Canon

Service Manual

ENGLISH EDITION

EOS REBEL G QD (SILVER)	**C12-8344**
EOS REBEL G (BLACK)	**C12-8353**
EOS 500N / QD (SILVER)	**C12-8346, 47**
EOS 500N / QD (BLACK)	**C12-8356, 57**
NEW EOS KISS (SILVER)	**C12-8341**
NEW EOS KISS (BLACK)	**C12-8351**

CY8-1200-161

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SERVICE MANUAL

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

Corrections

This manual could include typographical errors or technical inaccuracies due to improvements or changes in the products. When changes occur in applicable products or in the content of this manual, Canon will release service manual report as the need arises. In the event of major changes in the contents of this manual over a long or short period, Canon may issue new editions of this manual.

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PREFACE

1. SERVICE MANUAL COMPOSITION

This manual contains information on servicing the product. It has the following sections.

Part 1 General Information

Provides the basic information needed to understand the product.
(Operating instructions are not included. Refer to the product's instruction book if necessary.)

Part 2 Technical Information

Most technical information about this camera is provided in the EOS-1N Service Manual, therefore Part 2 in this manual is empty.

Part 3 Repair Information

Provides information for disassembly, reassembly, and adjustment of the product, about the tools required, and about the adhesives and lubricants required, and their application.

Part 4 Parts Catalog

Part 5 Electrical Diagrams

2. MODEL DIFFFRENCES

Makert Area	Model Name	Features	
		Date Printing	Panorama
Japan	NEW EOS KISS (SILVER)	✔	✔
	NEW EOS KISS (BLACK)	✔	✔
North America	EOS REBEL G QD (SILVER)	✔	✘
	EOS REBEL G (BLACK)	✘	✘
Europe, General Export	EOS 500N (SILVER)	✘	✘
	EOS 500N QD (SILVER)	✔	✘
	EOS 500N (BLACK)	✘	✘
	EOS 500N QD (BLACK)	✔	✘

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Part 1. General Information

Part 2. Technical Information

Part 3. Repair Information

Part 1

General Information

1. FEATURES

N: Indicates features new in this product.

1. Fast, Wide, Three-point Autofocusing

- Wide-area, three-point autofocusing with (| + |) multi-BASIS.
- N The focusing point can be user-selected or camera-selected.
- N * Focusing point LCD indicator in viewfinder indicates the active focusing point.
- N * Focusing point indicator on LCD panel is displayed at all times, allowing you to see which focusing point is active.
- Wide-area, three-point autofocusing allows the user more flexible composition.
- Wide-area, three-point autofocusing enables easier tracking of moving subjects.
- The optimum AF mode is set automatically for the picture-taking mode.
- Focus-priority AF control.
- N The in-focus beeper can be switched on or off in all modes including Full Auto and Programmed Image Control modes.

2. Bright Viewfinder

- N High-reflectance aluminum deposition roof prism mirror (pentamirror).
  - * Total reflectance is equal to that of a pentaprism.
  - * The total reflectance is about 8 percent higher than that of the EOS REBEL X/500.

3. Lightweight and Compact

- Compact with a firm, comfortable grip.
- New high-grade design with high rigidity and good operating feel.
- N * Color tones match the exterior design.
- N * Synthetic leather gives a more comfortable grip.

4. Easy, Intuitive Operation

- In the Full Auto mode, all you do is point and press the shutter button.
- Five Programmed Image Control (PIC) modes offer completely automatic operation for various situations.
- N * Night Scene mode for added automation.

5. Full-featured Exposure Control with AIM System

- Six-zone evaluative metering sensor linked to the three focusing points enables proper exposures even under backlit conditions.
- E-TTL autoflash system for more intricate control
  - * Evaluative flash metering (with a 6-zone metering silicon photocell and preflash) linked to the focusing points.

* High speed sync (FP flash) allows flash synchronization at all shutter speeds. (Enables fill-in flash with a large aperture.)
* FE lock (flash exposure lock, auto flash with TTL partial metering and memory function).
- Exposure control function equivalent to that found on the EOS 5/A2E and EOS 50 E/ELAN II E.
- Maximum shutter speed of 1/2000 sec.

6. Built-in Auto Pop-up Flash (Retractable)

- In the Full Auto and Programmed Image Control modes, the flash pops up and fires automatically under low-light or backlit conditions.
- Wide flash coverage, suitable for 28mm lenses.
- Three-zone evaluative flash metering linked to the focusing points.

N
- Series-controlled flash to save battery power.
- Red-eye reduction mini-lamp, gentle to the eyes, can be disabled or enabled.
- Quick flash recharge at about 2 sec.

7. Fully Automatic Film Transport and Silent, Prewind System

- The film transport is as silent as the EOS REBEL X/500.
- Prewind system winds the film back into the cartridge as the frame advances. This protects the exposed film (in case the camera back is opened accidentally).
- At the end of the roll, the film leader is rewound into the cartridge automatically.

8. Easy Manual Operation

- The shutter speed or aperture can be set with one finger turning the Main Dial.
- Easy-to-read, analog-type exposure level scale (±2 stops in half-stop increments) in the viewfinder and on the LCD panel.

9. Simple Operation and Clear Indications

- All basic operations are performed with only the Command Dial, Main Dial, and shutter button.
- The LCD panel includes all the information shown by the EOS REBEL X/500 for immediate confirmation.
- The viewfinder information is digital, like the EOS 50 E/ELAN II E.

10. Panorama Switch (Panorama Model)

- In midroll, the external panorama lever can be used to switch between the panorama- and normal-frame modes.
- The framing can be switched to suit the subject.
- In the panorama mode, the orange LED on the lower left of the eyepiece lights.

2. SPECIFICATIONS

* Specs which are ▒▒ or TD are still tentative.

1. Type:

1-1 Type:	35mm single-lens reflex AF camera with vertical-travel, focal-plane shutter, built-in motor drive, built-in flash, and autoexposure.
1-2 Picture size:	24 mm × 36 mm (normal) and 13.3 mm × 36 mm (midroll-switchable panorama, in panorama model)
1-3 Compatible lenses:	Canon EF lenses
1-4 Standard lens:	Canon EF28-80mm f/3.5-5.6IV USM
1-5 Lens mount:	Canon EF mount

2. Autofocus

2-1 Type: TTL-SIR (Through-the-Lens Secondary Image Registration) multi-BASIS (I + I).

2-2 Focusing modes:

(1) Autofocusing

One of the following two AF modes is set automatically (not user-selectable) depending on the picture-taking mode. The shutter does not release until focus is achieved in both modes.

(1)-1 One-Shot AF

Autofocus locks when focus is achieved.

(1)-2 AI Servo AF for automatic switching between One-Shot AF and predictive AF

Still subjects:	Autofocus locks when focus is achieved.
Moving subjects:	Tracks subject movement until focus is achieved.

* With a USM lens, the focusing ring can be used after focus is achieved in the One-Shot AF mode or when autofocusing fails to achieve focus.

(2) Manual focusing (Focus aid provided)

Setting the lens' focus mode switch to MF enables manual focusing with the focusing ring. When focus is achieved, the in-focus indicator lights, but the beeper does not sound.

2-3 Focusing point selection: In the program AE, shutter-priority, aperture-priority, and manual modes, the focusing point can be set for automatic selection or manual selection (left, center, or right focusing point) by pressing the focusing point selector and turning the Main Dial.

In the other picture-taking modes, the focusing point selection is automatic (camera-selected).

The selected focusing point is indicated on the external LCD panel and the LCD in the viewfinder.

External LCD panel: When the Command Dial is not set to L, Rew, or ISO, the focusing point indicator will be displayed at all times: [▪▪▪], [▪], [▪], or [▪].

Viewfinder LCD: The focusing point indicator is displayed when the Command Dial is not set to L, Rew, or ISO and the shutter button is pressed halfway or the metering is on.

(1) Automatic selection of focusing point

One-Shot AF mode: After evaluating the subject, the camera automatically selects the most suitable focusing point (the nearest point of focus is given priority).

AI Servo AF (One-Shot/Predictive AF): When the One-Shot AF mode is active, autofocusing is achieved with one of the three focusing points. After focus is achieved, any moving subject is detected at the active focusing point. After a moving subject is detected (servo), Servo AF is activated at the focusing point which detected the moving subject. If focusing cannot be achieved, the three focusing points will again try and detect the subject.

(2) User-selected focusing point

Autofocusing is executed with the user-selected focusing point.

2-4 AF activation: AF is activated by pressing the shutter button halfway.

2-5 AF operation speed: Approx. (EV 12, infinity to 1 m, T) with EF 28-80mm f/3.5-5.6IV U lens.

2-6 In-focus indicator: Provided in viewfinder (LCD) and by a beeper. The beeper can be enabled or disabled for all picture-taking modes.

* In the One-Shot AF mode with automatic focusing point selection, the active focusing point is indicated on the external LCD panel and in the viewfinder LCD. Example: [▪▪], [▪], etc.
* In Auto DEP mode, the focusing point(s) which achieves focus is indicated. Example: [▪▪▪], [▪▪], [▪], etc.
* In the AI Servo AF mode with automatic focusing point selection, all the focusing points are displayed.
* When servo focus is achieved in the AI Servo AF mode, the beeper sounds at reduced volume.

2-7 AF precision: Same as with the EOS 650.

2-8 AF working range: EV 1.5-18 (at ISO 100, standard chart).

2-9 AF-assist beam: (1) AF-assist beam emitter built-in (to the right of the grip)

Emitted automatically when necessary and aimed at the area covered by the active focusing point. No light pattern. Range: 5 meters (at center)

(2) Automatic emission conditions

(3) Emission duration and times

(4) Light source: Halogen krypton lamp

(5) When used with an EOS-dedicated Speedlite: With the 540EZ (with built-in focusing point-linked AF-assist beam), the Speedlite's AF-assist beam is emitted instead of the camera's.

With other Speedlites, the camera normally emits the AF-assist beam. Only if the center focusing point has been selected manually, the Speedlite's AF-assist beam is emitted instead.

3. Picture-Taking Modes

The features available with each mode are shown below.

* (●): Partial metering effective only during AE lock.

Mode	Feature Availability														User Operations			
	AF				Metering			Program AE					Flash		Exposure Compensation	Multiple Exposures	Program Shift	AE Lock
	O	O/S	S	C	Evaluative	Averaged	Partial	PH-1	PH-2	PH-3	PS	PL	A	M				
① Program AE		●		●	●		(●)				●			●	●	●	●	●
② Shutter Speed-Priority AE		●		●	●		(●)	–						●	●	●	–	●
③ Aperture-Priority AE		●		●	●		(●)							●	●	●	–	●
④ Auto DEP	●		●		●		(●)							●	●	●	●	●
⑤ Full Auto		●	●		●						●		●					
⑥ Portrait	●		●	●	●				●				●					
⑦ Landscape	●		●		●							●		–				
⑧ Closeup	●		●		●					●			●					
⑨ Sports		●		●	●			●						–				
⑩ Night Scene	●		●		●						●		●					
⑪ Manual		●		●		●	(●)	–						●	–	●	–	●

* For Auto DEP, automatic focusing point selection is set automatically. All the focusing points which achieve focus control the lens to set the aperture so that the necessary depth of field is obtained. (The focusing point cannot be user-selected. Program AE takes effect based on the center focusing point in the following cases: No lens has been attached to the camera, manual focusing is used, or flash is used.)

* For Manual ⑪, center-weighted averaged metering takes effect.

4. Viewfinder:

4-1 Type:	SLR, Fixed eye-level Pentamirror (glass for surface E). (No condensor lens)
4-2 Focusing screen:	Non-interchangeable, New Laser-matte screen marked with focusing points, partial metering circle, and panorama frame (panorama model only).
4-3 Standard diopter:	-1 diopter. (18.5mm eye relief)
4-4 Picture coverage:	90 percent both vertically and horizontally
4-5 Magnification:	0.7× (with 50mm lens at infinity)
4-6 Viewfinder information:	Viewfinder bottom: Alphanumeric information (yellow-green) 1. Shutter speed (If unsuitable, it blinks at 2 Hz as a warning.) 2. Aperture (If unsuitable, it blinks at 2 Hz as a warning.) Viewfinder bottom: Symbol display (yellow-green) 3. ✱: Indicates AE lock. 4. : Focusing point indicator (The indicator for the selected focusing point is displayed while the shutter button is pressed halfway or during metering.) 5. : Exposure level scale with dot indicators in 1/2 steps (±2 stops) 5.-1 AE Exposure Compensation 5.-2 Manual Exposure Level 5.-3 AEB Setting 5.-4 Red-eye Reduction Mode count-down to shutter release 6. ϟ: Lights during flash recharge; blinks if flash range is ineffective during FE lock. 7. H: Lights during high-speed sync (FP flash). 8. ●: In-focus indicator (Blinks at 2 Hz if focus cannot be achieved.) Viewfinder information display cannot be turned off.
4-7 Panorama indicator: (Panorama model)	Orange LED on lower left of eyepiece lights during halfwaypressing of shutter button, during metering, and 0.5 sec. after the shutter is released.
4-8 Mirror:	Quick-return half mirror (Transmission ratio of 40:60) Viewfinder black-out time: 360 ms or less at 1/60 sec. or faster shutter speed.
4-9 Mirror vignetting:	No vignetting up to EF 200mm f/5.6 (EF 80-200mm f/4.5-5.6), except for the EF 50mm f/1.0L.
4-10 Depth-of-field preview:	None
4-11 Eyepiece shutter:	None. (Eyepiece cover provided with the neck strap.)
4-12 Misc.:	Detachable eyecup provided. Angle Finder, magnifier, Eb-series dioptric correction lenses, and Eyepiece Extender EP-EX15 attachable.

5. Exposure Control

5-1 Metering modes: TTL max. aperture metering with a 6-zone silicon photocell. The following two metering modes are provided:

1. Evaluative
2. Approx. 9.5 % partial* (9 mm dia.)

* Operates only during AE lock.

5-2 Exposure control modes: Switchable between AE mode and manual.

1. Intelligent program AE (Shiftable)
2. Shutter-priority AE (No safety shift)
3. Aperture-priority AE (No safety shift)
4. Full Auto (Intelligent program AE unshiftable)
5. Programmed Image Control modes
   Portrait, Landscape, Closeup, Sports, Night Scene
6. Auto DEP
7. E-TTL program flash AE
8. TTL program flash AE
9. A-TTL program flash AE
10. Metered manual

5-3 Metering range: EV 2-20 (at 20˚C with 50mm f/1.4 lens, ISO 100)

5-4 Exposure warning: LCD numeric display blinks at 2 Hz on external LCD panel and in the viewfinder when correct exposure is not possible.

5-5 Exposure metering: Activated when shutter button is pressed halfway. The exposure reading continues to be displayed for 4 sec. after the shutter button is released.

5-6 ISO Film Speed Range: ISO 25-5000 with DX-coded film, set automatically in one-third steps.

(During prewinding, the external LCD panel displays the film speed.)

ISO 6-6400 manual setting in one-third steps.

If non-DX-coded film is loaded, the film speed of the previously loaded film will be displayed during the prewind. After the prewind, the ISO film speed display blinks during the metering. After the metering ends, the ISO display stays on. It turns off after it is set manually.

5-7 Exposure compensation: (1) Automatic Exposure Bracketing (AEB) (Does not function in the Full Auto and Programmed Image Control modes.)

1) Availability: AEB is possible in the AE modes listed in the table in 4).
2) Bracketing amount: ±2 EV in half steps.
3) Bracketing sequence: Correct exposure, underexposure, and overexposure. The three bracketed shots can be taken singly or continuously. When the self-timer is activated, the three bracketed shots will be exposed continuously after the self-timer delay.

4) How each mode compensates the exposure is shown in the following table. (A black dot indicates whether the shutter speed or aperture is controlled for exposure compensation.)

Mode	Shutter speed	Aperture
Intelligent Program AE	●	●
Shutter speed-priority AE	—	●
Aperture-priority AE	●	—
Auto DEP	●	—
Manual	●	—

5) AEB cancellation: Canceled by setting the bracketing amount to 0, completing the flash exposure, or turning the Command Dial to a Programmed Image Control mode.

6) After AEB starts, the bracketing sequence will be reset to the first frame if any of the following is executed: The batteries are replaced, the bracketing amount is changed, the Command Dial is turned, or film rewind is completed. (AEB will not be canceled when the lens is interchanged.)

(2) Manual exposure compensation up to ±2 EV in half steps (Unavailable in Full Auto and Programmed Image Control modes.)

* Manual exposure compensation can be set in combination with AEB.

5-8 AE lock

Enabled with the AE lock button (automatically switches to partial metering at the center in a Creative Zone mode) which operates anytime (Pressing the button again during AE lock renews the AE lock setting.).

* AF lock sets AE lock automatically.

5-9 Multiple exposures:

Up to 9 multiple exposures can be set. The number is resettable even while the multiple exposures are taken. The multiple exposure setting is canceled automatically after all multiple exposures are taken or if the Command Dial is set to a Programmed Image Control mode. Also cancelable manually.

6. Shutter

6-1 Type:

Vertical-travel, focal-plane shutter with all speeds electronically-controlled. Both shutter curtains have dedicated electromagnetic release control. (Curtain speed: 6.3 ms/24mm)

6-2 Shutter speeds:

30 to 1/2000 sec., bulb, X-sync at 1/90 sec.

Intermediate shutter speeds (half steps) can be set in the shutter-priority AE and manual exposure modes.

6-3 Shutter release:

Soft-touch electromagnetic release. (2.5mm dia. mini jack remote terminal provided)

6-4 Release time lag: Shutter release time lag excluding AF operation time

1) The time lag between pressing the shutter button completely from the halfway position and the film exposure: 144 ms
2) The time lag between pressing the shutter button completely from the normal position and the film exposure: 200 ms

6-5 Self-timer: Electronically-controlled, 10-sec. delay.

Self-timer button operates in all picture-taking modes.

