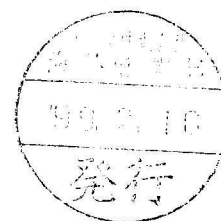
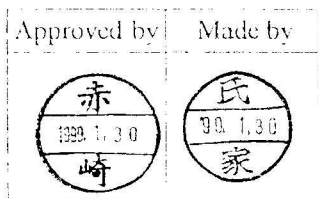
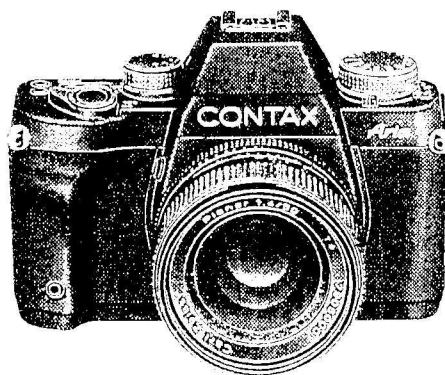


# CONTAX *Aria*

## Repair Manual



KYOCERA CORPORATION  
Optical Equipment Group  
Service Dept. LAW990130

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## **A. GENERAL & TECHNICAL INFORMATION**

## FEATURES

This manual-focus high-class single lens reflex camera is the fruit of our efforts in pursuit of a small, lightweight and easy-to-use high-performance camera.

For light metering, this camera employs not only the center-weighted average light metering and spot light metering system but also an evaluative light metering, which has appeared for the first time on a CONTAX SLR.

### 1. Small and Light Body

This SLR camera is as small and lightweight as CONTAX S2.

Dimensions: 137 W × 92.5 H × 53.5 D (without the Back Cover Grip)

Weight: about 460 g (without the batteries)

### 2. Evaluative Light Metering System

The camera employs the evaluative metering system. The picture area is divided into five segments and the light at each segment is measured independently so that even a subject with backlighting or spotlighting can be photographed with almost no exposure compensation. In addition, the camera displays the difference between the values calculated by evaluative metering and center-weighted average metering in the viewfinder. Through this display, the photographer can know how the camera is evaluating the light at the subject.

### 3. Bright Viewfinder

The easy-to-use manual-focus camera realizes not only a clear, easy-to-see viewfinder but also ensures a sufficient field of view.

### 4. Custom Function

The photographer can select the following functions for easier use.

- Use of AE Lock activated by depressing the Shutter Release Button halfway.
- A.B.C. exposure order
- Leaving the film leader outside the film cartridge after rewinding
- Rewinding at the end of the film
- Film loading method

### 5. Flash Auto Setting Function

The TLA 360 Flash Unit, when used together with this camera, indicates the camera's film speed and aperture data on the display panel at the back of the flash unit. In addition to the exposure compensation by the camera body, exposure compensation by the flash unit is available so that the camera used with the flash unit can adjust the balance between flash light and natural light. The TLA 360 Flash Unit is equipped with an auto power on/off function to save power. Even when the flash unit is in the power off status as a result of this auto power off function, depressing the Shutter Release Button halfway will activate the power on function to start charging. Thanks to these auto setting functions, the flash unit and the camera body can be used as a unified system.

### 6. Shutter

The highly reliable, high-precision shutter operates at high speeds up to 1/4000 second.

### 7. Multifunctional Data Back D-9

The Data Back D-9 designed only for this camera can record on the film not only date but also exposure data at picture taking.

- Compiled data imprinting function (photographic data of all the frames can be imprinted onto the first two frames of the film).
- Inter-frame imprinting function (data in one selected mode are imprinted between frames of the film).
- Interval shooting function allows fixed point shooting and unattended shooting.

## CONTAX Aria Specifications

Type	: 35mm focal-plane type AE single lens reflex camera.
Picture Size	: 24x36 mm
Lens Mount	: Contax / Yashica MM mount
Shutter	: Vertical-travel focal-plane shutter.
Shutter Speeds	: 16 sec. - 1/4000 sec. at "Av" and "P"; 4 sec. - 1/4000 sec. at "Tv"; B,X (1/125 sec.), 4 sec. - 1/4000 sec. on manual.
Sync Contacts	: Direct X contact (synchronizing speeds 1/125 sec. or slower) provided with direct contact and sync terminal.
Self-timer	: Electronic self-timer; trips the shutter after 10 sec. delay.
Shutter Release	: Electronic release, provided with a special release socket.
Exposure Control	: ① Aperture-priority auto exposure, ② Shutter-Speed-priority auto exposure, ③ Programmed auto exposure, ④ Manual exposure, ⑤ TTL auto-flash, ⑥ Manual flash.
Metering System	: TTL evaluative metering / center-weighted average light metering / spot metering switchover.
Metering Range	: EV2 - 20 (with an F1.4 lens and ISO 100 film)
Film Speed Range	: ISO 25-5000 for automatic setting with DX code, ISO 6-6400 for manual setting.
AE Lock	: The quantity of light on the image surface is stored in memory.
Exposure Compensation	: +2 EV to -2 EV (can be set in 1/3-step increments).
A.B.C. Mode	: $\pm 0.5$ EV / $\pm 1$ EV exposure compensating values with A.B.C. lever.
Flash Light Control	: TTL direct light control.
Flash Synchronization	: In combination with dedicated flash, the shutter speed is automatically set when the flash is fully charged.
Automatic Flash Setting	: Possible in combination with dedicated flash capable of automatic flash setting.
Second Curtain Synchronization	: Possible in combination with dedicated flash capable of second curtain synchronization.
Viewfinder	: Pentaprism eye-level finder (long eye-point type) •Field of view 95% •Magnification 0.82X (With 50 mm normal lens at infinity, -1 D diop.)
Diopter Adjustment	: Eyepiece correction lenses can be attached (8 optional FL type diopter lenses)
Focusing Screen	: Horizontal split-image / micropism type (FU-4) (standard), interchangeable screens (FU type) are also available.
Viewfinder Display	: Flash mark, Shutter speed, aperture value, metering mark, exposure warning mark, exposure meter, manual exposure mark, exposure compensation mark, exposure counter / self-timer remaining time / A.B.C. mode / film end.
Display Panel	: Exposure counter / A.B.C. mode / film speed / self-timer remaining time / elapsed time on bulb exposure / custom function mark, battery warning mark, self-timer mark, continuous shooting mark, single-frame shooting mark, multiple exposure mark.
Film Loading	: Auto loading, film automatically advances to "01" on exposure counter.
Film Advance	: Automatic winding with built-in motor.
Film Rewinding	: Automatic rewinding with built-in motor, automatic stop and mid-roll rewinding possible.
Drive Modes	: Single frame, continuous, self-timer, multiple exposure.
Winding Speed	: Up to approx. 3 frames / sec. on continuous shooting ("C" mode) (with a new battery, at ordinary temperature, as tested according to Contax testing standard).
Exposure Counter	: Display panel and viewfinder, both automatically resetting, additive type.
Accessory Shoe	: Direct X - contact (provided with TLA flash contact).

