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ZOOM 700 VR FCA25001

ZOOM 700 VR QD FCA25201

Zoom Touch 105 VR QD FCA25301

REPAIR MANUAL

Nikon | NIKON CORPORATION
Tokyo, Japan

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SPECIFICATIONS & MECHANISM

Specifications

Mechanism

1. Specifications

(1) Base length 40mm

(2) Metering range BV -1~12

(3) Daylight sync control -1EV in anytime flash mode

(4) Film advance control FSS PI pulse (360 edges/1 frame)

(5) Number of focus steps (including focus lock at infinity)

f38mm	154 steps
f70mm	128 steps
f105mm	148 steps

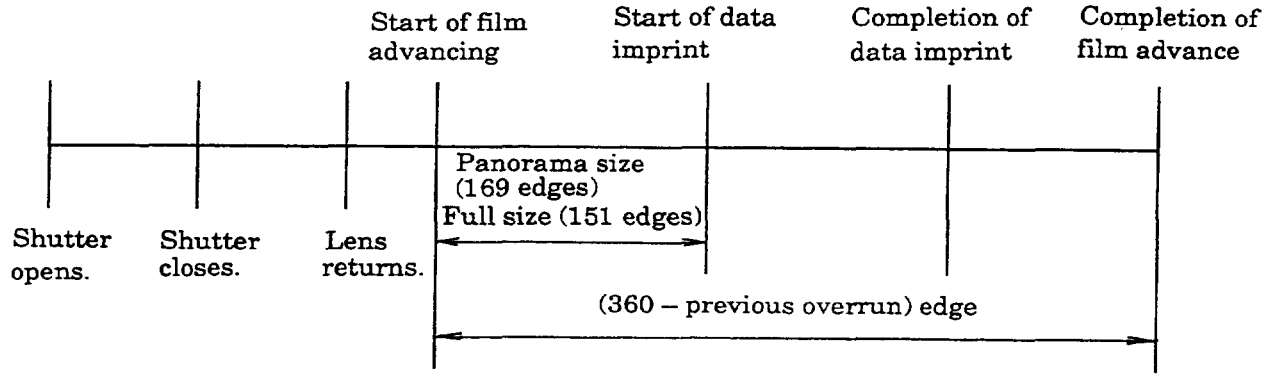
2. Time required for each operation

Operation	Time
Auto film loading	Film loading starts in 400ms after closing the camera back. (300ms timer + internal processing time)
Error of auto film loading	Occurs when PI pulse (FSS) is generated within 2.4 seconds.
Auto film rewind	Starts when PI pulse (FSS) is generated within 2.4 seconds at the end of film roll.
Auto film rewind stop	Stops automatically when 5 second delay is detected after rewinding film, and no PI pulse is generated hereafter.
Manual film rewind	Stops automatically when 5 second delay is detected after rewinding film, and no PI pulse is generated hereafter. Starts in 0.4 seconds after pressing MUS button.
Fork free after the completion of film rewind	Occurs when the film rewind motor rotates in normal direction for 0.5 seconds after the completion of film rewind.
Lens barrel stops abnormally.	Stops when PI does not change during operation for over 1 second (Currently LCD indicator blinks at 2Hz.)
Lens moving forward operation stops abnormally.	Stops when AFPI does not change during normal and reverse driving operation for 200 ms. (Currently LCD indicator blinks at 2Hz.)
Display timer	Goes out in 3 minutes (shutter prerelease timer) Goes out in 6 seconds (film rewind completion)

3. Operation in each flash mode

Flash mode	Function	Shutter speed
Auto flash	Flash mode can be automatically selected in each zone. (FM control)	1/15 second
Flash cancellation	Flash does not fire regardless the brightness of subject (AE control). Automatically set in infinity focus mode.	1/4 second
Anytime flash	Flash always fires regardless the brightness of subject. Firing is controlled at –1EV in daylight synchro mode.	1/15 second
Slow synchro	Longer shutter speed (1/4 second) than that in normal flash mode is selected automatically.	1/4 second
Red-eye reduction	Flash fires one second after the red-eye reduction lamp lights up. Other functions are same as above. Red-eye reduction mode activates at BV 4.5 or lower.	1/15 second

4. Data imprint signal



Data imprint time

Film speed	Time (regular size)	Time (panorama size)
ISO ≤ 100	120 ± 2 μs	20 ± 2 μs
ISO ≤ 200	50 ± 2 μs	20 ± 2 μs
ISO ≤ 400	28 ± 2 μs	16 ± 2 μs
ISO ≤ 1000	13 ± 2 μs	12 ± 2 μs

5. Size scale imprint

	5cm	10cm	20cm	30cm	40cm	50cm	1m
105mm zone 1	0.98～ 0.75m	1.85～ 0.98m	2.71～ 1.86m	3.41～ 2.73m			
70mm zone 8		1.29～ 0.75m	1.89～ 1.29m	2.47～ 1.89m	3.05～ 2.47m	3.41～ 3.05m	
38mm zone15			1.05～ 0.75m	1.38～ 1.05m	1.70～ 1.38m	3.37～ 1.70m	3.41～ 3.39m

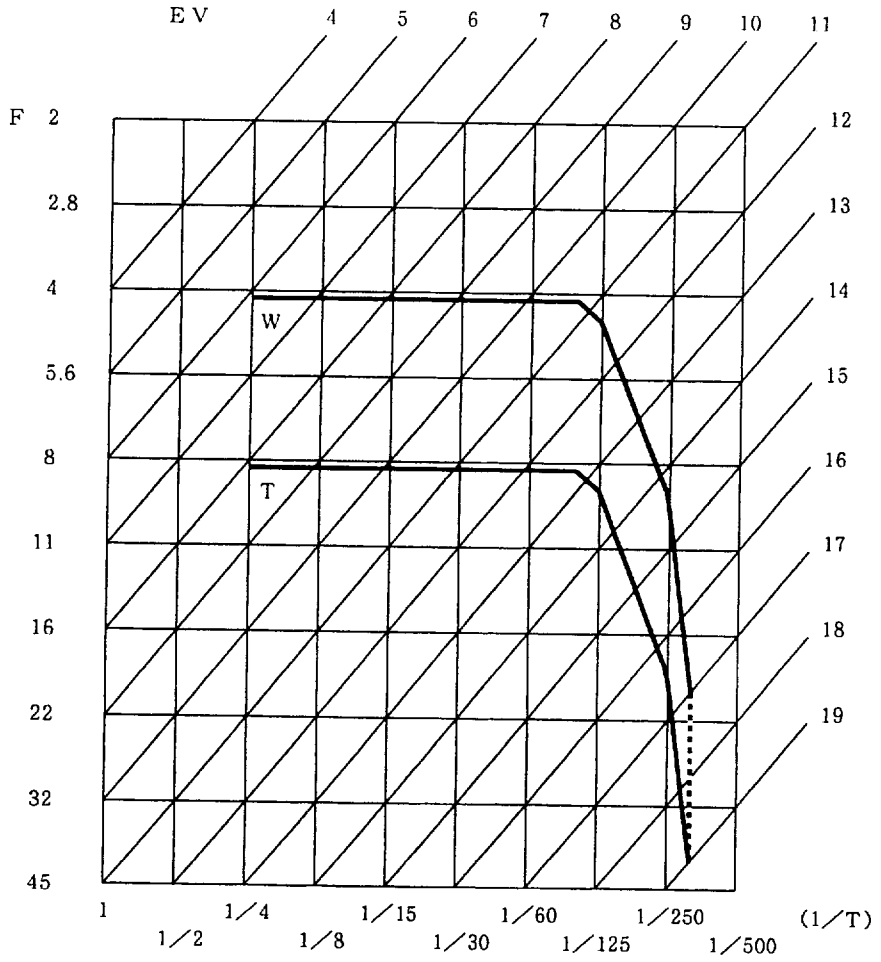
6. Values in each zone

Zone No.	1	2	3	4	5	6	7	8
Focal length (mm)	102	97.5	93.0	88.5	84.0	79.5	75.0	70.5
F-number	8.01	7.82	7.61	7.39	7.17	6.93	6.67	6.40
Guide number	14.0	13.7	13.5	13.3	13.1	12.9	12.7	12.5
Flash decision value (EV)	12	11.87	11.87	11.75	11.62	11.62	11.5	11.37
AF step value	2 ～ 148	2 ～ 145	2 ～ 141	2 ～ 138	2 ～ 135	2 ～ 133	2 ～ 130	2 ～ 128
Zone No.	9	10	11	12	13	14	15	
Focal length (mm)	66.0	61.5	57.0	52.5	48.0	43.5	39.0	
F-number	6.12	5.82	5.51	5.18	4.83	4.46	4.07	
Guide number	12.2	12.0	11.8	11.6	11.4	11.2	11.0	
Flash decision value (EV)	11.25	11.12	10.87	10.75	10.5	10.25	10.0	
AF step value	2 ～ 127	2 ～ 126	2 ～ 127	2 ～ 130	2 ～ 135	2 ～ 144	2 ～ 154	

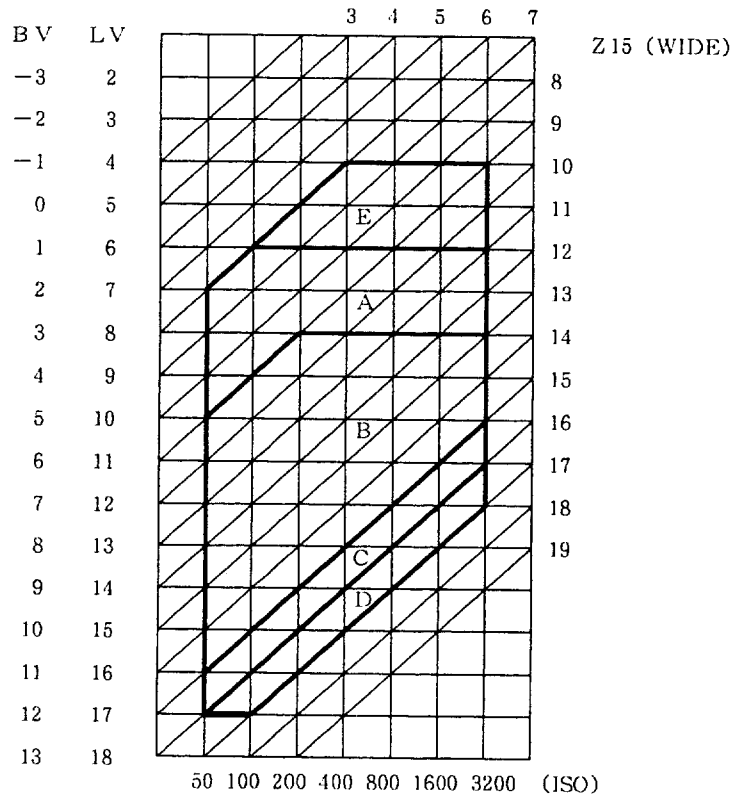
7. Viewfinder LED indicators

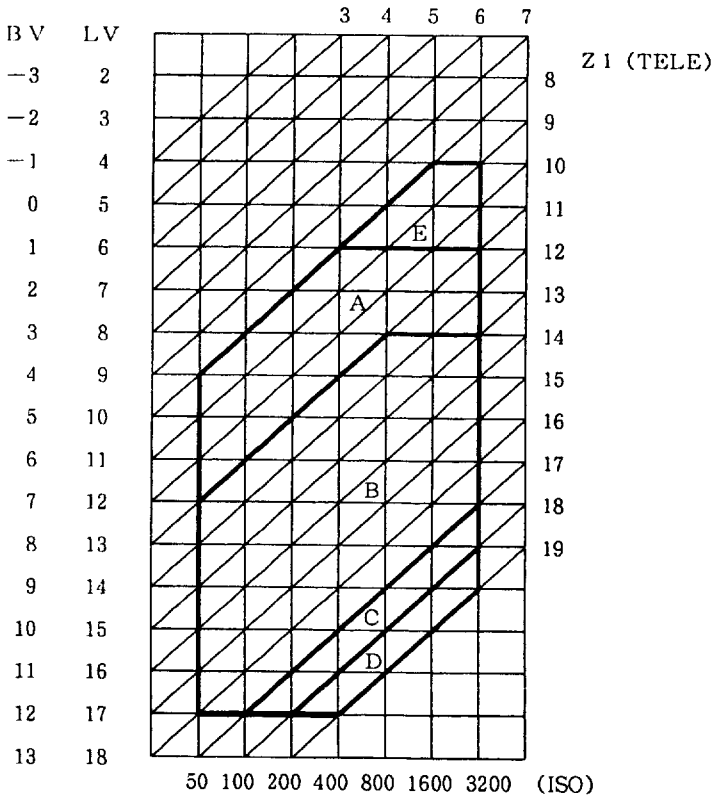
	LED (red)		LED (green)	
Lights up.	Flash is set to fire.		Amount of camera shake is small.	
Blinks	4 Hz	Flash is not sufficiently charged.	Blinks at 2 Hz	Amount of camera shake is large. (VR switch is ON.)
		Out of size scale imprint range	Blinks at 8 Hz	Image blur warning in VR R cancel mode (VR switch is OFF.)
Goes out	Flash does not fire.		Too-close-warning (0.75m)	

8. AE program chart



9. AE range chart





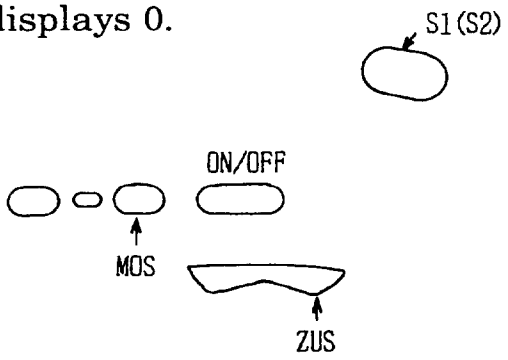
10. Manual inspection mode

(1) Manual inspection mode input procedure

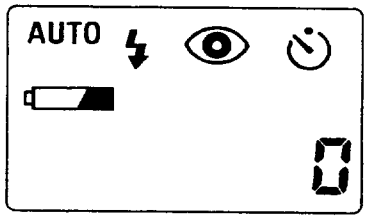
1) Turn the power ON. The lens barrel stops at other than RESET position and LCD is lit.

2) Turn ZUS (zoom "T") and S1 (shutter pre-release) switches ON immediately after turning MOS switch ON. Keep these three switches ON for 10 seconds.

3) During the initial manual inspection mode, the insufficient battery power indicator lights up and the frame counter displays 0.



Initial inspection mode

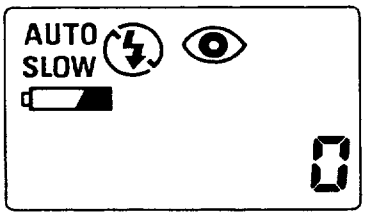


(2) Command selection and switch setting

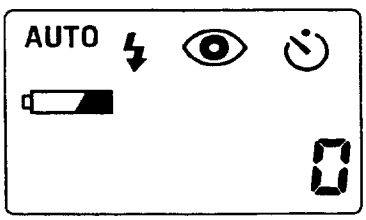
1) In manual inspection mode, turn MOS switch ON for 3 seconds. (Frame counter displays 0 again.)

2) Turn the zoom switch to either "W" or "T" side while keeping MOS switch ON. Then, a number corresponding to each command is indicated on the frame counter. Switch setting for each command is possible by shutter pre-release operation to either flash cancellation/SLOW (switch is ON) or auto flash mode (switch is OFF.)

Switch is ON.



Switch is OFF.



Command operation

(1) Shutter bulb (command Nos. 0, 1)

After setting both switches of command No. 0 and 1 to ON, the shutter opens when shutter is released (S2) and closes when shutter is released again.

*Note: Shutter should be closed within 5 seconds (max.) since the VR function works in the bulb mode. When you want to keep the shutter opened for more than 5 seconds, cancel the VR function using command No. 6.

(2) Reading EV values (command No. 2)

Keep the MOS ON and set the switch of command No. 2, then turn the switch ON to display EV values using frame counter and self-timer indicator.

For example,

Self-timer indicator is OFF and frame counter shows 93: EV9 3/8

Self-timer indicator is ON and frame counter shows 27: EV12 7/8

(3) Manual AF value setting and AF distance measuring (command Nos. 3, 4)

Keep the MOS ON, and set the switch of command No. 3, then the frame counter will show 00 when the switch is turned ON. In this state, numbers from 0 to 1990 can be set arbitrarily by operating the ZSW. After setting command No. 4, AF calculating results can be displayed every time when the shutter release button is pressed lightly (S1) while the switch is ON.

*Note: No numerical values are mentioned here since they are symmetrical to codes in each zone.

(4) Zoom driving position (command No. 5)

Keep the MOS ON and set the switch of command No. 5, then the zoom values can be displayed when the switch is turned ON. In this state, zone numbers from 1 to 15 can be arbitrary set by operating the ZSW.

(5) Canceling VR function (command No. 6)

Keep the MOS ON and set the switch of command No. 6, the VR function can be canceled by turning the switch ON. However, the image blue detection sensor continues to work and a green LED light up or blinks.

	Display	Positional notation of data
EV value	Self-timer	10th position (1: lights up, 0: goes out.)
	Frame counter (left)	Base position
	Frame counter (right)	Fraction (showing x/8)
AF value	Self-timer	1000th position (1: lights up, 0: goes out)
	Frame counter (left)	100th position
	Frame counter (right)	10th position

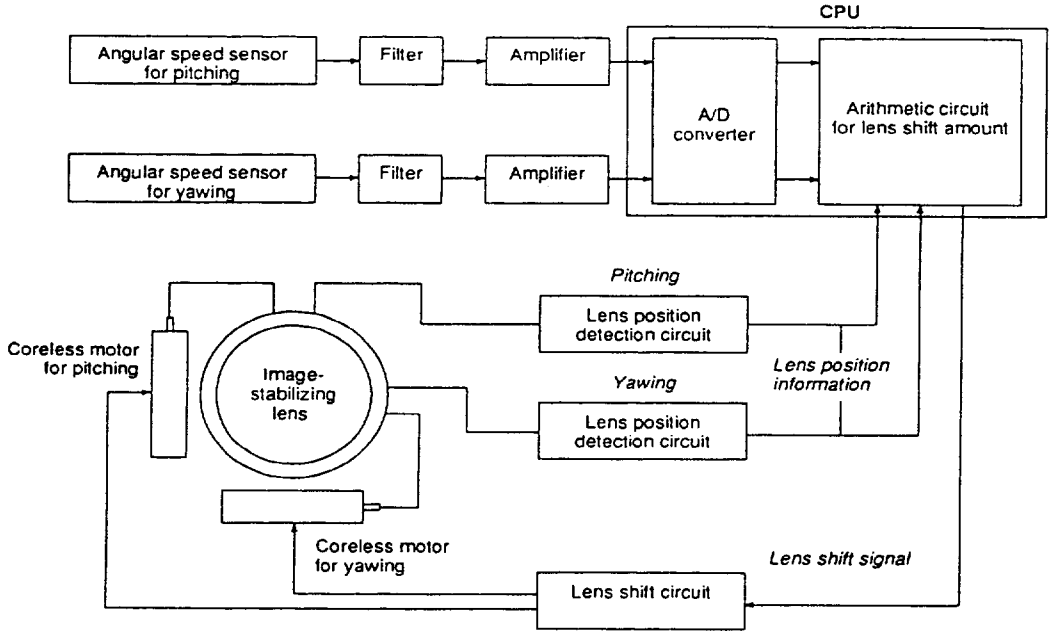
Inspection command list

No.	Command	Switch	Display	Contents
0	Bulb permission	OFF	None	Bulb mode
		ON		Bulb mode permission
1	Bulb	OFF	None	Normal shutter release
		ON		Enters bulb mode when switch 2 is turned ON if bulb permission is selected.
2	Reading EV values	OFF	EV values	EV values through AE processing immediately before shutter release operation.
		ON		
3	AF value manual setting	RESET	AF count value	Performing normal AF distance measuring
		SET		Shooting is carried out after that at the count value set.
4	AF values Distance measured	OFF	AF count value	No display
		ON		AF distance measuring is displayed when S1 is ON.
5	Zoom driving position	READ	Zone values 1 to 15	Lens barrel is driven to the zone set when the zone value display and setting ZSW are turned ON.
		SET		
6	VR function cancel mode	OFF	None	VR function works.
		ON		VR function is canceled during metering. VR function is canceled regardless the setting.

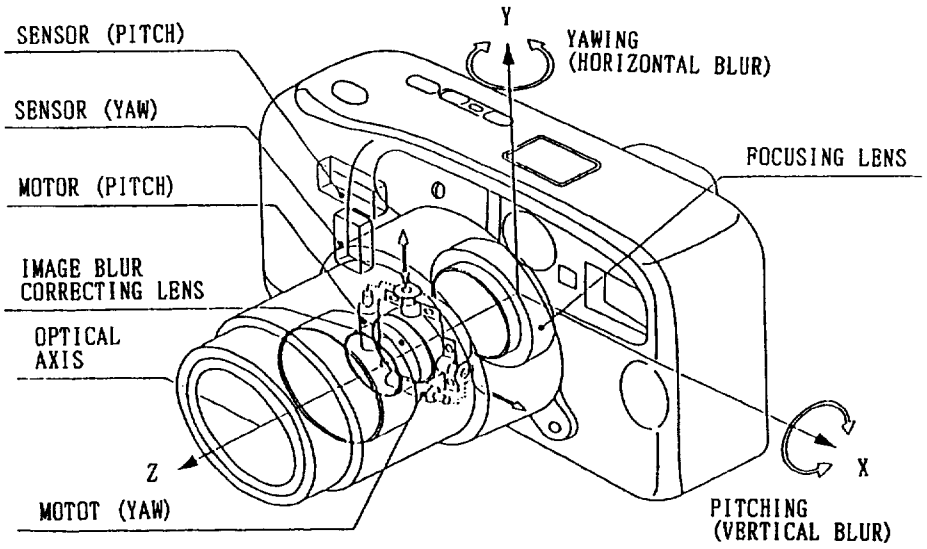
Note: *All command switches are set to OFF immediately after entering the inspection mode.

Mechanism

Vibration Reduction System Chart

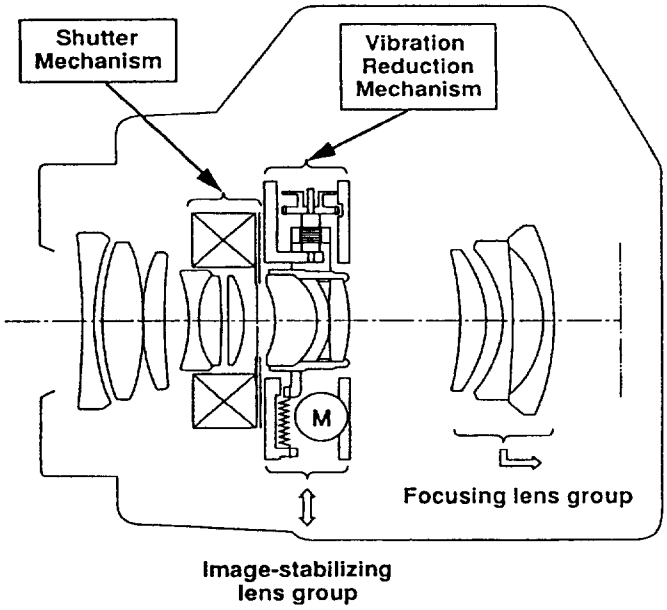


1) Two sensors monitor pitching (vertical camera shake) and yawing (horizontal camera shake).
2) Output signals from each sensor are filtered, amplified, and then converted to digital signals by an A/D converter.
3) The camera's computer (CPU) processes the digital signals, calculates the lens shift amount, and then, through the lens shift circuit, signals the coreless motors for pitching and yawing to shift the image-stabilizing lens.
4) Lens position information is fed through the lens position detection circuit back to the arithmetic circuit.

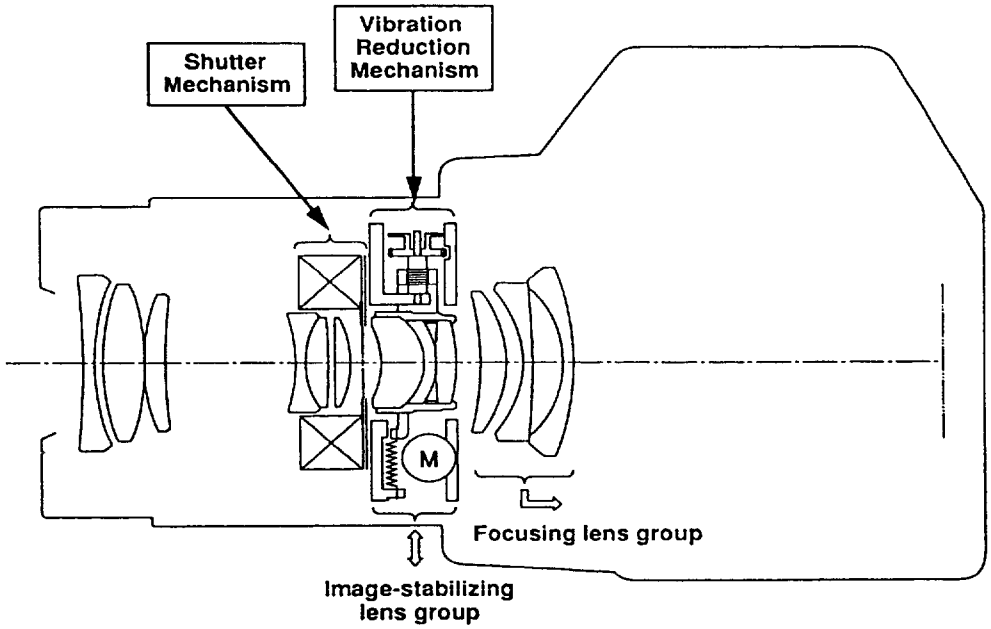


Construction of the lens

(WIDE)

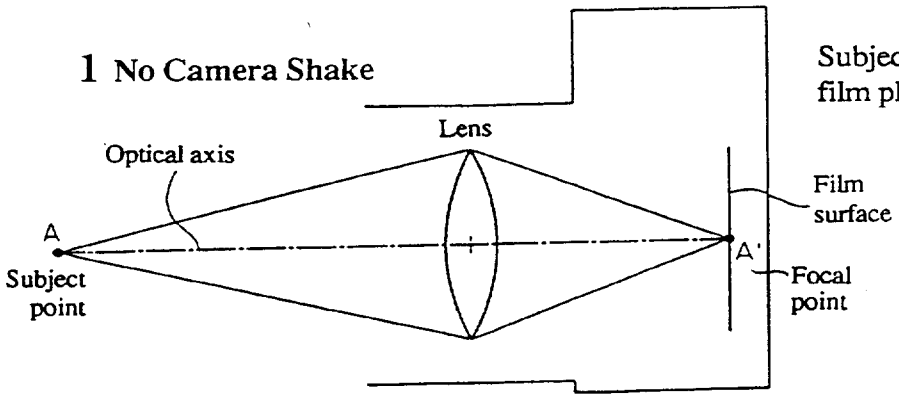


(TELE)



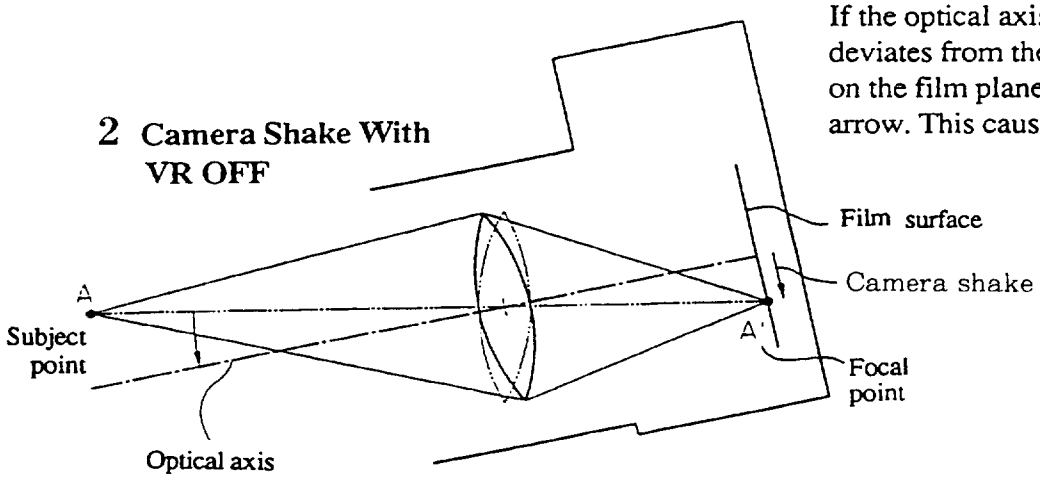
VR System's Lens-Shift Operation

1 No Camera Shake



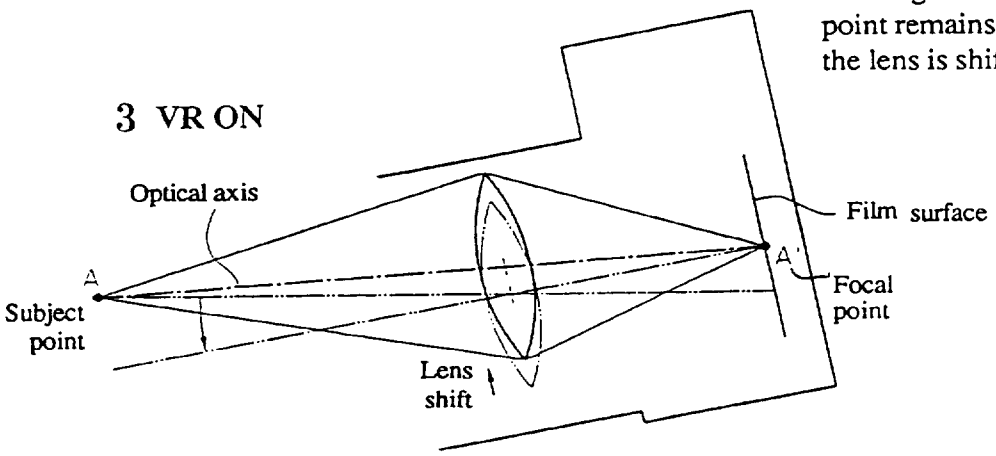
Subject point on the optical axis is focused at film plane on the same axis.

2 Camera Shake With VR OFF



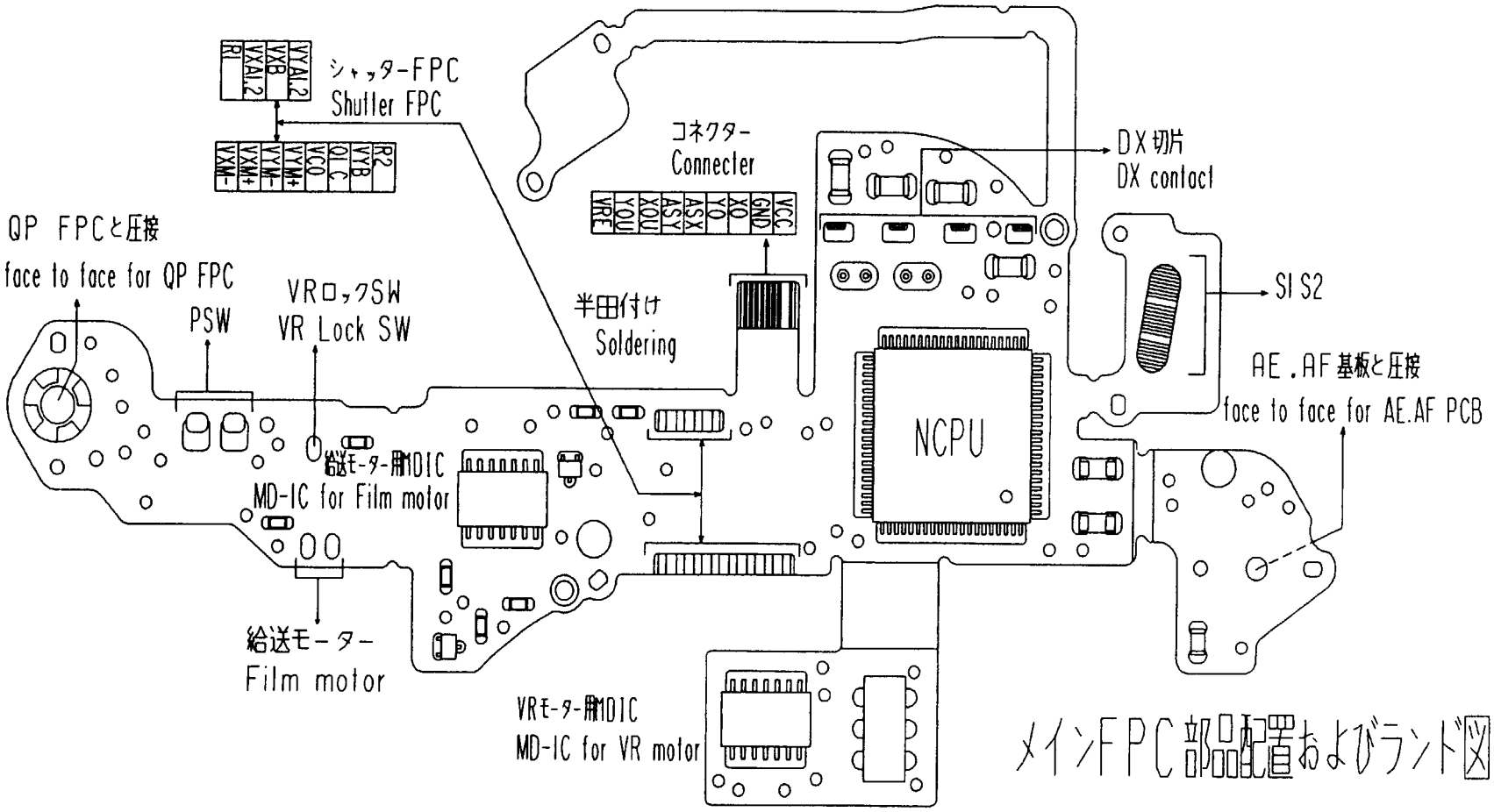
If the optical axis is inclined, the subject point deviates from the optical axis and the focal point on the film plane is shifted as indicated by the arrow. This causes picture blur.

3 VR ON



Although the optical axis is inclined, the subject point remains on the original optical axis because the lens is shifted to the original optical axis.