After starting, the self-timer is cancelable by pressing the self-timer button again, turning the Command Dial, pressing the flash button, retracting the built-in flash, interchanging the lens, or opening/closing the camera back. The self-timer mode can be canceled by setting the Command Dial to L or by pressing the self-timer button again.

Self-timer starts upon pressing the shutter button completely and achievement of focus. (Self-timer does not start until focus is achieved.)

Indication: Electronic beeper (At 2 Hz for first 8 sec. and at 8 Hz for the remaining 2 sec.)
AF-assist beam lamp (Off for first 8 sec., then lights for the remaining two sec.)

6-6 Camera shake warning: Provided for Programmed Image Control modes (except Full Auto and Night Scene).

If the shutter speed (auto Tv) is slower than the reciprocal of the lens' focal length by 0.5 steps or more, the shutter speed display blinks at 2 Hz as a warning.

* No warning in any other case of a slow shutter speed.

7. Film Transport

7-1 Type: Prewind system.

7-2 Film loading: Automatic take-up with a fixed spool.

When the Command Dial is not set to L, loading the film and closing the camera back will start the prewinding of the film. The maximum number of exposures is calculated while the entire roll is prewound (taking 9 sec. for 24-exposure film).

Noise level: 60 dB or less

7-3 Prewind completion indication: OK: Stops automatically and the frame counter displays the frame No.

Error: The film cartridge symbol blinks (later stays on). The frame counter is blank and all functions are locked.

7-4 Film advance system: Automatic film advance with a small, planetary gear-head motor.

7-5 Film advance modes: Single-frame advance or continuous film advance automatically set for the respective picture-taking mode.

7-6 Film advance initiation: Initiated by an exposure-completed signal.

7-7 Film advance speed: With AF locked, approx. 1 fps

7-8 Transport confirmation: The frame counter counts up or down during film transport.

7-9 Shooting capacity: The table below indicates the number of 24-exposure rolls that can be taken with two new CR123A cells and Canon 28-80mm f/3.5-5.61V USM lens.

Ambient Temperature	Shooting Conditions		
	AE 100%, FA 0%	AE 50%, FA 50%	AE 0%, FA 100%
At 20°C	85	35	17
At –10°C	60	25	12

7-10 Film rewind system: Film rewound as the film advances to the next frame.

7-11 Midroll film rewind: Enabled

(Setting the Command Dial to Rew and pressing the self-timer/rewind button for about 1 sec. will rewind the film.)

7-12 Rewind confirmation: The frame counter and frame become blank and the film cartridge symbol blinks (later stays on).

7-13 Film-loaded confirmation:

(1) Indicated by the film cartridge symbol displayed on the LCD panel.

(2) Confirmable with the film window on the camera back.

7-14 Frame counter: Electronic, numeric counter on LCD panel. (Counts down during film advance or manual rewind and counts up during prewinding.)

7-15 Film pressure plate: Made of polysulfon plastic (with UV coating).

7-16 Film transport noise: At 15 cm from the camera back:

Film advance noise of 56 dB. Film rewind noise of 56 dB.

8. Built-in Flash

8-1 Type: Built-in, retractable TTL autoflash head in the pentaprism. Auto pop-up and serial-controlled.

8-2 Flash button: For pop-up in Creative Zone modes. Retractable manually.

8-3 Flash activation:

1. In a Creative Zone modes, the flash only fires when it is popped up manually.
2. Automatic pop-up and activation in Full Auto, Portrait, Closeup, and Night Scene modes under low-light and backlit conditions.

8-4 Guide No.: 12 (at ISO 100 in meters)

8-5 Recycling time: Approx. 2 sec., ϟ lights when ready.

When the flash is not ready, ϟ is off and the shutter cannot be released.

8-6 Flash coverage: Covers 28mm lenses.

8-7 Sync speed: Max. X-sync speed of 1/90 sec.

(1) In the Program mode: Automatically set to 1/90 sec.

(2) In the shutter-priority AE and manual modes: 1/90 sec. or slower can be set in half steps.

(3) In the aperture-priority AE mode: Automatically set to 1/30 to 1/90 sec. to match the aperture setting.

* During flash use, the camera does not execute evaluative metering.

8-8 Flash aperture: See the table below.

Mode	Manual Av	Auto Av		Remarks
		TTL P	Tv AE	
① Program AE		●		
② Shutter-priority AE			●	
③ Aperture-priority AE	●			
④ Auto DEP		●		Results will be the same as for ①.
⑤ Full Auto		●		
⑥ Portrait		●		
⑦ Landscape		●		
⑧ Closeup		●		PL restricted at max. aperture.
⑨ Sports		●		Results will be the same as for ①.
⑩ Night Scene		●		Restricted to f/2.8 for max. apertue.
⑪ Manual	●			

8-9 Flash exposure system: TTL off-the-film autoflash exposure (3-zone flash metering linked to focusing points)

8-10 Three-zone evaluative flash metering: Flash metering is weighted at the active focusing point.

Active Focusing Point	Flash Metering Weight
Center	The sensitivity of the adjacent zones is reduced by one step.
Right	The sensitivity of the left zone is reduced by one stop.
Left	The sensitivity of the right zone is reduced by one stop.

8-11 Flash output control: Automatic flash output reduction for backlighting and fill-in flash.

8-12 Flash exposure compensation: None.

8-13 Effective range: Shown in meters below.

ISO	EF 28 – 80 MM F/3.5-5.6			
	WIDE: 28mm		TELE: 80mm	
	Negative Film	Reversal Film	Negative Film	Revesal Film
100	1~4.8	1~3.4	1~3	1~2.1
400	1.2~9.6	1.5~6.8	1~6	1.5~4.3

* At distances closer than 1 meter, flash coverage will be partially obstructed by the lens barrel.

8-14 Low-flash warning: None.

8-15 Confirmation indicator: None.

8-16 Flash duration: 1.0 ms or less.

8-17 Color temperature: Equivalent to daylight.

8-18 Optical axis offset: 71.5mm from flash head center to lens optical axis.

8-19 Power source: Provided by the batteries in the camera.

8-20 Red-eye reduction mode:

① Type:	Lamp (Halogen-type krypton lamp, also serves as AF-assist beam emitter)
② Compatible modes:	All picture-taking modes.
③ Activation conditions:	Lights after the shutter button is pressed halfway and focus is achieved with One-Shot AF or manual focus. (In AI Servo AF mode, shutter release-priority takes effect while the lamp lights.)
④ Duration:	Under the conditions specified in 3 above, the lamp lights for as long as the shutter button is pressed halfway. (During self-timer operations, it lights for two sec. before the shutter is released.)
⑤ Lamp-on indicator:	The exposure level scale indicates lamp-on with the displayed dots turning off individually during 1.5 sec.
⑥ Shutter release lock:	None.

8-21 Misc.: Attaching a Speedlite to the camera disables the built-in flash, giving priority to the external Speedlite.

9. Body

9-1 Back cover: Opened with the camera back lock-release lever. Not detachable. Film window provided. No film memo holder.

9-2 Flash contacts: X-sync. Direct contacts on hot shoe. Speedlite locking pin hole provided.

9-3 Autoflash operation: In the Program AE mode:

(1) With Speedlite 380EX

1) During normal use: When the Speedlite is ready, the speed sync (1/90 sec.) is set automatically and the flash aperture is set automatically by the camera's E-TTL program. When the shutter button is pressed completely, the Speedlite fires a fixed-output preflash immediately before the mirror flips up. The AE sensor meters the existing light and the preflash reflected off the subject, the output of the main flash is then calculated. The main flash then fires. If the 380EX's high speed sync (FP flash) switch is on and the light level is too bright for the smallest aperture, the high speed sync mode is set automatically. (When the high speed sync is set, "H" is displayed in the viewfinder.) Automatic fill-in flash is possible.

2) During FE lock: When the 380EX is attached and the flash is ready, the AE lock button functions as an FE lock button. Pressing the AE lock button fires a preflash. The AE sensor (partial metering) then meters the preflash reflected off the subject. The main flash output is then calculated and retained in memory. When the shutter button is pressed halfway or completely, the flash output calculation retained in memory is used to control the flash output.

   If the 380EX's high speed sync (FP flash) switch is on and the light level is too bright for the smallest aperture, the high speed sync mode will be set automatically. (When the high speed sync is set, "H" is displayed in the viewfinder.)

   After the AE lock button is pressed and the flash is ready, a preflash is fired and FE lock is set.

   Insufficient-flash warning provided (ϟ blinks at 2 Hz if the flash output is insufficient by a half or more stops for a proper flash exposure). Automatic fill-in flash is possible.

(2) With the built-in flash and TTL autoflash

When the flash is ready and the speed sync (1/90 sec.) is set, the flash aperture is set automatically by the camera's metering (no evaluative) and TTL program. TTL off-the-film autoflash control with 3-zone flash metering linked to focusing point. Automatic fill-in flash is possible.

(3) With an EZ-series Speedlite and A-TTL autoflash

When the Speedlite is ready and the speed sync (1/90 sec.) is set, the optimum aperture is set automatically by the camera's metering (no evaluative), A-TTL program, and the result of the Speedlite's near-infrared preflash which measures the subject's distance and brightness. TTL off-the-film autoflash control with 3-zone flash metering linked to the focusing points. Automatic fill-in flash is possible.

No insufficient-flash warning provided.

(4) With the ML-3 and TTL auto flash metering

See (2) above.

* For (1) to (4) above, a speed sync of 1/90 sec. or slower (in half steps) can be selected when the camera is set to shutter-priority AE. Also, when the 380EX is attached and the high speed sync switch is on, a speed sync faster than 1/90 sec. can be set. In the aperture-priority AE mode, any aperture can be selected.

(5) Other combinations

1) With a T- or A-series flash unit, manual exposure is required.

* Set the shutter speed manually to 30 to 1/90 sec. or bulb.
* Set the same aperture setting manually on the camera and flash unit.

2) With a non-Canon flash unit

For portable flash units: Set the speed sync to 1/90 sec. or slower.

For studio flash: Set the speed sync to 1/60 sec. or slower. (Check that the flash duration is sufficient.)

9-4 Power source: Two CR123A (or Duracell DL123A) lithium cells (6 V) loaded through the bottom of the camera grip.

9-5 Main switch: Command Dial's L setting turns off camera.

9-6 Battery check: Battery level is displayed by the battery level indicator on the LCD panel during film prewinding, when the main switch is turned on, and each time a picture is taken. Battery level is indicated in one of four levels.

9-7 External display: Large LCD panel and Command Dial provided.

9-8 Tripod socket: CU 1/4 socket provided.

9-9 Remote control: Enabled with Wired Remote Control RS-60E.

* 2.5 mm dia. mini-jack remote control terminal (3-terminal)
* 3-terminal switches such as the Remote Switch 60T3 cannot be connected.

9-10 Interchangeable grip: None. (Grip GR-80TP and Battery Pack BP-8 attachable.)

9-11 Body material: Body and mount: Polycarbonate resin with glass fiber.

9-12 Exterior color: Silver or black.

9-13 Dimensions: 145.7 (L) × 92 (H) × 61.9 (D) mm

9-14 Weight*

Basic Model:	350 g
QD Model:	365 g
QD & Panorama Model:	370 g

* Excluding batteries. (Add 32 g for batteries.)

10. QD

In the panorama model imprinting position shifts automatically for the normal and panorama frames.

The date can be set from '94 1 1 to '19 12 31.

11. Major Accessories

11-1 New accessories: (1) EF 28-80mm f/3.5-5.6 IV U

(2) EF 28-80mm f/3.5-5.6 II DC

11-2 Compatible accessories: Compatible with all EOS system accessories except for remote control accessories.

For details, see "EOS Accessory Compatibility Table."

12. Miscellaneous

12-1 Film transport testing conditions:

(1) Normal testing conditions

① Batteries: Two new CR123A cells (less than 3 months old)

② Lens: EF 28-80mm f/3.5-5.6IV U

③ Exposure mode: Shutter-priority AE (at 1/1000 sec.)

④ Subject brightness: EV 15

⑤ Film: Kodak Tri-X, 36-ex. (fresh roll)

⑥ Film transport conditions

1) 100-percent AE shooting without flash use

The following operations were executed sequentially for each frame in accordance with the test procedure described below: AF search (infinity to near focus to infinity), halfway pressing of shutter button for 5 sec., and shutter release.

2) 100-percent flash use

The following operations were executed sequentially for each frame in accordance with the test procedure described below: AF search (infinity to near focus to infinity), halfway pressing of shutter button for 5 sec., built-in flash pop-up and recharge, and shutter release.

3) 50-percent flash use and 50-percent AE shooting

1) and 2) above were executed alternately.

• At 20°C

The following operations were repeated three times: Film loaded and prewound, 36 frames exposed continuously, film unloaded, and 20 sec. later the Command Dial was switched between P and L (automatic battery check).

• At -10°C

After the camera and film were exposed to a temperature of -10°C for 4 hours, the following operations were repeated three times at 3-min. intervals: Film loaded and prewound, waited 20 sec., 5-frame continuous shooting at 20-sec. intervals until 36 frames exposed (the last frame exposed singly), film unloaded, and 20 sec. later the Command Dial was switched between P and L (automatic battery check).

12-2 Built-in flash range:

The maximum flash range depends on the lens' maximum aperture. Item 8-12 showed the flash range when an EF 28-80mm f/3.5-5.6IV U lens was used. For other lenses, the maximum flash range (in meters) is calculated with the following formulas:

① For negative film

The following formula takes the film's exposure latitude into account. It tolerates underexposure by up to one stop.

For ISO 100 film: Divide 17 by the maximum aperture's f-number.

For ISO 400 film: Divide 34 by the maximum aperture's f-number.

② For reversal film

For all film speeds: Divide the Guide No. (m) by the maximum aperture's f-number.

