		
9. Meter (R1A)	5	o Adjustment of meter and adjustment of pointer position.
10. Viewfinder glass (S1A)	7	o Focus position.
11. X-contact (P104A).....	7	o Delay time.
12. Governor (H1A)	7	o 1/30 sec - 1/1 sec. shutter speed.
13. Shutter (P0A)	9	o Check for curtain setting, position of counter cam (B58), bound, and synchronizer insulation and continuity.
13-1 Quick return mechanism ...	13	o Curtain speed, shutter speed, and quick return mechanism setting.
(C1A)		
13-2 Reflecting mirror (N23A) ..	15	o Adjustment of angle (45°) and adjustment of focus position.
13-3 Shutter fore curtain (P61A)		o Adjustments of curtain position and kick lever stroke (P34A)
Shutter after curtain (P53A)	15	
13-4 Shutter plate (P1A)	17	x Take corrective action to prevent light leakage from gap against mirror box (N1A), and eliminate any gap completely.
13-5 Mirror box (N1A).....	17	o Adjustments of focus position and angle.
14. Film advance lower plate	17	o Adjustments of stop and release, and confirmation of quick return mechanism set value.
(B20A)		

- 15. Spool (B15A) 17 ×
- 16. Sprocket (B2)..... 19 ×
- 17. Film advance shaft (B8A)..... 19 o Provide the shaft with extra advance strokes (2 to 2-1/2 turns)

II. REPAIR AND ADJUSTMENT

- 1. Film advancing system 21
 - 1-1 Film is wound excessively; frame skips 21
 - 1-2 Film idle feeding (double exposure) 21
 - 1-3 Film advance stop and advance release 23
 - 1-4 Film advance lever operation 23
 - 1-5 Operation of rewind release button 25
- 2. Film counter system 27
 - 2-1 Feeding of counter 27
 - 2-2 Zero reset of dial 29
 - 2-3 Dial scale and index 29
- 3. Viewfinder 31
 - 3-1 Coincidence of focus and "inf." 31
 - 3-2 Parallax 33
 - 3-3 Vignetting in field of view 35
 - 3-4 Cross-view 35
 - 3-5 Dust, scar, crack or contamination 35
 - 3-6 Image tilting 35
- 4. Shutter system 37
 - 4-1 Shutter speed 37
 - 4-2 Exposure unbalance 41
 - 4-3 Shutter curtain bounds 43
 - 4-4 Quick return mechanism setting 45
 - 4-5 Shutter curtain setting 47
 - 4-6 Operation of shutter curtain 49
 - 4-7 Operation of quick return mechanism 51
 - 4-8 Shutter release position 53
 - 4-9 Noise 53
 - 4-10 Synchro-delay time 55
 - 4-11 Continuity for synchronizer 55
 - 4-12 Slow governor operation relative position 57
 - 4-13 Shutter dial operation 59
 - 4-14 ASA shifting and operation 61
 - 4-15 Shutter quick return mechanism operating sequence 63

5. Self-timer	65
5-1 Operation	65
5-2 Shutter releasing position	67
5-3 Installing position	67
6. Rear cover and relative parts	67
6-1 Pressure plate and pressure plate spring	67
6-2 Opening, closing and locking	69
7. Light leakage	69
7-1 Film cartridge chamber	69
7-2 Exposed film chamber	71
7-3 Picture frame	71
8. Main body and relative parts	71
8-1 Flange back	71
8-2 Mount	73
8-3 Manual lens opening	73
9. Exposure meter	75
9-1 Power supply	75
9-2 Switch circuit	75
9-3 Amplifier	77
9-4 Meter needle operation and indicated value	77
9-5 Silicon photocell element	79
9-6 Shutter resistor	81
9-7 Wiring diagram	81
10. Film rewinding system	83
10-1 Film rewinding handle operation	83
10-2 Film rewind shaft operation	83

I. INSTRUCTIONS FOR DISASSEMBLY

1. Top cover (E1A)

- (1) Open the rear cover (F1A), hold the rewind shaft (J2), turn the rewind knob (J5A) counterclockwise, and remove it.

PRECAUTION: When removing the top cover, the shutter speed should be set to 1/1000, ASA25. When reinstalling the top cover, the click plate and contact plate should be psotioned to 1/1000, ASA 25.

- (2) Remove the set screw (J31).
- (3) Remove the battery cap (J15A), and take out the battery.
- (4) Remove the set screw (B63), and remove the spring plate, film advance lever (B61) and square hole plate (B60).
- (5) Remove two installation screws (E17).

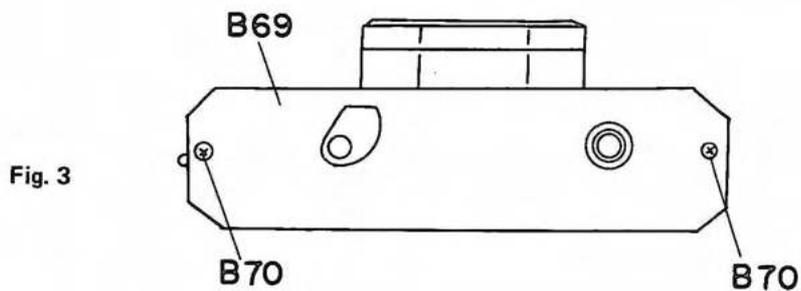
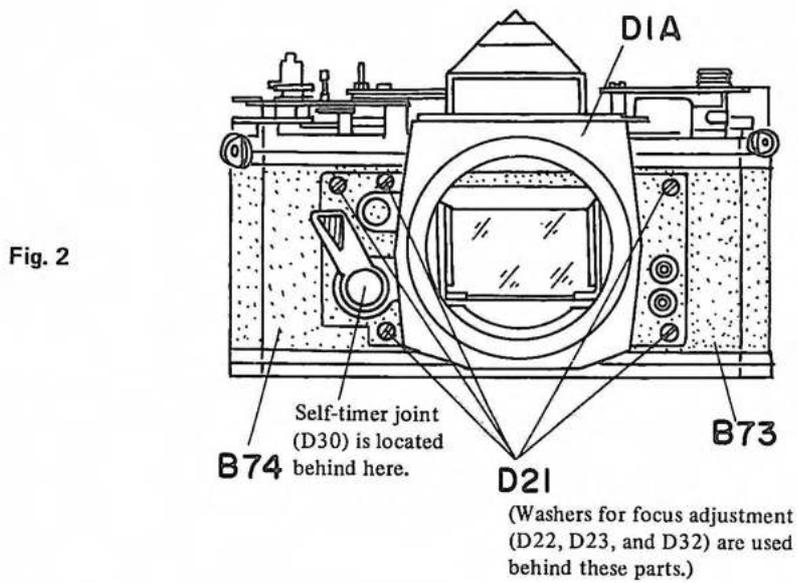
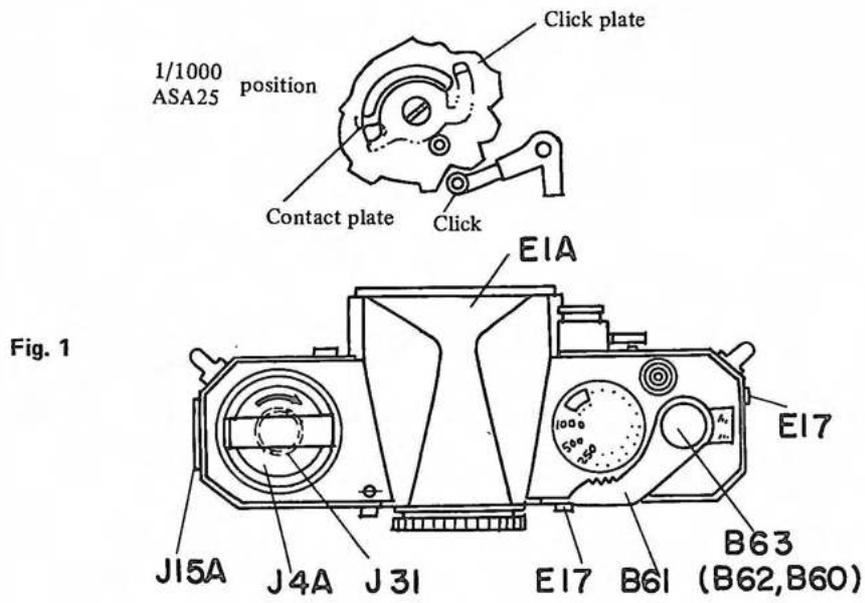
2. Mount (D1A)

- (1) Remove the top cover (E1A).
- (2) Peel off leathers (B73 and B74), and remove five screws (D21). (Fig. 2)

PRECAUTION: Be careful not to lose washers for focus adjustment (D22, D23, and D32), and self-timer joint (D30).

3. Bottom cover (B69)

Remove two installation screws (B70). (Fig. 3)



4. Shutter resistor (Q1A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Disconnect lead wires (Q46 and Q47).
- (3) Remove four installation screws (Q29).
- (4) Hold the levers (Q7 and Q14) away from the release shaft (P97) and cam sleeve (B75) with a pair of pincers or other proper tool so that the levers do not hook the release shaft and cam sleeve, and remove the shutter resistor (Q1A). (Fig. 4)

5. Film counter (M1A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the shutter resistor (Q1A). (Fig. 4)
- (3) Remove the installation screw (B76), and pull out the cam sleeve (B75).
- (4) Remove two installation screws (M27). (Fig. 5)

6. Self-timer (T1A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the mount (D1A). (Fig. 2)
- (3) Remove the shutter resistor (Q1A). (Fig. 4)
- (4) Hold the release shaft bottom (P94), turn the release shaft top (P96A), and remove the release shaft bottom (P94), release shaft top (P96A), and return spring (P98). (Fig. 6)
- (5) Remove two installation screws (T47). (Fig. 6)

Fig. 4

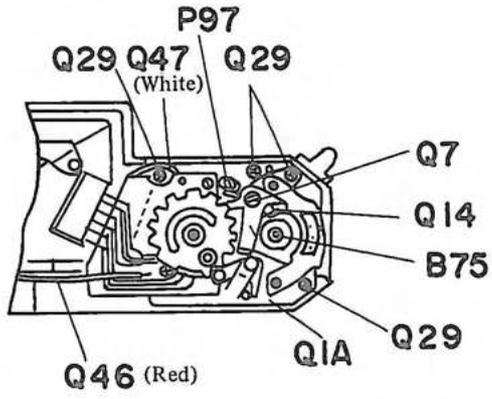


Fig. 5

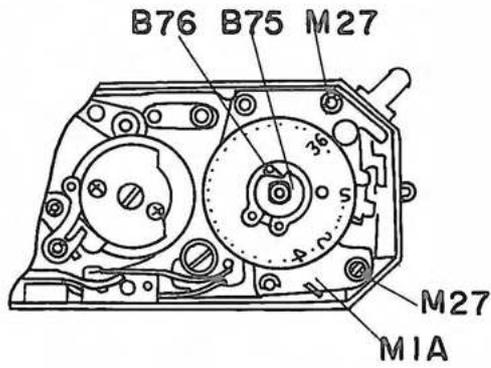
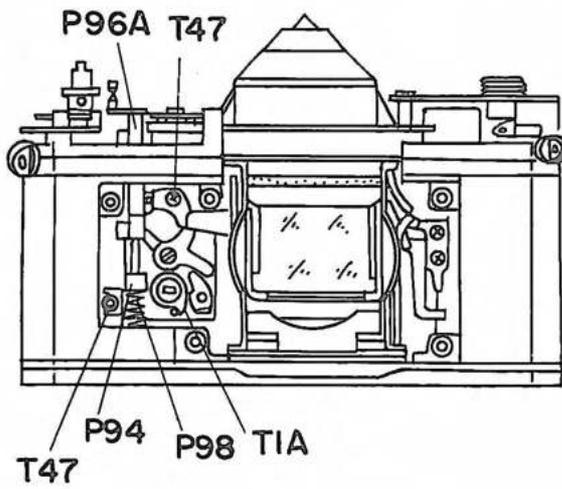


Fig. 6



7. Amplifier (K1A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Disconnect lead wires (Q52, Q53 and Q55) and red and black lead wires from the meter.
- (3) Remove the installation screw.

8. Prism (S9A) and photocell (S17A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the shutter resistor (Q1A). (Fig. 4)
- (3) Remove the amplifier (K1A). (Fig. 7)
- (4) Remove two each installation screws (S18 and S19). (Fig. 8)

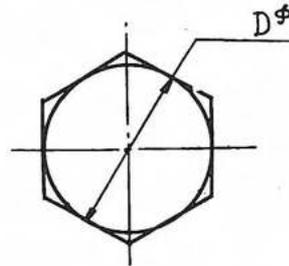
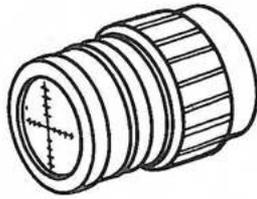
PRECAUTION: In some cases, the prism and photocell may have been adhered. However, they can be removed. Note that a washer (S24) is used between them.

9. Meter (R1A)

- (1) Remove the prism (S9A) (Fig. 8), and remove the meter (R1A) from the prism. Remove two installation screws (S19), and remove the meter (R1A). (Fig. 9)

3. Scale Lupe 10X

Measure diameter of circle inscribed to the blades at each f-number and see if the diameter is within the permissible range shown in the following figure.



2.8/35 mm

	D φ
4	9.2 φ ~ 11.0 φ
5.6	6.4 φ ~ 7.8 φ
8	4.4 φ ~ 5.6 φ
11	3.0 φ ~ 4.1 φ
16	2.0 φ ~ 3.0 φ

1.8/55 mm

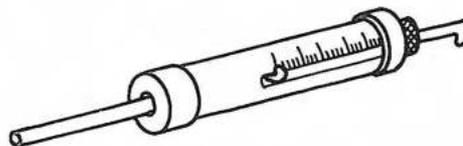
	D φ
2.8	12.2 φ ~ 14.2 φ
4	8.5 φ ~ 10.1 φ
5.6	5.9 φ ~ 7.2 φ
8	4.0 φ ~ 5.2 φ
11	2.7 φ ~ 3.7 φ
16	1.9 φ ~ 2.8 φ

3.5/135 mm

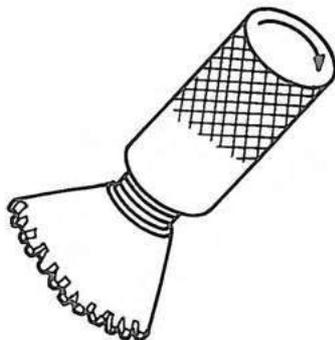
	D φ
4	15.9 φ ~ 20.0 φ
5.6	10.6 φ ~ 15.0 φ
8	10.6 φ ~ 7.5 φ
11	5.0 φ ~ 7.9 φ
16	3.5 φ ~ 5.6 φ
22	2.5 φ ~ 4.0 φ

When the diaphragm is fully open, however, the blades should not be seen in the circle.

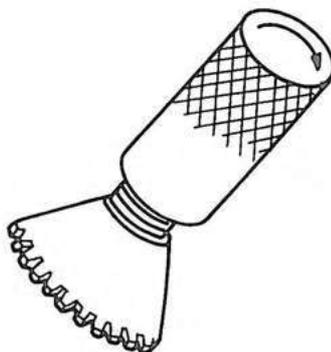
4. Spring Balance 500g



5. First Blind Winder (P14-JA1)

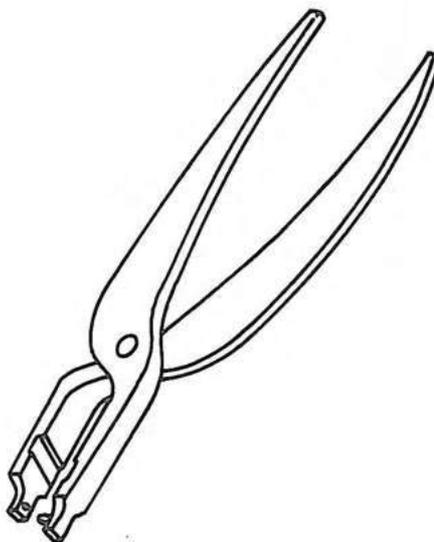


6. Second Blind Winder (P16-JA1)

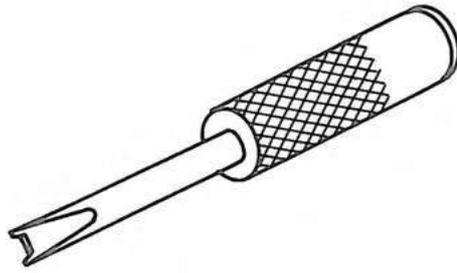


Used for removal of spring pin (P73)

7. Pincers (P73-JA1)

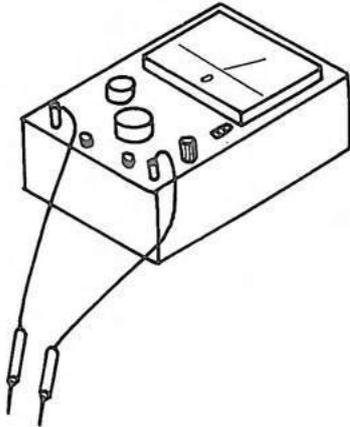


8. Special Driver (OAE-004)



**INSTRUMENTS
FOR FUJICA ST701**

Electric Circuit Tester Model No. EM-700

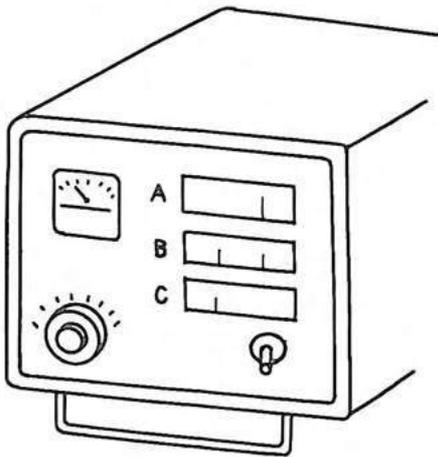


Price : FOB US\$56.00

Delivery: Within 30 days after receipt of order

Payment: L/C at sight

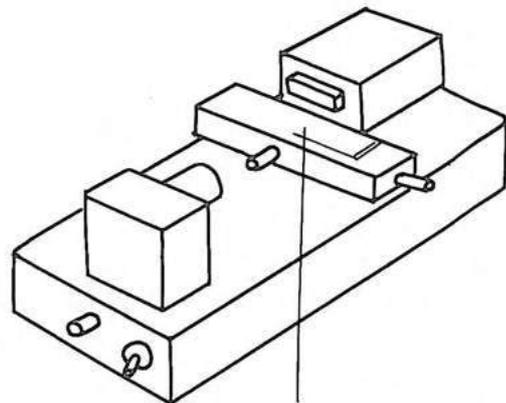
Shutter Tester Model No. 7F6



Price : FOB US\$1.440.00

Delivery: Within 90 days after receipt of order

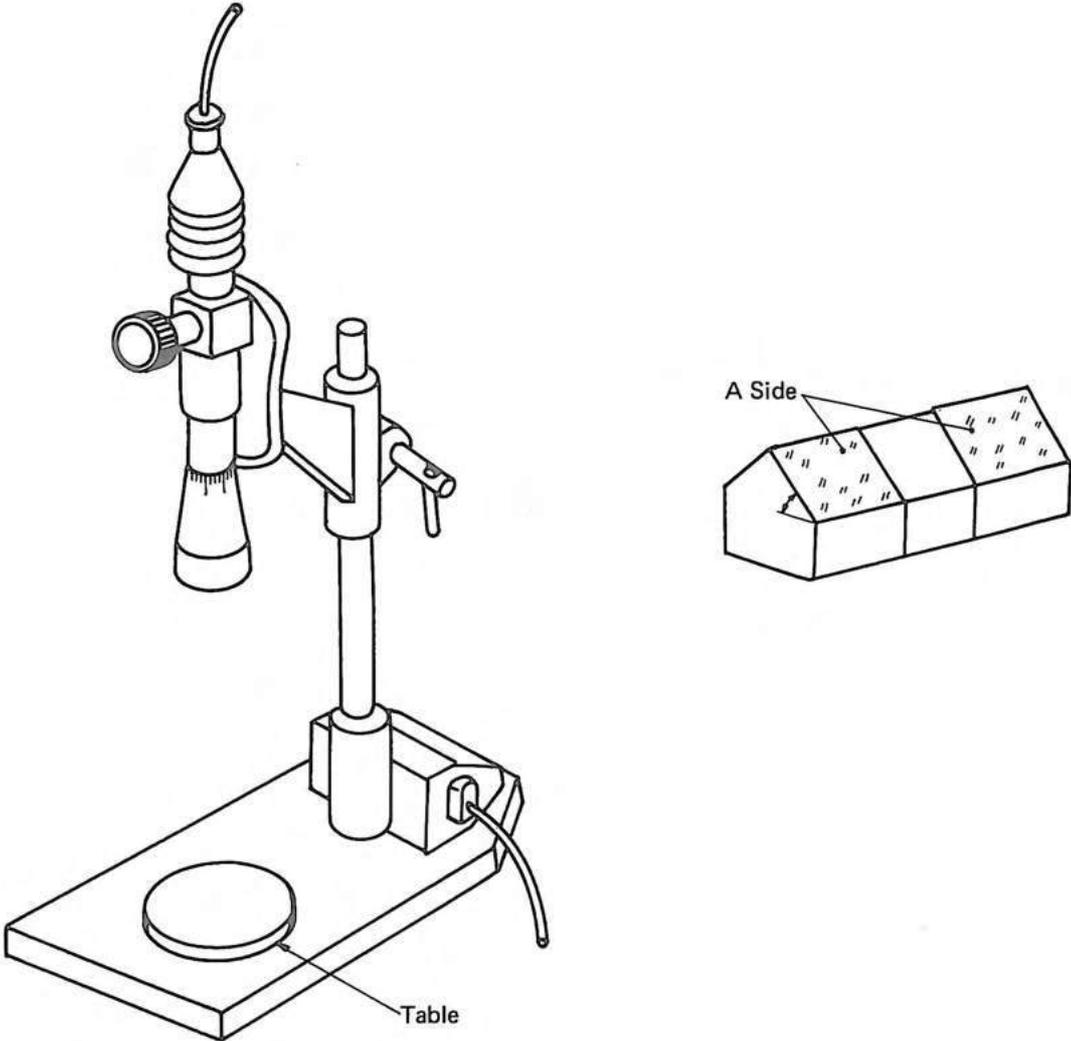
Payment: L/C at sight



Clamp for camera set and electric source

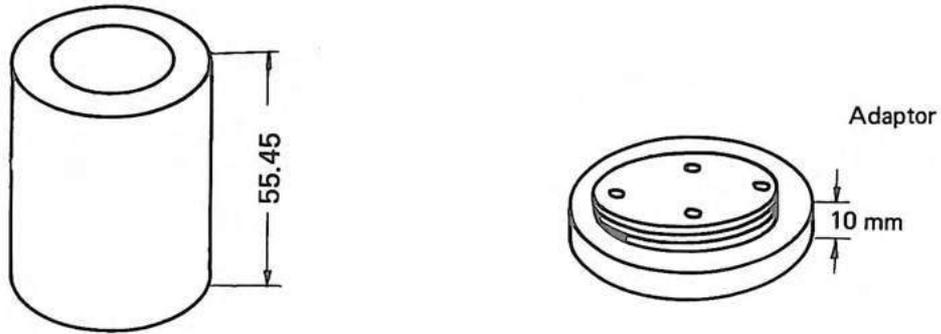
**REPAIR TOOLS
FOR FUJICA ST701 CAMERA**

1. Parallax Adjusting Mirror with Table (AO-GA2)



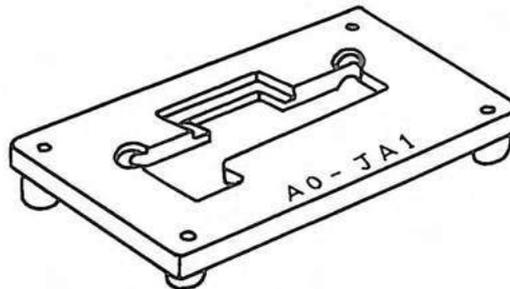
Apply film rail surface of the camera to "A" surface of the Parallax Adjusting Mirror (AO-GA2). Place them on the Table and look through the collimator eyepiece to see if quick return mirror angle is 45° .

2. Flange-back Gauge with Adaptor (AO-GA3)

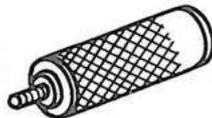


Screw the Adaptor into the camera lens mount, and measure parallelism of the film rail surface by the use of a dial gauge. In addition, measure flangeback with the Gauge (AO-GA3).

