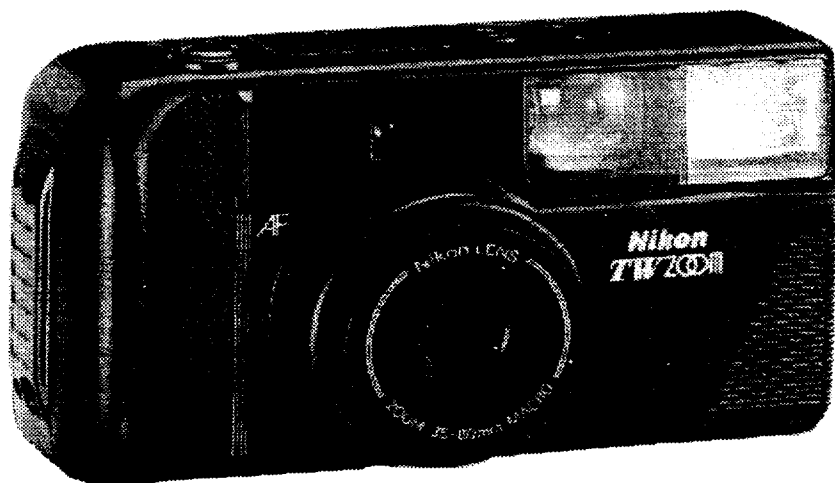


PRACTICAL REPAIR MANUAL

Nikon TW ZOOM / TW ZOOM QUARTZ DATE /
Zoom@Touch 500 /
Zoom@Touch 500 QUARTZ DATE



Nikon

NIKON CORPORATION
Tokyo, Japan

CONTENTS

1.	Measuring battery voltage	1
2.	Blinking of battery checker	1
3.	Battery power consumption	1
4.	Heat generated in battery	3
5.	Smoke generated in body	3
6.	Measuring holding current	4
7.	Measuring current consumption	4
8.	Main switch will not turn ON.	4
9.	Camera does not work.	5
10.	Shutter prerelease switch will not turn ON.	5
11.	Shutter cannot be released.	5
12.	Malfunction of auto film loading	5
13.	Malfunction of film advance operation	6
14.	Film is rewound before the end of roll.	6
15.	Film does not stop at the end of roll.	6
16.	Malfunction of film rewind operation	7
17.	Film rewind operation does not stop automatically ..	7
18.	Strange sound generated during advancing or rewinding film	7
19.	Double exposures, improper space between frames ...	7
20.	Frame skipping	7
21.	Malfunction of lens cover operation	7
22.	Malfunction of lens barrel operation	8
23.	Malfunction of lens barrel operation due to external physical shock	8
24.	Strange sound generated while zooming	9
25.	Flash cannot be charged.	9
26.	Flash does not fire.	9
27.	Flash is not synchronized.	10
28.	Lighting voltage of neon lamp	10
29.	Shutter cannot be released while using flash.	10
30.	Improper exposure while using flash	10
31.	Malfunction of LCD	10
32.	Improper focusing	11
33.	Inspection and adjustment of AF accuracy	11

34.	Inspection and adjustment of lens back	12
35.	Improper exposure accuracy	12
36.	Movement of 1st lens group	13
37.	Movement of sector	13
38.	Film scratch	13
39.	Light leakage	13
40.	Ghost, flare	14
41.	Shade appearing on screen	14
42.	Malfunction of Image sizer	14
43.	Malfunction of manual film rewind	15
44.	Malfunction of self-timer	15
45.	Malfunction of LED in viewfinder	15
46.	Battery chamber lid switch (PSW) and camera back switch (BSW)	15
47.	Soldering	15
48.	Measures for damage of film advance gear	16
49.	Repair procedure for damaged zoom lever shaft	16
50.	Combination of main FPC and sub FPC	18
51.	Bonding of LCD window	19
52.	Addition of soldered land of white cable on shutter PCB	19
53.	Improvement of flash recycling time	20
54.	AF far- γ adjustment	20
55.	Lens barrel attaching screw	21
56.	Identification of country of origin	21
57.	One method for finding the cause of malfunction	21
58.	Practical repair procedure 1: Replacement of first lens spring	22
59.	Practical repair procedure 2: Replacement of shutter mechanism unit	22
60.	Practical repair procedure 3: Replacement of shutter PCB and AF unit	23
61.	Practical repair procedure 4: Replacement of zoom switch FPC	24
62.	Malfunction of data back	25
63.	Reference	25
64.	Others	

1. Measuring battery voltage

Connecting a resistor (10-15 Ω , 1W) to the battery, measure the voltage of the terminals.

Reference: Battery checker blinks at $4.0 \pm 0.2V$
Shutter release lock: Not specified. Lower than the voltage at which battery checker blinks.

2. Blinking of battery checker

Battery is used up, you are recommended to replace the battery. TW Zoom does not perform the first time battery check after firing flash.

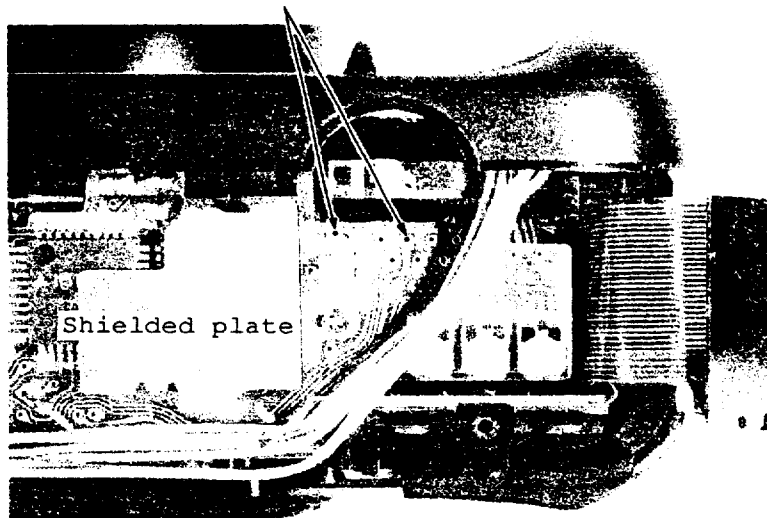
Battery check is unlikely to be performed as compared to TW2.

If there is another cause of problem, go to the corresponding items.

3. Battery power consumption

- (1) Holding current of 1.5mA flows.
Solder resistor (470-680 Ω , 1/8W) to the thru-holes (x2) as shown in the photo below.

Thru-holes (x2)



Note 1: Resistor should not protrude from the shielding plate.

Note 2: Resistor pins should not protrude through the base plate.

- Identification mark: Apply white paint in tripod socket and punched mark on the front of battery chamber.
- Cameras with product serial numbers (4000000) or later, necessary procedures has been taken using software of CPU.
- Apply necessary procedures if not measured.

(2) Finding other causes of malfunctions

Read current value

↓
Remove white cable from flash.

↓
Current still flows even when red cable is removed from flash. → SB base plate is defective or short-circuit of cable.

↓
Solder both white and red cables.

↓
Current value is zero when removing white cable (PSW) and press contact. → Main FPC

↓
Return white cable and press contact back to the original state.

↓
Remove red and black cables of power source from shutter PCB.

↓
Current value does not change. → Main FPC

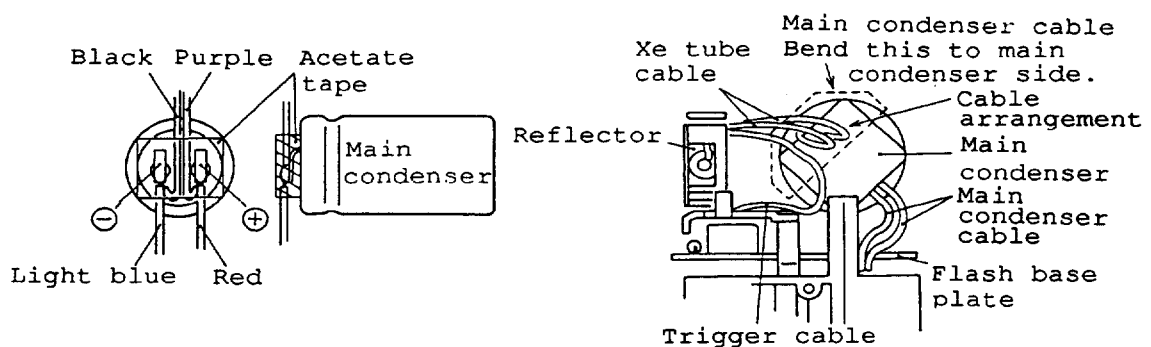
↓
Current value is zero. → Shutter PCB

The cause of malfunctions often found in:

- (1) SB base plate (70%)
- (2) Shutter PCB (20%)
- (3) Main FPC (10%)

(3) Defective SB base plate

Soldering portions of (+), (-) cables to Xe tube was modified from SB base plate to main condenser. Cut the (+) cable (purple) off by approx. 48mm and the (-) cable by approx. 28mm and solder to main condenser using assembly parts stocked. New assembly parts are all measured.



Arrange the cables connecting Xe tube and main condenser to eliminate their slackness at the end of the main condenser. Paste acetate tape on the portion indicated by dotted line (10 x 20) in the figure above.

4. Heat generated in battery

Go to "5. Smoke generated in body" if power transistor on SB base plate is burn- damaged. Otherwise, go to "Item (2) of 3. Battery power consumption"

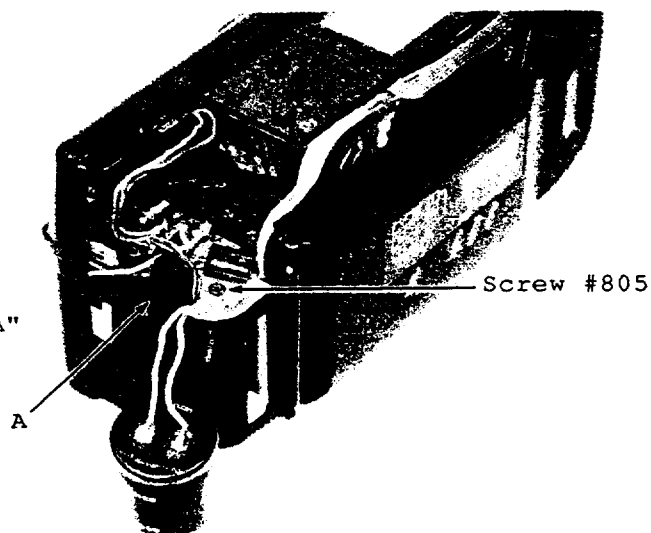
5. Smoke generated in body

Short-circuit between (+) cable (purple) to Xe tube and transformer pins. You are not required to make any changes if assembly part where both (+) and (-) cables to Xe tube are soldered to main condenser. If the cable is soldered to SB base plate, go to "Item (3) of 3. Battery power consumption".

Take following confirmation and measures for the whole cameras received for repair.

- Check to see if cable (purple) to Xe tube is pinched. Check to see if cable under SB base plate and purple cable (300V line) in particular are pinched by pushing or pulling cables lightly.

Transformer pins and purple cable can be seen from the portion indicated by letter "A"



*If the cable is not pinched:
Return removed parts back to the original portions.

*If the cable is pinched:
Go to "Item (3) of 3. Battery power consumption". There are several other cables distributed under SB base plate. Arrange these cables among pins of mounted parts and attach them with insulation tape.
You may remove screw (#805) fastening SB base plate if soldering between battery contacts and SB base plate has been securely made. You are recommended to remove the screw so that you can avoid modifying SB base plate due to fastening screw too much.

- When you receive cameras for repair for the malfunctions related to flash unit: Nikon suggests you to take measures "Item (3) of 3. Battery power consumption" to prevent customers to bring them back for repair again even though no other problems were found. If malfunctions were found in flash unit, replace assembly part (with modified wiring), or take measures "Item (3) of 3. Battery power consumption". Repair parts stocked are all modified ones.
- Identification mark
Place a mark on battery chamber with black marker pen (ø1~2) if you have completed repairs or checking. The location on which the mark should be placed is the rear side of the same surface on which punched mark is found.
- Product serial number on which necessary measures have been taken:
TW Zoom/Zoom Touch: 5555000 or later
TW Zoom Quartz Date: 4526000 or later

6. Measuring holding current

Use regulated DC power supply and digital voltmeter at 6.0V with no load resistance. Lens cover may either be opened or closed.

* Rating: 10µA or less

7. Measuring current consumption

Reference value:

Approx. 250mA (while IRED lights up)

Approx. 500mA (while checking battery)

Approx. 0.6A or less (while advancing film (film is loaded))

Approx. 0.4A or less (while rewinding film (film is loaded))

Approx. 0.7A or less (while operating lens barrel)

35mA (while shutter prerelease switch is ON.)

7mA (while LCD indicator lights up.)

30mA for the first 16 seconds, and 7mA after that while LCD indicator lights up LCD after SB is charged completely.

8. Main switch will not turn ON.

It is possible that the contact of main switch is bent or contaminated.

If camera does not operate though LCD lights up, go to "9. Camera does not work."

9. Camera does not work.

- | | |
|---|-------|
| 1. Detachment of lens barrel motor wire | (25%) |
| 2. Poor contact of encoder brush | (15%) |
| 3. Defective shutter | (10%) |
| 4. Sand or foreign matter included | (10%) |
| 5. Defective main FPC | (5%) |
| 6. Adjustment lever is detached from
key cam | (2%) |
| 7. Others | (33%) |

10. Shutter prerelease switch will not turn ON.

It is possible that shutter prerelease switch is contaminated or poor contact.
Check soldered portion of CPU base plate as well.

11. Shutter cannot be released. (Display is normal.)

- | | |
|--|-------|
| 1. First lens spring is pinched | (30%) |
| → Replace the spring with new one (1K220-247-1). | |
| 2. Shutter is defective. | (27%) |
| 3. Movement of 1st lens group is not good. | (8%) |
| → Check to see if the 1st lens group falls by its dead load. If it does not fall, change the position of helicoid or replace focus helicoid (1K535-313) with new one. | |
| 4. Shutter release switch is contaminated, poorly contacted or poorly soldered. | (8%) |
| 5. Rotor in shutter unit is detached. | (3%) |
| → It is possible that rotor is detached if shutter cannot be released even though the first lens group is removed. Almost no such malfunction has occurred currently, though it used to be observed in the early stage of marketing. | |
| 6. Poor contact of encoder brush | (3%) |
| 7. Sand included | (2%) |
| 8. Others | (19%) |

12. Malfunction of auto film loading

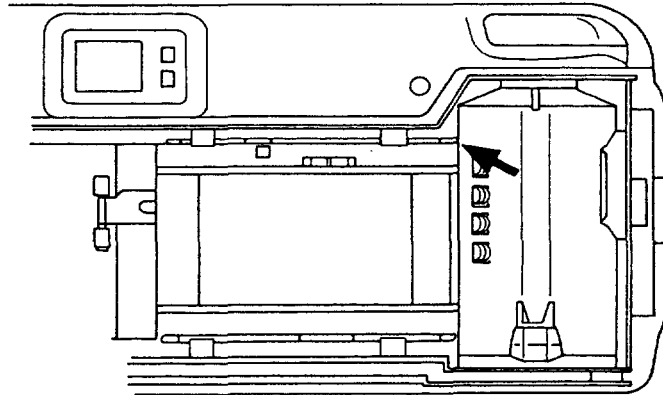
It is possible that the causes of the malfunction are attributable to poor contact of film detection switch, disconnection of cable, and detachment of solder of motor cable.

13. Malfunction of film advance operation

- | | |
|--|-------|
| (1) Poor contact of film detection switch | (28%) |
| (2) Contamination of film advance gear system, or hooking. | (27%) |
| (3) Poor rotation of planetary gears | (10%) |
| (4) Sand or foreign matter included | (5%) |
| (5) Motor is defective. | (4%) |
| (6) Others | (26%) |

14. Film is rewound before the end of roll.

- (1) Due to improper film loading operation, film is fed obliquely and film advance operation becomes hard gradually, and rewound before the end of roll. It seems that the portion indicated by arrow in the figure below comes into contact with film which results in malfunction. Actually, the camera's structure itself may lead to malfunction. Repair procedures are now under consideration. Suggest customers how to load film properly.



- (2) Film detection unit is defective.
(3) Others: hooking of gears

15. Film does not stop at the end of roll.

No such malfunction has ever reported. This occurs when film perforation is broken due to too strong film advance torque. This is likely to happen in cold winter season.

16. Malfunction of film rewind operation

- | | |
|--|-------|
| (1) Film rewind fork is defective or broken | (45%) |
| (2) Film rewind gear system is defective or foreign matter is mingled. | (10%) |
| (3) Planetary gears are defective. | (10%) |
| (4) Battery consumption (weak) | (10%) |
| (5) Others | (25%) |

If manual film rewind operation is normal and auto film rewind operation is abnormal, it is possible that shutter CPU is defective.

17. Film rewind operation does not stop automatically

No such malfunction has ever reported. This will happen if film detection switch is remained ON. But if the input of free sprocket switch does not vary for 3.2 seconds, electric power to the motor stops and the motor does not continue to rotate.

If film detection switch is remained ON, auto film loading becomes malfunction.

18. Strange sound generated during advancing or rewinding film.

It is possible that gears are defective, or foreign matter or sand is mingled in both film advance and rewind operations. Apply (G7100) a little grease to gear shaft and gear unit when gears are replaced.

19. Double exposures, improper space between frames

Check the number of pulse of free sprocket switch of film detection unit. Usually 4 pulses per frame is counted.

20. Frame skipping

No such malfunction has ever reported. If sector does not open, replace shutter with new one.

21. Malfunction of lens cover operation (Other operations are normal)

- | | |
|---|-------|
| (1) Lens cover does not open smoothly. | (48%) |
| Disassemble, clean and apply grease the inside. | |
| (2) Damaged by external physical shock. | (29%) |
| (3) Supporter for hooking spring is damaged. | (7%) |
| (4) Spring is detached. | (5%) |
| (5) Others | (11%) |

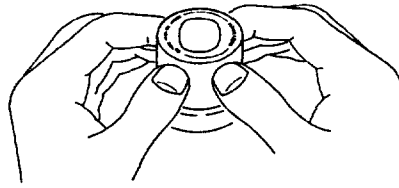
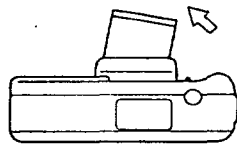
22. Malfunction of lens barrel operation

- (1) Lens barrel is bent due to external physical shock. (38%)
Go to "23. Malfunction of lens barrel operation due to external physical shock."
- (2) Poor contact of encoder brush (24%)
- (3) Adjustment lever is detached from key cam. (7%)
- (4) Poor soldering of zoom switch FPC or it is damaged. (5%)
- (5) Rotation of helicoid is heavy, or malfunction. (5%)
- (6) Sand or foreign matter is present. (4%)
- (7) Others (17%)

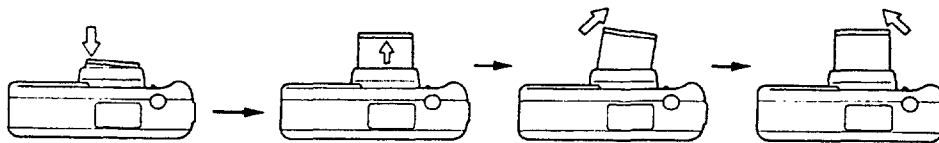
23. Malfunction of lens barrel operation due to external physical shock

If internal and medium helicoids slip off due to external physical shock, perform the following procedures.

- (1) When the lens barrel is bent in Tele mode:
Push the bent side with your finger to move it back to the correct position.



- (2) When the lens barrel is bent in Wide mode:
Hit the lens barrel by wood mallet to make it parallel, connect power cables to the barrel motor directly to make it in Tele mode. Then push the lens barrel with your finger and lift the one side up, and lift the other side up.



If external and medium helicoids slip off, and if the malfunction cannot be recovered by the above procedures, disassemble the body to repair. In either case, make sure to check AF accuracy and lens back.

24. Strange sound generated while zooming

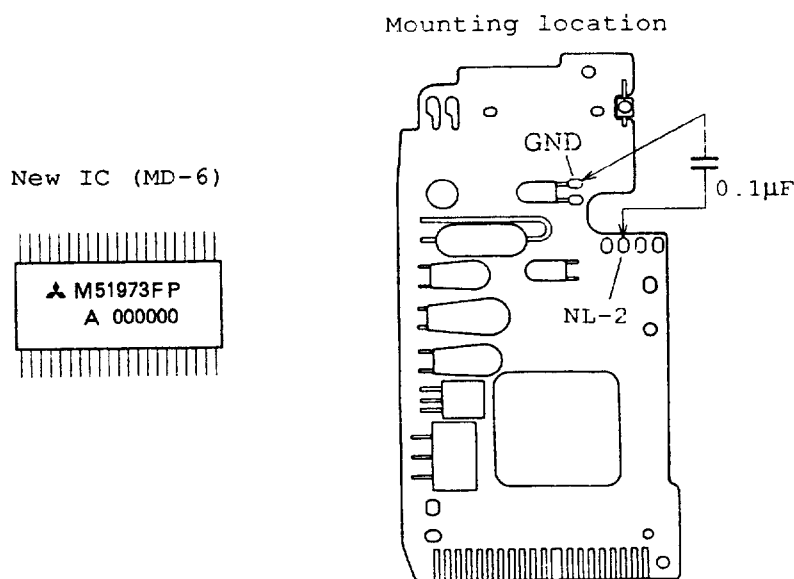
- | | |
|--|-------|
| (1) Sand or foreign matter is present. | (43%) |
| (2) Gears are defective. | (33%) |
| (3) Lens barrel motor is defective. | (10%) |
| (4) Shutter FPC is hooked. | (5%) |
| (5) Gear shaft is damaged. | (5%) |
| (6) Others | (4%) |

25. Flash cannot be charged.

- | | |
|---|-------|
| (1) Flash unit is defective. | (63%) |
| (2) Transistor (Tr4) is burned to damaged. | (25%) |
| (3) Poor soldering, disconnection of cable. | (6%) |
| (4) Shutter is defective. (SBO is remained Hi.) | (1%) |
| (5) Others | (5%) |

• Flash charging stops during charging:

Malfunction occurs when revised IC (MD-6) chip on CPU base plate is used in combination with old type flash unit. When you use MD-6 on which a lot number with a letter "A" at the top in combination with old type flash unit with no black cable added, add a condenser (0.1 μ F) (1S335-100) between NL-2 and GND as shown in the figure below.



26. Flash does not fire.

- | | |
|---|-------|
| (1) Flash unit is defective. | (93%) |
| (2) Poor soldering, disconnection of cable. | (3%) |
| (3) Shutter is defective. | (1%) |
| (4) Others | (3%) |

27. Flash is not synchronized.

It is possible that shutter unit is defective.

28. Lighting voltage of neon lamp

Reference:

- NL-1 Charging completion signal
Shutter can be released at approx. 260V.
- NL-2 Over oscillation protective signal
Shutter can be released at approx. 300V.

29. Shutter cannot be released while using flash.

No such malfunction has ever reported. If it happens, it is possible that the cause may be found in the shutter unit .

30. Improper exposure while using flash

- (1) Focus point is far from the subject due to incorrect AF metering resulting in overexposure.
- (2) Focus point is close to the subject due to incorrect AF metering resulting in underexposure.
- (3) Out of range of flash shooting
- (4) Reversal film with narrowed latitude
- (5) Replace shutter when sector diameter of shutter is incorrect.

It seems difficult to judge the above conditions, make the best procedures depending on each case.

**31. Malfunction of LCD
(other operations are normal)**

- (1) CLD is broken. (45%)
- (2) LCD is defective. (24%)
- (3) Main FPC is defective. (15%)
- (4) Disconnection in zebra connector (8%)
- (5) Shutter is defective. (2%)
- (6) Others (6%)

If other causes are found, make sure that LCD may indicate error display.

32. Improper focusing

- (1) Lens back is defective.
- (2) AF metering accuracy is incorrect.
- (3) Camera movement
- (4) Always infinity: Replace shutter
- (5) Contamination of lens
- (6) AF metering zone is out of the major subject.
- (7) 1st lens group does not move smoothly
- (8) When using flash, AF step at far distance is limited and focusing is improper at far distance.
Limited step may vary depending on film speed, you should be careful if the subject is more than 10 m distance. In this case, green LED indicator inside viewfinder blinks to alarm.

33. Inspection and adjustment of AF accuracy

*For more details, refer to Repair Manual.

Order	Item	Measured distance (error)	Standard
1	Adjustment of PSD shift	3.077m (± 20 mm)	5 \pm 0 steps
2	Adjustment of near γ	0.723m (± 10 mm)	24 \pm 0 steps
3	Adjustment of far γ	5.106m (± 50 mm)	3 \pm 0 steps
4	Adjustment of very far steps	5.300 m (± 50 mm)	2 or 3 steps

Press Image Size Selector button for over 5 sec. while holding down Continuous Shooting button for over 5 sec. to display focus distance value previously memorized on the frame counter.

Note: Make sure to clean AF metering window when checking or adjusting AF accuracy.

34. Inspection and adjustment of lens back

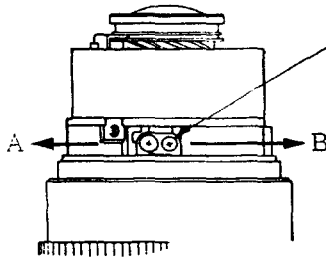
For further details, refer to Repair Manual.

Procedures

- (1) Open sector by setting at "step 8" manually.
- (2) Adjustment in Tele and Wide modes:
Tele mode comes in 0 to -25 divisions or seals in Wide mode.
- (3) B.f adjustment
Make adjustment by using encoder brush table at 3rd lens group tele-end mechanical lock position.

	standard
Wide end	-179 ± 20
Tele end	-192 ± 10

Make fine adjustment at 3rd lens group Tele-end mechanical lock position.



- (1) Unfasten one screw and remove Screwlock.
- (2) Move in the direction "A" for "+" direction, "B" for "-" direction.
- (3) Apply Screwlock on it.

Note: Perform basic operation when disassembling cameras or camera is exerted physical shock, or if there is big difference between Tele and Wide modes.

35. Improper exposure accuracy

Just a few of such malfunction has ever reported. Most of them are problem of underexposure. It is possible that the cause of this problem is attributable to the scratches made on DX code due to DX contacts.

The shape of DX contacts were modified. Replace DX contact unit.

- New assembly part No. of DX contact unit: 1B060-353-3
- Modified part No: TW Zoom / Zoom Touch 500
(Product serial No. 5610000 or later)
TW Quarts Date
(Product serial No. 4560000 or later)

36. Movement of 1st lens group

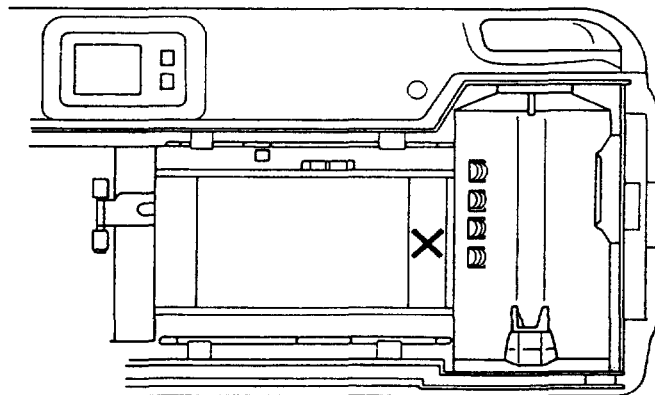
If helicoid of 1st lens group does not rotate smoothly due to contamination of sand or dust, malfunction of focusing operation or shutter occurs. When receiving cameras for the above complaint, check this portion first.

37. Movement of sector

If sector does not open, shutter is defective in most cases. You can adjust the sector diameter just like adjusting TW2, but check to see if the sector is remained open at higher brightness (over LV17). Make certain that sector may not open at high brightness side.

38. Film scratch

It is possible that film pressure roller or pressure plate is defective. It has been reported sometimes that if you use Ilford FP4 film, scratch occasionally appears on the frame due to friction between the portion indicated by "X" in the figure below and emulsion coated side of film. Polish the surface to avoid it to a certain extent.



Generally, it is normal if nothing appears when printed in case of negative film, and if nothing can be seen when projected on the screen in case of reversal film.

39. Light leakage

It has been reported that light leaks from helicoid. Mount a curtain (1K640-777 common to TW2) facing the rubber side front. You are not required to bond it.

40. Ghost, flare


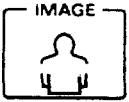

No such phenomenon has ever reported. Flare appears if backing paper of shutter FPC slips off or peeled off. Exchange backing paper. No part number is specified for backing paper. Please use parts of lenses.

41. Shade appearing on screen

- (1) Half side of lens cover is opened.
- (2) Backing paper of shutter FPC is peeled off and its shade is thrown on the screen.

42. Malfunction of image sizer

Refer to Repair Manual or Instruction manual for basic operations and specifications. Basically this image sizer has been designed to determine the focus length at the distance as shown in the table below. (Confidential data)

 IMAGE (×1/125)		 IMAGE (×1/60)		 IMAGE (×1/30)	
distance	focus length	distance	focus length	distance	focus length
15.6m -----	77mm	more than 7.7m --	77mm	more than 2.6m --	77mm
7.7m -----	56mm	5.1m -----	73mm	2.2m -----	73mm
5.1m -----	44mm	3.8m -----	60mm	2.0m -----	64mm
less than 3.8m ----	36mm	3.1m -----	50mm	1.8m -----	56mm
		2.6m -----	41mm	1.6m -----	53mm
		less than 1.1m ----	36mm	1.5m -----	46mm
	4 points			1.3m -----	44mm
			6 points	1.2m -----	41mm
				1.16m -----	38mm
				less than 1.1m ----	36mm
					10 points

Press shutter release button lightly while holding down the shutter release button lightly, the focus length can be determined depending on the distance to the subject and lens barrel moves forwardly. If the movement of lens barrel is improper, the shutter unit is defective.

43. Malfunction of manual film rewind

Either switch contacts are poor or circuit patterns on FPC are disconnected if auto film rewind operation is normal. Go to "16. Malfunction of film rewind operation," if auto film rewind operation is abnormal.

44. Malfunction of self-timer

It is possible that contacts of self-timer switch is poor.

45. Malfunction of LED in viewfinder (Other operations are normal)

It is possible that LED itself is poorly soldered.

46. Battery chamber lid switch (PSW) and camera back switch (BSW)

When both switches are pressed, those switches go off. If either one of them is ON, the camera does not work.

47. Soldering

Approx. 4% of the total number of cameras received from customers for repair have problems due to poor soldering. Make sure to solder correctly and finish cleanly.

48. Measures for damage of film advance gear

A resistor (1Ω) was inserted in the motor circuits or the gear ratio was changed for measuring damaged film advance gear. Following table shows their compatibility.

Motor unit (B234)	Gear 2. 3 (#204)	Planetary gear (B202)	Remarks	Priority
1B999-169-1 (thread 10) New assembly No.	1K277-055 (thread 31)	1B277-027	No such combination is available. Insert 1Ω register if necessary for repair.	6
		1B277-027-1		4
	Common to TW2	1B277-027-2	The most desirable combination.	1
1B999-169 (thread 12) Currently available assembly part No.	1K277-100 (thread 29) Currently available assembly part No.	1B277-027	No such combination is available. Insert 1Ω register if necessary for repair.	5
		1B277-027-1	Currently available part. 1Ω resistor is connected.	3
		1B277-027-2	Secondary desirable combination. No resistor is necessary to insert.	2

- When replacing motor assembly part, use the above combination with priority No. 1 as much as possible.
- Do not use the combinations with priority Nos. of 4, 5, 6 unless otherwise necessary. Or trouble may occur.
- Part No. of the resistor (1Ω): 1S310-373. A resistor (1Ω , $1/2W$) may be used for the substitute.
- The resistor is connected to positive electrode (orange cable) of the film advance motor.

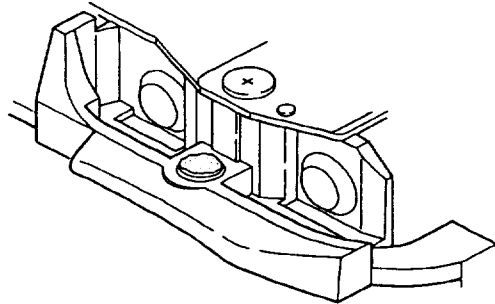
49. Repair procedure for damaged zoom lever shaft

As it is a very rare case, zoom lever shaft may be damaged due to external physical shock. It will take a long time to repair since this portion is a part of the body diecast. To this end, a part of machined shaft is specified. Following is its repair procedures.

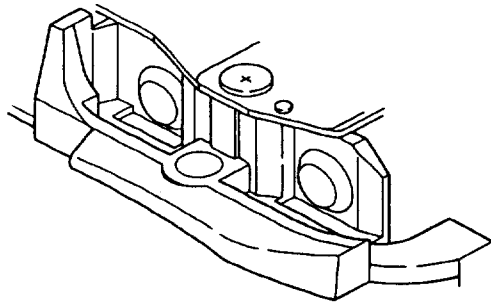
- Part name and part No.
Zoom lever shaft: 1K999-050

Procedures

- (1) Usually damaged portion can be seen as shown in the figure below.



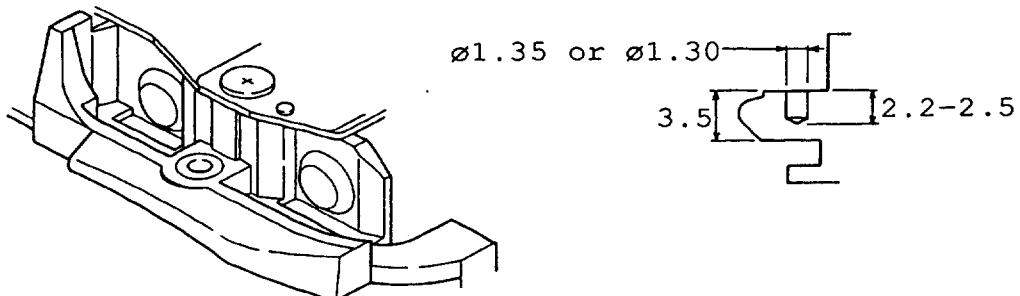
- (2) Process the damaged portion flat with files. Leave a step slightly so that you can see the center position.



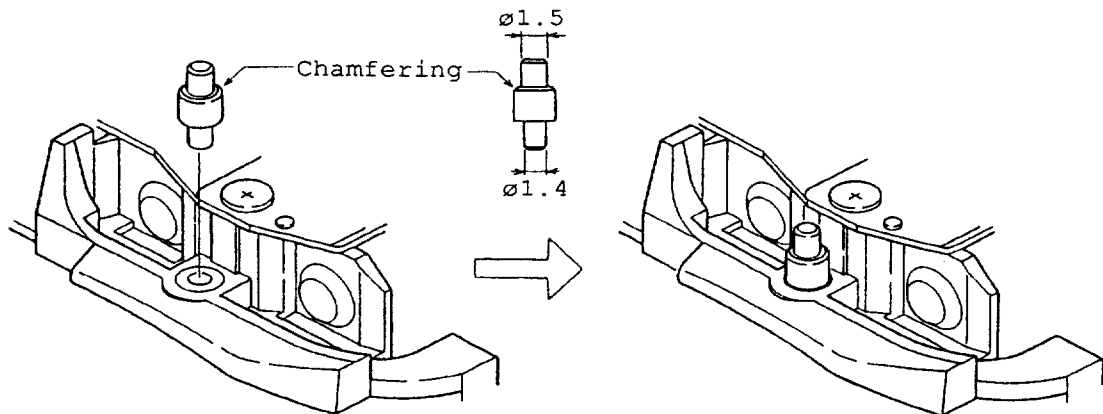
- (3) Make a hole with a drill.

- Use a drill ($\varnothing 1.35$) when you use a drilling machine.
- Use a drill ($\varnothing 1.30$) when you make a hole manually. (The drill moves and the hole becomes bigger when making a hole manually.)

Note: Make sure that the depth of the hole should be within 2.2 and 2.5mm not to penetrate the drill to the opposite side. Make a hole in the center of the damaged shaft.



- (4) Insert zoom lever shaft into the hole as shown in the figure below. If the shaft pull out easily, attach it by adhesive agent such as Crazy glue or Epoxy.



50. Combination of main FPC and sub FPC

Numbers (-1 or -2) are printed on both FPCs. The combination of main FPC and sub FPC is available with those with numbers or those without numbers on each.

Note: If it is necessary to combine main FPC with no number on it with sub FPC with number on it for repair procedures, solder carefully for the distance of connection holes differ.

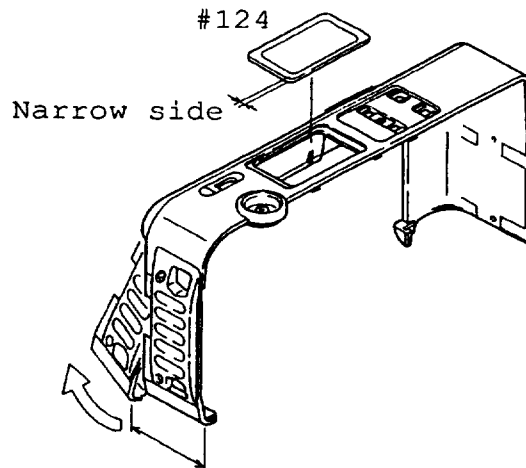
51. Bonding of LCD window

Sales area of LCD (#124: 1K600-740) has been modified from "triangle" to "circle and triangle". Following are description on bonding when replacing it in unit.

- If you want to attach LCD window by taking advantage of adhesive agent applied on the back of LCD window, it requires $4\text{kg}/\text{cm}^2$ pressure. The pressure by your finger is not enough. In actual repair procedures, use double coated adhesive tape pasted at four places around the back of LCD window.

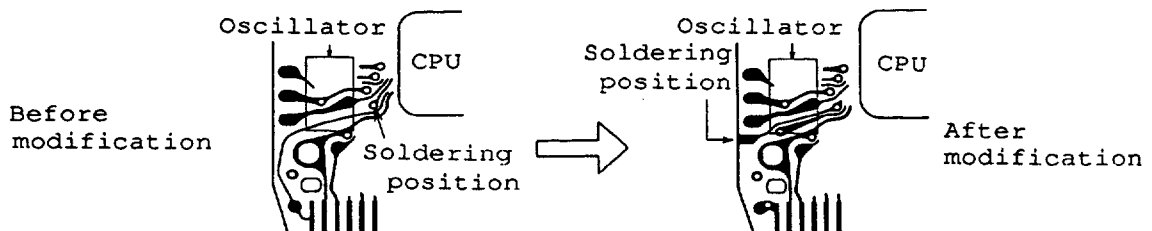
Note:

- (1) Some LCD windows with improperly printed black frame (back and forth) are mingled. Attach the LCD directing the narrow side forward.
- (2) Take care not to allow fuzz or dust to come inside the window.
- (3) As shown in the figure below, check to see if LCD window does not detach or moves up when twisting it by 20mm toward camera back.



52. Addition of soldered land of white cable on shutter PCB

White cable (PSW) was recommended to be discarded, but it is found out that the cable is still necessary. Another soldering land is added to which soldering should be made instead of conventional through hole.



53. Improvement of flash recycling time

Background

If you fire flash repeatedly in a short period of time, the recycling time is prolonged gradually. (Normally the recycling time is within 3 seconds if flash is fired in 20 seconds interval.)

Cause

Leak current of diode (D1) increases due to rising temperature of oscillation transformer.

Preventive measures

The diode (D1) was changed with another one. You are also required to change the viewfinder mold (#501: 1K500-704) at the same time because the diode comes into contact with the viewfinder.

Compatibility

	Old viewfinder mold	New viewfinder mold
Old D1	O	O
New D1	X	O

About part

Repair parts are available for new parts only. Order viewfinder mold (#501: 1K500-704). No part No. is specified for D1 itself.

54. AF far- γ adjustment

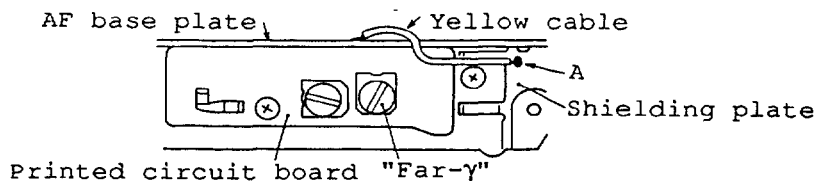
Background

It was found that the adjustment of AF accuracy "far- γ " becomes impossible during product trial period.

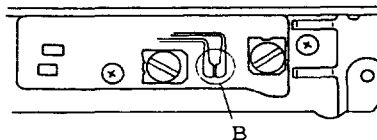
Preventive measures

Variable resistor (adjusting "far- γ ") for selecting polarity is added.

- (1) Temporary measures (approx. first 60,000 units)
In some models, yellow cable is soldered to the portion A. In other models, yellow cable is not soldered to the portion A since the cable is pinched between printed circuit board and AF base plate.



- (2) Permanent measure (after the first 60,000 units)
In some models, the portion B is soldered (short-circuited). In other models, the portion B is not soldered.



Adjustment

If the adjustment is impossible by the VR when making "far-γ" adjustment, remove soldering of portions A or B (or solder if there is not soldered), and change the polarity of the VR to adjust.

55. Lens barrel attaching screw

Modification is made as described below, or specially designed screw is used.

(1) Modification

#804: 1K010-112 (M1.7/plated part)

↓
#808: 1K010-170 (M1.7/painted on the head)

(2) Notice that M2 screw may be used in some cameras.

No auxiliary part No.: G1-20040FS (M2/painted on the head)

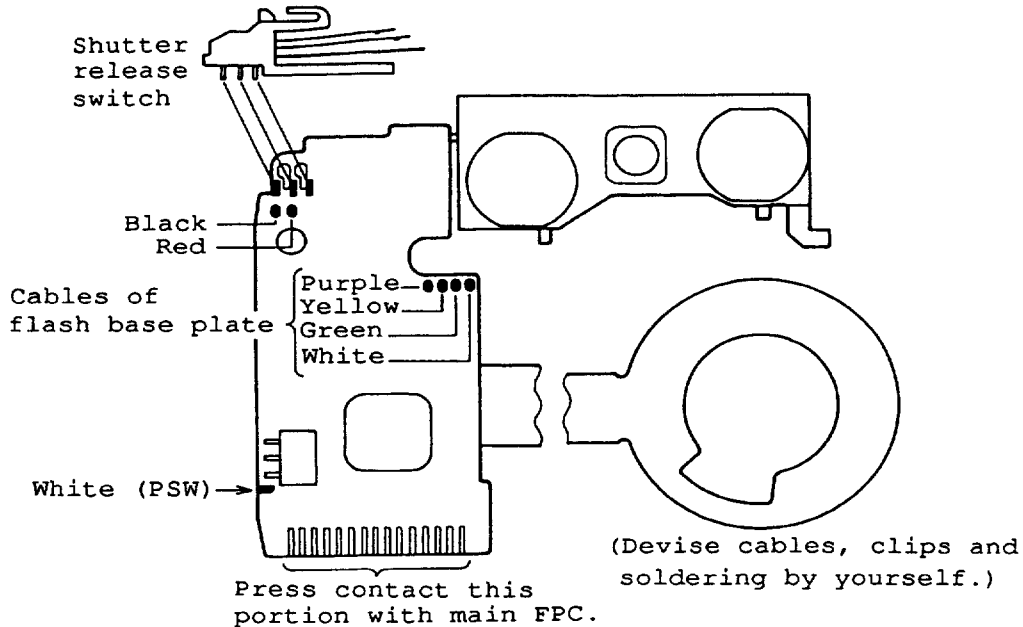
(3) Do not use both plated screw and the one printed on the head at the same time.