3. INDICATORS

3.1 LCD PANEL

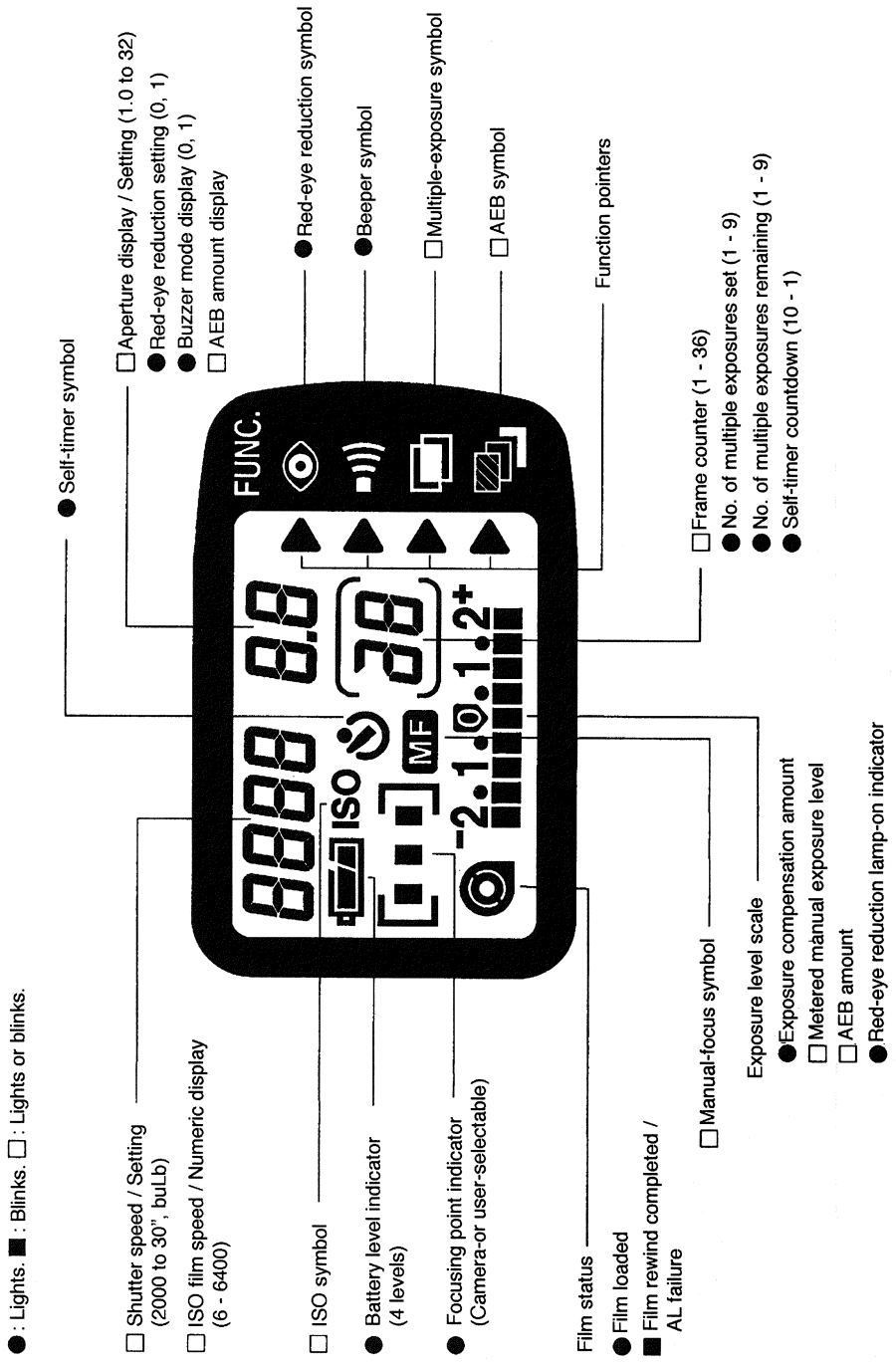


Fig. 1-1 LCD Panel

3.2 VIEWFINDER INDICATORS

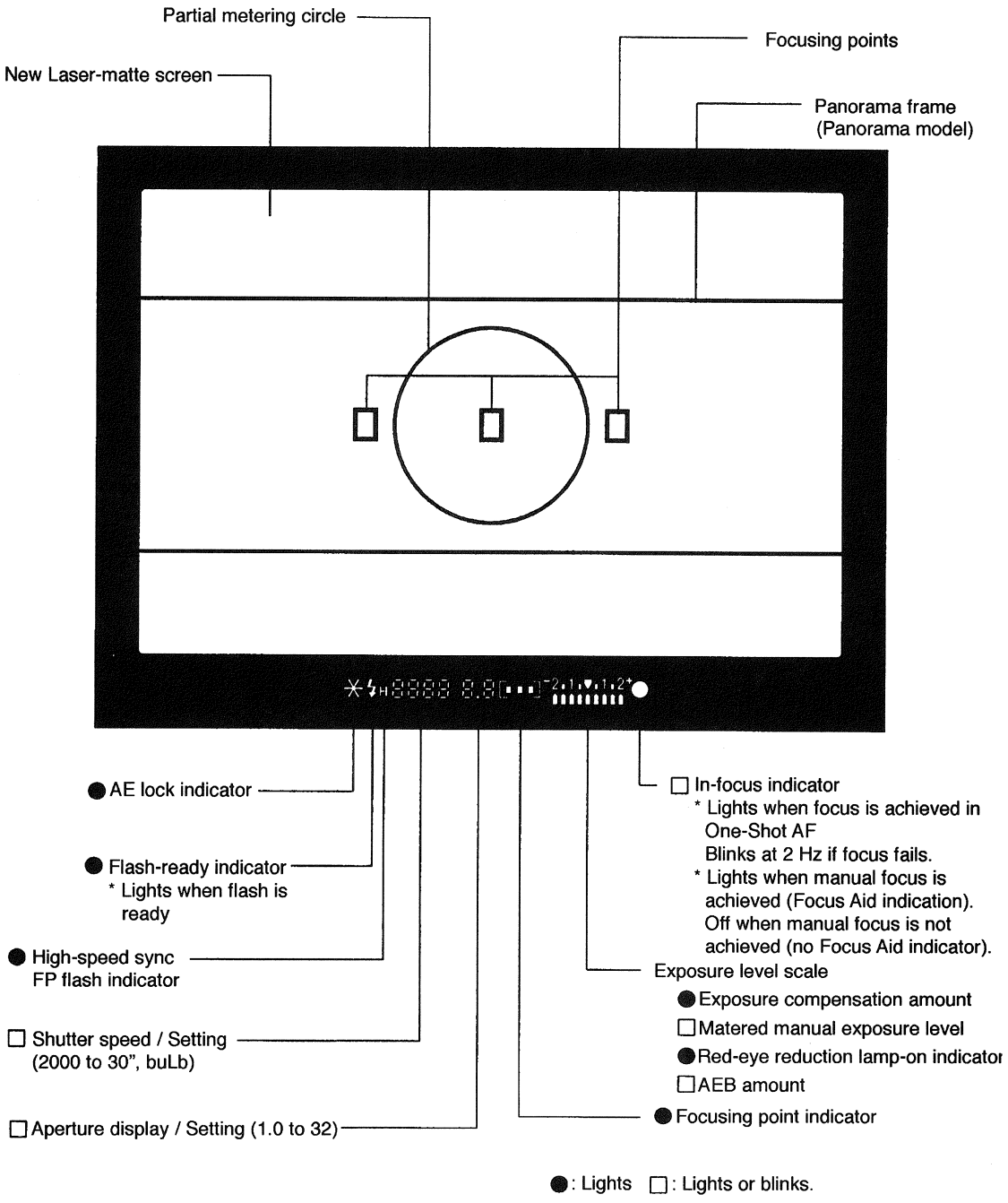


Fig. 1-2 Viewfinder Indicators

Table 1-1: With EF 50mm f/1.8 lens, ISO 100. *** Displays within a dashed-line box indicate 2 Hz blinking.**

Shooting Condition / Mode		Low-Light: Underexposure Warning	Correct Exposure Display (ISO 100, EV 12)	Bright Light: Overexposure Warning
AUTO	Tv AE	TVset 125, AVauto [1.8] +2	TVset 125, AVauto 5.6	TVset 125, AVauto [22] +6
AUTO	Av AE	TVset [30"], AVauto 5.6 +3	TVset 125, AVauto 5.6	TVset [4000], AVauto 5.6 +7
AUTO	Program AE Landscape Sports	TVset [30"], AVauto [1.8] +1	TVset 125, AVauto 5.6	TVset [4000], AVauto [22] +5

Table 1-2: With EF 50mm f/1.8 lens, ISO 100. *** Displays within a dashed-line box indicate 2 Hz blinking.**

Shooting Condition / Mode	Low-Light: Underexposure Warning	Low-Light: DEP Warning	Correct Exposure Display	Bright Light: Overexposure Warning
DEPTH	TVset [30"], AVauto [1.8] +1	TVset 30", AVauto 5.6 +9	TVset 125, AVauto 5.6	TVauto [4000], AVauto [22] +5

Table 1-3: Metered Manual with EF 50mm f/1.8 lens, ISO 100.

Shooting Condition / Mode	Low-Light: Underexposure Warning	Correct Exposure Display	Bright Light: Overexposure Warning
MANUAL	TVset 125, AVauto 8 +4 -2 1 ♥ 1 2+	TVset 125, AVauto 5.6 -2 1 ♥ 1 2+	TVset 125, AVauto 4.0 +8 -2 1 ♥ 1 2+

Table 1-4 Countermeasures for Exposure Warnings in Each Photographic Mode

[1] Conditions: Basic body used with no flash

Warning		Warning Display		Countermeasures
		TV Display	AV Display	
1. Underexposure warning	(1)	30''	AVO	#-1 (1) Use flash or artificial lighting. (2) Use a fast film. (3) Give up.
	(2)	TVset	AVO	#-2 (1) Set a slower shutter speed until the aperture value stops blinking.
	(3)	30''	AVset	#-3 (1) Open the aperture until the shutter speed display stops blinking.
	(4)	TVset	AVset	#-4 (1) Open the aperture or (2) set a slower shutter speed until the indicator matches with 0 on the exposure level scale $^{-2,1,\blacktriangledown,1,2+}$.
2. Overexposure warning	(1)	4000	AVmin	#-5 (1) Use a neutral-density filter. (2) Use a slow film. (3) Give up.
	(2)	TVset	AVmin	#-6 (1) Set a faster shutter speed until the aperture value display stops blinking.
	(3)	TVset	AVset	#-7 (1) Close the aperture until the shutter speed display stops blinking.
	(4)	4000	AVset	#-8 (1) Open the aperture or (2) set a slower shutter speed until the indicator matches with 0 on the exposure level scale $^{-2,1,\blacktriangledown,1,2+}$.
3. Depth-of-field warning		30''	AVauto	#-9 (1) If the desired depth is not obtained, use a fast film. (2) Give up.

[2] Conditions: EOS828 used with Speedlite 540EZ or 430EZ

4. Max. sync speed warning	125	AVset	#-7 (1) Set the aperture value to minimum until 125 stops blinking.

[3] Conditions: EOS828 used with Speedlite F072 for FE lock operation

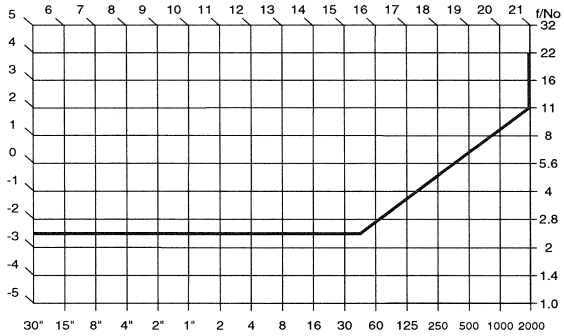
5. Insufficient flash exposure warning	ϟ	AVset	#-10 (1) Open the aperture or (2) set a slower shutter speed until ϟ stops blinking.

Note: 1. "AVO" indicates the lens' maximum aperture, and "AVmin" indicates the lens' minimum aperture.
Note: 2. "TVset" and "AVset" indicate the shutter speed and aperture value set by the user, respectively.
Note: 3. "TVauto" and "AVauto" indicate the shutter speed and aperture value calculated electronically and set automatically by the camera, respectively.

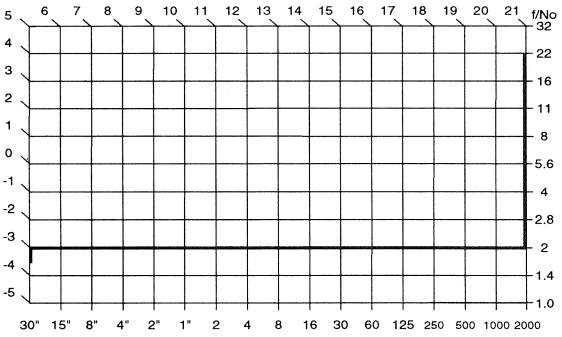
5. PROGRAM DIAGRAMS

5.1 PROGRAM AE MODES (with EF 50mm f/1.8 lens)

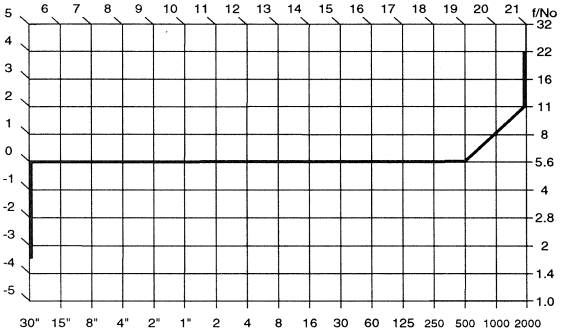
1. Standard program AE



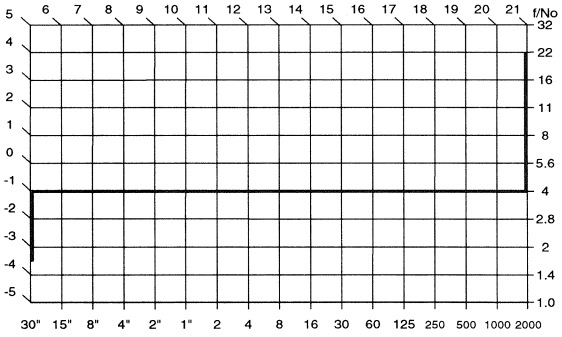
2. Portrait



3. Landscape



4. Closeup



5. Sports

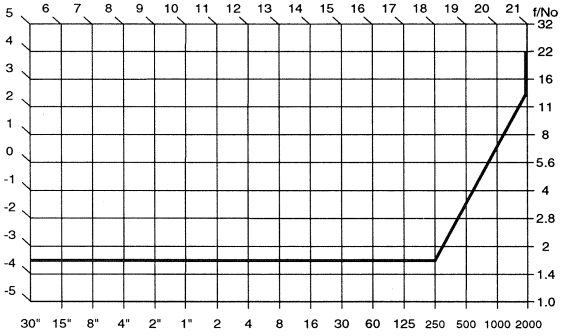
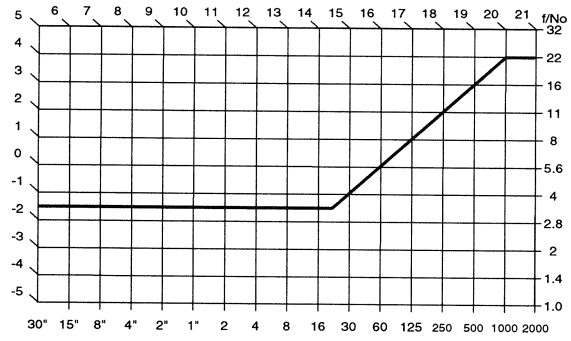


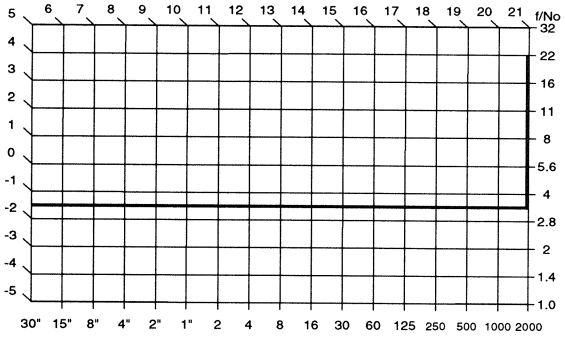
Fig. 1-3 AE Program Mode (50mm f/1.8)

5.2 PROGRAM AE MODES (with EF 28-80mm f/3.5-5.6IV USM lens set to 28mm f/3.5)

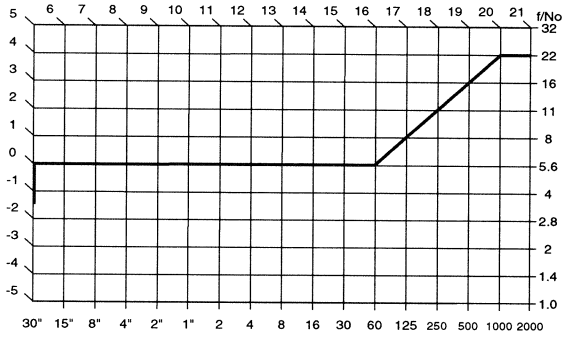
1. Standard program AE



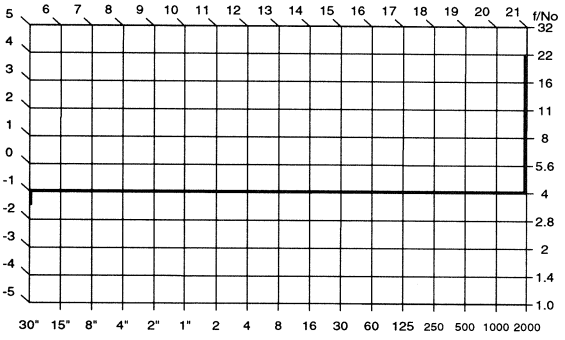
2. Portrait



3. Landscape



4. Closeup



5. Sports

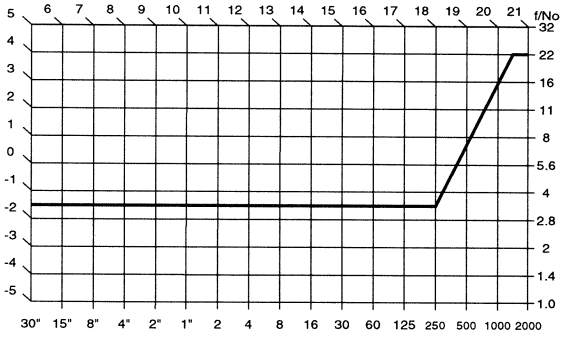
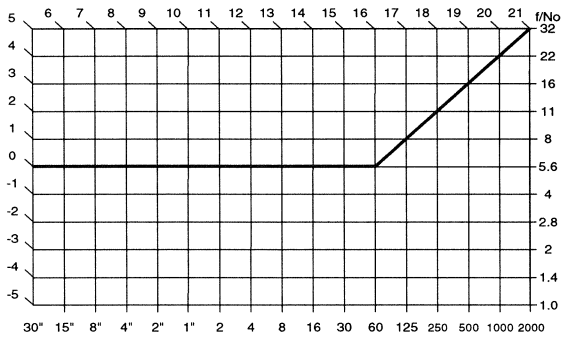


