KYOCERA

No.	419-01-50-RA1AG01

YASHICA 300 Auto Focus

Repair Manual

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No.	419−01−50−RA1AG01

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A. GENRAL & TECHNICAL INFORMATION

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YASHICA 300 AUTO FOCUS PRIMARY FEATURES INCLUDE:

1. THE WORLD LIGHTEST AUTO FOCUS SLR CAMERA WITH BUILT - IN FLASH (415g)
   Kyocera's sophisticated design and molding technologies have realized a high - performance, multi - function, lightweight SLR camera. This auto focus SLR camera with a built - in flash and date functions is the lightest in the world, weighting only 415g
   (camera body with the data back, without battery).
   (As of February 25, 1993)

2. EASY - TO - USE MULTI - FUNCTION AF SLR CAMERA
   The AF SLR is operated in four exposure modes, namely, programmed AE mode (P), Shutter - priority AE mode (Tv), Aperture - priority AE mode (Av), and Manual exposure mode (M); and in the three drive modes, namely, Single - frame shooting mode, Continuous shooting mode of a maximum of two frames per second and Trap Focus AF mode. In spite of such a variety of oprations, the shutter speed, aperture and exposure compensation can be adjusted easily and quickly thanks to the two dials on the top of the camera. Also the switches are easy to operate and the LCD is easy to see. Thus this camera combines easy usage with the high performance of an SLR camera.

3. WIDE FOCUSING AREA
   The focusing area is wide (1.5 times that of Kyocera's conventinal models) to facilitate quick focusing of a moving subject.

4. PANORAMIC SHOTS ALSO POSSIBLE
   The supplied panoramic adaptor, which can be fit inside the back cover, enables the user to take panoramic shots. When the adaptor is removed from the back cover, a panorama mark appears on the back cover, so that the user can easily know whether the frame is normal or panoramic, and there is less chance of losing the adaptor.

5. PREDICTIVE AUTO FOCUS CONTROL
   When shooting in either the Continuous or Trap AF mode, the advanced autofocus function automatically activates. This function senses a subject coming to or going away from the camera at almost the same speed, predicts the focus shift where subject will be when the shutter will be tripped, and adjusts the lens for that moment so that the subject will be sharply focused.

6. ZONE SELECTOR FOR SPEEDY AF
   To speed up autofocusing even furher, the "camera - to - subject distance changeover button" (AF Zone Selector) can be used to select between Far - distance Mode [about 3m (9.8ft) to infinity] and Near - distance Mode [closest point to about 3m (9.8ft)] shooting over the Full - range Focusing Mode [closest point (lens dependent) to infinity]. By limiting the AF working range in this way, the time required for focusing is shortened.
   This can be especially effective when using a telephoto or a macro lens.

7. TRAP FOCUSING, HANDY FOR UNMANNED NATURE PHOTOGRAPHY
   This autofocusing mode (also known as freeze focus) captures the subject in fine focus when it enters the preset focusing distance from the camera, auto matically triggering the shutter.
   The camera can be set up, the focus and picture framing set, and then left unmanned. Such an approach is highly useful in normally hard to get nature shots when a wild animal is in motion or won't appear when humans are around.

8. AF - ASSIST BARM IN DIM LIGHTING SITUATIONS

To enhance the operation of the autofocusing system when lighting is quite dim (making TTL phase difference detection by the AF CCD difficult), the AF - assist beam is automatically emitted to allow the AF system to function rapidly and effectively.

9. BUILT - IN POP - UP FLASH

A small, yet sufficiently powerful flash unit (on the top of the camera) conveniently can be popped up when flash photography is desired. The Yashica CS - 240 electronic auto flash is an optional unit that is available.

10. EASY SLOW - SHUTTER FLASH SYNCH SELECTION

By simply using the AE/L button, slow - shutter flash synch photography allows for use of slower shutter speeds that make the most of particularly natural mood, background or night scene lighting (such as when the flash will cover a person in the foreground against an evening city skyline).

11. PRE - FLASH REDUCES RED - EYE

The first burst of light emitted just prior to the second actual flash helps reduce the chance of red - eye appearing in photographs. This unintentional and usually unexpected phenomenon where the subject's eyes come out an almost red sometimes occurs when a flash photo is taken in dim lighting situations.

12. FOUR EXPOSURE MODES (Tv, Av, Program, Manual) PLUS AUTOMATIC BACKLIGHT COMPENSATION

Conveniently, a quick choice can be made from four exposure modes: Tv (Shutter - priority AE), Av (Aperture - priority AE), Program [one of two built - in Program AE modes is automatically set depending on the lens mounted, and either can be shifted between "Low" (slow shutter speeds) and "High" (faster shutter speeds) at the same EV value.], or Manual.
When there is backlit subject in the center of the picture frame, the main subject will generally be underexposed because exposure is measured mainly on a bright background.
This camera will automatically compensate for this condition to prevent the main subject from being underexposed.

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SPECIFICATIONS

Type	:	35mm focal - plane shutter, auto focus SLR camera.
Picture Size	:	24 × 36mm.
Lens Mount	:	Yashica AF mount.
Shutter	:	Vertical - travel metal focal plane shutter.
Shutter Speeds	:	Auto --- 8 seconds to 1/2000 sec; Manual --- B, 8 seconds to 1/2000 sec.
Shutter Release	:	Electromagnetic release.
Exposure Control	:	Automatic backlight compensation; six modes of exposure control --- (1) Program AE (PROGRAM); (2) Aperture - priority AE (Av); (3) Shutter - priority AE (Tv); (4) Manual exposure (M); (5) CPU flash control with built - in flash; (6) External flash.
Metering System	:	TTL center - weighted average light metering.
Metering Range	:	EV 1～20 (ISO 100, F/1.8 lens).
Film Speed Setting	:	Automatic with DX - coded film, ISO 25 ～ 5000 (1/3 - step); film speed is set automatically to ISO 100 with non - DX film.
Autofocus System	:	TTL phase difference detection with CCD sensor module located in lower part of mirror box; focusing range can be limited with AF zone selector; focusing is initiated by depressing the shutter release halfway; manual focusing possible; green LED lights when subject is in sharp focus; AF - assist Beam and Predictive Autofocus function.
Autofocus Sensing Range	:	EV2 ～ 19 (ISO 100).
Focusing Modes	:	Standard autofocus, Continuous autofocus, Trap focus, and Manual focus (MF).
Focus Lock	:	Focus is locked by depressing the shutter release halfway in standard AF mode, after the subject is sharply focused.
AE Lock	:	Activated by the AE Lock button; amount of light on subject is stored in memory.
Exposure Compensation	:	+2EV～−2EV (1/2 - EV steps).
Self - Timer	:	Electronic self - timer with 10 second delay; can be stopped midway; operation is indicated by self - timer LED and electronic sound.
Flash	:	Built - in flash; aperture control with distance information; Guide number approx.12 (ISO100.m) flash; recycling time of about 3 seconds; Illumination angle covers field of view of 35 mm lenses; and pre - flash capability for red - eye reduction. The flash mark " ϟ "turns on in the viewfinder when the flash is fully charged. The flash mark " ϟ "blinks (6Hz) when the subject is not within the flash effective range. External flashes can be used (but not in combination with the built - in flash).

Viewfinder	:	Penta - mirror eye - level finder; 90% field of view; 0.75X magnification (with 50 mm lens at infinity).
Focusing Screen	:	Fixed matte screen with focusing frame and panoramic frame.
Viewfinder Display	:	Focusing frame, panoramic frame, flash mark ("flash charged" signal, low - light warning), sharp - focus signal, program mark, exposure compensation, exposure indication in manual mode.
Display Panel	:	Drive mode, exposure mode, shutter speed/film speed, aperture value, shooting distance range, battery warning, exposure counter, flash mode indicator, ISO indicator, exposure compensation, exposure indication in manual mode, lensfocal length (with AF Power Zoom Lens only).
Film Loading	:	Auto loading; film advances automatically to first frame.
Film Advance	:	Automatic with built - in motor; continuous film advance up to approx. 2 frames/sec.
Film Rewinding	:	Automatic with built - in motor; automatic stop when rewinding is completed; manual push button mid - roll winding.
Exposure Counter	:	Automatic resetting; additive type.
Accessory Shoe	:	Direct - X - contact hot - shoe (with dedicated flash contacts); synchronizes at 1/100 sec. or slower.
Drive Mode	:	Single - frame, continuous shooting, self - timer, Subject Lock Zoom, and Trap Focus modes can be selected; continuous shooting up to two frames/sec.
Camera Back	:	Opened with camera back release; detachable; houses panoramic adaptor; provided with film check window and panorama check window.
Power Source	:	One, Six Volt lithium battery (2CR5).
Battery Check	:	Automatic check; battery warning symbol shows when battery voltage is reduced.
Battery Capacity	:	About 25 rolls of 24 - exposure film can be exposed with 50% flash in AF mode (at ordinary temperature; according to Yashica testing standard).
Others	:	Contact for data back; provided with panoramic adapter.
Dimensions	:	148 (W) × 94 (H) × 68 (D) mm.
Weight	:	400g (wituout battery).

<Main Specification of the Data Back DA - 5>

Type	:	Quartz - controlled liquid crystal display (auto calendar).
Printing	:	Automatic printing when shutter trips. Dating modes ---- Year - month - day, day - hour - minute, no imprint, month - day - year, day - month - year.
Film Speed	:	Automatic setting.
Power Source	:	3V lithium battery (CR2025) .
Dimensions & Weight	:	139 (W) × 59 (H) × 16 (D) mm, 51g (without battery).
Others	:	Panoramic adapter attachable.

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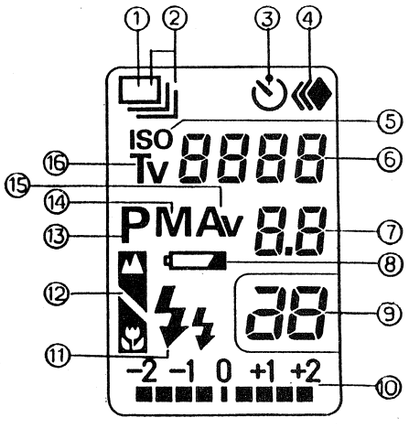
DISPLAY PANEL & DISPLAY IN THE VIEWFINDER

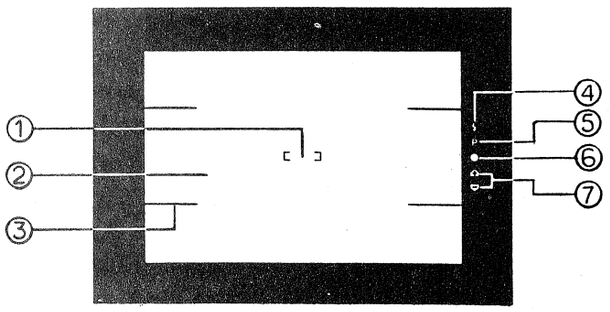
<Display Panel>

The Display panel and the display in the Viewfinder show the information of the camera at the moment when its power switch is turned on. The display in the viewfinder and the shutter speed and aperture data in the Display Panel will turn off after 16 seconds to save battery. To turn them on again, depress the Shutter Release halfway or the AE Lock Button.



① Single - frame Shooting Mode Indicator (□)
② Continuous Shooting Mode Indicator (⧉)
③ Self - timer Mode Indicator
④ Trap Focus Mode Indicator
(① ④ represent drive modes. Four drive modes are available.)
⑤ ISO Indicator
(This mark is displayed with the film speed when the film is loaded and advances to the first frame.)
⑥ Shutter Speed/Film Speed/Lens Focal Length
(Nomally, the shutter speed is displayed. When the film is loaded and advancing to the first frame, the film speed (ISO) is displayed. When an AF Power Zoom Lens is mounted on the camera, the lens focal length is displayed. Depress the Drive Mode Button while hold the AE Lock Button in depressed position, and the shutter speed will switch to the lens focal length.)
⑦ Aperture Value
⑧ Battery Warning Mark
(It appears when the battery is spent)
⑨ Exposure Counter
(The counter advances by one each time the film is wound)
⑩ Exposure Compensation/Manual Exposure indicator
(In an auto exposure mode, it indicates the compensating value when exposure compensation is made. In the manual exposure mode, it indicates the camera's exposure.)
⑪ Flash Mark
(Displays the flash mode.)
⑫ Focusing Range Indicator
⑬ Program AE Indicator
⑭ Manual Exposure Indicator
⑮ Aperture - priority AE Indicator
⑯ Shutter - priority AE Indicator
(⑬-⑯ represent exposure modes. Four exposure modes are available.)

<Dispiay in the Viewfinder>



① Focusing Frame
② Matte Screen
③ Panoramic Frame
Taking panoramic - format pictures by installing the Panoramic Adapter on the camera's Picture Area Frame, frame your subject within the Panoramic Frame.
④ Flash Mark (green " ϟ ")
Ⓐ Camera Shake Warning: if the selected shutter speed is so slow in an auto exposure mode ("P ","Av" or "Tv ") that it may cause camera shake, this mark blinks slowly.
Ⓑ "Flash Charged" Signal: When take flash pictures with the camera's built - in flash or an optional dedicated flash, this mark turns on when the flash is fully charged.
Ⓒ "Out - of - Flash - Range " Signal: This mark blinks quickly if your subject is beyond the effective range of the built - in flash.
⑤ Program Mode Mark ("P"in green)
It appears when the exposure mode is set to the program AE mode.
It blinks when the program is shifted.
⑥ Sharp Focus LED (" ● "in green)
It turns on when the subject in the focusing frame is in sharp focus.
● (lighting) : The subject is in sharp focus
☼ (blinking) : Focusing is not possible.
In the manual focus mode, it turns on only when the subject is in sharp focus. But it does not blink when focusing is not possible.
⑦ Exposure Compensation/Exposure Warning/Mamual Exposure Indicator (red)
Ⓐ Exposure Compensation Indicator:" ⏶ "or" ⏷ "is displayed when exposure compensation is made by operating the subsidiary Dial.
Ⓑ Exposure Warning: If the selected exposure causes overexposure in an auto exposure mode because it is beyond the camera's coupling range, the mark " ⏶ "blinks.
If it causes underexposure, the mark " ⏷ "blinks.
Ⓒ Manual Exposure Indicator: If the exposure you have set (shutter speed and aperture) in the manual exposure mode is correct, both" ⏶ "and " ⏷ "turn on.
If it is not correct, either" ⏶ "or " ⏷ "turn on.

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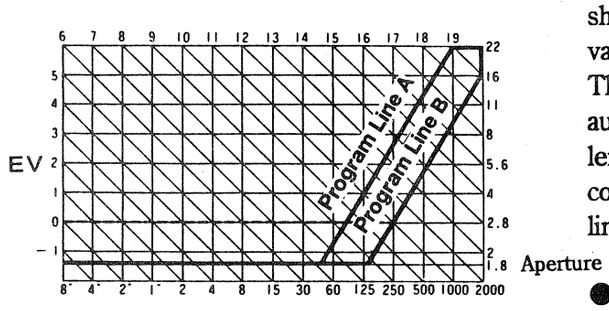
PROGRAMMED AUTOMATIC CONTROL/PROGRAM SHIFT

<Programmed Automatic Control>

Program Control Diagram (ISO 100)



Line A: For lenses with focal lengths of 85mm or shorter

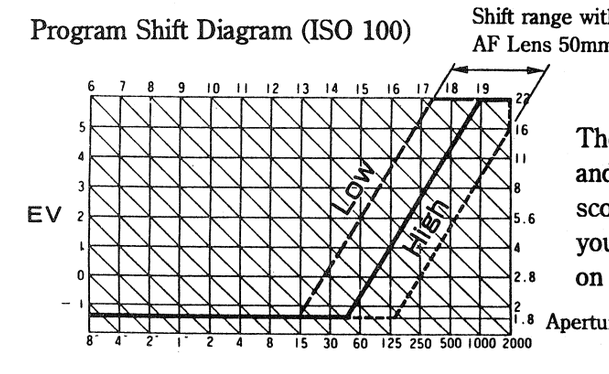
Line B: For lenses with focal lengths of 86mm or longer.

This control diagram shows the control range of shutter speeds and apertures in relation to the EV values in the program AE mode.
The lines A and B in the diagram will switch automatically according to the focal length of the lens used, and the camera will select the optimum combination of shutter speed and aperture on the line.

● The program control diagram shows the automatic control range with F1.8 lens.
In the case of lenses with different F-numbers, the control range becomes narrower as the lens speed decreases.
The control range with F2.8 lens, for example, is that which is represented by the dotted line in the diagram.

<Program shift>

Program Shift Diagram (ISO 100)



The exposure program can be shifted to "High" and "Low " (broken oblique lines) with in the scope of the same EV value so that you can select your desired shutter speed or aperture depending on the shooting situation.

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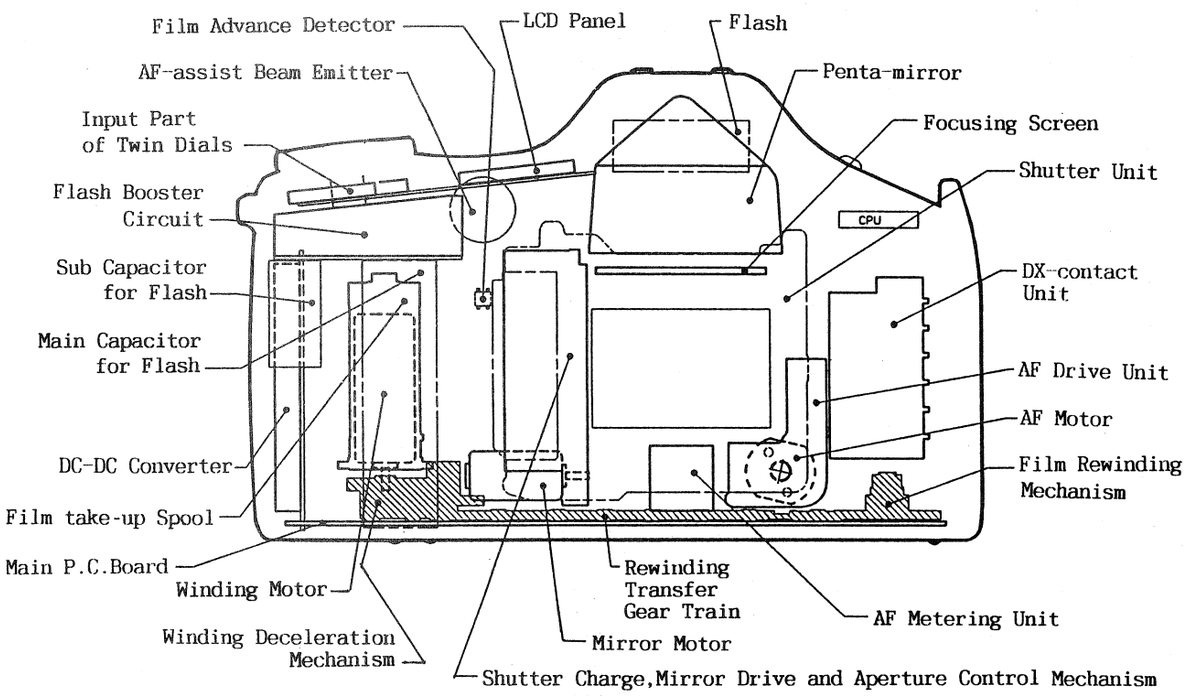
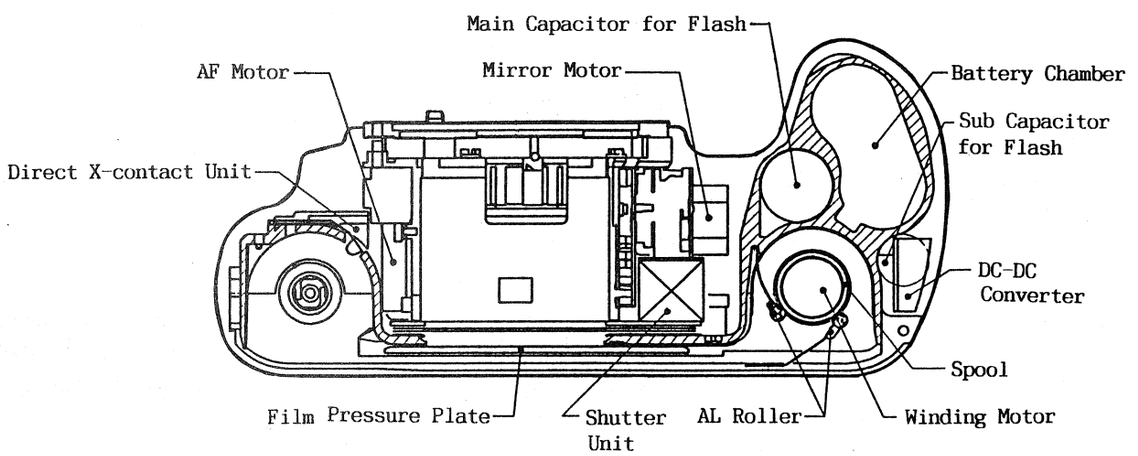
DESCRIPTION OF SEQUENCE MECHANISM

For the mechanism of this camera, the motor for film winding and rewinding is located in the Spool, the motor for quick return of the mirror, aperture stop down and shutter charge is on the lower part of the Mirror Box and the AF Motor is at the bottom of the Mirror Box.
With these three motors, all the operations of the camera are carried out in sequence by electric control and mechanical interlock.

(Mechanical Unit Layout)





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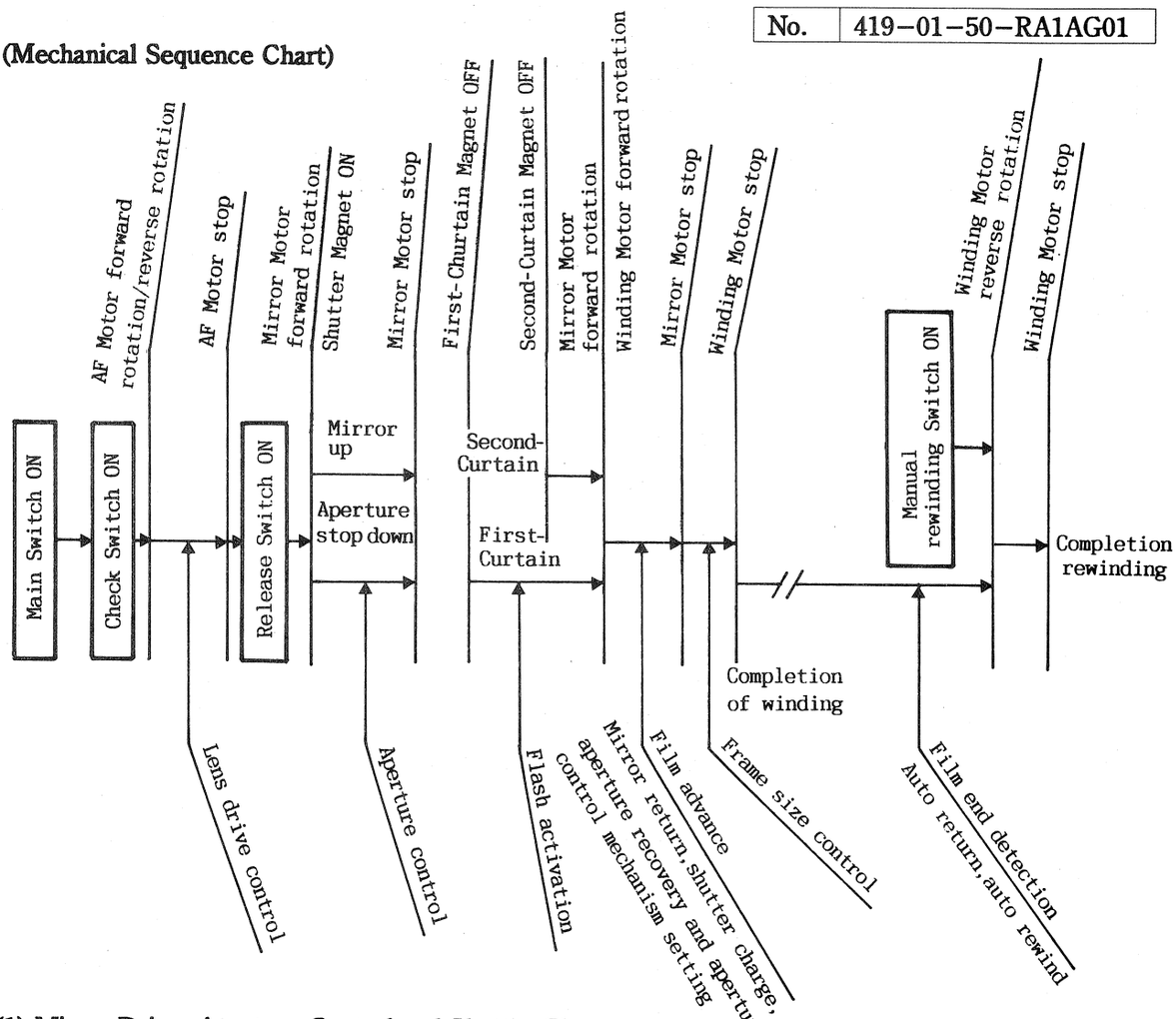
(Mechanical Sequence Chart)



(1) Mirror Drive, Aperture Control and Shutter Charge

When the Shutter Release Button is pressed halfway, the Check Switch turns on and the camera starts light and distance metering. The AF Motor rotates to drive the lens and stops in the sharp focus position. When the Shutter Release Button is pressed fully, the Shutter Release Switch turns on. Simultaneously with the holding by the Shutter Magnet, the Mirror Motor rotates forward and the Mirror - Up Cam and the Shutter Charge Cam rotate. Consequently, the Mirror is raised, the Aperture Ring is turned via the Aperture Lever to stop down the aperture and the Shutter is released from the mechanical hold. The Mirror stops upon receiving a signal from the Mirror Switch.

Aperture value is controlled by counting the pulses from the Encoder interlocking with the Aperture Ring. When the preset number of pulses has been counted, the Aperture Ring Stop Magnet is energized to stop the Aperture Ring and complete the setting of the aperture value.

For the operation of the Shutter, after receiving the signal from the Mirror Switch, the current to the First - Curtain Hold Magnet is shut off and the First - Curtain travels. And after the passage of the exposure time, the current to the Second - Curtain Magnet is shut off and the Second - Curtain closes to complete an exposure of the film.

Mirror - down, the return of the Aperture Ring, the charge of the aperture control mechanism and shutter charge are carried out by the forward run of the Mirror Motor after the shut off of the current to the Second - Curtain Magnet. At the end these operations, the Mirror Motor is stopped by another signal from the Mirror Switch to complete this series of operations.

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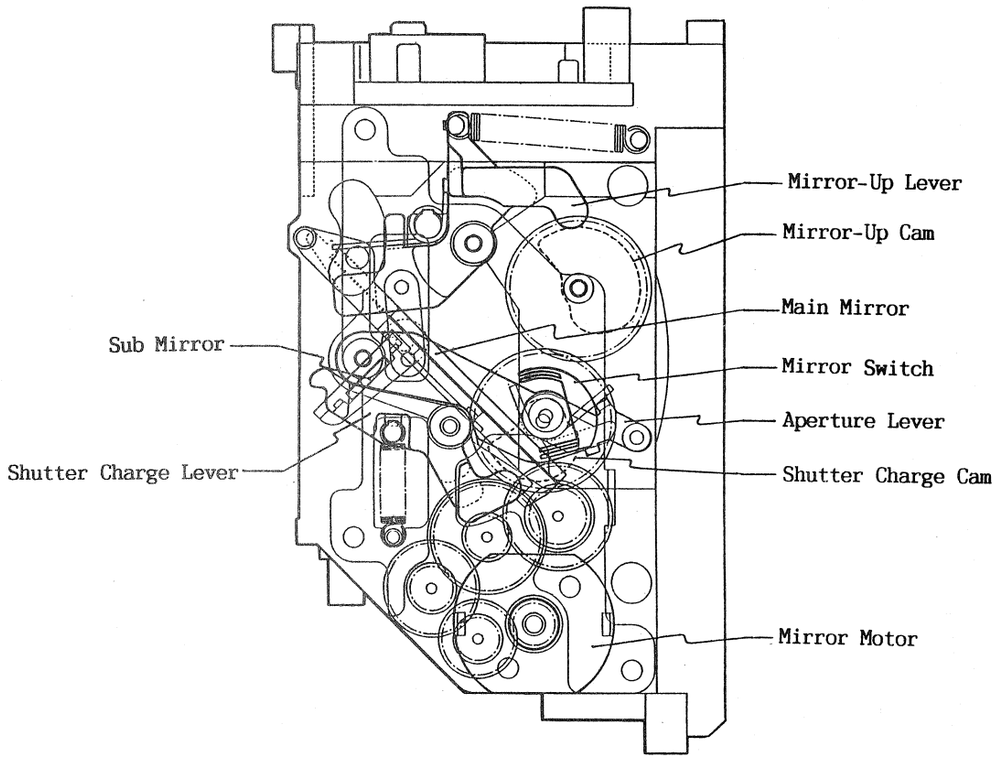
Mirror Drive Mechanism



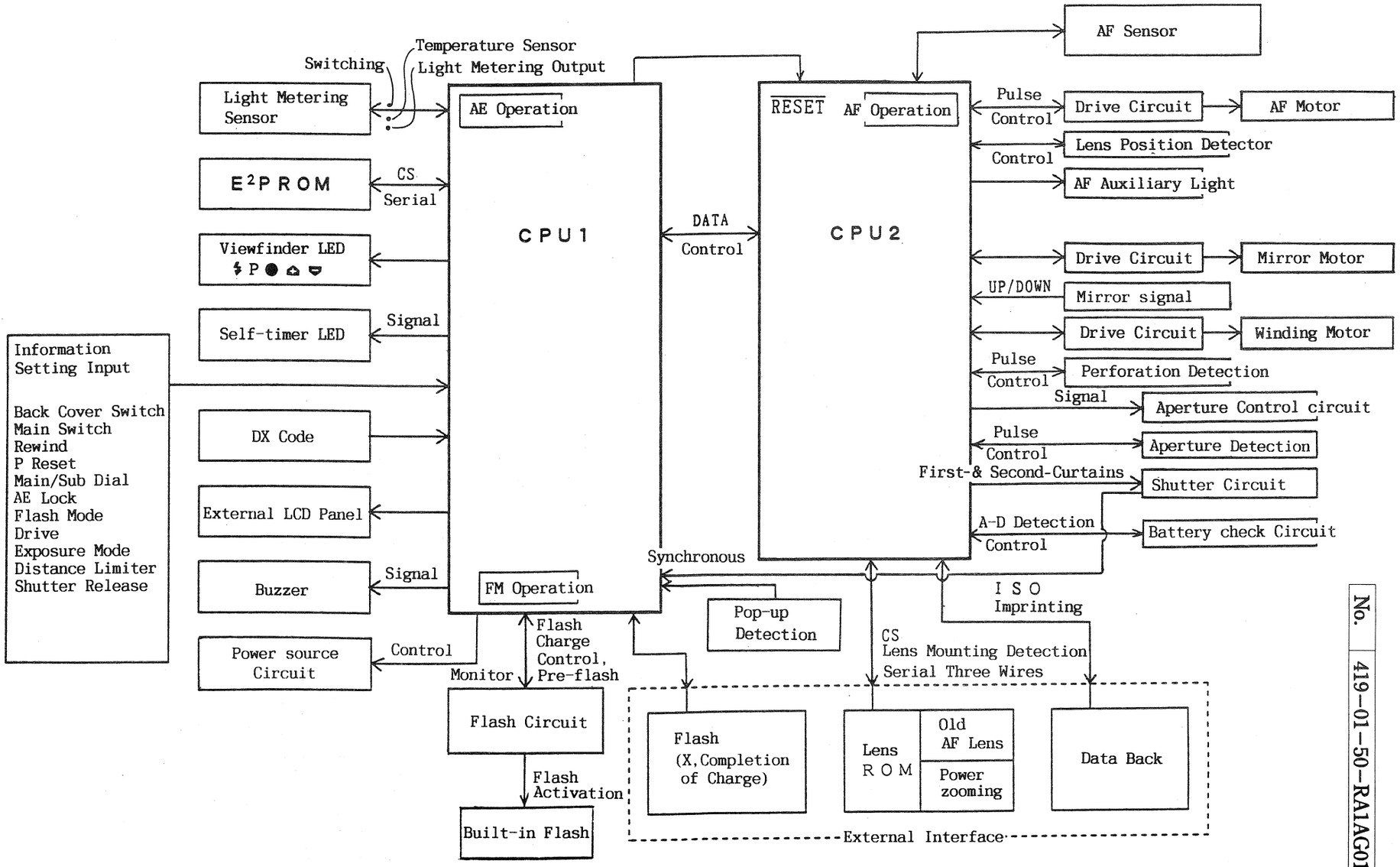
(2) Film Advance

Almost simultaneously with the mirror - down, the Winding Motor rotates forward and starts advancing the film by driving the Spool via the reduction mechanism. During film advancing, perforations of the film are counted by a sensor. The speed of the film is reduced after the detection of the 7th perforation and the motor is stopped after the detection of the 8th perforration, completing the advance of the film by one frame.

(3) Film Rewinding

When the film has been wound up to the end, the Winding Motor stops and then starts reversing and rewinds the film by driving the rewinding coupler via an epicyclic gear.
During film rewinding, the presence or absence of a perforation of the film is detected by the sensor. The Winding Motor stops upon receiving a signal at the completion of film rewinding. After this stop, the Winding Motor rotates forward until the epicyclic gear is released and the gear train is returned to the film winding position.

CIRCUIT BLOCK DIAGRAM



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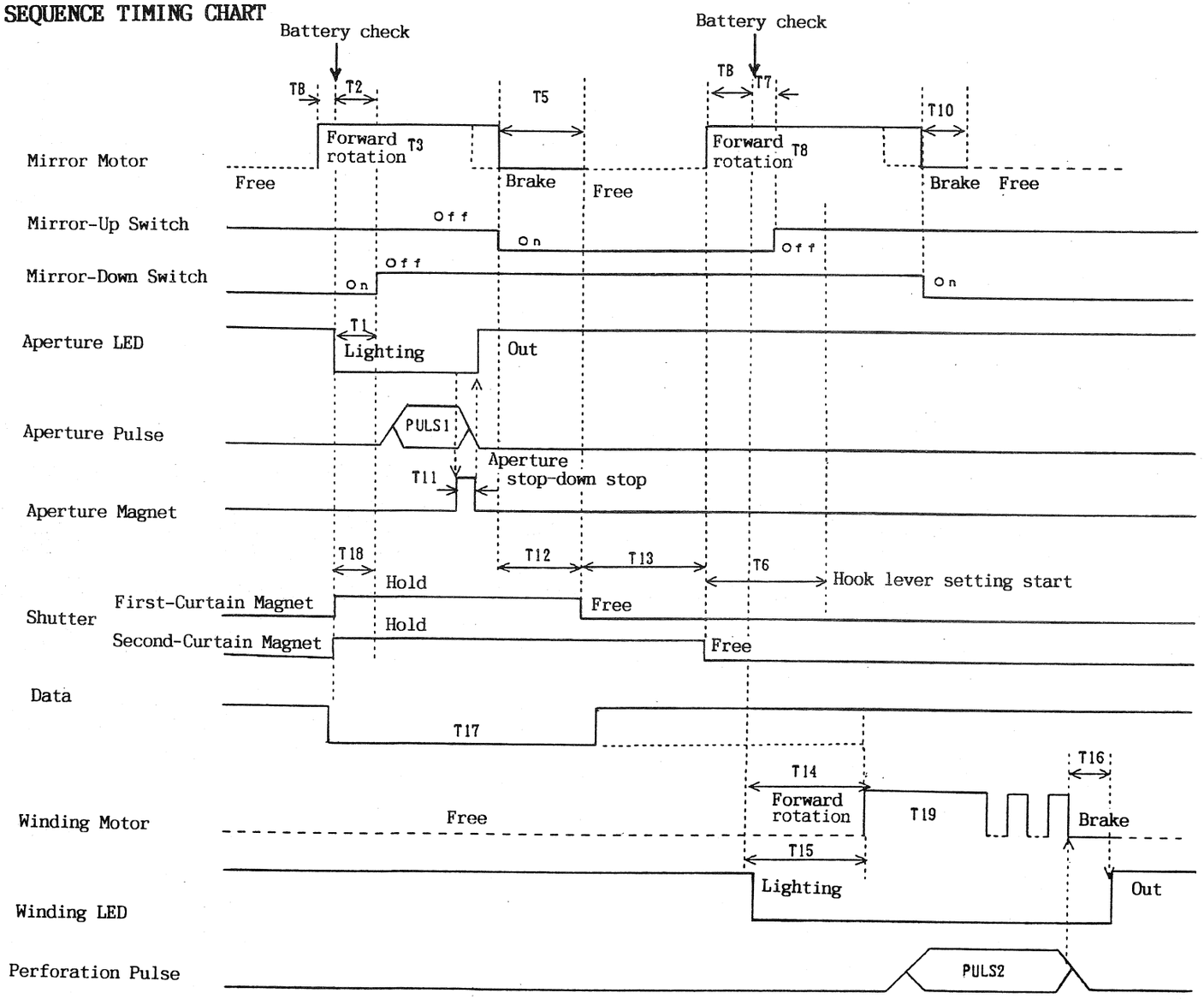
RELEASE SEQUENCE TIMING CHART



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DESCRIPTION OF ELECTRIC CIRCUITRY

1. OUTLINE OF ELECTRIC CIRCUITRY

The electric circuitry consists of two high - speed 8 - bit microcomputers (CPUs) and other parts. The CPU1 is placed on the Main FPC on the top of the body and the CPU2 is on the hard PC Board on the bottom of the body.

The CPU1 handles the control of the operation switches (which are all installed on the upper part of the body), the displays on the LCD panel and in the viewfinder, the control of the light metering IC and the processing of backup data. The CPU2 handles the AF sensor IC control, the motor control for mirror - up, film winding and lens drive, aperture control and shutter control. The principal arithmetic operations of the camera, namely, light metering operation and distance metering operation are carried out separately by the microcomputers. Thanks to this system, these two types of operations are performed at the same time, so that the total arithmetic operations are carried out at a high speed. The data communication between the computers is also performed rapidly Thanks to the special data bus. As a result, all the control of the camera is processed at a high speed.

The light metering circuit consists of a light metering sensor IC and a CPU only. The light metering sensor IC is a hybrid IC containing a photodiode and a processing IC in one package. Its sensor is divided into two portions — the center portion and the surrounding portion. These two portions perform light metering and decide whether the subject is backlight or not. The IC, incorporating a temperature sensor, compensates precisely the output change due to temperature change.

The distance metering circuit consists of an AF sensor IC and a CPU. The AF sensor IC is a chip containing a CCD line sensor and a signal processing circuit. The signal processing circuit amplifies only the change in the signal necessary for distance metering and outputs the amplified change. This output is directly input to the microcomputer for arithmetic operations.

The flash circuit is a twin - capacitor type incorporating a capacitor for a very small flash of light to reduce the chance of red - eye. This very small flash of light is used not only as the pre - flash for reducing the chance of red - eye, but also when a fast speed film is used and the camera - to - subject distance is small during "CPU - matic" control.

Battery check is performed immediately before mirror - up or down and before rewinding with each load taken into account. Current is supplied to each motor for a short and the battery voltage is checked. If the battery checks low, warning is given at the first stage and the operation of the camera is inhibited at the second stage to a malfunction due to voltage drop.

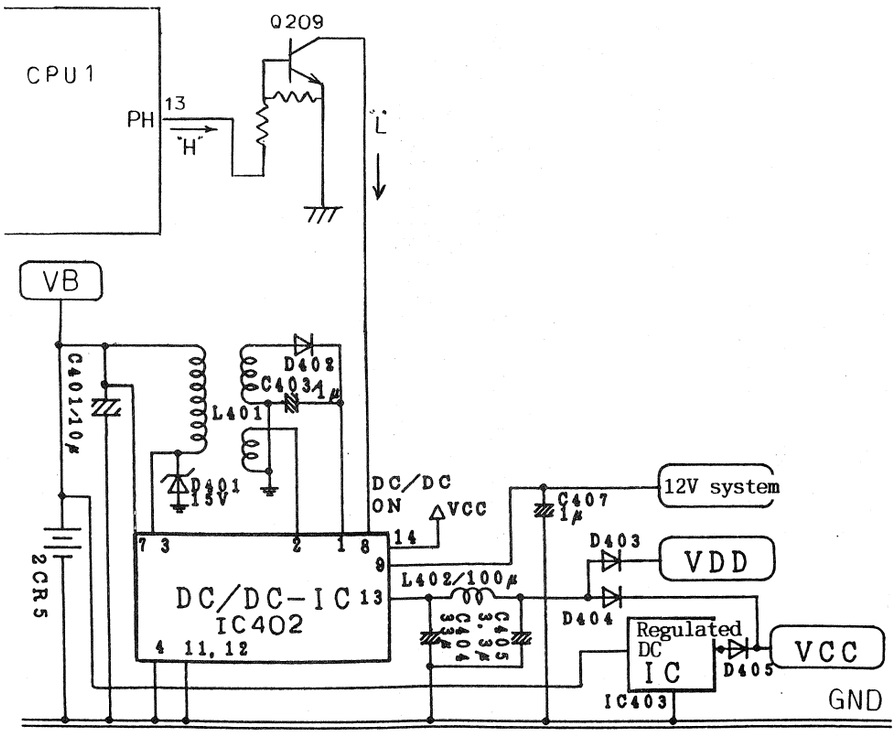
2. DESCRIPTION OF EASH CIRCUIT

(1) Power Supply Circuit

The camera operate with the following four power supplies:

① VB : Battery voltage
② VCC : Outputs a voltage of 5V when the battery voltage is 5.4V or above.
③ VDD : Outputs a voltage of 5V when the battery voltage is 2.5V or above.
④ V12 : Outputs a voltage of 12V when the battery voltage is 2.5V or above.

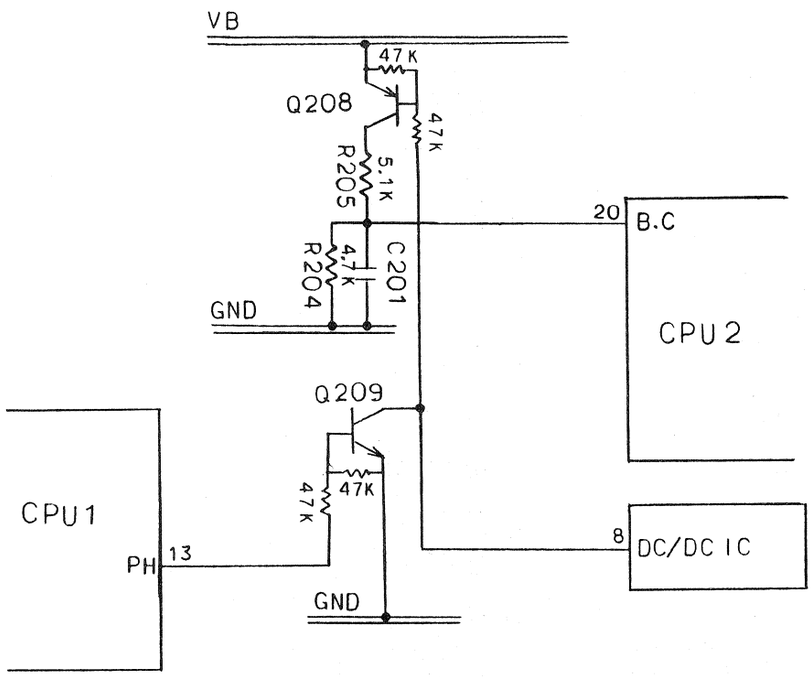
The voltages of ① VB and ② VCC are always output when the battery has been installed.
The power supplies ③ VDD and ④ V12 are turned on or off (0V) by the same control signal (PH signal). They are turned on when the PH signal is "L". The output is turned off only when the camera is in the state of low power consumption (after the Main Switch is turned off or the power is turned off after the passage of 16 seconds). VCC functions the same way as VDD when the PH signal is "L" (the power supply has been turned on and the camera is in the normal operation status). That is, VCC outputs 5V even the battery voltage has dropped to 2.5V.
When the PH signal is "H" (the camera is in the state of low power counsumption), VCC outputs a lower voltage proportional to the battery voltage if it has dropped below 5.4V.



(2) Battery Check Circuit

Battery check is performed immediately before mirror - up/down and rewinding with each load are taken into account. Current is supplied to each motor for a short time and the voltage is detected. If the battery checks low, warning is given at the first stage and the operation of the camera is inhibited at the second stage to prevent a malfunction due to voltage drop.

The battery check circuit consists of a transistor (Q208), resistors (R205 and R204) and a capacitor (C201). Q208, controlled by the power supply control signal PH, is kept on while the voltage of VDD is output. During this period, the battery voltage is supplied to the resistors via the transistor. The voltage divided by the resistors is read by the A/D converter in the CPU2. The division by resistance is intended to adjust the voltage to the input range of the A/D converter. The capacitor (C201) removes noise. The CPU2 reads this voltage only when the camera has been switched from the state of low power consumption (power off) to the normal operation status (power on) or 1 ms after current has been supplied to each motor.



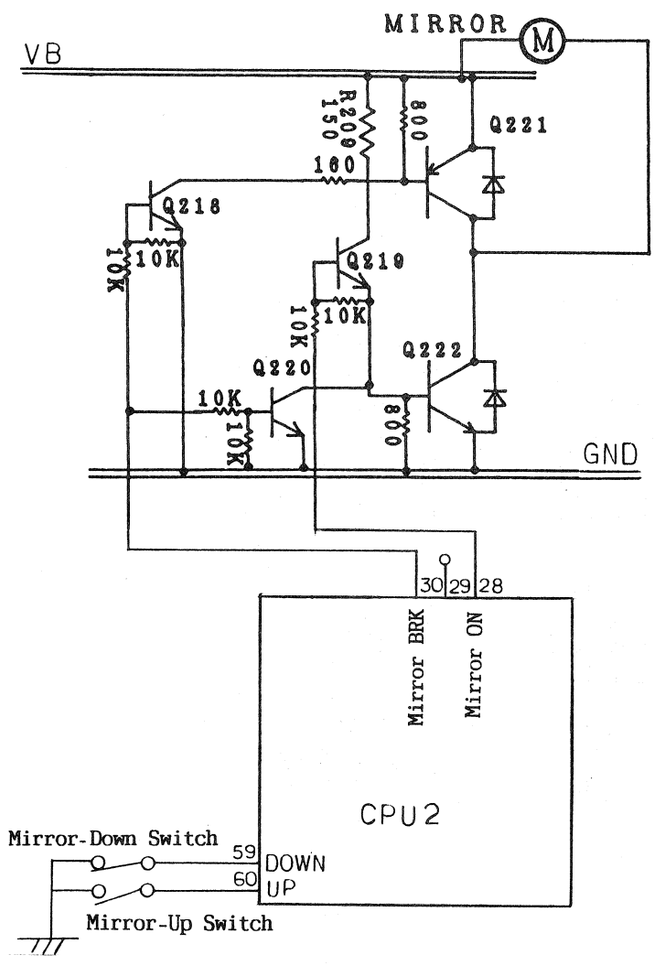
(3) Drive Circuit

(3) - 1 Mirror - Up/Down Drive Circuit & Control

Mirror drive consists of unidirectional turning and short brake.