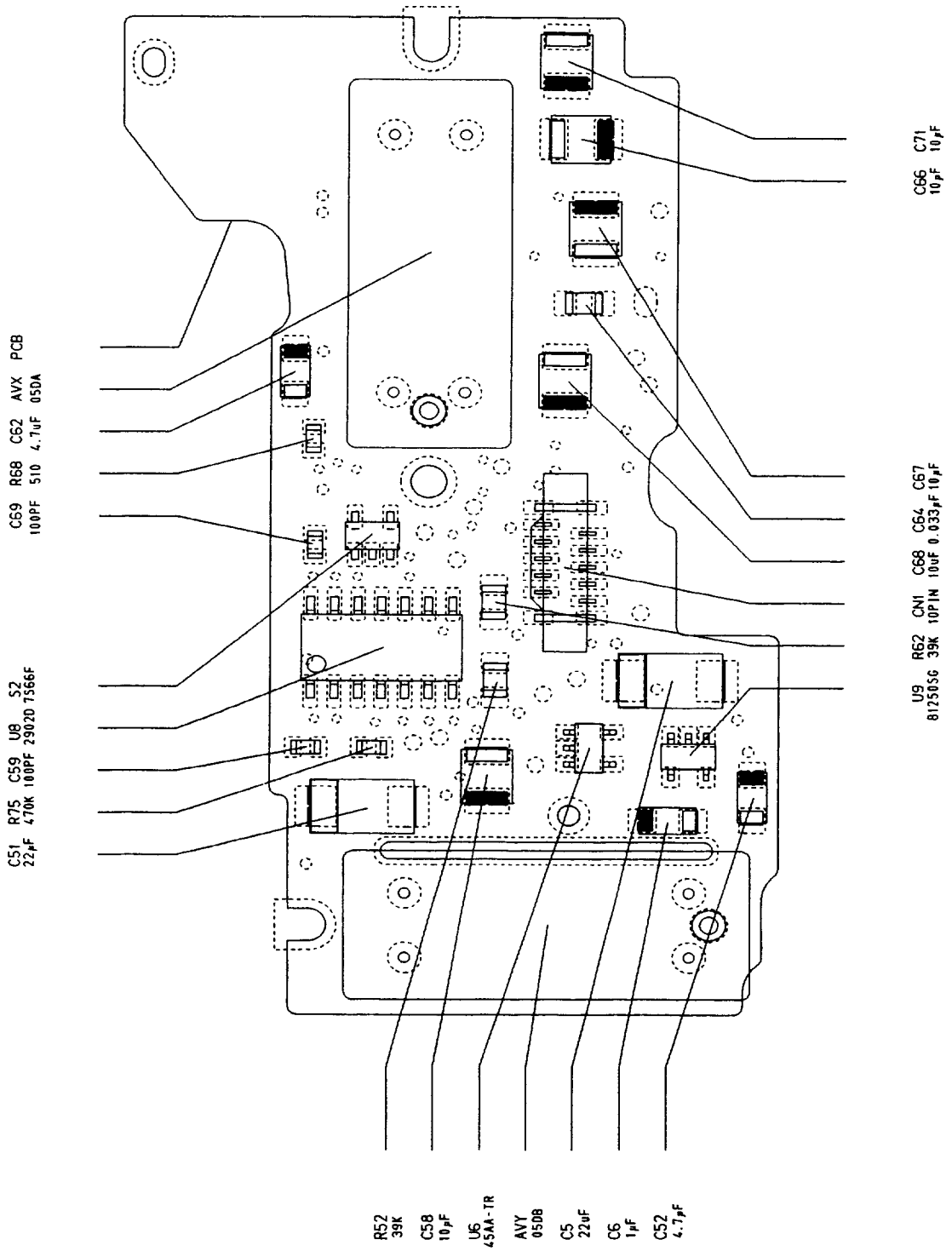
Electric Circuit



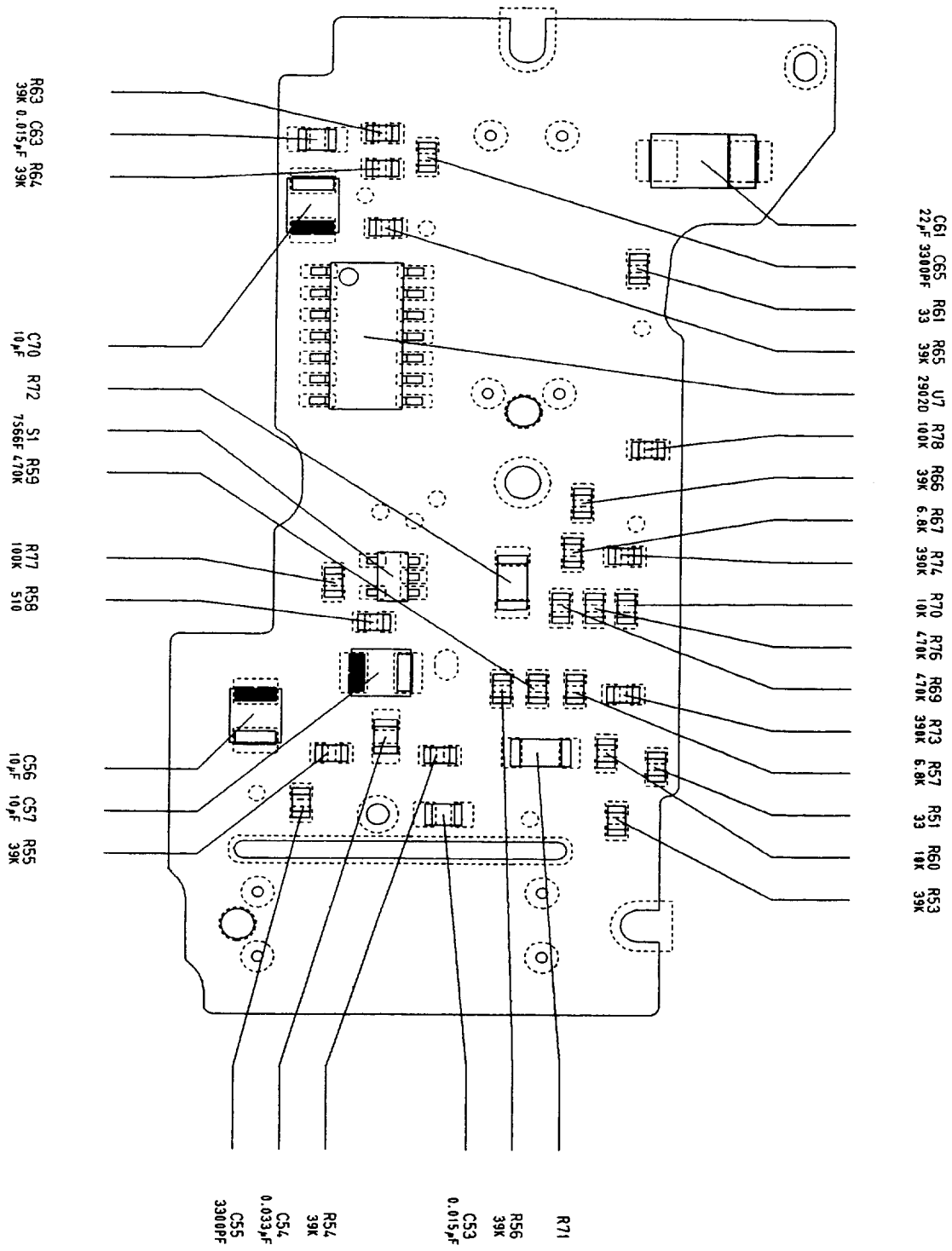
メインFPC部品配置およびランド図

Main FPC parts and lands figure

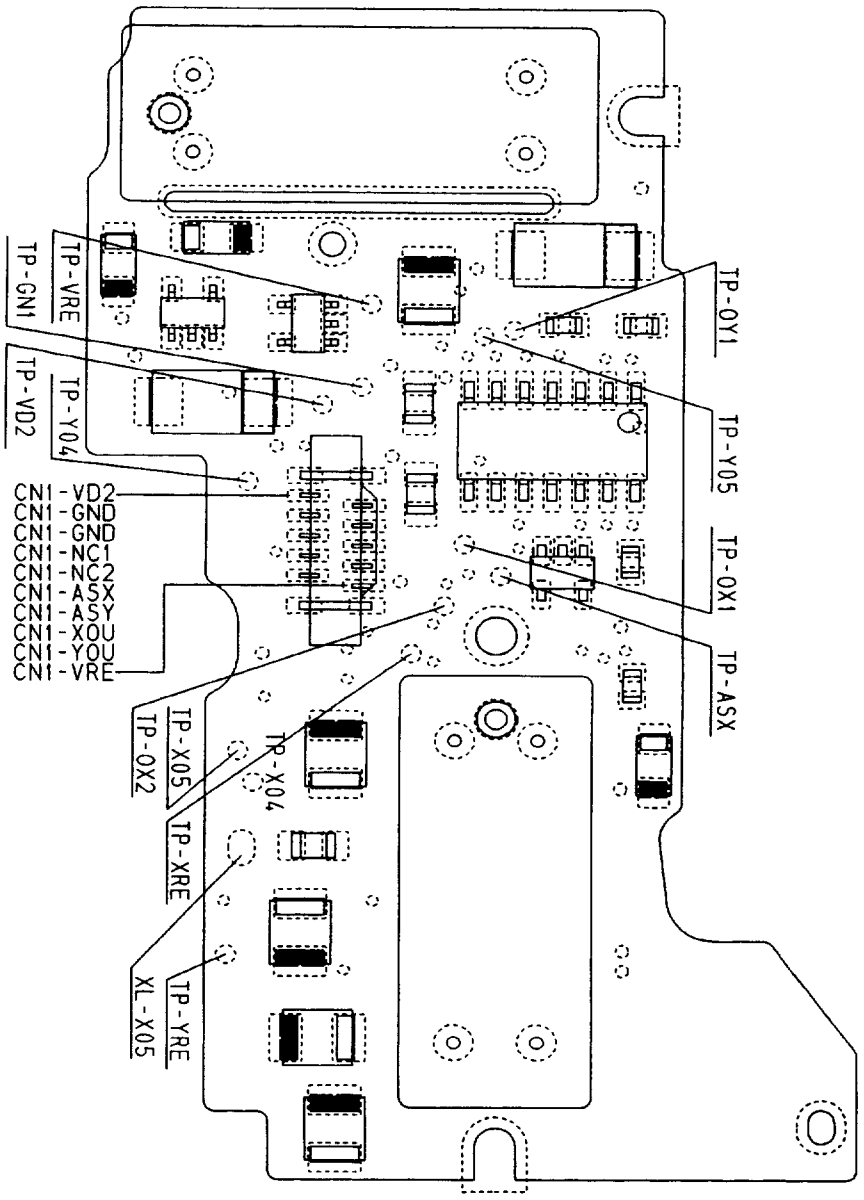
ＡＶＤ基板部品搭載図　−表−
ＡＶＤ−ＰＣＢ　(Parts) -Face Side-



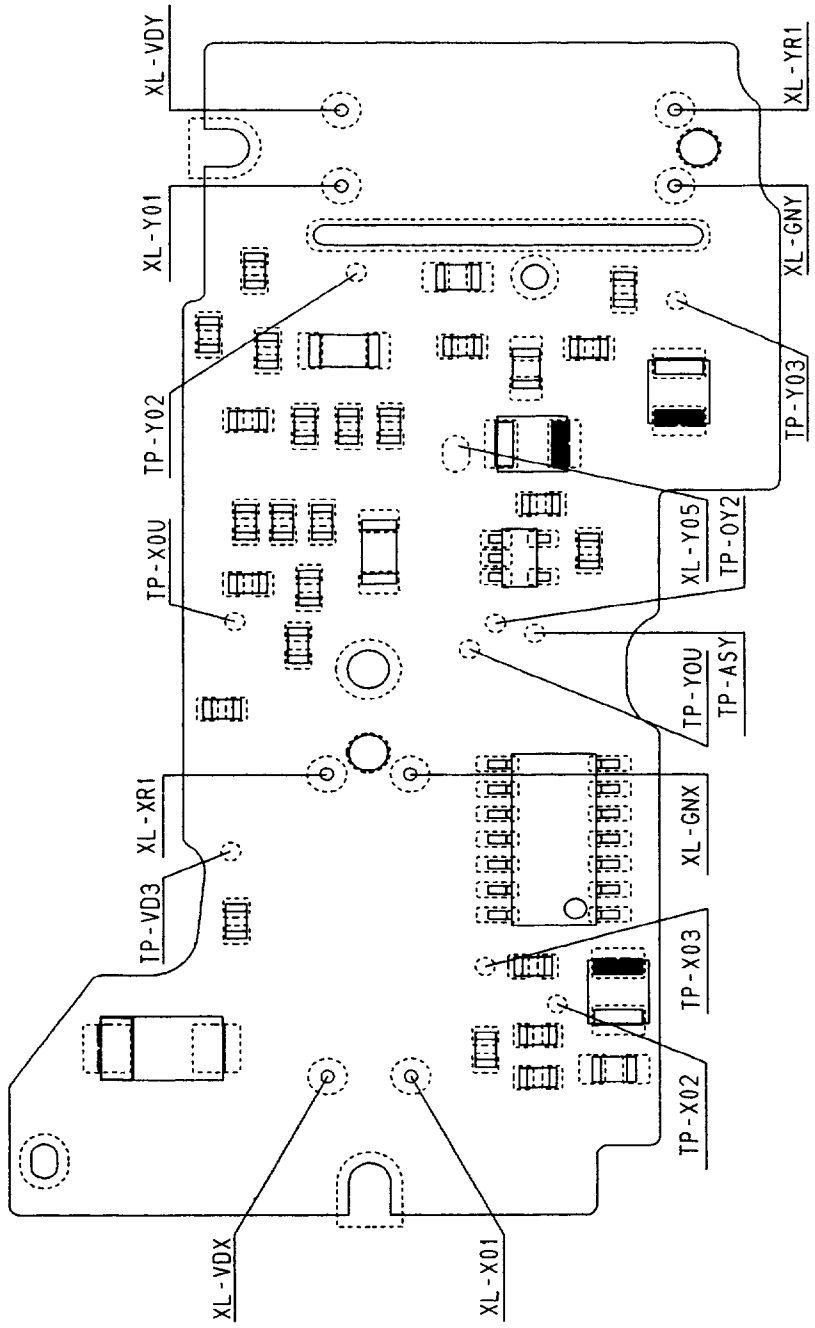
ＡＶＤ基板部品搭載図　−裏−
ＡＶＤ−ＰＣＢ　(Parts) -Back Side-

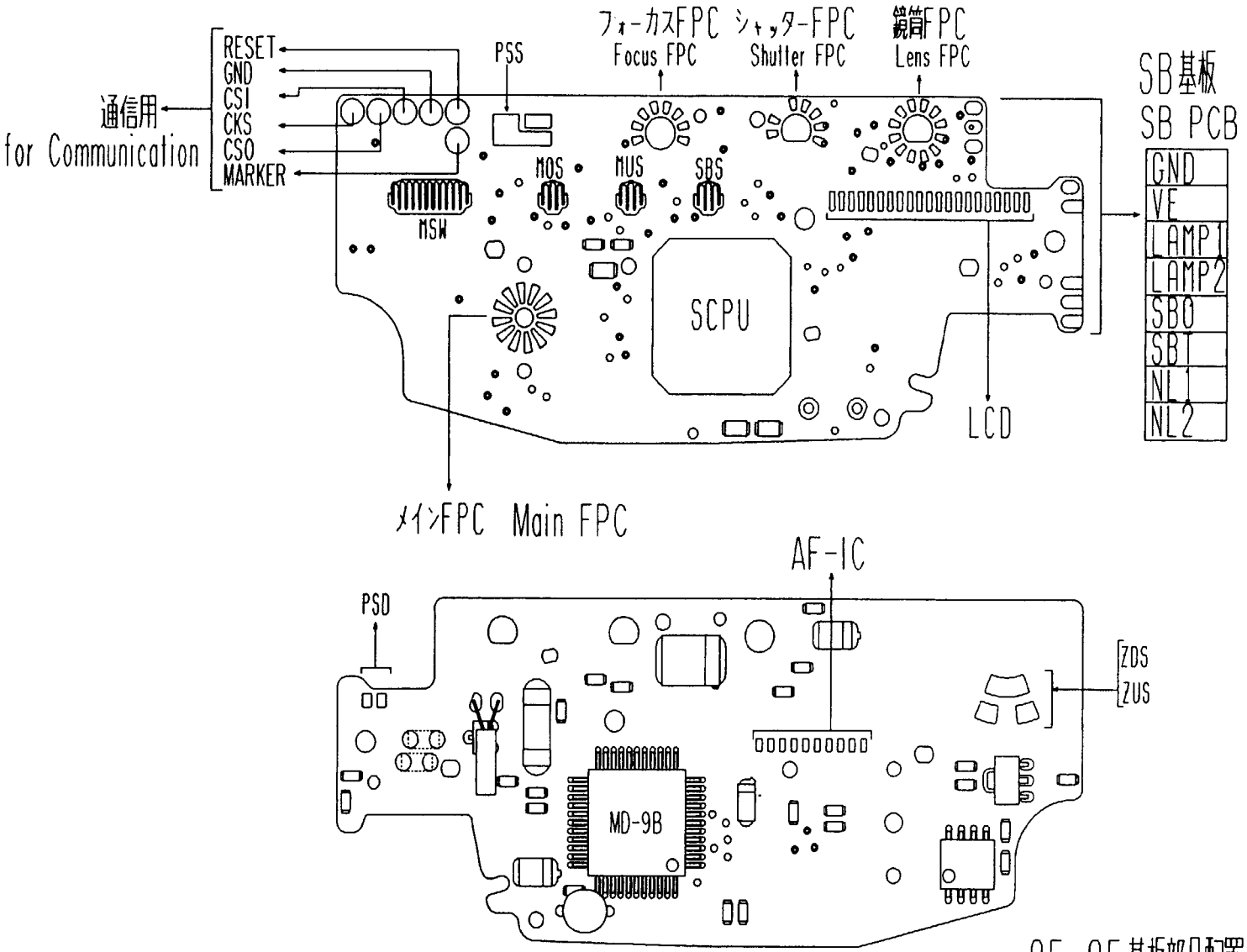


ＡＶＤ基板チェックランド図　−表−
ＡＶＤ−ＰＣＢ　(Check Land)　-Face Side-



ＡＶＤ基板チェックランド図　−裏−
ＡＶＤ−ＰＣＢ　(Check Land)　-Back Side-





AE.AF基板部品配置およびランド図

AE.AF PCB parts and lands figure

Main FPC Land Name

(1)To Connecter

NO	Land	Signal Name	NO	Land	Signal Nmae
1	VCC	Power for AVD(5.4Vmin)	6	ASY	Control of Y-analog SW
2	GND	——	7	XOU	Output of X-axis
3	X0	NC	8	YOU	Output of Y-axis
4	Y0	NC	9	VRE	ReferenceVoltage for A/D
5	ASX	Control of X-analog SW	—	———	————————

(2)To SHutter FPC

NO	Land	Signal Name	NO	Land	Signal Name
1	R2	Current Limit2 for PH	7	VXM+	X-axis Motor (+)
2	VYB	PH-out(Y-axis B-phase)	8	VXM-	X-axis Motor (−)
3	Q1C	Control for PH-ON	9	VYA1,2	PH-out(Y-axis A-phase)
4	VCO	Power for PH(5.4Vmin)	10	VXB	PH-out(X-axis B-phase)
5	VYM+	Y-axis Motor (+)	11	VXA1,2	PH-out(X-axis A-phase)
6	VYM-	Y-axis Motor (−)	12	R1	Current Limit1 for PH

AVD-PCB Land Name

-Face Side-

NO	Name	Sigbnal Nmae	NO	Name	Signal Name
1	TP-OY1	Y-offset adjust	8	TP-VD2	V d d (5.4V min)
2	TP-YO5	Y-sensor output 5	9	TP-OX2	X-analog switch output
3	TP-OX1	X-offset adjust	10	TP-XO5	X-sensor ouitput 5
4	TP-ASX	X-analog switch control	11	TP-XO4	X-sensor amplifier input
5	TP-VRE	ReferenceVoltage for A/D	12	TP-XRE	X-sensor 2.3V output
6	TP-GN1	G N D 1	13	TP-YRE	Y-sensor 2.3V output
7	TP-YO4	Y-sensor amplifier input	14	XL-XO5	Soldering land of TP-XO5

-Back Side-

NO	Name	Signal Name	NO	Name	Signal Name
1	XL-VDX	X-sensor power (5V)	10	TP-XO3	X-sensor putput 3
2	XL-XO1	X-sensor direct output	11	TP-YOU	y-sensor amplifier output
3	XL-XR1	X-sensor 2.3V signal	12	TP-ASY	Y-analog switch control
4	XL-GNX	G N D for X-sensor	13	TP-OY2	Y-analog switch outpout
5	XL-VDY	Y-sensor power (5V)	14	TP-YO3	Y-sensor output 3
6	XL-YO1	Y-sensor direct output	15	TP-YO2	Y-sensor output 2
7	XL-YR1	Y-sensor 2.3V signal	16	TP-XOU	X-sensor amplifier output
8	XL-GNY	G N D for Y-sensor	17	TP-VD3	Power (5V)
9	TP-XO2	X-sensor output 2	18	XL-YO5	Y-sensor output 5

AE. AF PCB Land Name

NO	LAND	NAME	NO	LAND	NAME
1	GND	————	9	RESET	Reset for Communication
2	VE	Battery Voltage	10	GND	————
3	LAMP1	Lamp for Self & Redeye	11	CSI	Data input
4	LAMP2	同上（もう一方の端子）	12	CSO	Data Output
5	SBO	SB Charging Signal	13	CKS	Clock for Communication
6	SBT	SB Trigger Signal	14	MARKER	Marker Signal
7	NL1	Charge Voltage Signal1	—	———	————————
8	NL2	Charge Voltage Signal2	—	———	————————

Electric circuit description

1. Electric circuit

(a) Power source
Battery
DC-DC output (5V): Power source for both CPU and MD-9B.
U9OUT (5V): Power source Vibration Reduction circuit
U6OUT (4.5V): Reference voltage (A/D reference voltage of the NCPU)
VSU: Power source for IRED

(b) Reset switch
Basically, when the PSW is turned ON, the SCPU is reset. This alone is the initial reset. The PSW is turned OFF only when replacing the batteries.

2. ICs

NCPU: Vibration reduction control, film advance control, date imprint LED control, and DC-DC control
SCPU & MD-9B: Seiko's AE, AF blocks

3. Vibration reduction control

Refer to separate pages for Vibration Reduction control

(1) Sensor: Murata's "GyroStar", an angular velocity sensor. Driver, detector and amplifier are integrated into one unit. When the power is applied, the reference voltage and output voltage is produced corresponding to the angular velocity.

(2) Two sensors are provided for X and Y directions. Actual vibration is a composition of the vertical and horizontal vibrations. Vibration of each component is controlled in X and Y directions. Cut the harmonics through a low-pass filter (C-R circuit) composed between the sensor and IC (U7) for amplifier. And further cut the DC component through the U7 amplifier to output increased or decreased variation of angular velocity.

(3) The output signal enters into the A/D input of the NCPU, and is processed in the CPU as an A/D converted angular velocity data.

(4) Vibration reduction routine
(Main switch is ON.) -> Lens is reset. (Move the Vibration Reduction lens until it comes into contact with the mechanical lock.) -> (Shutter prerelease switch is ON.) -> Vibration sensor is ON (detecting angular velocity). -> Shutter release switch is ON. -> Centering the Vibration Reduction lens (Move the lens to the location where specified number of pulses are counted from the mechanical lock position.) -> Starting Vibration Reduction (Shift the lens according to the amount of vibration.) -> Shutter opens and closes. -> End of Vibration Reduction-> Reset (Returns back to mechanical lock position.)
As described above, you can compensate the amount of vibration occurring while the shutter is being opened.

(5) Corresponding to the amount of vibration detected by the sensor, the Vibration Reduction lens driving motor rotates as many times as the number of pulses specified by reading the output of the photointerrupter attached to the motor shaft, then the motor stops.
The blur on the screen can be corrected by shifting the lens toward the direction against the blur direction by controlling both X and Y directions at the same time.

4. Description of AE and AF circuits

Seiko's shutter module

(a) AE circuit
A CdS element is used as a light sensor. The signal from the CdS is directly sent to the SCPU's A/D input. Auto exposure value is calculated in the SCPU and shutter control values decided will be transmitted to the MD-9B.
The MD-9B drives the shutter stepping motor to control shutter speed meeting the value transmitted.

(b) AF circuit
The IRED driving starts when the SCPU sends a timing signal to the MD-9B. The PSD produces a signal when receiving a reflected light sent from the IRED to measure the distance from the camera to the subject. The AF motor rotates corresponding to the distance measured. The AF photointerrupter counts the number of pulses and the AF motor stops when the number of pulses reaches the specified value.

(c) Zooming circuit
A 15-step zooming system is controlled by the output signal from two interrupters. These photo interrupters detect the phase and the amount of motor driven. The motor continues to drive while the ZOOM UP and ZOOM DOWN switches are kept turned ON (within the zooming range). If the ZOOM UP or ZOOM DOWN switch is turned OFF somewhere among the 15 steps, the lens barrel stops moving at the end of the Tele side (either with ZOOM UP or ZOOM DOWN switch.)

5. Shutter release sequence

Basically the shutter release sequence is common to that of the conventional compact cameras except for the Vibration Reduction system. The sequence is carried out in the following orders.
Turning shutter prerelease switch ON -> Charging flash -> Metering and focusing -> Controlling lens barrel -> Turning shutter release switch ON -> Controlling Vibration Reduction -> Opening and closing shutter -> Advancing film

6. Others

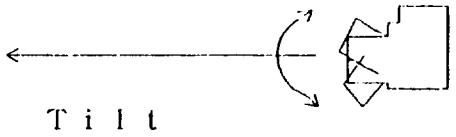
Size scale imprint function.
A size scale imprint module is incorporated that can imprint vertical and horizontal lines in dots while advancing film instead of data imprint. Size scale values can inversely be calculated from the zoom position (zoom focal distance) and the shooting distance.
The error of size scale is around ±20%.

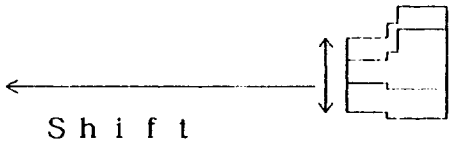
Vibration Reduction

1. Vibration of camera body

Currently we are trying to reduce vibration caused by hand shake only. We are not trying to take countermeasures for mechanical vibration (by movement of mirror, etc.)
There is a big difference in frequency between the mechanical vibration and vibration by hand shake. Actually, the mechanical vibration has much higher frequency values. As it is technically difficult to take countermeasures for vibration with higher frequency values, reducing the source of vibration is reasonably understandable (not to reduce vibration after it has occurred). Nikon has developed a new Vibration Reduction technology for vibration by hand shake with which we cannot effectively be dealt until today.

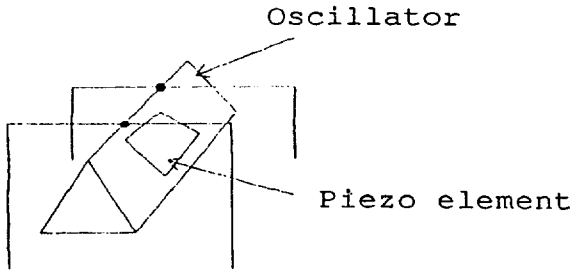
Types of vibration by hand shake
(1) Tilting vibration
(2) Shifting vibration
Tilting vibration on the screen appears much larger than shifting one. In shifting vibration, if the lens (500mm) shifts by 1mm, the image on the screen shifts just 20μm.
Nikon's new technology is dealing with tilting vibration alone. We think that taking Vibration Reduction measures for tilting is sufficient in actual shooting.





2. Sensors

As described above, a sensor to detect tilting vibration is required. Sensors which can detect angular velocity are available from some makers. Murata's sensors adopted this time by Nikon are best suited for our purpose, providing excellent sensitivity for practical use.
The inside mechanism of the sensor unit is shown in the figure below. A mechanical (triangular pole) oscillator on which piezo elements are attached is supported at two portions and secured to the PCBs.
Three electrodes are connected to the piezo elements attached to the mechanical oscillator. Pulse signal (around 25 kHz) is applied to two of the three electrodes. Then the oscillator begin vibration in vertical direction.



And if another angular velocity is applied to the vibration in vertical direction in this state, the oscillator is distorted in horizontal direction due to Coriolis force. The amount of the distortion is proportional to the angular velocity. When the tension is applied to one of the three piezo elements proportional to the amount of distortion, an electricity is generated. This electricity is taken from the electrode as a voltage which is proportional to the angular velocity.
Actually, the oscillation circuit producing vibration and voltage output circuit, etc. are all packed together into one package. When the power is applied, voltage can be taken out.
Oscillation of the oscillator is set approximately at 25 kHz, because the camera shake vibrates at 1 to 15 Hz. So it is necessary to oscillate the oscillator at 25 kHz to detect the angular velocity of camera shake.

3. Practical Vibration Reduction system

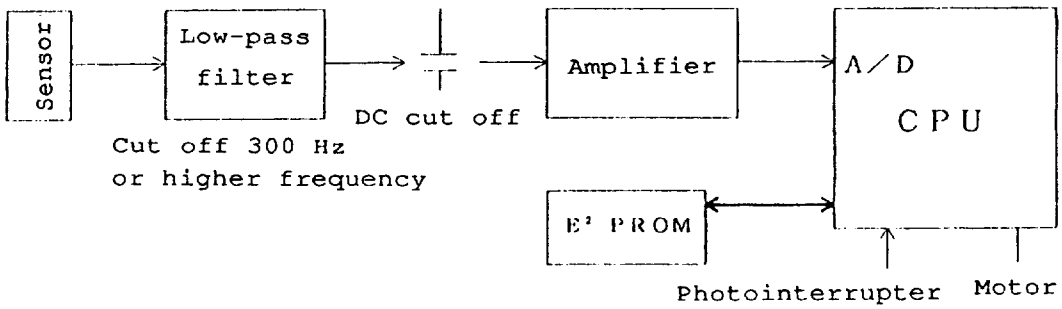
Using the above-described two sensors, the angular velocity in X and Y axis directions is detected. The shift lens inside the camera lenses is shifted in the opposite direction by the amount of angular velocity detected, so that the image on the frame does not blur.

VR system

(1) The shift lens moves in X and Y directions using coreless motors in each direction. The amount of shift in X and Y directions is ±0.57mm. There is a mechanical lock at both ends.
(2) The amount of shift can be detected by a photointerruptor. One rotation of interrupter generates 9 pulses with 1.992μm shift amount per one pulse.
(3) Normal camera shake vibrates at 8 to 12 Hz. Vibration can be corrected by 1/38 (lower two steps at the end of the W side), and by 1/105 (lower two steps at the end of the T side). According to the frequency of vibration, correction is possible up to 1/9. Target values are 1/2 at the end of the W side and 1/15 at the T side.
(4) Actually-available Vibration Reduction value on the film surface is ±0.5mm (0.98x) in the W mode and ±1mm (1.75x) in the T mode.
(5) VR's shortened control flow
In normal state: Lens at reset position (contacted to mechanical lock) -> Shutter prerelease switch ON -> Power switch ON -> Starting detection of angular velocity -> Detecting angular velocity 0 position -> Releasing shutter -> Centering the lens (setting the lens from the mechanical lock position to the center position by counting pulse numbers) -> Starting correcting vibration -> Opening shutter -> Closing shutter -> Completion of vibration correction -> Reset position.

4. Circuit around angular velocity sensor

Output voltage of the sensor varies according to the value of angular velocity centering around 2.3V. To eliminate noise component, low-pass filter (cutting high frequency) is used to take out angular velocity component only. Then the output voltage is entered to the A/D terminal on the CPU after cutting DC component and amplifying in the amplifier.



As two sensors are used simultaneously in X, Y directions, precise detection may be impossible due to beating if operating vibrations are the same. In practical use, the operating frequency is changed over to 25 kHz and 26 kHz. Theoretically, only sensor gain adjustment is necessary .

5. Setting Vibration Reduction shaft and signs

In the tilting vibration, there are two types: vertical (pitch) vibration and horizontal (yaw) vibration for the shooting system. Actual vibration is a compound vibration of the above two types.

We defined each vibration shaft and positive and negative directions. These definitions have been established in Nikon's camera design section and accepted throughout Nikon.

(1) Pitch direction is defined as a vertical direction (Y axis) for shooting system. We define positive (+) direction if shooting lens moves upward.

(2) Yaw direction is defined as a horizontal direction (X axis) for shooting system. We define positive (+) direction if shooting lens moves toward left as viewed from the rear of camera.

EEPROM VALUE

ADDRES		DATA	FIXED
0 ⋮ 18	(0H) ⋮ (12H)	AF Adjustment data	
19 ⋮ 31	(13H) ⋮ (1FH)	Camera control data	
32 ⋮ 34	(20H) ⋮ (22H)	AE control data	
35 ⋮ 47	(23H) ⋮ (2FH)	Camera control data	
48	(30H)	Un-used	
49	(31H)		
50	(32H)	Camera control data	
51	(33H)		1336
52	(34H)	Scale control data	916
53	(35H)	Camera control data	
54	(36H)		
55	(37H)		
56	(38H)	Red-eye reduction data ※1	0
57	(39H)	Date switch ※2	0
58	(3AH)	Camera control data	
59	(3BH)		
60	(3CH)		
61	(3DH)		
62	(3EH)	BC adjustment data	
63	(3FH)		

ADDRES		DATA	FIXED
64	(40H)	Camera control data	16946
65	(41H)		30
66	(42H)		0
67	(43H)		65280
68	(44H)		1360
69	(45H)		2080
70	(46H)		64771
71	(47H)		513
72	(48H)		8941
73	(49H)		3074
74	(4AH)		3576
75	(4BH)		20817
76	(4CH)		2713
77	(4DH)		18738
78	(4EH)		20544
79	(4FH)		0
80	(50H)	AVD adjustment data ※3	2094
81	(51H)	※3	2094
82	(52H)	※3	6869
83	(53H)	※3	6869
84 ⋮ 95	(54H) ⋮ (5FH)	Un-used	
96	(60H)	Bf data (ZONE 1)、(ZONE 2)	0
97	(61H)	Bf data (ZONE 3)、(ZONE 4)	0
98	(62H)	Bf data (ZONE 5)、(ZONE 6)	0

ADDRES		DATA	固定値
99	(63H)	Bf data (ZONE 7)、(ZONE 8)	0
100	(64H)	Bf data (ZONE 9)、(ZONE10)	0
101	(65H)	Bf data (ZONE11)、(ZONE12)	0
102	(66H)	Bf data (ZONE13)、(ZONE14)	0
103	(67H)	Bf data (ZONE15)、Camera cont. data	5
104	(68H)	Camera control data	2060
105	(69H)		3073
106	(6AH)		515
107	(6BH)	KYS position data and Lens barrel driving data	1594
108	(6CH)	Camera control data	771
109	(6DH)		20481
110	(6EH)		13055
111 ⋮ 121	(6FH) ⋮ (79H)	Un-used	
122 ⋮ 125	(7AH) ⋮ (7DH)	For production stage	
126	(7EH)	Camera control data	
127	(7FH)		

※1 Auto flash mode ---- 0
Red-eye reduction mode ---- 1

※2 Quartz date model ---- 0
Non-quartz date model ---- 1

※3 Initial value

INSPECTION STANDARD FOR REPAIR & TOOLS

CONDITION FOR INSPECTION

Normal temperature: 25 ±5 ° C (Relative humidity: 65±20%)

Power source: 6.0 ±0.03V, 2A or more at 0.5Ω load

Light source: Surface light source 2854 ° K

K coefficient: 1.3

Reference reflector: Oxford Gray No. 22
Wave length 880nm
Reflectance 35 ± 5%

	Item	Standard	Tools
Shooting	Frame size	Short srde: 24 $^{+0.8mm}_{-0.3mm}$ Long side: 36 $^{+0.8mm}_{-0.3mm}$ Short srde (panoram frame): 13.3 $^{+1.5mm}_{-0.3mm}$	Slide calipers Scale Film
	Frame-to-frame space	Within 0.5~3.5mm 2.0mm ±1.5mm	
	Frame position	• Over 0.2mm between frame and film perforation • Inclination of frame is less than 0.15mm. • Over 6.5qamm from the film center (panorama frame)	
AE accuracy	AE accuracy		EF-511N (AE tester) DC regulated power supply

Area	ISO	Error	Daviation	Others (measuring condition)
A	100	±1EV	Less than 0.8EV	As shown in the AE range chart, measure the changes of brithness at both Z1 and Z15.
	Others	±1.2EV	Less than 1.0EV	
B	100	±1EV	Less than 0.8EV	As shown in the AE range chart, measure the changes of brithness at both Z1 and Z15.
	Others		Less than 1.0EV	
C	100	±1.2EV	Less than 1.2EV	Use a ISO film which couples at Z1 range only.
	Others	±1.4EV		
D	100	±1.7EV	Less than 1.4EV	Use a ISO film which couples at Z1 range only.
	Others	±1.9EV	Less than 1.6EV	
E	Others	±2EV	Less than 2.0EV	Use a ISO film which couples at all ranges.

*1 Area represents alphbetical characters in the AB range chart on page M5 (Specifications)

*2 Make measurements at Z1 (Tele) and Z15 (Wide) positions.

*3 Error represents each measured value of five continuous measurements.

*4 Deviation represents the difference between maximum and minimum values of five continuous measurements.

AE high brightness	Sector can be opened at ISO 3200 and LV115.	
Correction and checking of tester	Set the camera (with sector opened at Wide end at ISO 100, K=1.3, and LV9) to the measuring stand. Adjust the volume on the main body so that the display value shows +1.0EV under the above condition and "CAL" setting.	

	Item	Standard	Tools
FM accuracy	FM shutter speed	Auto 1/15 sec. Within ±1EV Auto Slow 1/4 sec. Within ±1EV	EF-511N (AE tester)
	Flash output luminace	Flash must fire at ±1EV of flash decision value as described on page M3 (Specifications) (1m to ∞).	
	PTS decision accuracy	PTS lamp lights up at BV4.5 ±1.0 in all ISO steps and zoom zones.	
AF accuracy	AF step position and switching point		Standard reflector Personal computer Tape measure
	Focus distance error	Within±2 of the specified step for each focus distance set. Refer to the table on page R3.	
	No signal control	After setting to the AF focus distance value reading in manual inspection mode, check to see if the count value is "00" while covering the AF sensor.	

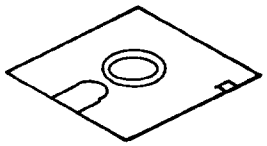
AF step position and switching point (Z15 Wide)

Step	Distance set (m)	Switching point (m)	Step	Distance set (m)	Switching point (m)	Step	Distance set (m)	Switching point (m)
Infinity focus(∞)	63.994		28	3.892	3.870	48	2.316	2.312
			29	3.761	3.756	49	2.271	2.263
4	28.717	10.0	30	3.639	3.628	50	2.228	2.225
11	9.888	9.612	31	3.524	3.509	51	2.187	2.180
12	9.049	8.932	32	3.417	3.415	52	2.147	2.144
13	8.344	8.234	33	3.317	3.309	53	2.109	2.102
14	7.742	7.637	34	3.223	3.210	54	2.072	2.069
15	7.223	7.121	35	3.134	3.117	55	2.036	2.036
16	6.770	6.671	36	3.050	3.043	56	2.002	1.999
17	6.372	6.274	37	2.970	2.959	57	1.969	1.969
18	6.018	5.978	38	2.895	2.879	58	1.937	1.934
19	5.703	5.658	39	2.824	2.816	59	1.907	1.905
20	5.420	5.371	40	2.756	2.744	60	1.877	1.873
21	5.164	5.112	41	2.691	2.687	61	1.848	1.846
22	4.932	4.914	42	2.630	2.621	62	1.820	1.820
23	4.720	4.697	43	2.572	2.569	63	1.793	1.790
24	4.527	4.498	44	2.516	2.509	64	1.767	1.766
25	4.349	4.334	45	2.462	2.452	65	1.742	1.738
26	4.184	4.174	46	2.411	2.406	66	1.717	1.711
27	4.033	4.016	47	2.363	2.354	67	1.693	1.689

			126	0.956				
95	1.230	1.240	127	0.949	0.954			
96	1.218	1.228	128	0.942	0.947			

Tools

1. Special tool

Tool No.	Name	Illustration	Class	Remarks
J 1 8 2 4 0	Zoom 700VR inspection & adjustment program		A	

2. Major general tools and testers

Tool No.	Name	Remarks
----	Slide calipers	
J 9 0 0 1 − 5	DC regulated power supply	Metronics, Model 526, 0-18v, 2A
J 9 0 0 3 − 6	Digital multimeter	Digital multimeter, Model TR6841
J 1 5 2 9 1	Tool for adjusting focus stand	
J 1 9 0 1 9	Collimator	Goko, Model 24LT-2D-TS f=193.5mm
J 1 9 0 3 6	Multi shutter tester	Model EF-511N
J 1 5 3 1 2	Data back contact connector tool (Hand made)	Common to AF 600, Zoom 300
J 1 5 3 1 8	Standard reflector	OXFORD GRAY No. 22 900mm x 1200mm

DISASSEMBLING

Notes:

① In the disassembling and assembling sections, we based descriptions on the camera body with panorama and quartz date imprinting functions incorporated. Refer to the product or exploded drawings for other camera bodies.