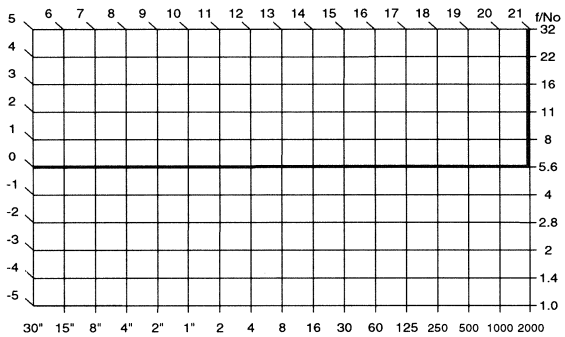
Fig. 1-4 EF 28-80mm f/3.5~5.6 IV USM

5.3 PROGRAM AE MODES (with EF 28-80mm f/3.5-5.6IV USM lens set to 80mm f/5.6)

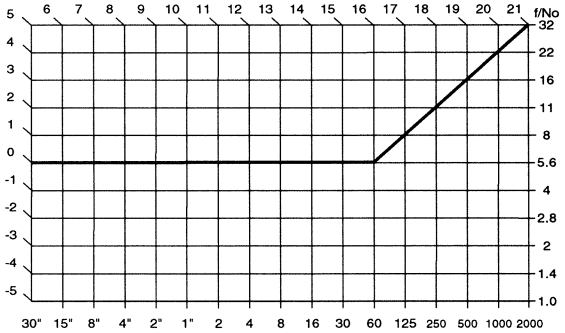
1. Standard program AE



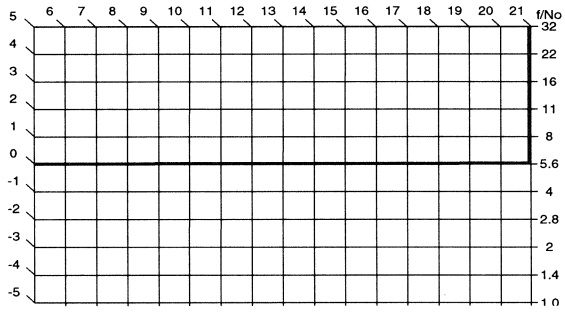
2. Portrait



3. Landscape



4. Closeup



5. Sports

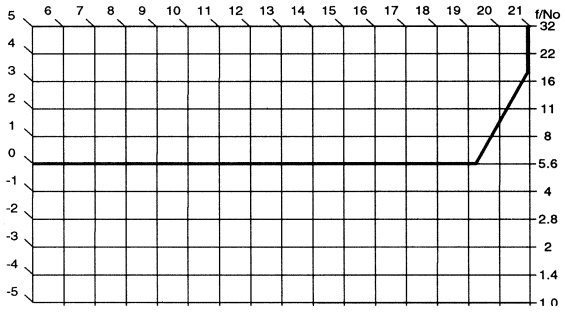


Fig. 1-5 EF 28-80mm f/3.5-5.6 IVI USM

5.4 NIGHT SCENE PROGRAM

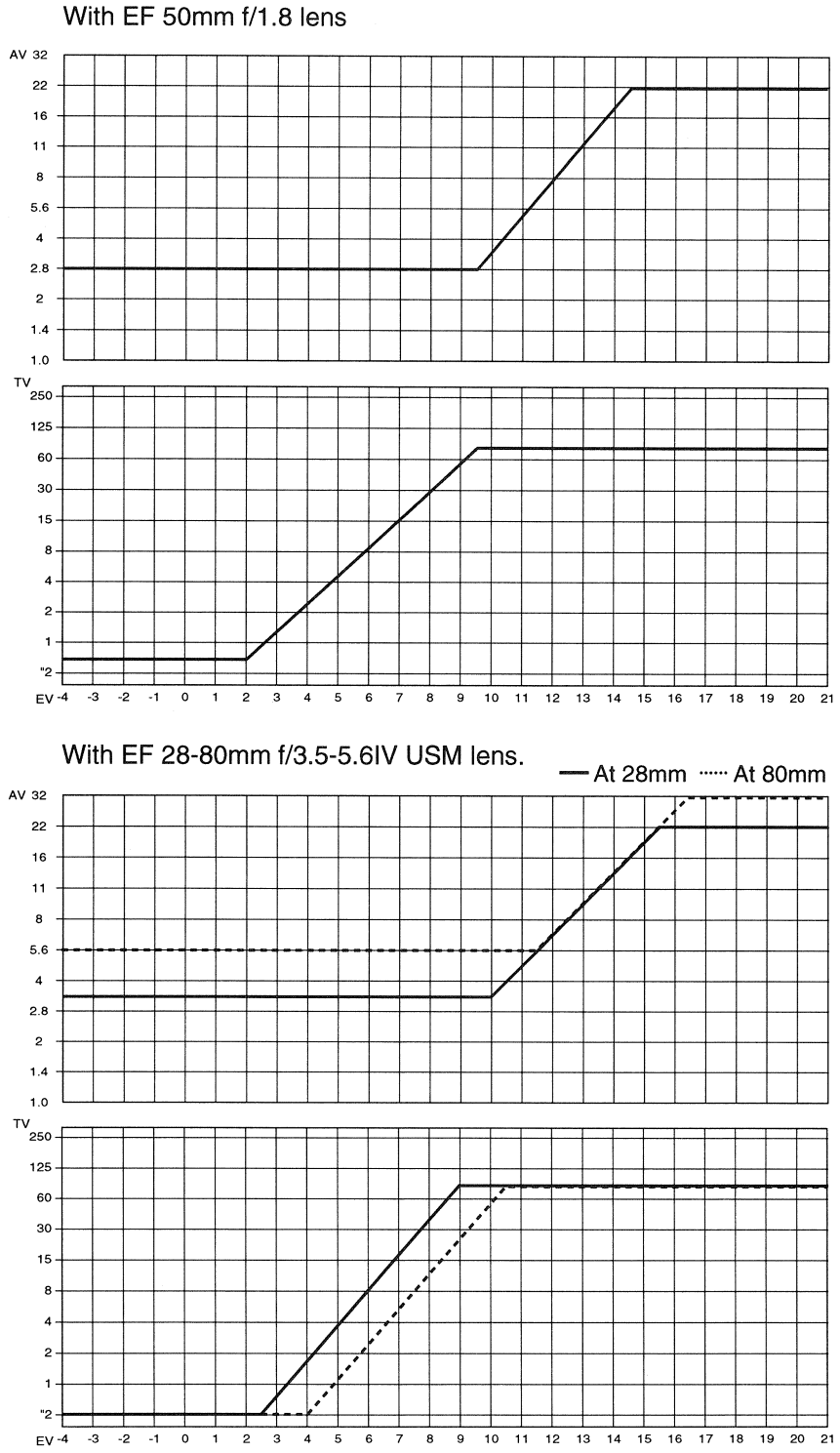


Fig. 1-6 Night Scene Program

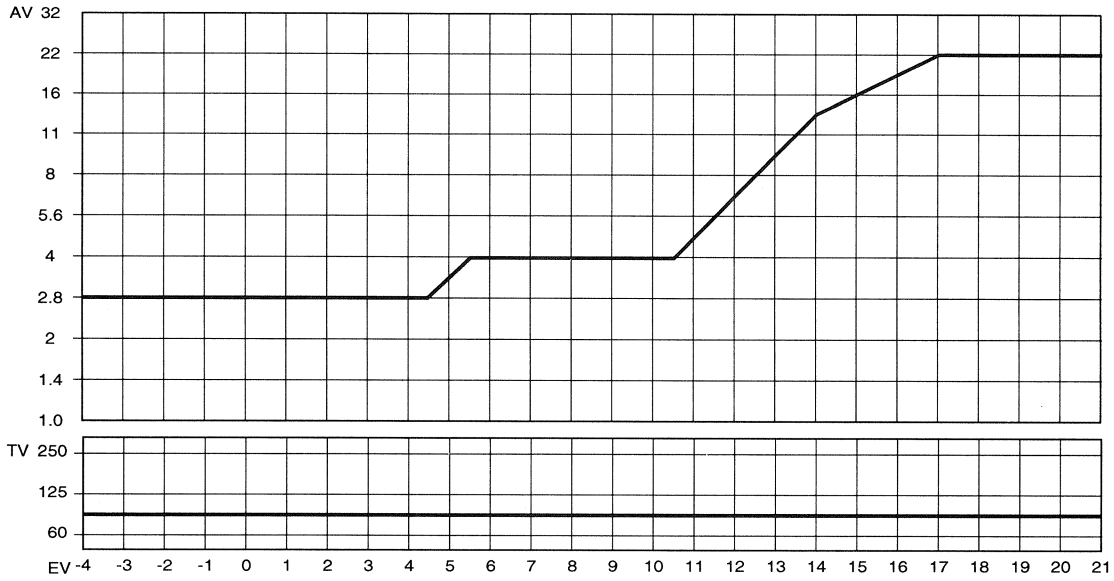
5.5 PROGRAM DIAGRAMS USING FLASH

With EF 50mm f/1.8 lens, ISO 100

* For low-light conditions, the program line is restricted to the lens' maximum aperture (max. f/2.8) is used. For bright-light conditions, the program line is restricted to the minimum aperture.

Fig. 1-7 Program lines of E-TTL program autoflash mode

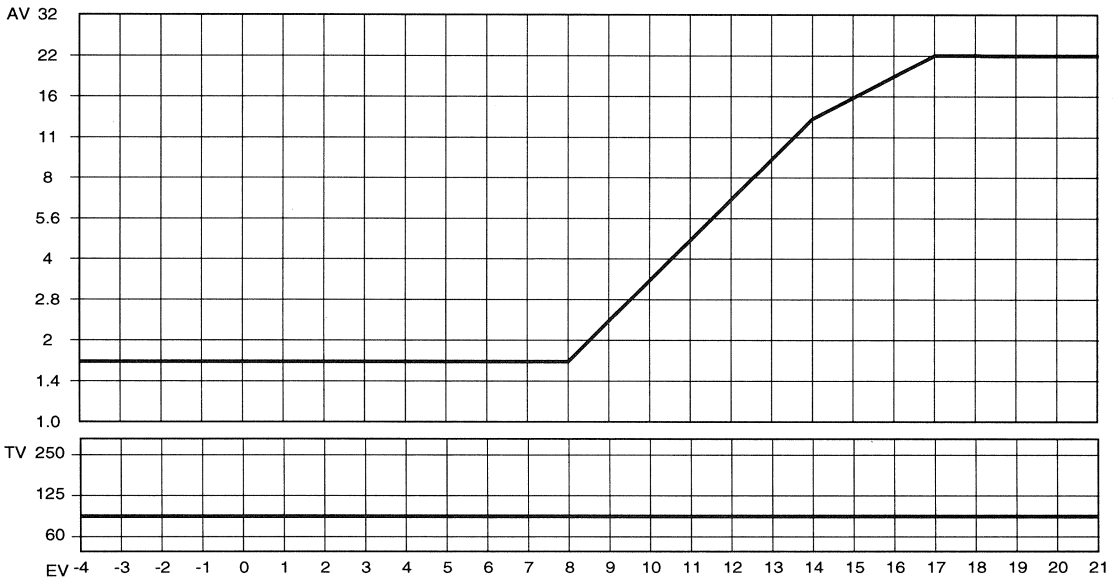
With EF 50mm f/1.8 lens, ISO 100



*For low-light conditions, the program line is restricted to the lens' maximum aperture (max. f/2.8) is used. For bright-light conditions, the program line is restricted to the minimum aperture.

Fig. 1-8 Program line of TTL program autoflash mode

With EF 50mm f/1.8 lens, ISO 100



*For low-light conditions, the program line is restricted to the lens' maximum aperture is used. For bright-light conditions, the program line is restricted to the minimum aperture.

Fig. 1-9 Program lines of A-TTL program autoflash mode

6. EOS ACCESSORY COMPATIBILITY TABLE

◎, ●, × Symbols explained on the next page.

1. Single focal length lenses

No	Item	Status	Remarks
1	EF 14mm f/2.8 L USM	◎	
2	EF 15mm f/2.8 FE	◎	
3	EF 20mm f/2.8 USM	◎	
4	EF 24mm f/2.8	◎	
5	EF 28mm f/1.8 USM	◎	
6	EF 28mm f/2.8	◎	
7	EF 35mm f/2	◎	
8	EF 50mm f/1.0 L USM	◎	
9	EF 50mm f/1.4 USM	◎	
10	EF 50mm f/1.8 II	◎	
11	EF 85mm f/1.2 L USM	◎	
12	EF 85mm f/1.8 USM	◎	
13	EF 100mm f/2 USM	◎	
14	EF 135mm f/2 L USM	◎	
15	EF 135mm f/2.8 SF	◎	
16	EF 180mm f/3.5 L USM MACRO	◎	
17	EF 200mm f/1.8 L II USM	◎	
18	EF 200mm f/2.8 L II USM	◎	
19	EF 300mm f/2.8 L II USM	◎	
20	EF 300mm f/4.0 L USM	◎	
21	EF 400mm f/2.8 L II USM	◎	
22	EF 400mm f/5.6 L USM	◎	
23	EF 500mm f/4.5 L II USM	◎	
24	EF 600mm f/4.0 L II USM	◎	
25	EF 1200mm f/5.6 L USM	◎	
26	EF 50mm f/2.5 MACRO	◎	
27	EF 100mm f/2.8 MACRO	◎	
28	TS-EF 24mm f/3.5 L	◎	
29	TS-EF 45mm f/2.8	◎	
30	TS-EF 90mm f/2.8	◎	
31	Extender EF 2X	◎	
32	Extender EF 1.4X	◎	
33	Extension Tube EF12	◎	
34	Extension Tube EF25	◎	
35	Life-size Converter EF	◎	
36	Lens Mount Converter FD-EOS	×	
37	Macro Lens Mount Converter FD-EOS	×	
38	Close-up Lens 250D	◎	
39	Close-up Lens 500D	◎	
40	Close-up Lens 500	◎	

2. Zoom lenses

No	Item	Status	Remarks
41	EF 17~35mm f/2.8 L USM	◎	
42	EF 20~35mm f/2.8 L	◎	
43	EF 20~35mm f/3.5~4.5 USM	◎	
44	EF 24~85mm f/3.5~4.5 USM	◎	
45	EF 28~70mm f/2.8 L USM	◎	
46	EF 28~80mm f/2.8-4.0 L USM	◎	
47	EF 28~80mm f/3.5-5.6 DC	◎	
48	EF 28~80mm f/3.5-5.6 P USM	◎	
49	EF 28~80mm f/3.5-5.6 II USM	◎	
50	EF 28~105mm f/3.5-4.5 USM	◎	
51	EF 35~80mm f/4-5.6 USM	◎	
52	EF 35~80mm f/4-5.6 III	◎	
53	EF 35~105mm f/4.5-5.6 USM	◎	
54	EF 35~135mm f/4-5.6 USM	◎	
55	EF 35~350mm f/3.5-5.6 L USM	◎	
56	EF 38~76mm f/4.5-5.6	◎	
57	EF 70~200mm f/2.8 L USM	◎	
58	EF 70~210mm f/3.5-4.5 USM	◎	
59	EF 75~300mm f/4-5.6 USM	◎	
60	EF 75~300mm f/4-5.6 II USM	◎	
61	IS 75~300mm f/4-5.6 USM	◎	
62	EF 80~200mm f/2.8 L	◎	
63	EF80~200mm f/4.5-5.6 USM	◎	
64	EF100~300mm f/4-5.6 USM	◎	
65	EF100~300mm f/5.6 L	◎	

3. Zoom lenses

No	Item	Status	Remarks
1	220EX	◎	
2	380EX	◎	
3	540EZ	◎	
4	480EG system	◎	
5	430EZ	◎	
6	420EZ	◎	
7	300EZ	◎	
8	200E	◎	
9	160E	◎	
10	ML-3 set	◎	
11	Multi-flash system	◎	

4. EOS-dedicated cases

No	Item	Status	Remarks
1	EOS IX case	×	
2	EOS 650 & EOS 620 cases	×	
3	EOS-1 cases	×	
4	EOS 5/A2E cases	×	
5	EOS 100/ELAN cases	×	
6	EOS 500/Rebel X cases	◎	
7	EOS-1N case	×	
8	EOS 50 E/ELAN II E case	×	

5. Remote control

No	Item	Status	Remarks
1	Remote Switch 60T3	×	
2	Remote Switch RS-60E3	◎	
3	Remote Controller RC-1	×	
4	Wireless Controller LC-3	×	

6. Interchangeable grips and motor drives

No	Item	Status	Remarks
1	GR10	×	
2	GR20	×	
3	GR50 (large grip for EOS 750/850)	×	
4	GR60 (large grip for EOS 10S)	×	
5	GR70 (large grip for EOS Rebel)	×	
6	VG10 (EOS A2E vertical grip)	×	
7	Battery Pack BP-5 (EOS 5/A2E, EOS 50 E/ELAN II E)	×	
8	GR-80TP (EOS 500/Rebel X,EOS 888, EOS 500 N/Rebel G)	◎	
9	Power Drive Booster E1	×	
10	BP-E1 (EOS 1, EOS-1N)	×	
11	BP-8 (EOS 500/Rebel X, 888, EOS 500 N/Rebel G)	◎	
12	BP-50 (EOS 50 E/ELAN II E)	×	

◎: Compatible.

●: Compatible with restrictions

×: Not compatible

*1:Unattachable to the new EOS Kiss. (Doing so will damage the internal panorama frame blades.)

7. Viewfinder accessories

No	Item	Status	Remarks
1	Eyecup E (EOS 650, 620)	×	
2	Eyecup Eb (EOS 750, 850)	◎	
3	Eyecup Ec (EOS-1)	×	
4	Eyecup Ec-II (EOS-1N)	×	
5	Eyecup Ed (EOS 5/A2E)	×	
6	Eyecup Ed-E (EOS A2, A2E)	×	
7	Dioptric adjustment lens E (10 types)	◎	
8	Dioptric adjustment lens Ed (EOS 5/A2E, 50 E/ELAN II E)	×	
9	Dioptric adjustment lens Ee	×	
10	Rubber Frame Eb	◎	
11	Rubber Frame Ec (EOS-1)	×	
12	Rubber Frame Ed (EOS A2, A2E)	×	
13	Focusing Screen E (7 types)	×	
14	Focusing Screen Ec (9 types)	×	
15	Focusing Screen Ec-CII	×	
16	Focusing Screen Ed (6 types)	×	
17	Magnifier S	◎	
18	Angle Finder B	◎	
19	Angle Finder Adapter Ed (EOS 5/A2E, 50 E/ELAN II E)	×	
20	Angle Finder Adapter EdII	×	
21	Eyepiece Extender EP-EX15	◎	

8. Databacks

No	Item	Status	Remarks
1	Quartz Date Back E	×	
2	Technical Back E	×	
3	Keyboard Unit TB	×	
4	Interface Unit TB	×	
5	Command Back E1	×	

9. Filters

No	Item	Status	Remarks
1	Drop-in Circular Polarizing Filter PL-C48mm	◎	
2	Circular Polarizing Filter PL-C52mm	◎	
3	Circular Polarizing Filter PL-C58mm	◎	
4	Circular Polarizing Filter PL-C72mm	◎	
5	Circular Polarizing Filter PL-C77mm	◎	
6	Drop-in Gelatin Filter Holder II	◎	
7	Gelatin Filter Holders E52, 58, 72, 77mm	◎	

