

SERVICE MANUAL

FUJI GA645 Professional



FUJI PHOTO FILM CO., LTD.

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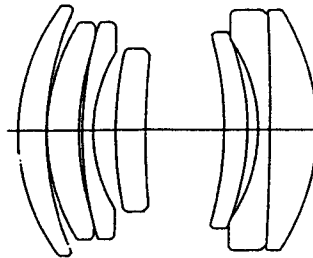
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I. GENERAL

1. Specifications

Type	6x4.5cm Full Automatic
Picture size	6x4.5cm (Actual picture size: 56x41.5mm)
Applicable film	120 roll film (15EXP) or 220 roll film (30EXP)
Lens	Super EBC Fujinon 1:4 f=60mm (6 components, 7 elements) Covering power: 60° ; Equivalent to 37mm on 35mm camera Nearest focusing distance: 0.7m Filter diameter: 52mm



Focusing	Hybrid (Active/Passive) type auto-focus Range 0.7m ~ ∞ Can be switched over to manual focus mode With focus lock
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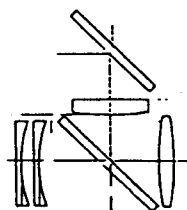
Viewfinder

Light collecting type bright frame viewfinder

Automatic parallax compensation

Field of view: 93% at infinity, 93% at 3m, and 91% at 1m

Magnification: 0.5x



Displays in the viewfinder

Field of view frame (Bright frame)

AF mark

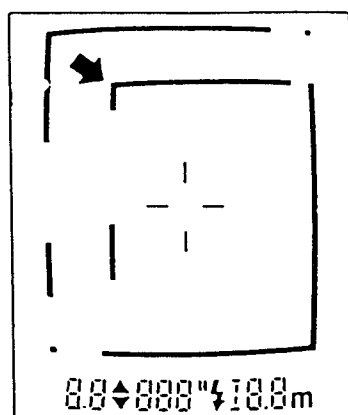
Data indications: Aperture

Exposure feasibility

Shutter speed

Flash ON

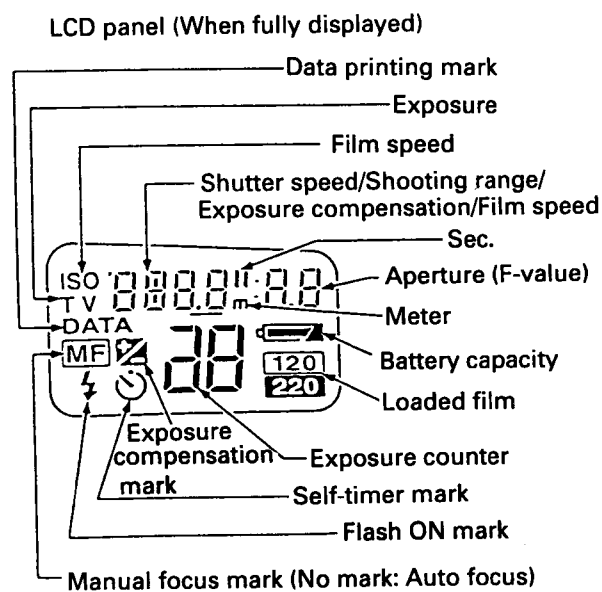
Range (m,ft)



Shutter	Programmed AE electronic lens shutter (Aperture priority, Manual exposure setting can be made) With a shutter operation end buzzer
Shutter speed	Bulb, 2 sec. ~ 1/700 sec. (F4 ~ 9.5 : 1/400 sec.)
Self-timer	Electronically controlled About 10 sec. delay With self-timer lamp
Exposure control	TTF center emphasized light measuring (Element: SPD) Programmed AE, Aperture priority AE, Manual exposure Working range: EV3 ~ EV19 / ISO 100
Exposure compensation	±2EV 1/2 step interval
Film speed	ISO 25 ~ 1600, 1/3 step interval
Flash	Built-in pop-up type Autoflash GN _o 12 (ISO 100)
Film transporting system	Automatic first frame set Automatic film winding; With a final frame informing buzzer Automatic rewinding after exposing the final frame
Exposure counter	LCD Additive Automatically interlocked with the pressure plate “E” is displayed after exposing the final frame of a film.

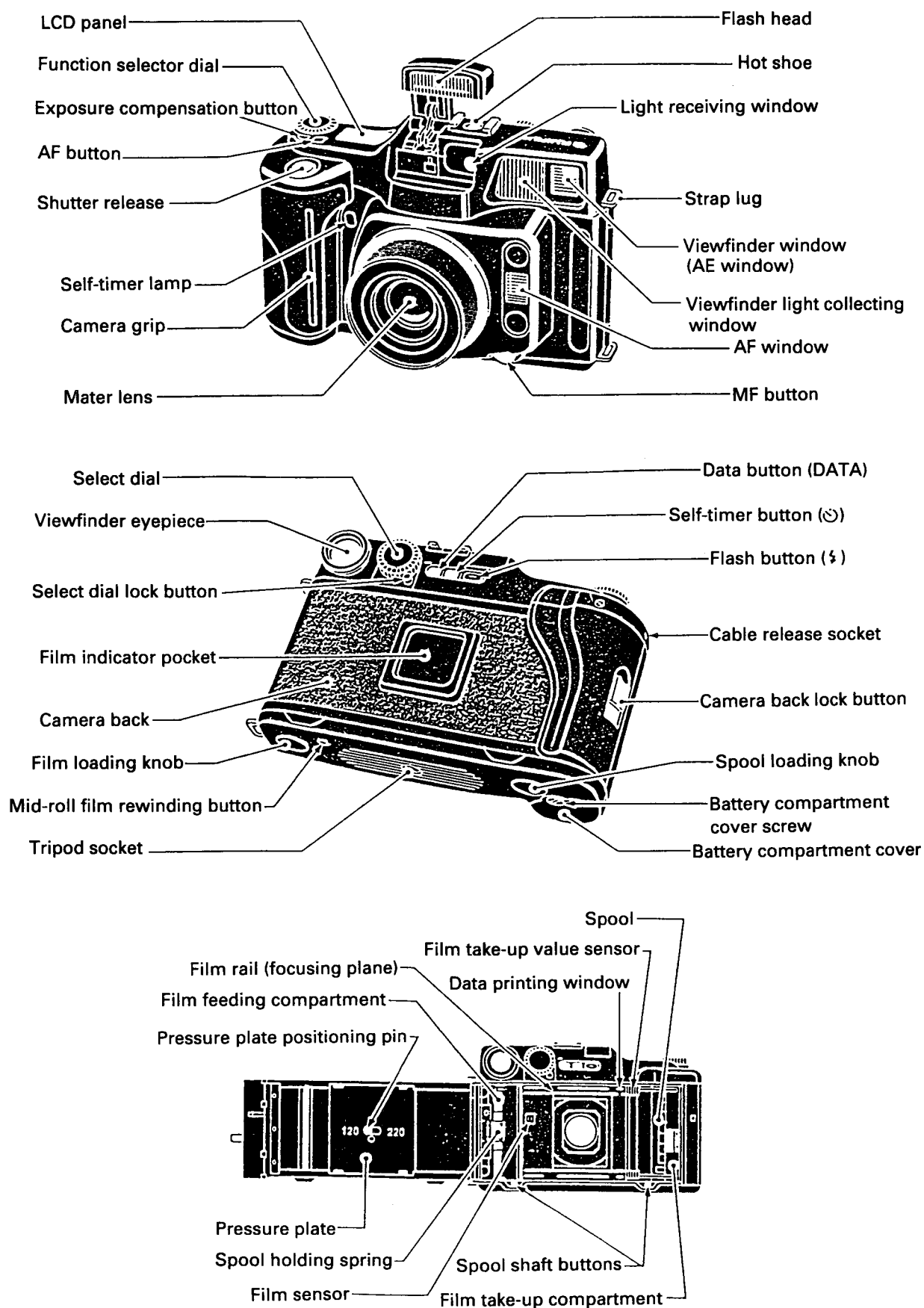
Liquid crystal display (LCD)

Exposure counter, Shutter speed, Aperture, Film speed
 Loaded film (120 or 220), Battery capacity, Exposure compensation
 Flash ON mark, Self-timer, MF mode
 Year/Month/Day, Day/Hour/Minute
 Range indication, Shutter actuation counter



Data printing	Outside picture frame printing: Date, Photographing data (Exposure mode, Aperture, Shutter speed Exposure compensation value)
Others	Hotshoe, Film indicator pocket, Cable release socket, Tripod socket, Buzzer ON-OFF switch
Power supply	Lithium battery (CR123A) x2 Capacity: About 3000 shots without using flash About 600 shots with flash used (Under Fuji's test conditions)
Dimensions	166 (W) x 110 (H) x 66(84) (D) mm
Weight	815 grams (without battery)
Attachments in a package	Soft case, Neck strap, Lens hood, Soft case of the lens hood, Lens cap, Lithium batteries (x2).

2. Names of parts

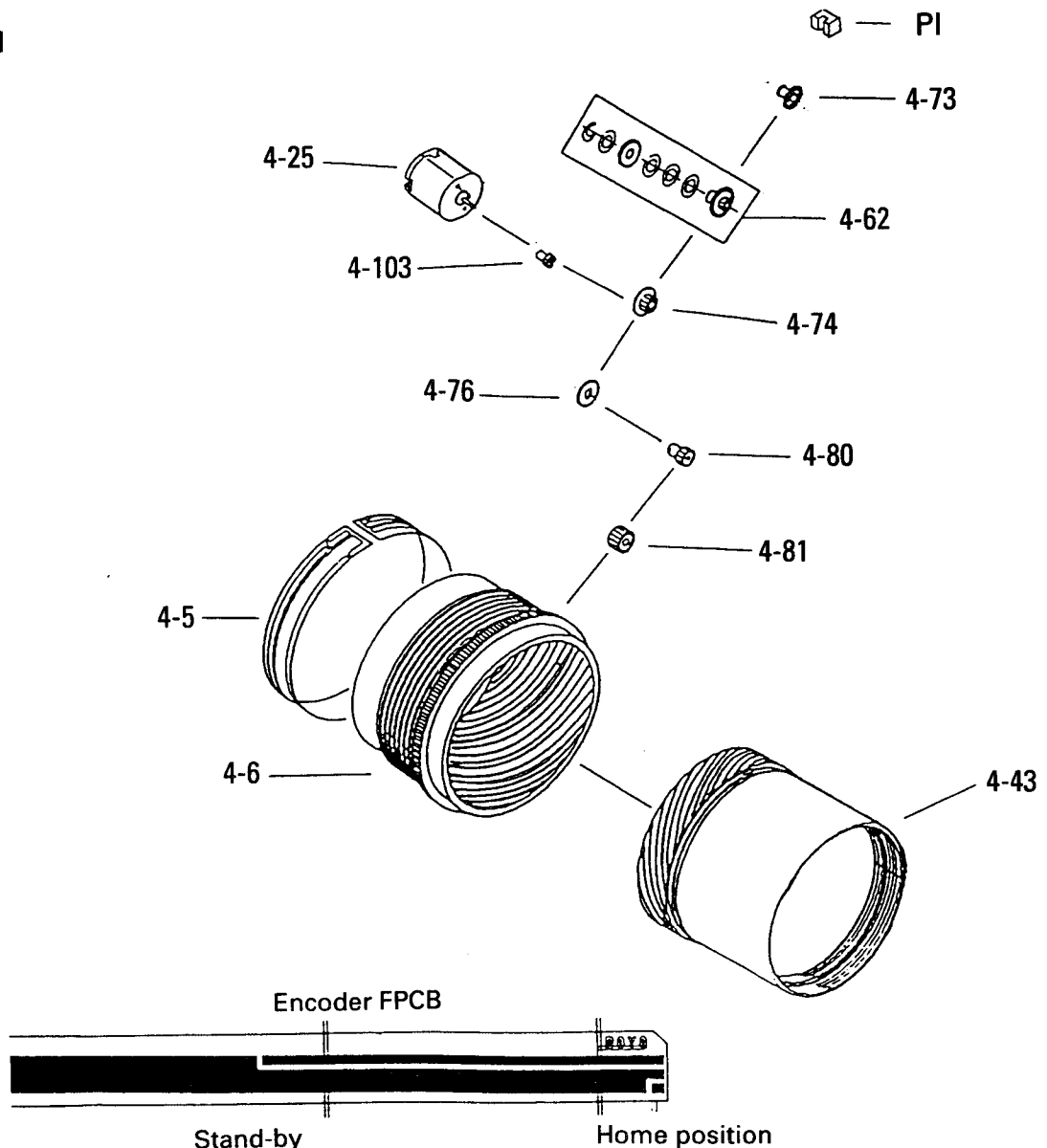


II. DESCRIPTION FOR MECHANICAL SYSTEMS

1. Lens assembly

- 1) When power is supplied to the lens driving motor (4-25), the energy is transferred to the motor gear (4-103), friction gear assembly (4-62), gear L3-L4 (4-74), gear L5 (4-76), gear L6 (4-80), gear L7 (4-81) and helicoid barrel (4-6).
- 2) As the helicoid barrel (4-6) turns, the moving lens barrel assembly (4-43) operates.
- 3) The energy is further transferred from the friction gear assembly (4-62) to the encoder gear (4-73), and the photo-interrupter (PI) senses the encoder gear.
- 4) The encoder FPCB (4-5) is stuck on the helicoid barrel (4-6), and on the FPCB, home and stand-by positions are marked. Thus, the lens stops at the individual positions as the power is turned on and off.

Fig. II-1



2. Viewfinder

- 1) When power is supplied to the lens driving motor (4-25), the energy is transferred to the motor gear (4-103), friction gear assembly (4-62), gear L3-L4 (4-74), gear L5 (4-76), gear L6 (4-80), gear L7 (4-81) and helicoid barrel (4-6).
- 2) The energy is transferred to the interlock gear (4-45) which is engaged with the helicoid barrel (4-6) causing the interlock cam (4-4) to operate, and thus, the cam lever assembly (4-78) operates.
- 3) As the cam lever assembly (4-78) operates, the reticle frame 2 (3-54) is pulled down, causing the field of view frame in the viewfinder to operate.

Displays in the viewfinder

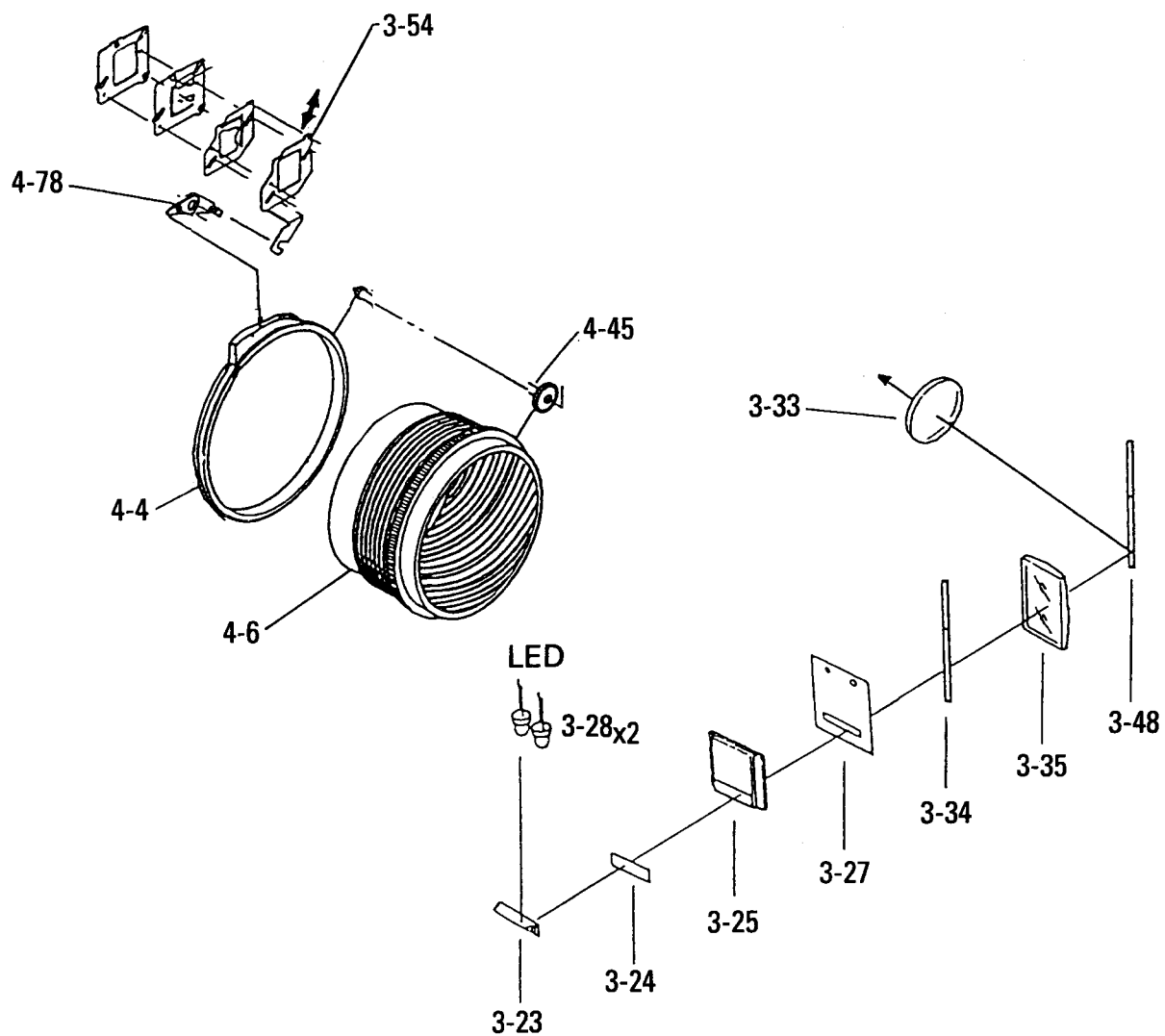
This camera displays various information with red letters in the bottom of the viewfinder.

The displayed information are, from the left to right, aperture, shutter speed and shooting range.

As for the construction, light of the red LED goes through the prism (3-23) and after being diffused by the diffuser (3-24), the light passes through the LCD as shown in Fig. II-2.

Thereafter, the light goes through the mirror G6 (3-34) and lens G5 (3-35) and information are displayed as the light is reflected by the mirror G5 (3-48).

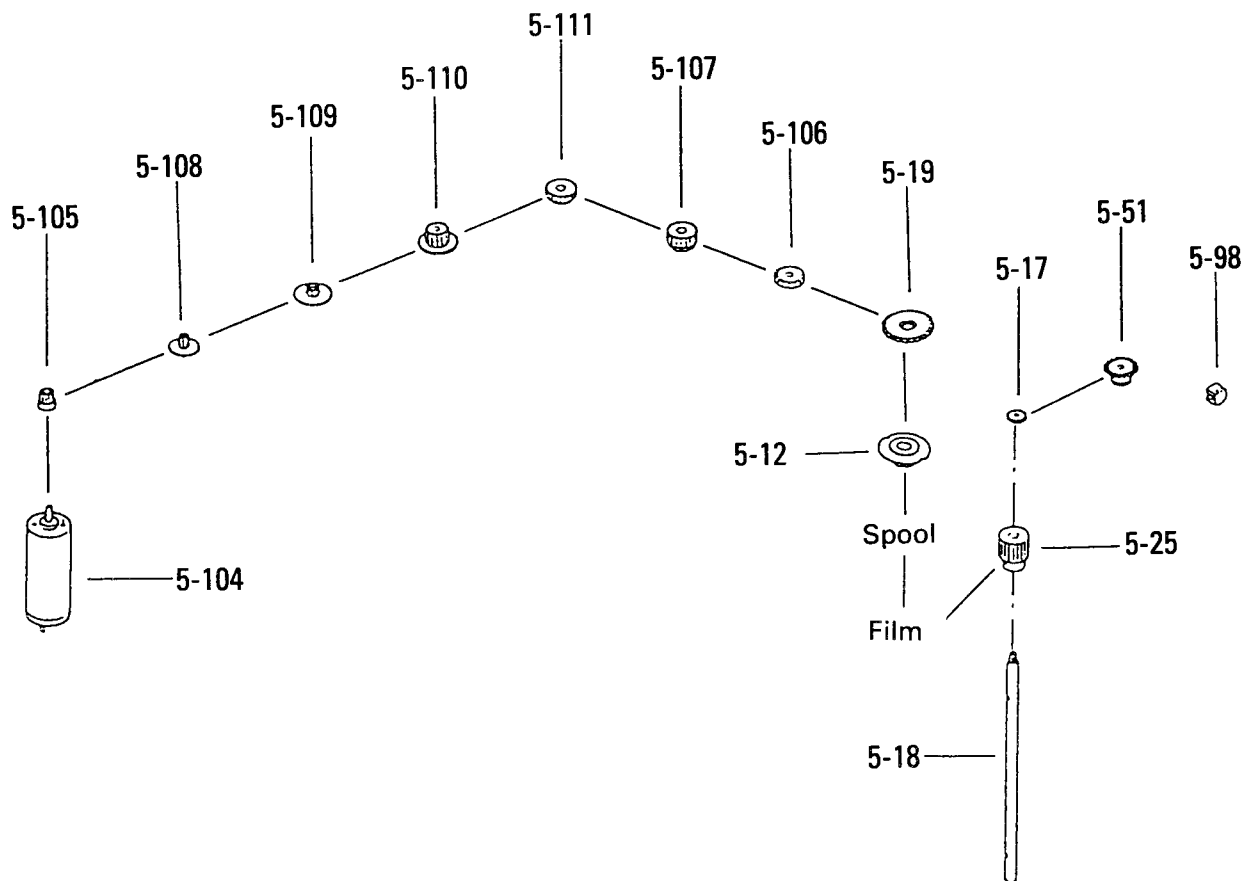
Fig. II-2



3. Film transporting system

- 1) When power is supplied to the film transporting motor (5-104), the energy is transferred to the motor gear (5-105), gear G1 (5-108), gear 2 (5-109), gear (5-110), gear G2 (5-111), double step gear (5-107), gear G6 (5-106) and film take-up gear (5-19).
- 2) The shaft holder (5-12) turns together with the film take-up gear (5-19).
Then, the energy is transferred to the counter roller (5-25), shaft (5-18), gear (5-17) and encoder gear (5-51), the photo-interrupter (PI) senses the encoder gear operation, and thus, film transporting length is decided.
- 3) The first frame setting and film end checking are made by means of a photo-coupler.

Fig. II-3



III. ELECTRICAL CIRCUIT DESCRIPTION

1. Circuit description

The control FPCB assembly of this camera has two CPUs (U101 and U102). The U101 functions as the master CPU and U102 operates as the slave CPU. Based on SM switch and each mode switch inputs, the U101 decides shooting conditions, the decided conditions are informed to the U102 by means of a serial communication, and thus, the shutter and motors are controlled. The control FPCB is equipped with an EEPROM (U103), and focusing, AE, AF, flash, etc. can be adjusted automatically.

1) Loading batteries

When two 3V lithium batteries (CR123A) are loaded in the camera bottom, 6V input (VB) is converted to two types of voltage by the battery FPCB assembly. First, it is converted to 3.5V by U202, and this 3.5V power is supplied to the master CPU (U101). Next, it is converted to 5V by U201, and this 5V power is supplied to the slave CPU (U102), allowing the CPUs to control the camera operations. As the initial processing, the CPUs check the lens position first when SM (SMP, SMA and SMM are totally called SM) switch is turned on, and then, causes the LCD to make its full display. When the SM switch is not turned on, the lens does not operate.

2) Turning on the main switch

When the select dial switch on the camera back is turned to the right (clockwise), the SM switch turns on, causing the lens to move out to the stand-by position.

○ SM:ON → Select dial switch → Solder:Control FPCB:SMP(A, M) → U101
 ↳ (Serial communication) → U102:INO ~ 2 → Pressed-to-tight: Battery FPCB:U204
 ↳ MT(+), MT(-) → Lens driving motor turns forward → Lens is fed out.

NOTE:

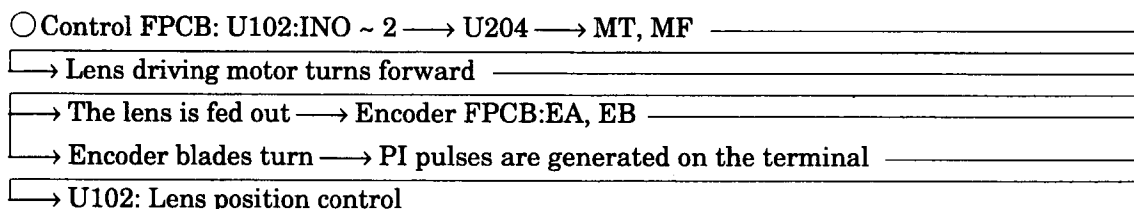
Switches which can be input

Top	Release switch	(SP1, SP2)
	AF switch	(SAF)
	Exposure compensation switch	(SFC)
	Up-down switch	(UP1 ~ 4)
Front	Manual focus switch	(SMF)
Back	Select dial switch	(SMP, SMA, SMM, SISO)
	Data switch	(SDATA)
	Self-timer switch	(SSELF)
	Flash switch	
Bottom	Mid-roll rewind switch	(SMR)
	Right side Release switch	(SEXT)

Each switch can be input only when the main switch is turned on, except for the mid-roll rewind switch. The mid-roll rewind switch can be accepted normally.

3) Controlling the lens

Lens positions are controlled by digital codes sent from the encoder FPCB and PI installed on the control FPCB. The lens driving motor gear system has encoder blades. As the encoder blades turn in the PI, pulses are generated, and finding a number of lens driving motor turns, lens moving stroke is calculated.



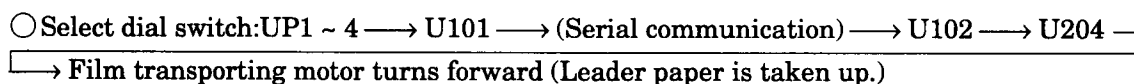
4) Transporting film

Open the camera back and set the pressure plate to the type of used film.

When the camera back is closed, the set pressure plate position detecting switch identifies the film type.

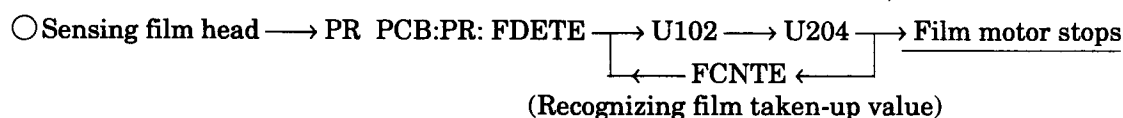
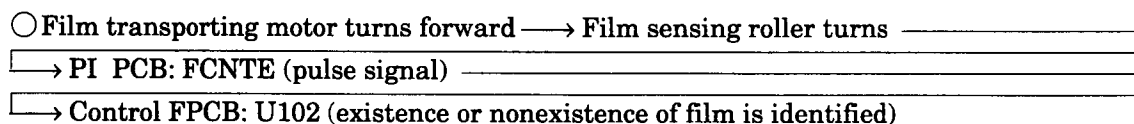
Now, load a film, wind up the leader paper on the film take-up spool, and turn the up-down switch to the left (counterclockwise) one step by one step. UP1 ~ 4 will be input sequentially to U101, causing the film transporting motor to turn forward.

○ Film pressure plate position sensing switch: SSIZE, KSE1_1 → U102: Identifies film type (120 or 220)

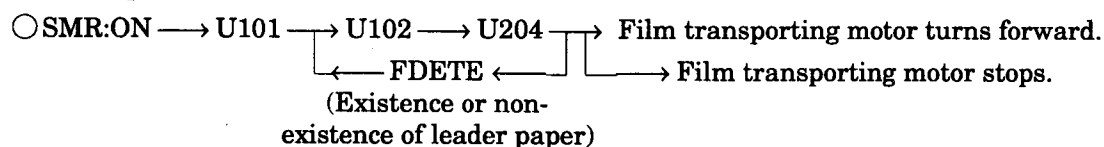


When the camera back is closed and SM switch is turned on by turning the select dial, the film transporting motor turns forward for one second. At this time, encoder blades turn in the PI of the PI PCB assembly as the film sensing roller turns. Then, FCNTE pulse signals are generated, and with the pulse signals, existence or non-existence of film is identified.

When a film exists, with FDETE signal sent from the PR (film sensor) of the PR PCB assembly, the film head is detected. Thereafter, with the pulse signals of the FCNTE, film taken up value is calculated, and thus, the first frame set is made. Moreover, one frame film advancing is done also by FCNTE.



As for the manual film advancing, when the mid-roll rewind switch (SMR) of the control FPCB assembly is turned on, the film transporting motor turns forward. When it is recognized with the PR of the PR PCB assembly that the leader paper of the film is gone, the motor stops 5 seconds later.



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~~NEEDS OVERALL CIRCUIT DIAGRAM~~

~~AS LAST PAGE~~

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MEMO

Connections	Signal name	Description
Control FPCB ~ Shutter assembly	PON1	Shutter close blade power supply
	CT1	Shutter close blade driving signal
	PR1	Aperture detection signal
	PR2	Shutter blade detection signal
Control FPCB ~ Buzzer	VBZ	Buzzer power supply
	BZ	Buzzer driving signal
Control FPCB ~ Lens assembly	KSE	Lens encoder common signal
	EA	Lens encoder signal
	EB	Lens encoder signal
Control FPCB ~ Film size switch	KSE-1	Film size signal
	SSIZE	Film size signal
Control FPCB ~ PR PCB	FDETA	Film detection signal
	FDETK	Film detection signal
	FDETE	Film detection signal
Battery FPCB ~ Film transporting motor	MF	Film transporting motor driving signal
	MR	Film transporting motor driving signal
Battery FPCB ~ Lens driving motor	MT	Lens driving motor driving signal
	MW	Lens driving motor driving signal
Flash PCB ~ Flash assembly	TRG+	Flash firing signal (+)
	TRG-	Flash firing signal (-)
	Xe+	Xenon tube lighting signal (+)
	Xe-	Xenon tube lighting signal (-)
Battery ~ Each assembly	VB	Battery (+)
	GND	Battery (-)
On the control FPCB	SP1	Release (1st step) signal
	SP2	Release (2nd step) signal
	SEXT	Cable release signal
	SDATA	Data switch signal
	SSELF	Self-timer switch signal
	SAF	AF switch signal
	SFC	Exposure compensation switch signal
	SMR	Mid roll rewinding signal
	SMF	Manual focus switch signal
	UP1 ~ 4	Up-down switch signal

5) Battery FPCB motor terminal output table

	Mode	Terminal			
		MF	MR	MT	MW
Film transporting motor	Forward (Prewinding)	Hi	Lo	—	—
	Reverse (1 frame advancing, MR)	Lo	Hi	—	—
	Stand-by	Lo	Lo	—	—
Lens driving motor	Forward (Feeding lens out)	—	—	Hi	Lo
	Reverse (Feeding lens in)	—	—	Lo	Hi
	Stand-by	—	—	Lo	Lo

6) Flash

(1) Built-in flash

This flash is not of a self-oscillating type. The built-in flash is charged as the oscillation transistor is turned on by a pulse signal sent from the U102.

Further, this flash is of a flashmatic, and discharge current is controlled by IGBT: Q610, and to its gate, 15V is supplied by the Zener diode (CR607).

○ Control FPCB:U102:FCT → Flash PCB:FCT → Q601 → T601 → CR602

→ Charging the main capacitor

○ Flash PCB: VCM → Control FPCB: U102 → U102:FINH2: L

→ Charging stops

○ Control FPCB:U102:VIGBT: H

→ Q609: ON → Q608: ON → Q610:IGBT: ON

→ CR611: ON → T602: ON → Xenon tube (V601) lights
(high voltage pulse is generated)

→ Q604: ON → Q605: ON → Q606: Starting to receive light

→ C607, C608 and C609 are charged (Differs depending on each AV)

→ Q602:ON → Q611, Q612:ON → Q610:IGBT: OFF (Stopping flash firing)

(2) Externally mounted flash

This camera has been so designed that an external flash can be mounted on the hotshoe on the top of the camera. For an external flash, flashmatic does function.

○ Control FPCB:U102:FT → Flash PCB:Q603: ON → Q608:ON

→ External flash fires

7) Printing data

Being interlocked with one frame film advancing, seven pieces of red LED built-in this camera light sequentially, and thus, data are printed.

○ Control FPCB:U102 → (Battery FPCB: Serial communication) → Data FPCB →
→ U401 → DS401 (Red LEDs light) → Data are printed.

When the shutter is released with the camera back opened, seven LEDs light simultaneously and test mode is executed.

8) Self-timer

When the self-timer switch on the camera back is turned on, an SSELF signal is input to the U101 of the control FPCB assembly, and this is displayed on the LCD on the camera top.

○ Self-timer switch: SSELF:ON → Control FPCB:U101 → Indication on LCD

2. Camera operations

1) Releasing the shutter

(1) Normal shutter release (built-in shutter release)

When the shutter release is pressed down, the tact switch installed on the control FPCB assembly turns on, its signal is input to the U101 (CPU), and thus, the shutter is released in the following sequence:

○ Control FPCB:SP1: ON → SP1 → Control FPCB:U101 → BC →

→ Light measuring → Focusing (active, passive) → (Shutter speed and aperture are displayed on the camera to LCD, and shutter speed, aperture and ranging result are displayed on the LCD in the viewfinder.) →

→ Lens feed out (Lens driving motor operates) → (Waiting for SP2:ON) SP2:ON →

→ Exposure (Flash fires under flash mode.) → Buzzer sounds one time →

→ SELFLED lights (Shooting end display) →




→ Lens feed in (Lens driving motor operates) →

→ One frame film advancing (Data printed simultaneously) → Flash charge

(2) Cable release

When the shutter is released by the use of a cable release, a signal of other tact switch than that used for the normal shutter release is input to the U101 (CPU). In this case, SP1 and SP2 are input simultaneously. The point that differs from the above shown sequence is that there is no SP2 waiting.

2) Battery check voltage

	LCD mark	BC voltage
BC OK	 Lights	About 4.1V
BC warning	 Lights	About 3.9V
BC NG	 Blinks	

3) Light measurement

Output signal sent from the light measuring IC (U501) installed on the light measuring FPCB assembly is AD-converted by the U102 in the control FPCB assembly, and thus, light is measured.

○ Automatic flash firing level at a low brightness under P-mode

	Flash firing level
When film speed is ISO 100	LV9

4) Film speed (ISO) setting

Because of the type of film used for this camera, it is necessary to input film speed (ISO) before loading the film. When the select dial switch is set to ISO and up-down switch is turned, the set ISO (film speed) is displayed on the camera top LCD.

○ Select dial switch: SISO → Control FPCB: U101 → ISO display (LCD)

Up-down switch: UP1 ~ 4 →

5) Displays on LCDs

This camera has two LCDs; One is on the camera top and the other is in the viewfinder.

The one on the camera top is called LCD and one in the viewfinder is called FLCD.

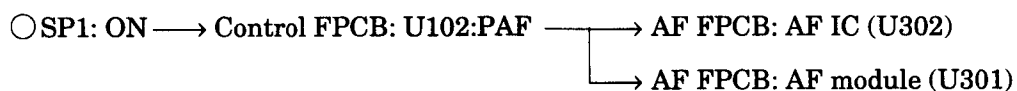
These two LCDs are connected to the control FPCB assembly, and displays are controlled by the U101.

○ Control FPCB:U101 → Zebra connector 1 → LCD indications
→ Zebra connector 2 → FLCD indications

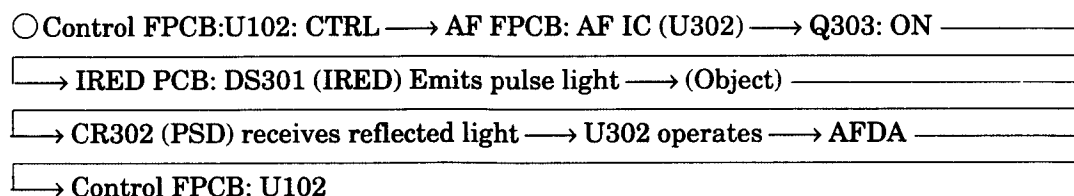
6) Autofocus (AF)

The AF system of this camera is capable of ranging with two types of systems; Active (The IRED emits light against an object, and PSD receives the light reflected back from the object.) and Passive (Phase difference between two images of an object focused on IC chip by two lenses is obtained.). However, depending on conditions of an object (brightness and distance), the data measured by either the active or passive system are employed.

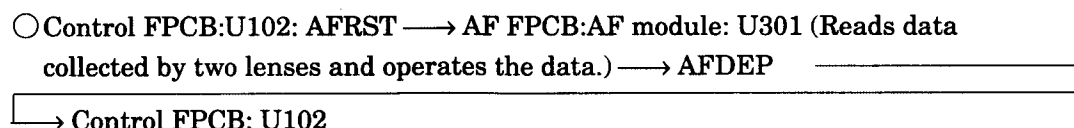
When the SP1 turns on, with PAF sent from the U102, power is supplied to the AFIC (U302) and AF module (U301), allowing the AF system to operate. The operating sequences are shown below:



(1) Active system



(2) Passive system



7) Shooting mode

This camera has three types of shooting mode so that this camera can be used freely and easily by both professional and amateur photographers. These modes can be set by turning the select dial switch.

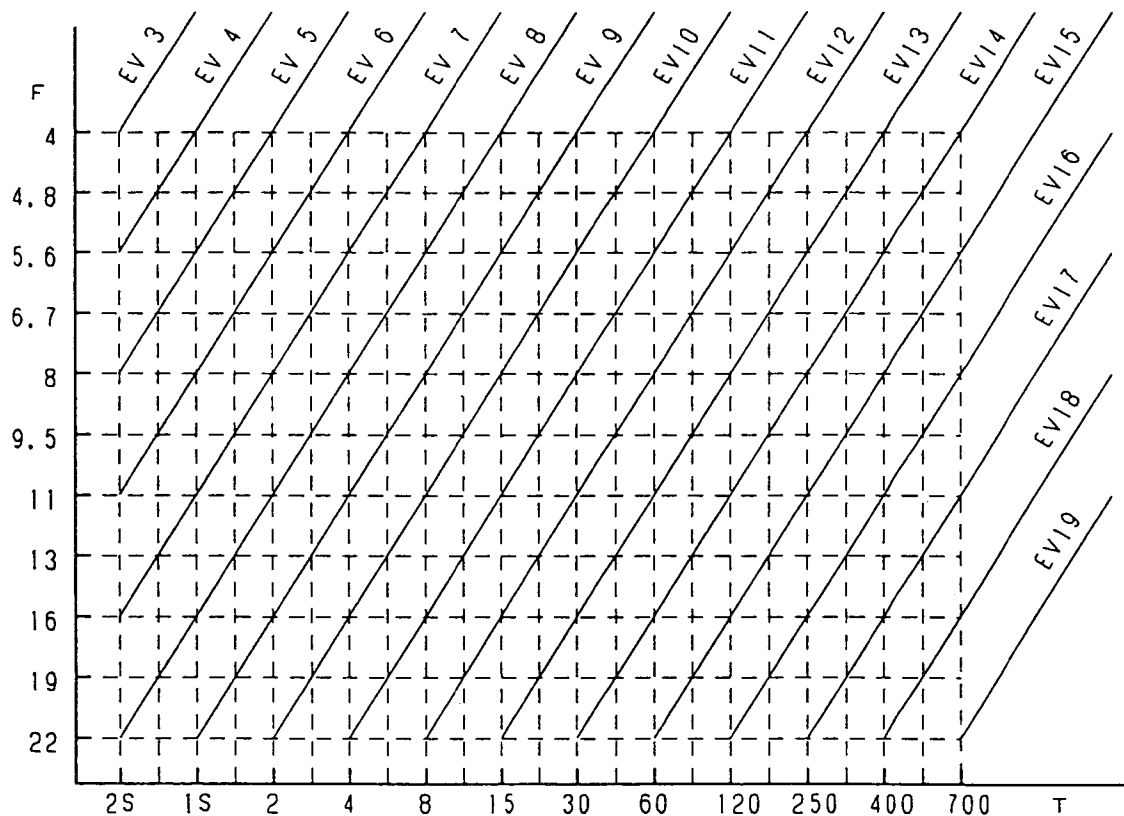
- **Select dial switch: SMP, SMA, SMM** → Control FPCB: U101 sets a mode
- **Table of modes**

Mode	Name of mode	Focusing	Shutter speed	Aperture
P	Programmed AE	Automatic and manual	Automatic	Automatic
A	Aperture priority AE	Automatic and manual	Automatic	Manual
M	Manual exposure	Automatic and manual	Manual	Manual

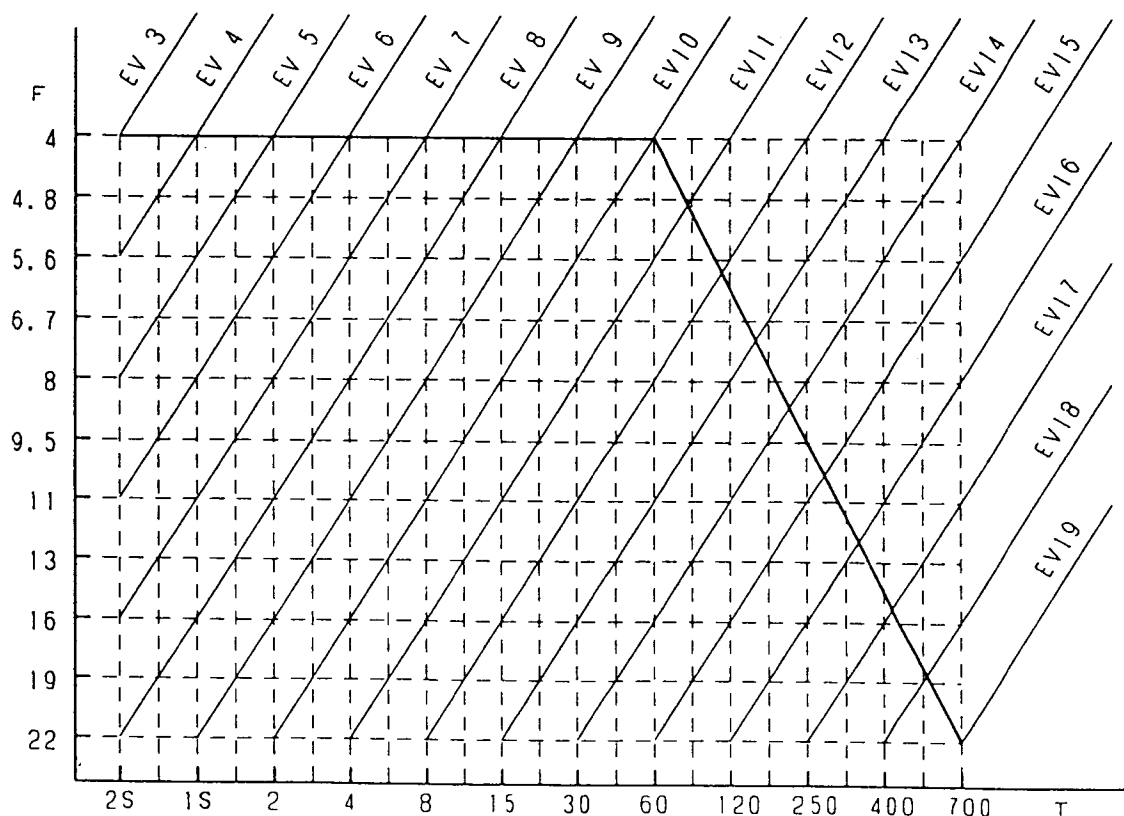
In any case, light measuring and ranging are performed, and thereafter, judgement is made on the manually set values. The judgement standard is the algorithm programmed based on ISO (film speed), brightness of an object, distance to the object, etc.