② Remove battery chamber lid and batteries before disassembling.

③ When disassembling, pay attention to the wire arrangement and mounting positions and types of screw to be removed.

④ Be sure you are grounded when holding main FPC and AVD base plate because static electricity exerts serious adverse effects on IC's.

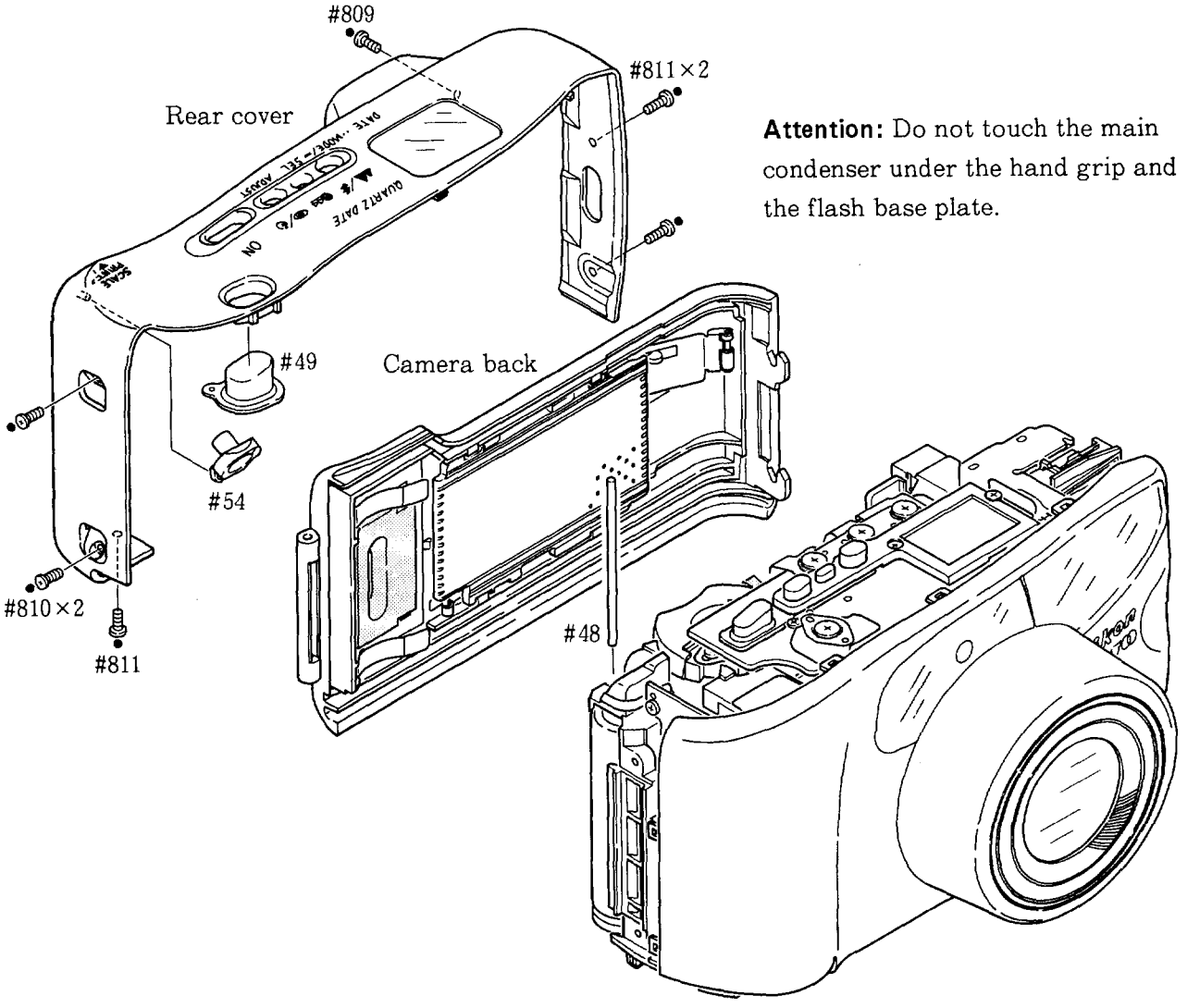
⑤ The " ● " mark on the screws indicates they tap-tight screws.

⑥ When removing gears, make sure to distinguish the front and back sides.

⑦ When you disassemble the camera body further than described in the disassembling section, refer to the exploded drawings and assembling section, since some parts are disassembled as a unit part.

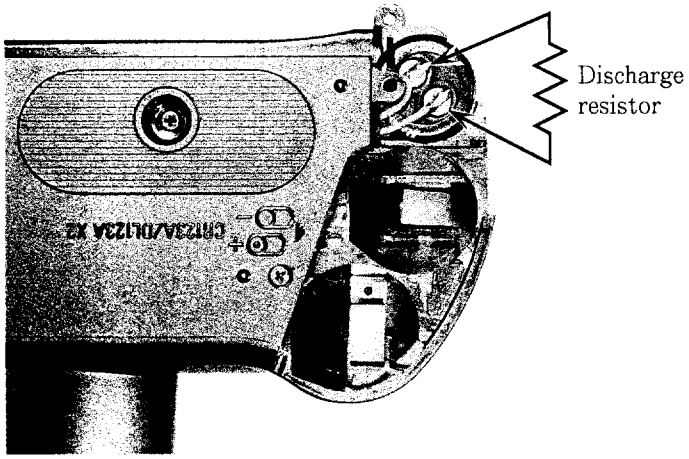
1. SEPARATING REAR BODY AND LANS BARREL

CAMERA BACK, REAR COVER



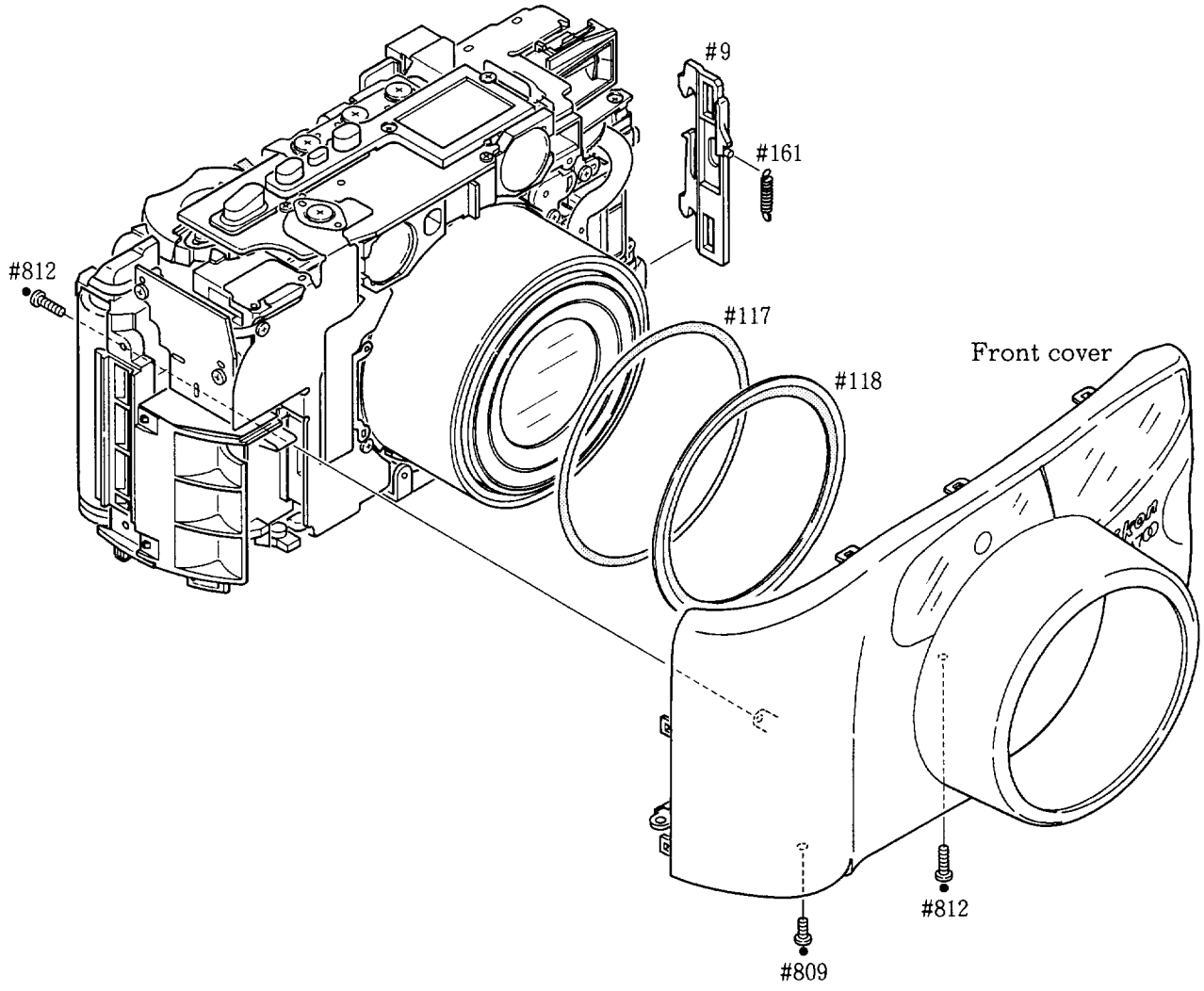
Attention: Do not touch the main condenser under the hand grip and the flash base plate.

DISCHARGING OF THE MAIN CONDENSER



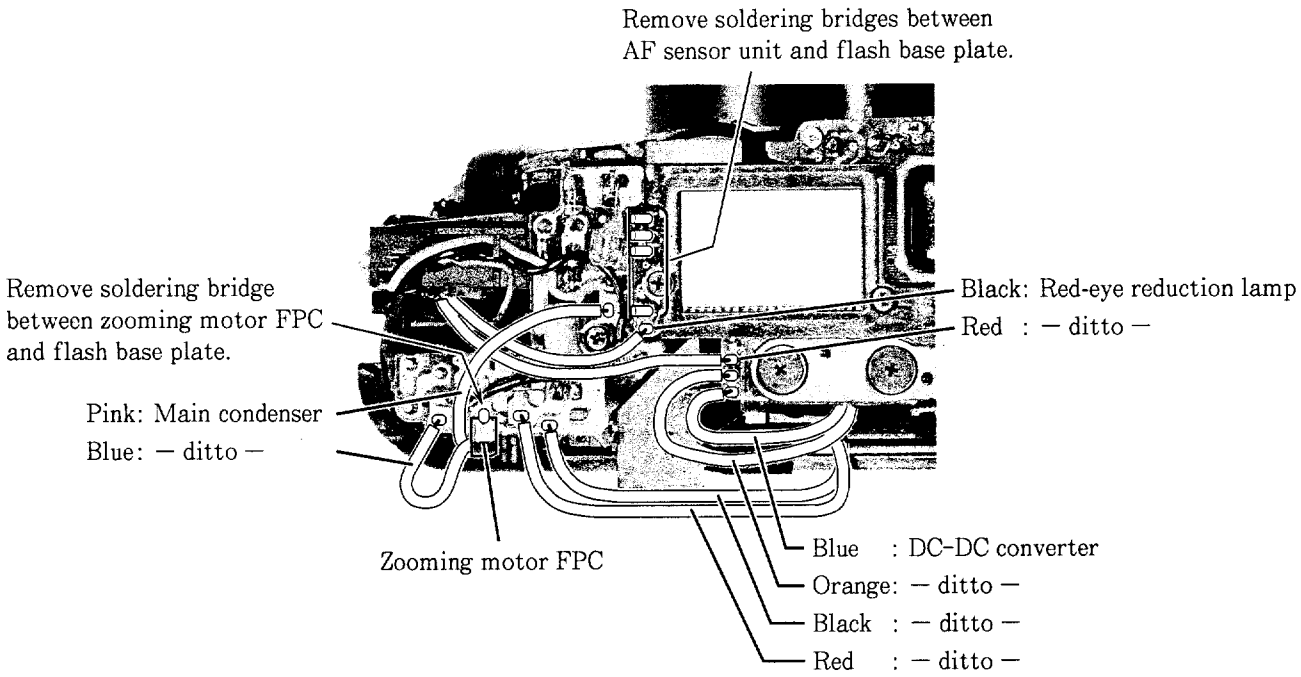
- Discharge the main condenser it the both terminals.
- Use a discharge resistor of approx. 2KΩ/5W.

FRONT COVER, CAMERA BACK LOCK-RELEASE LEVER

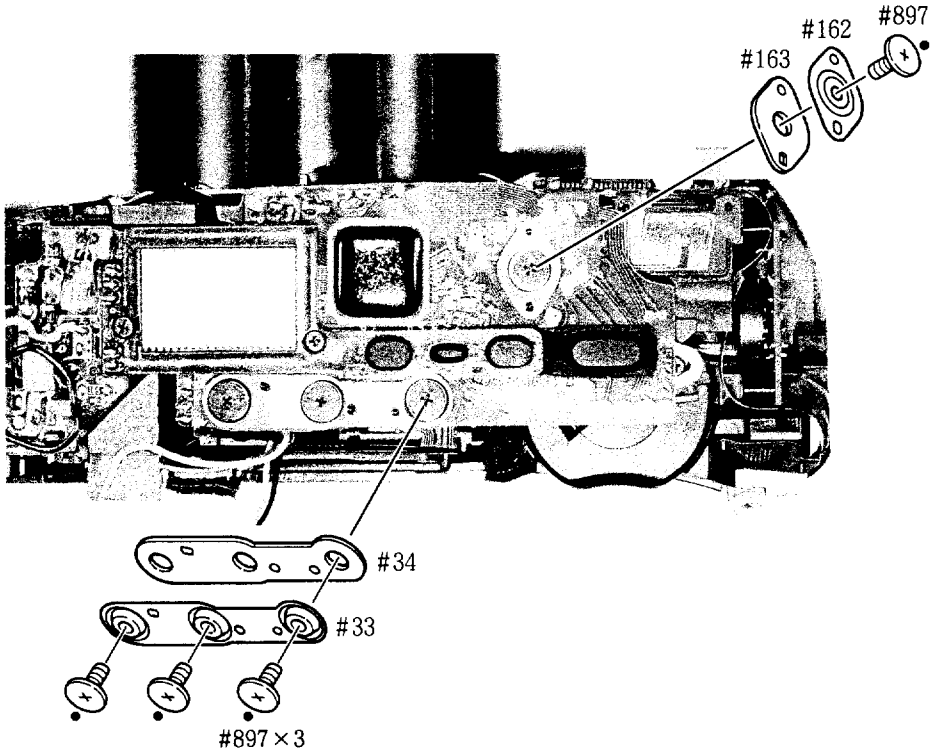


AF SENSOR GROUP, VIEWFINDER & FLASH GROUP

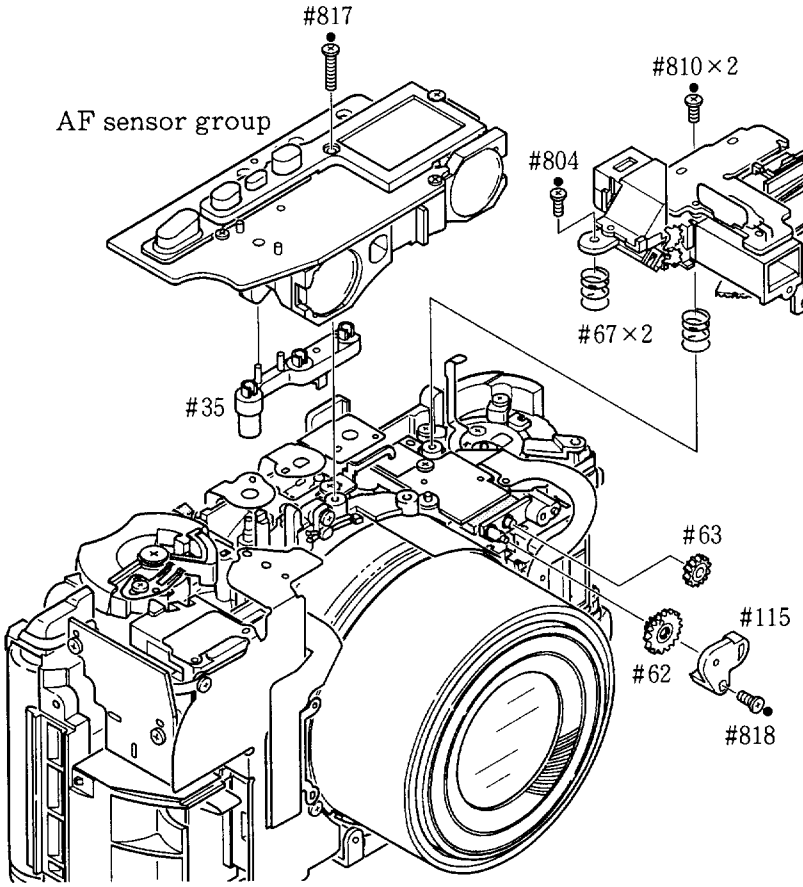
1. Removing wires and soldering bridges



2. Removing press-contacts

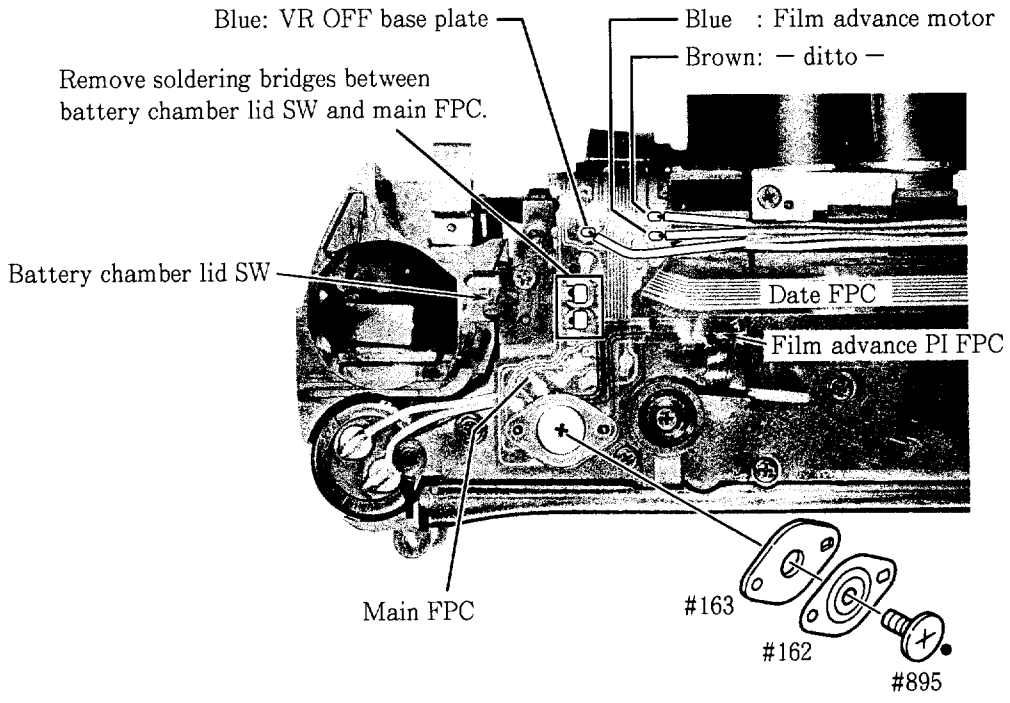


3. Removing AF sensor group and viewfinder & flash group

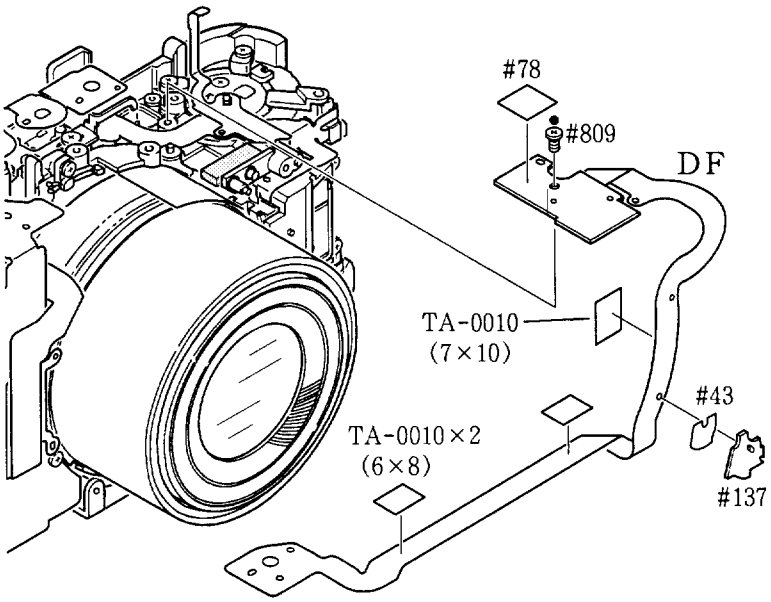


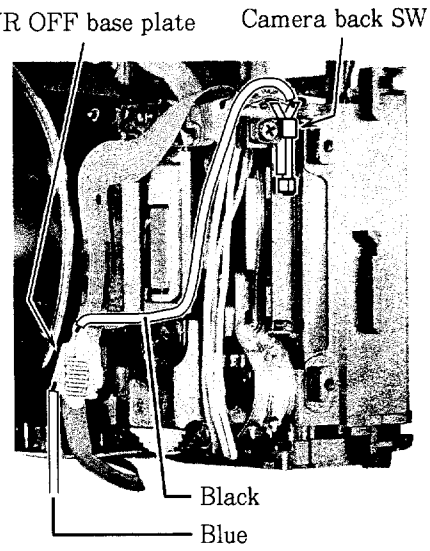
Note: When removing the viewfinder & flash group, remove the coupling gear group first them remove mounting screws after moving the flash head to the back side.

REMOVING WIRES AND PRESS-CONTACT

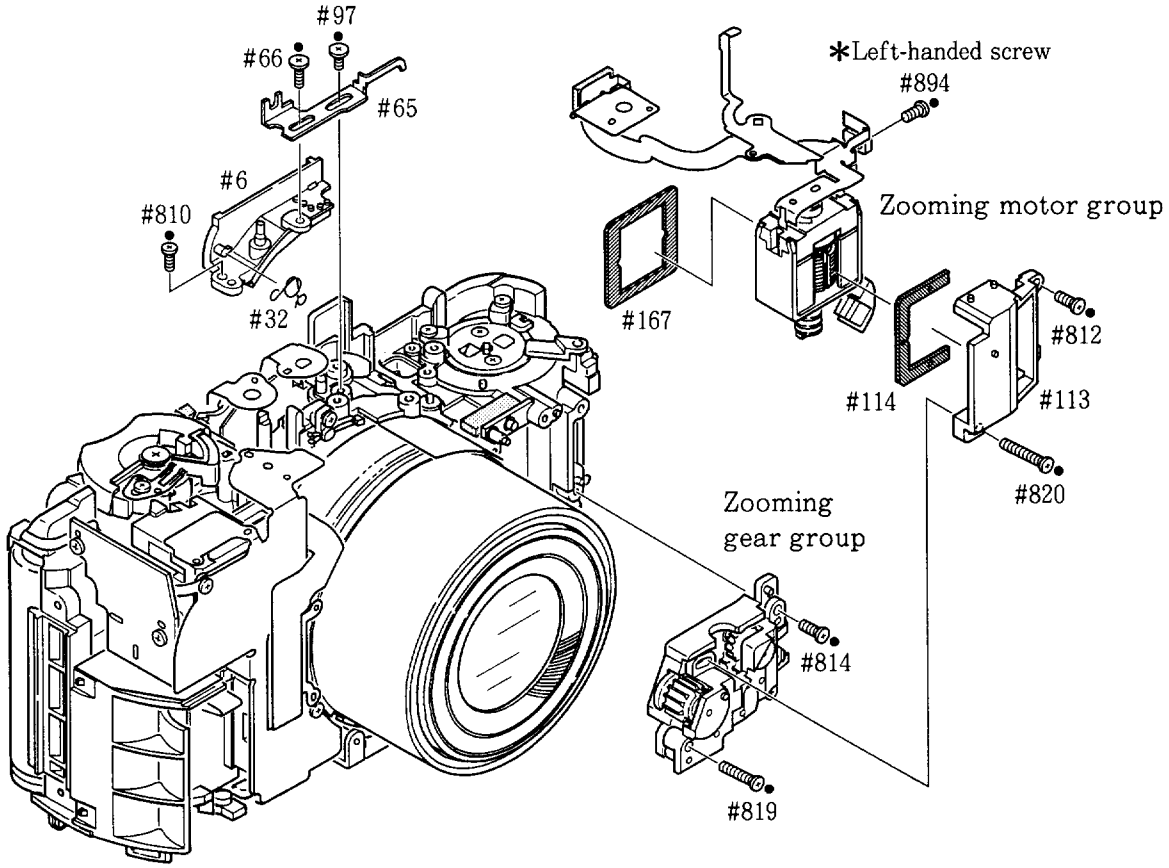


DATE FPC

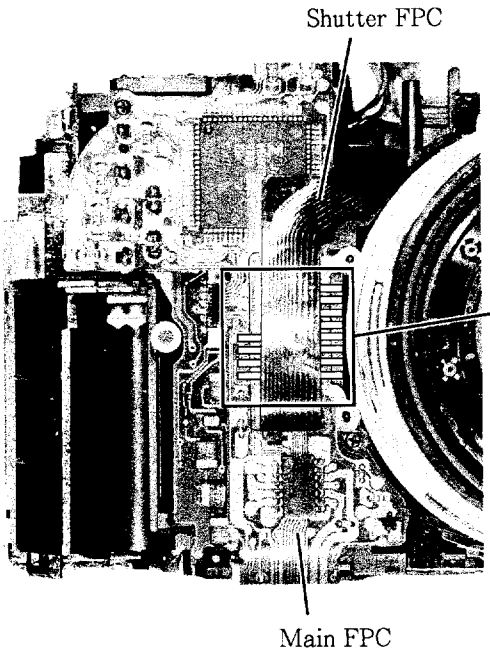


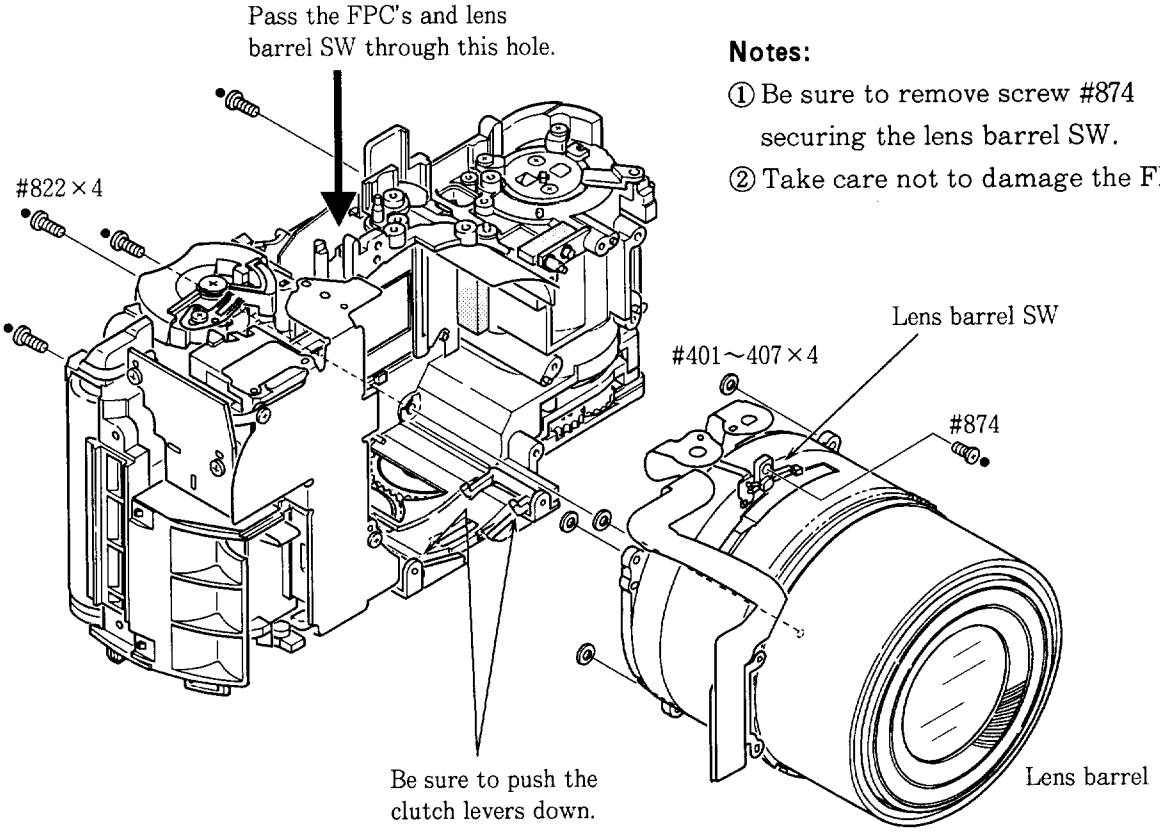


ZOOMING MOTOR GROUP, PANORAMA BASE PLATE



SEPARATING REAR BODY AND LENS BARREL





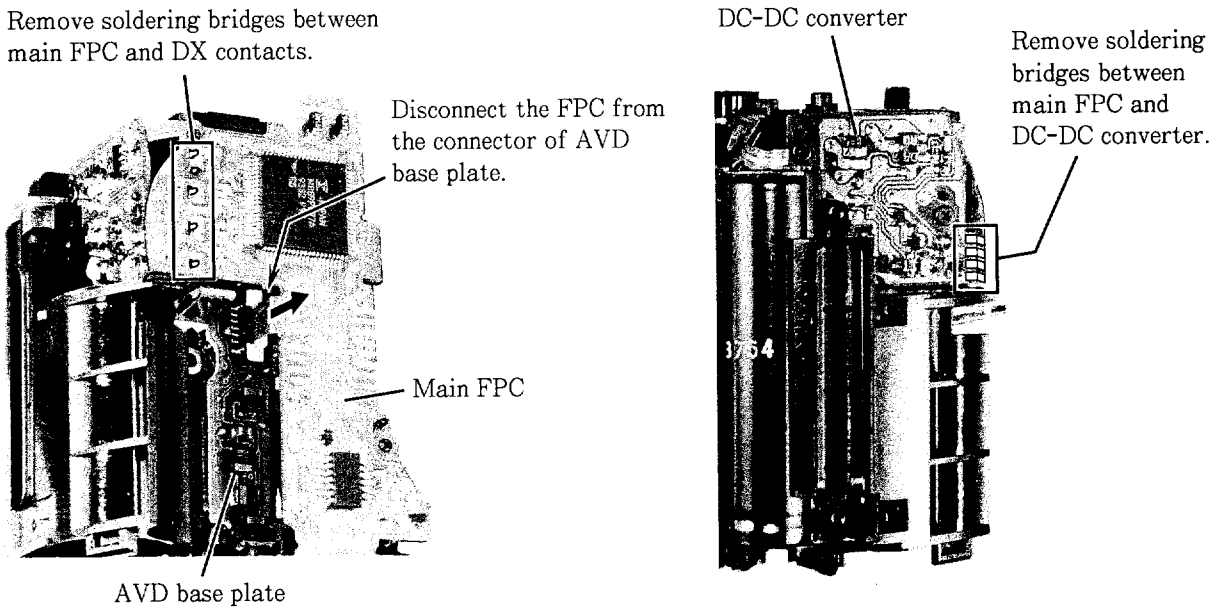
Notes:

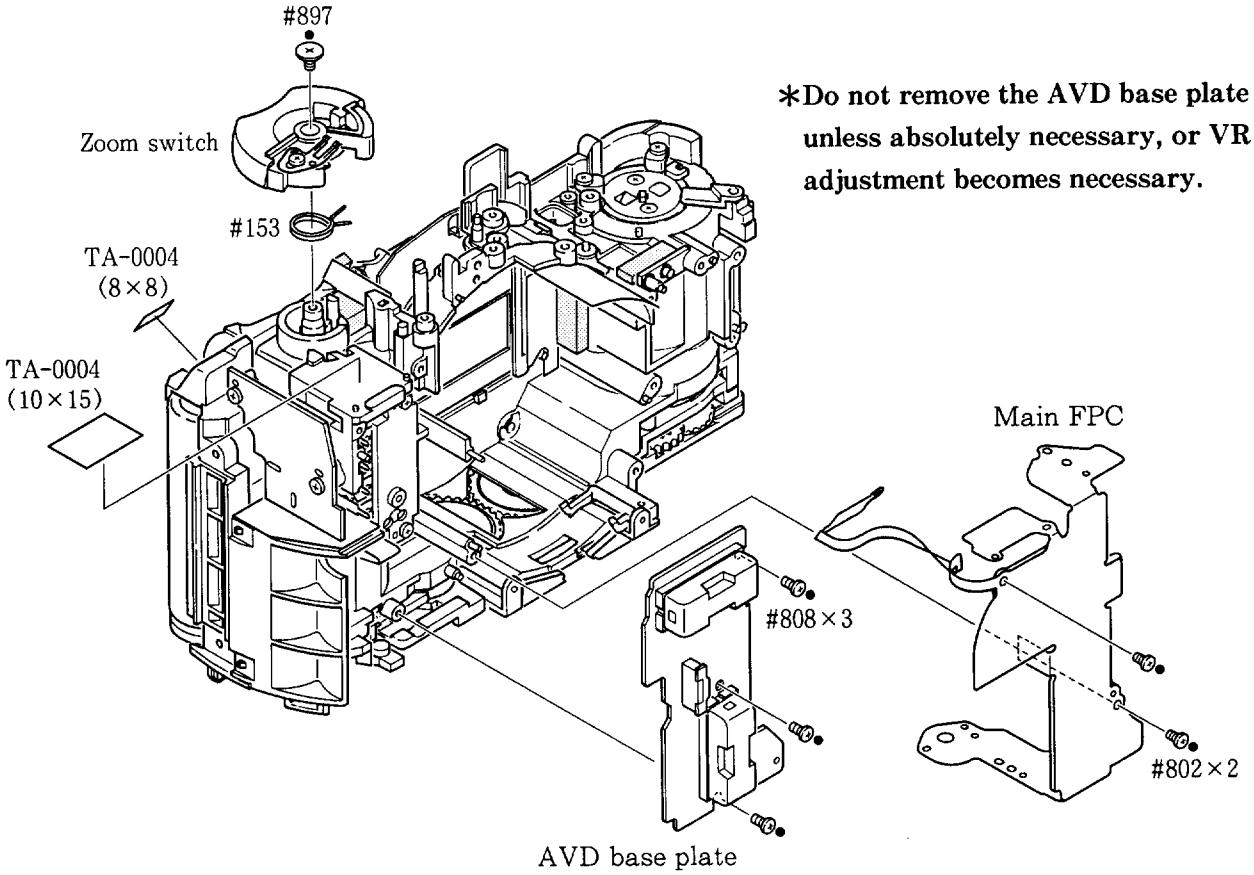
① Be sure to remove screw #874 securing the lens barrel SW.

② Take care not to damage the FPC's.

