

EXAKTA TL1000 CAMERA

(TL 500)

REPAIR MANUAL

Fig.No.	Cord No.	Name	Unit
1	039-1110	Wind lever screw	1
2	021-1323	Wind lever screw nut	1
3	055-1008	Wind lever	1
4	039-2109	Wind lever screw B	2
5	011-1096	Clutch spring washer	1
6	011-1097	Friction clutch spring	1
7	021-1068	Wind lever spacer	1
8	011-2351	Shutter speed dial screw	3
9	055-1505	Shutter speed dial	1
10	237-0501	Rewind knob	1
11	237-2001	Rewind knob plate screw	1
12	011-1240	Rewind knob plate	1
13	237-1401	Battery cap	1
14	637-4555	Screw S81-174555H	1
15	627-2555	Screw S73-172555H	3
17	237-0702	Top cover	1 TL1000
17	251-0702	" "	1 TL 500
19	211-6004	Counter window	1
20	039-1109	Synchro nut	1
21	039-1708	Synchro terminal	1
22	630-3555	Screw S81-203555H	3
23	036-1039	Accessory shoe	1
24	055-6000	Accessory shoe base	1
25	024-5310	ASA name	1
26	627-2555	Screw S73-172555H	2
27	039-1004	Bottom cover	1
28	039-2102	Self-timer lever screw	1
29	039-1021	Self-timer lever spring	1
30	039-0003	Self-timer lever	1
31	211-1802	Front leatherette (left)	1 TL1000
31	251-1801	" " "	1 TL 500
32	055-1007	Front leatherette (right)	1
33	637-2553	Screw S91-172553H	4
34	211-0013	Shutter button cover	1 TL1000
34	225-1005	" "	1 TL 500
36	637-2553	Screw S81-172553H	2
37	055-1010	Front cover	1
39	052-2042	Strap holder nu	2
40	052-1037	Strap holder spring	2
41	052-1053	Strap holder	2
42	211-1402	Shutter button B	1
45	055-5001	Speed dial name	1 TL1000
45	251-5001		1 TL 500

Fig.No.	Cord No.	Name	Unit
50	627-4052	Screw S73-174052H	1
51	627-3552	Screw S73-173552H	1
52	211-1008	Counter assembly	1
53	021-2507	Counter gear screw	1
54	039-5002	Counter dial	1
55	021-3527	Counter gear spring	1
56	617-7052	Screw S71-177052H	1
57	211-5001	Counter indicator	1
58	627-2853	Screw S73-172853H	3
59	021-5011	ST contact base	1
60	021-2398	Speed dial base screw A	1 TL1000
60	225-1001	Speed dial base Screw	1 TL 500
61	627-2853	Screw S73-172853H	1
62	021-2399	Speed dial base screw B	1
63	021-1070	Speed dial base	1
64	011-2323	First blind gear screw	1
65	021-1315	High speed cam	1
66	021-2325	ST contact screw	2
67	021-1076	ST contact	1
68	021-1075	Click plate	1
69	021-1238	Slow escapement cam	1
70	021-1239	Slow speed cam	1
71	624-1553	Screw S73-141553H	1
72	021-0510	X contact switch	1
73	021-1237	Slow escapement rebase bar	1
74	021-3550	Slow escapement rebase bar spring	1
75	624-1553	Screw S73-141553H	1
76	021-0511	X contact	1
77	011-1225	E ring 15	1
78	021-1152	Counter pawl lever	1
79	021-3530	Counter pawl lever spring	1
80	021-2337	Counter pawl lever screw	1
81	021-2385	First blind gear nut	1
82	021-1058	Speed adjustment cam	1
83	021-1057	Speed adjustment cam washer	1
84	021-3518	X contact lever spring	1
85	021-3516	First blind cam follower A spring	1
86	021-2376	First blind cam follower A screw	1
87	211-0516	First blind cam follower A	1
88	021-2370	Counter lever A screw	1
89	021-1156	Counter lever	1
90	021-2371	Gear plate A screw	1
91	021-2531	Gear plate A screw B	1
92	627-2853	Screw S73-172853H	2
93	021-2401	Click pawl screw	1
94	021-1072	Click pawl	1
95	021-3525	Click pawl spring	1
96	614-2053	Screw S71-142053H	3
97	021-0704	Governor	1
98	021-3528	Counter pawl spring	1
500	225-1006	Speed dial stopper	1 TL 500

Fig.No.	Cord No.	Name	Unit
99	627-2852	Screw S73-172852H	2
100	617-2552	Screw S71-172552H	1
101	637-2553	Screw S73-172553H	2
102	021-2368	Spring retainer	1
103	021-1067	Wind spring base B	
104	021-3511	Wind lever spring	1
105	021-0507	Gear plate A	1
106	021-1069	Wind lever shaft	1
107	011-3514	Wind pawl spring	1
108	021-2412	Brake cam nut	1
109	021-1085	Brake cam washer	1
110	021-1382	First blind gear	1
111	021-1379	Second blind gear	1
112	021-1149	Upper clutch gear	1
113	021-1362	Clutch gear	1
114	021-1360	Idle gear	1
115	021-1493	Primary gear	1
116	021-2373	First blind stopper screw	1
117	021-3514	First blind stopper spring	1
118	052-1022	First blind stopper	1
119	021-2387	Ratchet pawl screw	1
120	021-2386	Eccentric ratchet washer	1
121	021-1059	Ratchet pawl	1
122	021-3523	Ratchet pawl spring	1
123	021-2372	Gear stopper screw	1
124	021-3513	Gear stopper spring	1
125	021-1048	Second blind gear stopper	1
126	021-1049	Clutch gear stopper	1
127	021-3512	Second blind gear stopper spring	1
128	021-1084	Brake cam	1
129	021-3515	Second blind stopper spring	1
130	021-2374	Second blind stopper screw	1
131	021-1051	Second blind stopper	1
132	624-2053	Screw S73-142053H	1
133	021-1060	Clutch spring pawl	1
134	627-2853	Screw S73-172853H	1
135	637-2853	Screw S81-172853H	1
136	021-1079	Release shaft bridge	1
137	627-2853	Screw S73-172853H	2
138	211-0801	Release arm A	1
138	211-1006	Release arm A	1 For 1/500
139	021-1357	Shutter release shaft	1
140	021-3564	Shutter release shaft spring	1
141	021-0528	Spool gear	1
142	052-1052	Second blind pinion	1
143	052-1051	First blind pinion	1
144	052-3010	First blind stopper lever spring	1
145	052-0103	Gear plate B	1
149	211-1007	Release arm B	1
146	021-0526	Battery contact	1
147	637-2853	Screw S81-172853H	1
148	021-1143	Battery box	1

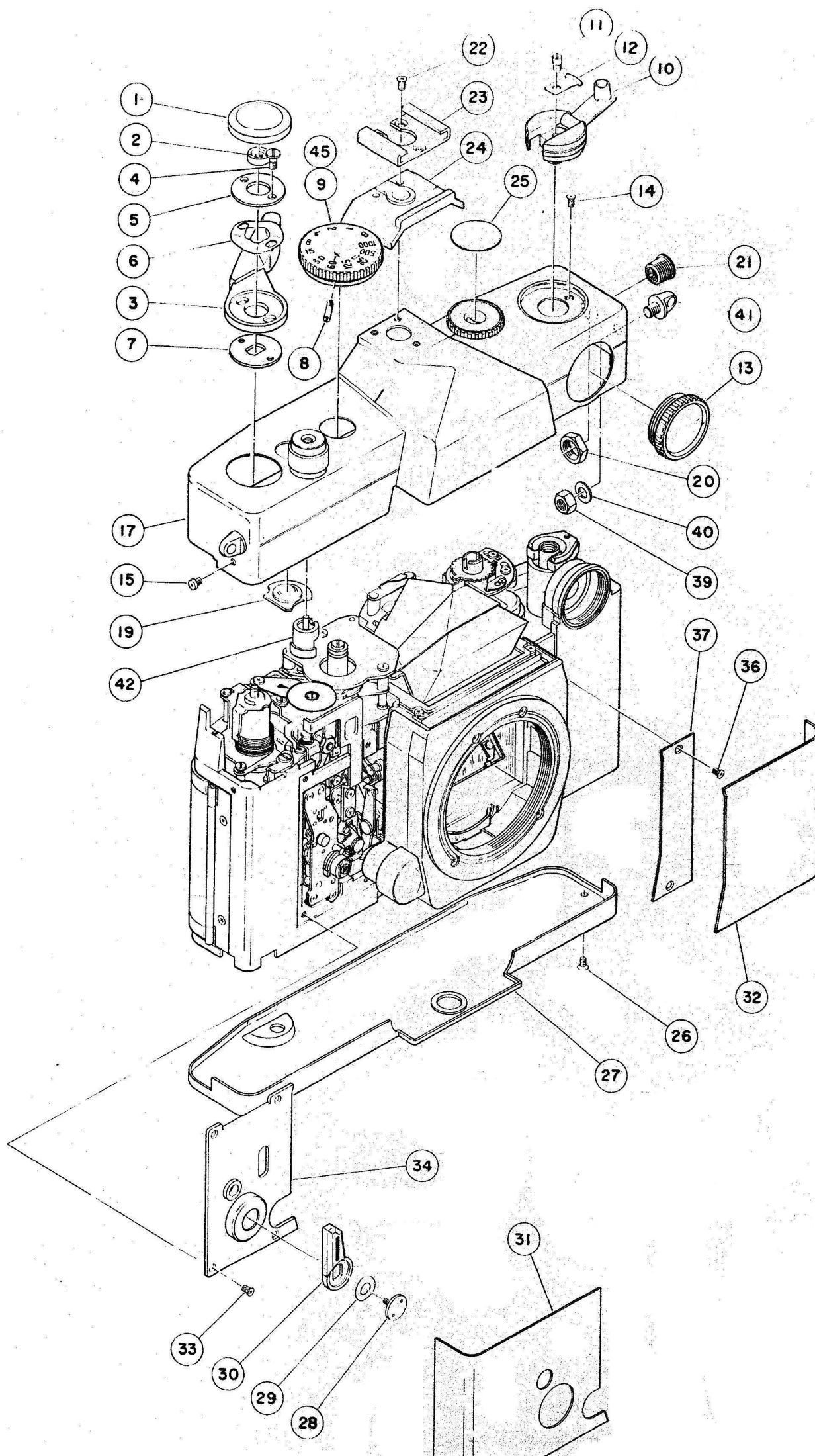
Fig.No.	Cord No.	Name	Unit
151	617-2053	Screw S81-172053H	3
152	039-0714	Self-timer	1
153	627-2853	Screw S73-172853H	2
154	052-0106	Release stopper base	1
155	006-2304	Release stopper A screw	1
156	052-1003	Release stopper A	1
157	052-3001	Release stopper A spring	1
158	052-3015	Release stopper C spring	1
159	617-1853	Screw S71-171853H	1
160	021-1039	Body light baffle plate	1
161	627-2053	Screw S73-172053H	1
162	021-1094	Main shaft adjustment spring	1
163	011-2462	Main shaft adjustment nut	2
164	011-1212	E ring 1.2	2
165	021-0602	Blind	1
166	011-2459	Drum nut	2
167	627-4052	Screw S73-174052H	1
168	627-2853	Screw S73-172853H	1
169	021-1092	Upper drum plate	1
170	021-2467	Upper bounce stopper screw	1
171	021-1191	Upper bounce stopper	1
172	627-4052	Screw S73-204052H	1
173	021-1192	Lower bounce stopper	1
174	021-1093	Lower drum plate	1
175	627-2852	Screw S73-172852H	1
176	052-3002	Switch lever spring	1
177	052-2003	Switch lever screw	1
178		Vinyl tube	1
179	052-1002	Switch lever	1
180	052-2010	Switch lever stopper	1
181	617-2553	Screw S71-172553H	2
182	052-0503	Switch contact	1
183	021-1172	Light baffle plate B	1
184	039-1018	Upper light baffle sponge	1
185	021-1037	Light baffle sponge	1
186	039-1019	Lower light baffle spinge	1
187	245-1902	Body	1