3. Shutter program diagram (ISO 100)

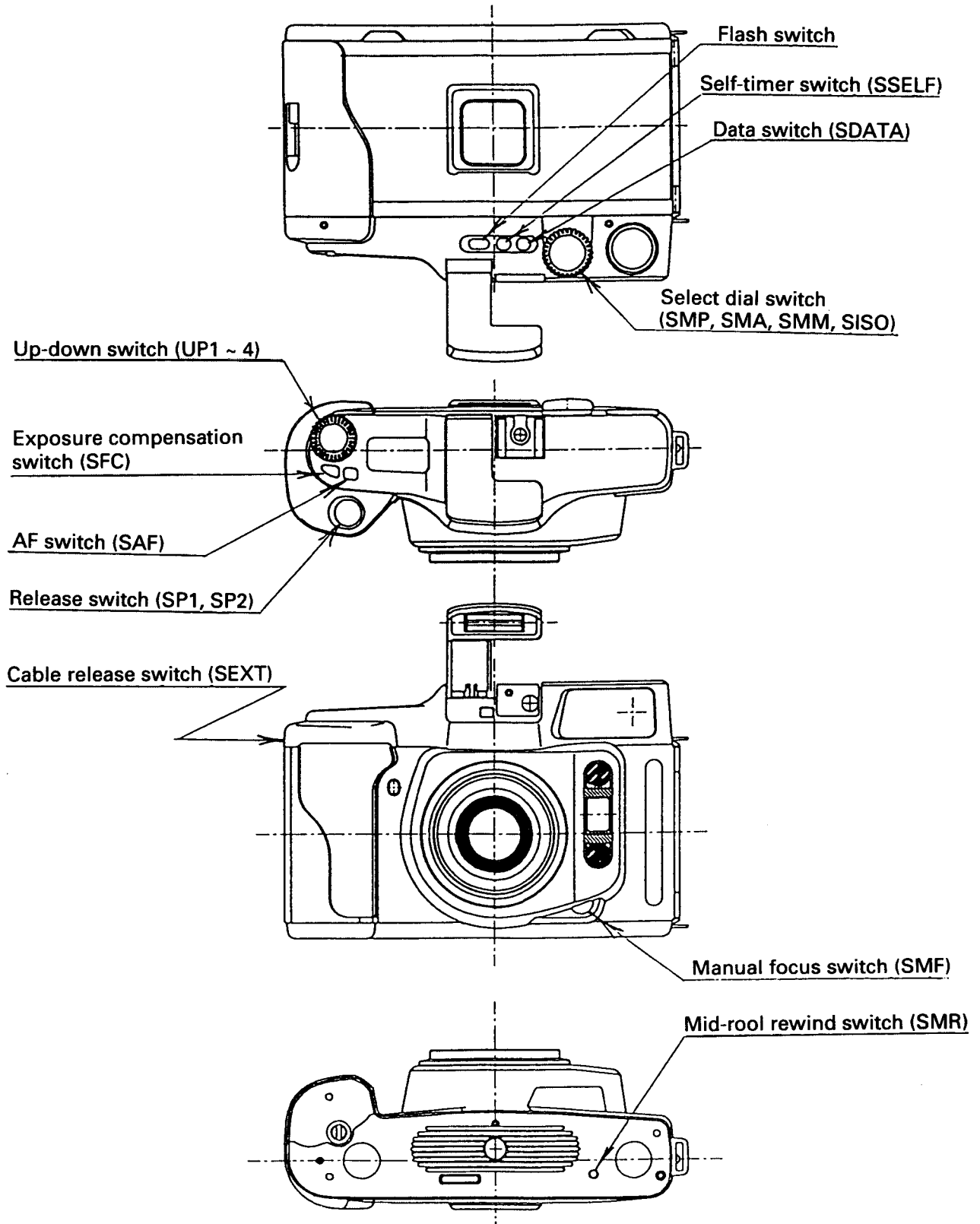
1) A mode, M mode



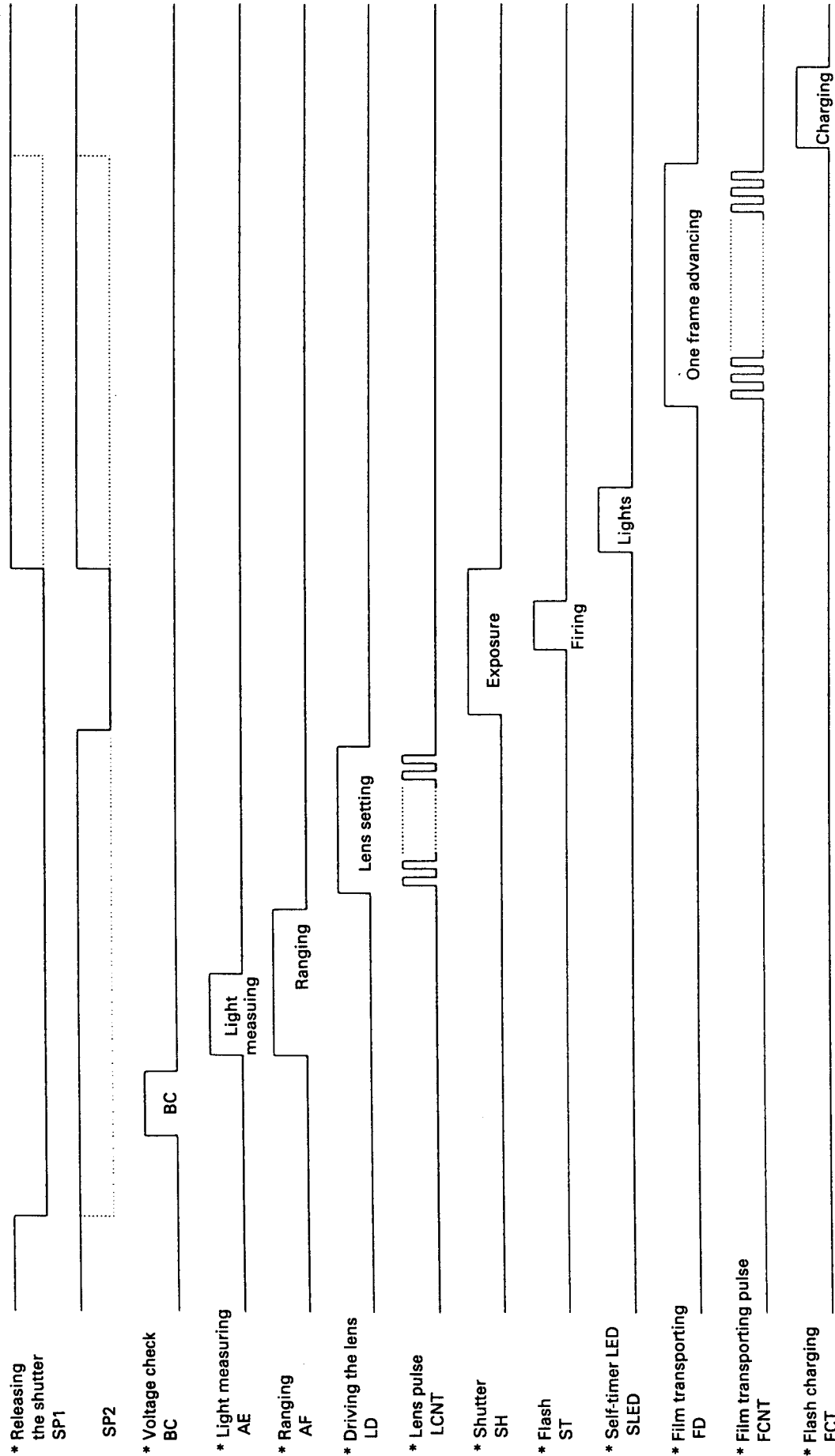
2) P mode (When flash ON – FTL:1/30)



4 Switch layout

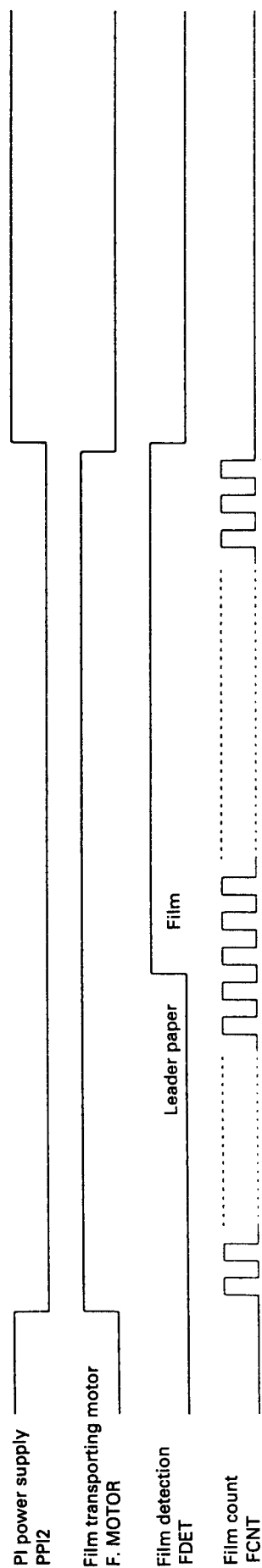


5. Sequence time chart

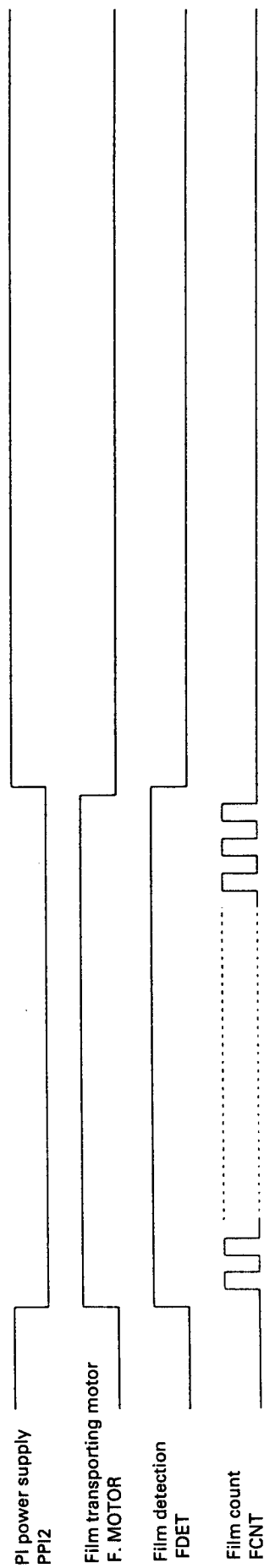


6. Film transporting time chart

1) First frame setting



2) One frame film advancing



8. Table of signals

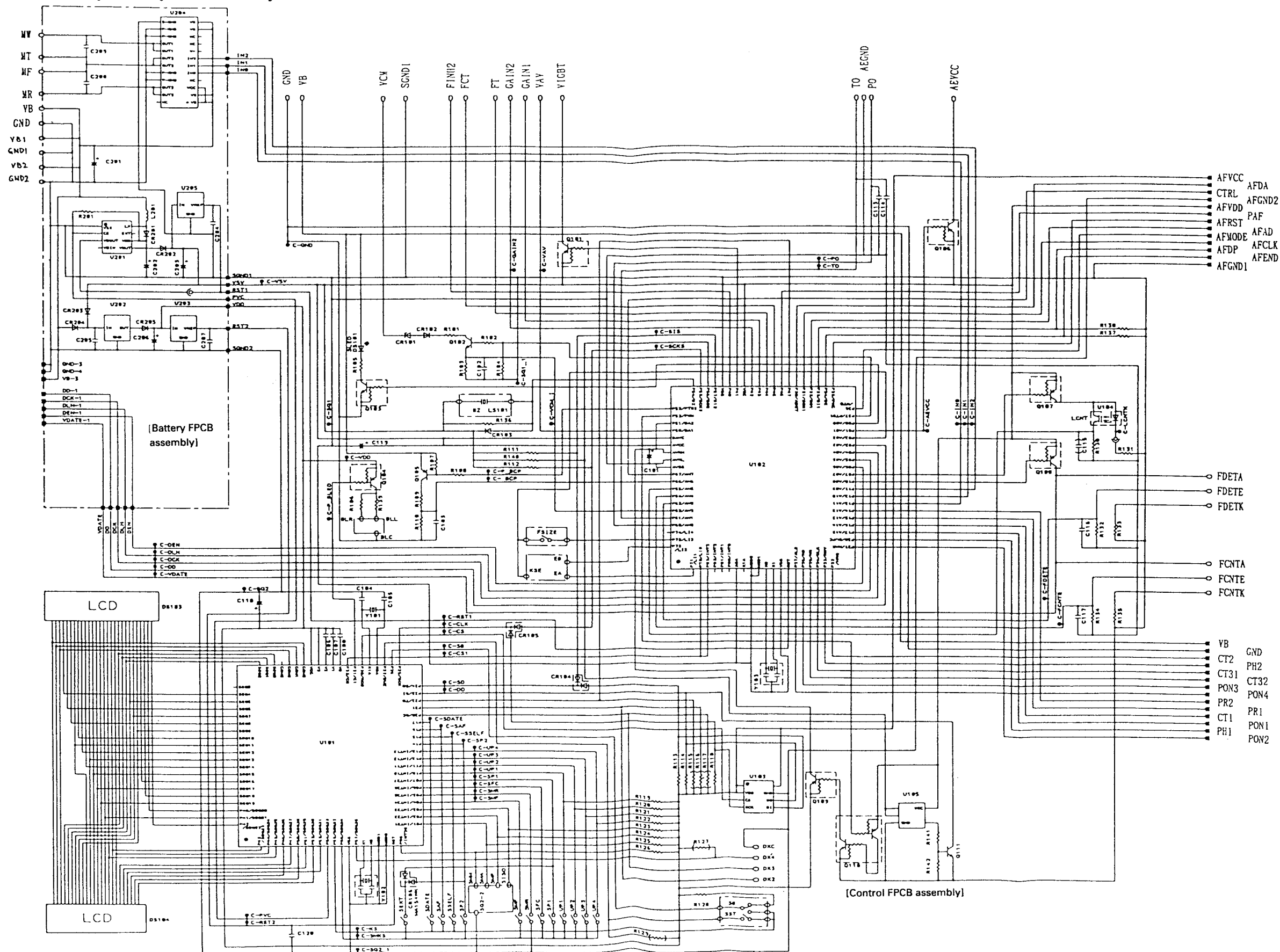
Connections	Signal name	Description
Control FPCB ~ Battery FPCB	VDATE	Data power supply (+)
	RST2	U102 reset signal
	PVC	DC/DC power starting signal
	SG2	U101 power supply (-)
	VDD	U101 power supply (+)
	SG1	U102 power supply (-)
	RST1	U102 reset signal
	V5V	U101 power supply (+)
	IN0 ~ 2	Motor driver driving signal
	SG2-1	Data power supply (-)
	DD	Data data signal
	DCK	Data clock signal
	DLH	Data latch signal
	DEN	Data enable signal
Control FPCB ~ Select dial switch	SMM	Main switch (Manual)
	SMA	Main switch (Aperture priority)
	SMP	Main switch (Program)
	SISO	Main switch (ISO)
	SG2-2	Ground
Control FPCB ~ Camera back switch	VSB	Camera back switch
	KS	Camera back switch
	SB	Camera back switch
Control FPCB ~ PI PCB	FCNTA	Film transporting pulse signal
	FCNTK	Film transporting pulse signal
	FCNTE	Film transporting pulse signal
Control FPCB ~ DX FPCB	DXC	External communication signal (Common)
	DX2	External communication signal
	DX3	External communication signal
	DX4	External communication signal
Control FPCB ~ Flash PCB	VCM	Main capacitor voltage
	SGND1	Flash ground
	FINH2	Flash charge inhibit signal

Connections	Signal name	Description
Control FPCB ~ Flash PCB	FCT	Flash charge signal
	FT	Flash fire signal
	GAIN1	Flash gain signal
	GAIN2	Flash gain signal
	VAV	Flash reference signal
	VIGBT	Flash IGBT signal
Control FPCB ~ AF FPCB	PAF	AF power starting signal
	AFVCC	AF power supply (Active +)
	AFDA	AF active data signal
	CTRL	AF control signal
	AFGND2	AF power supply (Active -)
	AFVDD	AF power supply (Passive +)
	AFRST	AF reset signal
	AFAD	AF address signal
	AFMODE	AF mode signal
	AFCLK	AF clock signal
	AFDP	AF passive data signal
	AFEND	AF end signal
	AFGND1	AF power supply (Passive -)
Control FPCB ~ Light measuring FPCB	AEVCC	AE power supply (+)
	AEGND	AE power supply (-)
	TO	Temperature measuring signal
	PO	Light measuring signal
Control FPCB ~ Shutter assembly	VB-1	Shutter circuit power supply (+)
	PON4	Aperture compensation signal
	PON3	Aperture power supply
	CT32	Aperture driving signal
	CT31	Aperture driving signal
	GND-1	Shutter circuit power supply (-)
	PH2	Shutter open blade driving signal
	CT2	Shutter open blade driving signal
	PON2	Shutter open blade power supply
	PH1	Shutter close blade driving signal

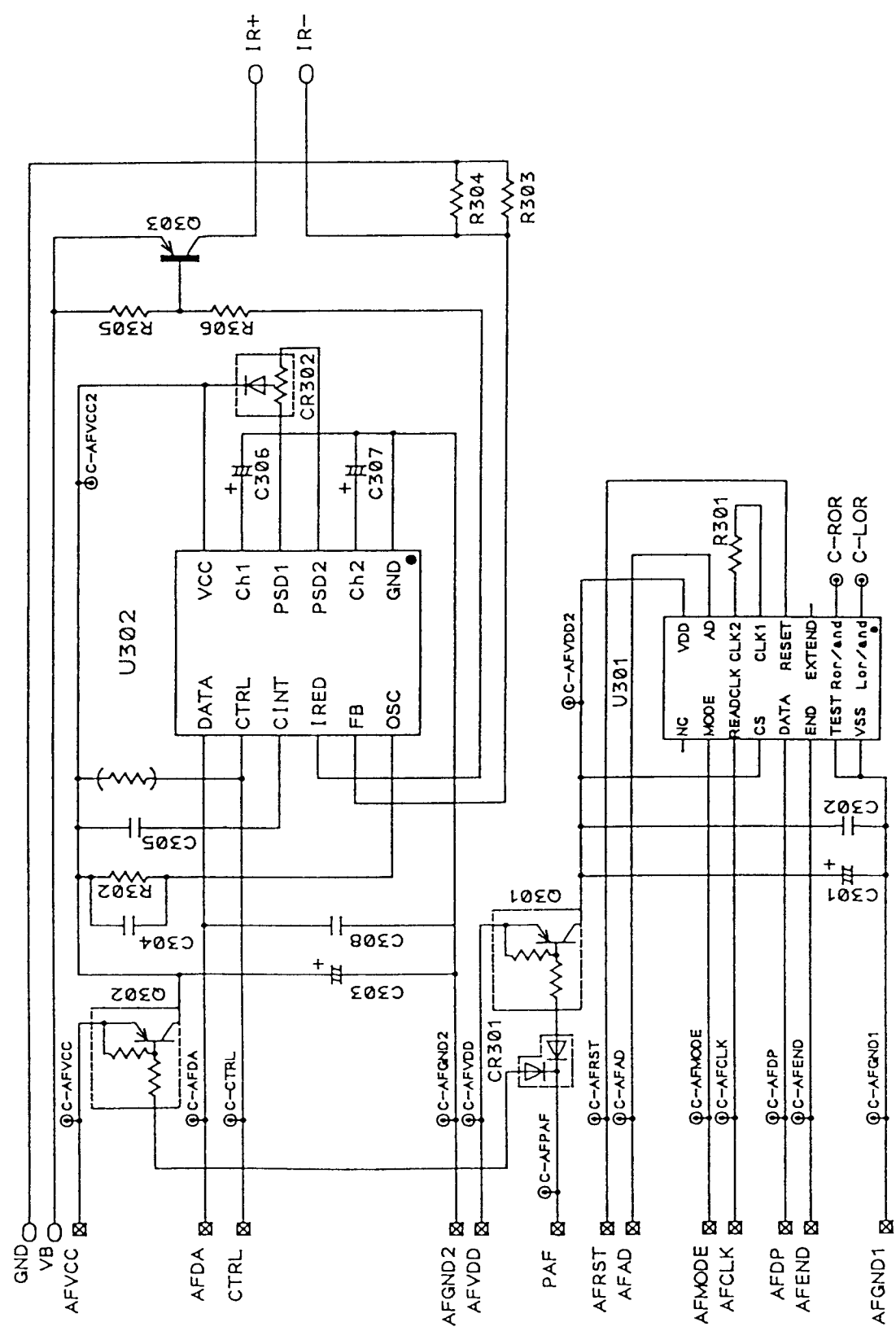
Connections	Signal name	Description
Control FPCB ~ Shutter assembly	PON1	Shutter close blade power supply
	CT1	Shutter close blade driving signal
	PR1	Aperture detection signal
	PR2	Shutter blade detection signal
Control FPCB ~ Buzzer	VBZ	Buzzer power supply
	BZ	Buzzer driving signal
Control FPCB ~ Lens assembly	KSE	Lens encoder common signal
	EA	Lens encoder signal
	EB	Lens encoder signal
Control FPCB ~ Film size switch	KSE-1	Film size signal
	SSIZE	Film size signal
Control FPCB ~ PR PCB	FDETA	Film detection signal
	FDETK	Film detection signal
	FDETE	Film detection signal
Battery FPCB ~ Film transporting motor	MF	Film transporting motor driving signal
	MR	Film transporting motor driving signal
Battery FPCB ~ Lens driving motor	MT	Lens driving motor driving signal
	MW	Lens driving motor driving signal
Flash PCB ~ Flash assembly	TRG+	Flash firing signal (+)
	TRG-	Flash firing signal (-)
	Xe+	Xenon tube lighting signal (+)
	Xe-	Xenon tube lighting signal (-)
Battery ~ Each assembly	VB	Battery (+)
	GND	Battery (-)
On the control FPCB	SP1	Release (1st step) signal
	SP2	Release (2nd step) signal
	SEXT	Cable release signal
	SDATA	Data switch signal
	SSELF	Self-timer switch signal
	SAF	AF switch signal
	SFC	Exposure compensation switch signal
	SMR	Mid roll rewinding signal
	SMF	Manual focus switch signal
	UP1 ~ 4	Up-down switch signal

MEMO

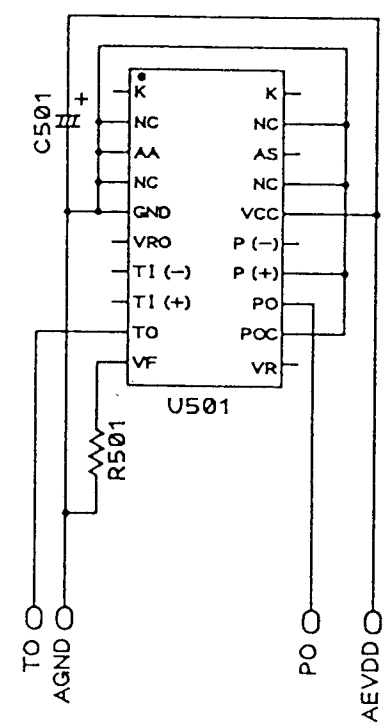
1) Control FPCB assembly / Battery FPCB assembly



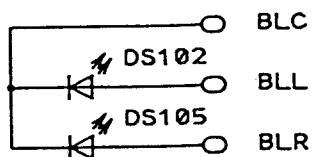
2) AF FPCB assembly



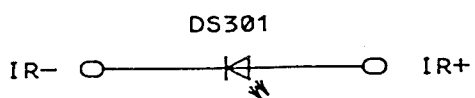
3) Light measuring FPCB assembly



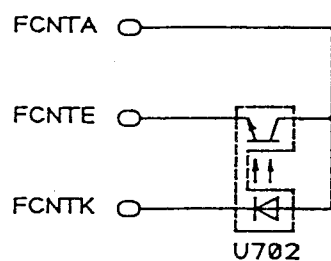
4) BL PCB assembly



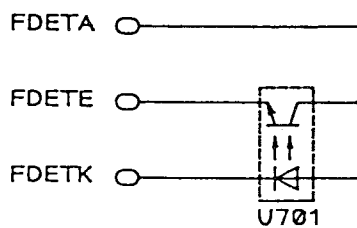
5) IRED PCB assembly



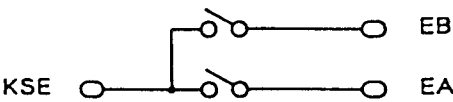
6) PI PCB assembly



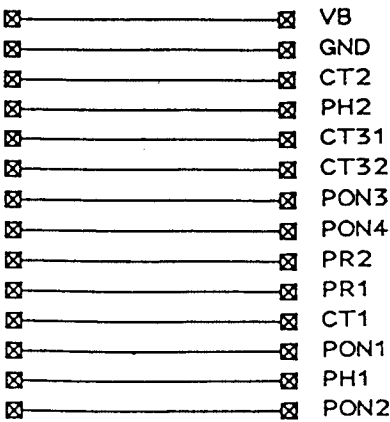
7) PR PCB assembly



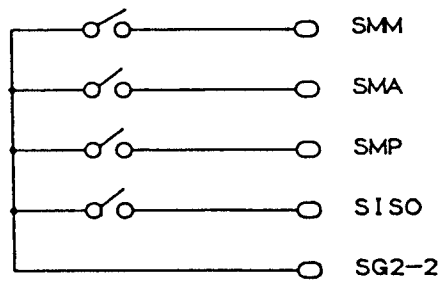
8) Encoder FPCB



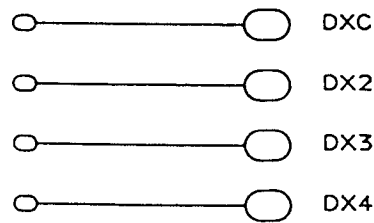
9) Relay FPCB



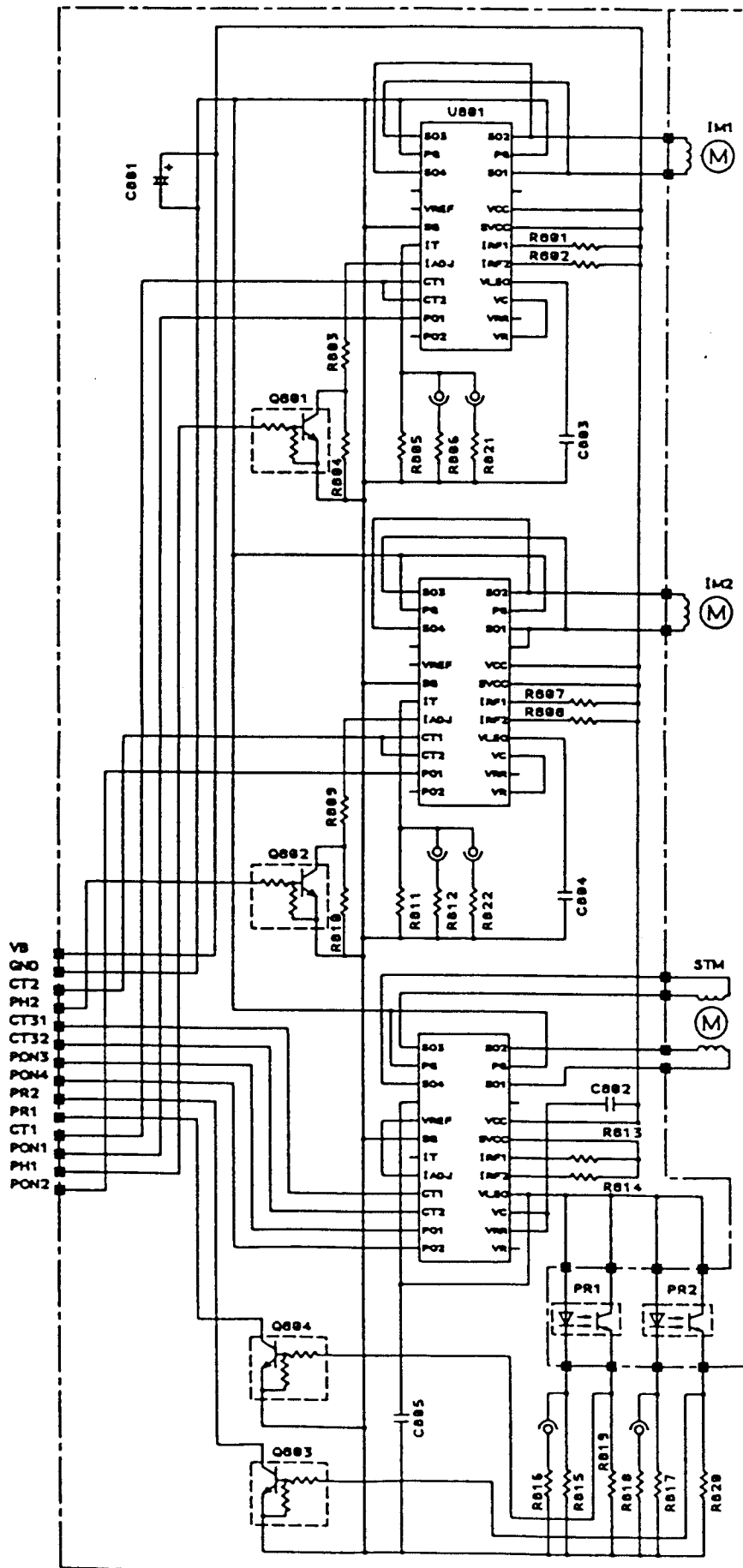
10) Mode switch FPCB



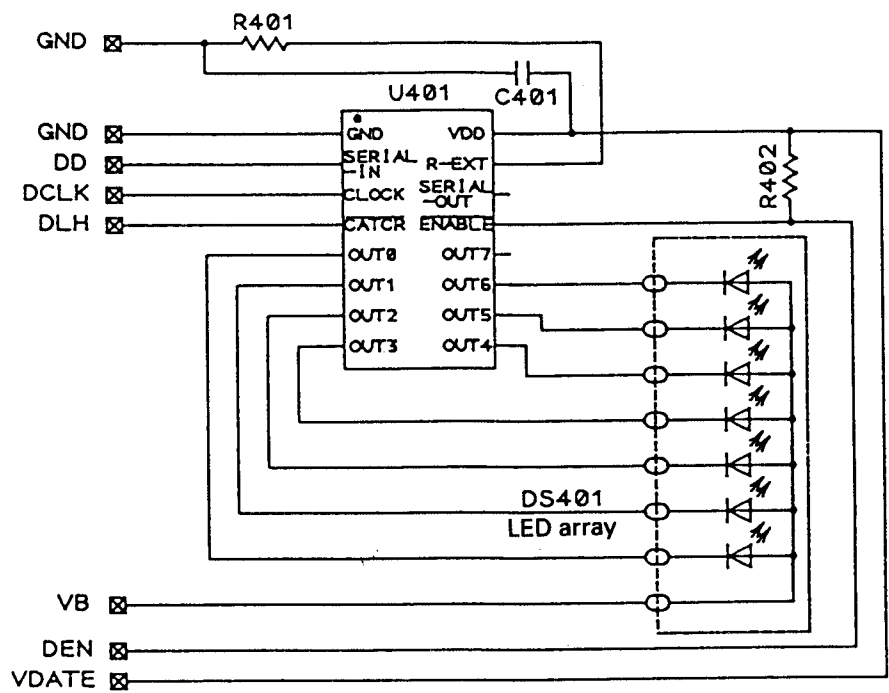
11) DX FPCB



13) Shutter assembly



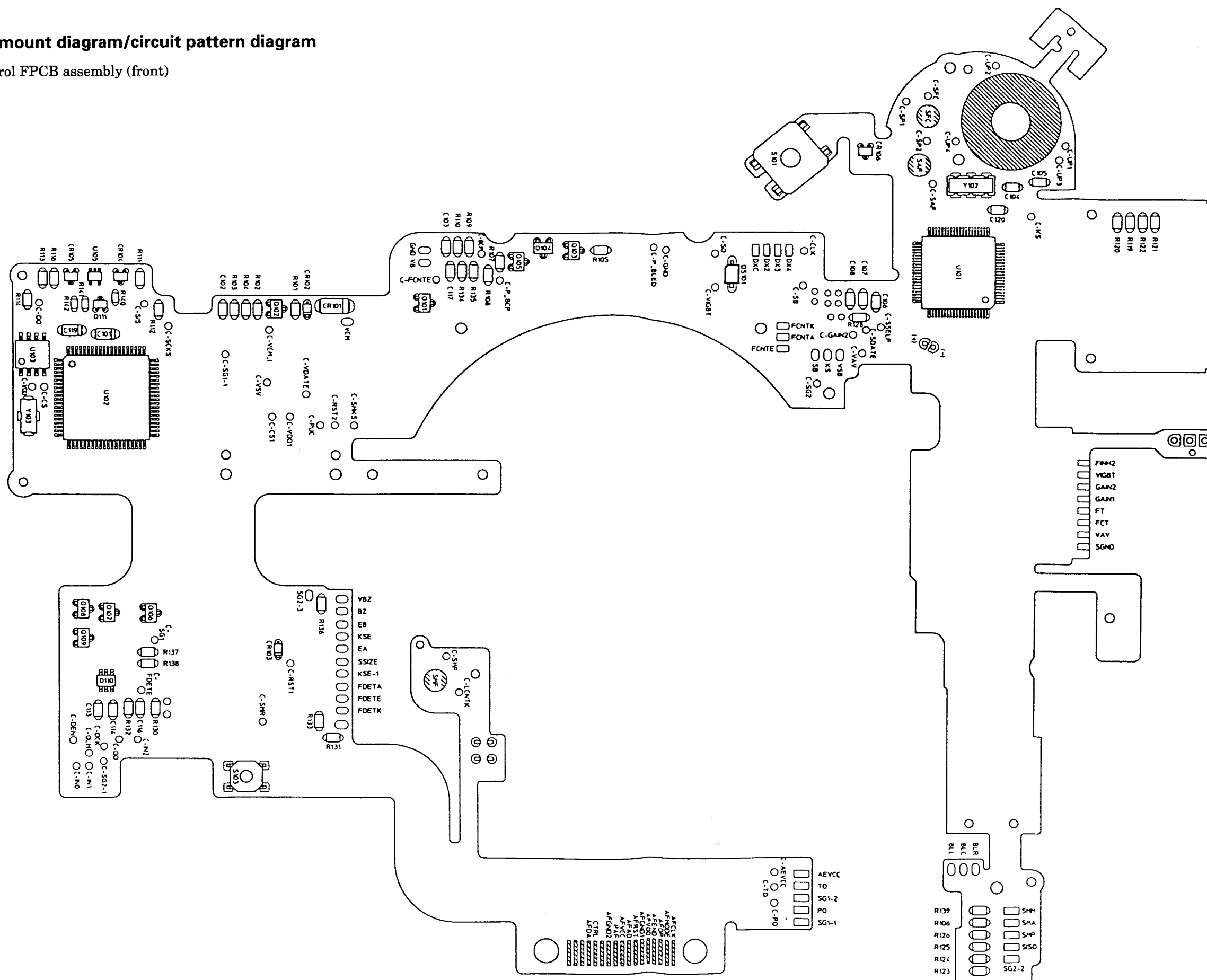
14) Data FPCB assembly

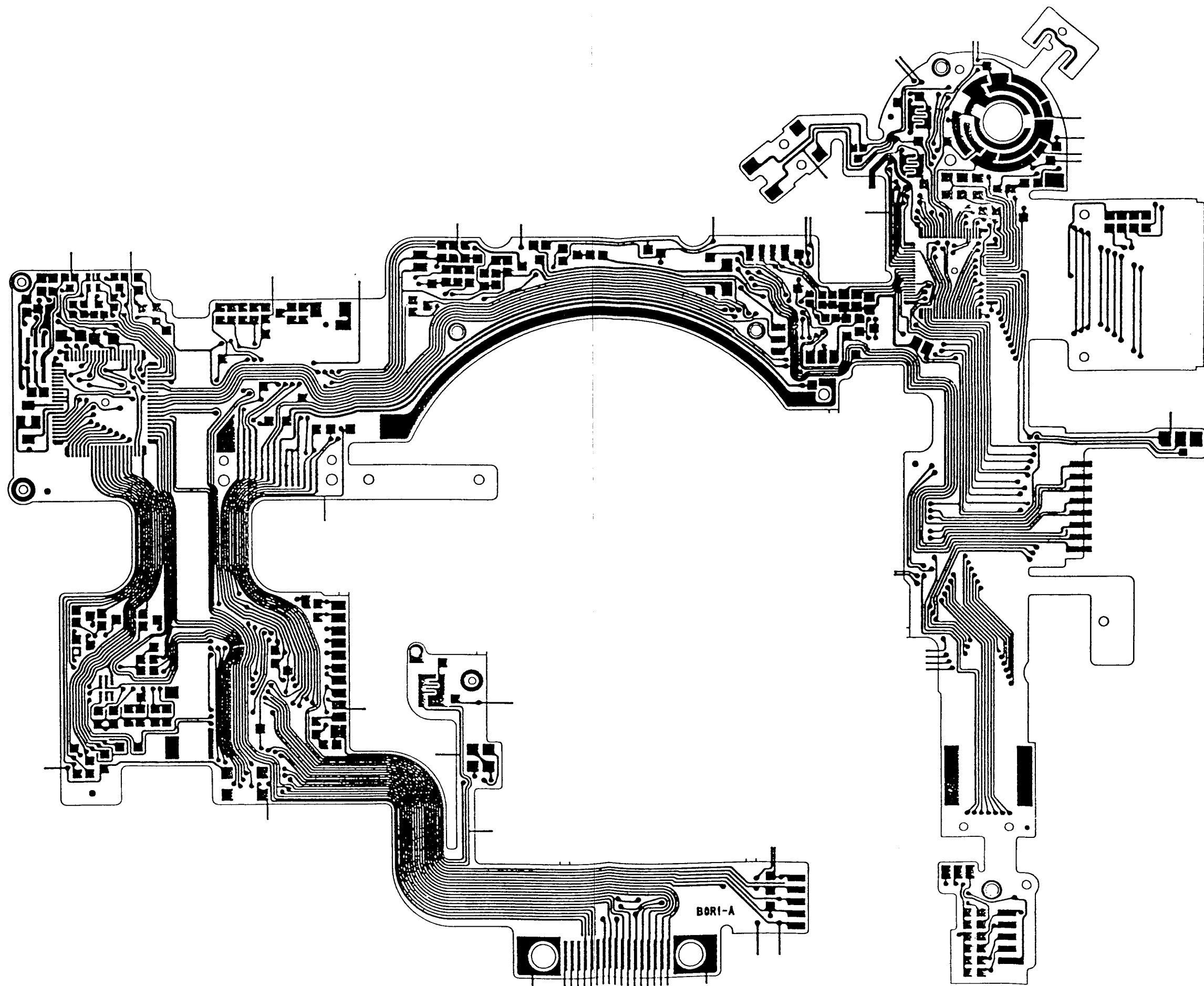


MEMO

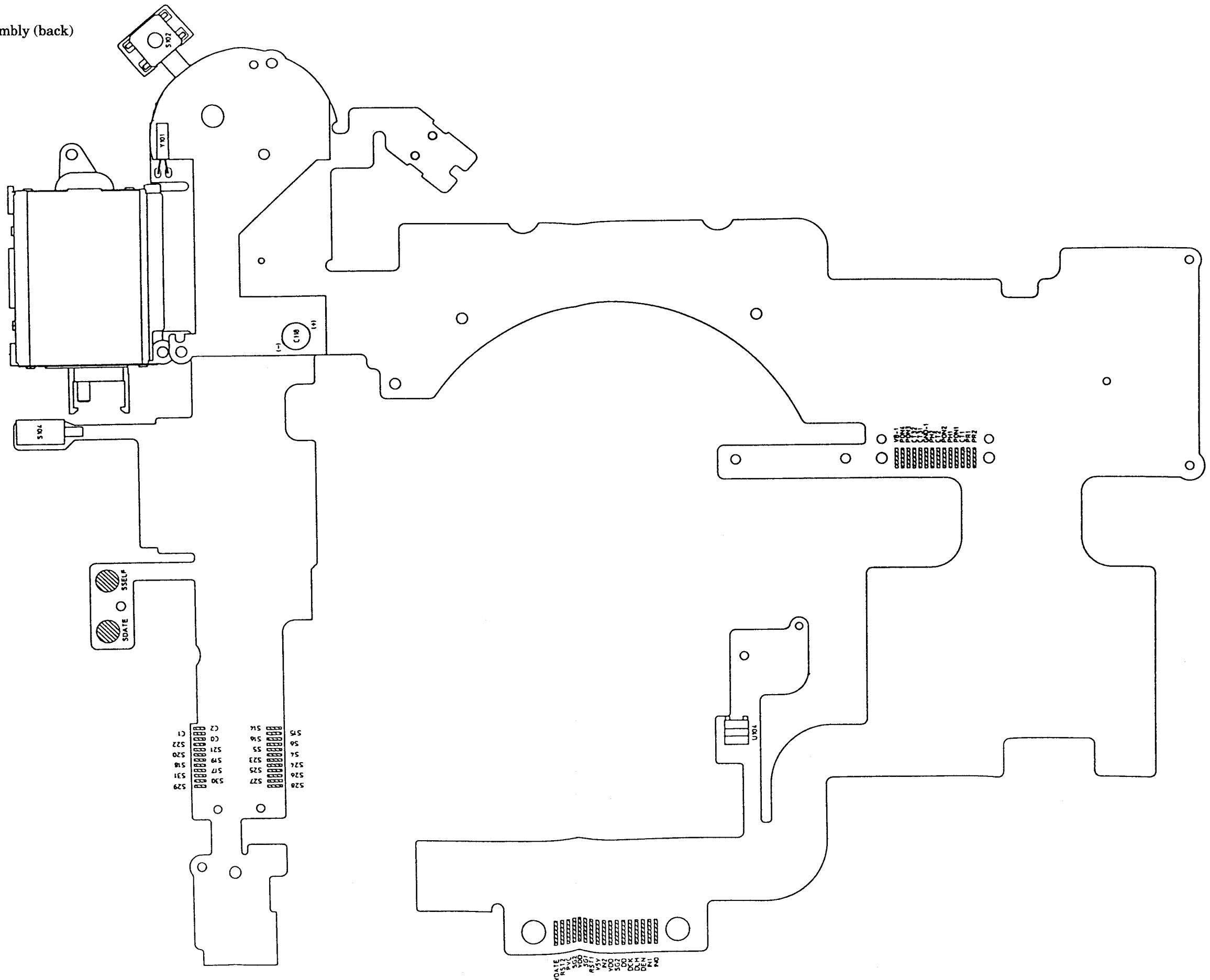
10. Surface mount diagram/circuit pattern diagram

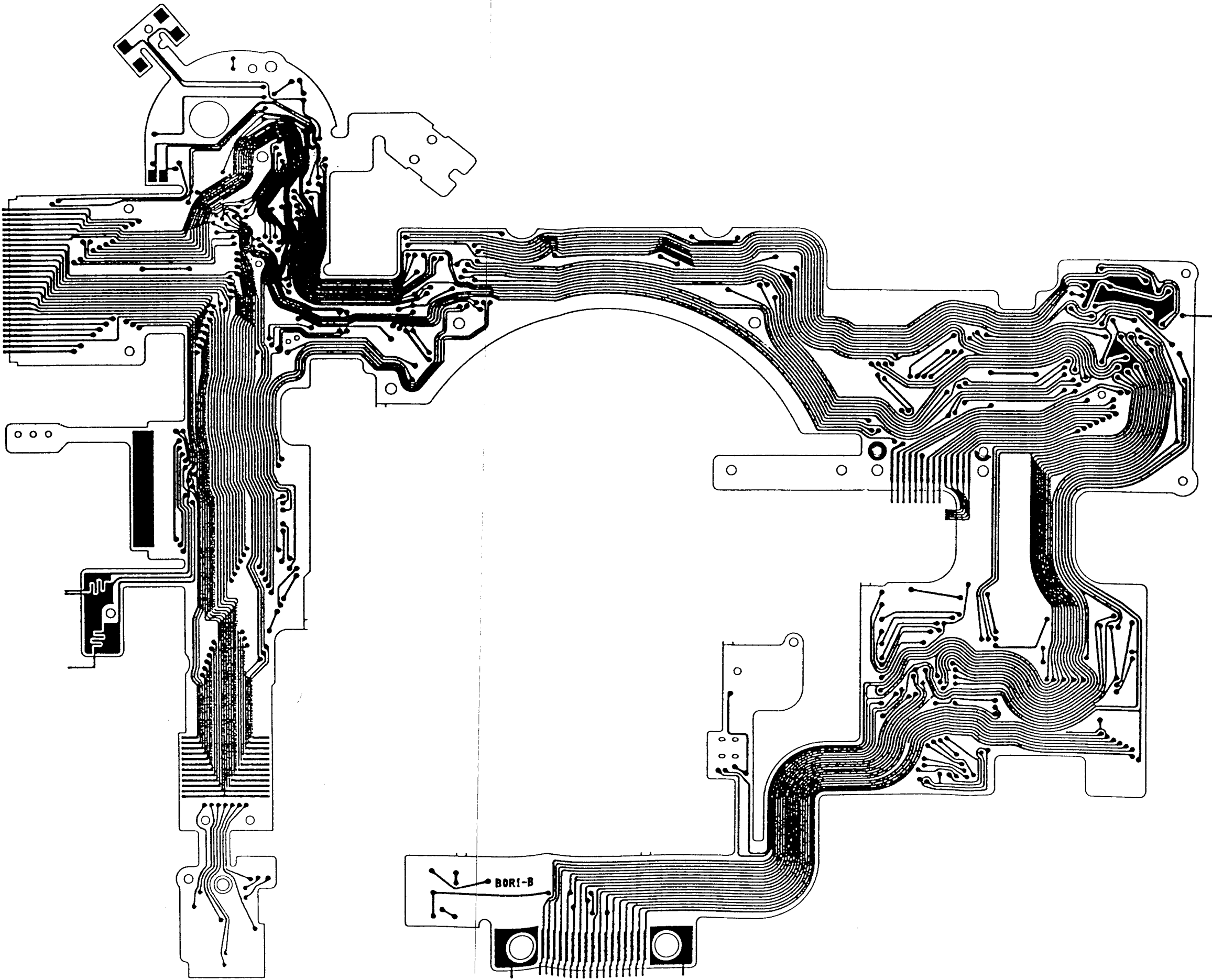
- 1) Control FPCB assembly (front)



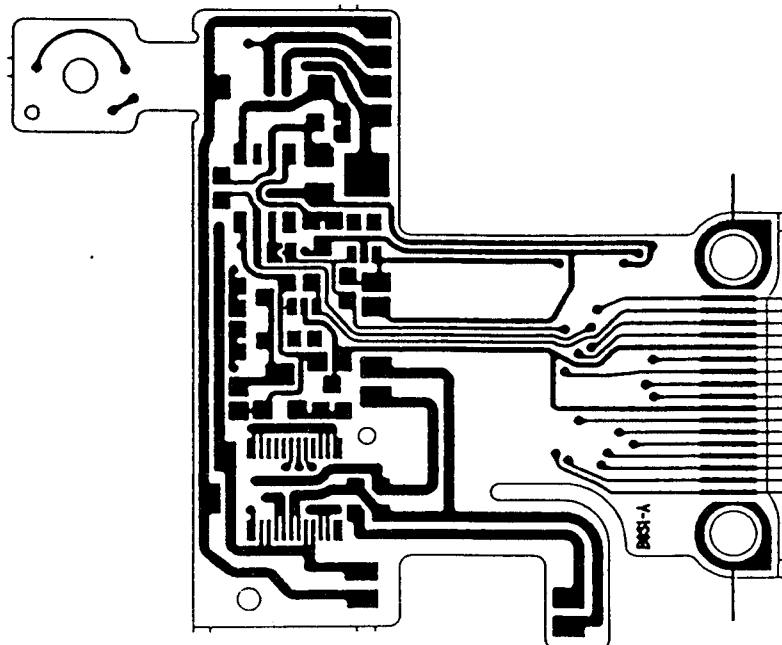
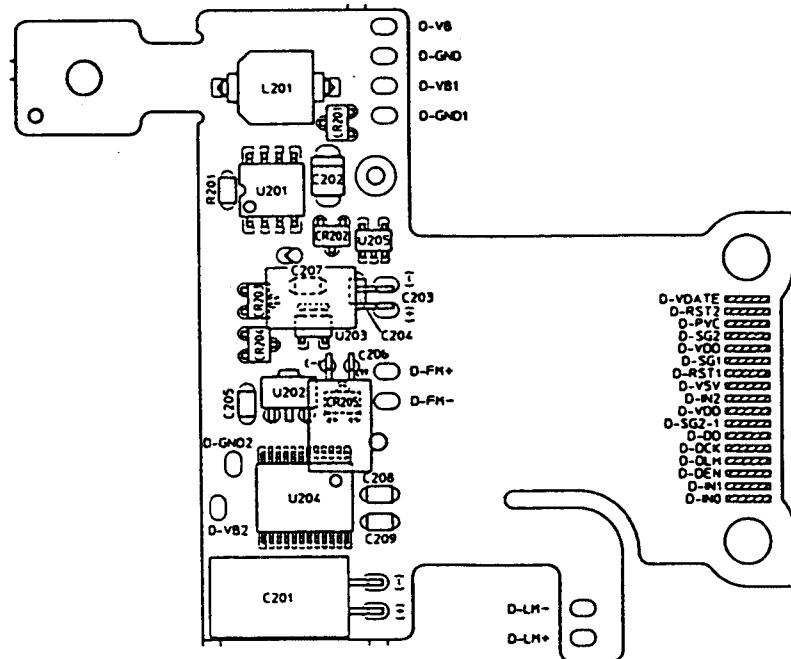


Control FPCB assembly (back)

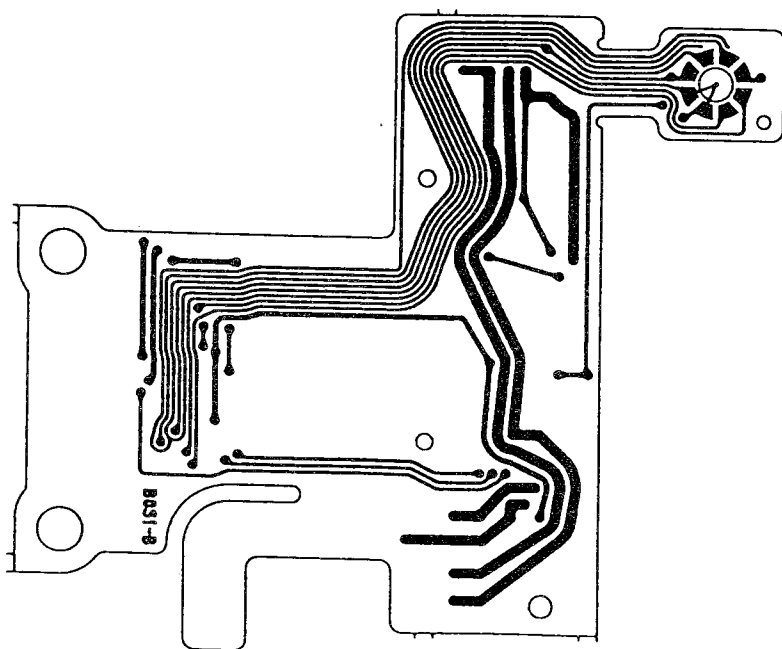
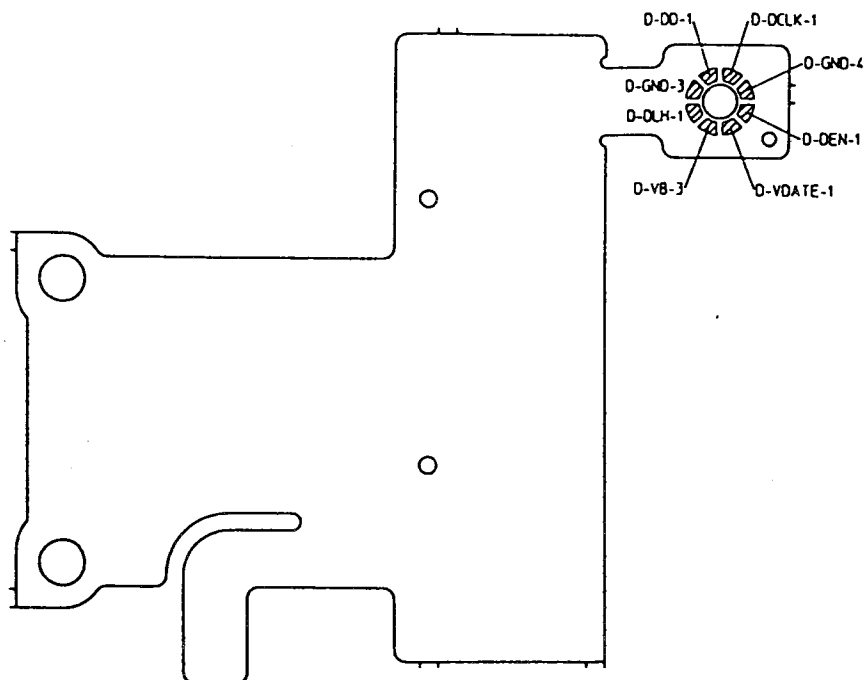




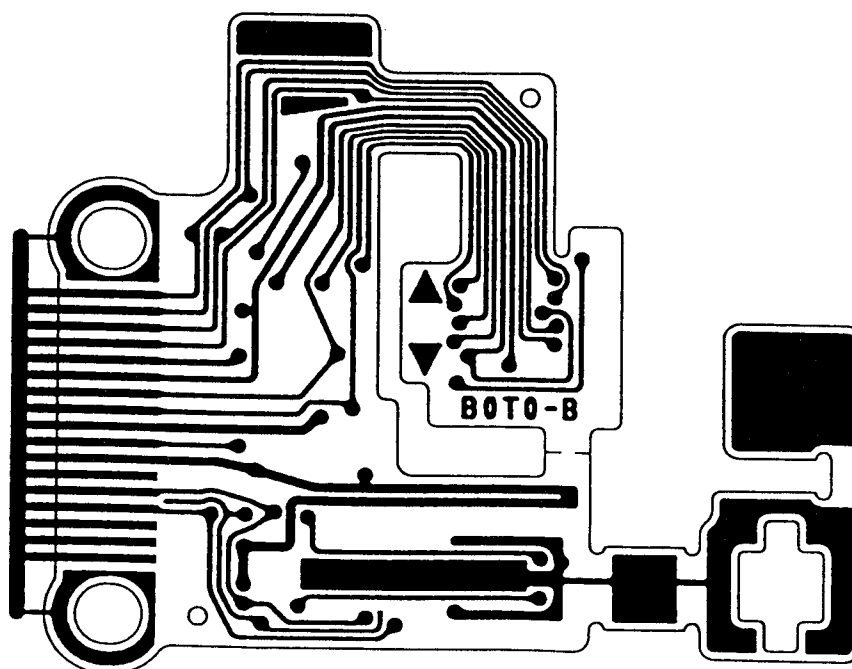
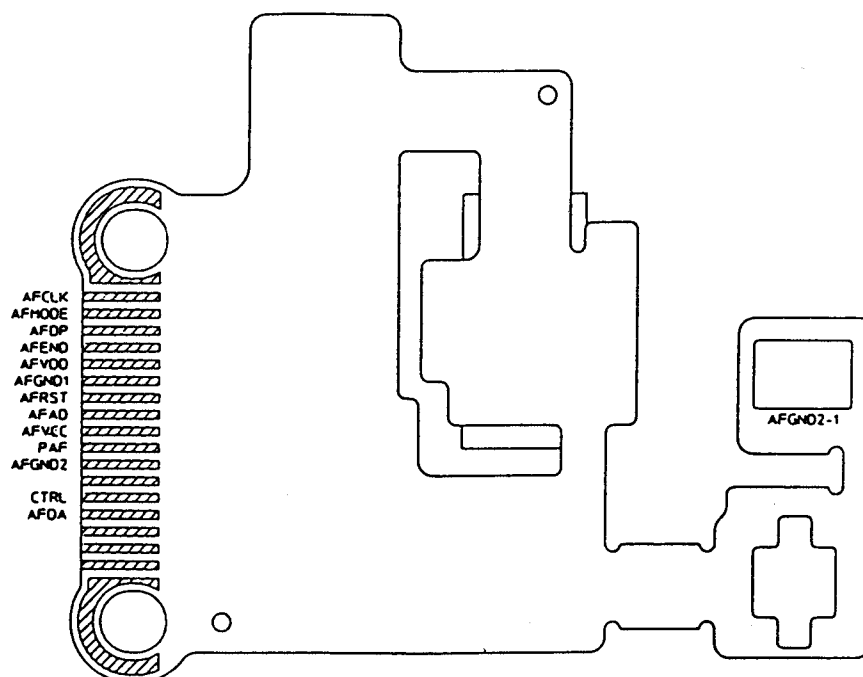
2) Battery FPCB assembly (front)