56. Identification of country of origin

The indication of origin is changed from "JAPAN" to "MADE IN JAPAN". Along with this change, the location of product serial number is also changed.

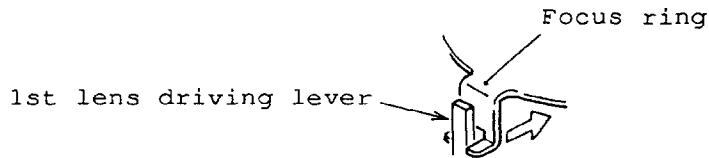
57. One method for finding the cause of malfunction

Make a tool as described in the figure below and detect the cause of malfunction assuredly when you cannot tell which one is defective, main FPC or shutter PCB.



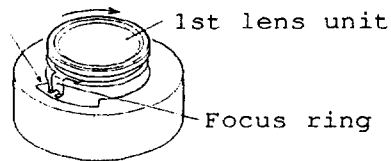
**58. Practical repair procedure 1:
Replacement of 1st lens spring**

- (1) Removing lens barrel (screws x 4)
- (2) Bend focus ring to put it aside from the 1st lens driving lever.



- (3) Since the fork portion of focus ring and shutter mechanism come into contact, remove the 1st lens group unit by putting the fork aside upward.

This portion comes into contact. Put the fork aside upward.

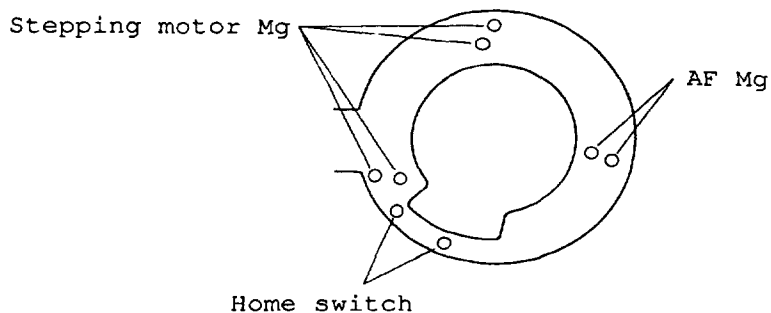


- (4) Replacing 1st lens spring with new one.

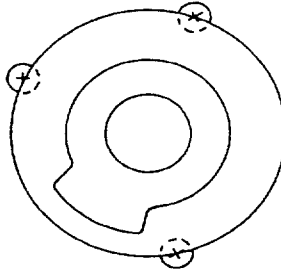
*Adjustment of lens back may be unnecessary if you work it done well.

**59. Practical repair procedure 2:
Replacement of shutter mechanism unit**

- (1) Removing lens barrel (screws x 4)
- (2) Removing 1st lens unit (as described in the above item 58)
- (3) Removing 1st helicoid
- (4) Removing soldering of shutter mechanism (8 portions)



- (5) Removing shutter mechanism and 2nd, 3rd lens units
(screws x 3)

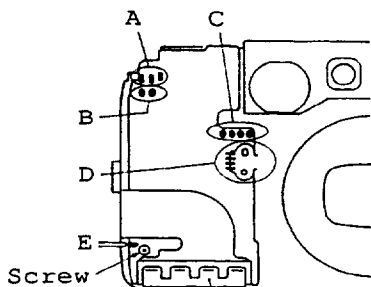


Note:

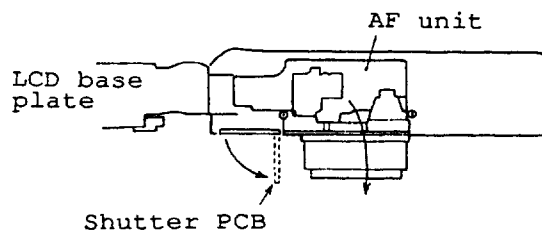
- Use minus screw driver (No. 2)
 - Since the screw heads are partly held by shutter mechanism, unfasten three screws one after another little by little.
- (6) Separate shutter mechanism from 2nd and 3rd lens units (screws 3).
- (7) Replacing shutter mechanism
- Note: Since shutter mechanism is not specified as a unit part, use it by taking it from shutter unit.
- *In future, Nikon will specify shutter unit by dividing it into several separate parts.

**60. Practical repair procedure 3:
Replacement of shutter PCB and AF unit**

- (1) Removing rear cover (screws x 5)
- (2) Removing front cover (screws x 3)
- (3) Removing soldering of shutter PCB
- A. Shutter release switch
 - B. Power cables (red, black)
 - C. Purple, yellow, green and white cables (SB base plate)
 - D. DX FPC
 - E. White cable (PSW)
- (4) Removing press contact
- (5) Removing screw (x1) which attaches shutter PCB
- (6) Putting LCD base plate aside (screws x 3)
- (7) Putting viewfinder aside (screws x3)
- (8) Putting AF unit aside forwardly by removing screws (x3) attaching AF unit
- (9) Raising shutter PCB by 90° and remove soldering applied to shutter FPC.

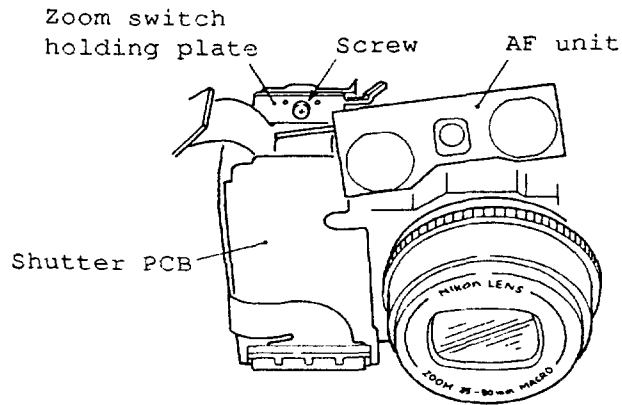


Removing press contact



**61. Practical repair procedure 4:
Replacement of zoom switch FPC**

- (1) Removing rear cover (screws x 5)
- (2) Removing front cover (screws x 3)
- (3) Putting LCD base plate aside (screws x 3)
- (4) Putting viewfinder aside (screws x 3)
- (5) Slanting the camera so that you can see screw which attaches zoom switch FPC by removing screws (x2) which attaches AF unit.
- (6) Removing zoom switch FPC and replace it with new one.



62. Malfunction of data back

It has been reported that modules are defective, contacts are decayed, etc.

63. Reference

Technical Information bulletin

Ref. No.	Subject
TWZM-880041	MODIFICATION OF PSW SOLDERED LAND ON SHUTTER CONTROL BASE PLACE
TWZM-880047	IMPROVEMENT IN RECYCLING TIME
TWZM-880048	MODIFICATION IN SHUTTER CONTROL IC (MD-6)
TWZM-880051	INCORRECT STANDBY ELECTRIC CURRENT
TWZM-880055	LCD WINDOW OF TW ZOOM
TWZM-890005	SHUTTER RELEASE BECOMES INOPERABLE
TWZM-890013	MODIFICATION OF MAIN FPC AND SUB FPCs
TWZM-890014	CHANGE OF SCREW IN LENS BARREL
TWZM-890016	DISCARD OF RESISTER (1 Ω) IN MOTOR UNIT
TWZM-890017	ADJUSTMENT OF AF FAR GAMMER
TWZM-890034	SHUTTER RELEASE IS IMPOSSIBLE BY DISLOCATION OF ROTOR
TWZM-890093	SPECIFYING UNIT PART FOR FILM ADVANCE MOTOR PINION GEAR
TWZM-900012	HOW TO REPAIR BROKEN ZOOM LEVER SHAFT

64. Others

Please add here if you find any other causes.

DISASSEMBLING

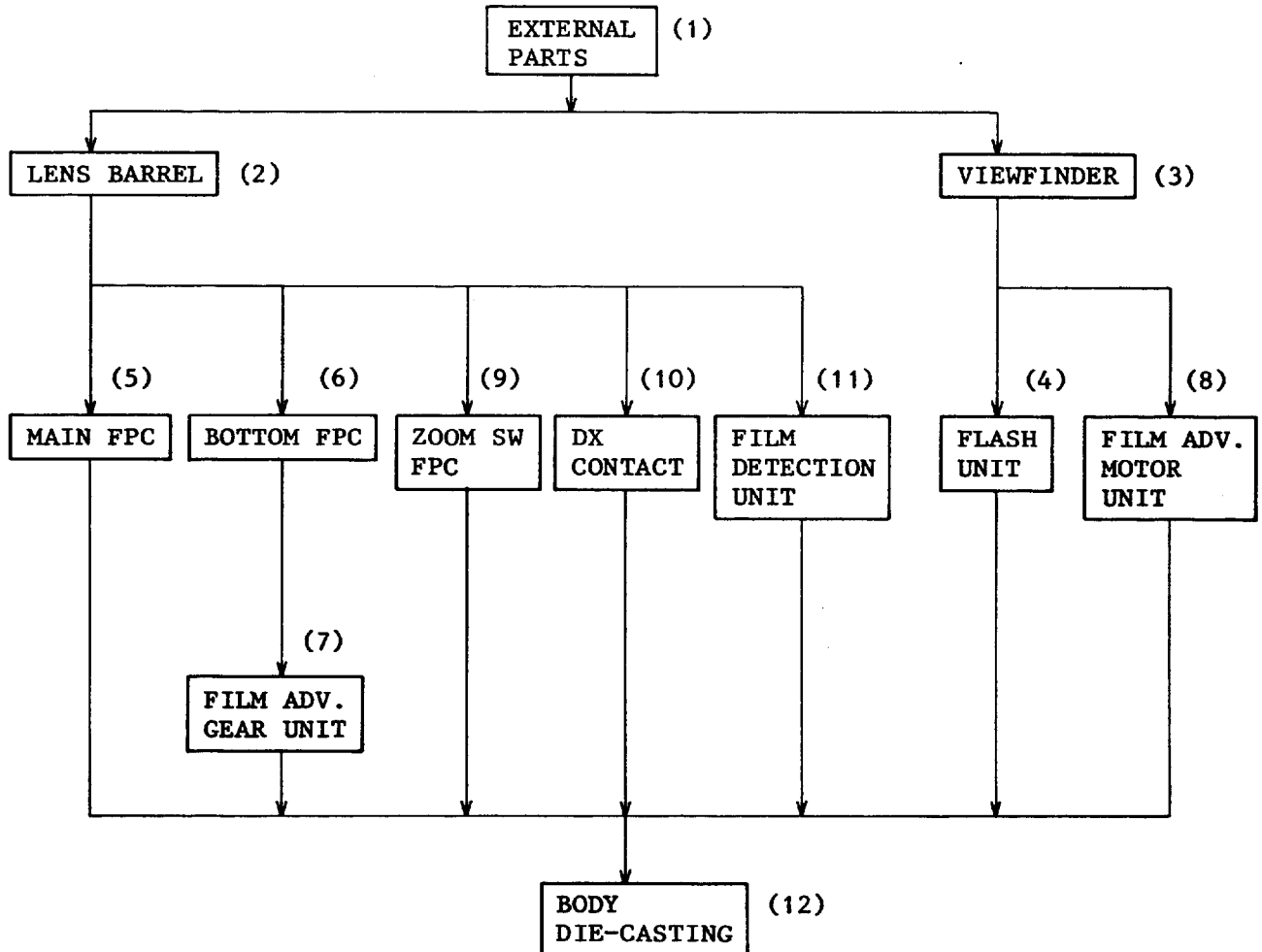
[1] DISASSEMBLING

- 1. DISASSEMBLING PROCEDURE CHART D1
- 2. DISASSEMBLING PROCEDURES (BODY) D3
- 3. DISASSEMBLING PROCEDURES (LENS BARREL) D10

[1] DISASSEMBLING

1. DISASSEMBLING PROCEDURE CHART

* Numbers in parentheses refer to disassembling procedures.



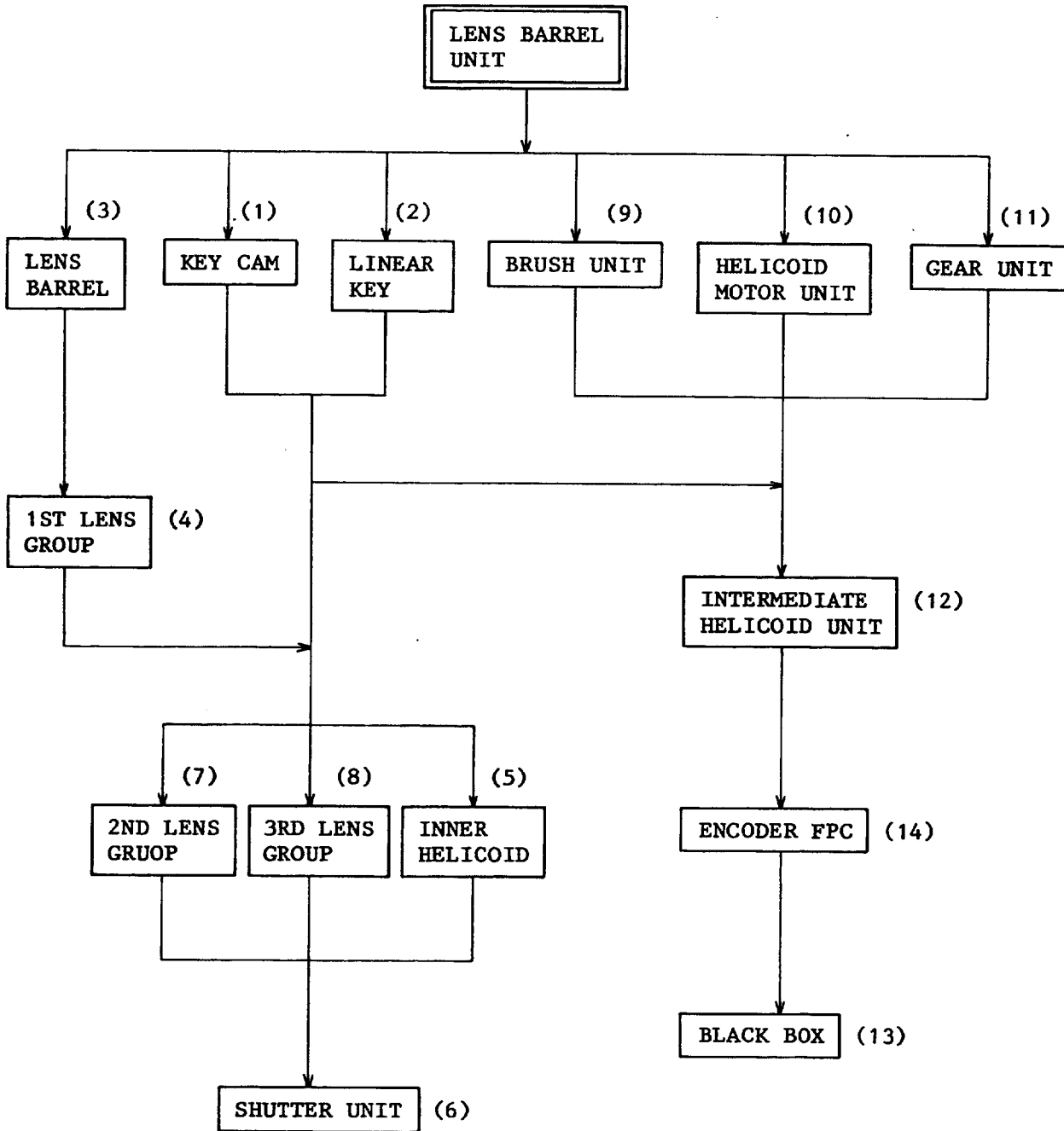
Note: 1. If zooming operates normally, lens barrel unit (lens cover unit) and 1st lens group can be taken off without removing covers.

2. Repair of lens cover can be made after removing lens name plate. If lens barrel is removed, back focus may change.

3. Disassembling procedure chart for lens barrel unit will be shown in the next page.

DISASSEMBLING PROCEDURE CHART FOR LENS BARREL UNIT

* Numbers in parentheses refer to disassembling procedures.

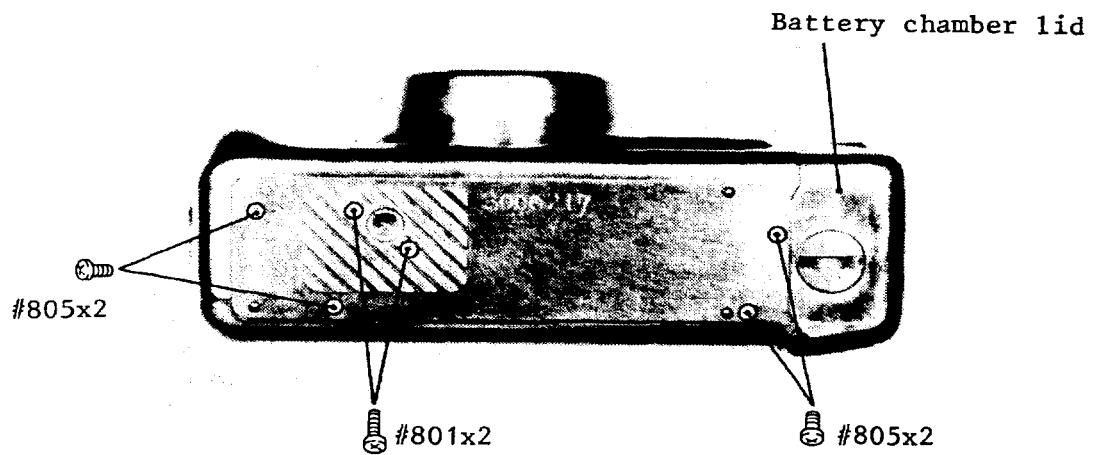


2. DISASSEMBLING PROCEDURES (BODY)

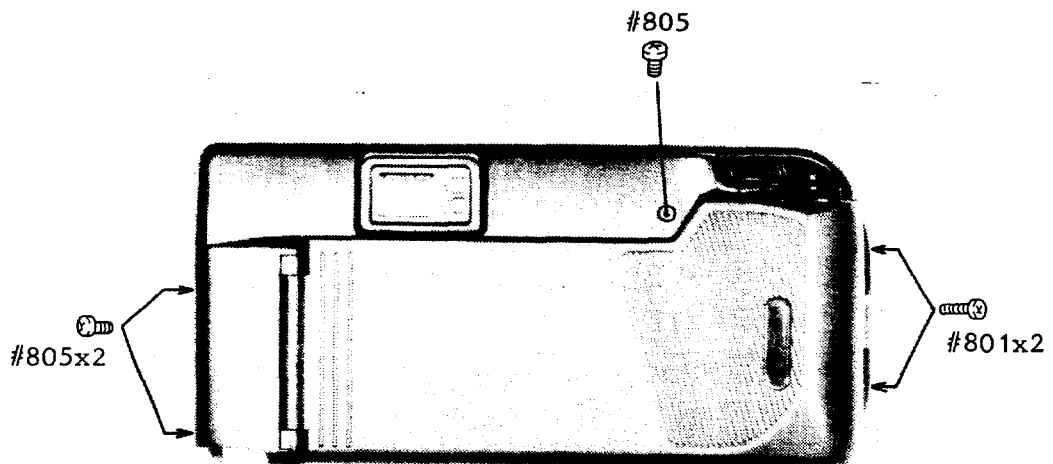
- Note: 1) Observe the arrangement of lead wires and screws for less confusion in reassembling.
 2) Remove batteries before disassembling.
 3) Be sure to take earth while working so that IC's should not be damaged by static electricity.
 4) Fig. numbers refer to exploded drawings.
 5) Screws with a dot are tap tight screws.

(1) External parts

a) Bottom cover



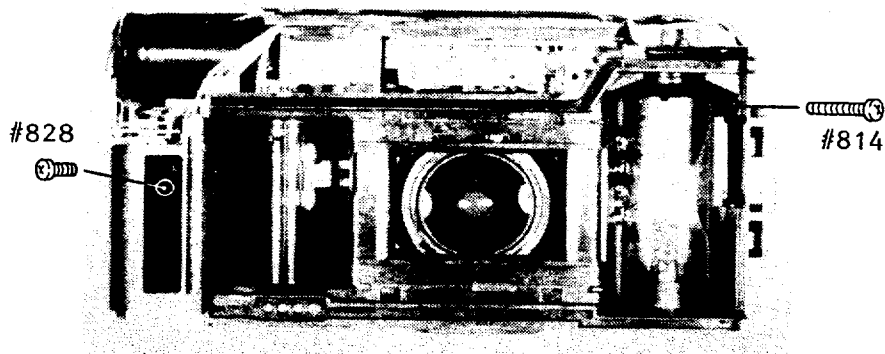
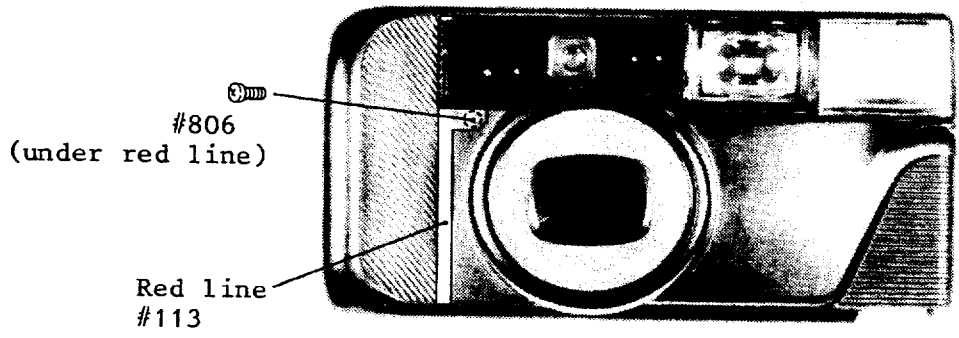
b) Rear cover



c) Camera back

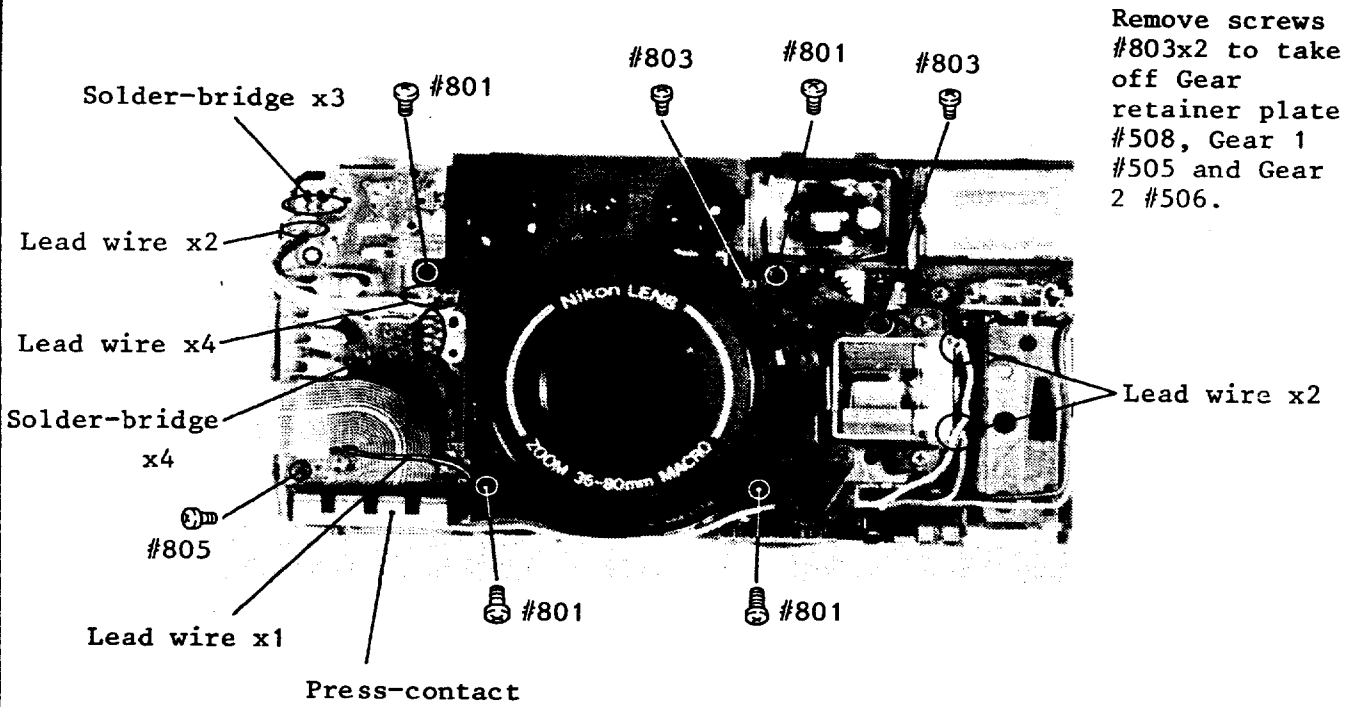
Remove camera back shaft (#122). Refer to Fig.9.

d) Front cover

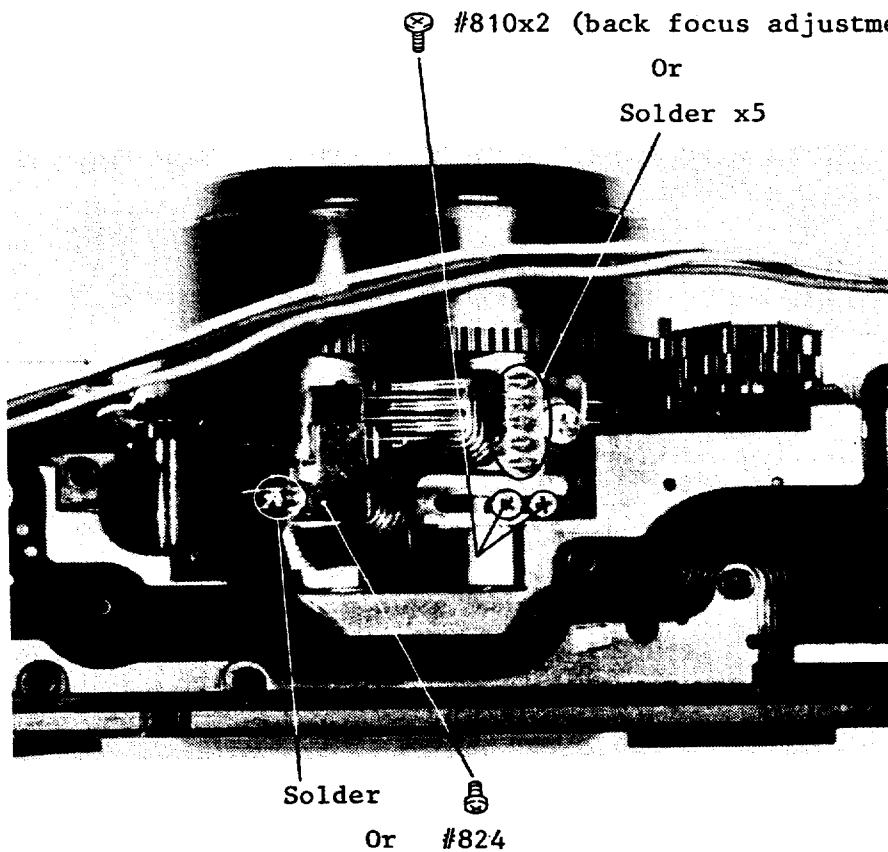


Be sure to discharge the main condenser if disassembling is continued after removing front cover.

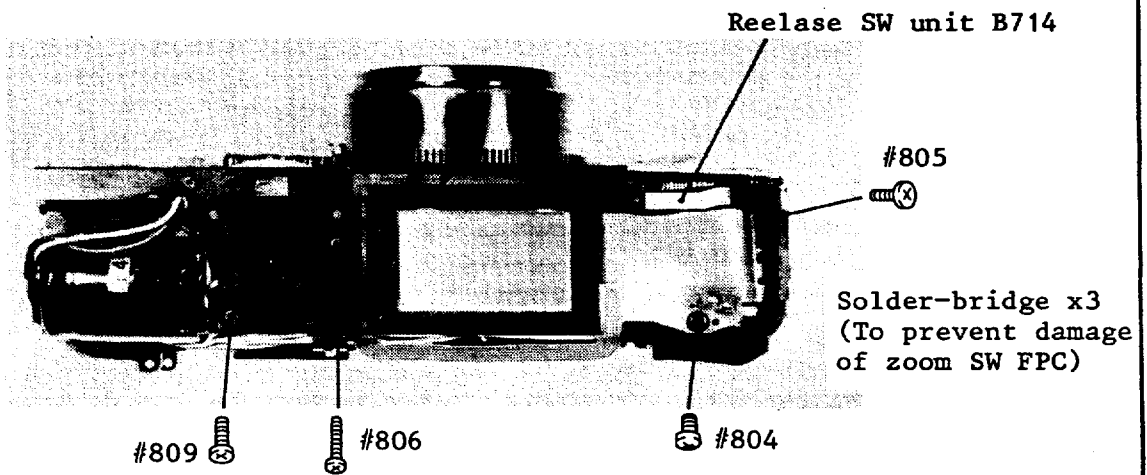
(2) Lens barrel



Remove screws #803x2 to take off Gear retainer plate #508, Gear 1 #505 and Gear 2 #506.



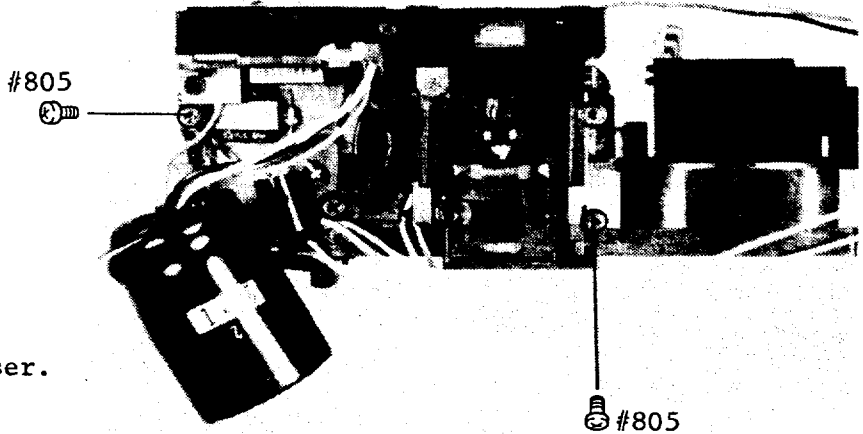
Note: Back focus changes if the screws (#810x2) is unfastened. Handle them only when necessary.



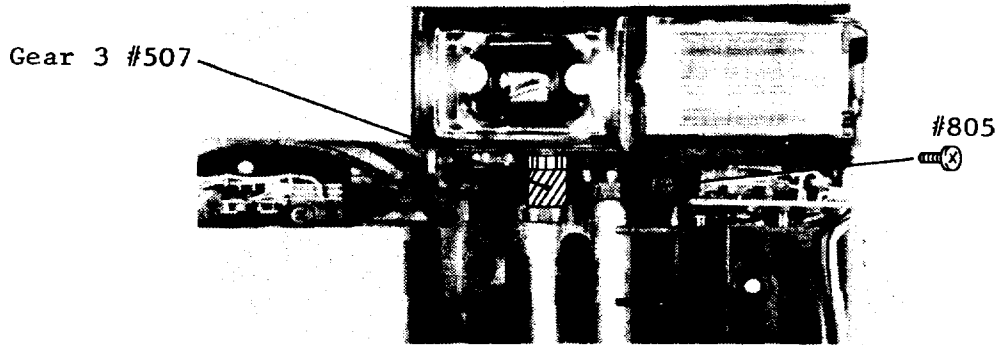
After removing screws, lead wires and solder, pull out lens barrel unit forward. Be careful not catch lead wires and FPC's with it.

Note: Details of disassembling of lens barrel will be shown in or after page D10.

(3) Viewfinder

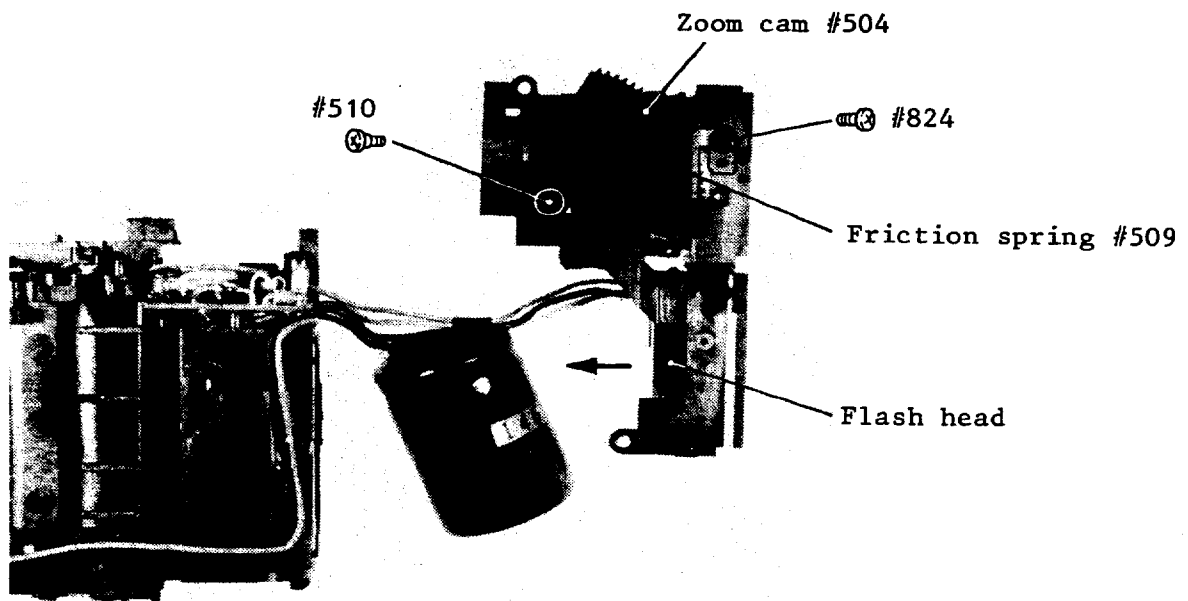


Incline
main condenser.



Gear 3 #507

#805



Zoom cam #504

#510

#824

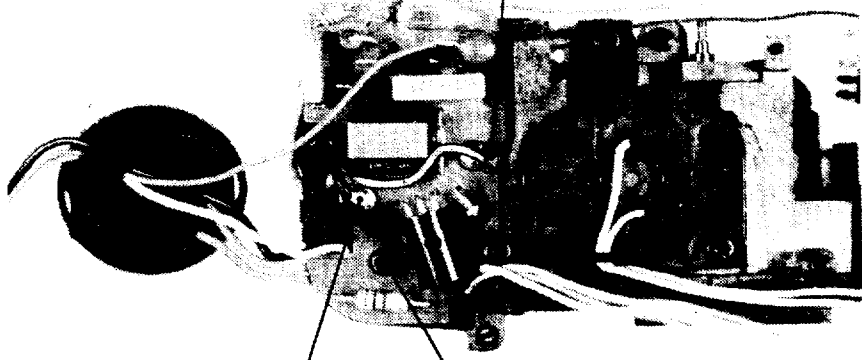
Friction spring #509

Flash head

Flash head comes off
in the arrow direction.

(4) Flash unit

Red lead wire and solder-bridge with battery contact



Black lead wire and solder-bridge with battery contact

#805

Insulation plate #236 is installed under flash base plate.

(5) Main FPC

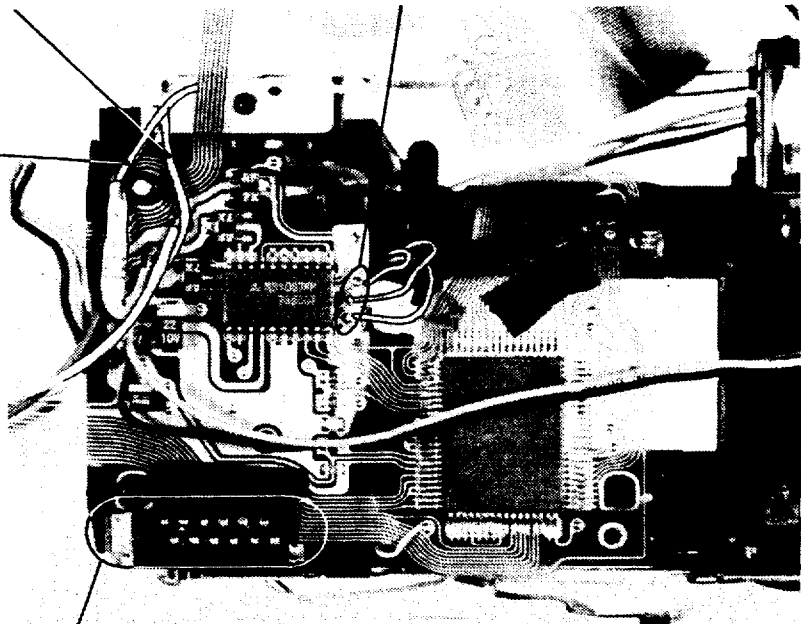
Spread main FPC.

Gray lead wire (Film adv. motor)

Lead wire x3

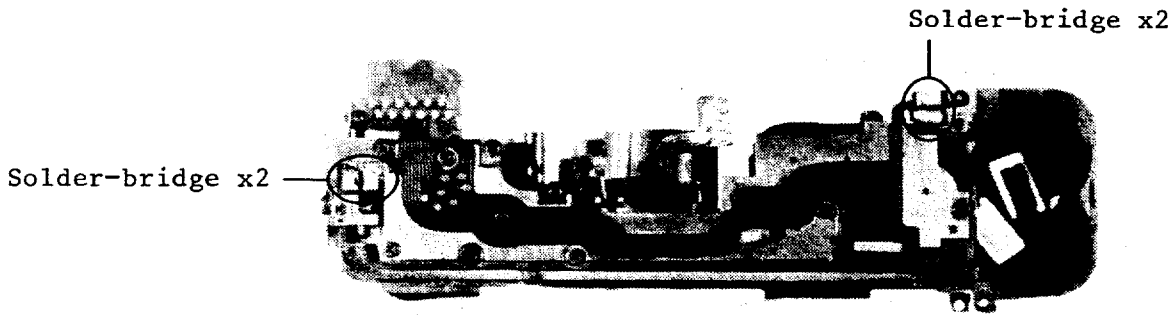
Orange lead wire (Film adv. motor)

Take off the pin of resistor from FPC.



Solder-bridge x14

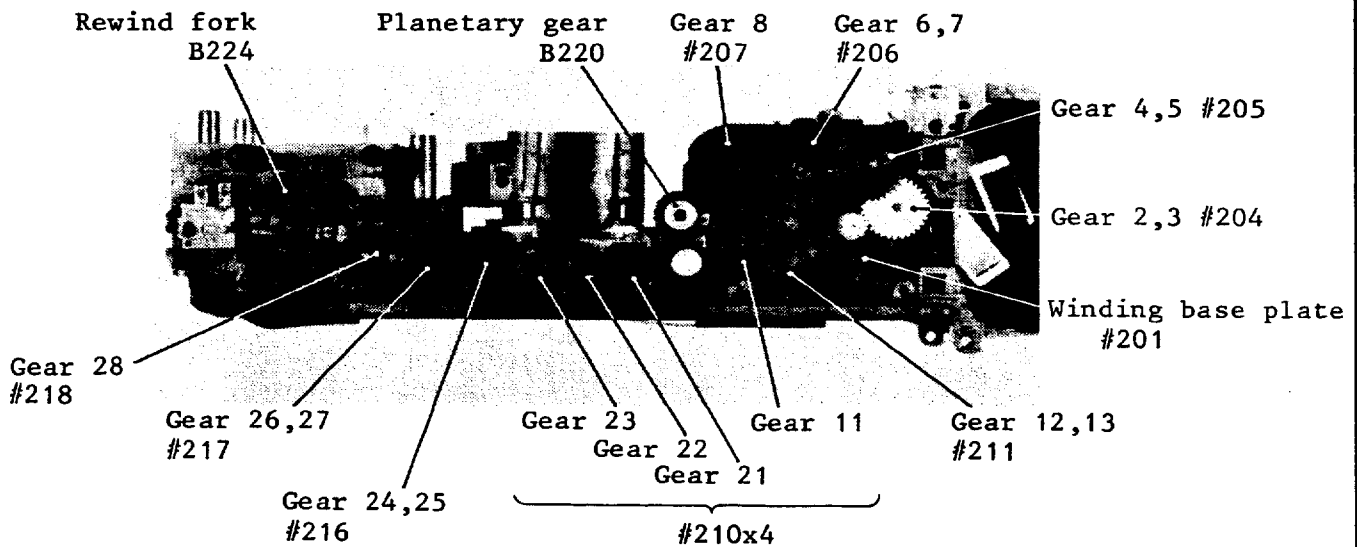
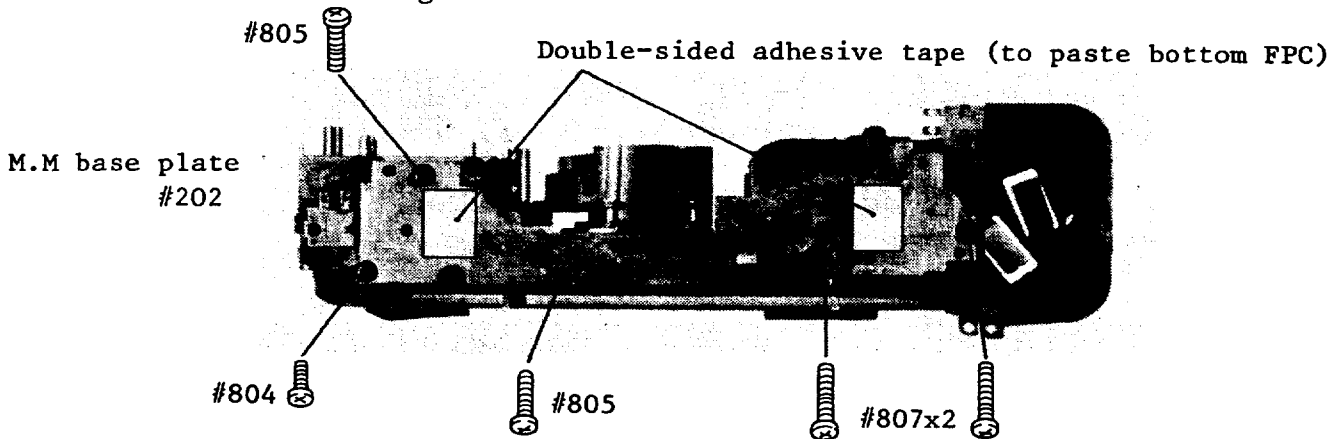
(6) Bottom FPC



Remove bottom FPC from M.M base plate.