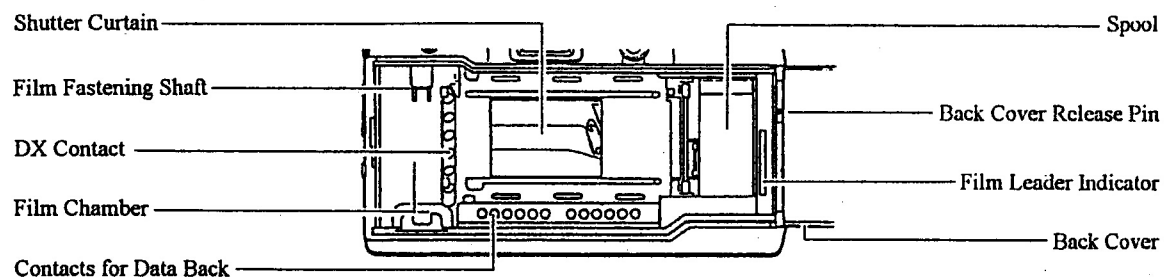
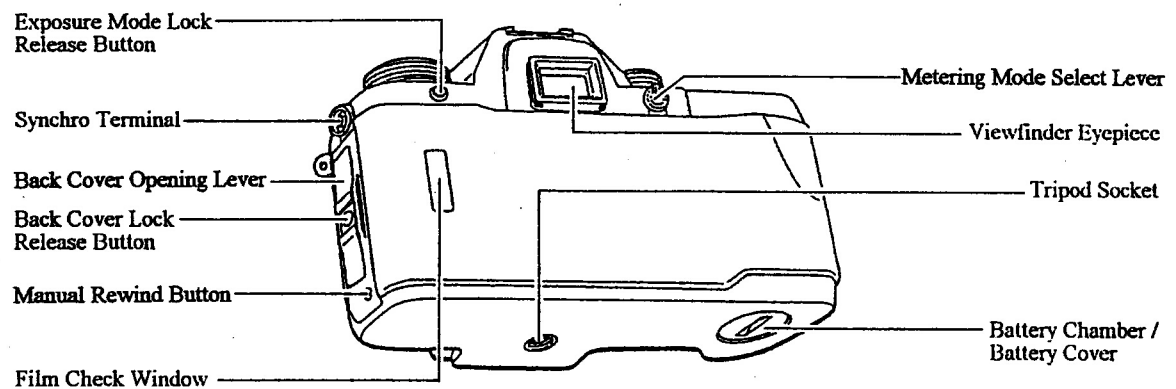
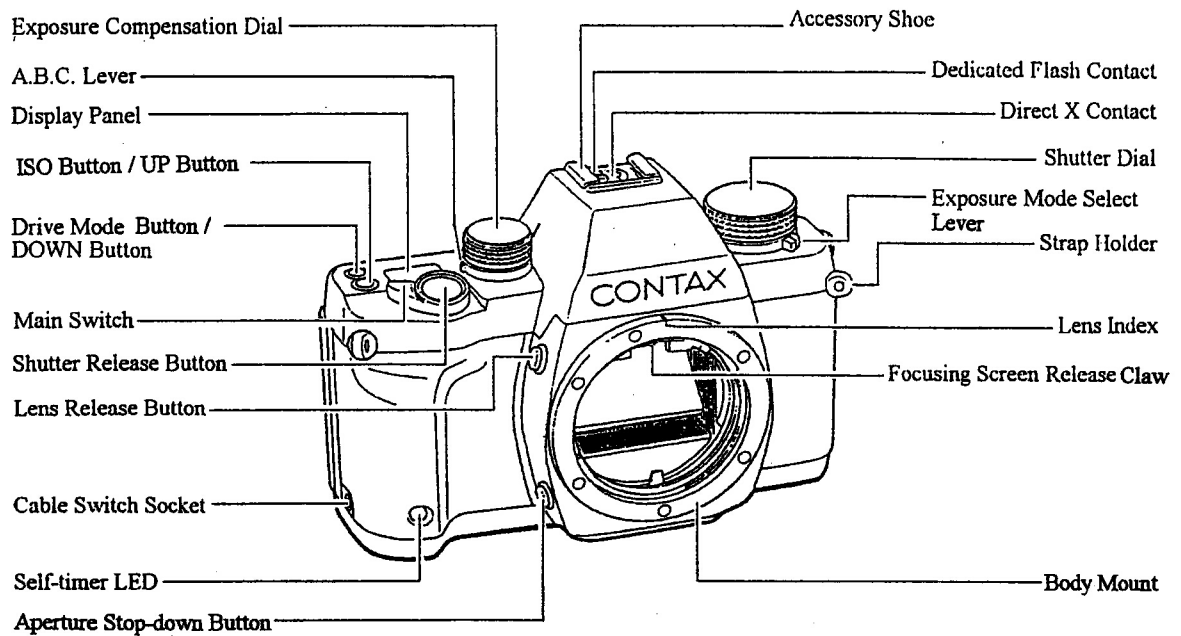
Custom Functions	: ① AE lock / unlock by depressing shutter release halfway ② Switching of A.B.C. shooting order ③ Film end is not wound into the cassette ④ Film not automatically rewound when film reaches end ⑤ Film advance method
Camera Back	: Can be opened with camera back opening lever, detachable, with film check window.
Power Source	: Two 3V lithium battery (CR2).
Battery Check	: Automatic check, battery warning mark on display panel.
Battery Capacity	: About 90 rolls of 24-exposure film (with a new battery, at ordinary temperature, as tested according to Contax testing standard)
Other Details	: Aperture stop-down button
Dimensions, Weight	: 137 (W) x 92.5 (H) x 53.5 (D) mm (depth excludes camera back and grip) 460g (excluding batteries)