3. Camera Holder (AO-JA1)



4. Special Screw (POA-JA2)



Used as a substitution of Special Screw (P26) when adjusting 1/1000 sec.

Fig. 7

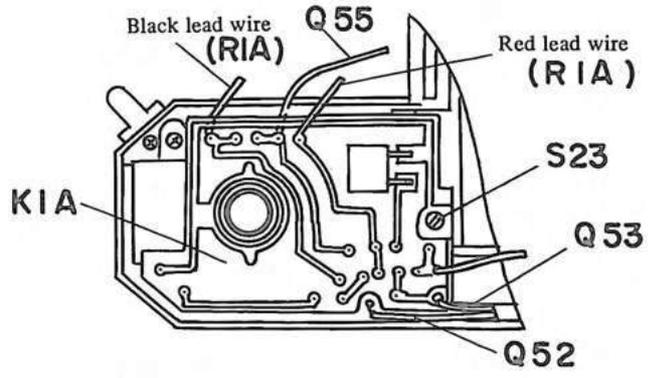


Fig. 8

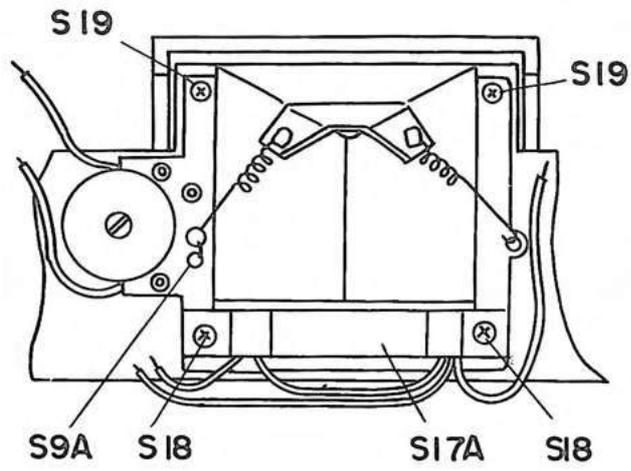
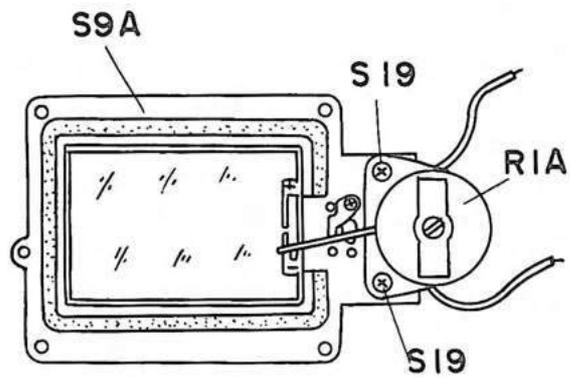
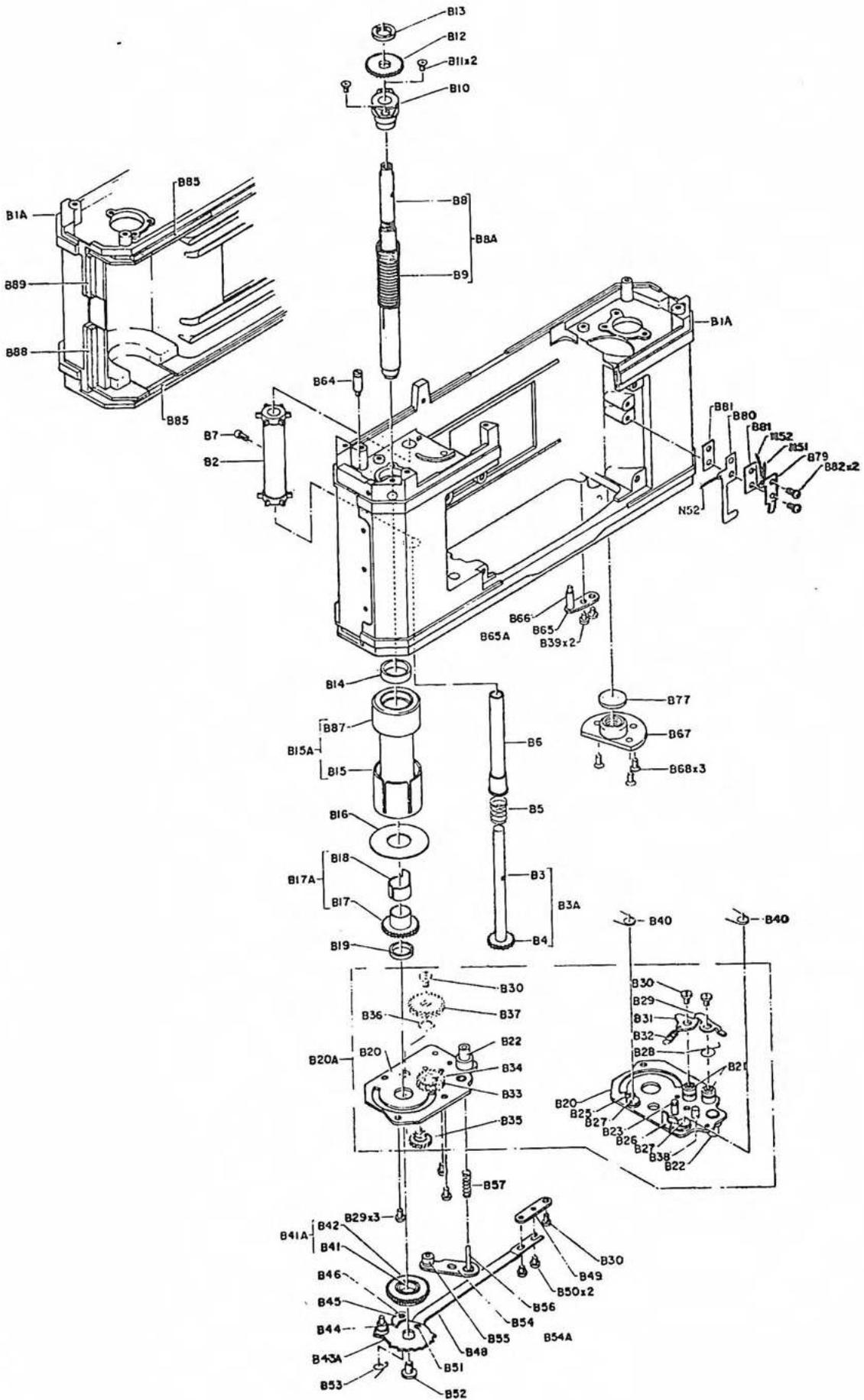
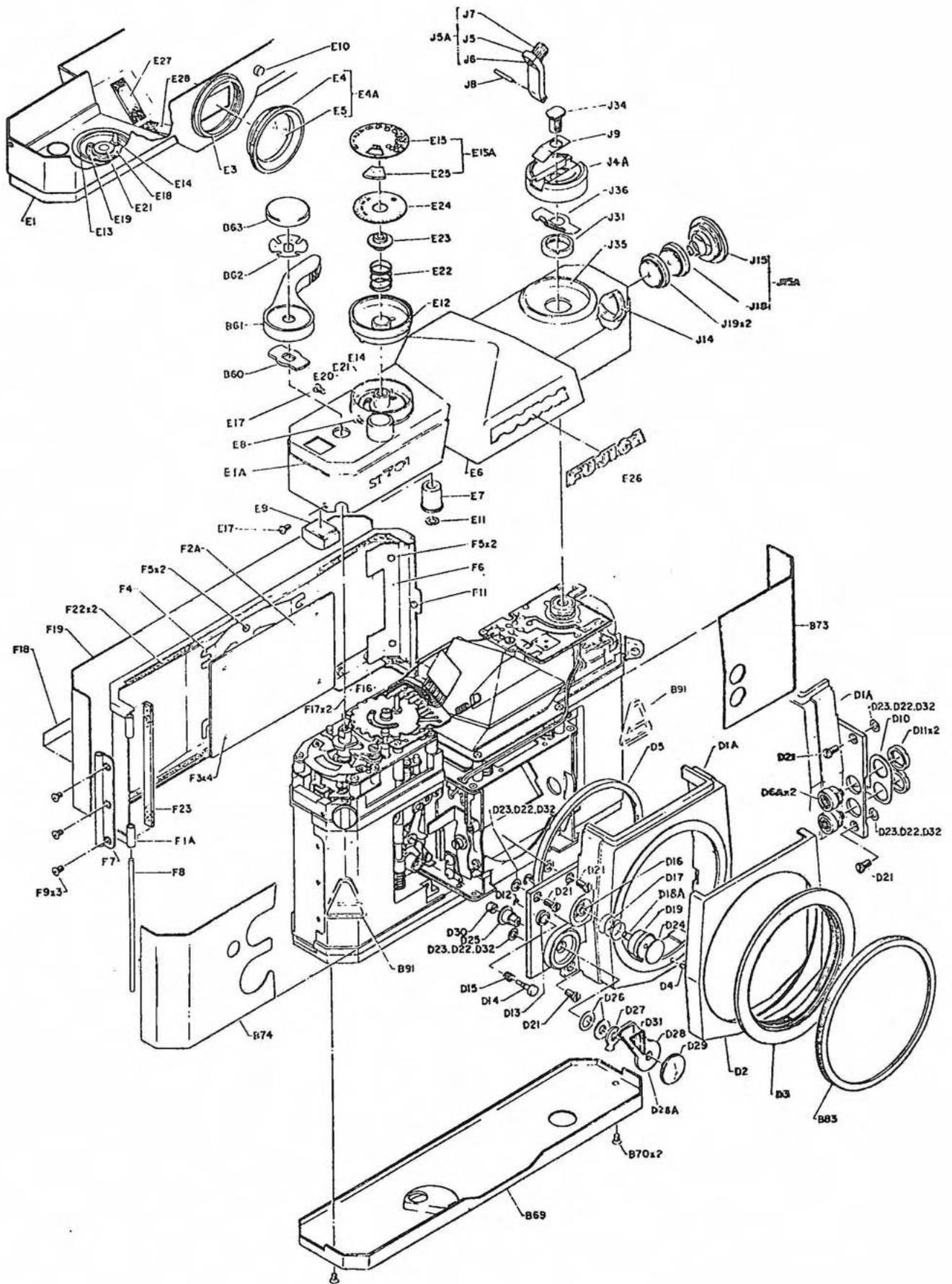


Fig. 9







REF. NO.	PART NO.	PART NAME		REMARKS
	B1A	Body		
	B2	Sprocket		
	B3A	Sprocket shaft unit		
	B5	Spring		
	B6	Sleeve		
	B7	Set screw		
	B8A	Spool shaft unit		
	B10	Spool shaft holder		
	B11	Screw		
	B12	Set gear		
	B13	Set screw		
	B14	Bushing		
	B15A	Spool unit		
	B16	Washer		
	B17A	Spool gear unit		
	B19	Collar		
	B20A	Base plate unit		
	B28	Spring		
	B29	Lever		
	B30	Set screw		
	B31	Lever		
	B32	Spring		
	B35	Idle gear		
	B36	Washer		
	B37	Idle gear		
	B39	Screw		
	B40	Spring		
	B41A	Ratchet gear unit		
	B43A	Ratchet plate unit		
	B49	Connecting plate		
	B50	Screw		
	B52	Set screw		

REF. NO.	PART NO.	PART NAME		REMARKS
	B53	Spring		
	B54A	Rewind base plate unit		
	B57	Spring		
	B58	Eccentric cam		
	B59	Set screw		
	B58A	Eccentric cam unit		
	B60	Plate		
	B61	Take - up lever		
	B62	Friction plate		
	B63	Set screw		
	B64	Screw		
	B65A	Positioning plate unit		
	B67	Screw		
	B68	Screw		
	B69	Bottom cover		
	B70	Screw		
	B71	Eyelet		
	B72	Screw		
	B73	Leather (front right)		
	B74	Leather (front left)		
	B75	Ring		
	B76	Screw		
	B77	Mortplene		
	B79	X - contact plate		
	B80	FP contact plate		
	B81	Insulating plate		
	B82	Platic screw		
	B83	Mount cap		
	B85	Mortplene		
	B88	Mortplene		
	B89	Mortplene		
	B90	Cord holder		

REF. NO.	PART NO.	PART NAME		REMARKS
	B91	Ring		
	C1A	Mirror set unit		
	C22	Screw		
	C23A	Interlock plate unit		
	C25	Screw		
	C26A	Interlock plate unit		
	C29	Screw		
	C30	Spring		
	C31	Spring		
	C32	Spring		
	C33	Cover		
	C34	Screw		
	C36A	Gear unit		
	C37A	Claw plate unit		
	C39	Screw		
	C40	Spring		
	C41A	Claw lever unit		
	C49	Plate		
	C50	Screw		
	C51	Lever		
	C52	Sleeve		
	C54	Screw		
	C55	Spring		
	C56	Lever		
	C46A	Claw lever unit		
	C48	Screw		
	D1A	Mount unit		
	D2	Lens board cover		
	D3	Screw		
	D4	Pin		
	D5	Ring		
	D6A	Synchronizer unit		

10. Viewfinder glass (S1A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the shutter resistor (Q1A). (Fig. 4)
- (3) Remove the amplifier (K1A). (Fig. 7)
- (4) Remove the prism (S9A). (Fig. 8)
- (5) Remove three installation screws (S8). (Fig. 10)

PRECAUTION: Three compression springs (S6) are located beneath the glass (S1A).
Be careful not lose them.

11. X-contact (P104A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the shutter resistor (Q1A). (Fig. 4)
- (3) Remove the film counter (M1A). (Fig. 5)
- (4) Wind up film advance shaft (B8) approximately 90°, and remove the installation screws (P110 and P111). (Fig. 11)

PRECAUTION; Be careful not lose the collar (P109) located beneath the screw (P110).

12. Governor (H1A)

- (1) Remove the bottom cover (B69). (Fig. 3)
- (2) Remove two installation screws (H27). (Fig. 12)

REF. NO.	PART NO.	PART NAME		REMARKS
	D10	Ground plate		
	D11	Set screw		
	D12	Circlip		
	D14	Start button		
	D15	Spring		
	D17	Spring		
	D18A	Lens opening button unit		
	D20	Circlip		
	D21	Set screw		
	D22	Washer		
	D23	Washer		
	D24	Leather		
	D25	Shaft		
	D26	Washer		
	D27	Stopper cam		
	D28	Self - timer lever		
	D29	Screw		
	D30	Joint		
	D31	Lever cover		
	D32	Washer		
	D28A	Self - timer lever unit		
	E1A	Top cover unit		
	E4A	View finder window unit		
	E7	Shutter button		
	E8	Screw		
	E9	Counter window		
	E11	Washer		
	E12	Shutter dial		
	E15A	Speed scale board unit		
	E15	Speed scale board		
	E17	Set screw		
	E22	Spring		

REF. NO.	PART NO.	PART NAME		REMARKS
	E23	Scale board base		
	E24	ASA scale board		
	E25	Window		
	E26	Name plate		
	E27	Rubber plate		
	E28	Sponge plate		
	F1A	Rear cover unit		
	F2A	Pressure plate unit		
	F7	Hinge		
	F8	Hinge shaft		
	F9	Screw		
	F10	Key plate		
	F12	Key plate guide		
	F13	Spring		
	F14	Screw		
	F15	Key cover		
	F18	Number plate		
	F19	Leather		
	F22	Mortplene		
	F23	Mortplene		
	F24	Key base plate		
	F25	Screw		
	H1A	Governor unit		
	H27	Set screw		
	J1A	Rewind shaft unit		
	J1	Sleeve		
	J2	Rewind shaft		
	J3	Click spring		
	J4A	Rewind knob unit		
	J5A	Rewind handle unit		
	J8	Pin		
	J9	Spring plate		

REF. NO.	PART NO.	PART NAME		REMARKS
	J10	Steel ball		
	J11	Set screw		
	J12	Interlock ring		
	J13A	Battery case unit		
	J15A	Battery case cap unit		
	J15	Battery case cap		
	J18	Coil spring		
	J19	Mercury cell		
	J20	Set screw		
	J21	Set screw		
	J31	Ring		
	J34	Screw		
	J36	Leaf spring		
	J37	Battery chamber seal		
	M1A	Counter unit		
	M8	Spring		
	M14	Spring		
	M15	Spring		
	M16A	Zero return lever unit		
	M18	Washer		
	M19	Spring		
	M20	Spring		
	M21A	Counter dial plate unit		
	M26	Set ring		
	M27	Column		
	M28	Index frame		
	M29	Screw		
	N1A	Mirror box unit		
	N5	Curtain start lever		
	N6	Screw		
	N7A	Lever		
	N10	Sleeve		

REF. NO.	PART NO.	PART NAME		REMARKS
	N11	Set screw		
	N13	Spring		
	N14A	Lens opening interlock lever unit		
	N20	Mirror stopper		
	N21	Screw		
	N23A	Mirror base unit		
	N22	Hinge		
	N28	Hinge shaft		
	N29	Screw		
	N30A	Lens opening plate unit		
	N32	Screw		
	N33	Screw		
	N34	Spring		
	N35	Insulating plate		
	N36	Switch contact		
	N37	Switch contact		
	N38	Plastic screw		
	N39	Synchronizer contact		
	N40	Insulating plate		
	N41	Synchronizer contact		
	N48	Set screw		
	N49	Light shielding curtain		
	N51	Lead wire		
	N52	Lead wire		
	P0A	Focal plane shutter unit		
	P1A	Shutter base plate unit		
	P6A	Clutch gear unit		
	P8A	Clutch plate unit		
	P8	Clutch plate		
	P9	Clutch gear		
	P10	Set screw		

REF. NO.	PART NO.	PART NAME		REMARKS
	P11	E - clip		
	P12	Shaft		
	P13	Set screw		
	P14A	After gear unit		
	P16A	Fore gear unit		
	P19	Stepped cam		
	P20	Set screw		
	P21A	Upper step cam unit		
	P22A	Stepped cam unit		
	P23	Cam plate		
	P24	Cam		
	P26	Screw		
	P29A	Stopper lever unit		
	P31	Stopper spring		
	P32	Spring		
	P34A	Kick lever unit		
	P37	Claw		
	P38	Claw spring		
	P39	Left hand screw		
	P42A	Lever unit		
	P43	Screw		
	P44	Spring		
	P48A	Stopper plate unit		
	P49	Insulating collar		
	P50	Washer		
	P51	Friction spring		
	P52	Screw		
	P53A	2nd blind unit		
	P56A	2nd blind drum unit		
	P58	Washer		
	P60	Washer		
	P61A	1st blind unit		

REF. NO.	PART NO.	PART NAME		REMARKS
	P63A	1st blind drum unit		
	P64	Roller		
	P65A	2nd blind roller shaft unit		
	P65	Roller shaft		
	P66	Bushing		
	P67A	Pipe unit		
	P69	Screw		
	P70	Roller		
	P72	Drum gear		
	P73	Spring pin		
	P74A	1st blind roller shaft unit		
	P74	Gear connecting shaft		
	P75	Drum		
	P76	Interlock gear		
	P77	Gear set screw		
	P80Aa	1st blind		
	P80Ab	2nd blind		
	P79	Ribbon		
	P81A	Lower side cam lever unit		
	P84	Collar		
	P85	Washer		
	P86	E - clip		
	P87	Cam lever		
	P88	Nut		
	P89A	Lower lever unit		
	P92A	Lever unit		
	P94	Release shaft		
	P96A	Shutter button shaft unit		
	P98	Shutter shaft release spring		
	P101	Insulating roller		
	P103	Spring		
	P104A	Synchronizer contact plate unit		

REF. NO.	PART NO.	PART NAME		REMARKS
	P104	Contact plate		
	P105	Insulating plate		
	P106	Stationary contact plate		
	P107	Contact plate		
	P108	Screw		
	P109	Collar		
	P110	Screw		
	P111	Screw		
	P112	Base plate fixture		
	P113	Set screw		
	P117	Mortplene		
	P122	Set screw		
	Q1A	Shutter resistor unit		
	Q12	Spring		
	Q13	Spring		
	Q14	Safety lever		
	Q15	Screw		
	Q16	Printed circuit board		
	Q16A	Printed circuit board unit		
	Q17A	Stopper plate unit		
	Q20A	Contact plate unit		
	Q24A	Click plate unit		
	Q26	Shaft screw		
	Q27	Spring		
	Q28	Set screw		
	Q29	Set screw		
	Q44	Cord		
	Q45	Cord		
	Q46	Cord		
	Q47	Cord		
	Q48	Photocell		
	Q49	Cord		

REF. NO.	PART NO.	PART NAME		REMARKS
	Q50	Resistor		
	Q51	Resistor		
	Q52	Cord		
	Q53	Cord		
	Q54	Cord		
	Q55	Cord		
	K1A	Amplifier unit		
	K1	Printed circuit board		
	K2	FET		
	K3	Semi - stationary resistor		
	K4	Stationary resistor		
	K5 - S1	Stationary resistor		
	K5 - S2	Stationary resistor		
	K5 - S3	Stationary resistor		
	K6	Copper wire		
	R1A	Meter complete		
	S1A	View finder glass unit		
	S1	Condenser case		
	S2	Cover		
	S3	Mask		
	S4	Condenser holder		
	S6	Spring		
	S7	Washer		
	S8	Set screw		
	S9A	Penta prism unit		
	S10A	Prism case unit		
	S11	View finder frame		
	S12	Prism protecting cover		
	S13	Prism holder		
	S14	Spring		
	S15	Mortplene		
	S17A	Photocell unit		

REF. NO.	PART NO.	PART NAME		REMARKS
	S17	Eyepiece lens case		
	S18	Screw		
	S19	Screw		
	S20A	Stopper core unit		
	S20	Stopper core		
	S21	Stopper		
	S22	Screw		
	S23	Screw		
	S24	Seat plate		
	SF48B-G1	Mirror		
	SF48B-G2	View finder glass		
	SF48B-G3	Condenser		
	SF48B-G4	Penta prism		
	SF48B-G5+G6	Eyepiece		
	T1A	Self - timer unit		
	T47	Set screw		

REF. NO.	PART NO.	PART NAME	REMARKS
	B61	Take - up lever	
	B63	Set screw	
	B69	Bottom cover	
	B70	Screw	
	D2	Lens board cover	
	D28	Self - timer lever	
	E1A	Top cover unit	
	E8	Screw	
	E12	Shutter dial	
	E15	Speed scale board	
	E17	Set screw	
	E24	ASA scale board	
	E26	Name plate	
	J4A	Rewind knob unit	
	J15A	Battery case cap unit	
	J15	Battery case cap	
	D1A	Lens mount unit	

Note:

- (1) All parts except for those mentioned above are identical with the parts for Chrome Model.
- (2) Be sure to specify "Black Model" when you order the aforementioned parts for Black Model from us.
In case "Black Model" is not stated, we shall deal with the parts as Chrome Model ones.