10. Misc.

No	Item	Status	Remarks
1	Panorama Adapter Panel-1000	●	*1

7. NOMENCLATURE AND FUNCTIONS

7.1 NOMENCLATURE

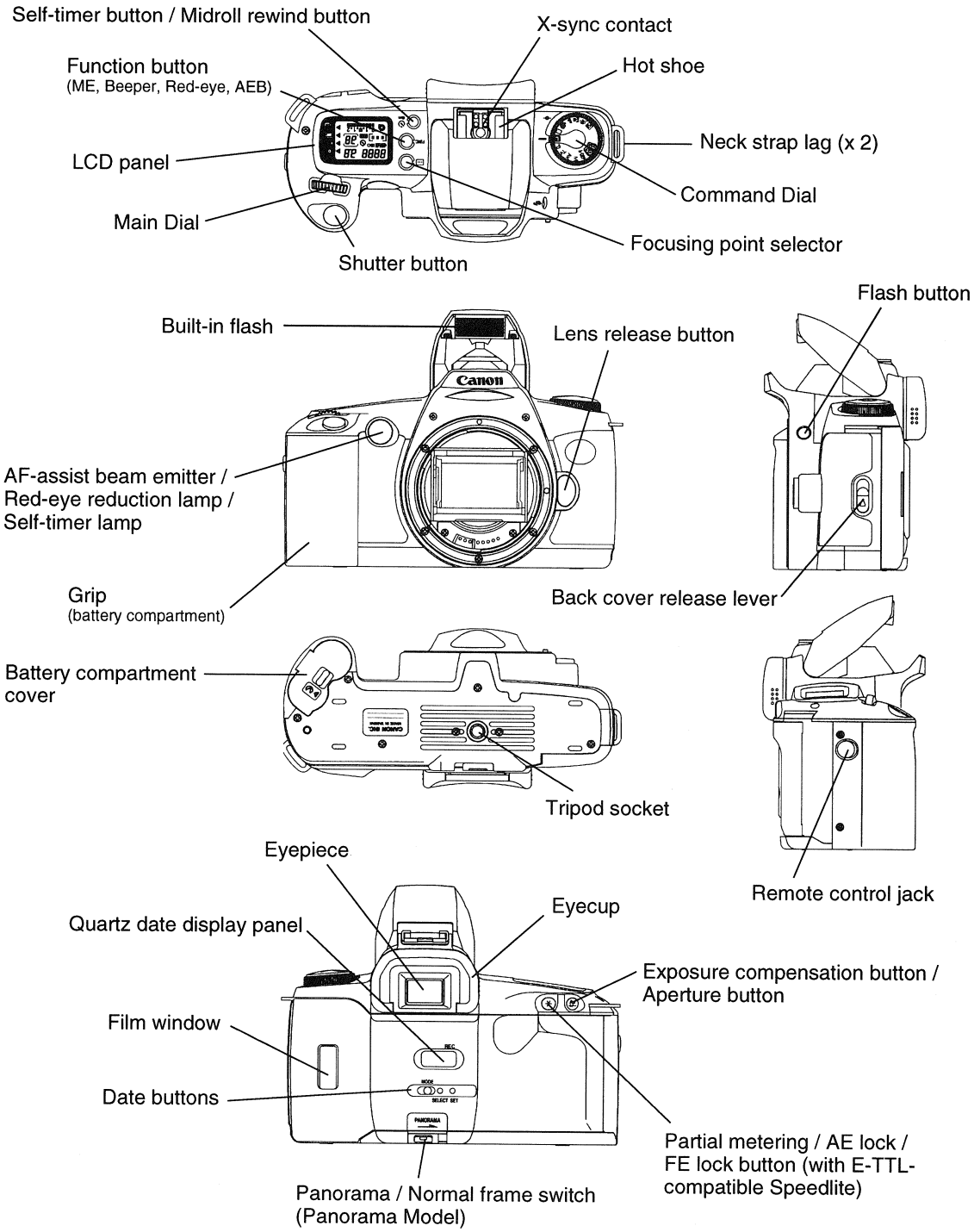


Fig. 1-10 Nomenclature

7.2 EXTERNAL DIMENSIONS

Major exterior dimensions of the EOS Kiss (panorama model)

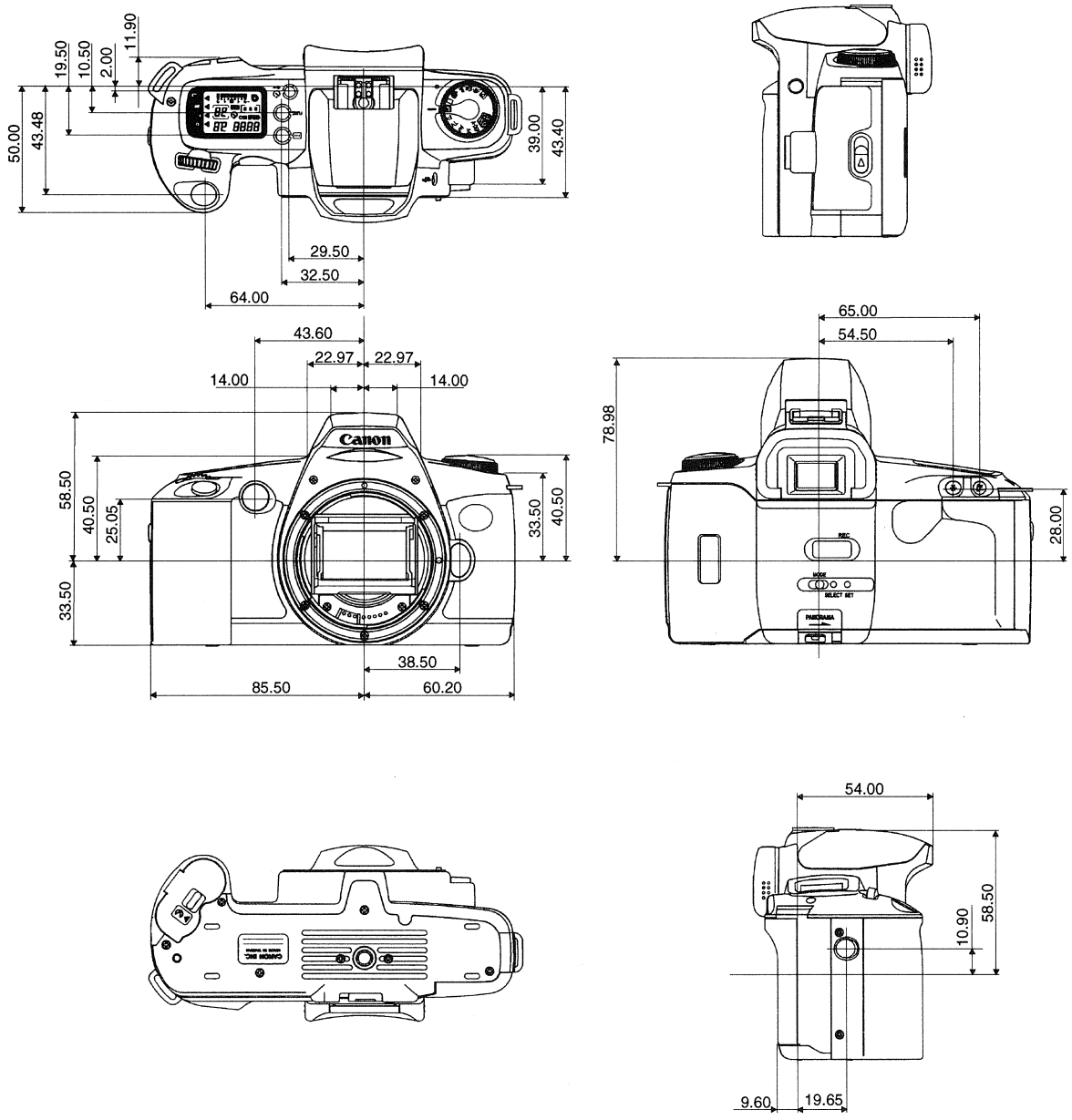


Fig. 1-11 Quartz data back and panorama mode version.

8. OPERATION CAUTIONS

■: Items to be mentioned in the Instructions.

✚: Indicates countermeasures.

Cautions	Supplementary Remarks
■ 1. If the camera back is opened and the film is removed in midroll without first rewinding the film, film prewind will not be executed when the next roll of film is loaded. Pressing the shutter button completely will rewind the new roll of film instead.	As per the design. ✚ Before loading a new roll of film, close the camera back and press the shutter button completely. This will return the camera to normal operation.
■ 2. Depending on how far the film leader is positioned, the number of exposures that can be taken can exceed the roll's set number.	As per the design.
3. When the built-in flash is used, any lens hood must be detached.	An attached lens hood will obstruct part of the flash coverage. ✚ Use an external flash unit.
4. The built-in flash's maximum coverage suits 28mm lenses. Therefore, if the lens is wider than 28mm, there will be light fall-off at the edges.	✚ When using the built-in flash, do not use a lens wider than 28mm. ✚ To obtain wider flash coverage, use Speedlite 380EX or 220EX.
5. While the built-in flash is being used or recharged, the electronic manual focusing ring on USM lenses cannot be used.	The camera design does not allow power to be supplied to the built-in flash and lens at the same time.
6. With the focusing point camera-selected and the AI Servo AF and continuous shooting modes set, the shooting speed may become irregular when the subject moves to another focusing point.	Focusing is impossible during the instant when the subject moves from one focusing point to another. The time required for refocusing causes the irregular shooting speed. This also occurs with the EOS 50 E/ELAN II E.
■ 7. In the P, Tv, Av, or DEP mode, if AEB has been set and exposure compensation is set to an amount beyond the exposure level scale, the AEB and exposure compensation will still be valid. However, the exposure level scale will look as shown on the right.	 Indicates AEB amount of ±1 stop.  Indicates exposure compensation amount of -1 stop.  Indicates exposure compensation amount of -1.5 stop.  Indicates exposure compensation amount of -2 stops.
■ 8. When AEB is set in the M mode and the shutter speed or aperture set by the user results in underexposure by more than 2 stops, the AEB amount will still be valid. However, the indication will be as shown on the right.	 Indicates a middle exposure compensation amount of -2 stops relative to the correct exposure.  Indicates that the middle exposure compensation amount exceeds the maximum underexposure amount.

■ 9. Using an external Speedlite with a Programmed Image Control mode (except Night Scene) is not recommended since it will not obtain the desired effect.	This is because the external Speedlite will fire each time and the exposure will be controlled by the E-TTL, A-TTL, or TTL program instead.
■10. Panorama Adapter PA-1000 must not be attached to the EOS Kiss, which has panorama built in.	Doing so will obstruct the internal panorama blades. It can damage the blades.

Part 2

Technical Information

1. MECHANISM EXPLANATION

This auto-focus SLR is a successor model of the EOS REBEL X/500. In response to user requests, it has been made easier to use, and features enhanced functions. Accordingly, its mechanisms and functions are almost the same as those of the EOS REBEL X/500. This part of this manual mainly describes the differences between this model and the EOS REBEL X/500.

1.1 Autofocus System

This camera uses the same BASIS (cross-type sensor at center flanked by vertical line sensors) found on the EOS REBEL X/500 and EOS 50/ELAN II. On the EOS REBEL X/500, an autofocus sensor was used for wide autofocus, which made the camera popular as focus was consistent. Some users, however, wanted to check to see if two or more points were in focus. In addition to its three focusing points being selected manually or automatically as on the EOS 50/ELAN II, selected focusing points can now be checked on the external LCD and internal viewfinder LCD. Focusing points are displayed on the external LCD at all times regardless of whether SW1 is ON or OFF, and when the camera is in the standby mode.

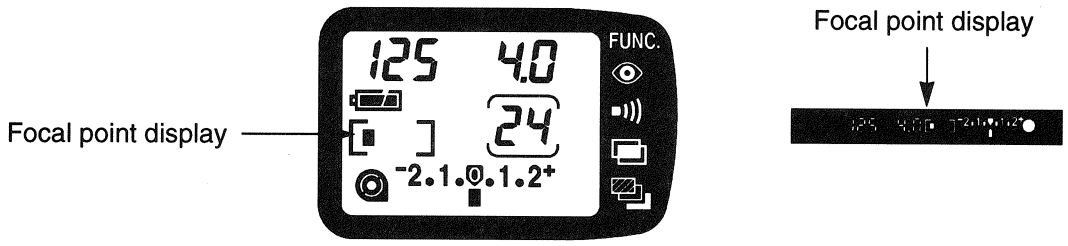


Fig. 2-1 Selective Autofocus Sensor Display

1.2 Viewfinder

• Bright pentaprism mirror

The prism of the pentaprism mirror first incorporated in the EOS REBEL G/500 N has been coated with higher reflectivity aluminum-deposited film than on the EOS REBEL X/500 to ensure brightness identical to that of a pentaprism.
In terms of optical performance, it features a total reflectivity of 83%, the same value as a silver-deposited pentaprisms. (EOS REBEL X/500 features 75%)

1.3 Night Scene Mode

All flash operations are controlled as follows when using the built-in flash, Speedlite 220EX, 380 EX and EZ series flashes and the ML-3 in combination.

- AV auto: Control is automatically set according the night view mode program chart matched to brightness.
- TV auto: Control is automatically set within the range 1/90 sec. to 2 sec. matched to brightness.

* When standard program and flash photography are combined, the synchronized shutter speed is controlled to 1/90 sec. However, in this mode, the photographic mode is slow sync.
* When the built-in flash is down and the external flash is not completely charged, control is the same as in the Full Auto mode.

1.4 Metered Manual in all Models

The display on the EOS REBEL X, REBEL XS and REBEL XSQD, the North American versions, was a fixed-point manual display. On this camera, however, the display has been changed to metered manual. This allows easy-to-use manual photography in North America.

1.5 Partial Metering/AE Lock

Partial metering/AE lock on the EOS REBEL X/500 involved the complex operation of turning the partial metering/AE lock button while the metering timer was working (while metering was still continuing with SW1 OFF after metering by turning SW1 ON). On this camera, however, the partial metering/AE lock button is accepted at any time. It is also equipped with a 4-second AE lock timer to greatly increase operability. Also, during manual photography, partial metering values are retained in memory when the partial metering/AE lock button is ON just like the EOS REBEL X/500, and are displayed by the exposure level mark.

1.6 Built-in Flash Control

The control system used for built-in flash control is the same as that used in EOS REBEL X/500. This has been changed to the series control system to save energy.

1.7 Red-eye Reduction System

On the EOS REBEL X/500, the red-eye reduction lamp operated for about 1.25 sec. after SW2 was turned ON. During this time shutter release was locked. For this reason, users have complained that they have lost opportunities to take good shots and that they are not comfortable with not being to release the shutter.
On this camera, the red-eye reduction lamp operates while SW1 is ON after SW1 turns ON, and metering and ranging are completed, and the shutter is instantaneously released when SW2 is turned ON. This eliminates the problem of not being able to release the shutter after pressing SW2. Switching ON/OFF is possible in all the photography modes.

1.8 Selection of In-focus Beeper

On the EOS REBEL X/500, in-focus tone could be selected only in the Creative Zone. However, on this camera the in-focus tone can be selected in Full Auto and PIC modes also

1.9 E-TTL Flash System

An E-TTL Flash System the same as the EOS 50/ELAN II is incorporated. Besides normal flash photography and automatic high-speed sync, it also features FE (Flash Exposure) lock.
The A-TTL auto flash system and TTL Flash System function when an EOS flash not supporting E-TTL Flash System is mounted.
This E-TTL Flash System is an improved version of the A-TTL auto flash exposure system. It features flash output control and automatic exposure control (ambient light exposure) to balance the flash and ambient light in daylight or at night.

The features of this E-TTL flash system are as follows:

1. With the new evaluative flash metering system linked to focusing points, the camera sets the flash exposure automatically (even when the framing is changed) for a variety of situations such as back-lit subjects, fill-in flash, and indoor photography.

   (* For indoor flash photography in the Full Auto or Program mode, 1/60 sec. is the slowest synchronizing shutter speed that can be set. Therefore, as with the current flash exposure system, the background behind the subject might be underexposed.)

2. High-speed sync (called FP flash) enables flash to be used with fast shutter speeds. It allows you to open up the aperture for fill-in flash to obtain blurred backgrounds for portraits. (Creative Zone)

3. For flash photography indoors or under low-light conditions, a slow shutter speed will be set automatically to obtain a balanced exposure between the subject and background. (Aperture-priority AE)

4. With FE (Flash Exposure) lock, proper exposure even for spotlighted subjects is possible.

The E-TTL Flash System operates as follows: The Speedlite 220 EX or 380 EX fires a preflash. The camera's 6-zone metering sensor reads the ambient light immediately before the preflash is fired. It also reads the light reflected from the subject produced by the preflash. The difference in the lighting of the readings is used to calculate the flash output which is retained in memory. Table 2-1 compares the E-TTL Flash System with existing flash control systems.

Table 2-1 Comparison of Flash Control Systems

Item		E-TTL	A-TTL	TTL (built-in flush)
SW-1 ON	Near infrared preflash	×	○	×
	TV and AV	Set by brightness information from the metering sensor.	Set by brightness information from the metering sensor and the subject distance information from the near infrared preflash.	Set according to the brightness information from the metering sensor.
SW-2 ON	Preflash	○	×	×
	Flash output	Set and held by the ambient light and preflash readings. Memorizing of the main flash output referring to the metering value during flash.	—	
	Start of front curtain, X-sync ON	The main flash is fired according to the calculated flash output that was retained.	Main flash is fired.	
	TTL-OTF metering	—	Flash sensor is used.	
	Flash termination	—	Flash stopped when flash exposure is proper.	

* Fast Shutter Sync. (FP flash)	○	×	×
* TTL flash exposure sensor	×	○	○

The E-TTL Flash System's major features backing the above points are as follows:

1. Improved AIM system:
   Unlike TTL off-the-film metering, the 6-zone metering sensor is fully utilized and linked to the focusing points. This enables more intricate flash output control for the subject.
2. Flash metering sensor unnecessary:
   Since the TTL evaluative flash metering system does not use off-the-film metering, it is not affected by differences in surface reflectance of different films. Flash metering is therefore more precise.
3. Better control:
   Since the flash output can be precalculated and retained, the proper flash exposure can always be obtained regardless of the camera-to-subject distance.
4. Fast shutter sync speed (FP flash):
   Since the flash output can be precalculated and retained, a normal flash duration is set for a speed sync of 1/125 sec. (X-sync) or slower. If the shutter speed is faster than the X-speed sync, the flash mode switches automatically to a high speed sync (FP flash). This enables the flash to synchronize automatically with all shutter speeds.
5. FE lock:
   Like the AE lock used with partial metering., the FE (Flash Exposure) lock feature locks the flash exposure reading obtained by the preflash reflecting off the subject. It enables sophisticated flash techniques.

Flash control other than E-TTL evaluate flash metering system:

- With the built-in flash:
  Off-the-film metering with 3-zone TTL auto flash control linked to the focusing points
- With an EZ-series Speedlite (540EZ, 430EZ, etc.):
  Off-the-film metering with 3-zone A-TTL auto flash control linked to the focusing points. The same effects are obtained as with the EOS5/A2 and other cameras having multiple focusing points.
- With the ML-3 and other multiple flash unit systems:
  As with the built-in flash, 3-zone TTL auto flash control linked to the focusing points is used.