The motor drive circuit is constituted of a power transistor (Q222) and a current amplifying transistor (Q219) for driving the power transistor. The short brake circuit consists of a power transistor (Q221) and a transistor (Q218). The drive circuit is also provided with another transistor (Q220) to protect the circuit. As the control signals, there are two signals ——— mirror ON signal and mirror BRK signal. Depending on combinations of these signals, the drive circuit operates as follows:

Mirror ON signal	Mirror BRK signal	Operation
L	L	No operation
H	L	Motor rotates
L	H	Short brake
H	H	No operation (operation inhibited by protective circuit)



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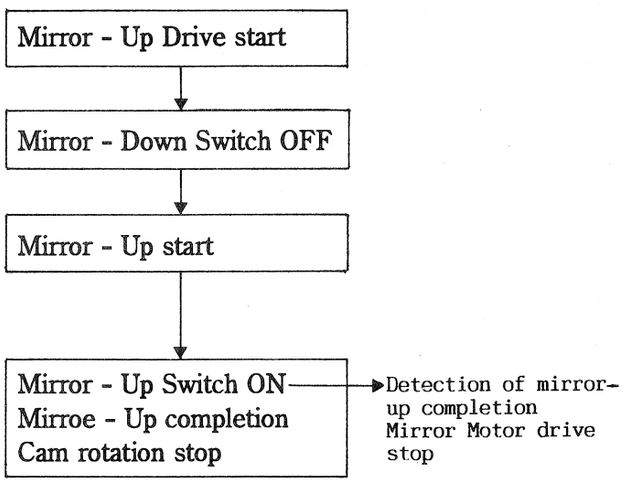
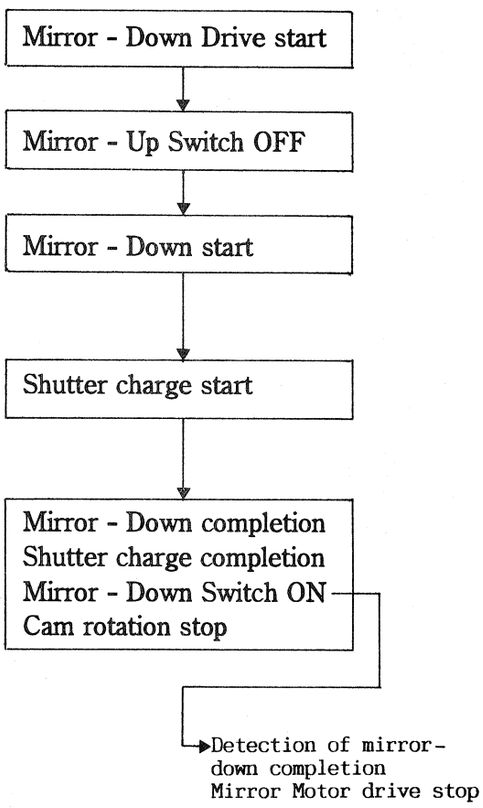
Mirror - Up/Down Control

The Mirror is driven by a cam, whose one revolution completes a cycle of mirror - up and down. The Mirror Motor is controlled by the mirror - up and down switches interlocked with the cam.

[Mirror - Up Drive Control]



[Mirror - Down Drive Control]



(3) - 2 Winding/Rewinding Drive Circuit and Lens Drive Circuit

- ○ The winding /rewinding drive circuit performs winding by running the motor forward and rewinding by reversing it.
- ○ The AF lens drive circuit drives the lens in the direction of infinity by running the motor forward and the direction of near distance by reversing it.

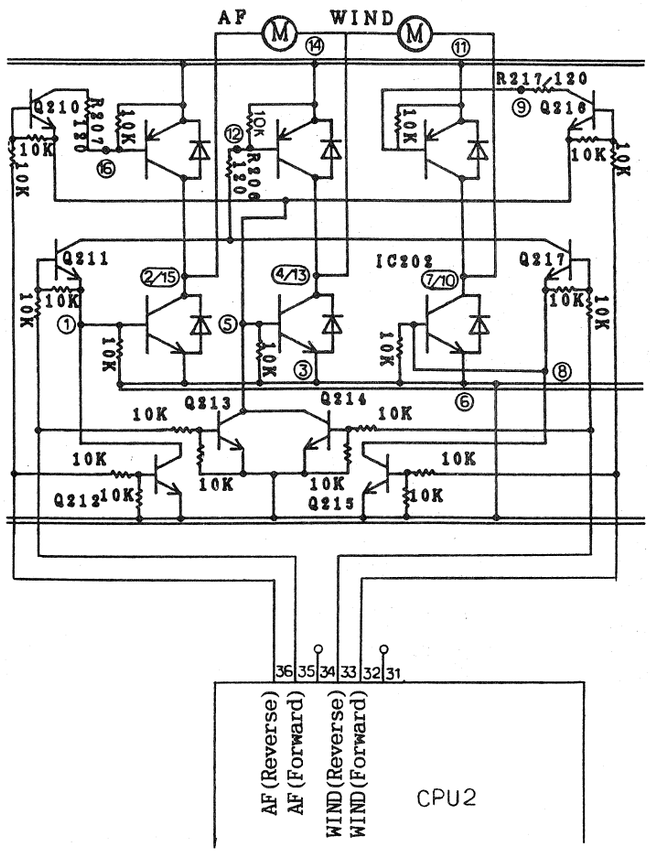
Since the Winding Motor and AF Lens Motor are never operated simultaneously, the same drive IC (array of six power transistors) is used to drive them. The drive circuit is constituted of the drive circuit, the preliminary transistors (Q210, Q211, Q216 and Q217) for driving the power transistors for protecting the circuit.

As the control signals, there are two signals, namely, WIND (Forward) and WIND (Reverse), for controlling the Winding/Rewinding Motor and another two signals, namely, AF (Forward) and AF (Reverse), for controlling the AF Lens Motor.

Depending on combinations of the control signals, the drive circuit operates as follows:

WIDE (Forward)	WIDE (Reverse)	AF (Forward)	AF (Reverse)	Operation
L	L	L	L	No operation
L	L	L	H	AF Lens Motor forward run
L	L	H	L	AF Lens Motor reverse run
L	L	H	H	AF Lens Motor brake
L	H	L	L	Winding Motor forward rotation
H	L	L	L	Winding Motor reverse rotation
H	H	L	L	Winding Motor brake

With the control signals in any combination other than shown above, the protective circuit operates to inhibit the AF Lens Motor and Winding Motor from operating.



(4) AE Circuit

The AE circuit consists of a light metering IC integrated with a photodiode, which is divided into two portions → the center portion and the surrounding portion.

The basic operation of the AF circuit is such that a voltage proportional to the exposure of the photodiode is output at the 13 pin of the light metering IC (photocurrent → voltage conversion).

Bright → Low voltage
Dark → High voltage

The light metering output (voltage) from the light metering IC is input to the 100 pin of the CPU1, or the A/D converter terminal, and the A/D converted data is subjected to arithmetic operation on the software. Also the light metering IC outputs the reference voltage (Vref: 3.5V) for use at A/D conversion, which is input to the 1 pin of the CPU1.
When the brightness changes by 1 EV, the light metering output changes by 124.6mV (at 25 ℃).

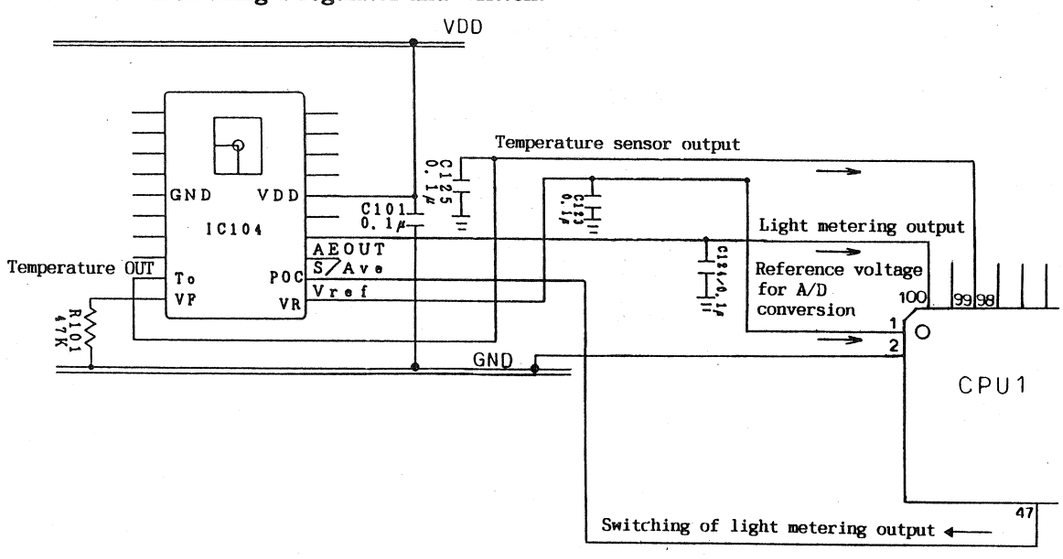
The center and surrounding portions of the photodiode always perform light metering and make compensation if the subject is backlight.
The switching between the center portion and the surrounding portion is controlled by the signal which is output from the 47 pin of the CPU1 and input to 12 pin of the IC.

Switching of light metering output
"L" → Light metering in surrounding portion
"H" → Light metering in center portion

The light metering IC, incorporating a temperature sensor, compensates precisely the output change due to temperature change.
For temperature data, the temperature output (voltage) from the light metering IC is A/D converted and then read by the CPU1.

Output at 25 ℃ : 1.2～1.68V
Temperature output change : 17.8 (± 1.3) mV for 1 ℃

Exposure is adjusted not by hardware but by arithmetic operation on software using the value of inclination and the reference value stored in the EEPROM (IC101) as backup data.
This data is measured using a regulator and written.



(5) Shutter Control

The Shutter is a 2 - magnet type, where the First - curtain and the Second - curtain are controlled by the respective magnets.

The Shutter magnets are kept off usually and turned on during mirror - up after the turning on of the Shutter Release Switch.

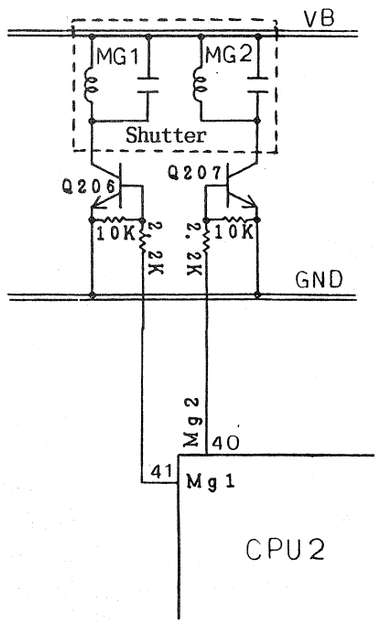
After completion of mirror - up (Mirror - Up Switch ON), the magnet for the First - curtain is turned off to allow the First - curtain to travel. After the passage of a proper exposure time, the magnet for the Second - curtain is turned off to allow the Second - curtain to travel.

These operations are controlled by the CPU, using the following signals:

First - curtain ------ 41 pin CPU2 ------ ON at "H"
Second - curtain ---- 40 pin CPU2 ------ ON at "H"

When the "H" signal is output from the terminal (41 pin/40 pin) of the CPU2, Q206 or Q207 is turned on to supply current to the Shutter magnet (MG1/MG2), so that the magnet is turned on and holds the Shutter - curtain.

The output from the terminal (41 pin /40 pin) of the CPU2 has changed from "H" to "L", Q206 or Q207 and thus the magnet is turned off, so that the Shutter - curtain travels.



(6) Built - in Flash Circuit

The flash circuit consists of the flash charge circuit, charge voltage monitor circuit, ptotective and flash firing circuit.

(6) - 1 Flash Charge Circuit

To accumulate electric charge for flash, the camera is provided with two capacitors ---- the main capacitor for normal flash and the sub capacitor for pre - flash to reduce the chance of red - eye.

When the flash has popped up and the 32 pin of CPU1 turns "H", the CPU1 receives the signal from the Pop - up Detection Switch and outputs at its 78 pin a 50 KHz clock signal for the charge control of the built - in flash. The 50 KHz clock signal drives the power transistors Q303 and Q304 and via Q302 and Q301 to turn on and off the current on the primary side of the oscillation transformer L301.
The high voltage output on the secondary side rectified by the diode D301 and then the main capacitor C307 and sub capacitor C306 are charged.

(6) - 2 Charge Voltage Monitor Circuit

The voltage at the intermediate tap on the secondary side of the transformer is rectified and smoothed by the diode D303 and capacitor C304 and then divided by the resistors R304 and R305 until the charge monitor voltage reaches 2.8V. The charge monitor voltage is input to the 99 pin of the CPU1. After detecting the completion of flash charge, the CPU1 stops outputting the 50 KHz clock signal for the charge control of the built - in flash at its 78 pin and stops flash charging. The charge monitor voltage is generated only during flash charging (after the stop of charging, this voltage is not generated).

(6) - 3 Protective Circuit

When the charge voltage has exceeded 310V, the protective circuit stops flash charging forcedly. In normal operation, the CPU1 monitors the voltage of the charge monitor signal and stops the output of charge signal when the charge voltage has reached 280V. The charge monitor voltage is monitored not only by the CPU1 but also subjected to the overcharge voltage detection by the Zener diode D304. In case the CPU1 can not perform monitoring for some trouble and the charge voltage has risen to 310V, the transistor Q305 connected to D304 is turned on. This operation lowers the base voltage of Q302 to 0.2V, thus inhibiting flash charging.

(6) - 4 Flash Charge Check

Flash charge check is performed when the PH is turned off 16 sec after the pop - up of the flash and then turned on by a PH - on operation. If the charge voltage of the main capacitor is low, charging is started. During the standby in the Trap Focus mode, flash charge check is performed once in about three minutes to see if there is a drop in the charge voltage due to natural discharge.

(6) - 5 Flash Firing Circuit

The switching between main flash and pre - flash is performed by the thyristor SCR301.
Pre - flash is performed when a flash firing signal is given with SCR301 turned off.
Immediately before main flash, the GATE signal "L" is output from the 44 pin of the CPU1 and turns on SCR301 via Q306 to fire pre - flash. The GATE signal is always "H" except during flash charging and main flash, keeping SCR301 off.
For flash fire, the turning on of the Shutter Release Switch operates the shutter and when

the Synch Switch of the shutter is turned on, the signal from the 84 pin of the CPU1 changes from "H" to "L". After reading the change of the position of the Synch Switch, the CPU outputs a flash firing signal "H" from its 45 pin. The flash firing signal turns on the thyristor SCR302 via R309 and C311. Consequently the potential at the capacitor C309 drops and current flows on the primary side of the trigger transformer L302. The high voltage generated on the secondary side is applied to the xenon lamp for flashing.
C301 and R311, constituting a differentiating circuit, applie inverse voltage to the xenon lamp for a short time at flash fire. This operation raises the potential difference between both ends of the xenon lamp to about 500V momentarily to prevent flash failure.

(7) External Flash Unit Circuit

The distinction between the built - in flash unit and an external flash unit is made by the Pop - up Switch.

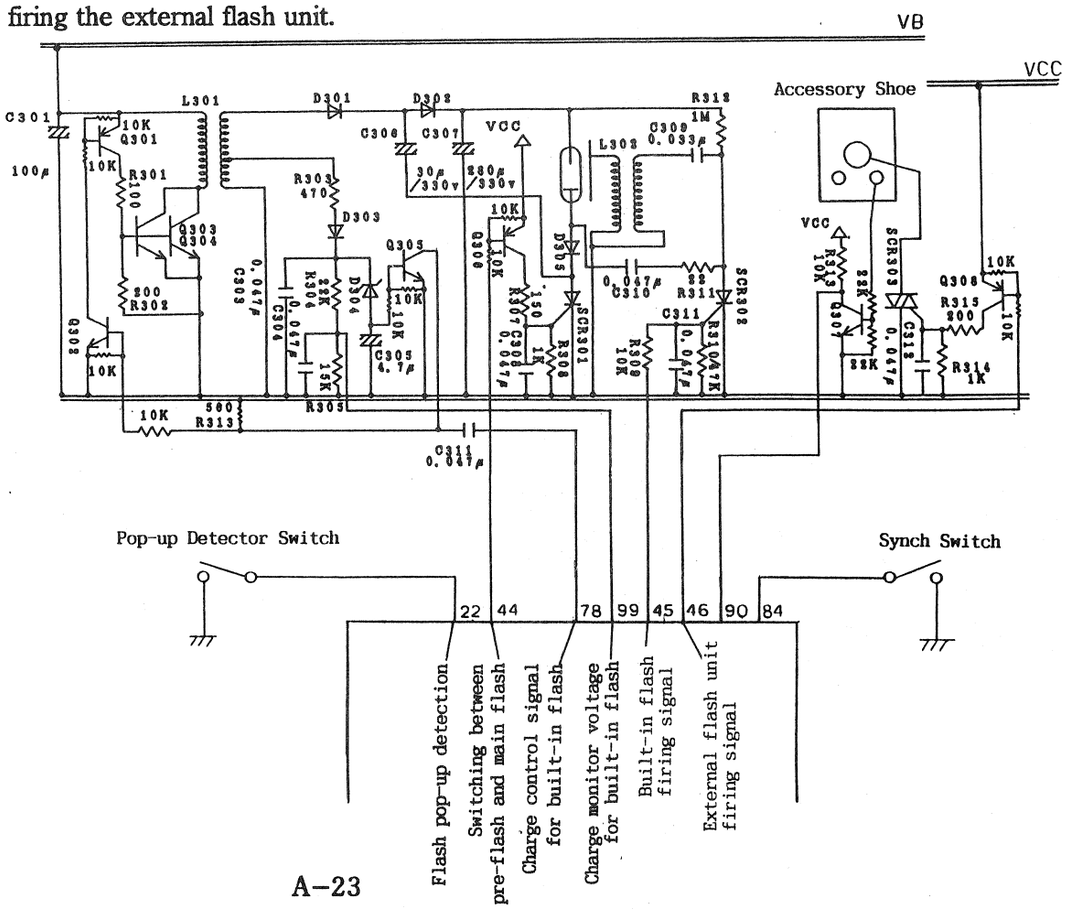
32 pin of CPU1 for pop - up detection H : Built - in flash
L : External flash unit

(7) - 1 Detection of External Flash Unit Charge

Install an external flash unit (TLA Flash) on the camera body and turn on the main switch of the external flash unit. At the end of external flash unit charge, CH/IO signal input to 90 pin of the CPU1 via Q 307 turns "L" for the detection of the completion of external flash unit charge.

(7) - 2 External Flash Unit Firing Circuit

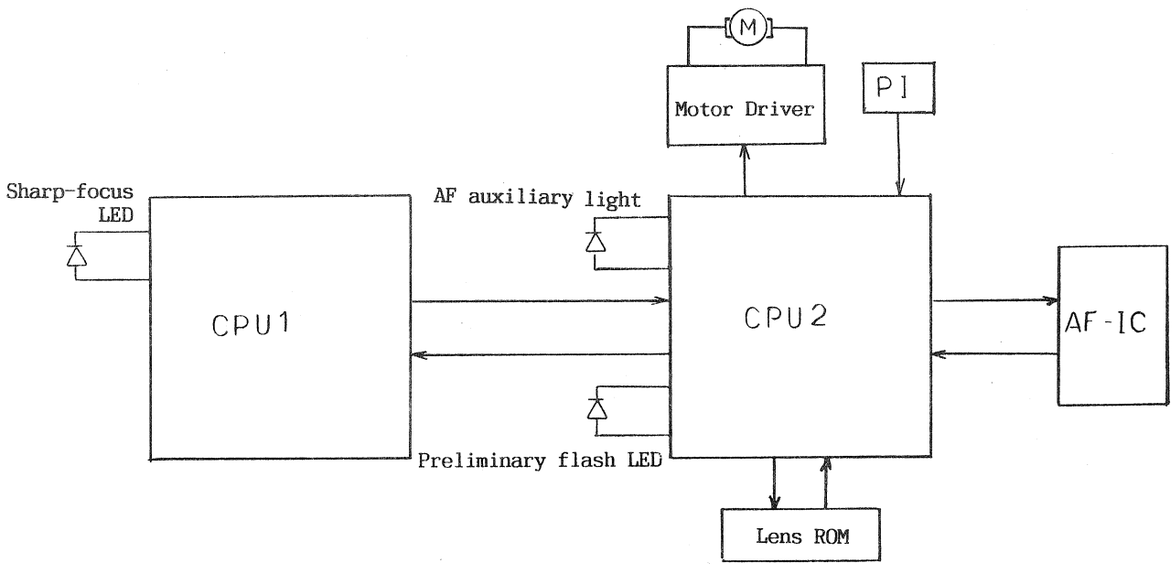
The turning on of the Shutter Release Switch operates the shutter and when the Synch Switch of the shutter is turned on, the signal from the 84 pin of the CPU1 changes from "H" to "L".
After reading the change of the position of the Synch Switch, the CPU outputs an external flash unit firing signal "L" from its 46 pin. The signal turns on the Triac SLR303 via Q308 and R315, thus firing the external flash unit.



(8) Auto Focus

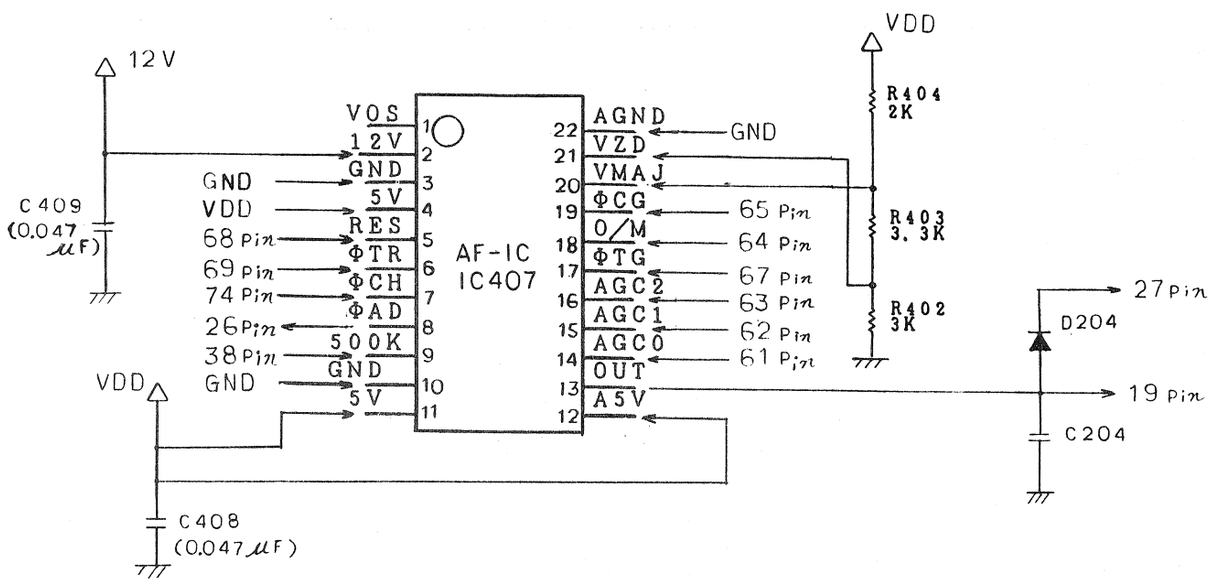
This camera, employing a TTL phase difference detection system, perfoms distance metering on the same principle as 230AF, 200AF and 270AF/230AF Super.
The AF sensor, AF current circuit, etc. are constituted the same way as 270AF/230AF Super.

(8) - 1 AF Control Circuit



The light having passed the taking lens passes through the main mirror and is led via the sub mirror to the AF Module in the lower part of the body.
The light is focused on the CCD Line Sensor of the AF - IC and converted to an electric signal. This analog signal is A/D converted and input to the CPU2. Using this data and the data of the lens ROM already input at anoter timing, the CPU2 performs arithmetic operation and determines the required travel of the lens.
According to the required travel, the CPU2 controls the motor driver to drive the AF Motor.
The actual of the lens is detected by the signal from a PI (photo - interrupter). At sharp - focus or in case of impossible focusing, the green LED light up in the viewfinder.
AF auxiliary light is emitted at the detection of low brightness or low controller by the CPU2.
The preliminary LED is used to enhance the sensitivity during use of auxiliary light.

(8) - 2 Connection of Peripheral Circuits to CPU2



① Reference voltage are input to the 20 pin and 21 pin of the AF - IC by means of voltage division by R402, R403 and R404. That is, VDD is divided by resistance to supply about 1.8V to the 21 pin of the AF - IC and about 3.8V to 20 pin.
The 21 pin is the input terminal for the circuit reference voltage inside the AF - IC. Therefore, the circuit reference voltage of the AF - IC is set to 1.8V.
The 22 pin is the reference voltage terminal for the comparator which is used to detect the saturation of the sensor charge accumlator.

② C204 is intended to remove noise at the 19 pin (input terminal for A / D conversion) of the CPU2.
D204 protects the 19 pin terminal of the CPU2.

③ As by - pass capacitors for power supply, C409 and C408 are inserted between VDD and GND and between 12V and GND, respectively.

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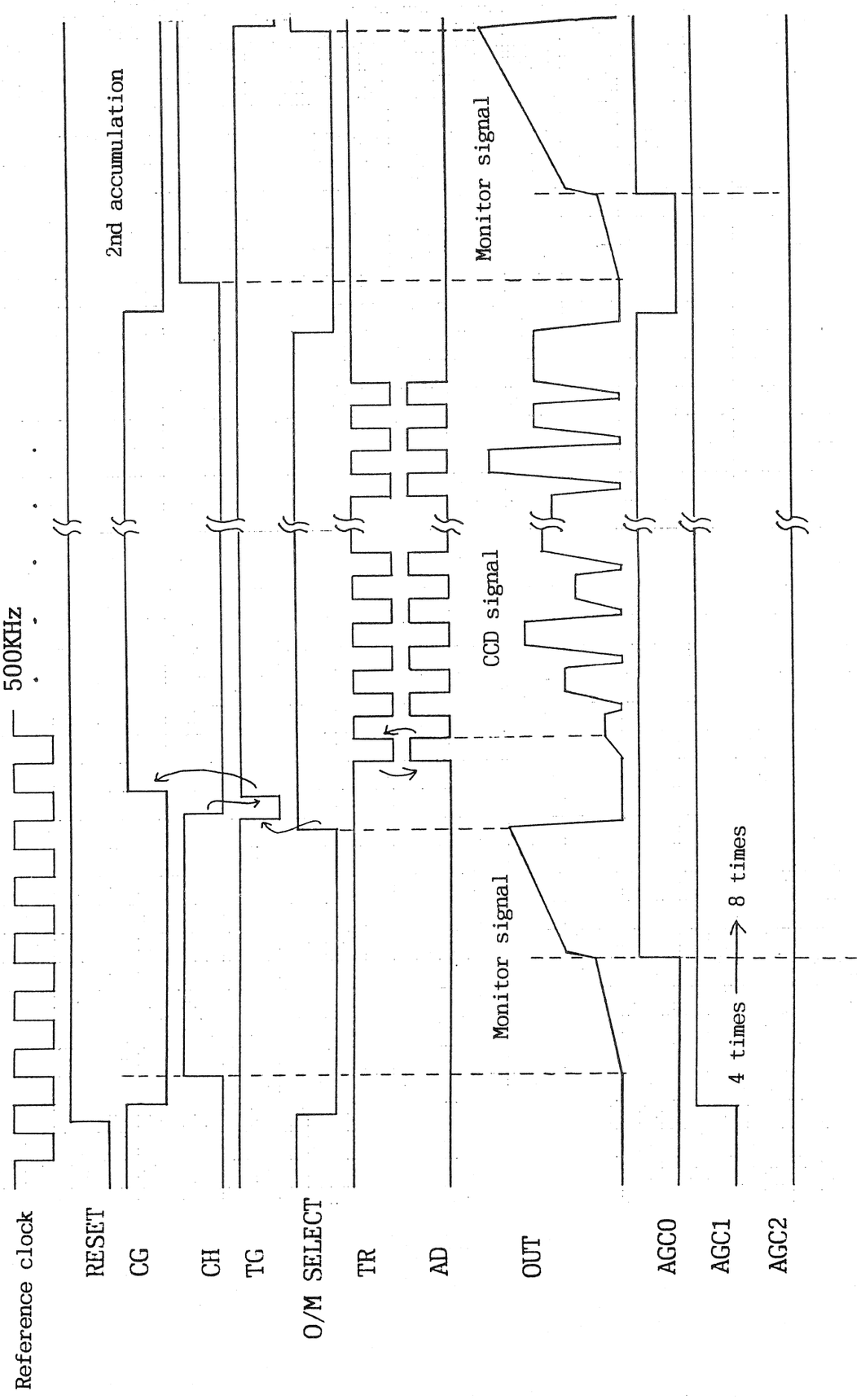
AF Control Timing Chart



(8) - 3 Description of the AF Control Timing Chart

① Electricity is discharged when the RESET terminal signal is "L".

② The RESET terminal signal is turned "H" to start the accumulation of electric charge.

③ When the CG terminal signal changes from "H" to "L", the accumulation of electric charge starts.

④ At the change of the CG terminal signal from "H" to "L", the CH terminal signal turns "H".

⑤ After the start of accumulation, accumulation monitor voltage is output from the OUT terminal. However, the monitor voltage is not output unless the O/M terminal signal is "L".
The monitor voltage is characterized as follows:
a) The voltage increases with the passage of time.
b) The brightness of the subject, the lager the increasing rate (inclination of waveform).
c) The voltage varies with the states of the AGC 0 ～ 2 terminal signals.

⑥ The amplification of the output at the OUT terminal is changed by controlling the AGC 0 ～ 2 terminal signals. (See the table the right.)

AGC2	AGC1	AGC0	Ampli-fication
0	0	0	1
0	0	1	2
0	1	0	4
0	1	1	8
1	0	0	16
1	0	1	*1
1	1	0	32
1	1	1	64

* Not used (for test only)

⑦ The accumulation is ended by the following two methods:
a) An accumulation ending signal is sent from the CPU to the AF - IC.
・ By the processing inside the CPU, the ending signal TG is turned on when the monitor voltage has reached the required level.
・ When the monitor voltage does not reach the required level, the TG signal is turned on upon the passage of 200ms (300ms with the auxiliary light turned on) counted by the timer inside the CPU.
* The TG signal works only when the O/M signal is "H".
b) The accumulation is automatically ended by the operation inside the AF - IC.
・ Except the case of a), when the AF - IC has been saturated with electric charge by accumulation, the comparator in the AF - IC operates to end accumulation.
* This operation works only when the O/M signal is "L".
The timing chart shows an examle of the case a).

⑧ Upon ending of accumulation, the CH terminal signal turns "L".
After making sure that the CH terminal signal is "L", the CPU returns the CG terminal signal to "H".

⑨ The CPU receives accumulation data when the O/M signal is "H".
When the TR signal from the CPU to the AF - IC has changed from "H" to "L", the AF - IC outputs the data on one pixel from the OUT terminal and turns the A/D conversion signal "H". After making sure that the A/D conversion signal is "H", the CPU receives the OUT terminal output A/D converted.
These operations are repeated until all the data are received.
A/D conversion, however, is performed for the first eight pixels, which are dummy data, but it is performed for the subsequent 128 pixels.

⑩ Immediately after completion of data receipt, the next accumulation is started and the operations ①～⑨ are repeated.

⑪ When the lens is to be driven, the accumulation is interrupted and a RESET signal is given to the AF - IC.

⑫ Using the A/D converted (CCD signal) data, the arithmetic operation of pahse difference is performed to calculate the de - focus amount and direction on the film surface.
This de - focus amount is converted to the required number of lens drive pulses using the lens ROM data. In addition, at distance metering during drive, the calculation result of the number of pulses is corrected with the actual lens travel taken into account to determine the required lens travel.

⑬ The direction of rotation for lens drive is determined by the two signals at the 35 pin, or AF (Forward) signal, and the 36 pin, or AF (Reverse) signal, of the CPU2. (See page A - 19)

AF Operation Inhibition Conditions

AF operation is not performed under the following conditions:

① The lens is not mounted. (The lens ROM has not been read correctly.)

② The sequential operations (mirror - up/down, shutter operation, film winding, rewinding and blank shots advance) of the camera are being performed.

③ The lens drive speed is changing

(9) Predictive AF

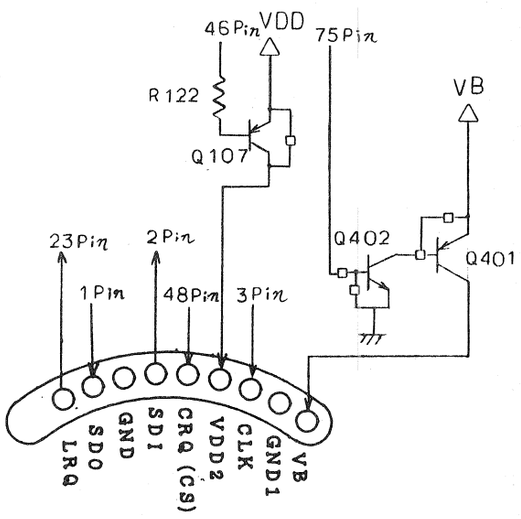
Predictive AF control is performed only by the processing on software. Therefore, the camera is not provided with any special mechanism or hardware for this control.
For this control, the image shift speed of the subject is calculated from the distance metering data which are continuously input and then the image shift in the next moment is predicted.
In the Continuous AF mode, the lens drive speed is calculated from the prediction result and accordingly the lens is driven so that it follows the movement of the subject. Once the Shutter Release has been pressed, the lens is driven continuously even during mirror - up and stopped immedately before the start of shutter operation.
In the Trap Focus AF mode, the time required for the subject to arrive at the sharp - focus position is calculated from the prediction result and the shutter is operated at the calculated timing. In addition, mirror - up time, which varies with battery power is corrected.

(10) Power Zoom Lens

Zooming is carried out by turning the Zoom Ring for the lens (AF Power Zoom 28 - 70mm/ F3.5 - 4.5, 70 - 210mm/4 - 5.6 MACRO). Zooming is performed at one of three speeds depending on the feed angle of the Zoom Ring. The lens is driven at a low speed when the feed angle is small, and at a higher speed when a larger feed angle is selected.

Either motor - driven operation or manual operation can be selected for the advance and retraction of the Zoom Ring. Motor - driven zooming is performed with the dedicated motor incorporated in the lens unit. The power for zooming is supplied from the lithium battery of the camera.

The controls concerning the lens are performed by the dedicated microcomputer incorported in the lens unit. This microcomputer always communicates with the CPU2 of the camera. For example, when the main Switch of the camera is turned off, the power is turned off after completion of zooming so that the lens forcal length becomes shortest.



(Connection of Contacts on Lens Unit to CPU2)

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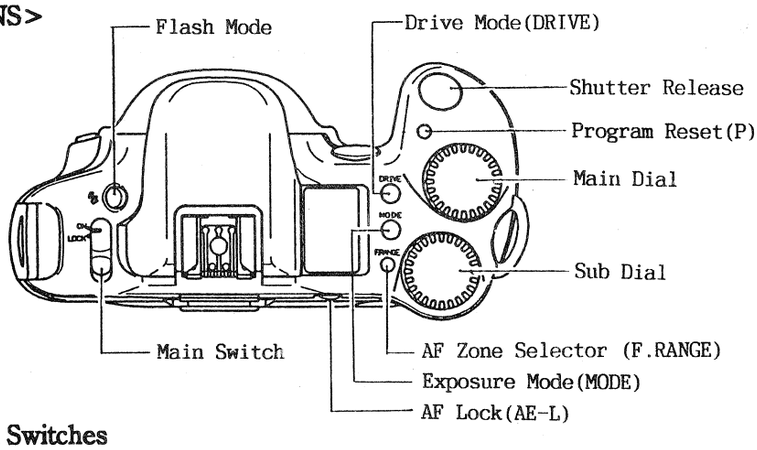
<SWITCH FANCTIONS>

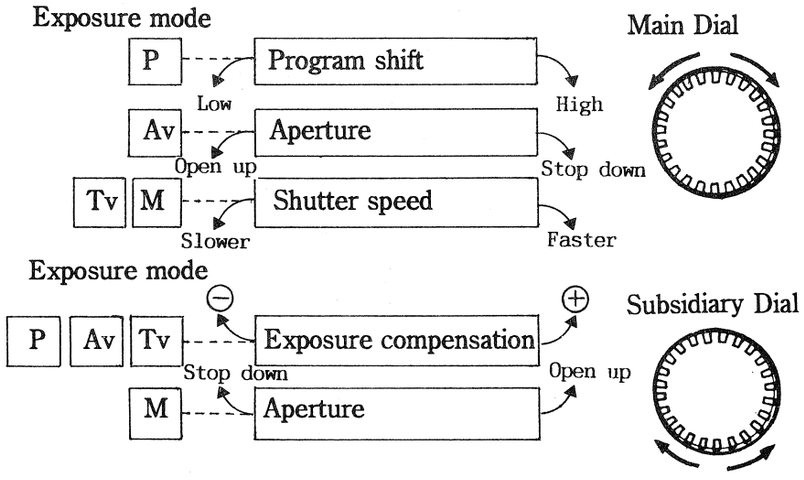


*** External Operation Switches**

Symbol	Function
* Main Dial * Sub Dial	Set shutter speed, aprture and exposure compensation in Exposure mode. · Functions of dials in various modes.

Exposure Mode	Main Dial	Subsidiary Dial
Programd AE (P)	Program shift	Exposure compensation
Aperture - priority AE (Av)	Apeture setting	Exposure Compensation
Shutter - priority AE (Tv)	Shutter speed setting	Exposure Compensation
Manual exposure (M)	Shutter speed setting	Aperture setting

· Exposure modes and function of dials.



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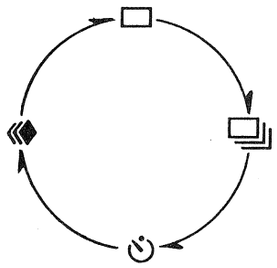
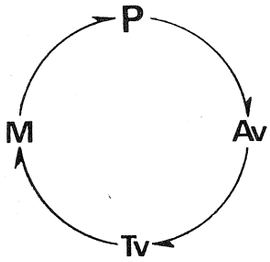
Symbol	Function
*Main SW	Main Switch When this switch in turned on, the camera is ready for shooting. "H" : Main Switch ON, operations possible. "L" : Main Switch OFF, power off.
*Check	Check Switch When the Shutter Release is pressed halfway, this switch turns on. Then power is supplied to each circuit and light metering and distance metering are started. Power is held for 16 seconds after your quitting your press of the Shutter Release.
*Shutter Release	Shutter Release Switch "H" : Shutter Release Switch OFF. "L" : Shutter Release Switch ON, and the camera starts operating at full press of the Shutter Release.
*Drive	Drive Mode Switch This switch sets a drive mode. At each press of the Drive Mode Button, a drive mode is set in rotation as shown at right. 
*Exposure Mode	Exposure Mode Switch This switch changes exposure modes. At each press of the Exposure Mode Button, an exposure mode is set in rotation as shown at right.  This setting, however, is not possible under any of the following conditions: ① Drive, AE - L or P - Reset Button has been pressed. ② The sequential operations of release, rewinding and blank shots advance are being carried out. ③ The Check Switch has been turned on.

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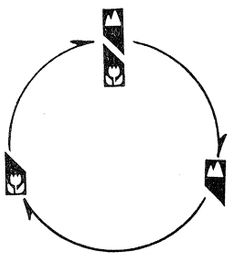
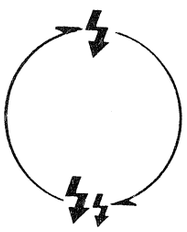
Symbol	Function
*AF Zone Selector	AF Zone Selector Switch (Camera - to - subject distance changeover button). At each press of the AF Zone Selector Button, an AF zone is selected in rotation as shown at right.   AF in a zone from the closest point to infinity.  AF in a zone from 3m to infinity.  AF in a zone from the closest point to 3m.
*AE Lock	AE Lock Switch This switch locks exposure in Program AE mode, Aperture - priority AE mode and Shutter - priority AE mode. Slow Synch mode is set in the Flash mode.
*Flash Mode	Flash Mode Switch (Flash Pop - up/Pre - flash Button) At press of the Flash Mode Switch, the built - in flash pops and charging starts. At the turning on of the Shutter Release Switch, the built - in flash is activated. With the flash popped down, the built - in flash is not activated. At each press of the Flash Mode Button, flash mode changes in rotation as shown at right.   : Main flash  : Pre - flash + main flash
*Rewind SW	Min - roll Film Rewind Switch Press of the Rewind Switch Button starts rewinding. "H" : Rewind Switch OFF. "L" : Rewind Switch ON.
*AF/MF	AF/MF Selector Switch This switch selects auto focusing or manual focusing. "H" : Switch OFF for auto focusing. "L" : Switch ON for manual focusing.
Pop - Up	Flash Pop - up Detector Switch "H" : Flash pop - down. "L" : Flash pop - up.

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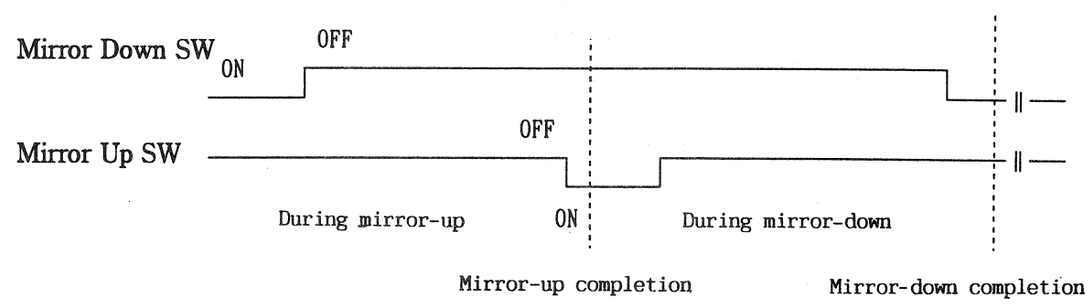
Symbol	Function
Battery SW	Battery Loading Detect Switch "H" : Battery Loading Detect Switch ON at Battery Cover close → open. "L" : Battery Loading Detect Switch OFF at Battery Cover open → close. This Switch detects the presence/absence of a battery in the battery chamber. When the Battery Loading Detect Switch is turned off, memory of the CPU is reset by hardware.
Back Cover SW	Back Cover Switch This switch detects the opening/close of the Back Cover. "L" : Back Cover Switch OFF → ON at Back Cover close → open. "H" : Back Cover Switch ON → OFF at Back Cover open → close. Immediately after Back Cover open → close, and blank shots advance is performed by three frames.
Mirror SW	Mirror Position Detector Switch ① Mirror - Down Switch This switch, interlocking with the Mirror Drive Cam, is turned on when the Mirror is in the down position. It is turned off when the Mirror starts rising. ② Mirror - Up Switch This switch, interlocking with the Mirror Drive Cam, is turned on when the Mirror is in the up position. It is turned off when the Mirror starts lowering. Timing of ① and ② 
Synch SW	Synch Switch This switch turns on at completion of the first - curtain travel in the Shutter Unit. It turns off during Shutter charge (mirror - down).