Fig. 10

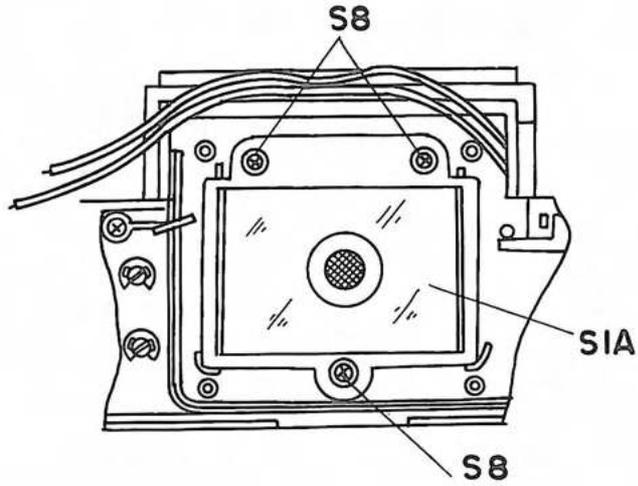


Fig. 11

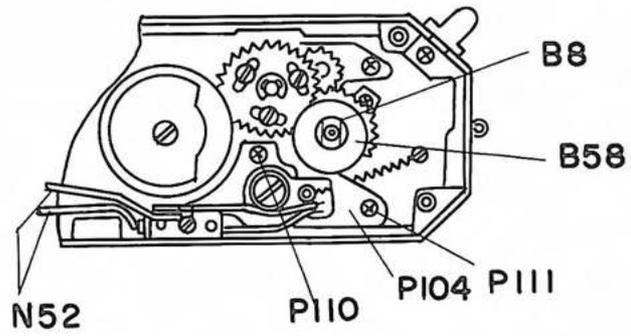
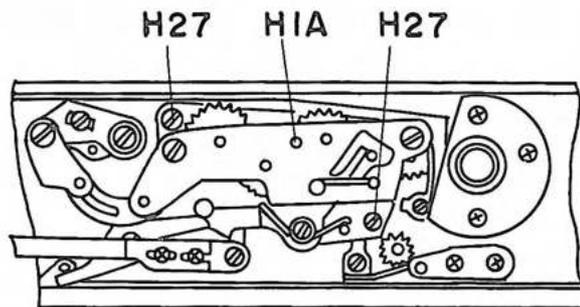


Fig. 12



13. Shutter (P0A)

- (1) Remove the top cover (E1A). (Fig. 1)
- (2) Remove the mount (D1A). (Fig. 2)
- (3) Remove the bottom cover (B69). (Fig. 3)
- (4) Remove the shutter resistor (Q1A). (Fig. 4)
- (5) Remove the film counter (M1A). (Fig. 5)
- (6) Remove the self-timer (T1A). (Fig. 6)
- (7) Remove the amplifier (K1A). (Fig. 7)
- (8) Remove the prism (S9A). (Fig. 8)
- (9) Remove the X-contact (P104A). (Fig. 11)
- (10) Loosen the set screw (B59), and remove the counter cam (B58). (Fig. 13)
Wind up the film advance shaft (B8) upto such an extent that a screw driver can be inserted. When the counter cam is removed, fully wind up the film advance shaft, return it to the original position, and release the shutter (by moving C51 with a screw driver).
- (11) Unhook one side of the expansion spring (P103). (The side hooked to the B64)
(Fig. 13)

PRECAUTION: Be careful not to weaken the coiled and hooked portions.

- (12) Remove E-clip (P11), and remove the gears (P8A and P6A). (Fig. 13)
- (13) Unsolder and disconnect lead wire (Q54) at the battery case (J13A) side. (Fig. 14)

Fig. 13

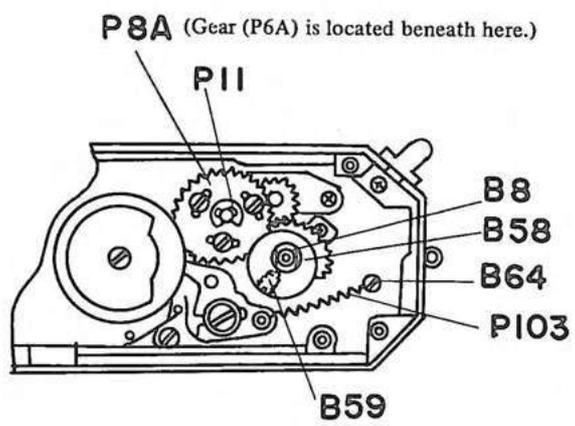
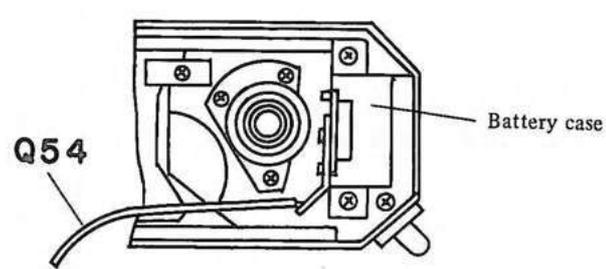


Fig. 14



(14) Unsolder and disconnect lead wires (two N52 and N51) at B79 and B80 sides.
(Fig. 15)

(15) Remove the set screw (B30), disconnect one end of the crank (B48A), and remove the rewind button (B54A). (Fig. 16)

PRECAUTION: Be careful not to lose the rewind button (B54A) return spring (B57).

(16) Remove set screw (C54), and remove the return spring (C55), after curtain brake lever (C56), mirror start lever (C51), and shaft (C52). (Fig. 16)

NOTE; The shaft (C52) is in between C51 and C56.

(17) Turn the shutter cam (P22A), and set shutter speed to 1/8 sec. (Fig. 17)

NOTE: When P87 is moved toward the arrow direction and reaches the deepest position, the shutter speed is set to 1/8 sec.

Fig. 15

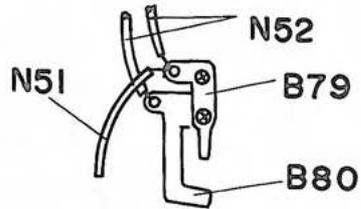
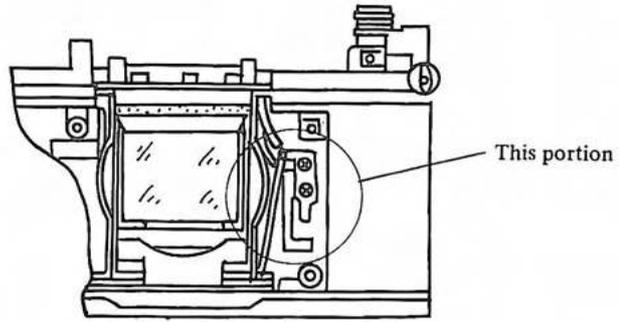


Fig. 16

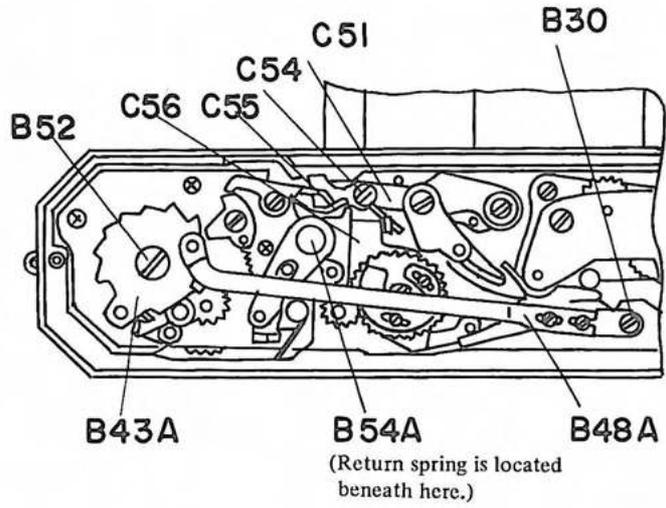
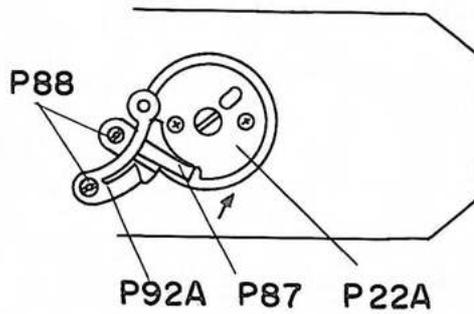


Fig. 17



(18) Remove four installation screws (P113), and remove the shutter (P0A) from the body (B1) upward. (Fig. 18)

NOTE: o Remove the holding plate (P112) and cord holder (B90) together with the installation screws (P113).

o Leave the Mortplene (B85) with the body side adhered on the shutter side.

13-1 Quick return mechanism (C1A)

(1) Remove the governor (H1A). (Fig. 12)

(2) Remove the set screw (P77), and remove the after curtain lower gear (P76). (Fig. 19)

(3) Remove two installation screws (C501), and remove two claws (C49). (Fig. 19)

(4) Remove two ratchet gears (P59).

NOTE: Left-handed thread

(5) Remove two installation screws (P88), and remove the lever (P92A) and slow speed interlock lever (P87). (Fig. 17)

(6) Remove two E-clips (P86). Remove washer (P85) if used. (Fig. 20)

(7) Unsolder and disconnect lead wire (NS1). (Fig. 19)

(8) Remove four installation screws (N48), and remove the quick return mechanism (C1A). (Fig. 19)

PRECAUTIONS: A washer (P58) may be used behind the plate in portion "A".

Be careful not to lose it. (Fig. 19)

Rollers (P64 and P70) are used behind the plates in portions "B" and "C" respectively. Be careful not lose them.

Fig. 18

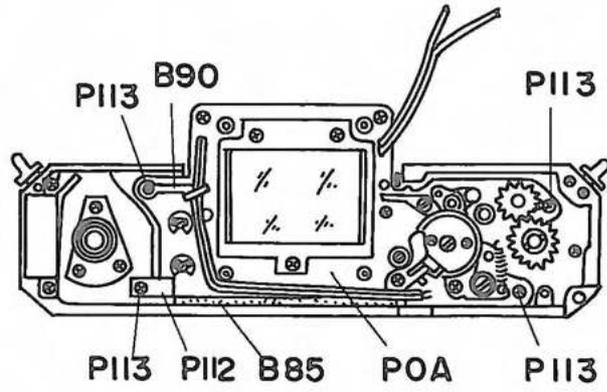


Fig. 19

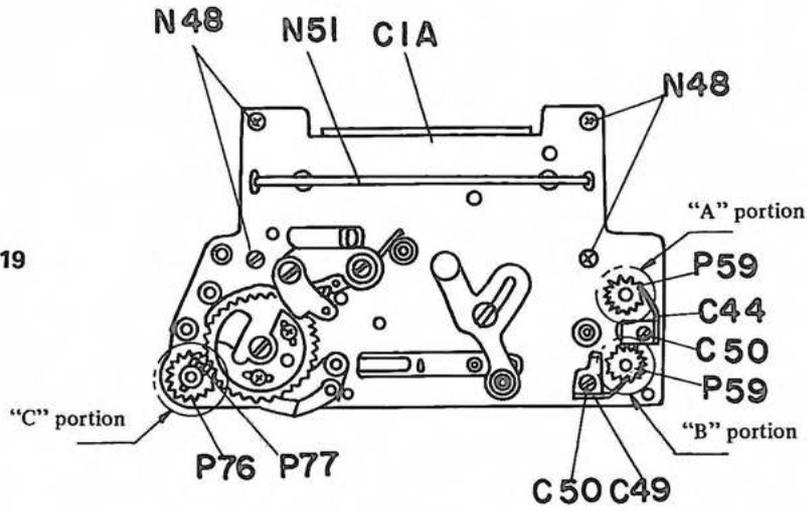
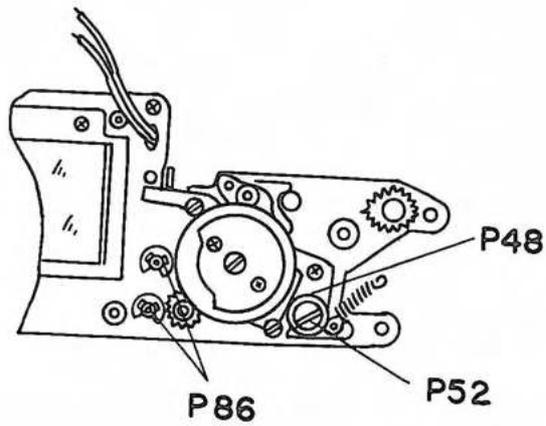


Fig. 20



A washer (P85) may have been used beneath here.

13-2 Reflecting mirror (N23A)

- (1) Remove viewfinder glass (S1A). (Fig. 10)
- (2) Remove the light shielding curtain (N49), three installation screws (N29), and reflecting mirror (N23A) in that order. (Fig. 21)

PRECAUTION: Return spring (N13) is hooked on the mirror. Unhook the return spring, and remove the mirror carefully.

13-3 Shutter fore curtain (P61A) and shutter after curtain (P53A)

- (1) Remove the set screw (P52), and remove fore curtain brake (P49A). (Fig. 20)
- (2) Remove the spring (P44) together with the installation screw (P43), and remove fore curtain brake pawl (P42A). (Fig. 22)
- (3) Remove the installation screw (P26), cam (P22A), kick lever (P34A), and kick lever spring (P32). (Fig. 22)
- (4) Remove the fore curtain gear (P16A). (The gear (P16A) exists beneath the cam (P22A). (Fig. 22)
- (5) Remove the after curtain gear (P14A). (Fig. 23)

NOTE: P29A and P37 may be removed. Note that P39 is threaded in left-hand.

- (6) Pull out two spring pins (P73), and remove two curtain shaft gears (P72).

PRECAUTION: When removing the spring pins (P73), be careful not to deform the shaft and shaft holder.

- (7) Remove the quick return mechanism (C1A). (Fig. 19 and 20)
- (8) Remove two E-clips (P60), and remove the fore curtain (P61A) and after curtain (P52A). (Fig. 24)

Fig. 21

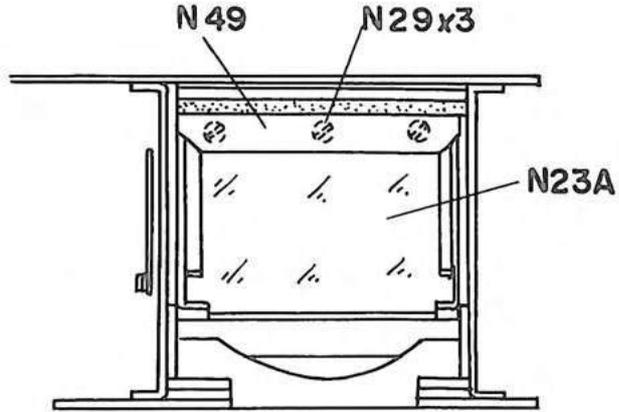


Fig. 22

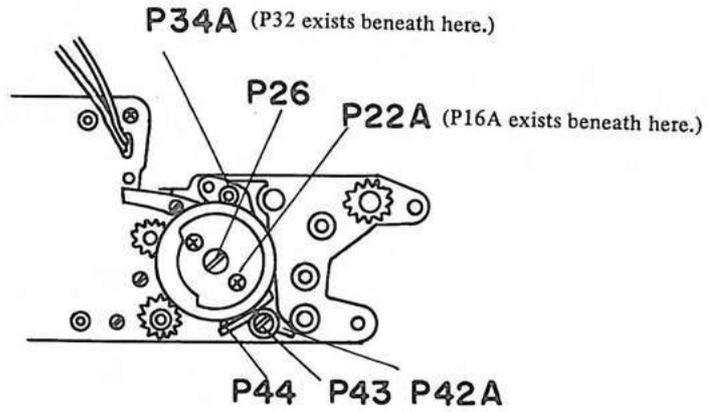
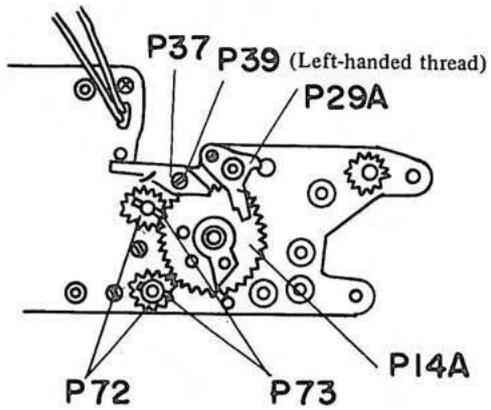


Fig. 23



13-4 Shutter plate (P1A)

- (1) Remove the parts as described in "13-3 (1) through (6)" above.
- (2) Remove the parts as described in "13-1 (6)" above.
- (3) Remove four installation screws (N48), and remove the shutter plate (P1A).
(Fig. 24)

13-5 Mirror box (N1A)

- (1) Remove the quick return mechanism (C1A). (Fig. 19 and 20)
- (2) Remove four installation screws (N48), and remove the mirror box (N1A).
(Fig. 24)

14. Film advance lower plate (B20A)

- (1) Remove the bottom cover (B69). (Fig. 3)
- (2) Remove set screw (B30). (Fig. 16)
- (3) Remove set screw (B52), and remove the ratchet (B43A). (Fig. 16)
- (4) Pull out the feeding gear (B41A). (Fig. 25)
- (5) Remove three installation screws (B29), remove two springs (B40), and remove rewind button (B54A) and plate (B20A). (Fig. 25)

15. Spool (B15A)

- (1) Remove the bottom cover (B69). (Fig. 3)
- (2) Remove the set screw (B30). (Fig. 16)
- (3) Remove set screw (B52), and remove the ratchet (B43A). Fig. 25)
- (4) Pull out the feed gear (B41A). (Fig. 25)
- (5) Remove the film advance lower plate (B20A). Fig. 25)
- (6) Pull out the collar (B19).

Fig. 24

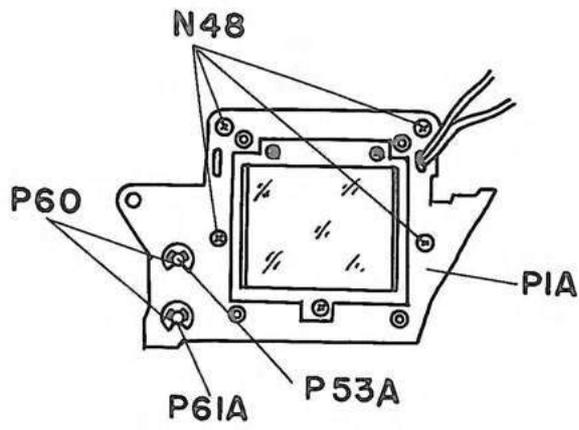


Fig. 25

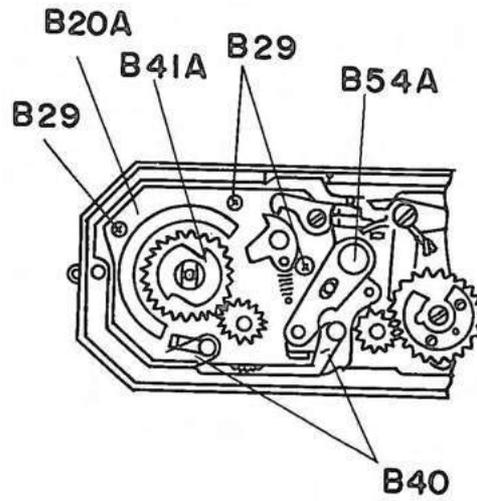
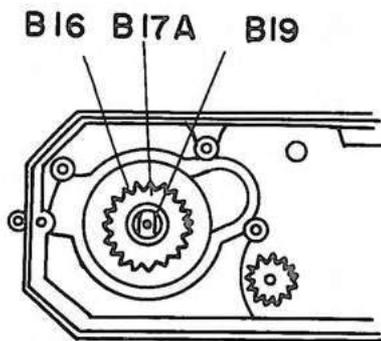


Fig. 26



(7) Tear off the adhered washer (B16), remove it together with the friction gear (B17A), and pull out the spool (B15A). (Fig. 26)

16. Sprocket (B2)

(1) Remove parts as described in "15 (1) through (5)" above.

(2) Open the rear cover, remove the installation screw (B7), pull out the gear shaft (B3A), compression spring (B5), and hollow shaft (B6), and remove the sprocket (B2). (Fig. 27)

17. Film advance shaft (B8A)

(1) Remove the top cover (E1A). (Fig. 1)

(2) Remove the shutter resistor (Q1A). (Fig. 4)

(3) Remove the film counter (M1A). (Fig. 5)

(4) Remove the X-contact (P104A). (Fig. 11)

(5) Remove the film counter cam (B58). (Fig. 13; See "13 (10)".)

(6) Remove the gears (P8A and P6A). (Fig. 13; See "13 (2)".)

(7) Remove the bottom cover (B69). (Fig. 3)

(8) Remove the set screw (B30). (Fig. 16)

(9) Remove set screw (B52), and remove the ratchet (B43A). (Fig. 16)

(10) Pull out the feed gear (B41A). (Fig. 25)

(11) Remove set screw (B13), and remove the gear (B12). (Fig. 28)

(12) Remove the film advance plate (B20A). (Fig. 25 and 26)

(13) Remove two installation screws (B11), and remove the film advance shaft (B8A) together with the shaft holder (B10). (Fig. 28)

Fig. 27

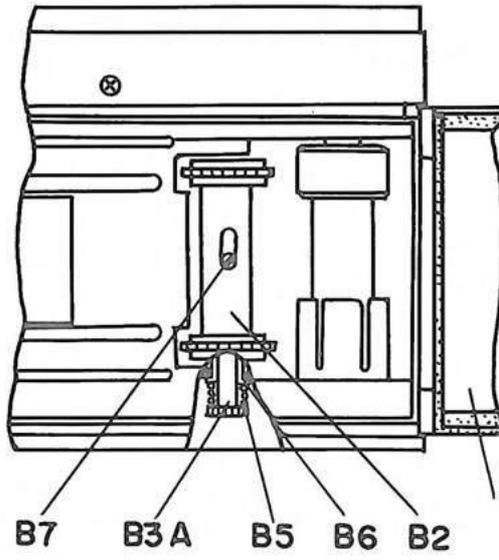
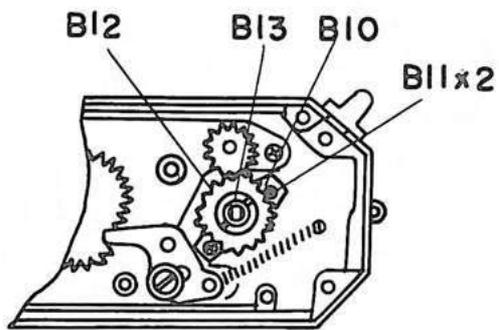


Fig. 28



II. REPAIR AND ADJUSTMENT

1. Film advancing system

1-1 Film is wound excessively; frame skips

- (a) When this trouble occurs due to reduced spool friction, replace the friction spring (B18) with a new one. Wind a string on 14 mm dia. portion of the spool and measure force required in pulling out. When this force is 220 to 450 grams, the condition is satisfactory. (Fig. 29)

NOTE: When the rewind release button is depressed before film is advanced to the end, same result as skipped frame occurs. In this case, however, the film is overlapped approximately 1/3 of a frame and perforation is not damaged. When checking, determine carefully whether the film is overlapped (perforation is not damaged) or not. This is not a trouble but is user's fault.

- (b) Check the spool chamber for foreign matter, and test film advancing and rewinding for smooth operation.
- (c) Check the sprocket (B2) teeth for deformation, and replace if any teeth are deformed.

1-2 Film idle feeding (double exposure)

- (a) When the sprocket (B2) reverse turn is excessive, idle feeding may occur. Remove the bottom cover (B69); open the rear cover; observing operation of the lever (B31) which controls film advance angle, operated the film advance lever; return the lever slowly at the minimum advancing angle (the lever (B31) disengages); turn the sprocket by hand before the advance lever is returned completely; hold the sprocket at that position; return the film advance lever further; and see if the feed pawl (B45) drops into the notch on the feed gear (B41A) before the lever (B31) arrives the minimum return position (at this position, film can be advanced as long as the shutter is released). If the feed pawl (B45) drops into the notch correctly, the condition is satisfactory.

If not drops in, idle feeding will occur frequency during actual operation.

(Fig. 30)

Fig. 29

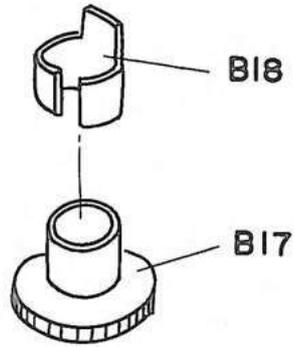


Fig. 30

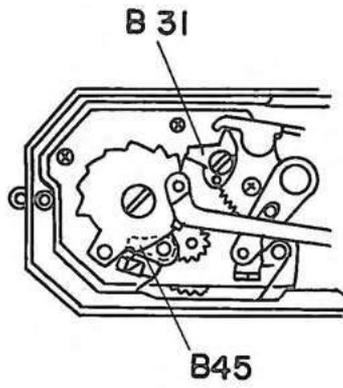
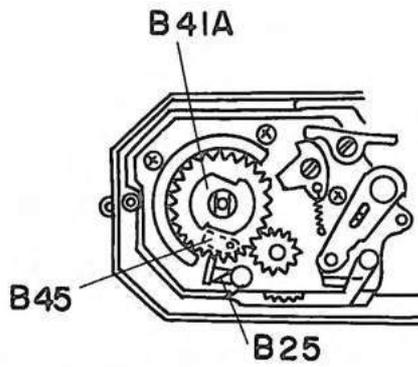


Fig. 31



- (b) Bend head of pawl (B25) properly so that reverse turn of the feed gear (B41) is reduced at the minimum advancing angle. (Fig. 32)
- (c) Upon completion of the adjustment, check the operation again in accordance with the instruction described in "1-2 (a)" above.