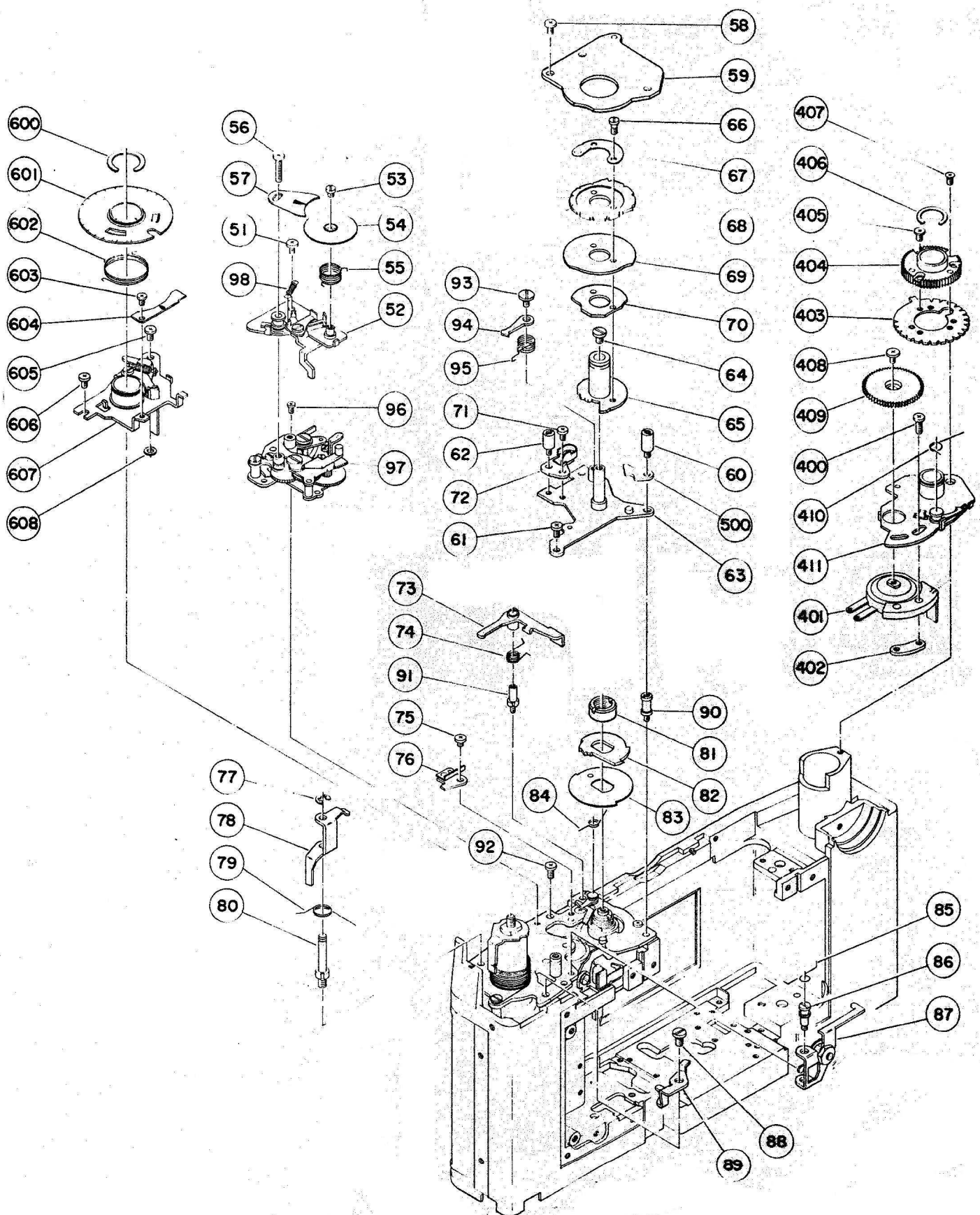
Fig.No.	Cord No.	Name	Unit
201	001-1102	Latch cover leatherette	1
202	637-3553	Screw S81-172853H	2
203	001-1064	Latch cover	1
204	001-3516	Latch lever spring	1
205	001-1065	Latch lever	1
206	637-2853	Screw S81-172853H	2
207	021-0712	Back cover	1
208	021-1209	Back cover leatherette	1
209	011-0101	Pressure plate	1
210	052-1054	Rewind shaft holder	1
211	052-1031	Rewind friction spring	1
212	211-1404	Rewind shaft	1
213	001-2362	Rewind shaft collar	1
214	001-3514	Collar retainer spring	1
215	001-1100	Side light baffle	1
216	627-2253	Screw S73-172253H	2
217	052-0509	FP contact	1
218	021-1221	Volume	1
219	021-1222	Volume compartment	1
220	627-2553	Screw S73-172553H	4
221	052-0517	Charge lever plate	1
222	052-2001	Charge lever screw	1
223	052-1000	Charge lever	1
224	052-3000	Charge lever spring	1
225	052-2029	Release link C screw	1
226	052-3012	Release link spring	1
227	052-1025	Release link C	1
228	011-1237	E ring 2.0	1
229	052-3005	Principal driving lever spring B	1
230	052-3004	Principal driving lever spring A	1
231	052-1016	Principal driving lever	1
232	011-1237	E ring 2.0	1
233	052-3009	Mirror driving lever C spring	1
234	052-1021	Mirror driving lever C	1
235		Vinyl tube	1
236	011-1225	E ring 1.5	1
237	052-1050	Charge cam	1
238	011-2335	Lock lever nut	1
239	052-3013	Lock lever spring	1
240	021-1202	Lock lever	1
243	011-1225	E ring 1.5	1
244	052-3006	Release arm C spring	1
245	052-1019	Release arm C	1
246	052-2011	Release arm spring pin	1
247	052-3007	Release arm B spring	1
248	021-1510	Lock lever shaft	1
249	627-2853	Screw S73-172853H	1
250	052-0508	Bottom gear plate	1

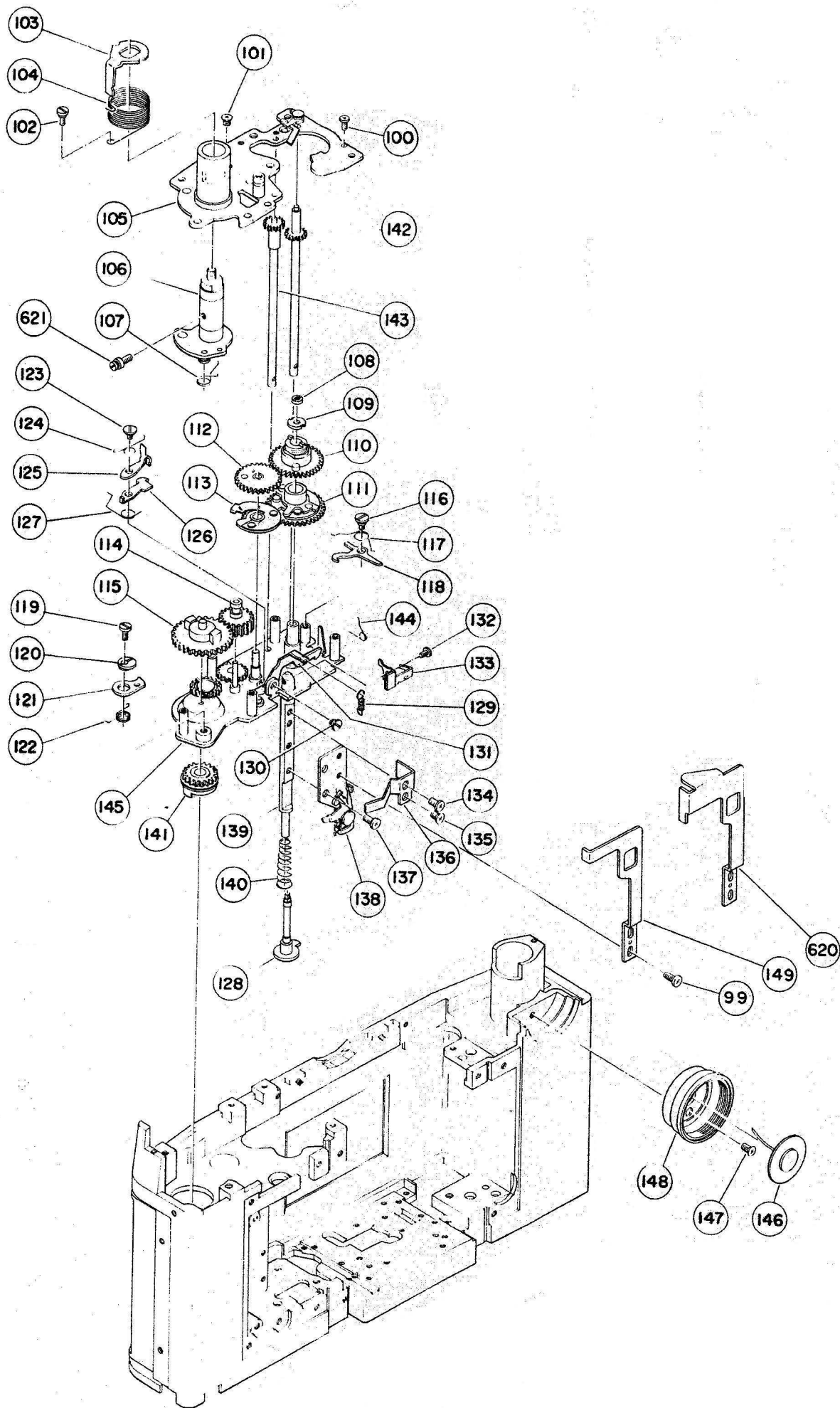
Fig.No.	Cord No.	Name	Unit
251	021-2316	Mirror gear screw	1
252	011-1619	Mirror gear	1
253	021-2434	Sprocket shaft pin	1
254	021-1431	Rewind button	1
255	021-3519	Sprocket shaft spring	1
256	021-1432	Sprocket shaft	1
257	021-1433	Sprocket	1
258	021-0524	Spool	1
259	011-1212	E ring 1.2	1