2. REAR BODY

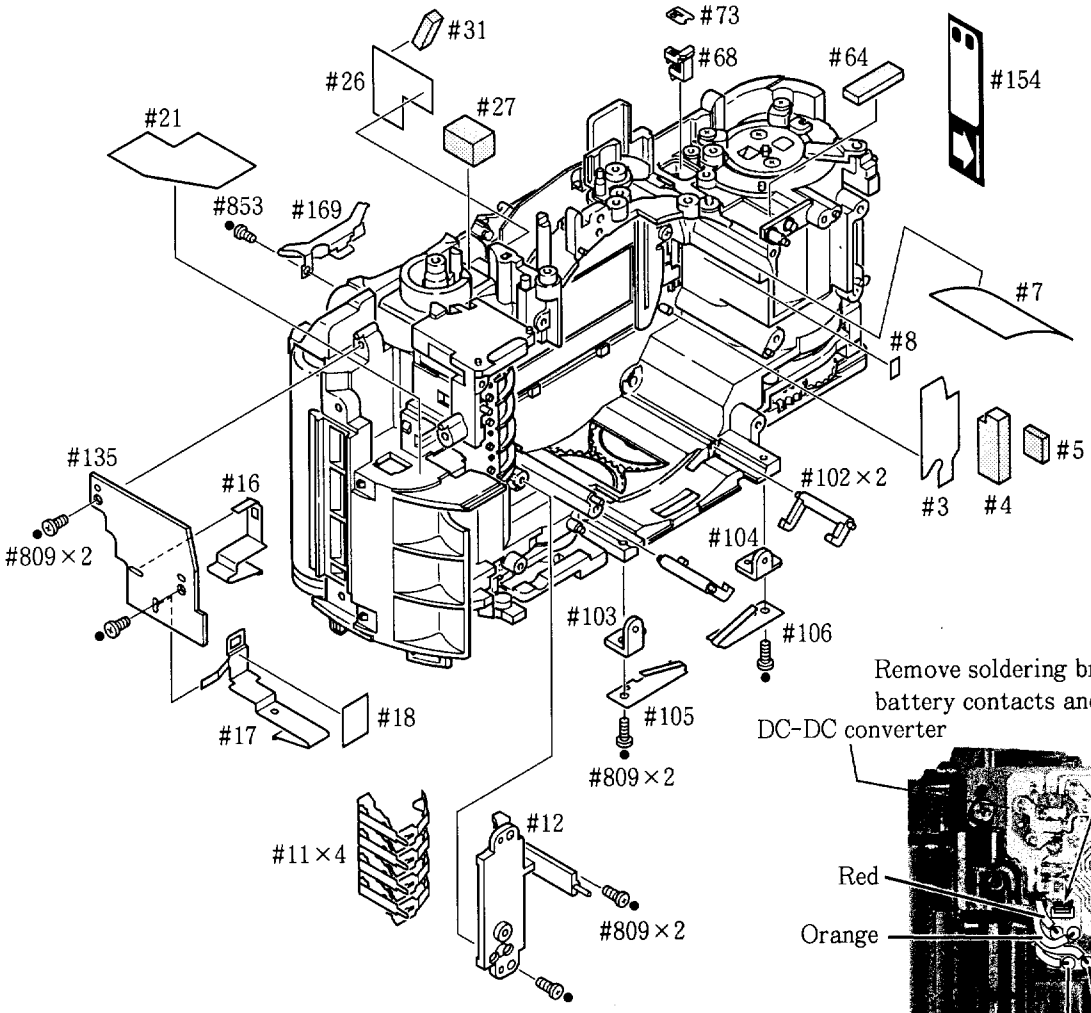
AVD BASE PLATE, MAIN FPC

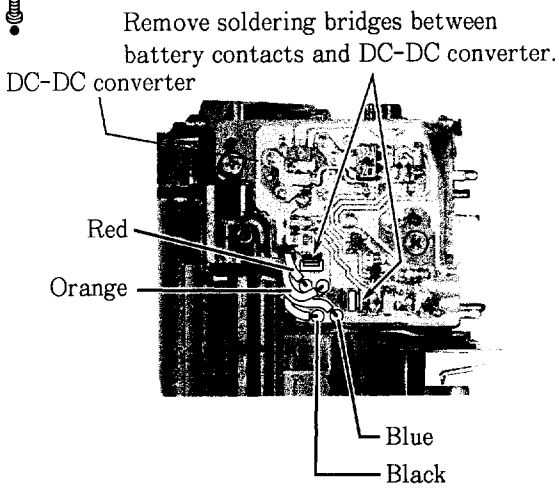




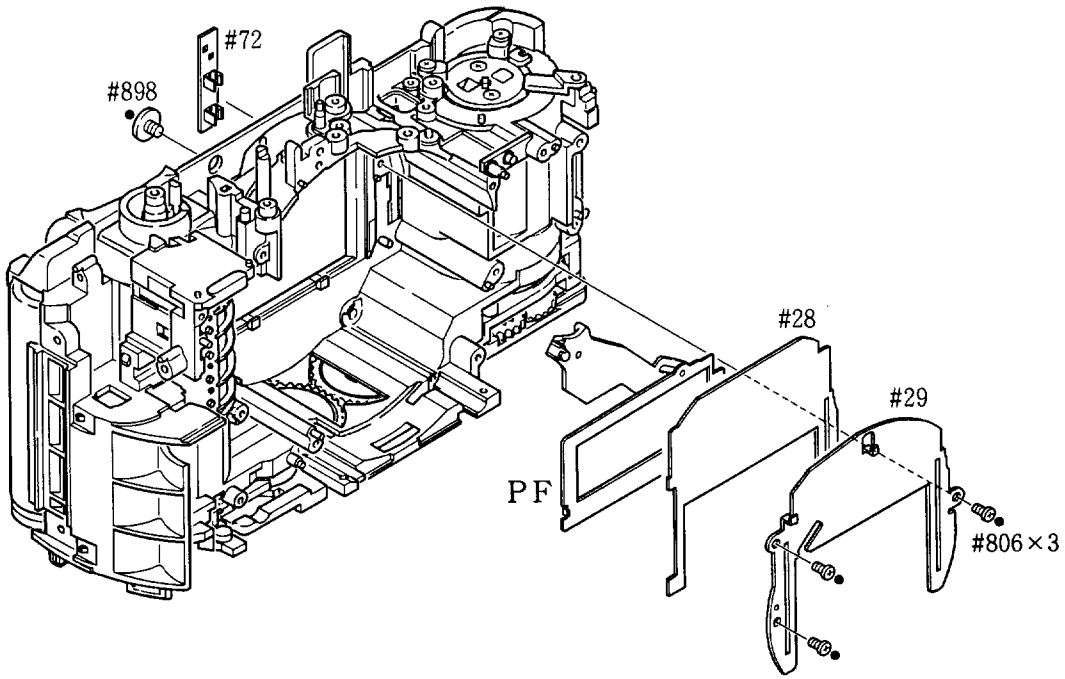
＊Do not remove the AVD base plate unless absolutely necessary, or VR adjustment becomes necessary.

SMALL PARTS OF REAR BODY

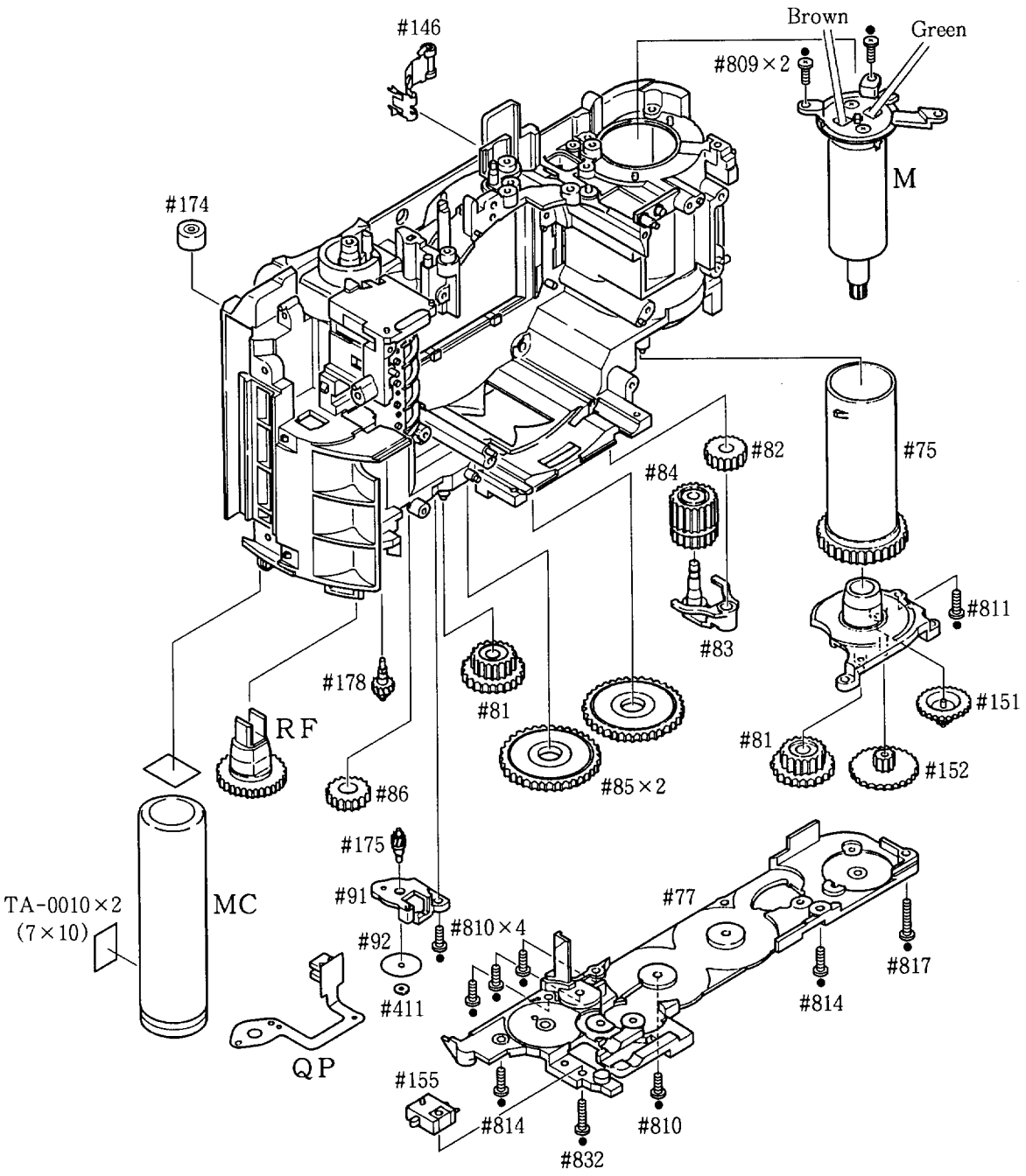




PANORAMA FRAME GROUP

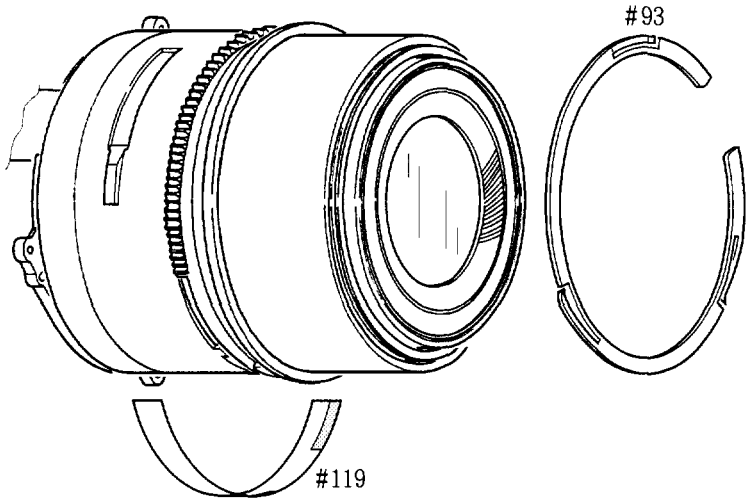


FILM ADVANCE GROUP

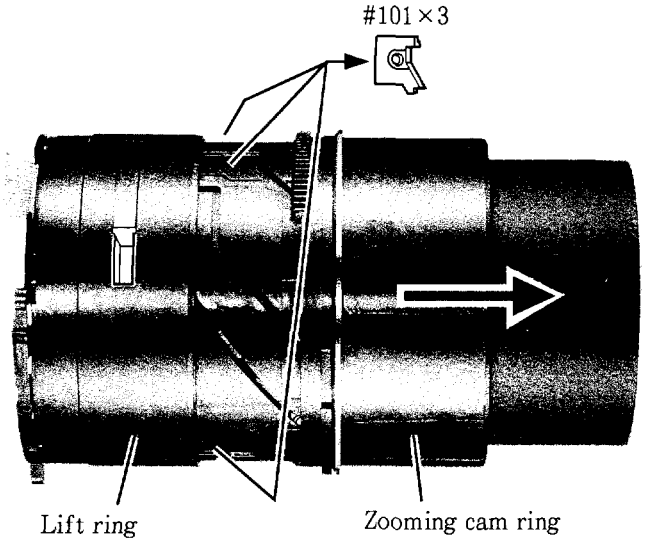


3. LENS BARREL

ZOOMING CAM RING

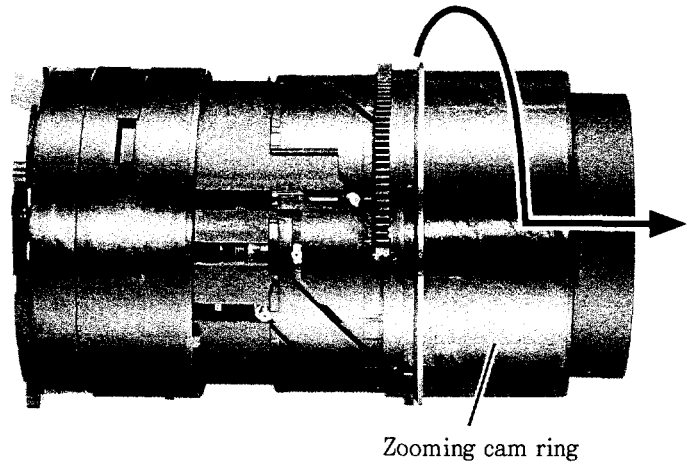


① Remove the retaining ring #93 and light baffle sheet #119.



② Pull the zooming cam ring in the direction of the arrow to take out lift plates #101×3.

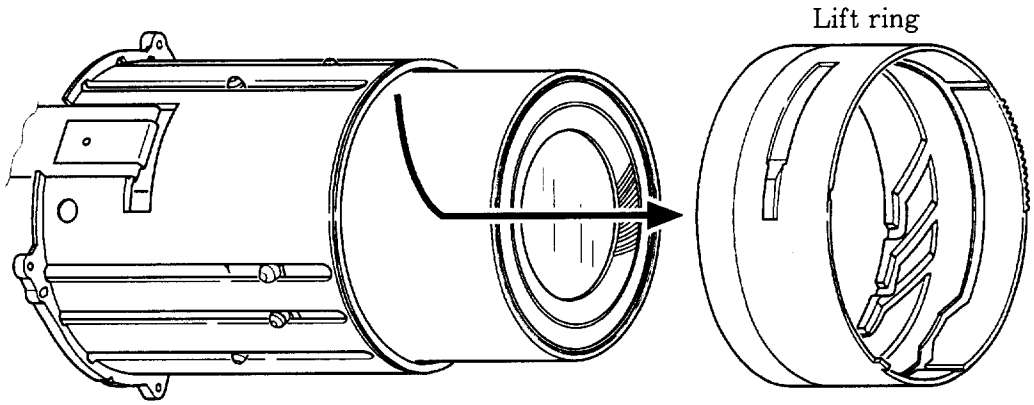
＊When the lift plates are inside the lens barrel and cannot be taken out easily, take them out when removing the lift ring.



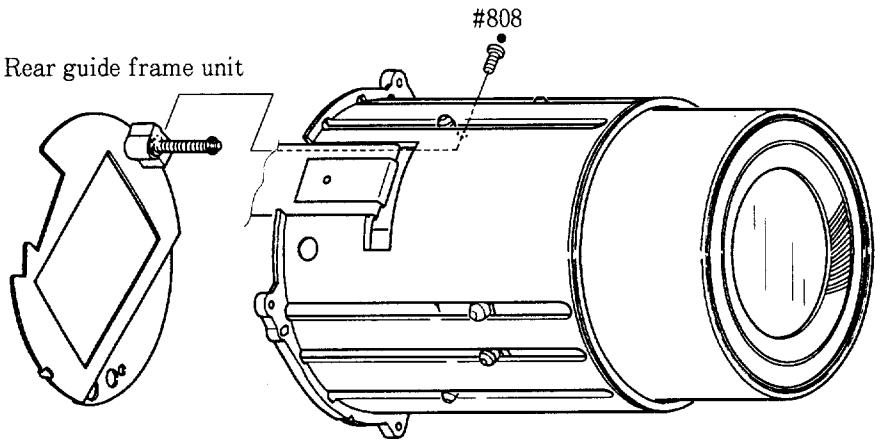
③ Turn the zooming cam ring counter-clockwise to remove.

LIFT RING

- Pull the lift ring from the back while turning it counterclockwise.
- When the lift ring cannot be removed smoothly, turn it clockwise a little and turn it counterclockwise again.

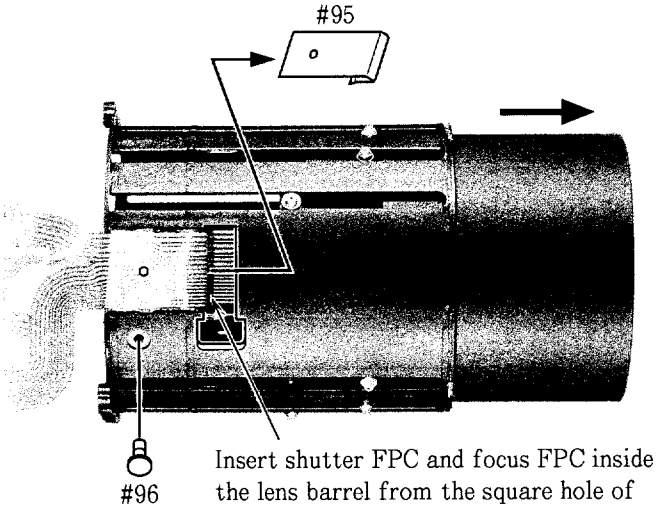


REAR GUIDE FRAME UNIT

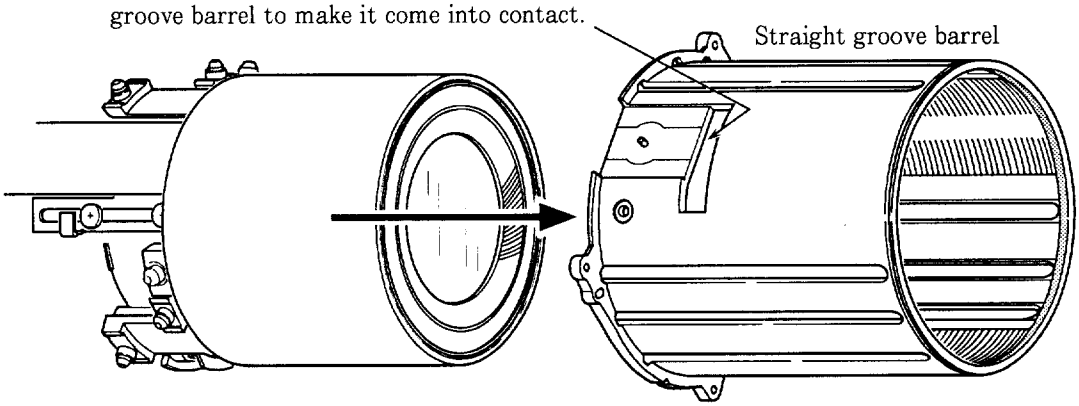


STRAIGHT GROOVE BARREL

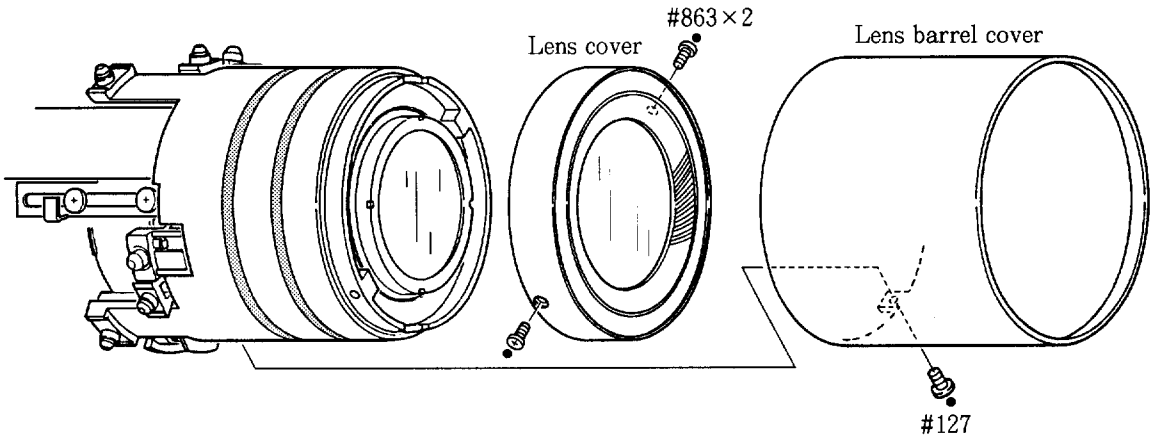
Attention: Be sure to handle the straight groove barrel with care as it is easy to damage.



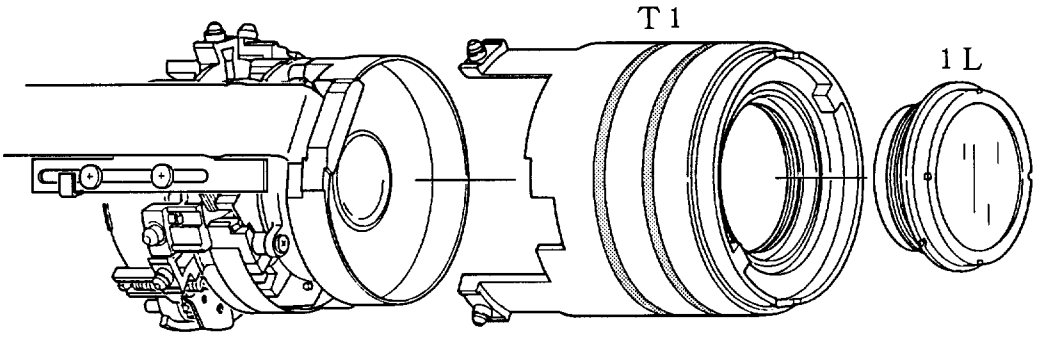
● Pull the lens barrel group forward and remove clip #95 and stopper pin #96.



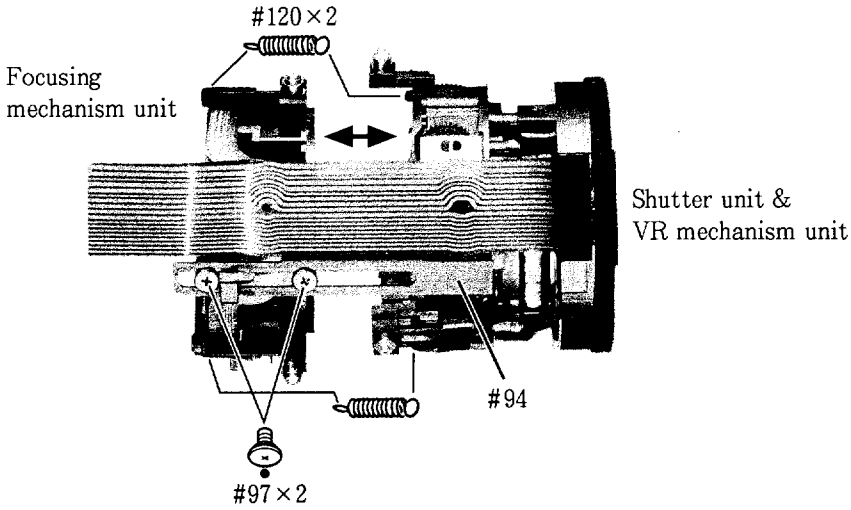
LENS BARREL COVER, LENS COVER

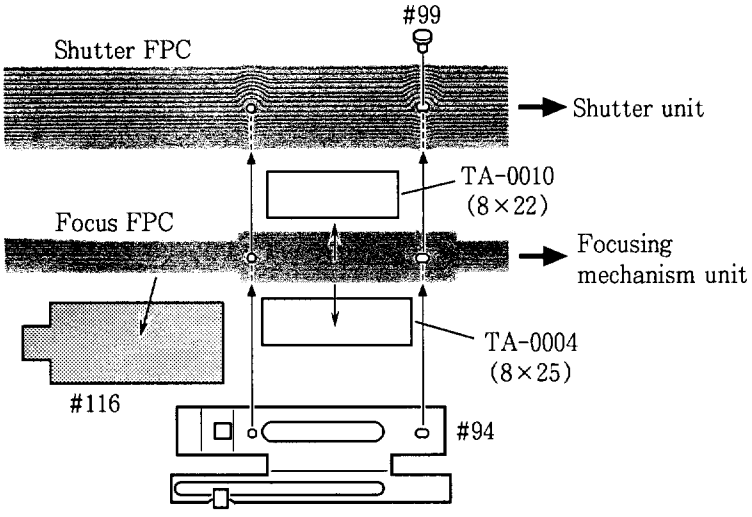


FRONT LENS GROUP



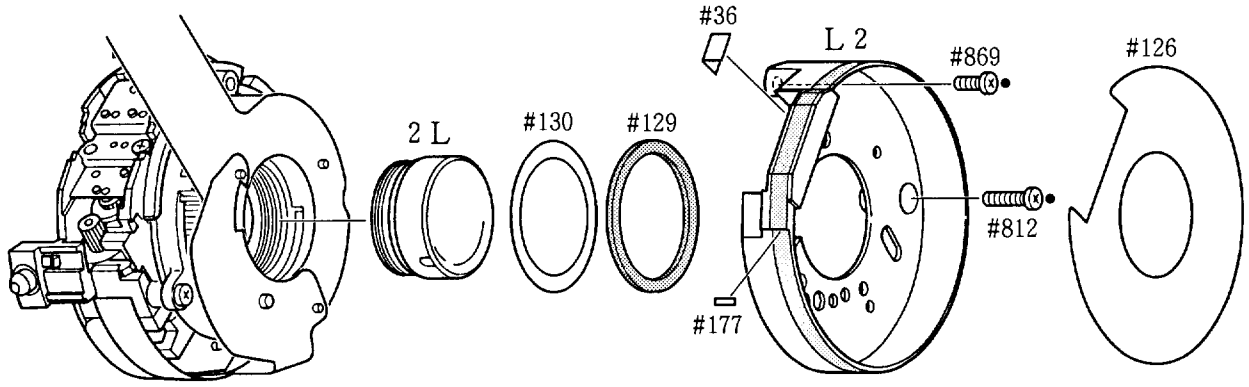
FOCUSING MECHANISM UNIT



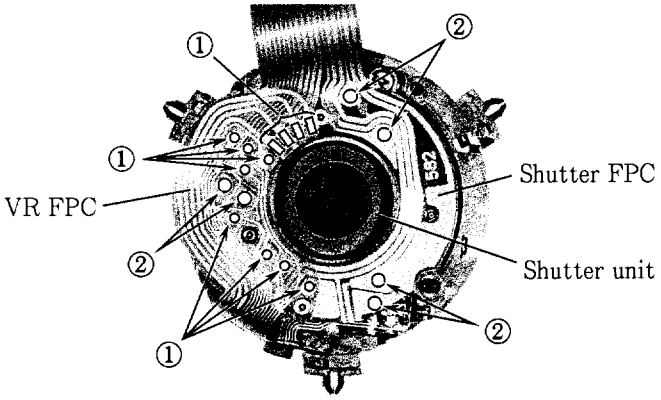


● Remove rivet #99 to separate shutter FPC and focus FPC.

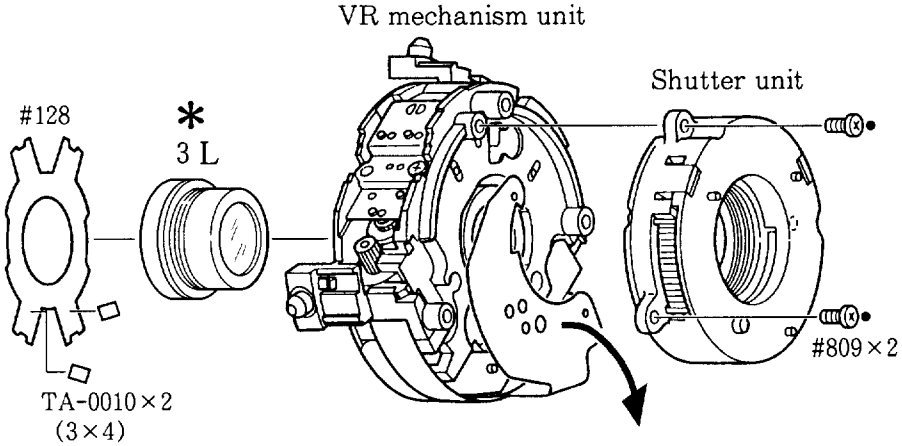
SECOND LENS GROUP, LIGHT BAFFLE RING UNIT



SHUTTER FPC, SHUTTER UNIT



- Remove soldering bridges at 18 locations.
  - ① Soldering bridges between shutter FPC and VR FPC at 12 locations.
  - ② Soldering bridges between shutter FPC and shutter unit at 6 locations.
  - ＊Skip the item "②" when shutter FPC and shutter unit will not to be separated.

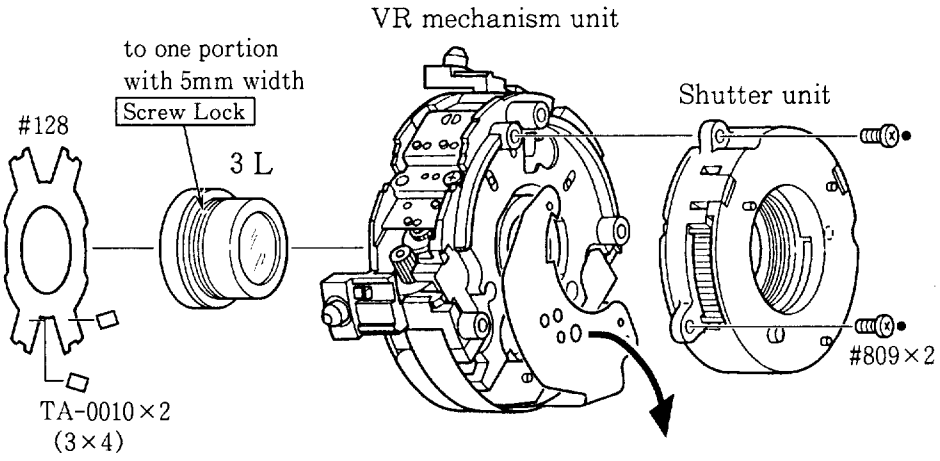


Attention: Do not remove lens unit 3L from VR mechanism unit. When replacing parts, replace both lens unit 3L and VR mechanism unit with new ones.

ASSEMBLING／ADJUSTMENT

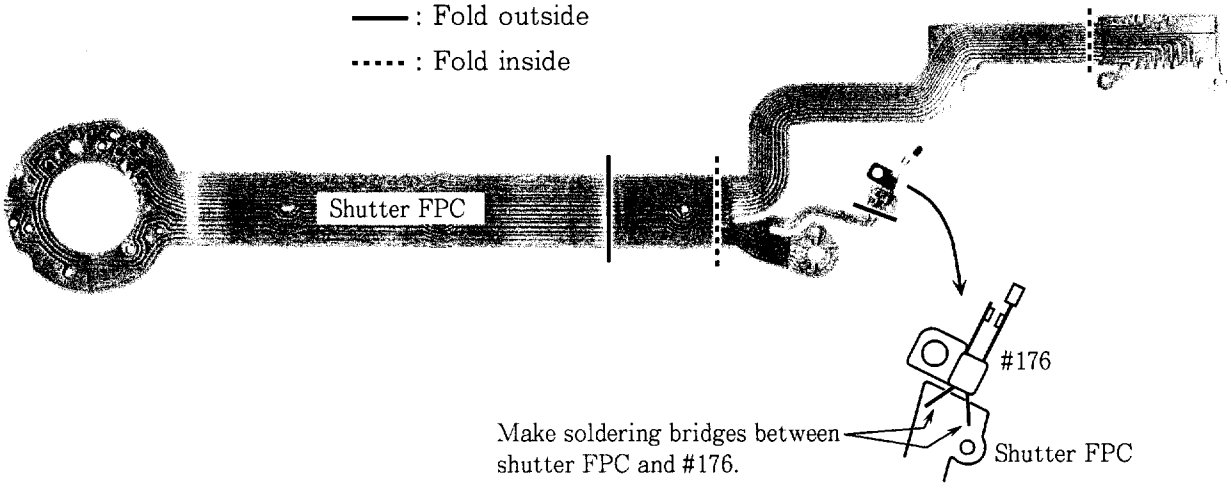
1. LENS BARREL GROUP

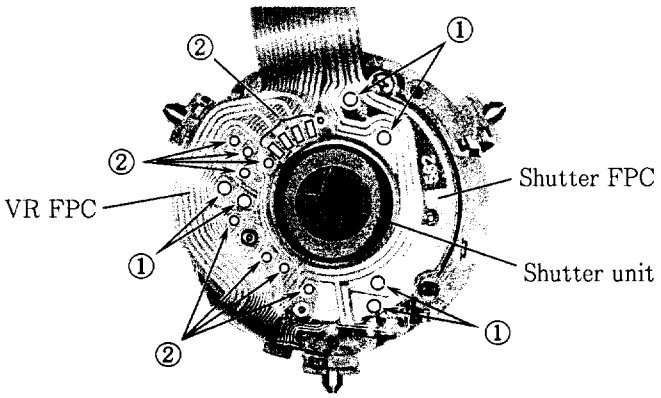
VR MECHANISM UNIT, SHUTTER UNIT



Attention:
When replacing lens unit 3L or VR mechanism unit, replace both units with new ones.

SHUTTER FPC

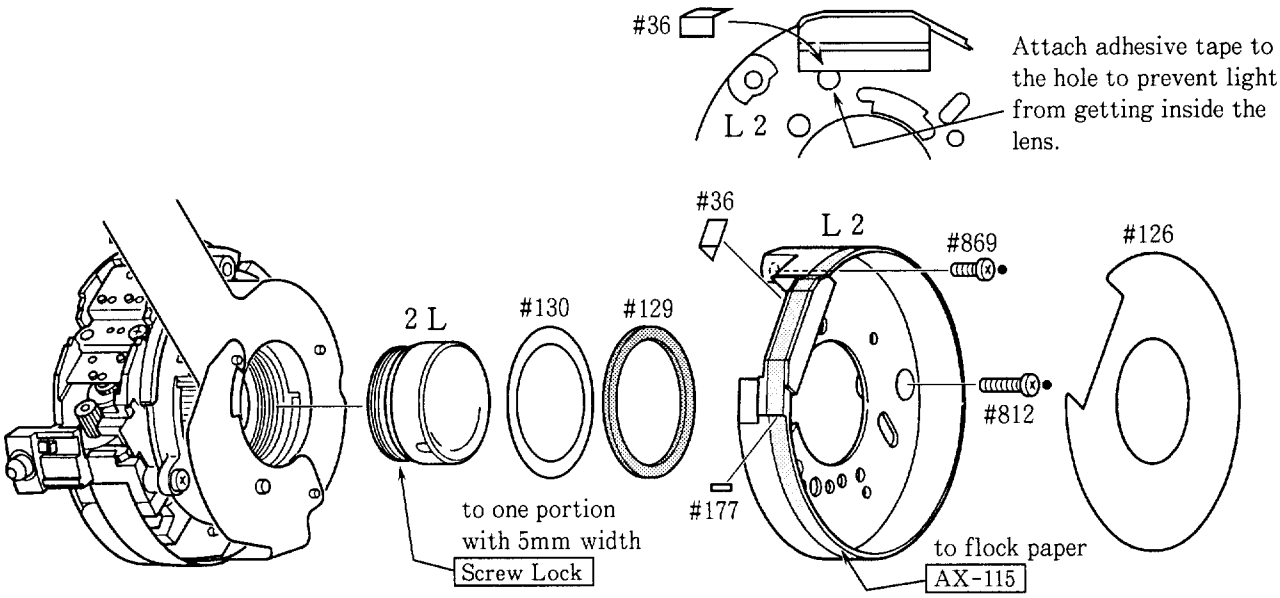




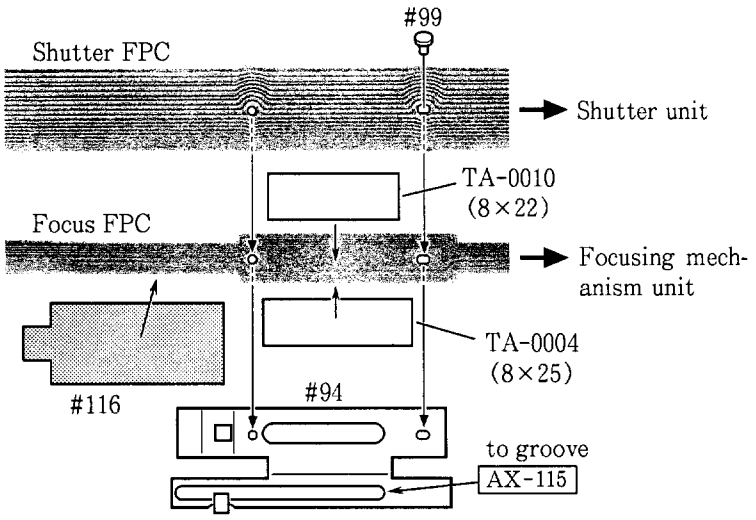
- Make soldering bridges at 18 locations.
  ① Soldering bridges between shutter FPC and shutter unit at 6 locations.
  ② Soldering bridges between shutter FPC and VR FPC at 12 locations.

Notes:
*Set the VR FPC on the shutter FPC.
*Make sure that there is no space between the shutter FPC and VR FPC.