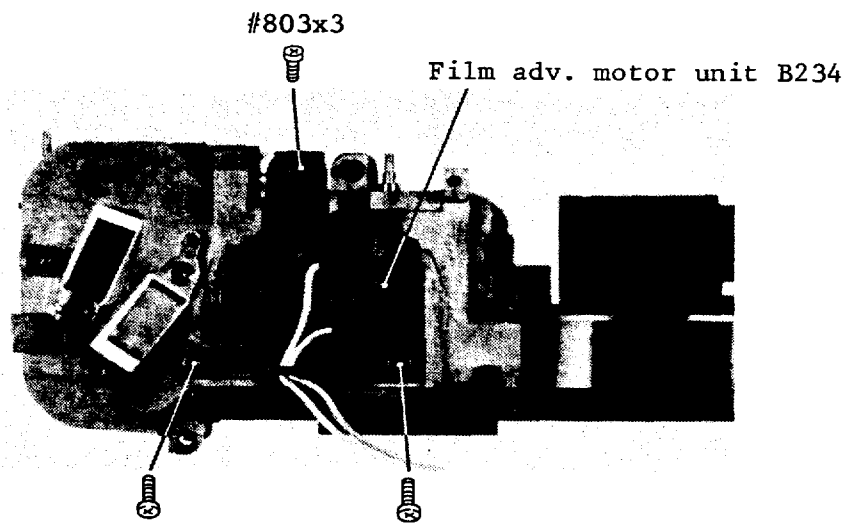
Note: Screws (#827x2), which are fixing the switch, can be removed without removing solder-bridge.

(7) Film advance gear unit



Spool comes off if winding base plate (#201) is removed.

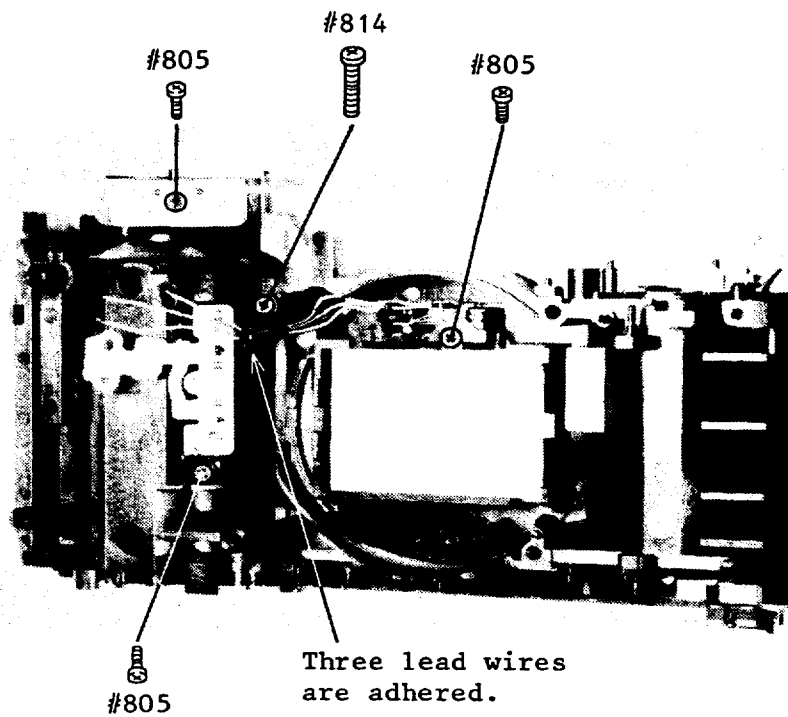
(8) Film advance motor unit



(9) Zoom SW FPC

(10) DX contact

(11) Film detection unit



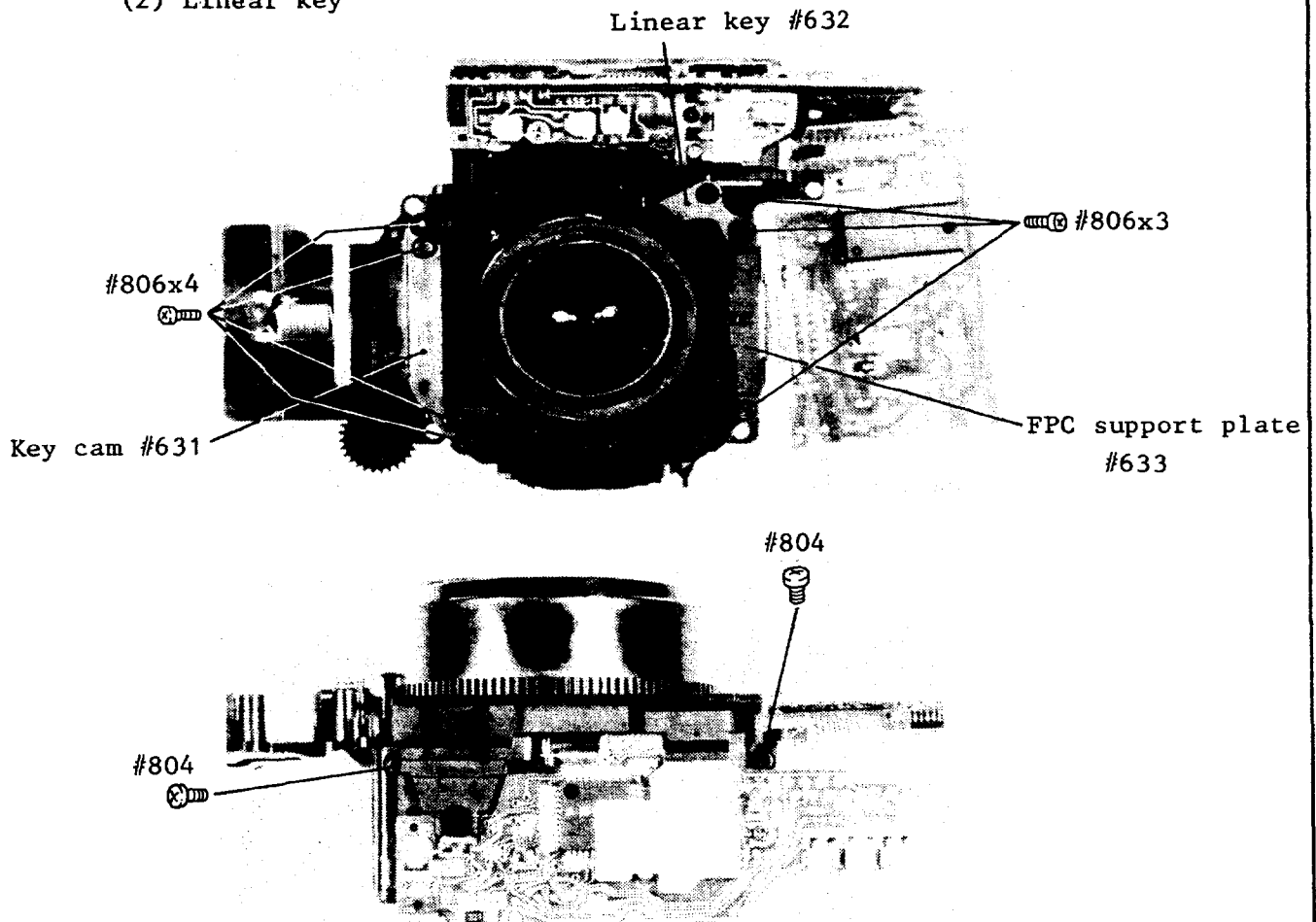
(12) Body die-casting

Following parts can be taken off from body die-casting:

- a) Battery chamber lid SW, Camera back SW (#125x2) and screws (#827x2)
- b) Battery contacts (#235x2) and screws (#811x2)
- c) Patorone retainer (#104)
- d) Light-baffle plate (#151), guide shafts (#152x2) and springs (#153x2)
- e) Lock key (#111) and lock key spring (#112)
- f) Body-side film roller unit (B241)
- g) Body light-tight sponge (#132)
- h) Light-tight sponges (#137x2)
- i) Film load position label (#133)

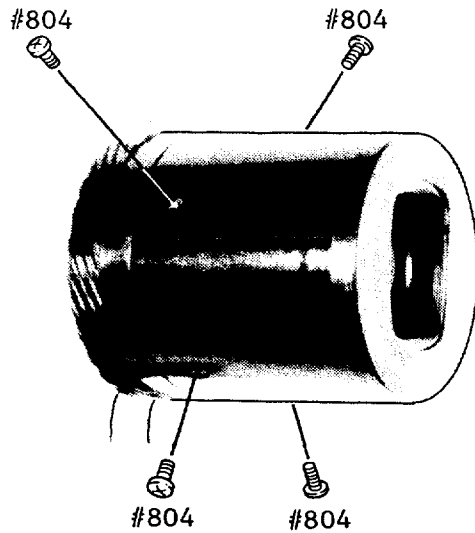
3. DISASSEMBLING PROCEDURES (LENS BARREL)

- (1) Key cam
- (2) Linear key

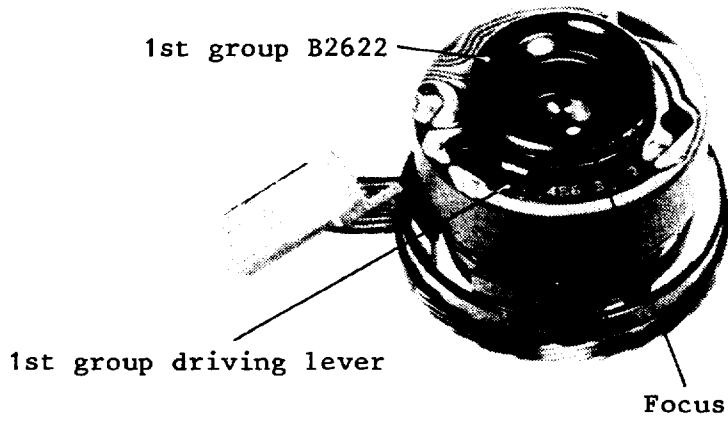


After removing all the screws, pull out FPC support plate, linear key and key cam backward. Then, remove inner helicoid backward.

(3) Lens barrel



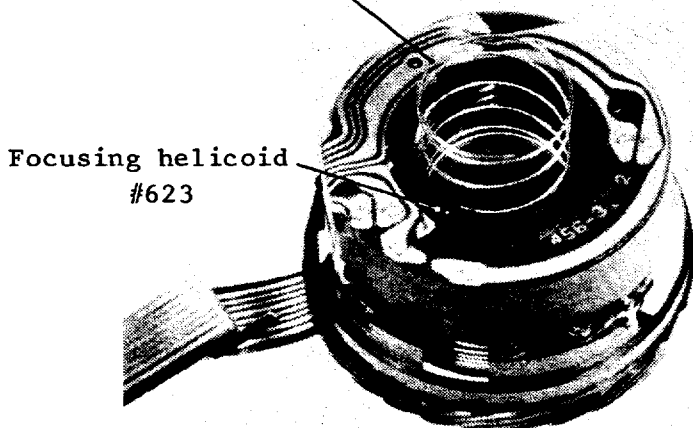
(4) 1st lens group



- a) Remove adhesive agent on focusing ring and 1st lens group unit to make the 1st lens group free.
- b) Rotate 1st lens group unit clockwise while holding 1st group driving lever. Then take off 1st lens group unit. Note the spring inside.

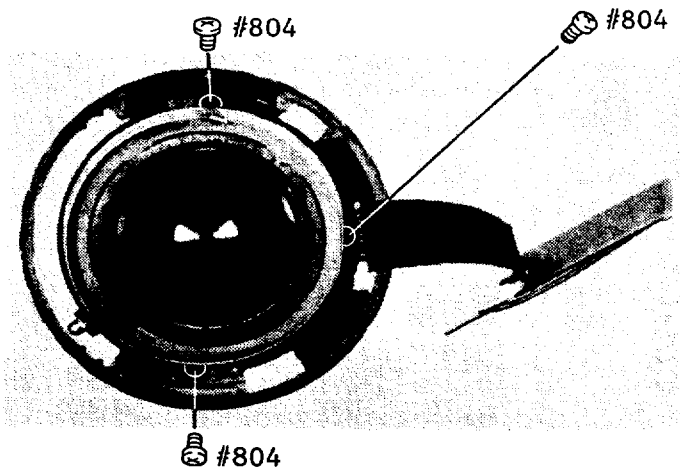
Do not rotate 1st lens group unit too forcefully, or inside gears may be broken.

1st group spring #628

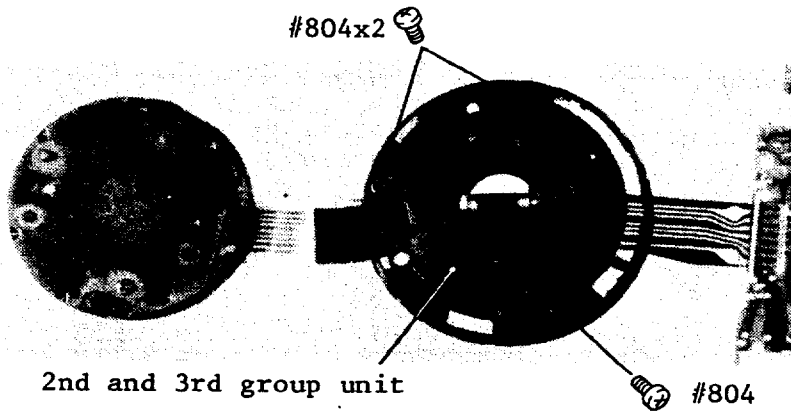


Rotate focusing helicoid in the counterclockwise direction by approx. 30°. (Note it is adhered.)

- (5) Inner helicoid
- (6) Shutter unit

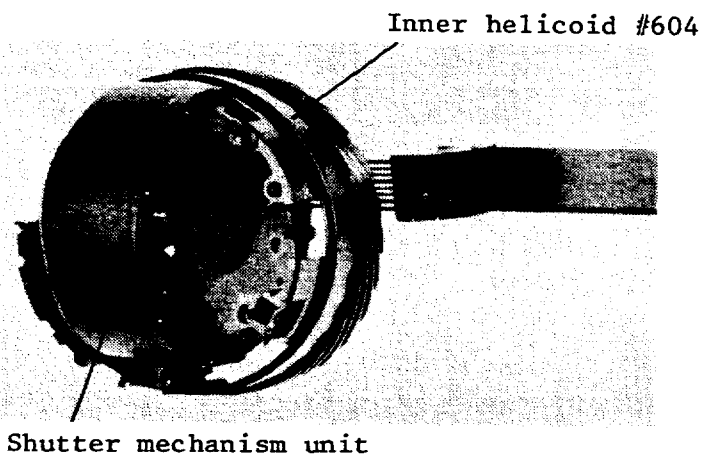


The screw is hard to see because it is located deeply.



2nd and 3rd lens group units comes off.

2nd and 3rd group unit

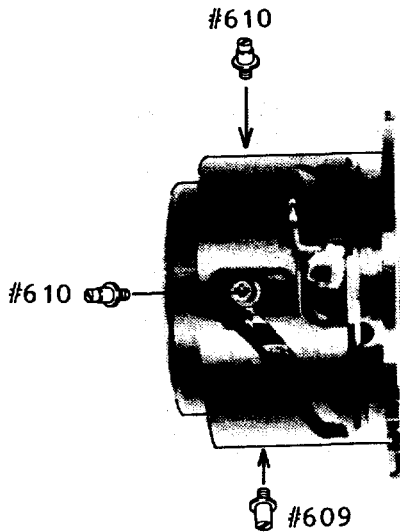
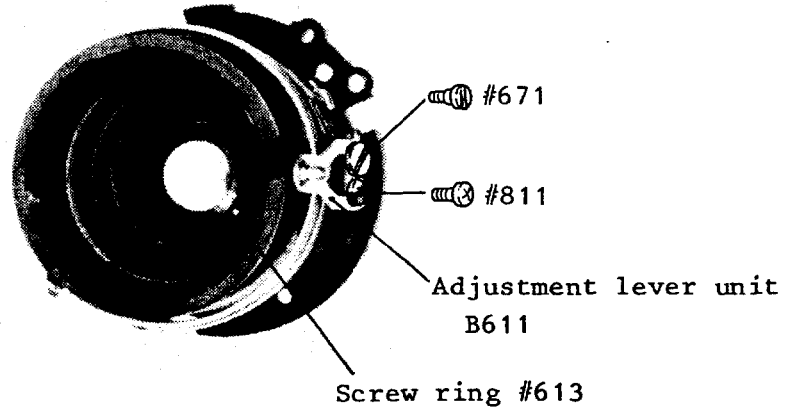


Pull out shutter mechanism unit through inner helicoid.

Shutter mechanism unit

- (7) 2nd lens group
- (8) 3rd lens group

Turning tube spring #615



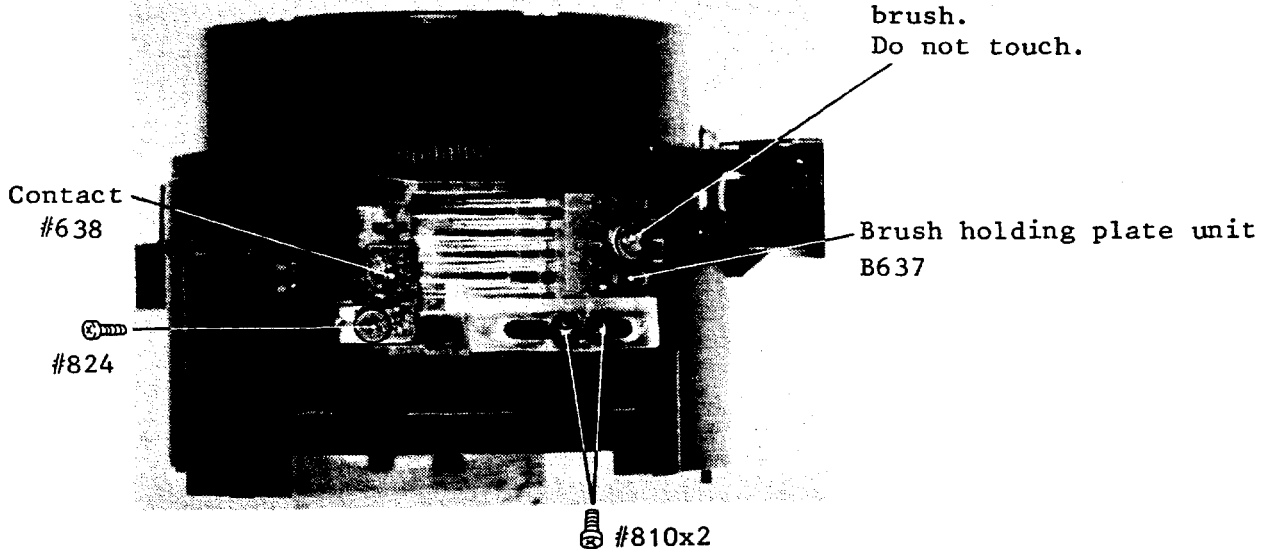
Unfasten screws at the position indicated in the left figure.

Disassembling can be made if two screws out of three (#610x2 and #609).

3rd group spring (#608) is mounted inside. The end of larger diameter is set at the rear side.

(9) Brush unit

This is not a screw but an eccentric pin to adjust the position of brush.
Do not touch.



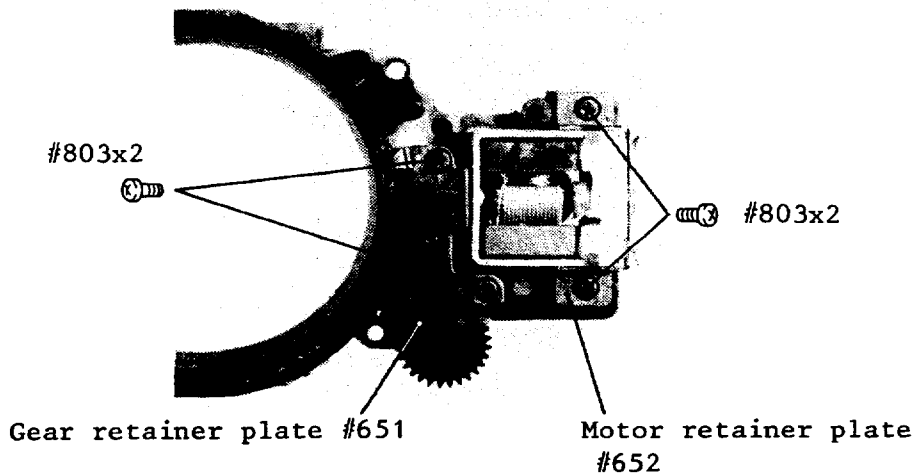
- (10) Helicoid motor unit
- (11) Gear unit

Helicoid motor unit B1201

Motor rubber is installed under the motor.

The following gears are installed under the gear retainer plate.

Gear 2	#643
Gear 3,4	#644
Gear 5	#645
Gear 6,7	#646



Note: When removing the motor, put a mark on it to distinguish front/back, and up/down.

- (12) Intermediate helicoid unit
- (13) Black box

Rotate intermediate helicoid clockwise looking from the front.

Note: Be sure to remove brush holding plate unit (B637) and contact (#638) before rotating intermediate helicoid. Otherwise, the brush is damaged.

- (14) Encoder FPC

Remove encoder FPC (#1004) from intermediate helicoid.

ASSEMBLING & ADJSUTMENT

- [1] ASSEMBLING & ADJUSTMENT (LENS BARREL) A1
- [2] ASSEMBLING & ADJUSTMENT (BODY) A8

1. Adhesive to be used is as follows:

Sony Black SC-306	#520
Screw Lock (red or clear)	#350
Krazy Glue	#921
Five minutes	#616
Priobond 551A	551A
Priobond G103	G103

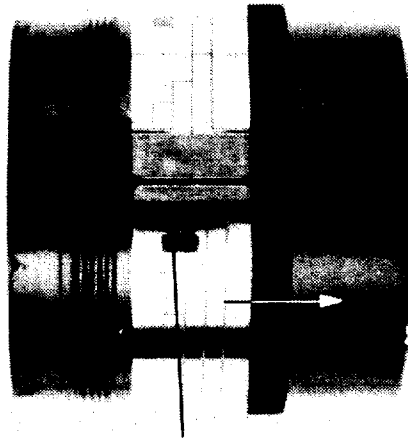
2. Grease to be used is as follows:

Grease	G92KA (G7100 can be used as a substitute.)
	G7100
	Solution of G7100 and Freon (G7100:Freon = 1:10-20)
Lubricant for helicoid	FX-25

3. Tightening torque

Do not tighten scrws too forcefully to prevent the break of screws.

(1) Encoder FPC



- a) Attach FPC while pushing it in the arrow direction.
- b) Be careful to paste it flatly.
- c) Clean the surface with alcohol.

Note: Protrusion at the reference attachment position works as a mechanical stopper for T mode.

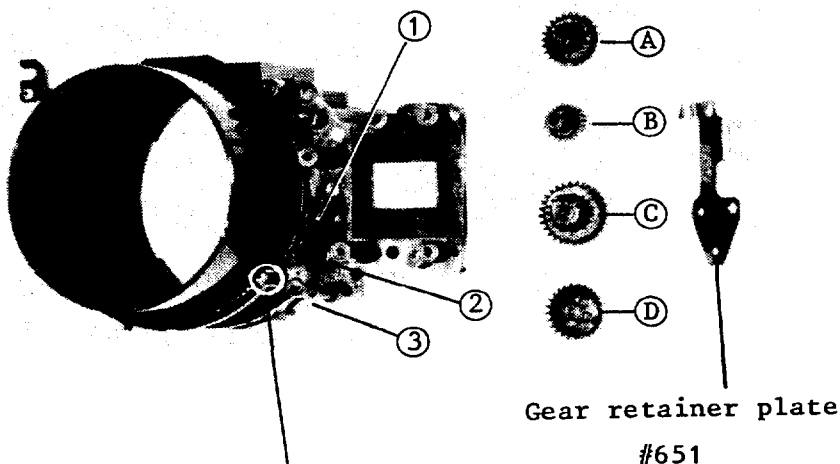
Reference attachment position

(2) Intermediate helicoid

- a) Apply G92KA slightly on the inner lead of black box (#601).
- b) Apply FX-25 on the inner lead of intermediate helicoid (#602).
- c) Mount intermediate helicoid on black box. Mounting position is automatically determined because it has single screw thread.
- d) When rotation of intermediate helicoid becomes tight, turn it back by 3/4 rotations.

(3) Gears

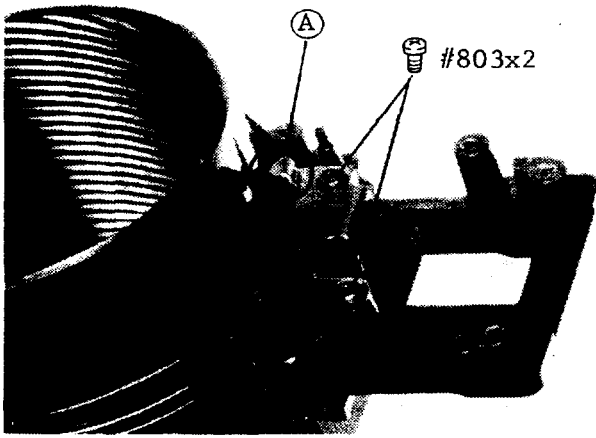
Apply solution of G7100 and Freon to each gear, gear shaft and bearing.



Set A on 2 .
 Set B on 1 .
 Set C on 3 .
 Set D on 2 .
 Fix gear retainer plate with screws (#803x2).

A : #644
 B : #643
 C : #646
 D : #645

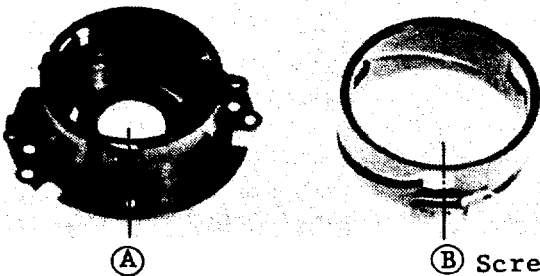
Stopper for intermediate helicoid rotation



When the rotation stopper of intermediate helicoid touches gear retainer plate, difference of height at portion A should be approx. 0.5mm.

(4) 2nd & 3rd lens groups

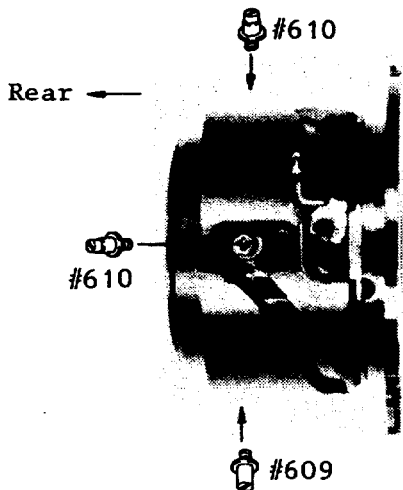
Turning tube #605



a) Align A with B.

Screw hole to attach adjustment lever B611

Reference hole (oval) for shutter attachment



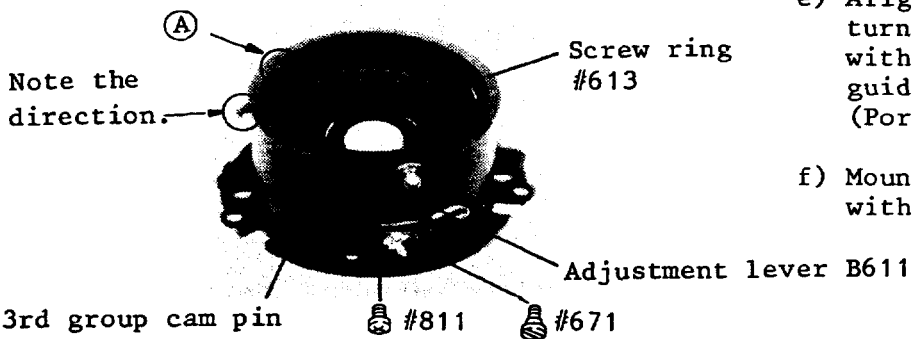
b) Mount 3rd group spring.
The end of larger diameter is to be mounted at the rear side.

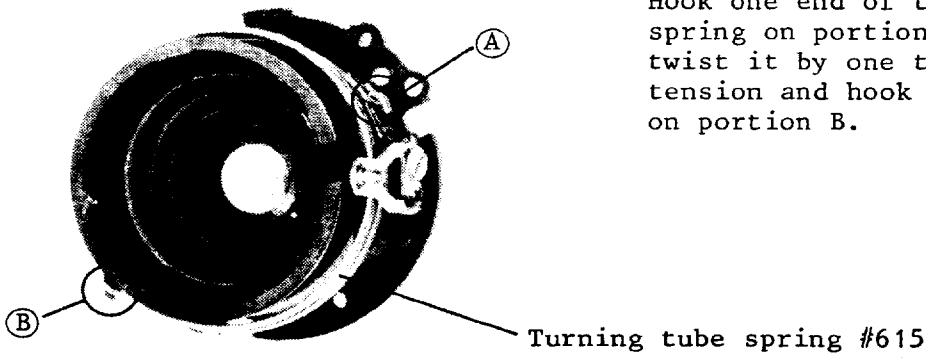
c) Fasten screws at the position indicated in the left figure.

d) Set 3rd group cam pin as shown in the left figure.

e) Align the protrusion of turning tube retainer ring with the notch on linear guide tube (#603). (Portion A)

f) Mount adjustment lever with screws (#671, #811).

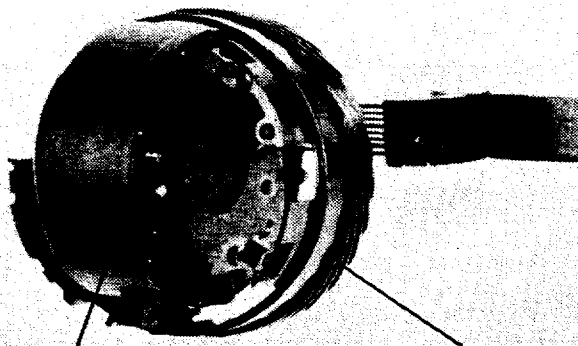




Hook one end of turning tube spring on portion A. Then, twist it by one turn to add tension and hook the other end on portion B.

Note: The shape of portion A and the spring hook may be different from the figure.

(5) Inner helicoid, Shutter unit

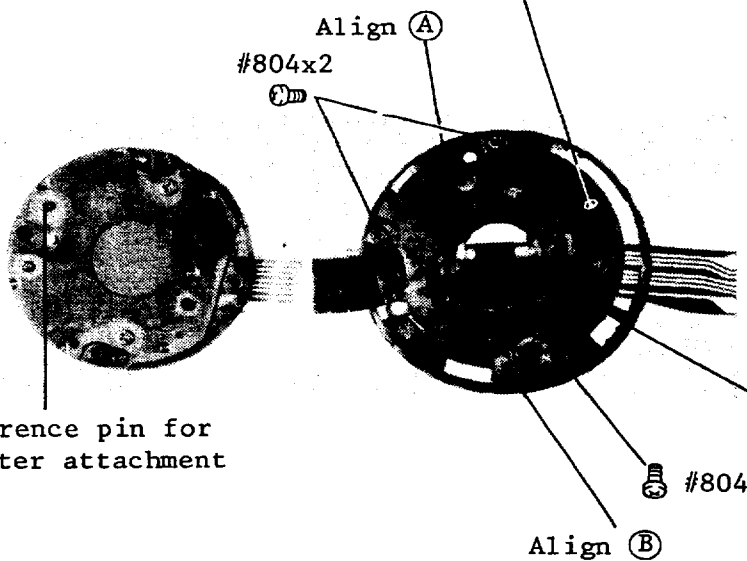


Shutter mechanism unit

Inner helicoid #604

a) Pass shutter mechanism through inner helicoid.

Reference hole for shutter attachment (oval)



b) Align A with B.

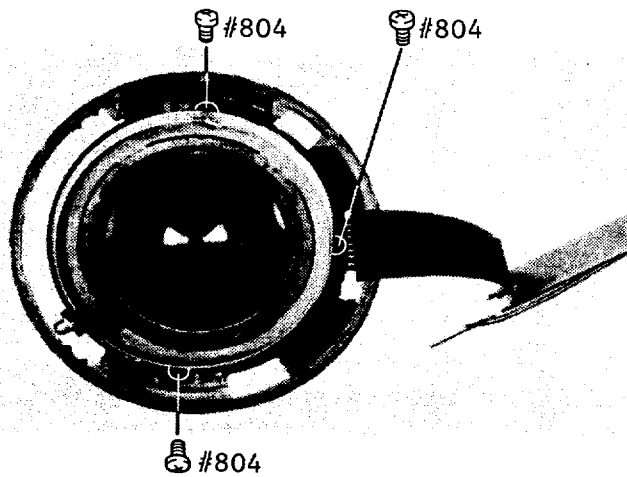
c) Attach 2nd and 3rd lens group unit to inner helicoid using screws (#804x3).

d) Align reference pin and reference hole.

* Be careful not deform the inner helicoid.

Reference pin for shutter attachment

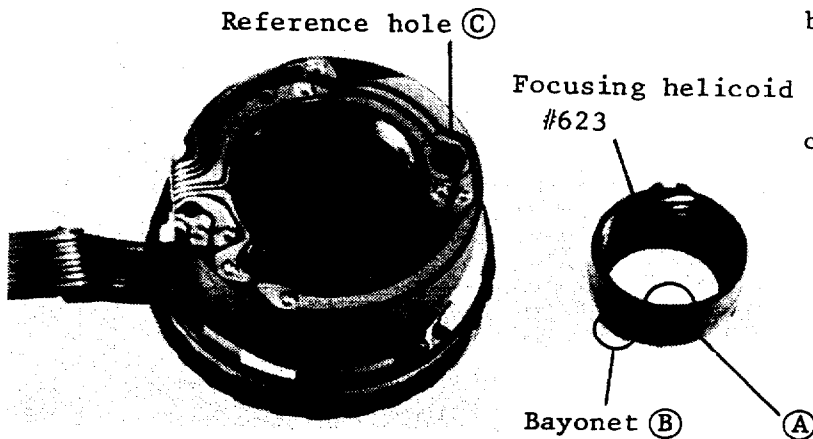
2nd and 3rd lens group



e) Fix shutter mechanism with screws #804x3.

* Be careful not catch the spring.

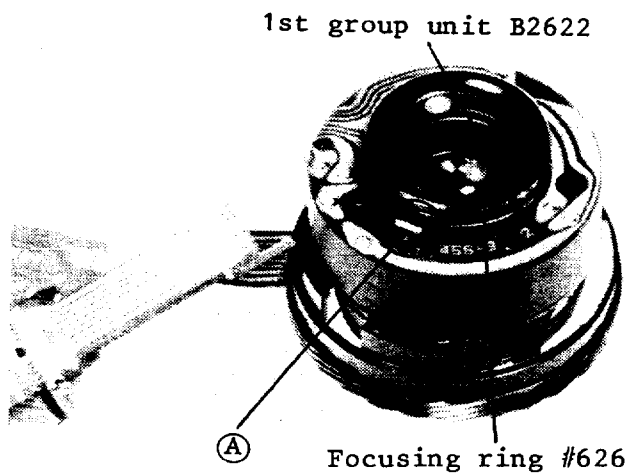
(6) 1st lens group



a) Apply FX-25 on helicoid.

b) Apply Screw Lock on two portions other than the bayonet B.

c) Align portion A with C and turn the focusing helicoid clockwise to the end. (Note the position of A and B.)



d) Apply FX-25 on helicoid.

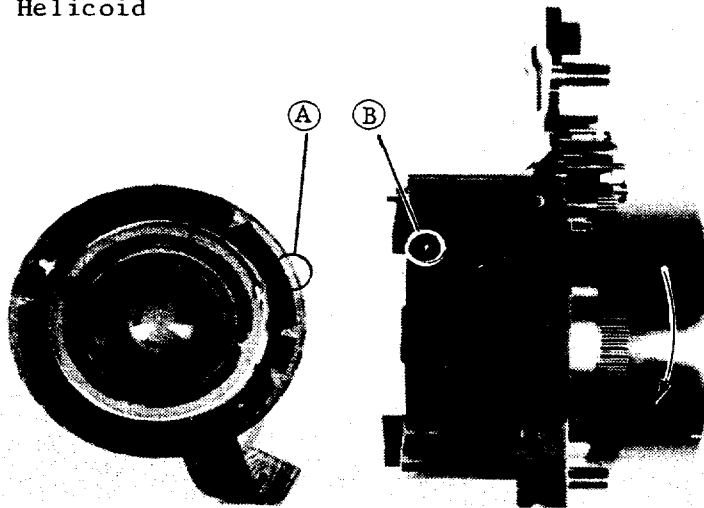
e) Mount 1st group spring #628 and then 1st lens group.

f) Fit 1st group driving lever with fork of focusing ring (portion A) and mount them.

g) Once 1st lens group is installed (pushed to the end), move it back by approx. 2mm.

Do not provide 1st group driving lever with excessive force.

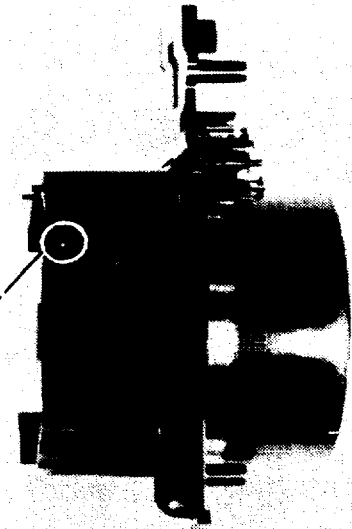
(7) Helicoid



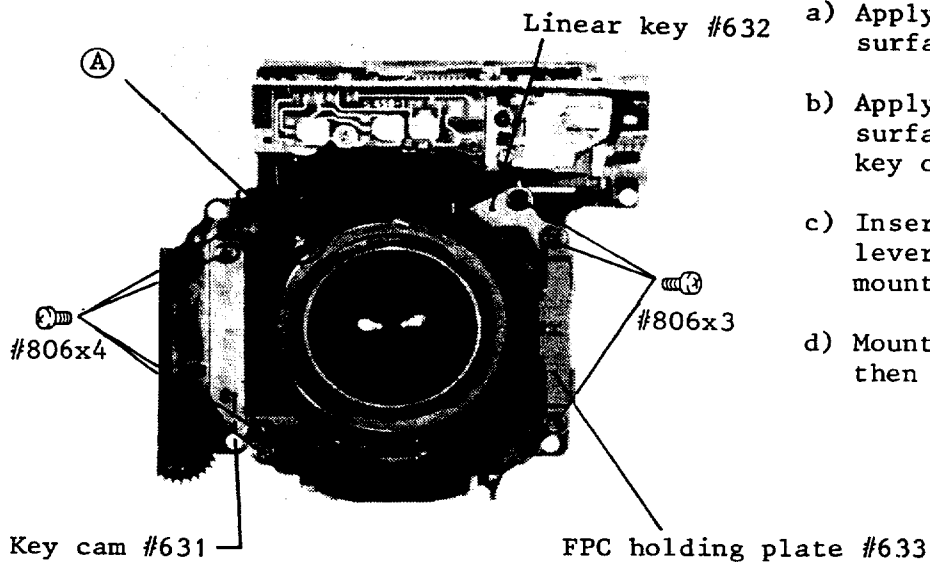
Align mark B on inner helicoid with mark A which appears when intermediate helicoid is rotated in the arrow direction. Then, mount helicoid.

Note: Do not helicoid at the position shown in the right figure. (Another mark appears first.)

Another mark appearing first

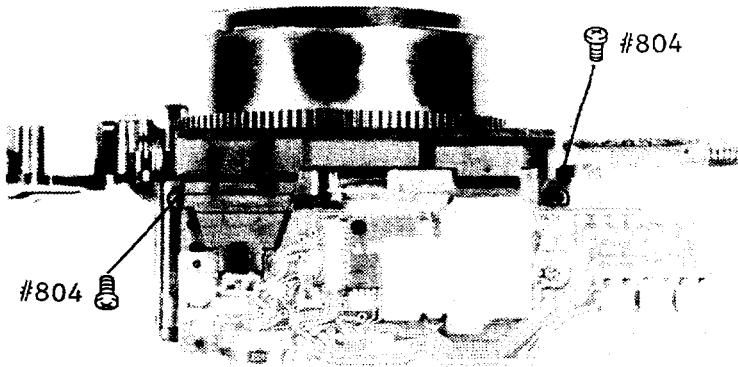


(8) Linear key, Key cam

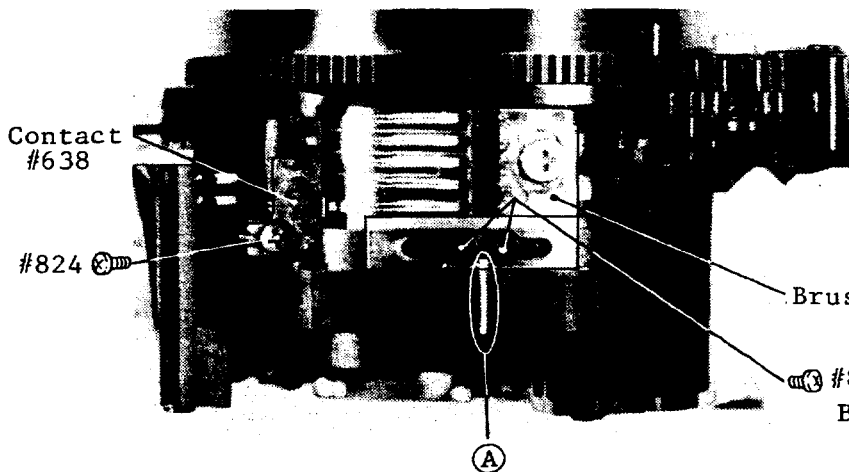


- a) Apply G7100 on the sliding surface of linear key.
- b) Apply G7100 on the sliding surface and cam surface of key cam.
- c) Insert the pin of adjustment lever into key cam and mount them.
- d) Mount linear key first, and then FPC holding plate.

(9) Shutter AF unit



(10) Brush



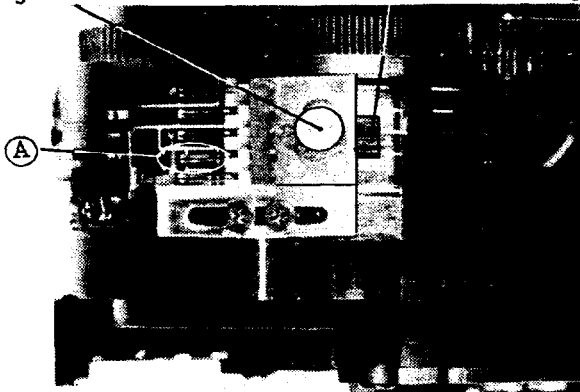
Align marks on brush holding plate unit and black box, and fix them with screws #810x2 temporarily. This position varies when focus back is adjusted.