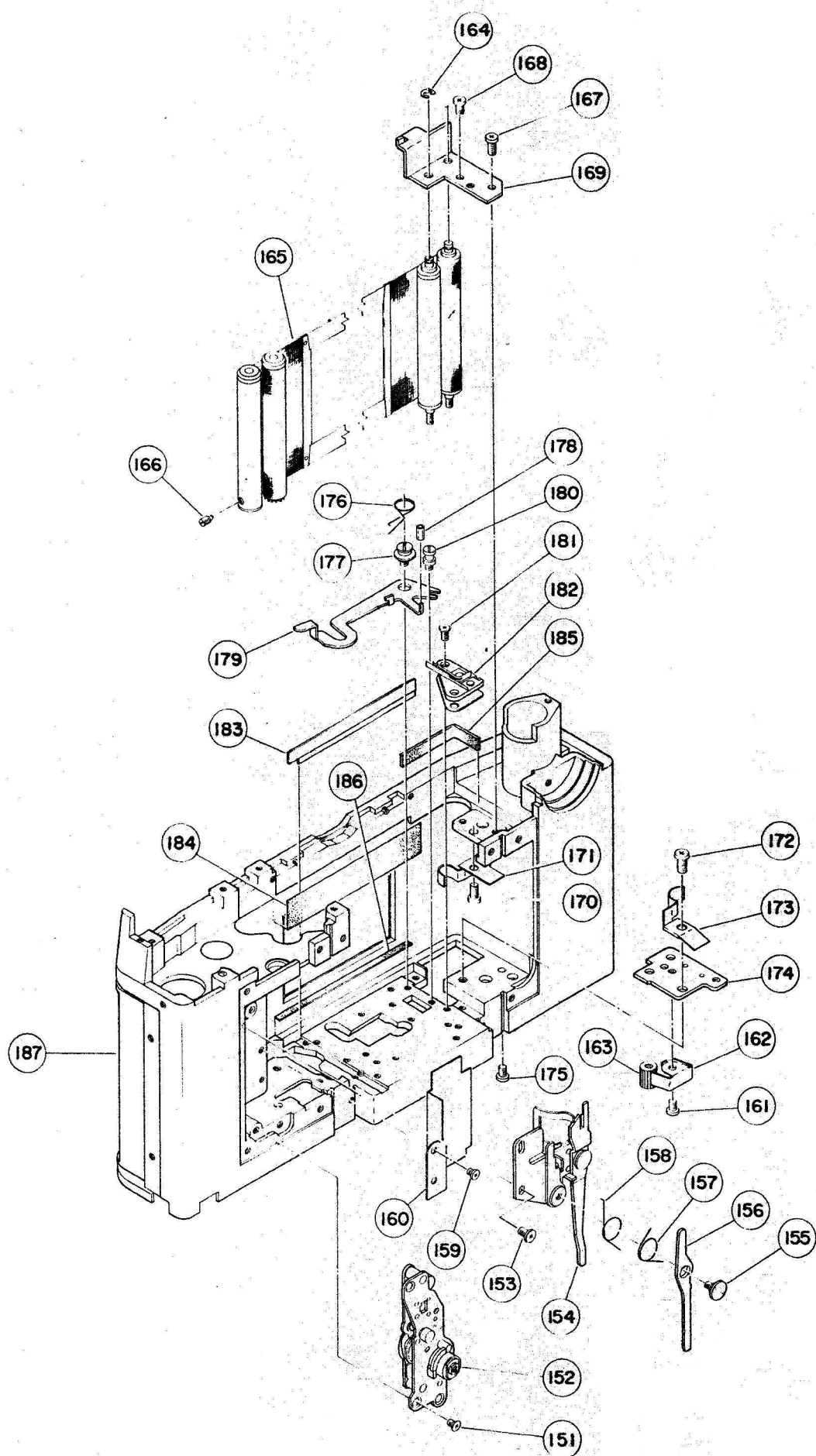
Fig.No.	Cord No.	Name	Unit
281	627-4052	Screw S73-174052H	1
282	021-1034	Connector base	1
283	627-4052	Screw S73-174052H	2
284	001-2783	ASA click spring screw	1
285	021-1024	ASA click spring	1
286	021-1026	ASA click stopper nut	1
287	697-2253	Screw S70-172253H	1
288	021-1320	ASA click plate	1
289	021-1025	ASA click stopper	1
290	627-4052	Screw S73-174052H	2
291	021-0721	ASA resistor	1
292	627-4052	Screw S73-174052H	2
293	021-0706	Light meter	1
294	627-5552	Screw S73-175552H	1
295	021-1103	Connector	1
296	021-2323	Connector base pillar	1
297	021-1212	Light meter base	1
298	021-1033	Light meter sponge	1
299	627-4052	Screw S73-174052H	2
300	021-6015	CdS cell base	1
301	021-4319	Eye-piece lens	1
302	021-1216	CdS cell	2
303	627-4052	Screw S73-174052H	2
304	021-1111	Prism fixing plate	1
305	011-4307	Prism	1
306	021-1196	Prism seat	1
307	021-1193	Prism fixing base	1
308	021-1114	Prism protector	1
309	627-2853	Screw S73-172853H	2
310	627-4052	Screw S73-174052H	2
311	021-4318	Condenser lens	1
312	021-1118	Condenser lens frame	1
313	021-2512	Condenser lens frame screw	2
314	011-1236	Dust shield	1
315	614-2053	Screw S71-142053H	2
316	021-1185	Meter indicator frame	1
317	627-4052	Screw S73-174052H	3
318	614-2053	Screw S71-142053H	3
319	021-1115	Dust mask	1
320	021-1016	Field mask	1
321	021-4317	Fresnel lens	1
322	021-1113	Fresnel lens spring	1
323	021-1112	Fresnel lens mask	1

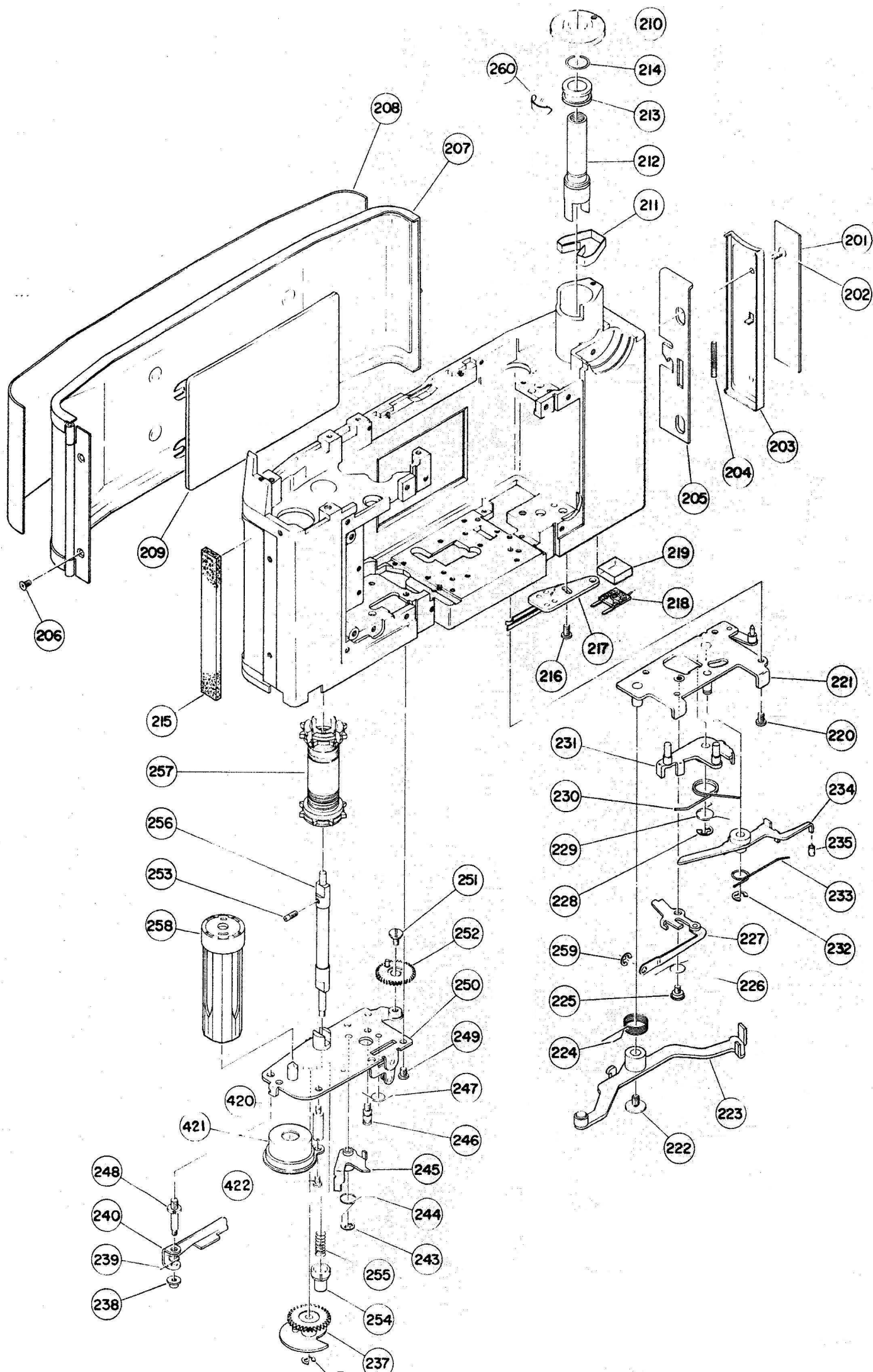
Fig.No.	Cord No.	Name	Unit
350	237-6001	Manual button A	1
351	610-7055	Screw S71-207055H	4
352	055-1500	Flange	1
353	055-1011	Front plate	1
355	039-2109	Mirror box screw	4
356	055-1013	Baffle plate	1
357	627-2553	Screw S73-172553H	3
358	055-0204	Principal lever plate	1
359	055-3001	Manual lever spring	1
360	055-3000	Principal lever spring	1
361	055-1020	Mirror box	1
362	052-2015	Mirror lever A screw	1
363	052-3008	Mirror lever spring	1
364	052-1019	Mirror lever A	1
365	052-2021	Mirror lever A collar	1
366	052-2005	Mirror lever B stopper	1
367	021-2446	Mirror frame adjuster screw	4
368	021-1120	Mirror frame adjuster A	1
369	021-1205	Mirror frame adjuster B	1
370	011-2488	Mirror frame stopper screw	2
371	021-1204	Mirror frame stopper B	1
372	021-1123	Mirror frame stopper A	1
373	624-1553	Screw S73-141553H	2
374	052-3011	Mirror frame stopper spring	2
375	011-2382	Mirror frame stopper pin	2
376	052-1029	Mirror frame	1
377	021-4316	Mirror	1
378	021-2469	Mirror fix screw	2
379	021-1040	Mirror fix spring washer	1
380	021-1126	Mirror fix spring	1
381	021-1124	Mirror fix nut	1
382	021-1023	Meter needle dust shield	1
383	039-1025	Mirror dust shield	2
384	011-1226	Baffle sponge	1
385		Sponge	2
386	694-2053	Screw S70-142053H	1
387	055-1501	Manual button	1
388	011-3520	Manual button spring	1
389	055-1502	Manual button holder	1