### Specification of the CONTAX Aria DATA BACK D-9

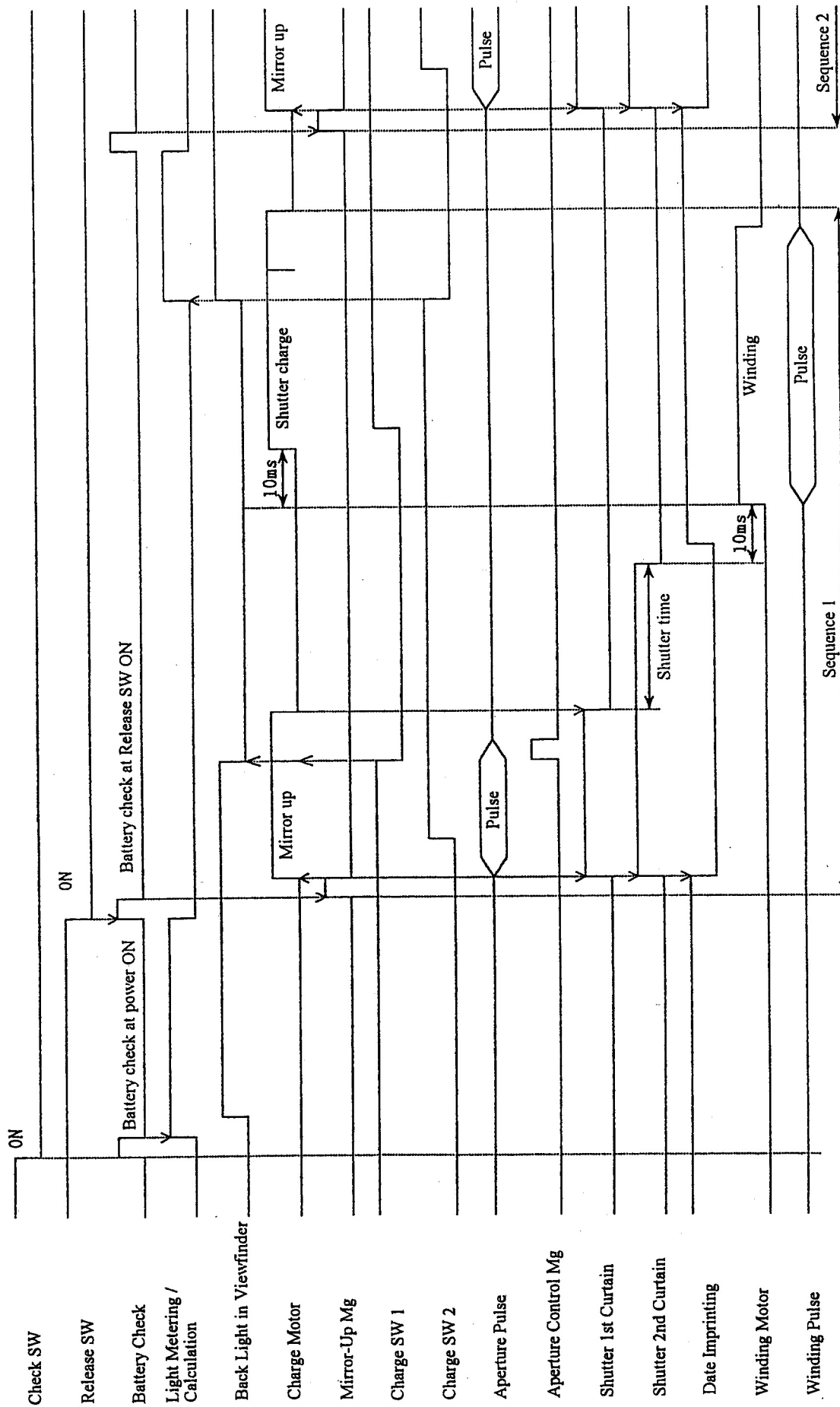
Type	: Multi-function type, data recording and camera control unit.
Coupling to Camera	: Codeless connection via signal coupling contact.
Data Display	: Liquid crystal display
Data Printing System	: Automatic imprinting coupled to shutter.
Data Printing Position	: First two frames on the film, and between the frames.
Confirmation of Data Imprint	: Blinking of collective imprinting warning lamp (on collective imprinting), and blinking of PRINT mark (on collective imprinting and between-the-frames imprinting).
Imprinting Modes	: On collective exposure data imprinting: Exposure data at the time of shooting (exposure compensation value, shutter speed, aperture value, exposure mode). On between-the -frames imprinting: Dates (year/month/day, month/day/year, day/month/year), time (day/hour/minute), exposure data at the time of shooting (exposure compensation value, shutter speed, aperture value, exposure mode), counter data + two characters, desired 6-digit fixed number + two characters, no imprinting.
Interval Shooting	: Start time: Setting on day/hour/minute Interval time: Settable at intervals from 2 sec. to 99 hours 59 min. 59 sec. Number of shots to be taken: 1-99. Confirmation of Interval Operation: Blinking of INT.mark
Mode Switchover	: With "MODE" button
Film Speed	: Automatic setting coupled to ISO setting on the camera.
Calendar	: Auto-calendar for displaying the lower two digits of the year.
Power Source	: Two 3V lithium batteries (CR2025)
Dimensions & Weight	: 135.5 (W) x 56.5 (H) x 20.5(D) mm, 100g (without batteries)