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DESCRIPTION OF FUNCTIONS OF CPU TERMINALS

<Description of Functions of CPU1 Terminals>

No.	Terminal Name	Signal Name	I/O	Functions, Remarks
1	PB0/VREF	V REF	−	Reference voltage for A/D conversion
2	AVss	Analog GND	−	Analog GND
3	TEST			Grounding
4	X2		Input	Input terminal for system clock (32KHz)
5	X1		Output	External output terminal for system clock (32 KHz)
6	Vss		−	GND
7	OSC1		Input	Input terminal for system clock (10KHz)
8	OSC2		Output	External output terminal for system clock (10KHz)
9	RES	Reset (from Reset IC)	Input	CPU1 reset at "L"
10	MDD			Vcc
11	P20	CS (EEPROM)	Output	EE PROM selection terminal for serial communication
12	P21	Self - timer LED	Output	Self - timer LED control, lighting at "H"
13	P22	PH	Output	"H" :Power hold, "L" :Power off
14	P23	F.Indicator LED 1	Output	LED for viewfinder display, lighting at "L"
15	P24	F.Indicator LED 2	Output	
16	P25	F.Indicator LED 3	Output	
17	P26	F.Indicator LED 4	Output	
18	P27	F.Indicator LED 5	Output	
19	P30	Key matrix output1	Output	Matrix Switch read output
20	P31	Key matrix output2	Output	
21	P32	Key matrix output3	Output	
22	P33	Pop up detection	Input	Flash pop - up detection "L" in popped up position
23	P34	D0	−	Data communication with CPU2 (bi - directional)
24	P35	D1	−	
25	P36	D2	−	
26	P37	D3	−	
27	Vss		−	GND
28	V3			N.C
29	V2			N.C
30	V1			N.C
31	Vcc		−	Vcc
32	PA3/COM4	Reset (to CPU2)	Output	CPU2 reset at "L"

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No.	Terminal Name	Signal Name	I/O	Functions, Remarks
33	PA2/COM3			
34	PA1/COM2	Common	Output	Common output terminal for LCD display
35	PA0/COM1			
36	P50	Key matrix inputl	Input	
37	P51	Key matrix input2	Input	Matrix Switch read input
38	P52	Key matrix input3	Input	
39	P53	Key matrix input4	Input	
40	P54	Main SW	Input	"H" : Main Switch ON, "L" : Main Switch OFF
41	P55	Rewind SW	Input	"H" : OFF, "L" : ON
42	P56	P Reset SW	Input	"H" : OFF, "L" : ON
43	P57	LRQ	Input	Signal input of serial communcation request (Lens CPU → CPU1)
44	P60	Pre/Main switching	Output	"H" : Pre-flash, "L" : Main flash
45	P61	Flash signal	Output	"H" : Flash fire
46	P62	External flash	Output	External flash unit signal, "L" : Flash fire
47	P63	Light metering output switching	Output	Switching signal of Ave/Spot metering
48	SEG13			
49	SEG14	Segment signal		
～	～		Output	Output terminal for LCD display segment
75	SEG40			
76	Vcc		−	Vcc
77	P10	Buzzer control	Output	Control signal for Piezo − electric Buzzer 5KHz clock
78	P11	Charge control (OSC)	Output	Control signal for built - in flash charge 50 KHz clock
79	P12	1REQ (to CPU2)	Output	Signal output of serial communication request (CPU1 → CPI2)
80	P13	1ACK (to CPU2)	Output	Signal output of serial communication response (CPU1 → CPU2)
81	P14	DX4/ACK	Input & Output	DX code read terminal Response signal output of communication with adjusting unit
82	P15	2REQ	Input	Signal input of serial communication request (CPU2 → CPU1)
83	P16	Test1	Input	Test mode communication terminal
84	P17	XSW	Input	Shutter X signal input

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No.	Terminal Name	Signal Name	I/O	Functions, Remarks
85	P40	SCK	Output	Clock terminal for serial communication with EEPROM
86	P41	SDI	Input	Input terminal for serial communication data (form EEPROM)
87	P42	SD0	Output	Output terminal for serial communication data (to EEPROM)
88	P43	Back Cover SW	Input	"H" : Back Cover close, "L" : Back Cover open
89	AVcc		−	Vcc
90	PB0	Charge comple − tion (outside)	Input	Voltage input for external flash unit charge monitor
91	PB1	DX0	Input	DX code read terminal
92	PB2	DX1	Input	
93	PB3	DX2	Input	
94	PB4	DX3	Input	
95	PB5	AF/MF change − over SW	Input	"H" : AF, "L" : MF
96	PB6	Test2	Input	Test mode communication terminal
97	PB7	2ACK (from CPU2)	Input	Signal input of serial communication response (CPU2 → CPU1)
98	PC0	Temperature input	Input	Temperature output read of light metering IC
99	PC1	Charge comple − tion (built − in)	Input	Voltage input for built − in flash charge monitor
100	PC2	Light metering output	Input	Output signal of light metering IC

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<Description of Functions of CPU2 Terminals>

No.	Terminal Name	Signal Name	I/O	Functions, Remarks
1	P50	SDO (Lens)	Output	Output terminal serial communication data (to Lens CPU)
2	P51	SDI (Lens)	Input	Input terminal serial communication data (from Lens CPU/ROM)
3	P52	SCK (Lens)	Output	Clock terminal for serial communication with Lens CPU/ROM
4	RES	Reset	Input	CPU2 reset at "L"
5	NMI	1REQ (from CPU1)	Input	Signal input of serial communication request (CPU1 → CPU2)
6	Vcc	Vcc	–	Vcc
7	STBY			Vcc
8	Vss		–	GND
9	Vss		–	GND
10	N.C			Open
11	X'tal			Open
12	N.C			Open
13	EX'tal		Input	Input terminal for system clock (10MHz)
14	MDI			Vcc
15	N.C			Open
16	MDO			Vcc
17	AVss	Analog GND	–	Analog GND
18	P70	Winding pulse	Input	Perforation read
19	P71	AF - OUT	Input	Analog signal of AF distance metering result
20	P72	Battery check	Input	Battery monitor voltage (analog input)
21	P73		–	Grounding
22	P74		–	Grounding
23	P75	LRQ	Input	Signal input of serial communication request (Lens CPU → CPU2)
24	N.C			Open
25	P76			Open
26	P77	ϕ AD	Input	AF - IC control signal
27	AVcc	A V_{REF}	–	Reference voltage for A/D conversion
28	P60	Mirror Motor (rotation)	Input	"H" : Rotation
29	N.C			Open
30	P61	Mirror Motor (brake)	Output	"H" : Brake
31	N.C			Open

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No.	Terminal Name	Signal Name	I/O	Functions, Remarks
32	P62	Winding Motor (forward rotation)	Output	┌H:forward ┌H:brake ┌L:reverse ┌L:OFF
33	P63	Winding Motor (reverse rotation)	Output	└L: └H: └H: └L:
34	N.C			Open
35	P64	AF Motor (forward rotation)	Output	┌H:forward ┌H:brake ┌L:reverse ┌L:OFF
36	P65	AF Motor (reverse rotation)	Output	└L: └H: └H: └L:
37	P66	2ACK (to CPU1)	Output	Signal output of serial communication respomse (CPU2 → CPU1)
38	P67	AF500KHz	Output	Output terminal for AF - IC system clock (500 KHz)
39	Vcc		−	Vcc
40	P27	Shutter second - curtain magnet	Output	Second - curtain hold OFF at "H"
41	P26	Shutter first - curtain magnet	Output	First - curtaion hold OFF at "H"
42	P25	Aperture magnet	Output	Signal output of aperture magnet control
43	P24	AF - IC prelimi - nary LED	Output	Preliminary lighting at "H"
44	P23	AF Auxiliary Light/Self - timer LED	Output	Lighting at "L"
45	N.C			Open
46	P22	LVPH	Output	Signal output of power to lens circuit "L"
47	P21	AF - LED	Output	Lighting at "L"
48	P20	Aperture LED/ Winding LED	Output	Lighting at "L"
49	N.C			Open
50	Vss		−	GND
51	N.C			Open
52	P17	D3	Iutput & Output	┐
53	P16	D2	Iutput & Output	├ Data communication with CPU1 (bi - directional)
54	P15	D1	Input & Output	┘
55	N.C			Open
56	P14	D0	Input & Output	Data communication with CPU1 (bi - directional)

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No.	Terminal Name	Signal Name	I/O	Functions, Remarks
57	P13	Data imprinting	Output	Imprinting at "H"
58	P12	2REQ(to CPU1)	Output	Signal output of serial communication request (CPU2 → CPU1)
59	P11	Mirror SW (DOWN)	Input	Detection of mirror position (down)
60	P10	Mirror SW (UP)	Input	Detection of mirror position (up)
61	P30	AGC0	Output	AF - IC control signal
62	P31	AGC1	Output	
63	P32	AGC2	Output	
64	P33	O/M - SEL	Output	
65	P34	ϕ CG	Output	
66	N.C			Open
67	P35	ϕ TG	Output	AF - IC control signal
68	P36	AF - RES	Output	
69	P37	ϕ TR	Output	
70	N.C			Open
71	P40	Aperture pulse	Iutput	Aperture encoder pulse input (from aperture PI)
72	P41	AF - pulse	Input	AF encoder pulse input (from AF PI)
73	N.C			Open
74	P42	ϕ CH	Input	AF - IC control signal
75	P43	LVBPH	Output	Signal output for power to lens unit, H : ON
76	N.C			Open
77	P44			
78	P45			
79	P46	1ACK (from CPU1)	Output	Signal input of serial communication response (CPU1 → CPU2)
80	P47	CRQ	Output	Signal output of serial communication request (CPU2 → Lens CPU)

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DESCRIPTION OF FUNCTIONS OF ELECTRIC PARTS

Symbol	Functions, Remarks	Arranged Board
Resistors		
R101	Pull - down resistor for VF of light metering IC	Main FPC
R102	Current - limiting resistor for F. Indicator LED	Main FPC
R103 (=R104) (=R105) (=R106)	Current - limiting resistor for F. Indicator LED	Main FPC
R107	Pull - up resistor for DX code read terminal	Main FPC
R108	Pull - up resistor for DX code read terminal	Main FPC
R109	Pull - up resistor for DX code read terminal	Main FPC
R110	Pull - up resistor for DX code read terminal	Main FPC
R111	Pull - up resistor for AF/MF changeover switch	Main FPC
R115	Pull - up resistor for Main Switch (Battery switch)	Main FPC
R116	Pull - up resistor for Reset IC output (direct to output terminal)	Main FPC
R117	Pull - up resistor for Reset IC output (direct to output terminal)	Main FPC
R118	Pull - up resistor for SDI terminal of CPU1	Main FPC
R119	Pull - up resistor for Test terminal (for adjustment)	Main FPC Main FPC
R120	Pull - up resistor for Back Cover Switch	Main FPC
R121	Control resistor for piezo - electric oscillator	Main FPC
R122	Protective resistor for LVPH terminal of CPU2	Main P.C. Board
R201,202	Current - limiting resistor for AF Auxiliary Light LED	Main P.C. Board
R204,205	Division resistor for battery level check	Main P.C. Board
R206,207	Current - limiting resistor for base of power transistor (PNP) for AF Motor drive	Main P.C. Board
R209	Current - limiting resistor for base of power transistor (NPN) for Mirror Motor drive	Main P.C. Board
R211	Current - limiting resistor for LED of AF - PI	Main P.C. Board
R212	Current - limiting resister for LED of Aperture PI	Main P.C. Board
R213,214	Output division resistor for photo transistor of Winding PI	Main P.C. Board
R215	Current - limiting resistor for collector of photo transistor of Aperture PI	Main P.C. Board
R216	Current - limiting resistor for collector of photo transistor of AF - PI	Main P.C. Board
R217	Current - limiting resistor for base of power transistor (PNP) for Winding Motor drive	Main P.C. Board
R218	Pull - up resistor for V_{REF} of LRQ terminal of CPU2	Main P.C. Board

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Symbol	Functions, Remarks	Arranged Board
R219	Current - limiting resistor for SCK terminal of CPU2	Main P.C. Board
R220	Pull - up resistor for SDI terminal of CPU2	Main P.C. Board
R221	Current - limiting resistor for CRQ terminal of CPU2	Main P.C Board
R222	Pull - down resistor for CRQ terminal of CPU2	Main P.C. Board
R223	Current - limiting resistor for Self - timer LED	Main P.C. Board
R301,302	Current - limiting resistor for base of power transistor (PNP) for flash booster	Flash Board
R303,304, 305	Output division resistor for flash charge voltage monitor	Flash Board
R306	Protective resistor for charge control terminal of CPU1	Flash Board
R307	Current - limiting resistor for collector of pre - flash/main flash changeover transistor(PNP)	Flash Board
R308	"L" level decision of pre - flash/main flash changeover thyristor	Flash Board
R309	Protective resistor for flash firing signal line	Flash Board
R310	"L" level decision of pre - flash/main flash trigger thyristor	Flash Board
R311	For double boosting circuit for flash fire	Flash Board
R312	Charge and discharge of trigger commutation capacitor	Flash Board
R313	Current - limiting for external charge completion terminal of CPU1	Flash Board
R314	"L" level decision of bi - directionl	Flash Board
R315	thyristor for external X	Flash Board
R401	Protective resistor for regulated DC power supply IC	DC - DC Converter
R402,403, 404	Power division resistor for AF - IC	AF1 FPC
R405	Current - limiting resistor for preliminary LED of AF - IC	AF1 FPC
Capacitors		
C101	By - pass capacitor for power to light metering IC	Main FPC
C102,103	32KHz oscillation for CPU1	Main FPC
C121	By - pass capacitor for power to Vcc	Main FPC
C122	By - pass capacitor for power to EEPROM	Main FPC
C123	Stabilization of V_{REF} voltage for CPU1	Main FPC
C124	Stabilization of output signal of light metering IC	Main FPC Main FPC
C125	Stabilization of temperature compensation output of light metering IC	Main FPC
C126	Stabilization of hardware reset output	Main FPC

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Symbol	Functions, Remarks	Arranged Board
C201	Stabilization of battery check voltage	Main P.C. Board
C202	By - pass capacitor for power to Vcc	Main P.C. Board
C203	Stabilization of V_{REF} Voltage for CPU2	Main P.C. Board
C204	Stabilization of output signal of AF - IC	Main P.C. Board
C205	Stabilization of winding pulse output	Main P.C. Board
C301	Stabilization of power supply voltage	Flash Board
C303,304	By - pass capacitor for flash charge monitor voltage	Flash Board
C305	Stabilization of flash charge monitor voltage	Flash Board
C306	Pre - flash fire (sub capacitor)	Flash Board
C307	Main flash fire (main capacitor)	Flash Board
C308	By - pass capacitor for pre - flash/main flash changeover signal	Flash Board
C309	Trigger commutation capacitor for flash fire	Flash Board
C310	For double boosting circuit for flash fire	Flash Board
C311	By - pass capacitor for built - in flash firing signal	Flash Board
C312	By - pass capacitor for external flash firing signal	Flash Board
C401	Stabilization of power supply	DC - DC Converter
C403	Stabilization of secondary - side output of power supply transformer	DC - DC Converter
C404,405	Stabilization of 5V system output of DC - DC Converter	DC - DC Converter
C407	Stabilization of 12V system output of DC - DC Converter	DC - DC Converter
C408	By - pass capacitor for 12V power to AF - IC	AF1 FPC
C409	By - pass capacitor 5V power to AF - IC	AF1 FPC
Transistors		
Q104 (2pcs.)	For hardware reset signal output	Main FPC
Q106		Main FPC
Q107	Lens V_{DD} control	Main FPC
Q201		Main P.C. Board
Q202	AF Auxiliary Light LED drive	Main P.C. Board
Q203		Main P.C. Board
Q205	Aperture magnet drive	Main P.C. Board
Q206 (2pcs.)	Shutter magnet drive	Main P.C. Board
Q208	Voltage detection for battery level check	Main P.C. Board
Q209	Output switching of battery level check voltage	Main P.C. Board
Q210 (2pcs.)	AF - Motor control	Main P.C. Board
Q212 (2pcs.)		Main P.C. Board
Q214 (2pcs.)	Winding Motor control	Main P.C. Board
Q216 (2pcs.)		Main P.C. Board
Q218 (2pcs.)	Mirror Motor control	Main P.C. Board
Q220		Main P.C. Board

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Symbol	Functions, Remarks	Arranged Board
Q221	Mirror Motor deive (power transistor)	Main P.C. Board
Q222		Main P.C. Board
Q223	Data imprinting control	Main P.C. Board
Q224	Self - timer LED drive	Main P.C. Board
Q301	Flash charge control (preliminary power	Flash Board
Q302 (2pcs.)	transistor)	Flash Board
Q303,Q304	Flash boosting transfomer drive (power transistor)	Flash Board
Q305	Overcharge inhibition	Flash Board
Q306	Pre - flash/main flash switching	Flash Board
Q307	Charge completion detection for external flash	Flash Board
Q308	Flash firing signal control for external flash	Flash Board
Q401	Power supply for lens unit (power transistor)	DC - DC Converter
Q402	Power supply control for lens unit (preliminary power transistor)	DC - DC Converter
Q403	Drive of AF - IC preliminary lighting LED	AF1 FPC
Q219	Current amplification	Main P.C. Board
Diodes		
D101	Viewfinder LED	Main FPC
～		Main FPC
D105		Main FPC
D109 (2pcs.)	Diode OR for CPU2 reset	Main FPC
D111	Protection of A/D converter terminal (Schottky diode)	Main FPC
D201	AF Auxiliary Light/Self - timer LED	
D202	AF preliminary lighting LED	
D203	Elimination counter electromotive force due to aperture magnet	Main P.C. Board
D204 (2pcs.)	Protection of A/D converter terminal (Schottky diode)	Main P.C. Board
D206	Reference voltage supply to CPU2 for A/D coversion (Zener diode)	Main P.C. Board
D301,302	Prevention of counter current due to flash charge voltage to boosting transformer	Flash Board
D303	Rectification of flash charge monitor voltage	Flash Board
D304	Detection of flash charge completion voltage	Flash Board
D305	Prevention of counter current to xenon lamp at flash	Flash Board
D401	Protection of collector terminal of DC - DC Converter	DC - DC Converter
D402	Rectification of series power supply input for DC - DC Converter	DC - DC Converter
D403 (2pcs.)	Rectification of 5V system output of DC - DC Converter	DC - DC Converter
D405 (2pcs.)	Rectification of output of regulated DC power supply IC	DC - DC Converter

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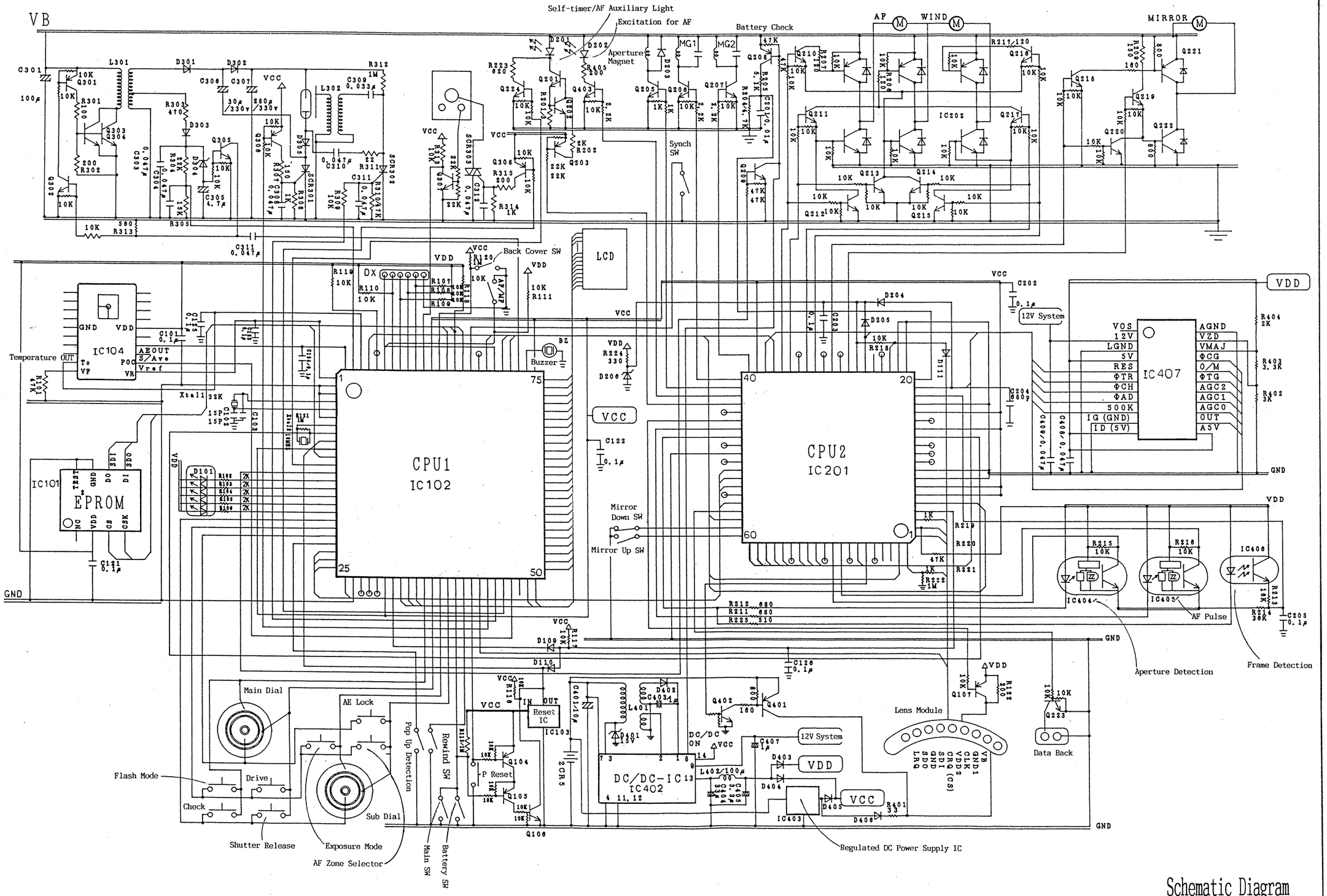
Symbol	Functions Remarks	Arranged Board
ICs		
IC101	EEPROM	Main FPC
IC102	CPU1	Main FPC
IC103	Reset IC	Main FPC
IC104	Light metering IC	Main FPC
IC201	CPU2	Main P.C. Board
IC202	Drive IC	Main P.C. Board
IC402	DC - DC Converter	DC - DC Converter
IC403	Regulated DC power supply IC	DC - DC Converter
IC404,405	Photo - interrupter	Mirror FPC,AF2 FPC
IC406	Photo - reflector	Winding FPC
IC407	AF - IC	AF1 FPC
Thyristors		
SCR301	Pre - flash/main flash switching	Flash Board
SCR302	Flash firing trigger	Flash Board
Triac		
SCR303	Coping with + and − voltage for external X signal	Flash Board
Coils		
L301	Boosting transformer for flash	Flash Board
L302	Trigger coil	Flash Activation unit
L401	Power supply transformer	DC - DC Converter
L402	Dip inductor (stabilization of 5V system output of DC - DC Converter)	DC - DC Converter
Oscillators		
X'tal1	Crystal osillator (32 KHz)	Main FPC
X'tal2	Piezo - electric oscillator (10 MHz)	Main FPC



Schematic Diagram

No.	419-01-50-RA1AG01

B. DISASSEMBLY & REASSEMBLY PROCEDURES

No.	419-01-50-RA1AG01

[Removal of Exterior Parts]

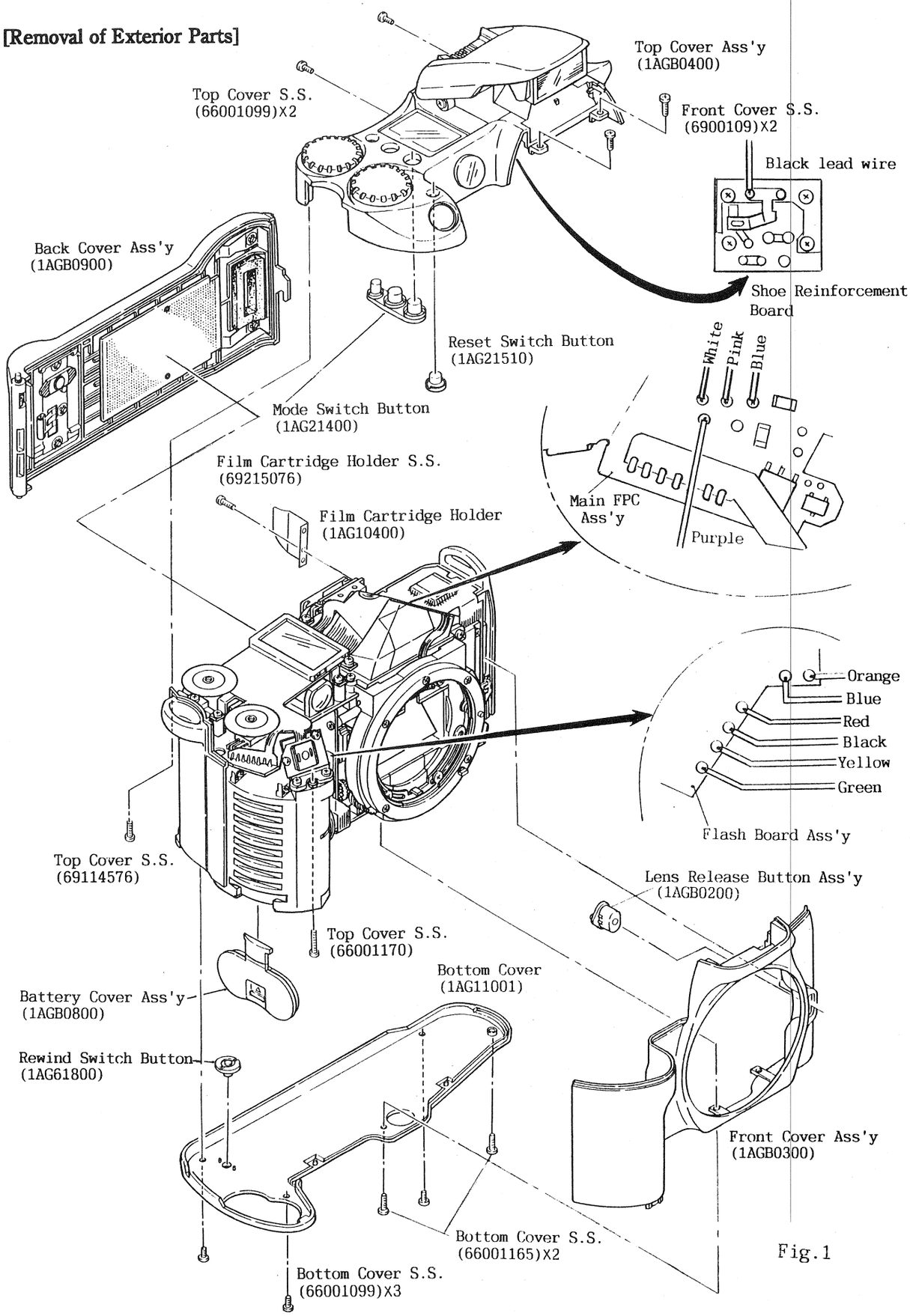


Fig.1

No.	419−01−50−RA1AG01

B - 1 REMOVAL OF EXTERIOR PARTS

B - 1 - 1 Removal of Back Cover Ass'y

1) Slide down the Back Cover lock knob and open the Back Cover Ass'y (1AGB0900).
2) Remove the Back Cover Ass'y by pressing down the Back Cover Relase pin.

B - 1 - 2 Removal of Bottom Cover

1) Remove the Bottom Cover Setscrews (66001165) × 2, (66001099) × 3 and take off the Bottom Cover (1AG11001).
2) Remove the Rewind Switch Button (1AG61800).

B - 1 - 3 Removal of Front Cover Ass'y

1) Remove the Film Cartridge Holder Setscrew (69215076) and the Film Cartridge Holder (1AG10400).
2) Depress the Flash Button then the Flash will pop - up and remove the Front Cover Setscrews (69001099) × 2.
3) Remove the Front Cover Ass'y (1AGB0300), Lens Release Button Ass'y (1AGB0200) and Battery Cover Ass'y (1AGB0800).

B - 1 - 4 Removal of Top Cover Ass'y

1) Remove the Top Cover Setscrew (66001170) from inside the battery chamber.
2) Remove the Top Cover Setscrew (69114576) on the hinge side of body.
3) Remove the Top Cover Setscrew (66001099) × 2.
4) While raising the Top Cover Ass'y (1AGB0400), unsolder the 10 lead wires on the Main FPC and Flash Board.
   ① White lead wire (Flash Mode Switch) on the Main FPC.
   ② Purple lead wire (Main Switch) on the Main FPC.
   ③ Pink lead wire (Pop - up Switch) on the Main FPC.
   ④ Blue lead wire (Flash Mode Switch) on the Main FPC.
   ⑤ Green lead wire (CH signal) on the Flash Board.
   ⑥ Yellow lead wire (X) on the Flash Board.
   ⑦ Black lead wire (GND) on the Flash Board.
   ⑧ Red lead wire (Xenon lamp ⊕) on the Flash Board.
   ⑨ Blue lead wire (Xenon lamp ⊖) on the Flash Board.
   ⑩ Orange lead wire (trigger coil) on the Flash Board.
5) Unsolder the Black lead wire (from ⊖ Battery Contact) on the Shoe Reinforcement Board.
6) Remove the Top Cover Ass'y and take off the Mode Switch Button (1AG21400) and Reset Switch Button (1AG21510).

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[Notes on Repair]

a) The flash capacitors, kept at high voltage, are vary dangerous. Before unsoldering the lead wires (from Top Cover Ass'y) on the Flash Board, discharge the capacitors using a jig. There are a main capacitor and sub capacitor on the Flash Board. Be sure to discharge both of them.

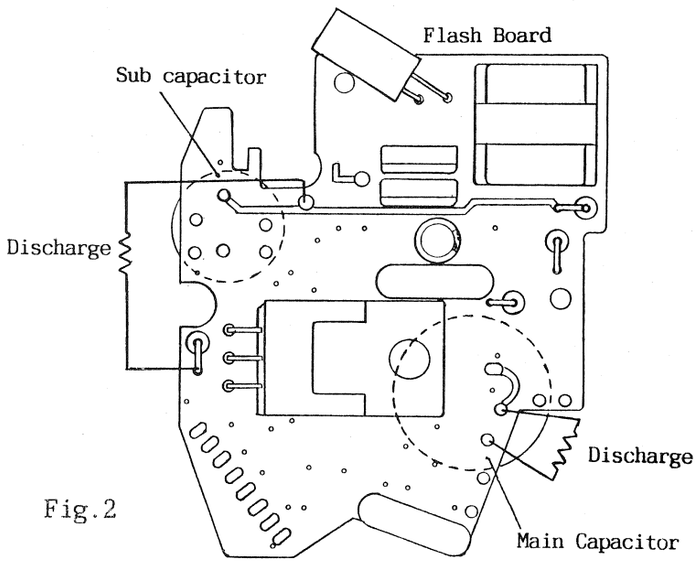

Fig.2

Flash Board

b) After removeing the Top Cover Ass'y (1AGB0400), do not proceed during the repair with the Penta Holder down, nor apply force to the Penta Holder Ass'y from above. Otherwise, the Penta Holder Ass'y can be deformed and the image through the viewfinder may be seen distorted.

[Notes on Installation of Front Cover Ass'y]

a) Install the Lens Release Button Ass'y (1AGB0200) in the Body in the position as shown in Fig.3.

b) Set the AF/MF Selector Lever in the "AF" position and Install the Front Cover Ass'y in the Body. (See Fig.3)

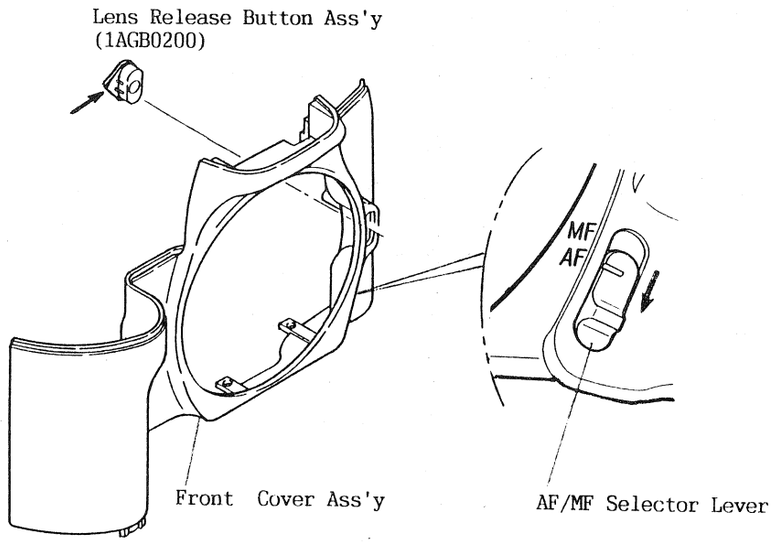

Fig.3

No.	419-01-50-RA1AG01

[Notes on Installation of Top Cover Ass'y]

a) **Install the Reset Switch Button (1AG21510) and Mode Switch Button (1AG21400) in the Top Cover Ass'y as shown in Fig.4.**

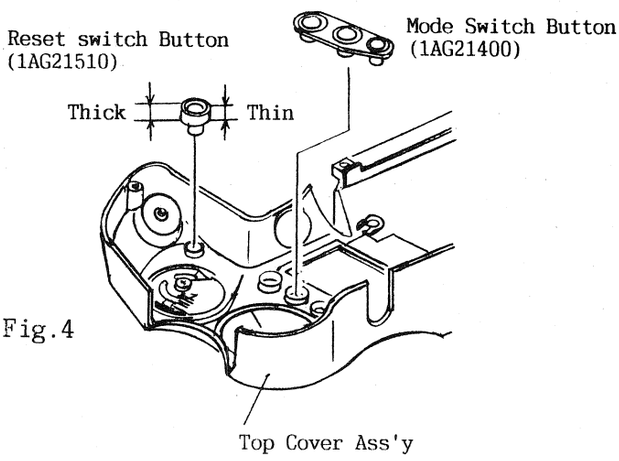

Fig.4

b) **After installing the Top Cover Ass'y, dress the lead wires as shown in Fig.5.**

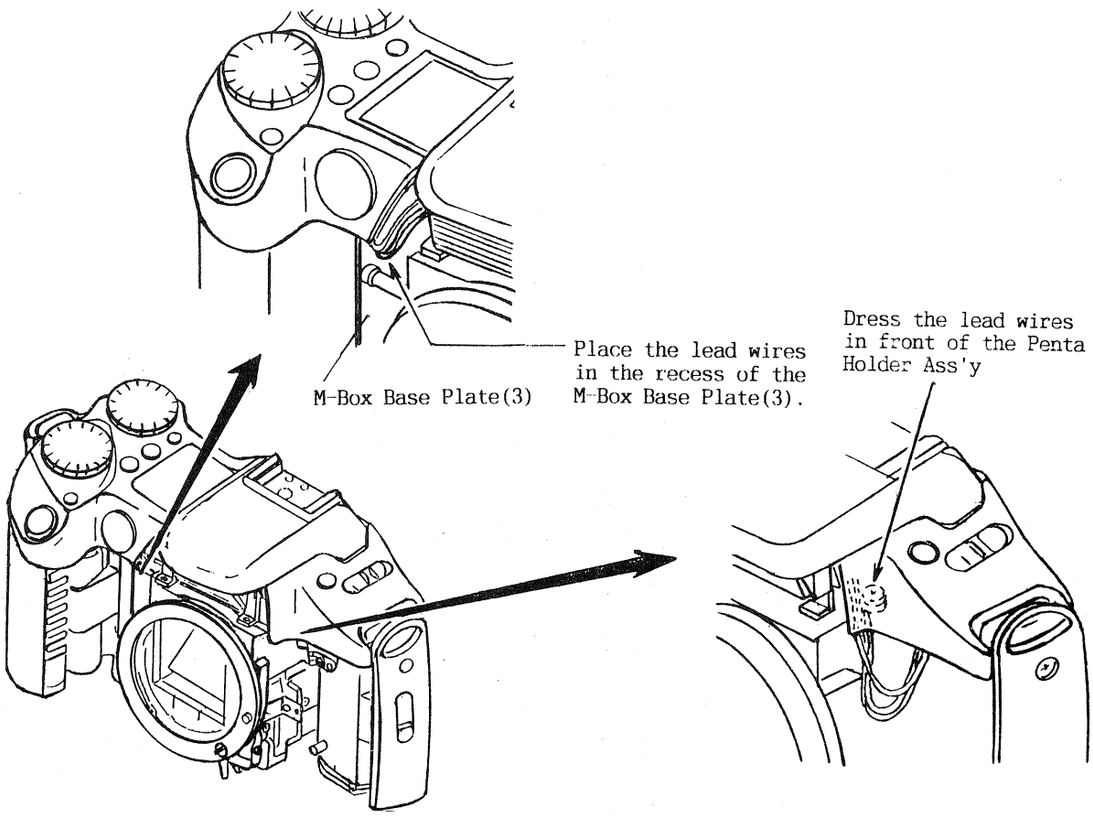

Fig.5

No.	419-01-50-RA1AG01

B - 2 REMOVAL OF MAIN FPC ASS'Y

B - 2 - 1 Removal of Main FPC Ass'y

1) Unsolder the 8 soldered joints between the Main FPC Ass'y and the Flash Board.
2) Unsolder the 7 soldered joints between the Main FPC Ass'y and the Lens FPC.
3) Unsolder the 6 soldered joints between the Main FPC Ass'y and the LED - FPC.
4) Unsolder the three lead wires on the Main FPC Ass'y.
   ① Red lead wire (from Buzzer)
   ② Black lead wire (from Buzzer)
   ③ Green lead wire (from Shutter)
5) Unsolder the Yellow lead wire (from Main FPC) on the Main P.C. Board.
6) Unsolder the 2 soldered joints between the Main FPC Ass'y and the DATE - FPC.
7) Unsolder the 25 soldered joints between the Main FPC Ass'y and the Main P.C. Board.

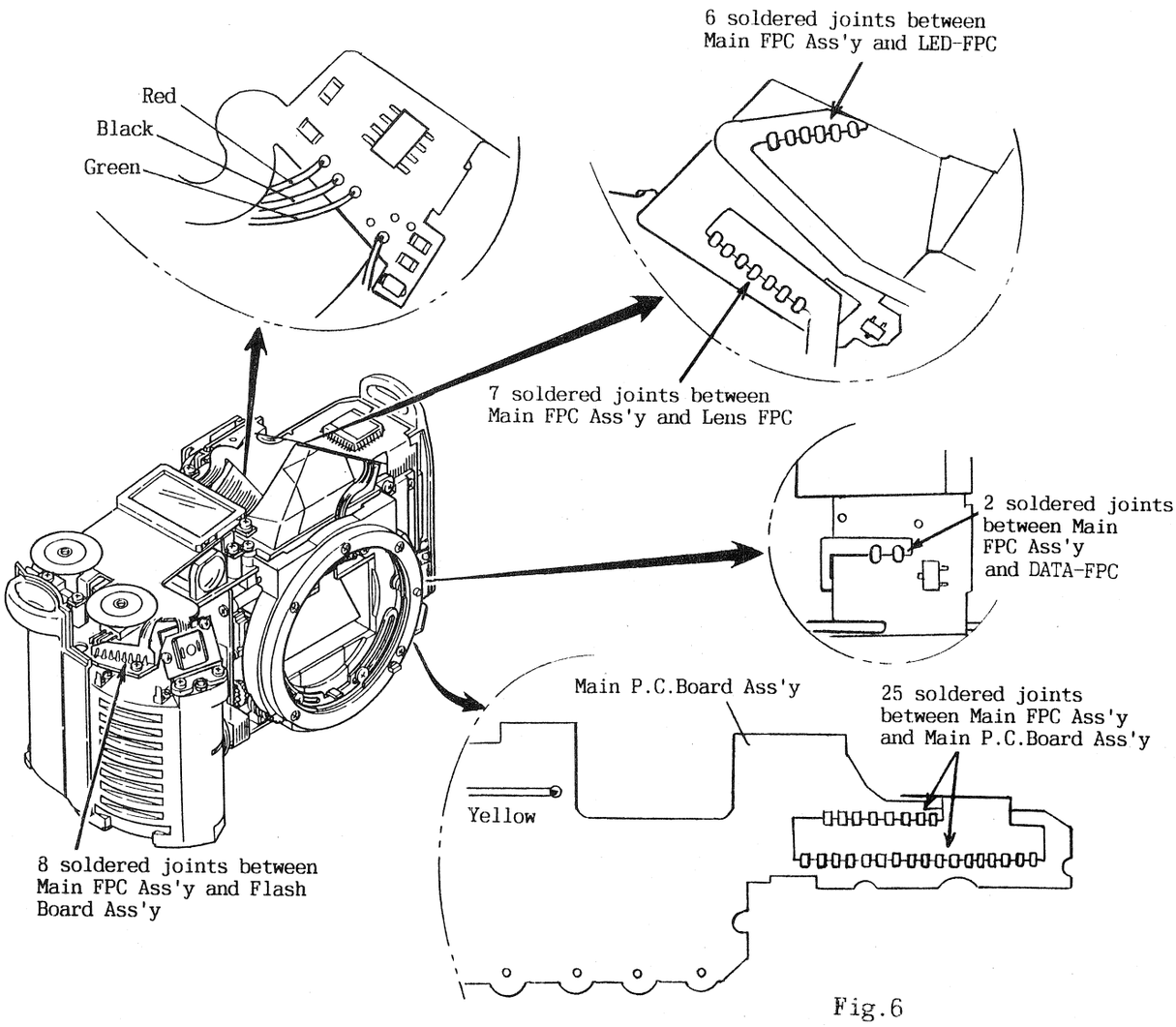

Fig.6

No.	419-01-50-RA1AG01

[Removal of Main FPC Ass'y]

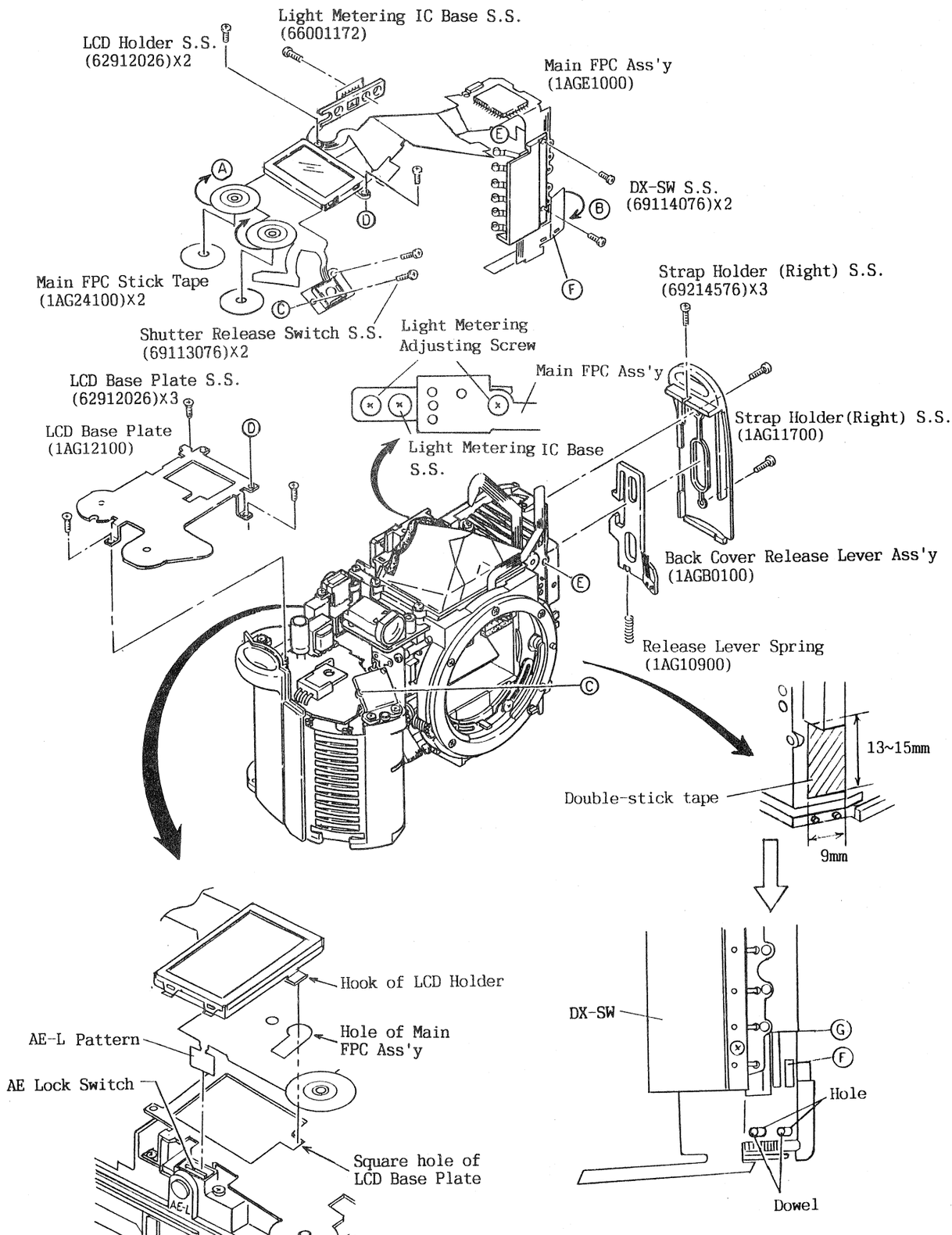

Fig.7

8) Remove the Strap Holder (Right) Setscrews (69214576) × 3 and take off the Stap Holder (Right)(1AG11700), Release Lever Spring (1AG10900) and Back Cover Release Lever Ass'y (1AGB0100).
9) Remove the Light Metering IC Base Setscrew (66001172).
10) Remove the Shutter Release Switch Setscrews (69113076) × 2.
11) Remove the LCD Holder Setscrews (62912026) × 2.
12) Remove the DX - SW Setscrews (69114076) × 2.
13) Peel off the upper left side of the Main FPC Ass'y in the direction of the arrow Ⓐ .
* Peel off the Main FPC carefully, since the Main FPC Ass'y is attached to the LCD Base Plate with Main FPC Stick Tape (1AG24100).
14) Peel off the lower right side of the Main FPC Ass'y in the diection of the arrow Ⓑ and take off the Main FPC Ass'y (1AGE1000).
* Peel off the Main FPC carefully, since the Main FPC Ass'y is attached to the Body with double - stick tape.

Notes:
a) Do not turn the light metering adjusting screw when removing the Light Metering IC Base Setscrew (66001172).
b) Instead of removing the LCD Holder Setscrews (62912026) × 2 at step 11), the LCD Base Plate Setscrews (69313566) × 3 may be removed.
Then the LCD Base Plate (1AG12100) and Main FPC Ass'y (1AGE100) can be taken off together, so that step 13) may be omitted.

[Notes on Installation of Main FPC Ass'y]
a) Place the AE - L pattern of the Main FPC Ass'y behind the AE Lock Switch as shown in Fig.7.
b) Pass the hook of the LCD Holder through the hole in the Main FPC and catch it in the square hole of the LCD Base Plate. (See Fig.7)
c) Install the lower right side (Ⓕ) of the Main FPC Ass'y in such a way that the dowel is positioned to the left of the hole of the Main FPC Ass'y. And attach the Main FPC Ass'y so that its end is in alignment with the line of Ⓖ . Clean the pattern of Ⓕ with a lens cleaning paper with ether alcohol.

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[Attaching Position of Acetate Cloth Tape]

After the Main FPC Ass'y, is replaced attach acetate cloth tape (20 × 15 mm) to the Main FPC Ass'y (top of penta) as shown in Fig.8.

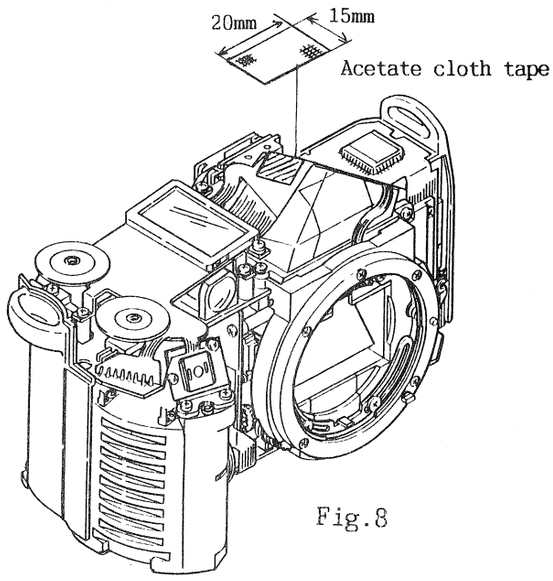

Fig.8

[Installation of Counter LCD]

1) Clean the connector pattern of the Main FPC Ass'y with lens cleaning paper with ether alcohol.
2) Attach double - stick tape (20 × 5 mm) to the Main FPC Ass'y.
3) Adjust the position of the four dot marks on the Counter LCD (1AG53000) to the connector pattern of the Main FPC Ass'y.
4) Place the LCD Connector Rubber (1AG12200) between the Main FPC Ass'y and the Counter LCD
5) Install the Main FPC Ass'y with the Counter LCD in the LCD Holder (1AG11920).
6) Install the LCD Retainer (1AG12000). In doing so, insert the four hooks of the LCD Holder in the holes of the LCD Retainer.

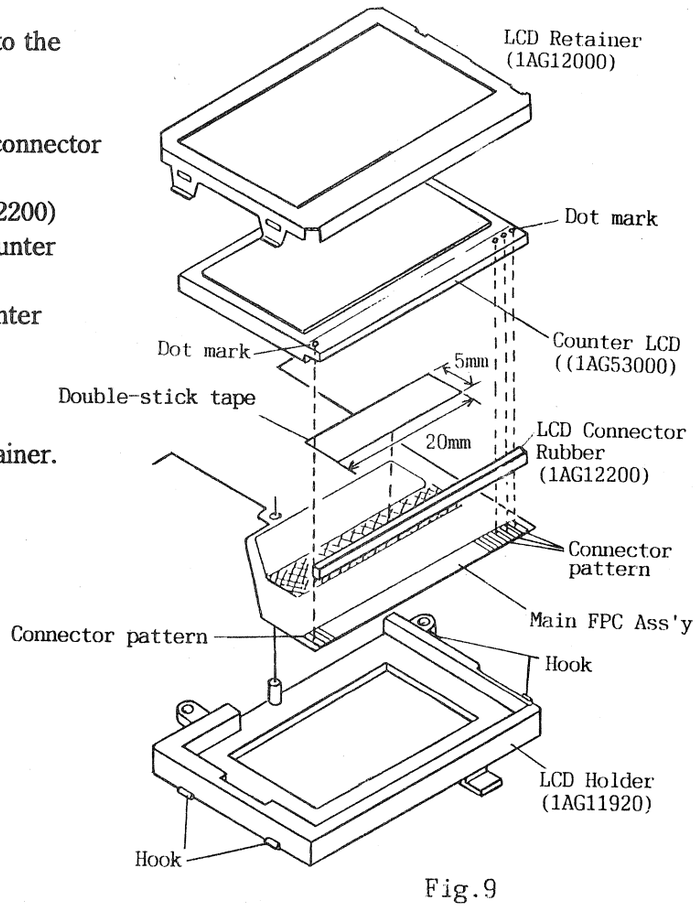

Fig.9

No.	419-01-50-RA1AG01

[Forming of Main FPC Ass'y]

When replacing the Main FPC Ass'y, bend the new Main FPC Ass'y along the seven broken lines (---) as shown in Fig.10.