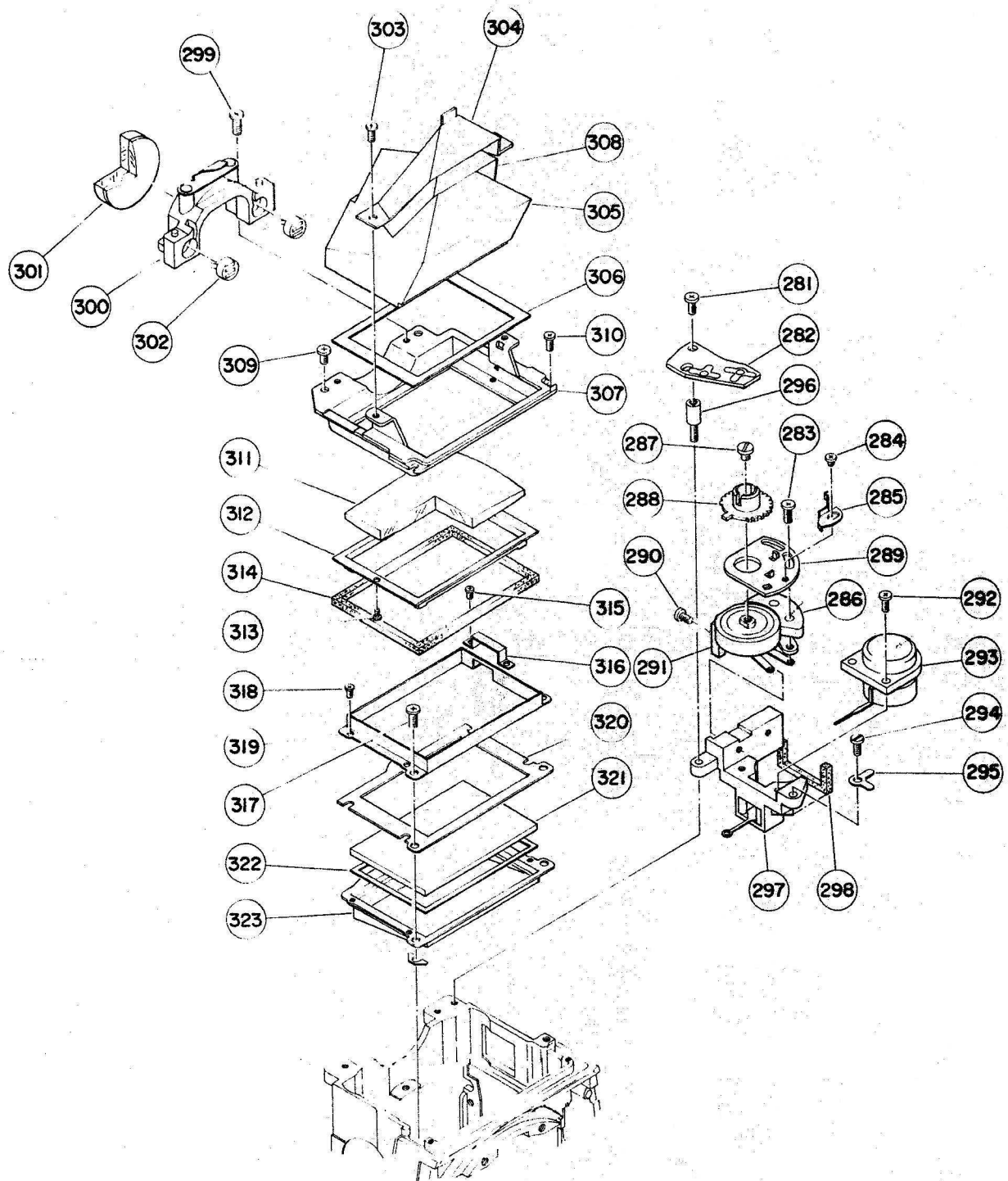


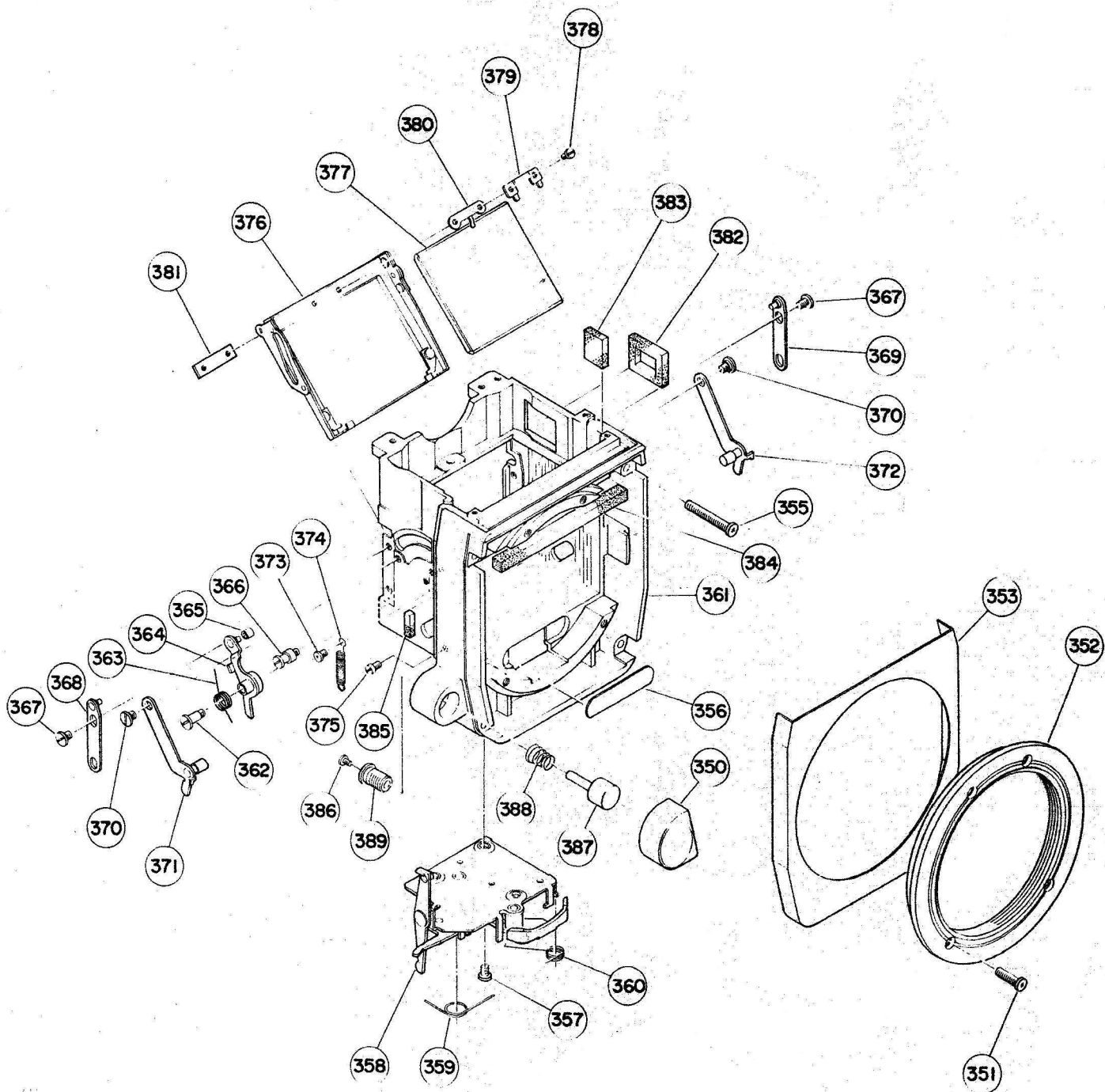












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Chapter I. General description

1. General description of functions.

When the wind lever (3) is wound up, the shutter blind is wound up while the switch lever (179) turns on the switch of the exposure meter built in the camera and the charge lever (223) gives a tensile force to the principal driving lever spring A (230) and the mirror driver C spring. This winding operation also turns the sprocket (257) by one frame of film, and the release stopper mechanism is released immediately before the completion of the winding.

Depressing the shutter button will put the second stopper (131) in the position so as to prevent the second blind gear (111) from beginning to turn, and release the clutch mechanism to free the upper clutch gear (112), thus completing the preparations for shutter exposure.

Depressing the shutter button again will release the principal driving lever (231) to turn rapidly, and the diaphragm driving lever ganged to it will push the pin for the automatic diaphragm operation of the lens, and simultaneously the mirror lever C (234) will turn to make the mirror jump, and the switch of the FP contact will be turned on. The first blind stopper (118) will be released just before the top dead point of the mirror to start the first blind.

The first blind turns on the X contact switch at the moment when its mouth piece gets hidden from the image field, and stops by the action of the braking mechanism.

The exposure time of the shutter can be selected to a given time by setting the shutter speed dial (9) to the index. The high speed exposure time (divided in the range of $1/1000$ sec - $1/60$ sec as against the low speed range of $1/30$ - 1 sec) is varied by the shutter lever B, whose position is determined by the high speed cam (65) on which the speed dial is mounted, as it is pushed up by the speed adjustment cam (82). The low speed exposure time can be varied by varying the operating time of the governor (97) by means of the slow speed cam (70). Setting the speed dial to "B" will release the shutter lever B from the speed adjusting cam and thus the shutter lever B will not be pushed up. Then depressing the shutter button will make the first blind run, but the second blind will not start, and releasing the shutter button will run the second blind.

Towards the end of the running course of the second blind, the switch lever is depressed by the mirror gear (252), and the charge lever stopper ganged to the switch lever is released, restoring the principal driving lever and the mirror driving lever C to the state before winding, and the switch of the exposure meter contained is turned off.

Depressing the manual button A (350) will depress the pin for automatic diaphragm operation of the lens, to operate the diaphragm to a given value, and the light measurement preparations will be completed. The light measurement may be conducted either by the method in which amount of light entering the cds cell (302) is varied by adjusting the lens diaphragm opening level to set the meter indicator to the fixed point or by the method in which the speed dial is turned to select the resistance gauged to it for setting the meter indicator to the fixed point.

Chapter II Overhauling

1. Overhauling the covers, wind dever, and Rewind knobs.

1-1. Overhauling the Bottom Cover (27).

Remove the two fixing screws (26) and take off the bottom cover (27).

1-2. Overhauling the wind lever (3).

Remove the wind lever screw (1).

Remove the wind lever screw nut (2) by means of the special tool (K-101127).

1-3. Overhauling the Rewind Knob (10).

Remove the rewind knob by turning the crank shaft with force anti-clockwise by inserting a screw driver in the forked part on the principal shaft side of the rewind shaft (212).

1-4. Overhauling the speed Dial (9).

Remove the third small screws (8) of the shutter speed dial (9).

Note: Match the "B" of the graduation engraved on the upper surface of the speed dial to the index.

1-5. Overhauling the Top cover Cover (17)

Remove the battery cap (13)

Remove the two mounting screws (15) on the rear of the cover, the mounting screws (15) on the side and the mounting screw (14) on the upper surface, and then take off the top cover (17).

1-6. Remove the front leatherette (left) (31).

1-7. Overhauling the shutter Button Cover (34).

Turn the self-timer lever screw (28) by means of the special tool (K104003) and remove the selftimer lever (30), and then remove the four mounting screws (33) of the shutter button cover (34).

1-8. Remove the front leatherette (right) (32).

1-9. Overhauling the front cover (37).

Remove the mounting screws (36) two.