1-3 Film advance stop and advance release

- (a) Check that film cannot be advanced unless the shutter is released after advancing the film. Check also that the film can be advanced when the shutter is released.
- (b) When film stop cannot be made correctly, remove the bottom cover (B69), and bend "B" portion of the lever (B29) properly so that the lever (B31) engages the lever (B29) ("A" portion) when returning the film advance lever. In addition, with the shutter released, move the lever (B31) by hand, and insure that the "A" portion does not engage, (Fig. 33)

PRECAUTION: Be sure to check this operation after releasing the shutter.

If the shutter is not released completely, the operation cannot be checked correctly because the C56 operates largely.

1-4 Film advance lever operation

- (a) When the lever return spring does not work at all, the spring (B9) is weakened or broken. Replace the film take shaft (B8A).
(Refer to "I-17 - Removal of film advance shaft (B8A)" above.)
- (b) When the lever does not return unless the lever is depressed hard, setting of the shutter curtain is excessive. Adjust setting of the shutter curtain.
(See Fig. 34 and "4-5" below.)

PRECAUTION: Be careful not to reduce setting of shutter curtain below the correct position. The shutter curtain should be set at the minimum advancing angle.

Fig. 32

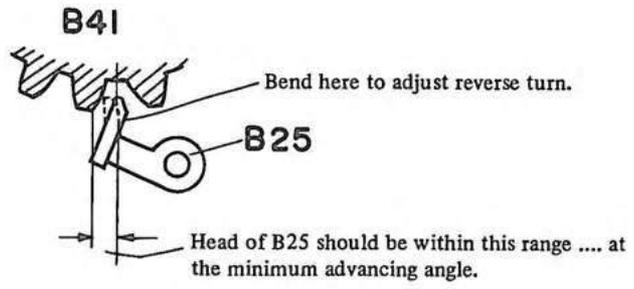


Fig. 33

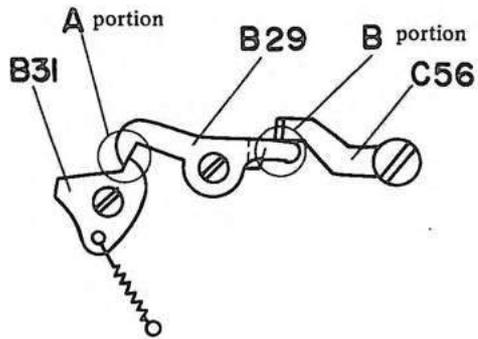
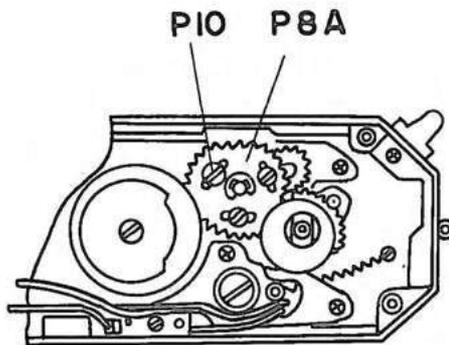


Fig. 34



Setting of the shutter curtain is adjusted by loosening three set screws (P10) after removing the top cover (E1A), shutter resistor (Q1A), and film counter (M1A). Adjust position of P8A. This trouble occurs also when square portion of the film advance shaft (B8) does not fit the square hole on the ratchet plate (B43) tightly. In this case, properly collapse circumference of the square hole on the ratchet plate to fit the shaft tightly or replace the parts.

- (c) When it feels that the film advance lever slightly hooks against something at final stage of the return stroke, the quick return mechanism setting is insufficient. In this case, increase the setting slightly. Loosen the set screw (B50), and increase setting of the quick return mechanism within range of the longitudinal opening. (Fig. 35)
- (d) Film should not be advanced with the shutter button depressed.

NOTE: This operation can be checked with the top cover installed on the main body.

- (1) When the release shaft (P96A) is depressed, head of the lever (Q14) enters notched portion of the ring (B75), and the film advance lever cannot be operated. The film advance lever can be operated when returned.
- (2) When the film advance lever is operated, head of the lever (Q7) enters notched portion of the release shaft (P96A), and the release shaft cannot be depressed. The release shaft can be depressed when returned.

Properly bend the levers (Q7 and Q14) so that the above operations (1) and (2) are performed satisfactorily. (Fig. 36)

1-5 Operation of rewind release button

When the release button is depressed by hand, the button is locked with the button depressed, the sprocket gear disengages, the sprocket is freed, and when the film advance lever is operated, the button resets and the sprocket gear engages. (Fig. 37)

Fig. 35

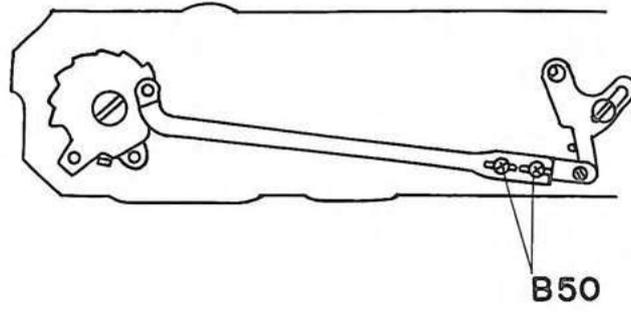


Fig. 36

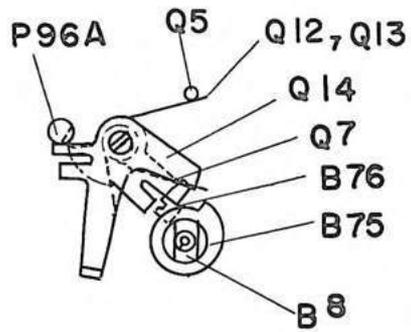
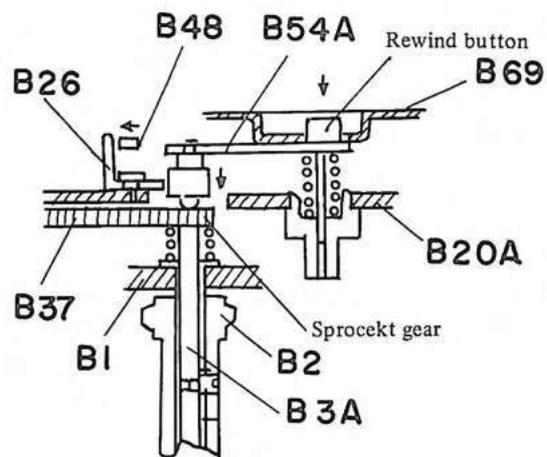


Fig. 37



- (a) When the button does not reset correctly, check if the lock lever (B26) unlocks at an intermediate portion of the crank (B48) while advancing. (Fig. 38)
- (b) See if the rewind button does not come into contact with circumference of the hole on the bottom cover (B69). If it is in contact, slightly turn and adjust it by utilizing eccentricity of the button (B56).
- (c) When the button is depressed and the lock lever does not lock, see if "A" portion of B54A is not bent as illustrated in Fig. 39.
Replace, if bent. Moreover, see if the lock lever (B26) return spring is not unhooked.

2. Film counter system

2-1 Feeding of counter

- (a) When the feed pawl does not operate, see if the feed cam (B58) setting is not loose and the cam is not idling. If idling, retighten the set screw (B59), and tightly fit the cam (B58) to the shaft (B8). (Fig. 40 and 41)
In addition, check to see the feed pawl return spring is not unhooked.
When counter gear tooth is bent and feed pawl does not return smoothly, correct such bending so that the feed pawl returns smoothly.
- (b) Check to see if the zero return lever (M16) runs away from the feed pawl reverse stop pawl completely when the rear cover is closed. If not, adjust by bending the portion where the zero return lever (M16) comes into contact with the rear cover.
- (c) Bend and adjust rising portion of the feed pawl so that film is advanced correctly one frame by one frame.

NOTE: The feed pawl should hook with the reverse stop pawl when lever is returned slightly.

Fig. 38

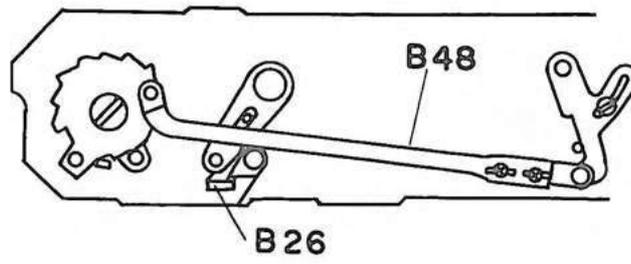


Fig. 39

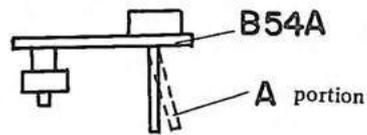


Fig. 40

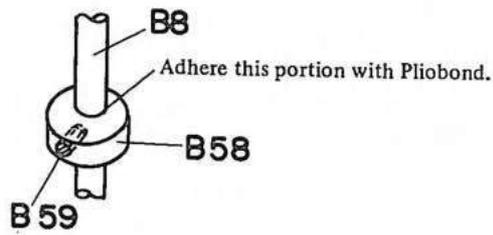
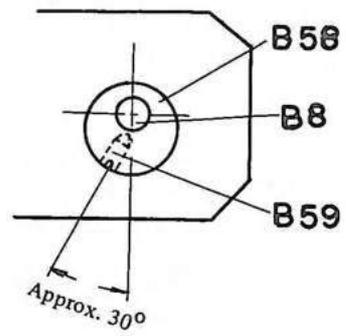


Fig. 41



2-2 Zero reset of dial

- (a) Check to see if the zero rest lever is interlocked with opening and closing of the rear cover, correcting operating the feed pawl and reverse stop pawl.

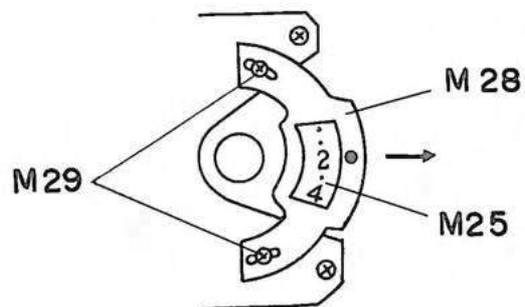
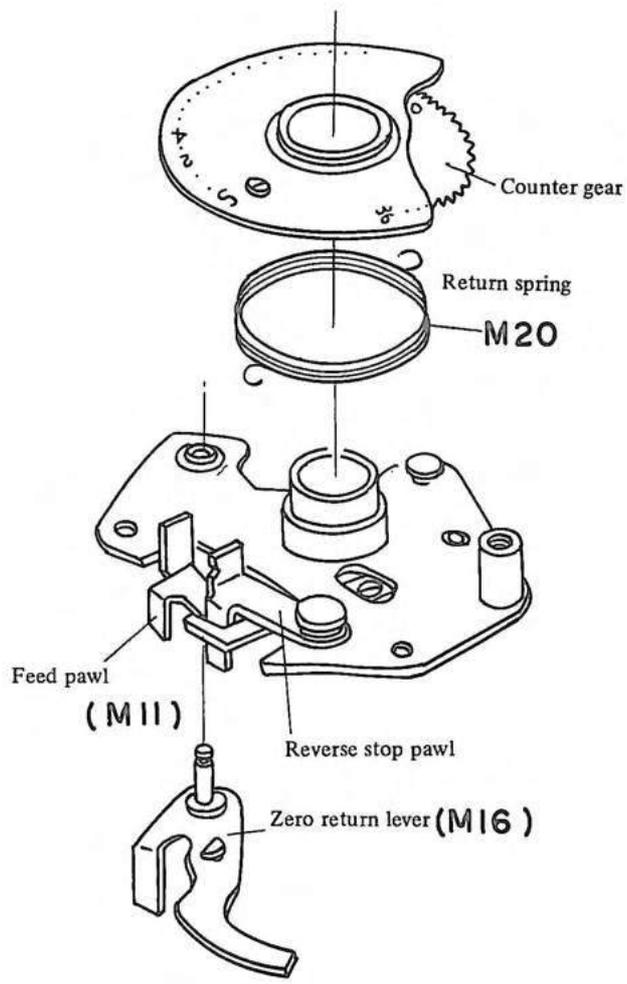
NOTE: When the operation ceases in a middle, strengthen the spring or smooth hooked portion.

- (b) When the zero return spring is weakened, repair or replace.
- (c) With the zero return spring (M20) unused, check to see if it turns lightly.

2-3 Dial scale and index

- (a) When a count indicated on the dial is deviated from actual count, with the dial plate (M25) fed two to three frames, loosen the set screw (M29), move the index plate (M28), and coincide it with the counter scale. (Fig. 42)
In addition, check the window and dial for their positions, and adjust if deviated. When adjusting, particularly, be careful not to move the index plate (M28) excessively toward the direction indicated by arrow mark in the Fig. 42. The movement should be limited to such an extent that circumference of the dial can be seen when observing if from a point 30° left upper from the dial surface.

Fig. 42



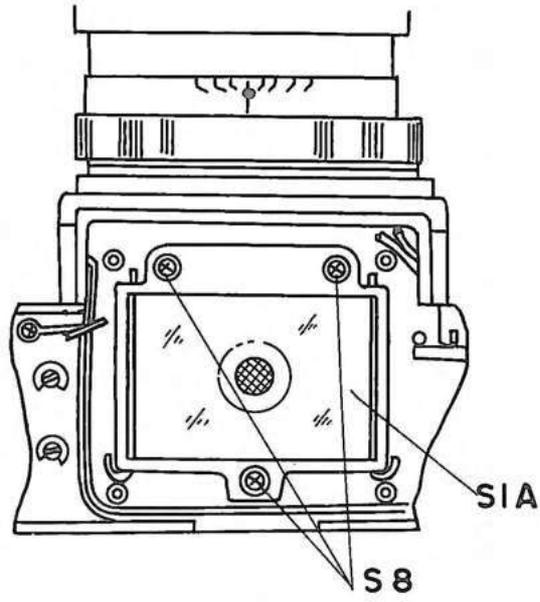
3. Viewfinder

3-1 Coincidence of focus and "inf."

- (a) When a lens barrel (the flange back (45, 45) of which should be accurate) is installed, distance is set to "inf.", and an objective in infinite distance is observed, disorder of micro-prism should not be observed. A slightly excessive disorder may be permissible. However, when it is insufficient or noticeably excessive, remove the prism (S9A) and adjust position of the view finder glass (S1A). Moreover, when an auto-collimator is available, adjust it within ± 0.02 of infinity position. When adjusting, fully tighten three adjust (S8) once and return them evenly. Upon completion of adjustment, install the prism (S9A), and check focus position again.

NOTE: When adjusting at the external dimensions, do not coincide through the window glass. It may be permissible if the glass is parallel flat glass. When coincidence of infinity is correct and focus is incorrect, check the lens burrel and main body of camera for their flange backs.

Fig. 43



3-2 Parallax

- (a) Place a base plate on stage of an auto-collimator (Gokosha Model 24LT-2D), and install a parallelism mirror (KL35A A0-GA1). Next, with the parallax adjust ring, coincide the parallax to the ring image. Further, turn the base plate parallelism adjust knob (X3) so as to overlap center of the ring image on center of chart image, and correctly obtain parallelism on the base plate (90° against light axis). (Fig. 44)
- (b) Replace the parallelism mirror (KL35A AO-GA1) with a block gauge (KL46A AO-GA1), and install the camera body as shown in Fig. 44. Next, check the chart image to insure that the reflecting mirror in the camera body is correctly set in 90° against light axis.
- (c) When center of parallax adjusting ring image is deviated from center of chart image, adjust angle of reflecting mirror (N23A). Remove the top cover (E1A), shutter resistor (Q1A), amplifier (K1A), prism (S9A), and finder glass (S1A), and adjust by loosening three set screw (N29). (Fig. 45)

NOTE: $25'$ against horizontal line

- (d) Adjust 45° of the reflecting mirror (N23A).

Loosen the set screw (N21), and proper turn the eccentric stopper (N20).

NOTE: When reflecting mirror angle is adjusted, be sure to adjust 45° also.

When only 45° is adjusted, it is not necessary to adjust reflecting mirror angle.

Fig. 44

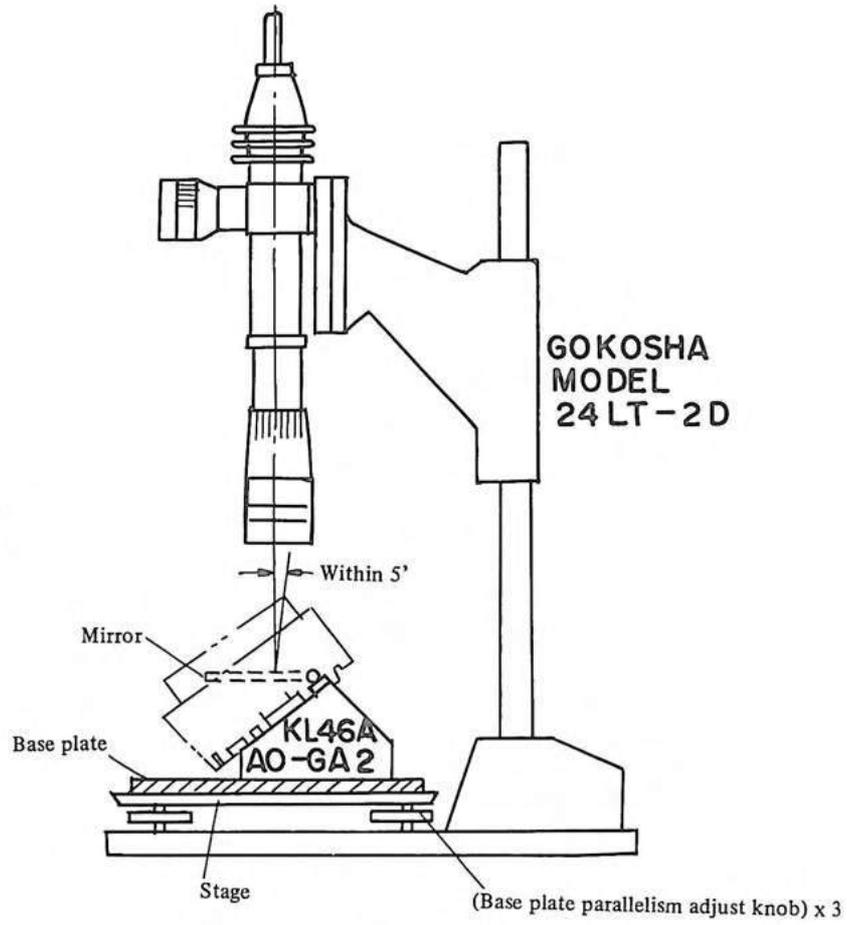
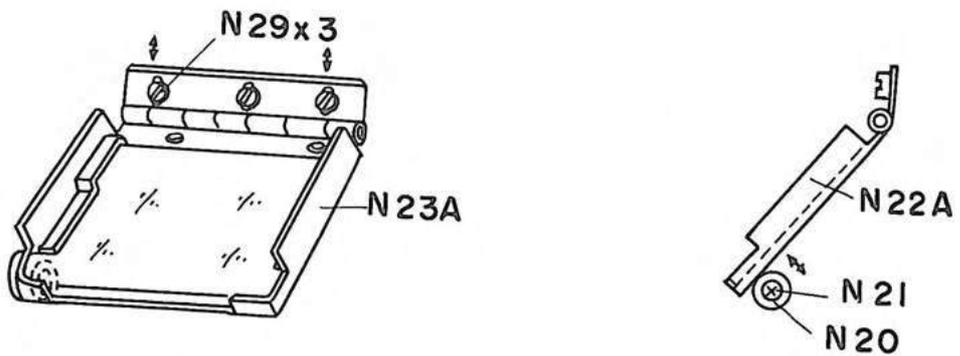


Fig. 45



3-3 Vignetting in field of view

When a vignetting exists in the field of view due to damaged ridge of prism (G4) or defective prism, replace the prism with a new one.

3-4 Cross-view (Direction of visually seen object is deviated from direction of view finder field of view.)

When cross-view is excessive (10 cm or more per 5 meters), adjust number of spacers (S24) beneath the eyepiece (G5 and G6). (Fig. 46)

When cross-view cannot be adjusted by adjusting number of spacers, replace the prism with a new one.

PRECAUTION: Do not use three or more sheets of space (S24).

3-5 Dust, scar, crack or contamination

- (a) When "A" portion is dusty or contaminated, it can be cleaned only removing eyepiece (E4A) and lens barrel. (Fig. 47)

NOTE: Dust in "A" portion will blur. Blow them off by the use of a blower.

- (b) When "B" portion is contaminated, remove the top cover (E1A), shutter resistor (Q1A) and amplifier (K1A), remove the prism (S9A) and photocell (S17A), and clean. Check "B" portion particularly carefully because dust is easily accumulated therein. (Fig. 47)

- (c) Remove dust from "C" portion after removing the viewfinder glass.

- (d) When cracked or scar affects the appearance seriously, replace.

NOTE: Lens of the viewfinder is made of acrylic acid resin. Do not use other than alcohol or ether alcohol.

3-6 Image tilting

When image in field of view of the viewfinder is tilted more than $1^{\circ} 30'$, replace the prism (SF48B-G4) with a new one.

Fig. 46

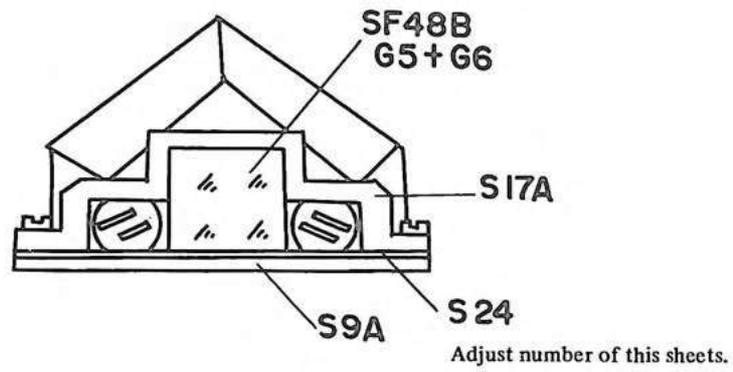
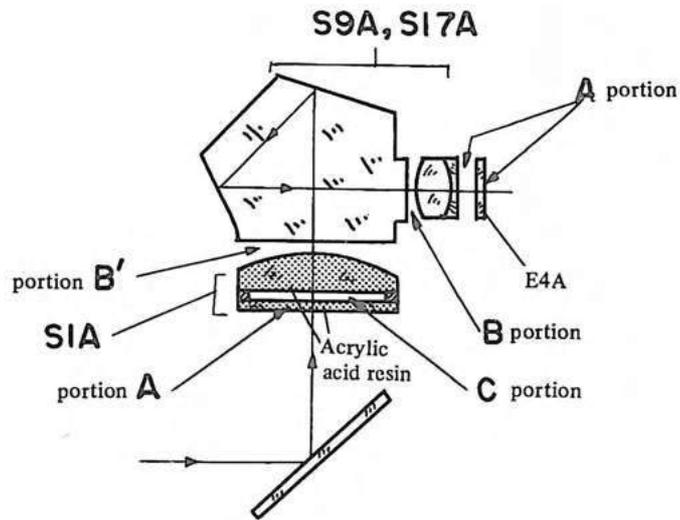


Fig. 47



4. Shutter system

4-1 Shutter speed

- (a) To adjust high speed side from 1/1000 sec. to 1/60 sec., remove the top cover (E1A) and shutter resistor (Q1A).

NOTE: For the operation, refer to Fig. 84.

- (1) Checking after curtain start lever (P34A) for engaging position and its adjustment

When the gap shown in Fig. 48 (0.3 or less) is excessive, shutter speed increases. Contrarily, when the gap is insufficient, shutter speed reduced. Turn the eccentric pin (P30) and adjust gap correctly. (Fig. 48)

Set the shutter to "1/1000 sec." (the after curtain start lever (P34A) is lowered to the bottom), wind up the lever, and with the eccentric pin (P30), adjust gap between the after curtain start lever (P34A) and stepped cam (P19). Upon completion of adjustment, operate the shutter two to three times, and insure that the gap is correct.