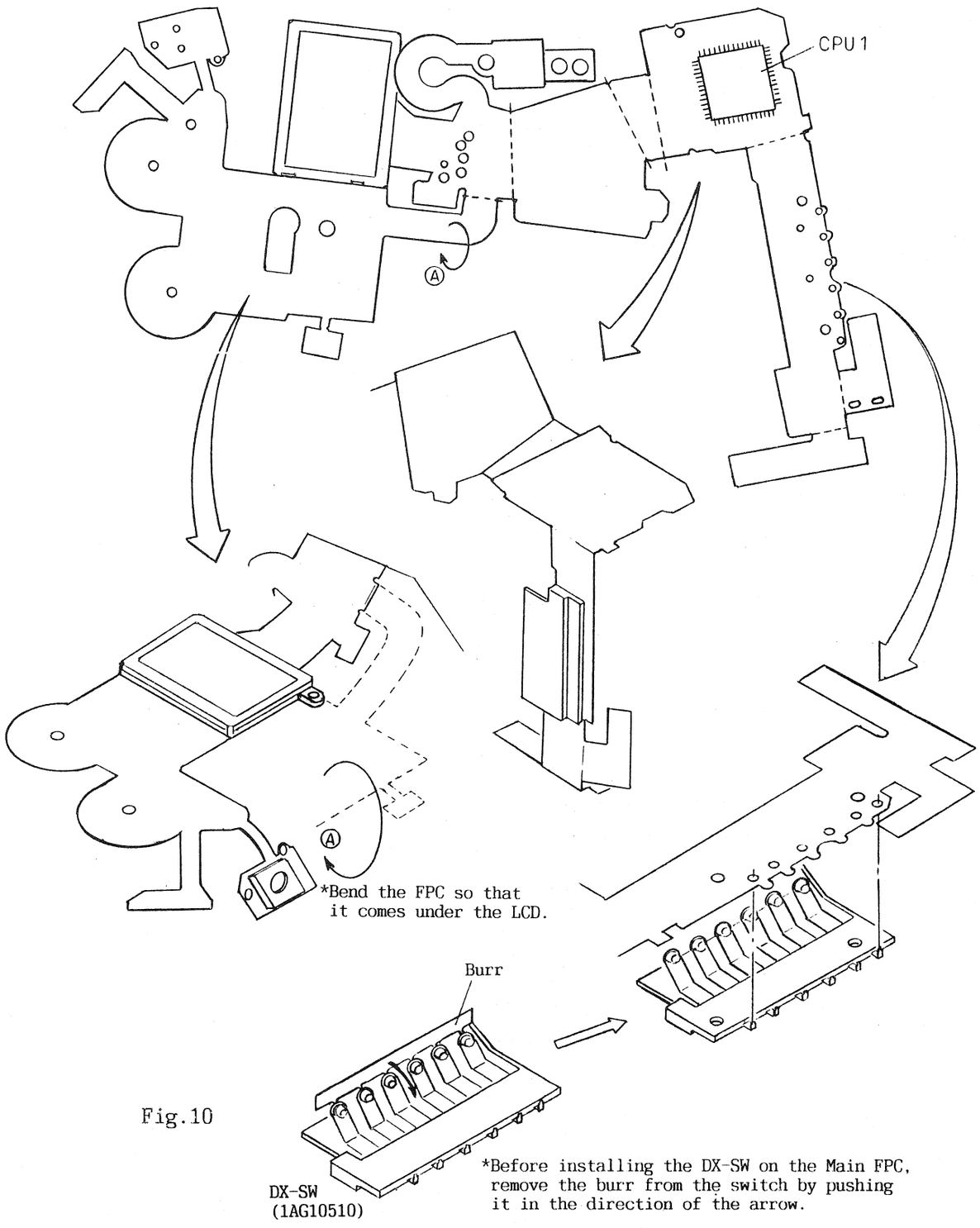

Fig.10

No.	419-01-50-RA1AG01

[Removal of Main P.C. Board Ass'y]

(Soldered joints of Main P.C. Board)

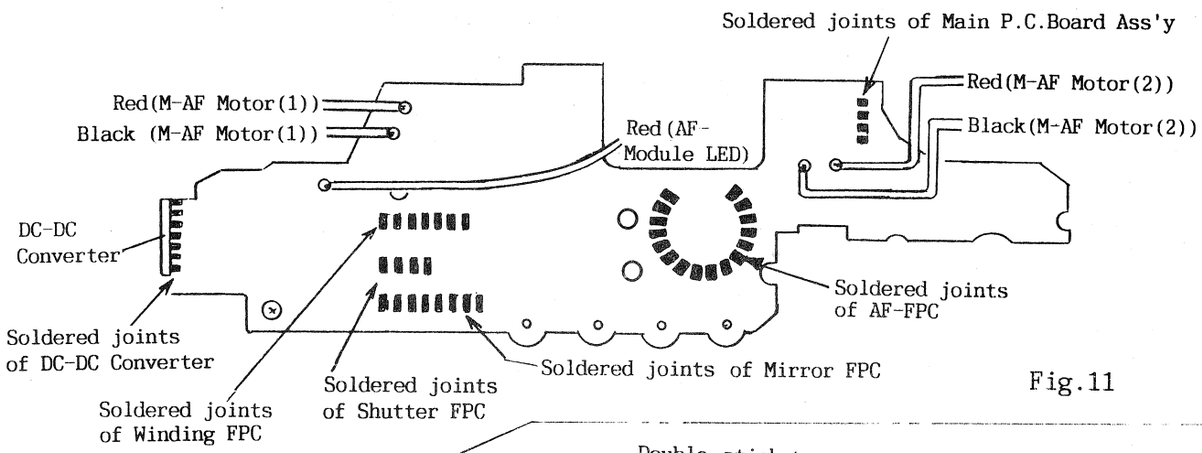

Fig.11

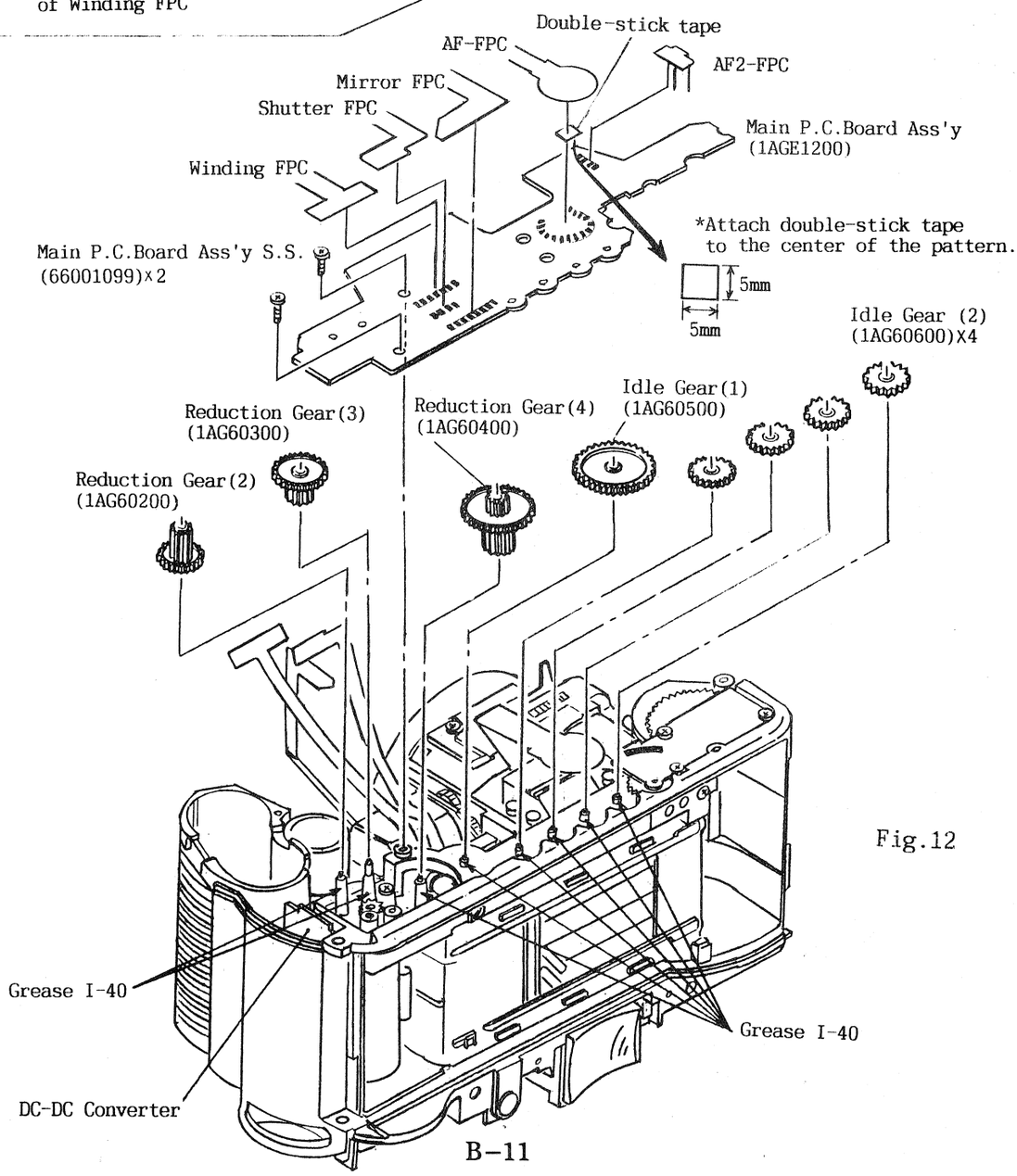

Fig.12

No.	419−01−50−RA1AG01

B - 3 REMOVAL OF MIRROR BOX ASS'Y

B - 3 - 1 Removal of Main P.C. Board Ass'y (see Fig.11,12)

1) Unsolder the 4 soldered joints between the Main P.C. Board and the AF2 - FPC.
2) Unsolder the 7 soldered joints between the Main P.C. Board and the DC - DC Converter.
3) Unsolder the 8 soldered joints between the Main P.C. Board and the Mirror FPC.
4) Unsolder the 4 soldered joints between the Main P.C. Board and the Shutter FPC.
5) Unsolder the 7 soldered joints between the Main P.C. Board and the Winding FPC.
6) Unsolder the 16 soldered joints between the Main P.C. Board and the AF - FPC.
7) Unsolder the five lead wires on the Main P.C. Board Ass'y.
   ① Black lead wire (M - AF Motor (2))
   ② Red lead wire (M - AF Motor (2))
   ③ Red lead wire (AF - Module LED)
   ④ Black lead wire (M - AF Motor (1))
   ⑤ Red lead wire (M - AF Motor (1))
8) Remove the Main P.C. Board Ass'y Setscrews (66001099) × 2 and take off the Main P.C. Board Ass'y (1AGE1200).
9) Remove the Idle Gears (2) (1AG60600) × 4, Idle Gear (1) (1AG60500) Reduction Gear (4) (1AG60400), Reduction Gear (3) (1AG60300) and Reduction Gear (2) (1AG60200).

Notes:

a) **Handle the Reduction Gear(2) (1AG60600) carefully, since it is made of a soft material and easily deformed.**

B - 3 - 2 Removal of Mirror Box Ass'y (See Fig.13)

1) Unsolder the Red and Black lead wires (from L. Contact Ass'y) on the Flash Board.
2) Unsolder the 2 soldered joints between the AF Auxiliary Light LED and the Winding FPC.
3) Remove the AF Auxiliary Light Ass'y Setscrew (66001172) and the take off the AF Auxiliary Light Ass'y (1ADAD900).
4) Remove the Eye - piece Frame Setscrews (66001172) × 2 and take off the Eye - piece Frame (1AG80500).
5) Remove the Mirror Box Ass'y Setscrews (69215076), (69227076) × 4 and take off the Mirror Box Ass'y.

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[Removal of Mirror Box Ass'y]

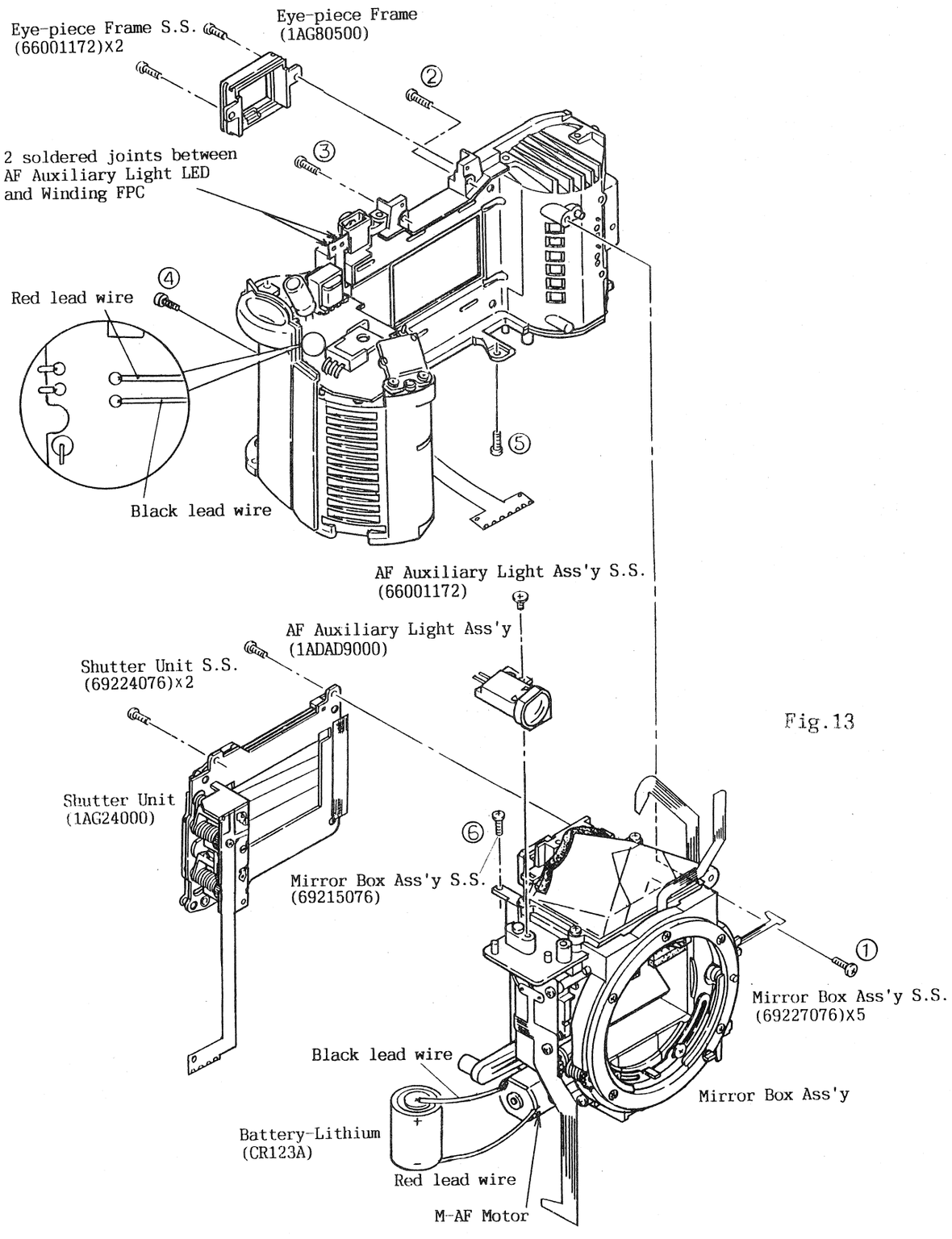

Fig.13

B - 3 - 3 Removal of Shutter Unit

1) Remove the Shutter Unit Setscrews (69224076) × 2 and take off the Shutter Unit (1AG24000) from the Mirror Box Ass'y.

Notes:

a) **The shutter blades are made with precision. Never touch the blades with your finger, nor push them with any tool.**
b) **Remove and install the Shutter Unit with the Mirror in the up position.**
c) **After installing the Shutter Unit on the Mirror Box Ass'y, be sure to set the Mirror in the down position and then install the Mirror Box Ass'y in the Body.**

[Mirror - Up/Down Procedure]

1) Connect the Red lead wire of the M - AF Motor to the negative terminal of the Battery - Lithium (CR123A).
2) Connect the Black lead wire of the M - AF Motor to the positive terminal of the Battery - Lithium, and the mirror will repeat up and down. (See Fig.13)

[Notes on Installation of Mirror Box Ass'y]

a) **When installing the Mirror Box Ass'y in the Body, take care not to catch the lead wires or FPC between the Body and the Mirror Box.**
b) **Tighten the Mirror Box Ass'y Setscrews (69227076) × 5, (69215076) in the order ① to ⑥ shown in Fig.13.**

[Soldered joints on Shutter FPC]

① GND
② Magnet 1 (First Curtain Magnet)
③ VB
④ Magnet 2 (Second Curtain Magnet)

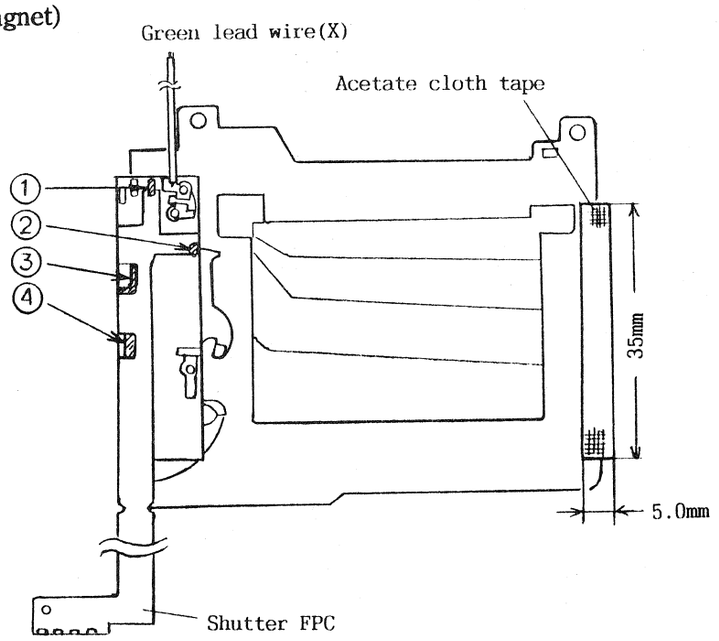

Fig.14

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B - 4 REMOVAL OF FLASH BOARD ASS'Y

B - 4 - 1 Removal of DC - DC Converter

1) Remove the Strap Holder (Left) Setscrews (69215076) × 2 and take off the Strap Holder (Left) (1AG11800).
2) Unsolder the 3 soldered joints between the DC - DC Converter and the Flash Board.
3) Remove the DC - DC Converter Setscrews (69214076) × 2 and take off the DC - DC Converter (1AGE0100).

B - 4 - 2 Removal of Flash Board Ass'y

1) Unsolder the Red lead wire (from ⊕ Battery Contact) and Black lead wire (from ⊖ Battery Contact) on the Flash Board.
2) Remove the Release Holder Setscrews (69214576) × 2 and take off the Release Holder (1AG12300).
3) Remove the Flash Board Ass'y Setscrew (69214076) and take off Flash Board Ass'y (1AGE0300).

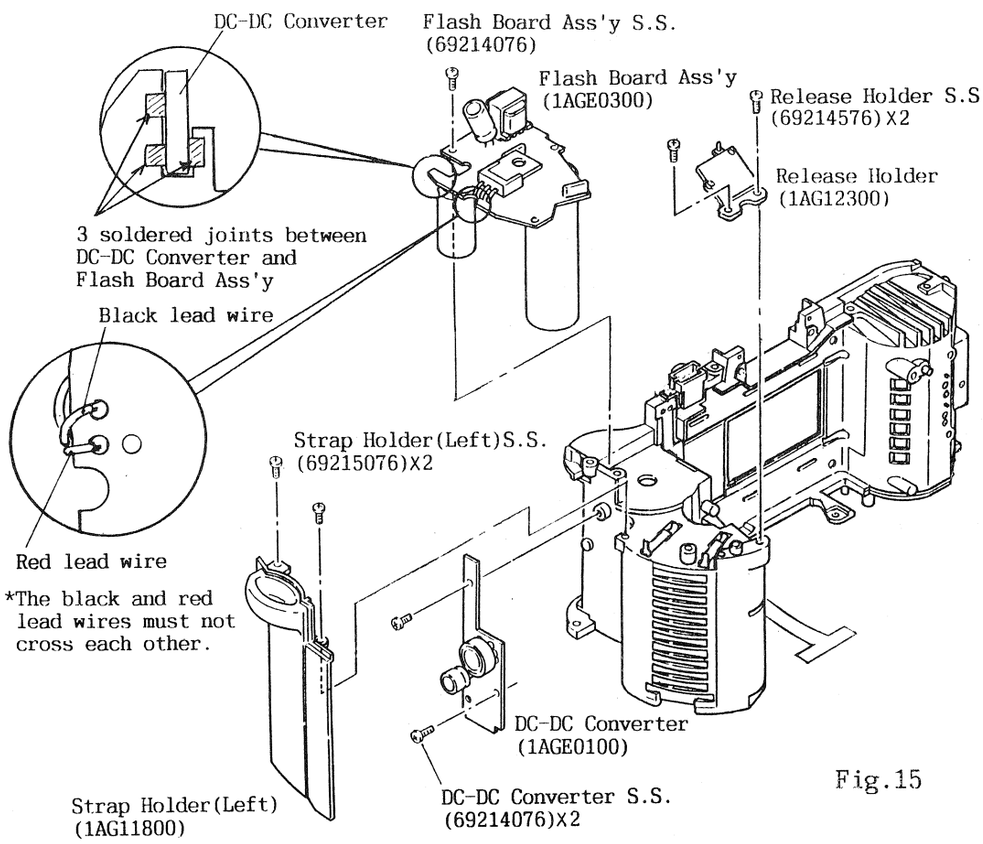

Fig.15

B - 5 DISASSEMBLY OF WINDING MOTOR & REWINDING MECHANISM

B - 5 - 1 Removal of Winding Motor

1) Unsolder the Black and Red lead wires (from Winding Motor) on the Winding FPC.
2) Remove the Motor Holder Setscrews (69214076) × 3 and take off the Motor Holder with the Winding Motor.
3) Remove the Spool Gear (1AG61700).
4) Remove the Winding Motor Setscrew (66001131) × 2 and take off the Winding Motor Ass'y (1AGC0200).

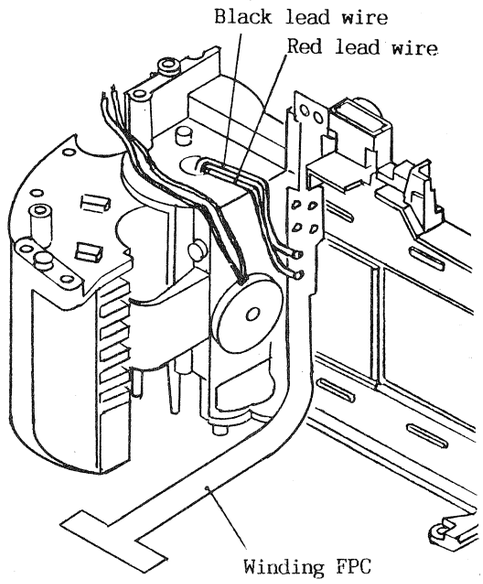

Fig.16

B - 5 - 2 Disassembly of Rewinding Mechanism

1) Remove the RW Base Plate Ass'y Setscrews (66001099) × 3 and take off the RW Base Plate Ass'y (1AGC0500).
2) Remove the RW Gear Ass'y (1AGC0400), Interlock Plate Ass'y (1AGC0300), Idle Gear(3)(1AG60700) and Idle Gear (2) (1AG60600).

(Soldering of lead wires of Winding Motor)

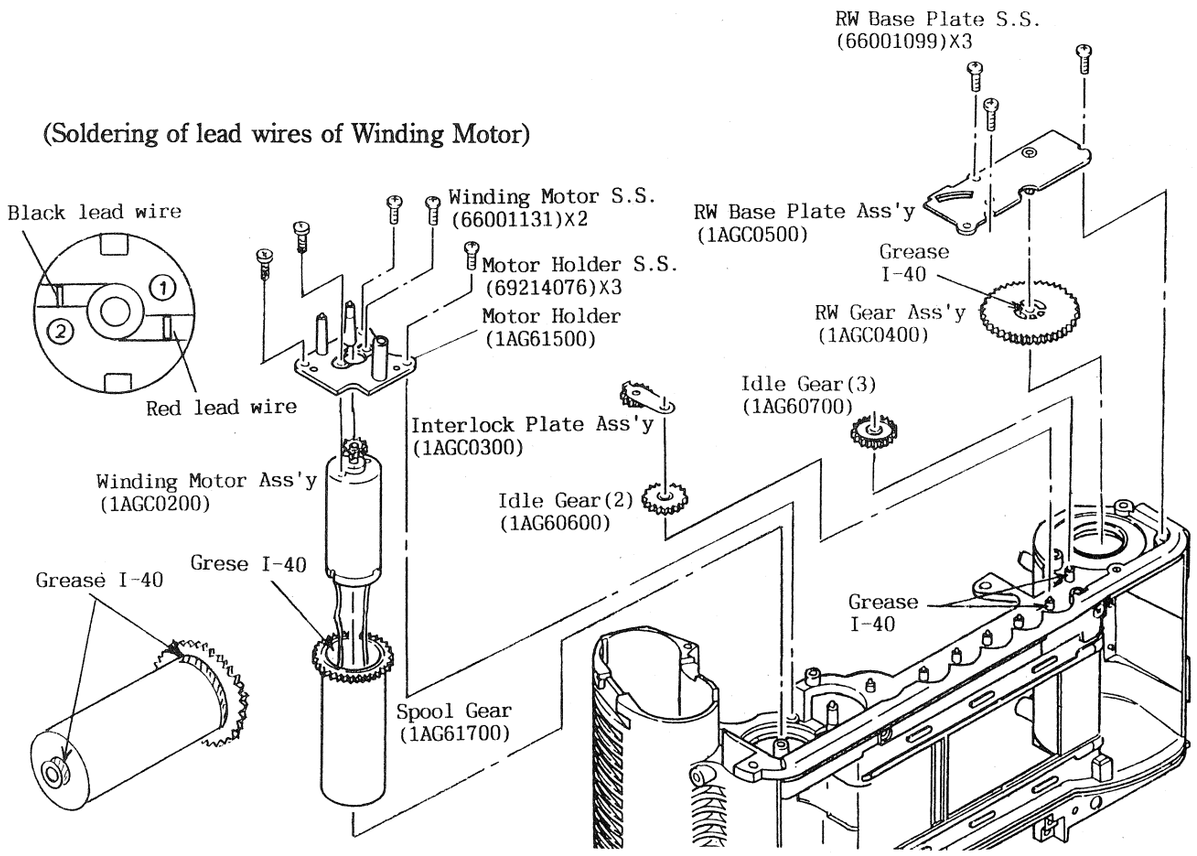

Fig.17

No.	419-01-50-RA1AG01

B - 6 REMOVAL OF OTHER PARTS

B - 6 - 1 Removal of Piezo - electric Buzzer

* The Piezo - electric Buzzer (1AG52200) is attached to the Body with the FPC Stick Tape (1AG23900) (double - stick tape).
* Before removing the Piezo - electric Buzzer, soften the FPC Stick Tape by making alcohol soak into it.

[Dressing of Lead Wires of Piezo - electric Buzzer]

a) After installing the Piezo - electric Buzzer in the Body, pass the two lead wires (Red and Black) through the hole in the Flash Board.

B - 6 - 2 Removal of Winding FPC

* The Winding FPC (1AG50600) is attached to the Body with the SM Stick Tape (16872100) and double - stick tape.
* Before removing the Winding FPC, soften the SM Stick Tape and double - stick tape by making alcohol soak into them.

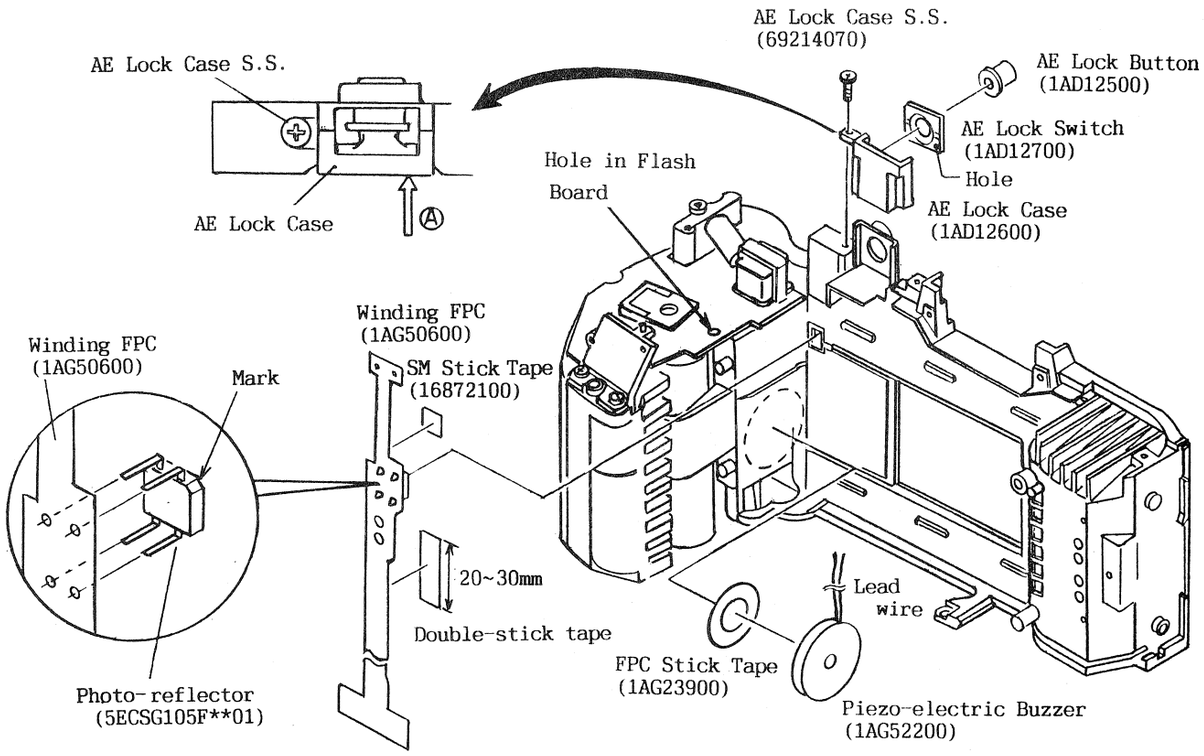

Fig.18

No.	419−01−50−RA1AG01

B - 6 - 3 Removal of AE Lock Button

1) Remove the AE Lock Case Setscrew (69214070) and take off the AE Lock Case (1AD12600), AE - Lock Switch (1AD12700) and AE Lock Button (1AD12500).

[Notes on Installation of AE Lock Case]

a) Insert the pin of the AE Lock Case in the hole of the AE Lock Switch and install the AE Lock Case in the Body.

b) In installing the AE Lock Case, press it in the direction of the arrow and tighten the AE Lock Case Setscrew. (See Fig.18)

B - 6 - 4 Removal of DATE - FPC

1) Remove the Film Cartridge Guide Setscrew (66001099) and take off the Film Cartridge Guide (1AG10300) and DATE - FPC (1AG50900).

[Notes on Installation of AL Roller Ass'y]

a) Install the AL Roller Ass'y (1AGC0700) in the Body and insert the two hooks of the AL Roller Ass'y in the grooves of the Body. The AL Roller Ass'y must not be in a raised position.

[Attaching of Film Loading Explanation Seal]

a) Attach the Film Loading Explanation Seal (1AG12400) so that its edges are in alignment with the lines Ⓐ and Ⓑ, respectively.

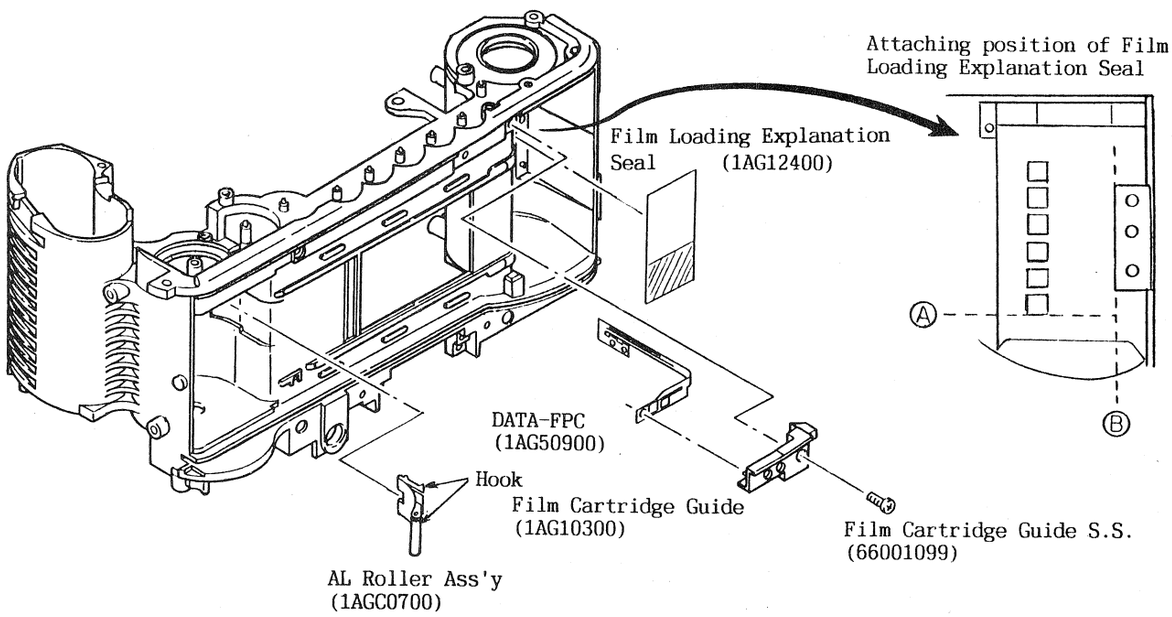

Fig.19

B - 7 DISASSEMBLY OF MIRROR BOX ASS'Y

CAUTION:

Be sure to observe the following instructions when disassembling the Mirror Box Ass'y.

a) **Do not apply any external force to the Penta Holder Ass'y from above during the repair.**

b) **If the AF Adjusting Tool and the main mirror 45 - degree adjusting tool are not available, do not remove the AF - M Ass'y, M. Mirror Holder, M. Mirror Stopper or S. Mirror Stopper. If AF metering is impossible because of a defective AF - M Ass'y, replace the Mirror Box Ass'y (1AGG1000).**

c) **When replacing the Mirror Frame Ass'y, take care not to dislocate the M. Mirror Holder. A dislocated M. Mirror Holder spoils the horizontality of the Mirror Frame Ass'y, thus resulting in faulty AF metering.**

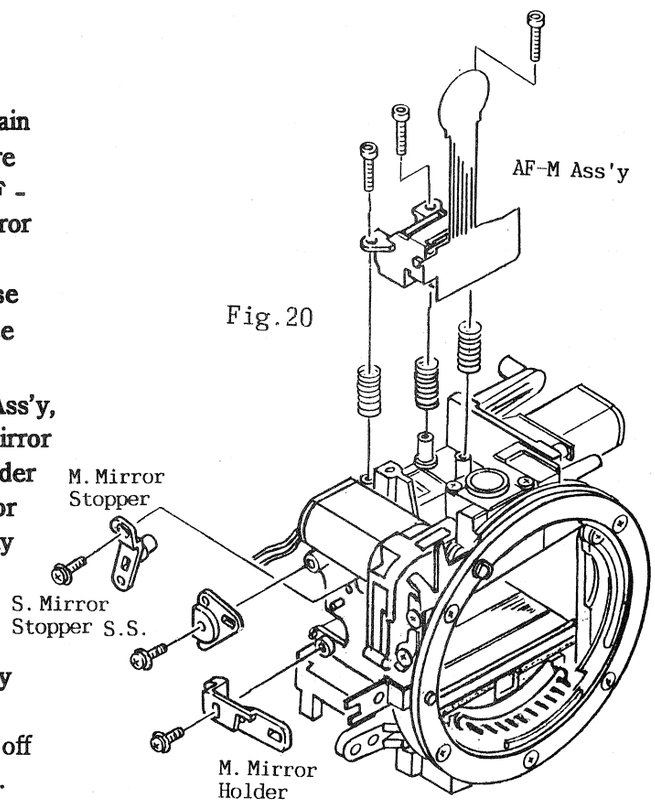

Fig.20

B - 7 - 1 Removal of Penta Holder Ass'y

1) Remove the Penta Holder Ass'y Setscrews (69215076) × 4 and take off the Penta Holder Ass'y (1AGF1400).
2) Remove the four Focus Adjustment Washers.

Notes:

At reassembly, install the four Focus Adjuatment Washers which have been removed.
If viewfinder focusing is faulty, replace the Focus Adjustment Washers and adjust viewfinder focusing.

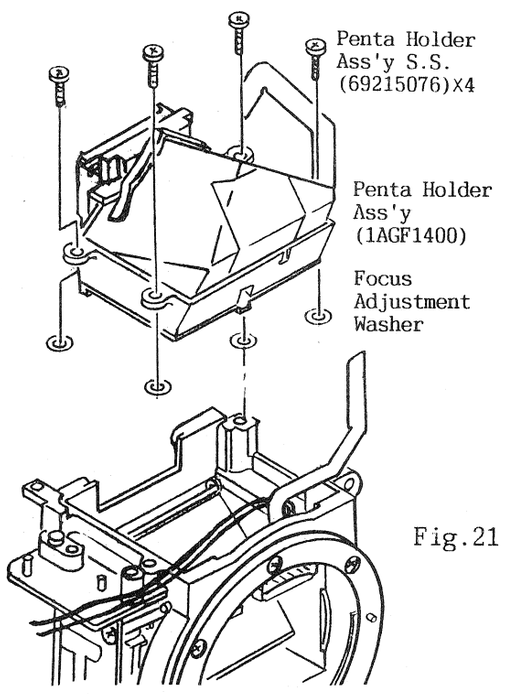

Fig.21

No.	419-01-50-RA1AG01

B - 7 - 2 Disassembly of Penta Holder Ass'y

1) Remove the Focusing Screen Holder (1AG80800) and take off the Focusing Screen (1AG81600).
2) Peel off AF - M Rubber (1AD79000).
3) Remove the Penta Dust - proof Moquette (1AG84700).
4) Release the two hooks of the F.Indicator Ass'y and remove the F. Indicator Ass'y (1AGF1100).
5) Release the two hooks of the Light Metering Base and remove the Light Metering Base Ass'y (1AGF1200).
6) Remove the Eye - piece Lens (2) (1AG81400) and Eye - piece Lens (1) (1AG81301).

Notes:

a) **Do not disassemble the Penta Holder Ass'y except removing the above - mentioned parts.**
b) **Attach the Penta Dust - proof Moquette so that it covers the gap between the Penta and the Light Metering Base.**
c) **Install the Focusing Screen so that the engraved panoramic marks are positioned inside.**
d) **Install the Eye - piece Lens (1) and Eye - piece Lens (2) with care not to confuse the gate positions.**
e) **Attach the AF - M Rubber so that the light of the F. Indicator LEDs can not escape.**

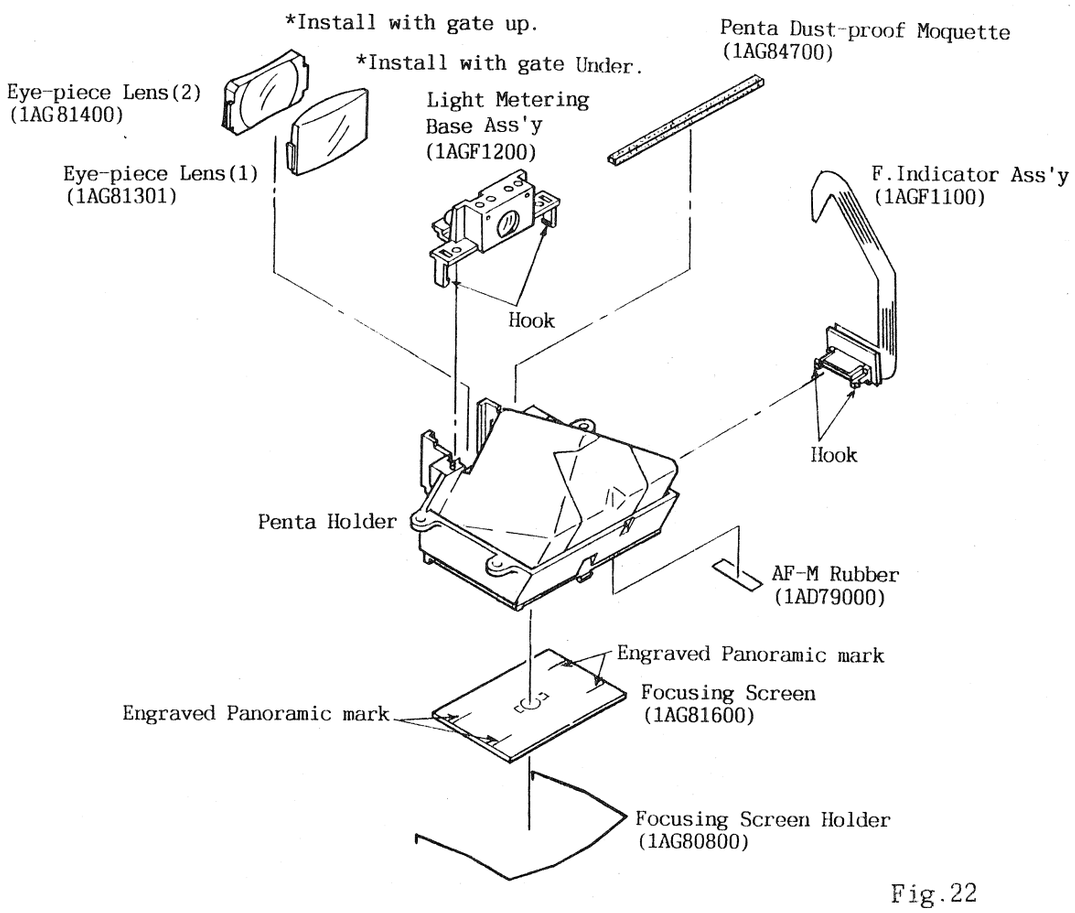

Fig.22

No.	419-01-50-RA1AG01

[Disassembly of Mirror Box Ass'y]

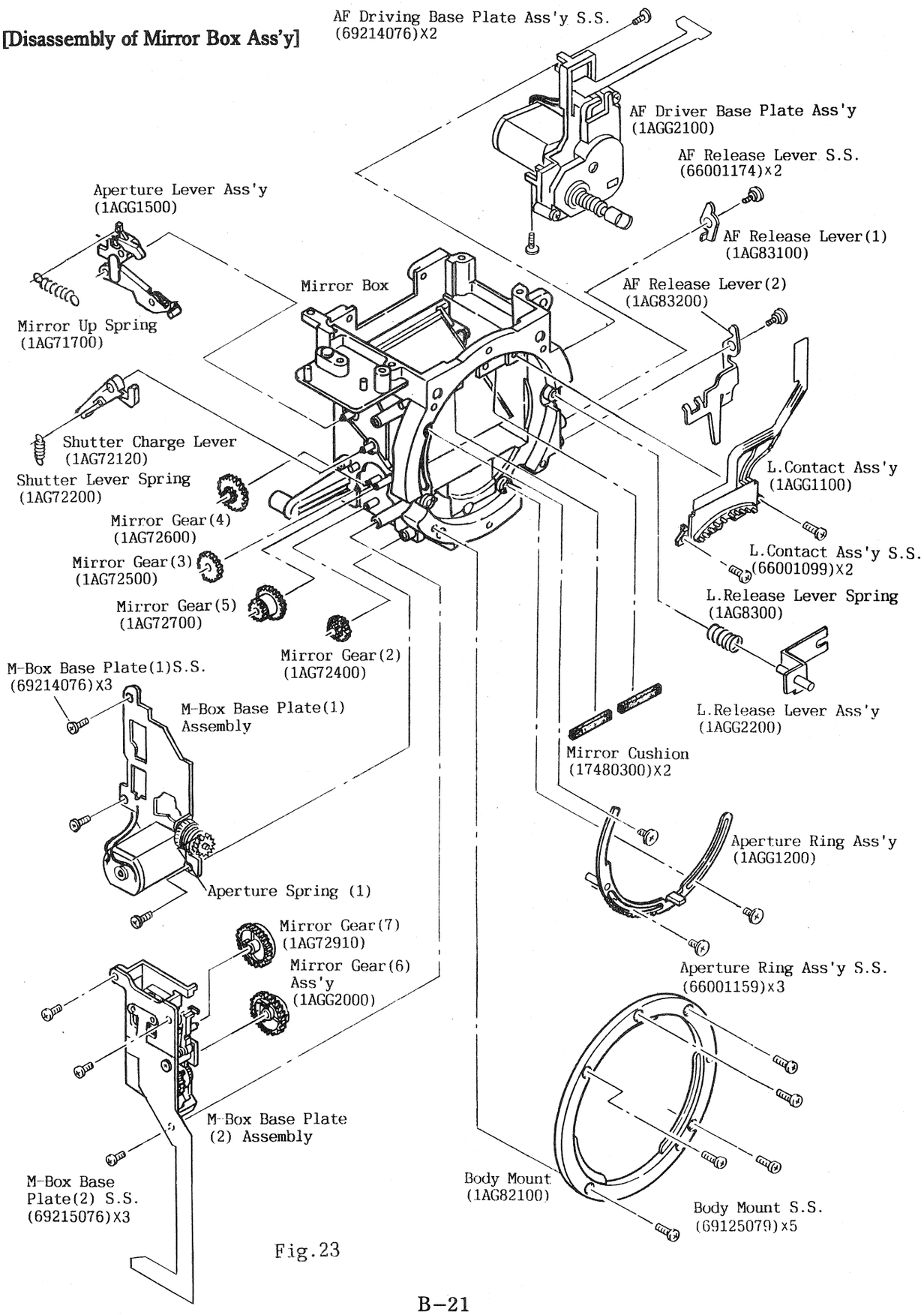

Fig.23

No.	419−01−50−RA1AG01

B - 7 - 3 Disassembly of Mirror Box Ass'y (See Fig. 23)

1) Remove the M - Box Base Plate (2) Setscrews (69215076) × 3 and take off the M - Box Base Plate (2) Assembly.
2) Remove the Mirror Gear(7) (1AG72910) and Mirror Gear (6) Ass'y (1AGG2000).
3) Remove the Body Mount Setscrews (69125079) × 5 and take off the Body Mount (1AG82100).
4) Remove the L. Release Lever Ass'y (1AGG2200) and L. Release Lever Spring (1AG83000).
5) Remove the Aperture Ring Ass'y Setscrews (66001159) × 3 and take off the Aperture Ring Ass'y (1AGG1200).
6) Remove the M - Box Base Plate (1) Setscrews (69214076) × 3 and take off the M - Box Base Plate (1) Assembly.
7) Remove the Mirror Up Spring (1AG71700), Shutter Lever Spring (1AG72200) and Shutter Charge Lever (1AG72120).
8) Remove the Mirror Gear (5) (1AG72700), Mirror Gear (3) (1AG72500), Mirror Gear (4) (1AG72600) and Mirror Gear (2) (1AG72400).
9) Remove the Aperture Lever Ass'y (1AGG1500).
10) Peel off the Mirror Cushion (17480300) × 2. Remove the L. Contact Ass'y Setscrews (66001099) × 2 and take off the L.Contact Ass'y (1AGG1100).
11) Remove the AF Release Lever Setscrew (66001174) and take off the AF Release Lever (2) (1AG83200).
12) Remove the AF Release Lever Setscrew (66001174) and take off the AF Release Lever (1) (1AG83100).
13) Remove the AF Driver Base Plate Ass'y Setscrews (69214076) × 2 and take off the AF Driving Base Plate Ass'y (1AGG2100).

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[Assembly Procedure for Mirror Box & Notes]

a) Make sure that the Aperture Spring (1) (1AG83620) is inserted in the hole of the Aperture Gear (1) (1AG83500). After that, with the Aperture Spring (1) in the position as shown in Fig.28, install the M - Box Base Plate (1) with the M - AF Motor (1) in the Mirror Box.

b) Assemble the Aperture Ring Ass'y as follows:

① With the Aperture Spring (1) in the position as shown in Fig.24, install the Aperture Ring Ass'y (1AGG1200)in the minimum aperture position. In doing so, engage the teeth of the Aperture Gear (1) with the teeth of the Aperture Ring.

② Turn the Aperture Ring Ass'y from the minimum aperture position to the full open position completely (in the direction of the arrow Ⓐ). And lock the Aperture Gear with your hand.

③ Remove the Aperture Ring Ass'y and install the Aperture Ring Ass'y in the minimum aperture position again.

④ Tighten the Aperturem Ring Ass'y Setscrews (66001159) × 3. Take care not to overtightening the Aperture Ring Ass'y Setscrews. Move the Aperture Ring Ass'y in the direction of the arrow Ⓐ . Then quit your hold of the Aperture Ring Ass'y and make sure that it moves smoothly.