\* Specifications and design are subject to change without notice

## NAMES OF PARTS



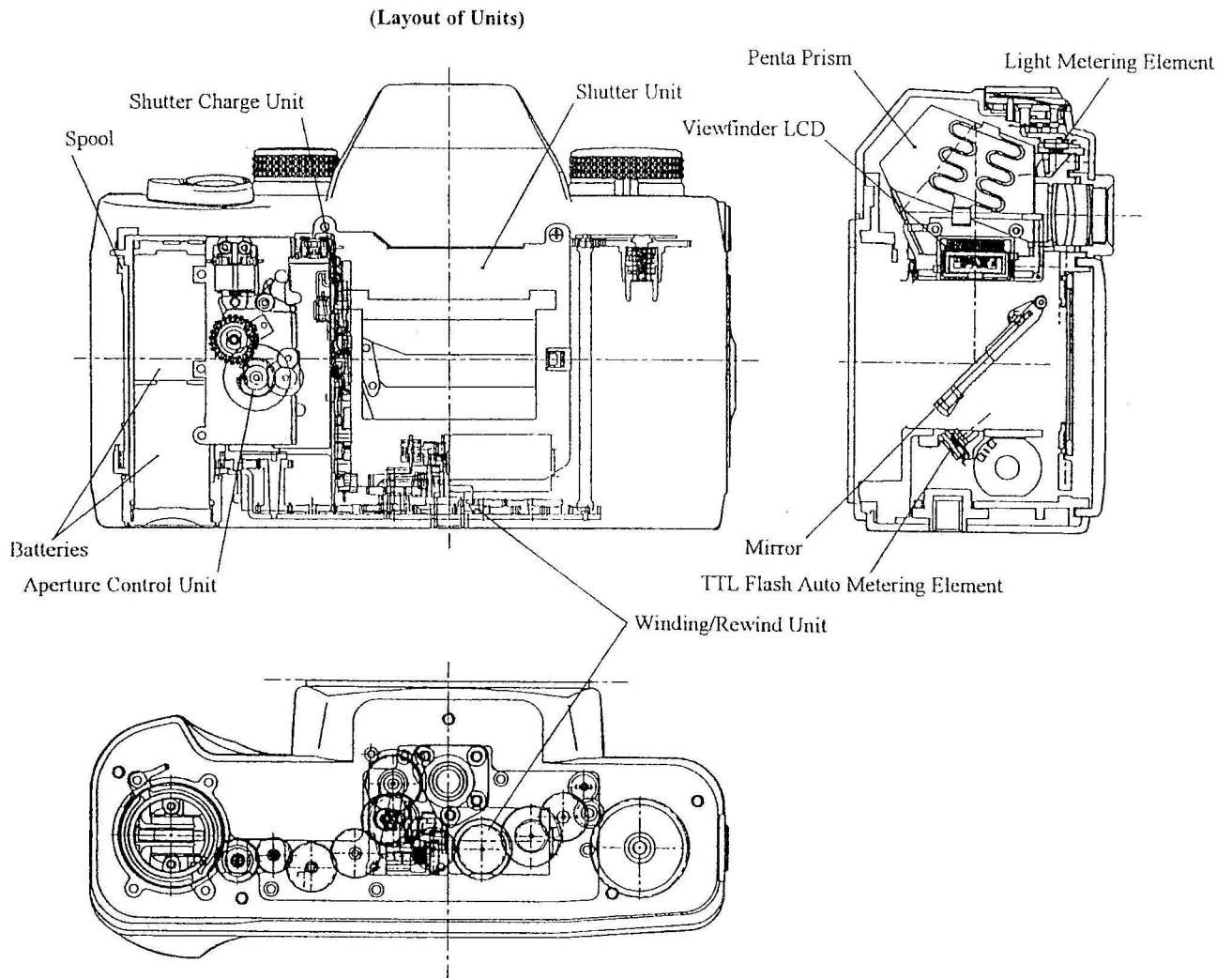
# TIMING CHART



## DESCRIPTION OF MECHANISMS

### [ Internal Structure ]

The internal units and parts are arranged effectively to realize this down-sized high-performance camera. The two 3-volt lithium batteries (CR2), as the power source of this camera, are located inside the spool. The main units of the aperture control, mirror drive and shutter drive mechanisms are arranged in the left space inside the camera body. The winding and rewinding mechanism is located at the bottom and the two motors to drive these mechanisms are placed in the lower space inside the body. With this arrangement, the camera is well balanced.



### [ Principal Mechanisms ]

#### 1. Mirror-Up and Shutter Charge Mechanism

The control mechanism for the mirror, aperture and shutter consists of one motor and two plungers. The shutter release sequence is such that the plungers are operated to disengage the S. Charge Lever first and then the motor is started. Via the speed reduction gear train, the Shutter Cam Gear and Mirror Cam Gear rotate to let the S. Charge Lever retract, thus releasing the trigger of the shutter.

Linked with the S. Charge Lever, the Mirror-Up Lever is also disengage to perform mirror up. At the same time, the Aperture Lever operates to stop down the aperture.

The aperture value is controlled by counting the pulses sent from the encoder which is coupled with the motion of the mechanism. When the number of pulses has reached the predetermined count, the plungers are energized to stop the motion of the mechanism, where the intended aperture value is set.

After the travel of the first and second curtains of the shutter, the motor is started again. By the operation of the motor, the Shutter Cam Gear and Mirror Cam Gear perform mirror down and shutter charge and restore the aperture control mechanism to the original position. The timings for these motions are so distributed that the motor is loaded evenly. The operation of the motor is controlled by the signal sent from the timing switch on the Mirror Cam Gear.

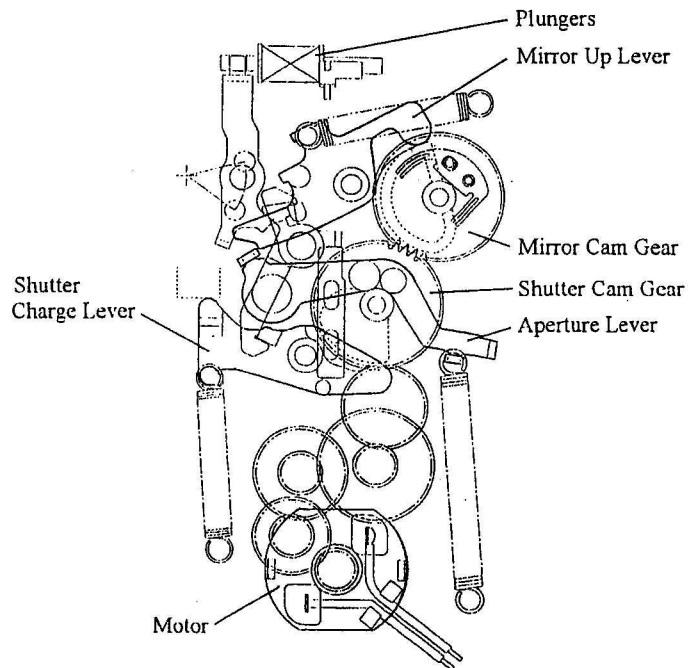
## 2. Film Transport Mechanism

The motor for winding and rewinding is located in the lower center of the camera body. As the motor is switched between forward run and backward run, the Epicyclic Lever position is so changed that the rotating power is transferred to the Winding Gear Train or the Rewind Gear Train to perform winding or rewinding.

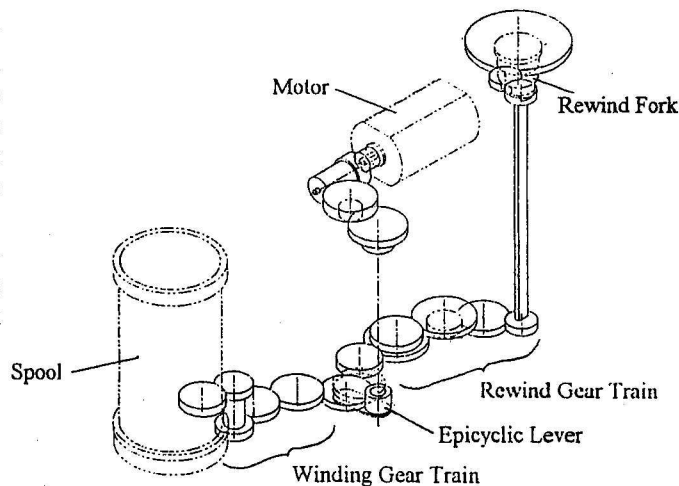
At winding, the film travel is monitored by detecting directly the travel of a perforation with a photo-reflector to determine the film stop position. An encoder and photo-interrupter are located at the first stage of the gear train to detect the motion of the drive system precisely, thus ensuring a higher accuracy of frame feed.

Also the drive pulse from the encoder and photo-interrupter enhances the accuracy of imprinting position of the compiled data when the Data Back D-9 is used.

(Mirror-Up & Shutter Charge Mechanism)



(Film Transport Mechanism)



## [ Electric Circuit ]

The electric circuit consists of two high-speed CPUs and other parts.

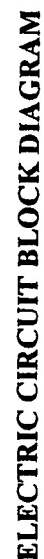
The Main CPU controls the shutter, shutter charge, aperture stop-down and winding/rewinding mechanisms and the comprehensive system of the camera. The Sub CPU controls chiefly light metering, flash communication and Data Back communication. In this way, the control of the camera system and mechanisms is performed independently of light metering, flash communication and Data Back communication, which are constantly carried out. Thanks to this independence, the total control of the camera is processed at a high speed.