Note: After removing the top cover (17), mount the wind lever (3) again for facilitating the further overhauling and repair work.

2. Overhauling the exposure meter assembly.

2-1. Remove all the wires from the connector (282) except the red lead wire. Remove also the wire from the accessory shoe contact in the upper part of the CDS cell base (300).

2-2. Remove the screw (281) fixing the connector (282) and three screws (58) fixing the ST contact base (59).

2-3. Remove the blue lead wire among the wires connected to the ASA resistor (291).

2-4. Remove the fixing screws (294) and (296), and then the light meter (293).

Note: Take precaution not to bend the indicator needle and mark of the light meter (293).

3. Overhauling the mirror box assembly

3-1. Remove the four screws (351) fixing the flange (352).

3-2. Remove the front plate (353), four screws (355) and the mirror box (361).

4. Overhauling the self timer assembly.

Remove the three screws (151) fixing the self timer (152).

5. Overhauling the counter assembly.

Remove the screws (56) and (51) fixing the counter (52).

6. Overhauling the shutter speed adjustment mechanism.

6-1. Remove the screw (71) fixing the contact switch (72) and the speed dial base screw B (62).

6-2. Remove the screw (61) fixing the speed dial base (63) and the two speed dial base screw A, (60).

6-3. Remove the three screws (76) fixing the governor (77).

6-4. Remove the first blind cam follower A spring (85), the first blind cam follower A screw (86) and the first blind cam follower A (87). The first blind cam follower A (87) can be easily removed while winding up the wind lever (3) and depressing the shutter button.

6-5. Loosen the first blind gear nut (81) by turning it clockwise with the special tool (K101072), and remove the speed adjustment cam (82) and the speed adjustment cam washer (83).

6-6. Remove the second blind stopper spring (129) from the clutch spring pawl (133), and remove the second blind stopper (131) by loosening the second blind stopper screw (130).

7. Overhauling the shutter release mechanism.

7-1. Remove the two screws (137) fixing the release arm A (138).

7-2. Remove the screws (134) and (135) fixing the release shaft bridge (136), and pull off the shutter release shaft (139) upward.

7-3. Remove the two screws (153) fixing the release stopper base (154).

8. Overhauling the gear plate A. B. assembly.

(overhauling is easier when the shutter is released).

8-1. Remove the two screws (159) fixing the body light baffle plate (160).

8-2. Loosen the brake cam nut (108) by turning it clockwise with the special tool (K-101133), and pull off the brake cam (128) downward.

8-3. Remove the screw (75) fixing the X contact (76).

8-4. Remove the screw (161) fixing the main shaft adjustment spring (162).

8-5. Remove the two main shaft adjustment nuts (163) by turning them clockwise through preventing rotation of the main shaft by pressing the head of the main shaft with a screw driver, and then remove two E-ring (164).

8-6. Remove the screw (170) fixing the upper bounce stopper (171) by means of the special tool (K-101129).

8-7. Remove the screws (167) and (168) of the upper drum plate (169) and pull off both drum plates.

8-8. Remove the screw (88) fixing the counter lever (89), and remove the counter pawl lever screw (80) by means of the special tool (K-101132).

Remove the gear plate A screw B (91) with the special tool (K-101131), remove the gear plate A screw (90) and screw (92), and take the gear plate A (105) off the body.

9. Overhauling the charge lever mounting plate assembly.

9-1. Remove the E-ring (259) connecting the release link A and the release link B.

9-2. Remove the four screws (220) fixing the charge lever plate (221).

10. Overhauling the bottom gear plate assembly.

- 10-1. Remove the lock lever nut (238) by means of the special tool (K-101133), turn the charge cam (237) to a position where it will not touch the lock lever (240), and pull off the lock lever (240).
- 10-2. Remove the sprocket shaft pin (253).
- 10-3. Remove the lock lever shaft (248) by means of the special tool (K-101130).
- 10-4. Remove the mirror gear screw (251) and remove the mirror gear (252).
- 10-5. Remove the release arm B spring (247) and the release arm C spring (244), and then remove the release arm spring pin (246).
- 10-6. Remove the two screws (249) fixing the lower gear plate (250), and pull off the lower gear plate (250).

Chapter III Troubleshooting and Remedies.

TROUBLES	CAUSES	REMEDIES
<u>WINDING</u> Winding does not function	<ol style="list-style-type: none"> 1. Second blind does not fully return. <ol style="list-style-type: none"> 1-1. Too strong upper bounce 1-2. Mouth piece being stuck 2. Diviated position of ratchet pawl (121). 3. Malfunctioning of second blind gear stopper (125) and clutch gear stopper (126). 4. Push button can be depressed in the middle. <ol style="list-style-type: none"> 4-1. Too poor contact between release shaft bridge (136) and release stopper C. 5. Bad position of clutch spring pawl (133). 	<p>Adjust upper bounce stopper (171), so as to enable the brake to be applied. from the point at 2/3 of the image field.</p> <p>Correct the relief of warped and coulked parts.</p> <p>Make the adjustment described 1-3 in CHAPTER IV.</p> <p>Adjust so as to improve their function.</p> <p>Make the adjustment described in 2-2 (b) in CHAPTER IV.</p> <p>Make the adjustment described in 1-2 (a) and 2-1 in CHAPTER IV.</p>

TROUBLES	CAUSES	REMEDIES
<u>WINDING</u> Winding does not function	6. Shutter release shaft (139) will not return.	
	6-1. Push button does not return.	See the section on bad return of push button.
	7. Too early setting (Deviated timing of 2 and 3)	Make the adjustment described in 2-3 in CHAPTER IV.
	8. Too late setting.	"
	9. No setting.	
	9-1. Deviated timing of 2 and 3.	"
	9-2. Poor motion of release arm C (245).	Adjust so as to make the release arm C smoothly.
	9-3. Release stopper A (156) and release stopper C do not move well.	Adjust as above.
	10. First blind gear (110), first blind pinion (143), upper clutch gear (112) do not turn.	
	10-1. Broken tooth.	Replace gear.
	10-2. Foreign matter intrusion.	Overhaul, clean and install.
	10-3. Spring displaced.	Overhaul, and remove the spring. Particularly first blind stopper spring (117).
	11. First blind ribbon cut or removed from the drum.	Replace blind. Note: Adjust so as to delay first blind mouth piece by 0.4 mm from second blind just before blind mouth pieces set hidden from image field.
	12. Charge lever stopper does not stop charge lever (223).	
	12-1. Switch lever (179) does not reach switch lever stopper (180).	Adjust so as to make it move lightly to the stopper.

TROUBLES	CAUSES	REMEDIES
	12-2. Too large backlash of charge lever bearing.	Replace the charge lever (223)
	12-3. Bad motion of charge lever stopper	Adjust so that it moves lightly.
<u>WIND LEVER</u> Heavy winding	1. too strong bounce stoppers.	Same as in 1-1 in the winding incapacitated clean upper clutch gear (112), lower clutch gear (113), and give lubricating oil. Note: oil only a small amount of M8000.
	3. When films is put in.	
	3-1. Bad motion of rewind shaft.	Clean rewind shaft (212), give a small amount of lubricating oil, or replace (212).
	3-2. Specks attached on the corridor.	Remove the specks and clean.
	3-3. Pressure plate is not even.	Replace pressure plate (209).
Winding not smooth winding has a hitch	1. Roller of charge lever not rolling.	Replace charge lever (223).
Winding has a hitch	1. Clutch spring is detormed.	Replace lower clutch gear assembly (113).
	2. Foreign matter in winding gears and rotary parts.	Remove foreign matter and clean.
Wind lever will not return	1. Wind lever spring (104) is off wind spring base B (103) or broken.	Hook wind lever spring (104) on wind spring base B (103) or replace.
	2. Wind lever spacer (7) hits the top cover (17)	Adjust the cover (17).
Lost motion	1. Bad motion of wind pawl or wind pawl spring (107) is off.	Correct motion of wind pawl or install wind pawl spring (100).
	2. Clutch spring will not get hooked on clutch gear upper hook.	Adjust to normal position. See 1-2 (a) in CHAPTER IV.

TROUBLES	CAUSES	REMEDIES
Film will not be wound up.	<ol style="list-style-type: none"> 1. Sprocket shaft pin (253) is off. 2. Bad motion of sprocket shaft (256). 3. Rewind button (254) knocks against bottom cover (27). 	<p>Install sprocket shaft pin (253).</p> <p>Clean the sliding parts between sprocket shaft (256) and sprocket shaft center A and B, and give a small amount of grease (G72080).</p> <p>Adjust bottom cover (27).</p>
<u>SHUTTER BUTTON</u> Shutter button does not return	<ol style="list-style-type: none"> 1. Foreign matter between (cut chips, paste, specks, etc.) between shutter button and shutter button collar. 	<p>Remove foreign matter and clean.</p>
Too deep shutter button stroke	<ol style="list-style-type: none"> 1. Too large clearance between shutter release shaft (139) and release link A 2. Bad installation position of release arm B (149). 	<p>Adjust to normal position See 2-4 in CHAPTER IV</p> <p>Adjust to normal position See 2-5 in CHAPTER IV.</p>
Too shallow shutter button stroke	<ol style="list-style-type: none"> 1. Shallow application of release link C (227) on principal driving lever (231). 	<p>Adjust to normal position See 2-4 in CHAPTER IV.</p>
Shutter button has backlash	<ol style="list-style-type: none"> 1. Too much clearance in contact parts between release arm B (149) and shutter button shaft. 	<p>Correct installation position of release arm B (149). See 2-5 in CHAPTER IV.</p>
Depressing shutter button	<ol style="list-style-type: none"> 1. First blind stopper (118) is applied poorly or not at all to first blind gear mechanism. 2. First blind stopper release lever will not return. 3. First blind stopper lever spring (144) is off. 	<p>Adjust so as to make first blind stopper (118) move lightly.</p> <p>Adjust so as to make it move lightly.</p> <p>Install first blind stopper lever spring (144) properly in position.</p>

TROUBLE	CAUSES	REMEDIES
Shutter button cannot be depressed	<ol style="list-style-type: none"> 1. Release stopper C hits release shaft bridge (136). 2. Poor motion of release stopper C. 3. Charge lever (223) does not fit into charge lever stopper 4. Bad motion of second blind gear stopper (125) and clutch gear stopper (126). 	<p>Adjust position of release stopper base (154) See 2-2 (b) in CHAPTER IV.</p> <p>Adjust so as to make it move lightly</p> <p>Take similar steps to these for incapacitated winding 12.</p> <p>Take similar steps to those for incapacitated winding 3.</p>
<u>COUNTER</u> Counter does not advance	<ol style="list-style-type: none"> 1. Pawls are out of indicator gear. <ol style="list-style-type: none"> 1-1. Bad motion of pawls 1-2. Counter pawl spring is off. 2. Feed volume of feed pawl is smaller than normal. 3. Counter pawl lever is not in normal position. 4. Counter gear spring off. 	<p>Adjust so as to make the move lightly.</p> <p>Hook counter pawl spring.</p> <p>Adjust to normal feed amount.</p> <p>Adjust to normal position See 6-2 in CHAPTER IV.</p> <p>Install film counter gear spring Fix film counter gear at turn from its free state.</p>
Counter does not return.	<ol style="list-style-type: none"> 1. Bad motion of pawls 2. Bad motion of pawl lever 3. Pawl lever spring off. 4. Film counter gear spring off. 5. Film counter dial hits counter indicator. 	<p>Adjust so as to make them move lightly.</p> <p>Same as above.</p> <p>Mount pawl spring correctly.</p> <p>Take the same steps as these for 4 of immobilized counter.</p> <p>Adjust film counter indicator to normal position.</p>
Film counter dial advance by two degrees	<ol style="list-style-type: none"> 1. Too much feed of counter lever B. 	<p>Adjust to normal feed. See 6-4 in CHAPTER IV.</p>