Fig.24

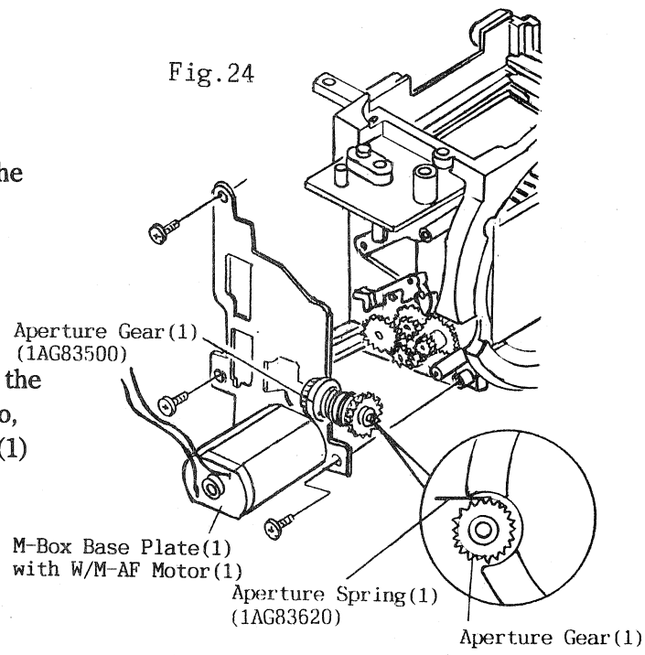
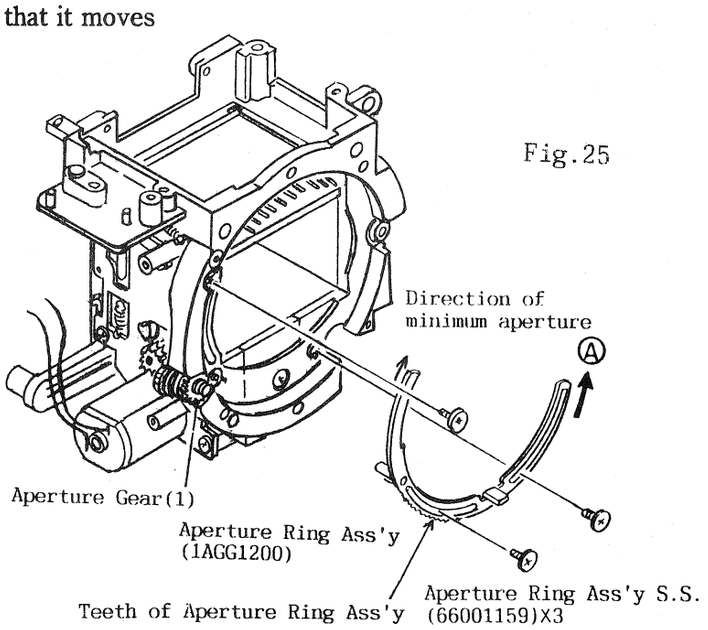


Fig.25



c) Assemble the M - Box Base Plate (2) Assembly as follows:

① Move the Aperture Control Lever (1AG84300) in the direction of the arrow Ⓑ .

② Turn the Aperture Gear (2) (1AG83900) in the direction of the arrow Ⓒ (by about half a turn). Then release the Aperture Gear (2) and make sure that it turns smoothly.

③ From the position where the Aperture Gear (2) has stopped (initial position), turn it by 90 degrees (1/4 turn) in the direction of the arrow Ⓒ . In this state, move the Aperture Control Lever in the direction of Ⓓ and lock the Aperture Gear (2).

④ Install the Mirror Gear (6) Ass'y (1AGG2000) and Mirror Gear (7) Ass'y (1AG72910) in the M - Box Base Plate Ass'y (1AGG1900) so that the holes in the two gears align each other.

⑤ Turn the Mirror Gear (7) in the direction of the arrow Ⓔ until it stop position.

⑥ Turn the Aperture Ring Ass'y to the full open position completely (in the direction of the arrow Ⓐ) and lock it with your hand. (See Fig.25)

⑦ In the state of ④ and ⑤ , install the M - Box Base Plate (2) Assembly in the Mirror Box. Perfom this installation with the Mirror in the up position.

⑧ Tighten the M - Box Base Plate (2) Setscrews (69215076) × 3.

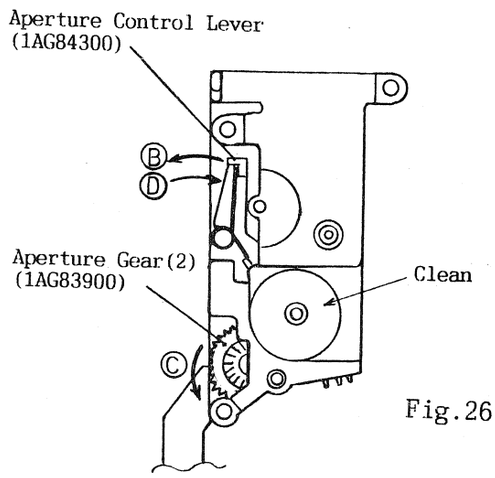


Fig.26

M-Box Base Plate (2) Assembly

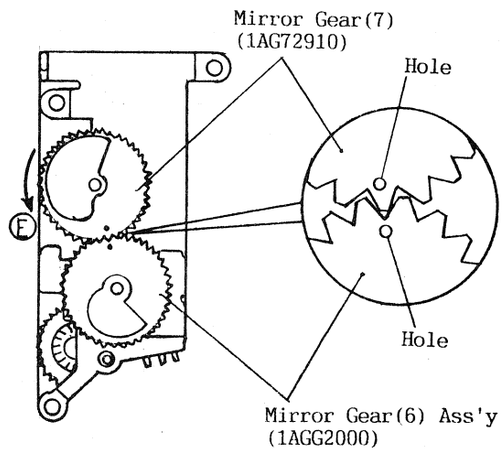


Fig.27

No.	419-01-50-RA1AG01

[Assembling of M - Box Base Plate (1) Assembly]

1) Install the Aperture Gear (1) (1AG83500) and Aperture Gear Shaft (1) (1AG83700) on the Mirror Box Base Plate (1) (1AG70910) and retain them with the E Ring (E - 1.2) (66101225).
2) Install the Aperture Spring (1) (1AG83620) while inserting the end of the Aperture Spring (1) in the hole in the Aperture Gear (1).
3) Install the M - AF Motor (1) Ass'y (1AGG1800) on the Mirror Box Base Plate (1) and tighten the M - AF Motor (1) Ass'y Setscrews (61912026) × 2.
4) Apply bond (Cemedine 551) to the heads of the M - AF Motor Ass'y Setscrews.

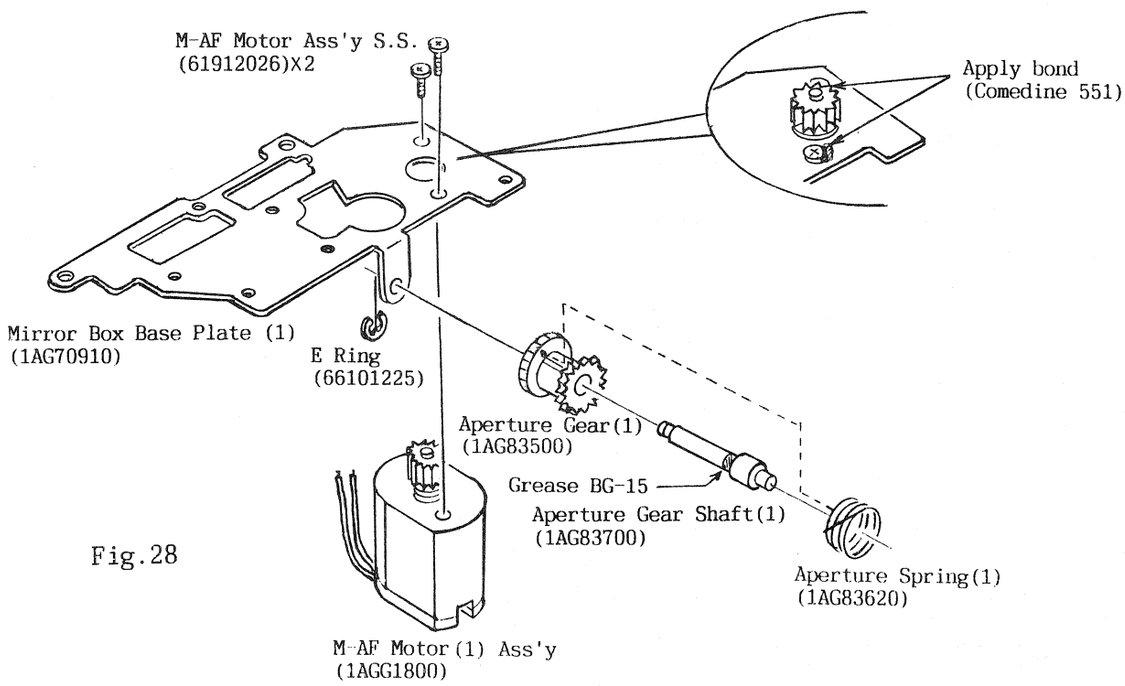


Fig.28

(Soldering and Dressing of Lead Wires of M - AF Motor (1) Ass'y)

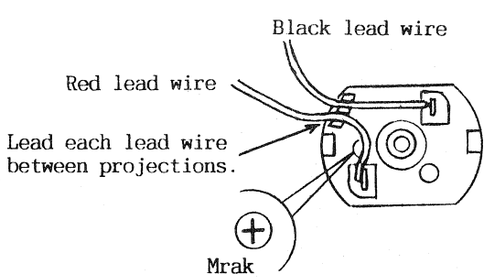
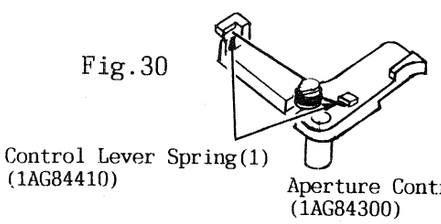


Fig.29

[Assembling of M - Box Base Plate (2) Assembly]

1) Install the Aperture Gear (4) (1AG84200) on the Mirror Box Base Plate (2) (1AG71010).
2) Set the Control Lever Spring (1) (1AG84410) on the Aperture Control Lever (1AG84300) as shown in Fig.30.
3) Install the Aperture Control Lever on the Mirror Box Base Plate (2).
4) Install the Aperture Magnet (1AG84600) and Temporarily secure the Aperture Magnet Setscrew (69204076) . Adjust the Aperture Magnet so that when the armature of the Aperture Magnet is attracted, the pin of the Aperture Control Lever is positioned at the left end of the slot.
   Tighten the Aperture Magnet Setscrew.
   Look the head of the Aperture Magnet Setscrew and the Aperture Magnet with bond (Cemedine 551). (See Fig.31)
5) Install the Control Lever Spring (2) (1AG84510). (See Fig.31)
6) Install the Aperture Gear (2) (1AG83900) and Aperture Spring (2) (1AG83810). In doing so, insert the end of the Aperture Spring (2) in the square hole in the Aperture Gear (2). (See Fig.36)
7) Install the Photo - interrupter (5ENCRP11133**01) on the Mirror FPC (1AG50400) and solder the five terminals of the Photo - interrupter. (See Fig.33)
8) Attach the FPC Stick Tape (1AG23900) to the Mirror FPC.
9) Install the Mirror FPC on the Mirror Box Base Plate (2).

Fig.30



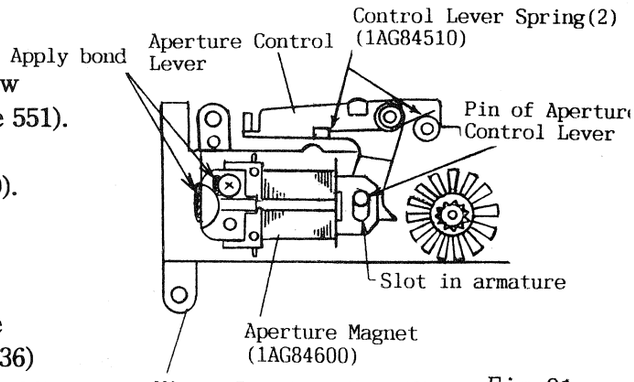


Fig.31

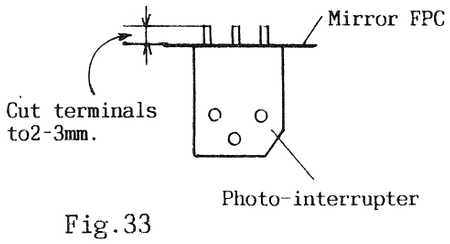


Fig.33

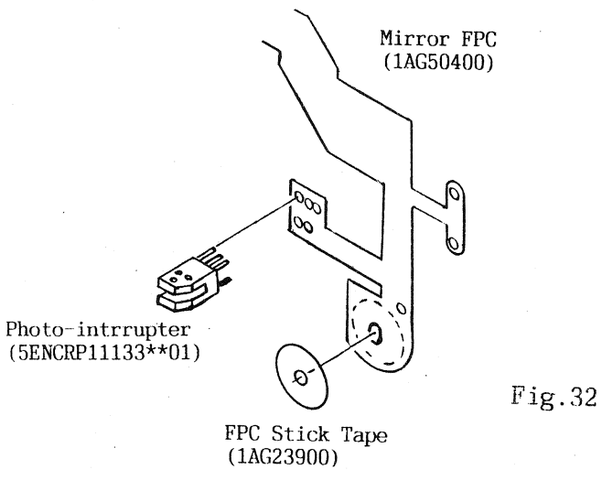


Fig.32

10) Install the Aperture Gear (3) Ass'y (1AGG2600) and insert the end of the Aperture Spring (2) in the square hole in the Aperture Gear (3) Ass'y.
11) Bend the Mirror FPC in the direction of the arrow Ⓐ and tighten the Aperture Gear (3) Ass'y Setscrew (69214076).
12) Solder the two terminals of Aperture Magnet to the Mirror FPC.
13) Peel off the backing paper from the FPC Stick Tape, bend the Mirror FPC in the direction of the arrow Ⓑ and attach the Mirror FPC to the Mirror Box Base Plate (2).

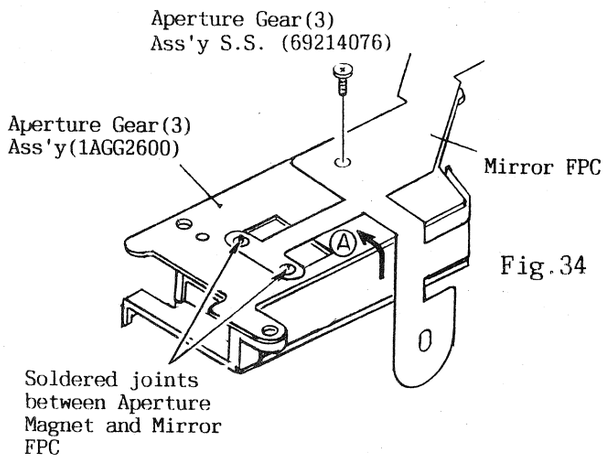


Fig.34

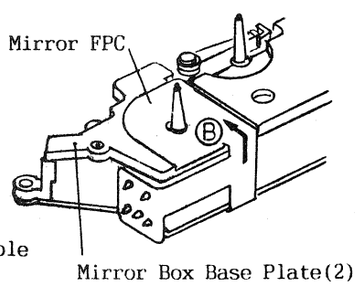


Fig.35

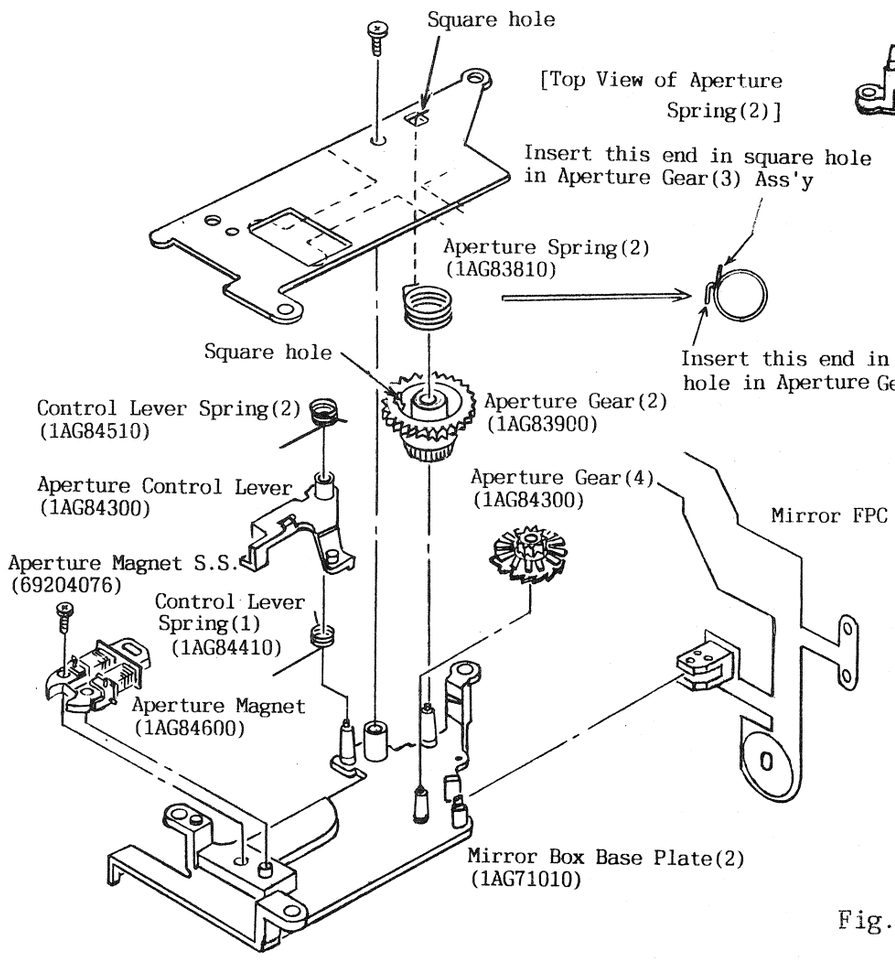


Fig.36

No.	419-01-50-RA1AG01

[Assembly of Driver Base Plate Ass'y]

1) Install the M - AF Motor (2) Ass'y (1AGG2500) on the AF Base Plate (2) (1AG73900) and tighten the M - AF Motor (2) Ass'y Setscrews (63913026) × 2.
2) Install the AF Gear (6) (1AG73600) and AF Gear (2) (1AG73201) on the AF Base Plate (2).
3) Apply grease (PERMALUB G - 2) to the inside of the AF Gear (3) (1AG73301) and install the Friction Spring (1AG74020).

Notes:
As it is difficult to install the Friction Spring in the Gear (3), take great care not to deform the Friction Spring.

4) Install the AF Gear (3) on the AF Gear (2).

5) Install the Coupler Spring (1AG74100) on the AF Coupler (1AG73700) and insert them in the AF Gear (5) (1AG73501) and retain them with the E Ring (E - 1.2) (66101225).

Notes:
Take care not to deform the Coupler Spring.

6) Install the AF Coupler with the AF Gear (5) on the AF Base Plate (2).
7) Install the AF Gear (4) (1AG73401) on the AF Base Plate (2).
8) Set the Encoder Spring (1AG74200) on the AF Base Plate (2) as shown in Fig.39.

9) Install the Photo - interrupter (5ENCRP11133**01) on the AF2 - FPC (1AG50300) and solder the five terminals of the Photo - interrupter. Then cut terminals of the Photo - interrupter.

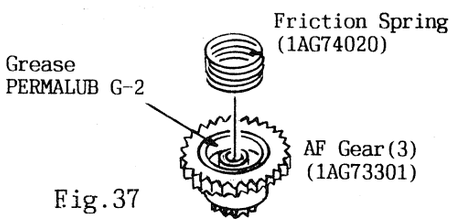


Fig.37

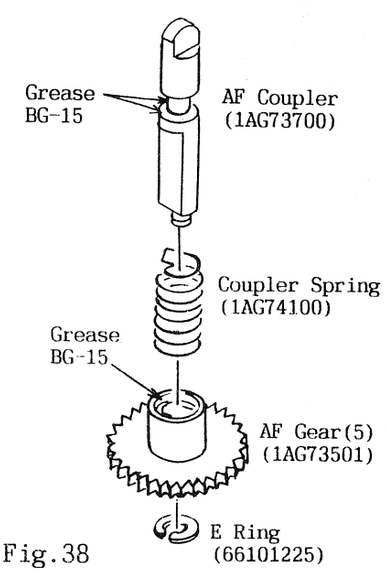


Fig.38

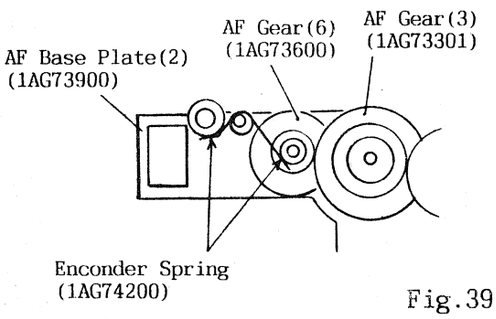


Fig.39

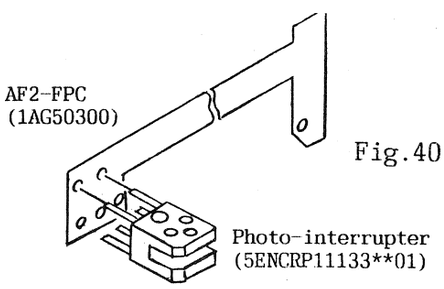


Fig.40

10) Install the AF2 - FPC on the AF Base Plate (2).
11) Install the AF Base Plate (1) (1AG173800) on the AF Base Plate (2) and tighten the AF Base Plate (1) Setscrews (69214076) × 2.
12) Apply bond (Cemedine 551) to the heads of the M - AF Motor (2) Ass'y Setscrews.

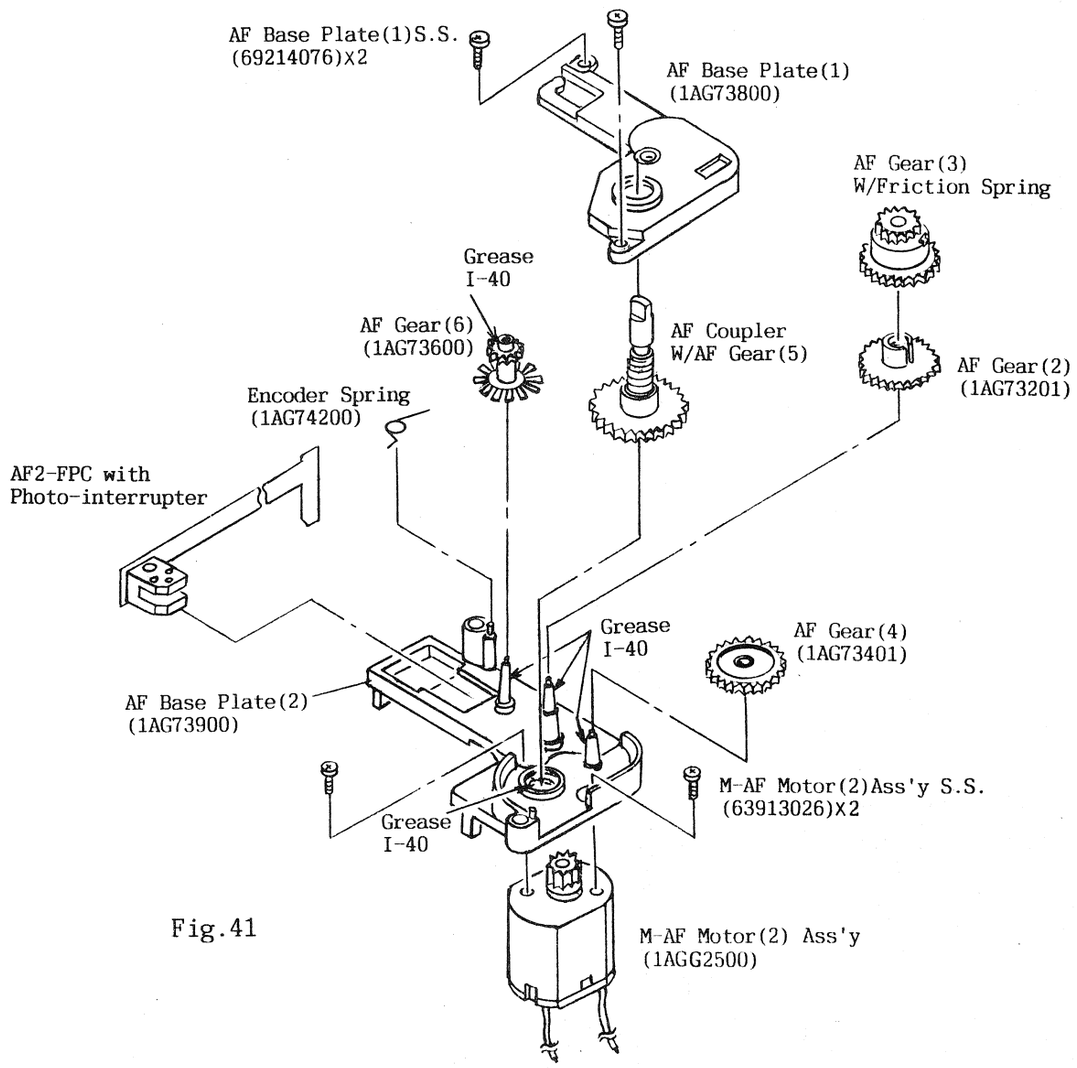


Fig.41

(Soldering and Dressing of Lead Wires of M - AF Motor (2) Ass'y)

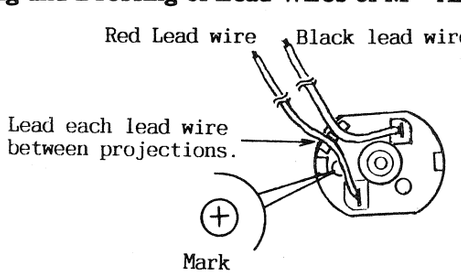


Fig.42

No.	419-01-50-RA1AG01

[Disassembly of Top Cover Ass'y]

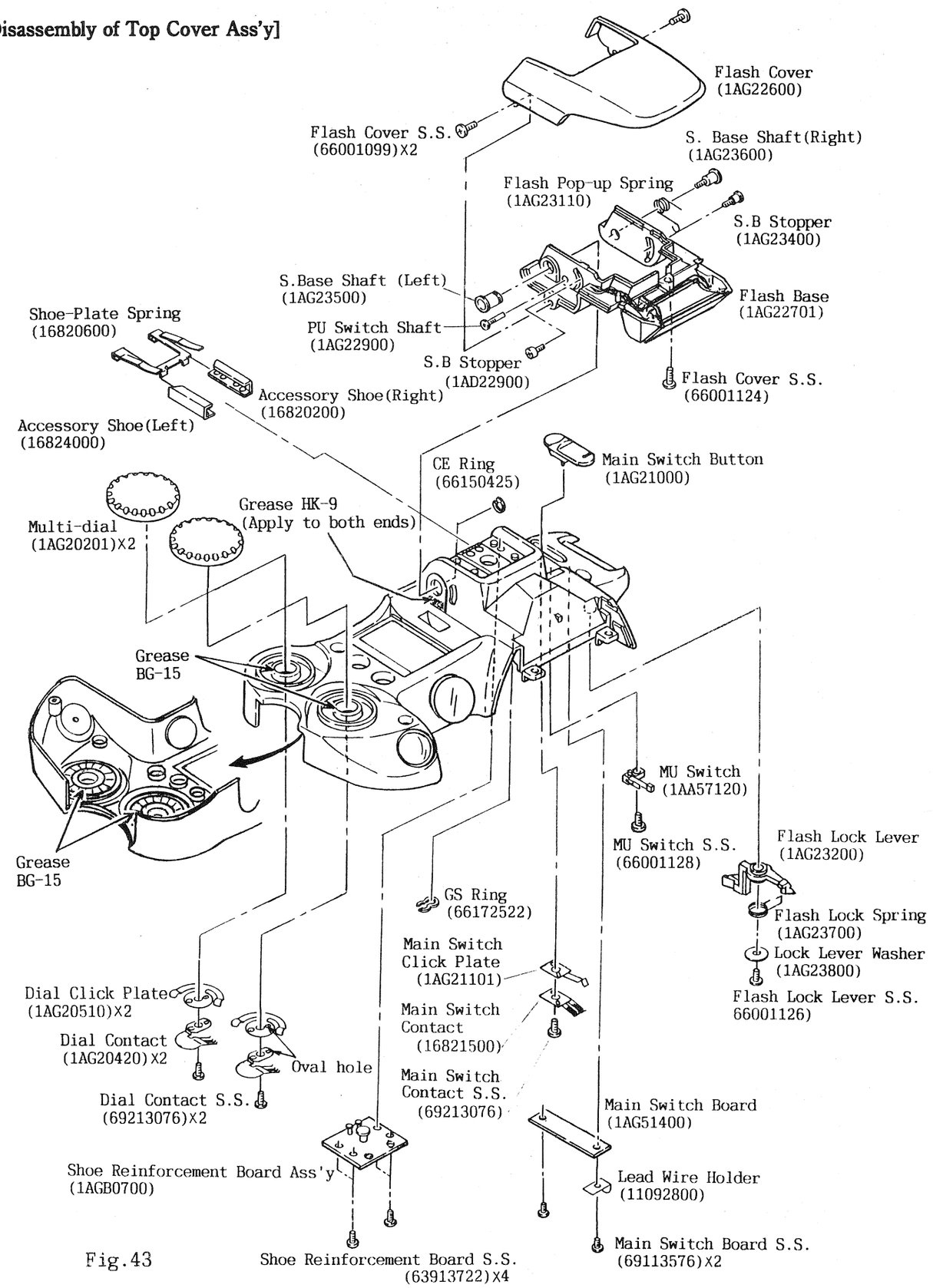


Fig.43

No.	419-01-50-RA1AG01

B - 8 DISASSEMBLY OF TOP COVER

B - 8 - 1 Removal of Flash Base

1) Remove the GS Ring (66172522).
2) Set the Flash in the up position and remove the Flash Cover Setscrew (66001124).
3) Remove the Flash Cover Setscrews (66001099) × 2 and take off the Flash Cover (1AG22600).
4) Remove the PU Switch Shaft (1AG22900) and S.B Stopper (1AD22900).
5) Release the shorter hook of the Flash Pop - up Spring (1AG23110) and remove the S. Base Shaft (Right) (1AG23600).
6) Remove the S.B Stopper (1AG23400) with the Flash Pop - up Spring.
7) Remove the CE Ring (66150425) and take off the S. Base Shaft (Left) (1AG23500) and Flash Base (1AG22701).

B - 8 - 2 Removal of Flash Lock Lever & Main Switch

1) Unsolder the Black lead wire (from Main Switch Board) on the Shoe Reinforcement Board.
2) Remove the Flash Lock Lever Setscrew (66001126) and take off the Lock Lever Washer (1AG23800), Flash Lock Spring (1AG23700) and Flash Lock Lever (1AG23200).
3) Remove the Main Switch Board Setscrews (69113576) × 2 and take off the Lead Wire Holder (11092800) and Main Switch Board (1AG51400).
4) Remove the Main Switch Contact Setscrew (69213076) and take off the Main Switch Contact (16821500), Main Switch Click Plate (1AG21101) and Main Switch Button (1AG21000).
5) Remove the MU Switch Switch Setscrew (66001128) and take off the MU Switch (1AA57120).

Notes:

a) **Take care, since the Main Switch Contact can easily be deformed.**
b) **There is need of unsoldering any of the Green, Yellow and Pink lead wires.**

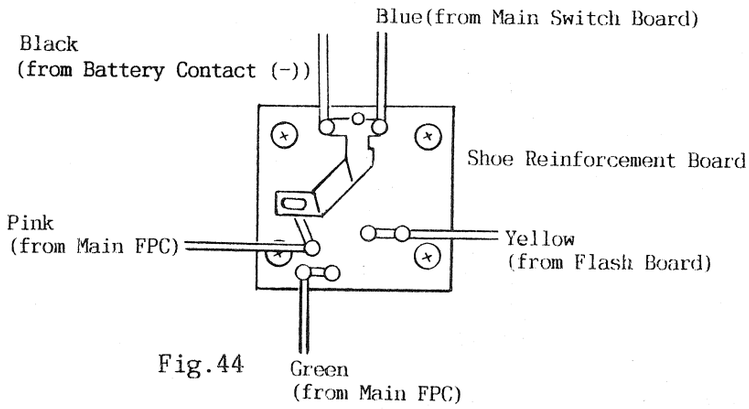


Fig.44

No.	419−01−50−RA1AG01

B - 8 - 3 Removal of Shoe Reinforcement Board

1) Rmove the Shoe Plate Spring (16820600).
2) Remove the Shoe Reinforcement Board Setscrews (63713722) × 4 and take off the Accessory Shoe (Left) (16824000) and Accessory Shoe (Right) (16820200).
3) Remove the Shoe Reinforcement Board Ass'y (1AGB0700).

Notes:

After tightening the Shoe Reinforcement Board Setscrews (63713722) × 4, lock the screws by applying bond (Cemedine 551) to their heads.

B - 8 - 4 Removal of Dial Contacts

1) Remove the Dial Contact Setscrews (69213076) × 2 and take off the Dial Contacts (1AG20420) × 2, Dial Click Plates (1AG20510) × 2 and Multi - dials (1AG20201).

Notes:

Take care, since the Dial Contacts can be easily deformed.

[Notes on Installation of Dial Contacts]

a) Fit the pins of each Multi - dial in the two pairs of holes in the Dial Click Plate and Dial Contact. In doing so, align the oval hole in the Dial Click Plate with that of the Dial Contact. (See Fig.43)

B - 8 - 5 Disassembly of Flash Base

1) Remove the silicone from the Trigger Coil (36052700) and unsolder the White lead wire. (See Fig.47)
2) Remove the Diffuser Setscrews (69113576) × 2 and take off the Diffuser with the Reflector.
3) Unsolder the Red and Blue lead wires of the Xenon Lamp.
4) Remove the Xenon Lamp Holder Rubber (1AD23200).
5) Remove the Xenon Lamp (3AJ52200) and Reflector (1AD23000) from the Diffuser (1AD23100).

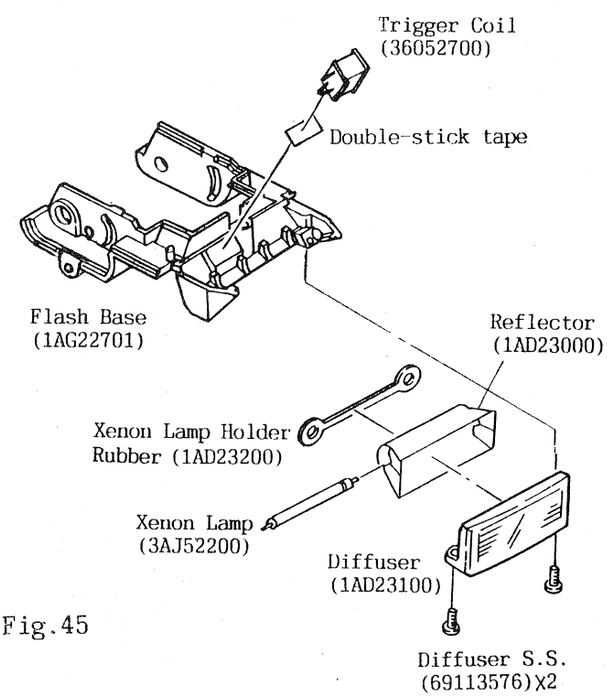


Fig.45

No.	419-01-50-RA1AG01

Notes:

a) **The Trigger Coil attached to the Flash Base with double - stick tape and bond (Cemedine 551).**

b) **Do not touch the Xenon Lamp directly with your hand.**

[Notes on Installation of Xenon Lamp]

a) **After installing the Xenon Lamp Holder Rubber, make sure that both ends of the Xenon Lamp are almost balanced.**

b) **The red and blue lead wires soldered to the Xenon Lamp must be free from solder horn completely.**

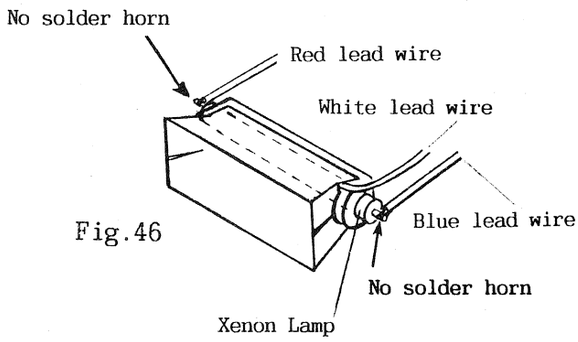


Fig.46

[Soldering of Trigger Coil]

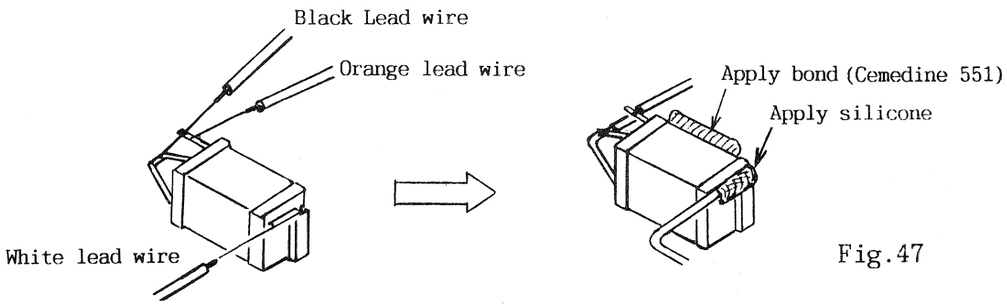


Fig.47

[Dressing of Lead Wires on Flash Base]

Since the space on the Flash Base is limited, dress the lead wires (4 lead wires of Xenon Lamp and Trigger Coil) as follows:

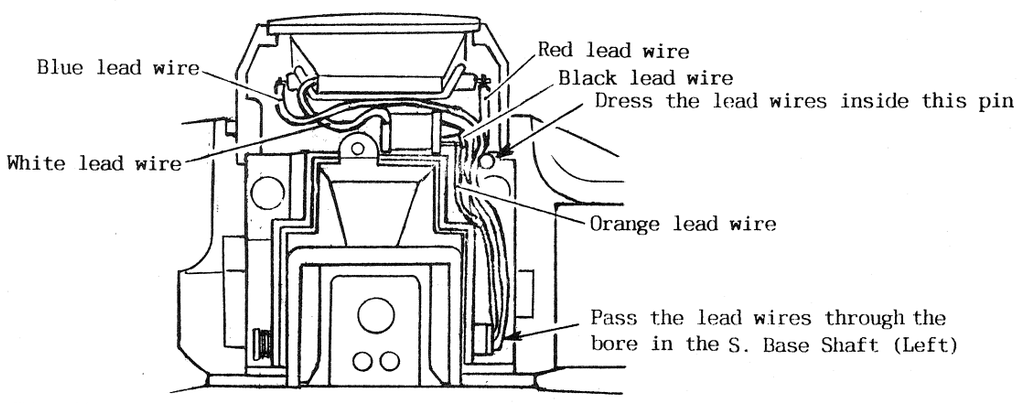


Fig.48

No.	419-01-50-RA1AG01

[Dressing of Lead Wires inside Top Cover]

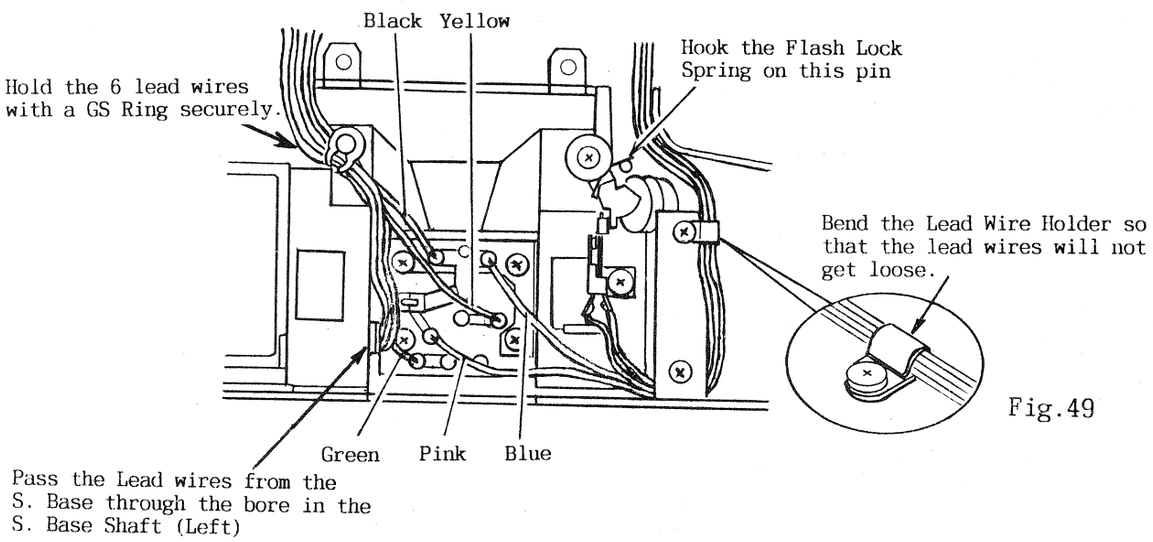


Fig.49

[Setting of Flash Pop - up Spring]

Set the Flash Pop - up Spring in the groove in the S. Base as shown in Fig.49.

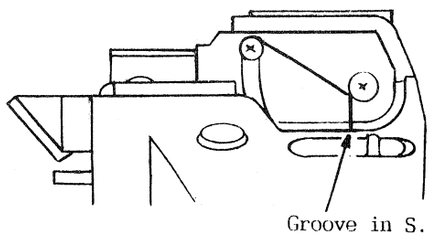


Fig.50

[Installation of LCD Window]

1) Attach the LCD Tape (1AG21700). And peel off the backing paper from the LCD Tape.
2) Fit the projection of the LCD Window (1AG20900) into the groove in the Top Cover Ass'y. And attach the LCD Window to the LCD Tape.

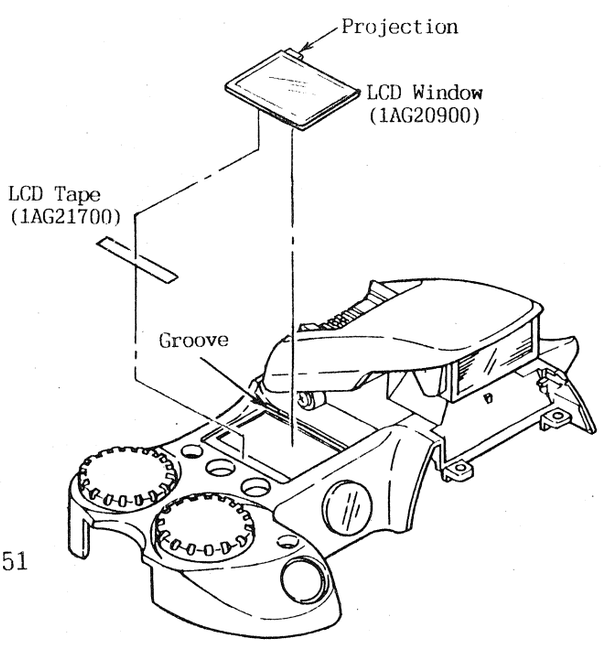


Fig.51

No.	419-01-50-RA1AG01

B - 9 DISASSEMBLY OF DATA BACK (DA - 5)

B - 9 - 1 Removal of Data Module

1) Disassembly the Data Back in the falling numerical order:

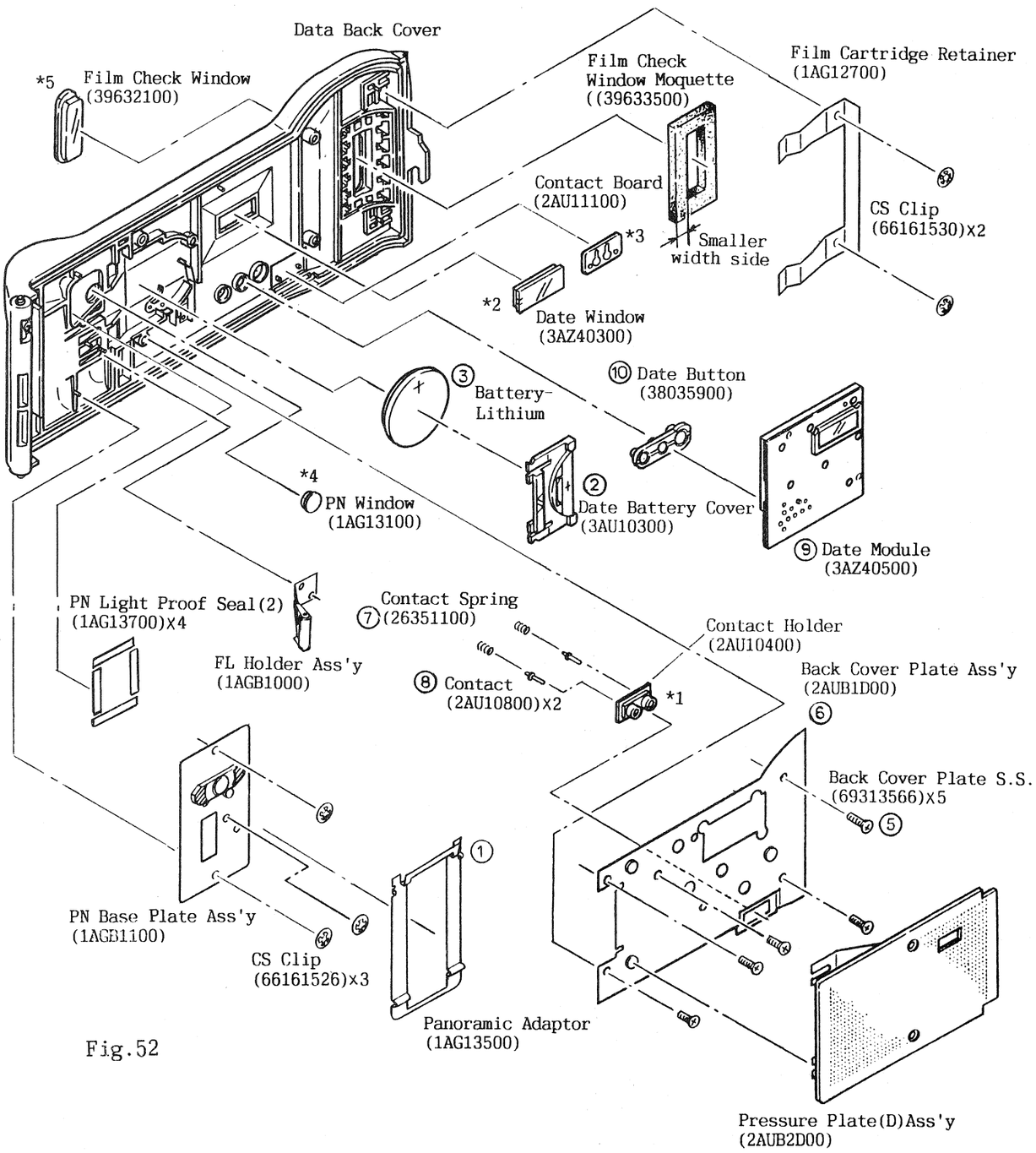


Fig.52

No.	419-01-50-RA1AG01

Notes:

*1 The Contact Holder (2AU10400) is attached to the Back Cover Base Plate Ass'y with bond (Cemedine 551).

*2 The Date Window (3AZ40300) is attached to the Data Back Cover with bond (Cemedine 551).

*3 The Contact Board (2AU11100) is attached to Data Back Cover with bond (Cemedine 551).

*4 The PN Window (1AG13100) is attached to the Data Back Cover with bond (Cemedine 551).

*5 The Film Check Window (39632100) is press - fitted in the Data Back Cover.