The external display is controlled by the Main CPU, while the viewfinder display is controlled by the Sub CPU.

The camera is equipped with two motors — one for winding/rewinding only and the other for mirror up, shutter charge/mirror down and aperture stop-down.

The TTL Flash Auto Control Circuit, mounted on the bottom of the Mirror Box, detects the light reflected by the film surface during exposure and controls exposure.

The power supply circuit, designed for power saving, automatically turns power OFF when 16 seconds have passed without any operation of the camera.







**12. Accessory Shoe**

To the Main CPU, only CHI/O (CHS) and AX are connected.

- ⑫ Main CPU → Transistor → Accessory Shoe : AX signal  
 Accessory Shoe (CHI/O) → Transistor → Main CPU : CHS

**13. Operation Switches**

The signals from external operation switches are input to the Main CPU. The operation switches whose signals are input to the Main CPU are limited to those each of which, when operated, brings the camera into the power-ON state.

- ⑬ Operation Switch → Main CPU: 9 lines

**☆ Functions and Signal Lines Associated with Sub CPU****S1. Vref Circuit**

This circuit, through the 4 V Regulated DC Voltage IC, supplies the reference voltage Vref for A/D conversion.

- S ① Vref circuit → Sub CPU : Vref (for A/D conversion)

**S2. TTL Light Metering Circuit (Light Metering IC)**

The light metering system permits evaluative metering (5 divisions), center-weighted average metering and spot metering. The light metering range is EV 2 to 20 (50/F1.4 lens, ISO 100), also in evaluative metering. As the light metering element, a 5-divided Light Metering IC is used and the light metering output and temperature output are read in by the CPU through A/D conversion.

- S ② Light Metering IC → Sub CPU : TO, PO (read in through A/D conversion : Vref = 4 V)  
 Sub CPU → Light Metering IC : D1, D2, D3 (SPD select signal)

**S3. Viewfinder LCD**

The transmission type LCD displays the necessary information in the viewfinder based on externally input data processing and other processes. The circuit is 3-time-divided and uses the LCD driver incorporated in the Sub CPU.

- S ③ LCD (in viewfinder) : SEG (22 lines) × COM (3 lines) = 66 segments

**S4. Back Light LED for Viewfinder LCD**

The Back Light LED for Viewfinder LCD changes its brightness according to the light metering result. This LED is controlled through two control lines and driven by the Sub CPU. (Brightness changes in three steps.)

- S ④ (LED control) Sub CPU → Transistor → LED : Back Light LED lighting signal (2 lines)

**S5. Exposure Mode Selector Lever**

The Exposure Mode Select Lever selects among six modes, namely, Av, Tv, P, M, X and B. The input divided by resistance is read in by the CPU through A/D conversion. For the resistance, a chip resistor is used and three lines of VDD, GND and A/D signal are connected to the resistor.

- S ⑤ Exposure Mode Select Lever → Sub CPU : A/D conversion (1 line)

**S6. Exposure Compensation Dial**

This dial is a turning type with a compensation range of  $\pm 2$  EV. It allows 13-step compensation in increments of  $1/3$  EV. The input divided by resistance is read in by the Sub CPU through A/D conversion. For the resistance, a chip resistor is used and three lines of VDD, GND and A/D signal are connected to the resistor.

- S ⑥ Exposure Compensation Dial → Sub CPU : A/D conversion (1 line)

**S7. Shutter Dial**

This dial is a turning type that allows setting of 15-step shutter speeds from 4 seconds to 1/4000 second in 1 TV increments. The input divided by resistance is read in by the Sub CPU through A/D conversion. For the resistance, a chip resistor is used and three lines of VDD, GND and A/D signal are connected to the resistor.

S ⑦ Shutter Dial → Sub CPU : A/D conversion (1 line)

**S8. Open F Value Data**

Data input in a 4-bit gray code.

S ⑧ Open F Value P.C. Board → Sub CPU : 4-bit gray code input

**S9. Theta Compensation Input**

The presence or absence of theta compensation or the lens which can not cope with theta compensation is identified by a 2-bit input.

S ⑨ Theta Compensation Board → Sub CPU : 2-bit input

**S10. Aperture Stop-down Value Data**

The data on aperture stop-down position is read in by A/D input.

S ⑩ Aperture stop-down value (AV Board) → Sub CPU : A/D input

**S11. Multifunctional Data Back**

To connect the Multifunctional Data Back, the camera is equipped with 11 signal contacts, which are the contacts for serial communication, CS and other signals (8 signals in total) and those for W-Up connected to the Main CPU, shutter release signal and GND.

S ⑪ Sub CPU → Data Back contacts : serial (SCK, SDO), CS, PRN, DHS  
Data Back contacts → Sub CPU : serial (SD1), TMP, LMP

**S12. Accessory Shoe**

To the Sub CPU, the flash communication line is connected.

S ⑫ Sub CPU → Flash Unit : serial clock  
Flash Unit → Sub CPU : serial DA

**S13. Operation Switches**

The signals from external operation switches are input to the Sub CPU. The operation switches whose signals are input to the Sub CPU are those which, even when operated, do not bring the camera into the power-ON state.

S ⑬ Operation switches → Sub CPU : 5 lines

**★ Communication between CPUs**

For communication, access is made only from the Main CPU.

The communication lines consist of a 4-bit bus line, two handshake buses and two timing signal lines.

## [ Display ]

### 1. Viewfinder Display

For display in the viewfinder, an LCD is employed and the brightness of the back light LED is changed in three steps according to the brightness of the subject so that the display is always easily seen.

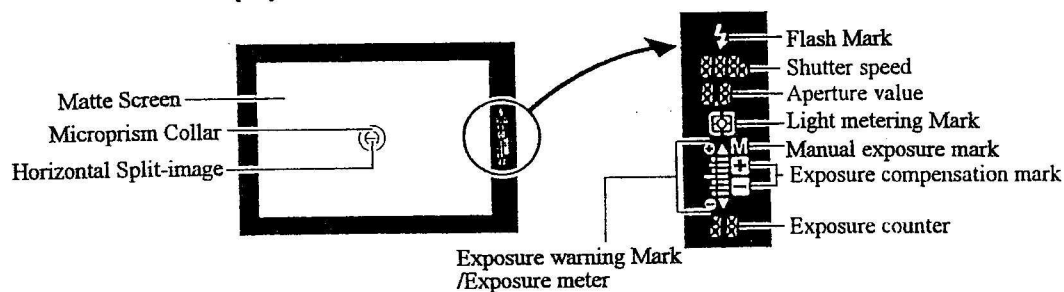
The display, located at right in the viewfinder, shows a flash ready indicator, shutter speed, aperture, light metering indicator, manual exposure mark, exposure compensation mark, exposure warning/exposure meter and exposure counter.

The viewfinder display appears at one of the following operations and automatically goes out 16 seconds later for power saving.