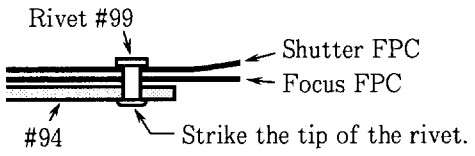
SECOND LENS UNIT, LIGHT BAFFLE RING UNIT

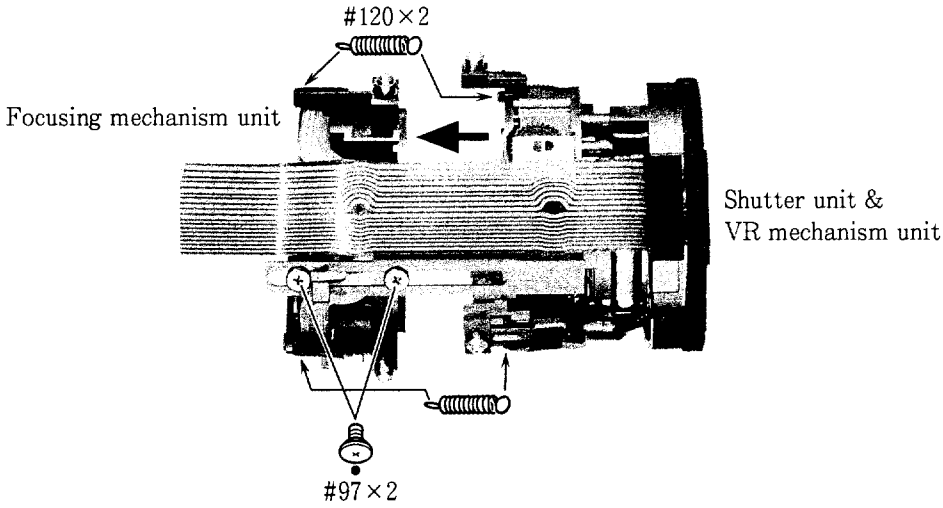


FOCUSING MECHANISM UNIT

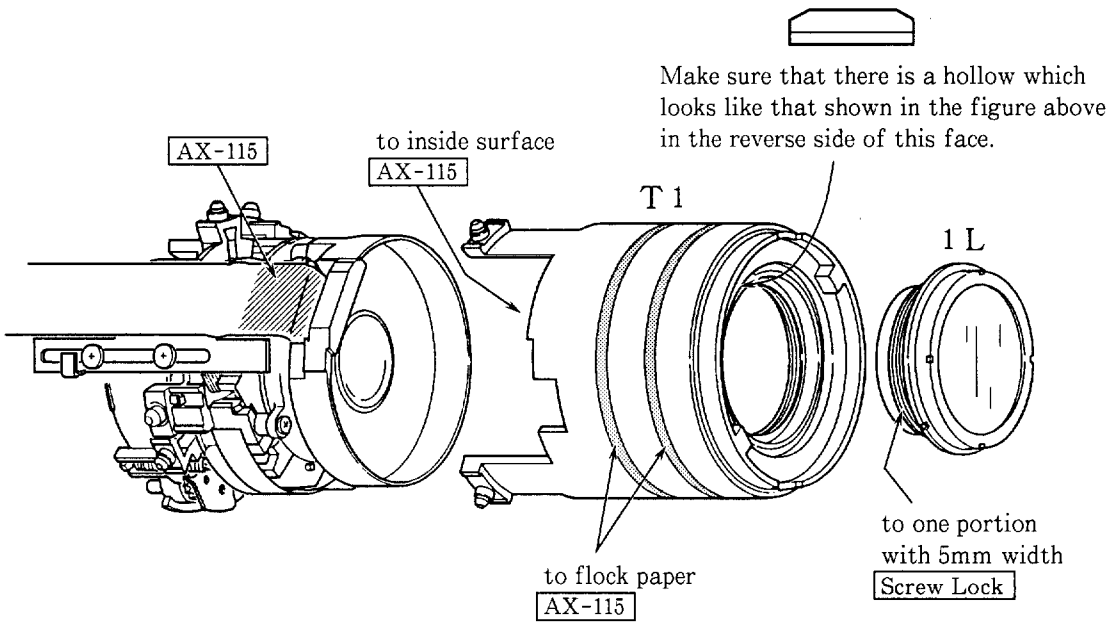


● Strike the tip of rivet #99 with a small hammer to secure FPC's.
Take care not to damage or deform the FPC's and retaining plate #94.

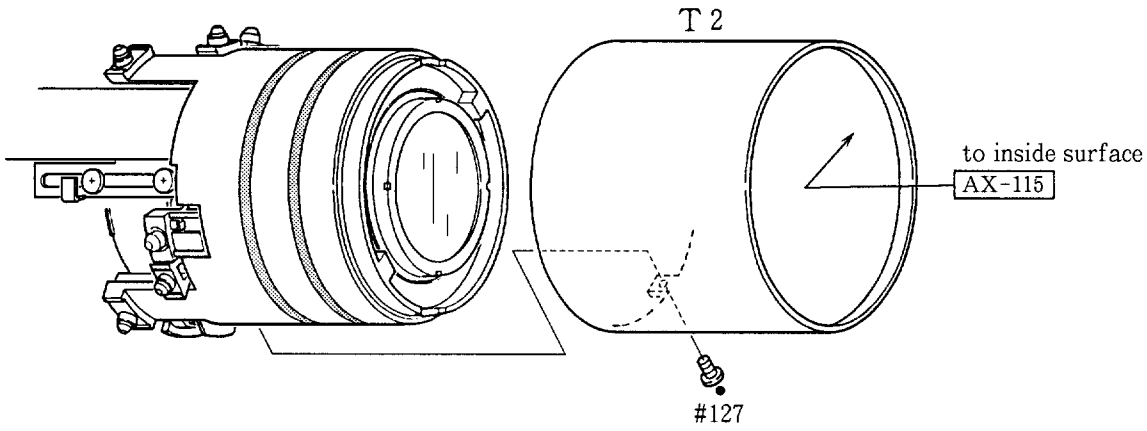




FRONT LENS GROUP



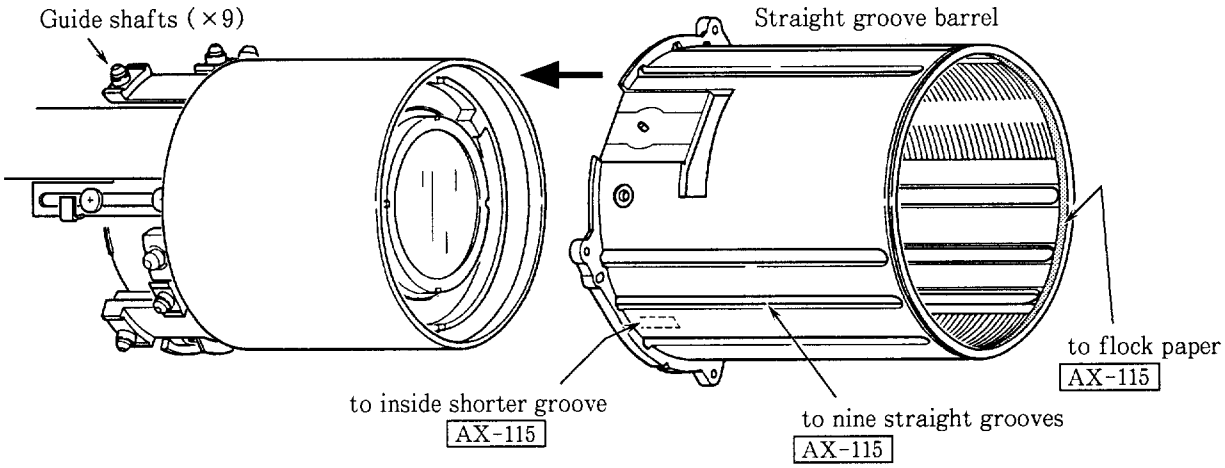
LENS BARREL COVER

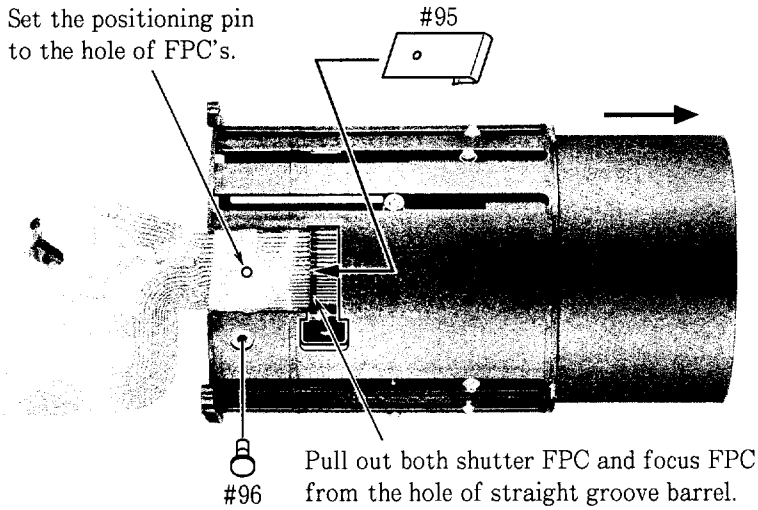


STRAIGHT GROOVE BARREL

- When mounting the straight groove barrel, align the guide shafts with the straight grooves at the location as shown in the picture.

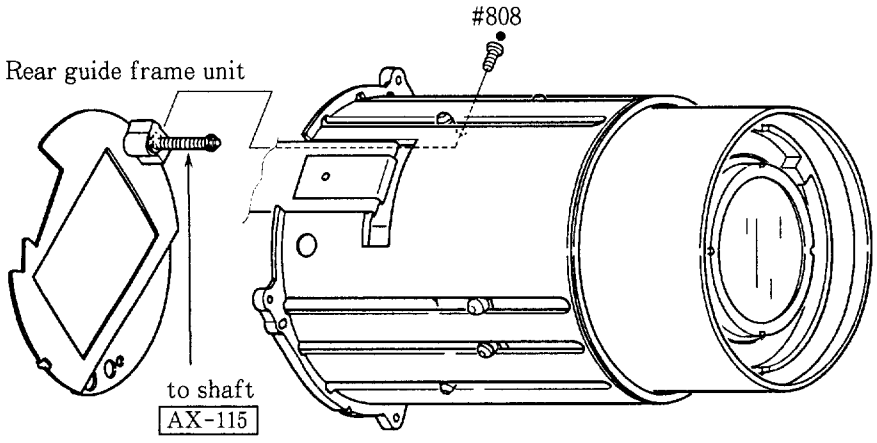
  Attention: Be sure to handle the straight groove barrel with care as it is easy to damage.





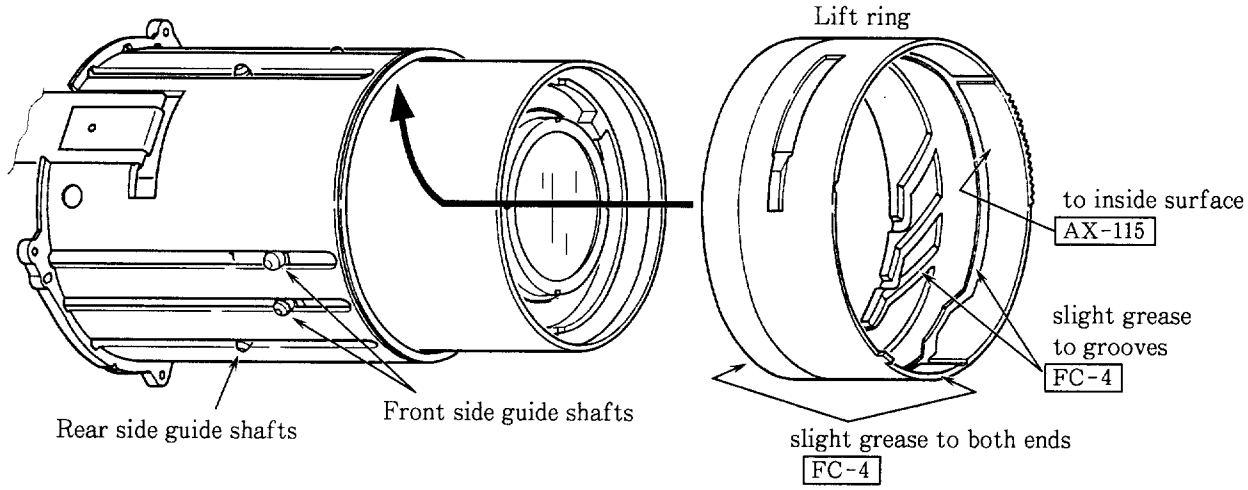
- Pull out both shutter FPC and focus FPC as shown in the picture, and secure them with clip #95.
- Move forward the lens group and mount stopper pin #96 on the straight groove barrel.

REAR GUIDE FRAME UNIT

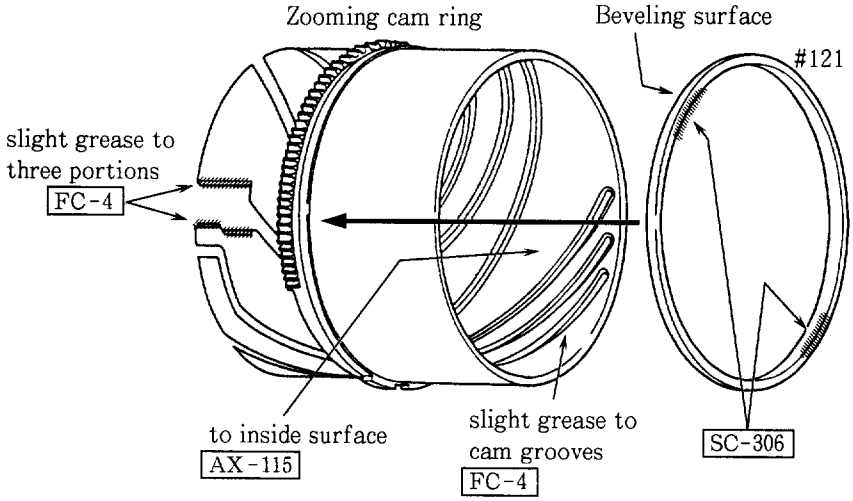


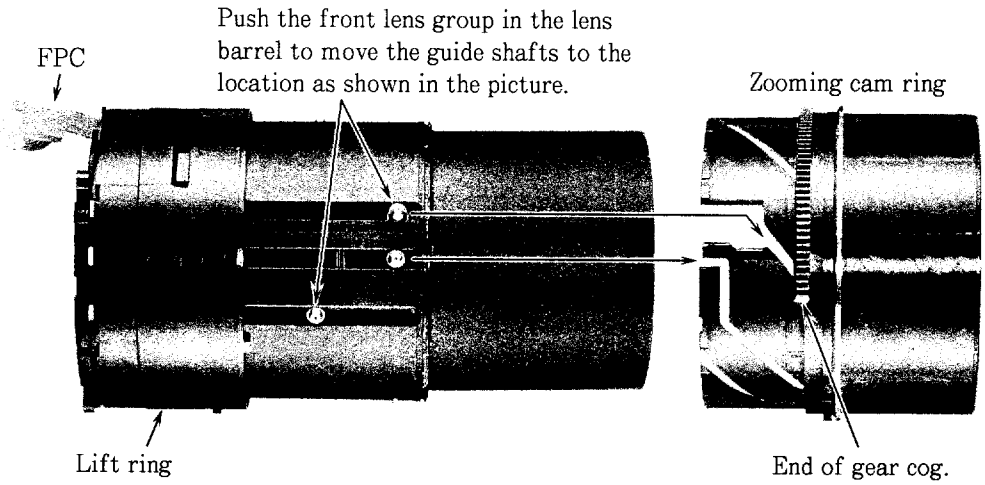
RIFT RING

- When mounting the lift ring, align the front side guide shafts with the lift ring, and turn it clockwise. Then align the rear side guide shafts with the lift ring groove and turn it again to push the lift ring backward. Make sure that 9 guide shafts are at the front side of the lift ring.

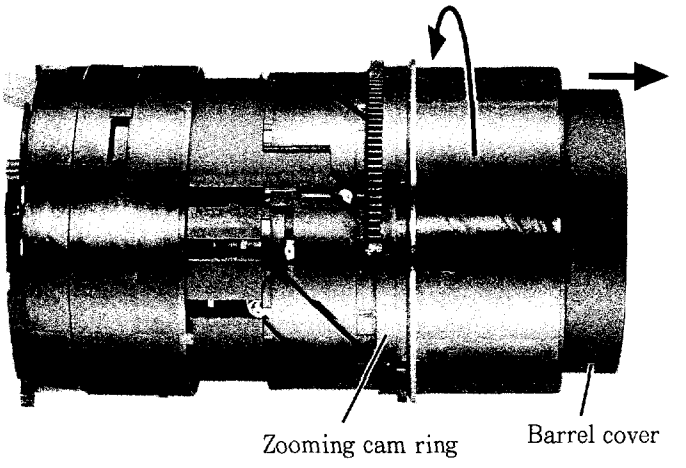


ZOOMING CAM RING



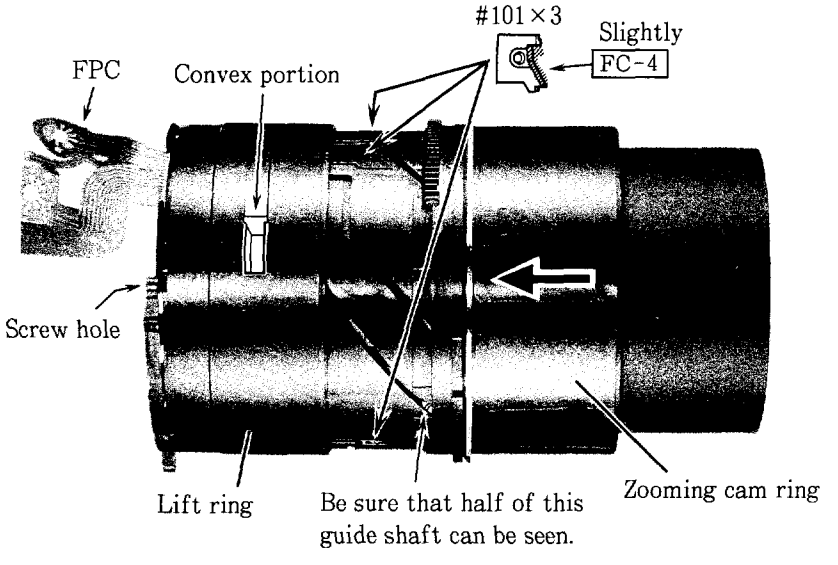


① Set the lens barrel group and zooming cam ring as shown in the picture. Mount the zooming cam ring so that the front side guide shafts can enter into the cam grooves.



② Turn the zooming cam ring clockwise while pulling the lens barrel cover forward. Put all guide shafts into the cam grooves of zooming cam ring. When the half of the rear side guide shaft is hidden, stop turning the zooming cam ring.

Note: Make sure that the guide shafts is inside the cam grooves.

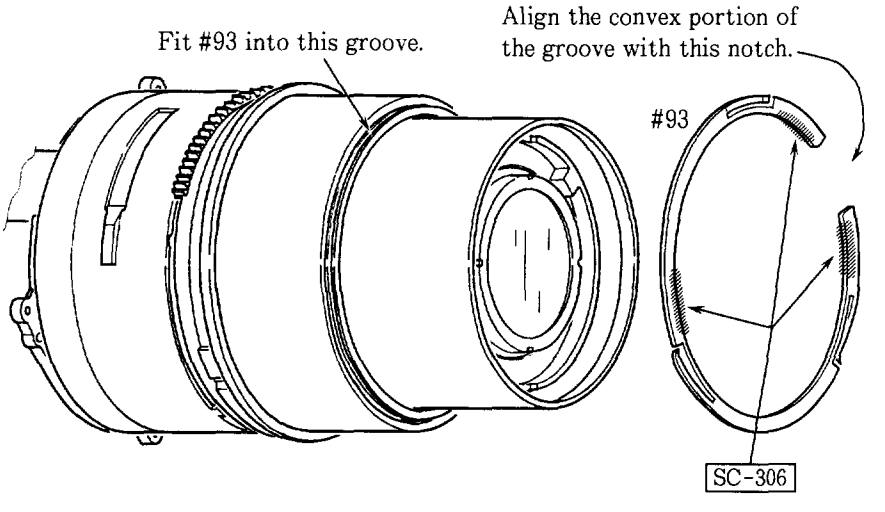


③ Turn the lift ring to set it to the position as shown in the picture on the left.

④ Attach lift plates #101×3.

⑤ Push the zooming cam ring in the direction of the arrow.

Note: Do not turn the zooming cam ring.

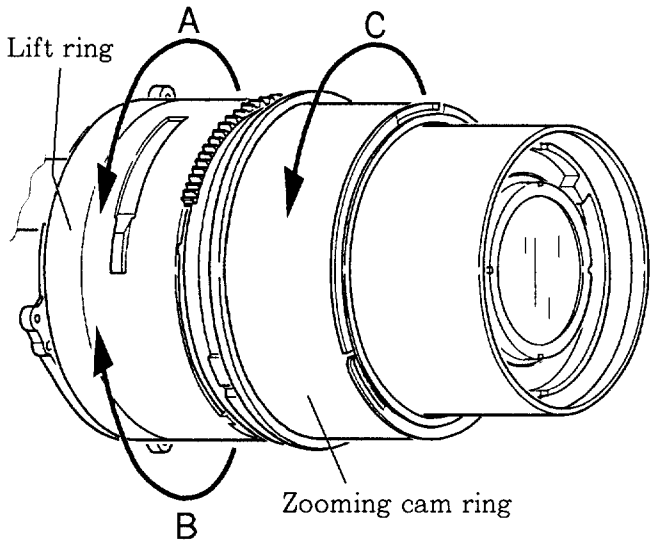


⑥ Attach retaining ring #93 with burr side up. (Refer to the figure.) Use adhesive SC-306 to secure #93.

OPERATION INSPECTION OF LENS BARREL

Attention:

- Before making inspection, turn the lift ring in the direction of arrow **B** to the stopper to set the lens barrel to TELE mode.
- If the lens barrel does not work smoothly during the following operation inspection, disassemble the lens barrel back to the A5 stage and assemble it again. Do not operate with force or the parts may be damaged.



① TELE → WIDE

Check to make sure that the lens barrel moves to the WIDE position when turning the zooming cam ring in the direction of arrow **C**.

② WIDE → RESET position

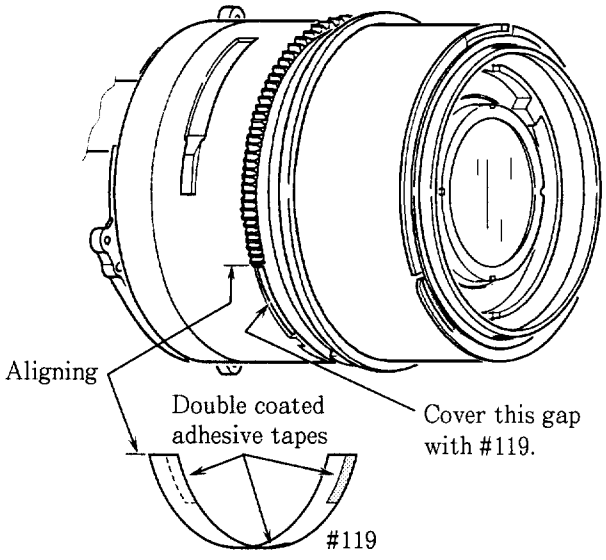
Check to make sure that the lens barrel moves to the RESET position when turning the lift ring in the direction of arrow **A**.

(The peripheral of lift ring turns only by as small as 1cm.)

③ RESET → WIDE → TELE

Check to make sure that the lens barrel moves to the TELE position when turning the lift ring in the direction of arrow **B**.

- When the above inspections are completed, set the lens barrel to the RESET position.

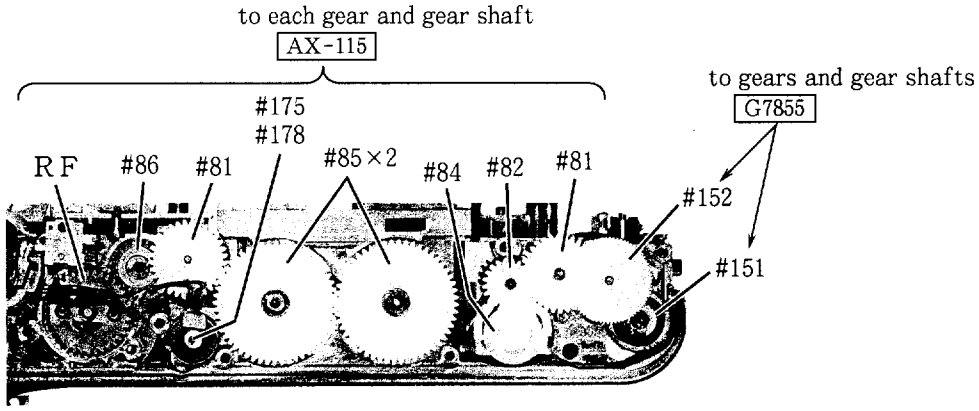


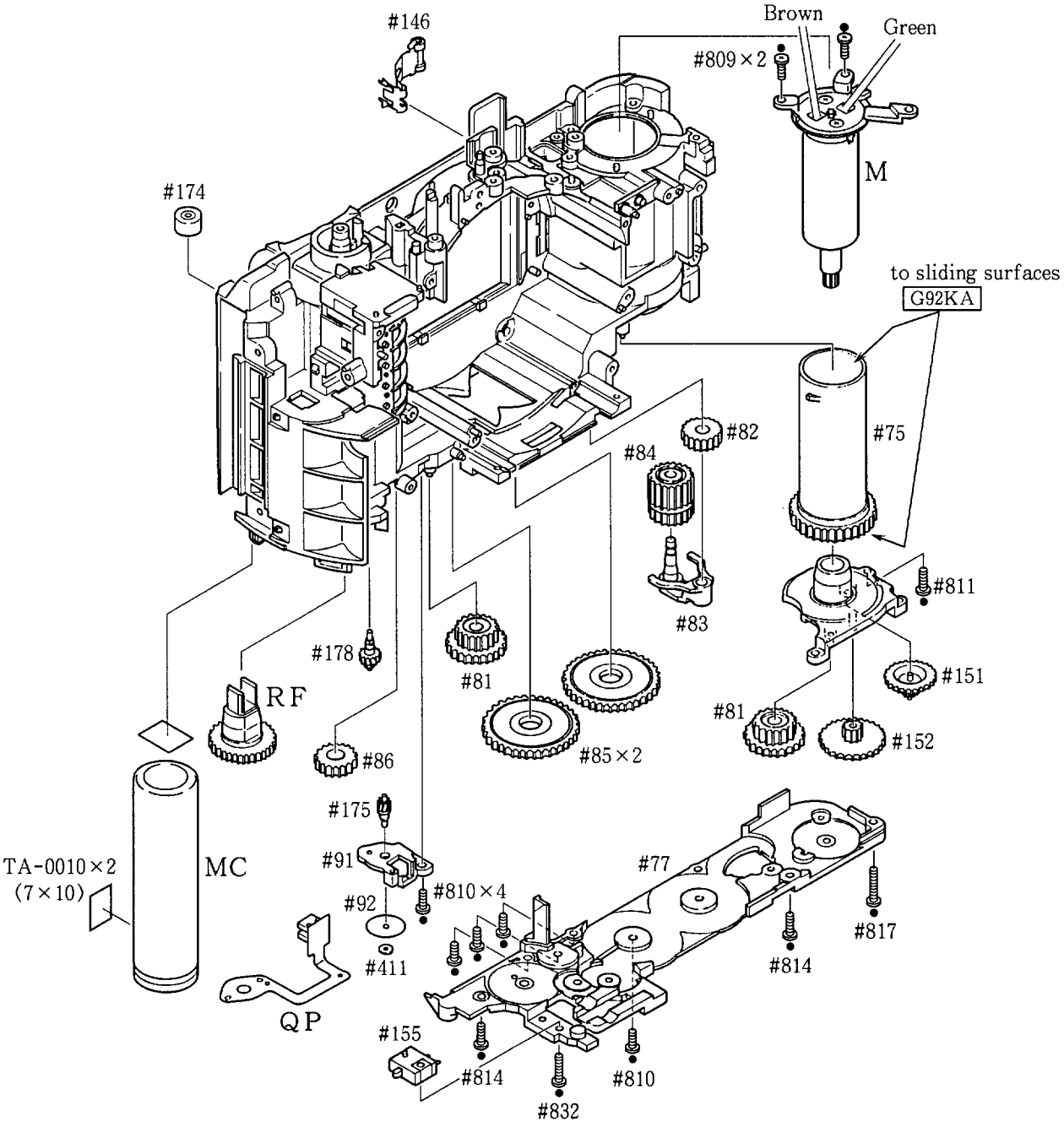
- Attach light baffle sheet #119 to the zooming cam ring.

  Note: Do not attach the part of double coated adhesive tape to the lift ring.

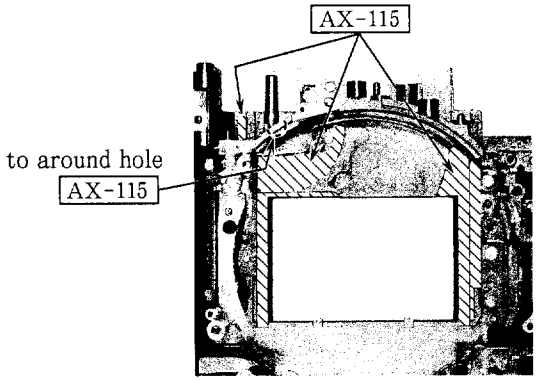
2. REAR BODY

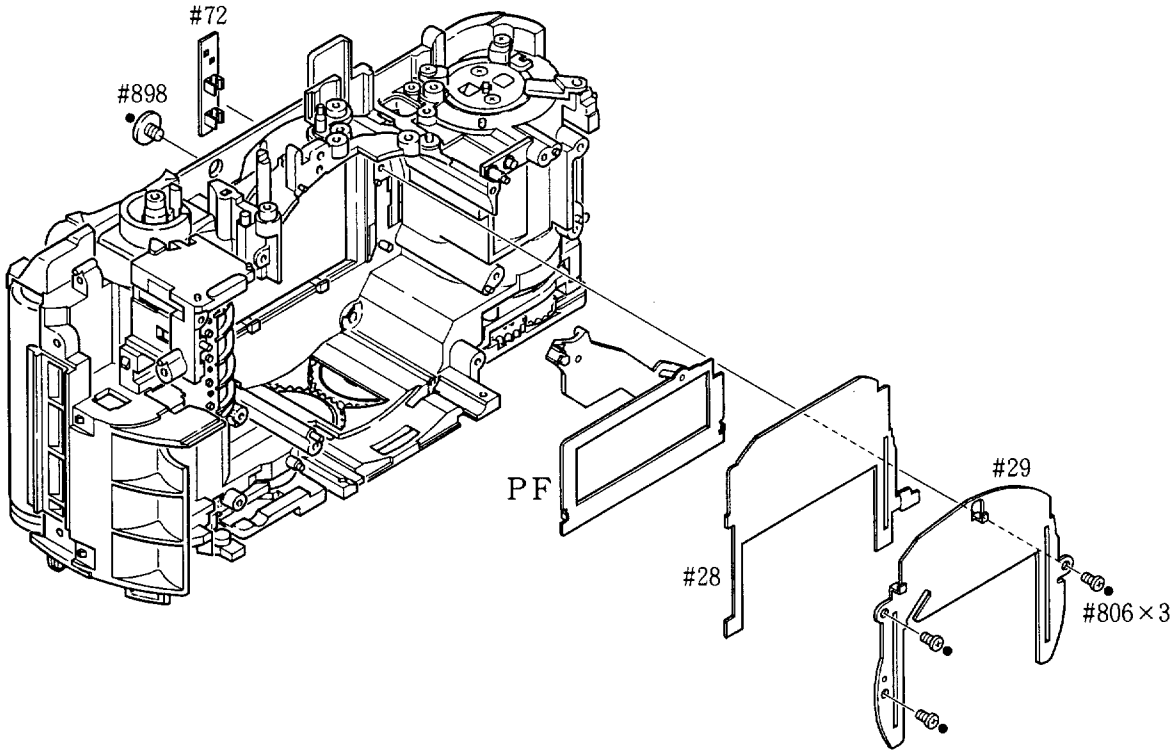
FILM ADVANCE GROUP



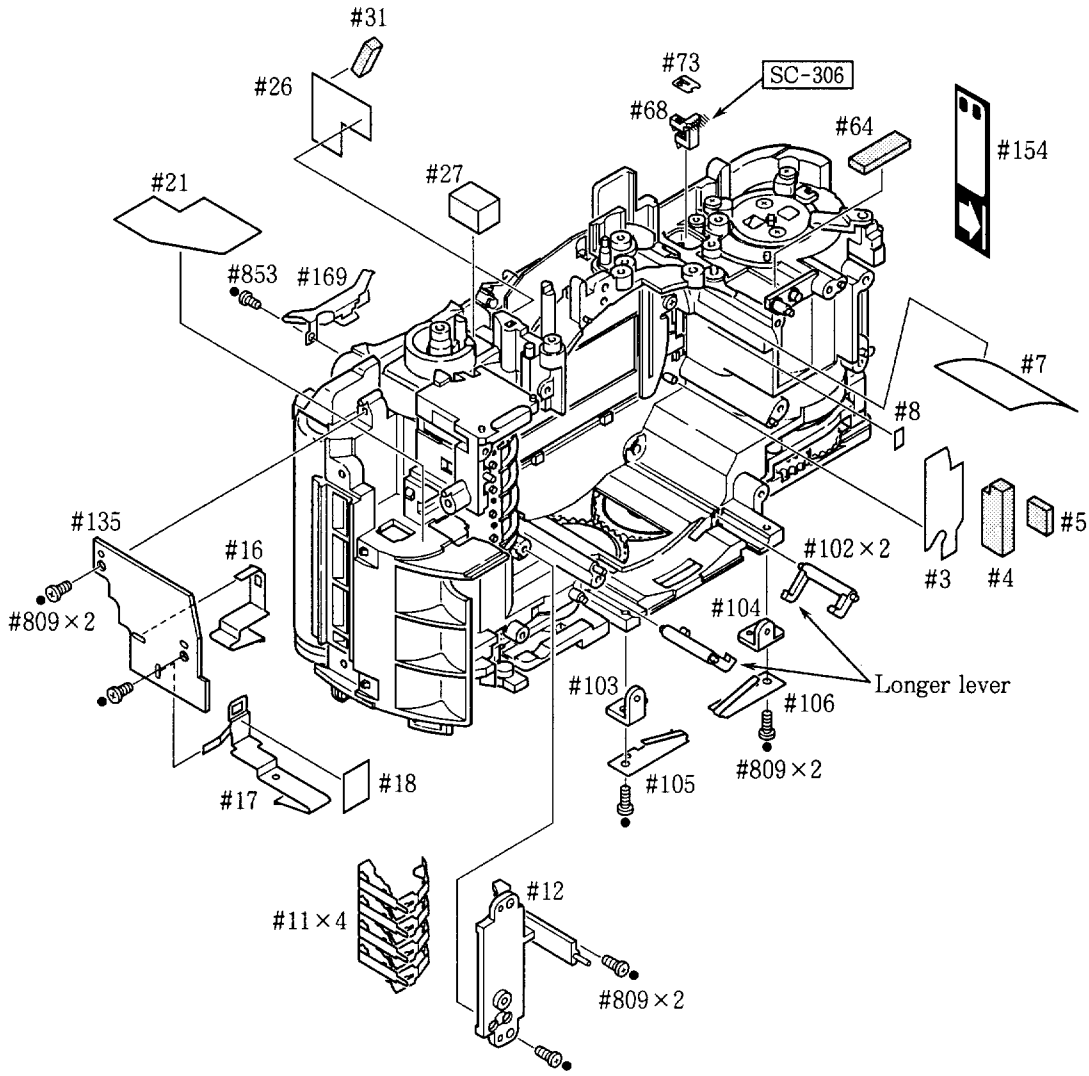


PANORAMA FRAME GROUP

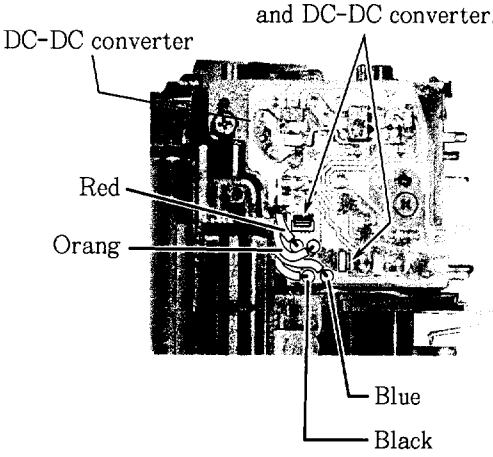




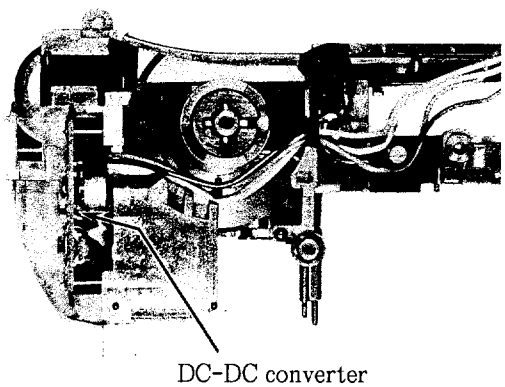
SMALL PARTS OF REAR BODY



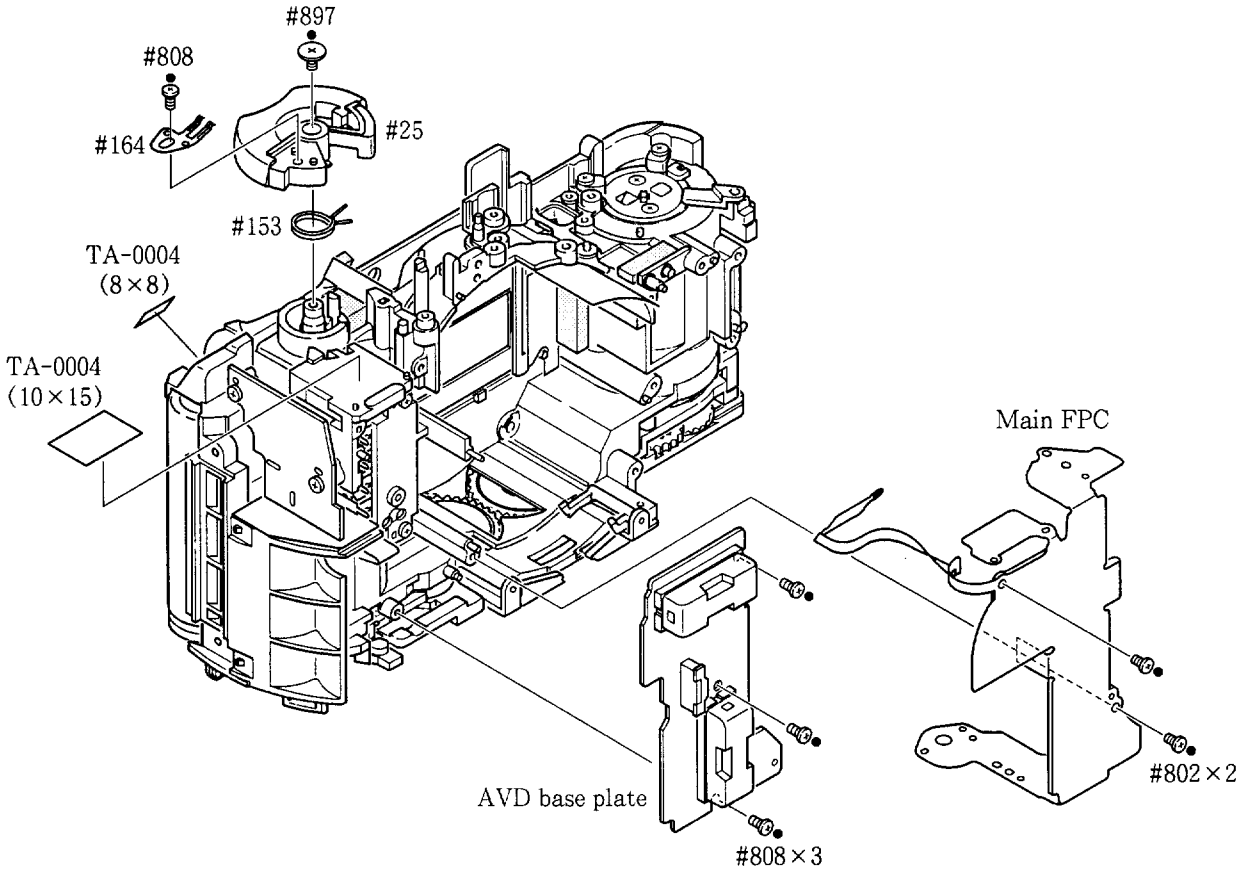
Make soldering bridges between battery contacts and DC-DC converter.