[Wiring of Data Back]

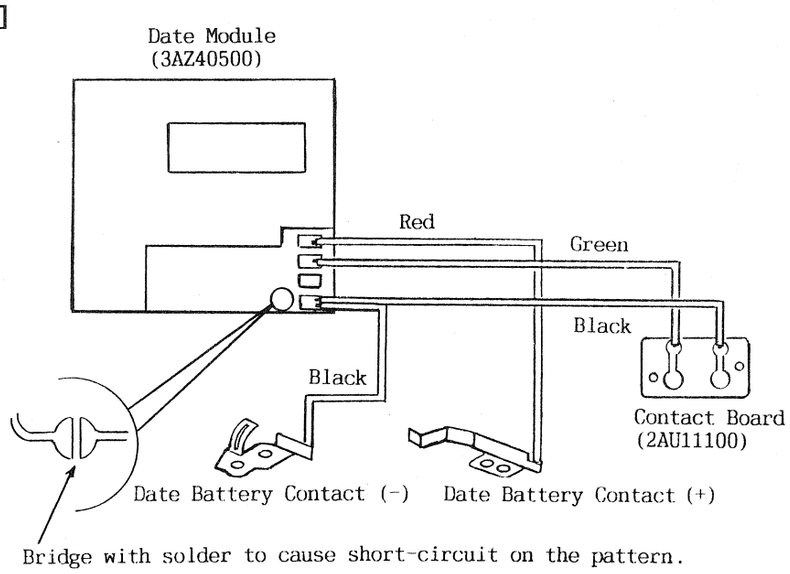


Fig.53

* It is impossible to replace the Date Battery Contact (−) and the Date Battery Contact (+), which are caulked to the Data Back Cover.

[Attaching Position of PH Light Proof Seal (2)]

Attach the PN Light Proof Seal (2) (1AG13700) × 4 in the positions as shown in Fig.54.

Notes:

a) In the positions shown by the arrows, the adjacent seals must be contact with each other without overlap.

b) The upper and lower light proof seals must not project from the right vertical light proof seal.

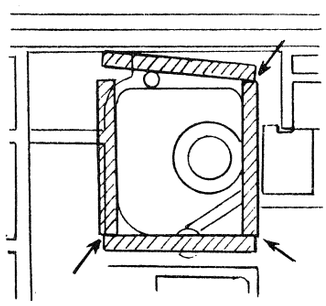


Fig.54

No.	419-01-50-RA1AG01

■ PARTS MODIFICATION LIST

[Modification of Body]

Some camera have washers, etc. attached to the Body in order to stabilize the shutter speed of 1/2000 sec.

[Type A Body]

* This type has Washers (60112110) × 4 attached at the points of the arrows Ⓐ and Ⓑ, a Washer (60311514) at the point of the arrow Ⓒ and polyester tape of 0.1 mm thickness at the point of the arrow Ⓓ.

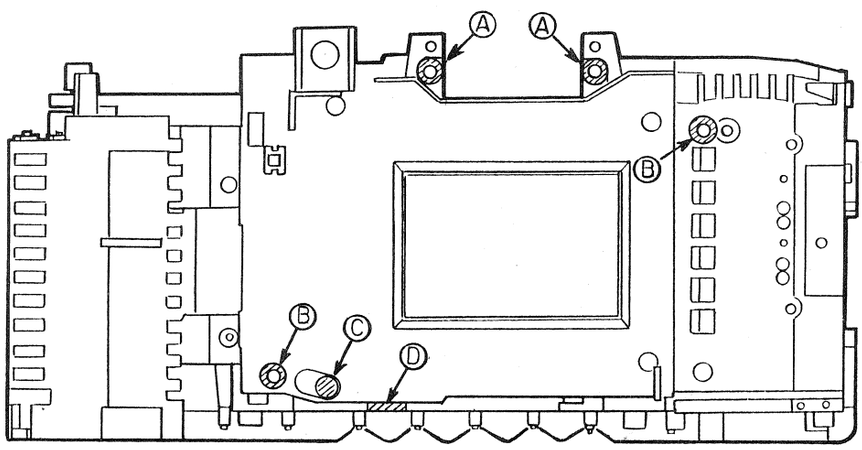


Fig.55

[Type B Body]

* This type, which has been improved in shape, has only Washers (60112110) × 2 attached at the points of the arrow Ⓓ.

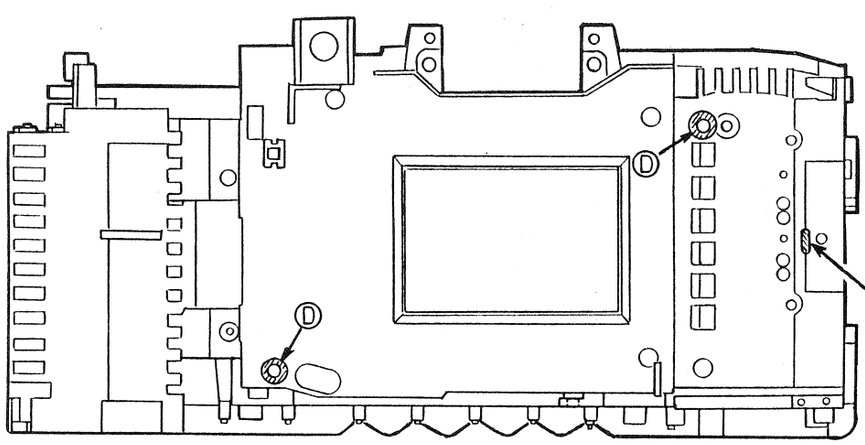


Fig.56

No.	419-01-50-RA1AG01

[Modification of Mirror Box Shape]

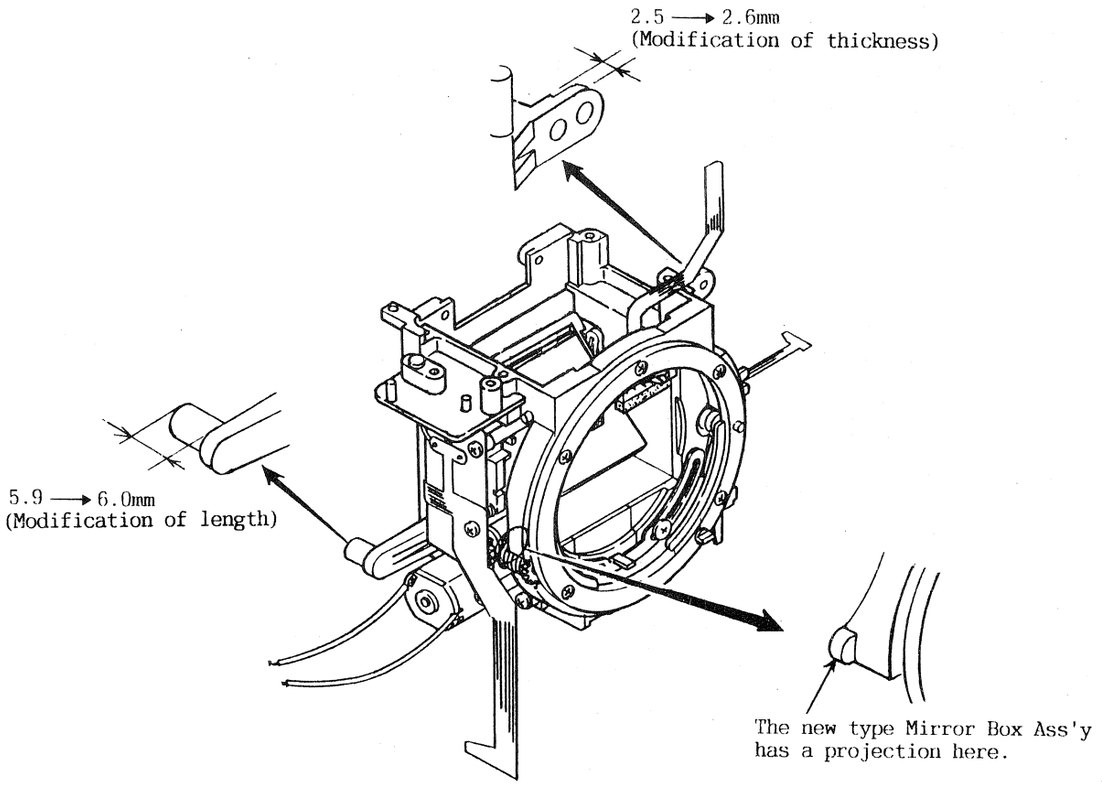


Fig.57

Notes on Repair:

No old type Mirror Box Ass'y will be supplied due to not stock.

The new type Mirror Box Ass'y is available. When replacing the Mirror Box Ass'y, observe the following instructions:

a) When the new type Mirror Box Ass'y is to be installed in the Type A Body, remove the washers at the points Ⓑ only, leaving the washers at the points Ⓐ and Ⓒ and the tape at the point Ⓓ as they are. (See Fig.55)

b) When the new type Mirror Box Ass'y is to be installed in the new type Body, remove the washers at the points Ⓓ . (See Fig.56)

No.	419-01-50-RA1AG01

[Modification of CPU and Flash Board Ass'y]

For improvement in the quality of the camera, the CPU1 (Main FPC Ass'y) and Flash Board Ass'y were modified in the course of production.
The instructions given in this Repair Manual are generally intended for repair of the new type product. Perform the repair of old type product as follows:

[A] Auxiliary P.C. Board (HT - PCB)

About 10,000 cameras at the early stage of production were provided with an Auxiliary P.C. Board (HT - PCB) to complement the electric circuitry for assuring a highly effective flash.
Therefore, due care must be taken when such a camera is to be repaired.
New type cameras, whose CPU has been improved, are not provided with the Auxiliary P.C. Board (HT - PCB).

a) Lead wire connection diagram

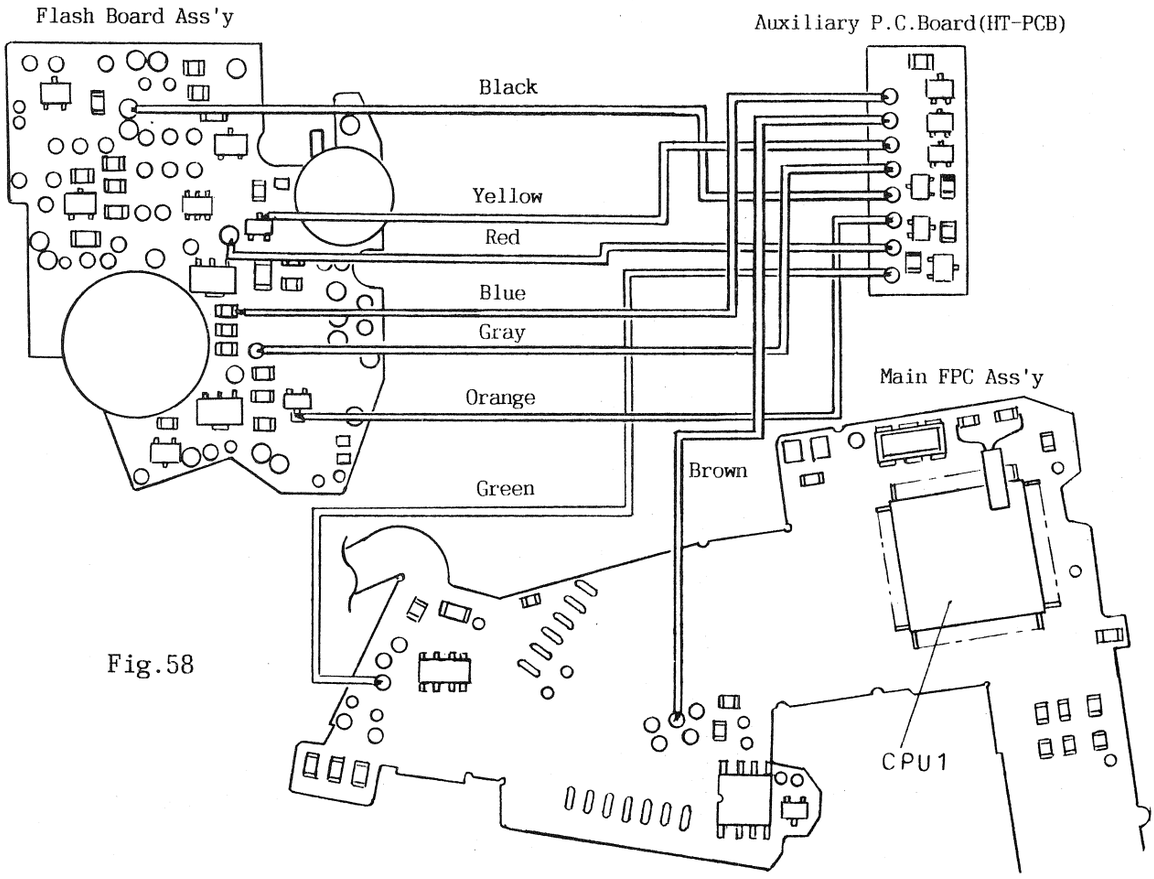


Fig.58

No.	419-01-50-RA1AG01

b) Repair

No old type Main FPC Ass'y will be supplied due to not stock.
Only the new type Main FPC Ass'y (improved CPU version) is available. When replacing the Main FPC Ass'y, remove the Auxiliary P.C. Board (HT - PCB) and the eight lead wires soldered to the Auxiliary P.C.Board (HT - PCB).

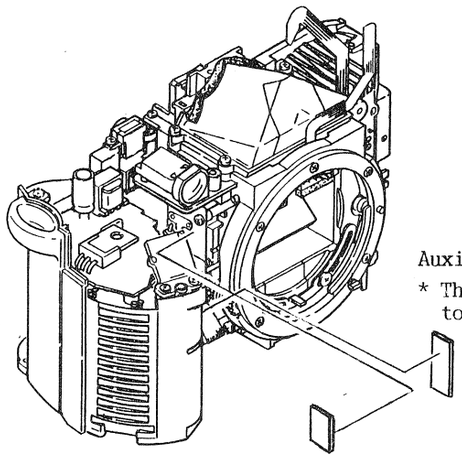


Fig.59

c) Distinction between old CPU1 and new CPU1

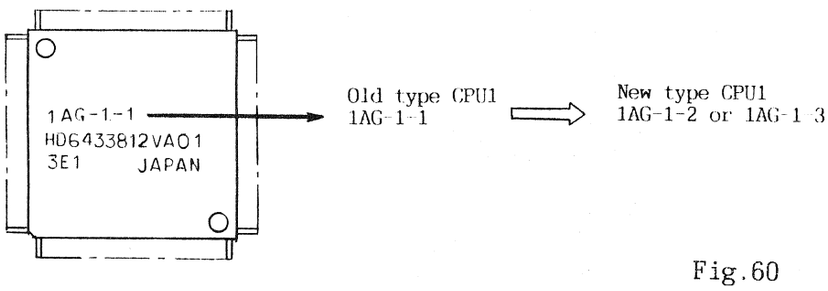


Fig.60

[B] Addition of Auxiliary P.C. Board (NRG - PCB)

About 3000 cameras at the early stage of production are provided with an Auxiliary P.C. Board (NRG - PCB) to complement the electric circuitry for assuring a highly effective insulation of the X Contact. Therefore, due care must be taken when such a camera is to be repaired.
New type cameras, whose CPU has been improved, are not provided with the Auxiliary P.C. Board (NRG - PCB).

Notes:

This modify is different from the modify of the CPU1 and the addition of the Auxiliary P.C. Board (HT - PCB).

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a) **Lead wire connection diagram**

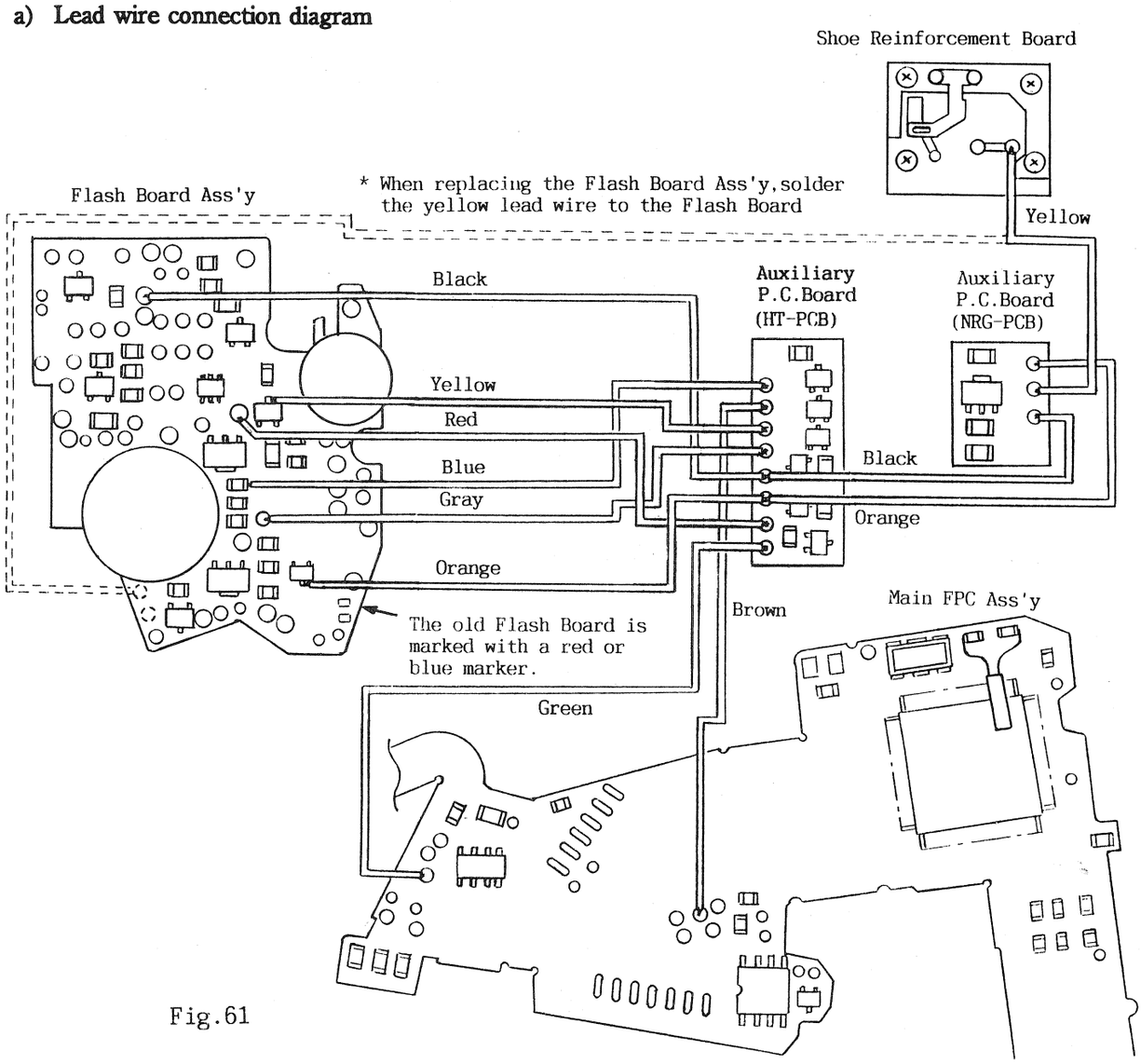

Fig.61

b) **Repair**

○ **Replacement of Flash Board Ass'y**

No old type Flash Board Ass'y will be supplied due to not stock.
Only the new type Flash Board Ass'y is available.
When replacing the Flash Board Ass'y, remove the Auxiliary P.C. Board (NRG - PCB) and the Black and Orange lead wires. And unsolder the Yellow lead wire (from Shoe Reinforcement Board) on the Auxiliary P.C. Board (NRG - PCB) and solder it to the Flash Board. Do not remove the Auxiliary P.C. Board (HT - PCB). However, unsolder the six lead wires on the Auxiliary P.C. Board (HT - PCB) and solder them to the Flash Board Ass'y.

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○ **Replacement of Main FPC Ass'y**

When replacing the Main FPC Ass'y, remove the Auxiliary P.C. Board (HT - PCB), the Yellow, Red and Blue lead wires (from Flash Board Ass'y) and the Green and Brown lead wires (from Main FPC Ass'y) of the Auxiliary P.C. Board (HT - PCB).

And solder the Black and Orange lead wires (from Flash Board Ass'y) to Auxiliary P.C. Board (NGR - PCB).

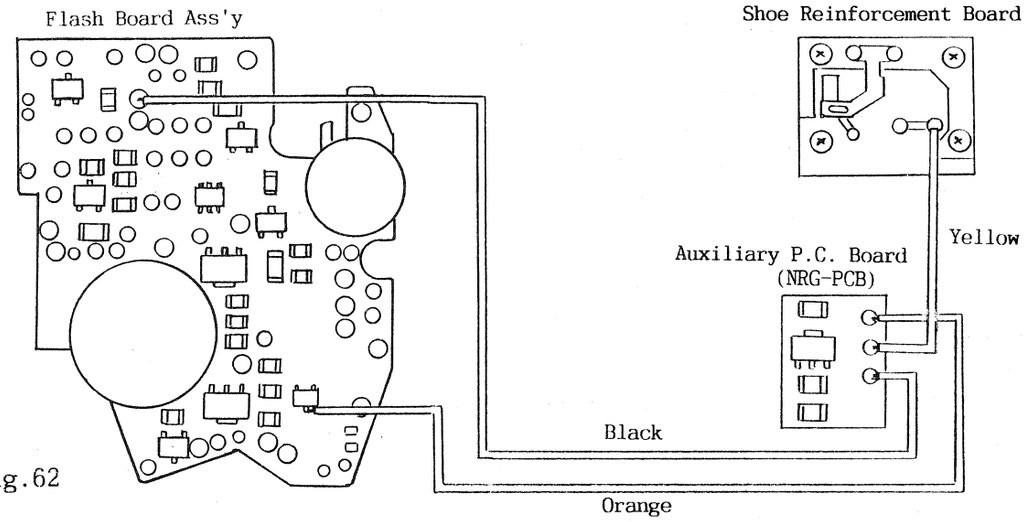

Fig.62

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C. ADJUSTMENT PROCEDURE, ETC.

No.	419-01-50-RA1AG01

C - 1 ADJUSTMENT OF AF AUXILIARY LIGHT ASS'Y POSITION

Notes:

a) Once the AF Auxiliary Light Ass'y (1ADAD900) has been removed, adjust the position of the AF Auxiliary Light Ass'y after installation.

b) Install a 100 Ω resistor to the positive terminal side of the regulated DC power supply.

c) Make the adjustment in a dim room. (LV9 or below).

d) During the adjustment, take care not to short the AF Auxiliary Light LED.

[Adjusting tools]

- Regulated DC power supply
- Tripod
- White chart (Copy paper on which center lines are drawn as shown in Fig.63)

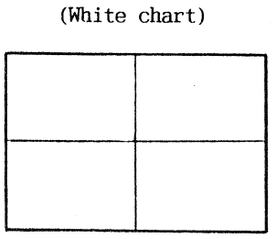

Fig.63

[Adjustment]

1) Unsolder the 2 soldered joints between the Winding FPC (1AG50600) and the AF Auxiliary Light LED.
2) Loosen the AF Auxiliary Light Setscrew (66001172) by 1/4 turn from the tightened up position.
3) Install an AF Lens 50mm f:1.8 on the camera body.
4) Install the camera body on the tripod.
5) Fix the chart to a wall.
6) Set the tripod at the distance of one meter from the chart where the optical axis of the camera is perpendicular to the chart.
7) Focus the lens and align the optical axis of the camera to the center of the chart.
8) Set the voltage of the regulated DC power supply to 5V.

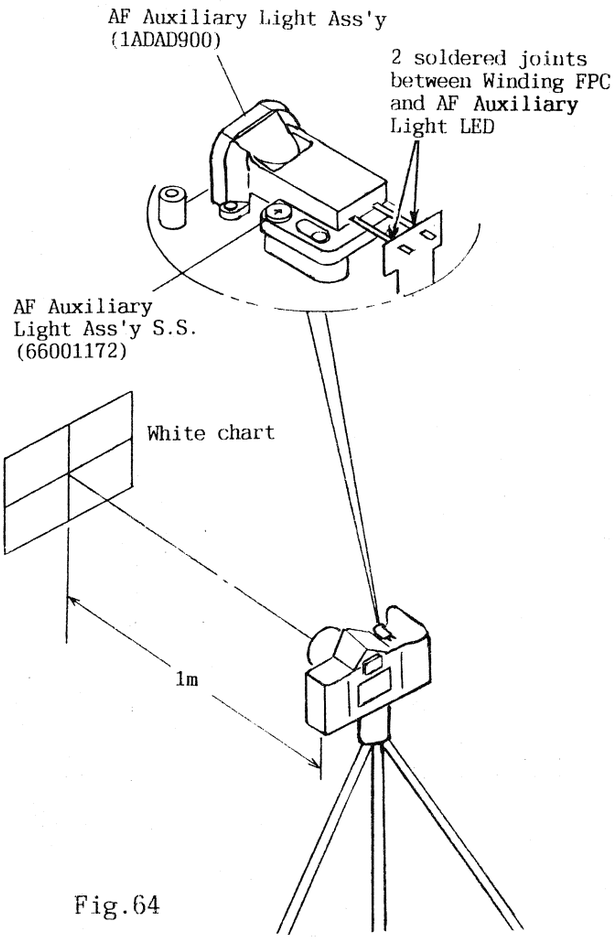

Fig.64

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9) Connect the positive terminal side of the regulated DC power supply to the left leg of the AF Auxiliary Light LED with an IC clip.
And connect the negative terminal side to the right leg with an IC clip.

Notes:

For connection to the AF Auxiliary Light LED, do not use any alligator clip: otherwise, the AF Auxiliary Light LED can be shorted and destroyed.

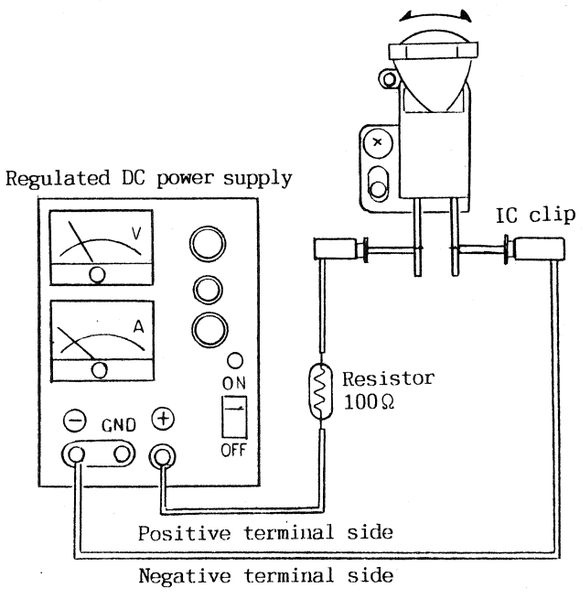

Fig.65

10) Turn on the switch of the regulated DC power supply.
11) While looking through the viewfinder, move the AF Auxiliary Light Ass'y right and left with your hand and adjust its position so that the center of the four vertical lines of the AF Auxiliary Light LED is in alignement with the center line of the chart.
12) Tighten the AF Auxiliary Light Ass'y Setscrew.
13) Turn off the switch of the regulated DC power supply.
14) Remove the two IC clips connected to the AF Auxiliary Light LED.
15) Solder the Winding FPC and AF Auxiliary Light LED.

Notes:

Take care not short the legs of the AF Auxiliary Light LED by soldering.

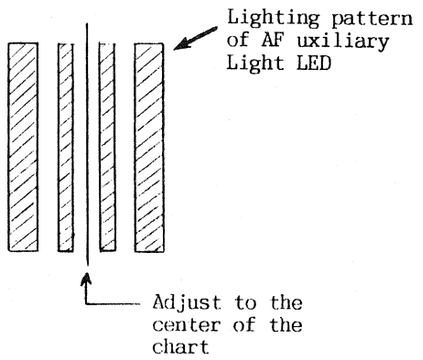

Fig.66

C - 2 ADJUSTMENT OF FLANGE BACK

① Distance from the lens mount surface to the rail surface on the film side:

$$45.43 \begin{matrix} +\ 0.02\text{mm} \\ -\ 0.03\text{mm} \end{matrix}$$

For the adjustment, insert an appropriate washer between the body mount and the Mirror Box.

Adjusting washers: 0.05mm (128666), 0.02mm (128667)

② Difference in the level between the rail surface on the film side and that on the pressure plate side:

0.20 ± 0.02mm

C - 3 ADJUSTMENT OF VIEW FINDER FOCUSING

① If the focus is not adjusted even when the focus ring of the Lens is turned to the infinity position

➡ The finder back is too long. Lower the focusing screen to shorten the finder back.

② If the focus is adjusted before the focus ring of the Lens arrives at the infinity position

➡ The finder back is too short. Raise the focusing screen to lengthen the finder back.

For the adjustment, replace the washer under the Penta Holder. (See Fig.21)

C - 4 ADJUSTMENT OF AF - M ASS'Y (Auto Focus - Module) POSITION

Notes:

a) The adjustment of the AF - M Ass'y position requires a special AF Adjusting Tool Therefore, replace the Mirror Box Ass'y (1AGG1000) instead of making this adjustment.

b) After the Mirror Box Ass'y is replaud, make the AF Adjustment (electrical compensation for distance metering error) of No.5 adjusted value mentioned in "Adjustments of Compensation Values." (See page C - 14)

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C - 5 ADJUSTMENTS OF COMPENSATION VALUES

* This camera permits the adjustments of compensation values (adjusted values) only by its manual operation. Therefore, these adjustments can be made without communication with any special adjustment apparatus.

The functions in manual adjusting mode are as follows:

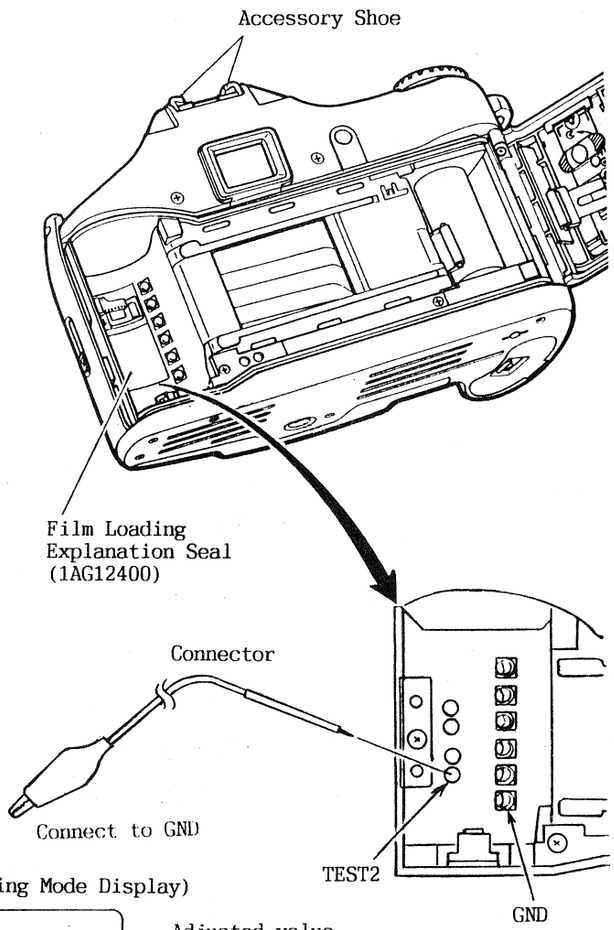
- Confirmation and change of adjusted values
- Writing in backup memory (EEPROM)
- Display of light metering value
- Display of output value of camera temperature sensor
- Display of the latest error

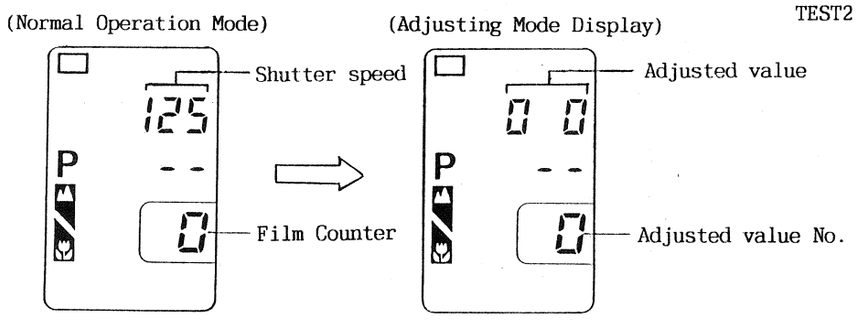
1. Setting of Adjusting Mode

① Open the Back Cover. And peel off the Film Loading Explanation Seal (1AG12400), you can see four test points arranged vertically.

② Turn on the Main Switch.

③ Connect the lowermost test point (TEST2 terminal) to the GND terminal (connect the alligator clip of the connector to the Accessory Shoe and the other end of the connector to the TEST2 terminal).
In this state, wait until the display on the LCD Panel changes to the display of adjusting mode.
The setting of adjusting mode is completed at the appearance of the display of adjusting mode.





* At the setting of adjusting mode, the shutter speed display is replaced by the adjusted value display and the film counter display is replaced by the adjusted value No. display. The other displays are the same as those in the normal operation mode.
* Once the adjusting mode has been set, it is maintained even after the TEST2 terminal is disconnected from the GND terminal.
* In the adjusting mode, the 16 - sec power - off function does not work. Turn off the Main Switch to end the adjusting mode.

<Meanings of Displays>

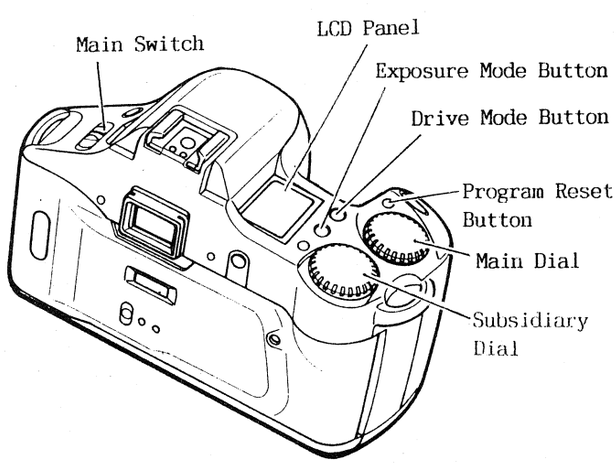
a) The kind (adjusted value No.) of the adjustment is displayed at the film counter.
b) The value (adjusted value) displayed in the shutter speed position varies with the value (adjusted value No.) displayed at the film counter.

Adjusted value No.	Display (Adjusted value)
0	Not used at repair (0 ~ 3)
1 ~ 14	Adjusted value
15 16 17 18 19 20	Light metering value display of surrounding area Light metering value display of center Temperature data display ----- Error code display -----

2. Change of Adjusted Value No./Adjusted Value

① Change of adjusted value No.
The adjusted value No., displayed at the film counter, is changed by turning the Subsidiary Dial.
The adjusted value of the new adjustment item is displayed in the shutter speed position

② Change of adjusted value
The adjusted value displayed is changed by turning the Main Dial.



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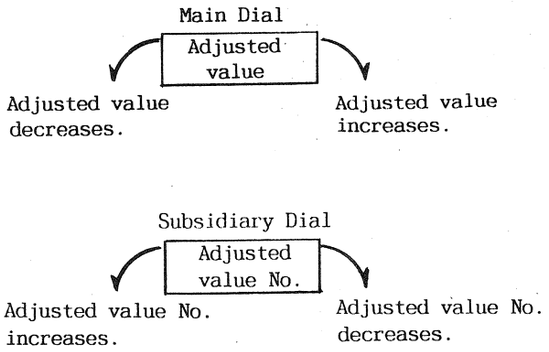

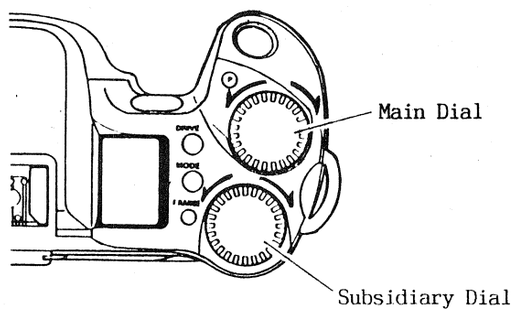

Notes:

After the change of the adjusted value, the new adjusted value is used in the camera operation, but is not automatically written in the backup memory, The new adjusted value is not stored if the battery is removed without writing the value in memory. With the battery kept installed, the new adjusted value will be used in the camera operation even after ending the adjusting mode. Be sure to write the new adjusted value in the backup memory to keep it workable.

3. Writing in Backup Memory

① In the adjusting mode, set the adjusted value No.1 operating the Subsidiary Dial. At this point, the numerals 0, 1, 2 and 3 are displayed in the shutter speed position. These values, however, are not any adjusted values and thus are not changed even by operating the Main Dial. These values are not used at repair.

② Press down the Shutter Release Button fully.
Upon this, all the adjusted values are written in the backup memory.
After completion of writing, all the LCD displays will blink.
Keep pressing the Shutter Release Button till the start of blinking.

4. List of Adjusted Values

Adjusted value No.	Kind of adjusted value	Range of adjusted value
1	Shutter speed adjustment	−8 ~ 8
2	Not used	0 Fixed
3	Aperture delay pulse adjustment	0 ~ 6
4	Temperature data	0 ~ 40
5	Temperature adjusted value	−40 ~ 40
6	Light metering value adjustment of surrounding area	−30 ~ 30
7	Light metering value adjustment of center	−30 ~ 30
8	Light metering inclination adjustment	−99 ~ 99
9	AF adjustment	−99 ~ 99
10	Flash charge voltage adjustment	0 Fixed
11	Battery check B1	
12	Battery check B2	
13	Battery check B3	0 Fixed
14	Winding brake time adjustment	0 Fixed

5. Adjustment Procedure

(1) Shutter Speed Adjustment: Adjustment of 1/2000

* This procedure is to be used to adjust a high shutter speed (1/2000).

* Set the adjusted value No.1 and make adjustment so that the shutter speed enters in the following allowable range of manual exposure time:

Allowable Range of Manual Exposure Time

(ms)

Shutter Speed	Upper limit	Reference value	Lower limit	Tolerance
8	9894	8000	6498	↑
4	4924	4000	3249	
2	2462	2000	1624	
1	1231	1000	812	
1/2	615	500	406	
1/4	307	250	203	
1/8	153	125	101	
1/15	76.50	62.50	50.70	
1/30	38.47	31.25	25.38	±0.3EV
1/60	19.23	15.63	12.69	
1/100	12.01	9.76	7.92	
1/125	9.61	7.81	6.34	
1/250	4.80	3.91	3.17	
1/500	2.40	1.95	1.58	↓
1/1000	1.28	0.98	0.74	±0.4EV
1/2000	0.74	0.49	0.32	±0.6EV

Varition in exposure time

1/2000 : Within 0.45 EV
1/1000 : Within 0.30 EV

[Adjustment]

① Set the Manual Exposure Mode (M) by pressing the Exposure Mode Button.

② Set a shutter speed of 1/2000 by operating the Main Dial.

* In the adjusting mode, an adjusted value is displayed in the position of the shutter speed display, so that no shutter speed can not be displayed. Make the shutter speed setting before setting the adjusting mode.

③ Set the adjusting mode (See 1. above)
④ Set the adjusted value No.1 by operating Subsidiary Dial. At this point, the current adjusted value of shutter speed is displayed.
⑤ In the adjusting mode, measure the shutter speed with a shutter tester.
⑥ According to the measured value, change the adjusted value by operating the Main Dial. While changing the adjusted value, measure the shutter speed with the shutter tester.

The change of the adjusted value of shutter speed by 1 results in a change by 0.125 TV.

⑦ Write the new adjusted value in the backup memory. (See 3. above)

Notes:
a) When making the shutter speed adjustment, be sure to use the manual exposure and the shutter speed of 1/2000.
In the shutter - priority AE mode (Tv), automatic shift occurs depending on the brightness. Accordingly, even at the setting to 1/2000, the shutter may not operate at 1/2000.
b) Measure the shutter speed and the curtain travel speeds with a point light - source type shutter tester.
With the EF - 500 or EF - 8000, which is a diffusion light - source type tester, there is a difference in exposure time between its channel A and channel C of tester. The time displayed at the channel B (center) must be taken as the measured value. The curtain travel speeds, however, are displayed at the channels A and C for reference only.

[Curtain Travel Speed]
* When measuring the curtain travel speeds, be sure to use the manual exposure mode and the shutter speed of 1/2000.
* The curtain travel speeds can not be adjusted. Therefore, replace the Shutter Unit if the speeds of the curtains are significantly different from each other.

(Reference values of curtain travel speeds)

EF - 500 Multi Camera Tester

Curtain	Travel speed
First-curtain	About 7.0 ms
Second curtain	About 6.7 ms

EF - 8000 Multi Camera Tester

Curtain	Travel speed
First-curtain	About 6.4 ms
Second-curtain	About 6.5 ms

(2) Aperture Delay Pulse Adjustment: Adjustment of aperture diameter

* Make the aperture delay pulse adjustment after completion of the shutter speed adjustment of (1).

① Install the lens "AF 50 mm F/1.8" on the camera.
② Set the Manual Expoxure Mode (M) by pressing the Exposure Mode Button.
③ Set a shutter speed of 1/125 by operating the Main Dial.
Set an aperture of 5.6 by operating the Subsidiary Dial.

* In the adjusting mode, an adjusted value is displayed in the position of the shutter speed display and the operation of the Subsidiary Dial controls the abjusted value No. Therefore, the setting of shutter speed or aperture is impossible. Perform the shutter speed and aperture setting before setting the adjusting mode.

④ Set the adjusting mode. (See 1. above)
⑤ Set the adjusted value No.3 by operating the Subsidiary Dial. At this point, the current adjusted value of aperture delay pulse is displayed.
⑥ Set the brightness of the AE tester to LV12.
⑦ In the adjusting mode, measure the exposure error with an AE tester.
⑧ According to the measured value, change the adjusted value by operating the Main Dial. While changing the adjusted value, repeat measuring with the AE tester until the error is within ± 0.0625 EV.

The adjusted value of aperture by 1 results in a change by 0.125 EV.

(Reference)
The adjusted value to be set can be calculated from the following formula:

$$\text{(Current adjusted value)} + \frac{\text{(Exposure error measured at ⑦)}}{0.125} = \text{New adjusted value}$$

⑨ Write the new adjusted value in the backup memory. (See 3. above)

(3) **Light Metering Adjustment of Surrounding Area: Exposure adjustment of light surrounding area**

* Make this adjustment after completion of (1) shutter speed adjustment and (2) aperture delay pulse adjustment.
* After changing the adjusted value, make the temperature adjustment of (6).

(Adjustment conditions)

AE tester	Camera to be adjusted
ISO : 100 K value: 1.04	ISO : 100 AE mode: Program AE mode Lens: AF 50mm f/1.8

① Install the lens "AF 50 mm f/1.8" on the camera.
② Set the Program AE Mode (P) by pressing the Exposure Mode Button and set the exposure compensation value to zero (press the Program Reset Button).
③ Set the adjusting mode. (See 1. above)

(Reference)
When the adjustments (1) and (2) are followed by this adjustment immediately, you can keep the camera in the adjusting mode. In such case, you have only to change the exposure mode by pressing the Program Reset Button.

④ Set the adjusted value No.6 by operating the Subsidiary Dial. At this point, the current adjusted value of light metering of surrounding area is displayed.
⑤ Set the brightness of the AE tester to LV12.
⑥ In the adjusting mode, measure the exposure error with the AE tester.
⑦ According to the measured value, change the adjusted value by operating the Main Dial. While changing the adjusted value, repeat measuring with the AE tester until exposure error is within $\pm$ 0.0625 EV.

The change of the adjusted value by 1 results in the change in exposure by 0.11 EV.

* If the AE tester can not be used with the K value of 1.04, set the K value to 1.30 and make the adjustment so that the error is within the range of $-$ 0.2375 EV to $-$ 0.3625 EV.

⑧ Change the brightness of the AE tester to LV8 and check the exposure error.
If the absolute value of the exposure error exceeds 0.2 EV, make the light metering inclination adjustment of (4).
There is no need of making the light metering inclination adjustment when the absolute value of exposure error is within 0.2 EV.
(There is no need of changing the light metering inclination.)
⑨ Make the light metering adjustment of center of (5).

(4) Light Metering Inclination Adjustment

① Set the adjusted value No.8 operating the Subsidiary Dial. At this point, the current adjusted value of light metering inclination is displayed.
② Set the brightness of the AE tester to LV8.
③ Measure the exposure error with the AE tester.
④ According to the measured value, change the adjusted value by operating the Main Dial. While changing the adjusted value, repeat measuring with the AE tester until the exposure error measured at the light metering adjustment of surrounding area of (3) is within 0.2 EV.

The change of the adjusted value by 1 results in the change in exposure by 0.11 EV.

(5) Light Metering Adjustment of Center: Exposure adjustment of light metering of center

* Make this adjustment after completion of (1) shutter speed adjustment, (2) aperture delay pulse adjustment, (3) light metering adjustment of surrounding area and (4) light meterung inclination adjustment.
* After changing the adjusted value, make the temperature adjustment of (6).
* The adjustment conditions are the same as those for (3) light metering adjustment of surrounding area.

① Set the adjusted value No.7 by operating the Subsidiary Dial. At this point, the current adjusted value of light metering of center is displayed.
② Set the brightness of the AE tester to LV2.
③ Measure the exposure error with the AE tester.
④ According to the measured value, change the adjusted the value by operating the Main Dial. While changing the adjusted value, repeat measuring with the AE tester until exposure error is within $\pm$ 0.0625 EV.

The change of the adjusted value by 1 results in the change in exposure by 0.11 EV.

⑤ Change the brightness of the AE tester to LV8 and check the exposure error. If the absolute value of the exposure error exceeds 0.2 EV, make the light metering inclination adjustment of (4).

⑥ Make the temperature adjustment of (6).

Allowable Range of Exposure Value

Brightness (LV)	Allowable range
8	− 0.8 ～ + 0.8
12	− 0.8 ～ + 0.8
15	− 0.8 ～ + 0.8

ISO : 100

K value : 1.04

* When the AE tester does not have K:1.04, set the tester to K:1.30 and adjust the exposure value into the following range:

Brightness (LV)	Allowable range
8	− 0.11 ～ + 0.5
12	− 0.11 ～ + 0.5
15	− 0.11 ～ + 0.5

ISO : 100

K value : 1.30

(6) **Temperature Adjustment:**
At change of an adjusted value, the values related to the temperature are stored in memory. There are two adjusted values related to temperature — temoerature data and adjusted value of temperature.

* After (3) light metering adjustment of surrounding area, (4) light metering inclination adjustment and (5) light metering adjustment of center, be sure to this adjustment.

① Set the adjusted value No.4 by operating the Subsidiary Dial.
At this point, the current temperature data is displayed.
② Measure the room temperature at the adjustment with a thermometer and calculate the temperature data from the following formula:

Temperature data = (Room temperature at adjustment) − 25

③ By operating the Main Dial, set the value of the temperature data calculated above.
④ Set the adjusted value No.17 by operating the Subsidiary Dial.
The adjusted value displayed at this point is the temperature output of the camera.
Record this value.
⑤ Set the adjusted value No.5 by operating the Subsidiary Dial.
⑥ Calculate the adjusted value of temperature from the following formula:

Adjusted value of temperature = (Temperature output of camera: Value recorded at ④) − 105

⑦ By operating the Main Dial, set the adjusted value of temperature calculated at ⑥ .
⑧ Write the new adjusted value in the backup memory. (See.3 above)
* At this point, write all the adjusted value of (3) light metering adjustment of surrounding area, (4) light metering inclination adjustment, (5) light metering adjustment of center and (6) temperature adjustment in the backup memory.

(7) AF Adjustment (Focus adjustment in Z direction)

- The value of −99 ~ 99 can be set as AF adjusted values.
- Decrease of the adjusted value will move the sharp focus position in the direction of infinity while its increase will move the sharp focus position in the direction of near distance.
- The change of the adjusted value by 1 results in a change by 6.4 μm on the image plane.