- ① The Main Switch is turned ON.
- ② The Shutter Release Button is depressed halfway with the Main Switch turned ON.

In addition, the display is kept on for another 16 seconds when the position of a dial or the like is changed.

#### < Viewfinder Display >



#### Flash Mark :

- When the TLA Flash Unit is used, the flash mark “⚡” lights up upon completion of flash charge.
- After flash firing, the flash mark “⚡” blinks when the condition of the subject is within the allowable range for TTL Flash Auto Control.

#### Shutter Speed :

- The display shows shutter speeds ranging from 1/4000 second to 16 seconds.
- In manual mode : shutter speed is displayed in increments of one step (4” ~ 4000)
- In auto mode : shutter speed is displayed in increments of 1/2 step (16” ~ 4000)

#### Aperture Value :

- In the Aperture Priority AE (Av) mode or Manual Exposure (M) mode, the display shows the manually set aperture value.
- In the Shutter Speed Priority AE (Tv) mode or Programmed AE (P) mode, the display shows an aperture value appropriate to the shutter speed.

#### Light Metering Mark :

- The display in the viewfinder changes according to the mode selected by the Metering Mode Select Lever.
  - Center-weighted average light metering mode : “□” lights up.
  - Spot light metering mode : “◻” lights up.
  - Evaluative light metering mode : “⊞” lights up.
- While the AE Lock function is working, the display blinks (2 Hz) as follows :
  - Center-weighted average light metering mode : “□” mark blinks.
  - Spot light metering mode : “◻” in “•” mark blinks.
  - Evaluative light metering mode : “⊞” in “⊞” mark blinks.

#### M Mark :

“M” mark appears when the Exposure Mode Select Lever is set to the manual exposure position “M” or “X”.

**Exposure Compensation Mark :**

“+” or “-” mark will blink when the Exposure Compensation Dial is set anywhere other than “0”.

**Exposure Warning Mark / Exposure Meter****(1) Exposure meter display**

The display shows the following data according to exposure mode :

- ① Only displayed at evaluative light metering in an auto exposure mode (Tv, Av or P), the exposure meter shows the difference from the center-weighted average light metering value.
- ② In the manual exposure (M) mode or in shooting with flash (X), the exposure meter shows the difference between the exposure setting and the correct exposure (for the set light metering mode).
- ③ The exposure meter does not displayed during photography with Bulb.

**(2) Exposure warning mark display**

In an auto exposure mode (Av, Tv or P), the overexposure mark “▲” or underexposure mark “▼” indicating deviation from the exposure control range will blink.

**Exposure Counter :**

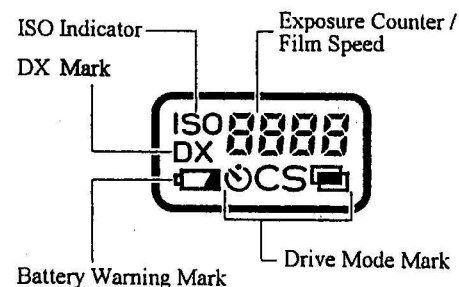
The exposure counter shows the number of exposed frames of the film (a number between 00 to 39 or E for any number of 40th and above). It also shows the following information:

- Remaining time will the self-timer is operating (10 seconds to 00).
- Operation sequence at A.B.C. photography (three-frame continuous automatic exposure compensation).
- Completion of exposure of all frames of the film.

**2. Display Panel****Exposure Counter / Film Speed :**

This part of the Display Panel shows the number of exposed frames of the film. It also shows the film speed when the ISO button is pressed. With film speed set to “DX”, this section of the display shows the film speed read by DX when a DX-coded film is used. The display also indicates the following particulars :

- The remaining time while the self-timer is operating.
- Exposure time during photography with Bulb
- A.B.C. exposure order
- Custom function setting
- Completion of exposure of all frames of the film.

**< Display Panel >****ISO Mark :**

The ISO mark appears when a film speed is displayed or a film speed is set.

**DX Mark :**

The “DX” mark is always displayed during automatic setting by a DX code.

**Battery Warning Mark :**

The battery warning mark appears to indicate that the time for replacing the batteries has come.

**Drive Mode Mark :**

- Self-timer mode “⌚”
- Single-frame shooting mode “S”
- Continuous-frame shooting mode “C”
- Multiple exposure mode “☐”

## FUNCTIONS OF SWITCHES

### < External Operation Switches >

#### (1) Main Switch

This switch turns ON/OFF the power to the camera and switches AE Lock.

OFF	Main Switch OFF
↓↑	
ON	Main Switch ON
↓↑	
AEL	AE lock (Main Switch is ON)

#### (2) Check Switch

When the Shutter Release Button is depressed halfway with the Main Switch turned ON, the Check Switch turns OFF → ON ("H"→"L") so that the circuit power is turned ON, the camera starts AE light metering and the viewfinder LCD lights up. Then the camera will hold the power (for 16 seconds).

#### (3) Release Switch

When the Shutter Release Button is depressed all the way with the Main Switch turned ON, the Release Switch turns OFF → ON ("H"→"L") so that the shutter operates and at the same time, the viewfinder LCD goes out. However, the External LCD keeps indicating the data.

#### (4) Shutter Dial Switch

This switch sets a shutter speed.  
1/4000 to 4 seconds (15 steps)

#### (5) Exposure Compensation Dial Switch

This switch sets an exposure compensation value.  
- 2 to + 2 EV (in increments of 1/3 EV) (13 steps)

#### (6) A.B.C. Switch

This switch selects a bracketing range for 3-frame continuous exposure control.

0	A.B.C. setting OFF
↓↑	
0.5	Setting of A.B.C. operation of ± 0.5 EV
↓↑	
1	Setting of A.B.C. operation of ± 1.0 EV

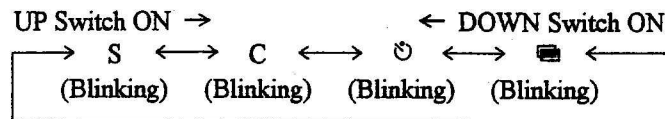
#### (7) Exposure Mode Switch

While pressing the Exposure Mode Lock Release Button, turn the Exposure Mode Select Lever to set an exposure mode.

AV	Aperture Priority AE
↑ ↓	
TV	Shutter Speed Priority AE
↑ ↓	
P	Programmed AE
↑ ↓	
M	Manual exposure
↑ ↓	
X	Shooting with flash
↑ ↓	
B	Bulb

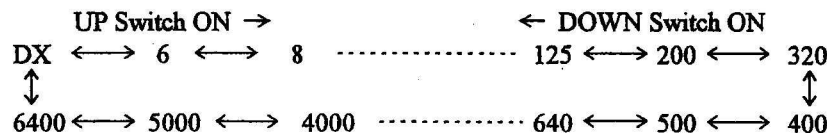
### (8) Drive Mode Switch / Down Switch

- When the Drive Mode Button is pressed, this switch turns OFF → ON ("H" → "L"). Pressing the Drive Mode Button for more than 1.2 seconds will set the drive setting mode.  
Upon setting the drive setting mode, the external LCD indicates the current drive setting, blinking at 2 Hz.
- After the detection of pressing the Drive Mode Button once at a successful setting of the drive setting mode, the drive setting is changed in the UP direction by the ISO Button (UP Switch) or in the DOWN direction by the Drive Mode Button (DOWN Switch).