Brush holding plate unit B637
#810x2
Back focus adjustment screw

(11) Adjustment of brush position

Eccentric pin for brush position adjustment

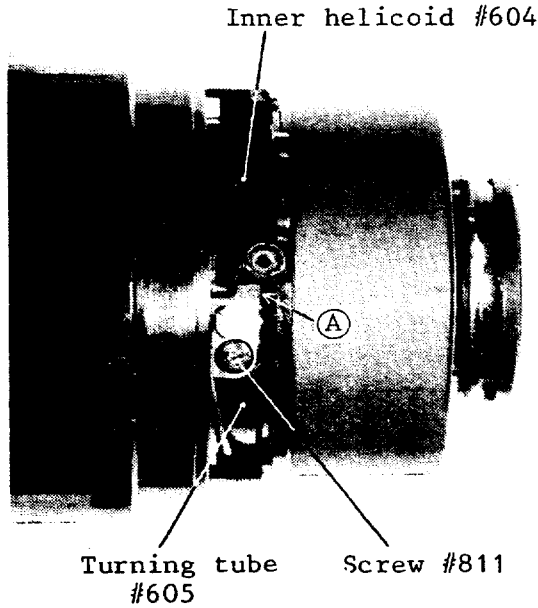
T mode mechanical stopper



- a) Rotate intermediate helicoid clockwise to the end.
- b) Rotate eccentric pin so that the brush (A) would be at the position as shown in the left figure. (at the rift of patterns)
- c) Fix the eccentric pin with Screw Lock.

Note: When T mode mechanical stopper touches brush holding plate, the condition is referred as "T mode mechanical lock position".

(12) 3rd lens group "T mode mechanical lock position" adjustment



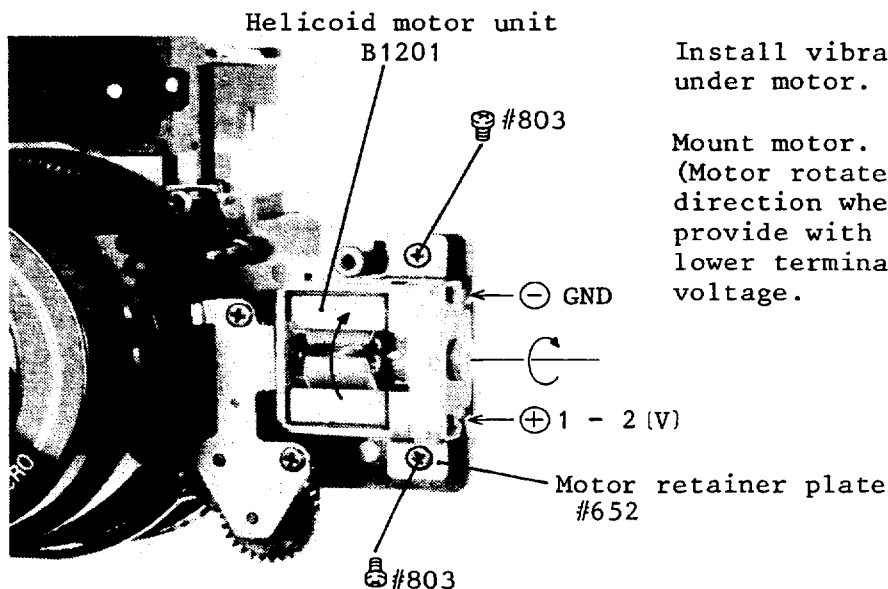
- a) Make T mode mechanical stopper touch brush holding plate and unfasten screw #811.
- b) Rotate turning tube #605 so that portion A touches the stopper of inner helicoid. Then, fasten screw.
- c) Rotate intermediate helicoid slightly in the counterclockwise direction and then set it again in the "T mode mechanical lock position". Make sure that portion A and T mode mechanical stopper touch inner helicoid stopper and brush holding plate respectively at the same time.

Note: Do not apply Screw Lock on screw #811 at this stage, but do after adjusting focus back.

(13) Lens barrel unit

Fix lens barrel unit temporarily with screws #804x4. Then, rotate intermediate helicoid so that lens cover can be closed. If you become practiced to this work, lens barrel may not necessarily be fixed.

(14) Motor unit



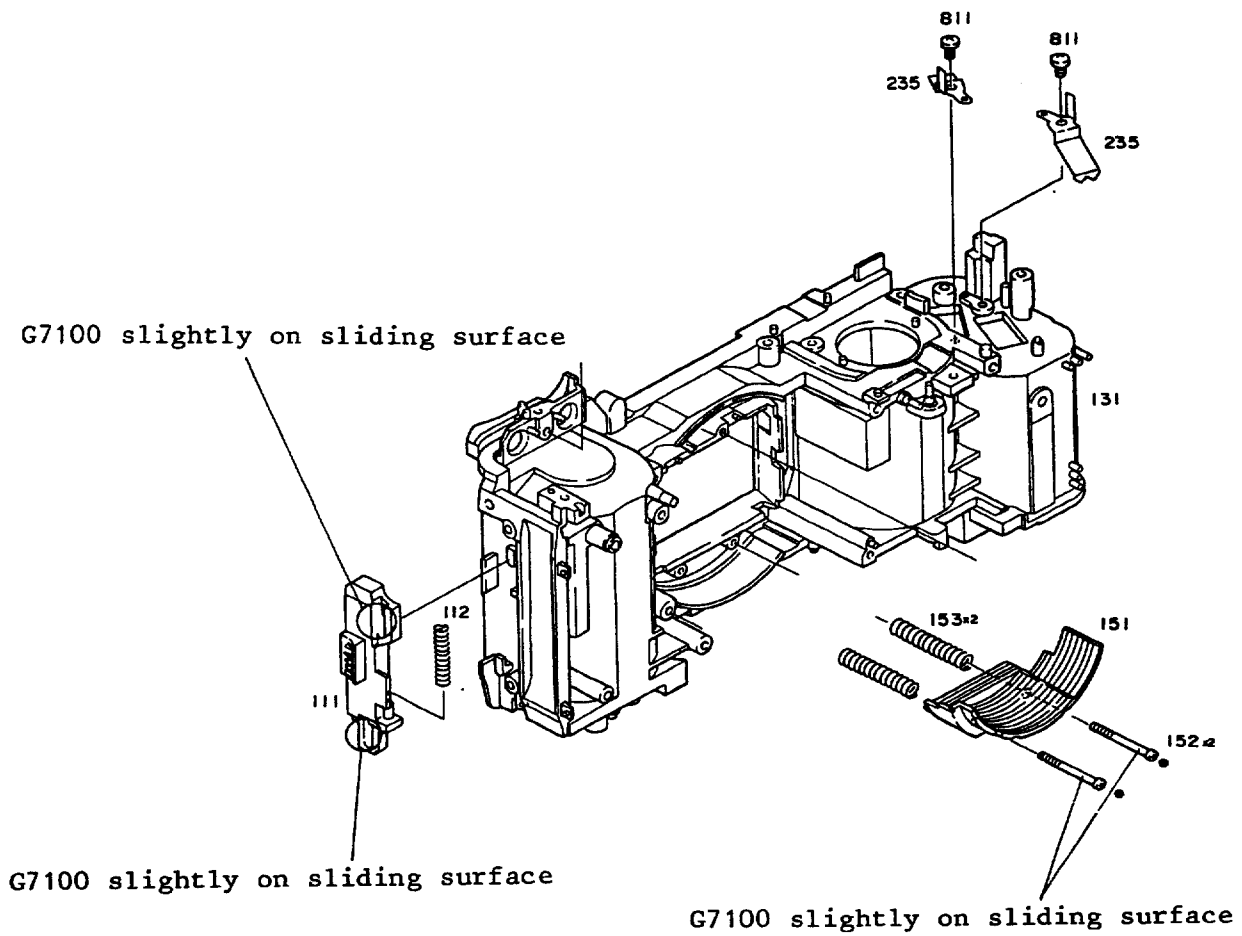
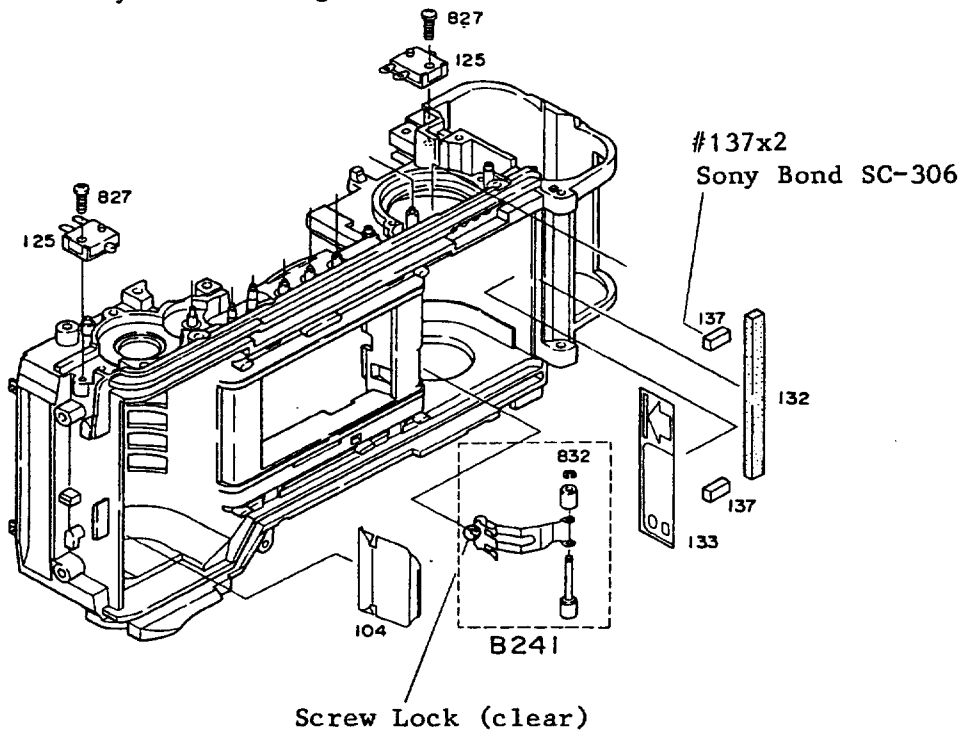
Install vibration-proof rubber under motor.

Mount motor.

(Motor rotates in the arrow direction when upper terminal is provided with negative voltage and lower terminal with positive voltage.)

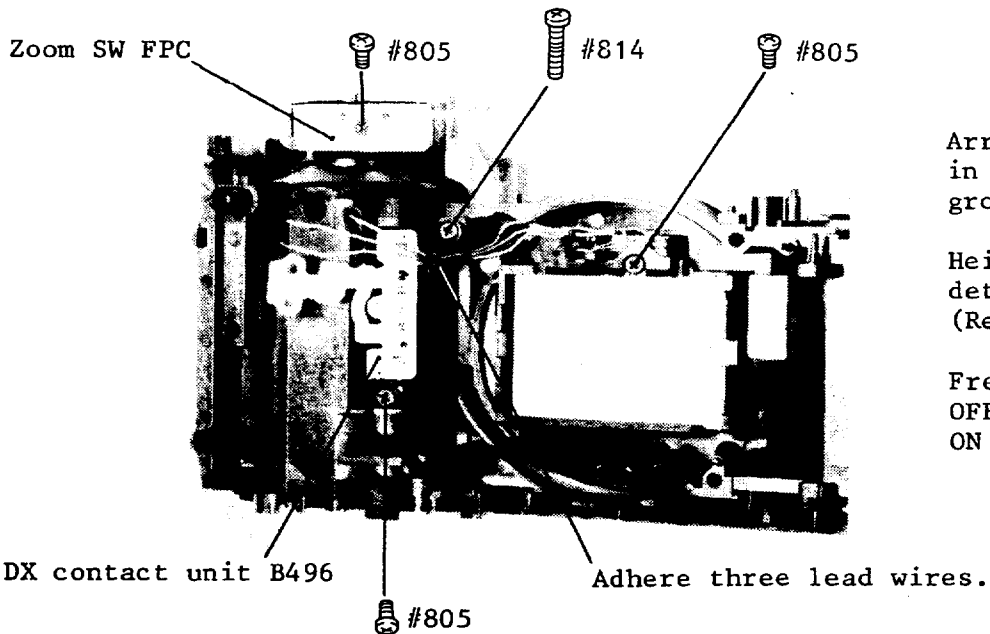
2 ASSEMBLING & ADJUSTMENT (BODY)

(1) Parts on body die-casting



(2) Zoom SW FPC, DX contact, Film detection unit

Film detection unit B481

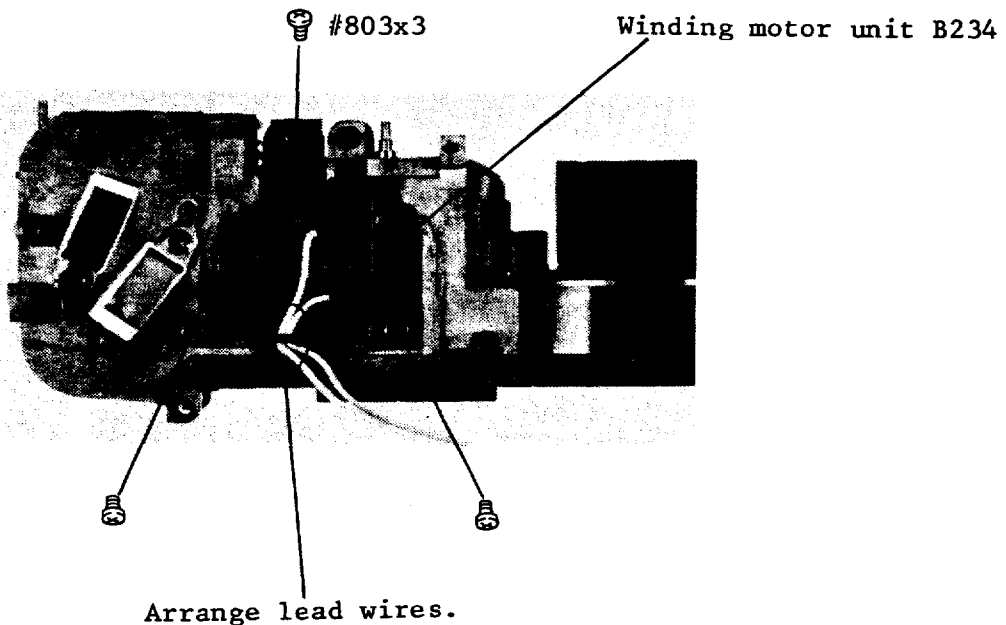


Arrange lead wires in order using guide grooves and pins.

Height of film detection button:
(Ref: inner guide rail)

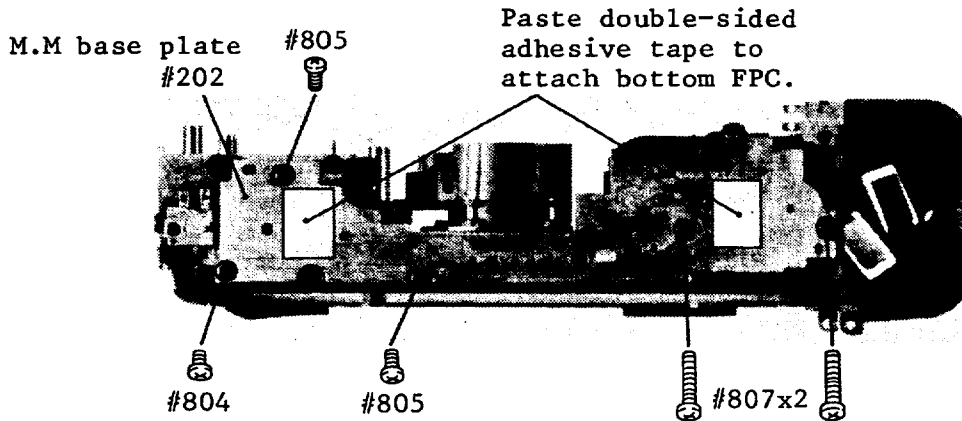
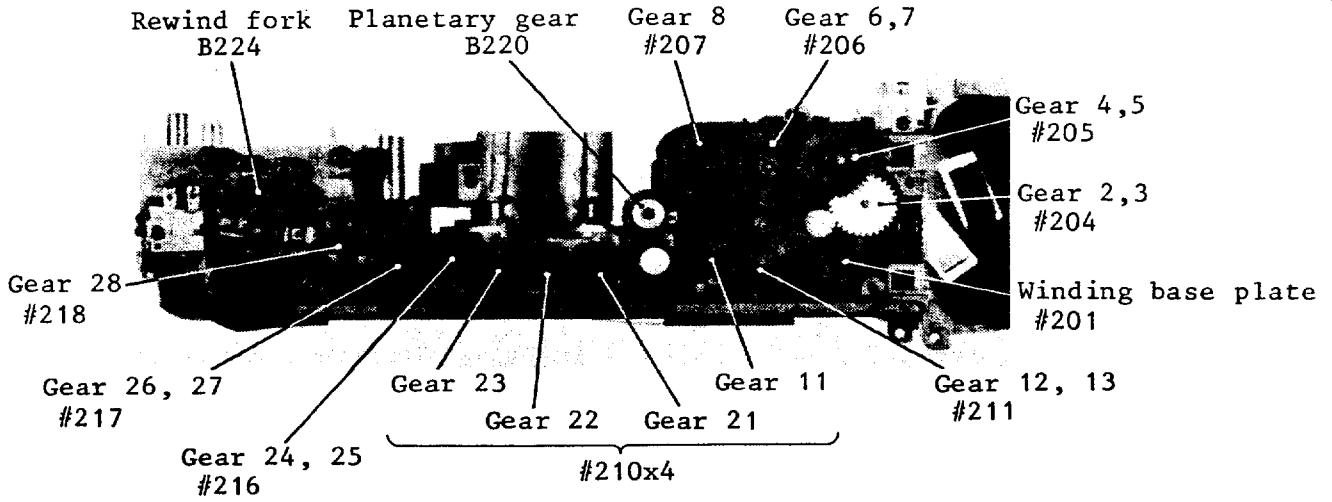
Free: $1.05 \pm 0.3\text{mm}$
OFF : 0.7mm or more
ON : 0.3mm or less

(3) Film advance motor unit

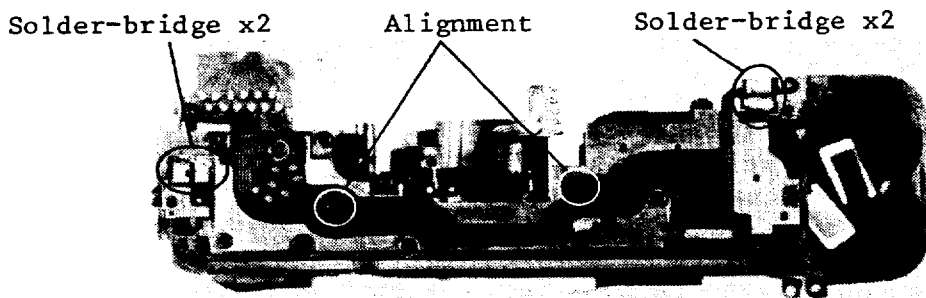


(4) Film advance/rewind gear unit

- a) Mount spool.
- b) Apply G7100 on the circumference of the engaged part of winding base plate (#201) with spool.
- c) Apply solution of G7100 and Freon on each gear, gear shaft and bearing.



(5) Bottom FPC

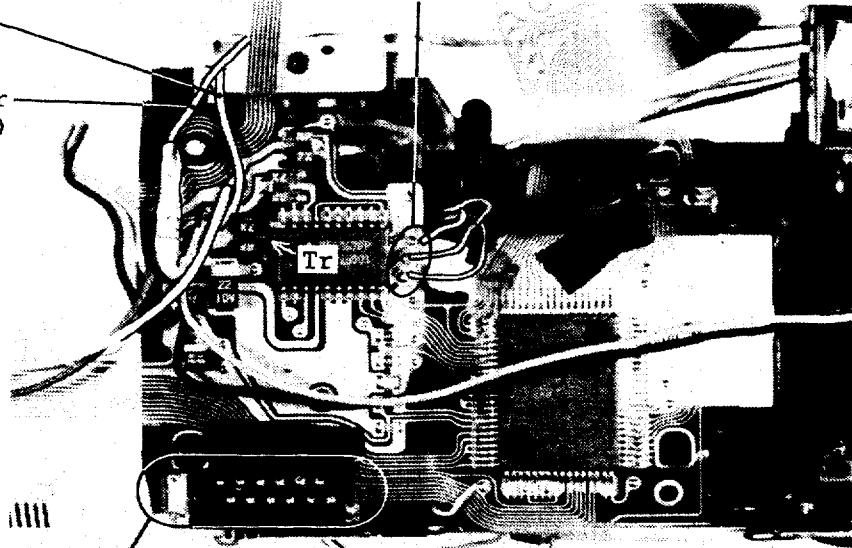


(6) Main FPC

Gray wire: Winding motor
(Left of Tr)

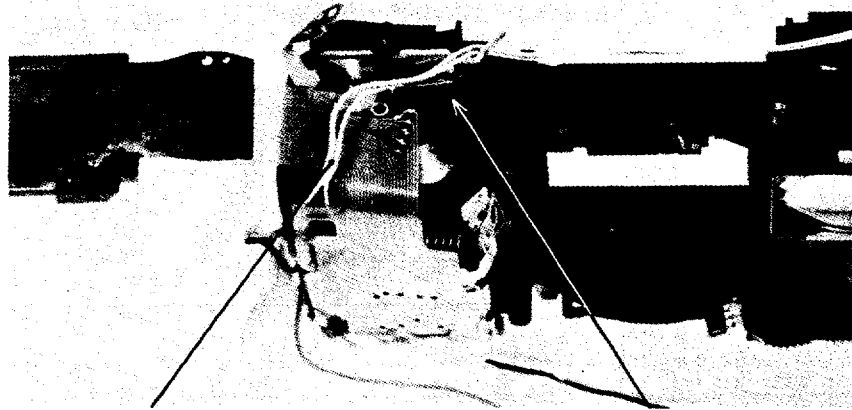
Three wires: Film detection unit
(gray, blue, purple from the top)

Orange wire: Winding motor
(Same line as green wire)



Solder-bridge x14

Arrange FPC and winding motor lead wire.



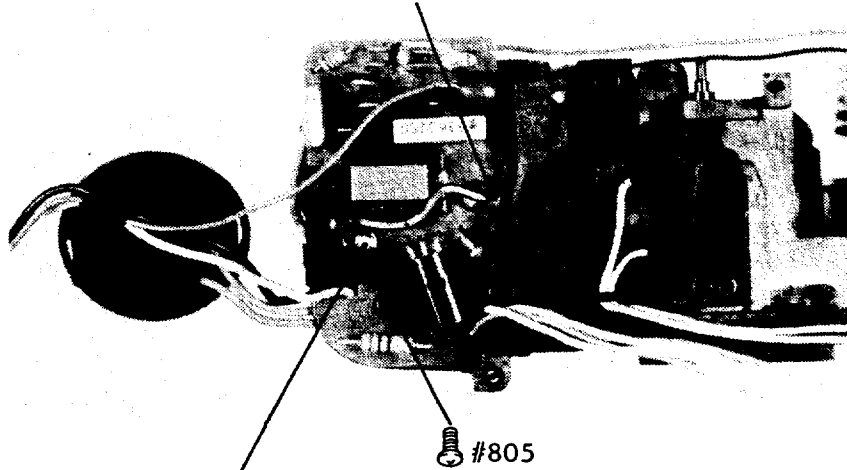
Wire from motor

Bend FPC and insert
it under zoom SW.

(7) flash unit

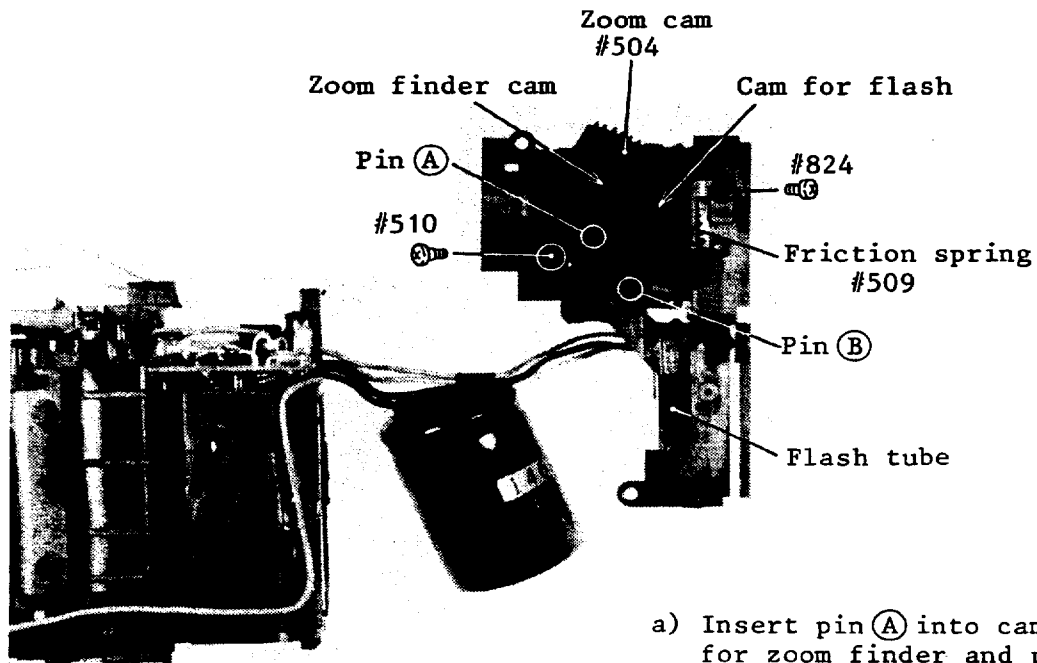
Be sure to install insulation plate (#236) under flash base plate.

Solder-bridge with battery contact
&
soldering of red wire from main FPC



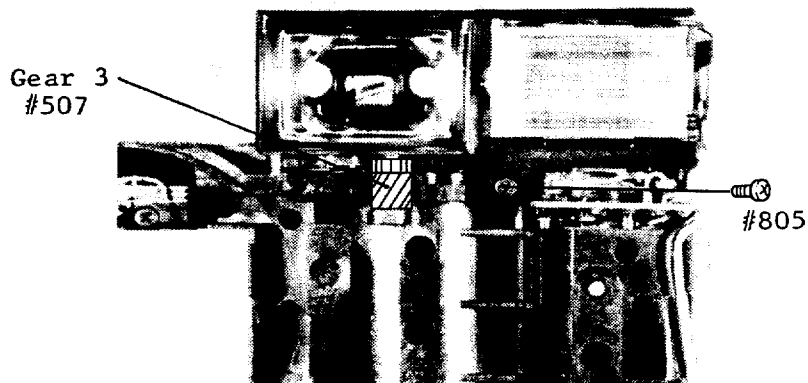
Solder-bridge with battery contact
&
soldering of black wire from main FPC

(8) Viewfinder unit

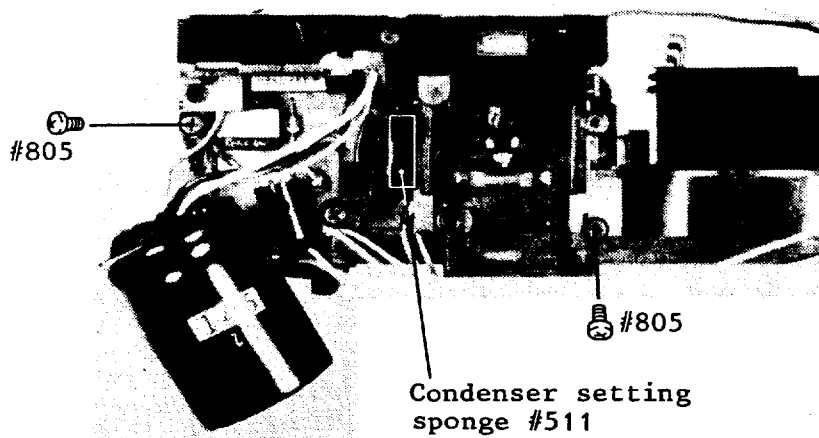


a) Insert pin (A) into cam groove for zoom finder and pin (B) into cam groove for flash. Then, fasten screw #510.

b) Apply G7100 slightly on each sliding surface.

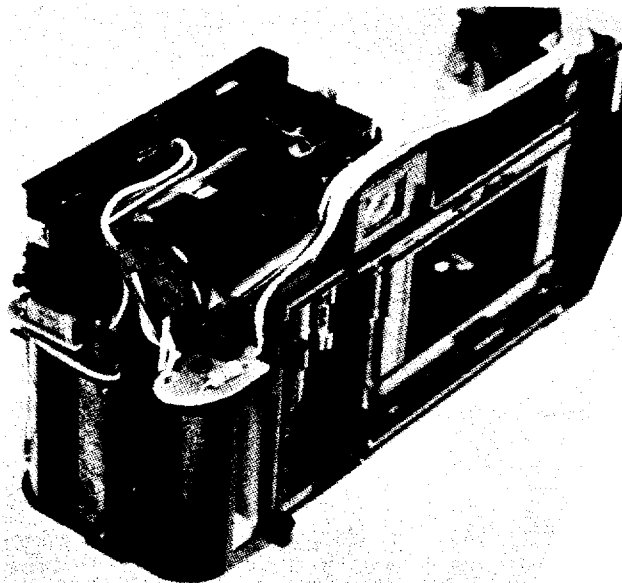


c) Flat gear of Gear 3 is to be set upward.



d) After fastening screws #805x2, fix main condenser with condenser setting sponge #511.

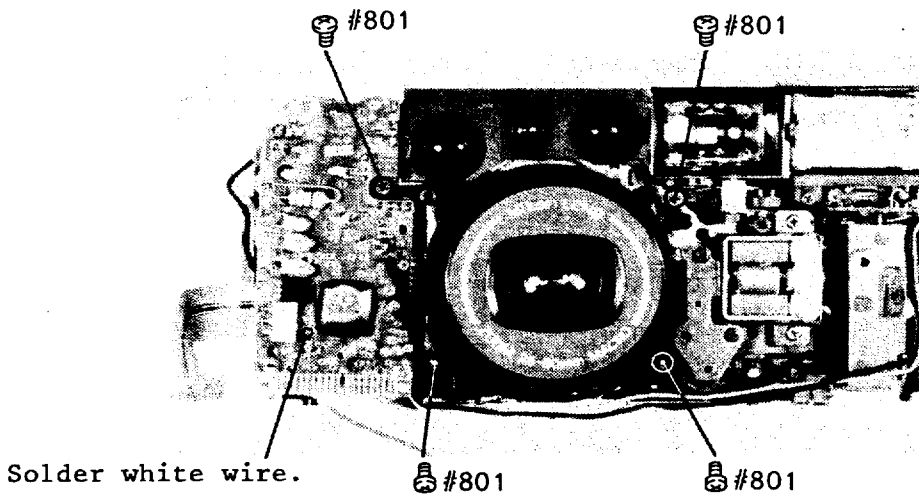
Arrange lead wires.



e) Attach lead wires using acetate tape, if necessary.

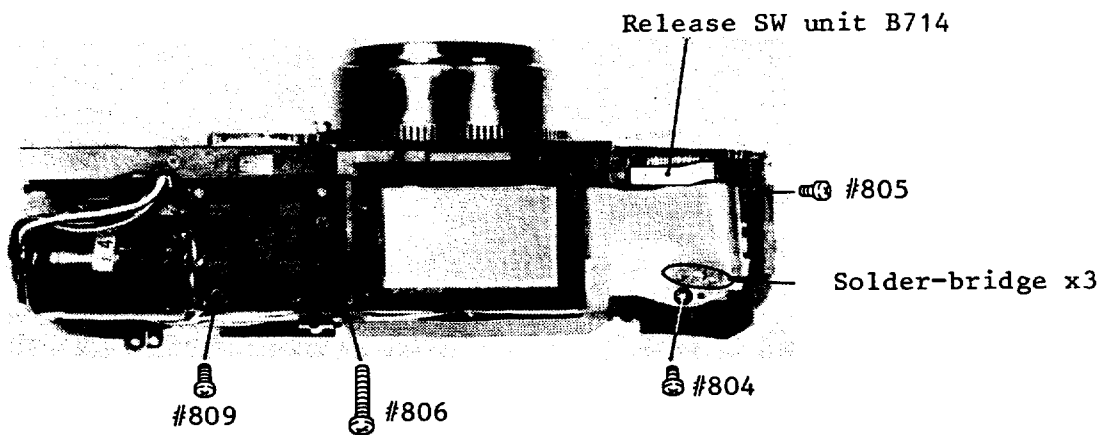
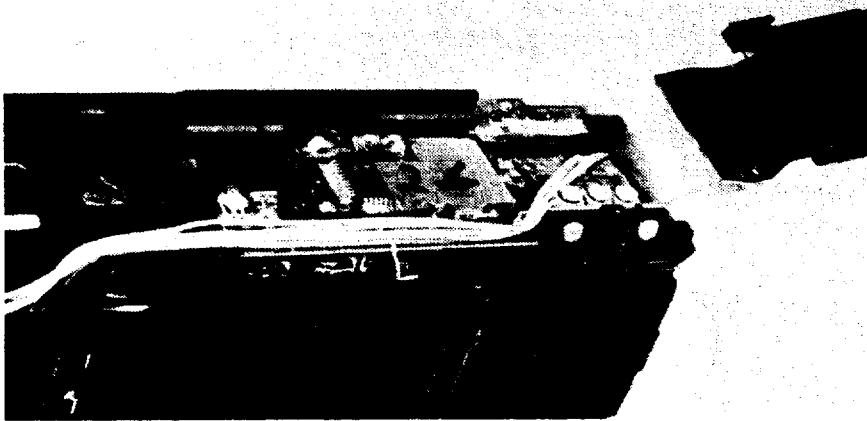
(9) Lens barrel unit

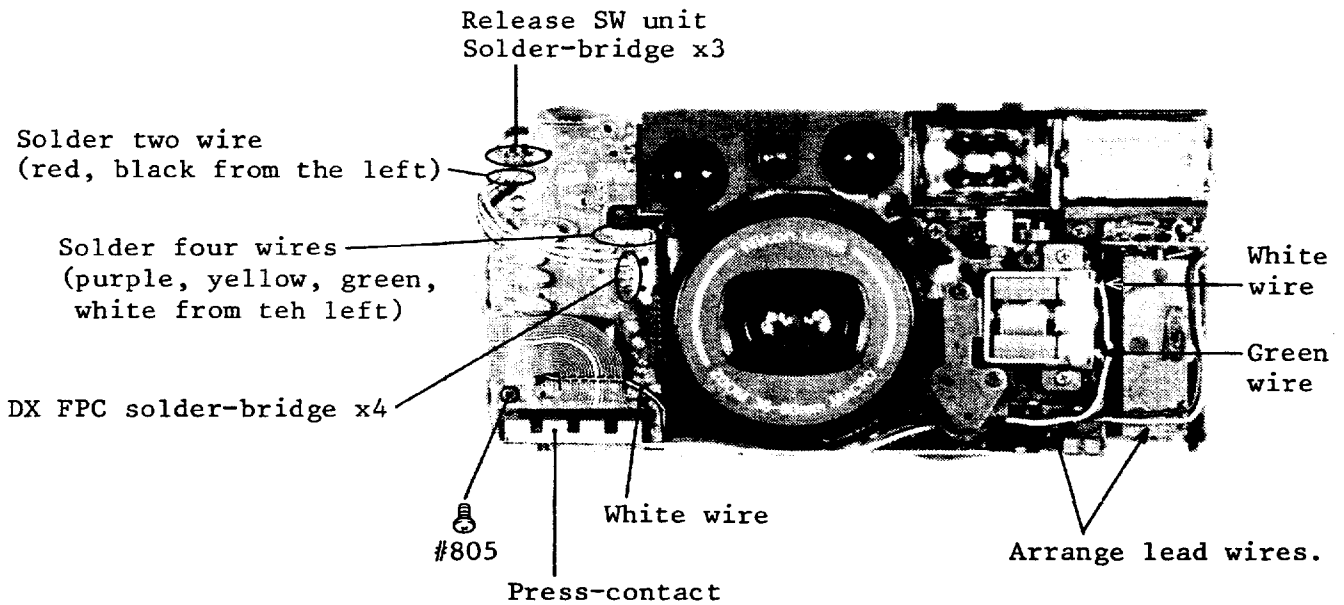
Mount lens barrel unit on body. Be careful about lead wires and FPC.



Fasten screws #801x4.

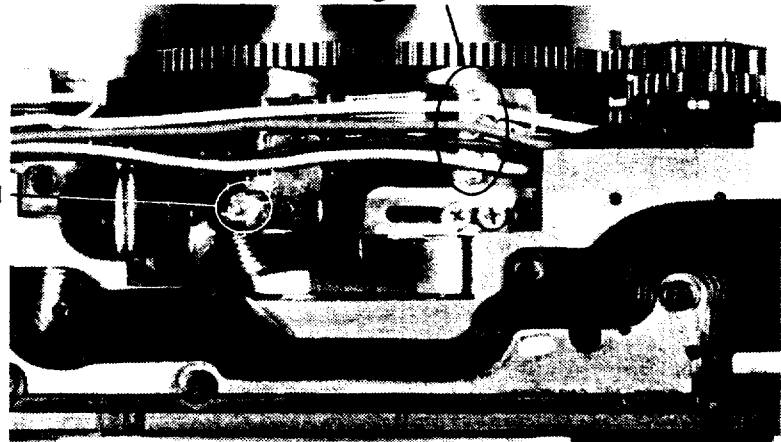
Arrange lead wires of release SW.





Solder-bridge x5
and
arrangement of wires

Solder-bridge x1

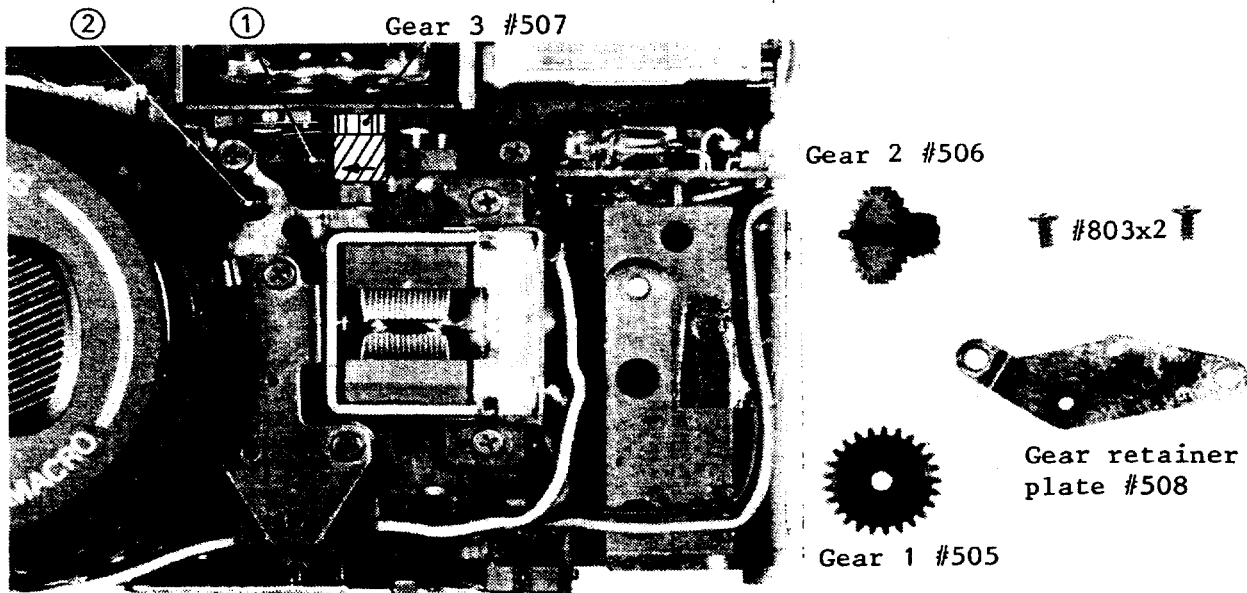


Inspection:

After completion of the above assembling, if camera back, batteries and battery chamber lid are attached, each operation can be inspected except zooming operation of viewfinder and flash.

After inspection, return the lens at the reset position.

Be sure to discharge main condenser for the next work.



- a) Apply solution of G7100 and Freon on each gear, gear shaft and bearing.
- b) Set Gear 2 #506 on shaft ①.
- c) Rotate Gear 3 #507 in the arrow direction to the limit. (Wide mode; Flash haed move sforth.)
- d) Set Gear 1 #505 on shaft ② while holding gear 3.
- e) attach gear retainer plate using screws #803x2.

Note: Be sure to set the lens at the reset position (lens cover closed) and viewfinder and flahs at Wide mode, when mounting Gear 1 and 2.

(10) Adjustment of back focus

Adjustment of back focus is divided into the following two steps:

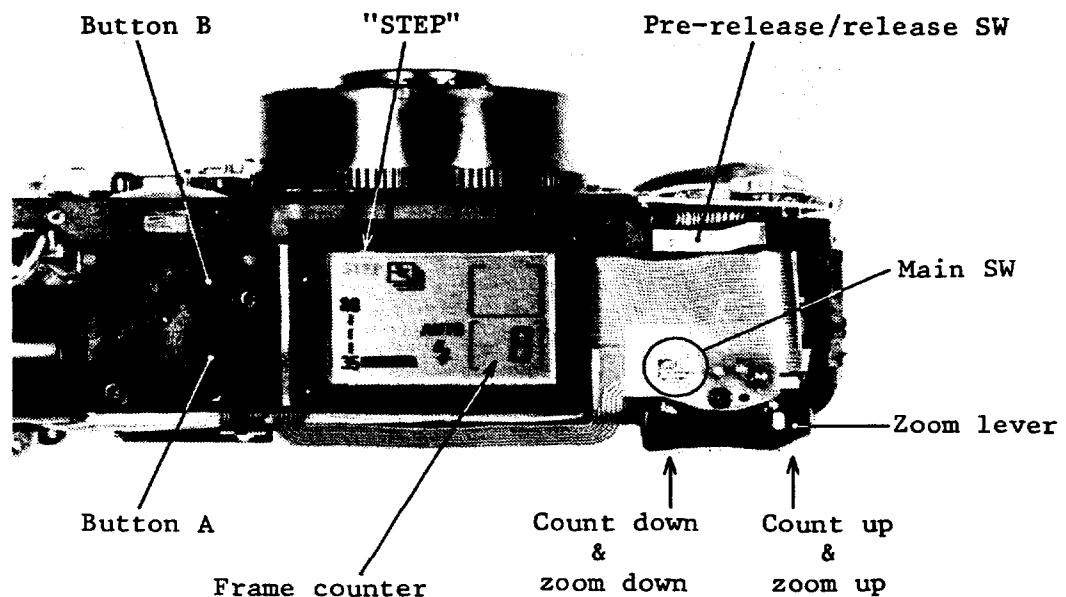
- i) Adjustment at both ends of focal length
- ii) Adjustment of back focus

For the above adjustment, "T mode mechanical lock position" must be set correctly. Also, installation of helicoid and adjustment of encoder brush position must be correct.