(Adjusting tools)

- AF 50 mm f/1.8 lens
- Tripod
- AF chart

[Adjustment]

① Install the lens on the camera.
② Mount the camera on the tripod.
Set the tripod where the camera is positioned at a distance of 1.0m from the AF chart.
③ Set the camera to the AF mode and the single drive mode.
④ Allign the center of the viewfinder with the center of the AF chart.
⑤ Press the Shutter Release Button halfway to perform AF operation.
If the "1 m" distance indicator of the AF lens appears between the center indicator lines, there is no need of making the AF adjustment.
A shift (rotational direction) of 1 mm on the distance indicator corresponds to 108 μm on the image plane.
⑥ Set the adjusting mode. (See 1. above)
⑦ Set the adjusted value No.9 by operating the Subsidiary Dial.
The adjusted value displayed at this point is the current AF adjusted value.
⑧ Change the adjusted value by operating the Main Dial.
⑨ Write the new adjusted value in the backup memory. (See 3. above)
⑩ Turn off the Main Switch and press the Program Reset Button.
⑪ Turn on the Main Switch.
Press the Shutter Release Button halfway to perform AF operation.
Repeat steps ⑥ ~ ⑩ until "1 m" distance indicator is positioned between the center indicator lines.

Notes:

No other kinds of adjustments include the operation ⑩.
Without this operation, the sharp focus position will not change even when the adjusted value is changed.

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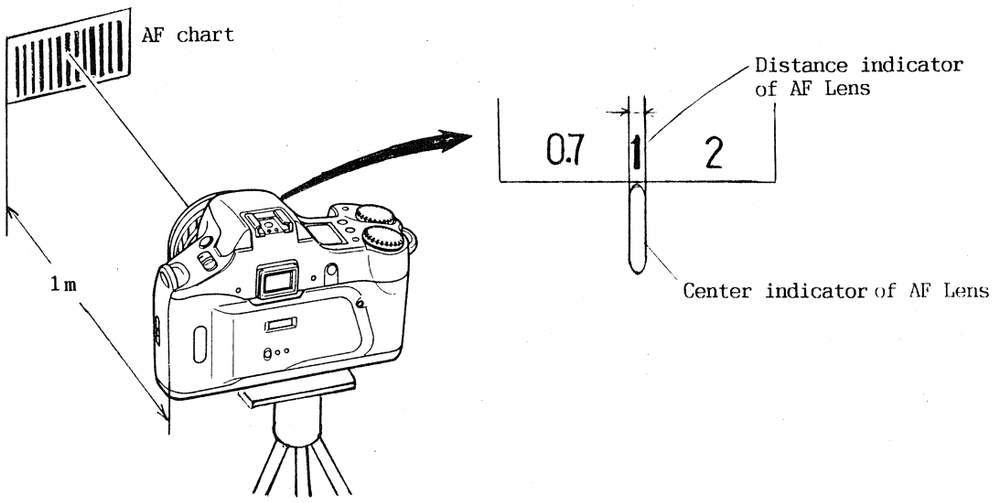


(8) Battery Check Voltage Adjustments (B1 and B2 adjustments)

- Increase of the adjusted value by 1 results in a check voltage inceased by 27 mV. (B1 and B2)

(Asjusting tools)

- Regulated DC power supply
- Multi - meter

① Remove the Bottom Cover.
② Set the voltage of the regulated DC power supply to 5.0V.
③ Install a dummy battery in the camera.
④ Turn on the Main Switch (take measurements with turned on).
⑤ Connect the positive terminal of the multi - meter to the test point 101 (Battery Check) and the negative terminal to the test point 3 (GND) on the Main P.C. Board.
Then measure the voltage.
⑥ Calculate the adjusted values.

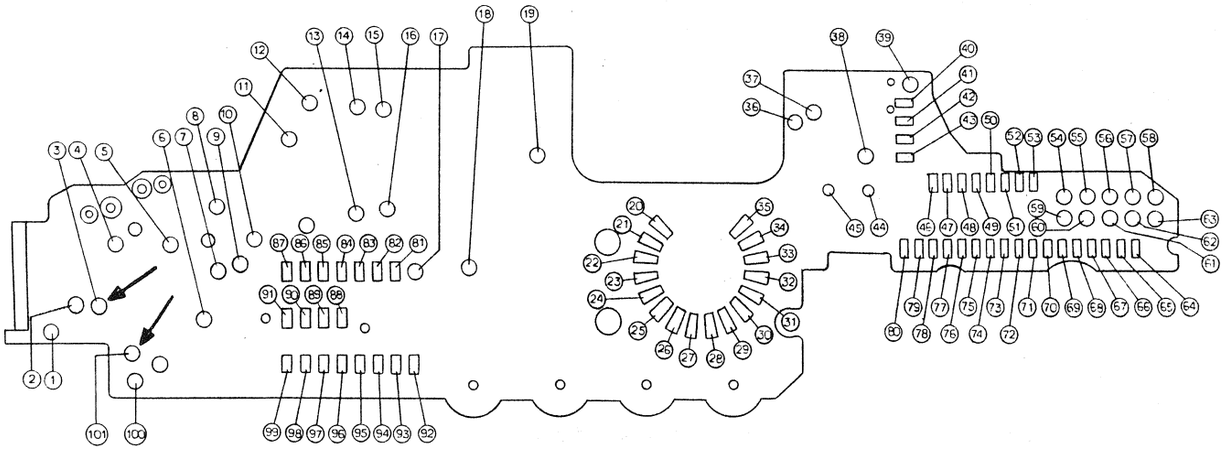
$$\text{B1 adjusted value} = \frac{2302 - (\text{Measured voltage mV})}{13.3} + 14$$

$$\text{B2 adjusted value} = (\text{B1 adjusted value}) - 6$$

⑦ Set the adjusting mode. (See 1. above)
⑧ Set the adjusted value No.10 by operating the Subsidiary Dial.
The data displayed at this point is the current B1 adjusted value.
⑨ By operating the Main Dial, set the B1 adjusted value calculated at ⑥ .

⑩ Set the adjusted value No.11 by operating the Subsidiary Dial.
The data displayed at this point is the current B2 adjusted value.
⑪ By operating the Main Dial, set the B2 adjusted value calculated at ⑥ .
⑫ Write the new adjusted value in the backup memory. (See 3. above)

(Main P.C. Board)



(Battery check voltage)

	6.0V	Normal display/normal operation
Warning voltage	4.4V ± 0.1V	" ▭ " mark lighting (warning mark) Other displays and operation normal
Operation inhibition voltage	4.1V ± 0.1V	" ▭ " mark blinking (operation inhibition mark) No operation, nor other displays Operation coming to stop

Error Code Table

Error code	Error
0	No error
4	Aperture control error
8	Mirror - down error
16	Mirror - up error
20	Simultaneous occurrence of mirror - up error and aperture control error
32	Battery warning (B1) = Not error
36	Simultaneous occurrence of battery warning (B1) and aperture control error
40	Simultaneous occurrence of battery warning (B1) and mirror - down error
48	Simultaneous occurrence of battery warning (B1) and mirror - up error
52	Simultaneous occurrence of battery warning (B1), mirror - up error and aperture control error
64	Battery warning (B2) = Not error

No numerals other than shown above are displayed.

Aperture control error

The required number of aperture pulses are not output outputted in a certain time.

- The aperture pulse generating circuit is defective.
- The Aperture Ring does not move correctly.

Mirror - down error

The Mirror - Up Switch does not turn off in a certain time.
Or The Mirror - Down Switch does not turn on in a certain time.

- The Mirror - Up/Down Switch or its wiring is defective. (Broken wire, defective brush, etc.)
- The mirror drive mechanism does not operate properly.

Mirror - up error

The Mirror - Down Switch does not turn off in a certain time.
Or The Mirror - Up Switch does not turn on in a certain time.

- The Mirror - Up/Down Switch or its wiring is defective. (Broken wire, defective brush, etc.)
- The mirror drive mechanism does not operate properly.

No.	419-01-50-RA1AG01

C - 6 ADJUSTMENT OF SPD POSITION

* Adjust the sensor (SPD) position so that the light metering of the center can be made properly.

* After replacing the Main FPC Ass'y (1AGE1000) or the Light Metering Base Ass'y (1AGF1200), be sure to make the adjustment of SPD position.

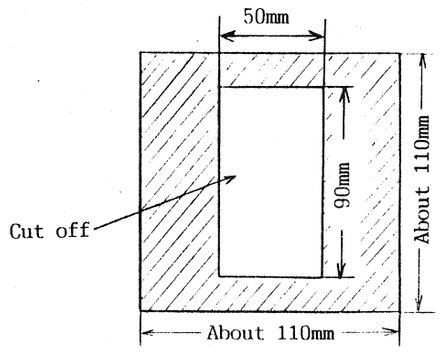
(Adjusting tools)

- Regulated DC power supply
- EF 500 or EF8000 AE tester
- AF 50 mm f/1.8 lens
- Tripod
- Black chart

(Preparation of chart)

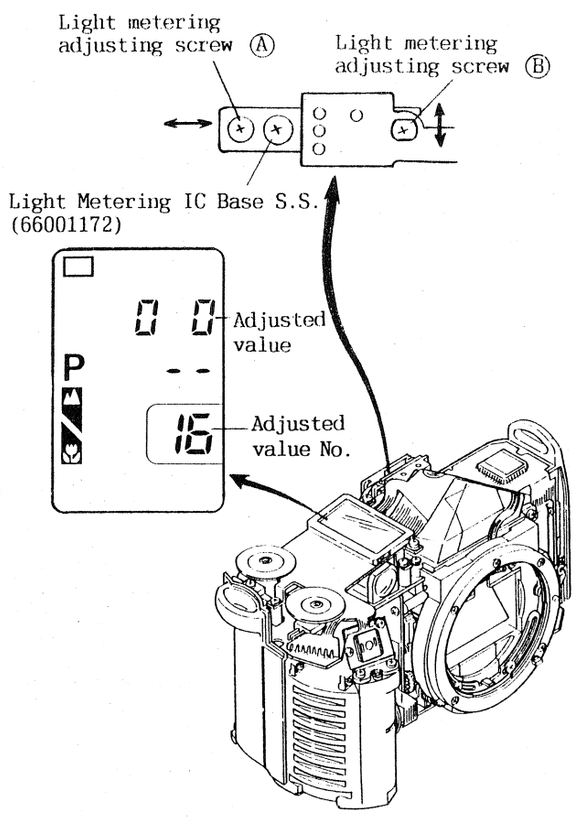
- Using a cutter, cut off a 50 × 90 mm area from the center of a sheet of black paper (about 110 × 110 mm) of low reflectivity.

Black chart

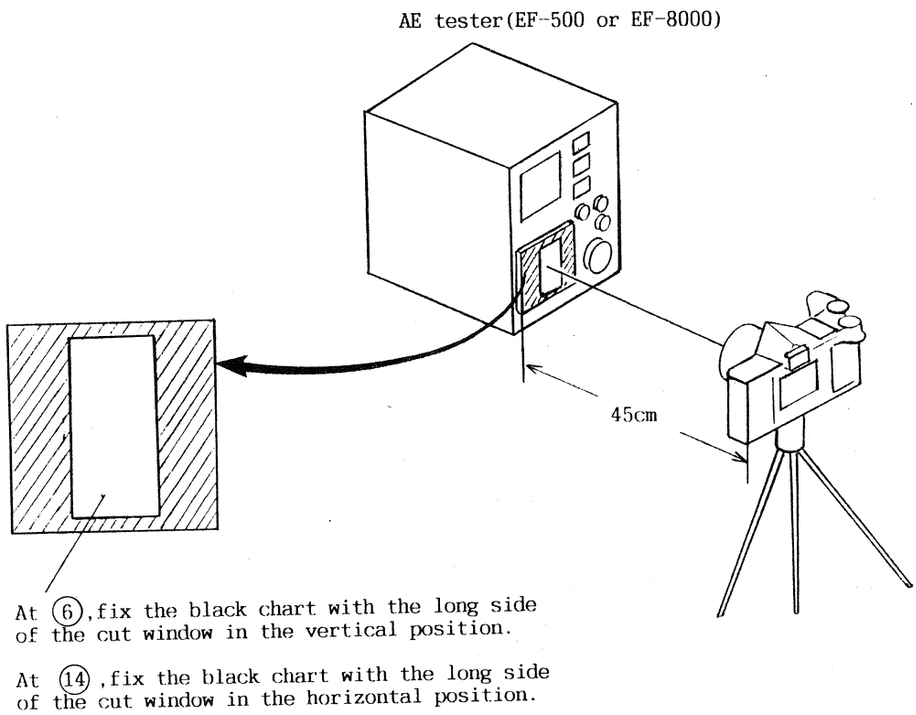


[Adjustment]

① Set the voltage of the regulated DC power supply to 6.0V.
② Loosen the Light Metering IC Base Setscrew (66001172).
③ Install the Top Cover Ass'y (1AGB0400) provisionally.
④ Install the AF lens on the camera.
⑤ Mount the camera on the tripod.
⑥ With the long side of the cut window in the vertical position, fix the black chart on the light source surface of the AE tester with Scotch tape.
⑦ Install a dummy battery in the camera.
⑧ Set the adjusting mode. (See page C - 5)
⑨ Set the adjusted value No.16 by operating the Subsidiary Dial.
⑩ Set the camera at a distance of 45 cm from the black chart and adjust the focus of the lens.
In doing so, align the center of the viewfinder with the cut area in the black chart.



⑪ Turn on the POWER swith of the AE tester.
Set the brightness of the AE tester to LV15.
⑫ Remove the Top Cover Ass'y.
⑬ Turn the light metering adjusting screw Ⓐ with a screwdriver and adjust it to the position of the smallest adjusted value.
⑭ Remove the black chart and fix it in the same position with the long side of the cut window in the horizontal position.
⑮ Turn the light metering adjusting screw Ⓑ with a screwdriver and adjust it to the position of the smallest adjusted value.
⑯ After completion of the adjustment, tighten the Light Metering IC Base Setscrew.
And apply bond (Cemedine 551) to the light metering adjusting screws Ⓐ and Ⓑ.



C - 7 OTHERS

C - 7 - 1 X - Contact

- Delay time
  The X - Contact must be turned on during "full open" of the shutter, and there must be "full open" time of 1 ms or more after it.
- Contact efficiency
  60 % or above for specified time of 1 ms
- X time
  1/100 sec ± 0.3 EV (12.01 ～ 7.92 ms)

C - 7 - 2 Current Consumption

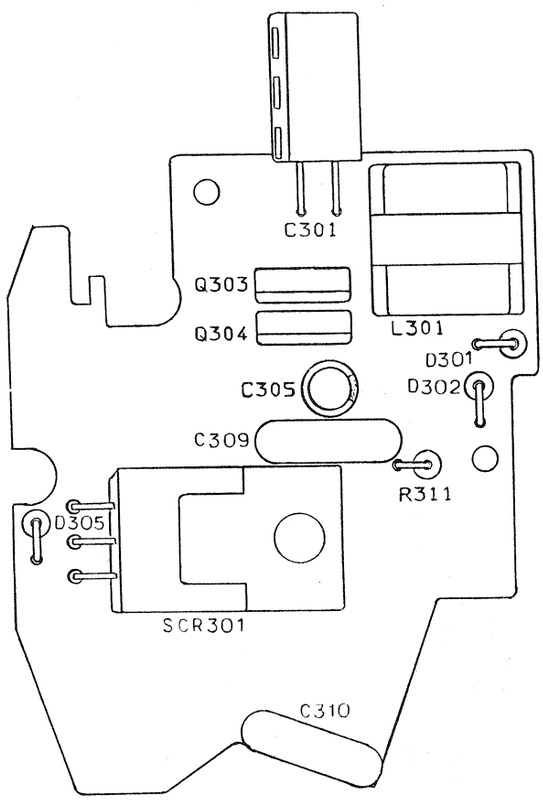
· Stand - by current	50 μ A or below
· Power ON	100 mA or below
· Winding operation	700 mA or below
· Automatic stop	1500 mA or below
· Rewinding operation	500 mA or below

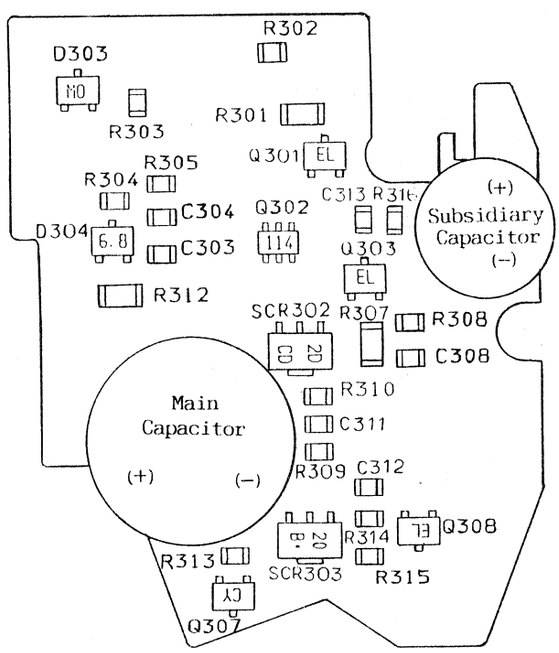
* Check at constant voltage of 6.0V.

No.	419−01−50−RA1AG01

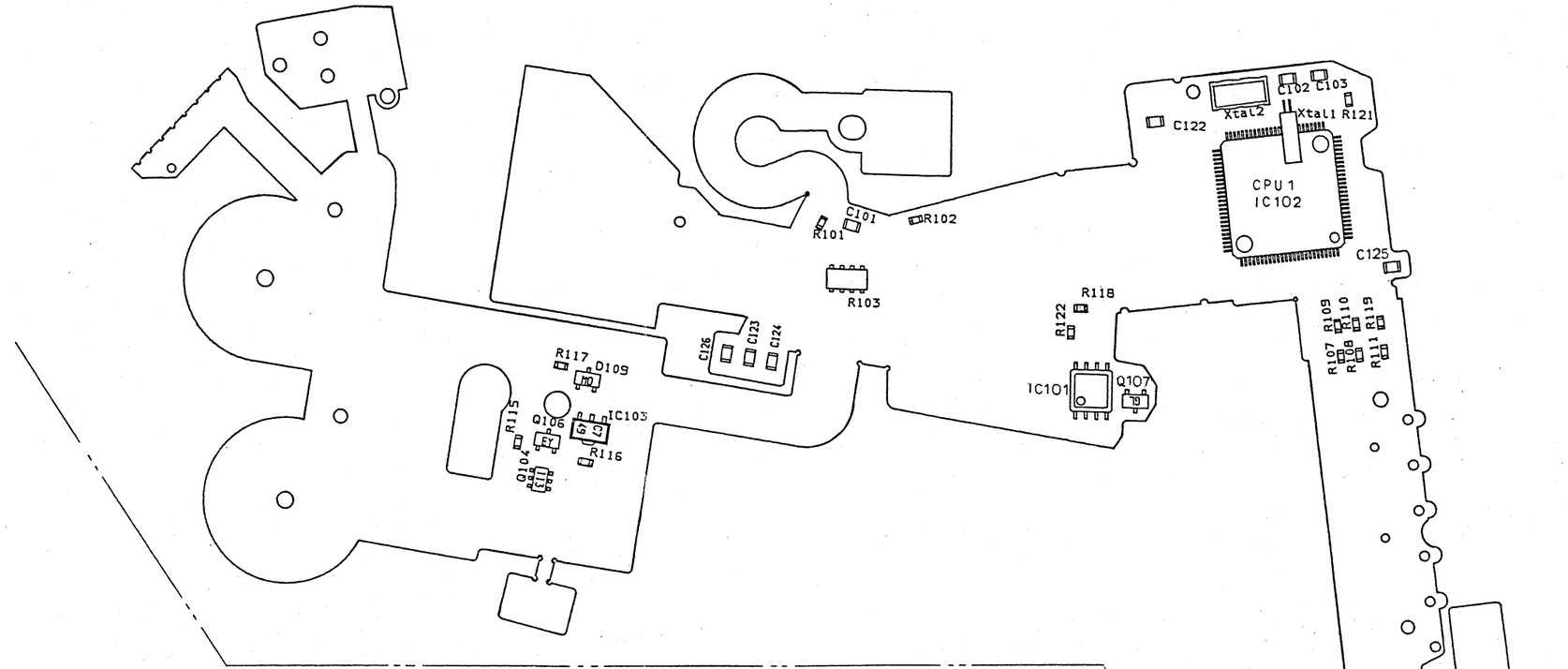
C - 7 - 3 Electrical Elements Locating Diagrams & Test Points

Electric Parts on Flash Board

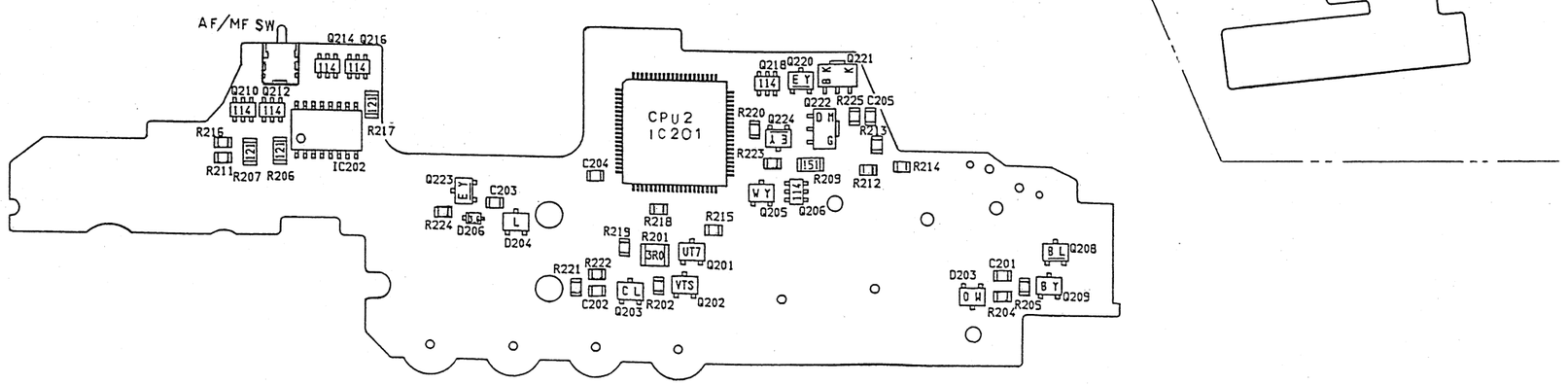




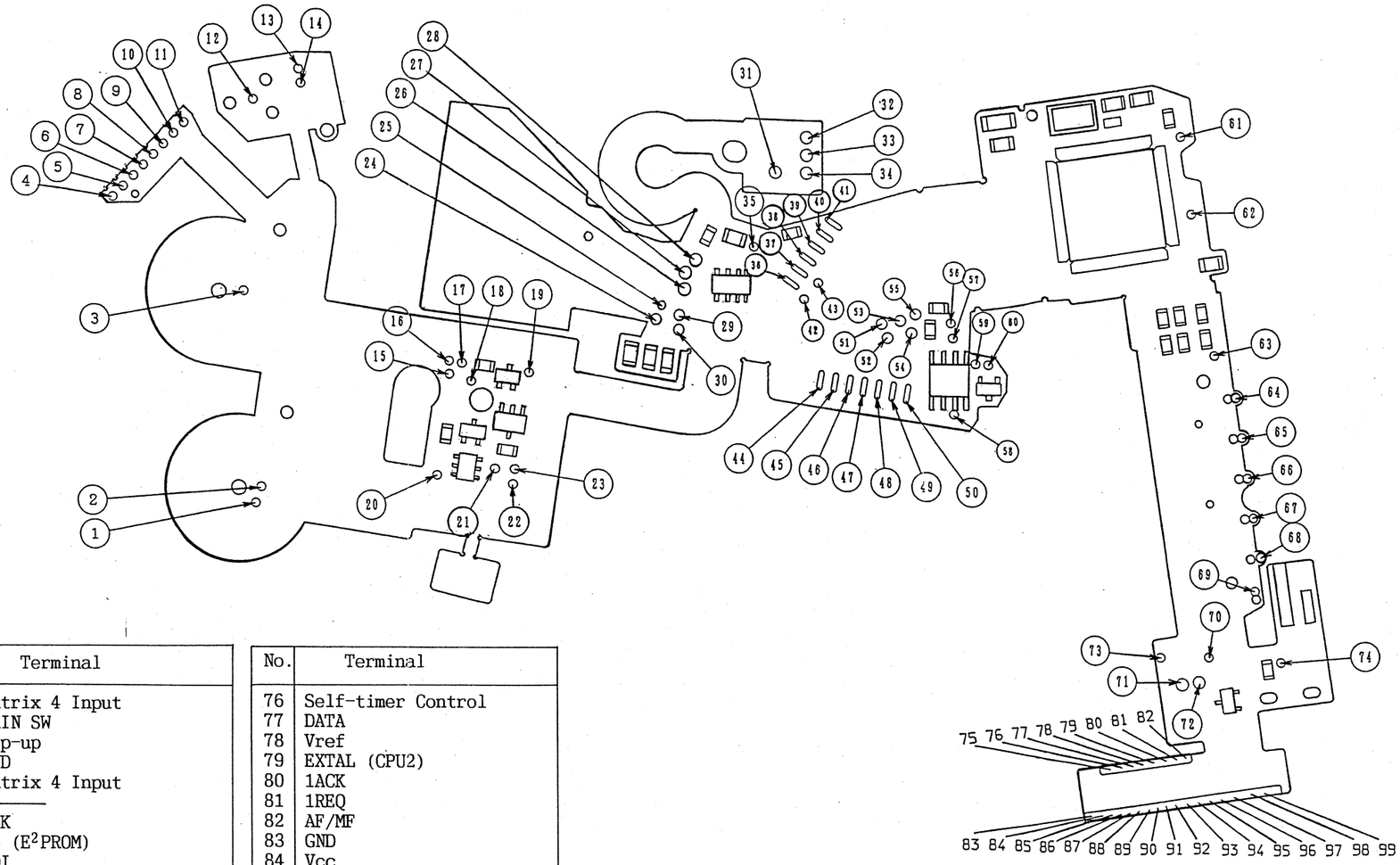
Electric Parts on Main FPC



Electric Parts on Main P.C. Board



Main FPC Test Points

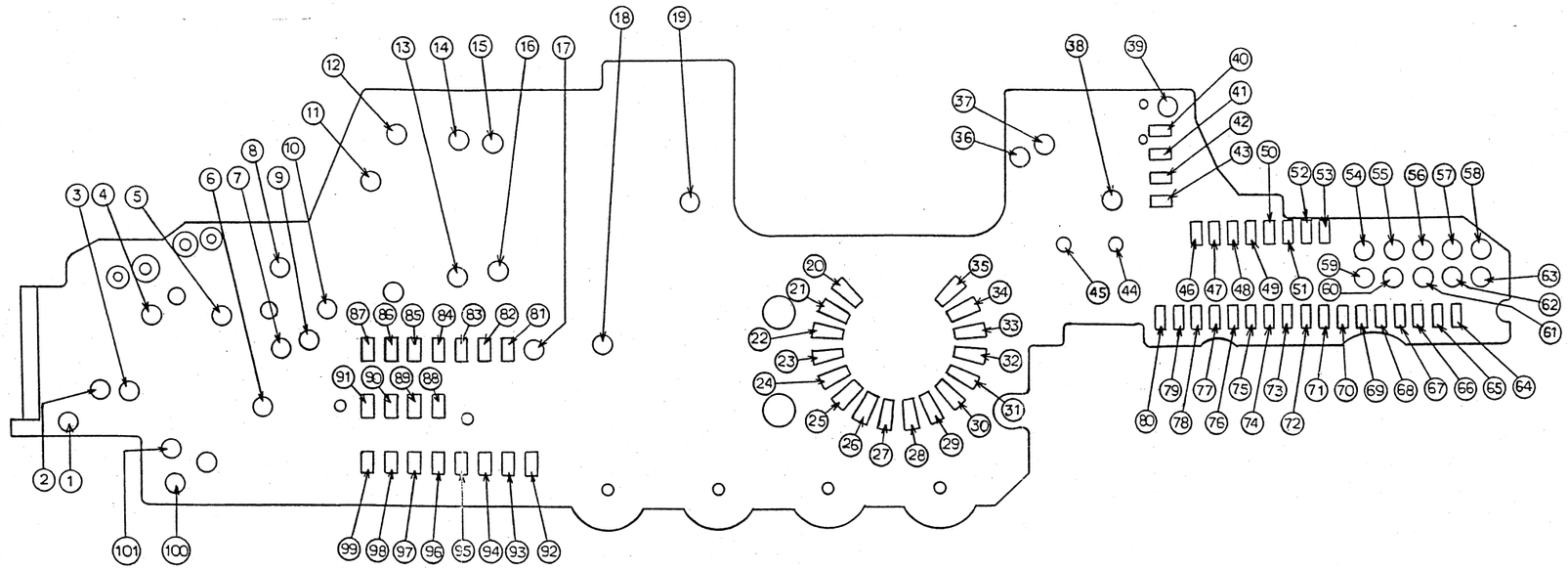


No.	Terminal
1	Matrix 1 Input
2	Matrix 1 Output
3	Matrix 3 Output
4	GATE
5	Built-in Flash
6	Charge Completion (Built-in Flash)
7	External Flash
8	Charge Completion (External Flash)
9	GND
10	Vcc
11	OSC
12	Matrix 1 Output
13	Matrix 3 Input
14	Matrix 4 Input
15	Vcc
16	Vcc
17	GND
18	Reset OUT
19	RES
20	Matrix 3 Input
21	P-RES
22	Matrix 2 Output
23	Matrix 2 Input
24	RES
25	Light Metering Switching
26	X
27	GND
28	Buzzer
29	Vref
30	Light Metering Output
31	V_{DD}
32	Light Metering Switching
33	Light Metering Output
34	GND
35	Temperature Output
36	V_{DD}
37	F.Indicator 5
38	F.Indicator 4
39	F.Indicator 3
40	F.Indicator 2
41	F.Indicator 1
42	V_{DD}
43	V_{DD}
44	SCK (CPU2)
45	$V_{DD}2$
46	CRQ (CPU2)
47	SDI (CPU2)
48	GND
49	SDO (CPU2)
50	LRQ

No.	Terminal
51	Matrix 4 Input
52	MAIN SW
53	Pop-up
54	GND
55	Matrix 4 Input
56	———
57	SCK
58	CS (E^2PROM)
59	SDI
60	SDO
61	X2
62	OSC2
63	AF/MF
64	DX4
65	DX3
66	DX2
67	DX1
68	DX0
69	GND
70	Back Cover SW
71	GND
72	DATA
73	Test 1
74	Back Cover SW
75	Battery SW

No.	Terminal
76	Self-timer Control
77	DATA
78	Vref
79	EXTAL (CPU2)
80	1ACK
81	1REQ
82	AF/MF
83	GND
84	Vcc
85	CRQ (CPU2)
86	V_{DD}
87	REW SW
88	SDI (CPU2)
89	PH
90	SDO (CPU2)
91	LVPH (CPU2)
92	SCK (CPU2)
93	LRQ
94	2ACK
95	D_3
96	D_1
97	D_2
98	D_0
99	2REQ

Main P.C. Board Test Points

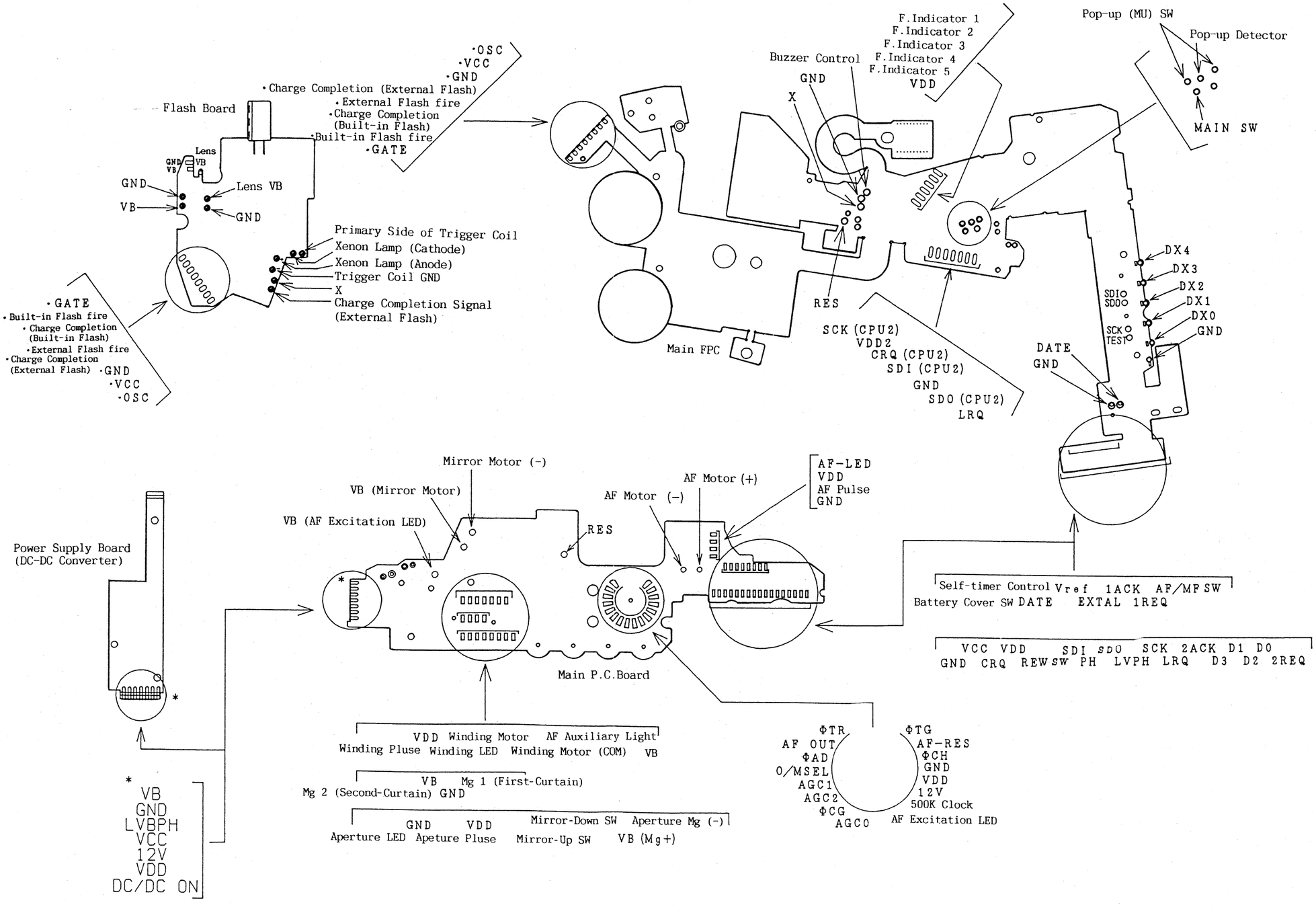


No.	Terminal
1	DC/DC ON
2	12V
3	GND
4	GND
5	GND
6	LVBPH
7	Vcc
8	VB
9	W-Pulse
10	Vcc
11	VB
12	Mirror Motor (-)
13	Mg 1 (direct to port)
14	Mirror BRK
15	Mirror ON
16	Aperture Mg Control
17	Mg 2 (direct to port)
18	AF Auxiliary Light Control
19	RES
20	ØTR
21	AF OUT
22	ØAD
23	O/MSEL
24	AGC1
25	AGC2
26	ØCG
27	AGCO
28	AF Excitation Control
29	500K Clock
30	12V
31	VDD
32	GND
33	ØCH
34	AF-RES
35	ØTG

No.	Terminal
36	WIND (Forward)
37	WIND (Reverse)
38	AF (Reverse)
39	AF (Forward)
40	AF-LED (after resistance)
41	VDD
42	AF Pulse
43	GND
44	AF Motor (Red)
45	AF Motor (Black)
46	Battery Cover SW
47	Self-timer Control
48	DETE
49	Vref
50	EXTAL (OSC2)
51	1ACK
52	1REQ
53	AF/MFSW
54	1ACK
55	Vref
56	LRQ
57	D2

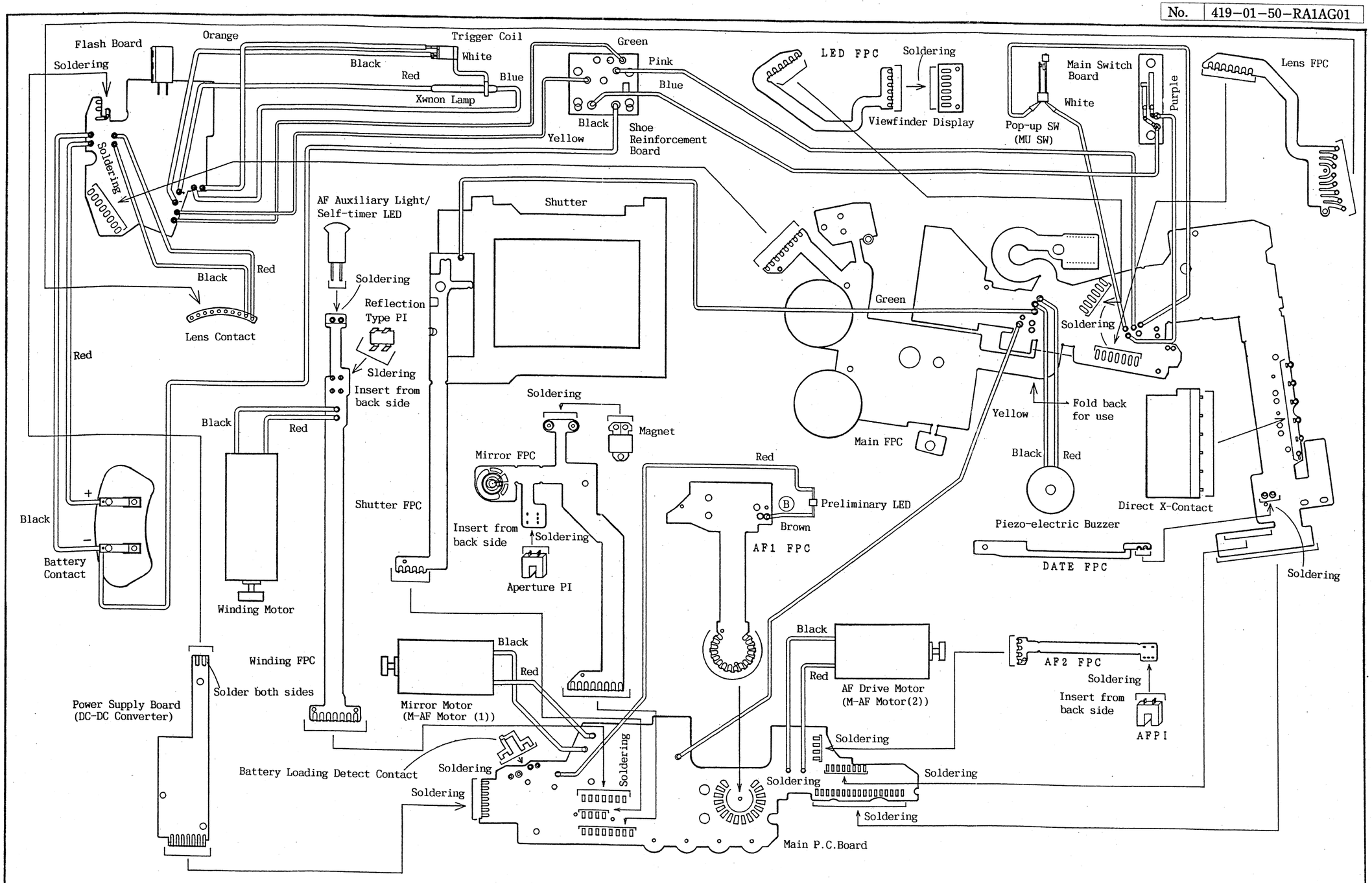
No.	Terminal
58	GND
59	PH
60	LVPH
61	D3
62	2REQ
63	CRQ
64	2REQ
65	DO
66	D2
67	D1
68	D3
69	2ACK
70	LRQ
71	SCK
72	LVPH
73	SDO
74	PH
75	SDI
76	REW SW
77	VDD
78	CRQ
79	Vcc

No.	Terminal
80	GND
81	VB (AF Auxiliary Light A)
82	AF Auxiliary Light (Cathode)
83	Winding (COM) Motor
84	Winding Motor
85	Winding LED (after resistance)
86	VDD
87	Winding Pluse
88	Mg 1 (First-Curtain)
89	GND
90	VB
91	Mg 2
92	Aperture Mg (-)
93	VB (Mg +)
94	Mirror-Down SW
95	Mirror-Up SW
96	VDD
97	Aperture Pluse
98	GND
99	Aperture LED (after resistance)
100	VDD
101	Battery Check



The terminals marked with * are arranged as shown above.

Terminal Connection Diagram



Note:
At Ⓑ, solder the lead wire to the terminal on the back side of the FPC.

Wiring Diagram

KYOCERA

YASHICA

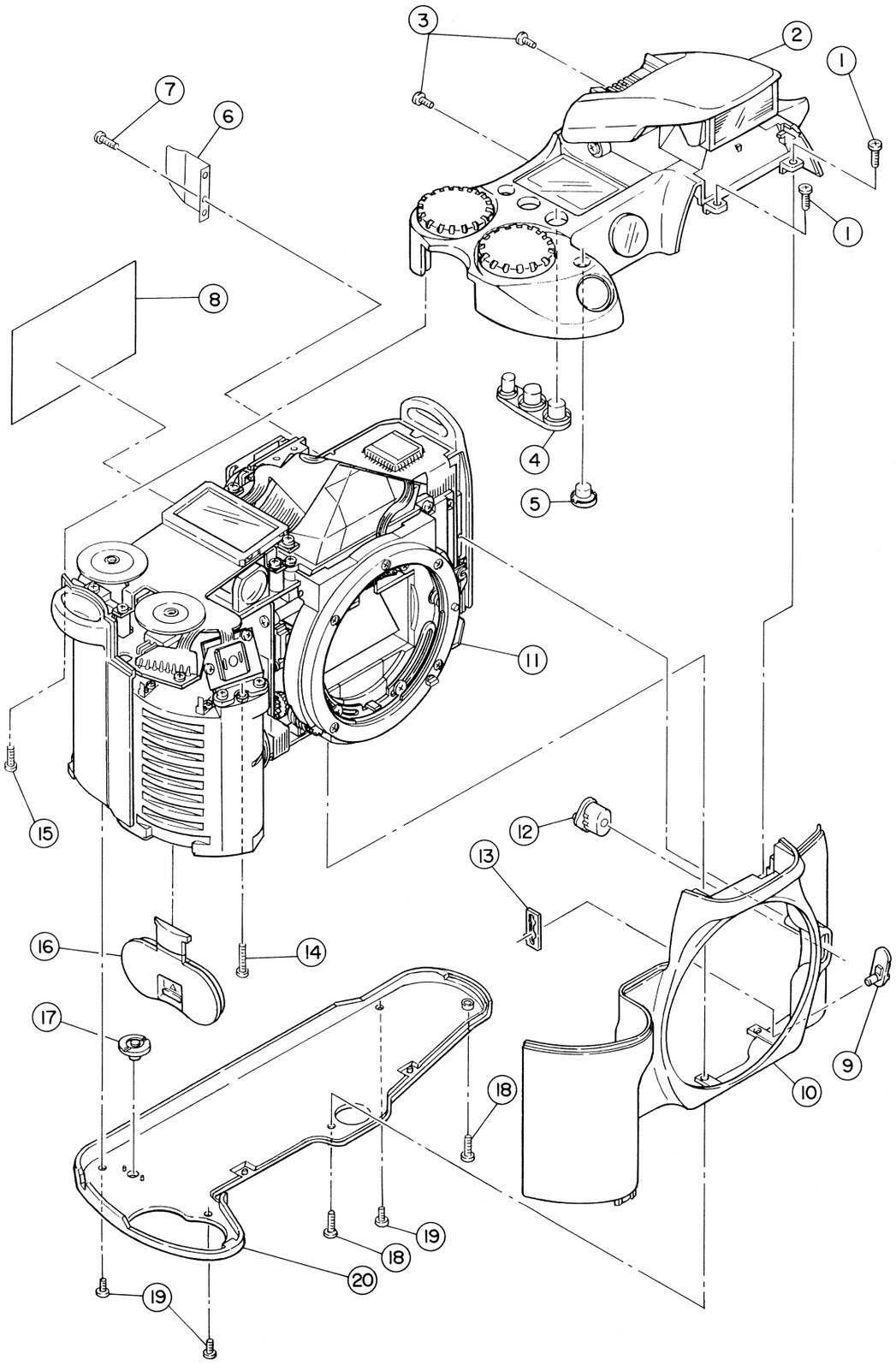
300 Auto Focus

ASSEMBLING CHART

KYOCERA CORPORATION
Optical Equipments Group
SERVICE 1AG 930720

No.1

REF No.1AG

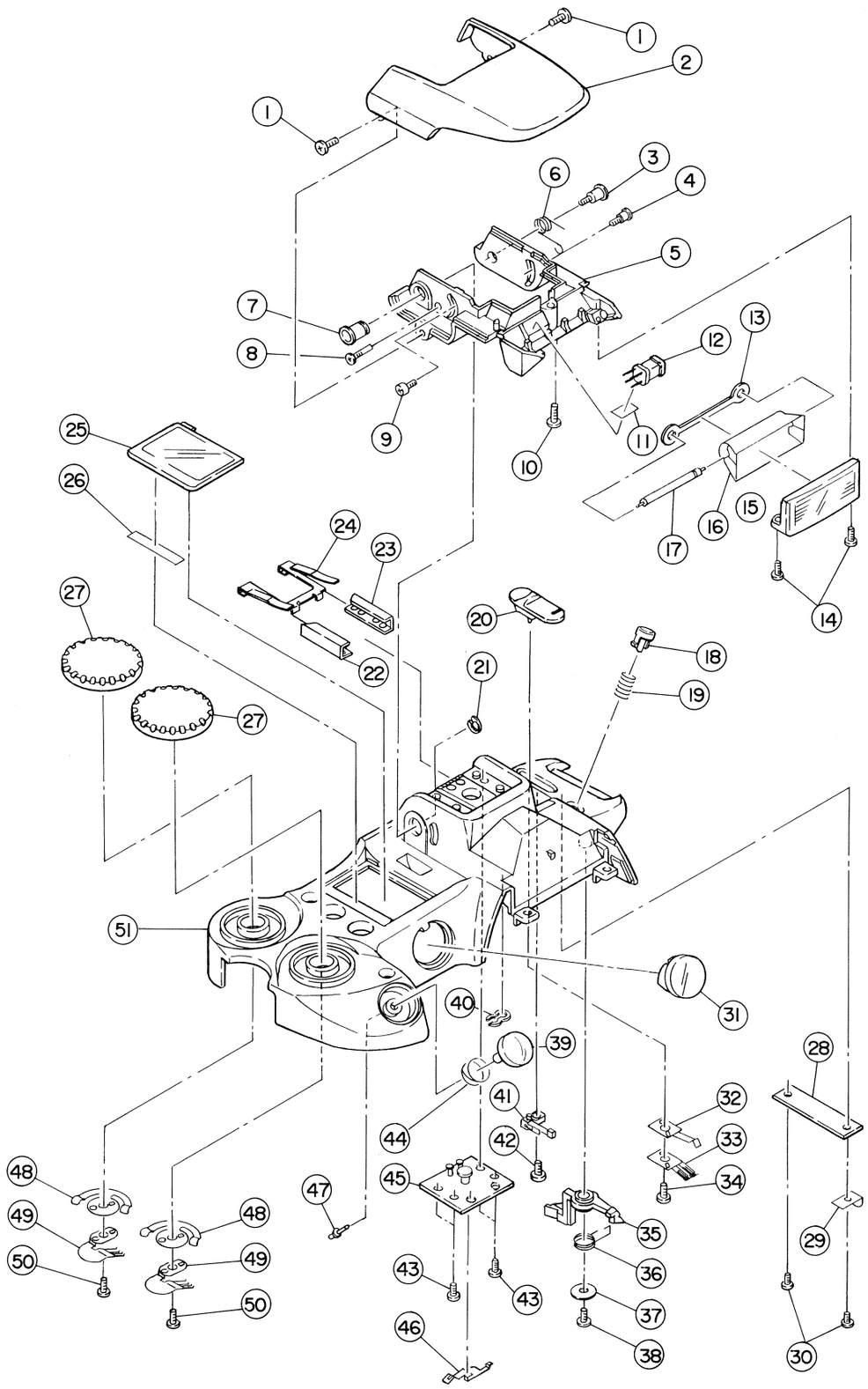


	PARTS NO.	DESCRIPTION	QTY
1	66001099	FRONT COVER S.S	2
2	*	TOP COVER ASS'Y (See No.2)	1
3	66001099	TOP COVER S.S	2
4	1AG21400	MODE SWITCH BUTTON	1
5	1AG21510	RESET SWITCH BUTTON	1
6	1AG10400	FILM CARTRIDGE HOLDER	1
7	69215076	FILM CARTRIDGE HOLDER S.S	1
8	16914510	PRESSURE PLATE SHEET	1
9	1AG22100	AF/MF SELECTOR LEVER	1
10	*	FRONT COVER	1
11	*	BODY	1
12	1AGB0200	LENS RELEASE BUTTON ASS'Y	1
13	1AG22200	AF/MF SELECTOR CLICK	1
14	66001170	TOP COVER S.S	1
15	69114576	TOP COVER S.S	1
16	1AGB0800	BATTERY COVER ASS'Y	1
17	1AG61800	REWIND SWITCH BUTTON	1
18	66001165	BOTTOM COVER S.S	2
19	66001099	BUTTOM COVER S.S	3
20	1AG11002	BOTTOM COVER	1
9,10,13	1AGB0300	FRONT COVER ASS'Y (KYOCERA 300AF)	1
9,10,13	1AGBY300	FRONT COVER ASS'Y (YASHICA 300AF)	1

Parts marked * are not available.