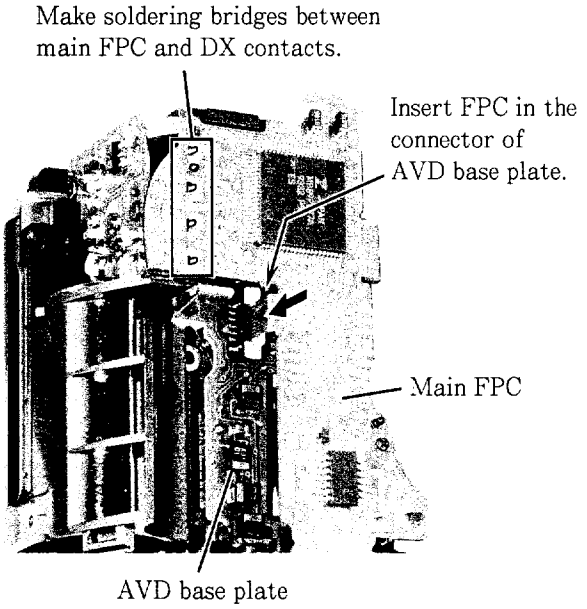


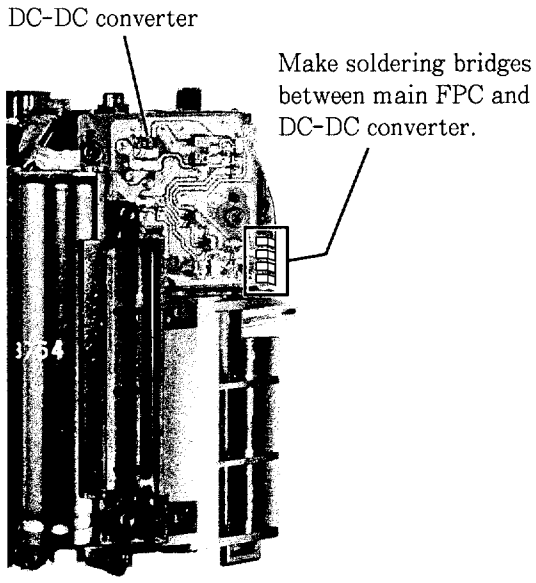
Arrange wires from DC-DC converter



AVD BASE PLATE, MAIN FPC



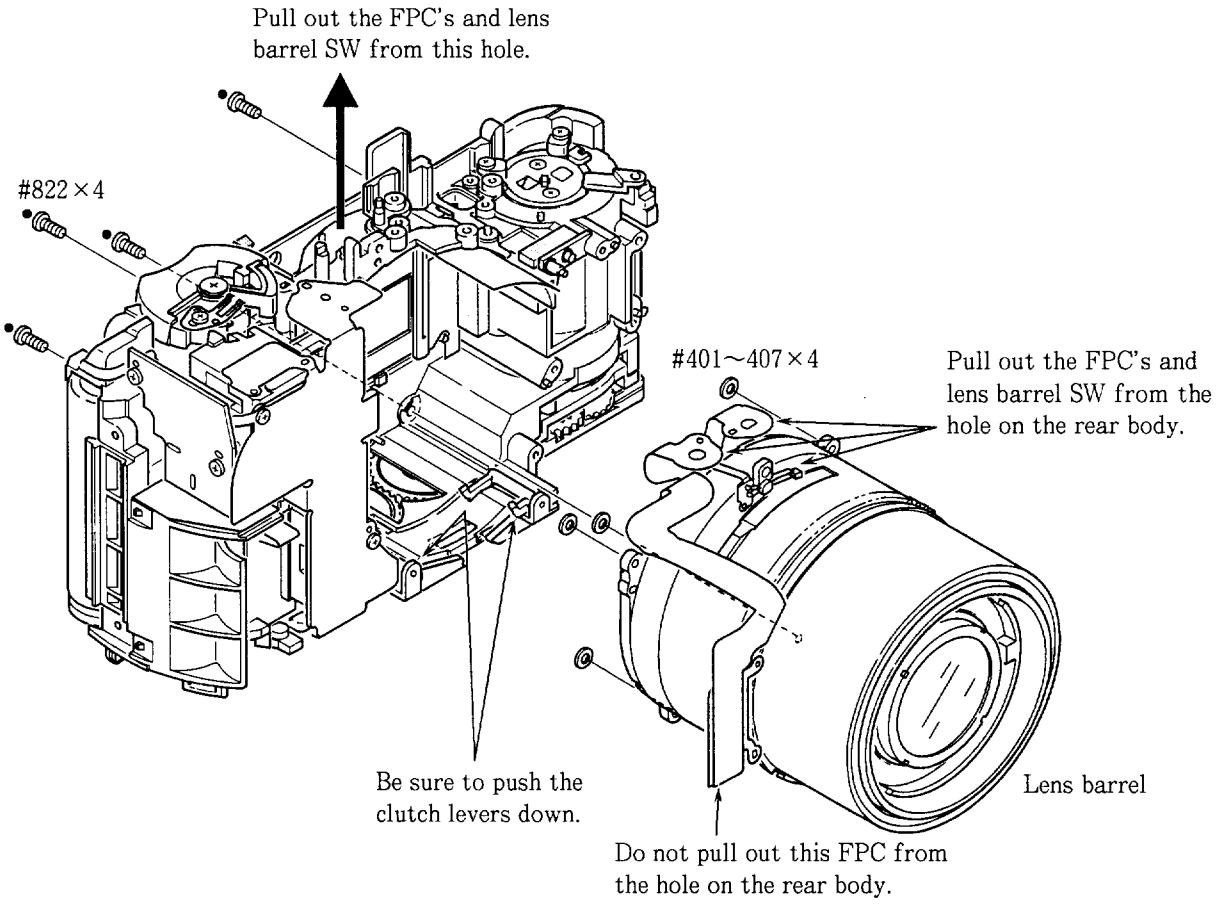


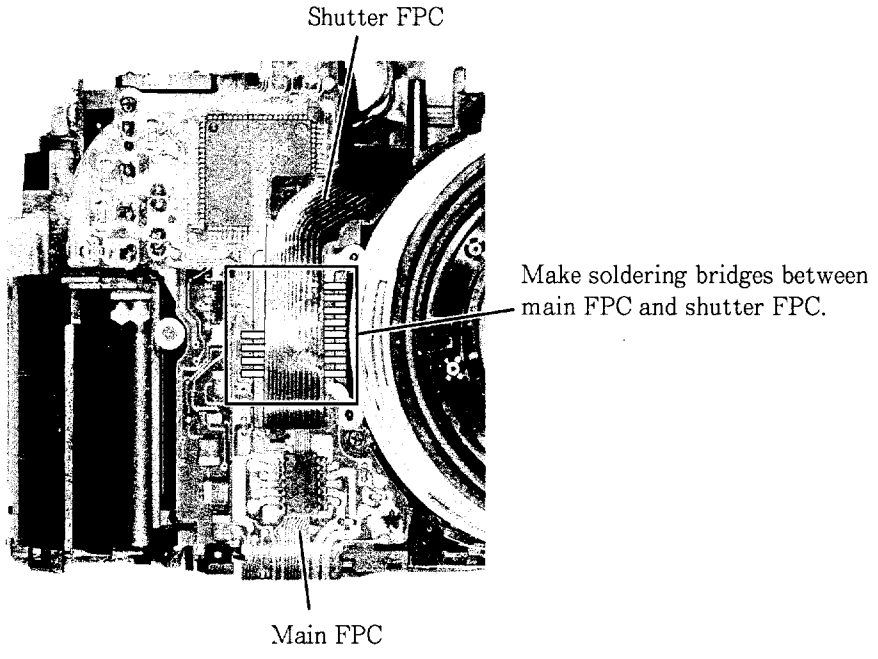


3. REAR BODY & LENS BARREL

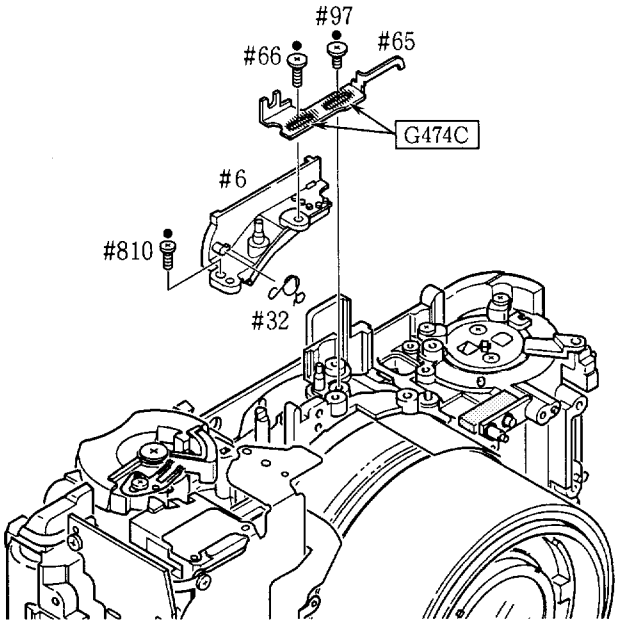
MOUNT LENS BARREL ON REAR BODY

● **Set the lens barrel to the reset position and mount it on the rear body.**

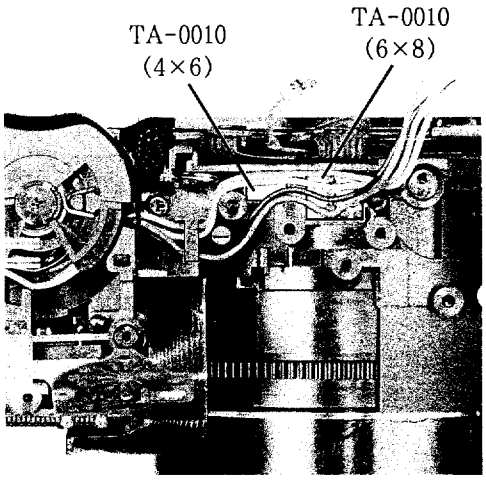




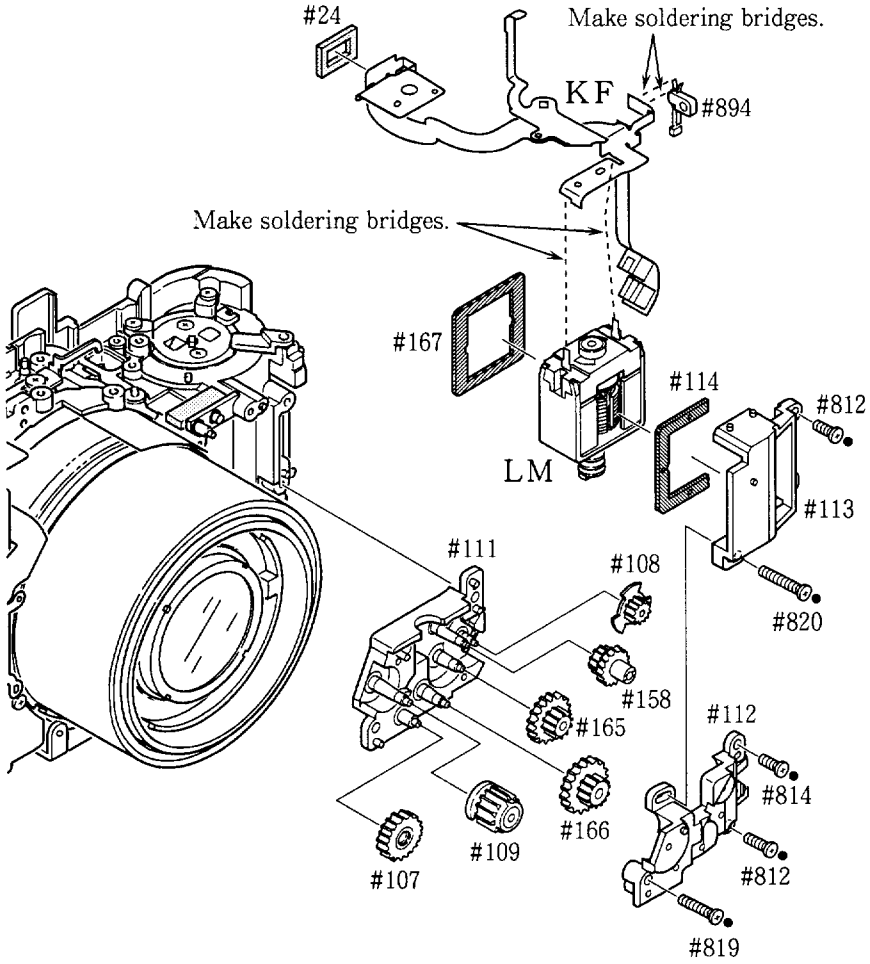
PANORAMA BASE PLATE GROUP



Arrange wires



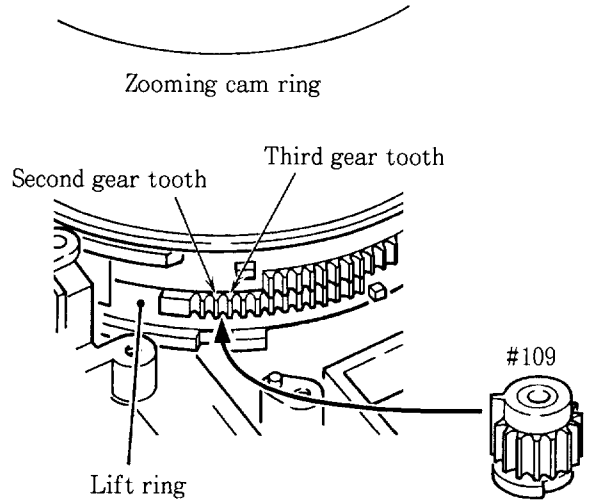
ZOOMING MOTOR GROUP



Attention:

When mounting the zooming gear group, refer to the figure on next page since the gears must be aligned in order for mounting to be correct.

- Apply grease G474C to gear #158. Apply lubricating oil AX-115 to other gears and gear shafts.



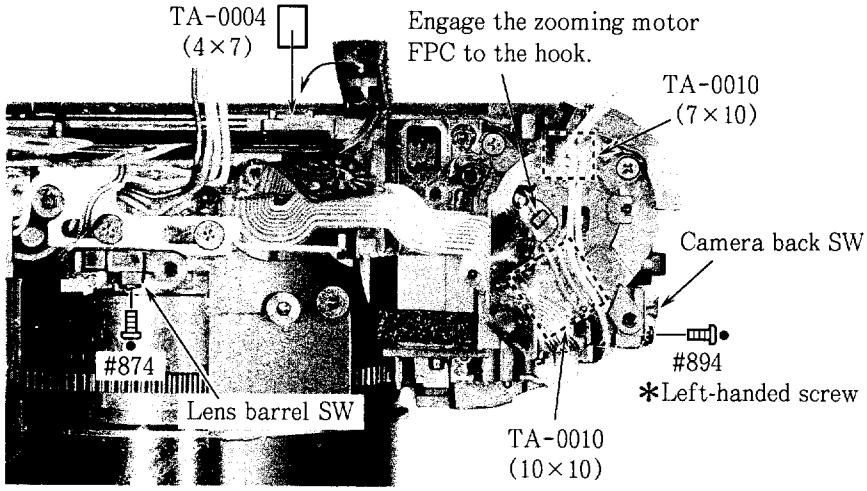
● Mounting position of zooming gear group

① Slightly turn the lift ring clockwise so that the gear portions of lift ring and zooming cam ring are located as shown in the figure on left.

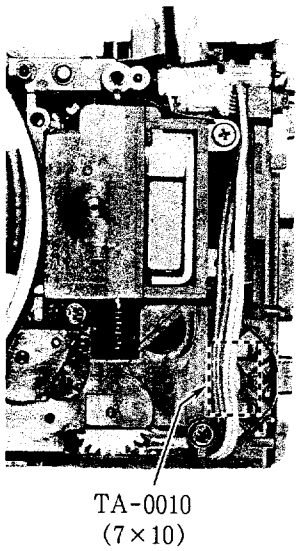
② Mount the zooming gear group so that the projection of gear #109 (longer portion of gear teeth) enters between the second gear tooth and third gear tooth (lift ring gears).

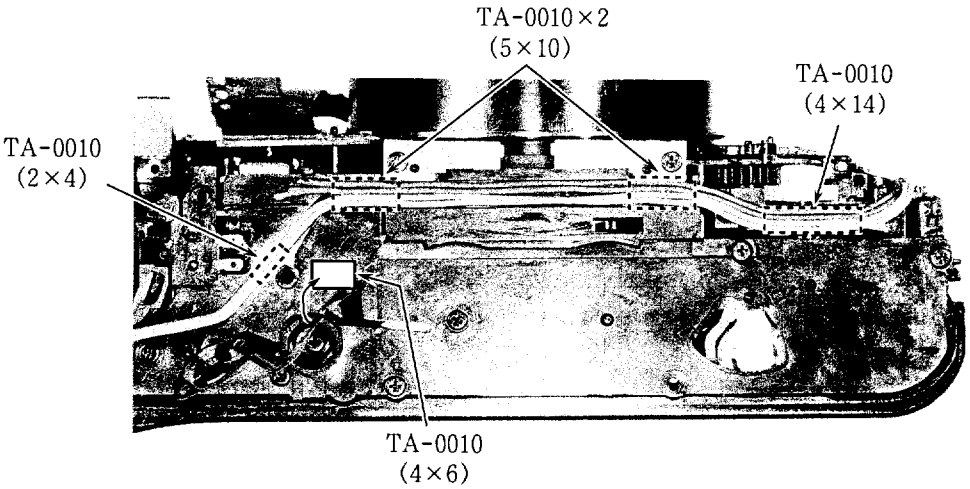
ARRANGE WIRES

Upper portion of spool chamber side

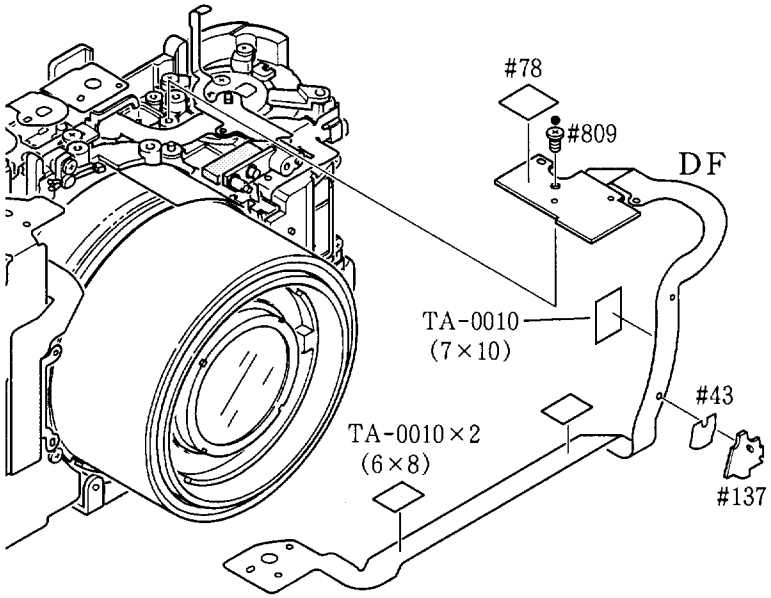


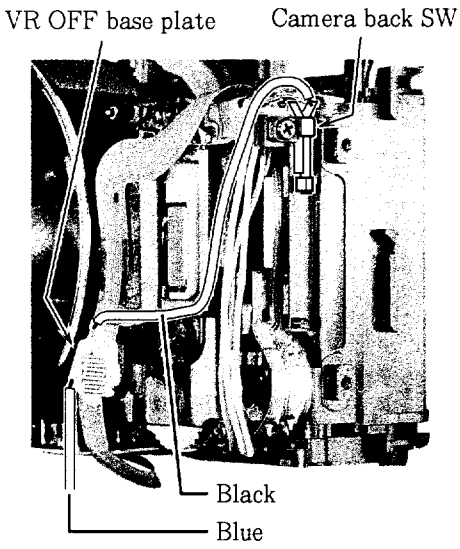
Front portion of spool chamber side



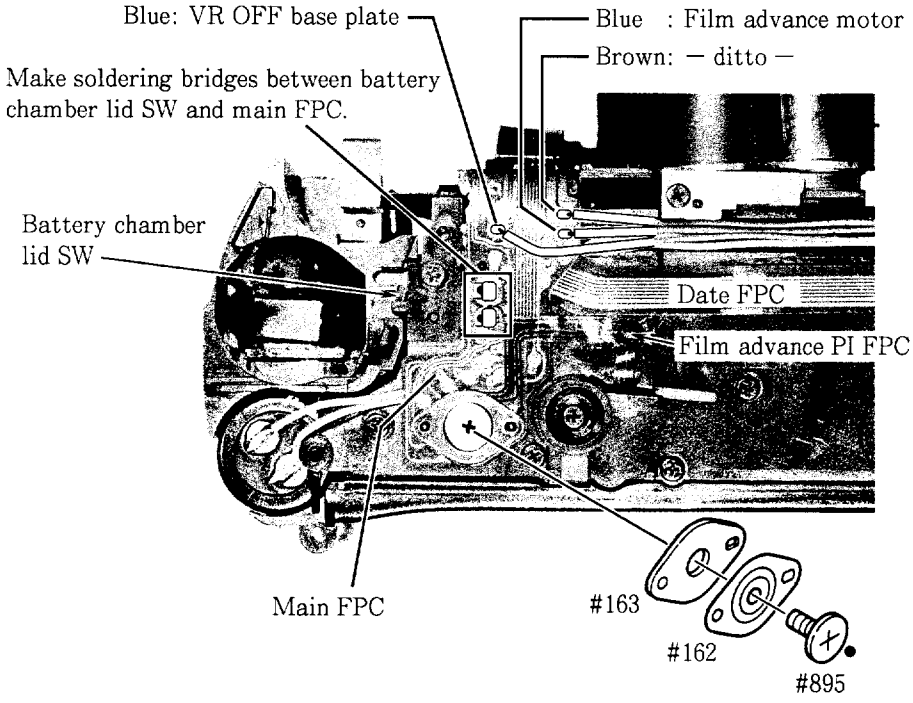


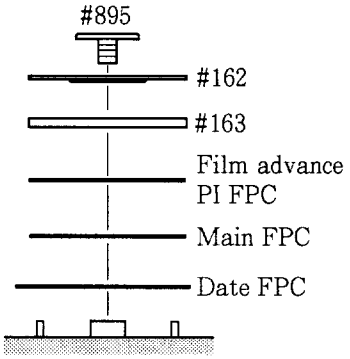
DATE FPC



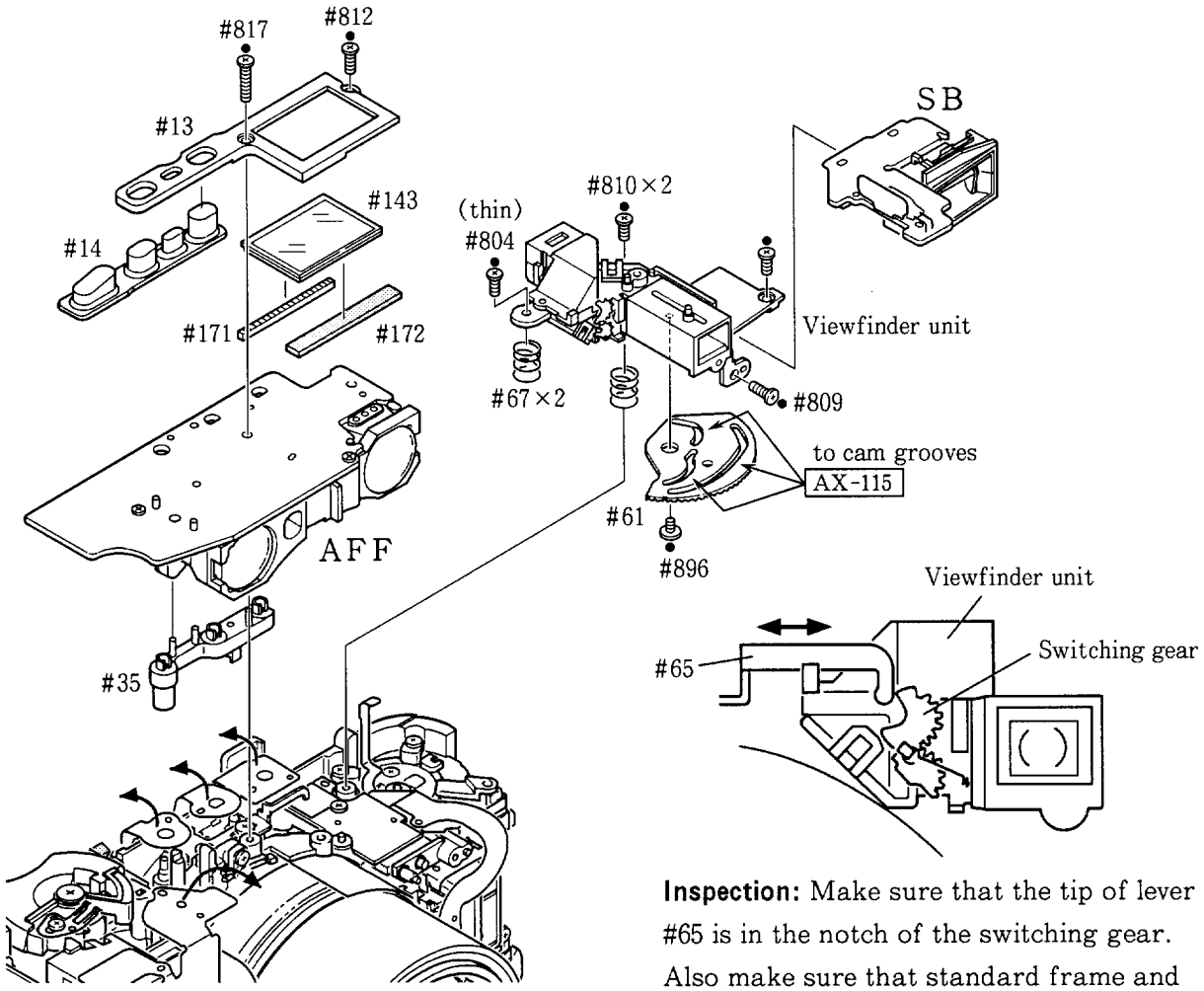


PRESS-CONTACT, SOLDERING WIRES

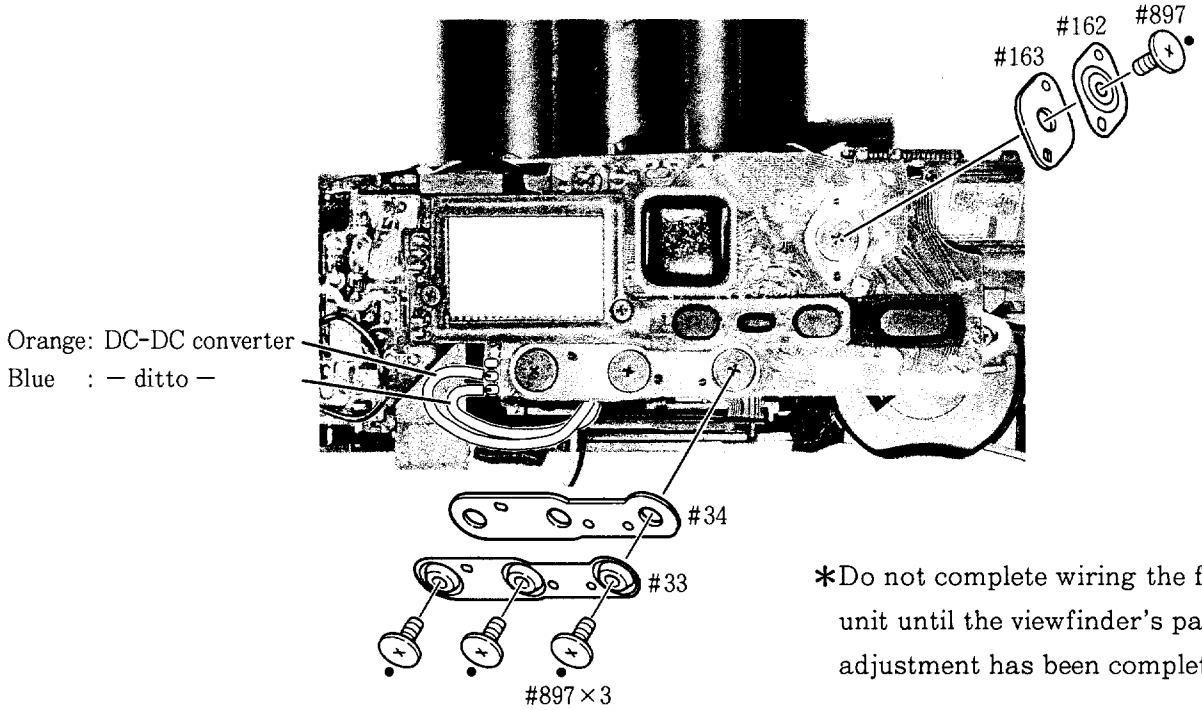




AF SENSOR UNIT, VIEWFINDER UNIT, FLASH UNIT



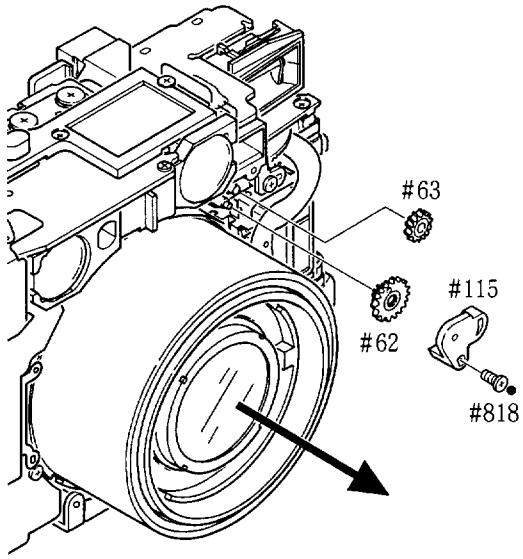
Inspection: Make sure that the tip of lever #65 is in the notch of the switching gear. Also make sure that standard frame and panorama frame in the viewfinder can be switched over when lever #65 is moved.



*Do not complete wiring the flash unit until the viewfinder's parallax adjustment has been completed.

COUPLING GEAR GROUP

- Apply lubricating oil AX-115 to gears and gear shafts.

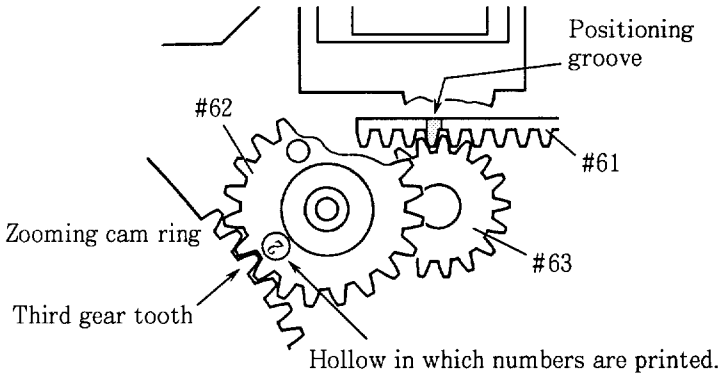


- Mounting position of gears

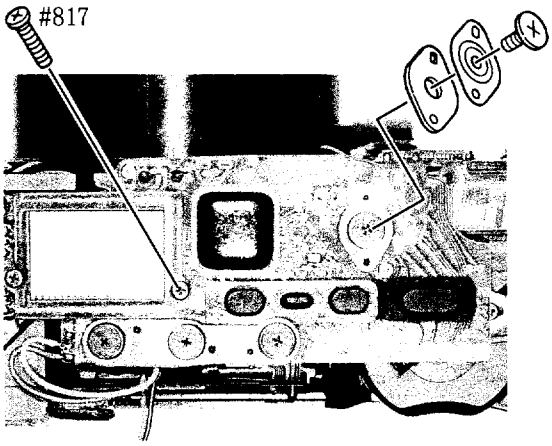
① Install two batteries, attach the battery chamber lid and turn the power switch ON. Press the "T" side of zoom switch to move forward the lens barrel to the telephoto setting. Then remove the batteries and battery chamber lid.

② Mount gear #63 so that the positioning groove of viewfinder cam #61 is located as shown in the figure below.

③ Mount gear #62 while aligning the third gear tooth of zooming cam ring with the hollow in which numbers are printed.



ADJUSTMENT OF VIEWFINDER'S PARALLAX



① Install two batteries and attach the battery chamber lid.

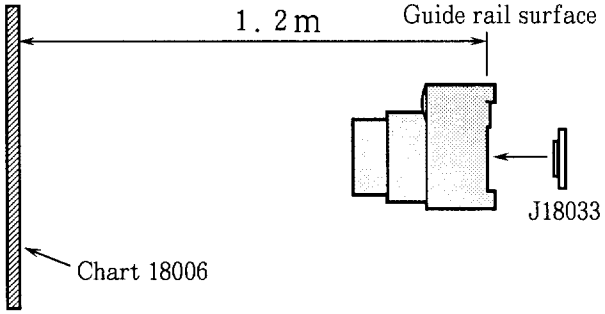
② Set the camera to communication mode.
Turn ON commands Nos. 0, 1 and 6. Then turn ON the command No. 5 and set the lens barrel ZONE to 13. The number 13 will be displayed on the LCD panel.
*Turn ON command No. 5 to display the current lens barrel position (ZONE) on the LCD panel. When the lens barrel position is displayed, remove your finger from the self-timer/illuminator button and operate the zoom switch to the T or W side to show "13" on the LCD panel.

③ When moving the zoom switch to the T or W side after removing all your fingers from the button, the lens barrel moves to the ZONE13 position.

④ Mount the shutter release button on the camera body and press the shutter release button fully (press the shutter release button for a short period and remove the finger immediately) to set the shutter to timer state. Mount tool J18033 on the camera's aperture.

⑤ Remove the batteries and battery chamber lid. Make sure that shutter is in timer mode when the lens barrel is at the ZONE13 position.

⑥ Remove press-contact and screw #817. (Refer to picture on the left.)

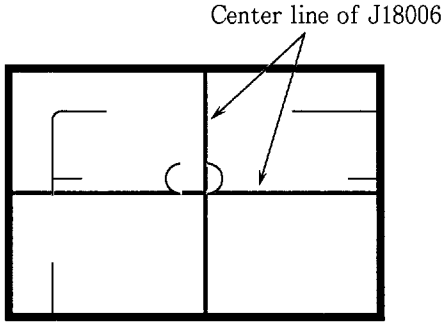


⑦ Set the distance between chart J18006 and camera's guide rail surface to 1.2m. Then mount tool J18033 on the guide rail surface.

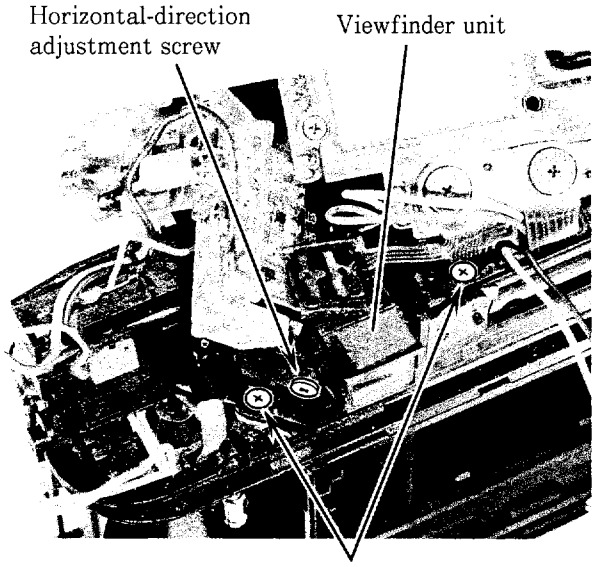
⑧ Move the camera to align the center line of chart J18006 with that of tool J18033.

⑨ Lift the AF sensor unit and flash base plate so that adjustment screws (×3) can be seen.

⑩ Look in the viewfinder and turn the adjustment screws to adjust so that the center line of J18006 comes to the position as shown in the figure below.