TROUBLE	CAUSES	REMEDIES
Counter does not move between 1/15 sec and 1/1000 sec of shutter	1. Pawl and slow escapement release bar pin get hitched	Adjust installation position of film counter assembly.
SHUTTER		
B hitches at high speed	1. Bad motion of shutter lever B. 2. Second blind stopper (131) does not get release because of poor adjustment first blind cam follower B. 3. Loosened installation of first blind cam follower A (87).	Adjust so as to make it move lightly. Adjust to normal position. See 4-2 in CHAPTER IV. Tighten first blind cam follower A screw (86).
No slit	1. Bad adjustment of first blind cam follower B. 2. Bad motion of second blind stopper (131). 3. Second blind stopper spring (129) off. 4. Too quick set (distorted-timing of 2 and 3) 5. Deviated position of ratchet pawl (121). 6. First blind stopper (118) does not apply to first blind gear mechanism.	Adjust to normal position. See 4-2 in CHAPTER IV. Adjust so as to make it move lightly. Install second blind stopper spring (129). Adjust to normal position. See 2-3 in CHAPTER IV. Adjust to normal position. See 1-3 in CHAPTER IV. Take the same steps as those taken for blind movement before raising mirror in shutter button section.
Half slit	1. Maladjustment of first blind cam follower B.	Adjust to normal position. See 4-2 in CHAPTER IV.
B hitches at slow	1. First blind cam follower B maladjusted. 2. Loosened first blind cam follower A (87).	Same as above. Tighten first blind cam follower A screw (86).
Slow escapement	1. Bad motion of sector gear. 2. Bad motion of slow escapement release bar A.	Replace governor (97). Adjust so as to make it make lightly.

TROUBLE	CAUSES	REMEDIES
	3. Slow escapement release bar spring off.	Install slow escapement release bar spring
	4. Slow escapement release bar B (73) makes poor motion.	Adjust so as to make it move lightly.
	5. Maladjustment of slow escapement release bar B (73).	Referring to 4-3 in CHAPTER IV. make the following adjustment: Adjust so as to make star wheel and anchor gear union released when pushed by speed adjustment cam (82) just before completing winding.
Slow : open	1. Bad motion of anchor gear	Replace governor (97).
	2. Anchor gear fitting too deep.	Adjust anchor gear to normal position.
	3. Bad motion of governor (97)	Replace governor (97).
B not properly stopped	1. Maladjustment of first blind cam follower B.	Adjust to normal position See 4-2 in CHAPTER IV.
	2. Loosened first blind cam follower A (87).	Tighten first blind cam follower A screw (86).
	3. Deviated position of ratchet pawl (121).	Adjust to normal position. See 1-3 in CHAPTER IV.
	4. Shallow application of second blind stopper (131)	Adjust to normal position. See 1-5 in CHAPTER IV.
	5. Speed adjustment cam washer (83) is not flat, so first blind cam follower B jumps.	Correct speed adjustment cam washer (83).
	6. First blind stopper (118) does not apply on first blind gear mechanism.	Take the same steps as those when the blind runs before raising of mirror in shutter button section.
B open	1. Maladjustment of clutch spring pawl (123).	Adjust clutch spring pawl (133) to normal position. See 1-5 (6) in CHAPTER IV.
	2. Shutter release shaft (139) does not vise.	
	2-1. Shutter release shaft does not rise	Adjust so as to make it move lightly.
	2-2. Bad motion of second blind stopper (131)	Same as above.

TROUBLE	CAUSES	REMEDIES
Shutter does not function.	2-3. Bad motion of shutter button.	Same as above.
	3. Second blind gear (111), second blind pinion (142) and mirror gear (252) do not rotate.	Clean bearing of each gear, and give a small amount of lubricating oil.
	1. Mirror driving lever C (234) does not move normally.	Mirror driving lever C (234) is to be adjusted to normal position.
	2. First blind stopper release lever maladjusted.	Adjust first blind stopper release lever to normal position. See 1-4 in CHAPTER IV.
<u>MIRROR</u> Mirror does not stop properly	3. Release link C does not release principal driving lever (231).	Take the same steps as those for too deep stroke of shutter button.
	1. First blind stopper (118) does not apply upon first blind gear mechanism.	Take the same steps as those for blind running before vise of mirror.
	1. Second blind gear (111), Second blind pinion (142), mirror gear (252) does not rotate.	Take the same steps as those for 3 or B open in shutter section.
	2. Bad motion of mirror driving lever A (364).	Adjust as to make it move lightly.
Mirror does not drop.	3. Bad motion of mirror driving lever B.	Same as above.
	4. Shutter does not function.	Take the same steps as those for malfunction of shutter in shutter section.
	5. Mirror driving lever spring (363) off.	Install mirror driving lever spring (363).
	6. Charge lever stopper does not release charge lever (223).	Adjust mirror gear (252) to normal position. See 3-2 in CHAPTER IV.
Mirror does not rise fully	1. Mirror driving lever C (234) does not rotate normally.	Adjust mirror driving lever C (234) to normal position. See 3-4 in CHAPTER IV.

TROUBLE	CAUSES	REMEDIES
Shutter operates before mirror rises fully	1. Maladjustment of first blind stopper release lever.	Adjust first blind stopper release lever to normal position. See 1-4 in CHAPTER IV.
Mirror rises when wind lever is wound up.	1. Release link C does not fit in to principal driving lever. 1-1. Charge lever (223) does not fully return. 1-2. Principal driving lever (231) does not return fully. 2. Release link does not return. 2-1. Bad motion of release link A. 2-2. Bad motion of release link C. 2-3. Release link spring (226) off. 3. Too little contact between release link C and principal driving lever (231)	Adjust so as to make it move lightly. See 3-4 (a) in CHAPTER IV. Adjust so as to make it move lightly. Same as above. Same as above. Install release link spring (226). Take the same steps as those for too shallow stroke of shutter button.
<u>SELFTIMER</u> Selftimer can not be set.	1. Bad selftimer (152). 2. Start button rubs shutter button cover (34).	Adjust so as not to make them rub against each other and install.
Selftimer does not move in gang.	1. Clutch lever A and clutch cam do not fit tightly 2. Too deep a stroke of shutter button. 3. Bad motion of clutch lever A.	Adjust to make them fit normally together. See 7 in CHAPTER IV. Same as too deep stroke of shutter button. Adjust to make it move lightly.
Selftimer stops	1. Bad selftimer (152).	

TROUBLE	CAUSES	REMEDIES
Selftimer does not start	2. Too deep fitting of clutch lever A and clutch cam. 1. Bad selftimer (152).	Adjust to normal fitting. See 7 in CHAPTER IV.
EXPOSURE METER		
Meter indicator does not move	1. Broken meter lead wire 2. Broken wire in the meter. 3. Short-circuited lead wire of battery compartment. 4. Poor conduction of switch contact. 5. Used up mercury cell.	Solder again. Solder again. Re - wire. Remove specks, rust and other foreign matter from switch contact (182), and clean. If shape is bad, repair.
Meter indicator kept fully deflected	1. Broken Cds lead wire. 2. Broken ASA resistor lead wire.	Re-solder or replace Cds. Re - solder.
Meter indicator	1. Poor contact of ST resistance. 2. Broken ST resistance lead wire. 3. Compensation resistance contact got out. 4. Short-circuited Cds.	Clean contact. Re - solder. Replace compensation resistance. Replace Cds.
Bad L.V	1. Deteriorated sensitivity of Cds. 2. One side of Cds lead wire broken. 3. Poor contact of compensation resistance. 4. Poor contact of ST contact. 5. Bad zero position of meter.	Re-calibrate or replace Cds. Replace Cds. Replace compensation resistance. Repair shape of ST contact (67). Adjust indicator or film counter indicator.

TROUBLE	CAUSES	REMEDIES
Meter indicator has a hitch	6. Bad diaphragm diameter of lens.	
	1. Foreign matter in the meter.	Clean the internal parts of the meter.
	2. Too tight pivot	Adjust pivot.
	3. Indicator needle get stuck in the indicator mark.	Correct bending of the indicator needle or indicator mark.
	4. Indicator needle hits condenser lens.	Correct indicator needle bending.
Meter indicator gets stuck	1. Soiled glass.	Clean the glass.
	2. Too large pivot clearance	Adjust pivot.
	3. Soiled pivot.	Replace the meter.
	4. Soiled interior of the meter.	Clean the internal parts of the meter.
Too slow in indicator needle motion	1. Bad response of Cds.	Replace Cds.

CHAPTER IV ASSEMBLY AND ADJUSTMENT

Assembly can be made as a rule in the reverse order of overhauling described in chapter II, Overhaul parts must be cleaned before assembly by wiping with a clean cloth, by blowing off dust, or by washing. Of course, the steps to be taken should be selected according to the degree of overhauling depending upon the conditions of use and trouble.

Those parts having a rotary shaft and bearing should be washed with benzene, particularly those parts on which lubricating oil is to be coated, which must be thus cleaned and sufficiently dried. The mirror should never be wiped with a cloth, because it may give a scar. Dust on the mirror should be blown off with a brush with a blower.

The lubricating oil should be kept to a minimum, according to table 2 attached.

When parts using screw lock N1-A are overhauled, such parts should be coated with N1-A again.

1. ADJUSTMENT OF THE SHUTTER WINDING MECHANISM.

1-1. Installation Position of Primary Gear (115).

As shown in Fig. 1, the installation position of the primary gear should be made so as to place the center of the ratchet pawl screw (119) and the wind pawl contact lug of the primary gear (115) on the straight line.

In this installation, the ratchet pawl (121) should be in the dented part of the teeth of the primary gear.

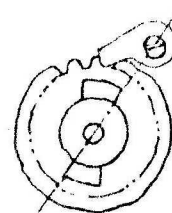


Fig - 1

1-2. Position of first blind gear (110) and upper clutch gear (112).

- a) As shown in Fig. 2, the lower clutch gear (113) is positioned at a place where it is stopped by the wind stopper B (126). The upper clutch gear (112) is to be inserted when the first blind gear (110) is in a state where its stopper is in contact with the gear plate A (105). At this point, the clearance between the upper clutch gear screw and the clutch spring is 0.2 mm. The clutch spring must be hooked upon the point at one third of the upper clutch gear screw.

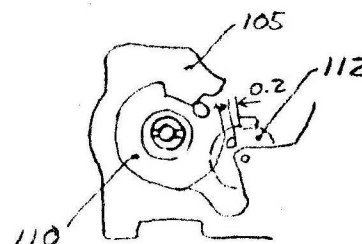


Fig - 2

- b) The position after winding should be made in a such a way that there should be play from the entrance of the first blind

stopper (118) into the first blind gear mechanism to the stoppage of the wind mechanism by the wind stopper B (126), amounting 0.4 mm to 0.6 mm at the position of stopper of the first blind gear (110).