NOTE: When the eccentric pin is not sufficiently caulked, replace. (See Fig. 23.) At shutter speed "1/1000 sec.", check height of lever (F34A) against the stepped cam (P19), and adjust if required. The lever is weak. Be careful not to break it down. (Fig. 49 and 50)

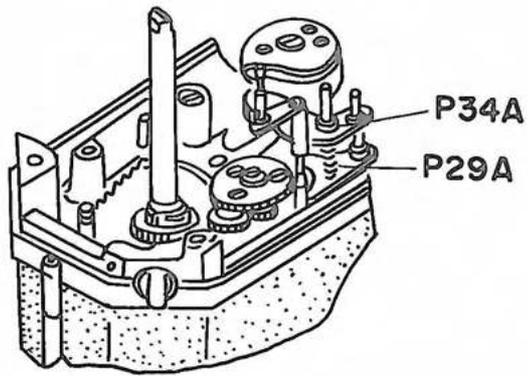


Fig. 48

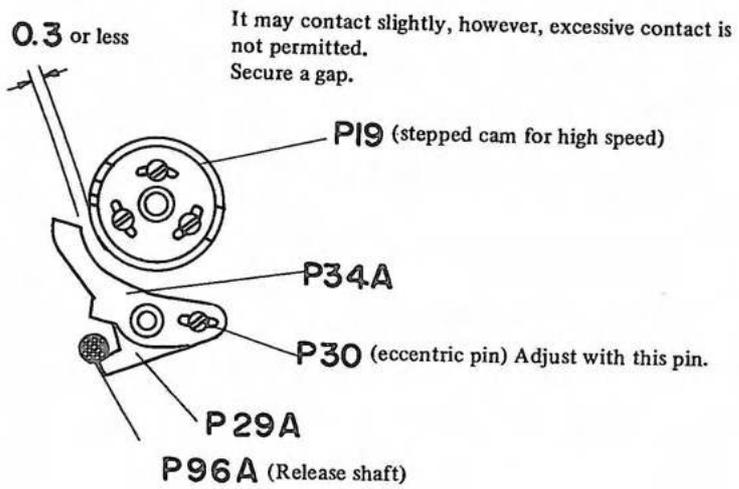
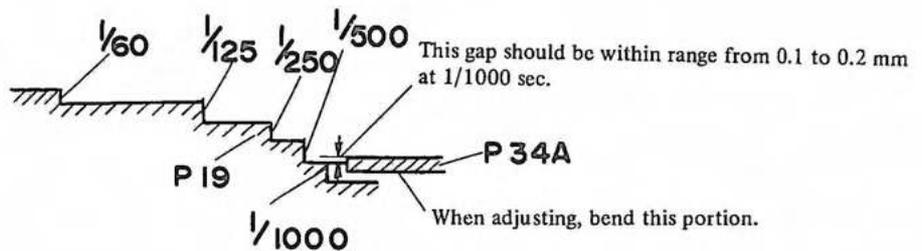
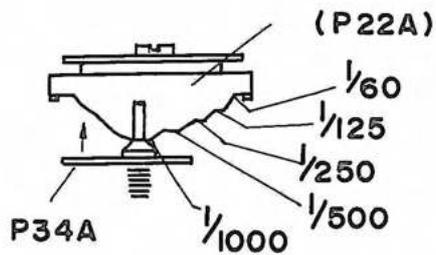


Fig. 49



(2) Adjusting position of high speed cam (P19)

This is the main 1/1000 sec. adjusting method.

With the curtain set completely (with the lever wound up), remove the cam (P23A), loosen three stepped cam set screws (P20), and adjust by moving the cam (P19) within range of the long hole. Install the cam (P22A), measure, and repeat the above adjustment until the rated value (0.85 to 1.15) is obtained. (Fig. 50)

NOTE: 1/1000 adjustment cannot be made unless the curtain speed is correctly adjusted. (See 4-2 - Exposure unbalance.)

When adjusting, remove the governor (H1A) and low speed interlock lever (C41A).

When shutter speed is too long, reduce Ax.

When shutter speed is too short, increase Ax.

Adjustment should be made very finely because even a fine adjustment shutter speed changes greatly.

(3) 1/500 sec. through 1/60 sec. are only checked. However, the rated value cannot be obtained within this range, the stepped cam (P19) must be replaced.

(b) Adjustment at low speed side from 1/30 sec. to 1/1 sec.

(1) Set the shutter dial to "1/30 sec.", remove the bottom cover, and finely adjust engagement of the oscillating plate (C46) with the eccentric pin (C45) so that "1/30 sec." falls within 30 to 36 ms. (Fig. 51)

When adjustment cannot be made with the eccentric pin (C45), remove the top cover (E1A) and shutter resistor (Q1A), bend the lever (P87), and adjust in coarse within the range in which adjustment can be made with the eccentric pin (C45). (Fig. 52)

Fig. 50

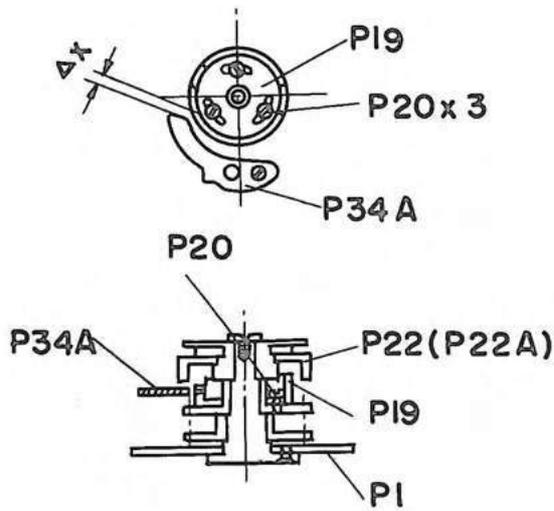
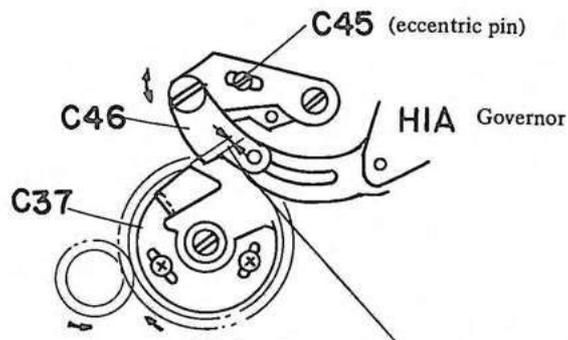
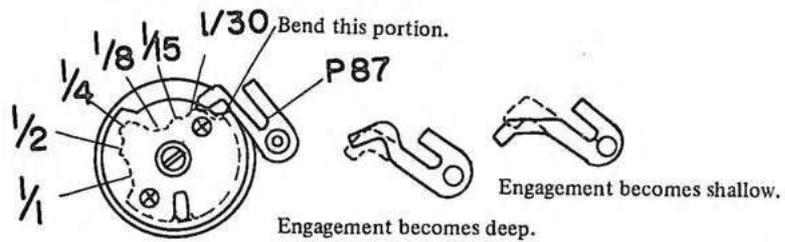


Fig. 51



Finely adjust engagement with the eccentric pin (C45). (1/30 sec.) Speed increases when engagement is increased.

Fig. 52



The position where head of the lever (P87) contacts indicate the shutter speed at that time. This figure shows position of 1/30 sec.

- (2) Checking for 1/15 through 1/1 sec. Shutter speeds at the individual settings should be within the rated values. However, for "1/4 sec.", the deviation should be within 213 to 288 ms. The standard is 250 ms.
- (3) When any one of 1.4 through 1/1 sec. is deviated from the rated value, adjust engagement of ankle (H12) (Fig. 53) or change position of pawl (C37) (Fig. 54). Stage variation against 1.30, 1/15 and 1/8 sec. can be adjusted.

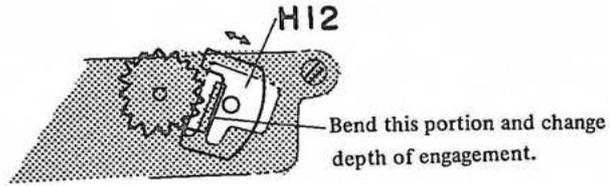
NOTE: When position of the pawl (C37) is changed, readjust "1/30 sec.". When 1/15 or 1/8 is too long or too short, adjust it also by changing position of the pawl C37.

- (4) When governor (H1A) operating system is normal and adjustment still cannot be made as described above, replace the governor (H1A) or low speed interlock lever (C41A) with a new one. Refer to "4-12" below.
- (c) When shutter opens (like "B") at 1/60 or 1/1 sec., check P34A and P19 (shown in the Fig. 48 and 49) for their relation. If their relation is incorrect, adjust. When relative position between P34A and P19 is adjusted, check the shutter for 1/1000 sec., and readjust as required.

4-2 Exposure unbalance

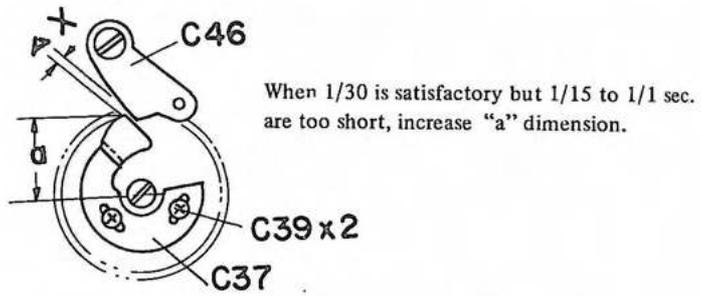
- (a) Exposure unbalance is a problem particularly at 1/1000 and 1/500 sec. In the most cases, speed of fore curtain considerably differs from that of after curtain. Readjust curtain speeds. (Fig. 55)
- (b) When the prism (S9A) has been removed, adjustments shown in Fig. 55 and 56 may be combined.

Fig. 53



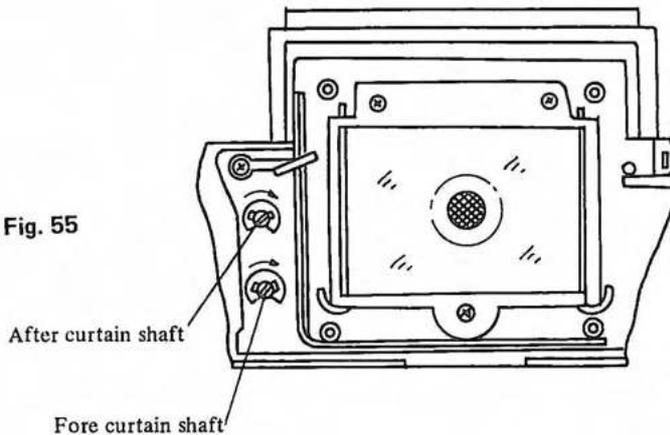
When "a" dimension is reduced, shutter speeds 1/15 through 1/1 are reduced. When increased, shutter speeds are increased. Be sure to adjust 1/30 sec. whenever "a" dimension is adjusted.

Fig. 54



When adjusting, crank (B48A) is removed, however exercise care for x . 0 to 0.3. However, the pawl (C37) should not come into contact with the eccentric pin (C45) although it is pushed in a stroke equivalent to gear backlash.

Fig. 55



When the shafts are turned to the arrow direction, curtain speed increases.

4-3 Shutter curtain bounds

The shutter curtain may bound back to picture frame due to reaction after normal operation. When the fore curtain bounds, exposure is reduced as much as the curtain bounds. When the after curtain bounds, exposure is repeated and exposure is increased as much as the curtain bounds.

With a shutter tester, measure exposure at picture edge in the camera rewind side. In the case of fore curtain, exposure time at the rear end decreases. and in the case of after curtain, exposure time at the rear end increases.

- (a) For fore curtain bound, the spring (P103) may be weakened or deformed. Check and repair or replace. (Fig. 56)
- (b) For after curtain bound, the spring (C55) may be weakened or deformed. Check and repair or replace. (Fig. 58)

PRECAUTION: Be sure to reinspect when repaired.

- (c) For both the fore and after curtains, when the springs are normal, replace the fore curtain brake parts (P48A and P42A) and after curtain brake (C56) with new ones, and see if they operate correctly. (Fig. 57 and 58)
- (d) When both the fore and after curtains cannot be corrected as described in (a) through (c) above, curtain set positions may have been deviated. If deviated, remove the shutter (POA) and readjust it. Select one out of three types of after curtain gear (P14A) properly so that curtain setting position enters range of 3.5 to 4 mm from the mask end. In relation to this adjustment, select a proper fore curtain gear (P16A) from three types so that deviation between the after curtain fitting and fore curtain fitting is within range from 0 to 0.8 mm. (Fig. 60)

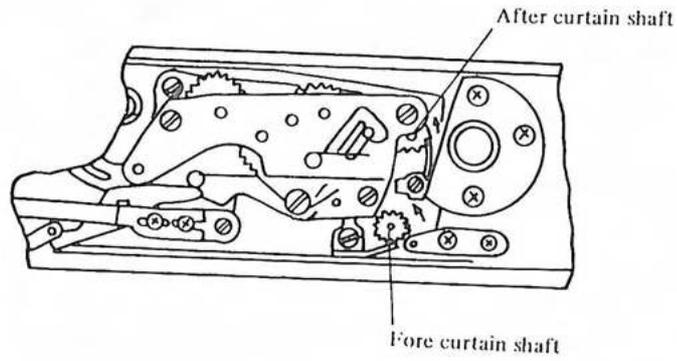
NOTE: Extra curtain windings are as follows:

Fore curtain: 3-1/2

After curtain: 1-1/2

Three types of gear mentioned above have different pawl or pin positions against tooth position.

Fig. 56



When the shafts are turned to the arrow direction, curtain speed increases. Release reverse stop spring, and turn both fore and after curtain shafts one to three teeth clockwise. Curtain speed can be reduced.

Fig. 57

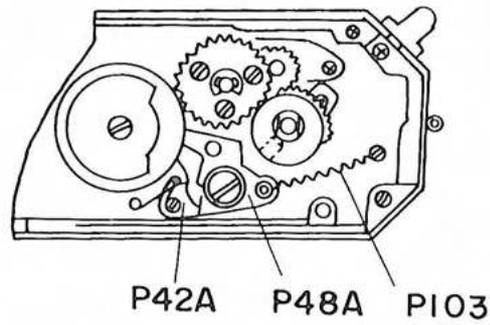
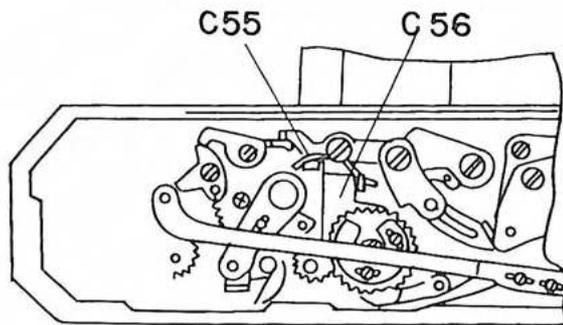


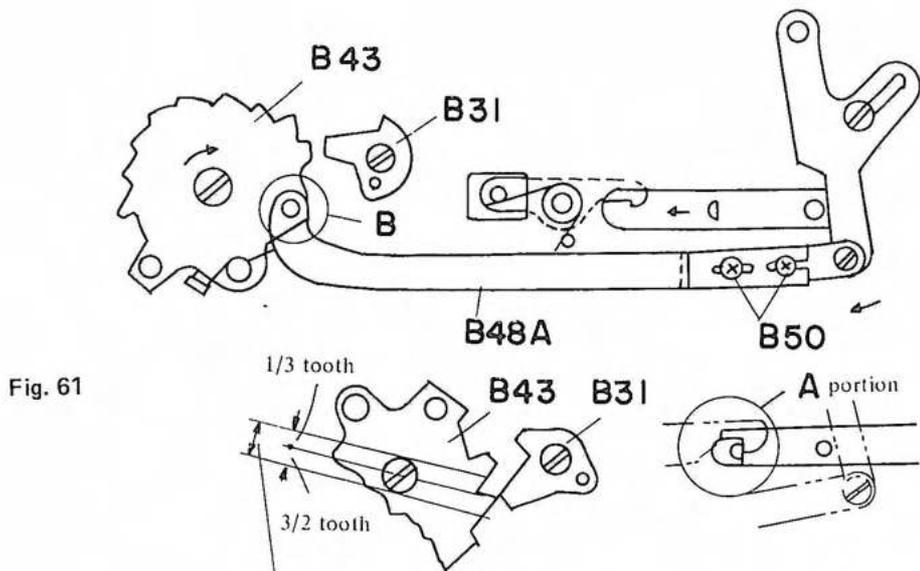
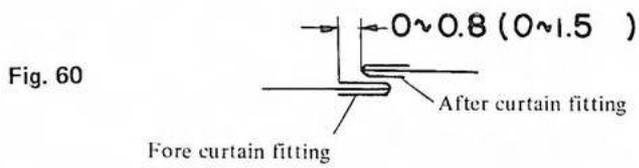
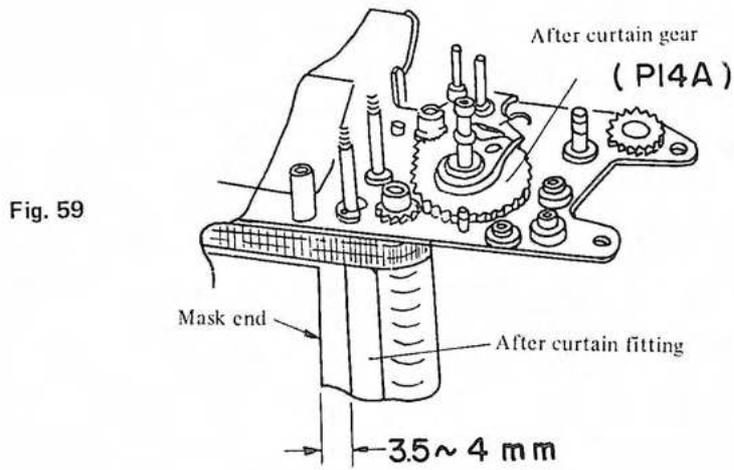
Fig. 58



The deviation range "0 to 0.8 mm" mentioned above may be expanded to "0 to 1.5 mm" if no other parts are affected.

4-4 Quick return mechanism setting

- (a) Remove the bottom cover, and operate the film advance lever to wind up the shutter curtain. When "A" portion engages, check relative position of tooth of B43 and head of B31. If this relative position is in the range illustrated in Fig. 61, and condition is satisfactory. For correct setting, recommend setting be adjusted slightly excessively. Loosen the set screw (B50), and adjust length of crank lever (B48A). (Fig. 61)
- (b) When the shaft shown in "B" portion is worn and B48A is loose, replace and adjust setting. (Fig. 61)



When "A" portion engages and angle of head of B31 is within this range, the condition is satisfactory.

4-5 Shutter curtain setting

- (a) As the film advance lever is wound up, the shutter curtain is wound through gears, and the curtain is set at the predetermined position. (Fig. 62) Curtain setting value can be adjusted by making the gear (P8A) in this gear train to a double gear and by installing a clutch pawl.
- (b) In Fig. 63, when film advance lever is wound up, the position where the pin of P16A hooks the P37 is the correct setting position. ("A" portion).
Loosen screws (P10) of the P8A, change relative positions of the clutch pawl and gear, and adjust setting value. When the portion "A" of the Fig. 63 engages, and relative position of film advance lever winding angle control lever (B31) is in condition illustrated in Fig. 64, the setting value is correct.
- (c) When adjustment cannot be made as described in (b) above, change meshing between P8A and P16A. Pull out the gear (P8A), and change meshing. (This will change relative positions between recess of P6A and pawl of P8A.)
(Fig. 65)

Fig. 62

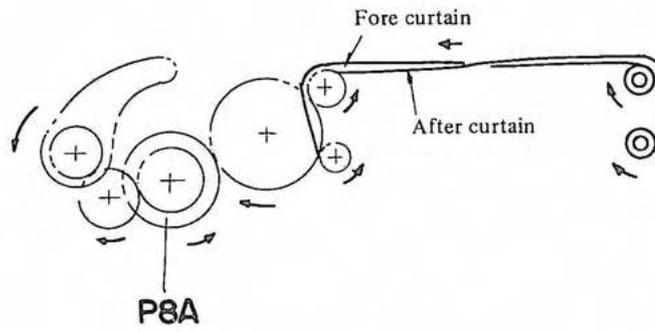


Fig. 63

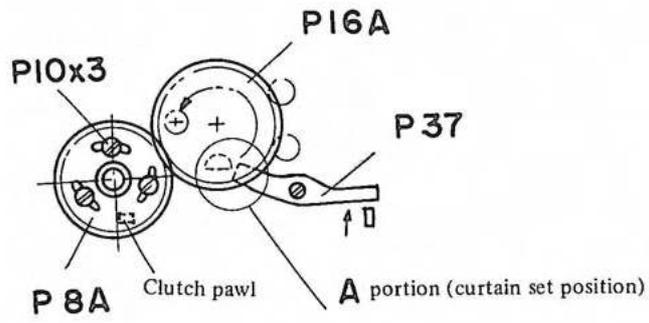


Fig. 64

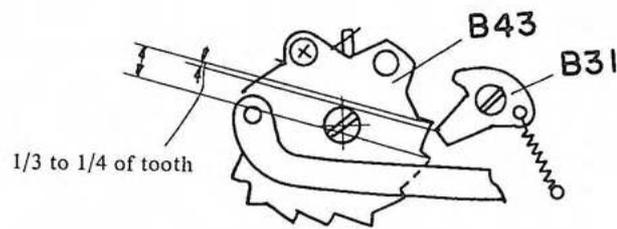
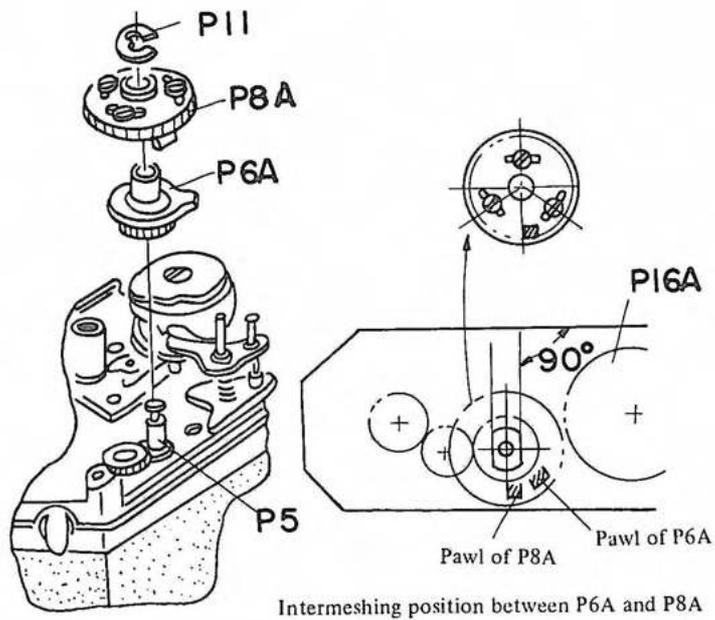


Fig. 65



(At winding up position for curtain; and at return position for wind up shaft)

4-6 Operation of shutter curtain

- (a) When the film advance lever is wound and returned and the shutter curtain also returns simultaneously to a middle, the setting of curtain is improper.

(See Fig. 66 and "4-5" above.)

- (b) When shutter is released, the mirror is lifted continuously and the curtain does not run, the fore curtain fitting may have been overlapped on the after curtain fitting and they may stop at the curtain set side. (Fig. 67)

In this case, insert fingers into the mirror box and behind the rear cover, pull the curtain, and allow the curtain running.

- (1) Check the curtain (fore curtain) for bound, and repair is it bounds.

(See "4-3" above.)

- (2) When curtain positions are deviated:

When overlap of curtain fitting is excessive, readjust.

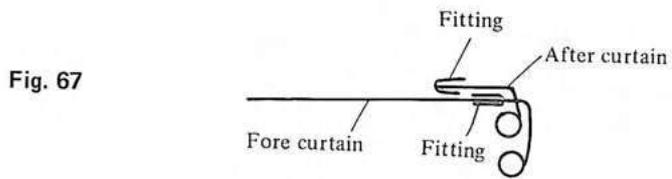
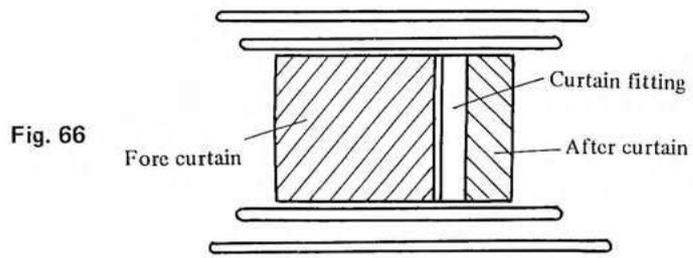
(See "4-3(d)" above.)

- (c) When the curtain fitting is tilted and curtain is excessively loose, the curtain ribbon must have disengaged from the roller or the roller or drum must be come off. Secure the roller or drum with adhesive, engage the ribbon on the foller, or replace the curtain.