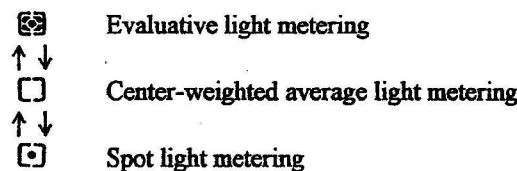
### (9) ISO Button Switch / UP Switch

- When the ISO Button is pressed, this switch turns OFF → ON ("H" → "L"). Upon detecting "L", the camera enters ISO check mode and the external LCD indicates the current film speed setting.
- When the ISO Button is pressed in the ISO check mode for more than 1.2 seconds, the ISO setting value blinks at 2 Hz and the mode changes to ISO change mode.  
The ISO setting value is changed in the UP direction by the ISO Button (UP Switch) or in the DOWN direction by the Drive Mode Button (DOWN Switch).



### (10) Metering Mode Select Switch

This switch selects a light metering mode.



### (11) Rewind Switch

Whether the Main Switch is ON or OFF, pressing the Manual Rewind Button will turn ON the Rewind Switch to start film rewinding operation.

### (12) Preview Switch

When the Main Switch is ON and the exposure mode is "AV", "TV", "M", "P", "X" or "B", pressing the Aperture Stop-down Button will turn ON the Preview Switch and stop down the lens to the aperture value set on the Lens.

AV, M, X, B ----- Lens is stopped down to the preset aperture value.

TV, P ----- Lens is stopped down to the aperture value obtained by arithmetic operation.

### < Internal Mechanical Switches >

### (13) Back Cover Switch

This switch detects the opening → closing of the Back Cover.

"H" ----- Back Cover closed

"L" ----- Back Cover open

Upon detection of the opening → closing of the Back Cover, the camera starts blank shots advance.

#### (14) DX Contact Switch

This contact switch detects the DX code of the film cartridge and reads in a film speed according to the DX code.

- ① Setting range: ISO 25 to 5000 (in 1/3 EV steps)
- ② Detection timing  
100 msec after the detection of the opening → closing of the Back Cover.
- ③ For a film without a DX code, ISO 100 is read in.

#### (15) Open F Value Input Switch (4 bits)

This switch detects the Open F value of the Lens mounted.

#### (16) Theta Compensation Switch

With the MM Lens mounted on the camera, this switch operates coupled with the theta setting pin of the Lens. It converts the theta compensation value to an electric signal and detects the presence or absence of theta compensation.

$\theta$ Compens. Code		Lens Type
LENS1	LENS2	
L	H	MM Lens without $\theta$ compensation
H	L	MM Lens with $\theta$ compensation
H	H	AE Lens

#### (17) Aperture Information Switch

With a Lens Unit mounted, the mechanism of this switch is engaged with the Aperture Coupling Gear of the Aperture Ring Holding Plate Ass'y and the switch A/D-converts the electrical signal of the aperture value of the Lens (position of the Aperture Coupling Ring) and thus detects the stop-down value of the Lens.

#### (18) Charge Switch 1 and Charge Switch 2

The Charge Switches are incorporated in the MS Base Plate Ass'y and coupled with the S. Charge Motor.

These switches detect the completion of mirror up or mirror down and shutter charge. There are two Charge Switches, namely, Charge Switch 1 and Charge Switch 2.

- The completion of mirror up is detected by the turning "H" → "L" of the signal from the Charge Switch 1.
- The completion of mirror down and the completion of shutter charge are detected by the turning "L" → "H" of the signal from the Charge Switch 1 and the turning "H" → "L" of the signal from the Charge Switch 2.





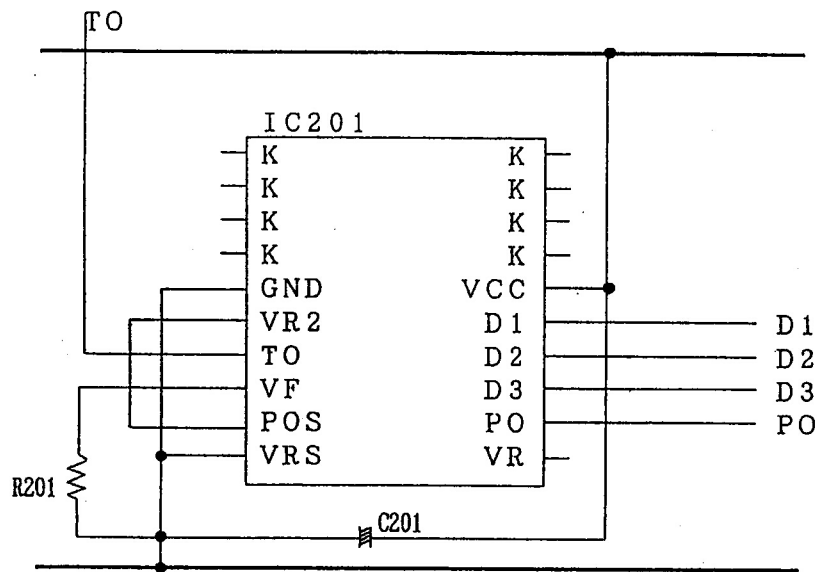
### 3. Light Metering Circuit

#### (1) Outline

- Light metering output : The 5-division light metering IC201 incorporating SPDs logarithmically compresses the photocurrent and converts it to a voltage linear to the EV value.  
The combinations of signal levels at D1 to D3 of the light metering IC permit a selection of light metering output among the 5 divided patterns.
- Temperature dependence : Since light metering output is dependent on temperature, IC101 temperature-compensates the light metering output. For this compensation, IC201 outputs the necessary temperature data as a voltage.

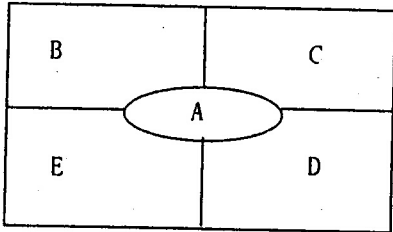
#### (2) Description of Control Terminals

Terminal Name	Function	Description of Function
PO	Light metering output	Outputs a voltage representing the light metering value for the pattern selected by D1 to D3.
TO	Temperature sensor output	Outputs voltage linear to temperature.
D1 to D3	Pattern selection of light metering output	Selects one pattern to be output at PO among five light metering patterns.