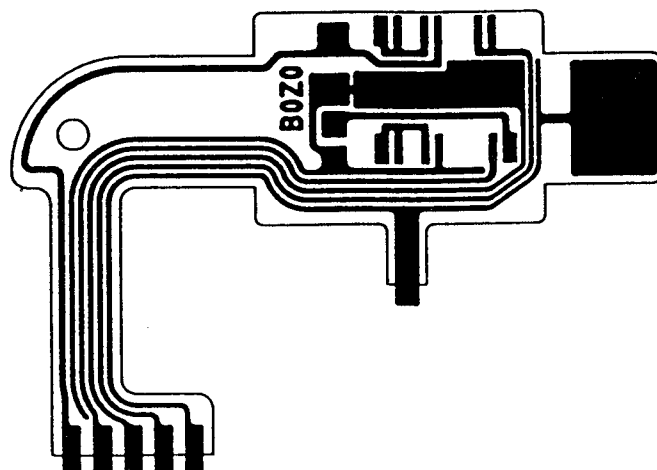
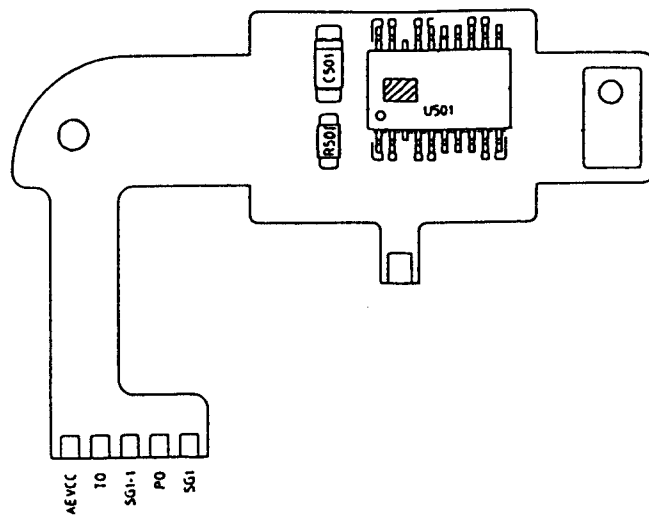
Battery FPCB assembly (back)



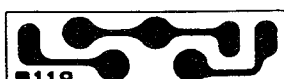
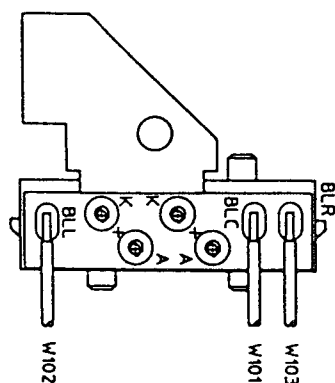
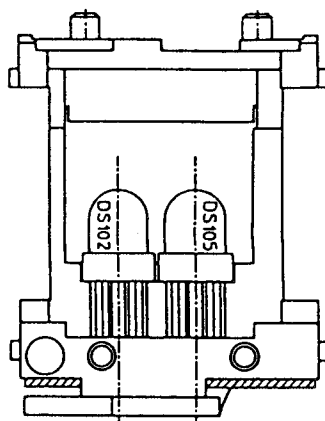
AF FPCB assembly (back)



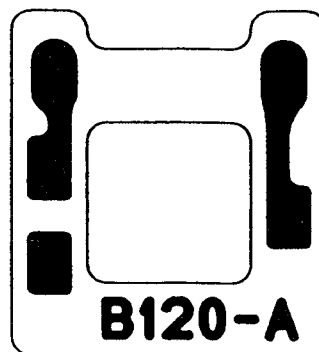
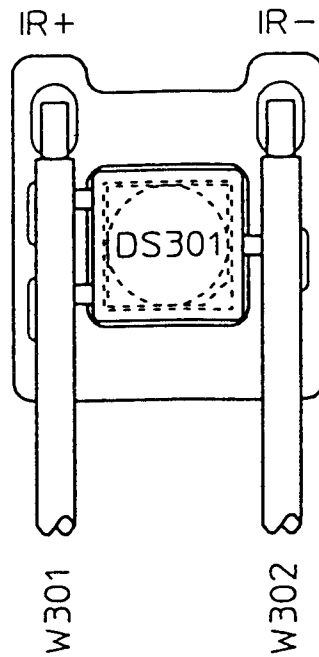
4) Light measuring FPCB assembly



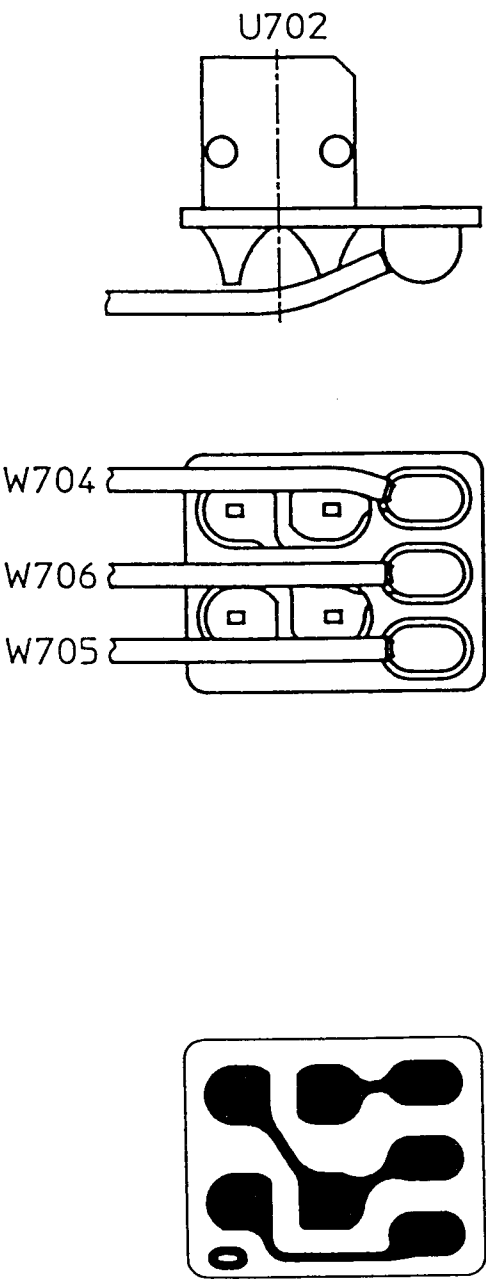
5) BL PCB assembly



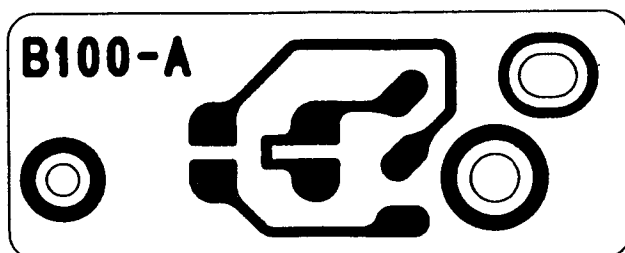
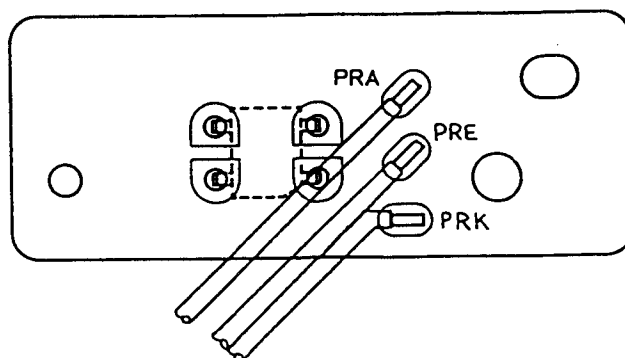
6) RED PCB assembly



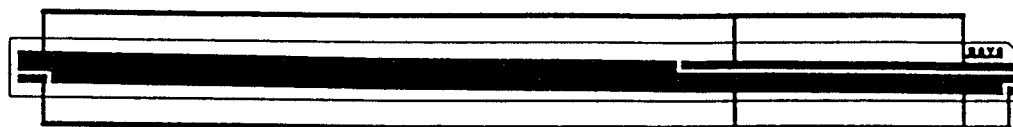
7) PI PCB assembly



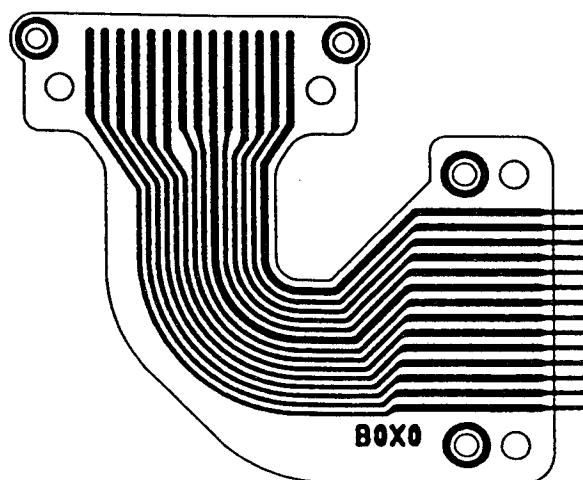
8) PR PCB assembly



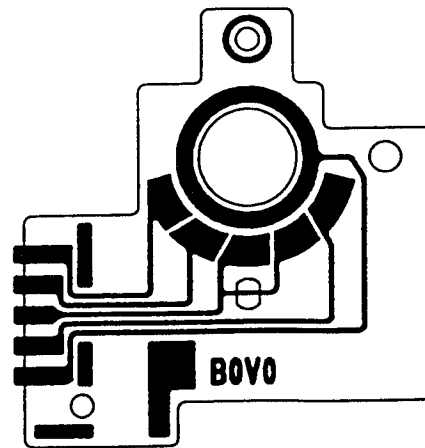
9) Encoder FPCB



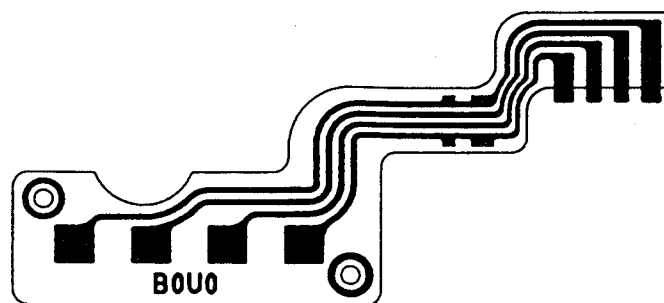
10) Relay FPCB



11) Mode switch FPCB



12) DX FPCB



11. Troubleshooting

Before starting troubleshooting

1. Precautions

- 1) In the camera under a trouble, a large current may flow damaging elements in the circuit.
- 2) Proceed the troubleshooting by checking current, etc.
- 3) When a large current (except for flash charging current) is flowing, turn off the power immediately, find out the cause of over-current, and take corrective actions.
- 4) The main capacitor is highly charged. Discharge it very carefully.

2. Visual check

- 1) Soldering: Observe each soldered part from various angles to make sure that correct lead wire has been connected, no lead wire has been missed, no lead wire has been floated (lightly pull the lead wire) and no lead wire has been shorted with the adjacent one.
- 2) Fixtures: Make sure that all the fixtures are clean, properly and correctly tightened (rubber fixture is normal and screws are tightened correctly), positioned correctly and no foreign matter exists on the fixtures. (After checking the fixtures carefully as above, thoroughly clean them, and check operations once again.)

3. For defective control FPCB, the following causes are anticipated:

- 1) Incorrectly soldered (floated or shorted) element pins
- 2) Broken or shorted line of flexible FPCB
- 3) Wrong parts used or incorrect polarity
- 4) Defective or damaged element
- 5) Abnormal EEPROM data

4. Source voltage

For the stabilized power supply used to conduct troubleshooting, use 5.60V; 1 ohm.

5. Use of a tester

1) Hints for tester check

Continuity: About 5 to 50 ohms or less

Non-continuity: About 5 kilo-ohms or more → A certain resistance will be indicated since the circuit is connected.

"H": 3V or higher → Actual voltage is unstable since there are three power supply systems.

"L": 0.5V or lower

2) Input impedance of the used tester

Should be 10MΩ

Troubleshooting

1. Power is not turned on normally.

- 1) Does not turn on at all . . . Not indicated on the LCD.

CHECK 1: Make sure that the battery FPCB, control FPCB and AFFPCB are tightly and correctly joined in three layers.

CHECK 2: Make sure that about 3.3V and 4.8V are output respectively for C_VDD and C_V5V.

When not output, defective battery FPCB assembly or incorrectly soldered lead wire extended from the battery is anticipated.

CHECK 3: Make sure that level of C_RST1 is "H".

When it remains at "L", shorted solder bridge pattern of the battery FPCB assembly is anticipated.

As the result of the above checks, when still NG, the control FPCB assembly is anticipated to be defective.

- 2) Exposure counter remains displaying . . . No other displays than exposure counter are displayed.

CHECK 1: Make sure that source voltage is 5.6V.

CHECK 2: Check two lead wires (SH) for incorrect soldering, reverse connections and/or break-down.

As the result of the above checks, when still NG, the control FPCB assembly is anticipated to be defective.

- 3) LCD remains fully displaying

CHECK: Make sure that S103 is not pressed down continuously.

When the S103 is not pressed down continuously and still the LCD continues to make the full display, the control FPCB is anticipated to be defective.

2. Over leak-current

→ 1) LCD is working.

CHECK 1: Check all the items under paragraph 1 above (Power is not turned on normally.)

CHECK 2: Make sure that the SB switch lead wires are soldered correctly.

→ 2) LCD has gone out.

CHECK 1: Recheck all the lead wires and soldered parts.

CHECK 2: Disconnect FLASH + lead wire, and see if the LCD lights or not.

→ When recovers, the circuit across the flash and control FPCB is anticipated to be soldered incorrectly or flash PCB assembly is anticipated to be defective.

CHECK 3: Disconnect SH+ lead wire, and see if the LCD lights or not.

→ When recovers, the shutter assembly is anticipated to be defective or poor contact across the relay FPCB and control FPCB is anticipated.

CHECK 4: Disconnect AF+ lead wire, and see if the LCD lights or not.

→ When recovers, the AF system is anticipated to be defective.

As the result of the above checks, when still NG, the control FPCB assembly or battery FPCB assembly is anticipated to be defective.

3. Operations with the camera back opened are abnormal.

→ 1) [120], [220] film display is abnormal.

CHECK 1: Make sure that the display at the time of camera back "OPEN" is normal.

→ When abnormal, SB lead wire is anticipated to be connected reversely, or not to be soldered correctly.

CHECK 2: Make sure that the SZ lead wire is soldered correctly.

CHECK 3: Make sure that the pressure plate detecting pin operates smoothly

CHECK 4: Check continuity across SZ+ and SZ- lead wires with the power turned off.

Continuity exists when the pressure plate detecting pin is pressed down and continuity does not exist when the pin is released from the compression.

→ Normal

Continuity does not exist when the pressure plate detecting pin is pressed down and continuity exists when the pin is released from the compression.

→ SSIZE switch wiring is anticipated to be reversed.

Continuity does not exist regardless of pressed down or released pressure plate detecting pin

→ Broken lead wire or defective SSIZE switch.

As the result of the above checks, when still NG, the control FPCB assembly is anticipated to be defective.

→ 2) The film transporting motor does not turn, or turns reversely.

CHECK 1: Check the motor.

→ Tends to turn

→ Mechanically locked

→ Turns reversely

→ Motor lead wires are connected reversely, or connection (soldering) with the battery FPCB is reversed.

CHECK 2: Make sure that the display at the time of camera back "OPEN" is normal.

→ When abnormal, SB lead wire is anticipated to be connected reversely, or not to be soldered correctly.

CHECK 3: Check contact across the UP/DOWN contact and control FPCB.

CHECK 4: Make sure that the battery FPCB, control FPCB and AFFPCB are tightly and correctly joined in three layers.

CHECK 5: Make sure that the motor lead wires are connected correctly.

As the result of the above checks, when still NG, the control FPCB or battery FPCB is anticipated to be defective.

4. Operations under P mode are abnormal.

- 1) The lens is fed out for one second or so, and then, it returns to its home position. (The lens is not fed out to the normal position.)

CHECK 1: Make sure that the PI (U702) (which detects the lens driving) is installed correctly on the holder.

CHECK 2: Make sure that the solder bridge by the PRK lead wire is shorted correctly.

- 2) The lens stops immediately.

CHECK 1: Make sure that EA, EB and EC lead wires are soldered correctly and that they are not connected reversely.

CHECK 2: Make sure that the contact across the encoder FPCB and contact piece is good.

As the result of the above checks, when still NG, the control FPCB is anticipated to be defective.

- 3) The lens is fed to the stand-by position once, but it returns to the home position, or the LCD goes out.

CHECK 1: Turn the power switch and make sure that the aperture generates clicking sounds three times.

→ Yes, sounds

→ Proceed to CHECK 2 below.

→ No, does not sound

→ EA, EB and EC lead wires are not connected or soldered correctly, or encoder is anticipated to be in a poor contact.

CHECK 2: Turn off the power switch, and check the shutter for the pressed-to-tight installation and CPU2 for the soldering.

→ The pressed-to-tight installation of the shutter can be assured by checking terminals of the CPU2 with a tester.

Measure resistances across the terminals and GND and compare them with the following standards.

15 ~ 19, 21 ~ 23 → 80 ~ 120 kilo-ohms

20, 24 → 40 ~ 60 kilo-ohms

25, 26 → ∞

→ When measured resistances deviate the standards, check the relay FPCB and control FPCB for tight connection and CPU for soldering.

As the result of the above checks, when still NG, the shutter assembly is anticipated to be defective.

To next page

4. Operations under P mode are abnormal.

→ 4) LCD flickers, or unnecessary patterns light dimly.

CHECK 1: Push down the LCD frame lightly, and see if the LCD recovers or not.

If the LCD recovers, it is anticipated that the LCD is not tightly connected.

→ Remove the LCD frame carefully, thoroughly clean the pattern and zebra connector, and reassemble them. When the LCD is cracked, replace it with a new one.

CHECK 2: Check the turned over portion of the FPCB near the LCD frame to insure that it is not broken.

As the result of above checks, when still NG, the control FPCB is anticipated to be defective.

→ 5) The flash mark does not blink.

NOTE: Under the P mode, the flash mark goes out when the object is bright and the release switch is pressed in a half way down.

CHECK: Check continuity. SST (S104) switch is anticipated to be in a poor contact.

As the result of the above check, when still NG, the control FPCB is anticipated to be defective.

→ 6) Self-timer and date operations are abnormal.

CHECK 1: Make sure that the cable release switch has not been pressed down continuously.

CHECK 2: Make sure that the rubber switch has been installed correctly.

As the result of the above checks, when still NG, the control FPCB is anticipated to be defective.

5. AF operations are abnormal.

- 1) Range is not displayed, or obviously wrong.

CHECK: The FLCD is anticipated to be in a loose connection. Check the claw of the FLCD frame, etc., and when the claw is normal, reinstall the FLCD assembly correctly.

As the result of the above check, when still NG, the control FPCB is anticipated to be defective.

- 2) 0.7m is not displayed, and INF is displayed.

CHECK 1: Check AV and TV values. When values are FNo13 or higher and TV1/350 or higher, the circumference is too bright, or light measuring FPCB and/or light measuring IC is defective.

CHECK 2: When displayed range is 1.5 ~ 2m, it is anticipated that the PSD is installed reversely, or PSD is not completely shielded.

As the result of the above checks, when still NG, the AF assembly or control FPCB is anticipated to be defective.

6. Shutter operations are abnormal.

The lens returns to the home position when the shutter is released, or the shutter does not open.

- CHECK: Turn off the power, and check the shutter for tight connection and CPU2 or soldering.

→ The pressed-to-tight installation of the shutter can be assured by checking terminals of the CPU2 with a tester.

Measure resistances across the terminals and GND and compare them with the following standards.

15 ~ 19, 21 ~ 23 → 80 ~ 120 kilo-ohms

20, 24 → 40 ~ 60 kilo-ohms

25, 26 → ∞

→ When measured resistances deviate the standards, check the relay FPCB and control FPCB for tight connection and CPU for soldering.

As the result of the above check, when still NG, the shutter assembly is anticipated to be defective.

7. The flash is abnormal.

→ 1) The flash does not fire.

CHECK 1: See if the flash mark lights. The flash does not fire when the flash mark is blinking or not lighting.

→ When the flash mark remains blinking, the main capacitor lead wire is anticipated to be broken or not soldered correctly.

CHECK 2: Check four lead wires extended from the flash head for soldering.

CHECK 3: Check the control FPCB and flash PCB for soldering.

As the result of the above checks, when still NG, the flash PCB assembly is anticipated to be defective.

→ 2) The flash fires fully.

CHECK 1: Flash light changes depending on an FNo. Set film speed to ISO 100, FNo. to 4.0, and check at a close-up distance.

CHECK 2: The IGBT (Q610) is anticipated to be broken. Check continuity across G and E, and across C and E.

→ When continuity exists, the IGBT is damaged.

CHECK 3: Measure resistance across the GND and shield of the shielded wire extended from the light receiver for the flash.

→ When continuity exists, the shielded wire is anticipated to be shorted by itself, or shorted with other parts (camera chassis, for example).

CHECK 4: Check the control FPCB and flash PCB for soldering.

As the result of the above checks, when still NG, the flash PCB or control FPCB is anticipated to be defective.

8. Data are not printed correctly.

→ NG with a data printing tester

CHECK 1: Press down the shutter release, and make sure that the shutter is operating correctly.

→ When the shutter operations are abnormal, refer to paragraph 6 (Shutter operations are abnormal.) above.

CHECK 2: Turn the up/down switch and make sure that the film transporting motor turns.

→ When the motor does not turn, the SB switch is anticipated to be defective or not soldered correctly.

As the result of the above checks, when still NG, it is anticipated that the battery FPCB and data FPCB are in loose connection, or control FPCB or data FPCB is defective.

9. The buzzer is abnormal.

→ 1) The buzzer does not sound.

CHECK 1: Make sure that the camera is under buzzer ON mode.

→ The buzzer ON-OFF can be changed by turning the mode switch to ISO mode with the SELF switch pushed.

CHECK 2: Check the buzzer lead wires for soldering and breaking.

→ 2) The buzzer sounds but volume is too low.

CHECK 1: Make sure that the buzzer is installed firmly on the camera bottom cover.

CHECK 2: Check CR103 and R136 for polarity and soldering.

As the result of the above checks, when still NG, the control FPCB is anticipated to be defective.

IV. DISASSEMBLY AND REASSEMBLY

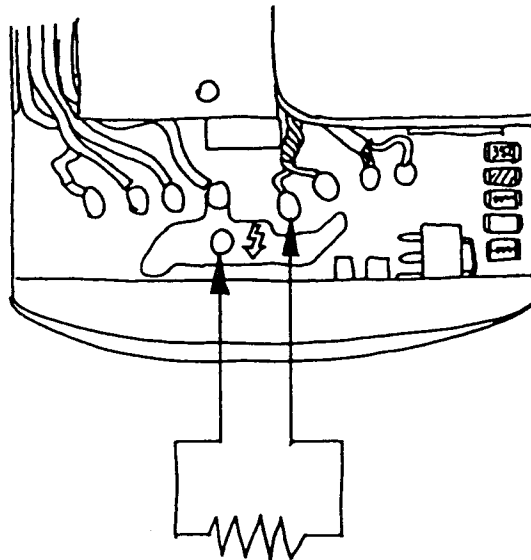
Before starting the work

- 1) Thanking to the high technology advancement during the recent years in the electric and electronic fields, this camera uses MOS IC and other electronic parts. These electronic parts are likely to be affected by statis electricity causing them to be deteriorted or damaged.

When removing even a single parts or repairing the camera, be sure to take the following preventive actions.

- (1) Lay down a conductive rubber mat on the work table.
 - (2) Ground the soldering iron.
 - (3) Ground your body.
 - (4) Hopefully, ground both the soldering iron and your body to the earth.
- 2) This camera uses a normally charged type flash circuit. Keep this in your mind when repairing a camera. For the sake of safety, be sure to discharge the flash system as soon as the top cover is removed.

When discharging the flash system, use a 3 kilo-ohm/10W discharging resister



- 3) When disassembling a camera up to the lens assembly, be sure to start the disassembly after fully opening the shutter. To fully open the shutter, place the camera under manual exposure mode, set the shutter speed to "Bulb", set the aperture to F4, release the shutter after setting manual focus to ∞ , and pull out the battery.

A. Removal and reinstallation

1. Top cover

(1) Removal

- 1) Remove the battery compartment cover assembly (1-64), and pull out the battery.
- 2) Raise the flash head assembly (1-25), remove the screw (1-35) and remove the flash cover (1-34).

NOTE:

When the flash cover (1-34) is removed, discharge the main capacitor.

- 3) Disconnect six lead wires of the flash head assembly and synchro-contact.

NOTE:

If a soldering iron comes into contact with the top cover, the top cover may be deformed. Carefully handle the soldering iron.

- 4) Remove the shoe cover (1-26), remove three screws (1-27) and screw (1-28), and remove the accessory shoe (1-29) and shoe seat assembly (1-30).
- 5) Remove four screws (1-72).
- 6) After floating up the top cover assembly (1-1), remove the top cover assembly from the camera chassis. The FR button (1-69), MF button (1-70) and rubber switch (1-71) will come off. Be careful not to lose them.

(2) Reinstallation

- 1) Match the boss of the contact assembly (3-77) with the hole position of the shaft (1-11). (See Fig. IV-A-1-2.)
- 2) Match the up-down dial inside the top cover as shown in Fig. IV-A-1-1, install the top cover assembly on the camera chassis, and tighten four screws (1-72).

NOTE:

When placing the top cover assembly on the camera chassis, move the flash PCB assembly (3-63) away from the top cover since the frame will run against the top cover.

- 3) Install the shoe seat assembly (1-30) and accessory shoe (1-29).

NOTE:

Pass the synchro lead wires through the space in between the capacitor and transformer of the flash PCB assembly.

- 4) After soldering six lead wires, form them as shown in Fig. IV-A-1-3.
- 5) Tighten three screws (1-27) and screw (1-28), and install the shoe cover (1-26).
- 6) Make sure that the link (2-7) is installed on the hinge shaft (1-20), install the flash cover (1-34), and secure it with the screw (1-35).

2. Bottom cover assembly (1-60), front cover assembly (1-46) and camera back assembly (2-22).

(1) Removal

- 1) Remove three screws (1-63).
- 2) Remove the bottom cover assembly (1-60) from the camera chassis. The FW button (1-62) will come out. Be careful not to lose it.
- 3) Disconnect two lead wires extended from the buzzer at the FPCB in the camera chassis side.
- 4) Remove four screws (1-78) and two screws (1-59).
- 5) Remove the front cover assembly (1-46) from the camera chassis. The focus lock button (1-57) and rubber switch (1-56) will come out. Be careful not to lose them.
- 6) Remove four screws (5-134), and remove the camera back assembly (2-22).

(2) Reinstallation

- 1) Perform inspection before installing the front cover assembly.
(Refer to V-1 Inspection without covers, below.)
- 2) Thoroughly clean the receiving lens (3-102) and emitting lens (3-103) of the AF system assembly (3-100) with alcohol, and make sure that the lenses are not scarred or scratched.
- 3) Install the front cover assembly (1-46) on the camera chassis with four screws (1-78) and two screws (1-59).
- 4) Solder and connect two lead wires to the camera chassis.
- 5) Install the FW button (1-62) on the bottom cover assembly (1-60) as shown in Fig. IV-A-2-1.

NOTE:

When installing the bottom cover assembly (1-60), be careful not to hold lead wires in between the camera chassis and bottom cover assembly.

- 6) Tighten three screws (1-63).
- 7) Install the camera back assembly (2-22) with four screws (5-134).

Fig. IV-A-2

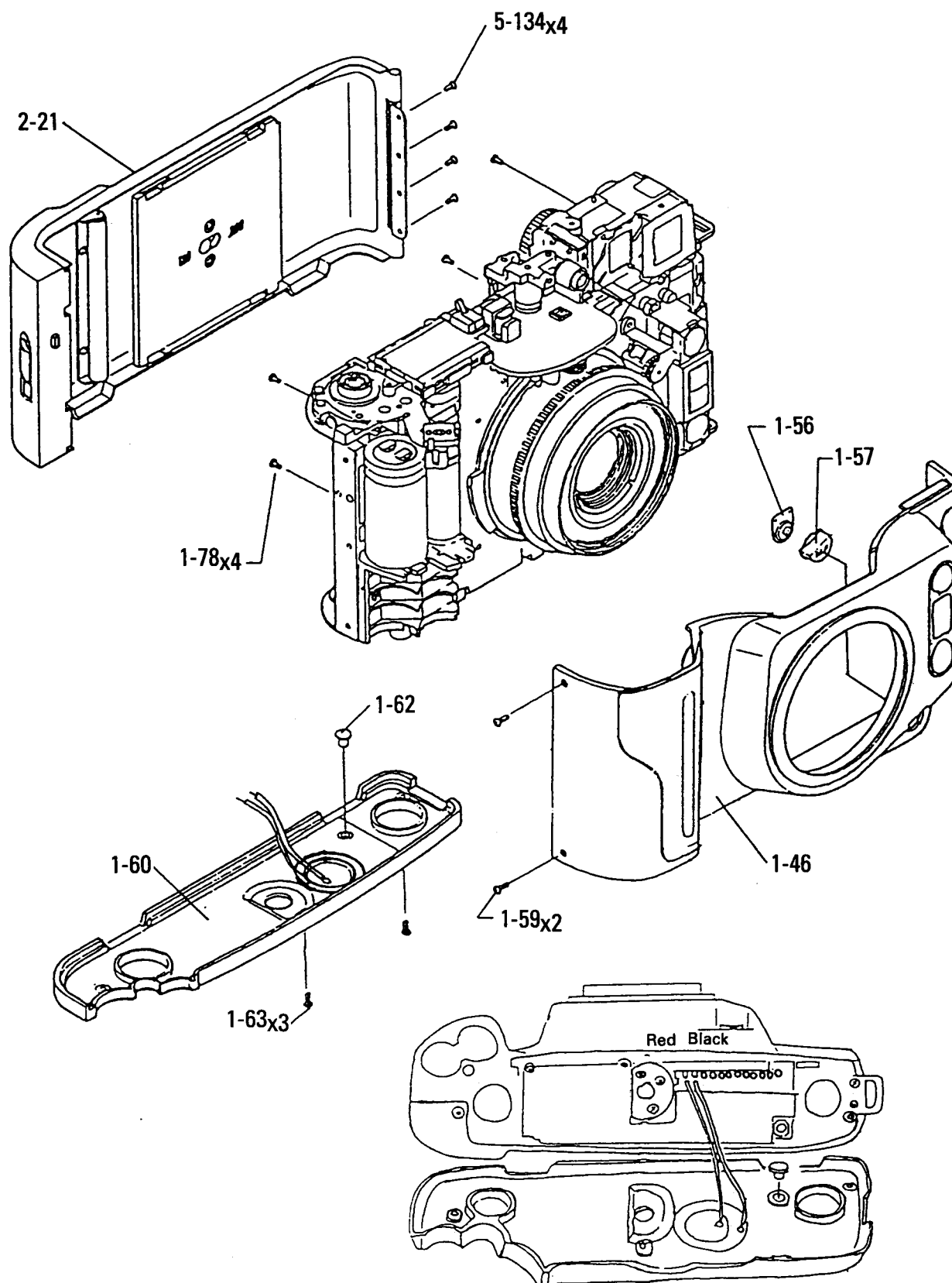


Fig. IV-A-2-1

3. AF system assembly (3-100) and flash PCB assembly (3-63)

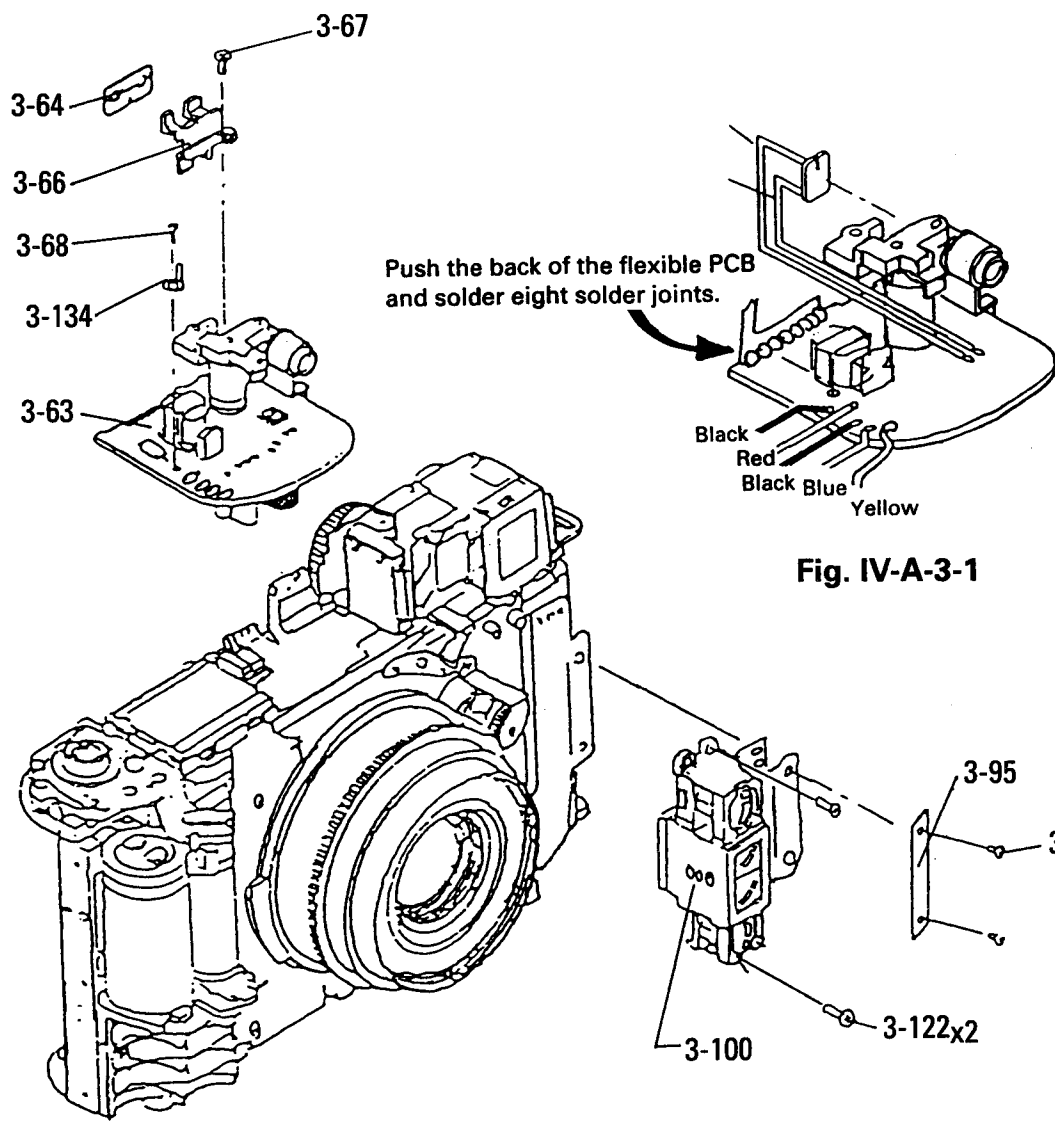
(1) Removal

- 1) Disconnect two lead wires.
- 2) Remove two screws (3-94), and remove the metal fixture (3-95).
NOTE: The rubber seal (5-125) is likely to come off. Take and keep it so as not to lose.
- 3) Remove two screws (3-122), and remove the AF system assembly (3-100) from the camera chassis.
- 4) Unsolder eight solder joints across the flash PCB assembly (3-63) and control FPCB assembly (3-70). (See Fig. IV-A-3-1.)
- 5) Disconnect five lead wires of the flash PCB assembly (3-63).
- 6) Remove two screws (3-67) and screw (3-68), and remove the flash PCB assembly (3-63) from the camera chassis.
- 7) Remove the rubber switch (3-64) and switch holder (3-66) from control FPCB assembly (3-70).

(2) Reinstallation

- 1) Install the flash PCB assembly (3-63) and switch holder (3-66) with two screws (3-67) and screw (3-68).
- 2) Solder and connect three lead wires.
NOTE:
Connect the remaining two lead wires extended from the main capacitor after completing the inspection.
- 3) Solder eight solder joints across the flash PCB assembly (3-63) and control FPCB assembly (3-70) as shown in the Fig. IV-A-3-1.
- 4) Install the switch holder (3-66) on the control FPCB assembly, and install the rubber switch (3-64).
NOTE:
Thoroughly clean the flexible PCB with alcohol.
- 5) Install the AF system assembly (3-100) on the camera chassis with two screws (3-122).
- 6) Install the rubber seal (5-125) as shown in Fig. IV-A-3-2, and install the metal fixture (3-95) with two screws (3-94).
NOTE:
Clean the tightly connected portions of each flexible PCB with alcohol.
- 7) Solder and connect two lead wires (red and black) extended from the battery FPCB assembly.

Fig. IV-A-3



Project out the flexible PCB of the battery FPCB assembly.

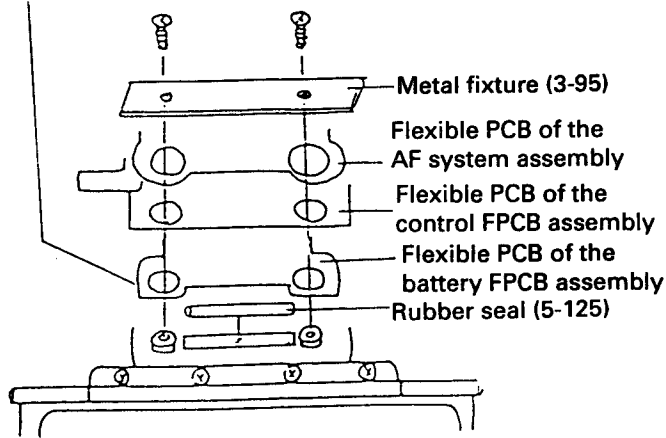


Fig. IV-A-3-2

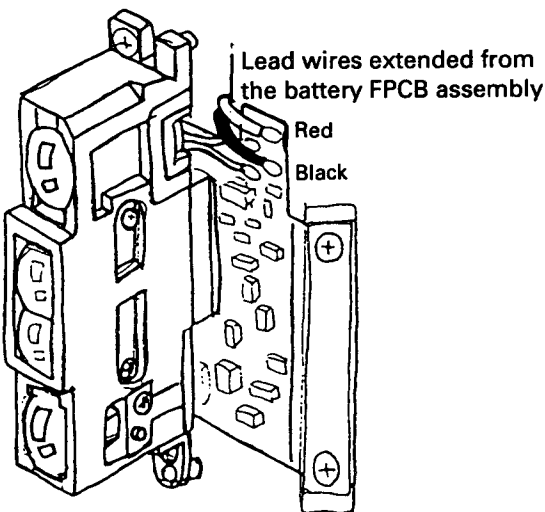


Fig. IV-A-3-3

4. Mode switch assembly (3-1) and viewfinder assembly (3-31)

(1) Removal

- 1) Unsolder four solder joints on the top and five solder joints on the front face of the viewfinder assembly (3-31).
- 2) Pushing down the mode switch assembly (3-1) forward, pull it out.
- 3) Remove the screw (3-87).
- 4) Pull out the flexible PCB from the boss on the viewfinder chassis (3-32), and raising the FLCD portion of the control FPCB assembly (3-70), pull it out upward.
(See Fig. IV-A-4-2.)
- 5) Remove two screws (3-61) and screw (3-49), and remove the viewfinder assembly (3-31) from the camera chassis (5-7). Be careful not to bend the lever on the front face of the viewfinder.

(2) Reinstallation

- 1) Hooking the lever of the reticle frame 2 (3-54) on the pin of the cam lever assembly (4-78), install the viewfinder assembly (3-31), and tighten three screws (3-61x2, 3-49x1).
- 2) Turn the eccentric pin of the cam lever assembly (4-78) to adjust infinity.
(See Fig. IV-A-4-1.)
- 3) Install the control FPCB assembly on the viewfinder assembly by matching the FLCD portion with the viewfinder assembly. (See the Fig. IV-A-4-2.)

NOTE:

The LCD (3-72) is likely to be broken easily. Be careful.

- 4) Insert the flexible PCB into the viewfinder chassis (3-32), and tighten the screw (3-87).
- 5) Solder four solder joints and five solder joints on the viewfinder assembly (3-31).

NOTE:

When the reticle assembly (3-50) of the viewfinder assembly is removed from the viewfinder chassis (3-32), be sure to adjust parallax after installing the AF system assembly (3-100).

Fig. IV-A-4

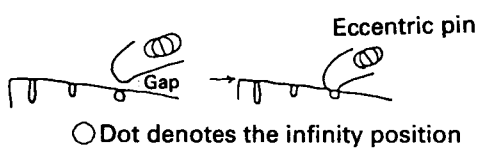
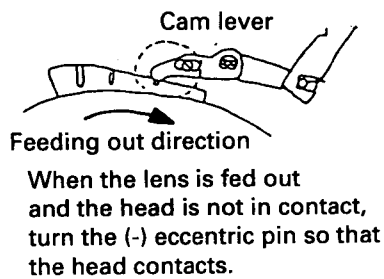
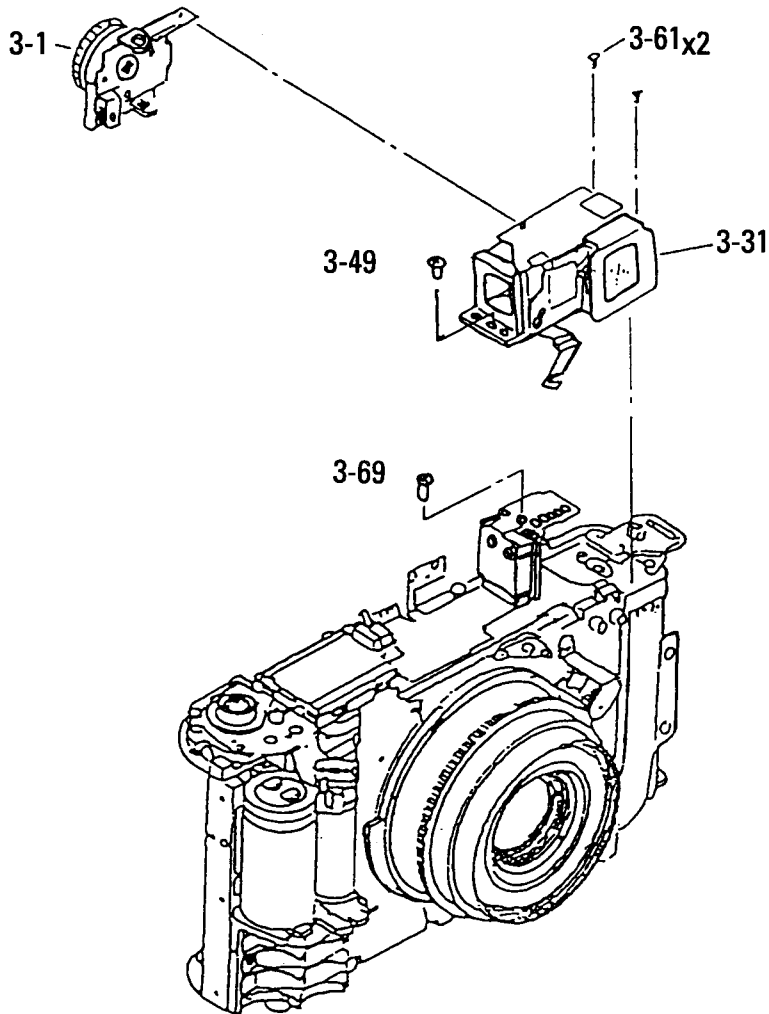


Fig. IV-A-4-1

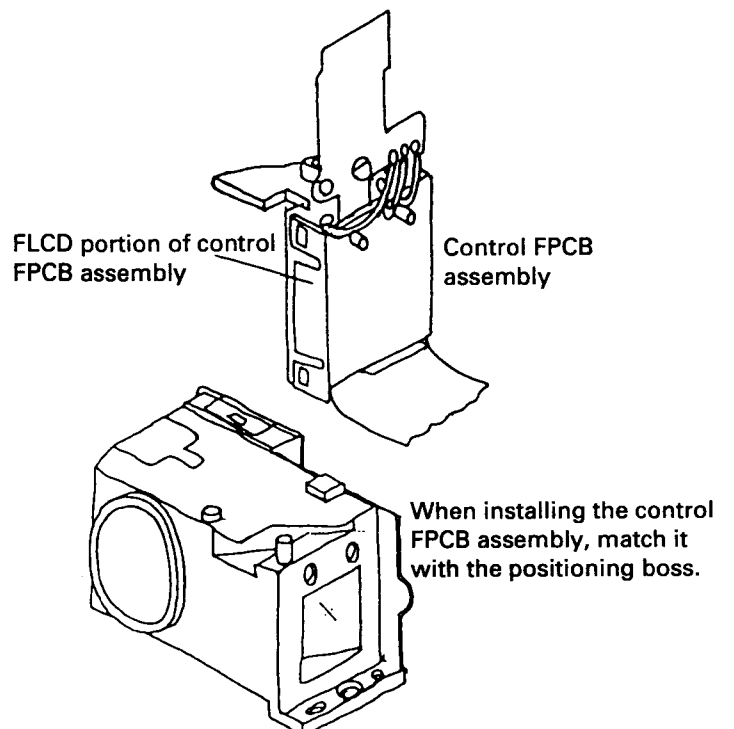


Fig. IV-A-4-2

5. Control FPCB assembly (3-70)

(1) Removal

- 1) Unsolder and disconnect 18 lead wires and solder joint across the control FPCB assembly (3-70) and DX FPCB (5-64).
- 2) Remove the adhesive tape (3-92) and three screws (3-86).
- 3) Push down the boss of the PI of the gear train assembly (4-55) and remove it from the top base plate (4-79).
- 4) Remove the tact switch (3-81) from the top base plate (5-103).

NOTE:

Handle the top base plate (5-103) carefully. The claw of the top base plate is likely to be broken easily.

- 5) Remove two screws (3-90) and remove the metal fixture (3-88).
- 6) Remove the switch (3-74) from the LCD frame (3-75).
- 7) Remove two screws (3-76), screw (3-69) and three screws (3-62).
- 8) Remove the control FPCB assembly (3-70) from the camera chassis.

NOTE:

The control FPCB assembly is secured on the camera chassis with adhesive tape. When removing the control FPCB assembly, be careful not to damage the flexible PCB.

(2) Reinstallation

- 1) Install the control FPCB assembly on the camera chassis with screws.
- 2) Insert the tact switch (3-81) into the top base plate (5-103), and secure the control FPCB assembly with screws.
- 3) Fold the flexible PCB, and install the LCD frame (3-75) with two screws (3-76).
- 4) Stick the flexible PCB to the position shown in Fig. IV-A-5-1 with adhesive tape (5-44), and fit the switch (3-74) to the LCD frame (3-75).
- 5) Referring to Fig. IV-A-5-3, install the control FPCB assembly and relay FPCB (4-16), install the metal fixture (3-88) and tighten two screws (3-90).

NOTE:

Thoroughly clean the tightly connected portion of the flexible PCB with alcohol.

- 6) Fit the PI to the gear train assembly (4-55), and secure the flexible PCB with three screws (3-86).
- 7) Solder the solder joints across the control FPCB assembly (3-70) and DX FPCB (5-64), and solder and connect 18 lead wires as shown in the Figs. IV-A-5-2, 3 and 4.
- 8) Secure the flexible PCB with adhesive tape.