Tools: Collimator J19019 (24LT-2DTS, $f=193.5\text{mm}$)
 Mirror
 Camera back substitute tool (Self-made; Sets camera in the same condition as when camera back is closed)

Set the camera in the adjustment mode in the following order:

- a) Attach battery chamber lid using adhesive tape in order to turn off battery chamber lid SW. Either batteries or DC regulated power supply (5.5V) is usable as a power source.
- b) Set camera back substitute tool to turn off camera back SW.
- c) Install zoom lever.
- d) Short-circuit main SW in order to move the lens to Wide position.



- e) Depress button A for approx 5 seconds or more. (Keep depressing the button.) The display "E" on frame counter changes to a number.
- f) Depress button B for approx. 5 seconds while depressing button A.
- g) When the display "STEP" starts blinking, turn off button B. (Keep depressing button A.)
- h) Push "W" or "T" of zoom lever until frame counter shows "8".
- i) Turn off button A. Display returns to "E".
- j) Confirm the display by turning on pre-release SW. If the display "STEP" is blinking and frame counter shows "8", setting of step is completed. (This setting of step continues until main SW turns on again.)
- k) Short-circuit both ends of data back contacts and push release SW.
- l) If data back contacts becomes open while release SW is on, shutter sector is kept open until release SW is turned on again.
- m) Bulb mode continues until main SW is turned on again. Zooming operation is possible when sector is closed.
- n) After completion of the above settings, back focus adjustment becomes possible.

Note: If lens barrel unit is attached, the adjustment is not possible.

a) Zooming focus deviation adjustment

Rotate 1st lens group to adjust zooming focus deviation.

Shift of back focus at the Telephoto side is larger than that at the Wide angle side. At the Tele setting, rotating 1st lens group clockwise decreases the indication of collimator (space between lenses becomes wide) and rotating counterclockwise increases it (space between lenses becomes close).

For example, if indication at W and T side is -150 and -130 respectively, rotate 1st lens group slightly in the clockwise direction.

Standard: +0
-25 scales

(Compare the indication at T side with that at W side.)

Collimator indicates -160 - -200 at both T and W ends ordinarily.

Adhere 1st lens group unit and focusing ring #626 after adjustment.

Note: a) Set the camera at the horizontal position when opening shutter sector or zooming the lens.

b) Put the camera quietly on collimator.

c) Be careful of electric shock.

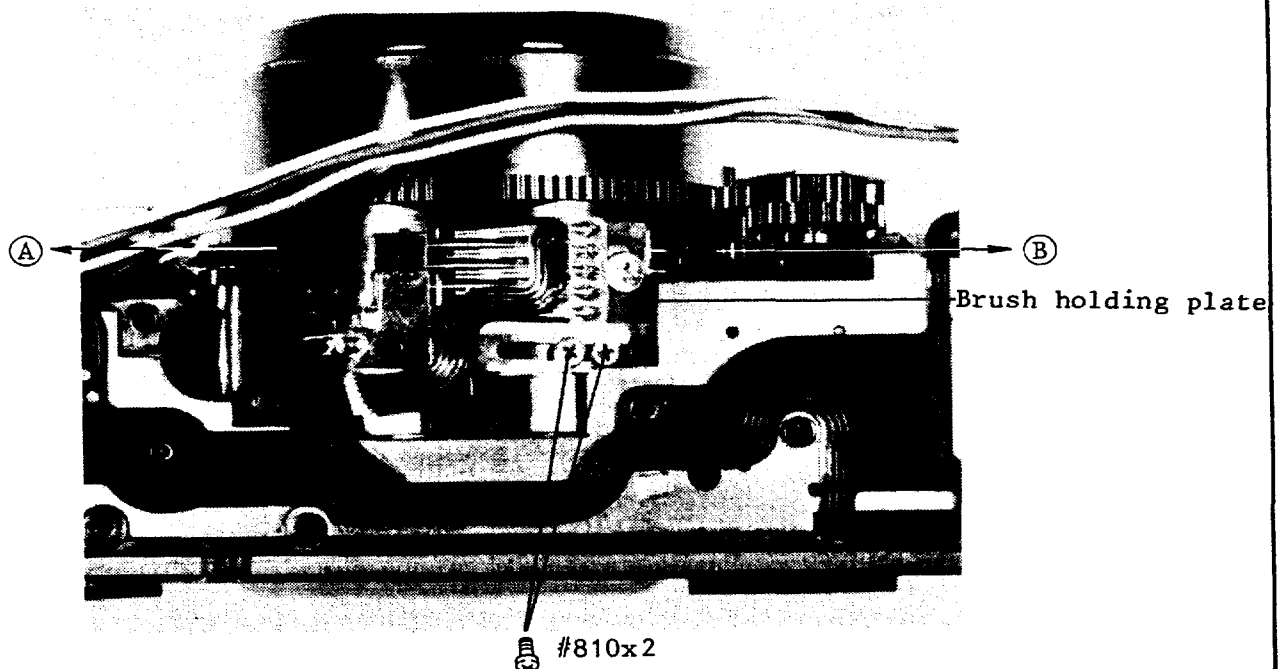
b) Back focus adjustment

Remove screws (#803x2) and helicoid motor unit. (Refer to page A7.)

Unfasten adjustment screws (#810x2) and move brush holding plate.

If reading on collimator is positive, move it in the direction A.

If the reading is negative, move it in the direction B.



Readjust 3rd group "T mode mechanical lock position".
(Refer to page A7.)

Mount helicoid motor unit with screws (#803x2) and make the zooming operation before inspecting back focus.

Set the focus step at 8, attach mirror on inner film guide rail and inspect back focus.

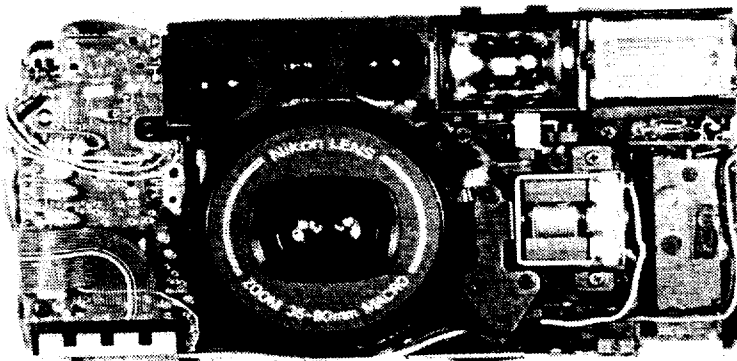
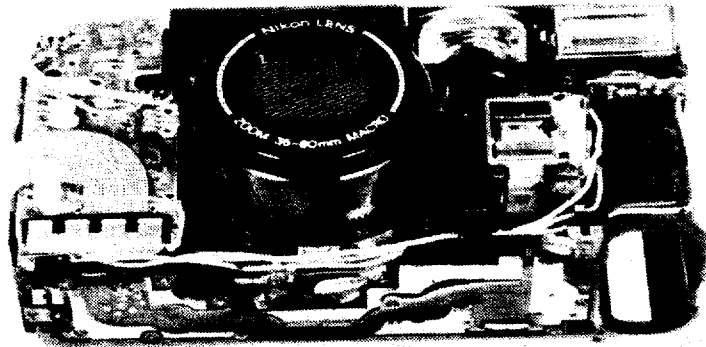
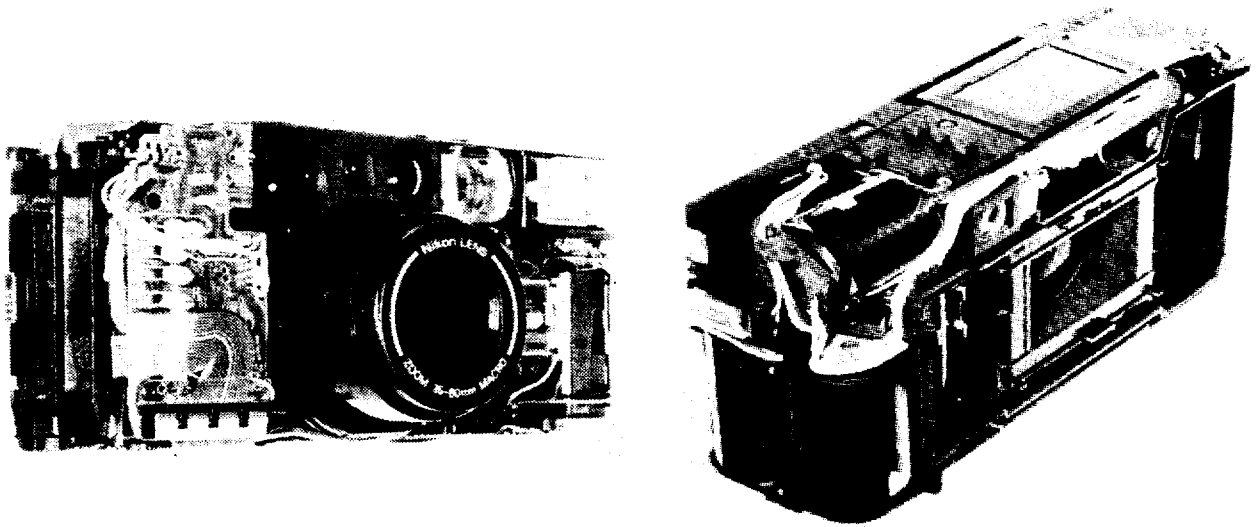
Standard: W end -179+20 scales
 T end -192+10 scales

After back focus adjustment, apply screw Lock on screws #810x2 and #811. (Refer to the figures in page A7 and A19.)

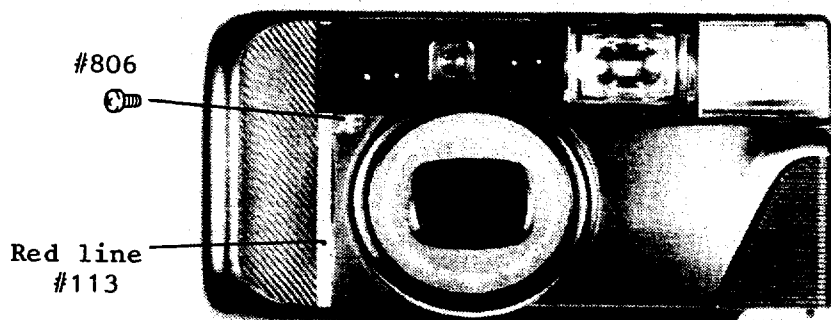
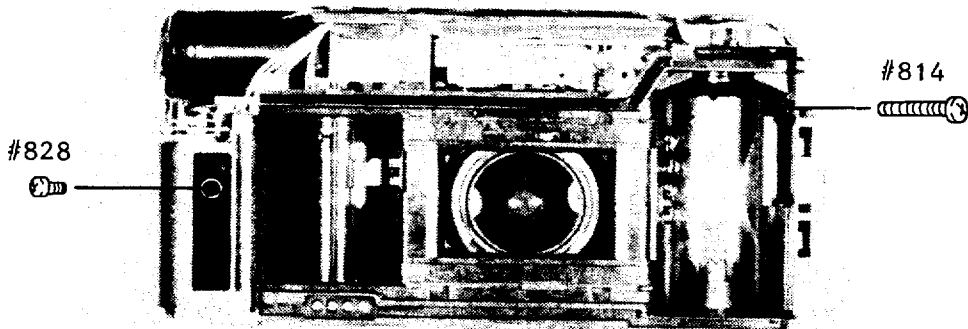
Mount lens barrel unit with screws (#804x4).
Be sure to fasten screws equally.

(11) Lead wire arrangement

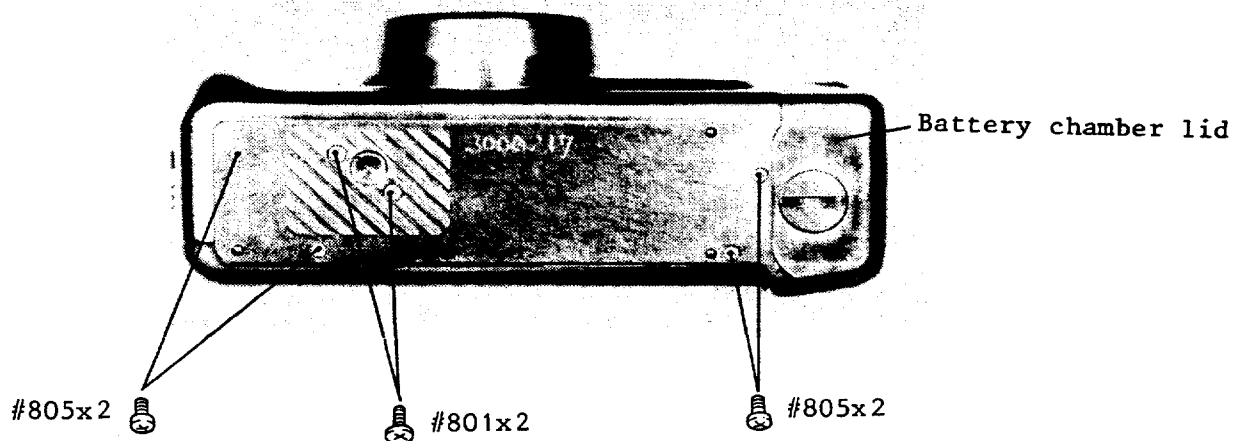
Fix lead wires with adhesive tape if necessary.



(12) Front cover unit



(13) Bottom cover unit



(14) Adjustment of AF accuracy

Tool: Personal computer PC-9800 series
 Connector relay box J15278
 Data back contact connector tool J15277
 TW Zoom inspection program J18206
 Standar reflector paper J18190

- a) Attach camera body to data back contact connector tool.
 The method of use is the same as that of TW2.
 (Batteries and battery chamber lid are necessary.)
- b) Set the floppy disk in the personal computer and run the program.
- c) Select "Japanese" or "English".
- d) Select "2: Output data (Checking of AF step value)" in Test menu.
- e) Follow the personal computer's indication. AF calculation value is output automatically ten times together with other data. (In the computer's display, each focus step is divided into some detailed steps.)

Order of AF inspection, distance from subject to film plane and standard

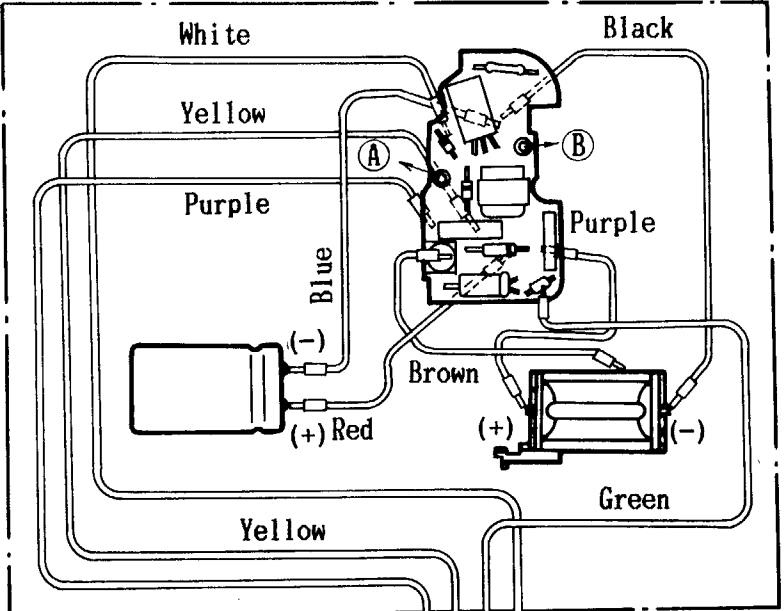
Order	Item	Distance	Reference	Standard
1	PSD shift adjustment	3.077m (+2mm)	Step 5.4	5.4 \pm 0.1 Step
2	Near gammer adjustment	0.7226m (+1mm)	Step 24.1	24.1 \pm 0.1 Step
3	Far gammer adjustment	5.106m (+10mm)	Step 3.3-3.5	3.1-3.6 Step
4	Far step adjustment	5.300m (+10mm)	Step 3.3	2.3-3.7 Step

- Note: a) Each focus step is not equally divided.
 b) Be sure to clean AF window before inspection and adjustment.

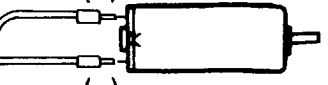
ELECTRIC CIRCUIT

(1) WIRING DIAGRAM -----	E1
(2) CIRCUIT DIAGRAM -----	E3
(3) CHECKING LANDS, PATTERN DIAGRAM, PARTS LOCATIONS -----	E3
(4) INPUT/OUTPUT TERMINALS ON SHUTTER CONTROL PCB -----	E7

スピードライトユニット
Speedlight unit



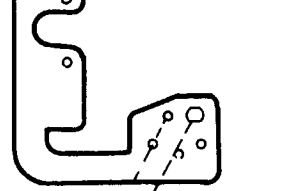
モーター
W/R motor



鏡筒モーター
Helicoid motor



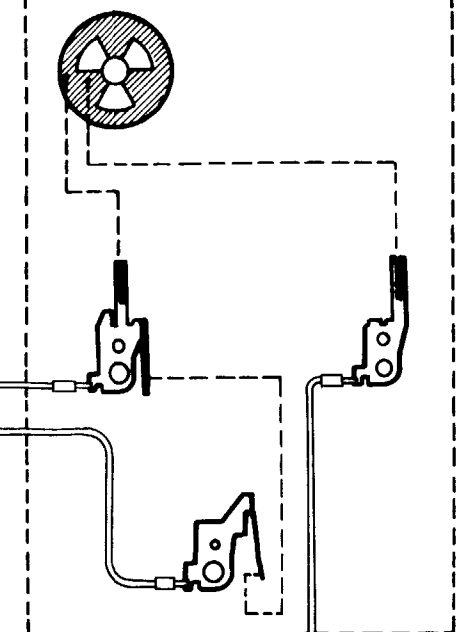
ズームSW FPC
Zooming SW FPC



メインSW
Main SW



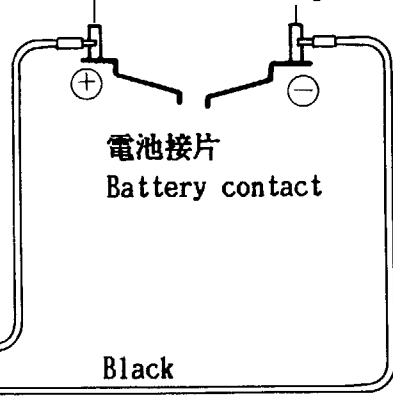
F検ユニット
Film detection contact unit



DX 接点
DX contact unit

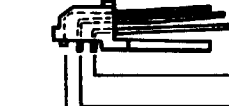


SB 基板(B)と半田ブリッジ
Soldering bridge to (B) of SB P.C.B



半田ブリッジ
Soldering bridge

リリースSW
Release SW unit



メインFPC
Main FPC

SB 基板(A)と半田ブリッジ
Soldering bridge to (A) of SB P.C.B

底FPC
Connection FPC

半田ブリッジ
Soldering bridge

半田付け
Soldering bridge

ブラシ台
Encoder brush unit

エンコーダーFPC
Encoder FPC

GND ブラシ
GND brush

シャッター
Shutter unit

半田ブリッジ
Soldering bridge

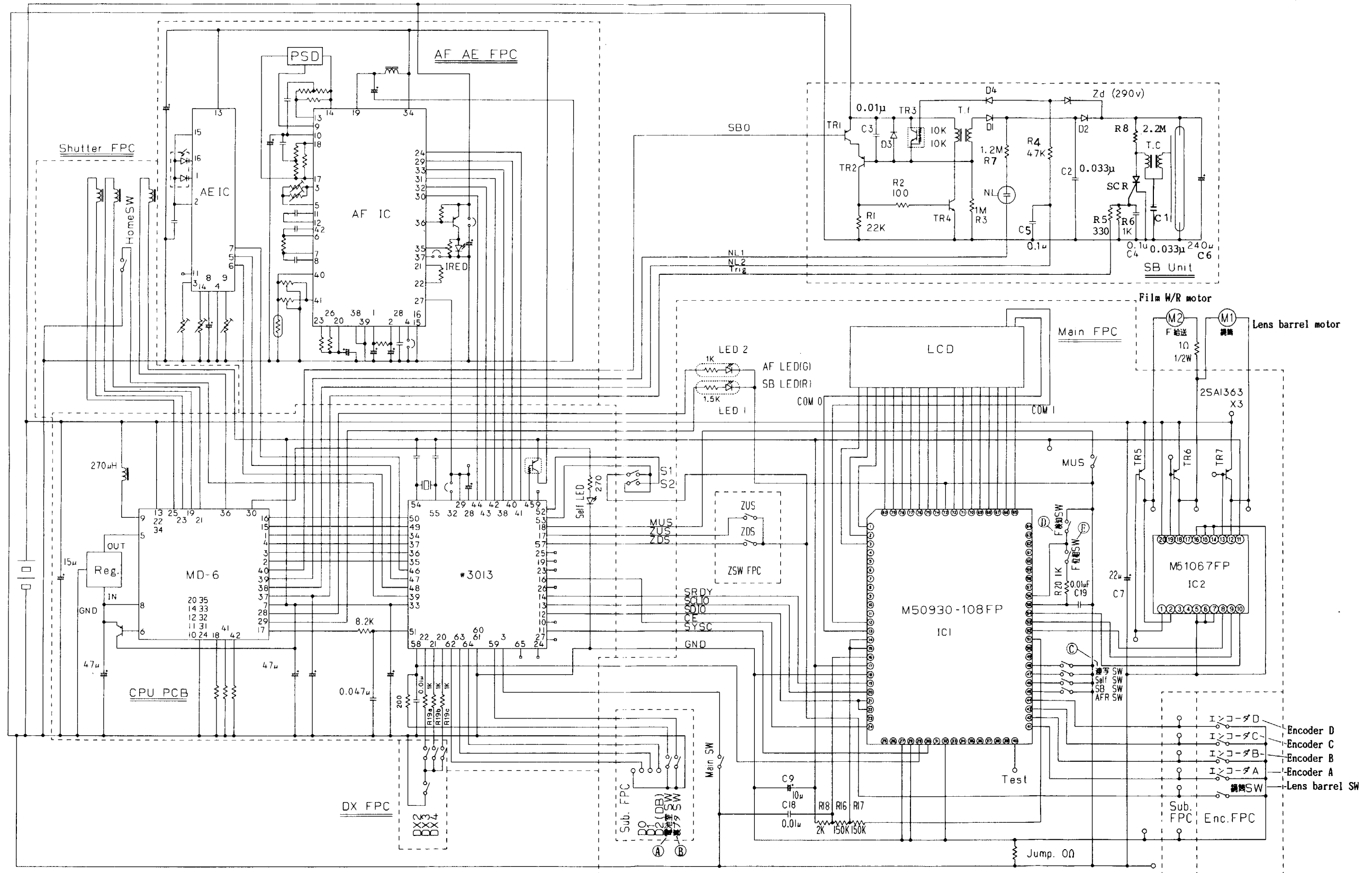
圧接
Press contact

電池蓋SW
Battery chamber SW

半田ブリッジ
Soldering bridge

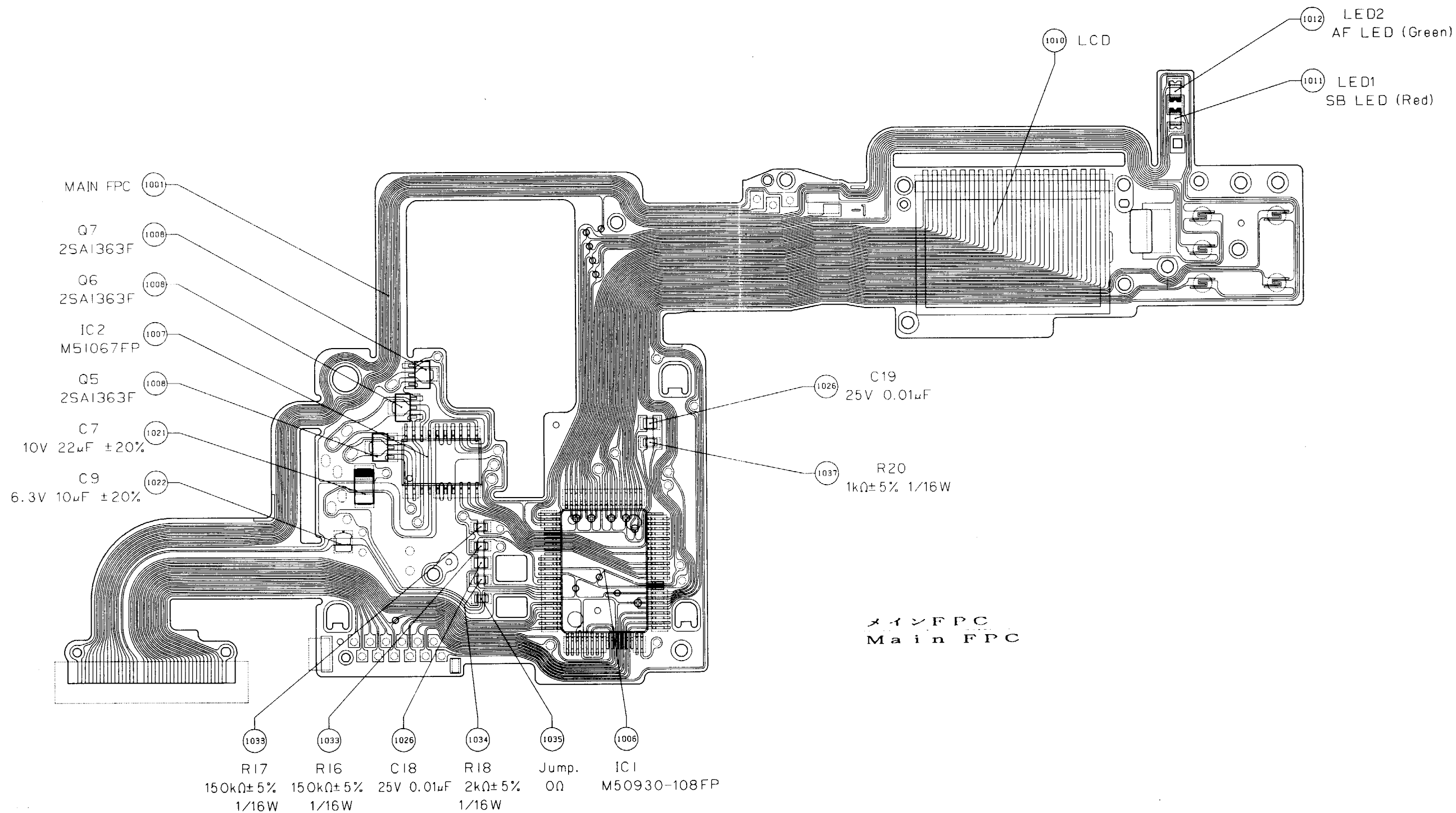
裏蓋SW
Back door SW

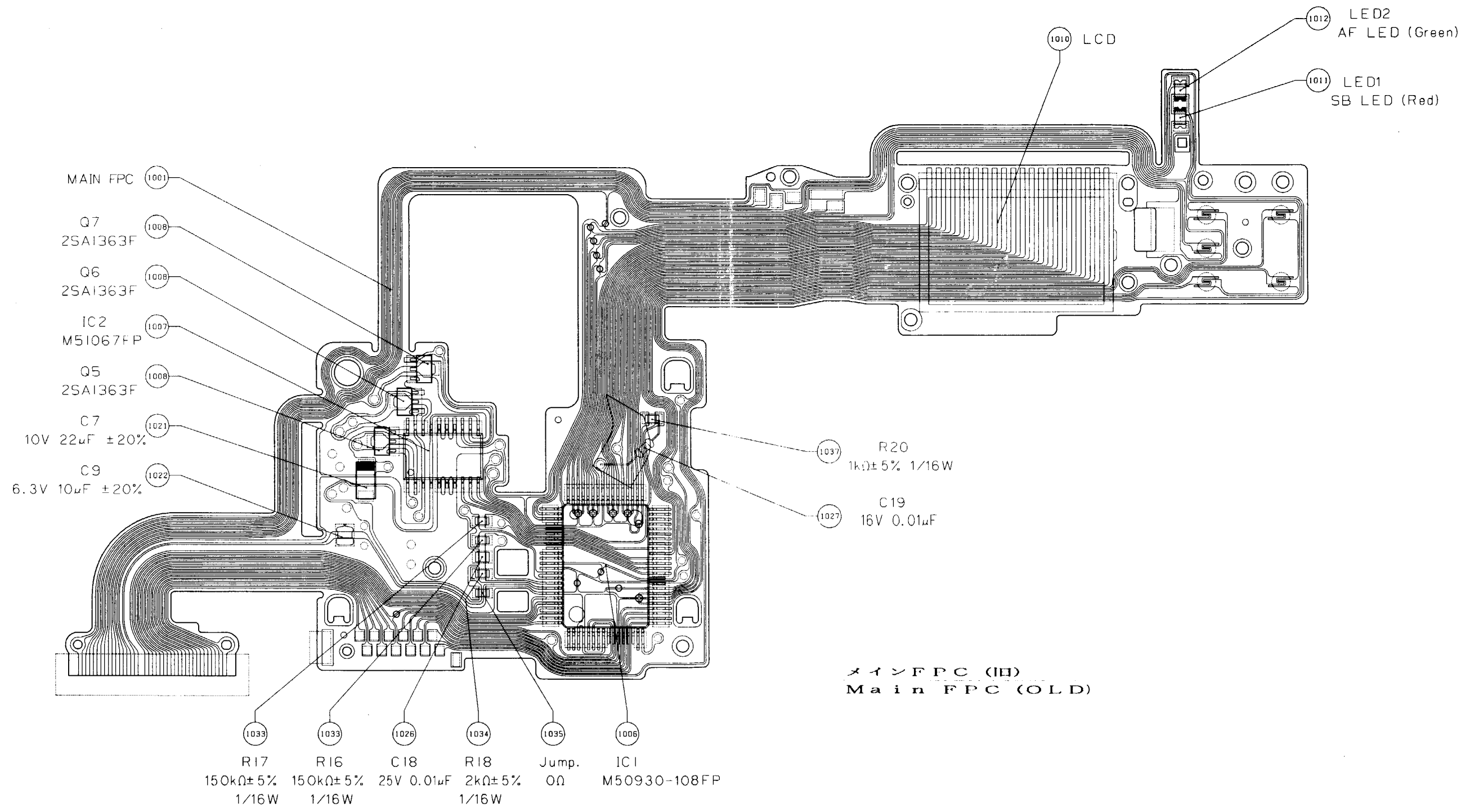
(2) 回路図 CIRCUIT DIAGRAM



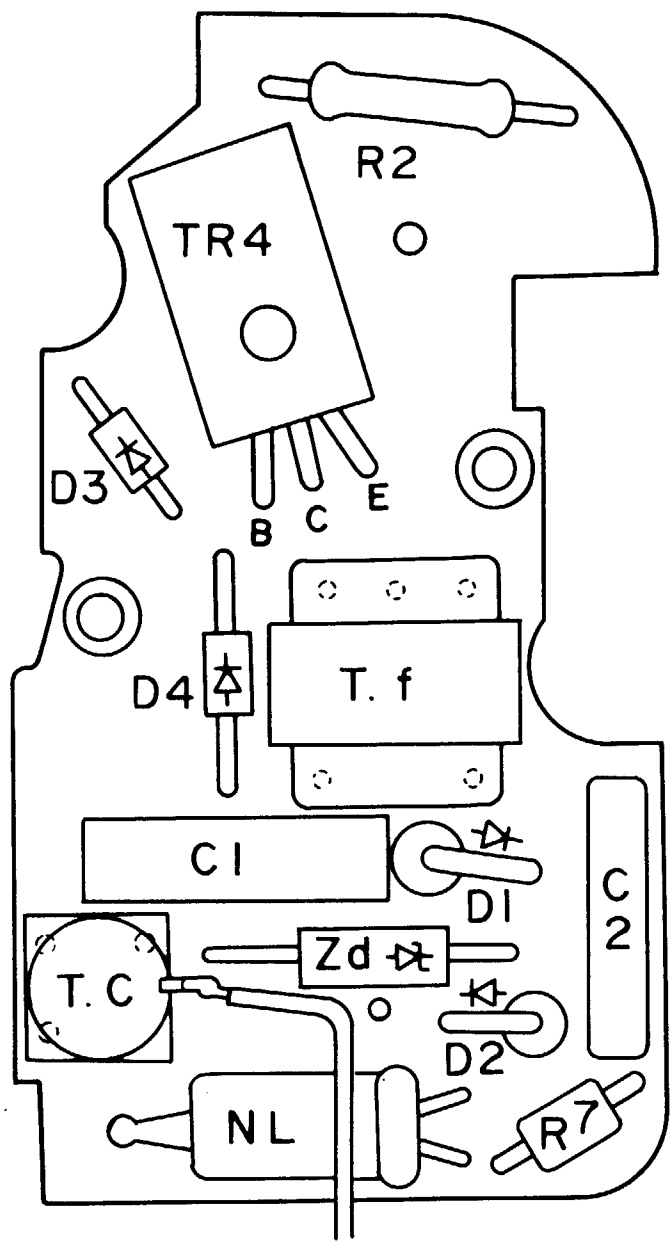
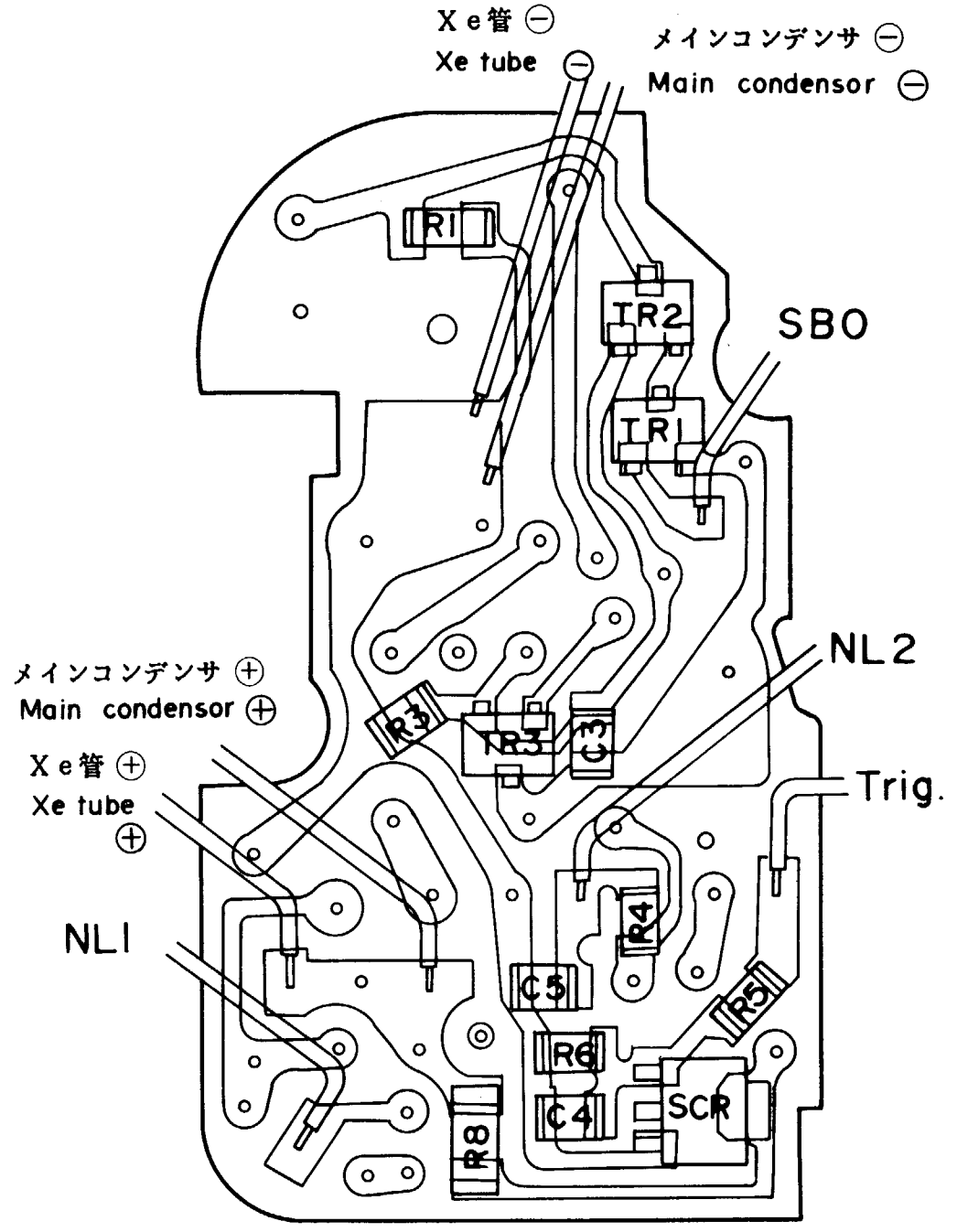
- Ⓐ Battery chamber SW
- Ⓑ Back door SW
- Ⓒ Continuous shooting SW
- Ⓓ Film detection SW
- Ⓔ Free Sprocket SW

〔3〕 チェックランド図、パターン図、部品配置図
 CHECKING LANDS, PATTERN DIAGRAM, CIRCUITRY
 PARTS LOCATIONS

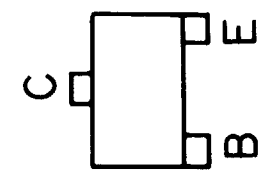




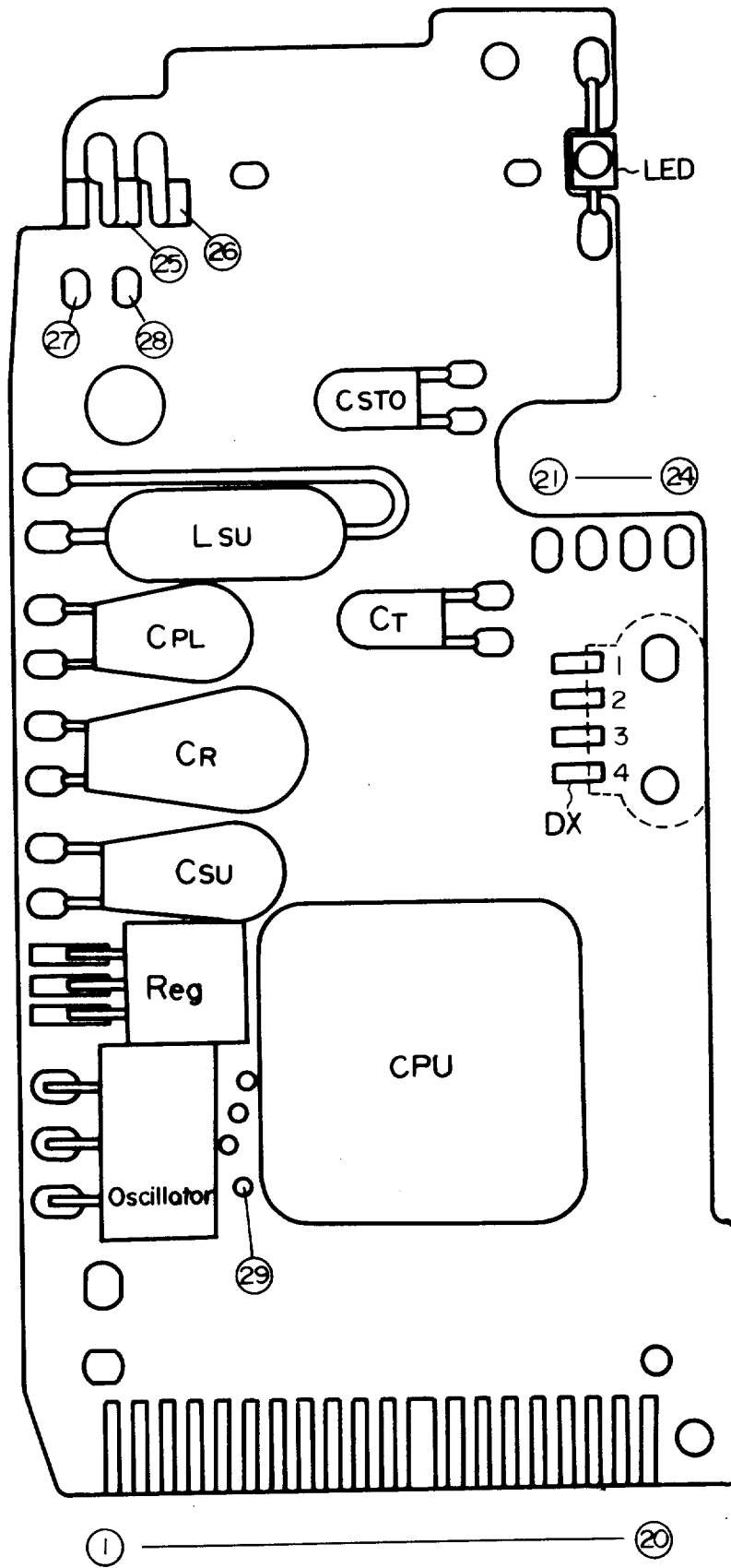
メインFPC (旧)
Main FPC (OLD)