1) Basic Operation of E-TTL Autoflash Exposure System

1. When the shutter button is pressed halfway:
   (1)-1 The EOS camera determines the flash aperture and shutter speed.
   (1)-2 The ambient light distribution is metered by the 6-zone metering sensor which is used to calculate the output of the main flash.
2. When the shutter button is pressed completely, the picture is taken with E-TTL Autoflash Exposure Control based on the flash aperture set in step 1 above.
   (2)-1 Before the mirror flips up, the 6-zone metering sensor meters the ambient light instantaneously immediately before the preflash fires.
   (2)-2 Before the mirror flips up, the preflash fires and the reflected light is metered by the 6-zone metering sensor.
   • In steps 2-1 and 2-2, the light reflected off the subject from only the preflash is metered is used to calculate the main flash output which is then locked.
   (2)-3 The main flash is fired according to the calculated and locked output.

With the conventional TTL Auto Flash Exposure System, the flash is cutoff with a signal when the correct flash exposure level is attained. Excess charge remains after the flash is cutoff. In the case of the E-TTL Auto Flash Exposure System, the flash output setting obtained beforehand is used so the charge is equal to the required exposure. Therefore, correct flash exposure is obtained by firing at "full power" without the need to stop the flash with charge remaining in the capacitor. Flash control is therefore improved.

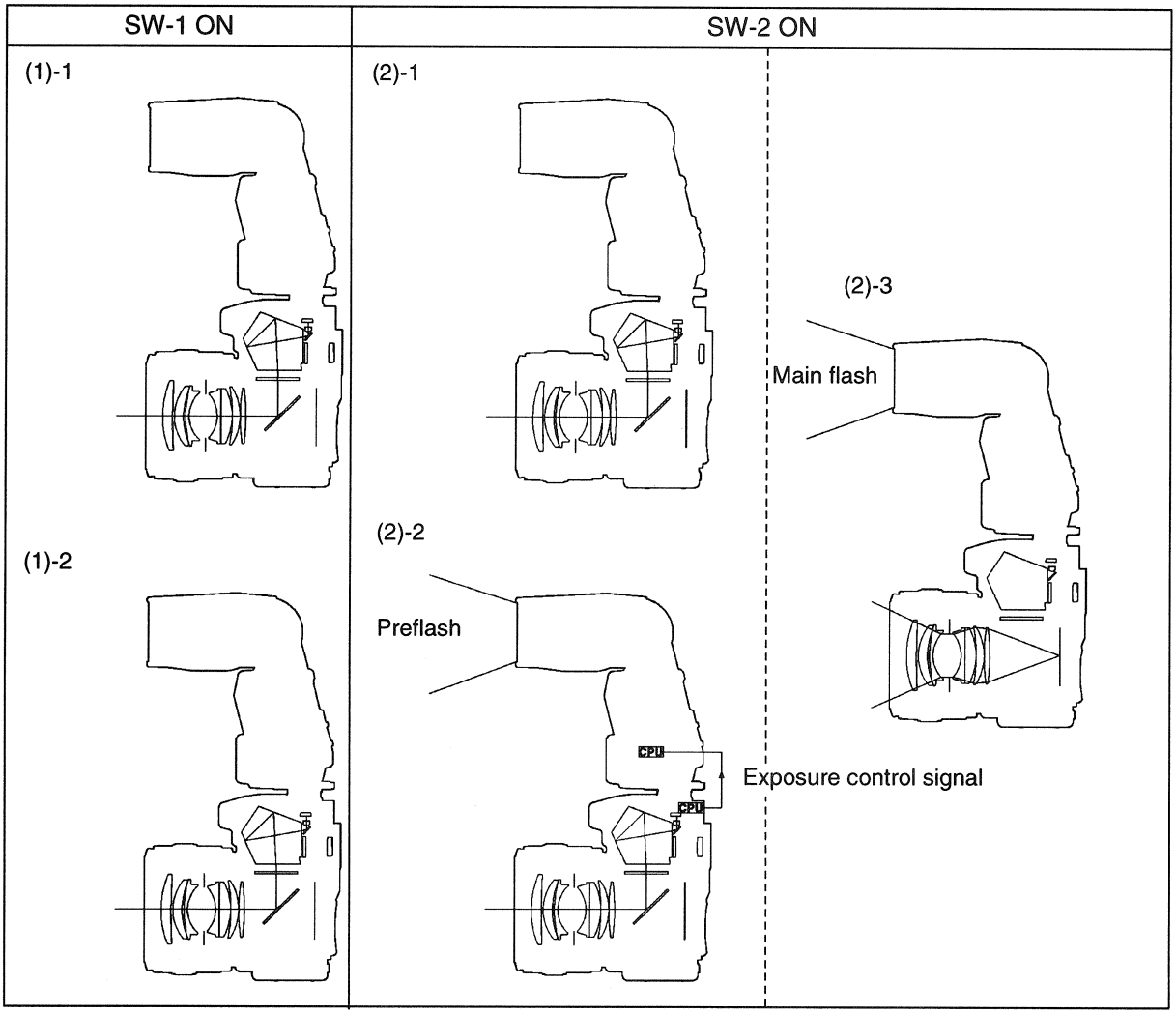


Fig. 2-2 E-TTL Autoflash System

2) Photography with E-TTL Autoflash Exposure System

Flash exposure control for previous EOS cameras was designed with two objectives in mind: to supply light in low-light situations and to provide fill-in flash for backlit subjects. In other words, the flash was basically designed for use when ambient light alone was insufficient. Therefore, when flash was used in an AE mode which set the correct exposure for frontal light conditions, overexposure was likely. However, many photographers like to use medium-strength flash with frontal lighting.
The algorithm used by the E-TTL Auto Flash Exposure System is a major feature. It allows the flash to adapt to various lighting conditions with the 6-zone metering sensor which meters ambient light and the preflash. Mixed light readings are used to obtain a natural balance between ambient light and flash.

3) Camera and Speedlite Operation Steps

Fig.2-3 shows the E-TTL Autoflash Exposure System operation steps executed by the EOS REBEL G/500 N and Speedlite 380 EX.

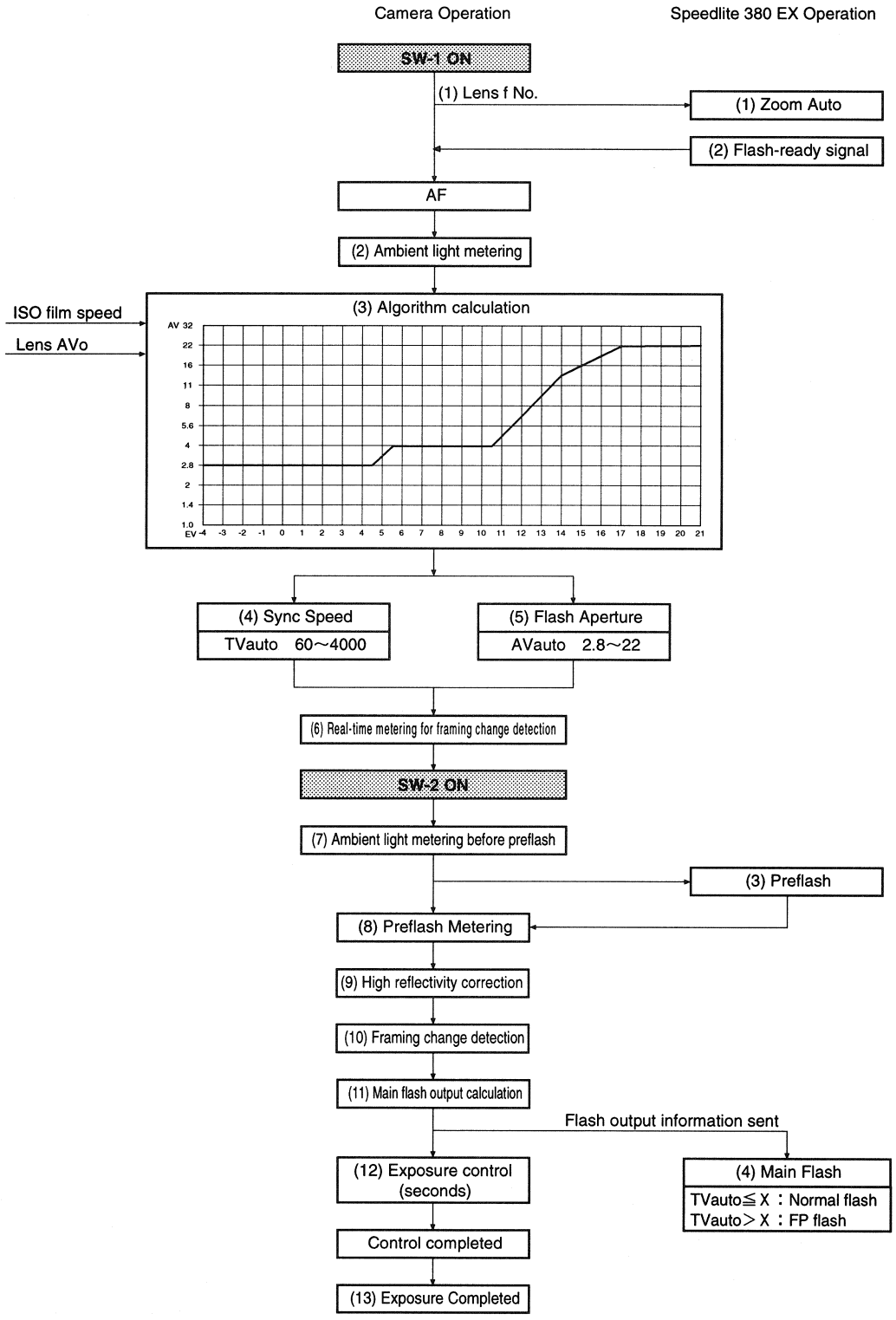


Fig. 2-3 E-TTL Autoflash Operation

4) Main Flash Output Calculation

The E-TTL system's algorithm calculates the main flash output according to n-times the preflash output. The result is sent to the Speedlite 380 EX.
Fig. 2-4 shows an outline of the calculation.

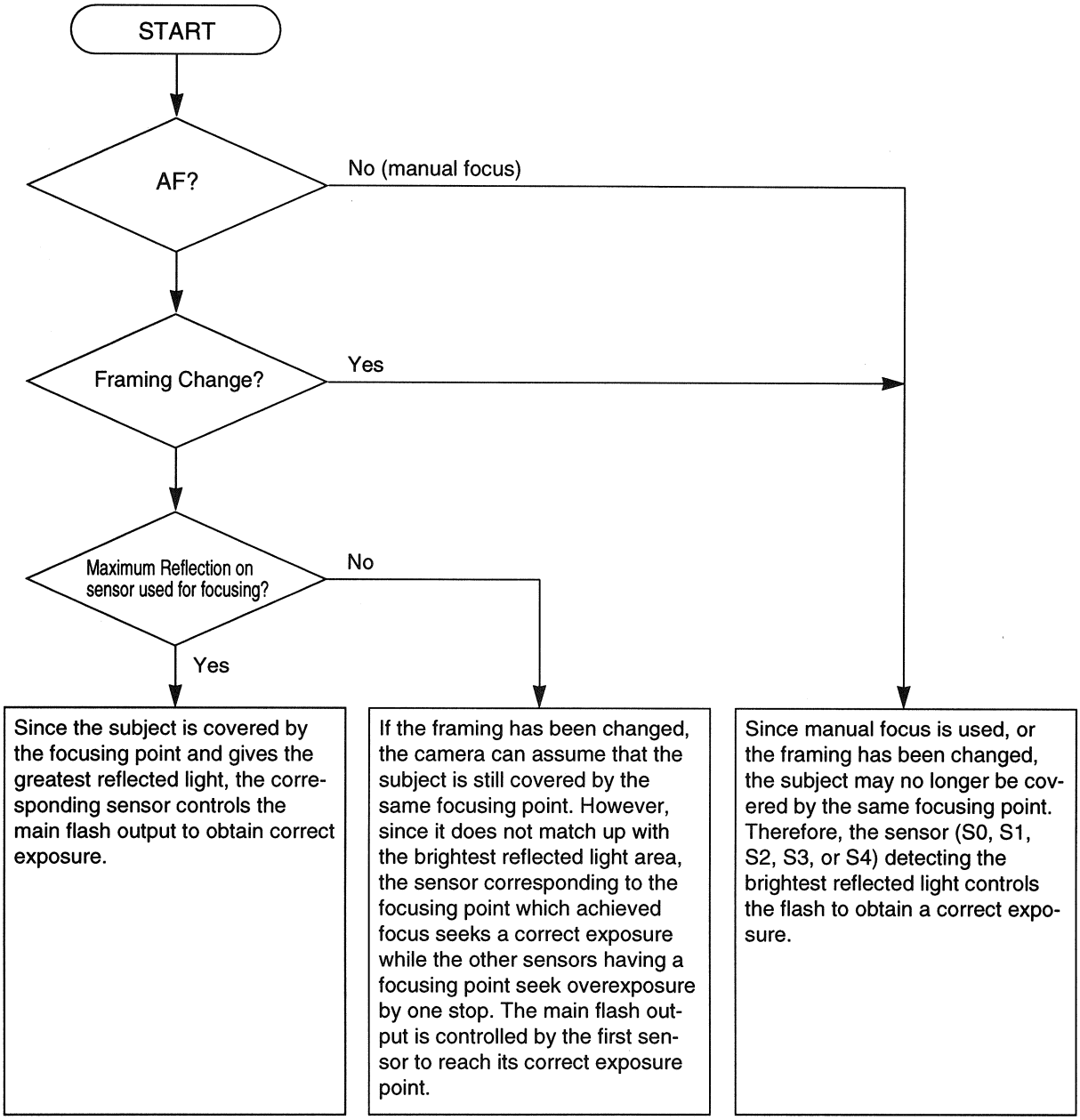


Fig. 2-4 E-TTL Autoflash Algorithm

5) FP Flash (high-speed sync)

FP flash (high-speed sync) is enabled when set to a Creative Zone mode and the Speedlite 380EX's FP flash switch is ON. FP flash (high-speed sync) enables the camera to synchronize with the flash at all shutter speeds. FP flash restricts the flash output to a stipulated level. By having a fixed-output flash fire over a continuous period of time, flash control is possible even at high shutter speeds when the shutter curtains do not open completely. Table 2-1 shows how the shutter speed synchronizes. The speed sync can be set automatically (in the P, AV, or DEP mode) or manually (in the TV or M mode). Fig. 2-5 shows how the flash fires in the FP flash mode and normal flash mode. In either case, the main flash is calculated and locked according to n-times the output of the pre-flash. Therefore, even if exposure compensation is set while the FE lock button is ON and the speed sync becomes equal to or slower than the X-speed sync, the flash mode changes automatically.

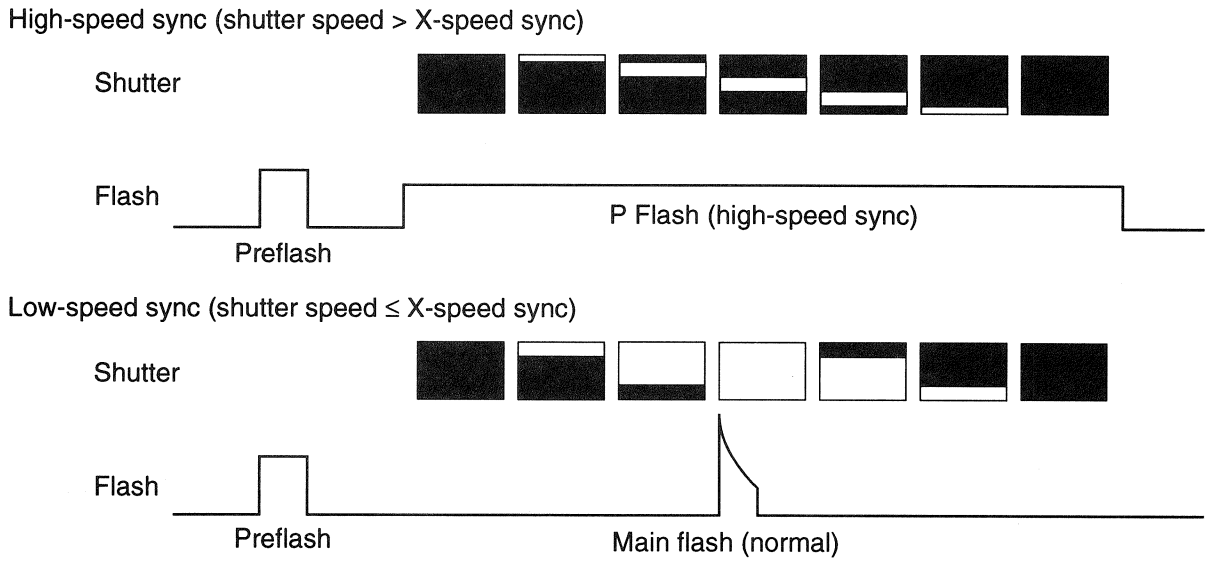


Fig. 2-5 FP Flash (high-speed sync) Outline

2. CIRCUIT EXPLANATIONS

2.1 Overall Operation

1) Electronic Circuitry

The electronic circuitry centers on the main CPU and consists of 7 LSIs and ICs, quartz oscillators, display elements, and other components.
AF calculations and camera sequencing are controlled by a 16 MHz clock.