Fig. IV-A-5

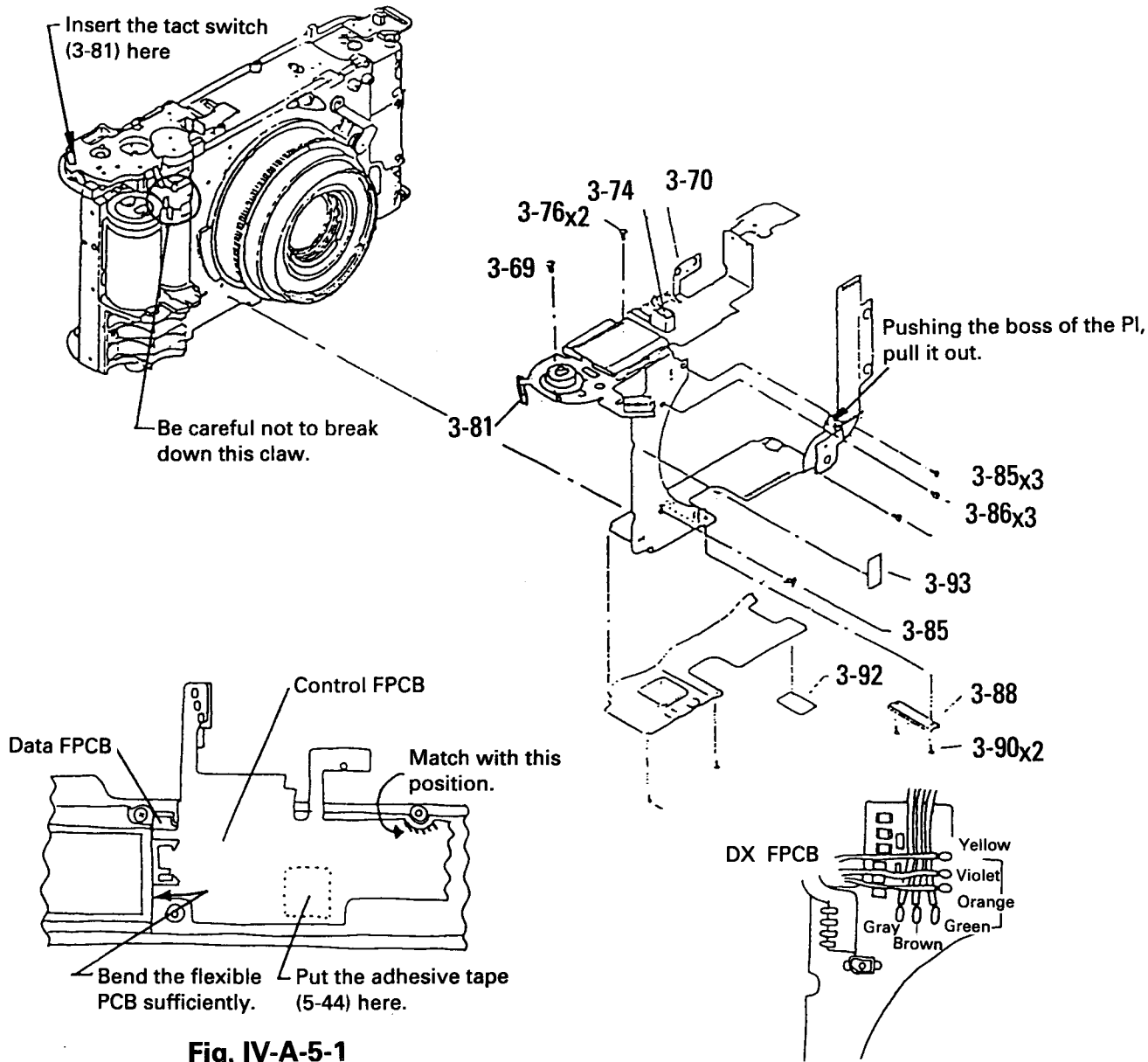


Fig. IV-A-5-1

Fig. IV-A-5-2

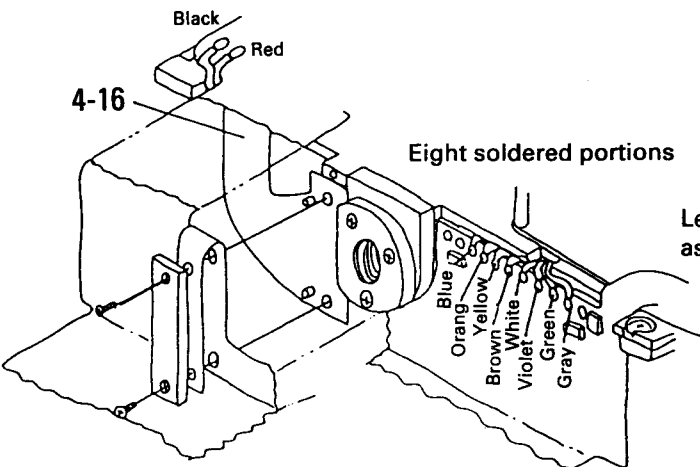


Fig. IV-A-5-3

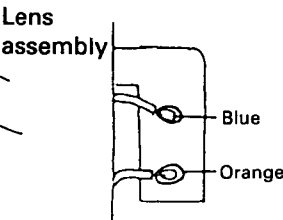


Fig. IV-A-5-4

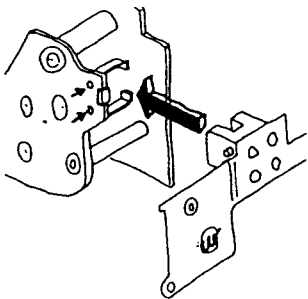


Fig. IV-A-5-5

6. Lens assembly (4-1) and film transporting mechanism assembly (5-101)

(1) Removal

- 1) Remove the relay FPCB (4-16) (which is beneath the lens assembly (4-1)) from the camera chassis (5-7).
- 2) Remove four screws (4-84), and remove the lens assembly (4-1) carefully and slowly from the camera chassis (5-7).
- 3) Remove the PI (5-98) from the film transporting mechanism assembly (5-101).
- 4) Remove the main capacitor (5-99).
- 5) Disconnect two lead wires of the film transporting motor (5-104) from the battery FPCB assembly (5-79).
- 6) Peel off the tape (5-48), and detach the lead wires from the cord clamp (5-31).
- 7) Remove two screws (5-121) and screw (5-131), and remove the film transporting mechanism assembly (5-101) from the camera chassis (5-7).
- 8) Pull out the encoder gear (5-51) from the camera chassis (5-7).

(2) Reinstallation

- 1) Install the encoder gear (5-51) on the shaft on the camera chassis (5-7).
- 2) Install the film transporting mechanism assembly (5-101) on the camera chassis (5-7) with two screws (5-121) and screw (5-131).
- 3) Fit the PI (5-98) to the film transporting mechanism assembly (5-101).
- 4) Solder and connect lead wires of the film transporting motor (5-104) to the battery FPCB, and shape them up as shown in Fig. IV-A-6-1.
- 5) Pass the lead wires of the main capacitor (5-99) through the space beneath the film transporting motor (5-104), and stick the main capacitor (5-99) to the camera chassis (5-7).

NOTE:

When the adhesive tape on the main capacitor is deteriorated, replace it with a new one.

- 6) Install the lens assembly (4-1) on the camera chassis (5-7) with four screws (4-84) carefully so as not to hole any lead wire and flexible PCB in between the lens assembly and camera chassis.

Fig. IV-A-6

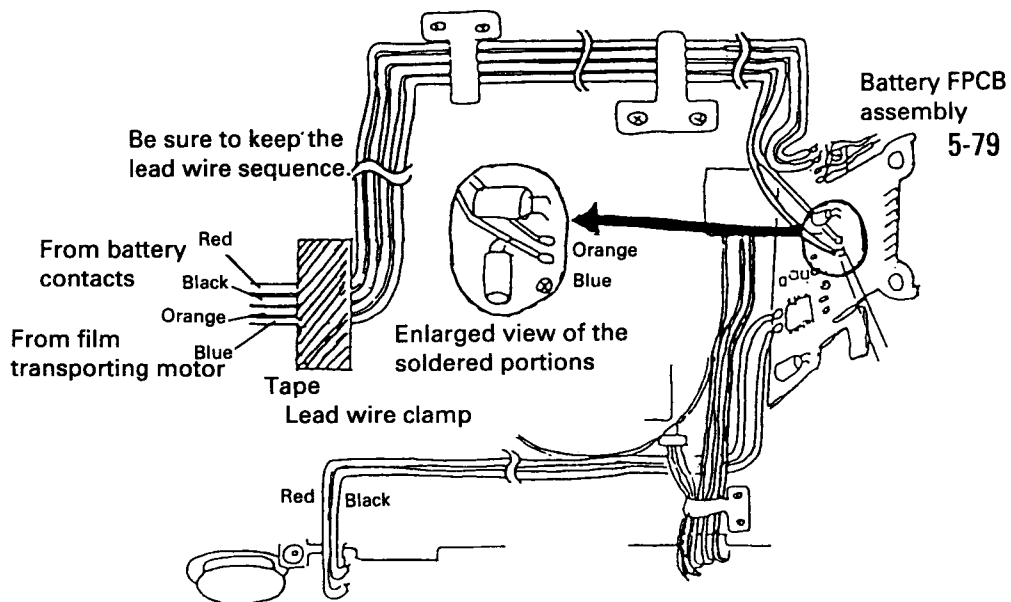
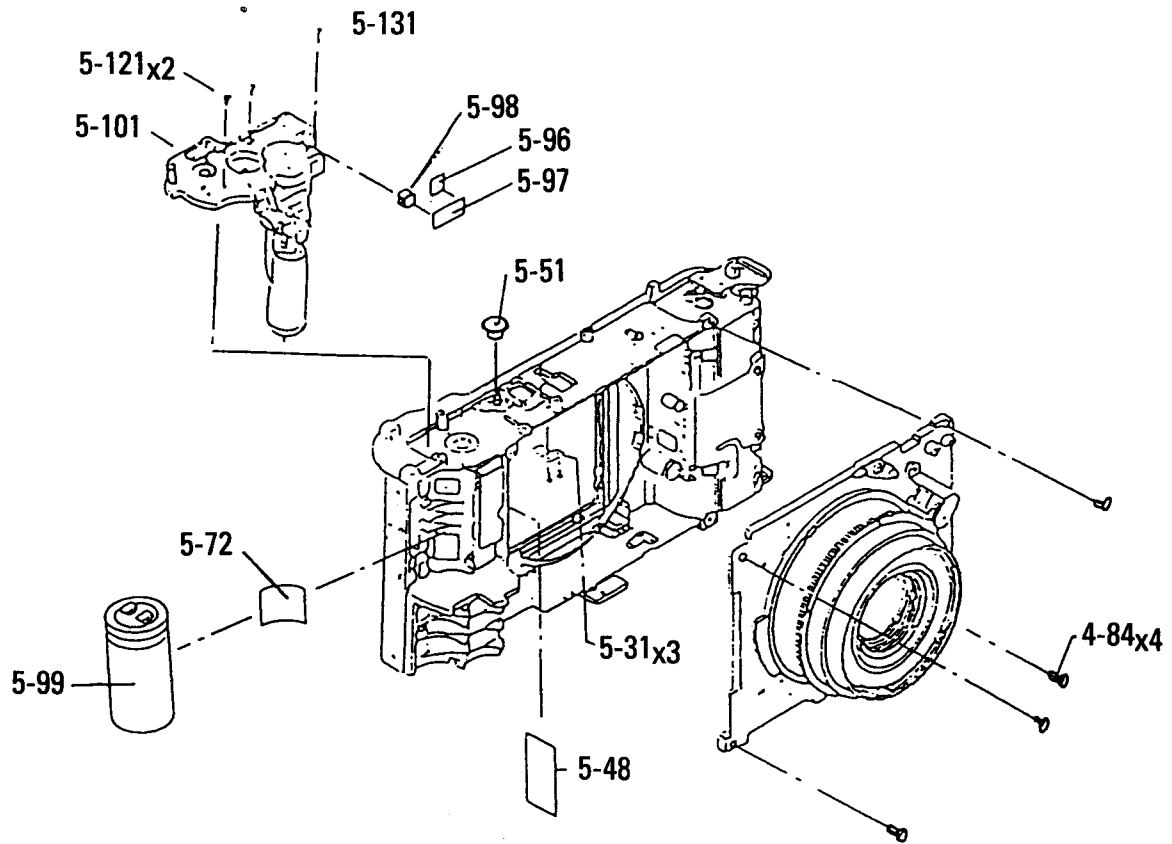


Fig. IV-A-6-1

B. Disassembly and reassembly

1. Top cover assembly (1-1)

(1) Disassembly

- 1) Slide the shaft (1-24) toward the eyepiece side, pull the shaft out, and remove the flash head assembly (1-25).
- 2) Peel off the adhesive, and remove the spring (1-16).
- 3) Remove the screw (1-17) and remove the pop-up lever (1-15).
- 4) Remove the screw (1-22), and remove the hinge assembly (1-18).
- 5) Peel off the guide (1-10). The guide is secured with two pieces of adhesive tape (1-9). Remove the shutter release (1-5) and blind cover (1-74) after pulling out the clip ring (1-8) and washer (1-7) from the column of the shutter release (1-5).
- 6) Peel off the name plate (1-40) secured with the adhesive tape (1-41).
- 7) Remove the screw (1-42), and remove the button (1-43) and shaft (1-11). Be careful not to lose the click plate (1-44) and two springs (1-45) located under the button (1-43).
- 8) Peel off the adhered diffuser (1-3) and window glass (1-4).
- 9) Peel off the adhesive tape (1-21).

NOTE:

1. The eyepiece (1-23) and LCD window (1-6) cannot be removed from the top cover (1-2). The hinge assembly (1-18) cannot be disassembled further because the component parts are caulked.
2. The nut (1-14) and screw (1-13) cannot be removed because they are adhered.

Fig. IV-B-1

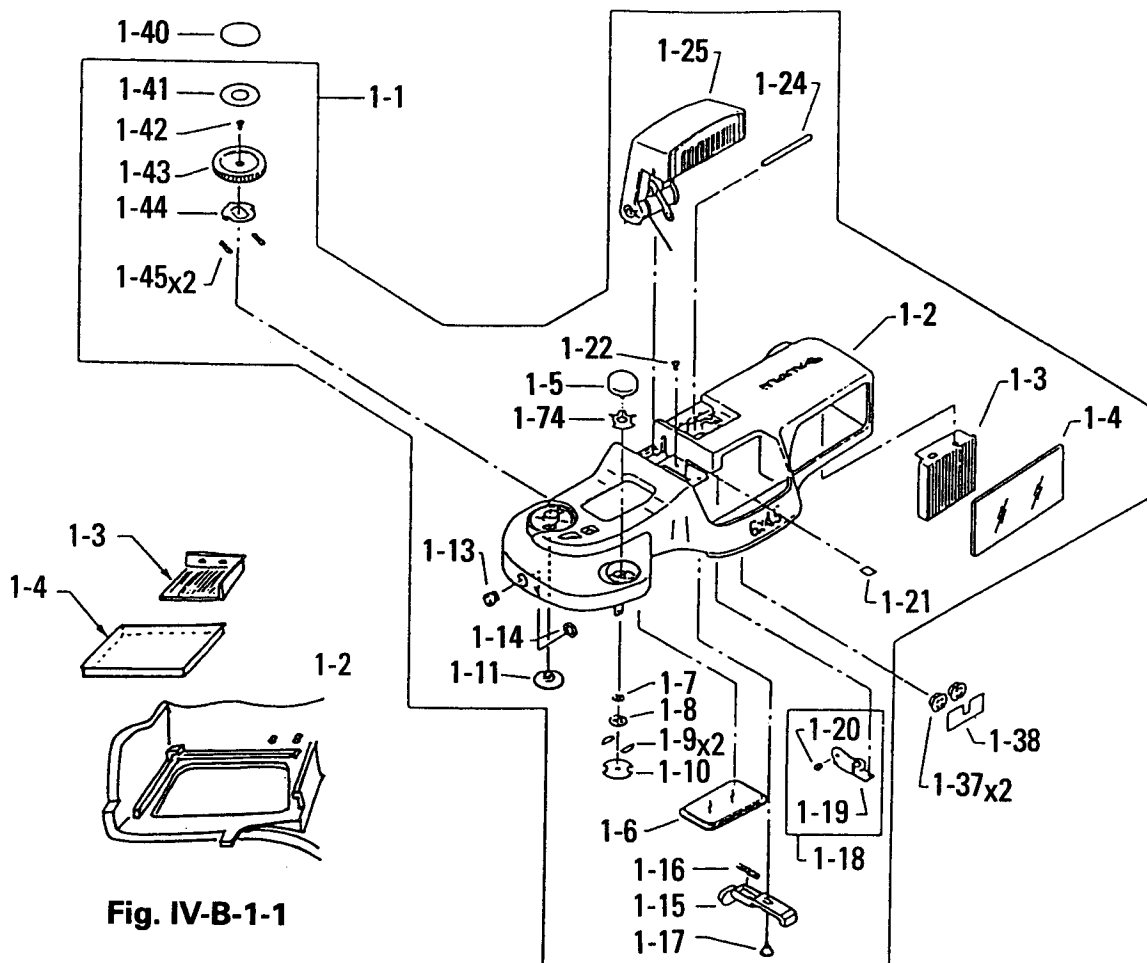


Fig. IV-B-1-1

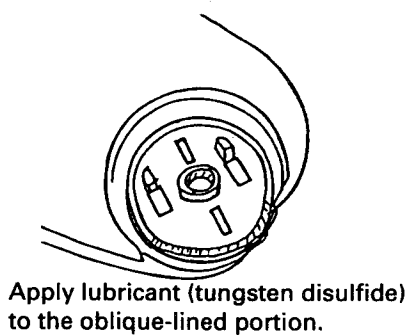


Fig. IV-B-1-2

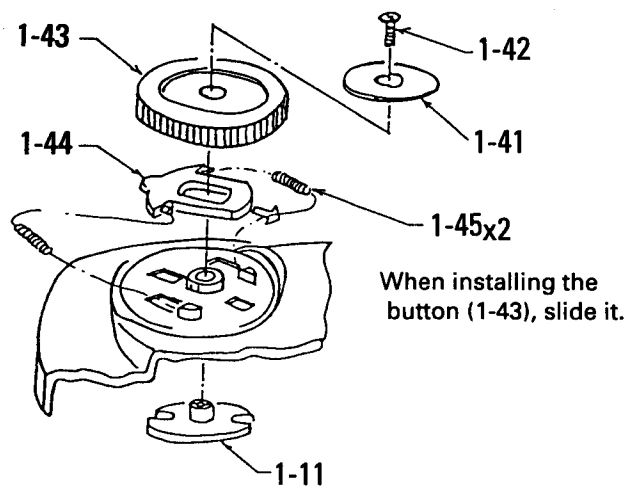


Fig. IV-B-1-3

(2) Reassembly

- 1) Put the adhesive tape (1-21).
- 2) Apply adhesive (Three Bond 1521B or equivalent) and install the window glass (1-4).
Before installing the window glass, make sure that the window glass is clean.
- 3) Apply adhesive (Three Bond 1521B or equivalent) and install the diffuser (1-3).
(See Fig. IV-B-1-1.)
- 4) Apply adhesive (Hi-Super 30) to the screw hole on the top cover (1-2), insert the screw (1-13) into the screw hole, and tighten the nut (1-14).
- 5) Apply lubricate (tungsten disulfide) as shown in Fig. IV-B-1-2.
- 6) Place the click plate (1-44) on its position, apply two springs (1-45), and with the button (1-43) installed, insert the shaft (1-11) from the back. Now, engage it with the head of the button (1-43), and tighten the screw (1-42). (Refer to Fig. IV-B-1-3.)
- 7) Install the name plate (1-40) on the button (1-43) with the adhesive tape (1-41).
- 8) Place the blind cover (1-70) in the shutter release hole on the top cover (1-2), and install the shutter release (1-5).
- 9) With the shutter release (1-5) pressed down, apply the washer (1-7) and clip ring (1-8) to the column of the shutter release, and secure the clip ring with a special tool.
- 10) Stick two pieces of the adhesive tape (1-9), and install the guide (1-10).
- 11) Install the hinge assembly (1-18) with the screw (1-22).
- 12) Install the pop-up lever (1-15) with the screw (1-17).
- 13) Apply the spring (1-16) to the long groove on the pop-up lever (1-15), and apply adhesive (Three Bond 1521B or equivalent) to the lens side end of the spring (1-16).
- 14) Place the spring (2-6) in the groove on the top cover (1-2), apply the projected portion of the flash outer cover (2-1) to the recess on the top cover interior, and lay down and install the flash head assembly (1-25).
- 15) Insert the shaft (1-24) into the holes on the top cover (1-2) and flash head assembly (1-25) so that the slit on the shaft (1-24) is faced toward the eyepiece.

Fig. IV-B-1

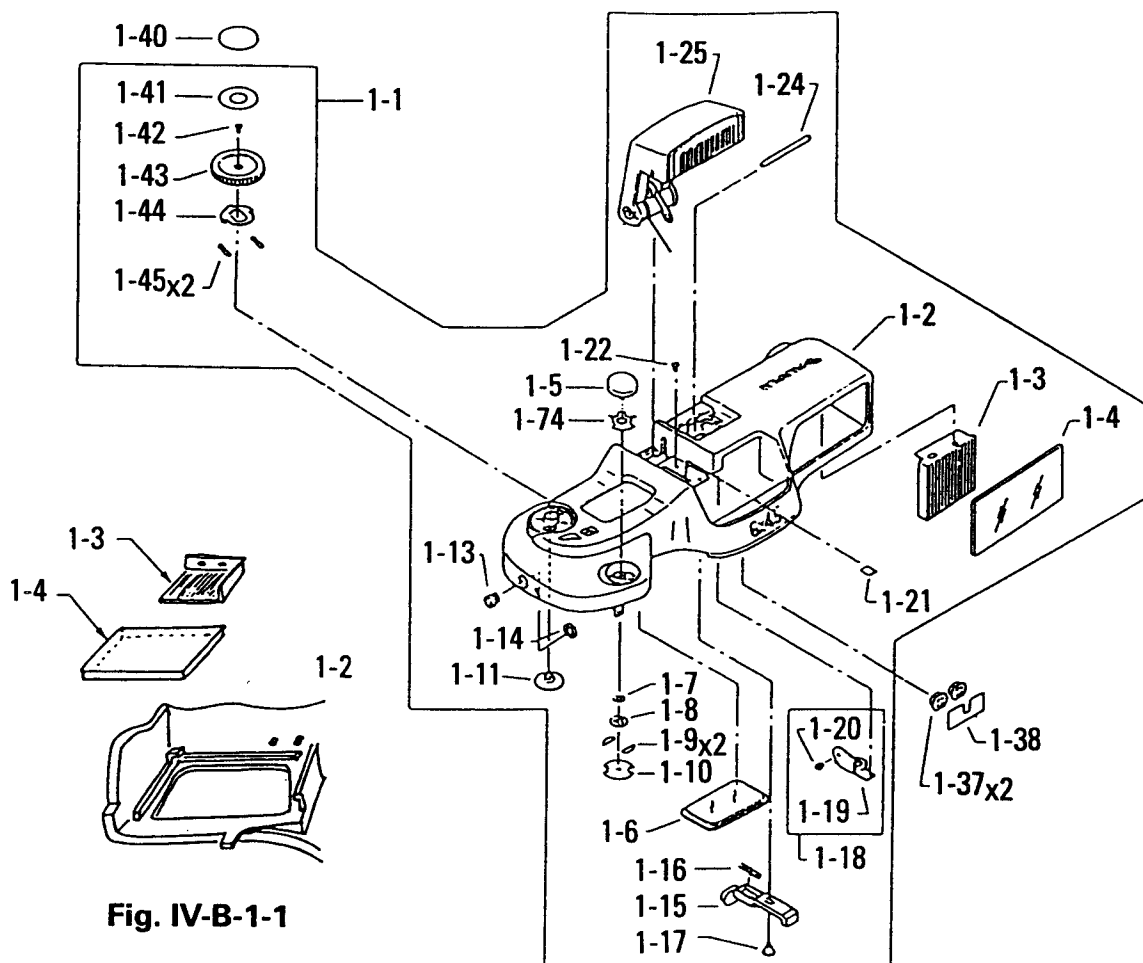


Fig. IV-B-1-1

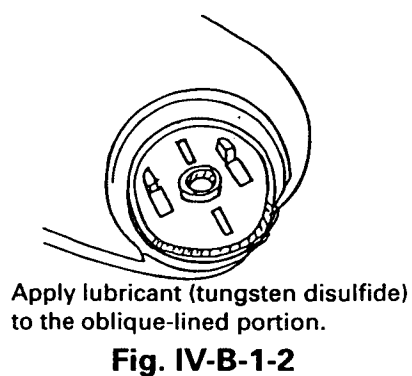


Fig. IV-B-1-2

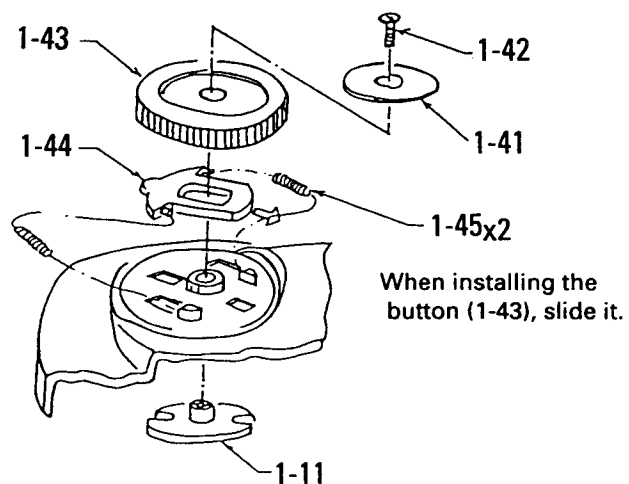


Fig. IV-B-1-3

2. Battery compartment cover assembly (1-64) and camera back assembly (2-22)

(1) Disassembly

- 1) Remove the E-clip (1-66), and remove the set screw (1-68).

NOTE:

The battery contact (1-65) is heat-caulked on the battery compartment cover (1-67), and cannot be removed.

- 2) Pull out the hinge shaft (2-25) from the camera back (2-23), and remove the hinge (2-24).
- 3) Remove three screws (2-53), and remove the light shielding plate (2-51) on which the moquette (2-52) is stuck.
- 4) Remove two screws (2-47), and with the camera back lock knob (2-43) raised, remove the grip (2-54).
- 5) Pull out the shaft (2-44), and remove the camera back lock knob (2-43).
- 6) Remove the spring (2-45).
- 7) Peel off the leather (2-26), and pull out the cover plate (2-28) from the pocket (2-27).
- 8) Push the head of the pin (2-50) into the roller (2-48), and remove it from the roller supporter (2-36). Be careful not to lose the spring (2-49).
- 9) Peel off the moquette (2-52) from the light shielding plate (2-51).

NOTE:

Further disassembly cannot be made as the parts are caulked.

Fig. IV-B-2

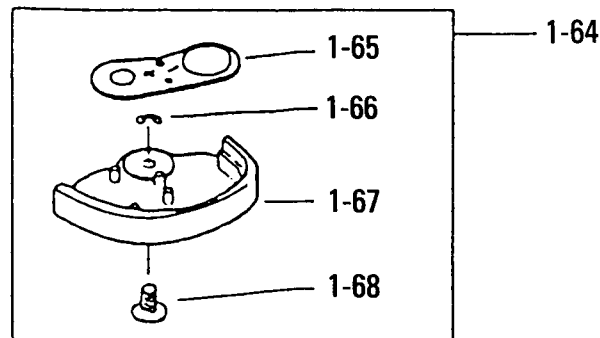


Fig. IV-B-2-1

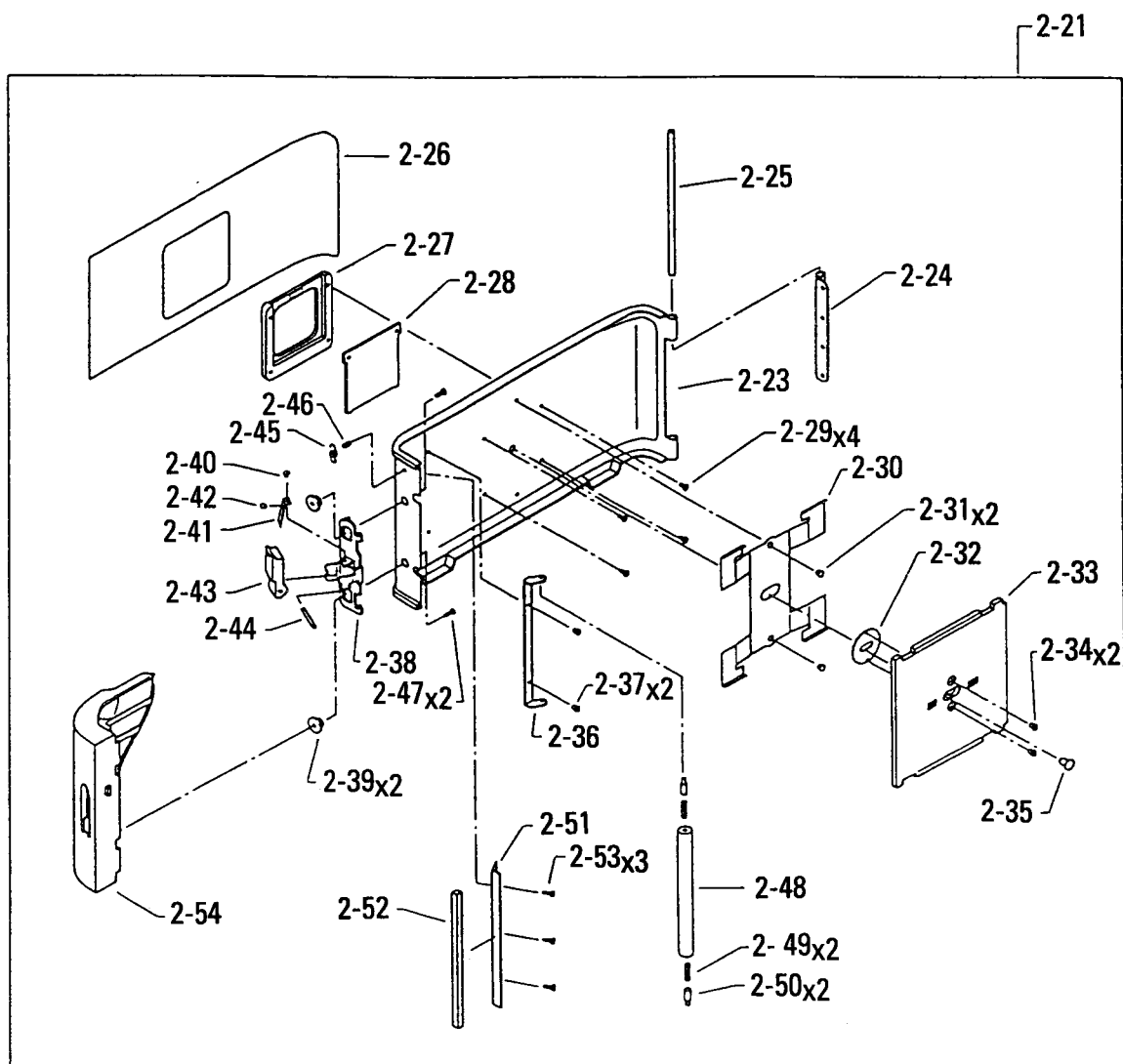


Fig. IV-B-2-2

(2) Reassembly

- 1) Apply the set screw (1-68) from the bottom of the battery compartment cover(1-67), and secure it with the E-clip (1-66).
- 2) With two pins (2-50) and two springs (2-49) applied on both ends of the roller (2-48), installed them on the roller supporter (2-36).
- 3) Put the cover plate (2-28) into the pocket (2-27).
- 4) Install the leather (2-26) with adhesive (Pliobond FHD011) using the pocket as the center.
- 5) Apply the spring (2-45) to the pin on the camera back and to the hook (2-38).
- 6) Match the opening of the camera back lock knob (2-43) with the opening on the hook (2-38), and insert the shaft (2-44).
- 7) With the camera back lock knob (2-43) raised, insert the camera back lock knob (2-43) into the square opening of the grip (2-54), install them on the camera back (2-23), and tighten two screws (2-47).
- 8) Install the light shielding plate (2-51) with three screws (2-53).
- 9) Apply adhesive (Pliobond FHD011) to the light shielding plate (2-51), and install the moquette (2-52) on the light shielding plate (2-51)

Fig. IV-B-2

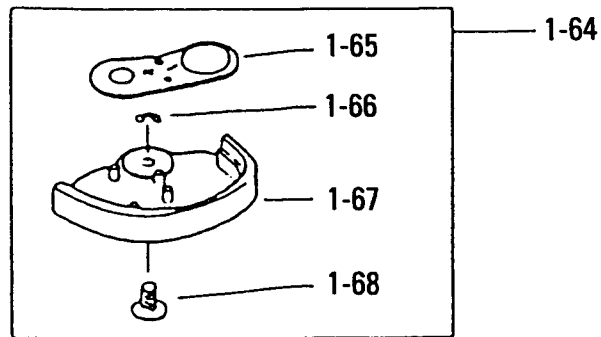


Fig. IV-B-2-1

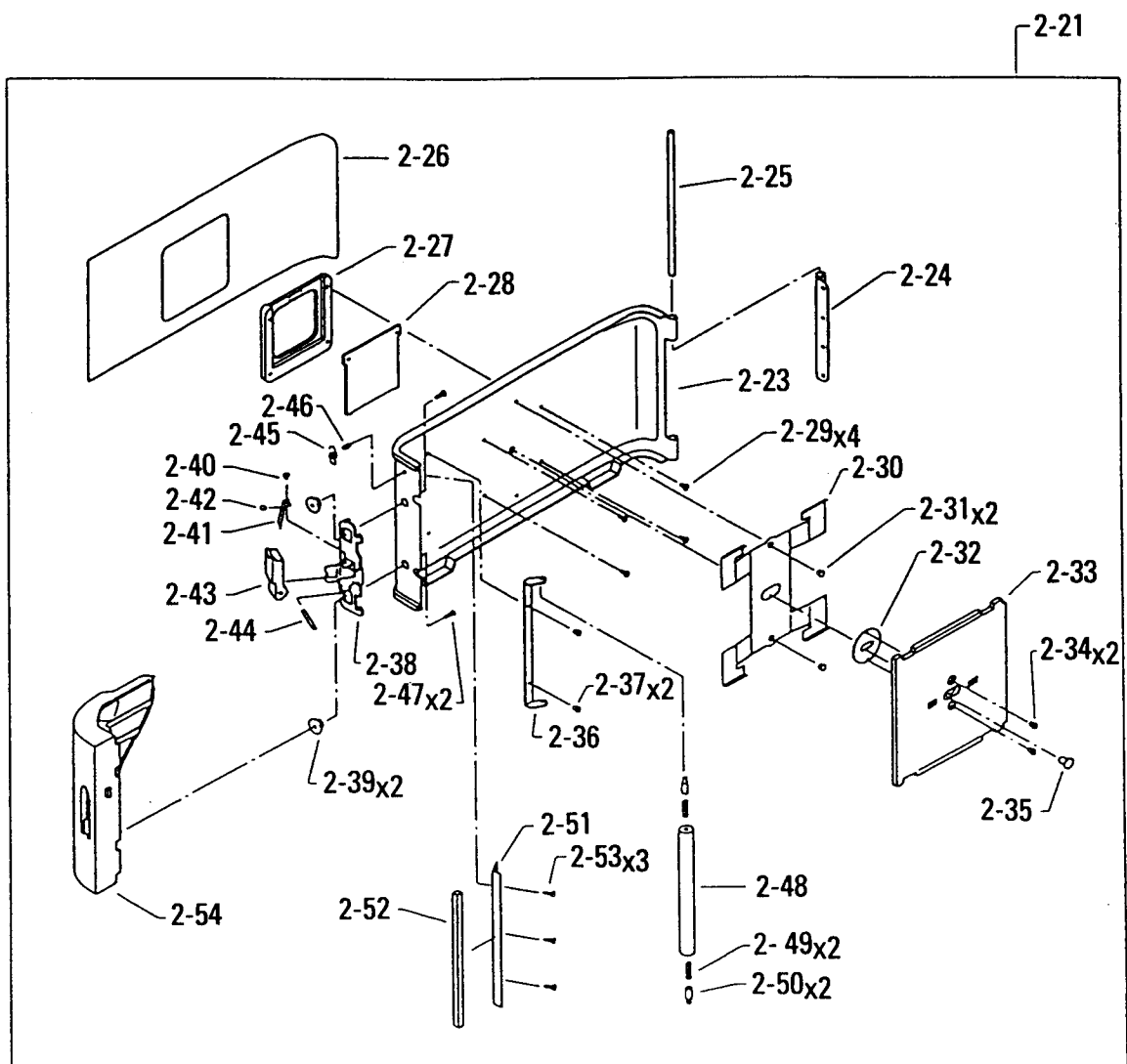


Fig. IV-B-2-2

3. Flash assembly (2-20)

(1) Disassembly

- 1) Remove two screws (2-2), and remove the flash outer cover (2-1).
- 2) Pull out the slider (2-9), slide shaft (2-10) and link (2-7) from the flash assembly (2-20), and remove the sleeve (2-4), washer (2-5) and spring (2-6).
- 3) Peel off the blind (2-3) from the flash outer cover (2-1).
- 4) Remove two screws (2-18), and pull out the reflector case (2-13) from the flash inner cover (2-8).
- 5) Remove the reflector (2-12), and remove the protector lens (2-11) from the flash inner cover (2-8).

(2) Reassembly

- 1) Place the protector lens (2-11) in the flash inner cover (2-8).
- 2) Install the reflector (2-12) and reflector case (2-13), and tighten two screws (2-18).

NOTE:

Be careful not to hold any lead wire in between the parts.

- 3) Stick the blind (2-3) to the flash inner cover (2-8). (See Fig. IV-B-3-1.)
- 4) Apply the washer (2-5) and spring (2-6) to the sleeve (2-4), and install them on the flash outer cover (2-1). (See Fig. IV-B-3-2.)
- 5) Apply the link (2-7) to the slider (2-9), insert the shaft (2-10) through the link (2-7) and slider (2-9), and install them on the flash assembly (2-20).

Now, install the flash outer cover (2-1) with two screws (2-2).

4. Front cover assembly (1-46)

(1) Disassembly

- 1) Turn the cover ring (1-48) clockwise from the back of the front cover (1-47) to remove the cover ring (1-48), and remove the light shielding ring (1-50).
- 2) Peel off the light shielding cloth (1-49) from the cover ring (1-48).
- 3) Remove the adhesive from the top and bottom hooks of the self-timer window (1-51), and remove the self-timer window (1-51) carefully so as not to break the hooks.
- 4) Peel off the name plate assembly (1-55)
- 5) Push the AF window (1-52) from the back of the front cover (1-47) forward to remove it. The AF window (1-52) is adhered.

(2) Reassembly

- 1) Install the AF window (1-52) and name plate assembly (1-55) on the front cover (1-47) with adhesive (Three Bond 1521B or equivalent).
- 2) Install the self-timer window (1-51) so that the gate portion is in the lens side, and apply adhesive (Three Bond 1521B or equivalent) to the top and bottom hooks of the self-timer window (1-51) from the back of the front cover (1-47).
- 3) Stick the light shielding cloth (1-49) on the cover ring (1-48) interior.
- 4) Match two cut portions of the light shielding ring (1-50) with two bosses on the back of the front cover (1-47), turn the cover ring (1-48) clockwise from the front of the front cover (1-47) to install it temporarily. Now, apply adhesive (Three Bond 1401B) to the threads, and from the back of the front cover (1-47), turn the cover ring (1-48) counterclockwise to secure it. (Refer to Fig. IV-B-4-1.)

Fig. IV-B-4

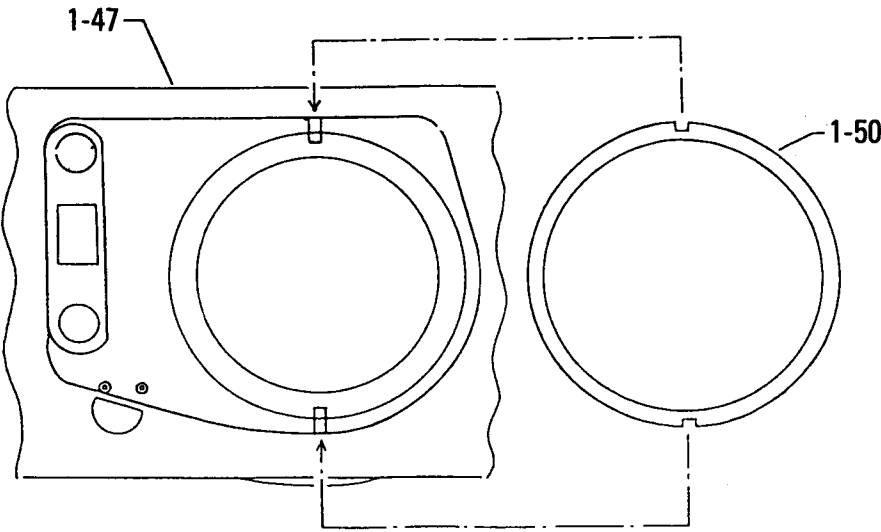
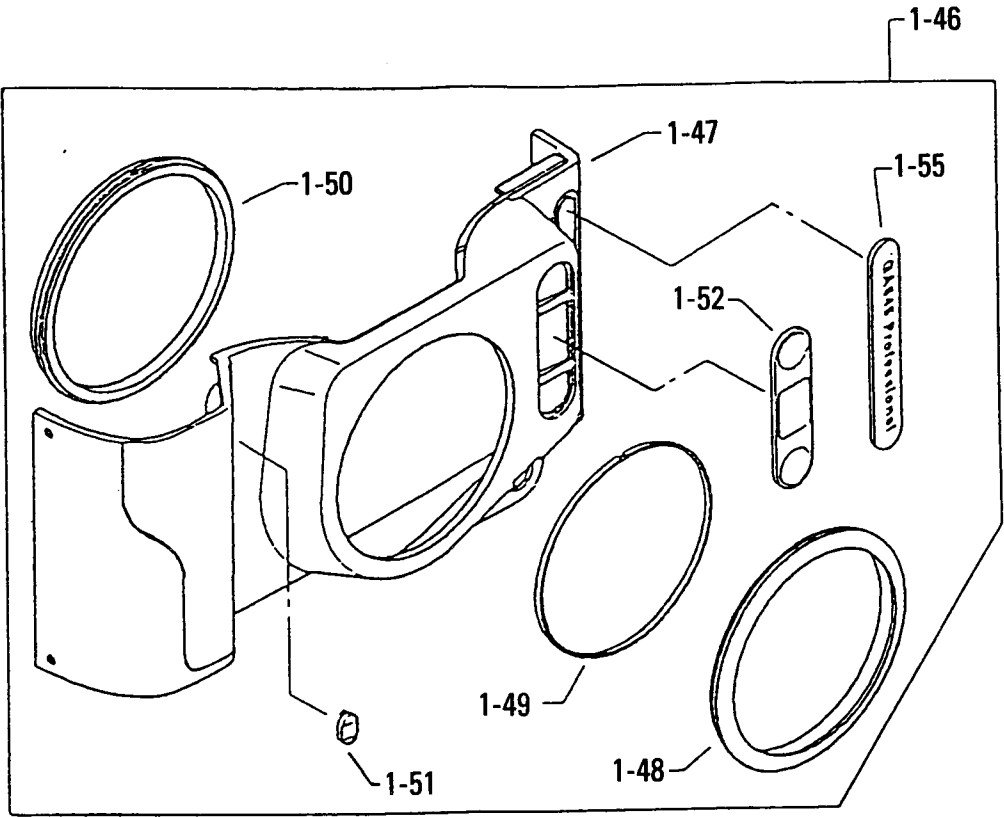


Fig. IV-B-4-1

5. AF system assembly (3-100)

(1) Disassembly

- 1) Unsolder and disconnect lead wires (6-39) and (6-40), and peel off the adhered light shielding plate (3-110).
- 2) Remove the screw (3-121), remove the PSD holder (3-120) and pull out the PSD (3-112) from the positioning boss.
- 3) Remove two screws (3-119), and pull out the holder (3-118).
- 4) Pull out the AF PCB assembly (3-129) from the AF system chassis (3-101).
- 5) Peel off the light shielding tapes (3-109 and 3-108), and remove the moquette (3-106).
- 6) Remove the emitting lens (3-103) and receiving lens (3-102).

NOTE:

No further disassembly can be made because AF light emitting adjustment is extremely difficult.

(2) Reassembly

- 1) Apply adhesive (Three Bond 1521B or equivalent), and install the emitting lens (3-103) and receiving lens (3-102). When installing these lenses, refer to Fig. IV-B-5-1.
Thickness of the emitting lens differs from that of the receiving lens.
(Leave these lenses for at least 30 minutes after adhering them.)
- 2) Stick the light shielding tapes (3-109 and 3-108), install the AF PCB assembly (3-119) (on which the moquette (3-106) is installed) on the AF system chassis (3-101), and after inserting the holder (3-118), tighten two screws (3-119). (Refer to Fig. IV-B-5-2.)
- 3) Fit the PSD (3-112) to two positioning bosses firmly so that the flat surface of the PSD (3-112) is faced toward the receiving lens (3-102).
- 4) Place the flexible PCB on the PSD (3-112) so that the gold-plated portion of the flexible PCB is faced to the front, and secure the PSD holder (3-120) with the screw (3-121).
- 5) Apply adhesive (Three Bond 1521B or equivalent) and stick the light shielding plate (3-110). (Refer to Fig. IV-B-5-3.)
- 6) Now, solder two lead wires (6-39 and 6-40).

Fig. IV-B-5

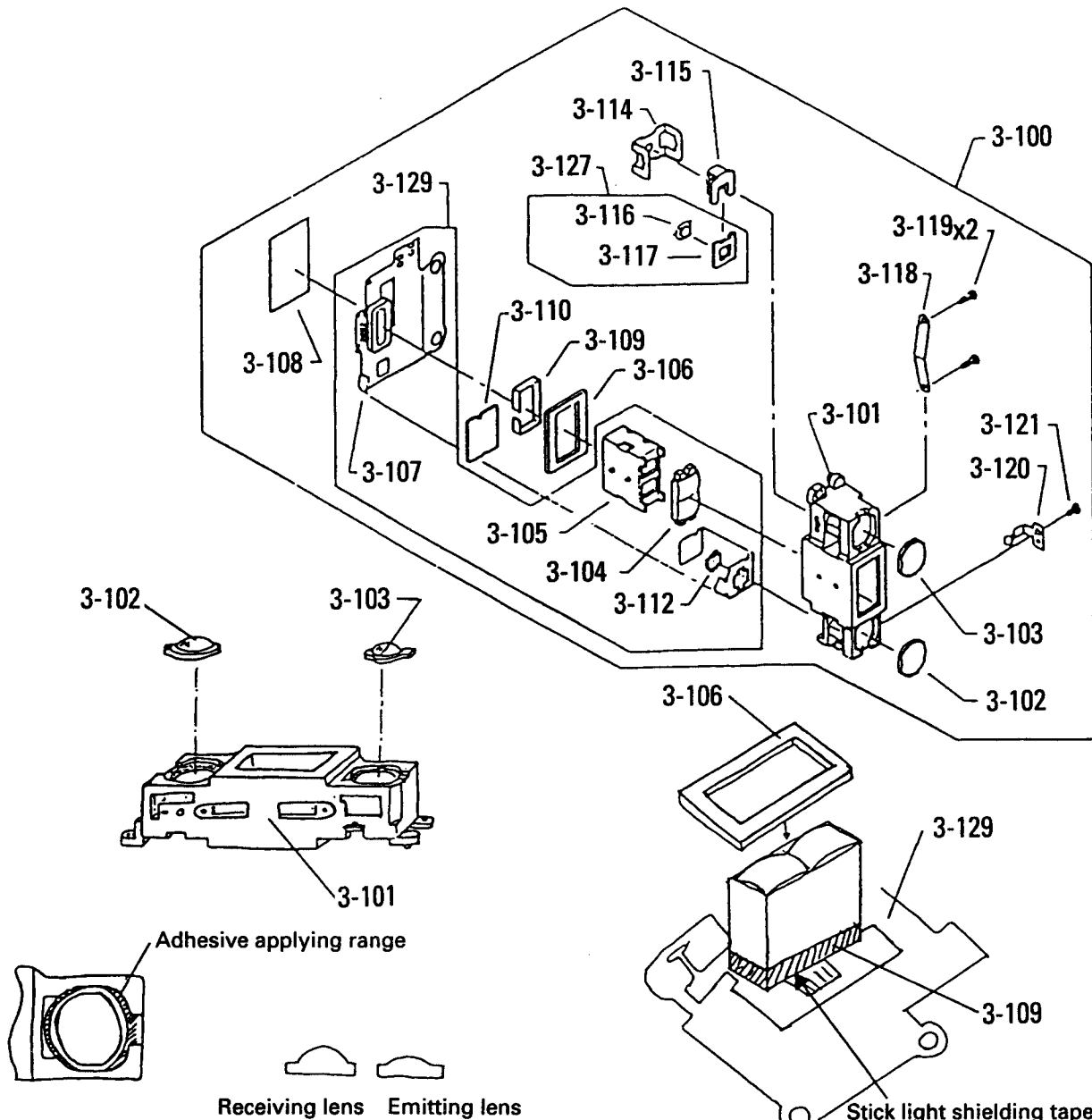


Fig. IV-B-5-1

Fig. IV-B-5-2

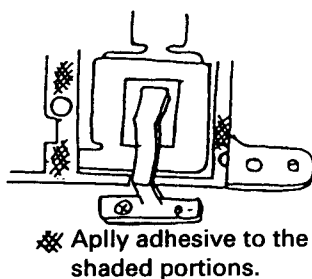


Fig. IV-B-5-3

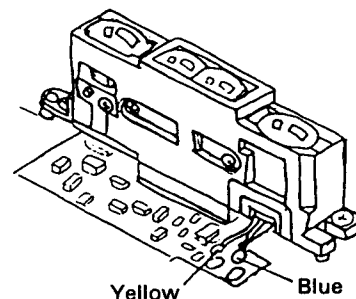


Fig. IV-B-5-4

6. Viewfinder assembly (3-31)

(1) Disassembly

- 1) Peel off the photographic tape (3-47), and remove the lens holder (3-38).
- 2) Remove the spring (3-57), remove two screws (3-60), and take out the reticle assembly (3-50).

NOTE:

The reticle assembly (3-50) cannot be disassembled further because the components are caulked.

- 3) Unsolder and disconnect the FPCB assembly (3-45) from the FPCB holder (3-46), and remove the FPCB holder (3-46). Next, remove the FPCB assembly (3-45).
- 4) When replacing the light receiving lens (3-41) of the AE, remove the frame (3-42), and remove the adhered lens.

NOTE:

The mirror and lens can no longer be removed from the viewfinder chassis (3-32) because the optical adjustment is extremely difficult.

(2) Reassembly

- 1) When replacing the lens (3-41) with a new one, apply adhesive (Three Bond 1521B or equivalent) to the viewfinder chassis (3-32), install the lens (3-41), and install the frame (3-42).
- 2) Install the FPCB assembly (3-45) on the top and bottom bosses on the viewfinder chassis (3-32), and after securing it with the FPCB holder (3-46), solder the FPCB assembly (3-45) and FPCB holder (3-46).
- 3) Stick two sheets of photographic tape (3-47), and after temporarily fixing the reticle assembly (3-50) with two screws (3-60), install the spring (3-57). Apply lubricant (Helicolube FHA054) to the pin on which the spring is hooked.
- 4) After adjusting parallax, install the reticle assembly (3-50) completely, and fit the lens holder (3-38).

NOTE:

For adjustment of parallax, refer to Chapter V below.