NOTE: When the ribbon is disengaged from the roller at only one side, the ribbon can be engaged only by removing the auto-timer. However, when the curtain or ribbon is peeled off, the shutter (POA) must be removed.

- (d) The standard curtain speed should be 12 ms (at 1/1000 sec. shutter speed) at gap of slit of measuring instrument (32 mm). When difference in speed between fore curtain and after curtain is approximately 0.1 ms, the condition may be acceptable. However, when difference exceeds 0.3 ms., exposure unbalance will occur. Less the difference may be, the better result can be obtained.

(See "4-2" above.)



4-7 Operation of quick return mechanism

See the Fig. 68. In this figure, the film advance lever is wound and the quick return mechanism is set. In this condition, the pin (C27) caulked on the interlock plate (C26) hooks on the hook (C10), and the springs (C31 and C30) are pulled.

- (a) When the film advance lever is returned, the crank lever (B48) returns to the arrow direction. Thus, preparation for photographing completes.
- (b) When the shutter button is depressed, the rod (P94) moves to the arrow direction, the lever (C51) is moved to the arrow direction, and it disengages from the pin (C24) caulked on the interlock plate (C23). Then, the interlock plate (C23) is moved to the arrow direction by the spring (C31). In this stage, the interlock plate (C23) pulls the lever (C14) and spring (C32), and the spring (C32) operates the lever (C17). The lever (C17) moves the plate (N30) to the arrow direction. Lens opening pin in the lens barrel is depressed

The lever (C14) operates the lever (N7), the reflecting mirror (N23A) is kicked up, and the shutter start lever (N5) is operated simultaneously.

- (c) With the lever (N5), the shutter curtain operates, and as the after curtain operates, the gears (P76 and C36) turn. With the pin attached on the gear (C36), the hook (C10) is moved to the arrow direction, engagement with the pin (C27) is released, and the interlock plates (C23 and C26) return to the original position by the spring (C30). Now, the lever (C14) runs away, the lever (N7) is returned to the original position by the spring (N13) together with the reflecting mirror (N23A) and lever (N5), and thus, operation completes.

Troubleshooting and repair can be made easily by thoroughly understanding the above operation. Exercise particular care for loose set screws.

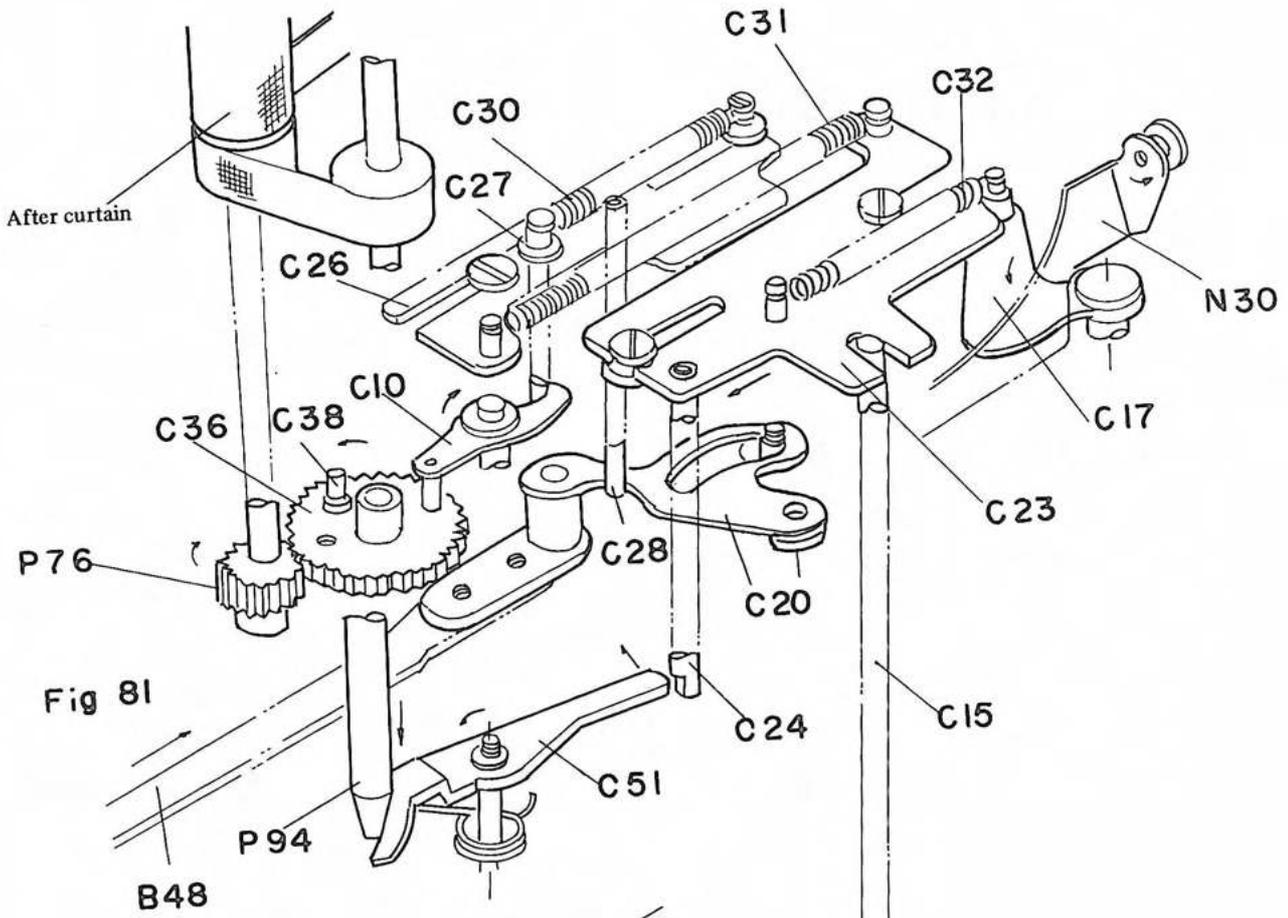
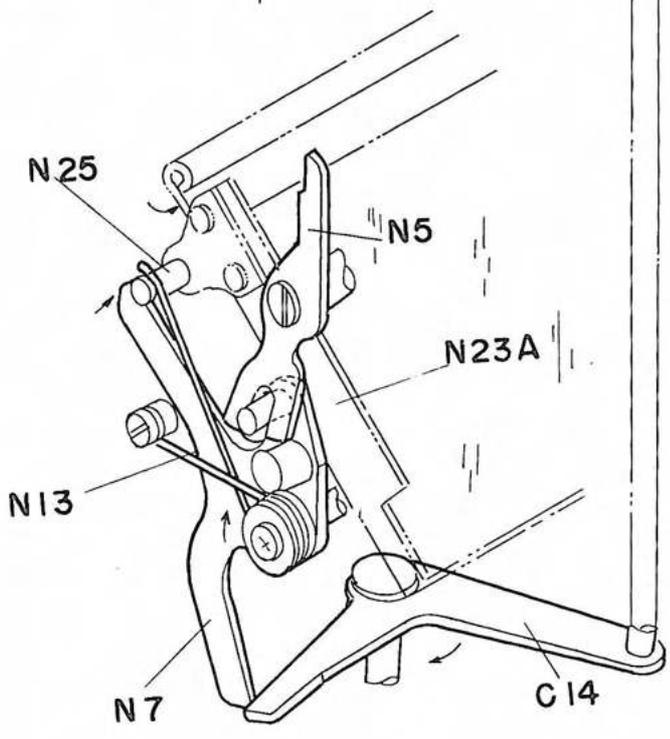


Fig. 68



4-8 Shutter release position

- o Shutter release position should be so adjusted that shutter can be released when shutter button is depressed below the shutter dial level.
- o Extra shutter button depressing stroke after releasing shutter should be 0.4 mm or more.

- (a) When adjustment is required, properly bend "A" portion of the lever (C51).
(Fig. 69)

NOTE: When this adjustment is required, remove the bottom cover.

- (b) Upon completion of adjustment, be sure to check shutter releasing with the auto-timer. (See "5-2" below.)

4-9 Noise

- (a) When echo sound after releasing shutter (metallic sound) is excessive, apply Moricoat and Helicorb mixed grease to the springs (C30, C31 and C32) sufficiently. (Fig. 69)

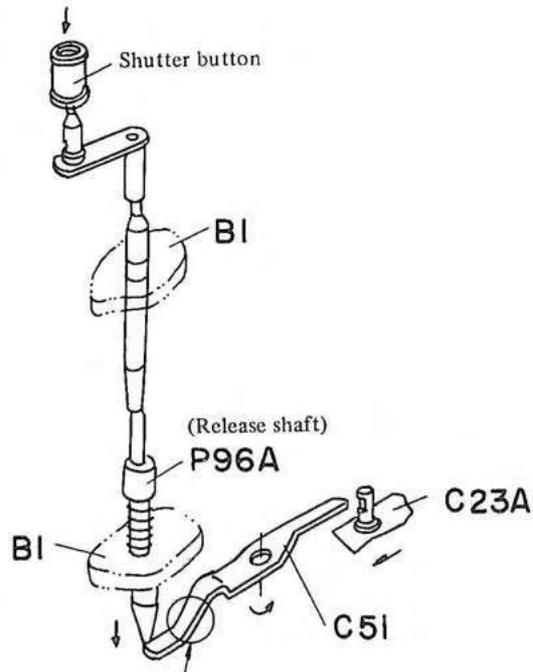
NOTE: When applying grease, remove the mount and cover (C33), and with the springs mostly expanded, apply grease to such an extent that no gap is made between coils.

- (b) When a noise which indicates lack of lubricant occurs while the governor operation, remove the governor (H1A), clean with 3% silicon oil #20 solution, dry it naturally, and reinstall it.
- (c) When a noise occurs while the reflecting mirror operates, check the mirror and mirror base for adhesion, and readhere if peeled off. (Use Araldyte 106 for adhesive.) (Fig. 70)

PRECAUTION: Be careful not to crack or scar mirror.

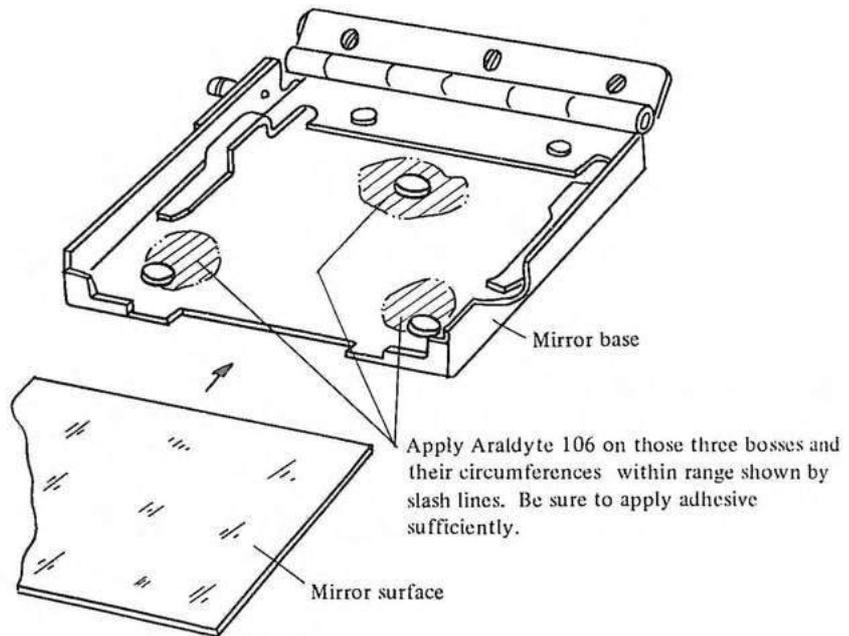
Check parallax and readjust angle of reflecting mirror and 45° alignment. (See "3-2" above.)

Fig. 69



Bend this portion to change shutter release position.

Fig. 70



4-10 Synchro-delay time

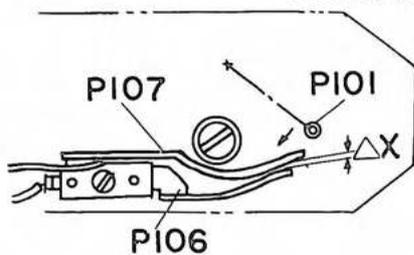
- (a) X-contact: 0.1 to 1.1 ms
FP-contact: 11 ± 3 ms
- (b) When adjusting the X-contact, properly bend the contacts (P106) and P107).
(Δx is changed. Fig. 71)
- (c) When adjusting the FP-contact, properly bend the contacts (N39 and N41).
(Δx is changed. Fig. 72)

4-11 Continuity for synchronizer

- (a) The individual lead wires must be completely insulated from the camera body throughout all film advance lever operations (after the lever is wound up, during winding, and after shutter is released).
Moreover, check the lead wires for correct soldering, particularly for the counter (M1A), mount (D1A) and other parts circled in dark in Fig. 73.

When Δx is increased, time increases, and when Δ is decreased, time decreases.

Fig. 71



When Δx is increased, time reduces, and when Δ is decreased, time decreases.

Fig. 72

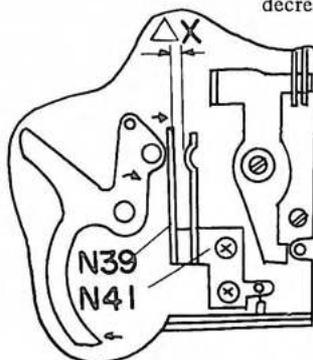
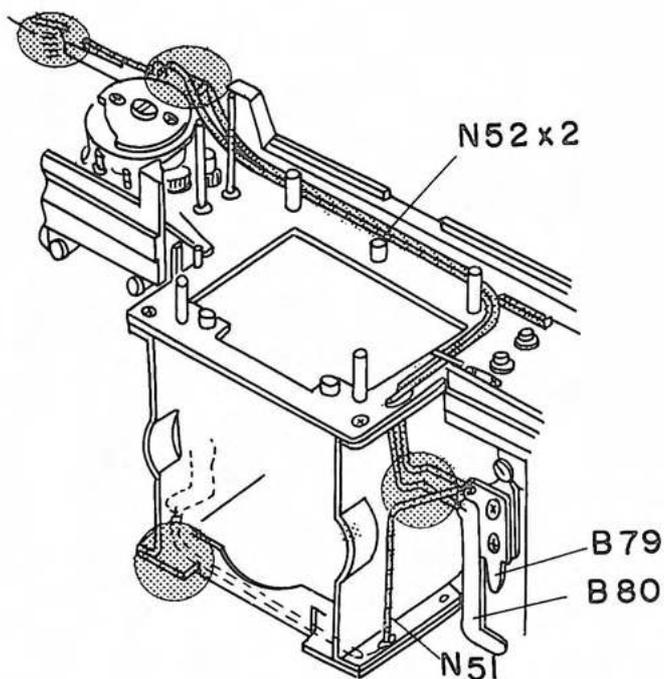


Fig. 73



- (b) With the mount (D1A) installed, check the synchro-socket (D6A) and synchro-contacts (B79 and B80) on the mount for proper contact. When contact is improper, raise end of the contact (B79 or B80) and correct contact. (Fig. 74)

Wiring Diagram

X-contact

FP contact

4-12 Slow governor operation relative position

- (a) The pin (C47) caulked on the oscillating plate (C46) enters the groove on the sector gear (H15). When the oscillating plate (C46) is moved, the sector gear (H15) turns, and the governor gear train is turned.
- (b) When the lever (P89) is moved by the shutter cam, the lever (H15) moves, the lever (H9) is operated, and the ankle (H12) runs away from the wheel (H22).
- (c) When the shutter is released, the pin (C28) moves from "A" point to "B" point, the lever (H9) is moved, and the ankle (H12) runs away from the wheel (H22).
- (d) Release the ankle (H12) with the lever (P89), and adjust shutter speeds 1/30, 1/15 and 1/8 sec. only with the gear train.

Shutter speeds 1/4, 1/2 and 1/1 sec. are adjusted by meshing the ankle (H12).

NOTE: The governor quick return mechanism (Effective from 1 sec. to 1/4 sec.)
When the shutter dial is turned and the operations described above are not performed correctly, the shutter does not operate accurately at the low speed range (1/30 to 1/1 sec.) or the shutter does not operate causing shutter trouble. (Fig. 75)

Fig. 74

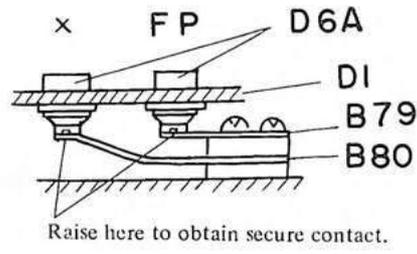
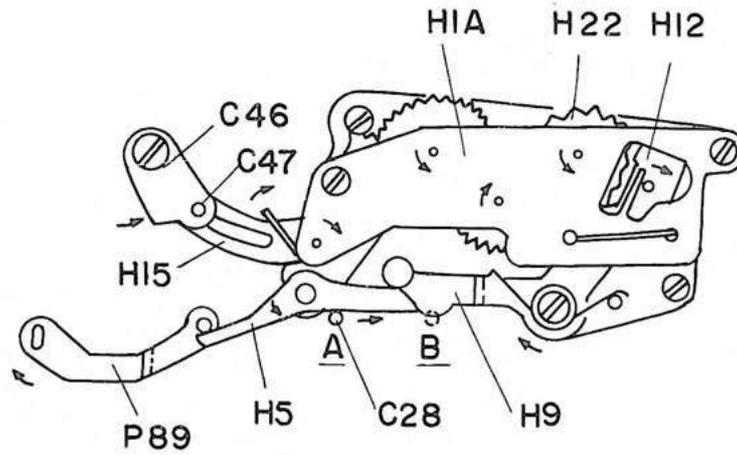


Fig. 75

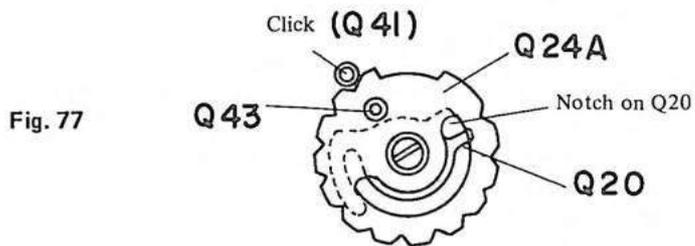
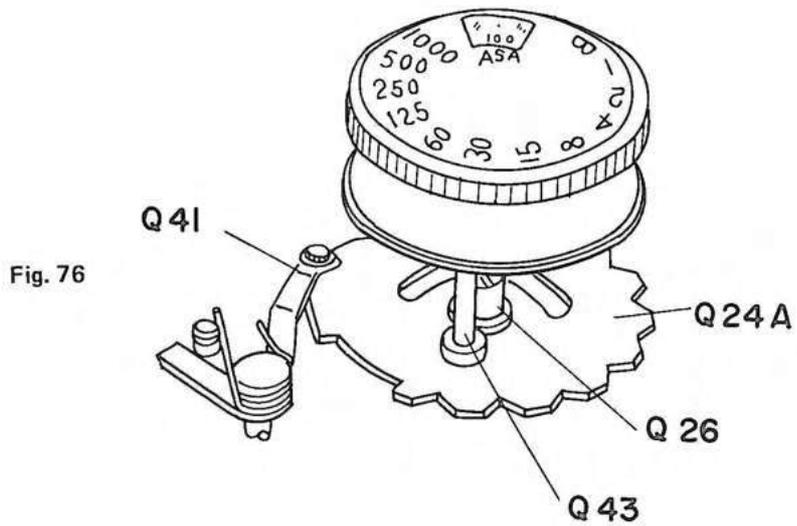


STANDARD SHUTTER SPEED

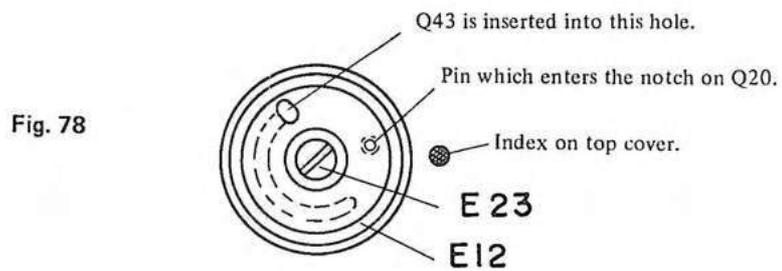
Shutter Speed	ms	
1000	0.65	~ 1.35
500	1.3	~ 2.7
250	3.0	~ 5.0
125	6.0	~ 10.0
60	12.5	~ 20.9
30	25.0	~ 41.6
15	50.0	~ 83.4
8	93.8	~ 156.0
4	188.0	~ 313.0
2	375.0	~ 625.0
1	750.0	~ 1250.0

4-13 Shutter dial operation

- (a) Shutter speed can be changed in the following order:
B to 1 to 2 and so on up to 1000 or 1000 to 500 and so on down to B
Shutter speed cannot be changed directly from 1000 to B or B to 1000.
- (b) Shutter speed cannot be obtained accurately at a section between click positions of the scale. Exercise particular care for low speed range.
- (c) Shutter speed cannot be changed from "B" (Bulb) with the shutter button depressed.
(Because of the safety lock)
- (d) The shutter dial can be turned up to:
1 sec. for ASA200; 1/2 sec. for ASA400' 1/4 sec. for ASA800, 1/8 sec. for ASA1600; and 1/15 sec. for ASA3200.
(Two steps or more in outside of the interlock range: The stopper works.)
- (e) When the shutter dial cannot be shifted due to a reason other than described a above or when the click is defective, remove the top cover and check the click plate (Q24A) for operation. When the set screw (Q26) is loose, the joint pin (Q43) is uncaulked or bent, the click roller (Q41) is separated from the click plate (Q24A), or other defective condition exists, repair. (Fig. 76)
- (f) When the scale and index are deviated, remove the shutter dial (E15) and ASA dial (E24), and readhere correctly. When correcting their positions, pay attention on their relative positions.
 - (1) Remove the top cover (E1A), and set the click plate (Q24A) and contact plate (Q20) to 1/1000 sec. ASA25 positions. (Fig. 77)
 - (2) Set relative position between the joint pin (E14) and shutter dial (E12) of the top cover (E1A) to position of 1/1000 sec. ASA25 position. (Fig. 78)



Position of 1/1000, ASA25 positions (Q1A)



1/1000, ASA 25 position (E1A)

- (3) Reinstall the top cover (E1A). When installing the top cover, be careful not to move the shutter dial. (If moved, the position is deviated)
- (4) Coincide "100" scale on the ASA dial (E24) with the index on the top cover (E1A), and secure it on E23 by means of adhesive. (Fig. 79)
- (5) Coincide ASA index on the shutter dial (E24) with ASA 25, and adhere the shutter dial (E24). Now, the index on the top cover (E1A) should have been coincided with "1000". (Fig. 79)

4-14 ASA shifting and operation

- (a) ASA shifting is performed with the shutter dial raised. When ASA is shifted, the shutter speed is changed simultaneously. Thus, when the shutter dial stops at "B", 1/1000 or a middle position, return it once and raise the shutter dial.
- (b) When the shutter dial is raised and the ASA is shifted, and if the ASA dial turns simultaneously, the friction plate (E18) is weakened and friction against the ring must have been reduced. In this case, remove the top cover (E1A), and recaulk it or change the shape to increase the friction. When friction is excessive, the shutter dial cannot be shifted lightly. (Fig. 80)

NOTE: E2A (E2, E14, E18, E19 and B21) and E13 must be replaced when recaulking.