Table 2-2 Components

LSI, IC	7
Motor	1
Magnets	3
Displays	2

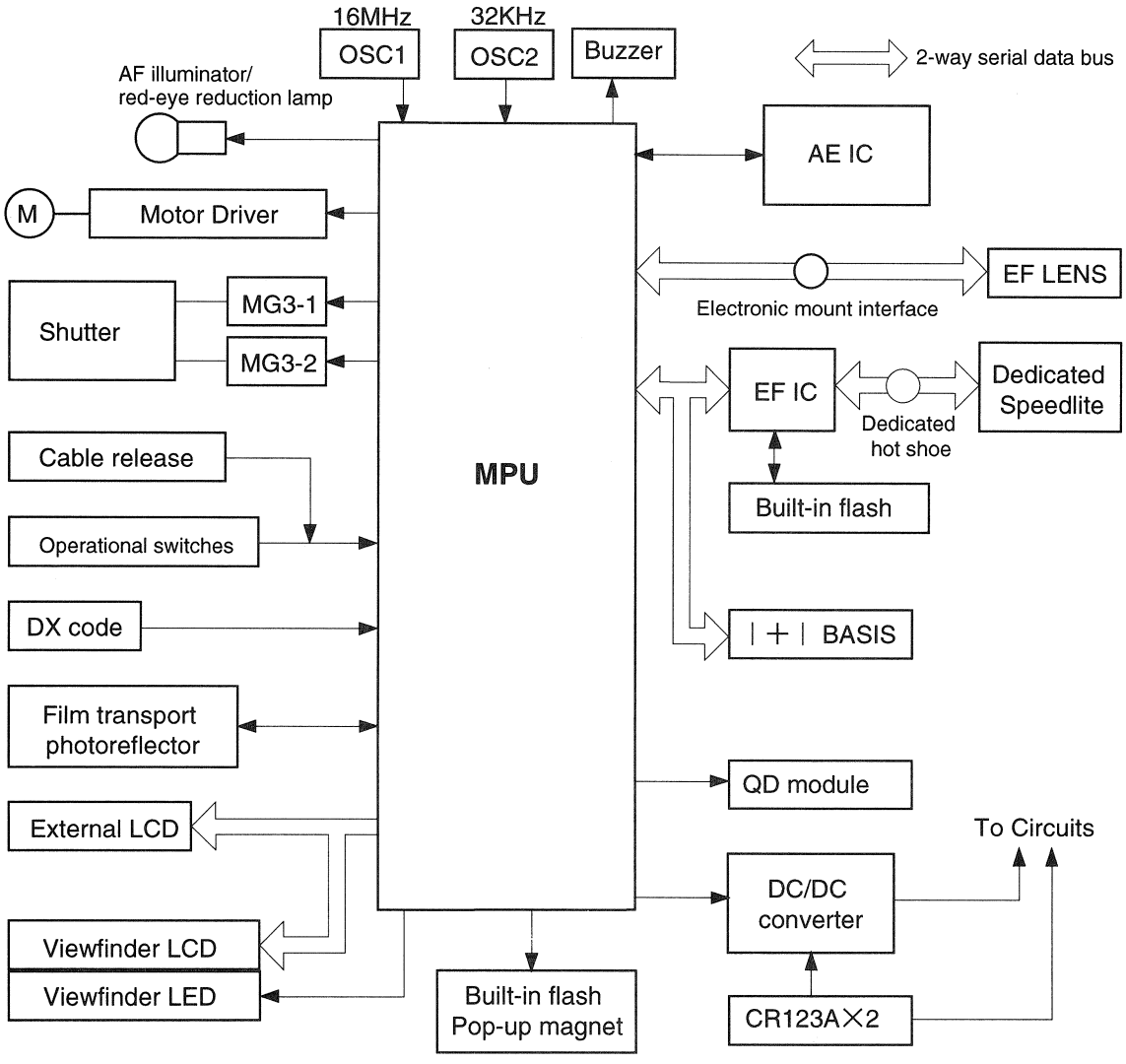


Fig. 2-6 Block Diagram

2) Sequence flow (normal photography)

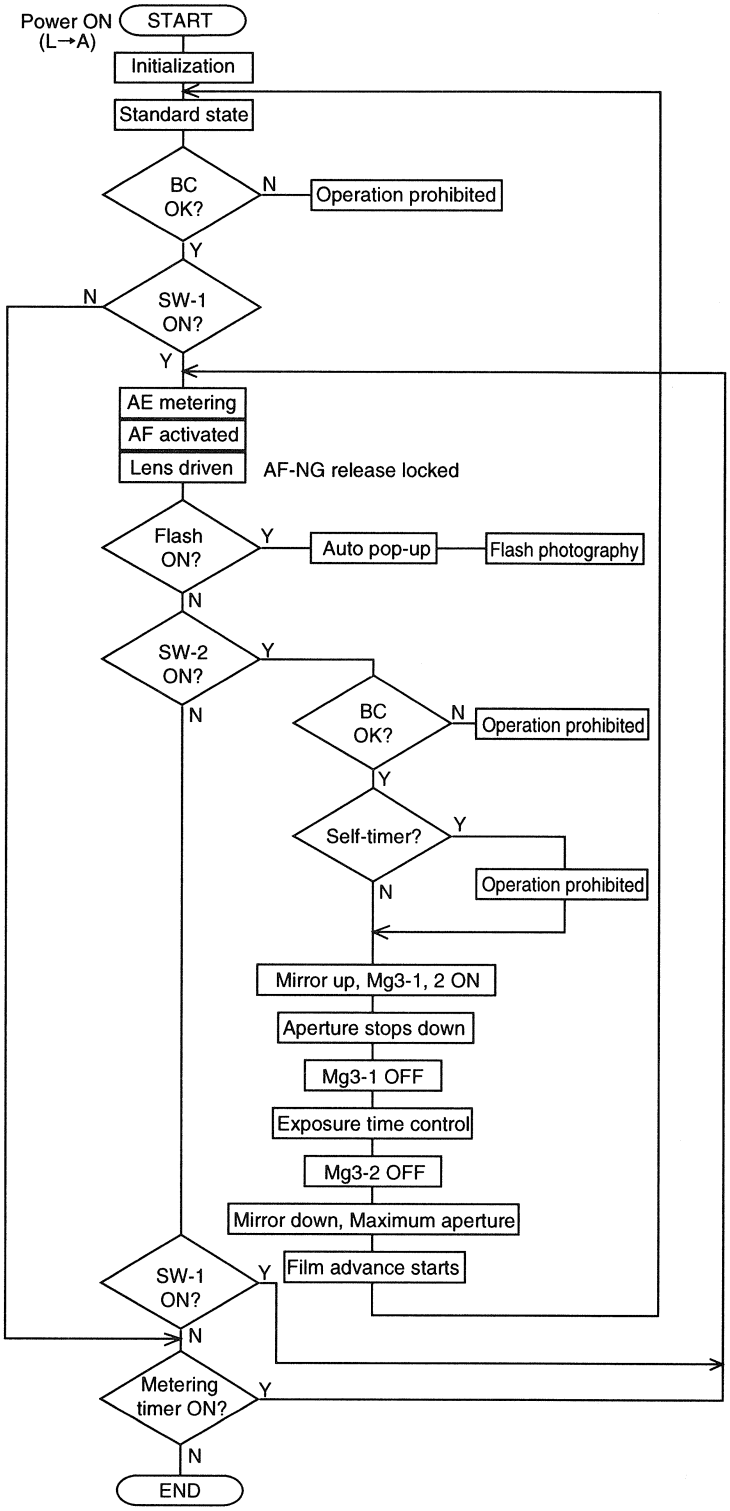


Fig. 2-7 Sequence Flow (normal photography)

3) Sequence flow (flash photography)

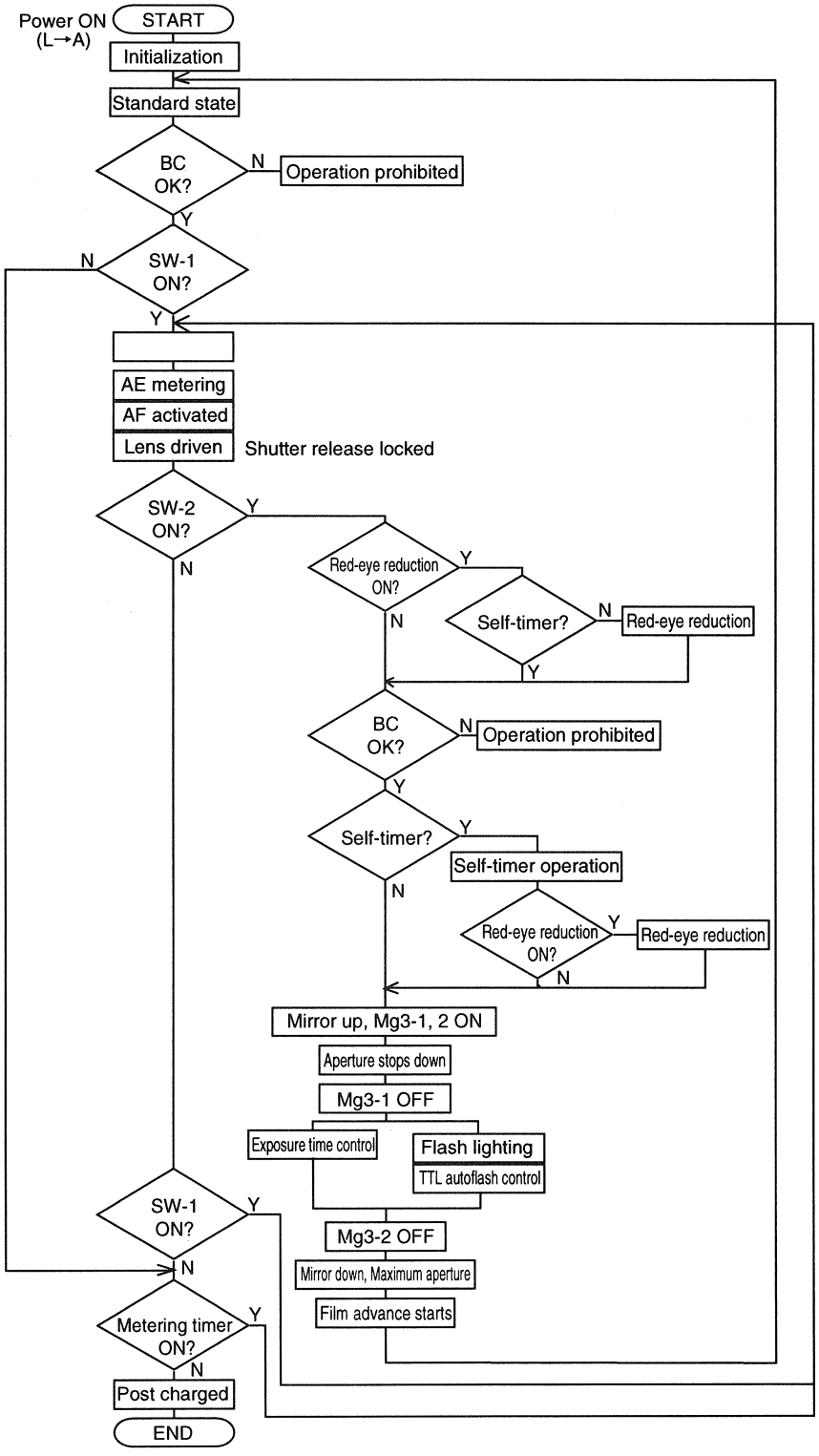


Fig. 2-8 Sequence Flow (flash photography)

4) Main CPU and Major LSIs and ICs

(1) MPU (Main CPU)
Receives various information entered by the electronic dials. Controls the camera's overall sequence to calculate or control Eye-controlled Autofocus, autofocusing, AE, the motor, and internal and external LCD panels.

(2) AE IC (exposure metering sensor)
Same as EOS REBEL X/500's. Packaged in clear mold, it is a Canon-manufactured LSI integrated with a highly sensitive 6-zone SPC amplifier for evaluative, partial, and E-TTL evaluative autoflash metering.

(3) EF IC (flash metering sensor)
Same as EOS REBEL X/500's. 4-zone, 3-point flash metering sensor linked to three focusing points. Packaged in clear mold, it is a Canon-manufactured LSI which controls the built-in flash, serves as an I/O communications link for external flash units, and controls flash output.

(4) BASIS (focusing sensor)
Same as EOS REBEL X/500's. High-precision multi-BASIS with three focusing points including a cross-type center focusing point. packaged in clear mold, it is a Canon-manufactured LSI.

(5) Motor Driver
Same as EOS REBEL X/500's. Motor control IC

(6) DC/DC (DC/DC control IC)
Dedicated control IC to produce a DC/DC circuit which saves space, power, and money.

2.2 Power Distribution

1) Clock

The clock for most IC functions are generated by two separate oscillators.

MPU	: 16 MHz (CER)	Generated when DC/DC converter turns ON
	: 32.768 KHz (quartz)	Always ON if power available

2) Power Distribution

(1) VBAT — Battery (2 × CR123A) voltage:
Used by motor driver, shutter lamps (red-eye reduction, AF Illuminator), Panorama LED, Finder LED, flash charging circuit, and flash pop-up MG.

(2) VDD — About 5.5 V:
Main power for MPU, supplied at all times.

(3) E1 — About 5.0 V (DC/DC converter output for digital circuits):
EF-IC, motor driver, flash firing circuits, etc.

(4) E2 — About 5.0 V (DC/DC converter output for analog circuits):
Metering, flash, autofocus ranging ICs, etc. Return path is AGND.

(6) VBAT2 — Lens actuator power, generated by switching VBAT through TMOS

(7) VDD2 — Lens circuit power, VDD after passing through the MIF switch.

(5) VBAT3 — Power voltage after passing through fuse. Input to EF IC, and used as battery check voltage

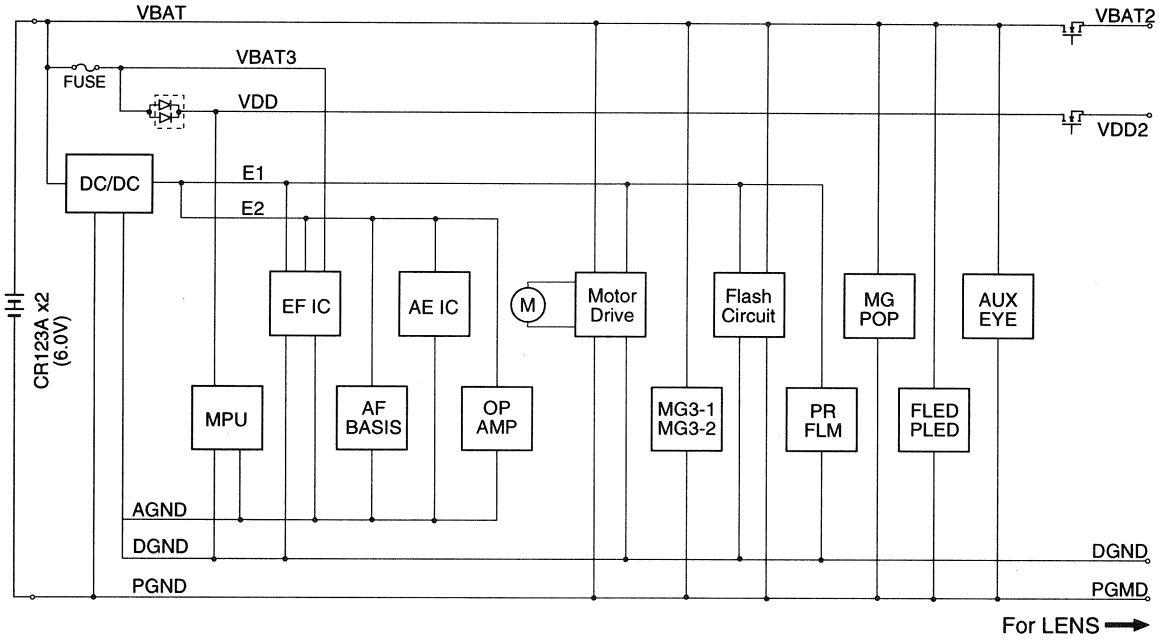


Fig. 2-9 Power Distribution

2.3 Battery Installation

1. When the battery is installed, VBAT and VDD are supplied to the ICs.
2. MPU pin 37 (/RESET) becomes High-level, and the MPU is partially started up.
3. MPU pin 27 (E1ON) becomes High-level, the DC/DC converter is started up, and E1 and E2 are generated and supplied to the ICs.
4. EF IC monitors the voltage of E1. When E1 becomes greater than 4.25 V, /RES2 becomes High-level, and the MPU is completely started up.
5. The MPU communicates with EF IC, and the output of EF IC pin 26 (EFAD) is switched to VBAT.
6. The MPU instantaneously energizes the motor via pins 77 and 78. The voltage value at this time is input to VBAT (VBAT3) of EF IC.
7. EF IC sends the voltage value to the MPU from pin 26 (EFAD). The sent voltage is A/D-converted, and judgment as to whether the inhibit voltage value is less than 4.2 V is carried out. If the voltage is less than 4.2 V, the battery mark blinks..
8. The MPU checks the switches to see if there is switch input.
9. If there is switch input, the next sequence is advanced to depending on the switch. If there is no switch input, E1ON is set to High-level, and the DC/DC converter is turned OFF.