Input	D1	-	L	H	L	H	-
	D2	H	H	H	L	L	L
	D3	H	L	L	L	L	H
Output	PO	A	B	C	D	E	VR2

\* VR2 : reference voltage 2



## 4. Drive Circuit

### 4-1. Winding and Rewinding Circuit

#### (1) Constitution

This circuit consists of the Drive IC (IC106) and the surrounding capacitors (C114 to C118).

The Drive IC consists of the H Bridge Circuit (comprising MOS transistors) and its predriving circuit.

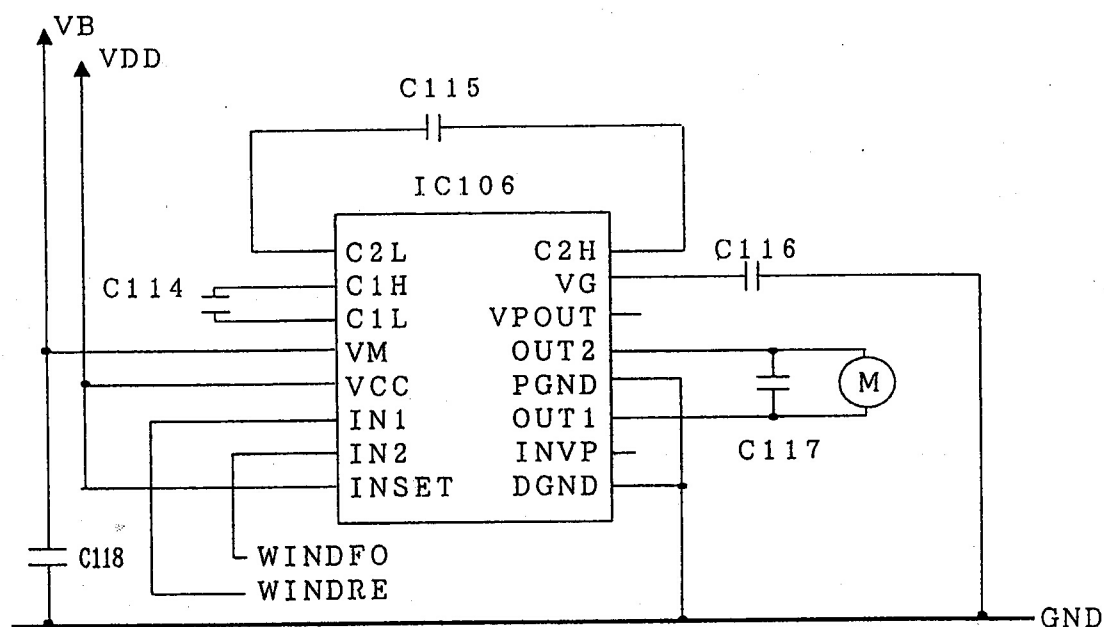
The surrounding capacitors are used in the charge pump (voltage boosting) circuit for the voltage to drive the gates of the MOS transistors.

The Drive IC (IC106) is only used to drive the winding and rewinding mechanism. It is controlled by the IC101 (Main CPU).

#### (2) Functions

The control terminals are controlled by the Main CPU (IC101) as follows :

Pin No.	Terminal Name	Signal Name	Stop	Winding	Rewinding	Brake
62	P00	WINDFO	L	H	L	H
61	P01	WINDRE	L	L	H	H



## 4-2. Shutter Charge Motor Drive Circuit

### (1) Constitution

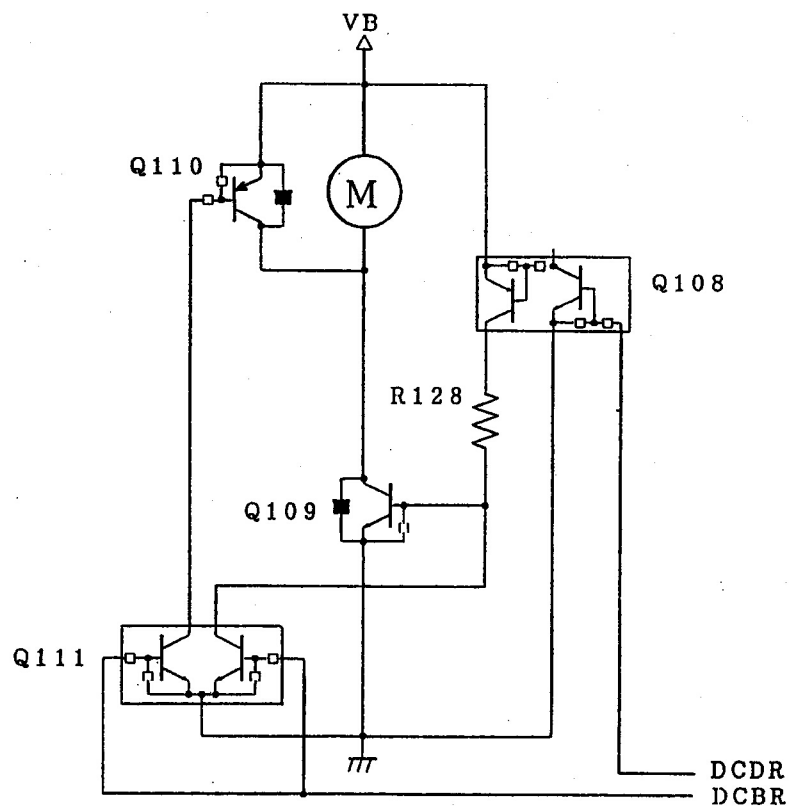
This circuit consists of the transistor (Q109) for driving, the transistor (Q110) for braking and the transistors (Q108 and Q111) for their predriving, and the resistor (R128).

### (2) Functions

The control terminals are controlled by the Main CPU (IC101) as follows :

Pin No.	Terminal Name	Signal Name	Stop	Drive	Brake
50	P04	SCDR	L	H	L
49	P05	SCBR	L	L	H

\* Shutter charge is controlled by one-way rotation.



## 5. TTL Flash Auto Control Circuit

### (1) Outline

- TTL Flash Auto Control output : The TTL Flash Auto IC (IC301) starts integration (accumulation of charges in C302) upon receiving the start signal (CHC : L) from the Main CPU. When the integral voltage has reached the reference voltage (VTH), IC301 outputs the stop signal (CHS : H). This CHS signal is output through D301 to the CHI/O terminal. The CPU, upon receiving the inverted CHS signal (CHS signal) via Q301, conducts TTL Flash Auto indication.
- Reference voltage : The reference voltage VTH varies with ISO values. Each ISO value is transferred in the form of 5-bit data by serial communication and converted to a voltage in IC301.

### (2) Description of Control Terminals

Terminal Name	Function	Description of Function
CHC	Start signal input for TTL Flash Auto control	Conducts TTL Flash Auto operation only during "L".
CHS	Stop signal output for TTL Flash Auto control	Stops flash firing at "H".
CHCS	Chip select input	Selects this IC at "L". (By serial communication)
SCK	Serial clock input	Clock to transfer ISO data by serial communication.
SO	Serial data input	Data line to transfer ISO data by serial communication.