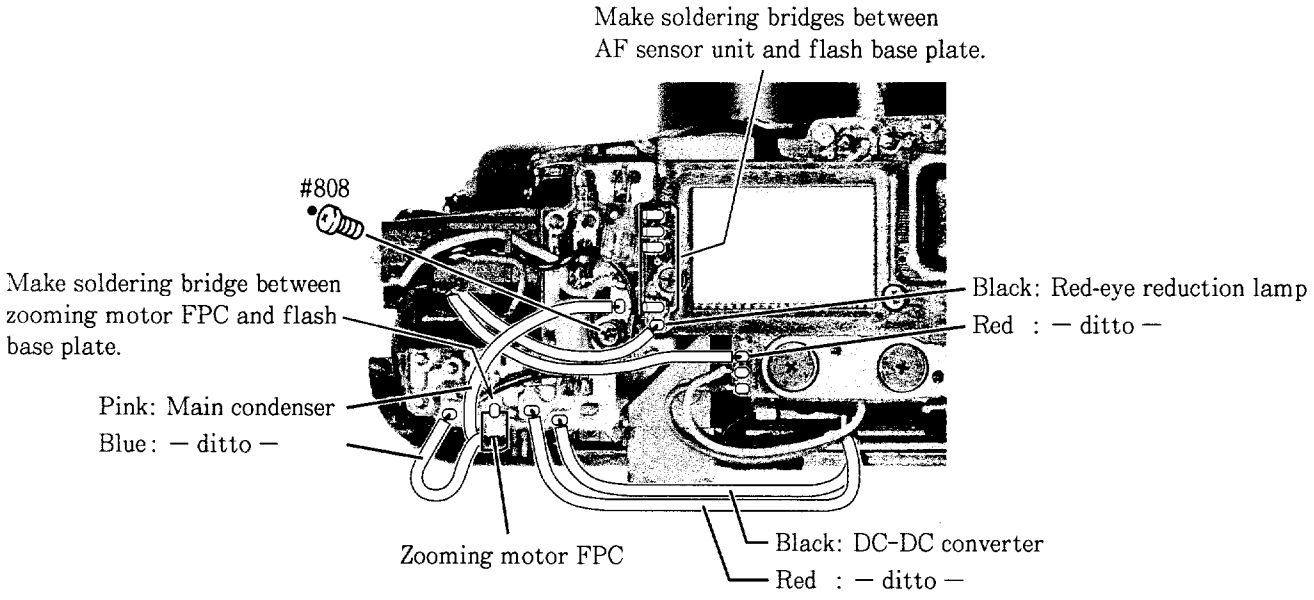


Inside the viewfinder

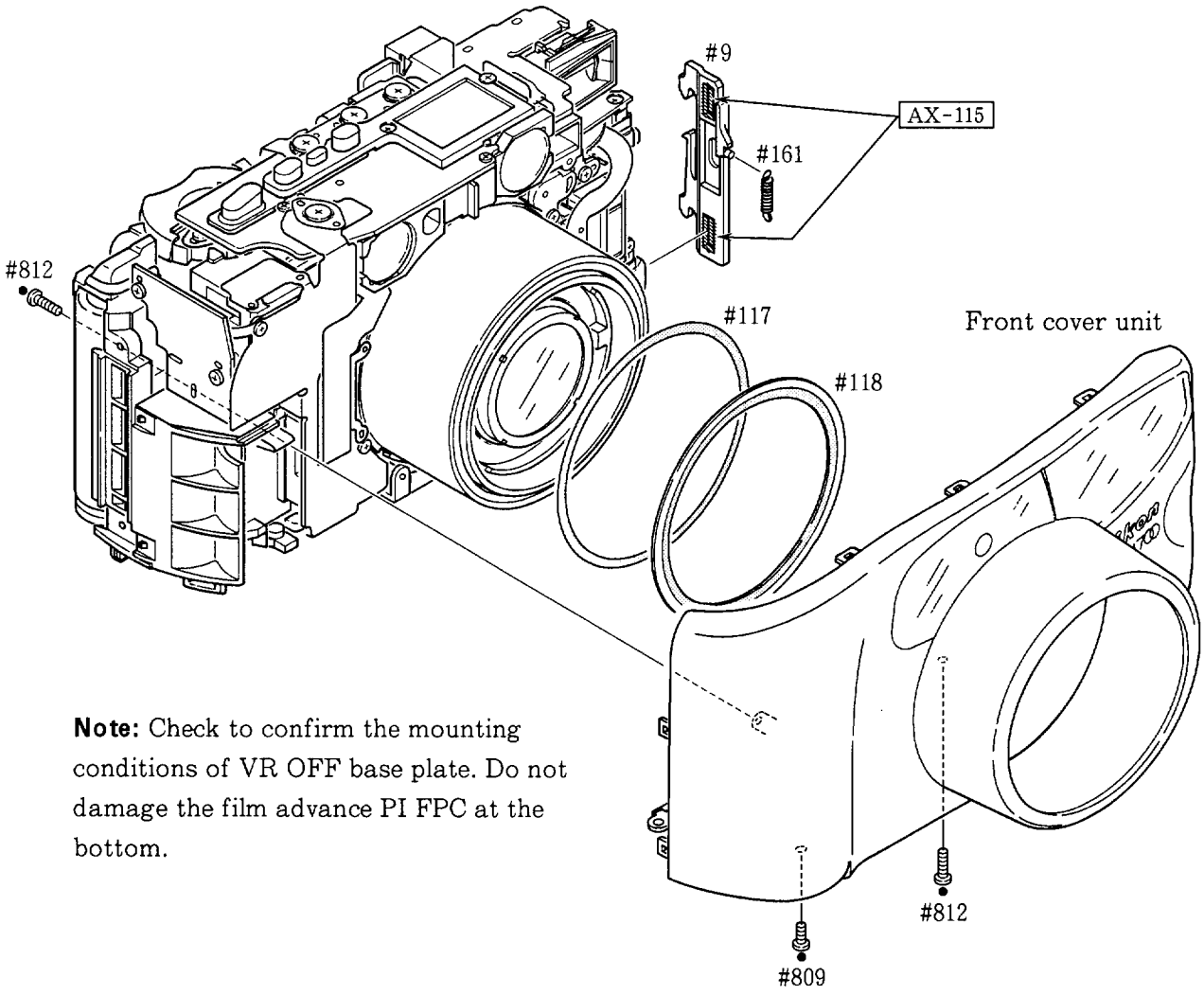


⑪ Return the AF sensor unit and flash base plate back to the original position, secure screw #817, and press-contact the AF sensor unit and main FPC.

WIRING OF FLASH BASE PLATE



FRONT COVER UNIT, CAMERA BACK LOCK-RELEASE LEVER



Note: Check to confirm the mounting conditions of VR OFF base plate. Do not damage the film advance PI FPC at the bottom.

CHECKING CAMERA OPERATION AND INSPECTION

Attention: If the camera does not work properly, remove the batteries immediately.
To avoid electric shock, do not touch electric parts. (Particularly take care the main condenser terminals.)

① Move the camera back lock-release lever down to turn the camera back SW OFF.

② When the battery chamber lid is mounted after batteries (CR123A×2) are installed in the camera body, make sure that "OFF" indicator appears in the LCD panel after all indicators in the LCD panel appear for an instant. This item is valid for the QD body only.

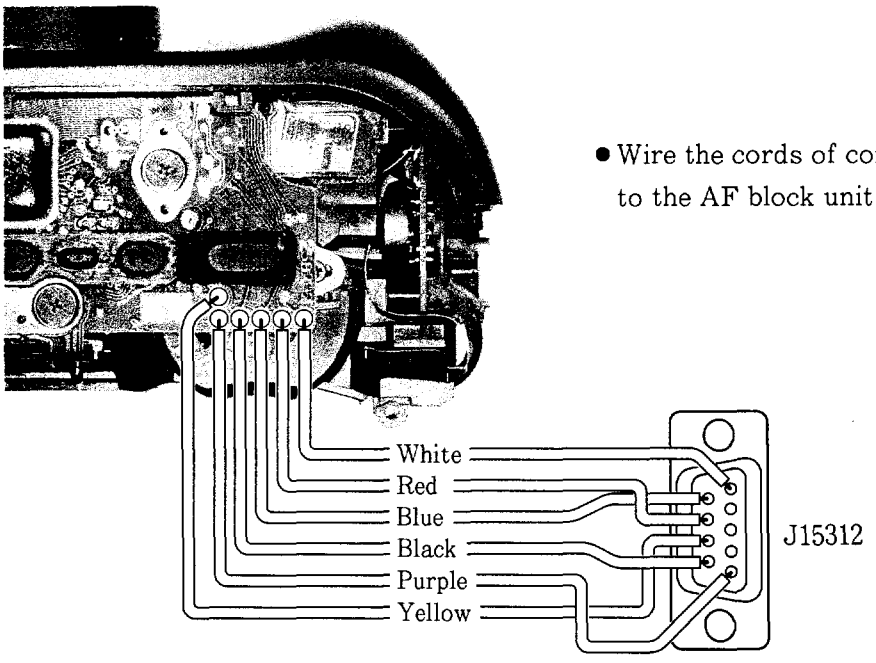
③ When the power switch is turned ON, make sure that the lens barrel moves foreword from the RESET to the WIDE positions. An "E" indicator appears in the LCD panel.

④ When operating the zoom switch, make sure that the lens barrel zooms in and out, and the location of the flash firing unit and viewfinder magnification vary according to the movement of the lens barrel.

⑤ Mount the shutter release button on the camera body. Make sure that the LED at the side of the viewfinder lights up when pressing the shutter release button slightly, and shutter can be released when the shutter release button is depressed fully.

- Proceed to the following adjustments after having confirmed that the camera works properly for the above checking items.

CONNECTING BETWEEN CAMERA AND COMMUNICATION TOOL



- Wire the cords of communication tool J15312 to the AF block unit as shown in the figure.

INSPECTION AND ADJUSTMENT OF AE ACCURACY

Inspection: According to instructions as shown on the computer screen, check exposure metering output at EV15, 12, and 9. Check also the amount of image exposure when shutter is released.

Adjustment: According to instructions as shown on the computer screen, make AE adjustment at EV15, 12, and 9.

Standard: ISO100

EV 1 5	±1.2EV
EV 1 2	±1.0EV
EV 9	±1.0EV

INSPECTION AND ADJUSTMENT OF AF ACCURACY

Inspection: Set the distance between standard reflector paper and camera's guide rail to 1644.46mm, 901.41mm, or 745.00mm and make an AF inspection.

Adjustment: Set the distance between standard reflector paper and camera's guide rail to 1644.46mm, 901.41mm, or 745.00mm and make an AF adjustment.

Standard:

Measured distance	Standard value (STEP)
1644.46mm	60 ～ 64
901.41mm	118 ～ 122
745.00mm	146 ～ 148

ADJUSTMENT OF VR

● Use vibration exciter J15317 to make adjustment according to instructions as shown on the computer display.

ADJUSTMENT OF BATTERY CHECK VOLTAGE

Standard:

4.4±0.15 [V]	Battery power indicator on LCD blinks.
4.1±0.15 [V]	LCD gone out and shutter release lock.

INSPECTION AND ADJUSTMENT OF BACK FOCUS

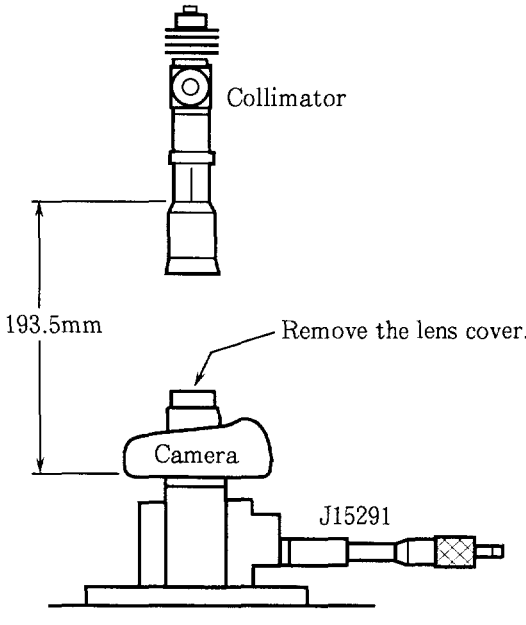
● Inspection and adjustment using personal computer

Address space is provided in the EEPROM to write lens back shift adjusting values from ZONE's 1 to 15.

Back focus adjustment can be made by reading the values from ZONE's 1 to 15 using FFD adjustment micro stand J15291. Then enter the values into the personal computer and make adjustment.

With the above method, conventional front lens rotating method is no longer necessary.

● Inspection using manual inspection mode (no adjustment is possible.)



Attention: When making inspection and adjustment of back focus, be sure to remove the lens cover (filter).

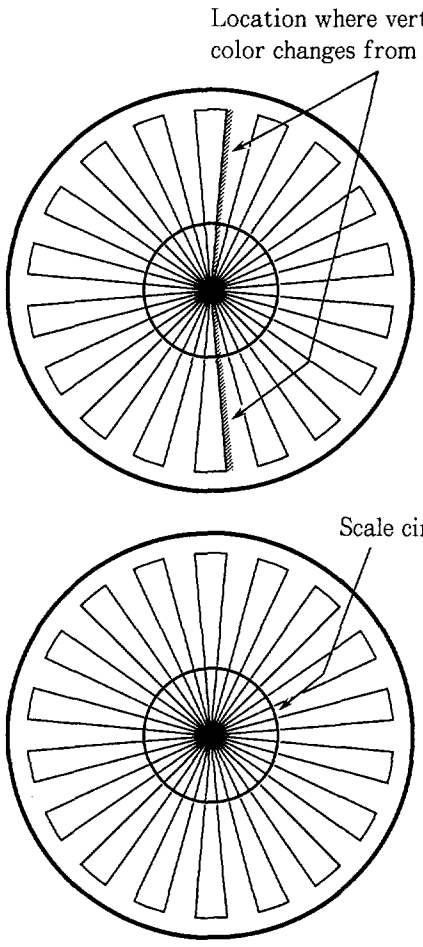
① Turn the objective lens of the collimator to set the scale to "0". After this, do not turn the objective lens.

② Set the displayed value of the FFD adjustment micro stand J15291 to "0". Refer to the tool instruction for the method of setting.

③ Set the zoom switch to "W" or "T" side to set to the camera to ZONE15 while setting the camera to ZONE1 (Tele end), bulb mode, infinity focus, and turning VR operation OFF.

Remove your fingers from the camera buttons and press the zoom switch to move the lens barrel forward to ZONE15.

*For details, refer to the "manual inspection mode" in "specifications" in the repair manual.



④ Rotate the spindle of the tool J15291 to focus the collimator and read the value of tool J15291. Focus the collimator when the screen color of the collimator changes from blue to red. (Refer the figure on the left.)

*When it is difficult to determine the change of color, read the value at the in-focus position in the scale circle.

⑤ Make inspections from ZONE14 to ZONE1 in the same way as described in the items ③ to ④.

*Repeat inspection three times for each ZONE.

⑥ When the result values are out of the standard values, be sure to make back focus inspection using a personal computer.

Back focus standard table

ZONE	Standard value (μm)	Tolerance (μm)
1 (TELE end)	－25	＋200 ～－250
2	＋90	＋280 ～－100
3	＋80	＋270 ～－110
4	＋60	＋240 ～－120
5	＋50	＋220 ～－120
6	＋30	＋190 ～－130
7	＋20	＋180 ～－140
8	0	＋150 ～－150
9	－5	＋110 ～－120
10	＋30	＋170 ～－110
11	＋50	＋180 ～ －80
12	＋60	＋180 ～ －60
13	＋80	＋190 ～ －30
14	＋100	＋210 ～ －10
15 (WIDE end)	＋110	＋210 ～ －10

When replacing a part listed below, some adjustment and inspection may be required

Item to be check and adjusted / Parts replaced	AE	AF	VR	Back focus	Lens barrel SW	Parallax	Modification of specifications for QD model
AF sensor unit	○	○	○	○ *1	○		○ *2
Zooming motor FPC		○				○	
Focus FPC	○	○		○	○	○	
Main FPC		○					
Date FPC	○	○				○	
Shutter unit	○	○		○	○	○	
Shutter FPC	○	○		○	○	○	
Viewfinder unit		○				○	
AVD base plate		○	○				
VR mechanism unit	○	○		○	○	○	
Focus mechanism unit	○	○		○	○	○	
Lens barrel SW	○	○		○	○		

*1: When replacing the AF sensor unit, no adjustment is necessary if the old data in the original AF sensor unit is read out and written in the new AF sensor unit.

*2: • AF sensor unit is provided for QD models. When the AF sensor unit is mounted in the camera with no QD function, be sure to select the "Modification of specifications for QD model" in the checking and adjustment programs, and modify the specifications for non-QD model.

• Two types of LCD's are available for QD model and non-QD model. There is no compatibility between them. A red circle is painted on the LCD for QD model.

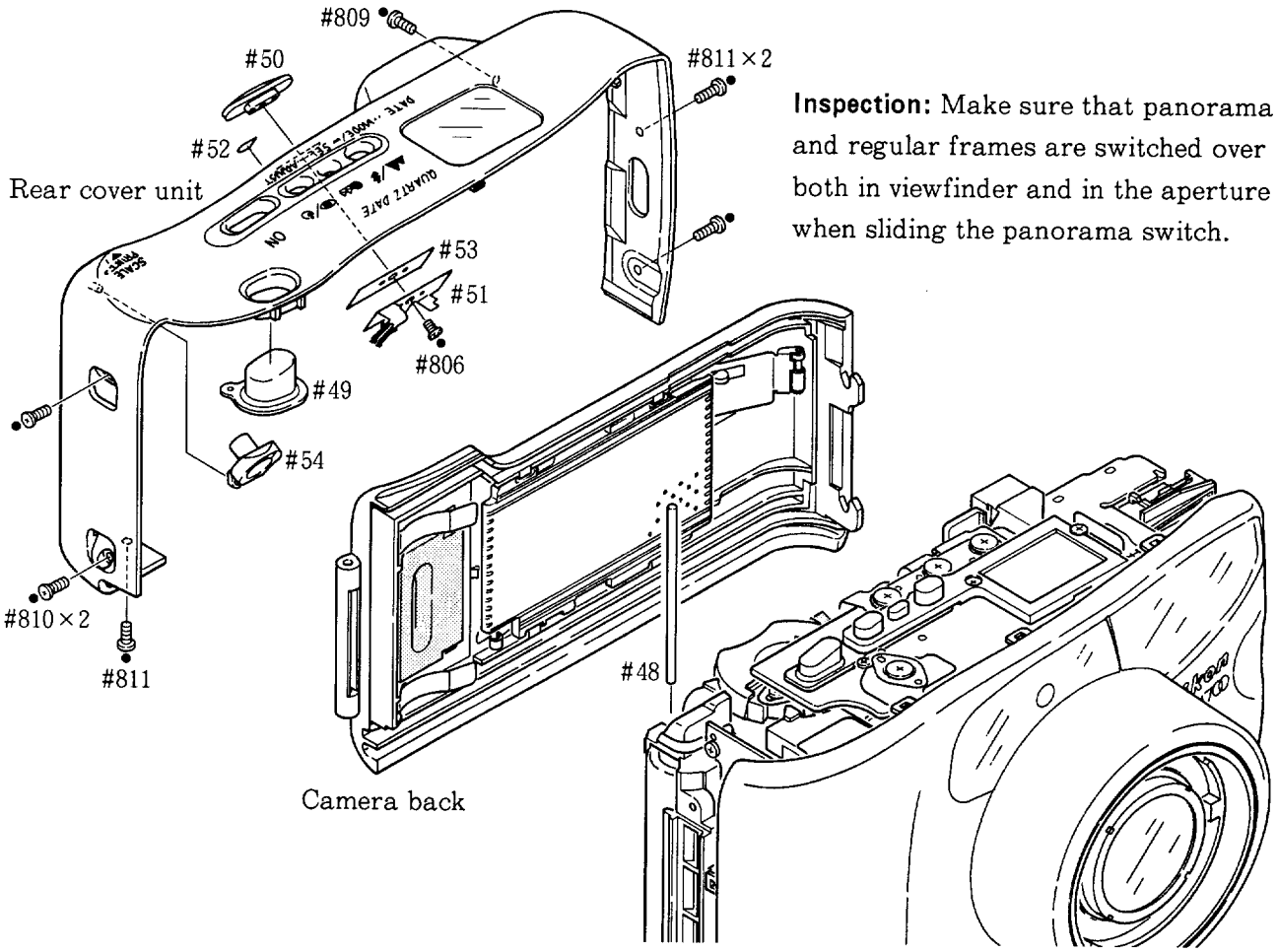
Notes:

① When the front cover is removed, be sure to make an AF inspection and adjustment.

② When AVD base plate is detached or attaching screws are unfastened, be sure to make a VR adjustment.

③ When the viewfinder unit is removed or mounting screws are unfastened, be sure to make a parallax adjustment.

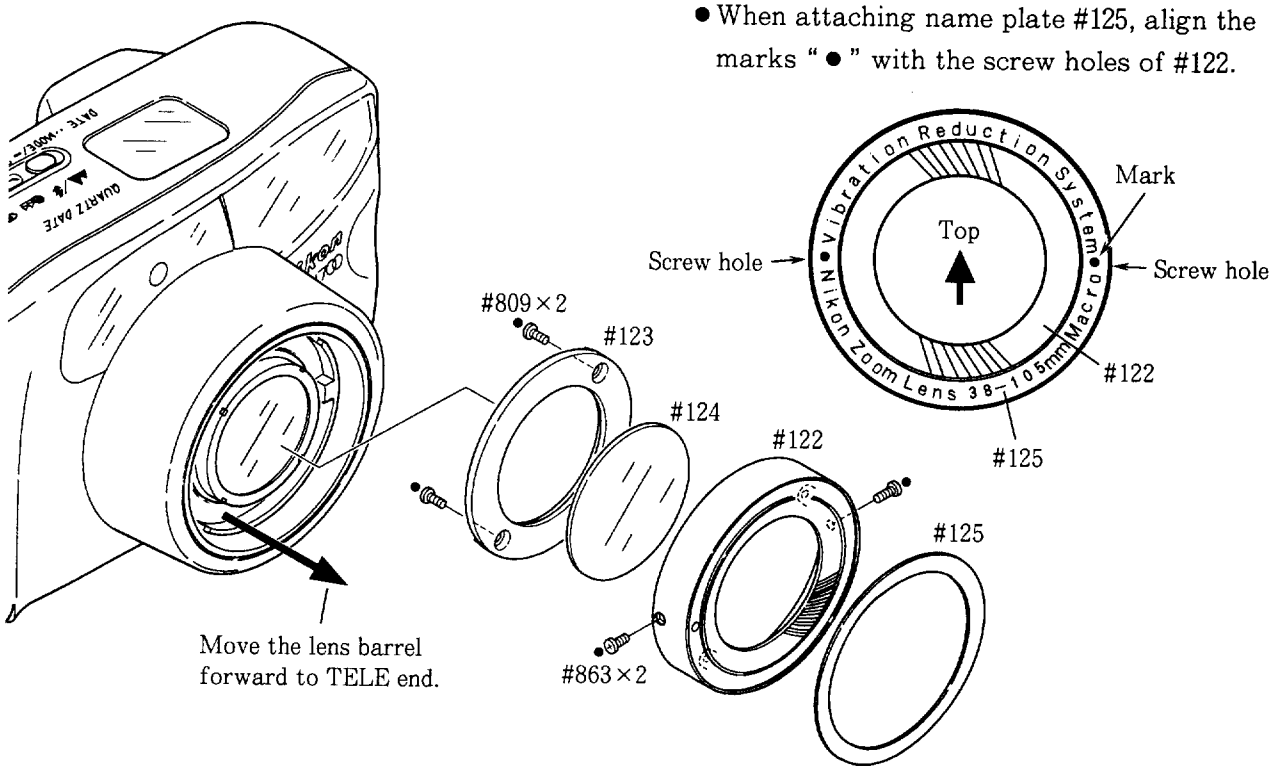
CAMERA BACK, REAR COVER UNIT



Inspection: Make sure that panorama and regular frames are switched over both in viewfinder and in the aperture when sliding the panorama switch.

LENS COVER GROUP

● When attaching name plate #125, align the marks "●" with the screw holes of #122.



FCA25001－R.3355.A

作成承認印	配布許可印
ニコン カメラ サービス部 GM	パーツ センター M

ZOOM700VR FCA25001

ZOOM700VR QD FCA25201

Zoom Touch 105VR QD FCA25301

PARTS LIST

修 理 部 品 表

Nikon | NIKON CORPORATION
Tokyo, Japan

Printed in Japan April 1994

FCA25001-R. 3355. A

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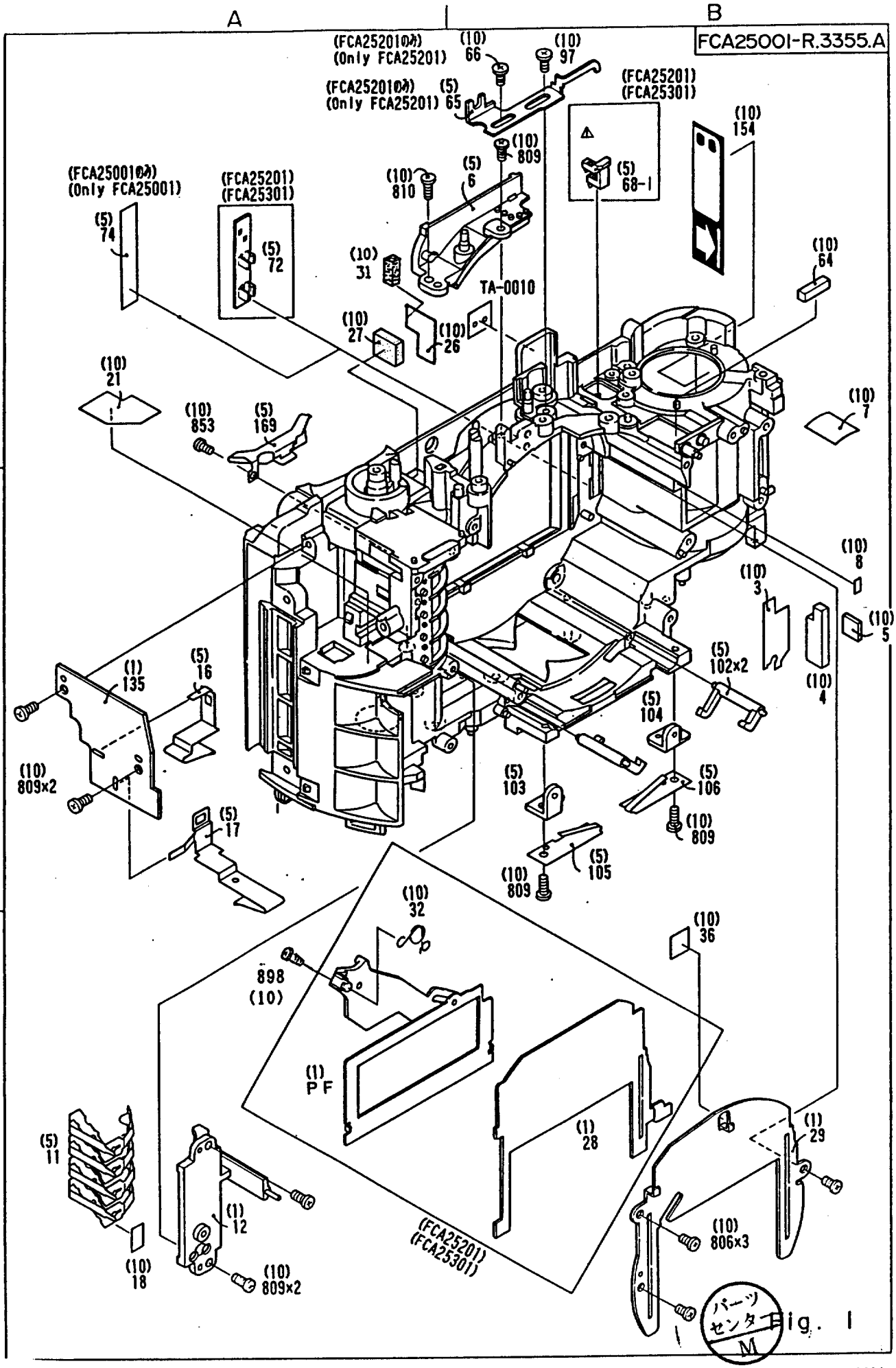
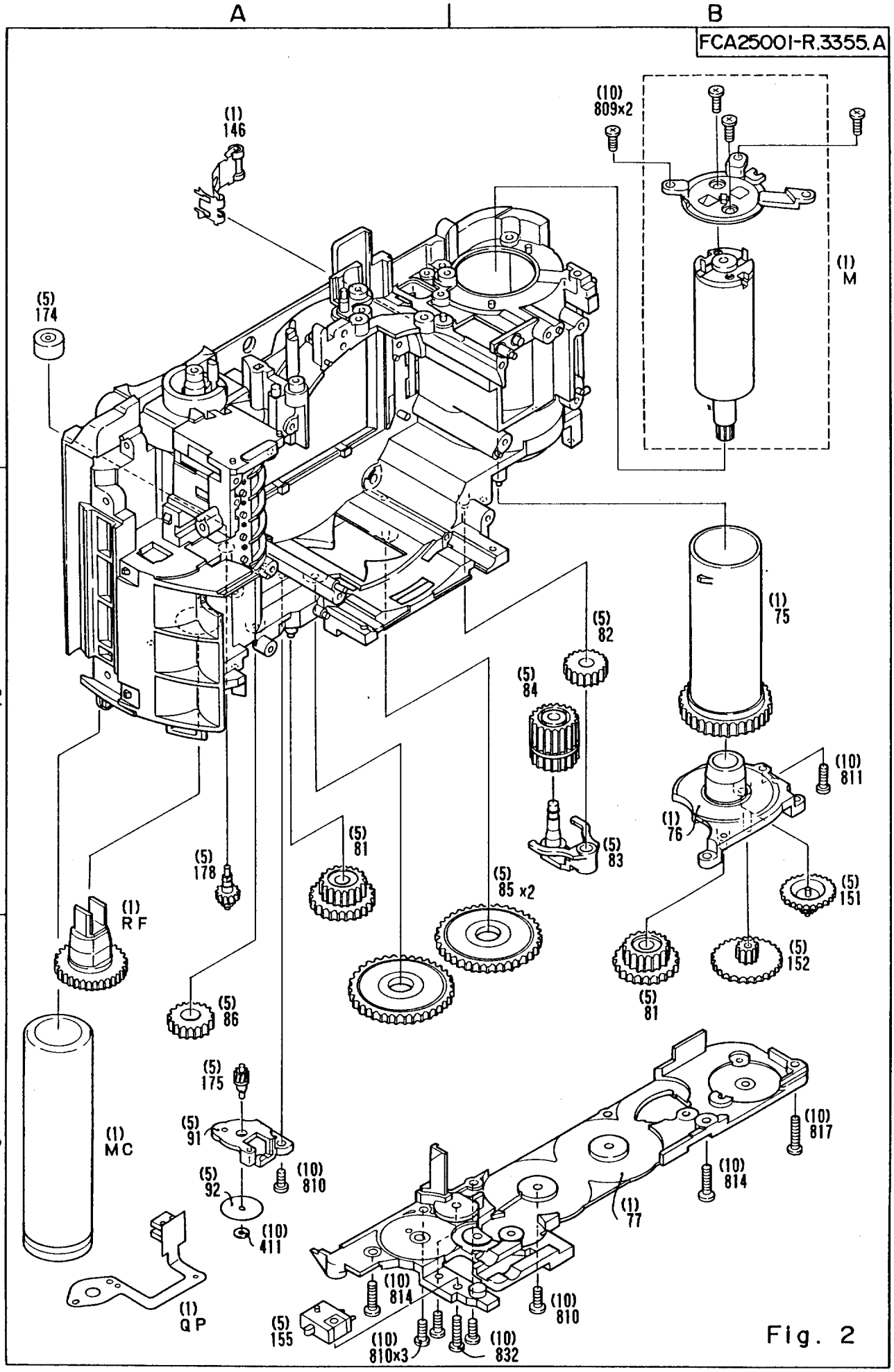


Fig. 1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76
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RF
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86
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175
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MC
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817
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810
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92
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814
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810x3
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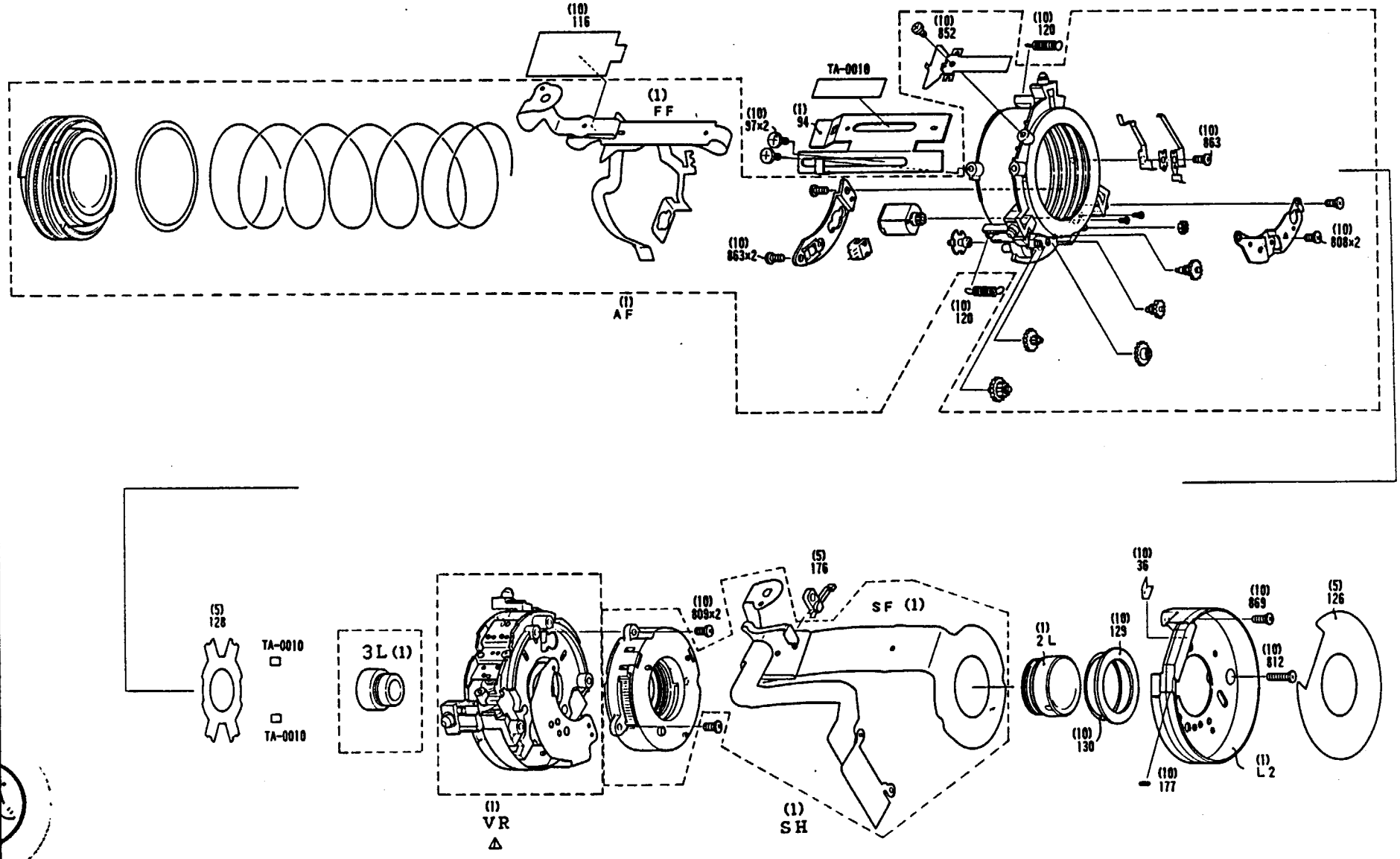
Fig. 2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L2
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VR
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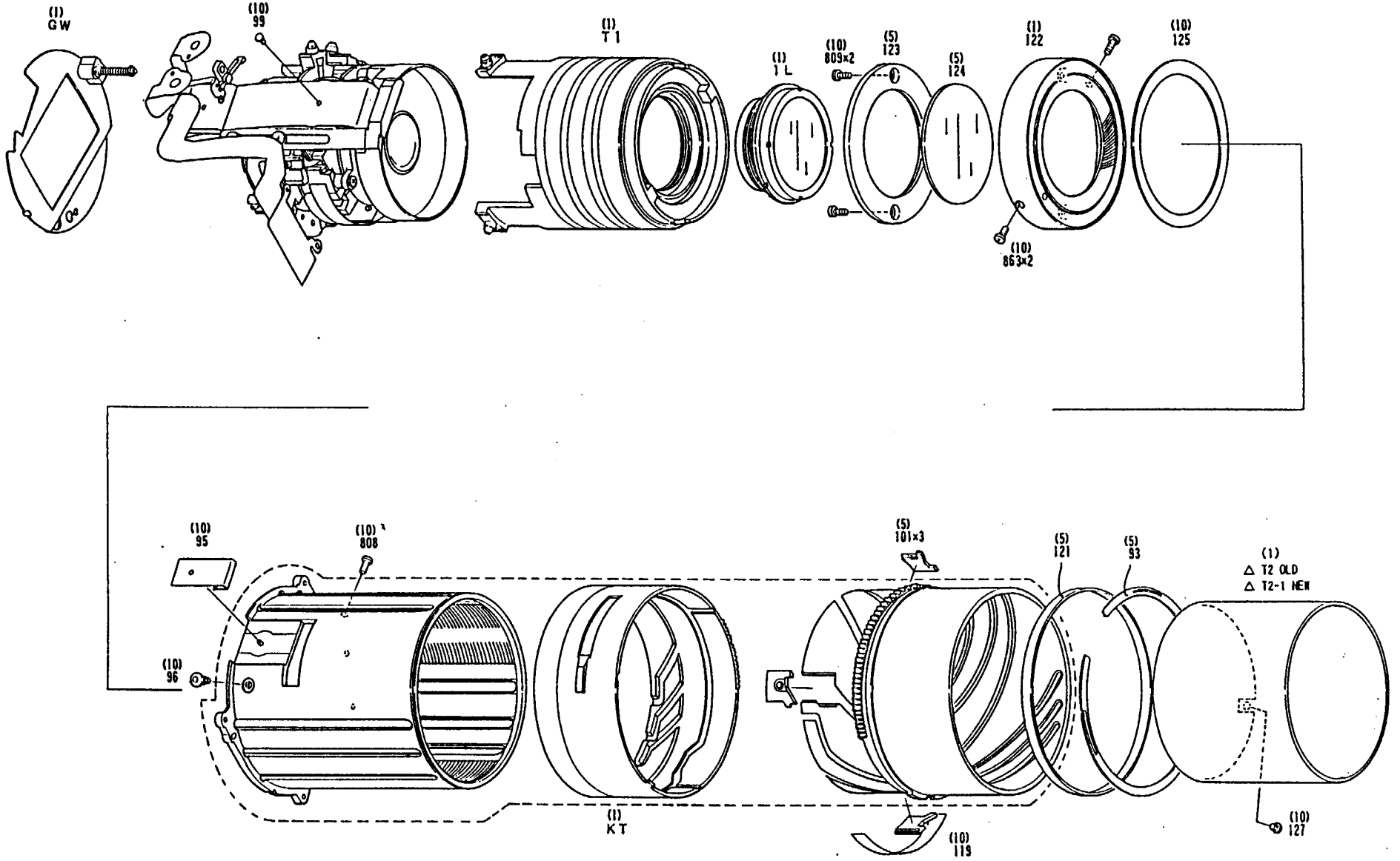
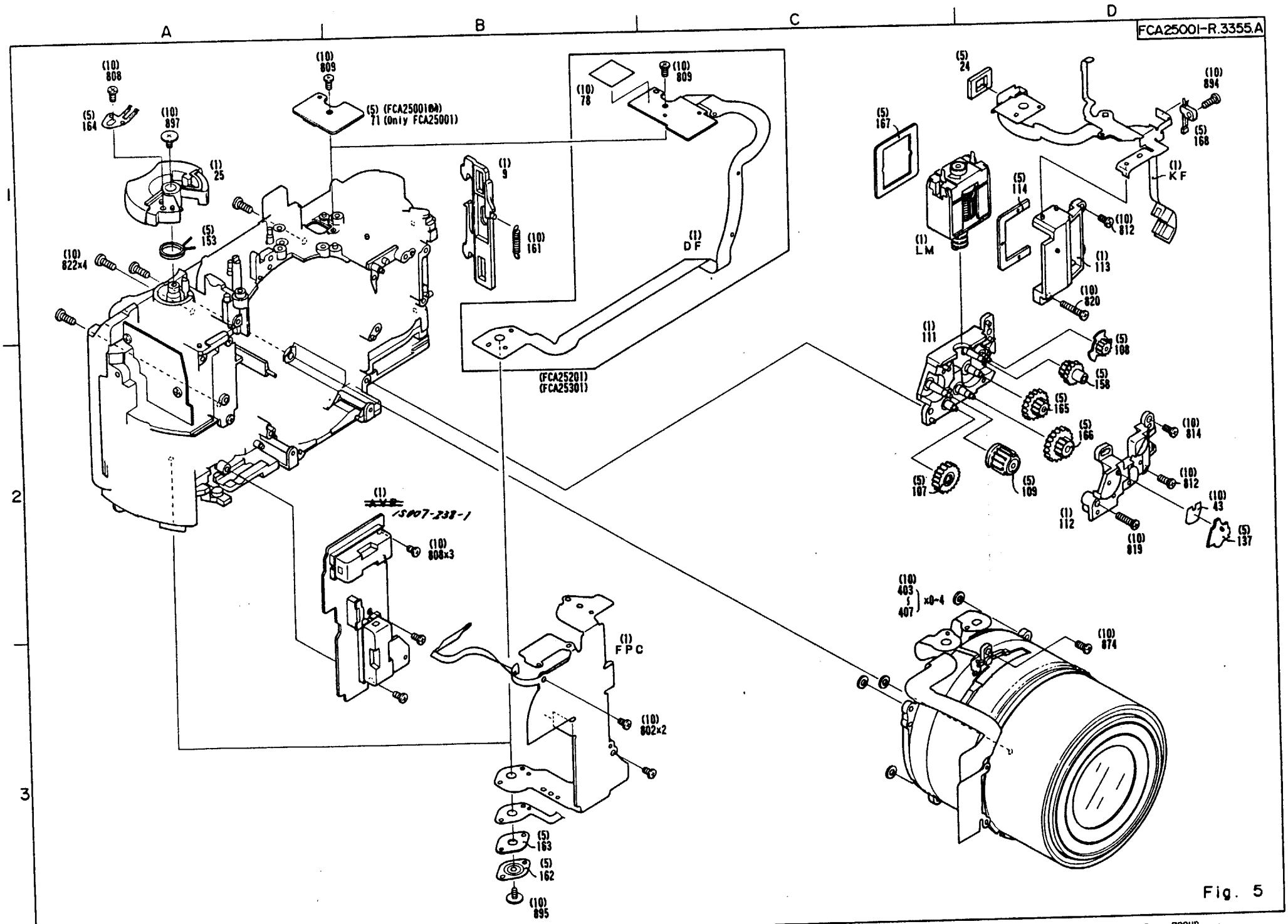
SH