Xe管トリガー
Trigger of Xe tube



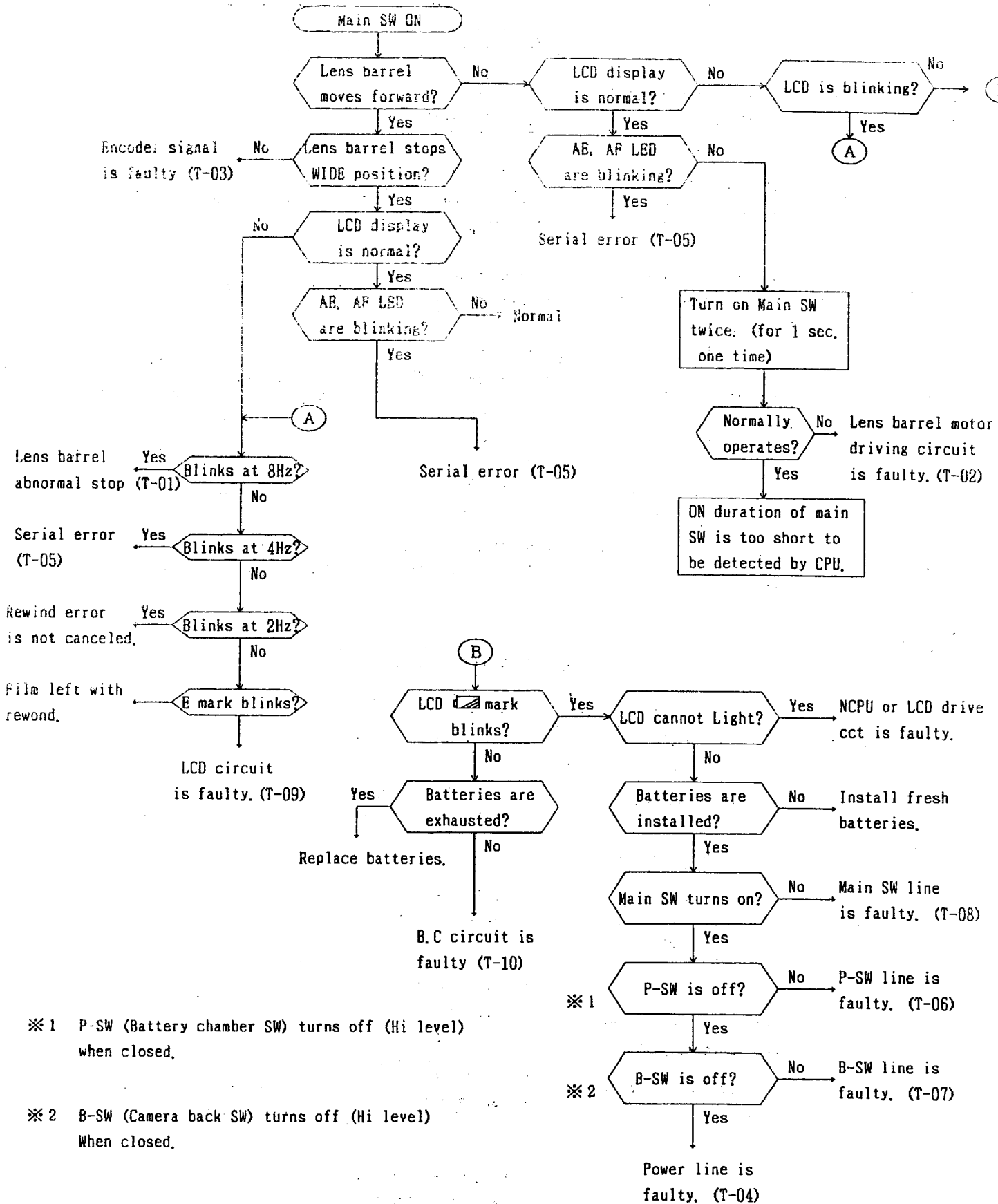
TR1, TR2, TR3



〔 4 〕 INPUT/OUTPUT TERMINALS ON SHUTTER CONTROL PCB

No.	Name	Connection	I/O	Function	Ohters
1	BSW	B3001 press-contact	I	Camera back O/C SW input	ON (Lo) when open
2	GND	-ditto-	-	GND for BSW, PSW Data terminal	
3	DO	-ditto-	I/O	I/O port for test	Hi for normal I mode
4	D1	-ditto-	I/O	I/O port for test	Lo for normal O mode
5	D2	-ditto-	I/O	I/O port for test & DB OUT	-ditto-
6	PSW	-ditto-	I	CPU system reset SW IN	Not in use (to 29)
7	SYSC	-ditto-	O	NCPU clock sig (System clock)	625KHz
8	CE	-ditto-	O	NCPU start sig (Chip Enable)	Active Lo
9	SIO	-ditto-	I/O	Serial data sig (Serial I/O)	8 bit serial
10	SCLK	-ditto-	I/O	Serial transmission clock sig (Serial Clock)	
11	SRDY	-ditto-	I/O	Serial transmission sync sig (Serial Ready)	
12	GND	-ditto-	-	GND for signals	
13	VDD	-ditto-	-	3V power line for CPU	
14	MUS	-ditto-	I	Manual U-turn SW IN	Lo in momentary ON
15	MSW	-ditto-	I	Main SW IN	-ditto-
16	SBLED	-ditto-	O	Ready light control OUT	Hi when lighting
17	AFLED	-ditto-	O	AF LED control OUT	-ditto-
18	ZUS	-ditto-	I	Zoom-up SW IN	Lo in momentary ON
19	ZDS	-ditto-	I	Zoom-down SW IN	-ditto-
20	Lens barrel SW	-ditto-	I	Lens barrel reset position distinction SW	OFF when reset
21	Trig	Lead wire from SB	O	Flash trigger signal	Active Hi
22	NL2	-ditto-	I	Charge sig IN 2	
23	NL1	-ditto-	I	Charge sig IN 1	
24	SBO	-ditto-	O	Flash oscill. sig OUT	Active Lo
25	S1	Solder-bridge	I	Pre-release SW IN	Lo when ON
26	S2	-ditto-	I	Release SW IN	-ditto-
27	Vcc	Lead wire from B3001	-	6V power line	
28	GND	-ditto-	-	Common GND	
29	PSW	-ditto-	I	CPU system reset SW IN	
30					

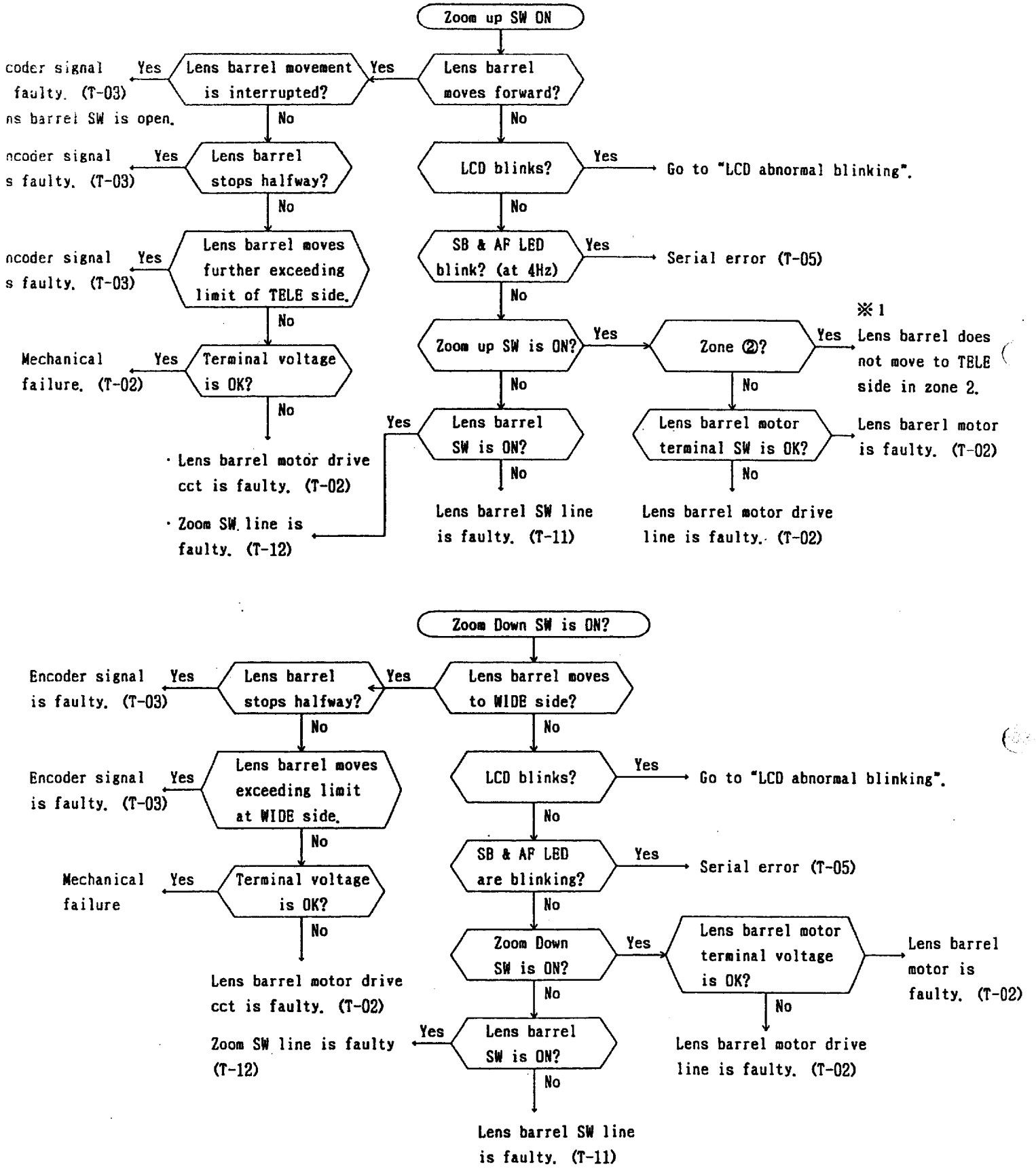
TROUBLESHOOTING



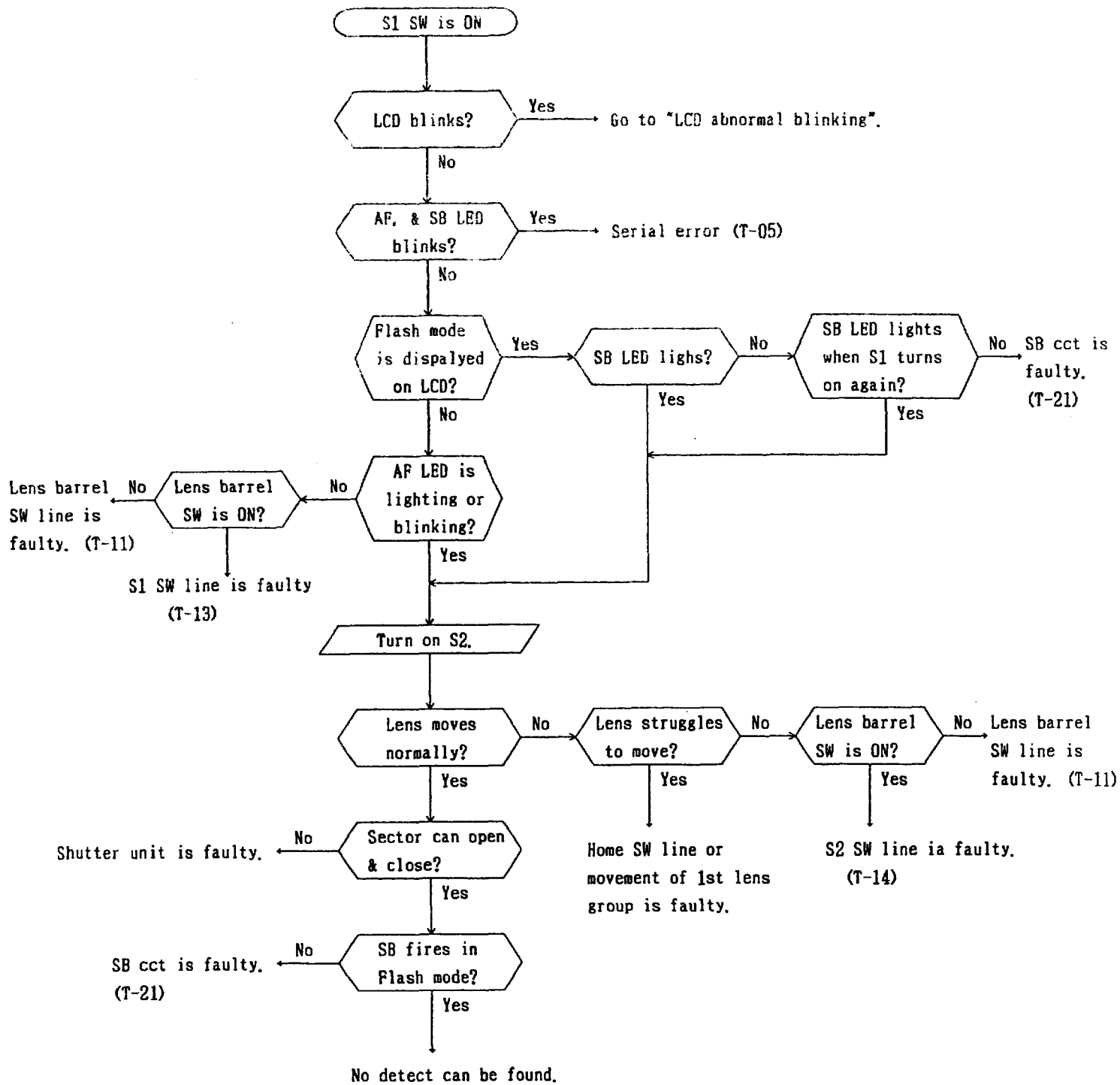
※1 P-SW (Battery chamber SW) turns off (Hi level) when closed.

※2 B-SW (Camera back SW) turns off (Hi level) When closed.

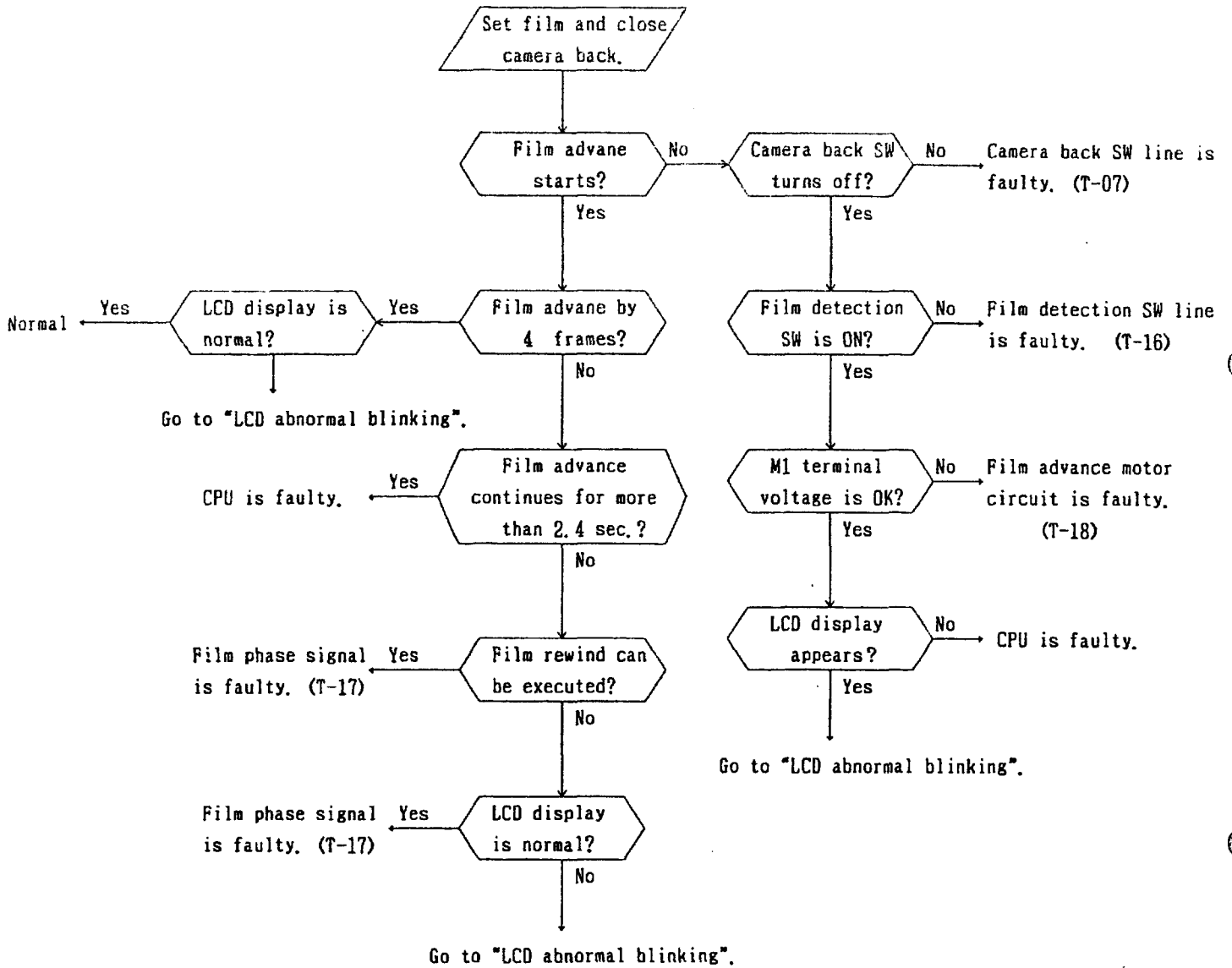
Zooming operation is faulty.



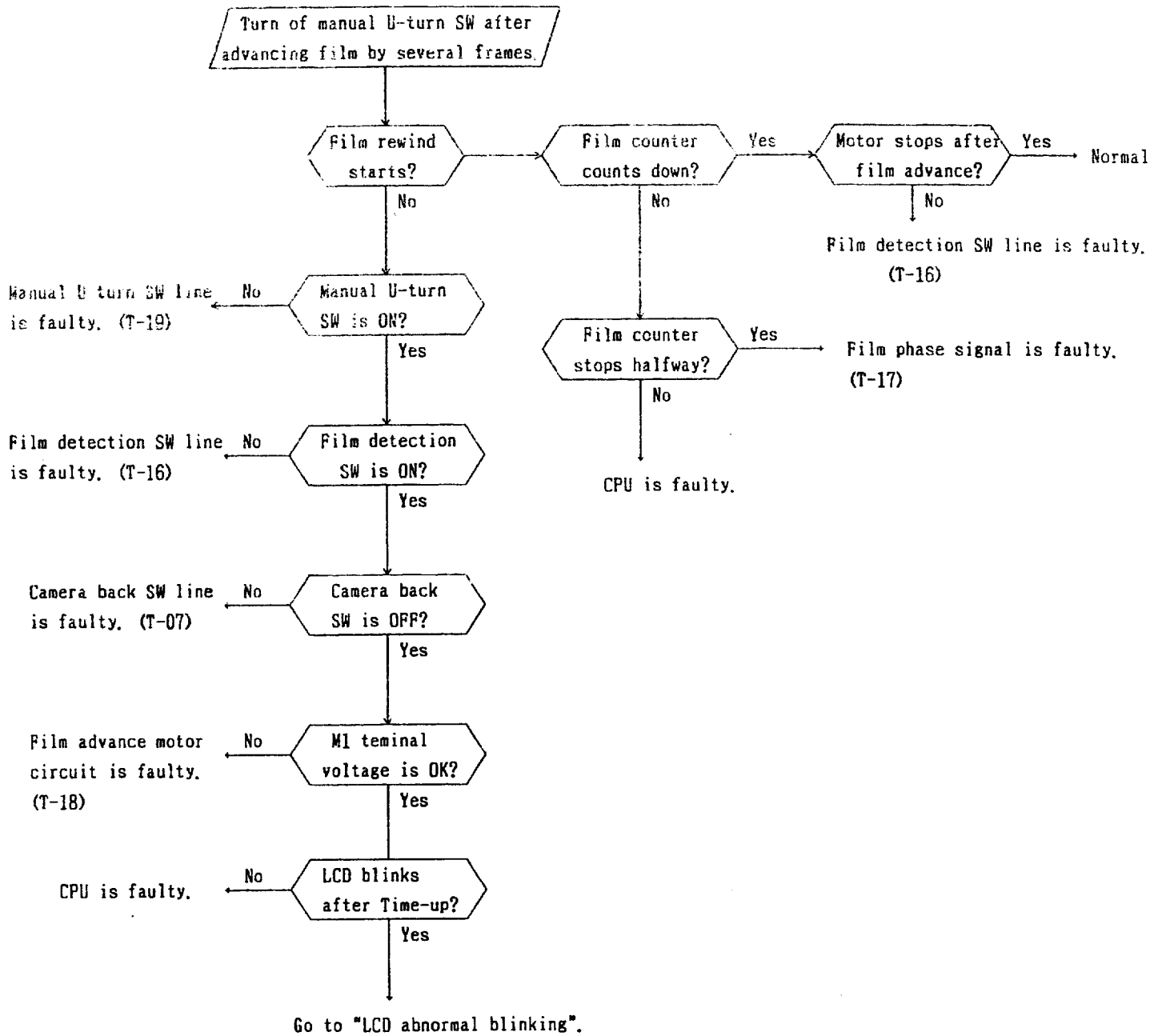
Shutter release is faulty.



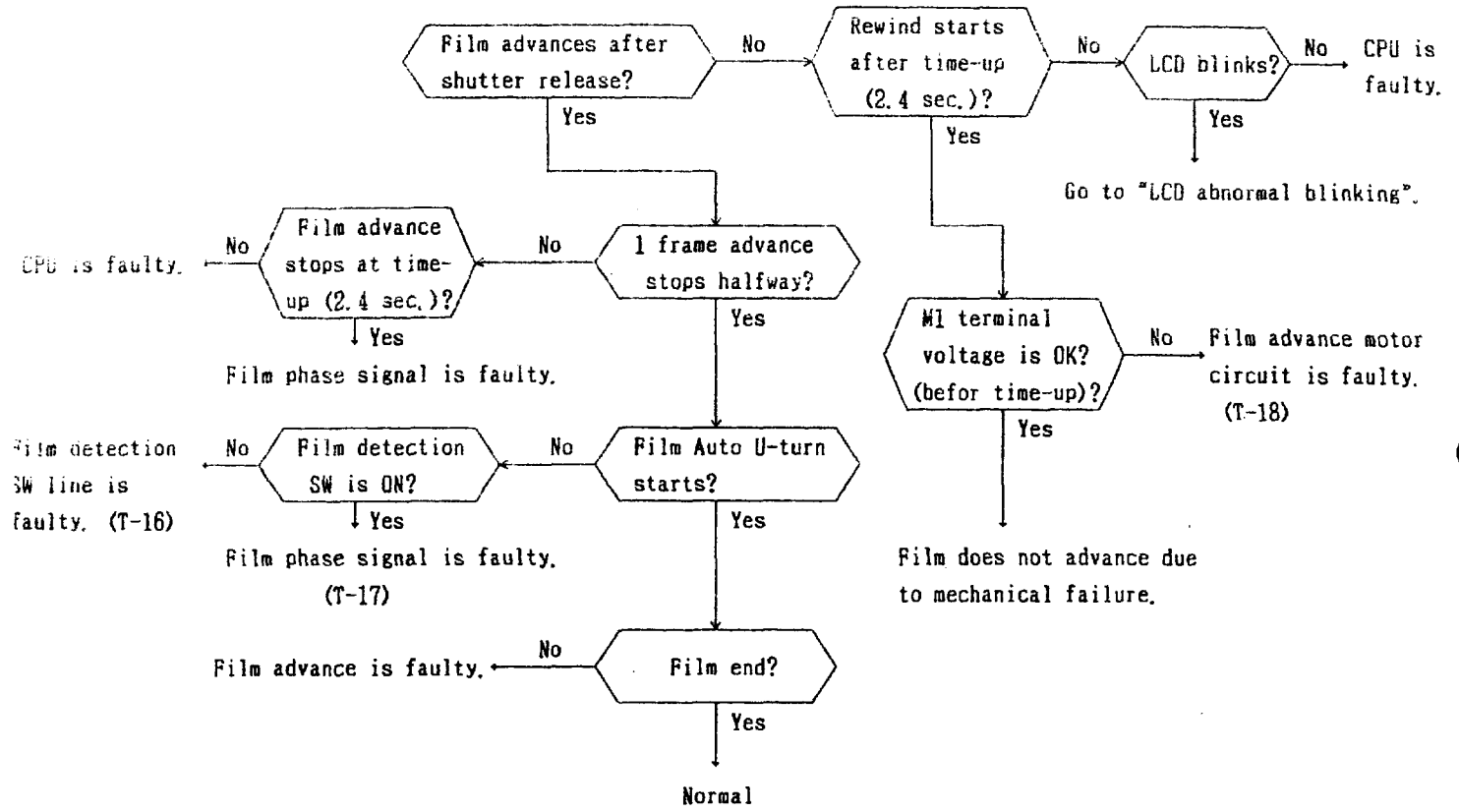
Easy-loading is faulty.



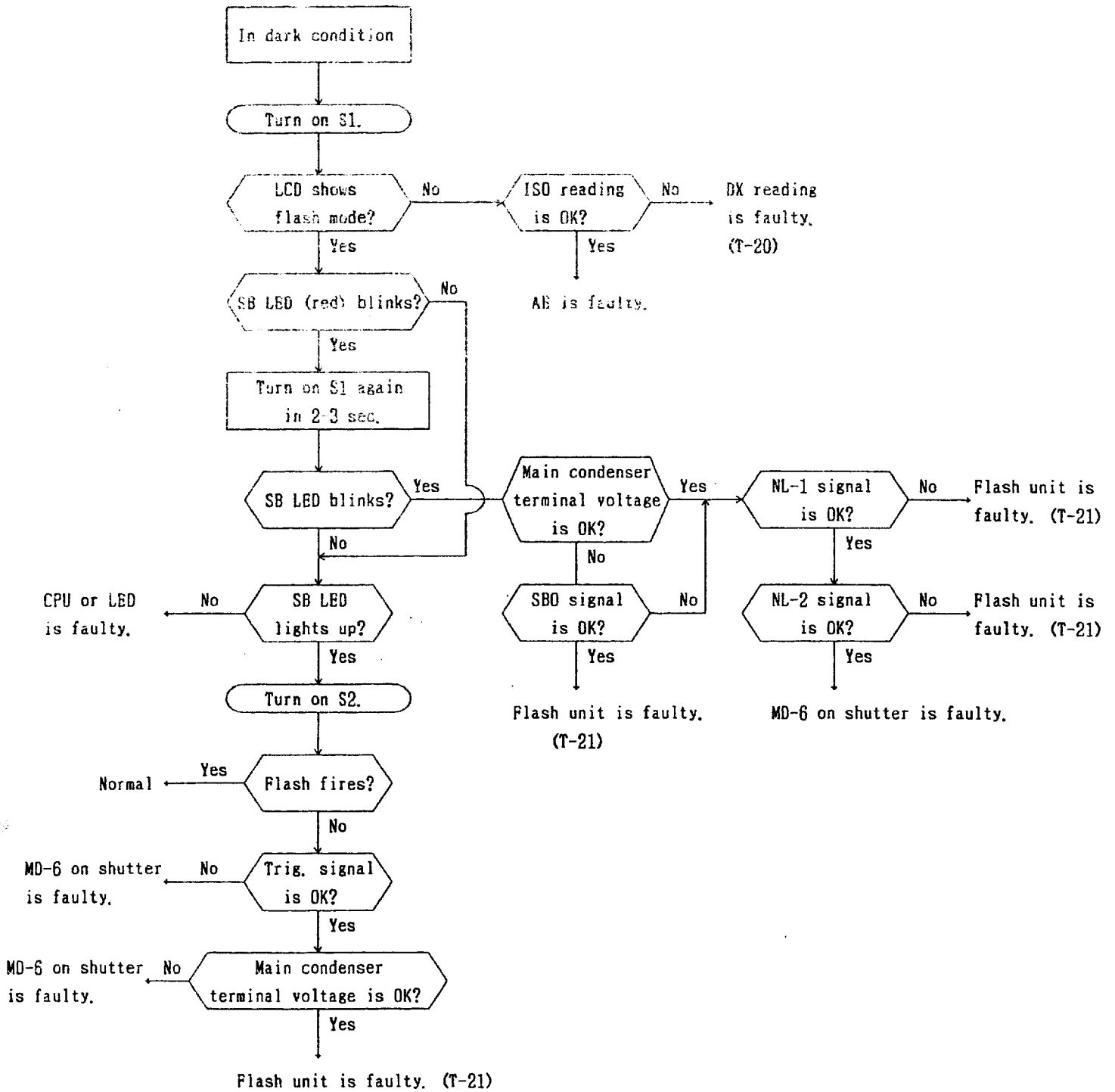
Film rewind is faulty.



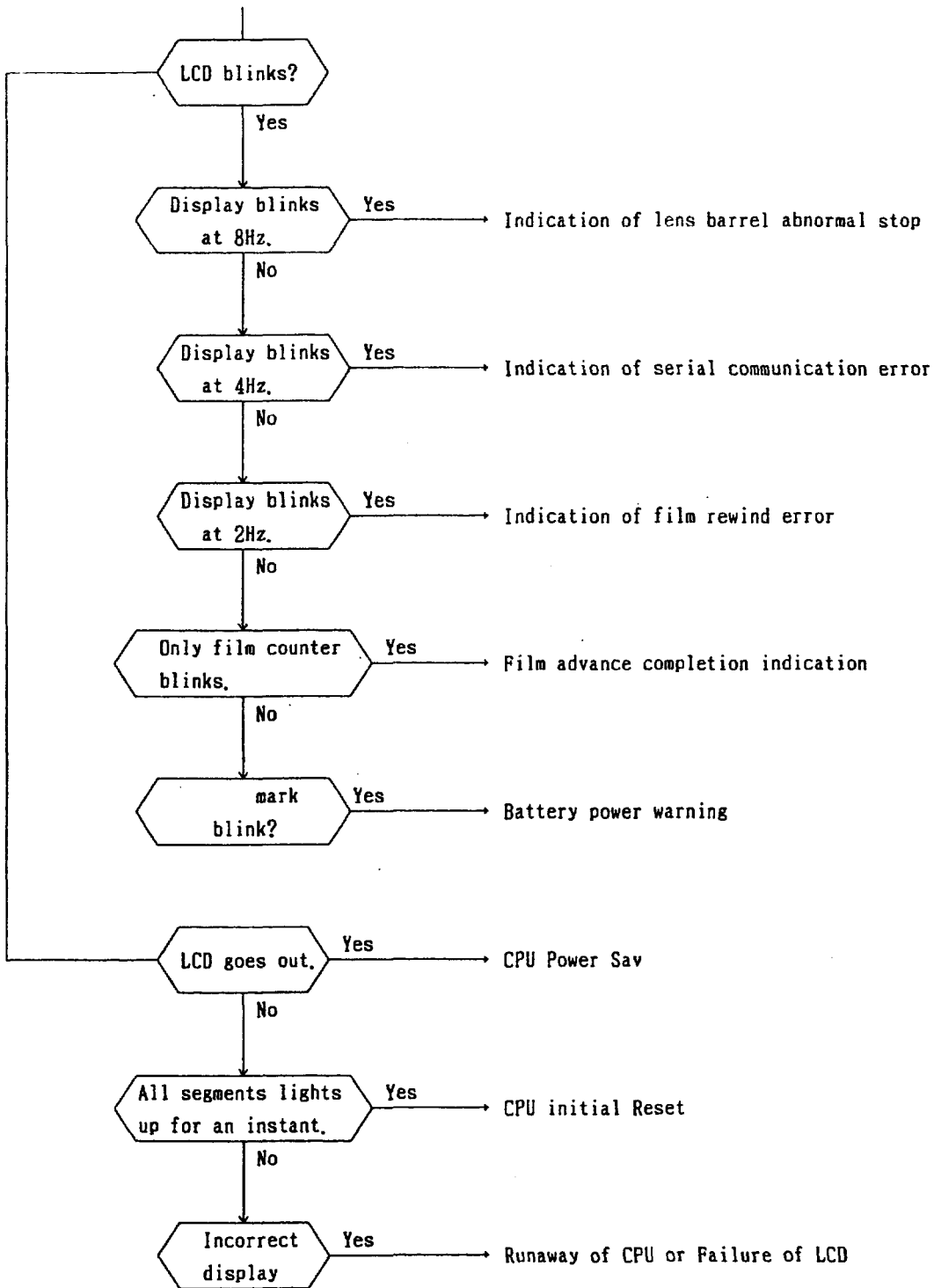
Film advance is faulty.



Flash is faulty.



LCD trouble display.



T-01 LENS BARREL ABNORMAL STOP

- 1) The correct stop position could not be recognized due to incorrect encoder signal, and lens barrel has moved up to the mechanical limit.
- 2) There are some foreign matters on the helicoids or gears, and they are not operable.
- 3) Gears are broken.
- 4) Lens barrel motor or Motor drive circuit is faulty.

T-02 LENS BARREL MOTOR DRIVING CIRCUIT IS FAULTY.

- 1) Miswiring or poor soldering
 - a) Poor soldering or breakage of lead wires between Lens barrel motor and Main FPC
 - b) Poor soldering of Power transistor in MD-IC on Main FPC
- 2) Failure of parts
 - a) Failure of MD-IC or Power transistor on Main FPC
 - b) Failure of parts of Motor

* Refer to SUPPLEMENT 2. "WAVE FORM OF CONTINUOUS ZOOMING SIGNAL".

T-03 ENCODER SIGNAL IS FAULTY.

- 1) Poor contact of brush with encoder pattern due to dust
- 2) Poor contact of brush with encoder pattern due to deformation of brush
- 3) Poor soldering or breakage of pattern
 - a) Poor soldering of brush and Bottom FPC
 - b) Poor soldering of Bottom FPC and Main FPC
 - c) Breakage of pattern in Bottom FPC

* Refer to SUPPLEMENT 1. "ENCODER SIGNAL WAVE FORM".

T-04 POWER LINE IS FAULTY.

- 1) Battery power is insufficient. (lower than B.C. voltage)
- 2) Miswiring
 - a) Between battery contacts and Main FPC
 - b) Between Main FPC and Shutter PCB
- 3) Failure of electrical component
 - a) Failure of MD6-IC on Shutter PCB
 - b) Failure of Regulator IC on Shutter PCB
 - c) Failure of Oscillation coil on Shutter PCB

T-05 SERIAL COMMUNICATION ERROR

- 1) Poor press-contact of Shutter PCB with Main FPC
- 2) Failure of Shutter CPU (#3013) or NCPU
- 3) Initial error of Shutter CPU or NCPU

T-06 P-SW LINE IS FAULTY.

- 1) Failure of PSW
- 2) Miswiring or poor soldering
 - a) Poor soldering of P-SW and Bottom FPC
 - b) Poor soldering of Bottom FPC and Main FPC
 - c) Poor press-contact of Shutter PCB with Main FPC
 - d) Breakage of line in Bottom FPC

T-07 B-SW LINE IS FAULTY.

- 1) Failure of B-SW
- 2) Miswiring or poor soldering
 - a) Poor soldering of B-SW and Bottom FPC
 - b) Poor soldering of Bottom FPC and Main FPC
 - c) Poor press-contact of Shutter PCB with Main FPC
 - d) Breakage of line in Bottom FPC
 - e) Miswiring between Shutter PCB and Main FPC

T-08 MAIN SW LINE IS FAULTY.

- 1) Poor contact of Main SW brush with pattern
- 2) Poor press-contact of Shutter PCB with Main FPC
- 3) Breakage of line in Main FPC

T-09 LCD CIRCUIT IS FAULTY.

- 1) Poor press-contact of LCD with Main FPC
- 2) Breakage of line in Main FPC
- 3) Short-circuit or open-circuit in NCPU
- 4) Failure of NCPU or LCD

T-10 B.C. CIRCUIT IS FAULTY.

- 1) Short-circuit in B.C. circuit pattern on Shutter PCB
- 2) Failure of B.C. Ref. resistor or incorrect constant
- 3) Failure of MD6

T-11 LENS BARREL SW LINE IS FAULTY.

- 1) Poor contact of Lens barrel SW brush with pattern
 - a) Deformation of SW brush (contact pressure is insufficient)
 - b) Dust on pattern or brush
- 2) Poor soldering of Lens barrel SW brush and Bottom FPC
- 3) Breakage of line in Bottom FPC pattern
- 4) Poor press-contact of Shutter PCB with Main FPC

T-12 ZOOM SW LINE IS FAULTY.

- 1) Breakage of line in Zoom FPC
- 2) Poor soldering of Zoom FPC and Main FPC
- 3) Poor contact of Piezo-electric rubber and Zoom FPC

T-13 S1 SW LINE IS FAULTY.

- 1) Poor soldering of S1 SW with Shutter PCB
- 2) Poor press-contact of Shutter PCB with Main FPC

T-14 S2 SW LINE IS FAULTY.

- 1) Poor soldering of S2 SW with Shutter PCB
- 2) Poor press-contact of Shutter PCB with Main FPC

T-15 HOME SW LINE IS FAULTY.

- 1) Dislocation of Home SW contact spring
- 2) Failure of Home SW signal due to incorrect movement of 1st lens group
- 3) Breakage of line in Shutter FPC
- 4) Failure of Shutter unit (Rotor play of pulse motor)

T-16 FILM DETECTION SW LINE IS FAULTY.

- 1) Poor contact of Film detection contact blade
- 2) Miswiring between Film detection unit and Main FPC
- 3) Failure of NCPU

T-17 FILM PHASE SIGNAL IS FAULTY.

- 1) Poor contact of Free sprocket brush with pattern
 - 2) Contact of internal brush with external pattern due to deformation of Free Sprocket brush
 - 3) Incorrect signal caused by protrusion of Free sprocket pattern
 - 4) Failure of NCPU
 - 5) Miswiring between Film detection unit and Main FPC
- * Refer to SUPPLEMENT 3 "WAVE FORM OF ONE FRAME FILM ADVANCE SIGNAL".

T-18 FILM ADVANCE MOTOR CIRCUIT IS FAULTY.

- 1) Miswiring or poor soldering
 - a) Poor soldering of Motor terminal
 - b) Miswiring between Motor and Main FPC
 - 2) Failure of electrical component
 - a) Failure of MD-IC on Main FPC
 - b) Failure of Power transistor on Main FPC
 - c) Failure of NCPU
 - d) Failure of parts of Film advance motor
- * Refer to SUPPLEMENT 3 "WAVE FORM OF ONE FRAME FILM ADVANCE SIGNAL".

T-19 MANUAL U-TURN SW LINE IS FAULTY.

- 1) Poor contact of Piezo-electric rubber (M.U. SW) with SW pattern on Main FPC
- 2) Breakage of line of Main FPC
- 3) Poor press-contact of Shutter PCB with Main FPC

T-20 DX READING IS FAULTY.

- 1) Poor contact of DX contact due to its deformation
- 2) Poor soldering
 - a) Poor soldering of DX contact and DX FPC
 - b) Poor soldering of Chip resistor and DX FPC
 - c) Poor soldering of DX FPC and Shutter PCB
- 3) Breakage of line in DX FPC

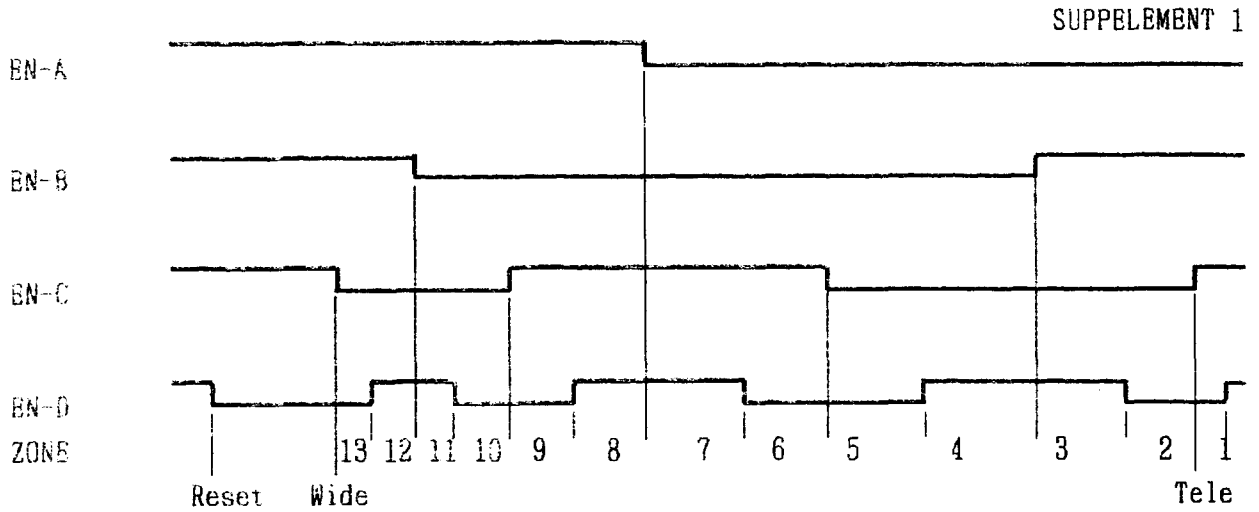
T-21 FLASH UNIT IS FAULTY.

- 1) Miswiring or poor soldering (Trig, SBO, NL-1, NL-2)
 - a) Breakage of line between SB PCB and Shutter PCB
 - b) Poor soldering on Shutter PCB

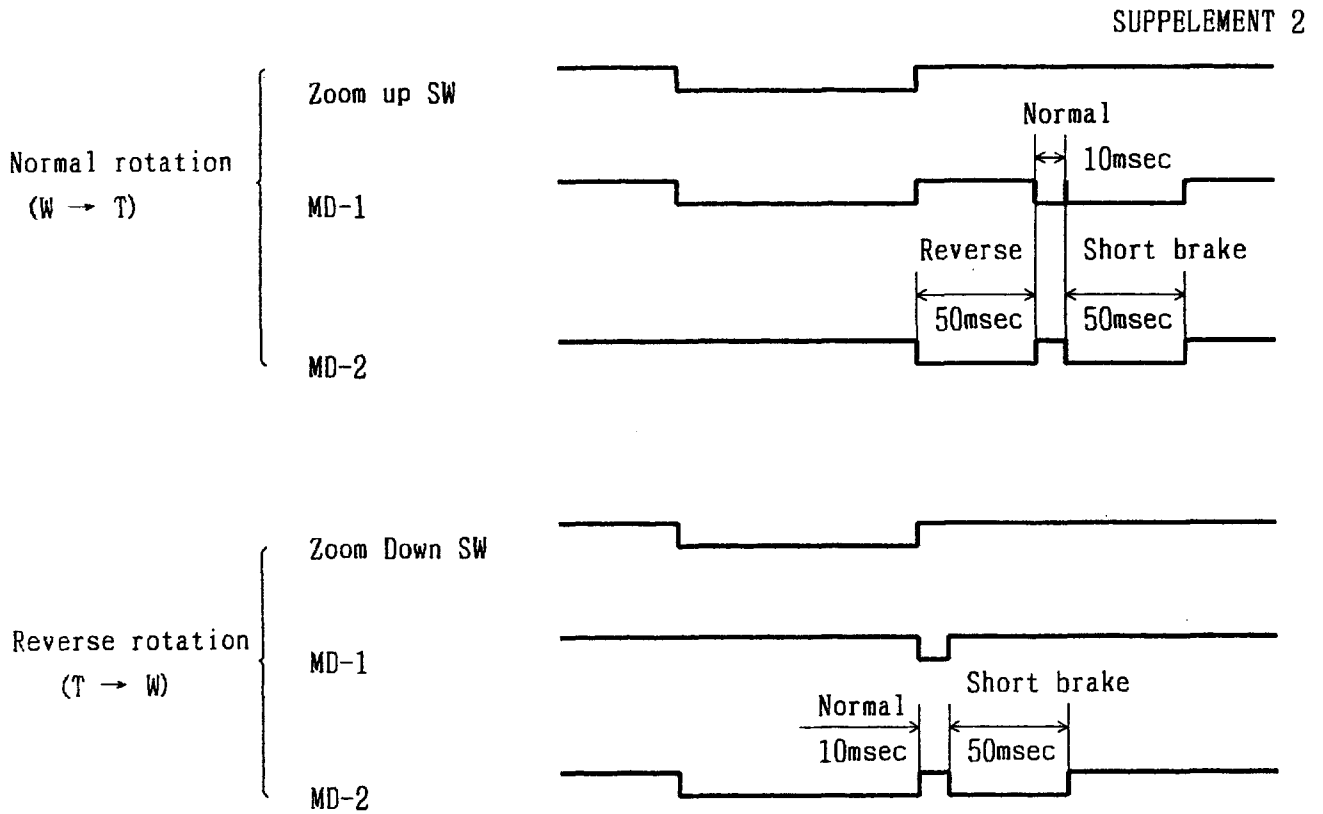
2) Failure of component on SB PCB

* Refer to SUPPLEMENT 4. "FLASH RECYCLING WAVE FORM".