Fig. 79

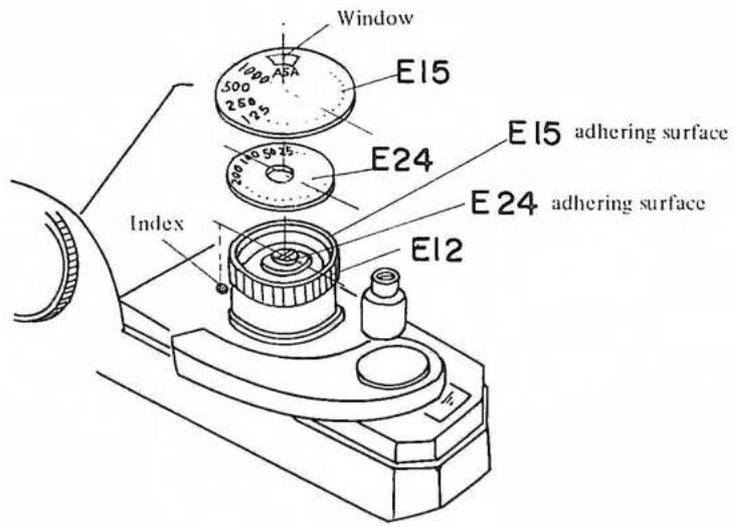
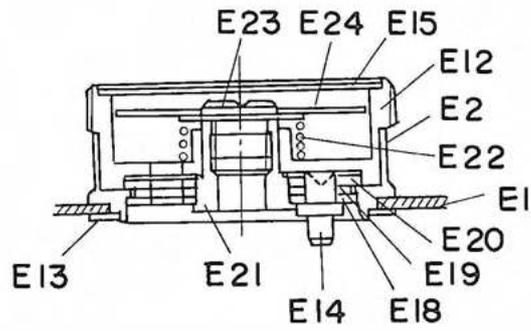


Fig. 80



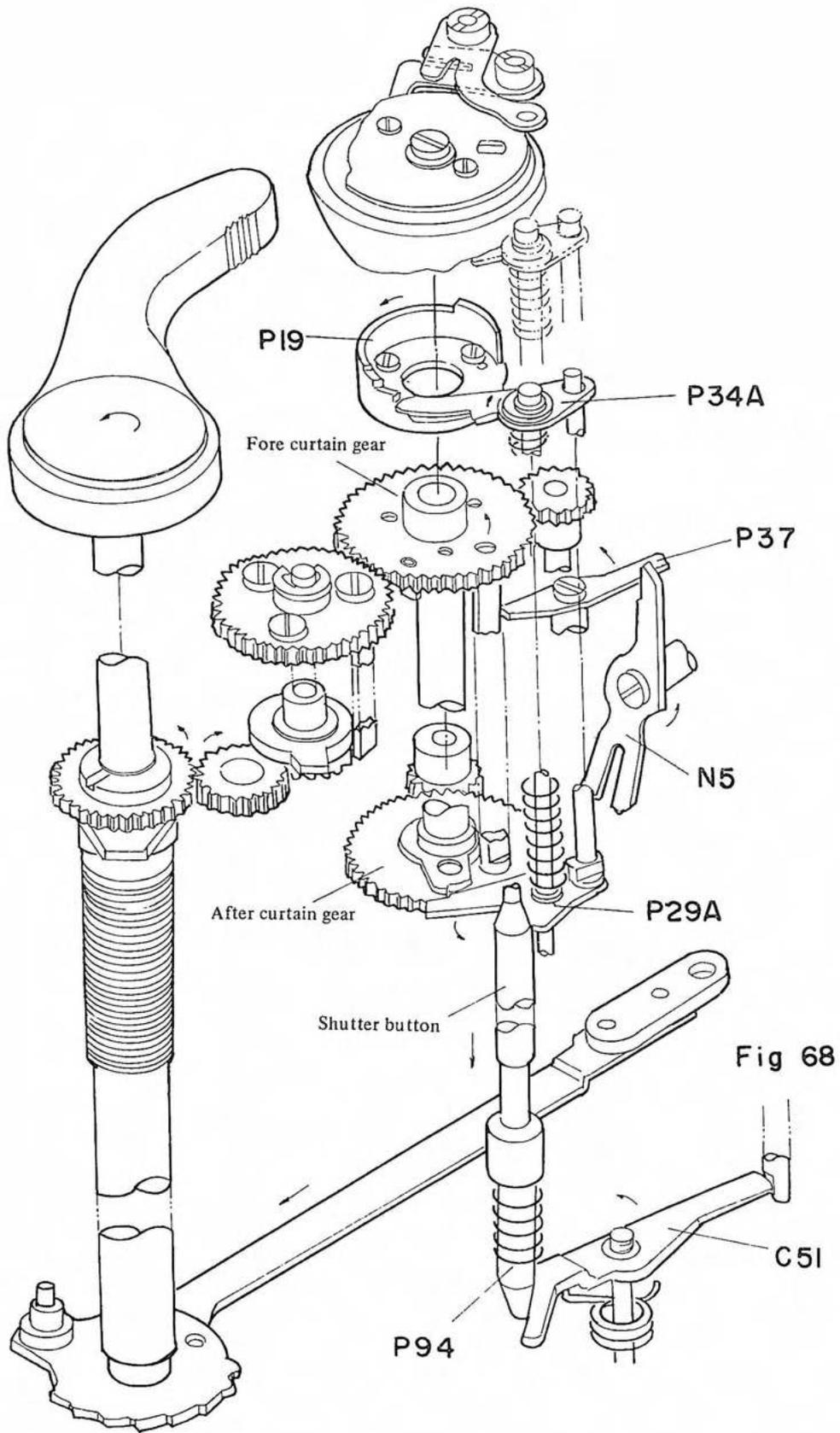
4-15 Shutter quick return mechanism operating sequence (See Fig. 72 and 84.)

- (a) Wind up the film advance lever. - The shutter curtain and quick return mechanism are set. -
- (b) Depress the shutter button. When shutter speed is set to 1/1000 sec.
 - (1) The after curtain hook (P29A) hooks. The kick lever (P34) engages.
 - (2) The 1st hook (C51) unhooks.
 - (3) Interlock plate (C23A) begins to operate.
 - (4) Lens opening begins. C17A - N30A - Lens barrel
 - (5) The mirror begins to rise. C14A - N7A - N23A
 - (6) The fore curtain hook unhooks. N7A - N5 - P37
 - (7) The fore curtain starts. (The stepped cam (P19) begins to turn.)
 - (8) The mirror completes rising.
 - (9) Lens opening completes.
 - (10) The interlock plate (C23A) stops.
 - (11) The after curtain hook (P29A) unhooks. P19 - P33A - P29A
 - (12) The after curtain starts. (The gear (C36) begins to turn.)
 - (13) The after curtain brake begins to effect.
 - (14) The fore curtain brake begins to effect.
 - (15) The 2nd hook (C10) unhooks. C36 - C38 - C10
 - (16) The interlock plates (C23A and C26A) begin to return.
 - (17) The mirror begins to return.
 - (18) The lens opening begins to open.
 - (19) The fore curtain stops.
 - (20) The after curtain stops.
 - (21) The lens opening is made to the maximum.
 - (22) The mirror completely returns.
 - (23) The interlock plate stops.
 - (24) The operations complete.

- | | |
|-----------------------------|--|
| (2) to (9): Approx. 12 ms | (2) to (13): Approx. 18 ms |
| (2) to (8): Approx. 11 ms | (2) to (27): Approx. 55 ms
(Operating time) |
| (13) to (17): Approx. 14 ms | (2) to (18): Approx. 33 ms |

NOTE: When the shutter speed is set to any one of 1/30 to 1/1 sec., governor operation follows the step (12). Thereafter, as the after curtain running time delays, sequence of operation up to the step (18) is changed slightly. The above indicated operating time is applicable when the shutter speed is selected at 1/1000. When the shutter speed is selected at other than 1/1000 sec., operating time of (13) and thereafter considerably delay in response to a selected shutter speed.

Fig. 81



5. Self-timer

5-1 Operation

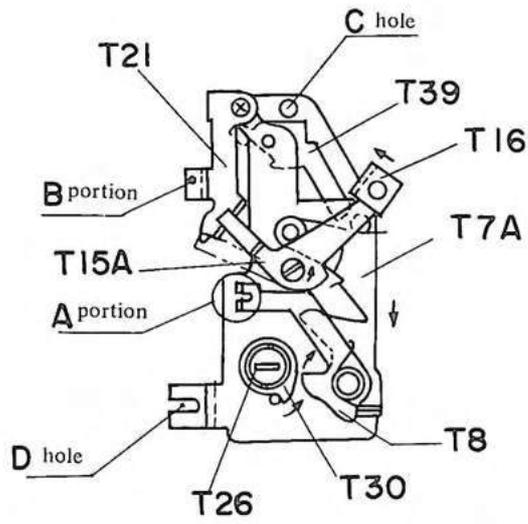
(a) When the self-timer lever is fully wound, the shutter will be released approximately 10 seconds after depressing the start button. The self-timer does not stop until the shutter is released when the start button is depressed once. (Although the lever is reset.) (Fig. 82)

(b) As soon as the self-timer lever is turned counterclockwise and the self-timer is set, the coil spring shaft (T26) and cam (T30) turn counterclockwise, and lever (T8) attached to release lever (T7A) is turned clockwise. Further, the lever (T15A) is turned counterclockwise, one end of the lever hooks with the rising portion of the spring plate (T21), leaf spring (T16) installed on one end of the lever (T15A) comes into contact with a part of the ankle (T39), and gear is locked.

When the self-timer lever is further moved, the lever (T8) being pushed by the cam (T30) returns to the original position. When "B" portion of the spring plate (T21) is depressed thereafter (When the auto-timer start button is depressed, the "B" portion is depressed.), the lever (T15A) returns to the original position, the leaf spring (T16) is separated from the ankle (T39), the gear begins to turn, the cam (T30) pushes the lever (T8), the release lever (T7A) moves toward arrow direction, the rising portion pushes down the release rod, and thus, the shutter is released. When the cam (T30) further turns and it disengages from the lever (T8), the release lever (T7A) returns to the original position. The cam (T30) comes into contact with the stopper (T24) and stops. (Fig. 82)

NOTE: The self-timer mechanism can be repaired easily by thoroughly understanding the operation described in (b) above. When it is unrepairable, replace.

Fig. 82



5-2 Shutter releasing position

- (a) Shutter releasing position is adjusted by bending "A" portion. When adjusted, check to see if extra space is remained after relasing the shutter. (Fig. 83)

5-3 Installing position

- (a) Install the auto-timer in a position where the cam (T30) does not come into contact with the release shaft (P94), and secure it with screws. ("a" clearance)

NOTE: When the self-timer is set in any position within the operating range, the cam (T30) should not come into contact with the release shaft (P94).

- (b) Check to see that a part of the self-timer does not come into contact with the after curtain shaft. ("b" clearance)

NOTE: "b" clearance may not be provided due to "a" clearance. In such a case, further reduce "a" clearance. (Fig. 84)

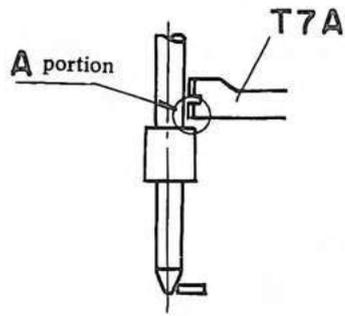
6. Rear cover and relative parts

6-1 Pressure plate and pressure plate spring

- (a) When the pressure plate (F2A) is scarred and film is scarred, replace the pressure plate (F2A) with a new one.

NOTE: When the pressure plate is replaced, check the new pressure plate for flatness. (Flatness: within 0.02)

Fig. 83



(See Fig. 85.)

Fig. 84

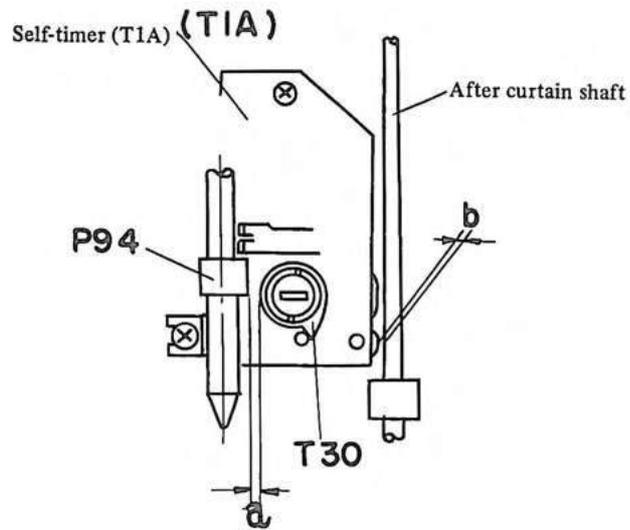
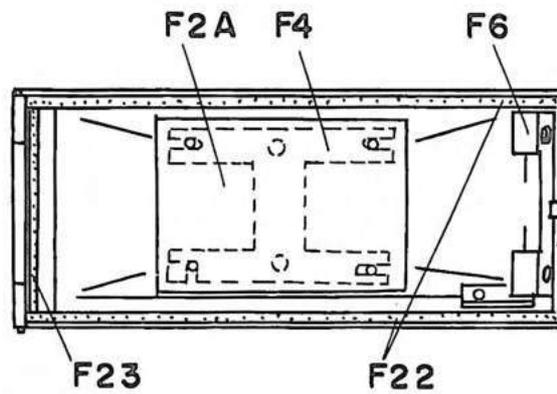


Fig. 85



- (b) When the pressure plate spring (F4) is weakened and the pressure plate is tilted noticeably, raise the spring by hand.
- (c) When holder (F6) is weakened and film cannot be rewound smoothly, raise the spring. (Fig. 85)

6-2 Opening, closing and locking

- (a) When opening the rear cover, F24 is lifted by lifting rewind shaft (J2) through J12, and hook (F10) unhooks from pin (F11). When "a" clearance is too narrow, F1 may come into contact with the hook (F10), and the rear cover may not open. In this case, increase "a" clearance.
- (b) When the rear cover is close, the hook (F10) engages with the pin (F11). When "a" clearance is too wide and/or when the F24 does not operate smoothly, the hook (F10) may not engage with the pin (F11). In this case, correct "a" clearance and/or repair the F24. (Fig. 86)

7. Light leakage

7-1 Film cartridge chamber:

- (a) Check to see if Mortplene adhered on the main body groove (B85, B88, or B89) is not peeled off. (Fig. 87)
- (b) Check too see Mortplene adhered on the rear cover is not broken. (Fig. 85)
- (c) Check the rear cover and main body for pin hole.

Fig. 86

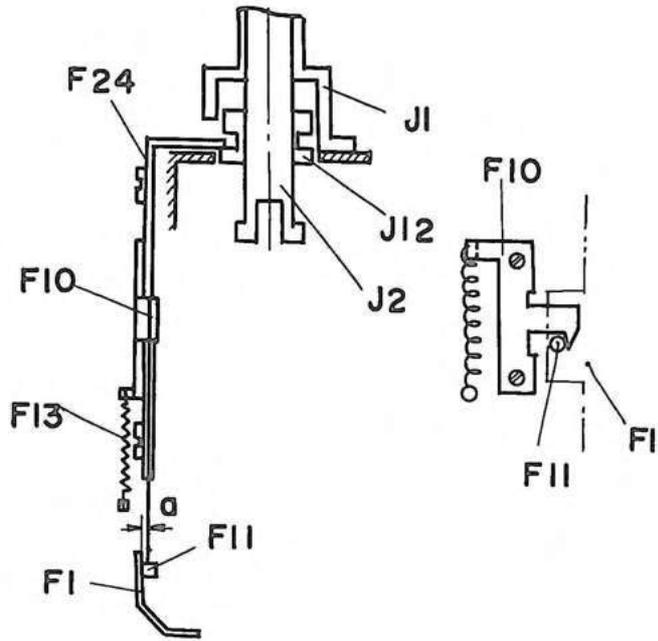
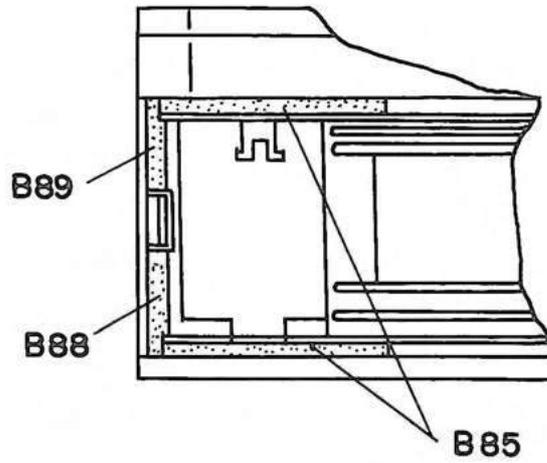


Fig. 87



7-2 Exposed film chamber:

- (a) Check the Mortplene (F22 or F23) adhered on the rear cover for peel off.
(Fig. 85)
- (b) Check the rear cover for pin hole.

7-3 Picture frame

- (a) Check the shutter curtain for pin hole thoroughly after releasing, during winding, and after winding.
- (b) Light leakage as illustrated in Fig. 88 may, in some instances, occur when the film advance lever is wound and the camera is left two to three minutes without installing the lens. However, light leakage is considerable, plug gap in "A" portion with black Pliobond. Light may leak through this gap and reaches the film slightly.

PRECAUTION: Be careful not to apply black Pliobond excessively.

When plugging the gap, be sure to remove the viewfinder glass (S1A) and light shielding curtain (N49) first.

8. Main body and relative parts

8-1 Flange back

- (a) The term "Flange back" represents distance between body inside rail face and front surface of the mount. The standard flange back is 45.45 ± 0.025 mm.
(Fig. 90)
- (b) To adjust flange back, apply washers having proper thickness (D22, D23 and D32) between the body and mount.

NOTE: Washers are applied to five places. Properly adjust number of washers and thickness so that not only flange back but also tilting are adjusted correctly. (See the Fig. 2.)

Fig. 88

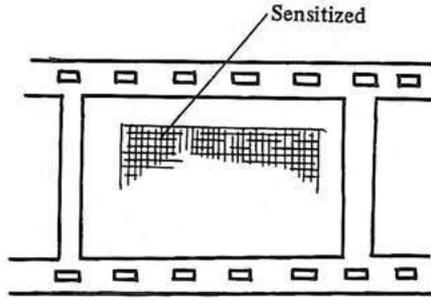


Fig. 89

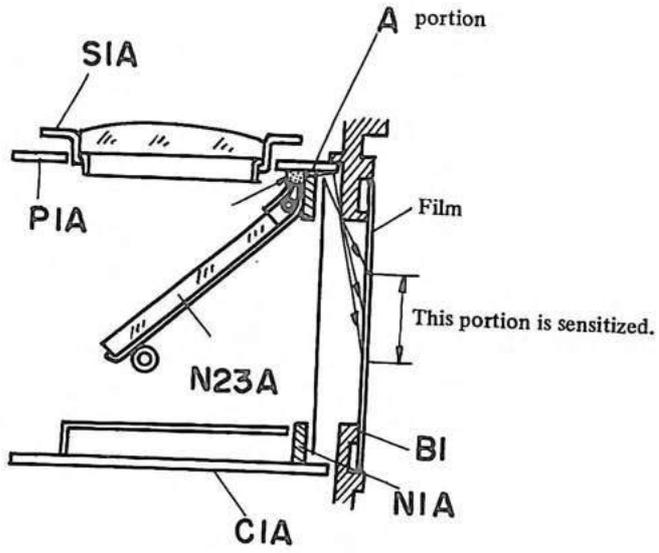
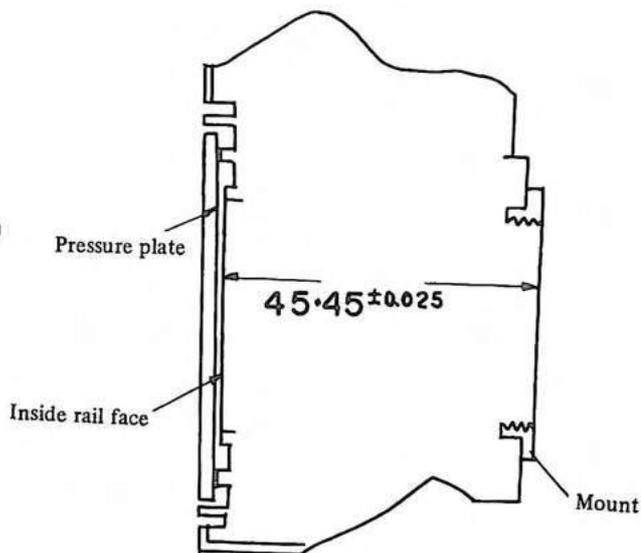


Fig. 90



8-2 Mount

- (a) When auto-timer set lever (D28) is loose (thrust), select proper number of washers having proper thickness (D26), and adjust. Note that the set screw (D29) is a left-hand screw. Be careful not to unscrew this screw with the mount installed on the body. If unscrewed, adjustment becomes difficult. (Fig. 91)
- (b) Rotary angle of the self-timer set lever (D28) is limited by the cam (D27). When the joint (D30) with the self-timer is loose, the set lever also becomes loose toward the rotating direction. (Fig. 91)
- (c) When distance index on the lens barrel stops at a section between -15° and $+10^{\circ}$, the position is correct. This position is drilled with a specified gauge after aligning angular positions of the mount ring (D3) 42ϕ P21 thread and contact surface ("A" surface), and with this drilled position, the installing angle is determined. However, there will be no problem on the operation as long as the distance index on the lens barrel stops within $\pm 25^{\circ}$. (Fig. 92)

8-3 Manual lens opening

- (a) When the button (D19) is depressed, the lens opening plate (N30) is pushed, and the lens opening pin on the lens barrel is pushed. At the same time, the power switch closes.
- (b) When the button (D19) is depressed and the switch does not close or closes continuously, adjust the switch by bending switch contacts (N36 and N37).
- (c) The lens opening plate (N30) comes into contact with the mount and stops. When the plate (N30) returns, it comes into contact with the part of quick return mechanism (C1A) and stops. When the plate (N30) does not stop correctly as described above, adjust it by bending rising part (14a) of the lever (N14). Be careful not to bend excessively, and when adjusted, be sure to check the switch for correct operation. See "8-3(b)" above for adjustment of the switch. (Fig. 93)

9. Exposure meter

Exposure meter is not interlocked, does not operate correctly or stably.

NOTE: For measurements of voltage, resistance and other electrical data of exposure meter and its components, use an electronic tester (Sanwa Model EM-700).

9-1 Power supply

When voltage of mercury cell (J19) is too low or when + contact (K17) or cap spring (J18) in the mercury cell chamber does not come into contact with the cell completely, exposure becomes excessive or unstable, or exposure meter does not operate correctly.

(a) Inspecting voltage of mercury cell

Measure voltage of the mercury cell with a voltmeter, and see if battery voltage is 2.6V or higher.

(b) Check the contact in the cell chamber for contamination and contact with the cell.

(c) Check circuit between J16 and J17 for continuity after removing the top cover (E1A). (Fig. 94)

9-2 Switch circuit

When switch circuit is not satisfactory, the meter does not operate correctly. (Fig. 93)

(a) Remove the top cover (E1A) from the camera body, connect a dummy cell so that the camera is set as if mercury cell is used, and measure voltage at circuit between the camera body and J16. When the voltage is 2.6V or higher, the switch circuit is correct. (Fig. 94)

(b) Depress the switch, and measure voltage between the camera body and the portion shown as (1) in Fig. 96. When the voltage is 2.6V or higher, the switch circuit is satisfactory. (Fig. 96)

As the result of measurement, if the voltage is too low, check the lead wires (Q54 and Q55) for correct soldering and switch circuit particularly for short-circuited switch with the camera body or improper switch contact.

(Fig. 93, 94 and 96)

Fig. 94

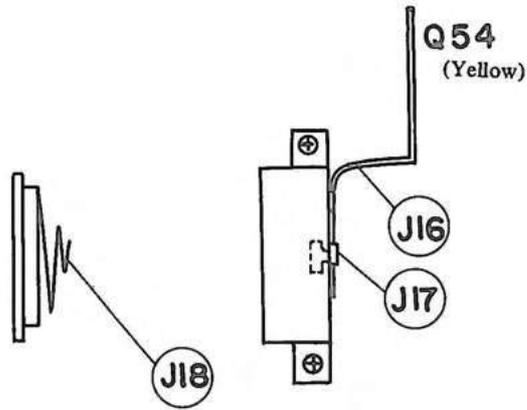


Fig. 95

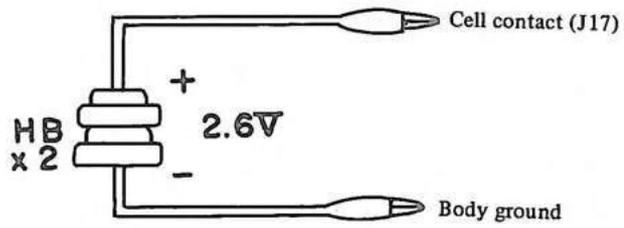
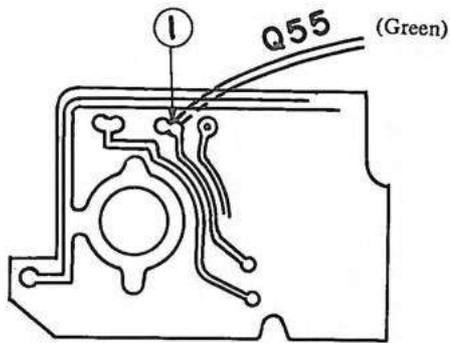


Fig. 96



9-3 Amplifier (K1A)

When amplifier output voltage varies excessively, the meter does not operate correctly for the meter pointer deflects beyond the limit. The amplifier output terminals are shown as (1) and (2) in Fig. 97. Measure voltage between both terminals and camera body. When voltage is 1.6 to 1.25V, and when the camera is faced to a light source, the semi-stationary resistor (K2) is turned, and the meter pointer deflecting angle can be adjusted, the amplifier is satisfactory. When amplifier output voltage varies remarkably, the amplifier is unsatisfactory. Check the amplifier for broken resistor and the components for soldering.