No.2

REF No.1AG

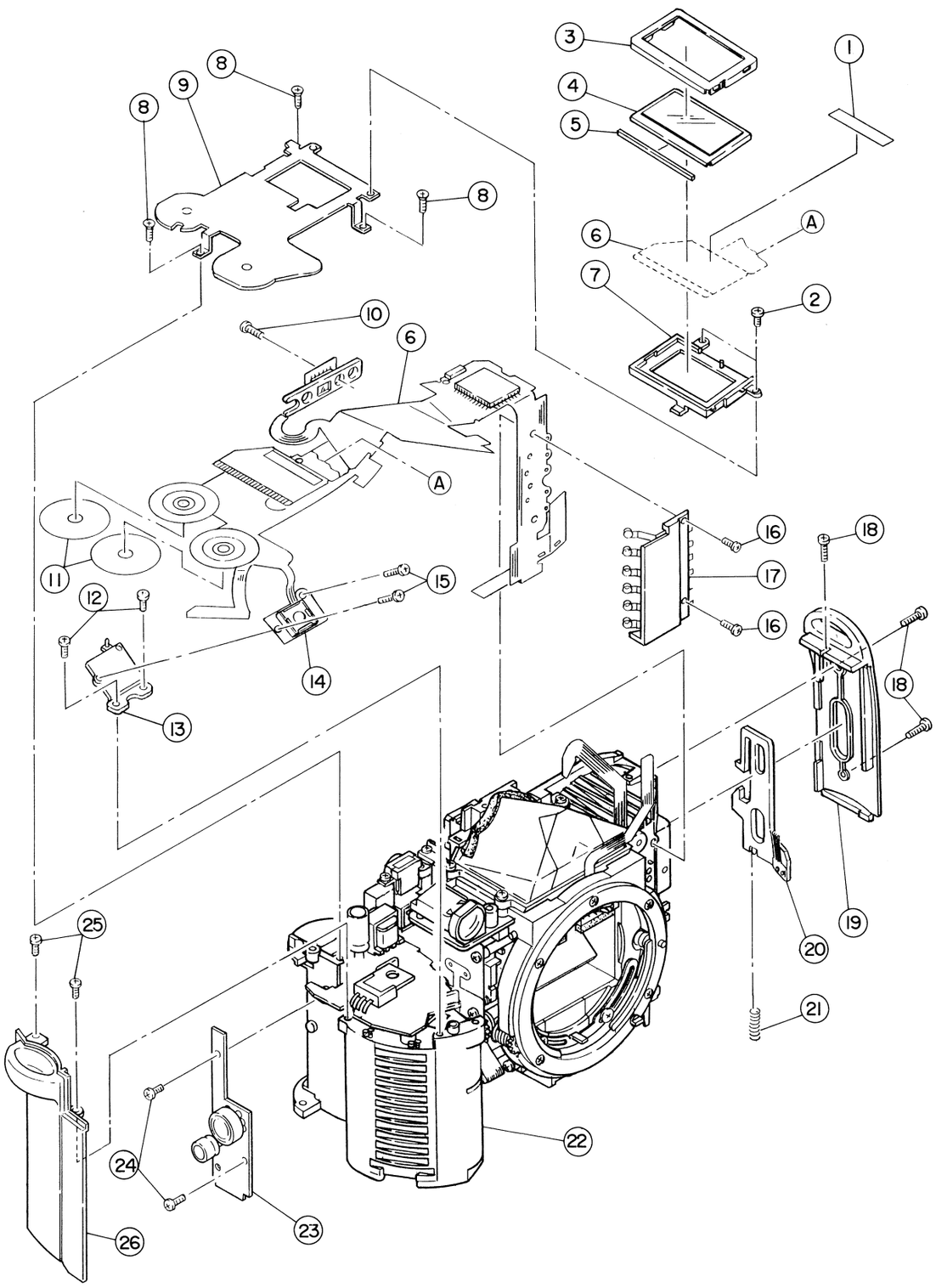


	PARTS NO.	DESCRIPTION	QTY
1	66001099	FLASH COVER S.S	2
2	1AG22600	FLASH COVER	1
3	1AG23600	S. BASE SHAFT (RIGHT)	1
4	1AG23400	S.B STOPPER	1
5	1AG22701	FRASH BASE	1
6	1AG23110	FLASH POP-UP SPRING	1
7	1AG23500	S. BASE SHAFT (LEFT)	1
8	1AG22900	PU SWITCH SHAFT	1
9	1AD22910	S.B STOPPER	1
10	66001124	FLASH COVER S.S	1
11	*	DOUBLE -STICK TAPE	1
12	36052700	TRIGGER COIL	1
13	1AD23200	XENON LAMP HOLDER RUBBER	1
14	69113576	DIFFUSER S.S	2
15	1AD23110	DIFFUSER	1
16	1AD23000	REFLECTOR	1
17	3AJ52200	XENON LAMP	1
18	1AG22800	FLASH BUTTON	1
19	1AG23000	FLASH BUTTON SPRING	1
20	1AG21000	MAIN SWITCH BUTTON	1
21	66150425	CE RING	1
22	16824010	ACCESSORY SHOE (LEFT)	1
23	16820210	ACCESSORY SHOE (RIGHT)	1
24	16820640	SHOE PLATE SPRING	1
25	1AG20900	LCD WINDOW	1
26	1AG21700	LCD TAPE	1
27	1AG20201	MULTI-DIAL	2
28	1AG51400	MAIN SWITCH BOARD	1
29	11092800	LEAD WIRE HOLDER	1
30	69113576	MAIN SWITCH BOARD S.S	2
31	1AG20601	AF AUXILIARY LIGHT WINDOW	1
32	1AG21101	MAIN SWITCH CLICK PLATE	1
33	16821500	MAIN SWITCH CONTACT	1
34	69213076	MAIN SWITCH CONTACT S.S	1
35	1AG23200	FLASH LOCK LEVER	1
36	1AG23700	FLASH LOCK SPRING	1
37	1AG23800	LOCK LEVER WASHER	1
38	66001126	FLASH LOCK LEVER S.S	1
39	1AG20700	SHUTTER RELEASE BUTTON	1
40	66172522	GS RING	1
41	1AA57120	MU SWITCH	1
42	66001128	MU SWITCH S.S	1
43	63913722	ACCESSORY SHOE S.S	4
44	1AD21400	RELEASE BUTTON SPRING	1
45	*	SHOE REINFORCEMENT BOARD	1
46	1AG23310	FLASH POP-UP SWITCH	1
47	1AG20800	RELEASE SHAFT	1
48	1AG20501	DIAL CLICK PLATE	2
49	1AG20410	DIAL CONTACT	2
50	69213076	DIAL CONTACT S.S	2
51	*	TOP COVER	1
1-24,26-51	1AGB0400	TOP COVER ASS'Y	1
45,46	1AGB0700	SHOE REINFORCEMENT BOARD ASS'Y	1

Parts marked * are not available.

No.3

REF No.1AG

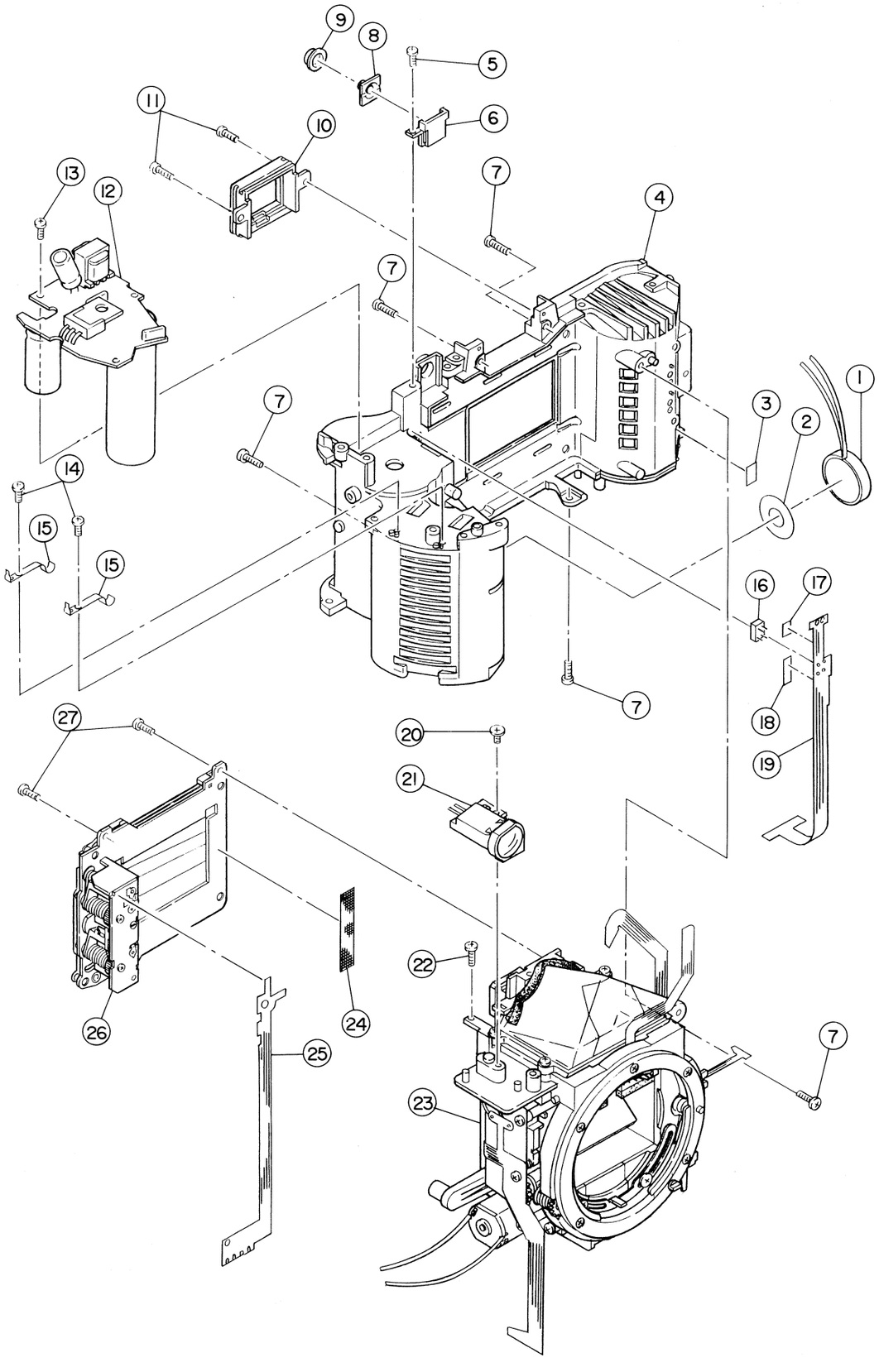


	PARTS NO.		DESCRIPTION	QTY
1	*		DOUBULE-STICK TAPE	1
2	63912026		LCD HOLDER S.S	2
3	1AG12000		LCD RETAINER	1
4	1AG53000		COUNTER LCD	1
5	1AG12200		LCD CONNECTOR RUBBER	1
6	*		MAIN FPC	1
7	1AG11920		LCD HOLDER	1
8	69313566		LCD BASE PLATE S.S	3
9	1AG12111		LCD BASE PLATE	1
10	66001172		LIGHT METERING IC BASE S.S	1
11	1AG24100		MAIN FPC STICK TAPE	2
12	69214576		RELEASE HOLDER S.S	2
13	1AG12300		RELEASE HOLDER	1
14	39652700		SHUTTER RELEASE SWITCH	1
15	69113076		SHUTTER RELEASE SWITCH S.S	2
16	69114076		DX-SW S.S	2
17	1AG10510		DX-SW	1
18	69214576		STRAP HOLDER (RIGHT) S.S	3
19	1AG11700		STRAP HOLDER (RIGHT)	1
20	1AGB0100		BACK COVER RELEASE LEVER ASS'Y	1
21	1AG10900		RELEASE LEVER SPRING	1
22	*		BODY	1
23	1AGE0100		DC-DC CONVERTER	1
24	69214076		DC-DC CONVERTER S.S	2
25	69215076		STRAP HOLDER (LEFT) S.S	2
26	1AG11800		STRAP HOLDER (LEFT)	1
1,3-7,14,17	1AGE1000		MAIN FPC ASS'Y	1

Parts marked * are not available.

No.4

REF No.1AG

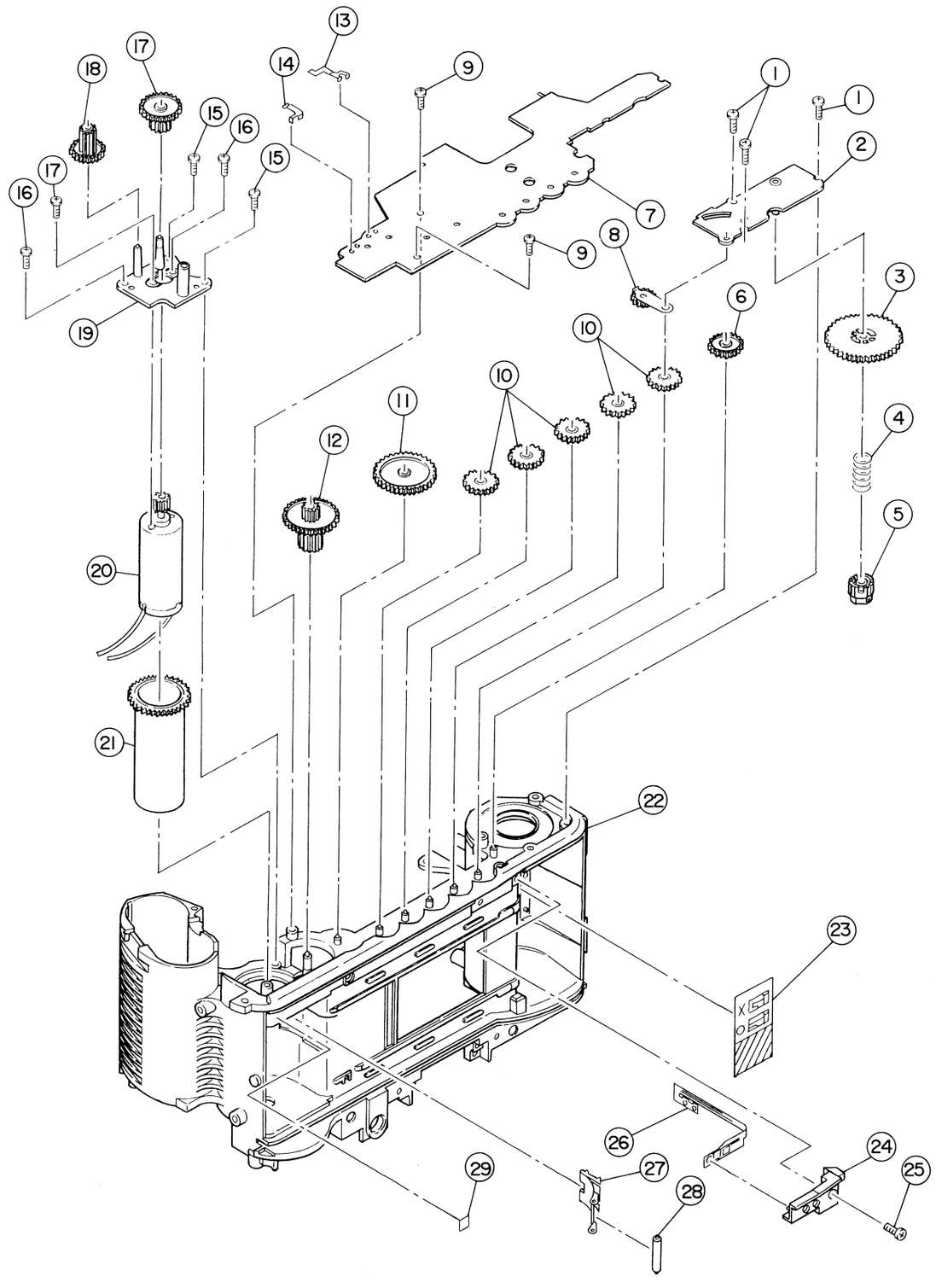


	PARTS NO.	DESCRIPTION	QTY
1	1AG52200	PIEZO-ELECTRIC BUZZER	1
2	1AG23900	FPC STICK TAPE	1
3	*	DOUBLE-STICK TAPE	1
4	*	BODY	1
5	69214076	AE LOCK CASE S.S	1
6	1AD12610	AE LOCK CASE	1
7	69227076	MIRROR BOX ASS'Y S.S	5
8	1AD12700	AE LOCK SWITCH	1
9	1AD12500	AE LOCK BUTTON	1
10	1AG80500	EYE-PIECE FRAME	1
11	66001172	EYE-PIECE FRAME S.S	2
12	1AGE0300	FLASH BOARD ASS'Y	1
13	69214076	FLASH BOARD ASS'Y S.S	1
14	69212576	BATTERY CONTACT S.S	2
15	1AD12210	BATTERY CONTACT	2
16	5ENCSG105F***01	PHOTO-REFLECTOR	1
17	16872100	SM STICK TAPE	1
18	*	DOUBLE -STICK TAPE	1
19	1AG50600	WINDING FPC	1
20	66001172	AF AUXILIARY LIGHT ASS'Y S.S	1
21	1ADAD900	AF AUXILIARY LIGHT ASS'Y	1
22	69215076	MIRROR BOX ASS'Y S.S	1
23	*	MIRROR BOX	1
24	*	ACETATE CLOTH TAPE	1
25	1AG50500	SHUTTER FPC	1
26	1AG24000	SHUTTER UNIT	1
27	69224076	SHUTTER UNIT S.S	2

Parts marked * are not available.

No.5

REF No.1AG

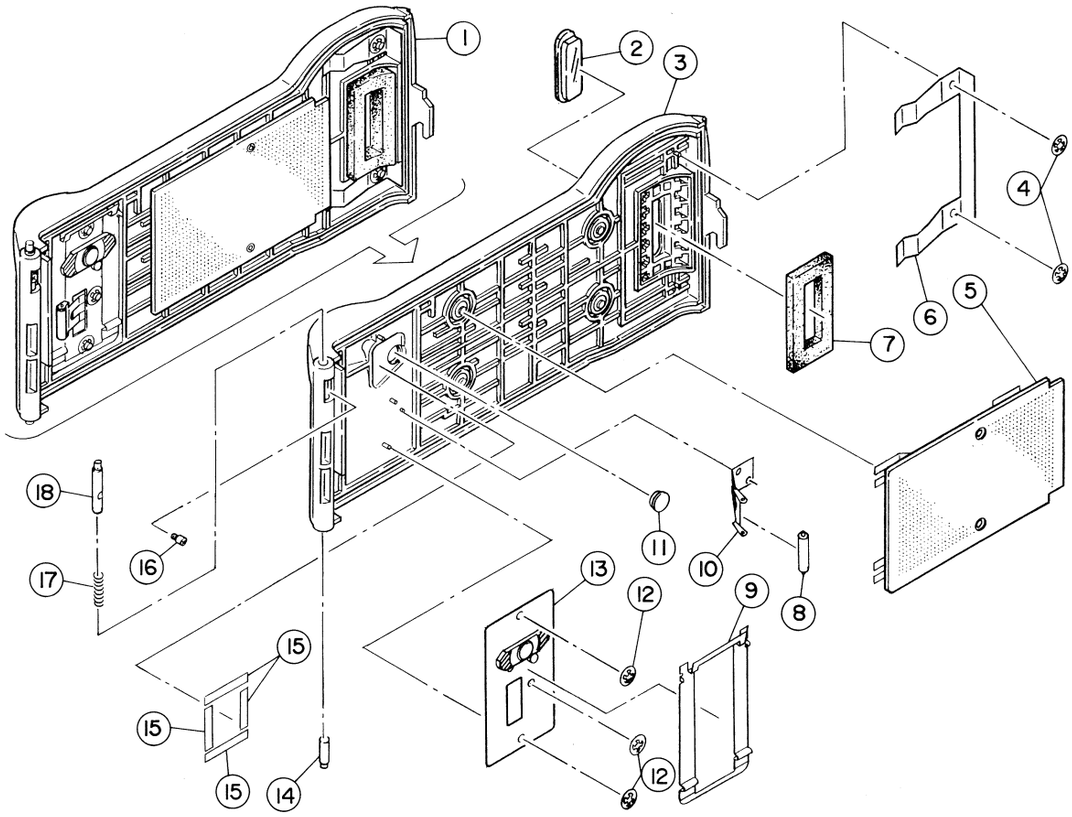


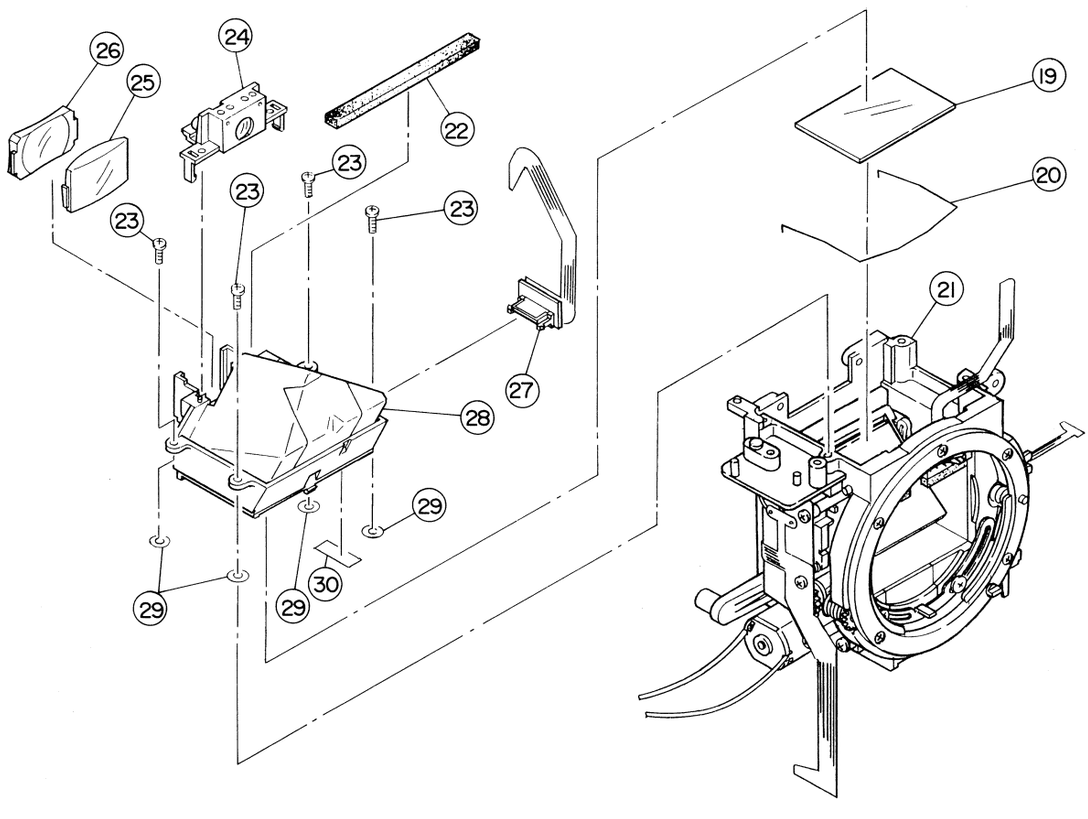
	PARTS NO.	DESCRIPTION	QTY
1	66001099	RW BASE PLATE ASS'Y S.S	3
2	1AGC0500	RW BAEE PLATE ASS'Y	1
3	1AG61100	RW GEAR	1
4	39660300	RW FORK SPRING	1
5	1AG61320	RW FORK	1
6	1AG60700	IDLE GEAR (3)	1
7	*	MAIN P.C BOARD	1
8	1AGC0300	INTERLOCK PLATE ASS'Y	1
9	66001099	MAIN P.C BOARD ASS'Y S.S	2
10	1AG60600	IDLE GEAR (2)	5
11	1AG60500	IDLE GEAR (1)	1
12	1AG60400	REDUCTION GEAR (4)	1
13	1AG11400	BATTERY LOADING DETECT CONTACT (L)	1
14	1AG11500	BATTERY LOADING DETECT CONTACT (S)	1
15	69214076	MOTOR HOLDER S.S	3
16	66001131	WINDING MOTOR S.S	2
17	1AG60300	REDUCTION GEAR (3)	1
18	1AG60200	REDUCTION GEAR (2)	1
19	1AG61500	MOTOR HOLDER	1
20	1AGC0200	WINDING MOTOR ASS'Y	1
21	1AG61700	SPOOL GEAR	1
22	*	BODY	1
23	1AG12400	FILM LOADING EXPLANATION SEAL	1
24	1AG10300	FILM CARTRIDGE GUIDE	1
25	66001099	FILM CARTRIDGE GUIDE S.S	1
26	1AG50900	DATE-FPC	1
27	*	AL ROLLER HOLDER	1
28	*	AL ROLLER	1
29	1AG12500	FILM POSITION MARK SEAL	1
7,13,14	1AGE1200	MAIN P.C BOARD ASS'Y	1
27,28	1AGC0700	AL ROLLER ASS'Y	1

Parts marked * are not available.

No.6.

REF No.1AG



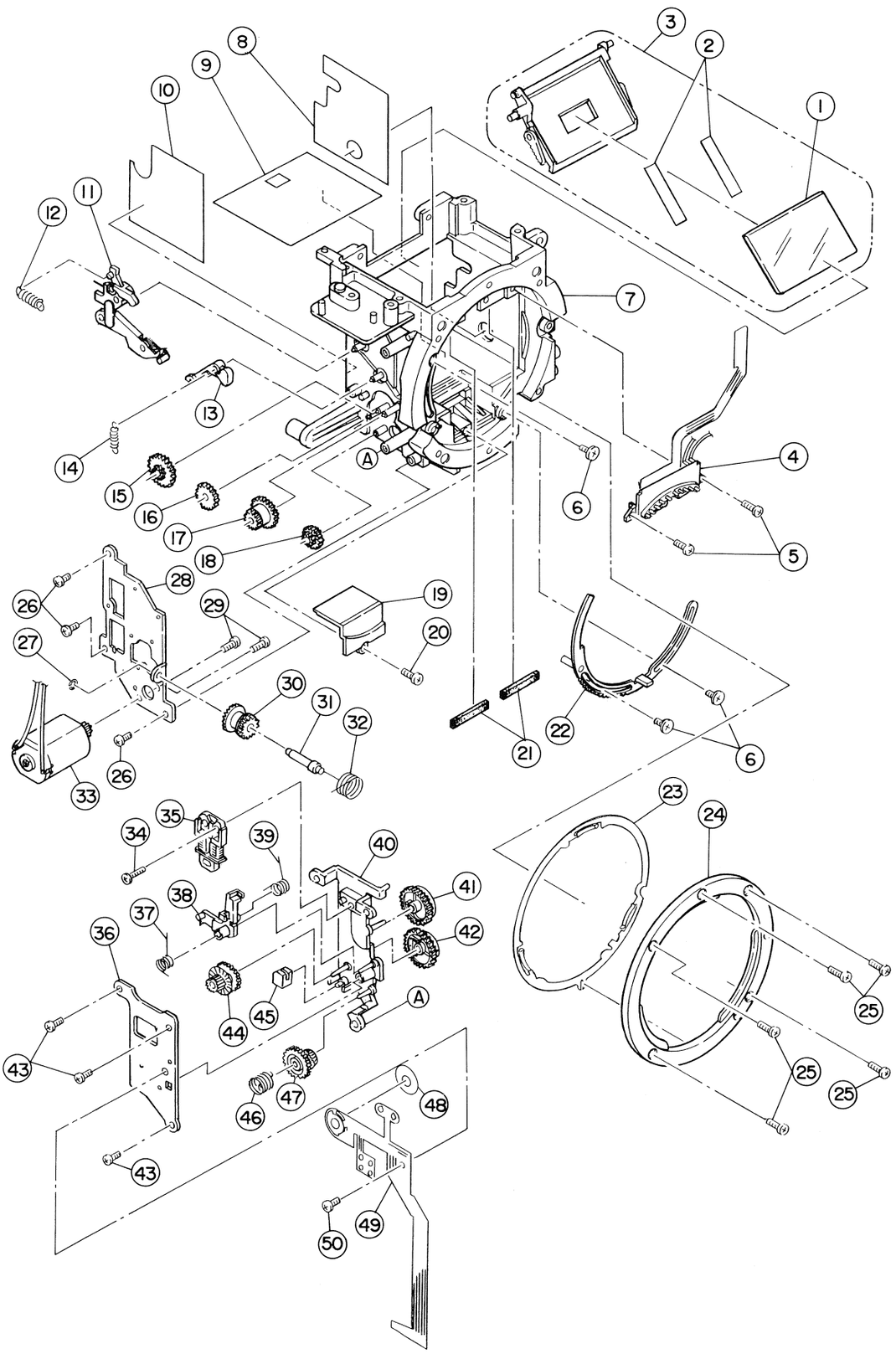


	PARTS NO.	DESCRIPTION	QTY
1	1AGB0900	BACK COVER ASS'Y	1
2	39632100	FILM CHECK WINDOW	1
3	*	BACK COVER	1
4	66161530	CS CLIP	2
5	168A7200	PRESSURE PLATE ASS'Y	1
6	1AG12710	FILM CARTRIDGE RETAINER	1
7	39633500	FILM CHECK WINDOW MOQUETTE	1
8	*	AL ROLLER	1
9	1AG13500	PANORAMIC ADAPTOR	1
10	*	FL HOLDER	1
11	1AG13100	PN WINDOW	1
12	66161526	CS CLIP	3
13	1AGB1100	PN BASE PLATE ASS'Y	1
14	16814800	HINGE SHAFT (LOWER)	1
15	1AG13700	PN LIGHT-PROOF SEAL(2)	4
16	66001166	HINGE SHAFT RELEASE PIN	1
17	16815000	HINGE SHAFT SPRING	1
18	16814700	HINGE SHAFT (UPPER)	1
19	1AG81610	FOCUSING SCREEN	1
20	1AG80800	FOCUSING SCREEN HOLDER	1
21	1AGG1000	MIRROR BOX ASS'Y (See No.7,8)	1
22	1AG84700	PENTA DUST-PROOF MOQUETTE	1
23	69215076	PENTA HOLDER ASS'Y S.S	4
24	1AGF1200	LIGHT METERING BASE ASS'Y	1
25	1AG81301	EYE-PIECE LENS (1)	1
26	1AG81410	EYE-PIECE LENS (2)	1
27	1AGF1100	F. INDICATOR ASS'Y	1
28	*	PENTA HOLDER	1
29	12866600	FOCUS ADJUSTMENT WASHER (t:0.05)	4
	60341812	FOCUS ADJUSTMENT WASHER (t:0.4)	4
	60351810	FOCUS ADJUSTMENT WASHER (t:0.5)	4
	60361817	FOCUS ADJUSTMENT WASHER (t:0.6)	4
	60371812	FOCUS ADJUSTMENT WASHER (t:0.7)	4
	60381816	FOCUS ADJUSTMENT WASHER (t:0.8)	4
	60391810	FOCUS ADJUSTMENT WASHER (t:0.9)	4
30	1AD79000	AF-M RUBBER	1
8,10	1AGB1000	FL HOLDER ASS'Y	1
19,20,22,24-28,30	1AGF1000	PENTA HOLDER ASS'Y	1

Parts marked * are not available.

No.7

REF No.1AG

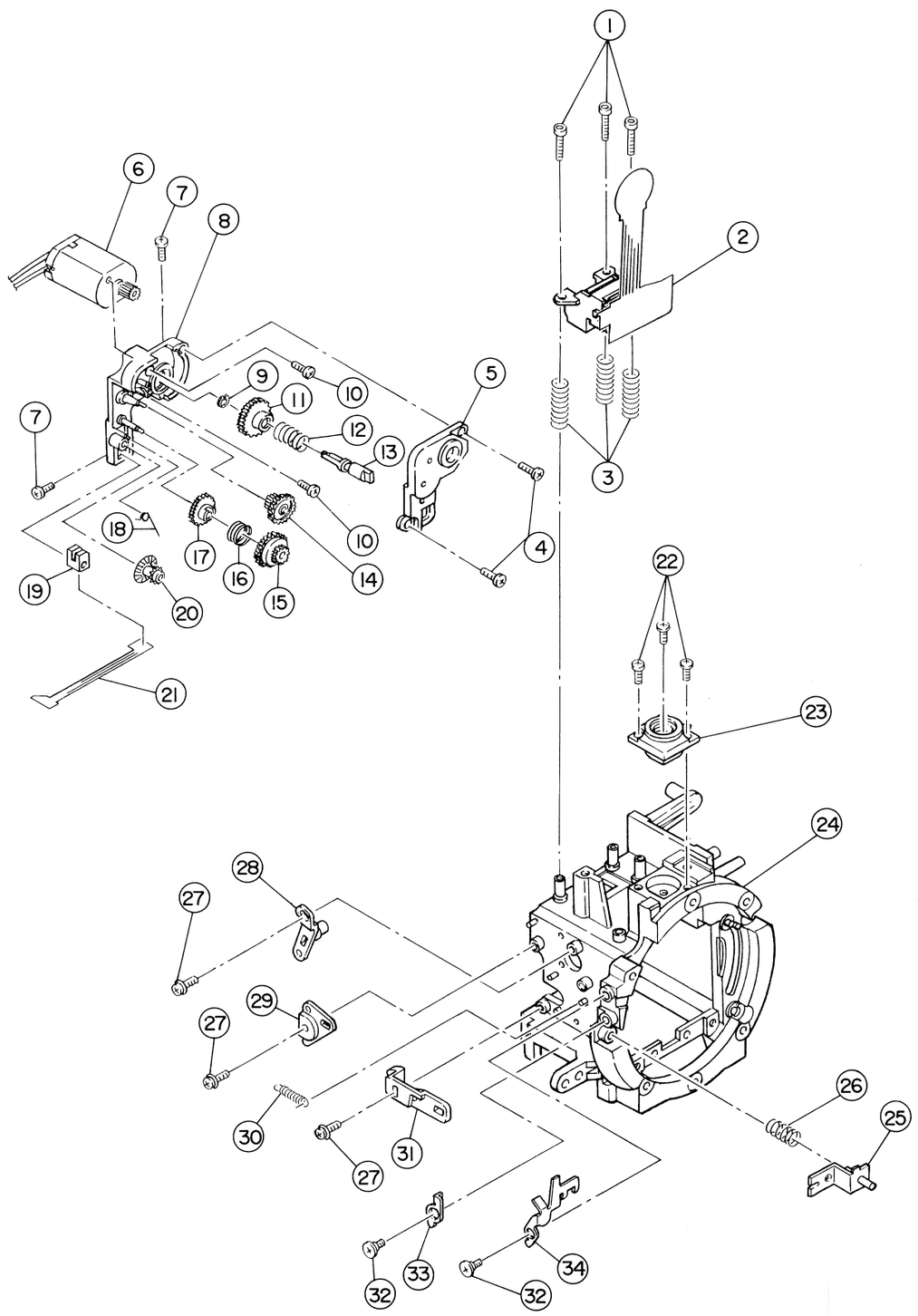


	PARTS NO.	DESCRIPTION	QTY
1	1AD71800	MIRROR	1
2	16871700	MIRROR ADHESIVE TAPE	2
3	1AGG1300	MIRROR FRAME ASS'Y	1
4	1AGG1100	L. CONTACT ASS'Y	1
5	66001099	L. CONTACT ASS'Y S.S	2
6	66001159	APERTURE RING ASS'Y S.S	3
7	*	MIRROR BOX	1
8	1AG75301	ANTI-REFLECTION SHEET (3)	1
9	1AG75101	ANTI-REFLECTION SHEET (1)	1
10	1AG75201	ANTI-REFLECTION SHEET (2)	1
11	1AGG1500	APERTURE LEVER ASS'Y	1
12	1AG71710	MIRROR UP SPRING	1
13	1AG72120	SHUTTER CHARGE LEVER	1
14	1AG72200	SHUTTER LEVER SPRING	1
15	1AG72600	MIRROR GEAR (4)	1
16	1AG72500	MIRROR GEAR (3)	1
17	1AG72700	MIRROR GEAR (5)	1
18	1AG72400	MIRROR GEAR (2)	1
19	1AG70700	MB COVER	1
20	69214076	MB COVER S.S	1
21	17480300	MIRROR CUSHION	2
22	1AGG1200	APERTURE RING ASS'Y	1
23	1AG82200	MOUNT PLATE SPRING	1
24	1AG82100	BODY MOUNT	1
25	69125079	BODY MOUNT S.S	5
26	69214076	M-BOX BASE PLATE (1) S.S	3
27	66101225	E RING (E-1.2)	1
28	1AG70910	MIRROR BOX BASE PLATE (1)	1
29	63912026	M-AF MOTOR ASS'Y S.S	2
30	1AG83500	APERTURE GEAR (1)	1
31	1AG83700	APERTURE GEAR SHAFT (1)	1
32	1AG83620	APERTURE SPRING (1)	1
33	1AGG1800	M-AF MOTOR (1) ASS'Y	1
34	69204076	APERTURE MAGNET S.S	1
35	1AG84600	APERTURE MAGNET	1
36	1AGG2600	APERTURE GEAR (3) ASS'Y	1
37	1AG84510	CONTROL LEVER SPRING (2)	1
38	1AG84300	APERTURE CONTROL LEVER	1
39	1AG84410	CONTROL LEVER SPRING (1)	1
40	1AG71010	MIRROR BOX BASE PLATE (2)	1
41	1AG72910	MIRROR GEAR (7)	1
42	1AGG2000	MIRROR GEAR (6) ASS'Y	1
43	69215076	M-BOX BASE PLATE (2) S.S	3
44	1AG84200	APERTURE GEAR (4)	1
45	5ENCRP11133**01	PHOTO-INTERRUPTER	1
46	1AG83810	APERTURE SPRING (2)	1
47	1AG83900	APERTURE GEAR (2)	1
48	1AG23900	FPC STICK TAPE	1
49	1AG50400	MIRROR FPC	1
50	69214076	APERTURE GEAR (3) ASS'Y S.S	1
1-50	1AGG1000	MIRROR BOX ASS'Y (See No.8)	1

Parts marked * are not available.

No.8

REF No.1AG

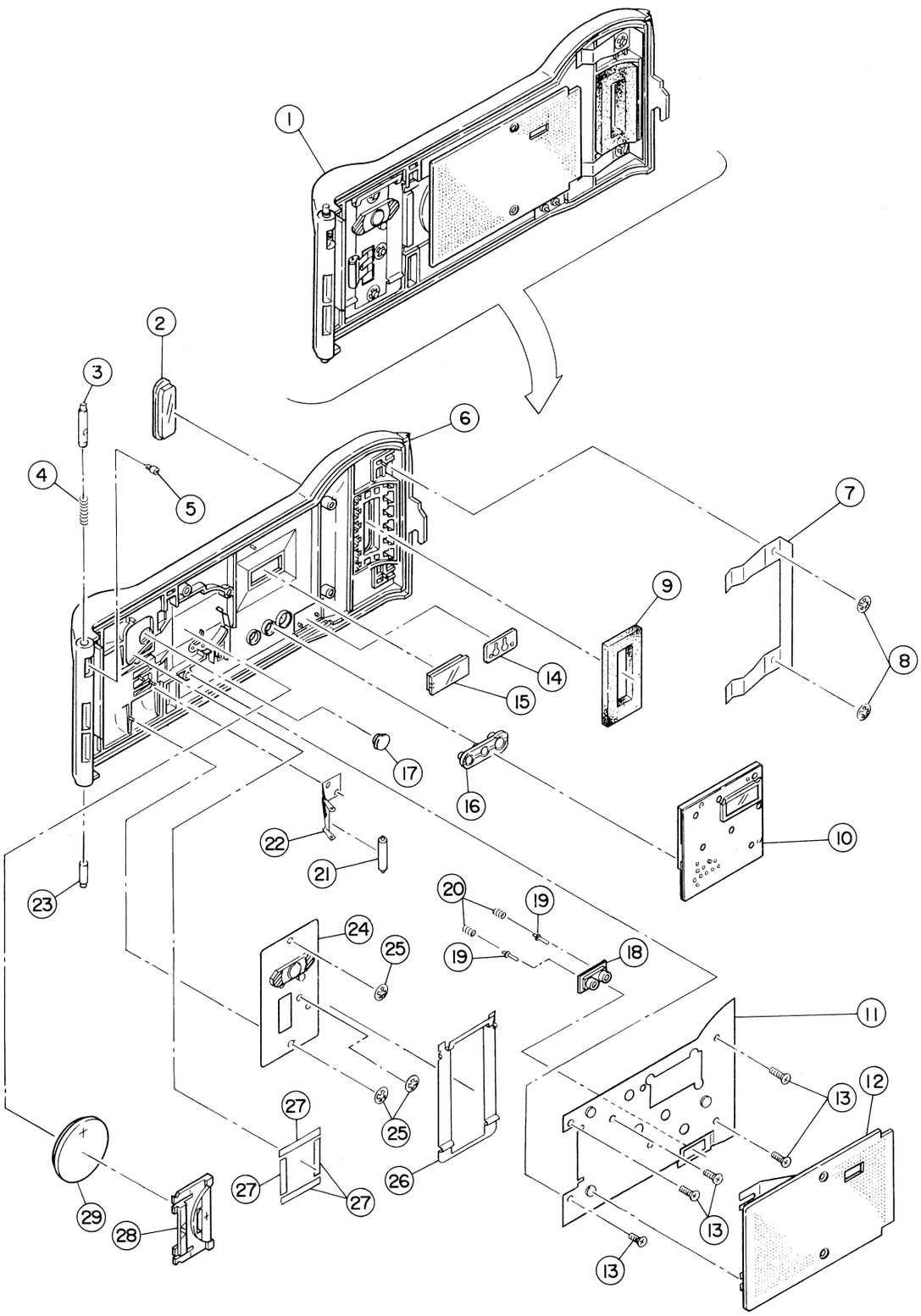


	PARTS NO.	DESCRIPTION	QTY
1	*	AF-M ADJUSTING SCREW	3
2	*	AF-M ASS'Y	1
3	*	AF-M ADJUSTING SPRING	3
4	69214076	AF BASE PLATE (1) S.S	2
5	1AG73800	AF BASE PLATE (1)	1
6	1AGG2500	M-AF MOTOR (2) ASS'Y	1
7	69214076	AF DRIVING BASE PLATE ASS'Y S.S	2
8	1AG73900	AF BASE PLATE (2)	1
9	66101225	E RING (E-1.2)	1
10	63913026	M-AF MOTOR (2) ASS'Y S.S	2
11	1AG73501	AF GEAR (5)	1
12	1AG74100	COUPLER SPRING	1
13	1AG73700	AF COUPLER	1
14	1AG73401	AF GEAR (4)	1
15	1AG73301	AF GEAR (3)	1
16	1AG74020	FRICTION SPRING	1
17	1AG73201	AF GEAR (2)	1
18	1AG74200	ENCODER SPRING	1
19	5ENCRP11133**01	PHOTO-INTERRUPTER	1
20	1AG73600	AF GEAR (6)	1
21	1AG50300	AF2-FPC	1
22	69225076	TRIPOD SOCKET HOLDER S.S	3
23	1AG10800	TRIPOD SOCKET HOLDER	1
24	*	MIRROR BOX	1
25	1AGG2200	L. RELEASE LEVER ASS'Y	1
26	1AG83000	L. RELEASE LEVER SPRING	1
27	*	M. MIRROR HOLDER S.S	3
28	*	M. MIRROR STOPPER	1
29	*	S. MIRROR STOPPER	1
30	1AG70800	S. MIRROR SPRING	1
31	*	M. MIRROR HOLDER	1
32	66001174	AF RELEASE LEVER S.S	2
33	1AG83100	AF RELEASE LEVER (1)	1
34	1AG83200	AF RELEASE LEVER (2)	1
4-6,8-21	1AGG2100	AF DRIVER BASE PLATE ASS'Y	1
1-34	1AGG1000	MIRROR BOX ASS'Y (See No.7)	1

Note. Parts numbered by 1 to 3, 24, 27, 29 and 31 are not for servicing.
If needing part replacement, use relevant Mirror Box Ass'y (1AGG1000).

NO.9

DATA BACK DA-5 REF No.2AU



PARTS LIST OF DATA BACK (DA-5)

	PARTS NO.	DESCRIPTION	QTY
1	2AUB0D00	DATE BACK ASS'Y	1
2	39632100	FILM CHECK WINDOW	1
3	16814700	HINGE SHAFT (UPPER)	1
4	16815000	HINGE SHAFT SPRING	1
5	66001166	HINGE SHAFT RELEASE PIN	1
6	*	DATE BACK COVER	1
7	1AG12710	FILM CARTRIDGE RETAINER	1
8	66161530	CS CLIP	2
9	39633500	FILM CHECK WINDOW MOQUETTE	1
10	3AZ40500	DATE MODULE	1
11	2AUB1D00	BACK COVER BASE PLATE ASS'Y	1
12	2AUB2D00	PRESSURE PLATE (D) ASS'Y	1
13	69313566	BACK COVER BASE PLATE S.S	5
14	2AU11100	CONTACT BOARD	1
15	3AZ40320	DATE WINDOW	1
16	3BD35900	DATE BUTTON	1
17	1AG13100	PN WINDOW	1
18	2AU10400	CONTACT HOLDER	1
19	2AU10800	CONTACT	2
20	26351100	CONTACT SPRING	2
21	*	AL ROLLER	1
22	*	FL HOLDER	1
23	16814800	HINGE SHAFT (LOWER)	1
24	1AGB1100	PN BASE PLATE ASS'Y	1
25	66161526	CS CLIP	3
26	1AG13500	PANORAMIC ADAPTOR	1
27	1AG13700	PN LIGHT PROOF SEAL (2)	4
28	2AU10300	DATE BATTERY COVER	1
29	*	BATTERY-LITHIUM (CR-2025)	1
21,22	1AGB1000	FL HOLDER ASS'Y	1

Parts marked * are not available.