ENCODER SIGNAL WAVE FORM

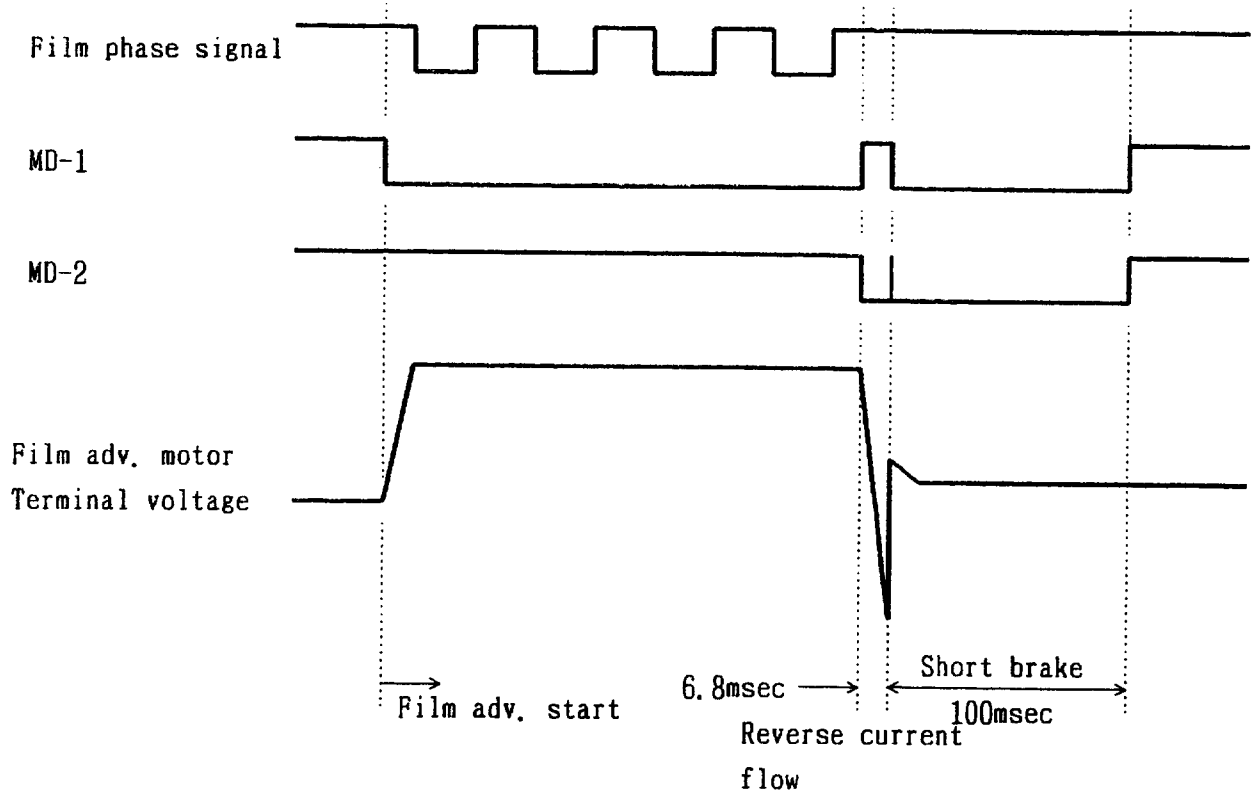


WAVE FORM OF CONTINUOUS ZOOMING SIGNAL



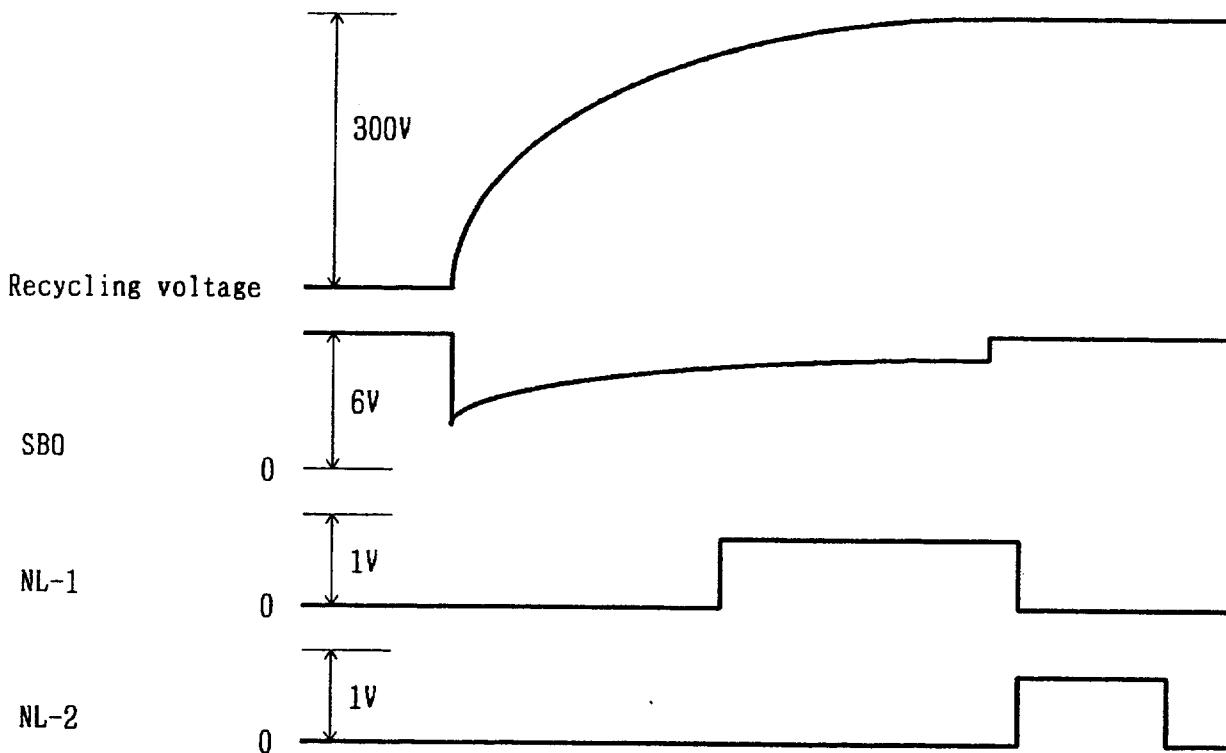
WAVE FORM OF ONE FRAME FILM ADVANCE

SUPPELEMENT 3



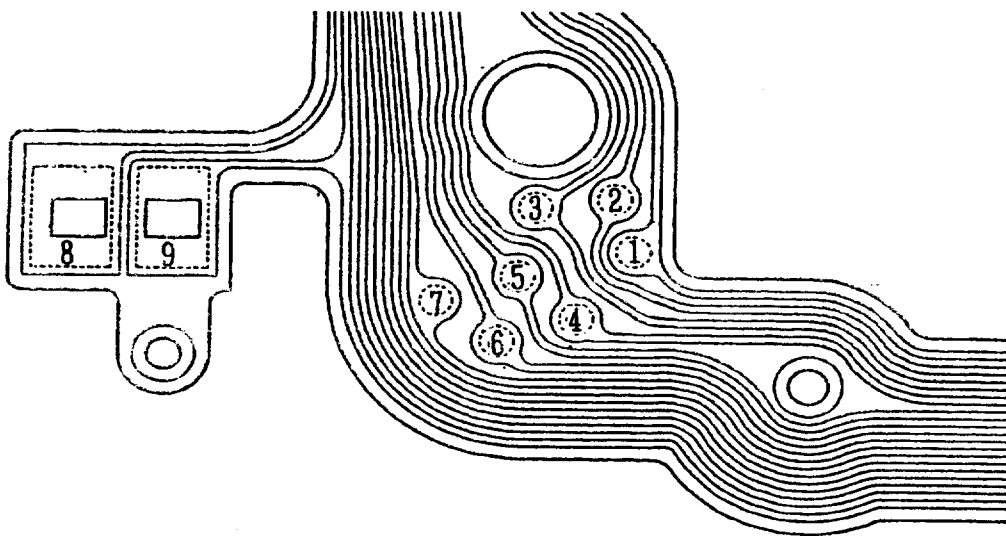
FLASH RECYCLING WAVE FORM

SUPPELEMENT 4



CHECKING LANDS OF ENCODER SIGNAL

SUPPLEMENT 5



- ① LENS BARREL SW
- ② EN-A
- ③ EN-B
- ④ EN-C
- ⑤ EN-D
- ⑥ GND
- ⑦ P SW (BATTERY CHAMBER SW)
- ⑧ B SW (CAMERA BACK SW)
- ⑨ GND

展開図・部品表編

(1) 展開図

本体部・F検地ユニット部・DX接点部 (Fig. 1)-----	F 1
巻き上げ, 巻き戻しギア部 (Fig. 2)-----	F 2
ファインダー部・モーター部・スピードライトユニット部 (Fig. 3)-----	F 3
メインFPC部 (Fig. 4)-----	F 4
シャッターユニット部・鏡筒部・マスターレンズ部 (Fig. 5)-----	F 5
外ヘリコイド部・鏡筒基板部・鏡筒モーター部 (Fig. 6)-----	F 6
底フレキ部 (Fig. 7) -----	F 7
前カバー部 (Fig. 8) -----	F 8
後カバー部 (Fig. 9) -----	F 9
底カバー部・電池蓋部 (Fig. 10) -----	F 10

(2) 部品表

部品表 -----	P 1
部組品表 -----	P 1 1

※ 展開図中の () 付き番号は部品要求単位をです。
 展開図中の (TA-****) は接着テープの要求部番です
 (1K***-*** では単品要求は出来ません)

Exploded Drawings & Parts List

(1) Exploded drawings

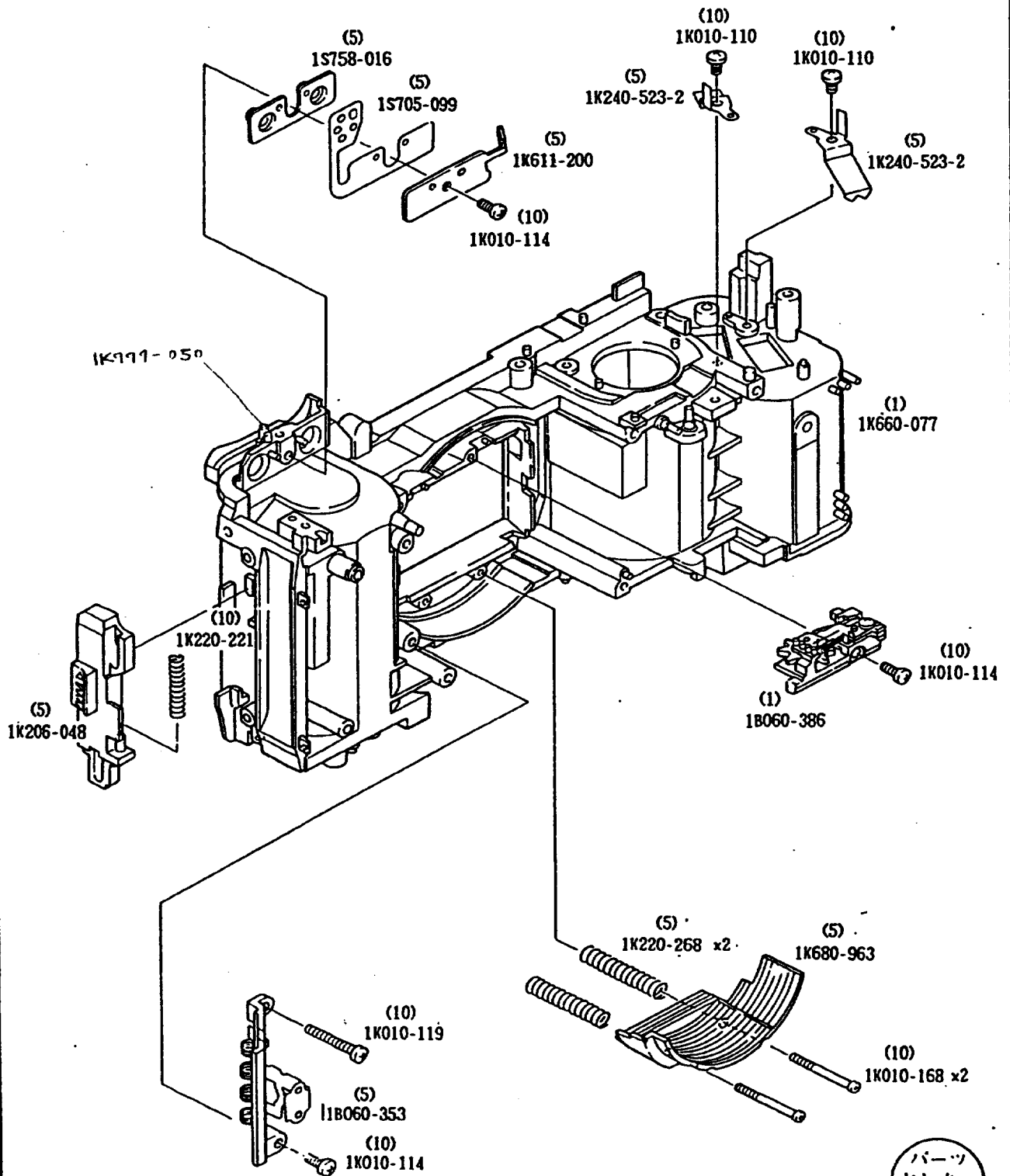
BODY DIECASTING, FILM DETECTION CONTACT, DX CONTACT UNIT(Fig. 1)---	F1
WINDING AND REWINDING GEARS (Fig. 2)-----	F2
FINDER UNIT, MOTOR UNIT, FLASH UNIT (Fig. 3)-----	F3
MAIN FPC(Fig. 4)-----	F4
SHUTTER UNIT, MASTER LENS UNIT (Fig. 5)-----	F5
OUTER HELOCROID, LENS BARREL BASE PLATE, MOTOR UNIT (Fig. 6)-----	F6
CONNECTING FPC (Fig. 7)-----	F7
FRONT COVER (Fig. 8)-----	F8
REAR COVER, BACK DOOR (Fig. 9)-----	F9
BOTTOM COVER, BATTERY CHAMBER LID (Fig. 10) -----	F10

(2) Parts List

PARTS LIST -----	P1
ASSEMBLY LIST -----	P11

* Number in parentheses in the Exploded Drawings refer to the Quantity per order.
Numbers (TA-****) are order numbers of adhesive tape. (For the order of adhesive tape, the number 1K***-*** is not in use.)

BODY DIECASTING, FILM DETECTION CONTACT, DX CONTACT UNIT



RP-IME NO. 9521

Fig. 1

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MAR. 1. 1995

WINDING AND REWINDING GEARS

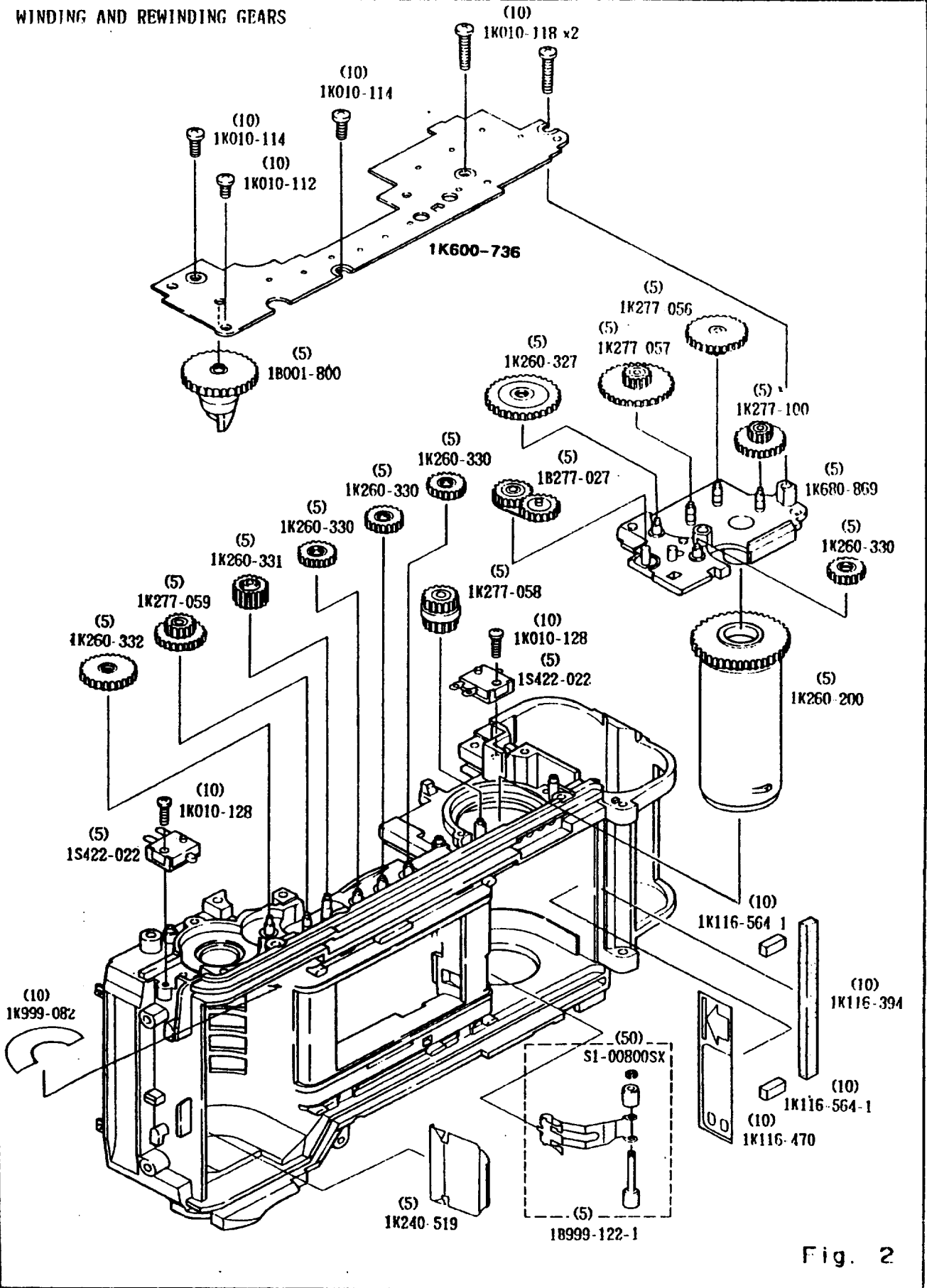


Fig. 2

FINDER UNIT, MOTOR UNIT, FLASH UNIT

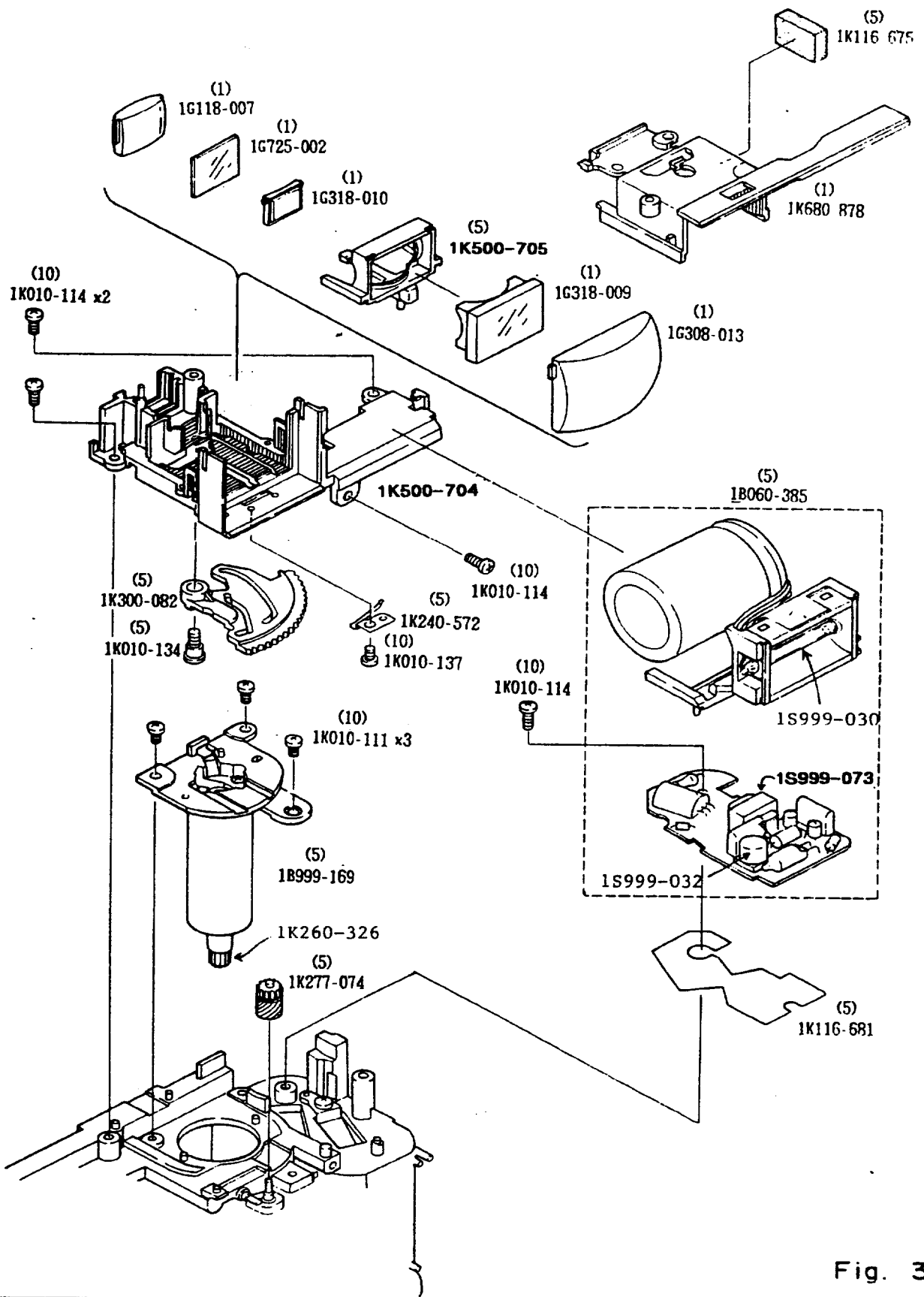


Fig. 3

MAIN FPC

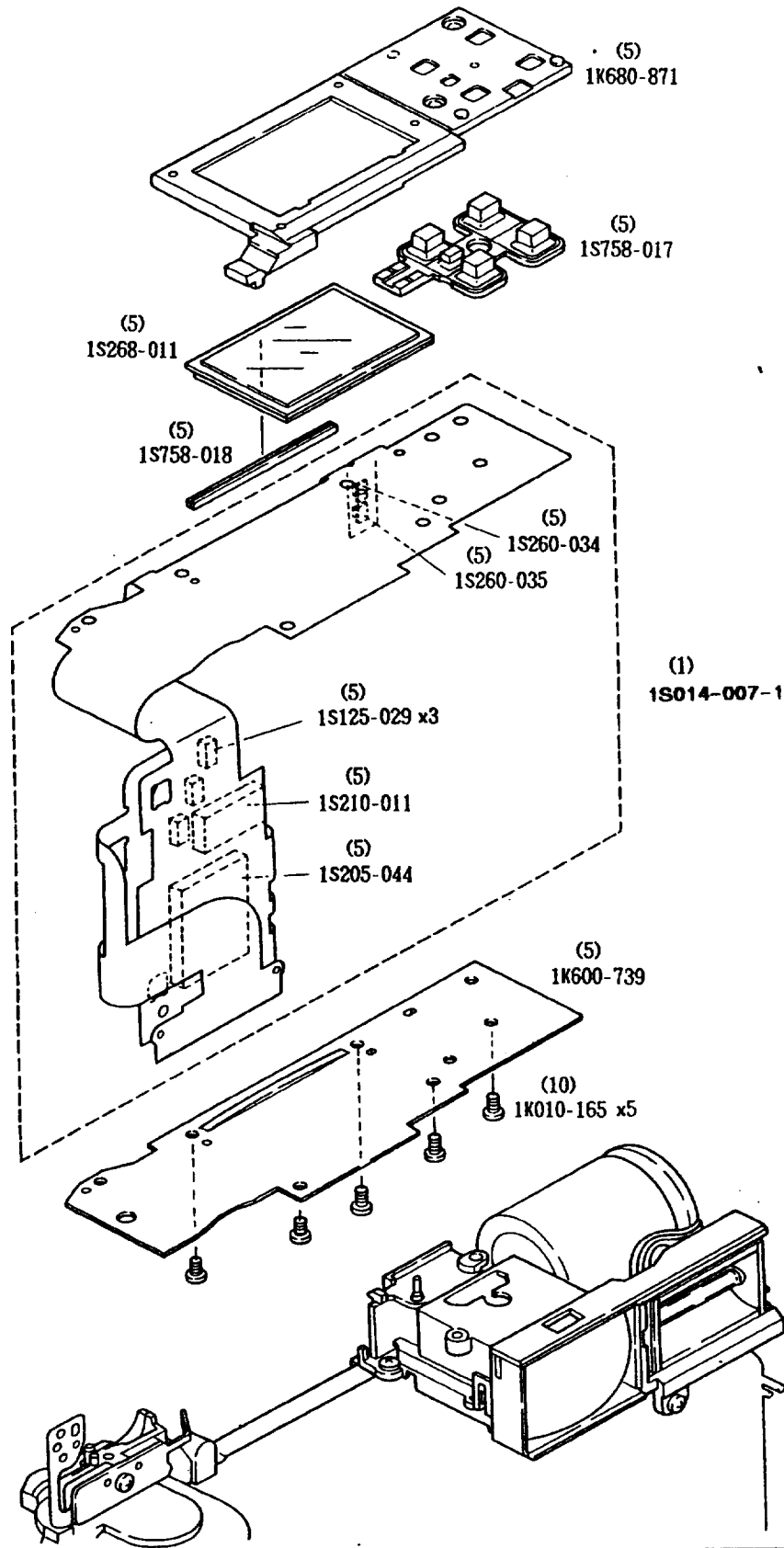
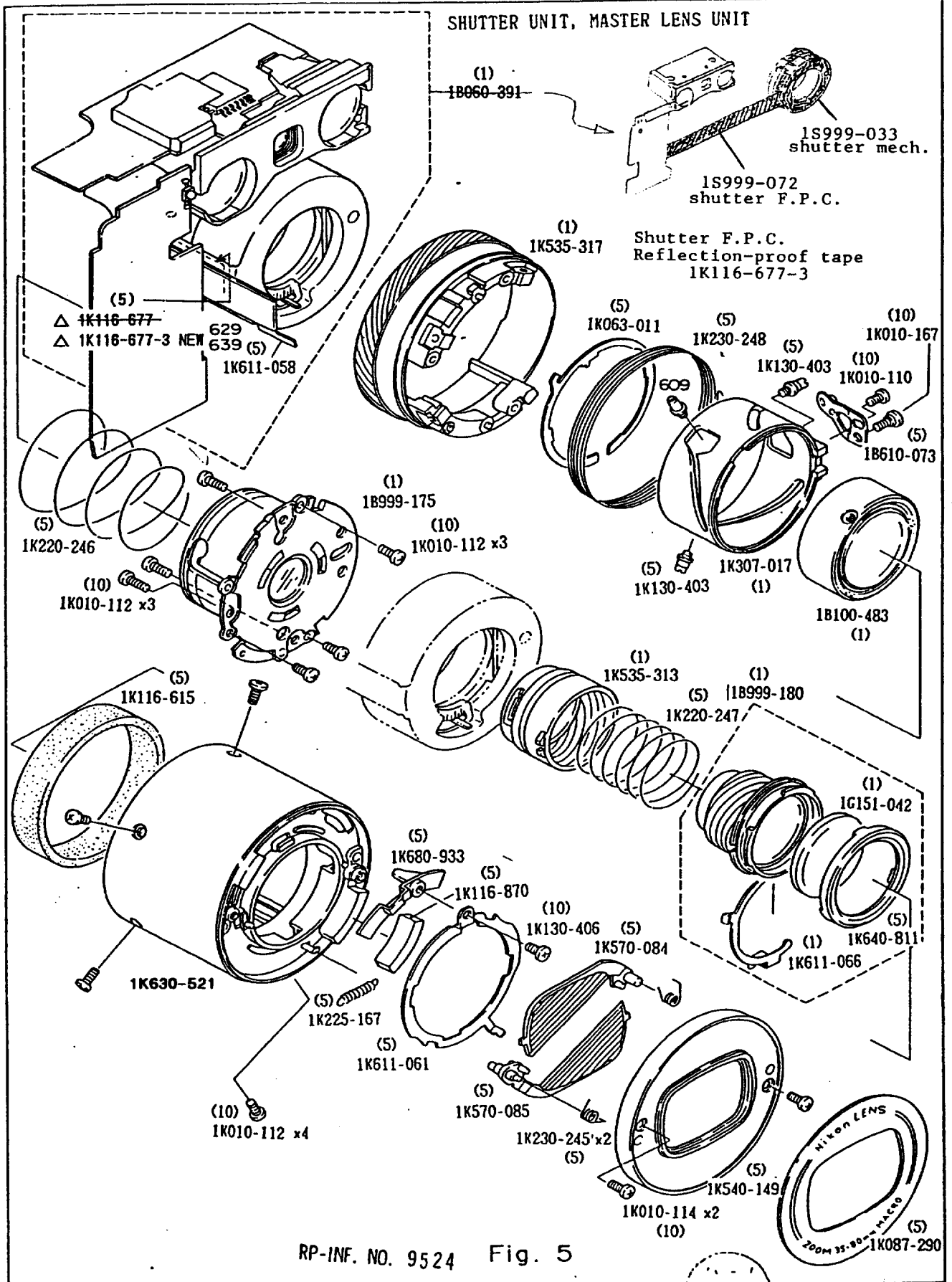