Fig. IV-B-6

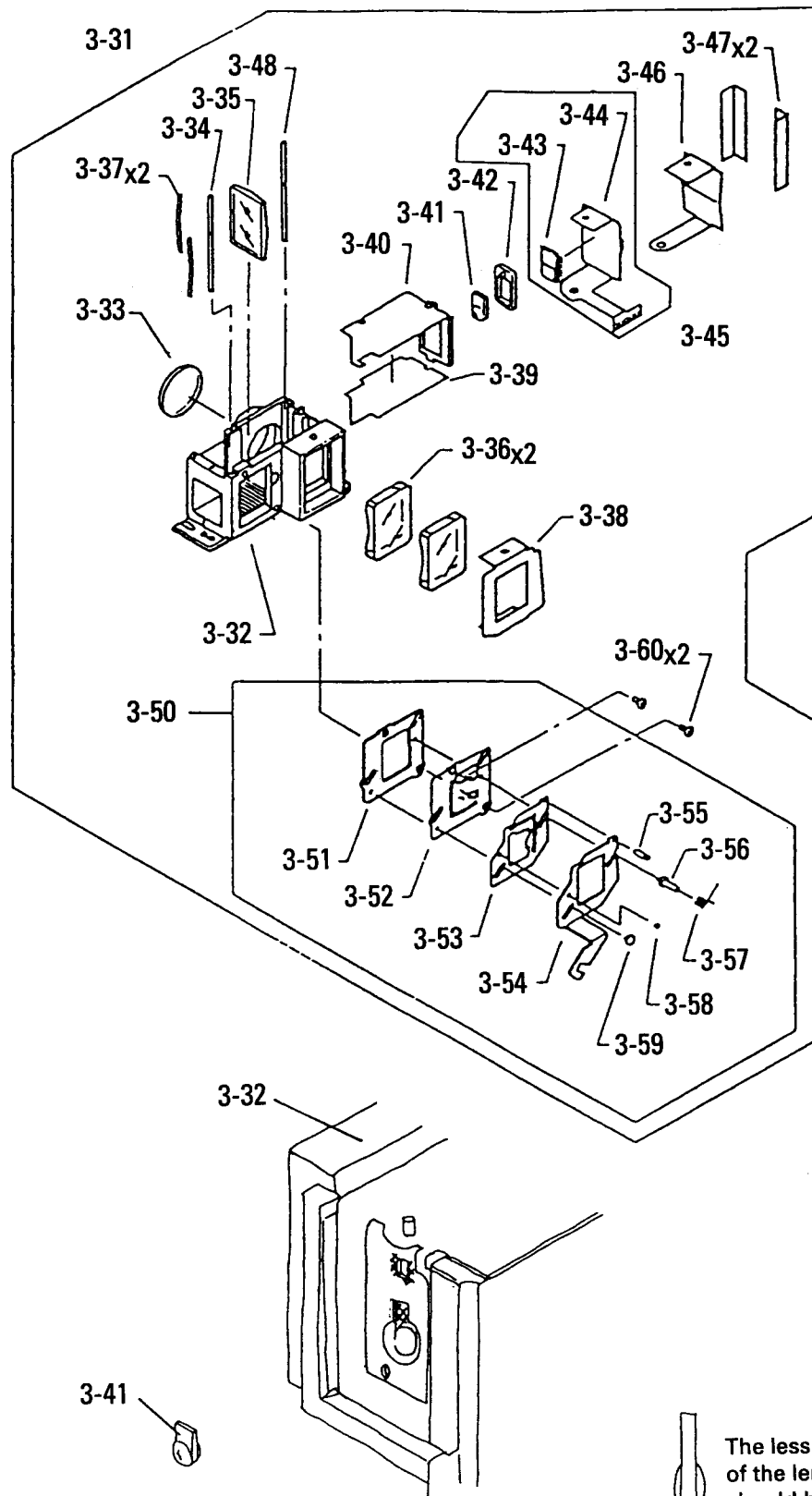


Fig. IV-B-6-1

7. Mode switch assembly (3-1)

(1) Disassembly

- 1) Peel off the name plate (3-19) secured with adhesive tape, remove the screw (3-16), and remove the select dial (3-15). Remove and keep the click plate (3-13) and two springs (3-14) also at this time so as not to lose them.
- 2) Remove the screws (3-6 and 3-18), and remove the mode switch FPCB assembly (3-128) from the mode switch frame (3-2).
- 3) Pull out the spring (3-7) and lock lever assembly (3-125), and remove the contact assembly (3-124).

NOTE:

The lock lever assembly (3-125) and contact assembly (3-124) cannot be disassembled further because they are caulked.

- 4) The mode switch FPCB (3-3) is installed on the base plate (3-5) with the adhesive tape (3-4).

(2) Reassembly

- 1) Matching with the hole position of the base plate (3-5), stick the mode switch FPCB (3-3) to the base plate, and apply lubricant (tungsten bisulfide) by referring to Fig. IV-B-7-1.
- 2) Apply lubricant (tungsten bisulfide) to the mode switch frame (3-2) (Refer to Fig. IV-B-7-2.), install the contact assembly (3-124), lock lever assembly (3-125) and spring (3-7), and install the mode switch FPCB assembly (3-128) on them with two screws (3-6 and 3-18). Make sure that the pin of the lock lever assembly (3-125) is in the hole on the base plate (3-5) correctly.
- 3) Place the click plate (3-13) on the mode switch frame (3-2), and install two springs (3-14) by referring to Fig. IV-B-7-3. Next, apply lubricant (tungsten bisulfide) to the select dial (3-15) (Refer to Fig. IV-B-7-4.), and secure the select dial with the screw (3-16).
- 4) Install the adhesive tape (3-4) on the select dial (3-15). Install the name plate (3-19) by matching it with the index on the top cover after installing top cover.

Fig. IV-B-7

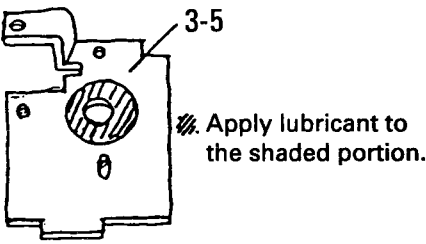
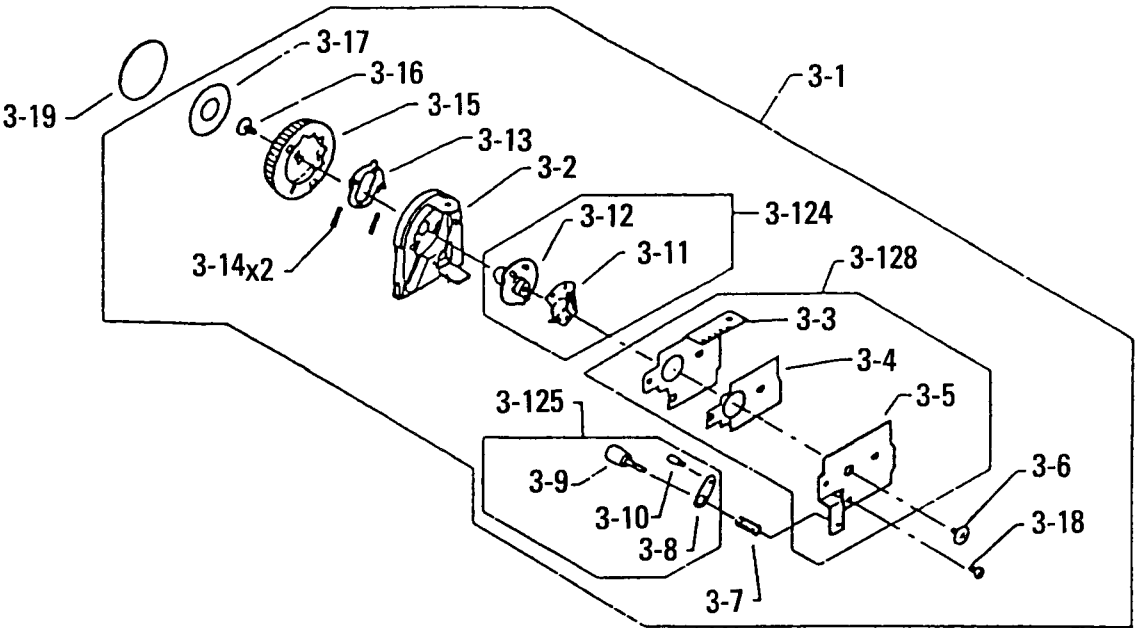


Fig. IV-B-7-1

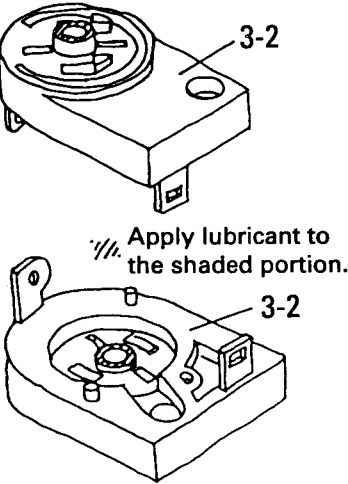


Fig. IV-B-7-2

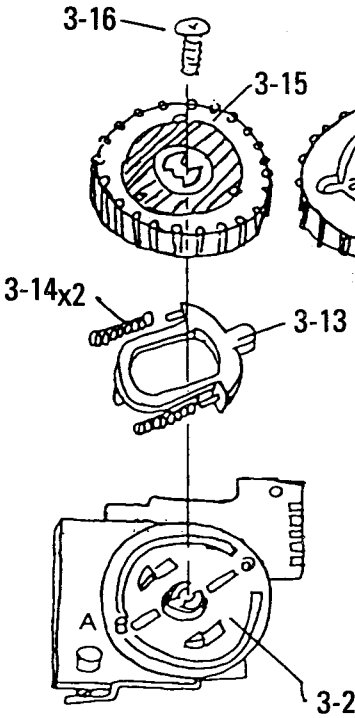


Fig. IV-B-7-3

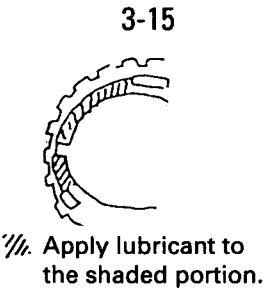


Fig. IV-B-7-4

8. Lens assembly (4-1)

(1) Disassembly

- 1) Remove two screws (4-19), and remove the metal fixture (4-18), rubber piece (4-17) and relay FPCB (4-16).
- 2) Pull up the connector portion of the shutter circuit assembly (4-31), pull out the shutter assembly (4-30), and after removing the screw (4-20), remove the shutter circuit assembly (4-31).
- 3) Remove the E-clip (4-53), and pull out the cam lever assembly (4-78). When removing the shaft (4-47), use a special tool (JA60035).
- 4) Remove three screws (4-83), and remove the gear train assembly (4-55).
- 5) Remove two screws (4-28), and remove the lens driving motor assembly (4-64).
- 6) Peel off the tape (4-26), unsolder and disconnect the lead wires (6-41 and 6-42), and pull out the motor gear (4-103).
- 7) Remove the screw (4-46), and remove the gear holder (4-44) and interlock gear (4-45).
- 8) Peel off the light shielding tape (4-23), and remove the encoder holder (4-22) after removing two screws (4-24).
- 9) Unbend the cord clamp (4-14) which combines lead wires (6-24 through 6-26), and after disconnecting the lead wires, remove the encoder contact (4-21).
- 10) Remove two screws (4-13), pull out the guide (4-11), and peel off the light shielding sheet (4-12) as required.
- 11) Remove four screws (4-10), pull out two helicoid keys (4-8), and peel off two sheets of the light shielding sheet (4-9) as required.
- 12) Turn the moving lens barrel assembly (4-43) counterclockwise (when observed the see-through (4-2) from the front) to remove it, and turn the helicoid barrel (4-6) clockwise and remove it.
- 13) Peel off the encoder FPCB (4-5) as required.
- 14) Matching the interlock cam (4-4) with the shape of the fixed barrel (4-3), pull the interlock cam (4-4), peel off the rubber seat (4-27) as required, and remove the guide ring (4-104). Remove four screws (4-15), and remove the fixed barrel (4-3) from the see-through (4-2).

Fig. IV-B-8

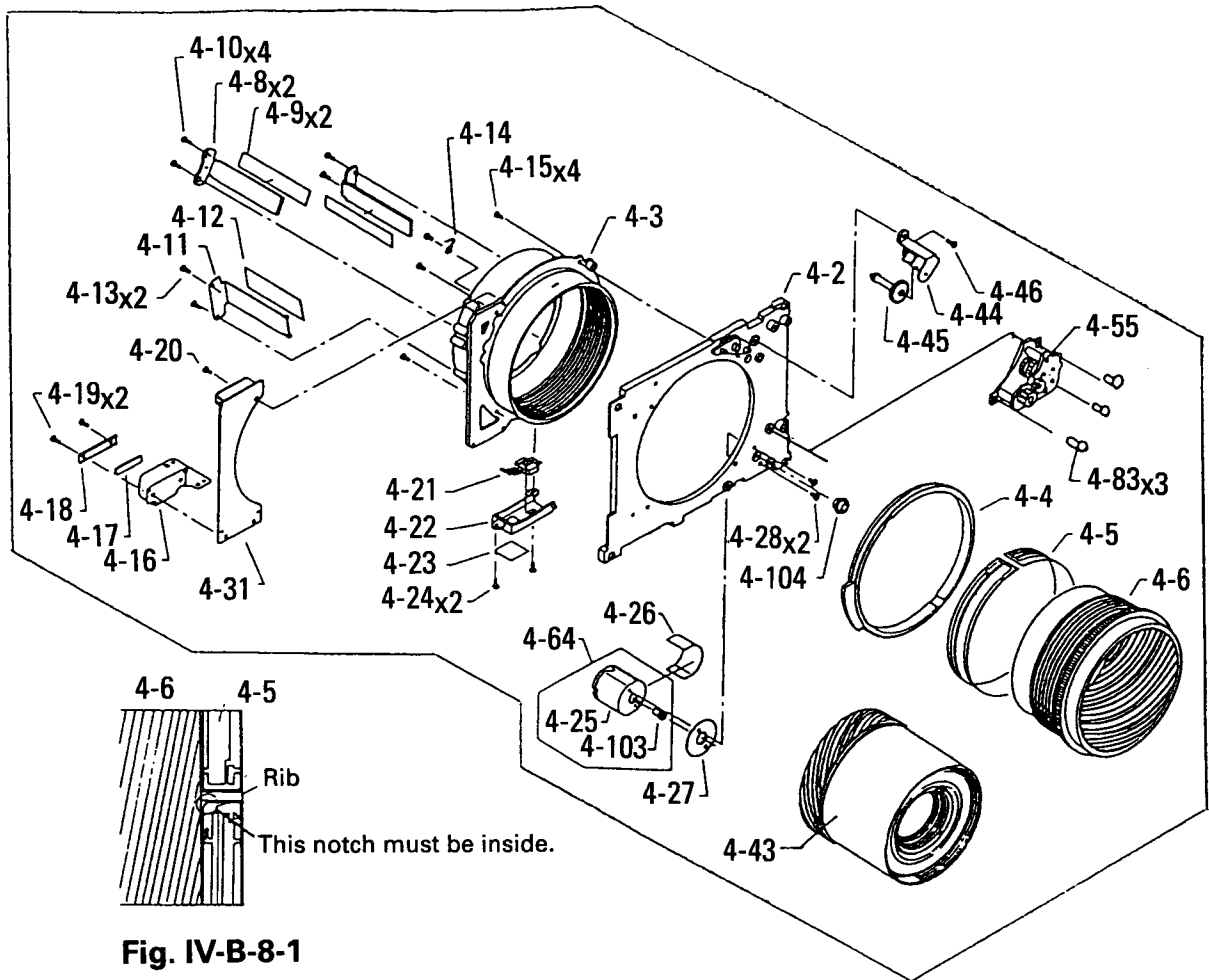


Fig. IV-B-8-1

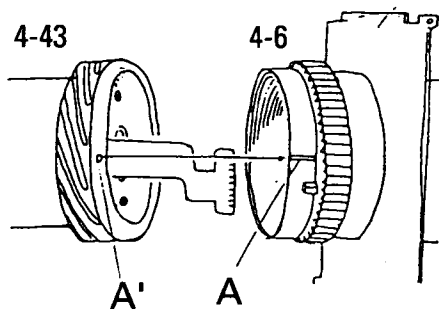


Fig. IV-B-8-2

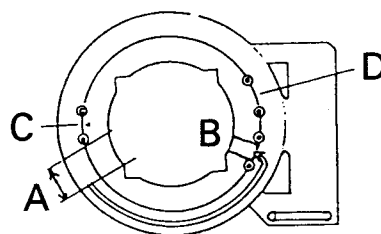
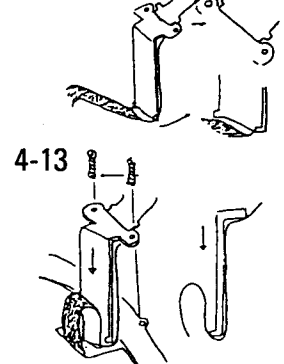


Fig. IV-B-8-3

Matching position of the flexible circuit.



Bend the flexible circuit in U-shape.

Fig. IV-B-8-4

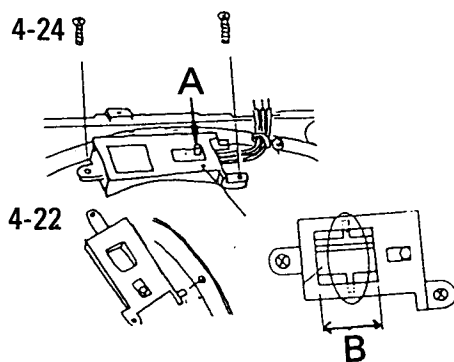


Fig. IV-B-8-5

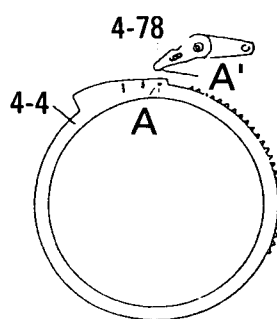


Fig. IV-B-8-6

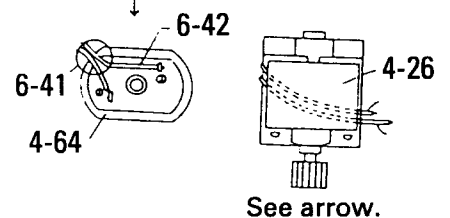


Fig. IV-B-8-7

(2) Reassembly

- 1) Install the fixed barrel (4-3) on the see-through (4-2) with four screws (4-15). When the rubber seat (4-27) has been removed, apply adhesive (Three Bond1521B or equivalent), and install the rubber seat (4-27).
- 2) Matching the interlock cam (4-4) with the shape of the fixed barrel (4-3), instal the interlock cam (4-4) so that the front side can be seen.
- 3) When the encoder FPCB (4-5) has been removed, stick (install) it by matching with the rib of the helicoid barrel (4-6). (Refer to Fig. IV-B-8-1.)
- 4) Turning the helicoid barrel (4-6) counterclockwise, screw the helicoid barrel (4-6) assembled as described in 3) above into the fixed barrel (4-3).
- 5) Insert the shutter flexible circuit of the moving lens barrel assembly (4-43) into the helicoid barrel (4-6), match the portion A of the helicoid barrel (4-6) with the portion A' of the moving lens barrel assembly (4-43), turn it clockwise so that they are combined completely. (See Fig. IV-B-8-2.) In this case, the shutter flexible circuit must be within range A. (See Fig. IV-B-8-3.)
- 6) Watching the shutter (4-30), turn the helicoid barrel (4-6) counterclockwise to position B, apply two helicoid keys (4-8) on which two light shielding sheets (4-9) are installed to C and D, and tighten four screws (4-10). (Refer to Fig. IV-B-8-3.)
- 7) Install the guide (4-11) on which the light shielding sheet (4-12) is installed, and tighten two screws (4-13). (Refer to Fig. IV-B-8-4.)
- 8) Solder and connect three lead wires to the encoder contact (4-21), place iton the fixed barrel (4-3), apply the projected portion of the encoder holder (4-22) to the fixed barrel (4-3), and tighten two screws (4-24). At this time, the encoder contact (4-21) must in position A. Next, bind three lead wires (6-24 through 6-26) with the cord clamp (4-14). (Refer to Fig. IV-B-8-5.)
- 9) Install the shutter circuit assembly (4-31) on the fixed barrel (4-3) with the screw (4-20), and fit the shutter assembly (4-30) to the connector.
- 10) When the shaft (4-47) has been removed, install it by the use of a special tool (JA60035), install the cam lever assembly (4-78), and secure it with the E-clip (4-53).

Fig. IV-B-8

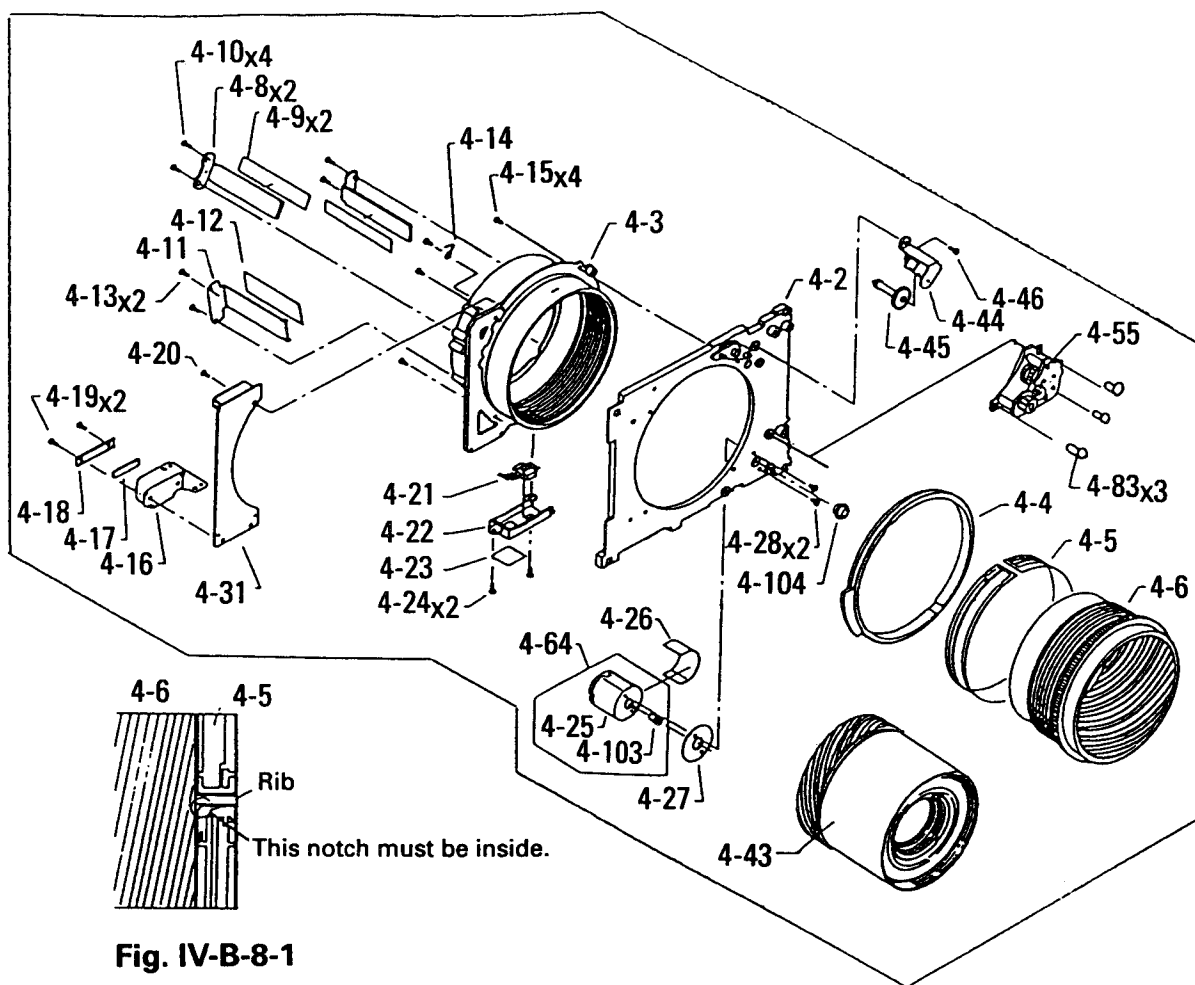


Fig. IV-B-8-1

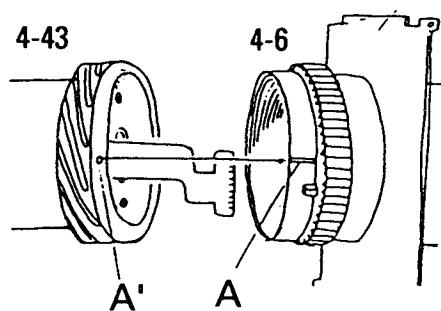


Fig. IV-B-8-2

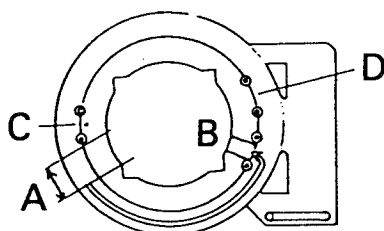
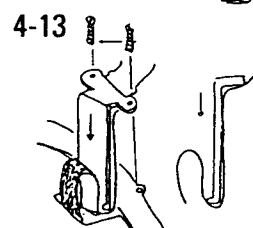
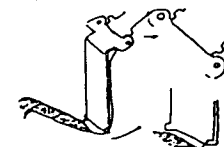


Fig. IV-B-8-3

Matching position of the flexible circuit.



Bend the flexible circuit in U-shape.

Fig. IV-B-8-4

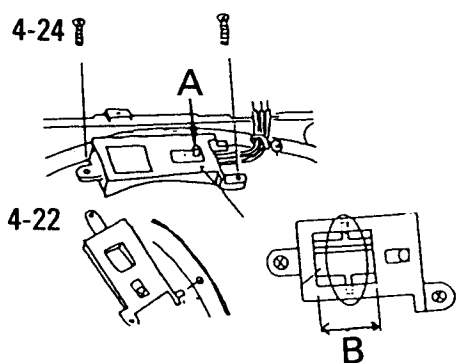


Fig. IV-B-8-5

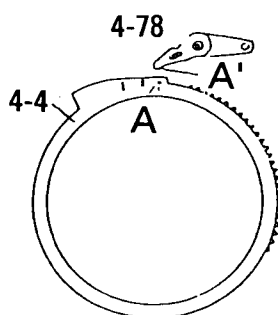


Fig. IV-B-8-6

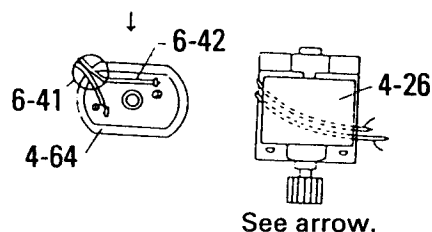


Fig. IV-B-8-7

- 11) Place the lens assembly reassembled up to step 10) above on a camera body, tighten four screws, place them on a focus adjust stand, look into a collimator, and obtain the infinity position by turning the helicoid barrel (4-6). At this position, look through the square hole of the encoder holder (4-22) and make sure that the portion A of the encoder FPCB (4-5) is within range B. Now, dismount the lens from the camera body carefully so as not to move the helicoid barrel (4-6). (Refer to Fig. IV-B-8-5.)
- 12) Turn the interlock cam (4-4), and at the position where portion A of the interlock cam (4-4) is matched with portion A' of the cam lever assembly (4-78), install the gear holder (4-44) on which the interlock gear (4-45) is installed on the see-through (4-2) with the screw (4-46). (Refer to Fig. IV-B-8-6.)
- 13) Put the light shielding tape (4-23) on the square hole of the encoder holder (4-22).
- 14) Apply the motor gear (4-103) to the lens driving motor (4-25) until it stops, solder and connect two lead wires, extend the lead wires through portion A, and secure the lead wires with a piece of tape. (Refer to Fig. IV-B-8-7.)
- 15) Pass the lens driving motor assembly (4-64) through the back of the see-through (4-2), and install it with two screws so that the lead wires are in the fixed barrel (4-3) side.
- 16) Install the relay FPCB (4-16) on the shutter circuit assembly (4-31), and install the rubber piece (4-17) and metal fixture (4-18) on them with two screws (4-19).

Fig. IV-B-8

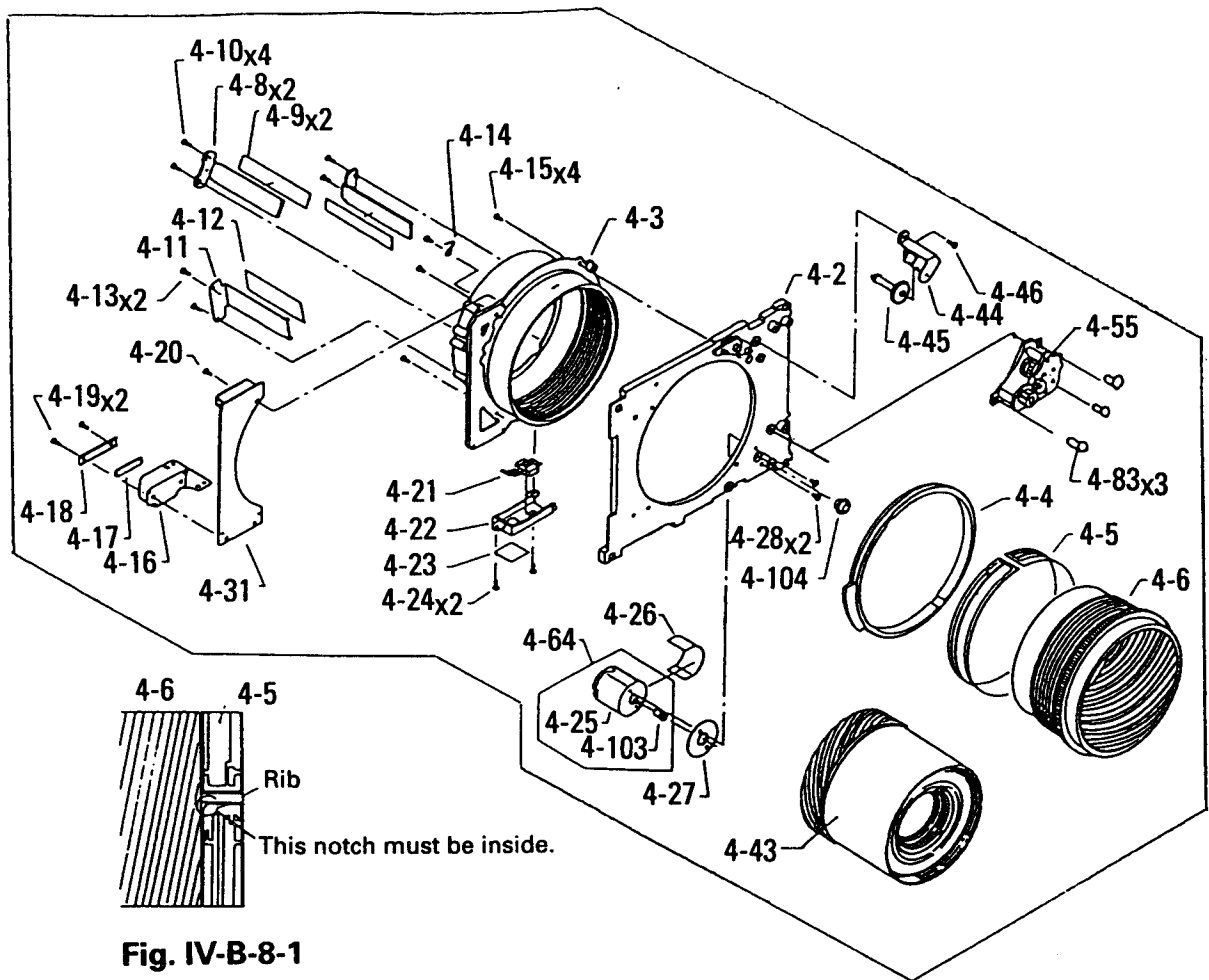


Fig. IV-B-8-1

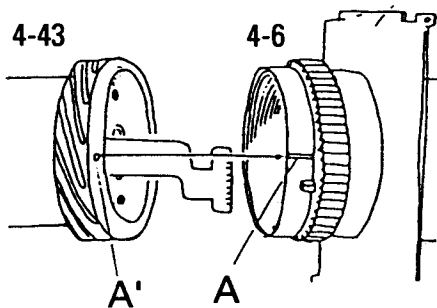


Fig. IV-B-8-2

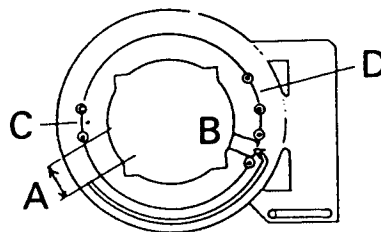
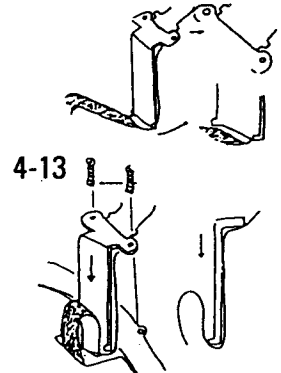


Fig. IV-B-8-3

Matching position of the flexible circuit.



Bend the flexible circuit in U-shape.

Fig. IV-B-8-4

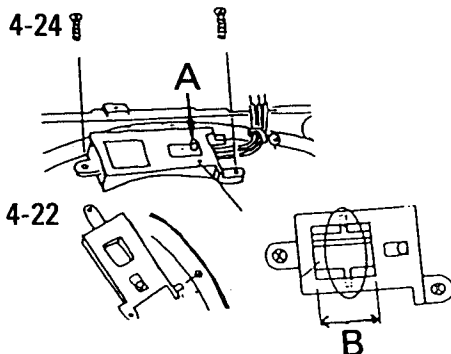


Fig. IV-B-8-5

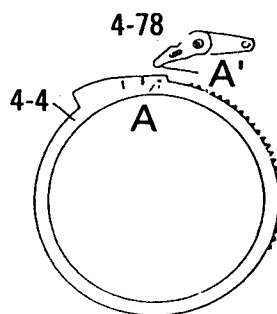


Fig. IV-B-8-6

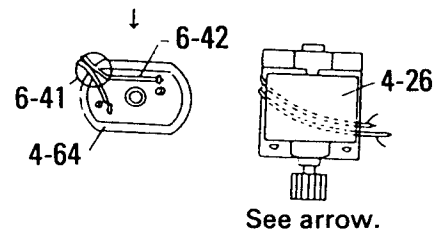


Fig. IV-B-8-7

9. Moving lens barrel assembly (4-43)

(1) Disassembly

- 1) Remove two screws (4-36) and remove the light shielding plate (4-34).
- 2) Remove three screws (4-35), raise the hood (4-33) to swell the center portion of the shutter assembly (4-30), remove the shutter assembly (4-30) from the hook on the hood (4-33), and remove the hood (4-33).
- 3) Turn the front lens assembly (4-41) counterclockwise and remove it by the use of a tool (compass).
- 4) Peel off the moquette (4-42), remove three screws (4-38), and remove the shutter (4-30) from the shutter frame (4-32).
- 5) Remove two screws (4-37), and remove the moving lens barrel (4-7).
- 6) Remove the rear lens assembly (4-40) by the use of a special tool (JA1499).

NOTE:

The front lens assembly (4-41) and rear lens assembly (4-40) cannot be disassembled further as the optical adjustments are extremely difficult.

(2) Reassembly

- 1) Matching it with the shutter frame (4-32), turn the rear lens assembly (4-40) clockwise to tighten by the use of a special tool (JA1499), and matching it with the shape of the shutter frame (4-32), place the moving lens barrel (4-7). Now, tighten two screws (4-37).
- 2) With the shutter assembly (4-30) positioned down side, pass the head of the flexible circuit through the opening of the shutter frame (4-32), pull the head of the flexible circuit, place the shutter in the shutter frame, and tighten three screws (4-35) from the back. (Refer to Fig. IV-B-9-1.)
- 3) Pass the shutter assembly (4-30) through the hook on the hood (4-33), place the hood (4-33) in the moving lens barrel (4-7), and secure the hood (4-33) with three screws (4-35).
- 4) Matching it with the shape of the hood (4-33), install the light shielding plate (4-34) with two screws (4-36), and install the front lens assembly (4-41) to which the moquette (4-42) is stuck on the shutter frame (4-32) by the use of a tool (compass). (Refer to Fig. IV-B-9-2.)

Fig. IV-B-9

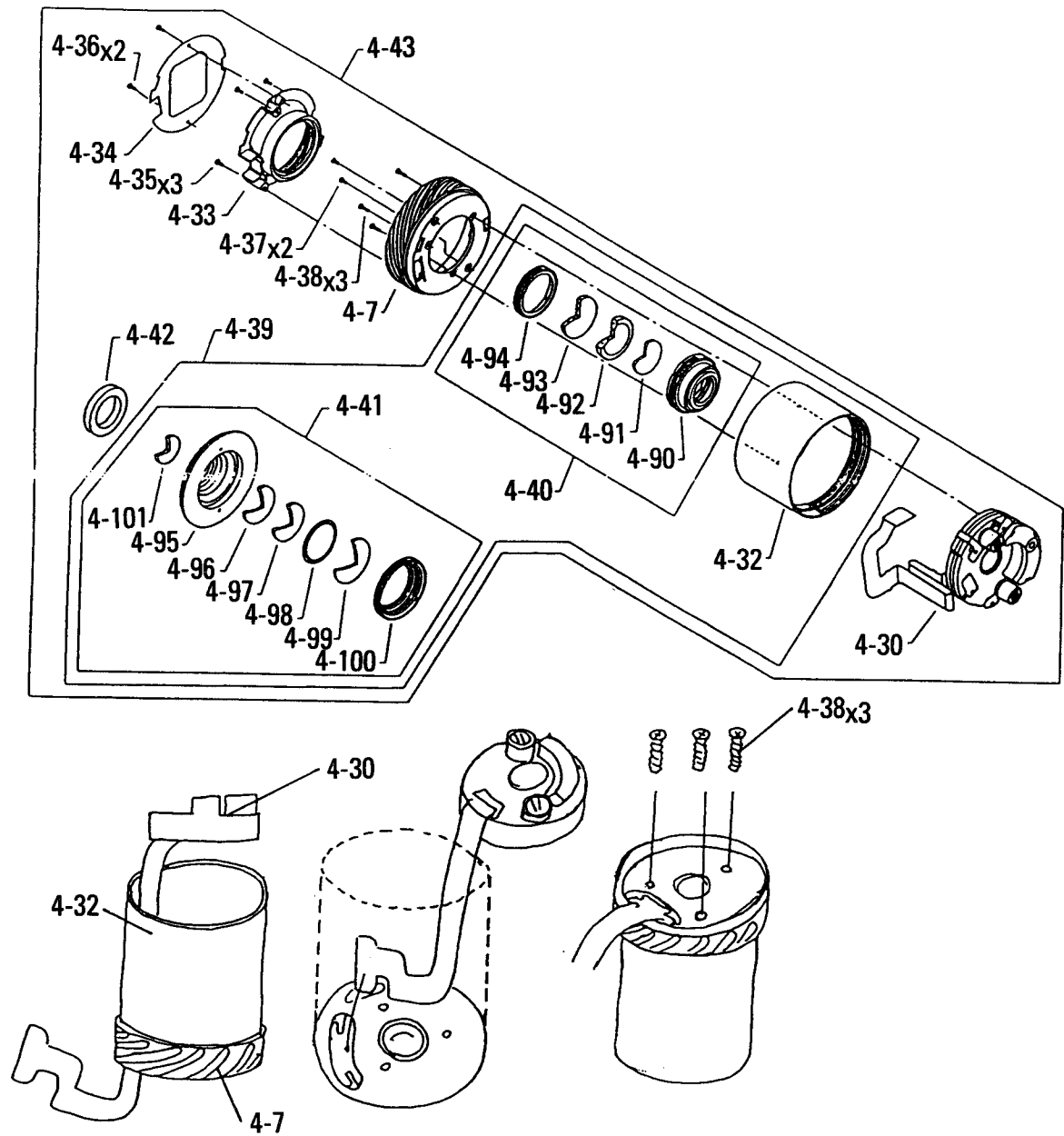


Fig. IV-B-9-1

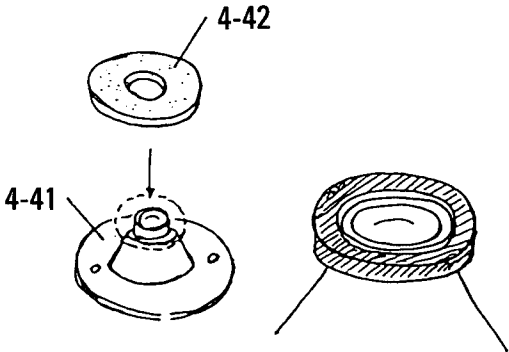


Fig. IV-B-9-2

10. Gear train assembly (4-55)

(1) Disassembly

- 1) Remove three screws (4-57), remove the bottom base plate (4-56), and pull out the friction gear assembly (4-62).
- 2) Remove the E-clip (4-72), pull out the encoder gear (4-73), remove the E-clip (4-71), and remove the gear L3-L4 (4-74).
- 3) Remove the E-clip (4-82), remove the gear L7 (4-81), remove the screw (4-69), and remove gears L5 (4-76) and L6 (4-80).

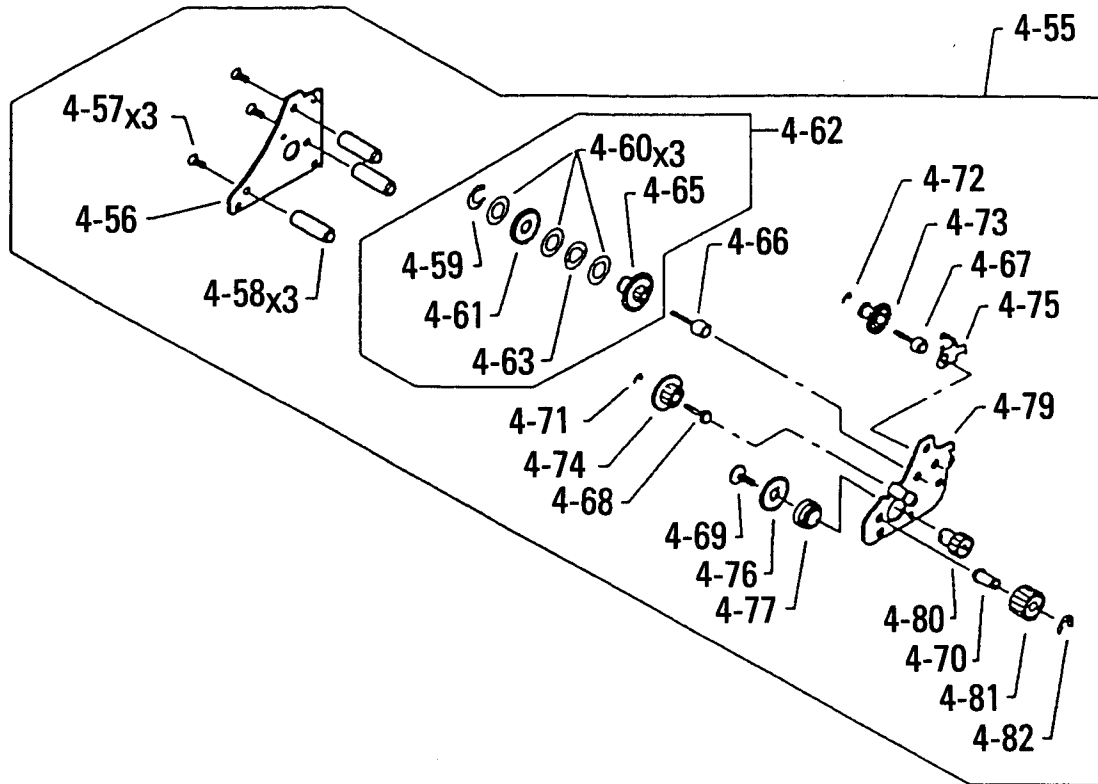
NOTE:

The gear train assembly (4-55) cannot be disassembled further because the parts are caulked.

(2) Reassembly

- 1) Apply grease (G30M) to the shaft holder interior, install the gear L6 (4-80), and matching the gear L5 (4-76) with the shape of the gear L6 (4-80), secure the gear L6 (4-80) with the screw (4-69).
- 2) Apply grease (G30M) to the shaft, install the gear L7 (4-81) on the shaft, and secure the gear L7 (4-81) with the E-clip (4-82).
- 3) Apply grease (G30M) to the shaft, install the gear L3-L4 (4-74) on the shaft, and secure the gear L3-L4 (4-74) with the E-clip (4-71).
- 4) Apply grease (G30M) to the shaft, install the encoder gear (4-73) on the shaft, and secure the encoder gear (4-73) with the E-clip (4-72).
- 5) Apply grease (G30M) to the shaft, install the friction gear assembly (4-62) and install the bottom base plate (4-56) with three screws (4-57).

Fig. IV-B-10



11. Friction gear assembly (4-62)

(1) Disassembly

- 1) Pull out the C-clip (4-59), and remove the gear L1 (4-61) after removing the washer (4-60).
- 2) Remove the washer (4-60) and friction ring (4-63), and remove the washer (4-60) from the gear L2-E1 (4-65).

(2) Reassembly

- 1) Apply the washer (4-60) to the gear L2-E1 (4-65), apply the friction gear (4-63), and apply the washer (4-60).
- 2) Apply the gear L1 (4-61), apply the washer (4-60), and matching it with the shape of the gear L2-E1 (4-65), install the C-clip (4-59) by the use of a special tool (JA1497).

Fig. IV-B-11

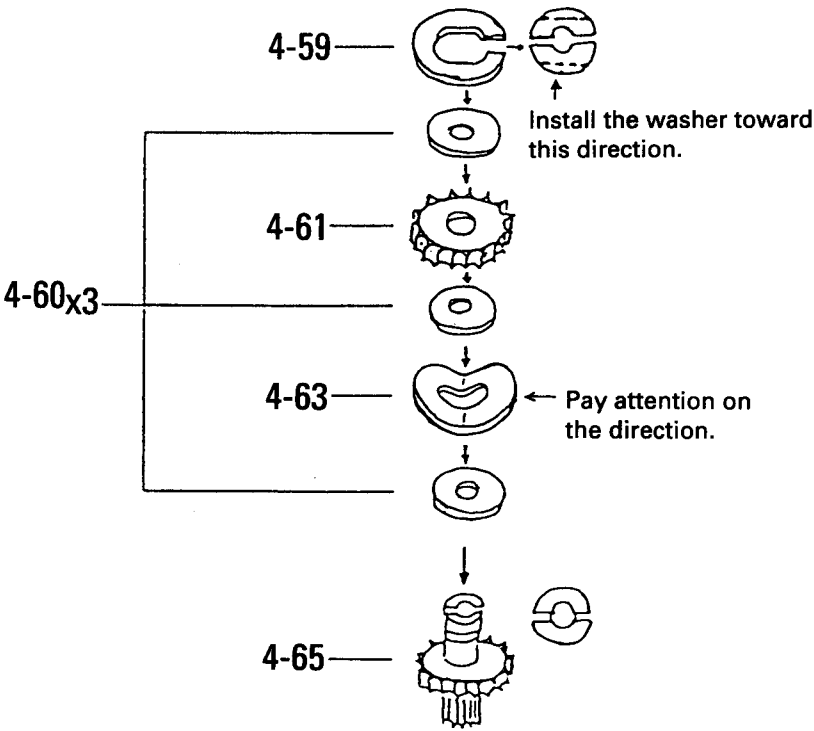
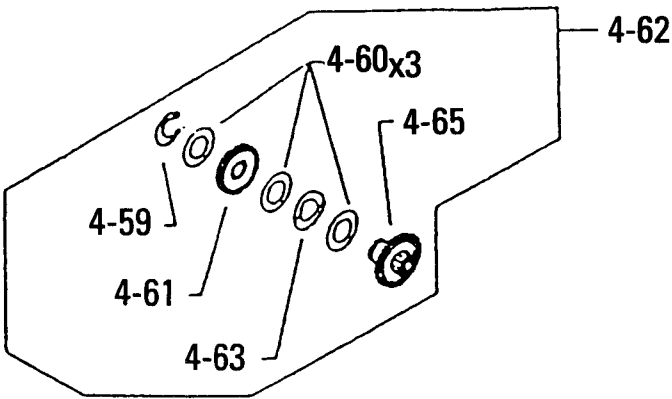


Fig. IV-B-11-1

12. Film transporting mechanism assembly (5-101)

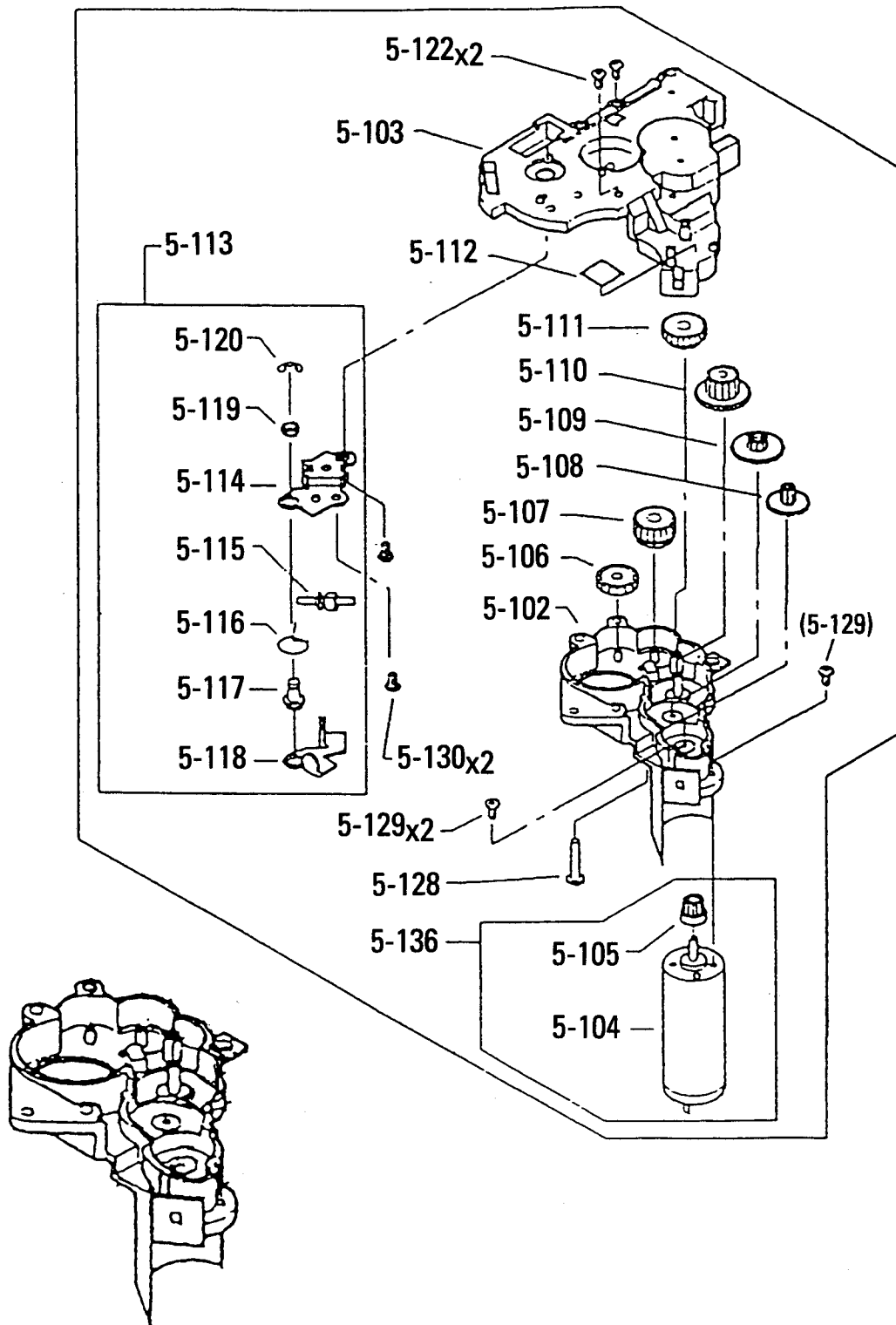
(1) Disassembly

- 1) Remove two screws (5-122), unhook the claw and remove the top base plate (5-103).
- 2) Remove the gear G2 (5-111), gear (5-110), gear 2 (5-109), gear G1 (5-108), double step gear (5-107), and gear G6 (5-106).
- 3) Remove two screws (5-129), remove the film transporting motor assembly (5-136) from the bottom base plate (5-102), and pull out the motor gear (5-105) from the film transporting motor (5-104).
- 4) Remove two screws (5-130) from the top base plate (5-103), and remove the release lever assembly (5-113).