Fig. 3



パーツセンター

Fig. 4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B
C
D
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2
3
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(5) 164
(10) 897
(1) 25
(5) 153
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(10) 809
(5) (FCA25001B4) 71 (Only FCA25001)
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(10) 78
(10) 809
(1) DF
(FCA25201) (FCA25301)
(1) S007-238-1
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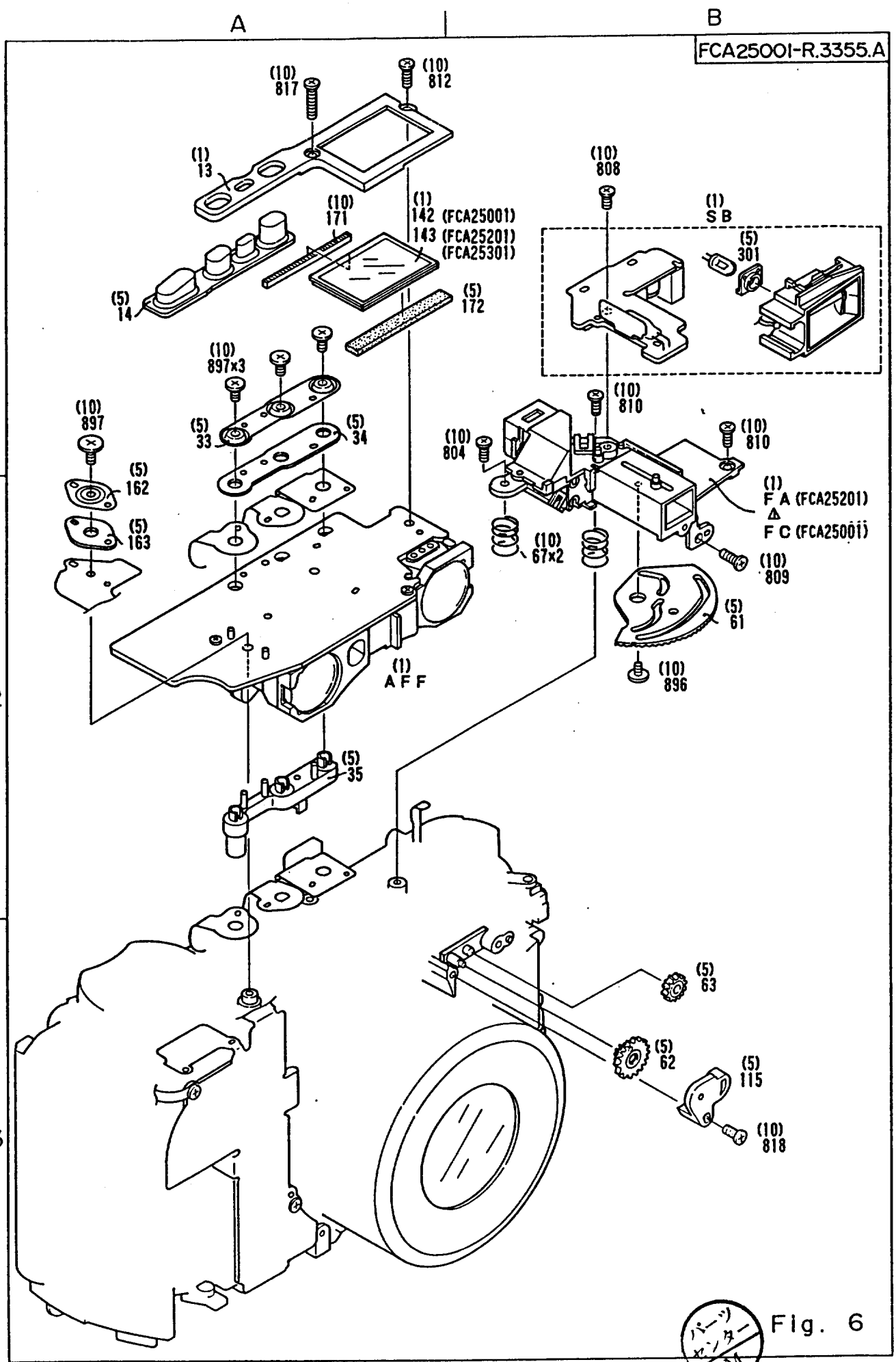
Fig. 5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B
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143 (FCA25201)
(FCA25301)
(5) 14
(5) 172
(10) 808
(1) S B
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(5) 34
(10) 897
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(5) 163
(10) 810
(10) 804
(10) 810
(1) F A (FCA25201)
⚠
F C (FCA25001)
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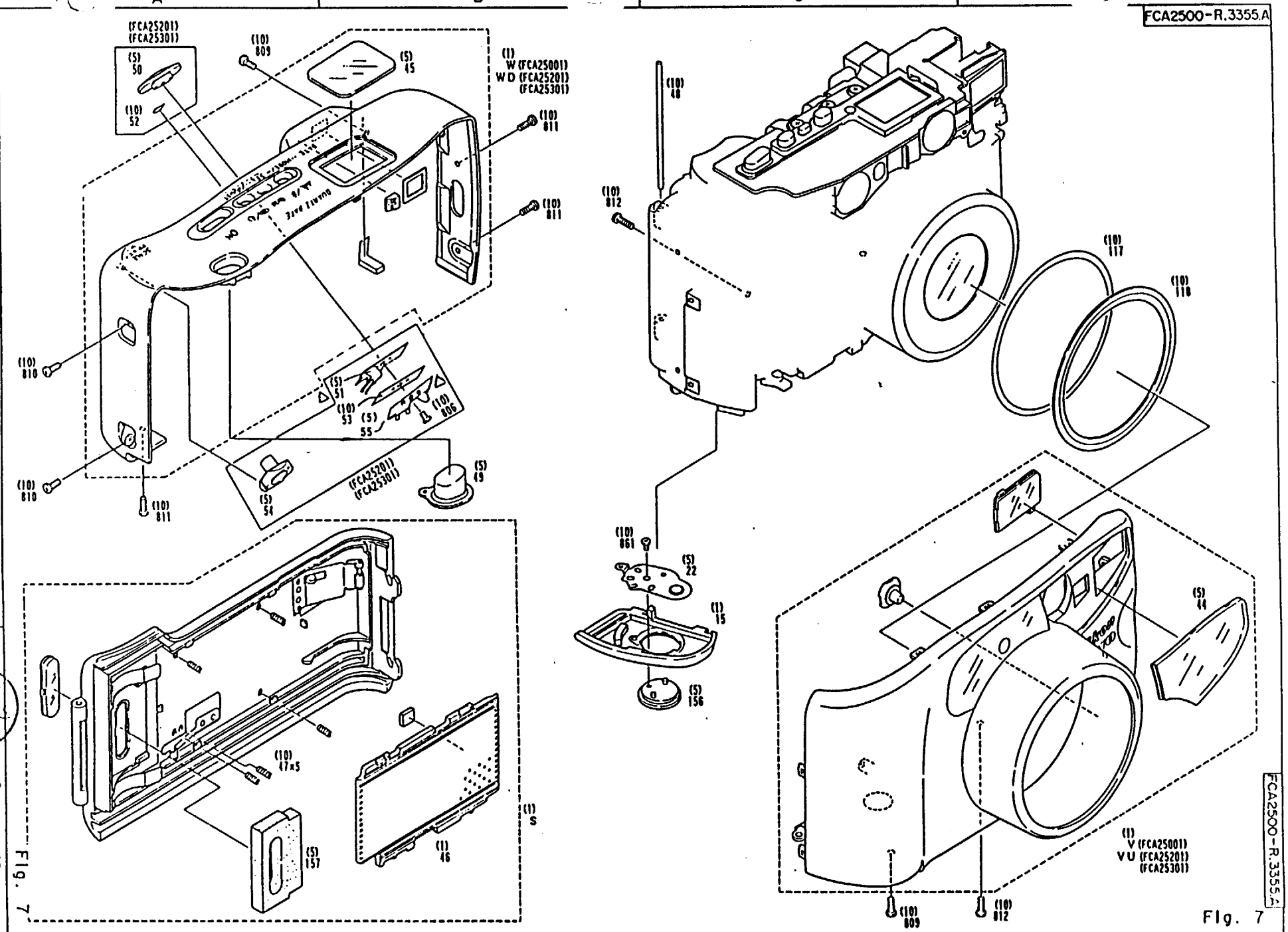
Fig. 6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(1) V (FCA25001) VU (FCA25201) (FCA25301)
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(10) 812
(10) 47×5
(5) 157
(1) 46
(1) S
FCA2500-R.3355.A

Fig. 7

Fig. 7

部品表 Parts List

FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
3 (FCA25001-3)		DMシート Sheet , DM	1		1-B2	○		10
4 (FCA25001-4)		DMモルト 1 Sponge 1 , DM	1		1-B2	○		10
5 (FCA25001-5)		DMモルト 2 Sponge 2 , DM	1		1-B2	○		10
6 (FCA25001-6)		穴隠し板 Shield plate	1		1-B1	○		5
7 (FCA25001-7)		Z8シート Sheet , Z8	1		1-B1	○		10
8 (FCA25001-8)		目隠しシート Shield sheet	1		1-B2	○		10
9 (FCA25001-9)		鍵板 Plate , lock cover key	1		5-B1	○		1
11 (FCA25001-11)		DX接片 DX contact	4		1-A3	○		5
12 (FCA25001-12)		DXカバー DX cover	1		1-A3	○		1
13 (FCA25001-13)		LCDカバー板 LCD cover	1		6-A1	○		1
14 (FCA25001-14)		モード釦 Function button	1		6-A1	○		5
15 (FCA25001-15)		電池蓋カバー Cover , Battery chamber lid	1		7-C3	○		1
16 (FCA25001-16)		電池接片 1 Battery contact 1	1		1-A2	○		5
17 (FCA25001-17)		電池接片 2 Battery contact 2	1		1-A2	○		5
18 (FCA25001-18)		電池部絶縁テープ Insulation tape. Battery chamber	1		1-A3	○		10
21 (FCA25001-21)		電池部遮光テープ Light baffle tape , Battery chamber	1	V	1-A1	○		10
22 (FCA25001-22)		電池蓋クリック板 Click plate , Battery chamber lid	1		7-C3	○		5
23 (FCA25001-23)		両面テープ Double sided adhesive tape , LED	1		1-B1	×	TA-0010	1 roll

部品表 Parts List

FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
24 (FCA25001-24)		LEDモルト Sponge . LED	1		5-D1	○		5
25 (FCA25001-25)		ズーム作動レバー Zooming lever	1		5-A1	○		1
26 (FCA25001-26)		ZT遮光 Light baffle . ZT	1		1-A1	○		10
27 (FCA25001-27)		ZTモルト Sponge . ZT	1		1-A1	○		10
29 (FCA25001-29)		パノラマ枠押さえ Retainer panorama frame	1		1-B3	○		1
△ 31 (FCA25001-31)		ZTモルト 2 Sponge 2 . ZT	1		1-A1	○		10
33 (FCA25001-33)		FPC押さえ板 Retainer FPC plate	1		6-A1	○		5
34 (FCA25001-34)		FPC押さえゴム Retainer FPC rubber	1		6-A1	○		5
35 (FCA25001-35)		FPC受け板 Accepter plate . FPC	1		6-A2	○		5
36 (FCA25001-36)		パノラマレバー隠し板 Shield cover . panorama lever	2		1-B3 3-D3	○		10
43 (FCA25001-43)		VR固定テープ Fixed tape . VR	1		5-D2	○	D無し専用 Exclusive none data camera	10
44 (FCA25001-44)		プロテクター Diffusor	1	V	7-D3	○△		5
45 (FCA25001-45)		LCD窓 Window . LCD	1	W. WD	7-B1	○△		5
46 (FCA25001-46)		圧板 Film pressure plate	1	S	7-B3	○△		1
47 (FCA25001-47)		圧板バネ Spring . Film pressure plate	5	S	7-A3 7-B3	○△		10
48 (FCA25001-48)		蝶板軸 Shaft . Hinge	1		7-C1	○		10
49 (FCA25001-49)		シャッター釦 Shutter release button	1		7-B2	○		5
61 (FCA25001-61)		ファインダーカム板 Cam plate . Finder	1		6-B2	○		5

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部品表 Parts List

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部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
62 (FCA25001-62)		ギヤ F1−2 F-gear 1-2	1		6-B3	○		5

Please insert this sheet between P2 and P3 （P２とP３の間に入れて下さい）

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部品表 Parts List

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部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
63 (FCA25001-63)		ギヤ F3 F-gear 3	1		6-B3	○		5
64 (FCA25001-64)		Fモルト Sponge . F	1		1-B1	○		10
67 (FCA25001-67)		ファインダーバネ Spring . Finder	2		6-B2	○		10
71 (FCA25001-71)		データー部蓋板 Shield plate . Project data	1		5-B1	○	D無し専用 Exclusive none data camera	5
74 (FCA25001-74)		データーマスク隠し板 Shield plate . Project data	1		1-A1	○	D無し専用 Exclusive none data camera	5
75 (FCA25001-75)		スプール Spool	1		2-B2	○		1
76 (FCA25001-76)		スプール下受け板 Lower plate . Spool	1		2-B2	○		1
77 (FCA25001-77)		ギヤトレイン下板 Bottom base plate . Gear train	1		2-B3	○		1
81 (FCA25001-81)		ギヤ 6－7 Gear 6-7	2		2-A2 2-B3	○		5
82 (FCA25001-82)		ギヤ 8 Gear 8	1		2-B2	○		5
83 (FCA25001-83)		ギヤ 8アーム Catch stand . Gear 8	1		2-B2	○		5
84 (FCA25001-84)		ギヤ 9 Gear 9	1		2-B2	○		5
85 (FCA25001-85)		ギヤ 11 Gear 11	2		2-A3	○		5
86 (FCA25001-86)		ギヤ 15 Gear 15	1		2-A3	○		5
91 (FCA25001-91)		給送ギヤ地板 Gear base plate . Film winding/ rewinding	1		2-A3	○		5
92 (FCA25001-92)		QPエンコーダ Photo interrupter disk	1		2-A3	○		5
93 (FCA25001-93)		カム筒リング Ring . Cam tube	1		4-D3	○		5
94 (FCA25001-94)		FPC支持板 Support plate . FPC	1		3-C1	○		1

部品表 Parts List　　FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salabil-ity	備考 Remarks	要求単位 Order Unit Q'ty
95 (FCA25001-95)		シャッター押さえ板 Retainer plate, Shutter	1		4-A2	○		10
96 (FCA25001-96)		支持板受けピン Support pin	1		4-A3	○		10
97 (FCA25001-97)		段付きビス Shoulder screw	3		1-B1 3-C1	○		10
99 (FCA25001-99)		FPC固定ピン Fixed pin, FPC	1		4-A1	○		10
101 (FCA25001-101)		リフトコマ Lift plate	3		4-C3	○		5
102 (FCA25001-102)		クラッチレバー Clutch lever	2		1-B2	○		5
103 (FCA25001-103)		クラッチ押さえ板 1 Retainer plate 1, Clutch lever	1		1-B2	○		5
104 (FCA25001-104)		クラッチ押さえ板 2 Retainer plate 2, Clutch lever	1		1-B2	○		5
105 (FCA25001-105)		クラッチバネ 1 Spring 1, Clutch lever	1		1-B2	○		5
106 (FCA25001-106)		クラッチバネ 2 Spring 2, Clutch lever	1		1-B2	○		5
107 (FCA25001-107)		ギヤ L8 L-Gear 8	1		5-C2	○		5
108 (FCA25001-108)		ギヤ L9 L-Gear 9	1		5-D2	○		5
109 (FCA25001-109)		ギヤ L10 L-Gear 10	1		5-D2	○		5
111 (FCA25001-111)		レンズ駆動ギヤ下受け板 Lower base plate, Moving lens gear	1		5-D2	○		1
112 (FCA25001-112)		レンズ駆動ギヤ上受け板 Upper base plate, Moving lens gear	1		5-D2	○		1
113 (FCA25001-113)		レンズ駆動モーター押さえ Retainer frame, Lens motor	1		5-D1	○		1
114 (FCA25001-114)		レンズ駆動モーター上ゴム Upper rubber, Lens motor	1		5-D1	○		5
115 (FCA25001-115)		ファインダーギヤ押さえ Retainer gear, Finder	1		6-B3	○		5

部品表 Parts List

FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
116 (FCA25001-116)		FPC保護テープ Protection tape . FPC	1		3-B1	○		10
117 (FCA25001-117)		遮光カーテン Light baffle curtain	1		7-D1	○		10
118 (FCA25001-118)		遮光カーテン押さえ環 Retainer ring . Light baffle curtain	1		7-D1	○		10
119 (FCA25001-119)		ズームシート Zoom sheet	1		4-C3	○		10
120 (FCA25001-120)		2-3群バネ Spring . 2-3 lens	2		3-C1 3-C2	○		10
121 (FCA25001-121)		カム筒カラーリング Color ring . Cam tube	1		4-D3	○		5
122 (FCA25001-122)		前飾り環 Front decoration ring	1		4-C1	○		1
123 (FCA25001-123)		保護ガラス押さえ板 Protection glass retainer plate	1		4-C1	○		5
124 (FCA25001-124)		保護ガラス Protection glass	1		4-C1	○		5
125 (FCA25001-125)		銘板 Name plate	1		4-D1	○		10
126 (FCA25001-126)		シャッター隠し板 Shutter shield plate	1		3-D3	○		5
127 (FCA25001-127)		バリヤビス Screw . Lens cover	1		4-D3	○		10
128 (FCA25001-128)		固定絞り Fixed aperture	1		3-A3	○		5
129 (FCA25001-129)		遮光モルト Sponge . Light baffle	1		3-D3	○		10
130 (FCA25001-130)		遮光シート Sheet . Light baffle	1		3-D3	○		10
135 (FCA25001-135)		DC-DC基板 DC-DC base plate	1		1-A2	○		1
137 (FCA25001-137)		VR固定基板 Fixed base plate . VR	1		5-D2	○		5
142 (FCA25001-142)		LCD LCD	1		6-A1	○	D無し専用 Exclusive none data camera	1

部品表 Parts List

FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
146 (FCA25001-146)		フイルム押さえレバー Film retaining lever	1		2-A1	○		1
151 (FCA25001-151)		ギヤ 2－3 Gear 2-3	1		2-B2	○		5
152 (FCA25001-152)		ギヤ 4－5 Gear 4-5	1		2-B3	○		5
153 (FCA25001-153)		ズーム作動レバーバネ Spring , Zoom lever	1		5-A1	○		5
* 154 (FCA11001-233)		フイルム先端位置シール Film leader position index	1		1-B1	○		10
* 155 (FCA11001-241)		ユニットスイッチ Unit switch	1		2-A3	○		5
* 156 (FCA12001-126)		コインスロット Coin slot	1		7-C3	○		5
* 157 (FCA12001-110)		パトローネ押さえモルト Sponge , Retainer patorone	1	S	7-A3	○△		5
* 158 (FCA12001-679)		ギヤ L2－3 L-Gear 2-3	1		5-D2	○		5
161 (FCA25001-161)		蓋バネ Spring , Lock cover key	1		5-B1	○		10
162 (FCA25001-162)		圧接板 Press-contact plate	2		5-B3 6-A2	○		5
163 (FCA25001-163)		圧接ゴム Press-contact rubber	2		5-B3 6-A2	○		5
164 (FCA25001-164)		ズーム切り換えスイッチ Switch , Zoom change	1		5-A1	○		5
165 (FCA25001-165)		ギヤ L4－5 L-Gear 4-5	1		5-D2	○		5
166 (FCA25001-166)		ギヤ L6－7 L-Gear 6-7	1		5-D2	○		5
167 (FCA25001-167)		レンズ駆動モーター防振ゴム Cushion rubber , Lens moving motor	1		5-C1	○		5
168 (FCA25001-168)		BCAスイッチ Switch , BCA	1		5-D1	○		5
* 169 (FCA20001-28)		パトローネ押さえ Retainer plate , Patorone	1		1-A1	○		5

部品表 Parts List

FCA25001-R. 3355. A

部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
* 171 (FCA20001-42)		エラステイックコネクター Elastic connector	1		6-A1	○		10
* 172 (FCA20001-43)		LCDモルト Sponge , LCD	1		6-A1	○		5
* 174 (FCA23001-74)		フイルム給送ドラム Film winding/rewinding drum	1		2-A1	○		5
* 175 (FCA23001-76)		給送ギヤ 2 Film winding/rewinding gear 2	1		2-A3	○		5
176 (FCA25001-176)		鏡筒スイッチ Lens switch	1		3-C3	○		5
177 (FCA25001-177)		ガタ防止板 Plate , play prevention	1		3-D3	○		10
* 178 (FCA23001-75)		給送ギヤ 1 Film winding/rewinding gear 1	1		2-A2	○		5
△ ~~179~~ (FCA25001-179)		2群レンズピン 2nd lens pin	3		3-B3	○	部組VRとなる RP-9438	10
301 (FCA25001-301)		赤目ランプ Lamp , Prevent red eye	1	SB	6-B1	○△		5
~~403~~ (FCA25001-403)		調整ワッシャー t= 0.1 Washer	4		5-D3	○	量産で使用しない為廃止 RP-9416	10
~~404~~ (FCA25001-404)		調整ワッシャー t= 0.2 Washer	4		5-D3	○	量産で使用しない為廃止 RP-9416	10
405 (FCA25001-405)		調整ワッシャー t= 0.3 Washer	4		5-D3	○	基準ワッシャー Standard washer	10
406 (FCA25001-406)		調整ワッシャー t= 0.4 Washer	4		5-D3	○		10
407 (FCA25001-407)		調整ワッシャー t= 0.5 Washer	4		5-D3	○		10
411 (FCA25001-411)		QP部ワッシャー Washer , QP	1		2-A3	○		10
621 (FCA25001-621)		両面テープ Double sided adhesive tape	2		3-A3	×	TA-0010	1 roll
622 (FCA25001-622)		両面テープ Double sided adhesive tape	1		3-C1	×	TA-0010	1 roll

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部品表 Parts List

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部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
802 (FCA25001-802)		SCREW BL1.4X3B	2		5-B3	○		10
804 (FCA25001-804)		SCREW BL1.4X4B	1		6-B1	○		10
806 (FCA25001-806)		SCREW BL1.7X2.5B	4		1-B3 7-B2	○		10
808 (FCA25001-808)		SCREW BL1.7X3B	8		3.4 5.6 7	○		10
809 (FCA25001-809)		SCREW BL1.7X3.5B	18		1~7	○		10
810 (FCA25001-810)		SCREW BL1.7X4B	10		1.2 6.7	○		10
811 (FCA25001-811)		SCREW BL1.7X4.5B	4		7-A2 7-B1 2-B2	○		10
812 (FCA25001-812)		SCREW BL1.7X5B	6		3.5 6.7	○		10
814 (FCA25001-814)		SCREW BL1.7X6B	3		2-A3 2-B3 5-D2	○		10
817 (FCA25001-817)		SCREW BL1.7X8B	2		2-B3 6-A1	○		10
818 (FCA25001-818)		SCREW BL1.7X9B	1		6-B3	○		10
819 (FCA25001-819)		SCREW BL1.7X10B	1		5-D2	○		10
820 (FCA25001-820)		SCREW BL1.7X12B	1		5-D1	○		10
822 (FCA25001-822)		SCREW BL2.0X4.5B	4		5-A1	○		10
832 (FCA25001-832)		SCREW BL1.6X7B	1		2-B3	○		10
852 (FCA25001-852)		SCREW BM1.4X2B	1		3-C1	○		10
853 (FCA25001-853)		SCREW BM1.4X2.5B	1		1-A1	○		10
861 (FCA25001-861)		SCREW BL1.7X1.8B	1		7-C2	○		10

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	部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
	863 (FCA25001-863)		SCREW BM1.7X3.5B	5		3-D1 3-C1 4-C1	○		10
	869 (FCA25001-869)		SCREW BM1.7X8.5B	1		3-D3	○		10
	874 (FCA25001-874)		SCREW BM2.0X4B	1		5-D3	○		10
	894 (FCA25001-894)		SCREW 9100143 特殊	1		5-D1	○		10
	895 (FCA25001-895)		SCREW 9100102 特殊	1		5-B3	○		10
	896 (FCA25001-896)		SCREW 9100105 特殊	1		6-B2	○		10
	897 (FCA25001-897)		SCREW 9100111 特殊	5		5-A1 6-A1	○		10
△	＊ 898 (FCA17001-855)		SCREW 9100096 特殊	1		1-A3	○		10

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部組品表 Assembly List

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	部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	大部組品番号 Main assembly No	参照図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
	1L (FCA25001-1L)		1群レンズ部組 1st lens group unit	1		4-C1		1
	2L (FCA25001-2L)		2群レンズ部組 2nd lens group unit	1		3-C3		1
	3L (FCA25001-3L)		3群レンズ部組 3rd lens group unit	1		3-C3		1
	AF (FCA25001-AF)		フォーカス駆動部組 Focus unit	1		3-A.B C.D		1
	AFF (FCA25001-AFF)		AF部組 AF unit	1		6-A2		1
△	~~1B060-568~~	AVD	VR部組 VR unit	1		3-B3	廃止: 部組構成変更による RP-9438	1
△	VR	AVD	VR部組 VR unit	1		3-B3	部組構成変更による (1B060-568 + #179) RP-9438	1
	1S007-238-1	AVP	VRセンサー部組 Senser unit , VR	1		5-B2		1
	FC (FCA25001-FC)		ファインダーC部組 Finder unit C	1		6-B2	FCA25001 Pなし	1
	FF (FCA25001-FF)		フォーカスFPC部組 FPC , Focus	1	AF	3-B1		1
	FPC (FCA25001-FPC)		メインFPC部組 Main FPC	1		5-B3		1
	GW (FCA25001-GW)		ガイド枠部組 Guide frame unit	1		4-A1		1
	KF (FCA25001-KF)		鏡筒フレキ部組 FPC , Lens	1		5-D1		1
	KT (FCA25001-KT)		筒セット Tube set	1		4-A 4-B 4-C		1
	LM (FCA25001-LM)		レンズ駆動モーター部組 Motor unit , Lens	1		5-C1		1
	L2 (FCA25001-L2)		2群遮光筒部組 Light baffle tube unit , 2nd group lens	1		3-D3		1

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部組品表 Assembly List

FCA25001-R. 3355. A

	部品番号 Part No.	補助番号 Ckt No	名称 Name	1台分個数 Q'ty Per Unit	大部組品番号 Main assembly No	参照図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
	M (FCA25001-M)		W/Rモーター部組 Winding/Rewinding motor unit	1		2-B1		1
	MC (FCA25001-MC)		メインコンデンサー Main condenser	1		2-A3		1
	QP (FCA25001-QP)		QPフレキ部組 FPC . QP	1		2-A3		1
	RF (FCA25001-RF)		巻戻しフォーク部組 Rewind fork unit	1		2-A3		1
	S (FCA25001-S)		裏蓋部組 Camera back unit	1		7-A3 7-B3		1
	SB (FCA25001-SB)		ストロボ部組 Speed light unit	1		6-B1		1
	SF (FCA25001-SF)		シャッターFPC部組 FPC . Shutter	1	SH	3-C3		1
	SH (FCA25001-SH)		シャッター部組 Shutter unit	1		3-B3		1
	T1 (FCA25001-T1)		1群筒部組 1st tube unit	1		4-B1		1
△	T2 (FCA25001-T2)		2群筒部組 2nd tube unit	1		4-D3	RP-9438 RP-9572	1
△	T2-1 (FCA25001-T2-1)		2群筒部 2nd tube	1		4-D3	部組構成変更による RP-9438 RP-9572	1
	V (FCA25001-V)		前カバー部組 Front cover unit	1		7-C3 7-D3		1
	W (FCA25001-W)		後カバー部組 Rear cover unit	1		7-A1 7-A2 7-B1		1

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AUG. 28. 1995

部品表 Parts List

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	部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
	28 (FCA25201-28)		パノラマ枠 2 Frame 2. Panorama	1		1-B3	○		1
	32 (FCA25201-32)		パノラマレバーバネ Spring. Panorama lever	1		1-B3	○		10
	50 (FCA25201-50)		パノラマレバー Lever. Panorama	1		7-A1	○		5
△	51 (FCA25201-51)		パノラマ切り換えスイッチ接片2 Switch contact2. Change panorama	1		7-B2	○	量産時形状変更により展開図訂正 RP-9475	5
	52 (FCA25201-52)		パノラマシート Sheet. Panorama	1		7-A1	○		10
	53 (FCA25201-53)		パノラマレバー部遮光板 Light baffle plate. Panorama lever	1		7-B2	○		10
	54 (FCA25201-54)		データー釦 Data button	1		7-A2	○		5
△	55 (FCA25201-55)		パノラマ切り換えスイッチ接片1 Switch contact1. Change panorama	1		1-B1	○	追加：#51形状変更による RP-9475	5
	65 (FCA25201-65)		パノラマ作動レバー Panorama change lever	1		1-B1	○		5
	~~66~~ (~~FCA25201-66~~)		段付きビス Shoulder screw	1		1-B1	○		10
	68 (FCA25201-68)		データー写し込み用プリズム Prism. Project data	1		1-B1	○	廃止：データ写し込み薄いによる RP-9438	5
	68-1 (FCA25201-68-1		データー写し込み用プリズム Prism. Project data	1		1-B1	○	追加：データ写し込み薄い対策 RP-9438	5
	~~72~~ (~~FCA25201-72~~)		データー枠板 Plate. Data frame	1		1-A1	○		5
	73 (FCA25201-73)		固定絞り （データー写し込み部） Fixed aperture. Project data	1		1-B1	○	廃止：データ写し込み薄い対策による RP-9438	5
	78 (FCA25201-78)		データーフレキ遮光テープ Light baffle tape. data	1	DF	5-B1	○△		10
	143 (FCA25201-143)		LCD （データー用） LCD-Data	1		6-A1	○	削除 RP-9438	1

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DEC. 6. 1994

部品組品表 Assembly List

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部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分個数 Q'ty Per Unit	大部組品番号 Main Assembly No.	参照図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
△ ~~FB~~ (~~FCA25301-FB~~)		ファインダーB組 Finder unit B	1		6-B2	廃止: 仕様変更による RP-9438	1
VU (FCA25301-VU)		前カバー部組 2 (USA) Front cover unit 2 . USA	1		7-C3 7-D3		1

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JUL. 12. 1994

部品表 Parts List

FCA25201-R. 3355. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分個数 Q'ty Per Unit	部組品番号 Assembly	参照図番 Fig. No.	販売区分 Class. of Salability	備考 Remarks	要求単位 Order Unit Q'ty
28 (FCA25201-28)		パノラマ枠 2 Frame 2 . Panorama	1		1-B3	○		1
32 (FCA25201-32)		パノラマレバーバネ Spring . Panorama lever	1		1-B3	○		10
50 (FCA25201-50)		パノラマレバー Lever . Panorama	1		7-A1	○		5
51 (FCA25201-51)		パノラマ切り換えスイッチ接片 Switch contact . Change panorama	1		7-B2	○		5
52 (FCA25201-52)		パノラマシート Sheet . Panorama	1		7-A1	○		10
53 (FCA25201-53)		パノラマレバー部遮光板 Light baffle plate . Panorama lever	1		7-B2	○		10
54 (FCA25201-54)		データー釦 Data button	1		7-A2	○		5
65 (FCA25201-65)		パノラマ作動レバー Panorama change lever	1		1-B1	○		5
66 (FCA25201-66)		段付きビス Shoulder screw	1		1-B1	○		10
68 (FCA25201-68)		データー写し込み用プリズム Prism . Project data	1		1-B1	○		5
72 (FCA25201-72)		データー枠板 Plate . Data frame	1		1-A1	○		5
73 (FCA25201-73)		固定絞り (データー写し込み部) Fixed aperture . Project data	1		1-B1	○		5
78 (FCA25201-78)		データーフレキ遮光テープ Light baffle tape . data	1	DF	5-B1	○△		10
143 (FCA25201-143)		LCD (データー用) LCD-Data	1		6-A1	○	裏面に赤マークあり	1

部組品表 Assembly List

FCA25201-R. 3355. A

部品番号 Part No.	補助番号 Ckt No.	名称 Name	1台分個数 Q'ty Per Unit	大部組品番号 Main Assembly No.	参照図番 Fig. No.	備考 Remarks	要求単位 Order Unit Q'ty
DF (FCA25201-DF)		データーフレキ部組 FPC . Data	1		5-B2 5-C1		1
FA (FCA25201-FA)		ファインダーA組 Finder unit A	1		6-B2	FCA25201 P付き	1
PF (FCA25201-PF)		パノラマ枠部組 Panorama frame unit	1		1-A3		1
WD (FCA25201-WD)		後カバー部組 (QD) Rear cover unit . QD	1		7-A1 7-A2 7-B1		1