Fig. 4



RP-INF. NO. 9524 Fig. 5

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OUTER HELOCOID,

LENS BARREL BASE PLATE, MOTOR UNIT

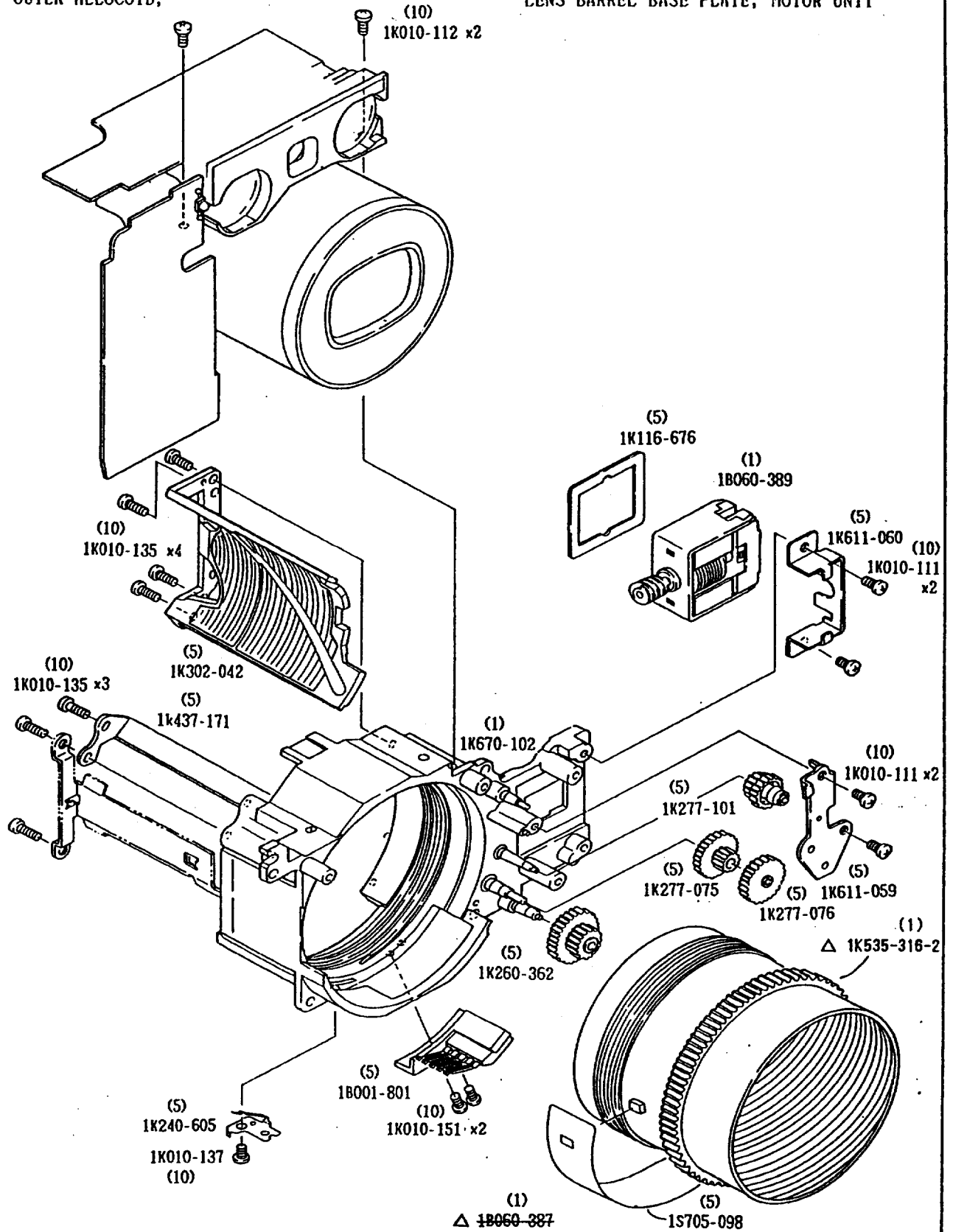


Fig. 6

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CONNECTING FPC

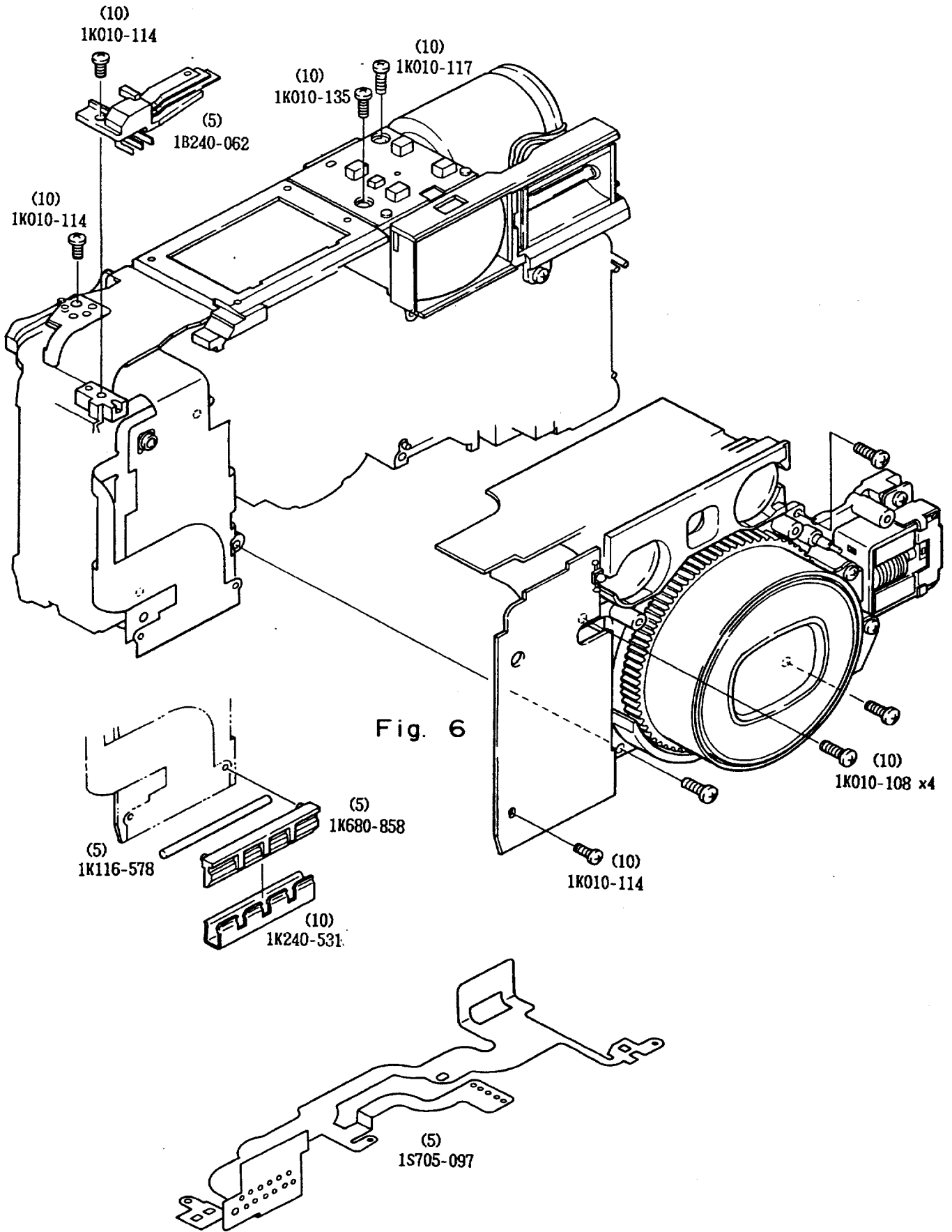


Fig. 7

FRONT COVER

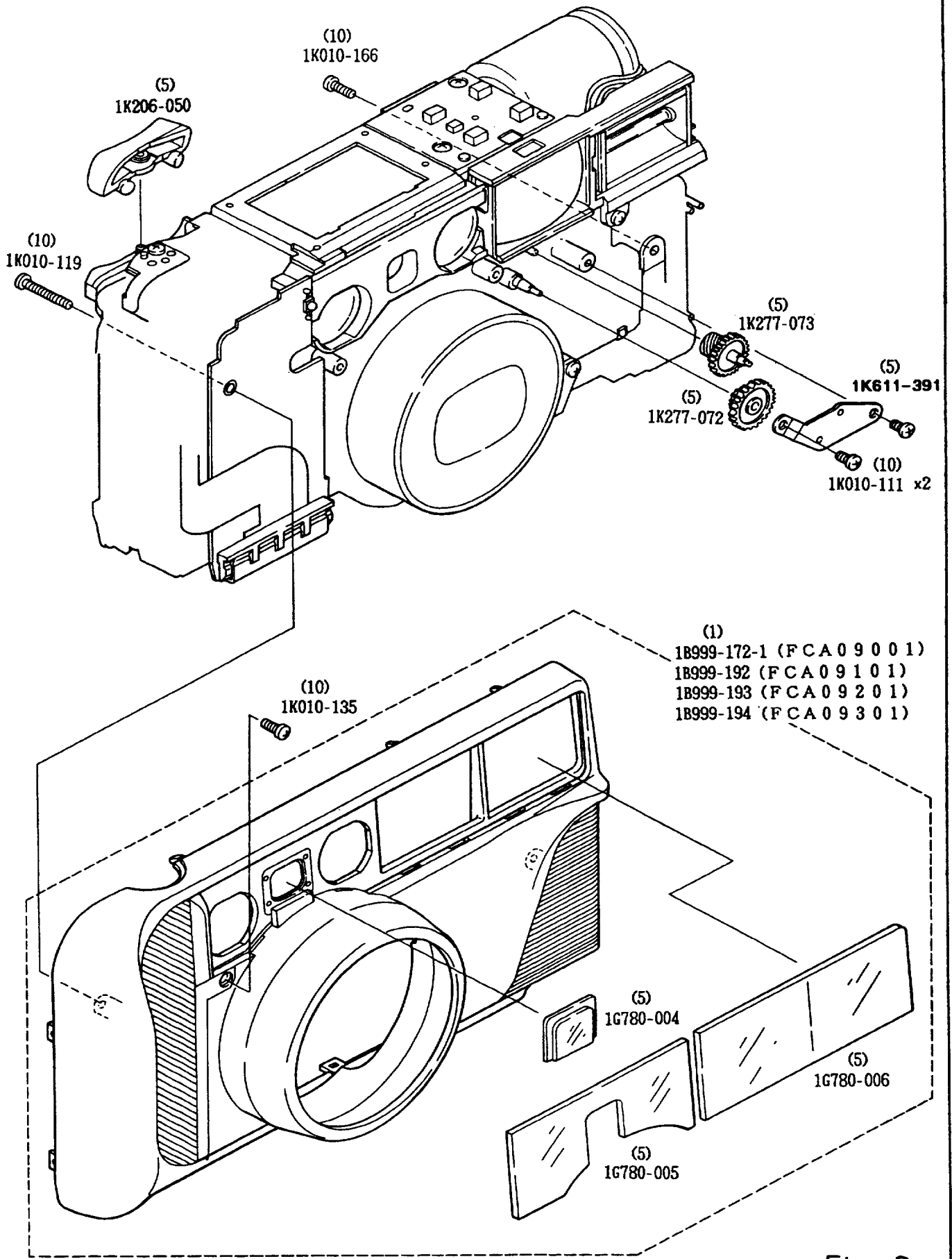


Fig. 8

REAR COVER, BACK DOOR

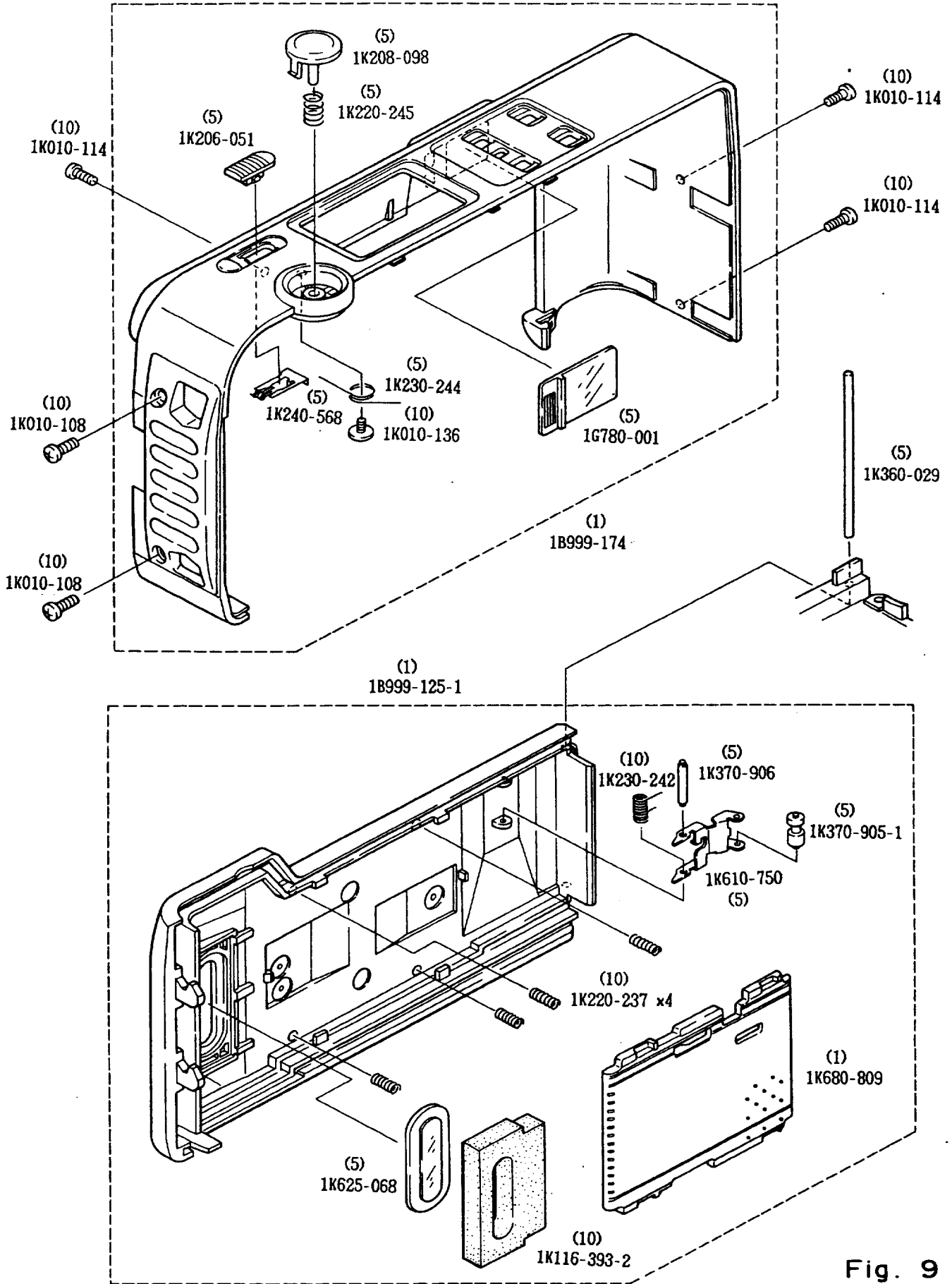


Fig. 9

BOTTOM COVER, BATTERY CHAMBER LID

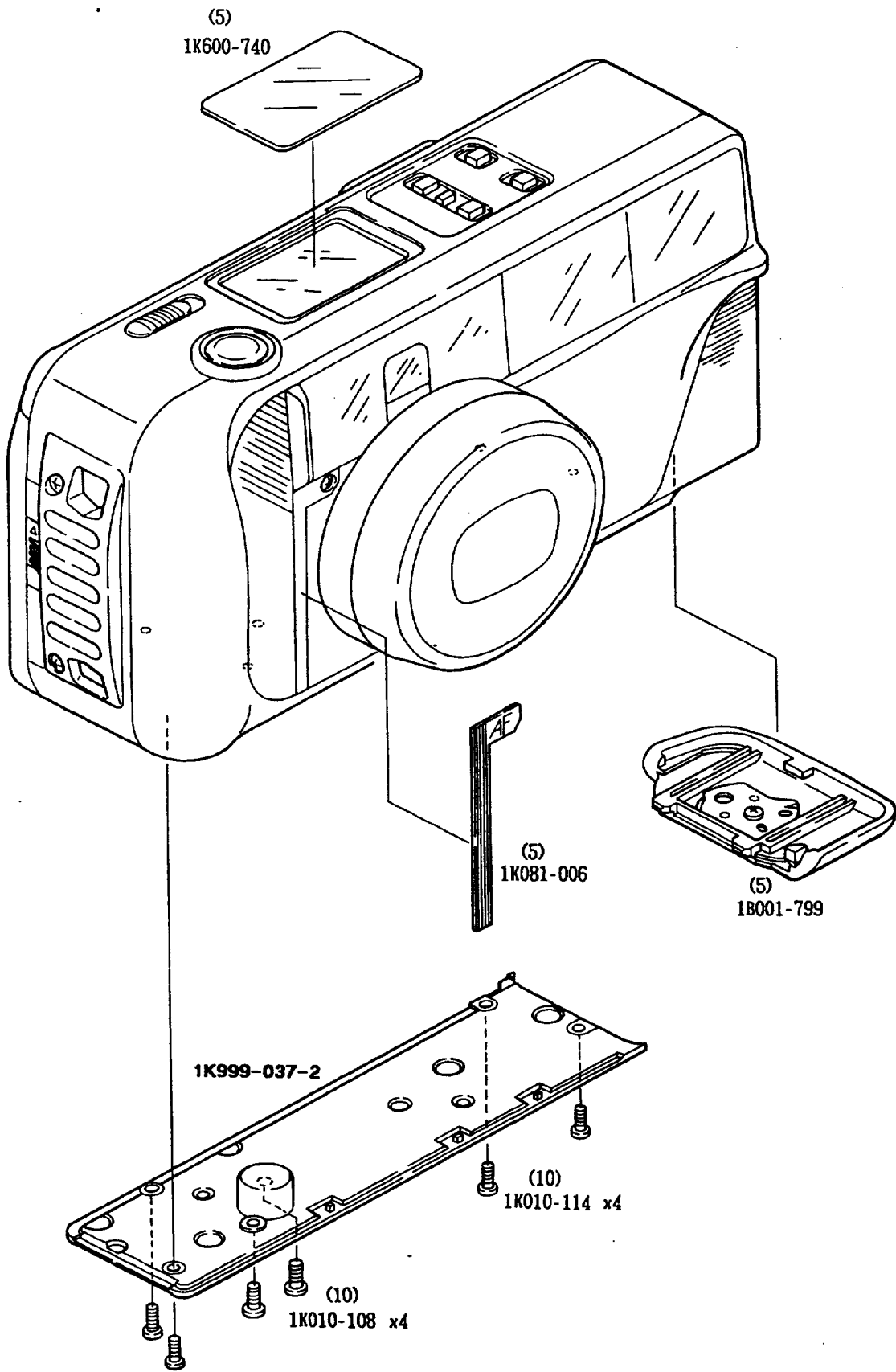


Fig. 10

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*IK010-108	801	Screw	8		7.9 10	○		10
*IK010-110	811	Screw	3		1.5	○		10
*IK010-111	803	Screw	9		3.6 8	○		10
*IK010-112	804	Screw	14		2.5 6.7	○		10
*IK010-114	805	Screw	20		1.2 3 5.7 9.10	○		10
*IK010-117	809	Screw	1		7	○		10
*IK010-118	807	Screw	2		2	○		10
*IK010-119	814	Screw	2		1.8	○		10
*IK010-128	827	Screw	2		2	○		10
IK010-134	510	ズームカム軸 Shaft. zoom cam	1		3	○		5
IK010-135	806	Screw	10	1B060-386	6.7 8	○△		10
IK010-136	823	Screw	1	1B999-174	9	○△		10
IK010-137	824	Screw	2		3.6	○		10
IK010-151	810	Screw	2		6	○		10
IK010-165	802	Screw	5		4	○		10
IK010-166	828	Screw	1		8	○		10
IK010-167	671	Screw	1			○		10
IK010-168	152	ガイド軸 Guide shaft	2		1	○		10

Change page (差し替え)



部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
1K063-011	613	回転筒押えネジ環 Screw ring	1		5	○		5
1K081-006	113	赤ライン Red line	1		10	○		5
1K087-290	663	銘板 Name plate	1		5	○		5
*1K116-393-2 (1K116-393)	110	パトローネモルト Light-tight sponge. patrone window	1	1B999-125-1	9	○△		10
1K116-394	132	蝶番モルト Light-tight sponge. body	1		2	○		10
*1K116-470	133	フィルム先端シール Label. film load position	1		2	○		10
*1K116-564-1 (1K116-564)	137	モルト Light-tight sponge	2		2	○		10
1K116-577	629	遮光ルート Light-baffle sheet	1	1B060-391	5	○△		5
1K116-578	715	圧接ゴム Press-contact rubber	1		7	○		5
1K116-615	650	遮光モルト Light-baffle sponge	1		5	○		5
1K116-675	511	コンデンサ固定モルト Condenser setting sponge	1		3	○		5
1K116-676	653	モーターゴム 0.3t Motor rubber	1		6	○		5
△ 1K116-677	654	反射防止テープ	1	1B060-391	5	○△	RP-9524	5
△ 1K116-677-3		Reflection-proof tape						
1K116-681	236	絶縁板 Insulating plate	1		3	○		5
1K116-722	681	両面テープ 34×6 Double-sided adhesive tape	1	1B060-391		×	TA-0003	
1K116-723	682	両面テープ 12×10 Double-sided adhesive tape	3	1B060-391		×	TA-0003	
1K116-724	683	両面テープ 25×12 Double-sided adhesive tape	2	1B060-387 1B060-391		×	TA-0003	
1K116-739	160	アセテートテープ 15×7 Acetate tape	1			×	TA-0006	
1K116-745	361	セロテープ 15×12 tape	1			×		

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部品表 Parts List

FCA09001-R. 3251. B

部品番号 Part No	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*1601 (1K670-102)		外ヘリコイド Outer helicoid	1		2	○		1
*1604 (1K535-317)		内ヘリコイド Inner helicoid	1		1	○		1
1605		回転筒 Turning tube	1		1	○		1
1608		3群付勢バネ Spring 3rd group	1		1	○		5
1609		3群カムピン Cam pin 3rd group	3		1	○		5
1612		調整レバー Adjustment lever unit	1		1	○		5
1613		回転筒押さえネジ環 Turning tube retaining ring	1		1	○		5
1615		回転筒付勢バネ Spring Turning tube	1		1	○		5
1623		フォーカシングヘリコイド Focusing helicoid	1		1	○		1
1625		G1押え環 retaining ring G1	1	0622	1	○△		5
1626		フォーカシングリング Focusing ring	1	0622	1	○△		1
1628		1群付勢バネ Spring 1st group	1		1	○		5
*1629 (1K116-577)		遮光シート Light baffle sheet	1	*0621 (18060-391)	1	○△		5
1631		キーカム key cam	1		2	○		1
1632		直進キー Linear key	1		2	○		5
1633		FPC支持板 FPC support plate	1	*0621 (18060-391)	1	○△		5



部品表 Parts List

FCA09001-R. 3251. B

部品番号 Part No	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
1634		ブラシ台 Brush holding plate unit	1		2	○		5
1638		接点 Contact	1		2	○		5
*1639 (IK116-854)		植毛シート Flacked sheet	1	*0621 (18060-391)	2	○△		5
1643		ギア1 Gear 1	1		2	○		5
1644		ギア2 Gear 2	1		2	○		5
1645		ギア3 Gear 3	1		2	○		5
△ 1646		ギア4 Gear 4	1		2	○	RP-9611	5
*1650 (IK116-615)		遮光モルト Light baffle sponge	1		1	○		5
1651		ギア押さえ板 Gear retainer plate	1		2	○		5
1652		モータ押さえ板 Motor retainer plate	1		2	○		5
*1653 (IK116-676)		モータゴム 0.3t Motor rubber	1		2	○		5
*1654 (IK116-677)		反射防止テープ Reflection proof tape	1	*0621 (18060-391)	1	○△		5
1661		鏡筒 Lens barrel tube	1		1	○		1
1662		前押さえ板 Front retainer plate	1		1	○		5
1664		バリア上 Upper lens cover	1		1	○		5
1665		バリア下 Lower lens cover	1	*0621 (18060-391)	1	○		5
1684		テープ Tape	1	*0621 (18060-391)	1	×	RP-9110 TA-0012	1
1685		テープ Tape	1		1	×	RP-9110 TA-0012	1

Change Page 差し替え (△×1)

APR. 10. 1995

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部品表 Parts List

FCA09001-R. 3251.A

部品番号 Part No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販 売 区 分 Term of Delivery	備 考 Remarks	要 求 単 位 Qty per order
*IK260-332	218	ギア 28 Gear 28	1		2	○		5
IK260-362	646	ギア 6-7 Gear 6-7	1		6	○		5
IK260-456		モーターピニオン Motor pinion	1	1B999-169	3	○△	RP-8939	10

Added page(追加)

MAR. 1.1995



部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*1K277-056	205	ギア 4-5 Gear 4-5	1		2	○		5
*1K277-057	206	ギア 6-7 Gear 6-7	1		2	○		5
*1K277-058	211	ギア 12-13 Gear 12-13	1		2	○		5
*1K277-059	217	ギア 26-27 Gear 26-27	1		2	○		5
1K277-072	505	ギア 1 Gear 1	1		8	○		5
1K277-073	506	ギア 2 Gear 2	1		8	○		5
1K277-074	507	ギア 3 Gear 3	1		3	○		5
1K277-075	644	ギア 3-4 Gear 3-4	1		6	○		5
1K277-076	645	ギア 5 Gear 5	1		6	○		5
1K277-100	204	ギア 2-3 Gear 2-3	1		2	○		5
1K277-101	643	ギア 1-2 Gear 1-2	1		6	○		5
1K300-082	504	ズームカム Zoom cam	1		3	○		5
1K302-042	631	キーカム Key cam	1		6	○		5
1K307-017	605	回転筒 Turning tube	1		5	○		1
*1K360-029	122	裏蓋軸 Back door shaft	1		9	○		5
*1K370-905-1	118	フィルムローラー Back door film roller	1	18999-125-1	9	○△		5
*1K370-906	120	フィルムアーム軸 Shaft, back door film roller arm	1	18999-125-1	9	○△		5
1K437-171	632	直進キー Linear key	1		6	○		5

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Q'ty per order
1K500-704	501	ファインダーモールド Finder box	1		3	○		5
1K500-705	503	G12ホルダー G12 holder	1		3	○		5
1K535-313	623	フォーカシングヘリコイド Focusing helicoid	1		5	○		1
1K535-317	604	内ヘリコイド Inner helicoid	1		5	○		1
1K540-149	662	前押え板 Front retainer plate	1		5	○		5
1K570-084	664	バリヤ上 Upper lens cover	1		5	○		5
1K570-085	665	バリヤ下 Lower lens cover	1		5	○		5
1K600-736	202	M・M地板 M・M base plate	1		2	○		5
1K600-739	709	裏打板 Backing plate	1		4	○		5
1K600-740	124	LCD窓 LCD window	1		10	○		5
*1K610-750	117	フィルム押え Back door film roller arm	1	1B999-125-1	9	○△		5
*1K611-056	508	ギア押え板 Gear retainer plate	1		8	○		5
1K611-057	633	FPC支持板 FPC support plate	1	1B060-391	5	○△		5
1K611-059	651	ギア押え板 Gear retainer plate	1		6	○		5
1K611-060	652	モーター押え板 Motor retainer plate	1		6	○		5
1K611-061	667	駆動板 Driving plate	1		5	○		5
1K611-066	626	フォーカシングリング Focusing ring	1	1B999-180	5	○△		1
1K611-200	412	押え板 Retainer plate	1		1	○		5

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Q'ty per order
*IK625-068	109	パトローネ窓 Patorone window	1	1B999-125-1	9	○△		5
IK630-521	661	銃筒 Lens barrel tube	1		5	○		1
IK640-811	625	押え環 Retainer ring	1	1B999-180	5	○△		5
IK660-077	131	本体 Body die-casting	1		1	○	現品交換	1
IK670-102	601	暗箱 Black box	1		6	○		1
*IK680-809	115	圧板 Pressure plate	1	1B999-125-1	9	○△		1
IK680-858	717	圧接モールド Press-contact mold	1		7	○		5
IK680-869	201	巻き上げ基板 Winding base plate	1		2	○		5
IK680-871	705	LCD押え LCD retainer	1		4	○		5
IK680-878	502	Fカバー Finder cover	1		3	○		1
IK680-933	670	カーテン Curtain	1		5	○		5
IK680-963	151	遮光板 Light-baffle plate	1		1	○		5
△ IK681-407		巻き戻しフック Rewind fork	1	1B998-084	2	○△	RP-9521 サ技No. サ95-05	5
IK999-037-2	129	底カバー Bottom cover	1		10	○	RP-9254 No入り	1
IK999-050		ズームレバー軸 Shaft, zoom lever	1		1	○	RP-8939	10
IK999-082		調整シール Seal	1			○	91F-1002 RP-9105	10

Change page(差し替え) △×1

-P7- RP-INF. NO. 9521

MAR. 1.1995



部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Q'ty per order
*1S125-029	1008	トランジスタ Transistor(2SA1363F)	3	1S014-007	4	○△		5
1S205-044	1006	IC 1 IC (M50930-108FP)	1	1S014-007	4	○△		5
*1S210-011	1007	IC 2 IC (M51067FP)	1	1S014-007	4	○△		5
*1S260-034	1011	LED (赤) LED (Red)	1	1S014-007	4	○△		5
*1S260-035	1012	LED (緑) LED (Green)	1	1S014-007	4	○△		5
1S268-011	1010	LCD LCD	1		4	○		5
1S335-100		セラミックコンデンサー	1			○	88F-2032 RP-8909	10
*1S422-022	125	電池SW. 裏蓋SW. Battery SW. Back door SW.	2		2	○		5
1S705-097	1002	サブフレキ * Sub F.P.C	1		7	○		5
△ 1S705-098	1004	エンコーダフレキ * Encoder F.P.C	1	1B060-387	6	○△ ↓ ○	RP-9582	5
1S705-099	1009	ズームSWフレキ * Zoom SW. F.P.C	1		1	○		5
1S758-016	411	圧電ゴム Piezoelectric rubber	1		1	○		5
1S758-017	706	ファンクションSW Function SW	1		4	○		5
1S758-018	708	ゼブラコネクター LCD connector	1		4	○		5
1S999-026		抵抗 (510 Ω) Resistor	1			○	88F-2037. 2059 RP-8902	10
1S999-030		XE管 Xenon lamp	1	1B060-385		○△	RP-8925	5
1S999-032		トリガーコイル Trigger coil	1	1B060-385		○△	RP-8925	5
1S999-033		シャッターメカ部 Mech. unit for shutter	1	1B060-391		○△	RP-8925	1

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部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
IS999-072		シャッター-FPC Shutter FPC	1	1B060-391		○△	RP-9208	5
IS999-073		発振トランス Trans former	1	1B060-391	4	○△	RP-9208	5

Added page(追加)

MAR. 1. 1995



部品表 Parts List

FCA09001-R.3251.A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Q'ty per order
W-0056BE		リードワイア Lead wire						
W-0056PU		リードワイア Lead wire						
W-0056GY		リードワイア Lead wire						
W-0056MI		リードワイア Lead wire						
W-0080GY		リードワイア Lead wire						
W-0080OR		リードワイア Lead wire						
W-0120GN		リードワイア Lead wire						
W-0120MI		リードワイア Lead wire						
W-0120RE		リードワイア Lead wire						
W-0120BK		リードワイア Lead wire						
W-0120BK		リードワイア Lead wire						
S1-00800SX	832	Eリング E ring	1	18999-122-1	2	○△		50

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
1G118-007	G15	G15	1		3	○		1
1G151-042	G1	G1	1	18999-180	5	○△		1
1G308-013	G11	G11	1		3	○		1
1G318-009	G12	G12	1		3	○		1
1G318-010	G13	G13	1		3	○		1
1G725-002	G14	G14	1		3	○		1
*1G780-001 bis 1G780-008	G17	接眼窓 Eyepiece lens	1	18999-174	9	○△ \$0.32	No. 8939	5
1G780-004	G18	A E窓 AE window	1	18999-172-1 18999-192	8	○△		5
1G780-005	G19	A F窓 AF window	1	18999-172-1 18999-192	8	○△		5
1G780-006	G20	プロテクター Diffuser	1	18999-172-1 18999-192	8	○△		5

部組品表 Assembly List

FCA09001-R. 3251. A

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照 図番 Fig.	備考 Remarks	要求 単位 Qty per order
18001-799	B107	電池蓋 Battery chamber lid	1		10		5
18998-084	B224	巻戻しファーク Rewind fork unit	1		2	サ技No. 95-05 RP-9521	5
18001-801	B637	ブラシ台 Brush holding plate unit	1		6		5
*18060-353-3	B496	DX接点 DX contact unit	1		1	RP-9001	5
18060-385	B351	スピードライト Speed light unit	1		3		5
18060-386	B481	F検ユニット Film detection contact unit	1		1		1
18060-387	B602	中間ヘリコイド Intermediate helicoid unit	1		6	RP-9582	1
1K535-316-2							
18060-389	B1201	鏡筒モーター Helicoid motor unit	1		6		1
△ 18060-391	B2621	シャッター Shutter unit	1		5	RP-9612	1
18100-483	B606	3群組 3rd group unit	1		5		1
18240-062	B714	リリースSW Release SW. unit	1		7		5
*18277-027-2	B220	遊星ギア Planetary gear unit	1		2	89F-1009 RP-9008	5
18610-073	B611	調整レバー Adjustment lever unit	1		5		5
*18999-122-1	B241	フィルム押え Body-side film roller unit	1		2		5
*18999-125-1	B108	裏蓋 Back door unit	1		9		1
18999-169	B234	モーター	1		3	89F-1009 RP-8909	5
18999-169-1		W/R motor unit					
18999-172-1	B101	前カバー Front cover unit	1		8		1

Change page(差し替え) △×1

APR. 10. 1996



部組品表 Assembly List

FCA09001-R. 3251. A

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照 図番 Fig.	備 考 Remarks	要 求 単 位 Qty per order
1B100-483	B606	3群組 3rd group unit	1		5		1
1B240-062	B714	リリースSW Release SW. unit	1		7		5
*1B277-027	B220	遊星ギア Planetary gear unit	1		2		5
1B610-073	B611	調整レバー Adjustment lever unit	1		5		5
*1B999-122-1	B241	フィルム押え Body-side film roller unit	1		2		5
*1B999-125-1	B108	裏蓋 Back door unit	1		9		1
1B999-169	B234	モーター W/R motor unit	1		3		5
1B999-172-1	B101	前カバー Front cover unit	1		8		1
1B999-174	B123	後カバー Rear cover unit	1		9		1

部組品表 Assembly List

FCA09001-R. 3251. A

部組品番号 Assembly No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照 図番 Fig.	備考 Remarks	要求 単位 Q'ty per order
1B999-175	B636	2群組 2rd group unit	1		5		1
1B999-180	B2622	1群組 1st group unit	1		5		1
1S014-007 <i>DEP</i>	B1001	メインFPC	1		4	<i>2111</i> <i>2113</i>	1
<i>1S014-007-1</i>		Main P.P.C unit					
FCA09101 1B999-192	B101	前カバー <u>Front cover unit</u>	1	FORUSA	8		1

New Type

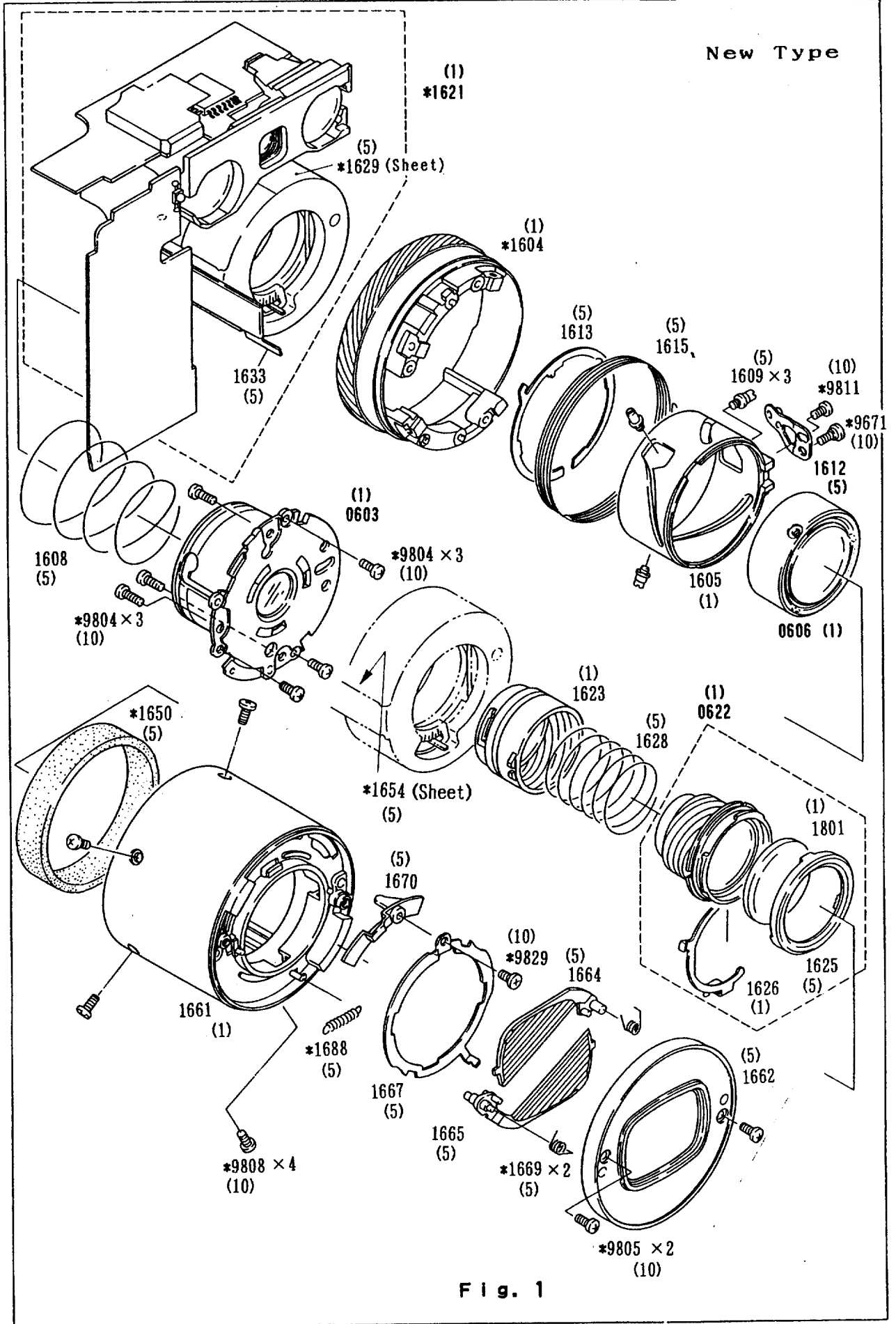


Fig. 1

New Type

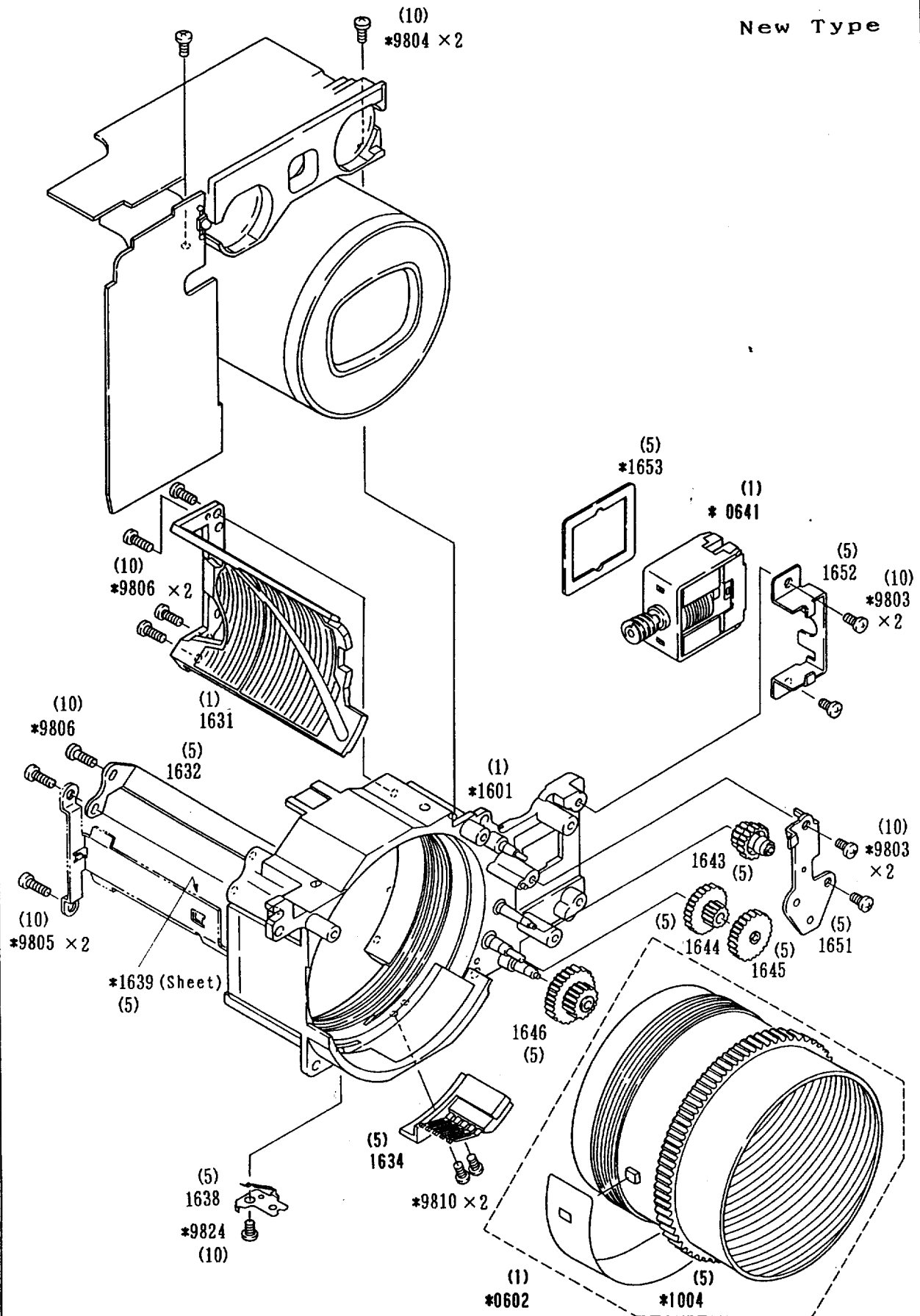


Fig. 2

部品表 Parts List

New Type

FCA09001-R.3251.A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig. No	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
*1601 (1K670-102)		外ヘリコイド Outer helicoid	1		2	○		1
*1604 (1K535-317)		内ヘリコイド Inner helicoid	1		1	○		1
1605		回転筒 Turning tube	1		1	○		1
1608		3群付勢ばね Spring, 3rd group	1		1	○		5
1609		3群カムピン Cam pin (3rd group)	3		1	○		5
1612		調整レバー Adjustment lever unit	1		1	○		5
1613		回転筒押えネジ環 Turning tube retaining ring	1		1	○		5
1615		回転筒付勢ばね Spring, turning tube	1		1	○		5
1623		フォーカシングヘリコイド Focusing helicoid	1		1	○		1
1625		G1押え環 Retainer ring, G1	1	0622	1	○△		5
1626		フォーカシングリング Focusing ring	1	0622	1	○△		1
1628		1群付勢バネ Spring, 1st group	1		1	○		5
*1629 (1K116-577)		遮光シート Light-baffle sheet	1	*1621 (18060-391)	1	○△		5
1631		キーカム Key cam	1		2	○		1
1632		直進キー Linear key	1		2	○		5
1633		FPC支持板 FPC support plate	1	*1621 (18060-391)	1	○△		5

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1634		ブラシ台 Brush holding plate unit	1		2	○		5
1638		接点 Contact	1		2	○		5
*1639 (1K116-854)		植毛シート Placked sheet	1	*1621 (18060-391)	2	○△		5
1643		ギア1 Gear 1	1		2	○		5
1644		ギア2 Gear 2	1		2	○		5
1645		ギア3 Gear 3	1		2	○		5
1646		ギア4 Gear 4	1		2	○		5
*1650 (1K116-615)		遮光モルト Light-baffle sponge	1		1	○		5
1651		ギア押え板 Gear retainer plate	1		2	○		5
1652		モーター押え板 Motor retainer plate	1		2	○		5
*1653 (1K116-676)		モーターゴム 0.3t Motor rubber	1		2	○		5
*1654 (1K116-677)		反射防止テープ f/Shutter Reflection-proof tape FPC	1	*1621 (18060-391)	1	○△		5
1661		鏡筒 Lens barrel tube	1		1	○		1
1662		前押え板 Front retainer plate	1		1	○		5
1664		バリア上 Upper lens cover	1		1	○		5
1665		バリア下 Lower lens cover	1		1	○		5

部品表 Parts List

FCA09001-R. 3251. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig. No.	販売区分 Term of Delivery	備考 Remarks	要求単位 Q'ty per order
1667		駆動板 Driving plate	1		1	○		5
*1668 (1K225-167)		バリア開きばね Lens cover opening spring	1		1	○		5
*1669 (1K230-245)		バリア閉じばね Lens cover closing spring	2		1	○		5
1670		駆動レバー Lens cover driving lever	1		1	○		5
*1004 (1S705-098)		エンコーダフレキ Encoder F.P.C	1	*0602 (1B060-387)	2	○△		5
*0621 (1B060-391)		シャッター Shutter unit	1		1	○	9105	1
*9671 (1K010-167)		Screw	1		1	○		10
*9803 (1K010-111)		Screw	4		1.2	○		10
*9804 (1K010-112)		Screw	8		1.2	○		10
*9805 (1K010-114)		Screw	4		1.2	○		10
*9806 (1K010-135)		Screw	3		2	○		10
*9808 (1K010-112)		Screw	2		1	○		10
*9810 (1K010-151)		Screw	2		2	○		10
*9811 (1K010-110)		Screw	1		1	○		10
*9824 (1K010-137)		Screw	1		2	○		10
*9829 (1K130-406)		Screw	1		1	○		10
1801	10	G1	1	0622	1	○△		1

部組品表 Assembly List

FCA09001-R. 3251. A

部組品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	大部組品番号 Assembly	参照 図番 Fig. No.	備 考 Remarks	要求単位 Q'ty per order
*0641 (18060-389)		鏡筒モーター Helicoid motor unit	1		2		1
0622		1群組 1st lens group unit	1		1		1
0603		2群組 2nd lens group unit	1		1		1
0606		3群組 3rd lens group unit	1		1		1
*0602 (18060-387)		中間ヘリコイド Intermediate helicoid unit	1		2		1
追加 ADD- ED	1684	テープ Tape	1		1	× TA-0012 対応 RP-9110	1 roll
追加 ADD- ED	1685	テープ Tape	1		1	× TA-0006S 対応 RP-9110	1 sheet

[1] SPECIFICATIONS

Type: Liquid crystal display; Built-in quartz digital watch

Film speed: Automatic selection by reading DX-code; 3 steps

Imprinting time:	64 \leq ISO < 400	60 \pm 2ms
	400 \leq ISO < 1600	37 \pm 2ms
	1600 \leq ISO	22 \pm 2ms

Imprint modes: 1. Calendar (Year/Month/Day)
2. Clock (Hour/Minute) 24-hour base clock
3. No imprint
Pushing the mode button selects the imprinting mode.
Automatic date adjustment from Jan. 1, 1980 to Dec. 31, 2019 (Lower two digits are displayed for year.)
Quick data adjustment is possible by pushing each button continuously.

Power source: 3V lithium battery (CR2025)

Clock accuracy: \pm 90sec/month at 20°C

Dimensions: Approx. 137(W) x 73(H) x 61(D)mm

Weight: Approx. 370g(without battery)

[2] HOW TO CHECK DATA IMPRINTING**1. Judgement of data imprinting signal**

Output of data imprinting signal can be confirmed by the tester.

- 1) Open the camera back.
- 2) Turn off camera back switch.
- 3) Select the DC 0.1-10V range of the tester and connect the tester with GND and D2 contacts.
- 4) If the signal is output, the needle of the tester moves for an instant when the shutter is released.

2. Imprint timing check

Make the measurement in the same method as 1. using the oscilloscope instead of the tester.

Imprint time is selected out of three steps according to the film speed in set.

3. Inspection of imprinting

- 1) Open the camera back.
- 2) Turn off camera back switch.
- 3) Attach mending tape on the data imprinting window of the pressure plate.
- 4) Connect GND of camera body and GND pin of camera back.
(Do not solder at either end.)
- 5) Connect D2 port of camera body and D2 pin of camera back.
(Do not solder at either end.)
- 6) Release the shutter and then inspect the data imprinted on the mending tape using a magnifying glass.
Imprinted data is reversed and should be the same as displayed.

DB 裏蓋部

FCA09201-R.3251.A

DB BACK DOOR

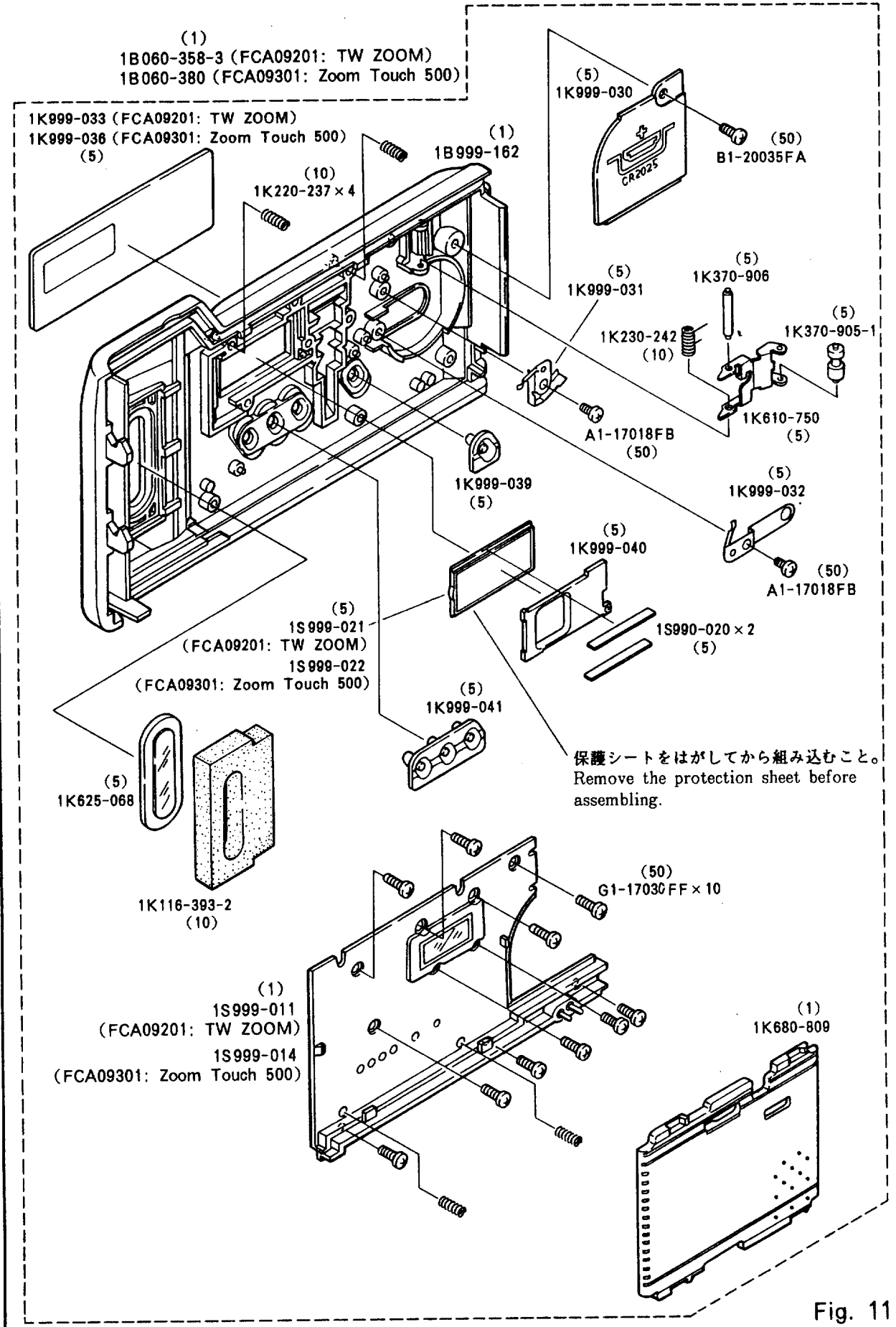


Fig. 11

部品表 Parts List

FCA09201-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部組品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Qty per order
*1K116-393-2 (1K116-393)	110	パトロネモルト Light-tight sponge, patrone window	1		1	○	9/45	10
*1K220-237	116	圧板ばね Pressure plate spring	4		1	○		10
*1K230-242	119	フィルムローラー押えばね Spring, back door film roller arm	1		1	○		10
*1K370-905-1	118	フィルムローラー Back door film roller	1		1	○		5
*1K370-906	120	フィルムアーム軸 Shaft, back door film roller arm	1		1	○		5
*1K610-750	117	フィルム押さえ Back door film rooller arm	1		1	○		5
*1K625-068	109	パトロネ窓 Patorone window	1		1	○		5
*1K680-809	115	圧板 Pressure plate	1		1	○		1
*1K999-030	181	電池蓋 Battery chamber lid	1		1	○		5
*1K999-031	131	DB電池接片+ DB battery contact, +	1		1	○		5
*1K999-032	132	DB電池接片- DB battery contact, -	1		1	○		5
*1K999-033	102	DB銘板 Name plate	1		1	○		5
FCA09301 *1K999-036	102	DB銘板 Name plate	1		1	○	USA用	5
1K999-038 DEP 1K999-038-1 DEP	129	底カバー Bottom cover	1	1K999-038-2	1	○	NO入り NO. 40001 ~ 7315	1
1K999-039	122	スイッチゴムB Switch rubber b	1		1	○		5
1K999-040	112	コネクタ案内枠 Connector guide plate	1		1	○		5
1K999-041	121	スイッチゴムA Switch rubber A	1		1	○		5
1S999-020	113	コネクタA Connector A	1		1	○		5

部品表 Parts List

FCA09201-R. 3251. A

部品番号 Part No.	補助番号 Ckt. No.	名称 Name	1台分 個数 Pcs. Per Unit	部品番号 Assembly	参照 図番 Fig.	販売 区分 Term of Delivery	備考 Remarks	要求 単位 Q'ty per order
1S999-021	111	液晶パネルA LCD	1		1	○		5
FCA09301 1S999-022	111	液晶パネルA LCD	1		1	○	USA用	5
*A1-17018FB	133	Screw	2		1	○		50
*B1-20035FA	182	Screw	1		1	○		50
*G1-17030FF	211	Screw	10		1	○		50

部組品表 Assembly List

FCA09201-R.3251.A.

部組品番号 Assembly No.	補助番号 Ckt. No.	名 称 Name	1台分 個 数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照 図番 Fig.	備 考 Remarks	要 求 単 位 Q'ty per order
*18999-162	B100	DB裏蓋基板 Comera back	1		1		1
18999-193	B101	前カバー Front cover unit	1		1		1
*1S999-011	B141	Dモジュール Data back module	1		1		1
FCA09301 18999-194	B101	前カバー Front caver unit	1		1	USA用	1
FCA09301 *1S999-014	B141	Dモジュール Data back module	1		1	USA用	1
FCA09301 18999-350		Data back unit				9020	
FCA09301 18999-358		Data back unit				9020	