(2) Reassembly

- 1) Place the release lever assembly (5-113) on the top base plate (5-103), and tighten two screws (5-130).
- 2) Fit the motor gear (5-105) tightly to the film transporting motor (5-104), and install them on the bottom base plate (5-102) with two screws (5-129).
- 3) Apply lubricant (Losoid 6308-1G, Tungsten bisulfide) to the bottom base plate (5-102). (Refer to Fig. IV-B-12-1.)
- 4) Install the gear G6 (5-106), double step gear (5-107), gear G1 (5-108), gear 2 (5-109), gear (5-110) and gear G2 (5-111) on the bottom base plate (5-102) in that order.
- 5) Put the top base plate (5-103) on the above assembled parts, and tighten two screws (5-122).

Fig. IV-B-12



Apply lubricant to the shaded portions.

Fig. IV-B-12-1

13. Camera body assembly (2) (5-1)

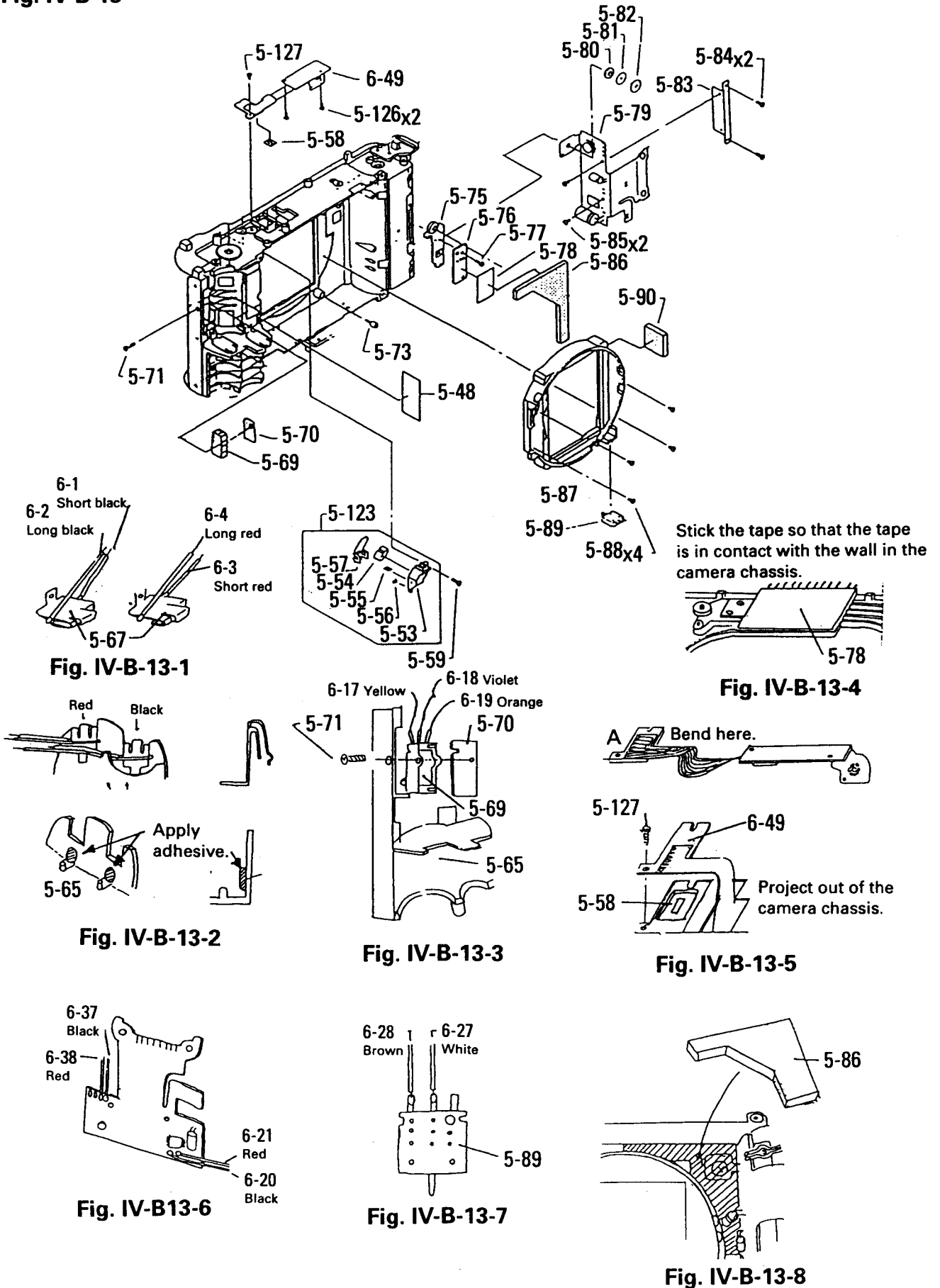
(1) Disassembly

- 1) Pull out the moquette (5-86), remove four screws (5-88), remove the hood (5-87), and pull out the pin (5-73).
- 2) Remove the SZ switch (5-89) from the hood (5-87), peel off the moquette (5-90), and unsolder and disconnect the lead wires (6-27 and 6-28) from the SZ switch (5-89).
(Refer to Fig. IV-B-13-7.)
- 3) Unsolder and disconnect two lead wires (6-2 and 6-4) extended from the battery contact (5-67), and pull out the lead wires from the cord clamp (5-31). Peel off the tape (5-48).
(Refer to Fig. IV-B-13-6.)
- 4) Remove the set screw (5-82), and remove the washer (5-81) and rubber ring (5-80).
- 5) Remove two screws (5-84), and remove the battery FPCB assembly (5-79) from the bracket (5-83). Next, remove two screws (5-85) and remove the bracket (5-83).
- 6) Remove the screw (5-127), raise the data FPCB assembly (6-49), remove the mask (5-58), remove two screws (5-126) and remove the data FPCB assembly (6-49).
- 7) Remove the screw (5-59), and remove the data lens assembly (5-132).
- 8) Peel off the light shielding tape (5-78), remove the screw (5-77), and remove the PR PCB assembly (5-76) and holder (5-75).
- 9) Remove the screw (5-71), remove the SB switch (5-69) and holder (5-70), and unsolder and disconnect lead wires (6-17 through 6-19) from the SB switch (5-69).
(Refer to Fig. IV-B-13-3.)
- 10) Remove two adhered battery contacts (5-67), and unsolder and disconnect lead wires (6-1 through 6-4). Peel off the adhesive tape (5-72). (Refer to Fig. IV-B-13-1.)

(2) Reassembly

- 1) Solder and connect four lead wires (6-1 through 6-4) to two battery contacts (5-67), install the battery contacts (5-67) on the battery compartment base (5-65) on which adhesive (Three Bond 1521B or equivalent) is applied, and put the adhesive tape (5-72). (Refer to Figs. IV-B-13-1 and IV-B-13-2.)
- 2) Install the SB switch (5-69) (to which three lead wires (6-17 through 6-19) are soldered) on the battery compartment base (5-65) together with the holder (5-70) with the screw (5-71), and form the lead wires. (Refer to Fig. IV-B-13-3.)
- 3) Install the holder (5-75) and PR PCB assembly (5-76) on the camera chassis (5-7) in that order with the screw (5-77), and put the light shielding tape (5-78). (Refer to Fig. IV-B-13-4.)
- 4) Install the data lens assembly (5-132) on the camera chassis (5-7) with the screw (5-59), project out the LED of the data FPCB assembly (6-49) from the opening on the interior of the camera chassis (5-7), and with the gold-plated circuit pattern placed on the holder (5-75), secure the PR PCB assembly on the camera chassis (5-7) with the screw (5-77).
- 5) Place the mask (5-58) on the data lens assembly (5-132), place them so that the LED of the data FPCB is faced downward, and tighten the screw (5-127). (Refer to Fig. IV-B-13-5.)
- 6) Solder and connect four lead wires to the battery FPCB assembly (5-79), and after securing it on the bracket (5-83) with two screws (5-84), install the bracket on the camera chassis (5-7) with two screws (5-85). (Refer to Fig. IV-B-13-6.)
- 7) Apply the tightly connected portion of the battery FPCB assembly (5-79) to the guide boss of the holder (5-75), put the rubber ring (5-80) and washer (5-81) in that order, and tighten the screw (5-82).
- 8) Install the pin (5-73) on the camera chassis (5-7), fit the SZ switch (5-89) (to which the lead wires are soldered) to the hood (5-87) (Refer to Fig. IV-B-13-7.) install the moquette (5-90), and tighten four screws (5-88).
- 9) Solder and connect two lead wires to the battery FPCB assembly (5-79), and form the lead wires. Install the moquette (5-86) on the camera chassis (5-7).

Fig. IV-B-13



14. Camera body assembly (1) (5-2)

(1) Disassembly

- 1) Remove three screws (5-68) and remove the battery compartment base (5-65).
- 2) Remove the DX FPCB (5-64) from the battery compartment base (5-65), and peel off the battery label (5-66).
- 3) Remove six screws (5-32) and remove three cord clamps (5-31).
- 4) Remove the encoder shaft (5-52), remove the screw (5-20), and remove the film take-up gear (5-19) and take-up shaft assembly (5-60).
- 5) Remove two screws (5-24), and pull out the shaft (5-18) in which the gear (5-17) installed from the camera chassis (5-7). Now, remove two counter rollers (5-25) from the counter drum (5-23). Further, remove the gear (5-17) from the shaft (5-18).
- 6) Peel off two pieces of the moquette (5-47 and 5-26), peel off three insulators (5-45, 5-46 and 5-50), remove the metal fixture (5-49), and remove the light shielder (5-133).
- 7) Push the pin (5-15) through the hole on the top of the camera chassis (5-7) and remove the roller (5-14). Be careful not to lose two springs (5-16) and two pins (5-15).
- 8) Remove two screws (5-22), and remove the leaf spring assembly (5-4) and leaf spring (5-21).
- 9) Remove two screws (5-30), remove the strap lug (bottom) (5-29), remove two screws (5-28), and remove the strap lug (top) (5-27).
- 10) Remove four screws (5-43), remove two guide ring assemblies (5-3), remove two springs (5-34), and pull out two release bars (5-37 and 5-33).
- 11) Remove three screws (5-36), and remove the tripod socket (5-35).
- 12) Remove the shaft holder (5-13) and shaft holder (5-12).

NOTE:

Other parts are caulked and cannot be disassembled further.

Fig. IV-B-14

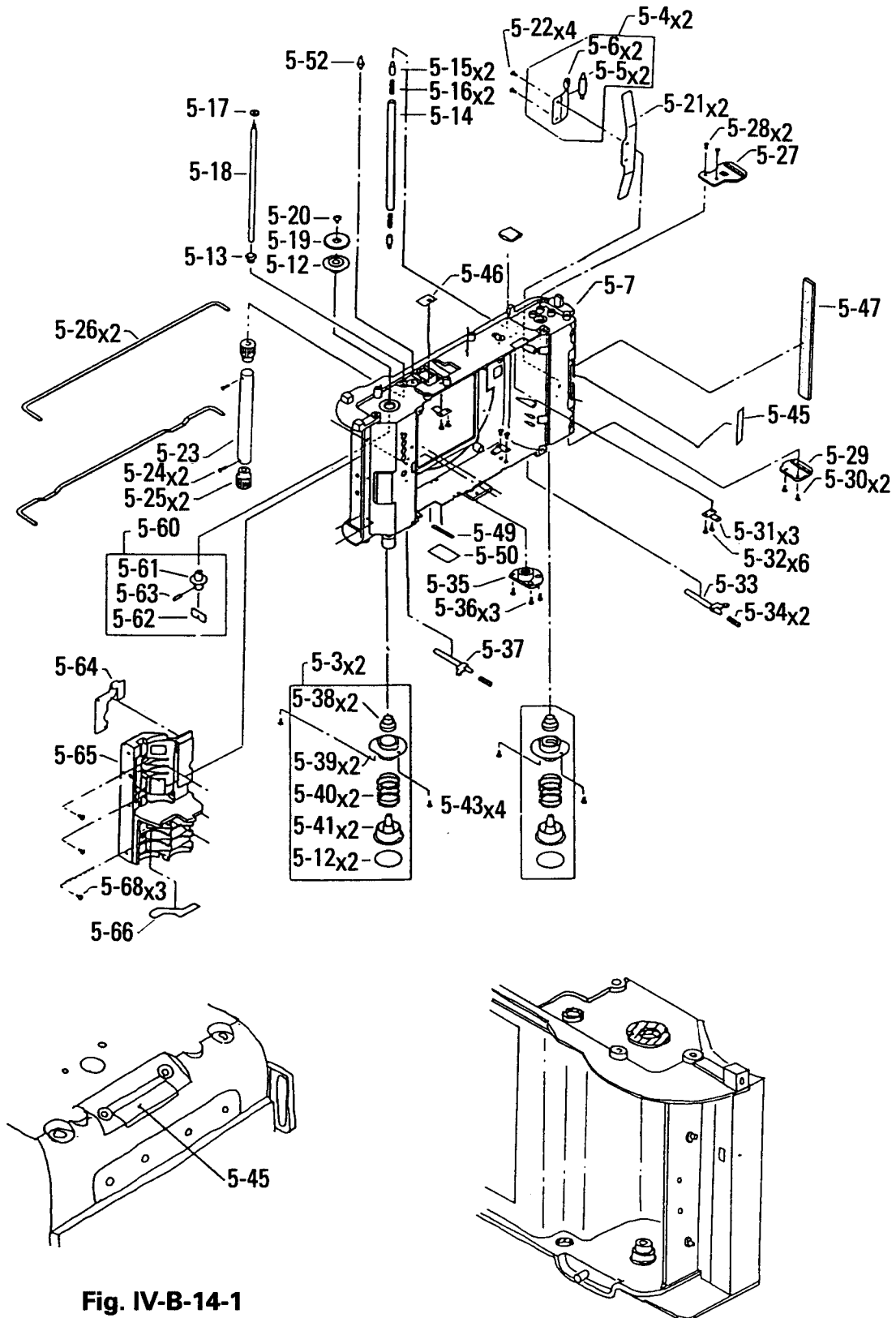


Fig. IV-B-14-1

/// Apply lubricant to the shaded portion.

Fig. IV-B-14-2

(2) Reassembly

- 1) Lightly screw the shaft holder (5-12) and shaft holder (5-13) into the camera chassis (5-7), and after applying adhesive (Pliobond FHD011), tighten two shafts completely.
- 2) Install the tripod socket (5-35) on the camera chassis (5-7), and after applying screw locking agent (Technotite H-100), tighten three screws (5-36).
- 3) Install the release bars (5-37 and 5-33) on the camera chassis (5-7), pass two springs (5-34) through heads of two release bars (5-37 and 5-33), install two guide ring assemblies (5-3), and after applying screw locking agent (Technotite H-100), tighten four screws (5-43).
- 4) Install the top and bottom strap lugs (5-27 and 5-29) respectively with screws (5-28x2 and 5-30x2) after applying screw locking agent (Technotite H-100) to the screws.
- 5) Install the leaf spring (5-21) and leaf spring assembly (5-4) in the film chamber of the camera chassis (5-7) in that order, and tighten two screws (5-22).
- 6) With the springs (5-16) and pins (5-15) installed on both ends of the roller (5-14), install the roller (5-14) on the camera chassis (5-7).
- 7) Place the metal fixture (5-49) in the groove on the camera chassis, and stick the insulator (5-45) on the metal fixture. Now, stick two insulators (5-46 and 5-50) to the camera chassis. (Refer to Fig. IV-B-14-1.)
- 8) Apply adhesive (Pliobond FHD011) to the grooves on the top and bottom of the camera chassis and side surface of the camera chassis, and install the moquettes (5-47 and 5-26x2). Next, apply lubricant (Helicolube FHA054) to the shaded portion of the camera chassis (5-7). (Refer to Fig. IV-B-14-2.)
- 9) Apply screw locking agent (Technotite H-100) to the head of the shaft (5-18) install the gear (5-17) on the shaft (5-18).
- 10) With the counter rollers (5-25) applied to both ends of the counter drum (5-23), install the counter drum (5-23) on the camera chassis (5-7), install the shaft (5-18) and tighten two screws (5-24).
- 11) Apply lubricant (Helicolube FHA054) to the take-up shaft assembly (5-60), install it from the film chamber, install the film take-up gear (5-19) on the shaft, and after applying screw locking agent (Technotite H-100), tighten the screw (5-20).
- 12) Stick the battery label (5-66) by matching it to the shape of the battery compartment base (5-65), fit the DX FPCB (5-64) to the guide boss, and tighten three screws (5-68).
- 13) Install the light shielder (5-133) on the camera chassis (5-7), and install the encoder shaft (5-52).

Fig. IV-B-14

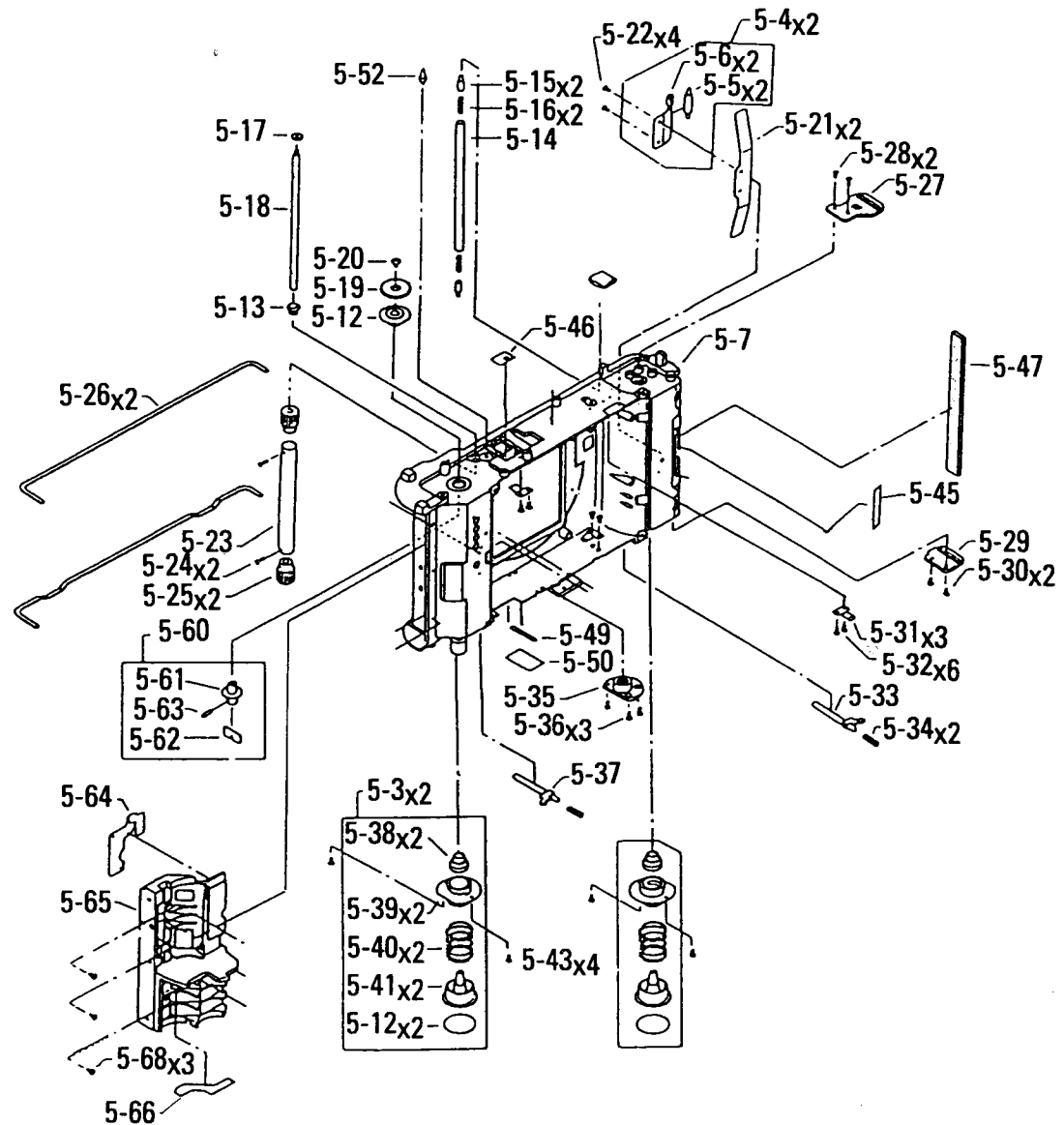
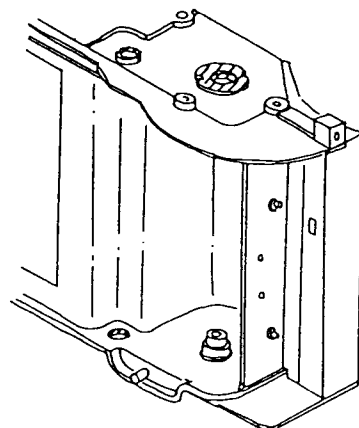
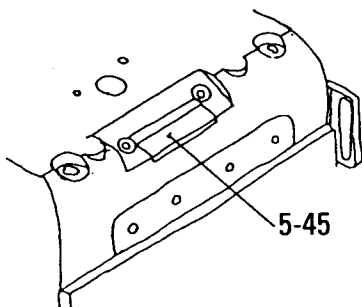


Fig. IV-B-14-1



/// Apply lubricant to the shaded portion.

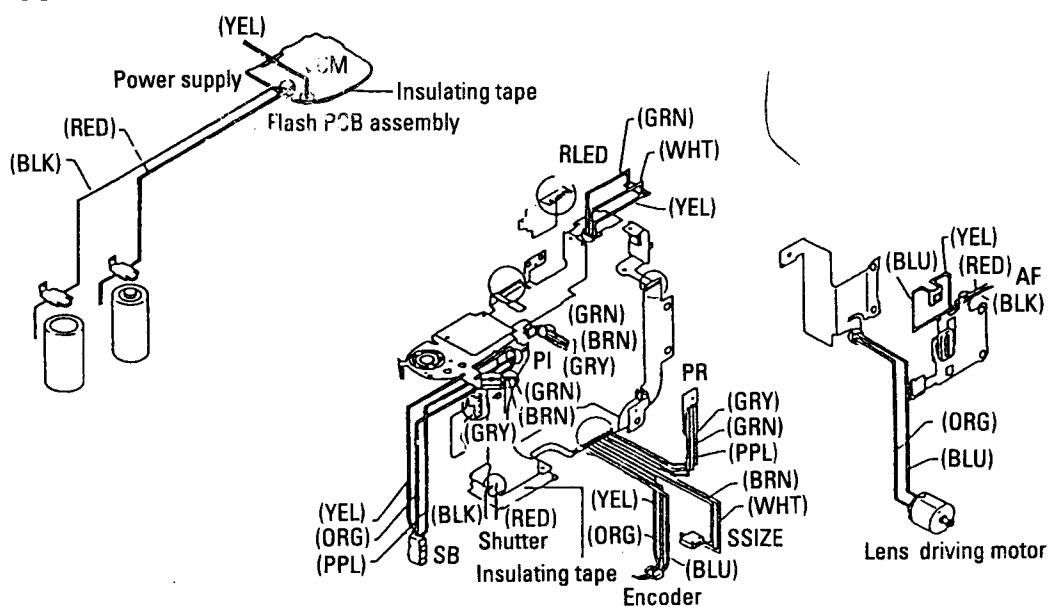
Fig. IV-B-14-2

V. INSPECTION AND ADJUSTMENT

1. Inspecting the camera without covers

	Procedure	Checked Item	Remarks
1. Checking stabilized power supply		Output : $5.6V \pm 0.05V$	Dummy battery (JA60081)
2. Inspected item 2.1 Appearance (1) Soldering of wire		(1) Control FPCB assembly → BLED (3), AF (2), Lens driving motor (2), Shutter (2), Encoder (3), SSIZE (2), PR (3), PI (3) (2) Flash PCB assembly → Battery (2), VCM (3) Grounding wire	Erroneous wiring, connected position and soldered condition
(2) Soldering across flexible FPCBs		(1) Control FPCB assembly → Flash (8) Main switch (5) AE (5), DX (4)	Crack and short-circuit
(3) Tightness of connection		(1) Control FPCB assembly → Triple layer	FPCB deviation
(4) Insulating tape		(1) Soldered surface of flash PCB (2) Main FPCB (CPU)	Peel off

*Wiring position, etc.



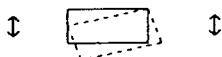

- Wrist band • Jig (Dummy battery) • Ammeter (110μA)
- Stabilized power supply (Load capacity : 5A or higher) connected with a one ohm $\pm 5\%$.

	Procedure	Checked Item	Remarks
2. Inspected item 2-2 Performance inspection (1) Checking power start and leak current	Turn off SM switch, and load a dummy battery with the camera back closed	<ul style="list-style-type: none"> Both FLCD and LCD must fully light, each display must be in correct position and all characters must be displayed fully and clearly. Leak current: 35μA or less 	Check with an ammeter
(2) Power supply – 1 operation check (LCD)	(1) Open the camera back (2) Turn the UP/DOWN to the left. (3) Set the pressure plate to [120], and close the camera back. (4) Open the camera back, set the pressure plate to [220] and close the camera back.	<ul style="list-style-type: none"> ISO count must indicate “0” Film transporting motor must turn. [120] must be displayed on the LCD. [220] must be displayed on the LCD. 	Check with the shaft.
	(5) Set SM switch to [P].	<ul style="list-style-type: none"> The film transporting motor must turn about one second and the lens must move from the home position to stand-by position. 	P → A → M when the SM switch is turned to the right ISO when turned to the left.
(3) Self-timer operation check (LCD)	(1) Press down SSELF on the camera back. (2) Press down SSELF again.	<ul style="list-style-type: none"> Self-timer mark [⌚] must be displayed. Self-timer mark [⌚] must go out. 	Rubber switch on the back Right: SSELF Left: SDATA
(4) Data operation check (LCD)	(1) Press down SDATA on the camera back. (2) Press down SDATA again. (3) Press down SDATA again. (4) Press down SDATA again. (5) Press down SDATA again. (6) Press down SDATA again. (7) Press down SDATA again.	DATA [-----] lights DATA [YMMDD] lights DATA [DDtmm] lights DATA [TV AV] lights DATA [YMD] [TVAV] must blink alternately. DATA [YMD] [tm] must blink alternately. DATA [-----] lights	For example: 95_1_1

	Procedure	Checked Item	Remarks
(5) FC operation check (LCD)	(1) Keep pressing SFC on the camera top. (2) Release SFC from pressing.	<ul style="list-style-type: none"> FC mark [+/_] must light. FC mark [+/_] must go out. 	The switch in the right side of the camera top FPCB (In front of UP/DOWN switch) Right side: SFC Left side: SAF
(6) Power supply – 2 operation check (LCD)	(1) Set SM switch to [A].	<ul style="list-style-type: none"> Flash mark [⚡] must light. 	
	(2) Set SST to ON (turned down toward you)	<ul style="list-style-type: none"> Flash mark [⚡] must go out. 	
	(3) Set SM switch to [OFF]	<ul style="list-style-type: none"> The lens must move from the stand-by position to home position. 	
	(4) Set SM switch to [ISO]. (5) Turn UP/DOWN switch and check ISO indication. (6) Turn UP/DOWN switch and set ISO to [100].	<ul style="list-style-type: none"> [ISO] must blink. ISO display must change from 25 to 1600. Set ISO to [100]. 	Set it to "25", turn about 1.1/4 and check 1600.
(7) Lens operation check	(1) Set SM switch to [P].	<ul style="list-style-type: none"> The lens must move from the home position to stand-by position 	
	(2) Press down SAF switch (3) Keep pressing SMF switch, and turn UP/DOWN to set it to [Inf].	<ul style="list-style-type: none"> [MF] mark must be displayed. [MF] mark blinks when SMF switch is pressed down. [Inf] mark must be displayed. 	The switch in the right side of the camera top FPCB (In front of the UP/DOWN switch) Right side: SFC Left side : SAF
	(4) Set SP switch to ON (press down lightly) and release it.	<ul style="list-style-type: none"> The lens must be fed out from the stand-by position and viewfinder frame must move accordingly. The lens must stay in the fed out position when SP switch is turned off. 	
	(5) Press down SAF switch.	<ul style="list-style-type: none"> MF mark goes out. The lens must move from fed out position to stand-by position. 	

	Procedure	Checked Item	Remarks
(8) Shutter operation check	(1) Make the place around the camera bright, face the camera to an object in a distance (0.7m or longer), and set SP switch to ON (press down lightly).	<ul style="list-style-type: none"> • [\ast. \astm] must be displayed on FLCD. • The lens must move from the stand-by position to fed out position. • The lens must move from the fed out position to stand-by position when SP switch is turned off. 	Distance fluctuates as AF has not been adjusted. AV \neq 4, TV \neq 60 After the SP switch is turned off, measured light value must be displayed in the viewfinder for about 5 seconds.
	(2) Press down SP switch deeply.	<ul style="list-style-type: none"> • SELF LED must light for a second when the shutter is released. • The lens must move from the fed out position to stand-by position. 	
	(3) Set SP switch to OFF.	<ul style="list-style-type: none"> • The display in the FLCD goes out. 	
	(4) Cover up the lower side of the AF, face the camera to an object, and set SP switch to ON (press down lightly).	<ul style="list-style-type: none"> • [\ast. \astm] must be displayed on FLCD, and the lens must move to the fed out position. 	Passive inspection
	(5) Set SP switch to OFF.		
	(6) Face the camera to a 9% reflector located in a position about 50cm from the camera, and set SP switch to ON (press down lightly).	<ul style="list-style-type: none"> • [0.7m] must blink on FLCD. 	Active inspection
	(7) Set SP switch to ON (press down lightly) once again.	<ul style="list-style-type: none"> • IRED must blink. • The lens must move to the fed out position. 	
	(8) Set SP switch to OFF.		
(9) End	(1) Set SM switch to OFF (2) Set power switch to OFF.	<ul style="list-style-type: none"> • The lens must returns to the home position. • LCD goes out. 	Condition of camera at the end: Pressrue plate → 220

2. Inspecting the camera with covers installed.

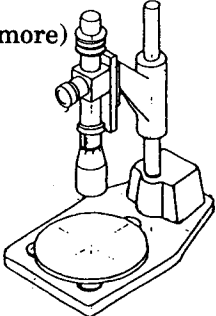
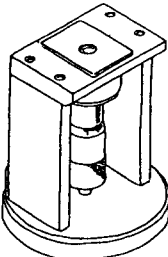
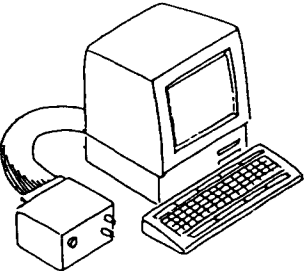
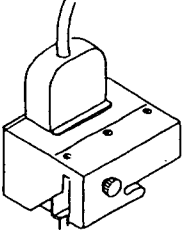
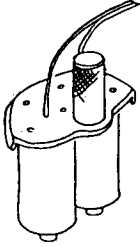
Inspected item	Method of inspection	Judgement standard
1. Shock the camera lightly.		(Battery label)
2. Checking M-mode (manual mode)	<ul style="list-style-type: none"> • Set the mode dial to “M”, and turn the UP/DOWN dial. • Pushing  button, turn the UP/DOWN dial and watch LCD. • Set the shutter to BULB, and by pressing down the shutter release, watch the lens. • Pop up the flash head, face the camera to a bright object, and see if the flash fires or not. 	<ul style="list-style-type: none"> • Aperture display must change (4.0 ~ 22) • Shutter speed display must change. • The lens must be clean. • The flash head must pop up smoothly. • The flash must fire (normal firing).
3. Checking A-mode (Aperture priority mode)	<ul style="list-style-type: none"> • Set the mode dial to “A”, press down the shutter release by changing brightness, and watch the displays in the viewfinder and on the LCD. • Pop up the flash head, change distance to an object, and see if the flash fires or not. 	<ul style="list-style-type: none"> • The aperture must not change even if the brightness changes, but shutter speed must change. • The display in the viewfinder must be same as that on the LCD. • The flash must fire. (normal firing, check synchronizing)
4. Checking P-mode (Program mode) and automatic flash firing at a low brightness	<ul style="list-style-type: none"> • Set the mode dial to “P”, press down the shutter release by changing brightness, and watch the displays in the viewfinder and on LCD. • Pop up the flash head, face the camera to a bright and dark objects, and release the shutter. 	<ul style="list-style-type: none"> • Aperture value and shutter speed combination must change when brightness changes. • The display in the viewfinder must be same as that on the LCD. • The display in the viewfinder must be complete and has no remarkable reflection. • The flash must not fire when the camera is faced to a bright object, must fire when the camera is faced to a dark object, and it must be synchronized.

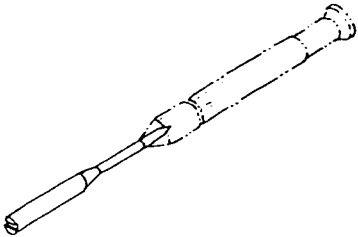
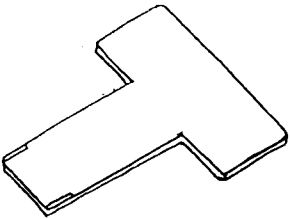
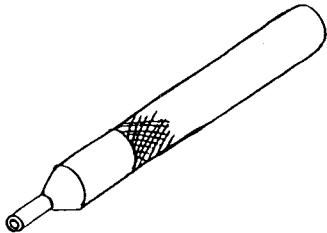
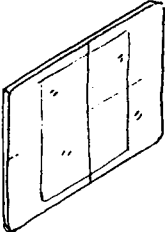
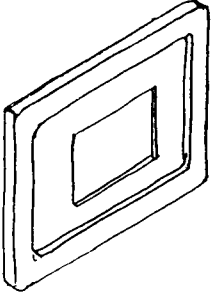
Inspected item	Method of inspection	Judgement standard
5. AF/MF switch over.	<ul style="list-style-type: none"> Press down AF button and watch LCD. 	<ul style="list-style-type: none"> At AF: No display must be made. At MF: MF must be displayed. The field of view frame must move when 5m is selected.
6. Checking MF setting	<ul style="list-style-type: none"> Set the camera to MF mode, turn the UP/DOWN dial by pressing down the MF button, and watch the LCD. 	<ul style="list-style-type: none"> MF mark must blink and the display must be made from 0.7m through Inf.
7. Film transporting	<ul style="list-style-type: none"> Transport each one 120 and 220 size film. Change over the setting of the pressure plate, also. After one film is transported completely, open the camera back and unload the film. With the camera back closed, press down the film loading knob. 	<ul style="list-style-type: none"> The spool installation, FFS, one frame film advancement, exposure counter display, etc. must be normal. Electronic sound must be generated whenever the shutter is released. (When no electronic sound is generated, check if the camera is under ON mode or not.) Mid-run rewind (MR) (3 to 4 frames) must be made. Type of film changeover on the pressure plate must coincide with the display on the LCD. 15 frames must be exposed with a 120 film, 30 frames must be exposed with a 220 film, the exposure counter must displays "E" at the end of film, and the "E" must go out when the camera back is opened. The knob must not jump out.
8. Checking self-timer	<ul style="list-style-type: none"> Press down the self-timer button and watch the LCD. Press down the shutter release and watch the self-timer LED. 	<ul style="list-style-type: none"> Self-timer mark must be displayed. The LED must light first, blink thereafter, and the shutter must be released.
9. Cable release installation	<ul style="list-style-type: none"> Install a cable release, and try to release the shutter. 	<ul style="list-style-type: none"> It must be possible to install a cable release. The shutter must be released.

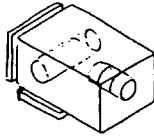
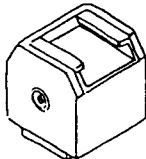
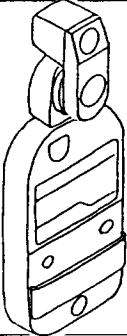
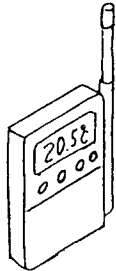
Inspected item	Method of inspection	Judgement standard
10. Interior appearance	<ul style="list-style-type: none"> Open the camera back, and visually check inside the camera body and camera back interior. 	<ul style="list-style-type: none"> The roller and film size changeover pin (push it) must operate normally. There should be no remarkable scar, contamination and lack of parts. All the moquettes are installed correctly.
11. Checking data changeover and printing	<ul style="list-style-type: none"> Press down the DATA button and watch the LCD. Open the camera back, and watch the LED lighting on the mask. 	<ul style="list-style-type: none"> DATA must blink, and it is changed over in the order of month/day/hour, aperture, shutter speed and print inhibit. The LEDs must light correctly.
12. Exterior appearance	<ul style="list-style-type: none"> Check the top cover, camera back, front cover, bottom cover and lens for appearance. 	<ul style="list-style-type: none"> There should be no remarkable scar, scratch, contamination and incorrect printing. All the parts must be installed correctly and firmly.
13. Checking fractional control	<ul style="list-style-type: none"> Pushing $\boxed{+/-}$ button, turn the UP/DOWN dial and watch the LCD. 	<ul style="list-style-type: none"> The display must change 0.5 step by 0.5 step. $\left[\begin{array}{c} -2.0 \sim +2.0 \\ \text{No LCD display at zero only.} \end{array} \right]$
14. Viewfinder	<ul style="list-style-type: none"> Press down the shutter release at a close-up distance (about 70 cm), and look into the viewfinder. Make sure that no dust exist in the viewfinder and object can be seen clearly. 	<ul style="list-style-type: none"> The frame must be reduced (It must operate smoothly without dragging. It must return when the shutter release is released from the depression.) No dust should exist and any object must be seen clearly.
15. Checking feet and meter changeover	<ul style="list-style-type: none"> With the \boxed{AF} button pressed down, set the mode dial from OFF to ISO and watch the LCD. 	<ul style="list-style-type: none"> m and Ft must be displayed.

Inspected item	Method of inspection	Judgement standard
16. Film speed (ISO) changeover	<ul style="list-style-type: none"> Set the mode dial to ISO, turn the UP/DOWN dial and watch the LCD. 	<ul style="list-style-type: none"> It must be locked when the mode dial is set to OFF, and it should not operate unless the release button is pressed down. Further, it must click. ISO display must change accordingly. (25 through 1600)
17. Checking AF	<ul style="list-style-type: none"> Face the camera to a chart, and watch the viewfinder display. Inspect for 1.0m, 2.0m and ∞. (Inspections for both active and passive. When inspecting for passive, cover up the light emitter of active.) 	<ul style="list-style-type: none"> The viewfinder display must change accordingly at 1.0m, 2.0m and ∞. <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px; margin: 10px 0;"> Test chart Active → Gray chart Passive → Pattern chart </div>
18. Checking AE	<ul style="list-style-type: none"> Set the mode dial to "P", and set the camera on an AE tester. (ISO 100) 	<ul style="list-style-type: none"> LV8 → Within $\pm 0.3\text{EV}$ LV12 → Within $\pm 0.3\text{EV}$
19. Intrusion of foreign matter	<ul style="list-style-type: none"> Shake the camera and see if any noise is generated or not. 	<ul style="list-style-type: none"> No noise should be generated.
20. Contact efficiency	<ul style="list-style-type: none"> Measure by means of a measuring instrument. 	<ul style="list-style-type: none"> Must be 60% or higher.

VI. SPECIAL TOOL LIST

Name	Application	Remarks
Collimater	For adjustment of focus	(f = 200mm or more) 
Focus adjust stand (JA869)	For adjustment of focus	(Common used 6 X 9) 
EEPROM adjust jig	For adjustment of AE, BC, AF and focus	
Connecter (JA1496)	For adjustment of AE, BC, AF and focus	
Dummy battery (JA60081)		

Name	Application	Remarks
Shaft tightening jig (JA60035)	To tighten shaft (4-47)	
Rear lens assembly tightening jig (JA1499)	To tighten rear lens assembly (4-40)	
Clip ring tightening jig (JA1497)	To tighten clip ring (1-8)	
Parallax adjust jig (JA1495)	For adjustment of viewfinder Parallax	
AE light receiver adapter (JA1494)	For adjustment of AE	

Name	Application	Remarks
Level (Available in a commercial market)	To hold the camera horizontally when measuring passive AF.	
Flash code connecting adapter (Available in a commercial market)	To check flash synchronization	
Flash meter (Available in a commercial market)	To measure synchronization (For EEPROM writing)	 <p>(With 10° viewfinder)</p>
Thermometer (Available in a commercial market)	To measure temperature (For EEPROM writing)	

VII. LUBRICANTS, ADHESIVES AND SOLVENT

The following table shows the lubricants, adhesives and solvent required when repairing the camera.

No volume is specified particularly. Apply them properly.