1-3. Adjustment of position of ratchet pawl (121) to the time of setting the first blind stopper (118). (Called the timing of 1. 2.).

a) Adjust the position of the eccentric ratchet washer (120) just before completion of winding of the wind lever (3) in order to make the following sequence of operation.

- (1) The ratchet pawl (121) falls from the tooth crest on to the bottom land.
- (2) Immediately after the operation of (1), the first blind stopper (118) hitches the first gear rivet.

b) When the wind lever (3) is fully wound up, the position of the ratchet pawl (121) should be about $\frac{2}{3}$ off the bottom land of the primary gear (115).

1-4. Adjustment of first blind stopper release lever.

The first blind stopper release lever is pressed by the mirror driving lever B and removes the first blind stopper (118) from the first blind gear rivet.

This timing should be adjusted so as to remove the first blind stopper (118) upon the mirror frame (326) coming into contact with the buffer packing. This adjustment should be carefully conducted by care fully conducted by care fully observing the timing while fixing temporarily the mirror box (361) and moving the mirror driving lever B.

1-5. Adjustment of second blind stopper (131).

a) The *1 section of second blind stopper (131) and the *2 section of the second blind gear upper plate A are in parallel, and the clearance between them 0.2 mm. The clearance of 0.2 mm should be adjusted by bending the gear plate B (145) *3 section as shown by the arrow.

b) When the second blind stopper (131) is pushed up to the top by the second blind stopper hook, there should be a clearance of 0.2 mm to the bottom of the first blind gear (110).

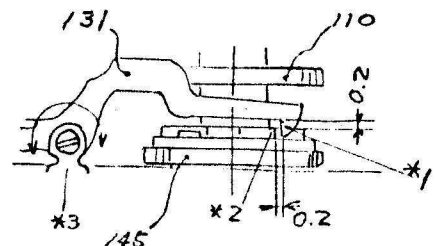
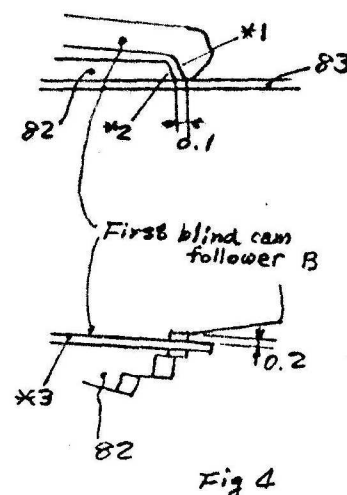


Fig. 3

1-6. Adjustment of first blind cam follower B.

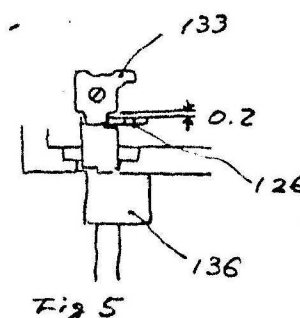
- a) When the shutter is set at 1/1000, the tip *1 of the first blind cam follower B should be adjusted to be mounted on the speed adjustment cam (82) *2 as shown in Fig. 6. This adjustment should be made by using a special tool (K101076) to bend the part marked *3 of the first blind cam follower B.
- b) Adjust so as to keep a clearance of 0.1 mm between the tip *1 of the first blind cam follower B and the part marked with *2 of the adjustment cam (82), when the shutter is set at 1/1000. This adjustment is to be performed by means of the eccentric washer of the first blind cam follower B.



2. ADJUSTMENT OF THE SHUTTER RELEASE MECHANISM

2-1. Installation position of release shaft bridge (136).

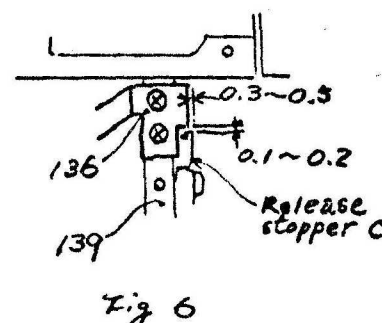
Fix the release shaft bridge (136) in such a way that the clearance (vertical) between the clutch spring pawl (133) and the clutch gear stopper (126) should be 0.2 mm.



2-2. Installation position of release stopper base (154).

- a) When the shutter release shaft (139) is pushed down, and stopped by the clutch gear Stopper (126), the release stopper base (154) should be fixed so as to make the clearance between the release shaft bridge (136) and the release stopper C 0.1 mm to 0.2 mm.

- b) Fix the release stopper base (154) so as to make the amount of connection of the release shaft bridge (136) and the release arm stopper C as shown in Fig. 6.



2-3. Adjustment of release arm stopper B (called timing of 2.3)

- a) Adjust the release arm stopper B so as to make the following sequence of operation just before the completion of winding of the wind lever (3).
 - (1) The first blind stopper (118) gets on the first blind gear rivet.
 - (2) Immediately upon the completion of the operation of (1), the brake cam (128) via the release stopper A (156) release the connection of the release arm C (245) and release arm B, and pushes the release stopper A (156).

- (3) After completion of the operation of (2), there must be room for rotation till the clutch gear stopper B. (126) works to stop the first blind gear (110).

b) Adjustment of 2.3

- b-1) If (2) is earlier than (1) in the operation of (a), adjust by closing the fork of the release stopper B.
- b-2) If (2) is extremely delayed, or not performed at all in the operation of (a). adjust by opening the fork of the release stopper B.

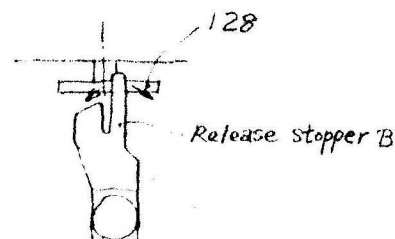


Fig. 7

2-4. Adjustment of release link C

- a) Adjust the release link C so as to make the clearance between the lower end of the shutter release shaft (139) and the release link A 0.2 mm when the release link C and the principal driving lever (231) are most deeply.

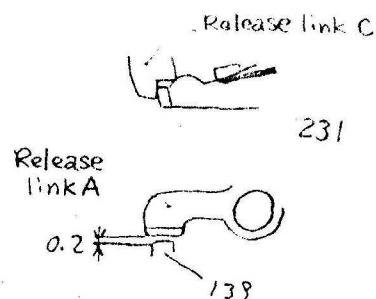
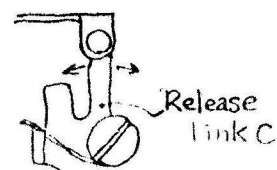


Fig. 8

b) Adjustment.

- b-1) When the clearance described in (a) is too large (delayed cutting), adjust by closing the fork of the release link C.
- b-2) When the clearance described in (a) is too small or there is no clearance (too early cutting), adjust by opening the fork of the release link C.



c) Checking.

When the shutter button is gently depressed after releasing the first blind stopper (118) by depressing the mirror driving lever B after setting the shutter, check to see that connection between the release link C and the principal driving lever (231) is released after the shutter operation has been completed.

2-5. Installation position of release arm B (149).

Install the release arm B (149) by adjustment its position so as to make the shutter button B (42) get in touch with the release arm B (149) without backlash.

This adjustment should be made after the top cover was fixed.

3. ADJUSTMENT OF THE LOWER WINDING MECHANISM.

3-1. Position of charge cam (237)

Determine the position of fitting with the sprocket gear D so as to make the *part of the charge cam (237) come closest without touching the charge lever collar when the shutter button is depressed by winding the wind lever while lightly pressing the sprocket (257) and install the E-ring (236).

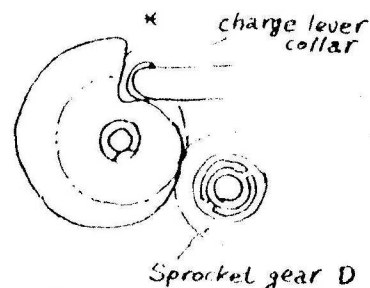


Fig. 10

3-2. position of the mirror gear (252).

Determine the fitting position of the gear so as to make the position of the screw of the mirror gear (252) at right angles to the shutter blind when the shutter is set by winding the wind lever (3), and install by means of the mirror gear screw (251).

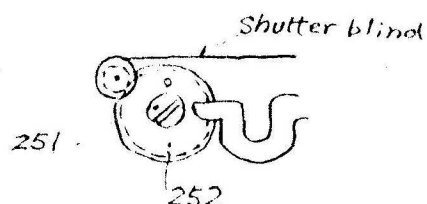


Fig. 11

3-3. Position of charge lever (223) and charge lever stopper.

a) When the charge lever (223) is positioned at the top dead center of the charge cam (237) by gently winding the wind lever (3), there must be a clearance of 0.4 mm to 0.5 mm between the charge lever (223) and the charge lever stopper.

b) The charge lever (223) and the charge lever stopper should be connected as shown in Fig. 12.

Check furthermore to see that the switch lever (179) is pressed against the switch lever stopper (180) by the force of the switch lever spring (176).

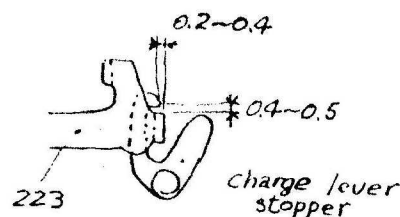


Fig. 12

3-4. Adjustment of mirror driving lever C spring (233).

a) Adjust so as to give a sufficient play for the motion of the charge lever (223) situated between the mirror driving lever C spring (233) and the mirror driving lever C (234).

b) Adjust so as to make the charge lever (223) is pressed against the mirror driving lever C (234) by the mirror driving lever C spring (233) after the completion of the winding.

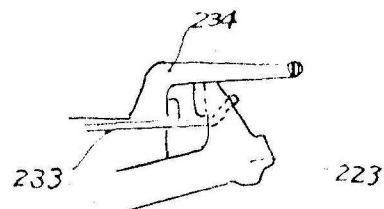


Fig. 13

- 3-5. Checking the return position of principal driving lever (231) check to see that there is a clearance of more than 0.2 mm between the principal driving lever (231) and the release link C when the charge lever collar is pressed against the charge cam (237) surface by the force of the charge lever spring (224) after the completion of the run of the second blind.

4. ADJUSTMENT OF THE SHUTTER EXPOSURE TIME.

Adjust the exposure time in the following order :

- 1) Adjustment of the speed of the blind.
- 2) Adjustment of the high speed exposure time (1/1000 sec to 1/60 sec).
- 3) Adjustment of the low speed exposure time (1/30 sec to 1 sec).

4-1. Adjustment of blind speed.

- a) The blind speed means the time of running of the shutter blind over the image field. It should be adjusted to 10.0 m sec to 10.5 m sec.

b) Adjustment.

Adjust by setting the shutter speed to 1/1000 sec.

The blind speed can be varied by adjusting the force of the blind shaft spring through turning the main shaft adjustment nut (163).

4-2. Adjustment of High - speed exposure time.

- a) Adjust the high speed exposure time by varying the size of the slit formed by the first and the second blinds.