9-4 Meter needle operation and indicated value

Improper meter mechanism operation occurs when the meter unit operation is incorrect, meter hooks, the wire is open, or sensitivity is too low.

Meter inspection method (Disconnect lead wires from the amplifier)

- (a) Broken wire Measure internal resistance of the meter by the use of an electronic tester. If the meter pointer deflects and the meter indicates a constant value, the wires are not broken.

When the wires are broken, the electronic tester will indicate infinite resistance.

- (b) The meter does not operate correctly or hooks

Apply current (0 to approximately 16 A) slowly to the meter by the use of a variable current tester, and see if the meter operates smoothly.

- (c) Meter sensitivity

Apply current (8μ A) to the meter by the use of a variable current tester, and observe pointer indication. When the pointer indicates as illustrated in Fig. 98, the meter sensitivity is normal. (Fig. 98 and 99)

Fig. 97

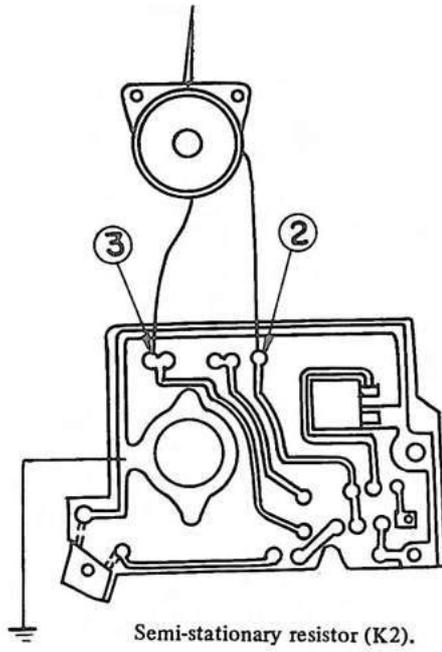


Fig. 98

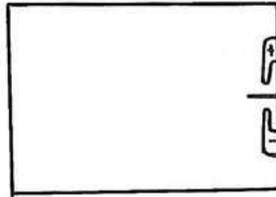
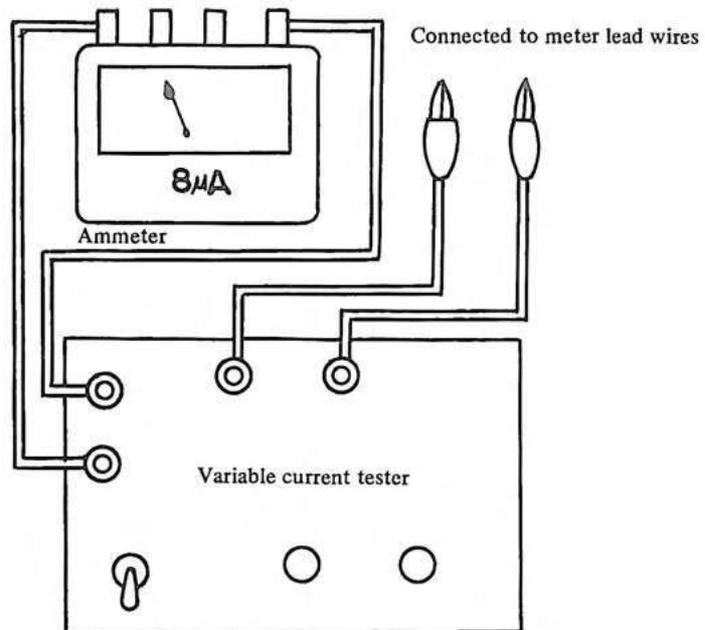


Fig. 99



Adjustment of exposure meter:

Connect the meter, photocell, shutter resistor and amplifier, set the camera as;

Film speed:	ASA100
Shutter speed:	1/60
Lens opening:	5.6

face the camera (exposure meter) to a light of 960 rlx (A light source 1854° K); adjust the semi-stationary resistor (K2) of the amplifier (Fig. 97) so that the meter pointer indicates center of the meter; lock the semi-stationary resistor (K2) with paint; and thus, adjustment of exposure meter completes.

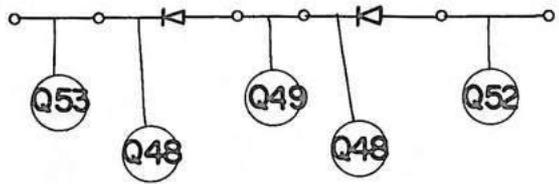
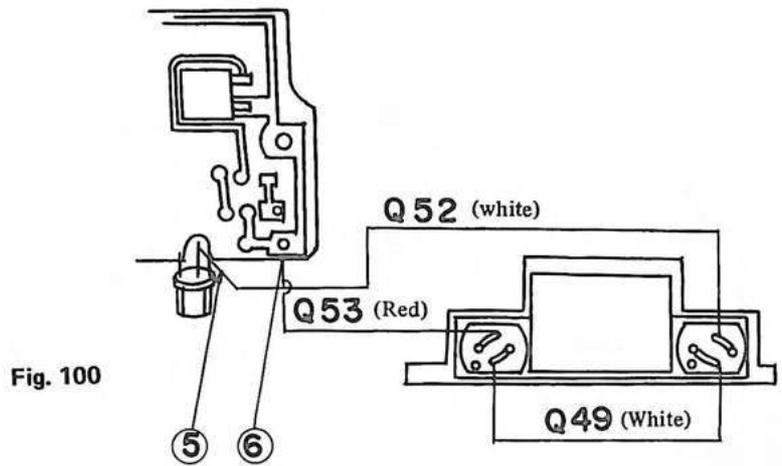
9-5 Silicon photocell element (Q48)

When wire of the silicon phtocell is open, the meter does not operate correctly. Check the phtocell for continuity with an electronic tester.

Disconnect the lead wires (Q52) and (Q53) respectively from the resistor (K2) shown as (5) in Fig. 100 and from printed circuit board (K1) shown as (6) in the Fig. 100, measure resistance at both ends, and check the photocell for continuity.

When resistance is infinite, check each photocell (Q48) for continuity separately. (Fig. 100)

NOTE: When soldering lead wires of photocell, hold the terminal base with a pair of pincers, and finish soldering as fast as possible.



9-6 Shutter resistor (Q1A)

When the shutter resistor is damaged and/or when contact between the printed circuit board (Q16A) contact sliding portion and contact (Q21) is faulty, the exposure meter does not operate correctly or the meter does not interlock.

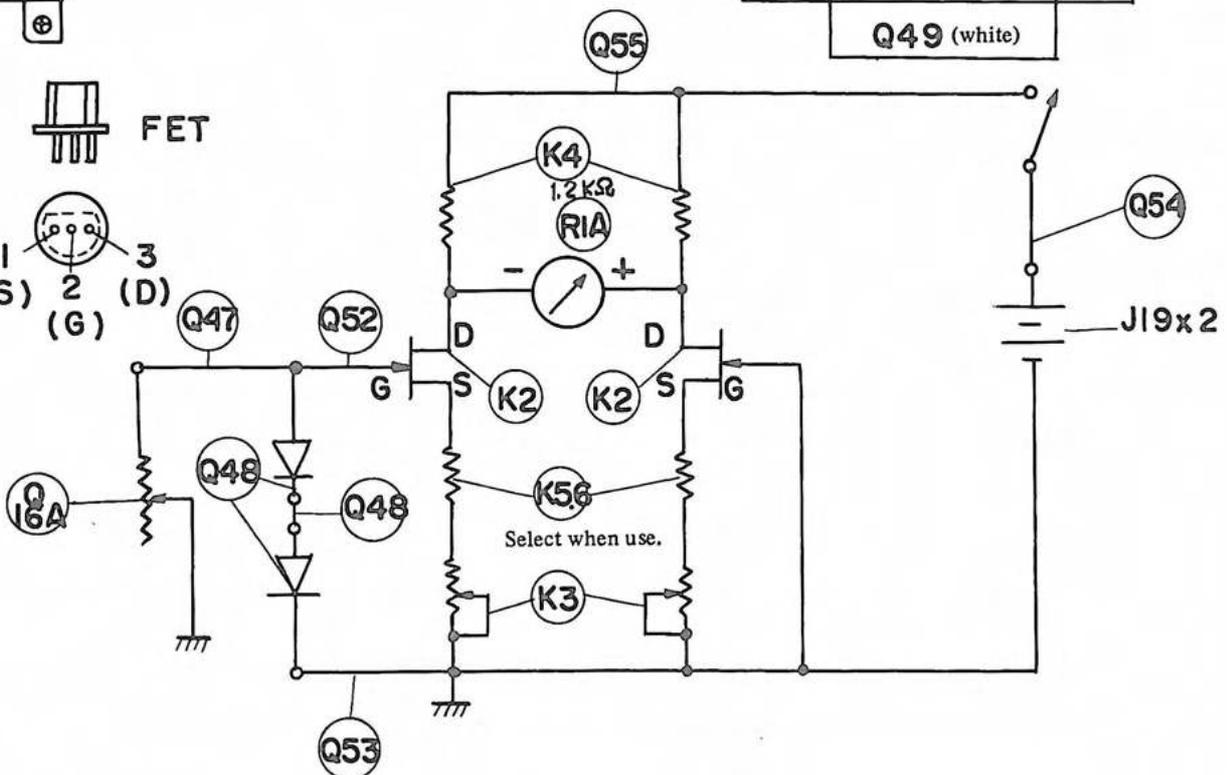
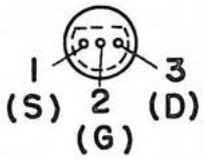
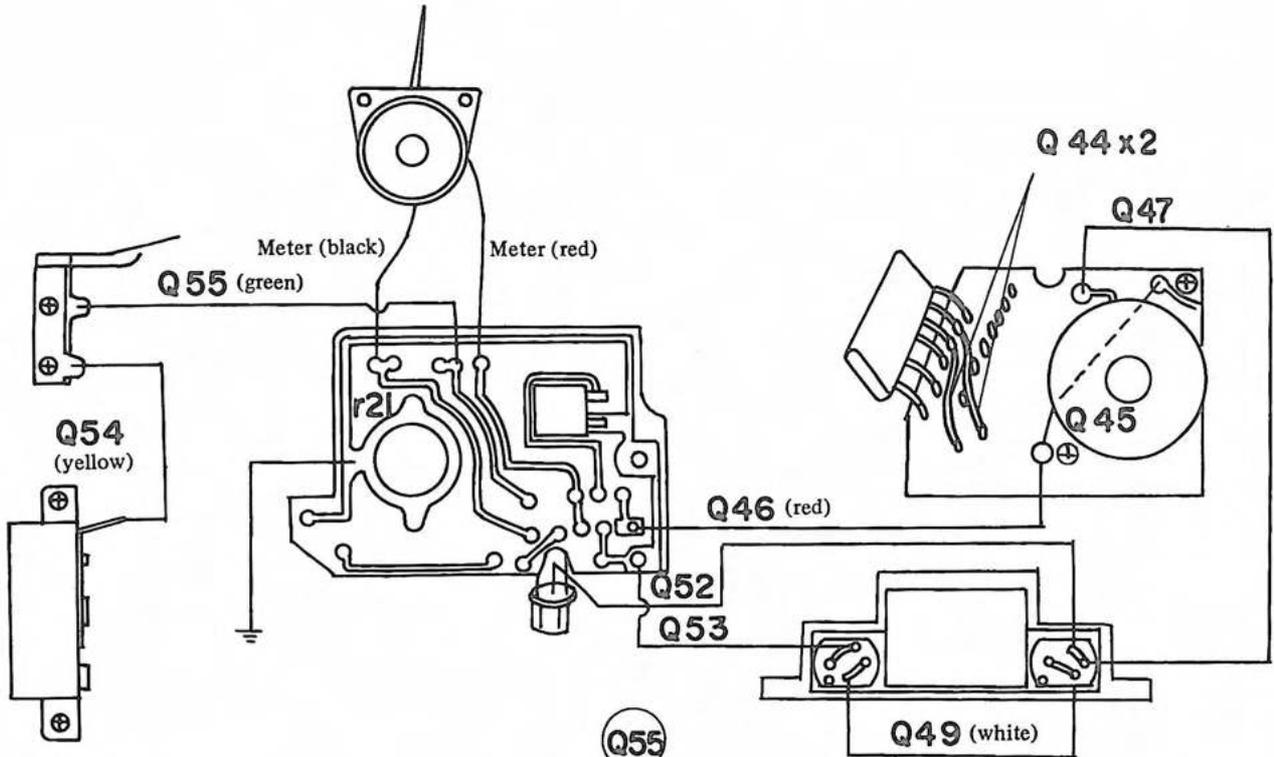
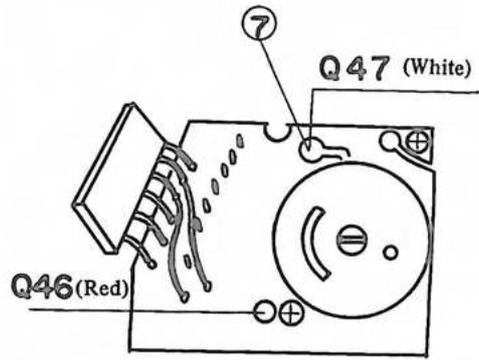
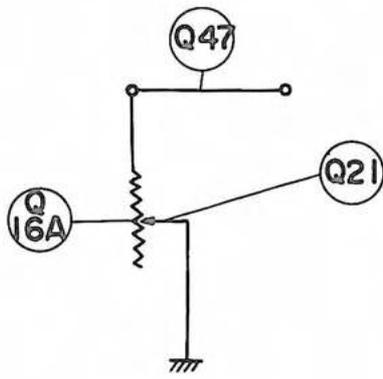
- (a) Visually and with an electronic tester, insure that the contact (Q21) is on the printed circuit board (Q16A) contact sliding surface correctly.
- (b) Measure resistance of the printed circuit board (Q16A). Disconnect the lead wire (Q47) from the printed circuit board (Q16A), and measure resistance between the camera body and the terminal shown as (7) in Fig. 101.

		Tolerance $\pm 15\%$	
Resistance	ASA100	1 sec.	160 M Ω
	ASA100	1/60 sec.	2.54 M Ω
	ASA100	1/1000 sec.	0.16 M Ω

When the dial is turned and resistance changes accordingly, the shutter resistor (Q1A) is normal. (Fig. 101)

9-7 Wiring diagram

Fig. 101



10. Film rewinding system

10-1 Film rewinding handle operation

- (a) The rewinding handle click operation is done by pushing the handle (J5) with the spring plate (J36). The spring plate (J9) determines position of the spring plate (J36) toward its rotating direction, and at the same time, it raises the handle (J5) so that the spring plate (J36) is not weakened although it is depressed downward.
- (b) When the handle (J5) cannot be contained into the body or come off, check "a" gaps of the shaft (J8) for evenness. Correct if they are not balanced. The shaft (J8) is secured on the handle (J5) with adhesive (Arone Alpha). (Fig. 102)

10-2 Film rewind shaft operation

- (a) The rewind knob has been so designed that it clicks and stops when depressed. Pull it up lightly until it stops, and pull it up further with a stronger force. The rear cover is unlocked and the rear cover can then be opened. (Fig. 103)
- NOTE: The rewind knob may not be pulled up when "A" portion of the rewind shaft (J2) is spread excessively. Correct the gap.
- (b) Under the ordinary condition, the click ball gives a proper friction to the rewind shaft. When friction is too high, film cannot be rewound lightly. (Fig. 103)
 - (c) Film cannot be rewound lightly if spring of holder (F6) does not depress (See "6-1(c)" above.)

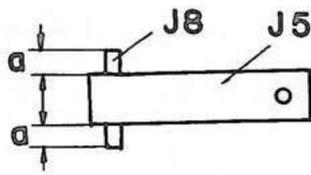


Fig. 102

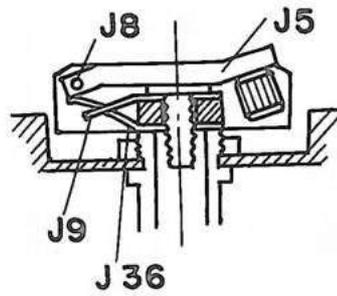
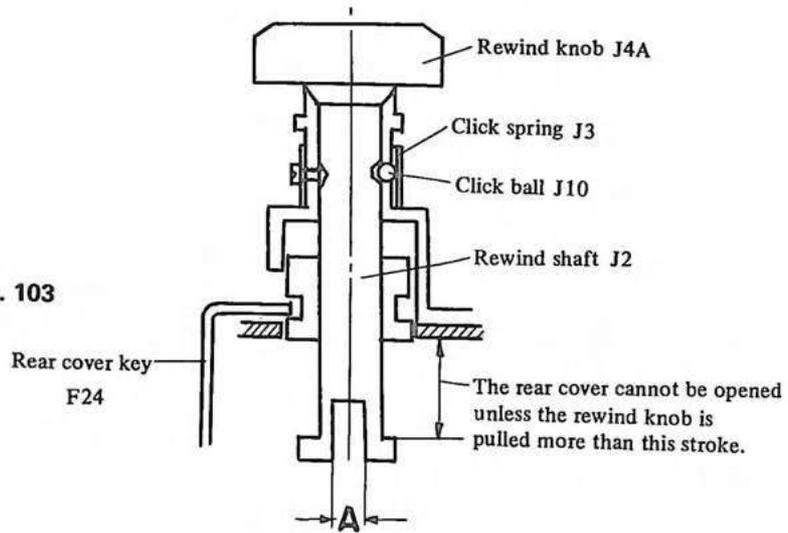


Fig. 103



INSPECTION OF FUJICA ST-701

INSPECTION POINTS	INSPECTION METHODS
1. Exposure meter	Load the batteries and install the lens on the body when inspection the exposure meter.
1.1 Operation	Set at ASA100, 1/60 sec. and f/1.8. The Needle operates correctly when depress the lens opening button. Face the camera to a proper object so that the Needle indicates the center, change shutter speed, and see if the Needle moves in response to the changed shutter speed. When the lens opening button is released and the camera is faced to a bright object, the Needle should not move.
1.2 Smoothness	Set at ASA100, 1/60 sec. and f/1.8. When depress the lens opening button, face the camera to a bright object so that the Needle moves to the upper most. Close front of the lens gradually with your hand and see if the pointer comes down smoothly.
1.3 Dragging	Depress the lens opening button to close the lens opening, change shutter speed, and see if the pointer oscillates without dragging.
1.4 Angle	Depress the lens opening button, set the shutter speed or lens opening to a proper level in response to brightness of object so that the Needle indicates center of the index. Close the lens opening 1.5 stops and see if the Needle comes into contact with the lower end of the index (or the Needle should move beyond the lower end).
2. Body	
2.1 Film advance lever	(a) Insure that the lever cannot be wound with the shutter button depressed. (b) Insure that the shutter button is locked while winding up the lever.
2.2 Shutter release and reset	Depress the shutter button after winding up the film advance lever, and see if the shutter is released correctly and the shutter button resets completely.

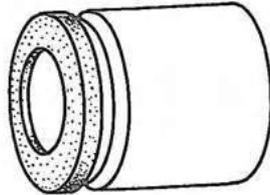
INSPECTION POINTS	INSPECTION METHODS
2.3 Self-timer	Set the self-timer after winding up the film advance lever, depress the start button, and see if the self-timer operates correctly and the shutter button returns correctly after releasing shutter.
2.4 Film rewind button	Insure that the sprocket is freed when the film rewind button is depressed and that the button resets correctly when the film advance lever is wound.
2.5 Feeding of film and rear cover operation	Load the film, repeat film advancing ten times and insure that film is advanced correctly and that the advance lever returns correctly after advancing film. See if the film can be rewound correctly. Insure that the rear cover can be opened and closed correctly, and it is locked securely.
3. Shutter	
3.1 Shutter speed selector dial	Insure that the dial cannot be turned from "B" to any shutter speed when the shutter button is depressed. Operate the dial from "B" to 1/1000 sec. and contrarily from 1/1000 sec. to "B", and see if it operates smoothly and clicks correctly.
3.2 ASA speed selector	Pull up the shutter speed selector dial and turn it from ASA25 to 3200. Insure the dial can be operated.
3.3 Shutter	<p>Install a lens, set at 0.45 m (1.5 ft) and f/1.8. Release the shutter three to four times.</p> <p>(1) At 1/1000 sec., 1/60 sec. and 1 sec. Insure that correct exposure can be obtained. Insure that the quick return mechanism operates.</p> <p>(2) Set the shutter speed at "B" and insure that the shutter operates correctly.</p>
4. Film counter	
4.1 Advancing	Repeat film advancing from "S" to 8 (10 frames), and insure that film is advanced one frame by one frame correctly and that a proper border space is provided between frames.
4.2 Self resetting	When film is advanced to 8, open the rear cover. See if the dial plate has been reset to "S" correctly.

INSPECTION POINTS	INSPECTION METHODS
<p>5. Viewfinder</p> <p>5.1 Coincidence of "inf" of rangefinder</p> <p>5.2 Cross-view</p> <p>5.3 Vignetting in field of view</p> <p>5.4 Dust, scar and contamination</p>	<p>Install the lens, set range finder at "inf" (∞), observe an object in a far distanced place, and confirm the coincidence. A slight over coincidence is acceptable but shortage should not be permitted.</p> <p>Insure that there is no noticeable cross-view. (Should be 10 cm or less per approximately 5 meters).</p> <p>Insure that there is no vignetting in field of view, existance of foreign matter, deformation of view finder frame, etc.</p> <p>Insure that no noticeable dust, scar, stain flat and other contaminations are in and out of the view finder frame.</p>
<p>6. Lens</p> <p>6.1 Manual lens opening control</p> <p>6.2 Automatic lens opening control</p> <p>6.3 Lens opening delay</p> <p>6.4 Hellicoid</p>	<p>Insure that the lens opening works correctly at "inf" and the minimum range. Depress the lens opening button and rotate the apertur selector ring from 1.8 to 22 and 22 to 1.8. Insure the aperture changes correctly and that the click operates effectively. No blade should remain.</p> <p>Set at f/22, operate the shutter and insure that the lens opening operates correctly at "inf" and 0.45 m (1.5 ft).</p> <p>Set at 0.45 m (1.5 ft). f/16 and 1/1000 sec. Open the rear cover and release the shutter. Insure that no lens opening delay occurs at right corner of picture frame.</p> <p>Rotate the focus ring from "inf" to minimum range and from minimum range to "inf" and insure that the hellicoid operates smoothly and equally through-out its stroke.</p>
<p>7. External Appearance</p>	<p>(a) Lens should be completely clean. (No scar, peeled off coating, burning, dust finger print or other contamination should exist.)</p>

INSPECTION POINTS	INSPECTION METHODS
8. After inspection	<p>(b) No scratch, damage, unnecessary space or other matter which harms the external appearance should exist.</p> <p>(c) For adhered parts, no part should be peeled off, floated, or no adhesive should come off from such part.</p> <p>(a) Lens: Set to "inf".</p> <p>(b) Shutter: To be released. (Do not leave the film advance lever wound up.)</p> <p>(c) Shutter speed selector dial: To 1/1000 sec.</p> <p>(d) Film speed: To ASA100.</p> <p>(e) Battery: Should be removed.</p> <p>(f) Film counter: Set to "S".</p> <p>(g) Self-timer: To be released. (Do not leave the self-timer set on.)</p>

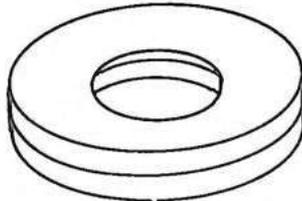
REPAIR TOOLS
LENSES FOR FUJICA ST701

1. Name Plate Remover (L41-TA1)



Used for removal and reinstallation of name plate (L41).
Used commonly for 35 to 200 mm lenses.

2. Gauge (L55-GA2)



See if the diaphragm is fully open when height of the pin is 8 mm from the flange surface.

Place the Gauge (L55-GA2) on the flange surface and see if the diaphragm is closed the minimum f-number.