Segment	Name	Maker	Main application
Lubricant	Losoid 6308/1G	Logimole	Film transporting mechanism
	G30M	Taken care by FPO-TS	Lens driving system
	Helicolube (FHA054)	Taken care by FPO-TS	Camera body (take-up shaft)
	Tungsten bisulfide (WS2)	Taken care by FPO-TS	Camera body Film transporting system Top cover assembly
	Hilube A7104	Harves	Controller assembly (UP/DOWN contact)
	Dry Surf MF-2400N	Harves	Top cover assembly (Pop-up lever)
Adhesive	Three Bond 1521B	Three Bond	
	Three Bond 1401B	Three Bond	Front cover assembly (Front lens)
	Technotite		Camera body
	Pliobond	Taken care by FPO-TS	Number plate, Leather on the camera back
	Cemedine Hi-Super 30	Cemedine	AF system (PSD)
Solvent	(Cleaning alcohol)	Not designated particularly	Cleaning contacts in the electrical system

MEMO

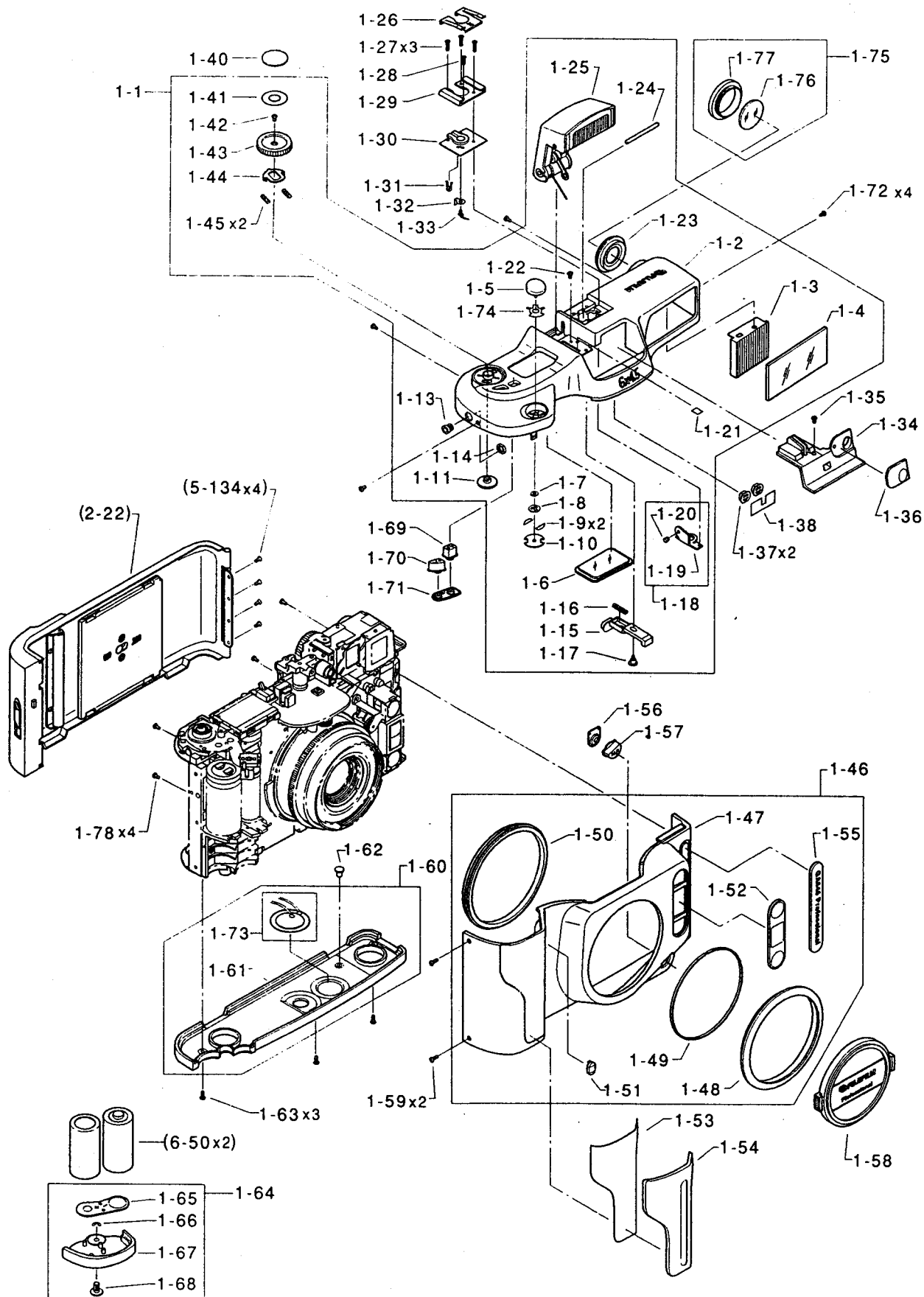


PARTS LIST

FUJI GA645 Professional

Q922

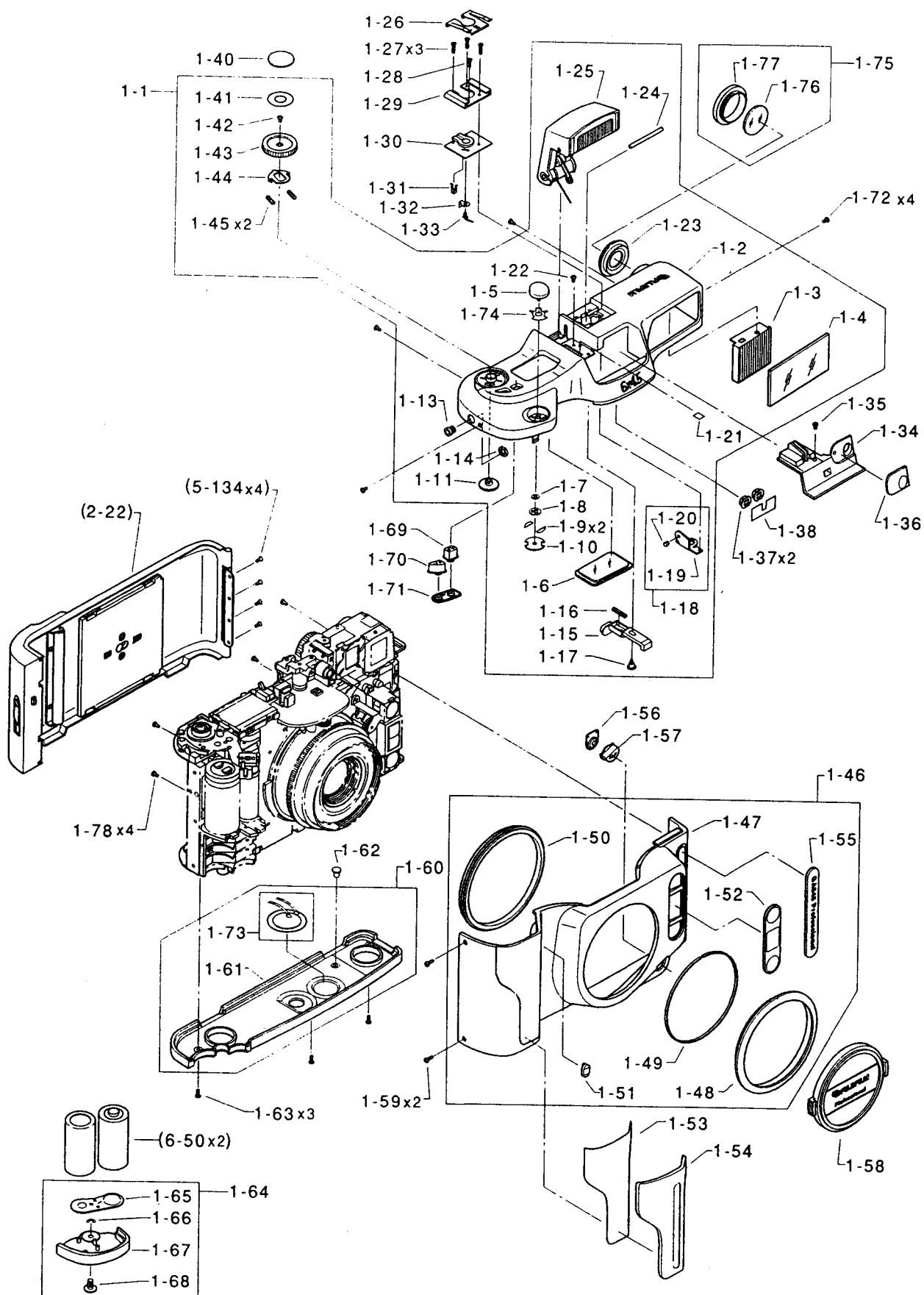
Fig. 1



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
1- 1	303A 7824310	Top cover assembly	1	○		
1- 2	11B 7824470	Top cover	1	×		
1- 3	6B 7824490	Diffuser	1	○		
1- 4	6B 7824480	Window glass	1	○		
1- 5	16B 7824640	Shutter release	1	○		
1- 6	6B 7824500	LCD window	1	×		
1- 7	55B 7825050	Washer	1	○		
1- 8	55B 7825040	Clip ring	1	○		
1- 9	187B 7824430	Adhesive tape	2	○		
1- 10	85B 7824420	Guide	1	○		
1- 11	32B 7824440	Shaft	1	○		
1- 13	53B 7824550	Screw	1	○		
1- 14	54B 7824560	Nut	1	○		
1- 15	16B 7825190	Pop-up lever	1	○		
1- 16	50B 7825200	Spring	1	○		
1- 17	53B 7825210	Screw	1	○		
1- 18	31A 7824330	Hinge assembly	1	○		
1- 19	31B 7828180	Hinge	1	×		
1- 20	32B 7828170	Hinge shaft	1	×		
1- 21	187B 7058510	Adhesive tape	1	○		
1- 22	110M 170252M	Screw	1	○		
1- 23	23B 7824630	Eyepiece	1	×		
1- 24	32B 7828120	Shaft	1	○		
1- 25	330A 7821940	Flash head assembly	1	○		
1- 26	11B 3288384	Shoe cover	1	○	GW690-3	
1- 27	114M 170653N	Screw	3	○		
1- 28	53B 7824620	Screw	1	○		
1- 29	41B 2252410	Accessory shoe	1	○	GW690-3	
1- 30	41A 7824450	Shoe seat assembly	1	○		
1- 31	108B 7824750	Lug (-)	1	○		
1- 32	109B 7824740	Lug (+)	1	○		
1- 33	53B 93481	Set screw	1	○	GW690-3	

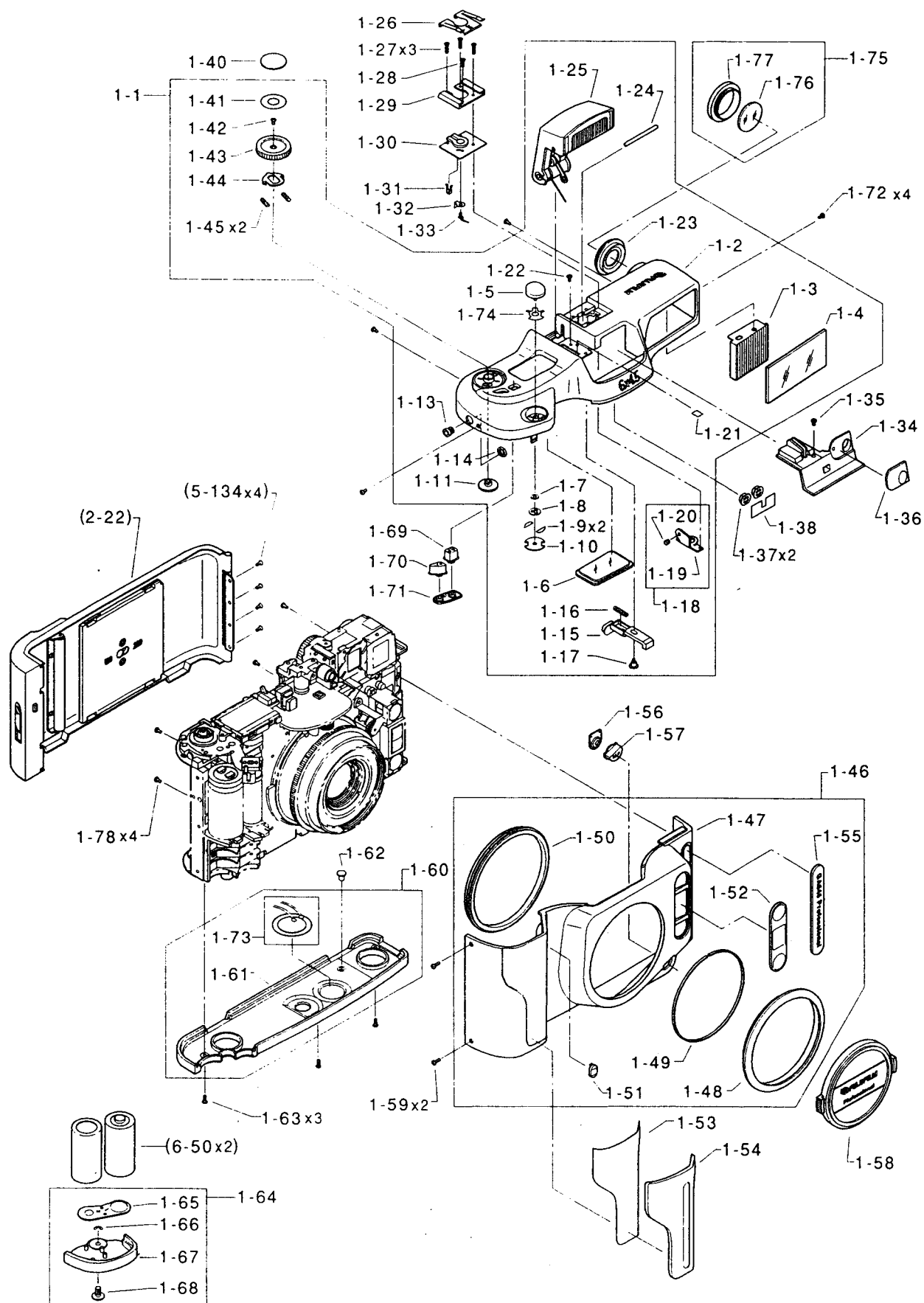
Fig. 1



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
1- 34	11B 7824660	Flash cover	1	○		
1- 35	110M 170402M	Screw	1	○		
1- 36	6B 7824690	AE window	1	○		
1- 37	16B 7284530	Self-timer button	2	○		
1- 38	85B 7822560	Sliding plate	1	○		
1- 40	58B 7822590	Name plate	1	○		
1- 41	187B 7824780	Adhesive tape	1	○		
1- 42	113M 170452M	Screw	1	○		
1- 43	16B 7824570	Button	1	○		
1- 44	82B 7825150	Click plate	1	○		
1- 45	50B 7825180	Spring	2	○		
1- 46	303A 7821820	Front cover assembly	1	○		
1- 47	11B 7822060	Front cover	1	○		
1- 48	27B 7822160	Cover ring	1	○		
1- 49	27B 7822170	Light shielding cloth	1	○		
1- 50	23B 7822150	Light shielding ring	1	○		
1- 51	6B 7822100	Self-timer window	1	○		
1- 52	6B 7822090	AF window	1	○		
1- 53	187B 7822570	Adhesive tape	1	○		
1- 54	11B 7822110	Grip	1	○		
1- 55	58A 7821910	Name plate assembly	1	○		
1- 56	109B 7822070	Rubber switch	1	○		
1- 57	16B 7822080	Focus lock button	1	○		
1- 58	57A 7821900	Lens cap assembly	1	○		
1- 59	113M 170403U	Screw	2	○		
1- 60	11A 7821930	Bottom cover assembly	1	○		
1- 61	11B 7822310	Bottom cover	1	○		
1- 62	16B 7822350	FW button	1	○		
1- 63	110M 170403U	Screw	3	○		
1- 64	10A 7821840	Battery compartment cover assembly	1	○		
1- 65	109B 7822330	Battery contact	1	○		
1- 66	191M 020T	E-clip	1	○		

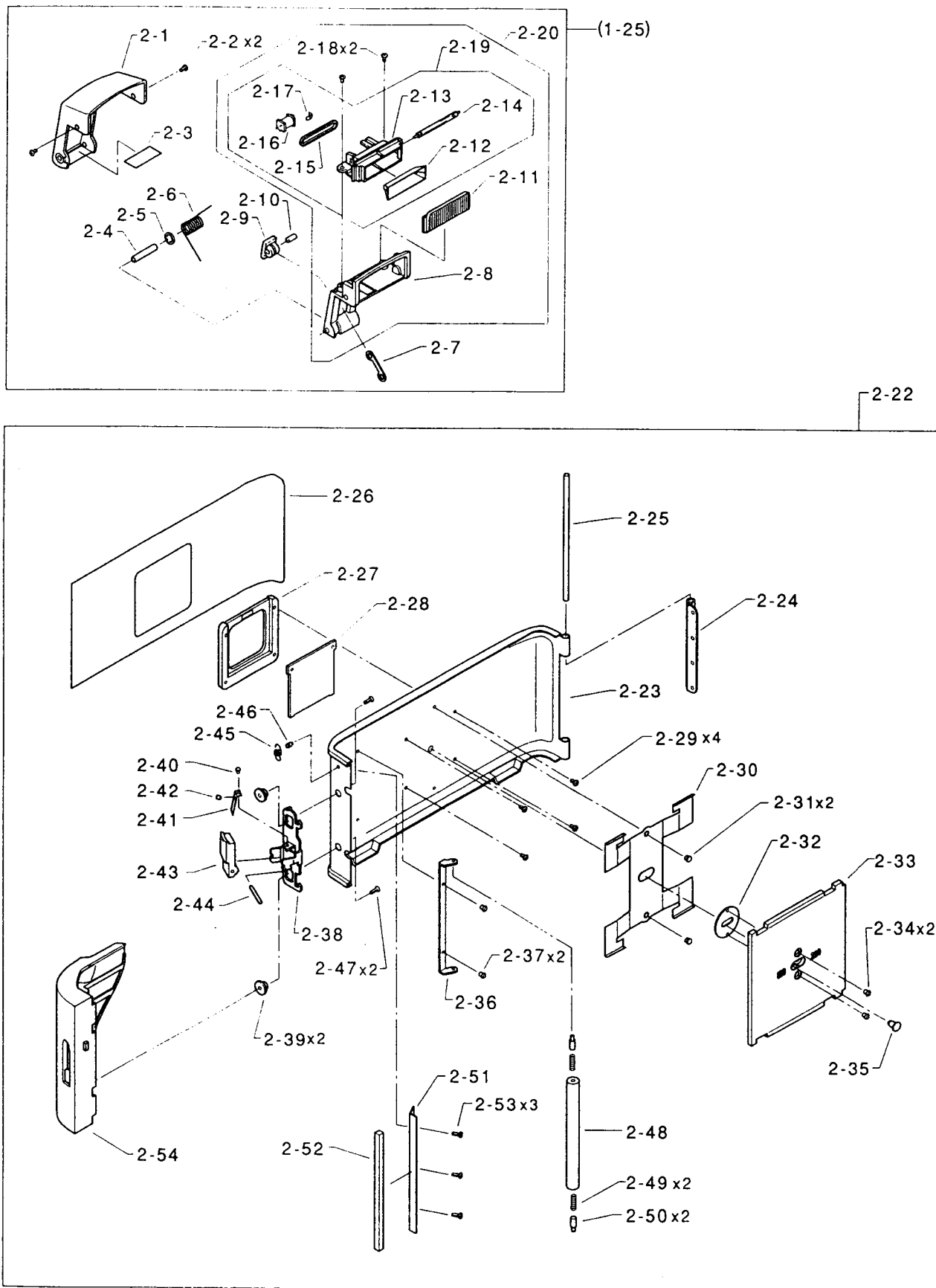
Fig. 1



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
1- 67	11B 7822320	Battery compartment cover	1	○		
1- 68	53B 7822340	Set screw	1	○		
1- 69	16B 7824510	FR button	1	○		
1- 70	16B 7224520	MF button	1	○		
1- 71	109B 7824540	Rubber switch	1	○		
1- 72	110M 170403U	Screw	4	○		
1- 73	131B 7830730	Buzzer	1	○		
1- 74	58B 7824410	Blind cover	1	○		
1- 75	23A 3280631	Eyepiece assembly	1	○	GS645S	
1- 76	23A 6774311	Eyepiece window glass	1	×		
1- 77	23B 95585	Eyepiece frame	1	×		
1- 78	113M 170501U	Screw	4	○		

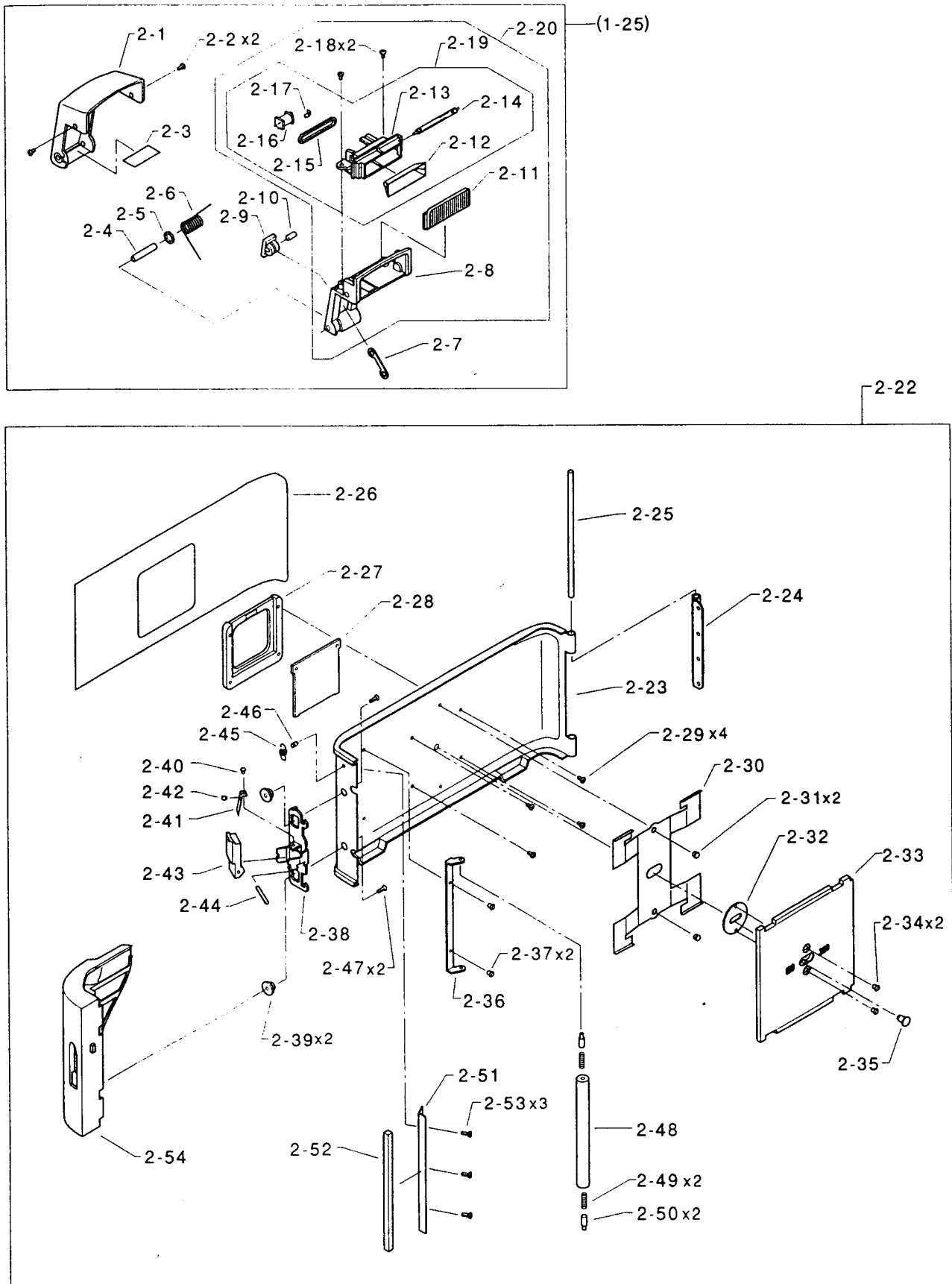
Fig. 2



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
2- 1	11B 7828101	Flash outer cover	1	○		
2- 2	113M 170352M	Screw	2	○		
2- 3	58B 7828220	Blind	1	○		
2- 4	32B 7828130	Sleeve	1	○		
2- 5	55B 7824460	Washer	1	○		
2- 6	50B 7828110	Spring	1	○		
2- 7	48B 7828160	Link	1	○		
2- 8	11B 7828020	Flash inner cover	1	○		
2- 9	29B 7828140	Slider	1	○		
2- 10	32B 7828150	Slide shaft	1	○		
2- 11	6B 7828010	Protector lens	1	○		
2- 12	3B 7827990	Reflector	1	○		
2- 13	12B 7828000	Reflector case	1	○		
2- 14	127B 7827980	Xenon tube	1	○		
2- 15	25B 7828030	Silicon belt	1	○		
2- 16	104B 7828240	Trigger coil	1	○		
2- 17	85B 7828040	Trigger contact	1	○		
2- 18	113M 170402M	Screw	2	○		
2- 20	330A 7827810	Flash assembly	1	○		
2- 22	302A 7825310	Camera back assembly	1	○		
2- 23	11B 7825450	Camera back	1	×		
2- 24	19B 32024	Hinge	1	×		
2- 25	32B 32032	Hinge shaft	1	×	GS645S	
2- 26	59B 7825560	Leather	1	○		
2- 27	12B 7825500	Pocket	1	×		
2- 28	58B 3287212	Cover plate	1	×	GW690-3	
2- 29	113M 170221M	Screw	4	×		
2- 30	50B 7825460	Compression spring	1	×		
2- 31	170M 20010F	Rivet	2	×		
2- 32	87B 7825470	Stopper	1	×		
2- 33	44B 7825480	Pressure plate	1	×		
2- 34	17B 3287250	Rivet	2	×	GS645S	

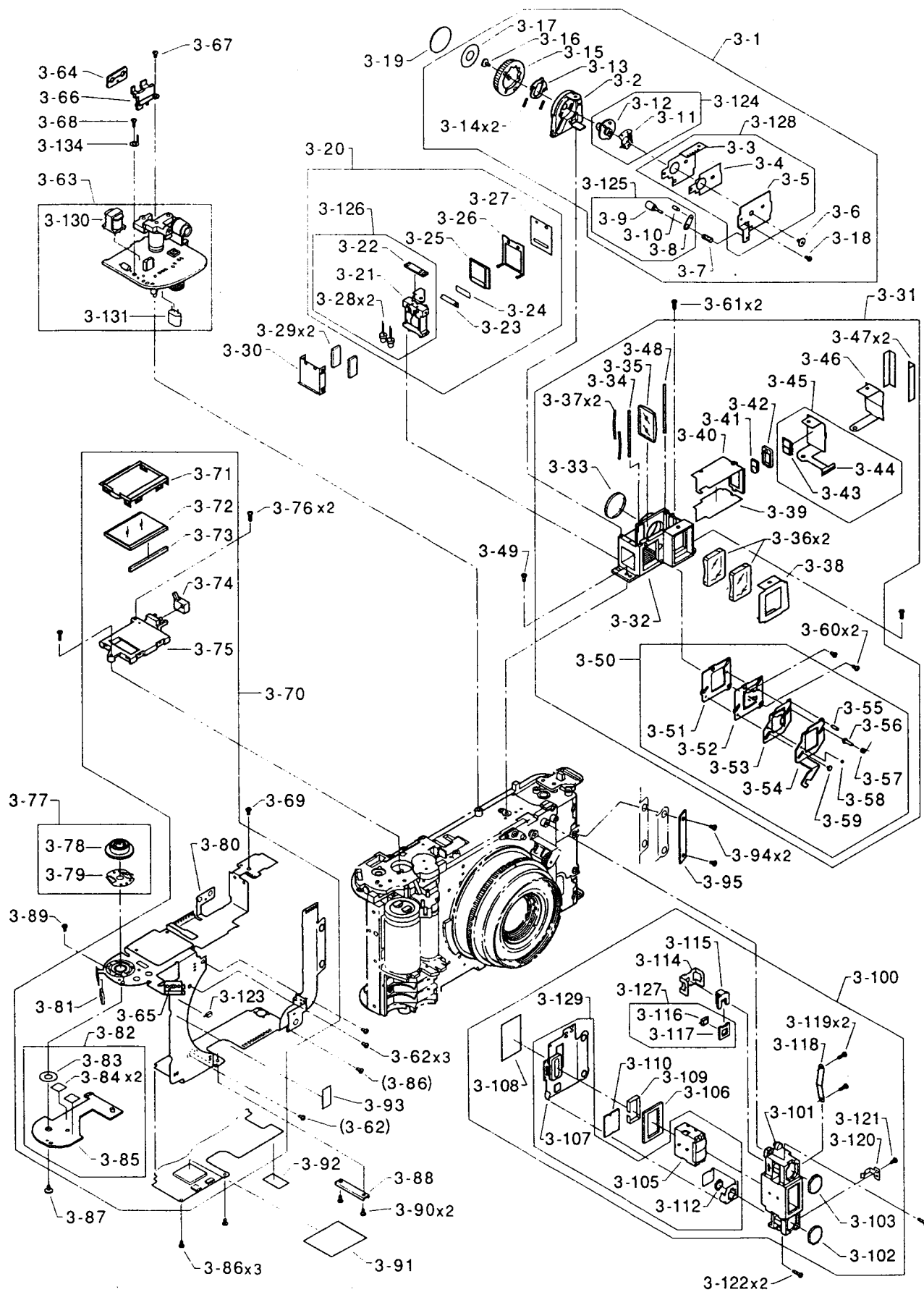
Fig. 2



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
2- 35	32B 3287163	Guide shaft	1	×	GS645S	
2- 36	85B 3287221	Roller supporter	1	×	GS645S	
2- 37	17B 3287250	Rivet	2	×	GS645S	
2- 38	45B 7825510	Hook	1	×		
2- 39	17B 7825610	Guide pin	2	×		
2- 40	170M 15016B	Rivet	1	×		
2- 41	50B 7825590	Leaf spring	1	×		
2- 42	17B 7825600	Stopper pin	1	×		
2- 43	16B 7825520	Camera back lock knob	1	○		
2- 44	17B 7825580	Shaft	1	○		
2- 45	50B 3287393	Spring	1	○	GS645S	
2- 46	17B 3287381	Pin	1	×	GW690-3	
2- 47	114M 200503M	Screw	2	○		
2- 48	37B 492633	Roller	1	○	GW690-3	
2- 49	50B 30172	Spring	2	○	GW690-3	
2- 50	17B 30160	Pin	2	○	GW690-3	
2- 51	27B 7825490	Light shielding plate	1	○		
2- 52	27B 32000	Moquette	1	○	GS645S	
2- 53	113M 200501M	Screw	3	○		
2- 54	11B 7825550	Grip	1	○		

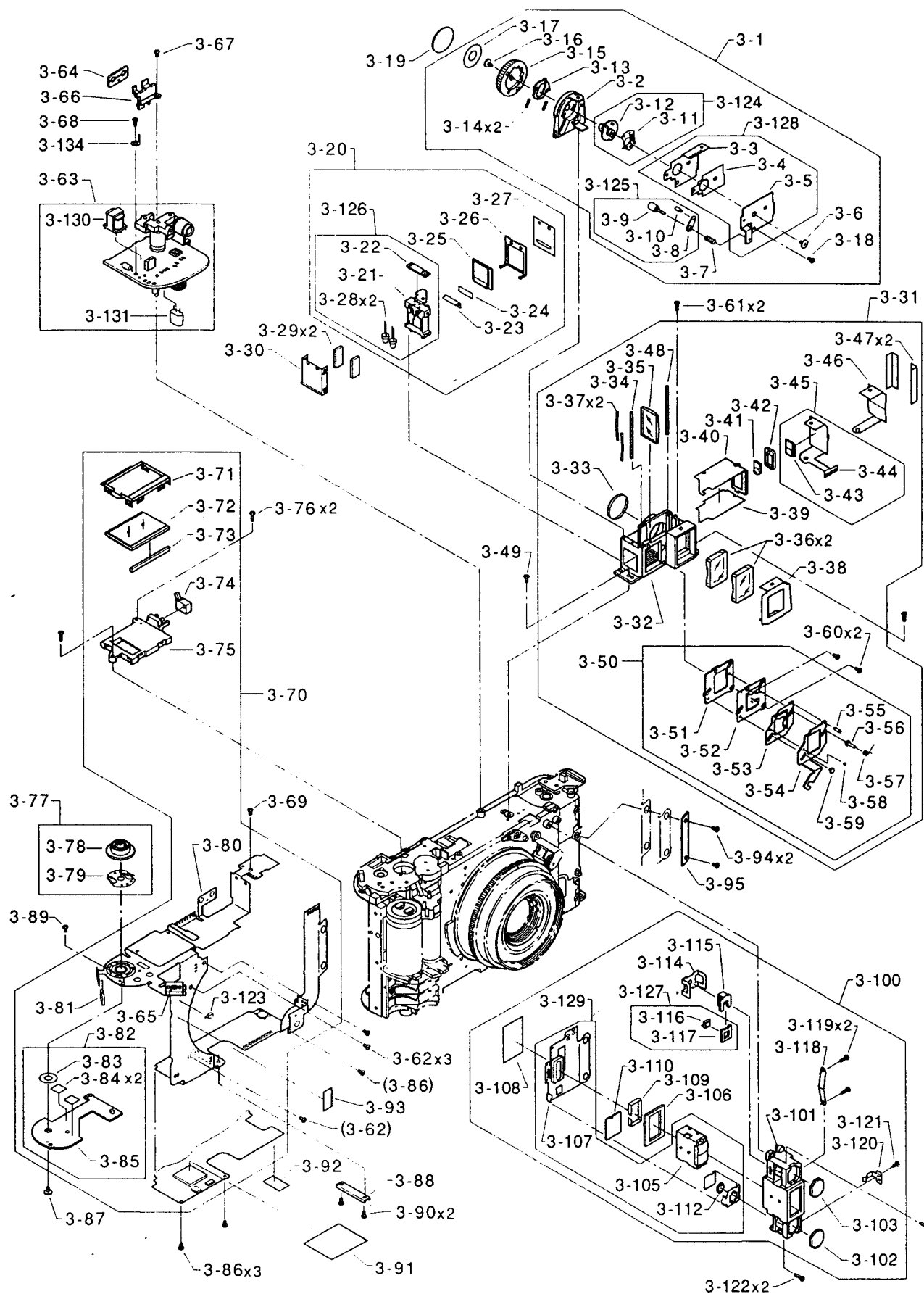
Fig. 3



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
3- 1	46A 7824810	Mode switch assembly	1	○	ZOOM 200D	
3- 2	82B 7825140	Mode switch frame	1	○		
3- 3	110B 7830820	Mode switch FPCB	1	○		
3- 4	187B 7825260	Adhesive tape	1	○		
3- 5	46B 7825060	Base plate	1	○		
3- 6	53B 7024832	Screw	1	○		
3- 7	50B 7825080	Spring	1	○		
3- 8	86B 7825240	Lock lever	1	×		
3- 9	16B 7825230	Release button	1	×		
3- 10	32B 7825220	Lock pin	1	×		
3- 11	109B 7285130	Switch contact	1	×		
3- 12	29B 7825120	Contact seat	1	×		
3- 13	82B 7825150	Click plate	1	○		
3- 14	50B 7825180	Spring	2	○		
3- 15	16B 7825160	Select dial	1	○	ZOOM 200D	
3- 16	53B 7824832	Screw	1	○		
3- 17	187B 7825030	Adhesive tape	1	○		
3- 18	113M 170301M	Screw	1	○		
3- 19	58B 7822580	Name plate	1	○		
3- 20	103A 7830340	FLCD assembly	1	○		
3- 21	41B 7830370	FLCD frame	1	×		
3- 22	110B 7830430	PCB	1	×		
3- 23	2B 7830420	Prism	1	○		
3- 24	6B 7830410	Diffuser	1	○		
3- 25	103B 7830320	Prism	1	○		
3- 26	79B 7830400	FLCD holder	1	○		
3- 27	27B 7828570	Light shielding plate	1	○		
3- 28	106K 998970	LED	2	×		
3- 29	113B 7830520	Connector	2	○		
3- 30	79B 7830390	FPCB holder	1	○		
3- 31	326A 7828310	Viewfinder assembly	1	○		
3- 32	10B 7828450	Viewfinder chassis	1	×		

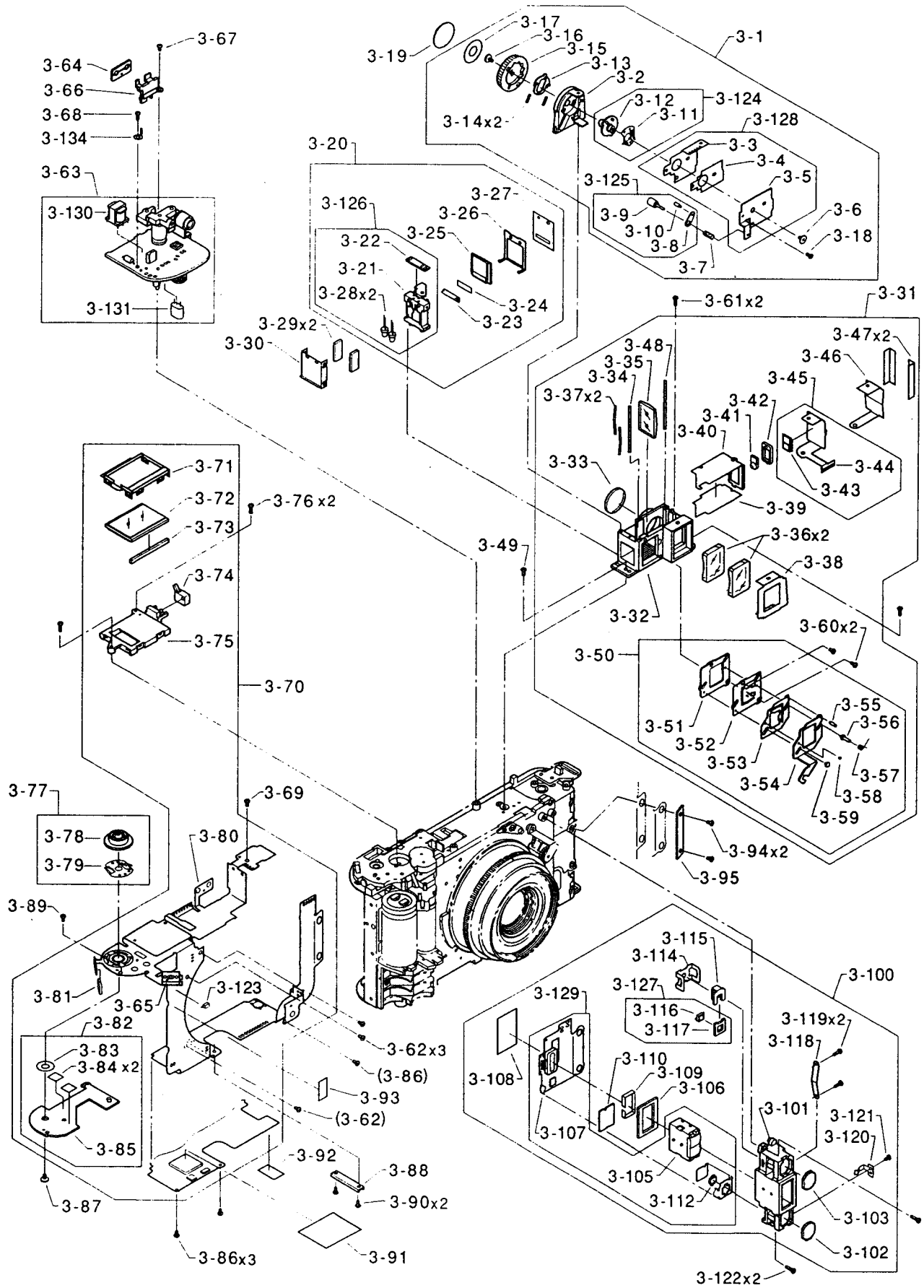
Fig. 3



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
3- 33	1B 7763950	Lens G3	1	×		
3- 34	3B 7764360	Mirror G6	1	×		
3- 35	1B 7763960	Lens G5	1	×		
3- 36	1B 7763940	Lens G1-G2	2	○		
3- 37	85B 7828680	Reinforcing plate	2	×		
3- 38	79B 7828560	Lens holder	1	○		
3- 39	187B 7828600	Adhesive tape	1	○		
3- 40	11B 7828530	Top cover	1	○		
3- 41	1B 8124320	Lens	1	×		
3- 42	41B 7822510	Frame	1	×		
3- 43	106B 7830740	IC	1	×		
3- 44	110B 7830900	FPCB	1	×		
3- 45	110A 7829930	FPCB assembly	1	○		
3- 46	11B 7828550	FPCB holder	1	○		
3- 47	187B 7828230	Photographic tape	2	○		
3- 48	3B 7764350	Mirror G5	1	×		
3- 49	110M 170252M	Screw	2	○		
3- 50	5A 7828400	Reticle assembly	1	○		
3- 51	46B 7828460	Reticle frame 1	1	×		
3- 52	5B 7828470	Reticle 1	1	×		
3- 53	5B 7828490	Reticle 2	1	×		
3- 54	29B 7828480	Reticle frame 2	1	×		
3- 55	17B 7828590	Pin	1	×		
3- 56	17B 7828580	Guide pin	1	×		
3- 57	50B 7828520	Spring	1	○		
3- 58	17B 7822510	Pin 2	1	×		
3- 59	17B 7828500	Pin 1	1	×		
3- 60	113M 170302M	Screw	2	○		
3- 61	110M 200402M	Screw	2	○		
3- 62	110M 170201N	Screw	3	○		
3- 63	110A 7827820	Flash PCB assembly	1	○		
3- 64	109B 7824700	Rubber switch	1	○		

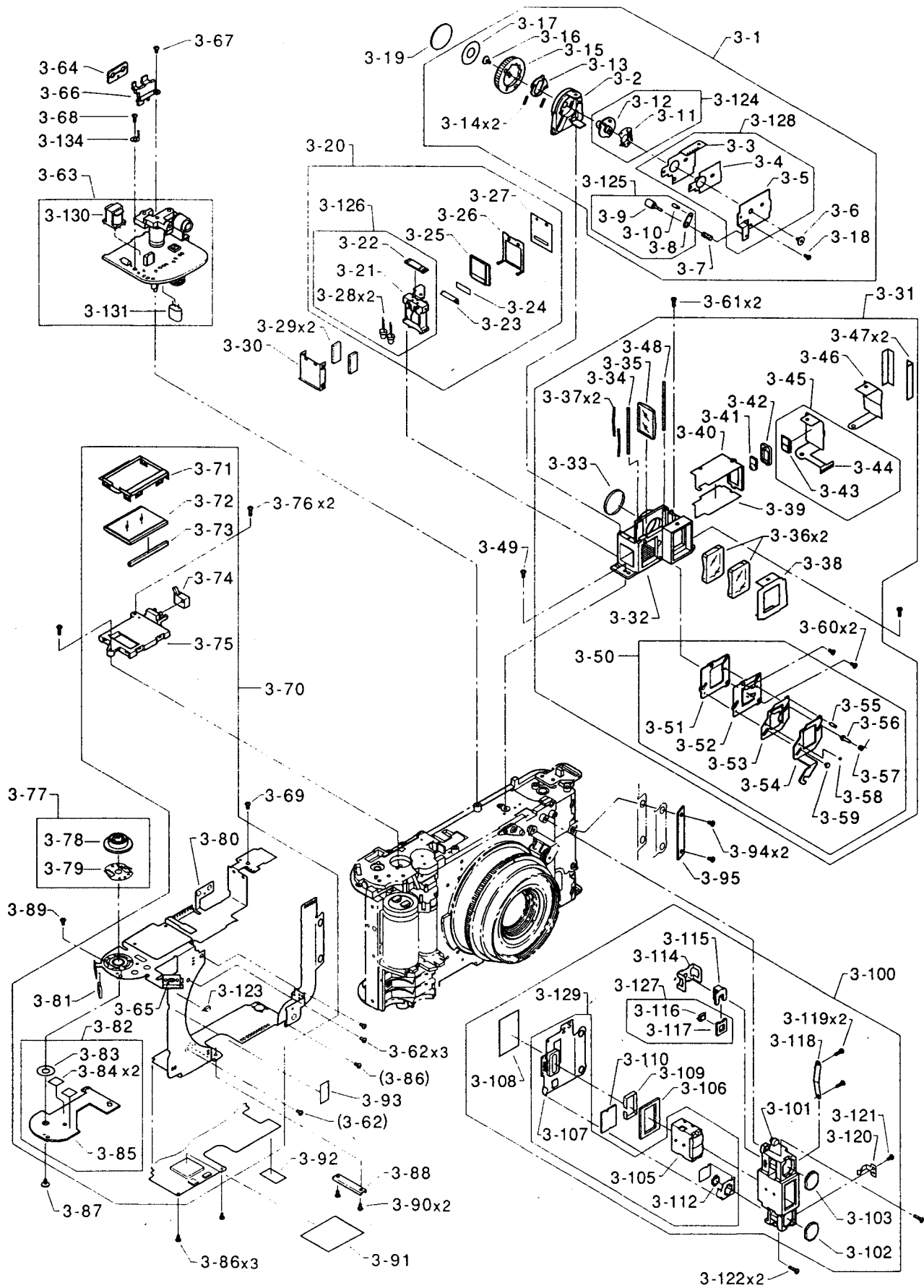
Fig. 3



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
3- 65	121K 999310	Tact switch	1	○		
3- 66	81B 7824710	Switch holder	1	○		
3- 67	110M 170452M	Screw	1	○		
3- 68	53B 7822600	Screw	1	○		
3- 69	110M 170402M	Screw	1	○		
3- 70	110A 7821810	Control FPCB assembly	1	○		
3- 71	79B 7830380	LCD holder	1	○		
3- 72	103B 7830310	LCD panel	1	○		
3- 73	113B 7830510	Connector	1	○		
3- 74	121K 999280	Switch	1	○		
3- 75	41B 7830360	LCD frame	1	○		
3- 76	113M 170602M	Screw	2	○		
3- 77	29A 7823820	Contact assembly	1	○		
3- 78	29B 7824100	Contact frame	1	×		
3- 79	109B 7824110	Contact	1	×		
3- 80	110B 7830500	Control FPCB	1	×		
3- 81	121K 999260	Tact switch	1	○		
3- 82	46A 7823880	Reinforcing plate assembly	1	×		
3- 83	187B 7824170	Adhesive tape	1	×		
3- 84	187B 7057360	Adhesive tape	2	×	ELITE OP	
3- 85	46B 7824120	FPCB reinforcing plate	1	×		
3- 86	110M 140252N	Screw	3	○		
3- 87	53B 7024830	Screw	1	○		
3- 88	51B 7822420	Metal fixture	1	○		
3- 89	113M 170302N	Screw	1	○		
3- 90	110M 170352M	Screw	2	○		
3- 91	58B 7822490	Insulator	1	○		
3- 92	187B 7058510	Adhesive tape	1	○	ELITE OP	
3- 93	196B 7822400	Tape	1	○		
3- 94	110M 170352M	Screw	2	○		
3- 95	41B 7822450	Metal fixture	1	○		
3-100	313A 7829310	AF system assembly	1	○		

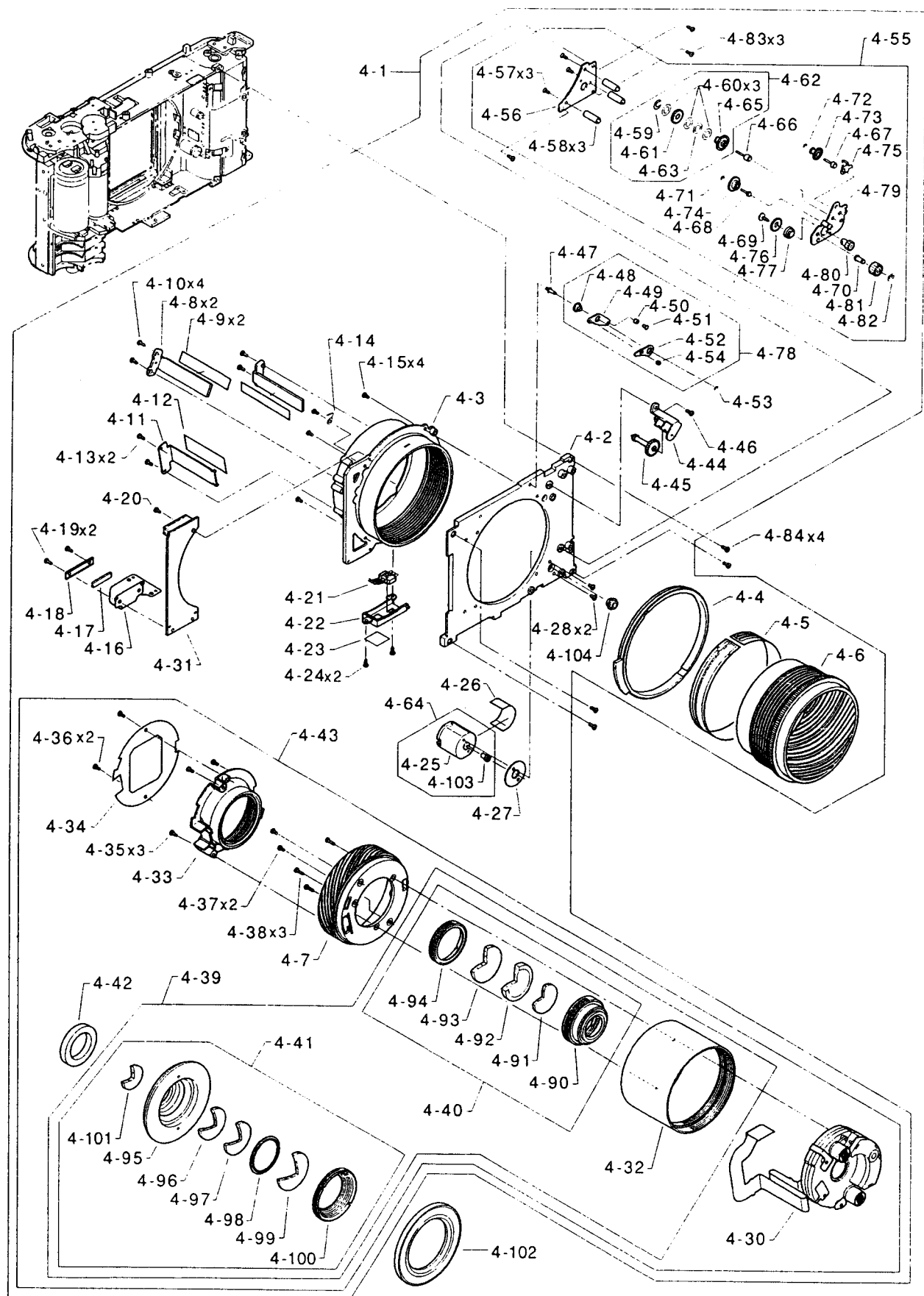
Fig. 3



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
3-101	10B 7829400	AF system chassis	1	×		
3-102	1B 7336140	Receiving lens	1	×	SPREME	
3-103	1B 7336130	Emitting lens	1	×	SPREME	
3-105	106K 999800	AF module	1	×		
3-106	27B 7829490	Moquette	1	○		
3-107	110B 7829470	AF FPCB	1	×		
3-108	27B 7829510	Light shielding tape	1	○		
3-109	27B 7829480	Light shielding tape	1	○		
3-110	27B 7829450	Light shielding plate	1	○		
3-112	106B 7741370	PSD	1	×		
3-114	41B 7829420	Holder	1	×		
3-115	29B 7829410	Frame	1	×		
3-116	106K 999830	LED	1	×		
3-117	110B 7829460	IREC-PCB	1	×		
3-118	41B 7829440	Holder	1	○		
3-119	113M 170501M	Screw	2	○		
3-120	41B 7829430	PSD holder	1	○		
3-121	113M 170251M	Screw	1	○		
3-122	110M 170502M	Screw	2	○		
3-123	106K 998960	LED	1	○		
3-124	29A 7824840	Contact assembly	1	○		
3-125	86A 7824830	Lock lever assembly	1	○		
3-126	110A 7829940	PCB assembly	1	○		
3-127	110A 7829980	IREC-PCB assembly	1	×		
3-128	46A 7824820	Mode switch FPCB assembly	1	○		
3-129	110A 7829970	AF PCB assembly	1	○		
3-130	104B 7831670	Transformer	1	○		
3-131	116K 1008620	Capacitor	1	○		
3-134	108B 7822650	Lug	1	○		

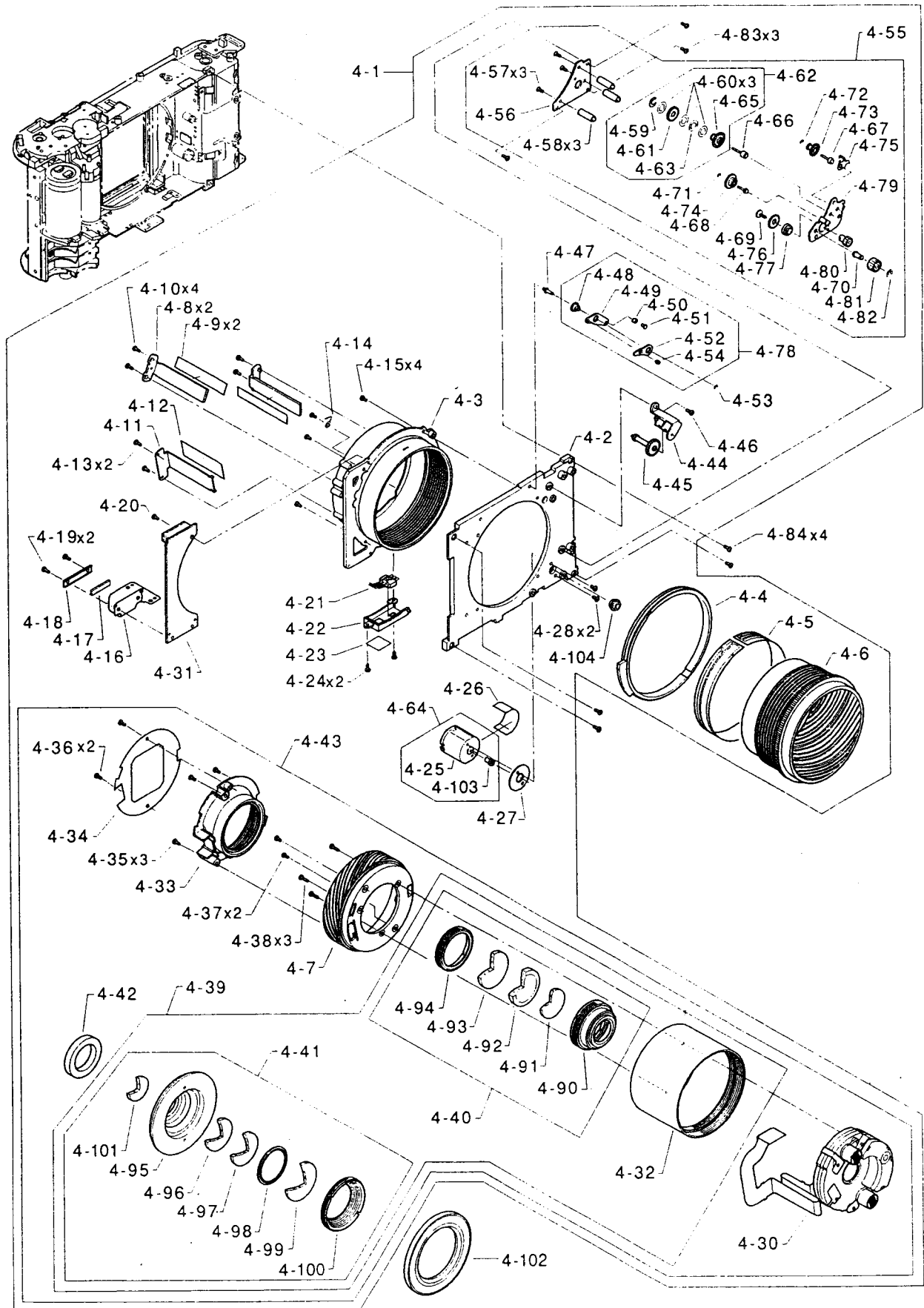
Fig. 4



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
4- 1	324A 7826310	Lens assembly	1	○	GW690-3	
4- 2	10B 7826690	See-through	1	○		
4- 3	21B 7826700	Fixed barrel	1	○		
4- 4	35B 7826890	Interlock cam	1	○		
4- 5	110B 7826880	Encoder FPCB	1	○		
4- 6	21B 7826710	Helicoid barrel	1	○		
4- 7	21B 7826720	Moving lens barrel	1	○		
4- 8	19B 7826750	Helicoid key	2	○		
4- 9	19B 7827030	Light shielding sheet	2	○		
4- 10	113M 170402M	Screw	4	○		
4- 11	30B 7826760	Guide	1	○		
4- 12	27B 7827040	Light shielding sheet	1	○		
4- 13	113M 170402M	Screw	2	○		
4- 14	111B 385490	Cord clamp	1	○		
4- 15	110M 200302M	Screw	4	○		
4- 16	110B 7830650	Relay FPCB	1	○		
4- 17	51B 7826900	Rubber piece	1	○		
4- 18	41B 7826910	Metal fixture	1	○		
4- 19	113M 170452M	Screw	2	○		
4- 20	113M 170302M	Screw	1	○		
4- 21	109B 7826860	Encoder contact	1	○		
4- 22	41B 7826870	Encoder holder	1	○		
4- 23	27B 7827050	Light shielding tape	1	○		
4- 24	113M 170402M	Screw	2	○		
4- 25	101B 7827400	Lens driving motor	1	×		
4- 26	196B 7822390	Tape	1	○		
4- 27	60B 7827070	Rubber seat	1	○		
4- 28	110M 160301N	Screw	2	○		
4- 30	126A 7826410	Shutter assembly	1	○		
4- 31	126A 7826420	Shutter circuit assembly	1	○		
4- 32	21B 7826820	Shutter frame	1	×		
4- 33	27B 7826730	Hood	1	○		