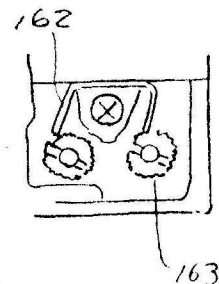


Fig- 14

- b) Adjust this slit by setting the shutter speed to 1/1000 sec. and bending in the arrow direction the *marked part of the first blind cam follower B with the special tool (K-101134).

Bending it upward will delay the exposure time, while bending it downward will make it faster. When the exposure time of 1/1000 sec is determined, the other exposure times can be automatically determined by the speed adjusting cam (82).

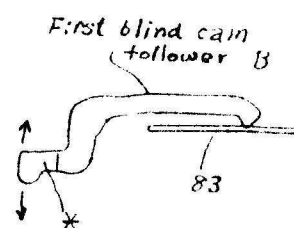


Fig 15

4-3. Adjustment of Low-speed exposure time.

- a) Adjust the low-speed exposure time by delaying the starting time of the second blind by means of the governor (97).

- b) Adjustment.

Set the shutter speed to 1/8 sec, adjust the position of the speed adjustment lever to obtain an appropriate exposure time. As a result, 1/8 sec is satisfied, but the setting of shutter speed to 1 sec is not satisfied, bend the part marked with * of the slow escapement release bar A, and then re-adjust the position of the speed adjustment lever to obtain an appropriate exposure time of 1/8 sec and at the same time an appropriate exposure time of 1 sec.

The intermediate values are automatically determined by the slow speed cam (70).

Bending the *part of the slow escapement release bar A inward will delay the exposure time, while bending it outward will make it faster.

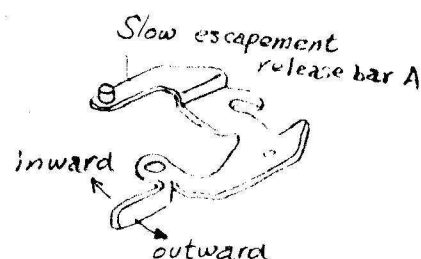


Fig 16

5. ADJUSTMENT OF THE EXPOSURE METER.

Match the shutter speed and the ASA dial to the following points, and match to the following three points by adjusting the compensation resistance

L.V	ASA dial	Speed dial	Diaphragm
7	25	1/4	2.8
10	100	1/30	5.6
15	200	1/1000	8

Standard	Brightness Cd/mm ²
1.8-4	17.91
4-8	143.3
5.6-11	4585.0

Make this adjustment with the manual button A (350) depressed by winding up the wind lever (3) and turning on the switch contact (182).

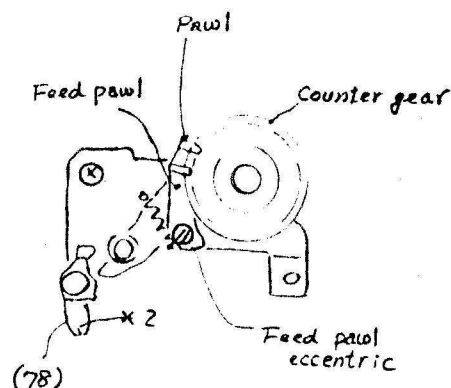
6. ADJUSTMENT OF FILM COUNTER.

6-1. Position of Film counter gear.

Fix the film counter gear at the position where the film counter gear spring is wound one turn.

6-2. Adjustment of pawl position.

Place the pawl fully dropped in the bottom land after the fifth tooth. This adjustment is to be made by bending the *1 part of the stopper of the film counter gear base, or by bending the tip of the pawl. If the tip of the pawl does not reach the bottom land of the film counter gear, bend the *2 part of the pawl lever with the back cover (207) closed.



6-3. Adjustment of Feed pawl position.

Adjust the feed pawl eccentric so as to position the feed pawl at $1/2$ to $1/3$ off the bottom land after the second tooth and in contact with the slope of the third tooth.



Fig. 17

6-4. Adjustment of feed amount of film counter gear.

Adjust the feed amount of the film counter gear by the feed pawl so as to feed the feed pawl by one and a half tooth by adjusting the bending of the *part of the film counter lever B connected to the film counter lever A (89).

6-5. Checking.

Check to see that after turning the film counter dial to 36 th frame, the film counter dial should smoothly return to "S" by gently opening the back cover (207).

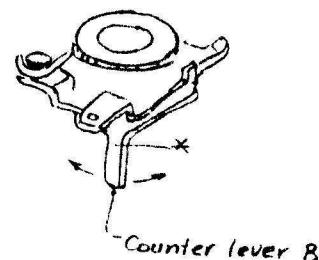


Fig. 18

7. ADJUSTMENT OF THE SELF-TIMER MECHANISM.

7-1. Adjustment of clutch lever A and clutch cam fitting.

- a) Adjust the fitting of the clutch lever A and the clutch cam through shifting the release arm A (138) to the right or to the left by loosening the lower screw of the two screws (137) fixing the release arm A (138).

This amount of fitting should make the exposure time more than 500 msec when started by setting the shutter speed at "B" and the selftimer gear (152). Moreover, when it is set at 1/1000 sec, there must be the normal slit.

b) Checking.

When the selftimer gear (152) is operated without setting the shutter speed, the clutch lever A should not make contact with the clutch cam.

8. ADJUSTMENT OF THE X AND FP CONTACTS.

8-1. Adjustment of X contact (76)

Adjust the X contact so as to make it contact at the moment when the first blind is hidden from the image field.

8-2. Adjustment of FP contact (217).

Adjust the position of the FP contact by loosening the screw on the contact side of two screws (216) fixing the FP contact (217) so as to make the FP contact gets in contact at the same time as the moment when the mirror reaches the top dead center as the mirror driving lever C (234) rotates after depressing the shutter button.

8-3. Adjustment of X and FP contact switches.

- a) The X contact switch (72) is automatically switched by the click plate (68) so as to make the X contact gets in contact in the range of 1 sec to 1/60 sec with the shutter speed at B, and to make the FP contact gets in contact first in the range of 1/125 sec to 1/1000 sec.

b) Adjustment.

Adjust so as to keep the click pawl (74) and X contact switch (72) from getting into contact at contact X (B. 1 sec to 1/60 sec), and to make the click pawl (74) and the X contact switch (72) securely get in to contact at the FP contact (1/125 sec to 1/1000 sec).

8-4. Time lag

X contact: 0.1 to 3m sec.

FP contact: 7 to 14 m sec.

CHAPTER V FINAL INSPECTION

The final inspection should be performed when the repair is completed and the assembly is finished. Of course, no such rigorous inspection as in the course of manufacturing processes is needed here. Therefore, the range of necessary is described below.

1. WORKING OF WIND LEVER

The winding operation should be performed from the start to the finish evenly without marked irregularity, hitch, and other defects. It should be smooth and secure. Check next to see that the return by the wind lever spring is secure and that the wind pawl returns completely.

2. WORKING OF SHUTTER BUTTON.

The shutter button must operate smoothly without irregularity or hitch when it is depressed and when it returns. When the shutter button is gently depressed, the mirror should jump, and after the operation of the shutter, its stroke should have a play of about 0.2 mm. Check furthermore to see that the shutter button cannot be completely depressed when it is attempted with the wind lever slightly wound up.

3. WORKING OF COUNTER

Check to see that the film counter dial scale advances by one degree by the winding operation of the wind lever, and that there is no marked deviation between the scale graduation and the film counter indicator. When the back cover is open, the film counter dial should smoothly return to the S position.

4. ROTATION AND POSITION OF SPEED DIAL

The rotation of the speed dial should have an articulate clicking with sureness without irregularity or hitch. Check also to see that there is no marked deviation between the scale graduation and the indicator of the speed dial.

5. ROTATION AND POSITION OF ASA DIAL

The rotation of the ASA dial should be without any irregularity or hitch, and its click should be secure and articulate. Check also to see that there is no marked deviation between the speed scale graduation and its indicator.

6. WORKING OF SHUTTER

Measure the exposure times of $1/1000$ sec. $1/8$ sec, and 1 sec. At the same time, check to see that there is no soiling scars, drooping in the shutter blinds, and that there is no noise or irregularity in the operation of the governor.

7. WORKING OF MIRROR

Check the following items during the operation of the mirror.

- a) Vertical motion of the mirror should be smooth without hitch.
- b) The top dead center of the mirror.
- c) The mirror frame should be in contact with the right and the left mirror frame stoppers at the same time, and the mirror frame should be pressed against the mirror frame stoppers when the camera is turned over.

8. WORKING OF SELFTIMER GEAR

Check to see that the selftimer gear is securely set by the operation of the selftimer lever, and is free from such defects as hitch, marked noise, or irregularity when started by depressing the start button. Then, check to see the gang operation to the shutter mechanism by the selftimer gear.

9. WORKING OF DIAPHRAGM DRIVING GEAR

Check to see that the diaphragm driving gear pushes the gauge to the normal position by using the diaphragm driving power gauge (K-106019). Check to see that the diaphragm driving lever is free from hitch in its motion, and that it returns completely to its return position.

10. FOCUSING AND FINDER

Check the focusing using on object 200 m off or using a collimeter. Check also if there is any speck on the finder.

11. CHECKING THE REWIND MECHANISM

Check to see that when the rewind button is completely depressed, it is perfectly locked, and that the sprocket is free from hitch or irregularity and turns idle.

12. WORKING OF EXPOSURE METER

Set the shutter speed and the ASA dial to the points described in 5 in chapter IV Assembly and Adjustment, and check the L. V indication difference.

Check also the following items :

- a) Deviation b) Hitch c) Sticking

13. CHECKING THE INSULATION RESISTANCE AND CONTACT EFFICIENCY

Check the following values by means of an insulation resistance tester and a contact efficiency tester :

a) Insulation resistance : The value should be over 30 M Ω .

Temperature : 20°C \pm 15 C

Humidity : 65% \pm 20 %

Use an insulation resistance tester of 500 V DC.

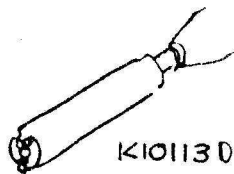
b) Contact efficiency

The contact efficiency should be 60 % or more with the measuring time of 2.5 m sec.

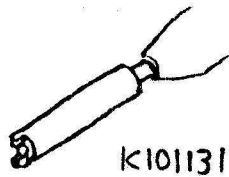
14. Check to see the state of wounded lever and the state of rewound lever when the film is charged.

SPECIAL TOOLS

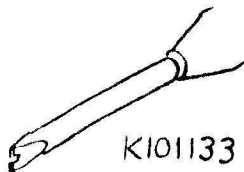
1. Lock lever shaft (248)
Counter pawl lever screw (80)



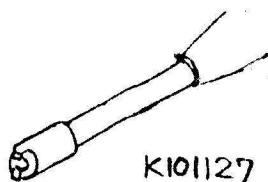
2. Gearplate A screw B (91)



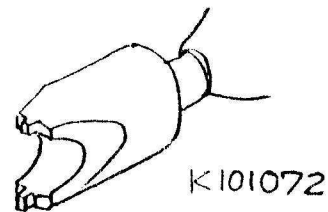
3. Brake cam nut (108)



4. Wind lever screw nut (2)



5. First blind gear nut (81)



6. Self timer lever screw (28)