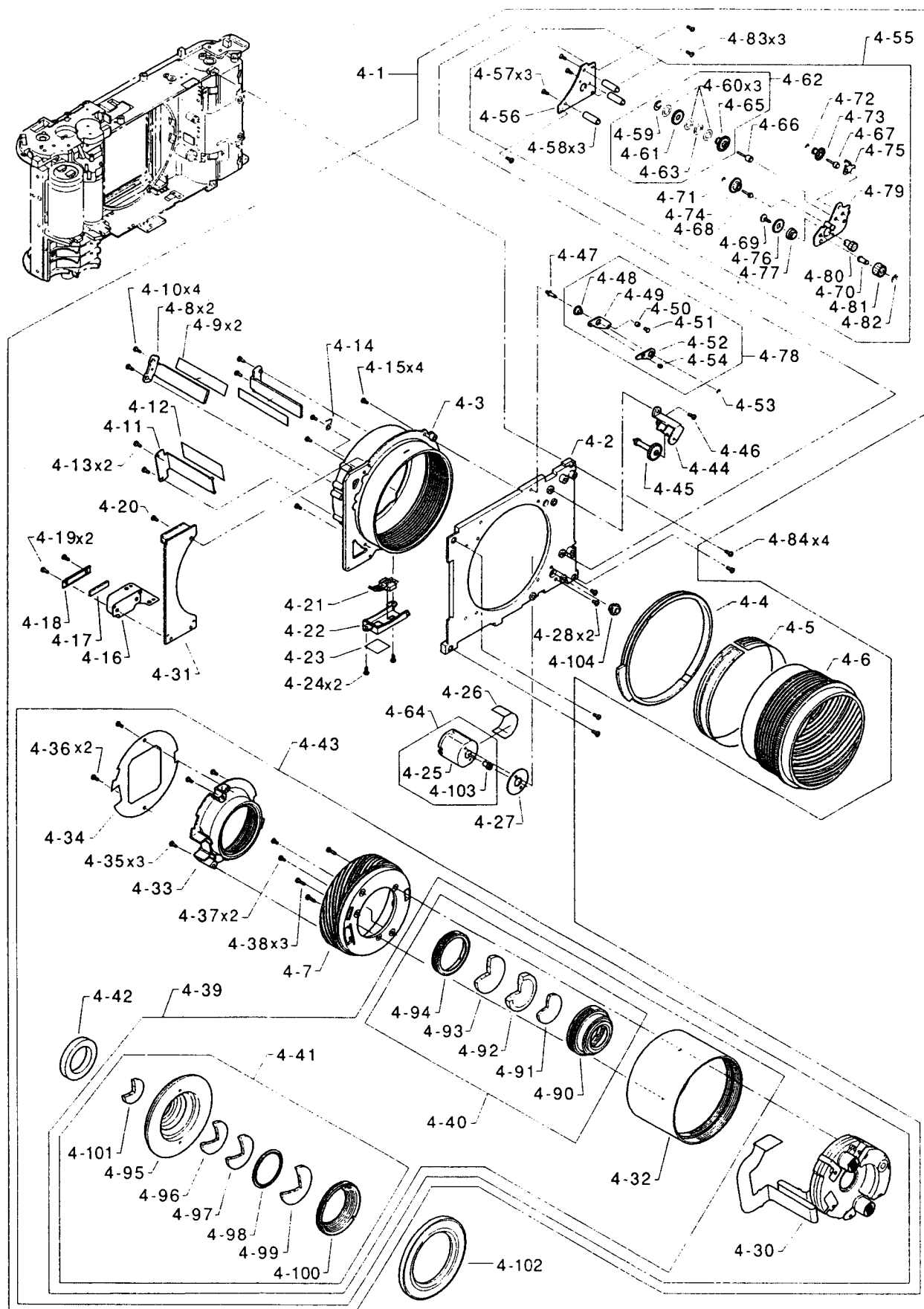
Fig. 4



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
4- 34	27B 7826740	Light shielding plate	1	○		
4- 35	113M 170402M	Screw	3	○		
4- 36	113M 170402M	Screw	2	○		
4- 37	110M 170302M	Screw	2	○		
4- 38	113M 170502M	Screw	3	○		
4- 39	21A 7826350	Lens assembly	1	○		
4- 40	21A 7826340	Rear lens assembly	1	×		
4- 41	21A 7826330	Front lens assembly	1	×		
4- 42	27B 7826840	Moquette	1	○		
4- 43	21A 7826320	Moving lens barrel assembly	1	○		
4- 44	41B 7826930	Gear holder	1	○		
4- 45	34B 7826920	Interlock gear	1	○		
4- 46	110M 170401N	Screw	1	○		
4- 47	32B 7826970	Shaft	1	○		
4- 48	31B 7827000	Bushing	1	×		
4- 49	47B 7826940	Cam lever 1	1	×		
4- 50	30B 7827060	Roller	1	×		
4- 51	17B 7827010	Pin	1	×		
4- 52	47B 7826950	Cam lever 2	1	×		
4- 53	191M 012T	E-clip	1	○		
4- 54	88B 7826980	Eccentric pin	1	×		
4- 55	46A 7827310	Gear train assembly	1	○		
4- 56	46B 7827490	Bottom base plate	1	○		
4- 57	111M 170301N	Screw	3	○		
4- 58	13B 7827560	Column	3	×		
4- 59	25B 7827600	C-clip	1	×		
4- 60	55B 7827580	Washer	3	×		
4- 61	34B 7827420	Gear L1	1	×		
4- 62	34A 7827340	Friction gear assembly	1	○		
4- 63	55B 7827590	Friction ring	1	×		
4- 64	101A 7826440	Lens driving motor assembly	1	○		
4- 65	34B 7827430	Gear L2-E1	1	×		

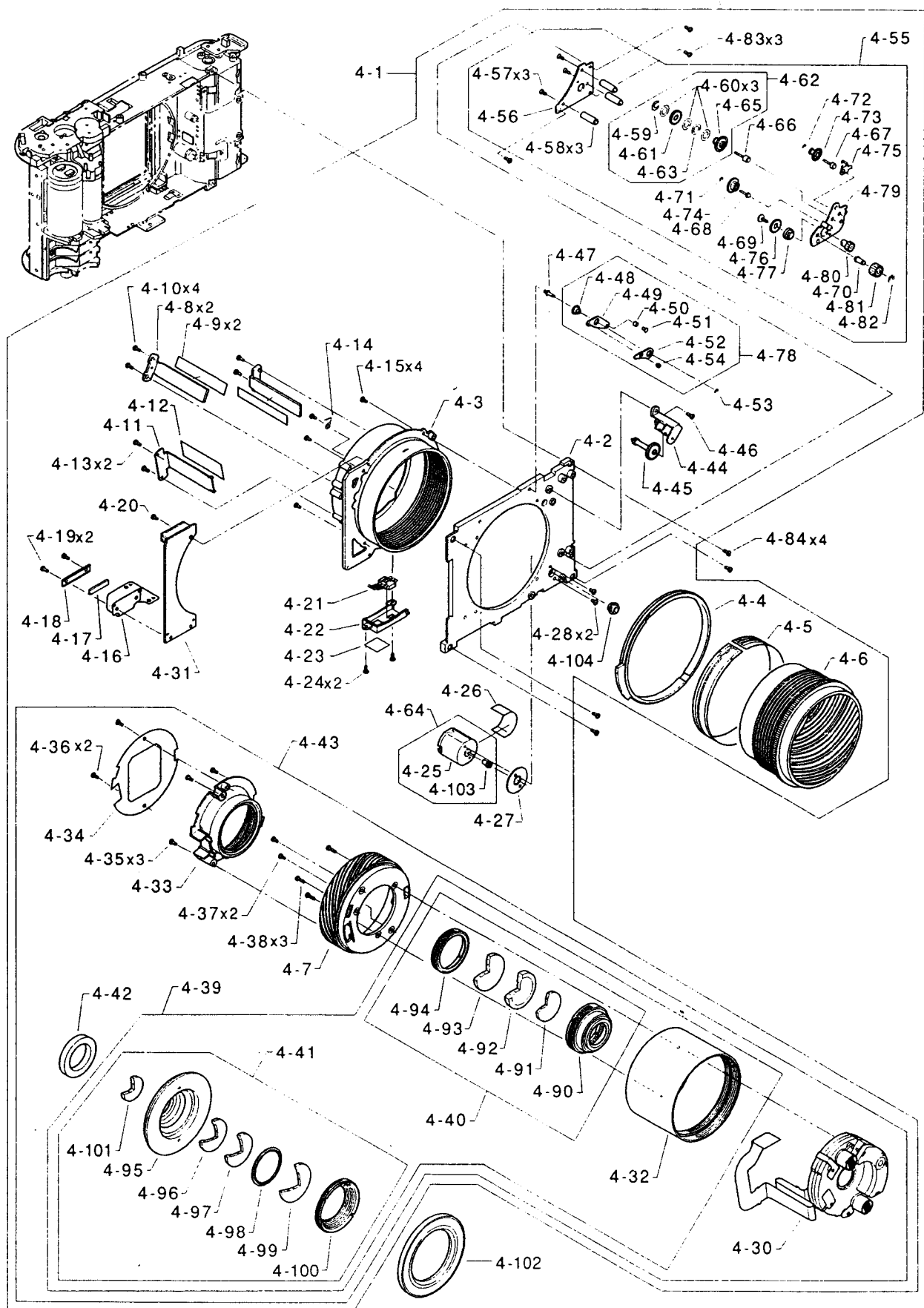
Fig. 4



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
4- 66	32B 7827520	Gear shaft	1	×	ZOOM 200D	
4- 67	32B 7827530	Shaft	1	×		
4- 68	32B 7827540	Shaft	1	×		
4- 69	53B 5115882	Screw	1	○		
4- 70	32B 7827550	Shaft	1	×		
4- 71	191M 012T	E-clip	1	○		
4- 72	191M 008T	E-clip	1	○		
4- 73	34B 7827450	Encoder gear	1	○		
4- 74	34B 7827440	Gear L3-L4	1	○		
4- 75	41B 7827570	Holder	1	×		
4- 76	34B 7827460	Gear L5	1	○		
4- 77	31B 7827510	Shaft holder	1	×		
4- 78	47A 7826430	Cam lever assembly	1	○		
4- 79	46B 7827500	Top base plate	1	×		
4- 80	34B 7827470	Gear L6	1	○		
4- 81	34B 7827480	Gear L7	1	○		
4- 82	191M 020T	E-clip	1	○		
4- 83	110M 170301N	Screw	3	○		
4- 84	110M 200401M	Screw	4	○		
4- 90	21B 7826800	Rear lens frame	1	×		
4- 91	1B 7644680	Lens G5	1	×		
4- 92	1B 7644690	Lens G6	1	×		
4- 93	1B 7644700	Lens G7	1	×		
4- 94	23B 7826810	Holding ring	1	×		
4- 95	21B 7826770	Front lens frame	1	×		
4- 96	1B 7644660	Lens G3	1	×		
4- 97	1B 7644650	Lens G2	1	×		
4- 98	24B 7826780	Spacer	1	×		
4- 99	1B 7644640	Lens G1	1	×		
4-100	23B 7826790	Holding ring	1	×		
4-101	1B 7644670	Lens G4	1	×		
4-102	58B 7826830	Cover ring	1	○		

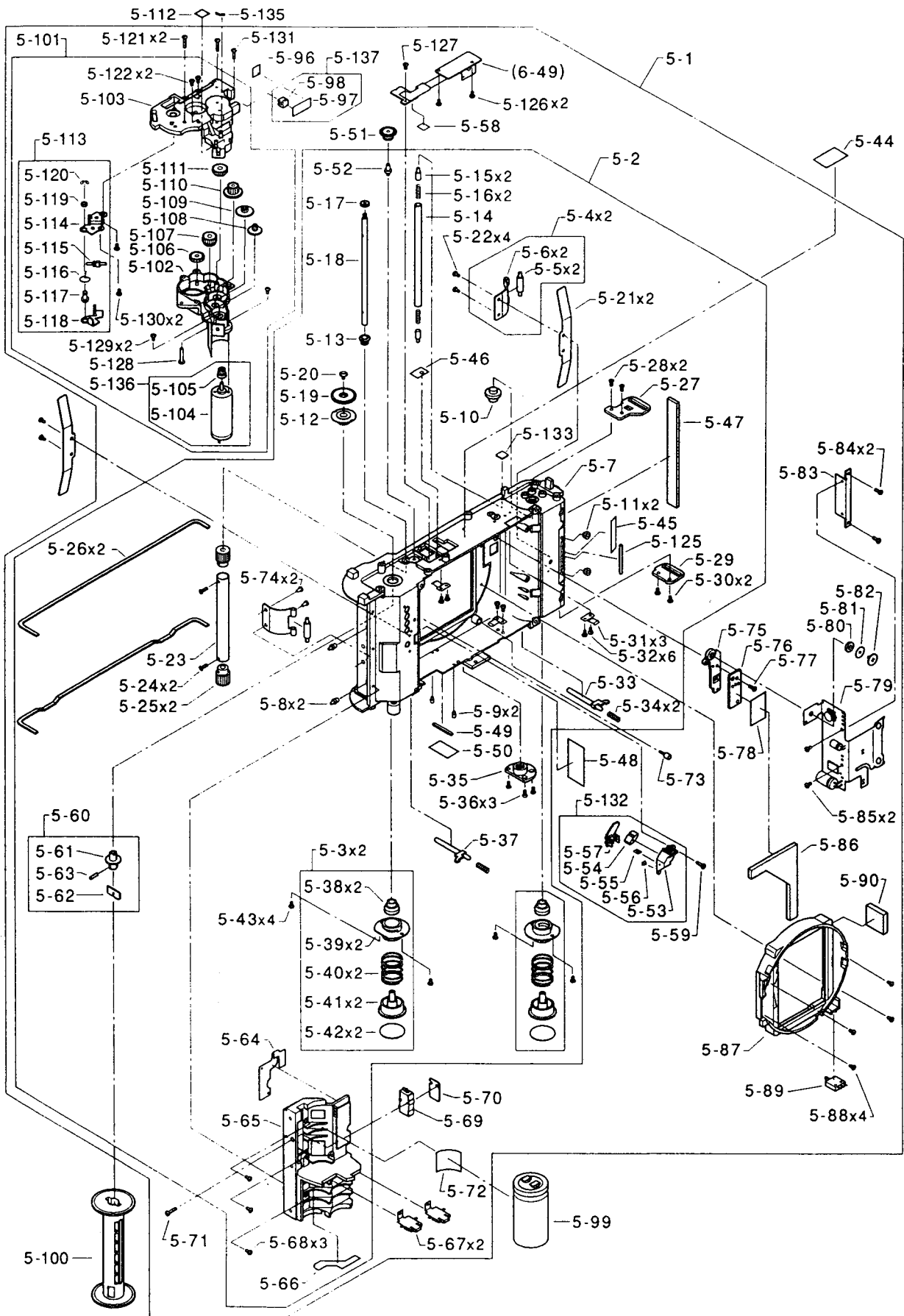
Fig. 4



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
4-103	34B 7827410	Motor gear	1	×		
4-104	23B 7827080	Guide ring	1	○		

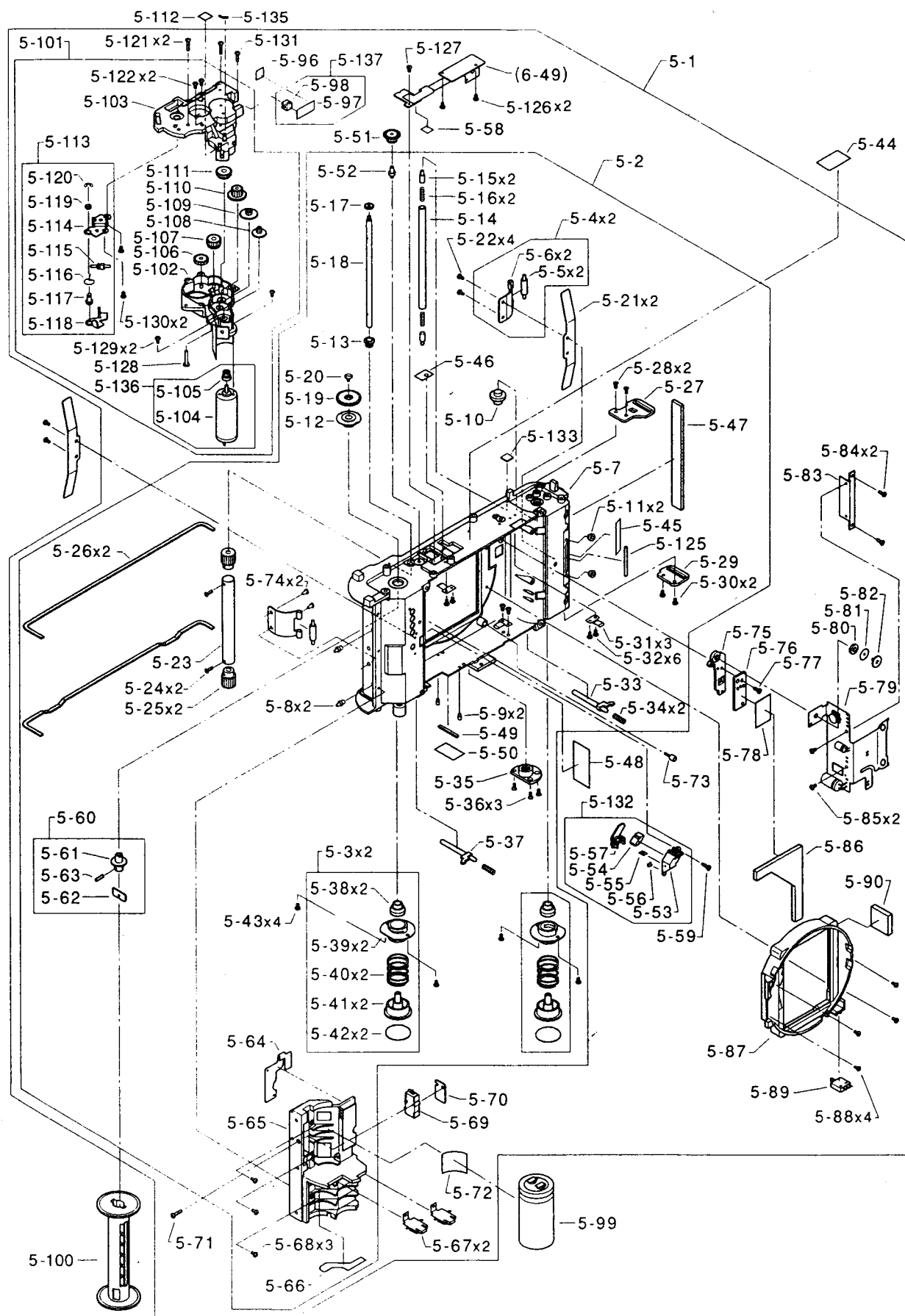
Fig. 5



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
5- 1	301A 7822860	Camera body assembly (2)	1	○		
5- 2	301A 7822810	Camera body assembly (1)	1	○		
5- 3	23A 3281080	Guide ring assembly	2	○	GS645S	
5- 4	50A 7822850	Leaf spring assembly	2	○		
5- 5	37B 486980	Roller	2	×	GS645S	
5- 6	50B 3281203	Leaf spring	2	×	GS645S	
5- 7	10B 7823050	Camera chassis	1	×		
5- 8	17B 7823320	Lock pin	2	×		
5- 9	17B 7823170	Guide pin	2	×		
5- 10	31B 486832	Spool shaft	1	×	GS645S	
5- 11	17B 7823180	Guide shaft	2	×		
5- 12	31B 7823150	Shaft holder	1	○		
5- 13	31B 3281373	Shaft holder	1	○	GS645S	
5- 14	30B 7823350	Roller	1	○	GS645S	
5- 15	17B 30165	Pin	2	○	GS645S	
5- 16	50B 30172	Spring	2	○	GS645S	
5- 17	34B 3281391	Gear	1	○	GS645S	
5- 18	32B 3281384	Shaft	1	○	GS645S	
5- 19	34B 7823160	Film take-up gear	1	○		
5- 20	53B 30721	Screw	1	○	GW690-3	
5- 21	50B 486961	Leaf spring	2	○	GW690-3	
5- 22	110M 140151N	Screw	4	○		
5- 23	36B 3281414	Counter drum	1	○	GS645S	
5- 24	111M 140401M	Screw	2	○		
5- 25	36B 3281404	Counter roller	2	○	GS645S	
5- 26	27B 7823280	Moquette	2	○		
5- 27	41B 7823070	Strap lug (top)	1	○		
5- 28	111M 200453M	Screw	2	○		
5- 29	41B 7823080	Strap lug (bottom)	1	○		
5- 30	110M 200402M	Screw	2	○		
5- 31	85B 7823240	Cord clamp	3	○		
5- 32	110M 140151N	Screw	6	○		

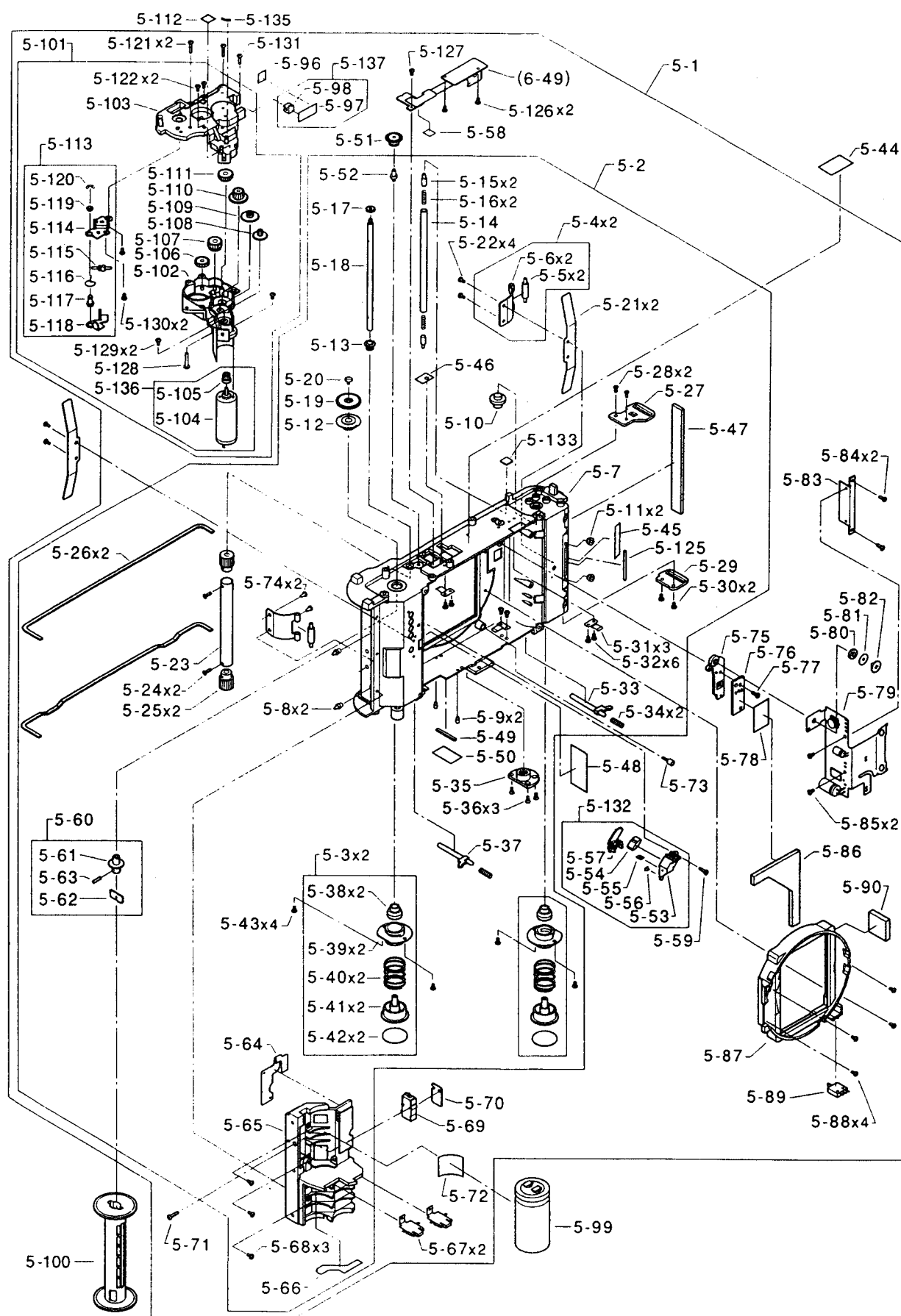
Fig. 5



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
5- 33	82B 3281153	Release bar	1	○	GS645S	
5- 34	50B 3281181	Spring	2	○	GS645S	
5- 35	53B 93826	Tripod socket	1	○	GS645S	
5- 36	111M 200453M	Screw	3	○		
5- 37	82B 3281161	Release bar	1	○	GS645S	
5- 38	32B 3281142	Spool shaft holder	2	×		
5- 39	23B 3281122	Guide ring	2	×	GS645S	
5- 40	50B 3281171	Spring	2	×	GS645S	
5- 41	16B 3281135	Knob	2	×	GS645S	
5- 42	11B 3280740	Tape	1	○	GS645S	
5- 43	110M 200301M	Screw	4	○		
5- 44	187B 7828610	Adhesive tape	1	○		
5- 45	58B 7823270	Insulator	1	○		
5- 46	58B 7823250	Insulator	1	○		
5- 47	27B 7823300	Moquette	1	○		
5- 48	196B 7822390	Tape	1	○		
5- 49	51B 7822420	Metal fixture	1	○		
5- 50	58B 7823260	Insulator	1	○		
5- 51	34B 7823630	Encoder gear	1	○		
5- 52	32B 7823640	Encoder shaft	1	○		
5- 53	12B 7813940	Prism frame	1	×		
5- 54	2B 7831900	Prism	1	×		
5- 55	26B 7831960	Diaphragm	1	×		
5- 56	2B 7831910	Lens	1	×		
5- 57	11B 7831950	Cover	1	×		
5- 58	27B 7831970	Mask	1	○		
5- 59	110M 140402M	Screw	1	○		
5- 60	34A 720041	Take-up shaft assembly	1	○	GW690-3	
5- 61	32B 486844	Take-up shaft	1	×	GW690-3	
5- 62	85B 30041	Take-up claw	1	×	GW690-3	
5- 63	182M 120401M	Spring pin	1	×	GW690-3	
5- 64	110B 7830670	DX FPCB	1	○		

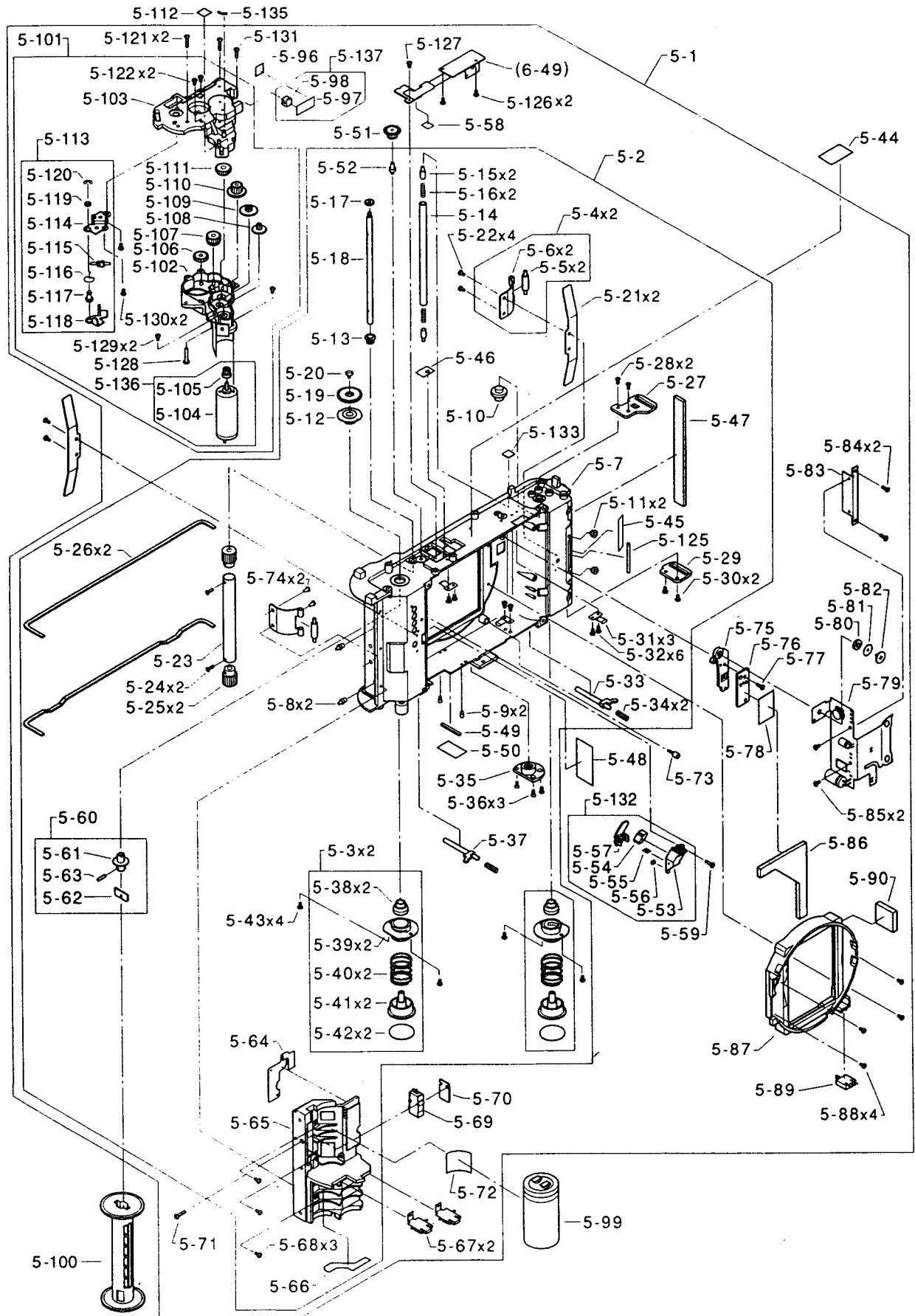
Fig. 5



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
5- 65	10B 7823090	Battery compartment base	1	○		
5- 66	58B 7823330	Battery label	1	○		
5- 67	109B 7283100	Battery contact	2	○		
5- 68	110M 170402M	Screw	3	○		
5- 69	121K 999270	SB switch	1	○		
5- 70	41B 7823120	Holder	1	○		
5- 71	110M 170652M	Screw	1	○		
5- 72	187B 7823340	Adhesive tape	1	○		
5- 73	17B 7823190	Pin	1	○		
5- 74	170M 15014B	Rivet	2	×		
5- 75	12B 7823130	Holder	1	○		
5- 76	110A 7829950	PR PCB assembly	1	○		
5- 77	110M 170352M	Screw	1	○		
5- 78	27B 7829510	Light shielding tape	1	○		
5- 79	110A 7829910	Battery FPCB assembly	1	○		
5- 80	51B 7051950	Rubber ring	1	○	ELITE OP	
5- 81	55B 7052100	Washer	1	○	ELITE OP	
5- 82	53B 7052130	Set screw	1	○	ELITE OP	
5- 83	41B 7822480	Bracket	1	○		
5- 84	110M 170401N	Screw	2	○		
5- 85	110M 140251N	Screw	2	○		
5- 86	27B 7823310	Moquette	1	○		
5- 87	27B 7823060	Hood	1	○		
5- 88	110M 140352M	Screw	4	○		
5- 89	121K 9992900	SZ switch	1	○		
5- 90	27B 7823360	Moquette	1	○		
5- 96	187B 7830860	Adhesive tape	1	○		
5- 97	110B 7830860	PI PCB	1	×		
5- 98	106K 998920	PI	1	×		
5- 99	116B 7831760	Main capacitor	1	○		
5-100	37B 29490	Spool	1	○	GW690-3	
5-101	46A 7823810	Film transporting mechanism assembly	1	○		

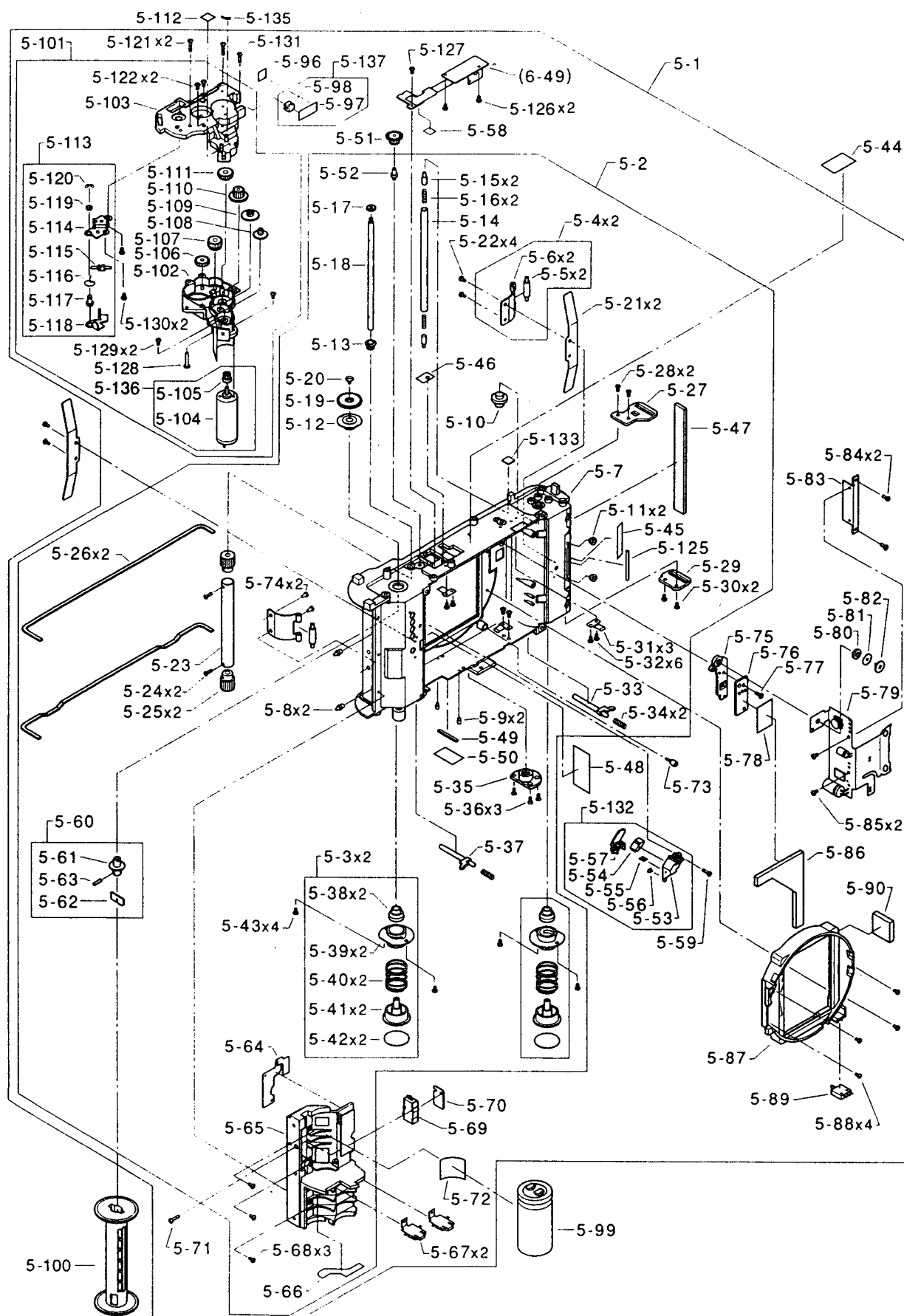
Fig. 5



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
5-102	46B 7823960	Bottom base plate	1	×		
5-103	46B 7823970	Top base plate	1	○		
5-104	101K 912270	Film transporting motor	1	×	MULTI 800D	
5-105	34B 6910120	Motor gear	1	×	MULTI 800D	
5-106	34B 7823990	Gear G6	1	○		
5-107	34B 6910111	Double step gear	1	○	MULTI 800D	
5-108	34B 7828940	Gear G1	1	○	MULTI 800D	
5-109	34B 6916930	Gear 2	1	○	MULTI 800D	
5-110	34B 7823980	Gear	1	○		
5-111	34B 6491400	Gear G2	1	○	MULTI 800D	
5-112	187B 7058510	Adhesive tape	1	○	ELITE OP	
5-113	46A 7823550	Release lever assembly	1	○		
5-114	46B 7824040	Base plate	1	×		
5-115	17B 7824080	Release pin	1	×		
5-116	50B 7824130	Spring	1	×		
5-117	32B 7824070	Release shaft	1	×		
5-118	47B 7824060	Release lever	1	×		
5-119	31B 7824050	Bushing	1	×		
5-120	191M 015T	E-clip	1	○		
5-121	110M 170702M	Screw	2	○		
5-122	113M 170452N	Screw	2	○		
5-125	51B 7822440	Rubber seal	1	○		
5-126	110M 140221M	Screw	2	○		
5-127	110M 140221M	Screw	1	○		
5-128	32B 7824140	Shaft	1	×		
5-129	110M 160301M	Screw	2	○	ELITE OP	
5-130	113M 200351M	Screw	2	○		
5-131	110M 170402M	Screw	1	○		
5-132	324A 7831880	Data lens assembly	1	○		
5-133	27B 6768490	Light shielder	1	○	GS645S	
5-134	111M 170201M	Screw	4	○		
5-135	108B 7822630	Grounding terminal	1	○		

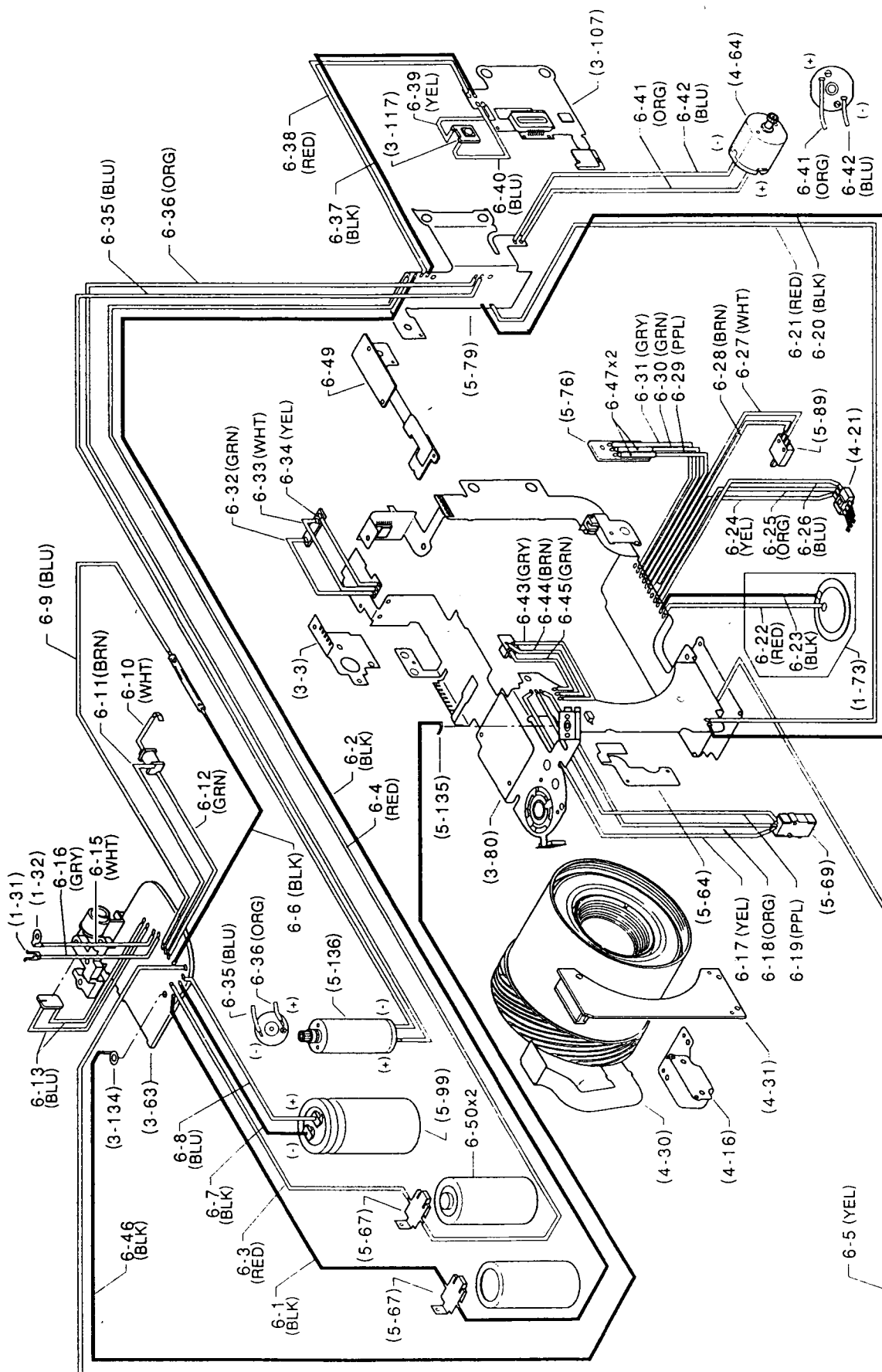
Fig. 5



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
5-136	101A 7823830	Film transporting motor assembly	1	○		
5-137	110A 7830460	PI PCB assembly	1	○		

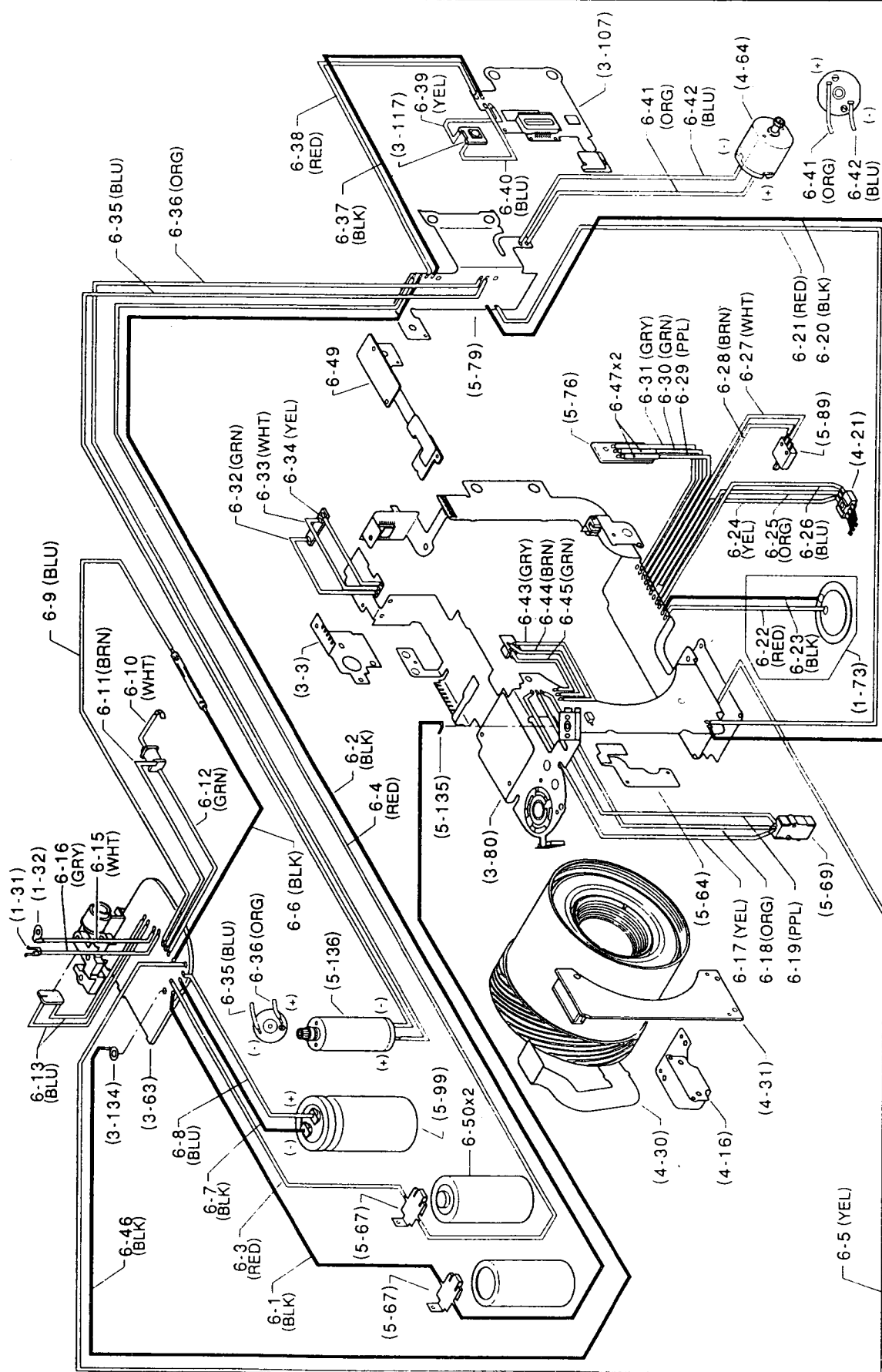
Fig. 6



Q922

Ref No.	Part No.	Part Name	Q'ty	Can be supplied or not	Remarks	
6- 1	111B 7831100	Lead wire (Flash (-)) Black	1	○		
6- 2	111B 7831080	Lead wire (Battery (-)) Black	1	○		
6- 3	111B 7831090	Lead wire (Flash (+)) Red	1	○		
6- 4	111B 7831070	Lead wire (Battery (+)) Red	1	○		
6- 5	111B 7831200	Lead wire (VCM) Yellow	1	○		
6- 6	111B 7830980	Lead wire (Xe (-)) Red	1	○		
6- 7	111B 7831770	Lead wire (MC (+)) Blue	1	○		
6- 8	111B 7831780	Lead wire (MC (-)) Black	1	○		
6- 9	111B 7830970	Lead wire (Xe (+)) Blue	1	○		
6- 10	111B 7830910	Lead wire (Trigger 2) White	1	○		
6- 11	111B 7830960	Lead wire (Trigger (-)) Brown	1	○		
6- 12	111B 7830950	Lead wire (Trigger (+)) Green	1	○		
6- 13	111B 7831690	Shielded wire Blue	1	○		
6- 14	111B 7831690	Shielded wire Blue	1	○		
6- 15	111B 7831040	Lead wire (SY (+)) White	1	○		
6- 16	111B 7831050	Lead wire (SY (-)) Gray	1	○		
6- 17	111B 7831130	Lead wire (SBNO) Yellow	1	○		
6- 18	111B 7831150	Lead wire (SBNC) Orange	1	○		
6- 19	111B 7831140	Lead wire (SBC) Violet	1	○		
6- 20	111B 7831120	Lead wire (AF (-)) Black	1	○		
6- 21	111B 7831110	Lead wire (AF (+)) Red	1	○		
6- 22		Lead wire Red	1		Included in 1-73	
6- 23		Lead wire Black	1		Included in 1-73	
6- 24	111B 7831210	Lead wire (EA) Yellow	1	○		
6- 25	111B 7831230	Lead wire (EC) Orange	1	○		
6- 26	111B 7831220	Lead wire (EB) Blue	1	○		
6- 27	111B 7831270	Lead wire (SZ (-)) White	1	○		
6- 28	111B 7831260	Lead wire (SZ (+)) Brown	1	○		
6- 29	111B 7831010	Lead wire (PRA) Violet	1	○		
6- 30	111B 7831020	Lead wire (PRE) Green	1	○		
6- 31	111B 7831030	Lead wire (PRK) Gray	1	○		
6- 32	111B 7831290	Lead wire (PLL) Green	1	○		

Fig. 6



Q922

Ref No.	Part No.	Part Name		Q'ty	Can be supplied or not	Remarks	
6- 33	111B 7831280	Lead wire (PLC)	White	1	○		
6- 34	111B 7831300	Lead wire (PLR)	Yellow	1	○		
6- 35	111B 7811170	Lead wire (FM (-))	Blue	1	○		
6- 36	111B 7811160	Lead wire (FM (+))	Orange	1	○		
6- 37	111B 7831250	Lead wire (SH (-))	Black	1	○		
6- 38	111B 7831240	Lead wire (SH (+))	Red	1	○		
6- 39	111B 7830990	Lead wire	Yellow	1	○		
6- 40	111B 7831000	Lead wire	Blue	1	○		
6- 41	111B 7831180	Lead wire (LM (+))	Orange	1	○		
6- 42	111B 7831190	Lead wire (LM (-))	Blue	1	○		
6- 43	111B 7831590	Lead wire (PIK)	Gray	1	○		
6- 44	111B 7831600	Lead wire (PIA)	Brown	1	○		
6- 45	111B 7831580	Lead wire (PIE)	Green	1	○		
6- 46	111B 7822640	Lead wire (SG)	Black	1	○		
6- 49	110A 7829920	Data FPCB assembly		1	○		
6- 50	104K 894360	Lithium battery (CR123A)		2	-		

MEMO