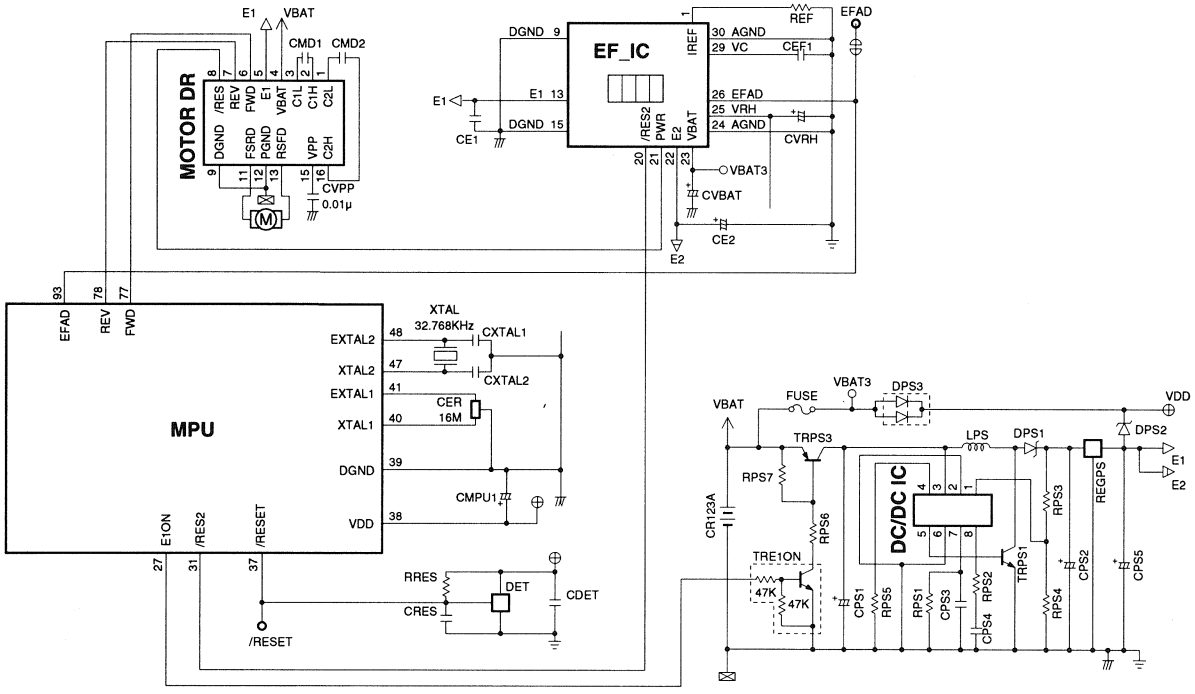


Fig. 2-10 Battery Installation

2.4 Autoloading

1. When the photographic mode is released from Low-level, film is loaded and the back cover is closed, changes in the PTIN SW (cartridge switch) and BP SW (back cover switch) are input to the MPU. The MPU then starts up the DC/DC converter.
2. The MPU checks the state of the front panel. If shutter charging has not completed, the shutter is charged.
3. A weak voltage is passed to the DX contact to read the film speed.
4. The motor is energized to check the battery.
5. FWD is set to High-level and REV is set to Low-level to drive the motor in the forward direction. This switches the motor to the film winding phase.
6. The signal unit senses only light that passes through the perforations, and light signals are input to MPU pin 92 (PRAD).
7. The MPU counts the sent signals to detect the amount of film feed and display this on OLC (external LCD).
8. If there is no change after a fixed amount of time since film is wound by autoloading and prewind, the MPU sets FWD and REV to High-level to stop the motor. (completion of autoloading and prewind)

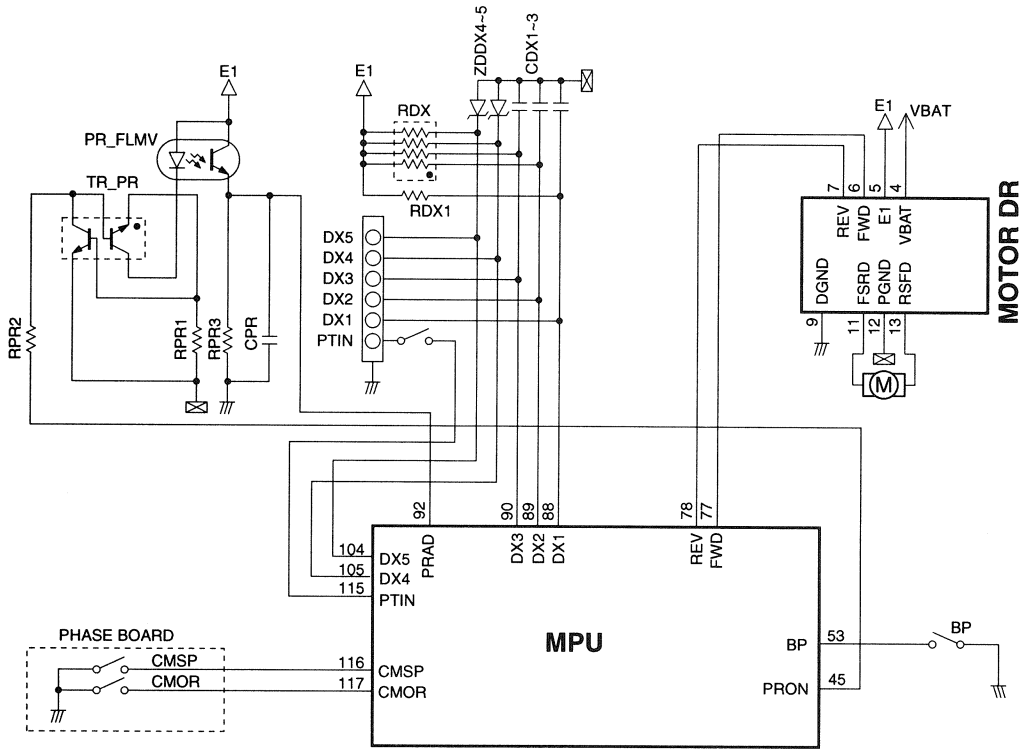


Fig. 2-11 Film Transport

2.5 Light Metering

1. When the SW1 ON information is input to the MPU, the MPU checks the state of the switches. As SW1 is ON, the MPU instructs the DC/DC converter to be started up.
2. The MPU checks the state of the front panel. If shutter charging has not completed, empty charging is carried out. Otherwise, the MPU advances to the next step in the sequence.
3. The MPU selects the AE IC metering areas through pins 33, 34 and 35 (D0, D1, D2).
4. AE IC outputs the metering data for each of the metering areas to the MPU IC.
5. The MPU A/D-converts the metering data to calculate the metering values.
6. The MPU instructs the calculated metering values to be displayed on the OLC (external LCD) and ILC (viewfinder LCD).

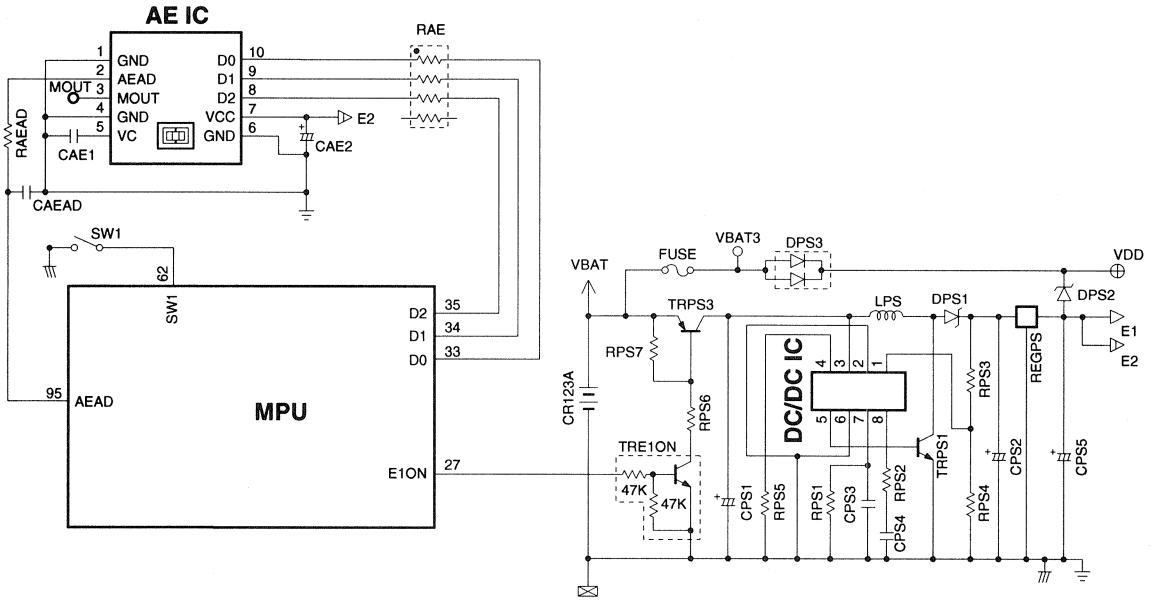


Fig. 2-12 Light Metering

2.6 Autofocus Ranging

1. The MPU selects the BASIS focusing points on pins 33 and 34 (CSAF0, 1), and sets pin 29 (/TINTE) to High-level to start autofocusing.
2. The MPU creates BASIS drive signals CLK0, 1, 2, and outputs these signals to BASIS from pins 74, 73, 72.
3. BASIS sends the subject data to the MPU from pin 19 (AFAD). When the input value reaches a certain level, pin 29 (/TINTE) is set to Low-level to stop accumulation, and completion of accumulation is related to BASIS.
4. The MPU carries out A/D conversion to calculate the amount of shift in focus. The lens is fed by the amount corresponding to this shift in focus.
5. The MPU sets pin 28 (/TMOSON) to Low-level to instruct the motor driver to set TMOS to ON. The motor driver sets pin 14 (TOUT) to High-level to supply power VBAT2 to the lens.
6. The MPU sends the lens feed amount by pins 109, 110, 111 (LCLK, LOUT, LIN), and the lens is fed only by this amount.
7. The MPU outputs the drive signals for making the autofocus in-focus mark light or blink by pin 121 (F-LED).
8. When the lens is in focus, advance to the next step in the sequence. If the lens is not in focus, repeat the procedure from steps 1 to 6.

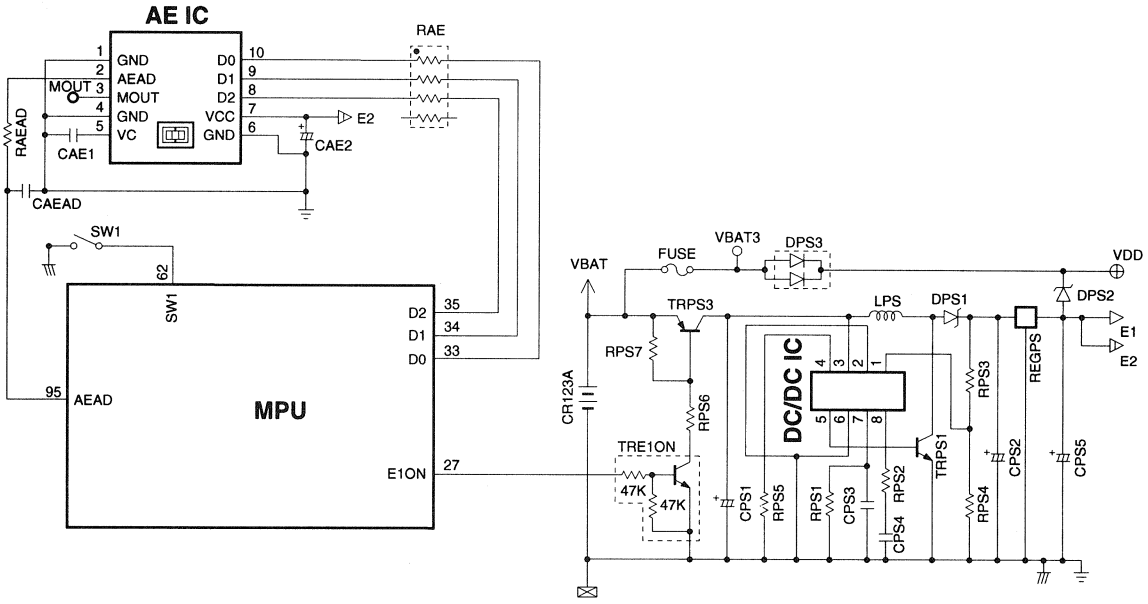


Fig. 2-13 Autofocus Ranging

2.7 Shutter Release

1. SW2 ON information is input to pin 79 (SW2) of the MPU.
2. The MPU lights the viewfinder LED by pin 121 (F-LED).
3. The MPU energizes the motor to check the battery.
4. MPU sets pins 77, 78 (REV, FWD) to Low-level and Low-level, respectively, to drive the motor in the reverse direction, and start the mirror up operation. Both of pins 75, 76 (Mg3-1, Mg3-2) are both set to Hi to energize the shutter magnets.
5. When the shutter phase switch of pins 116, 117 (CMSP, CMOR) changes to set the mirror up completion state, the MPU sets both pins 77, 78 (REV, FWD) to High-level to stop the motor.
6. The MPU communicates with the lens by pins 109, 110, 111 (LCLK, LOUT, LIN), and checks that EMD is open. If EMD is not open, the system judges this as NG and the battery mark lights.
7. The MPU instructs and drives the lens to close down to the predetermined aperture value by pins 109, 110, 111 (LCLK, LOUT, LIN).
8. The MPU monitors pin 103 (CN2) to check that it is not OK. If it is ON, the system judges this as NG and the battery mark lights.
9. The MPU sets pin 75 (Mg3-1) to Low-level to deenergize the flash. The drive lever that was held in contact is released to let the 1st curtain run, and start exposure. If the built-in flash or external flash is ready to fire at this time, the flash fires when the shutter X-sync contact turns ON.
10. After the set shutter time, the MPU sets pin 76 (Mg3-2) to Low to deenergize the flash and to make the 2nd curtain run. When the 2nd curtain run is completed, the CN2 SW is turned ON.
11. The MPU instructs date imprint only on cameras with the QD module. The MPU sets pin 97 (DATE) to High-level to start date imprint.
12. When CN2 ON is input to the MPU, pins 77, 78 (REV, FWD) are set to High-level and Low-level, respectively, to drive the motor in the reverse direction, and to start mirror down and shutter charge operations.
13. The MPU communicates with the lens by pins 109, 110, 111 (LCLK, LOUT, LIN), and instructs opening of EMD.
14. When the shutter phase switch of pins 116, 117 (CMSP, CMOR) changes to set the mirror down completion state, the MPU sets both pins 77, 78 (REV, FWD) to High-level to stop the motor.
15. The MPU sets pins 77, 78 (REV, FWD) to Low-level, High-level, respectively, to rotate the motor in the forward direction to feed the film by one frame.
16. The MPU sets pin 45 (PRON) to High-level to light the PR FLMV (signal unit) LED.
17. Only the light passing through the perforations is input to pin 92 (PRAD). When about one frame's worth of signals is detected, the MPU stops the motor.
18. The MPU displays the numerical value after subtracting by one frame on the ILC (viewfinder LCD).

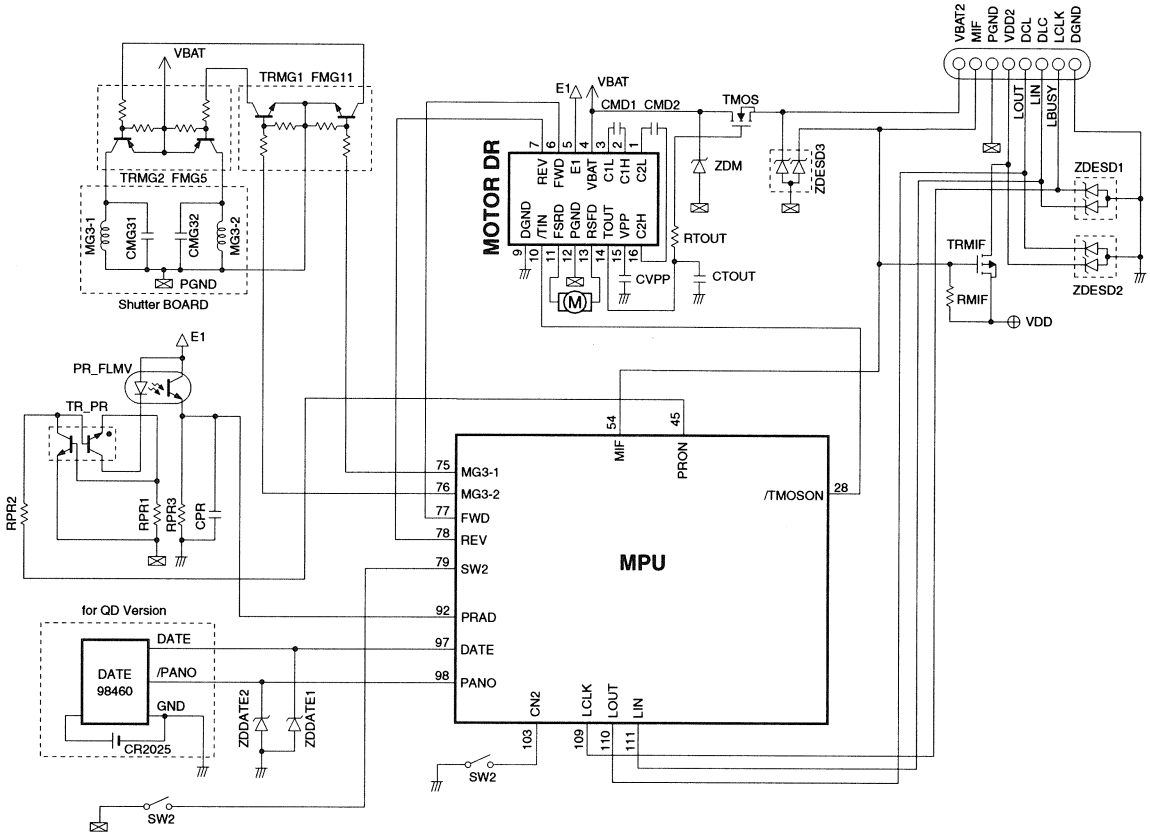


Fig. 2-14 Shutter Release

2.8 Built-in Flash

1. When camera SW1 is turned ON, the MPU communicates with EF IC by pins 68 and 69 (MOSI, SCLK), to start charging the built-in strobe.
2. EF IC sets pin 10 (OSC) to High-level to turn TRs3 ON.
3. THV starts oscillation, and Cs7 (main capacitor) starts to be charged.
4. EF IC monitors the charged state of the main capacitor by the resistive voltage dividing ratio of Rs4 and Rs5, and the divided voltage is input to pin 4 (SENSE). If the voltage is the charge completion voltage, the MPU is informed that the flash is ready to fire by pins 67 and 69 (MISO, SCLK).
5. When charge completion is input to the MPU, the MPU carries out metering and ranging.
6. The MPU sets pin 70 (MGPOP) to High-level according to the built-in flash firing conditions.
7. When MGPOP becomes High-level, TRPOP on the magnet flex cable is turned ON to turn MGPOP ON (energize).
8. This turns the flash retaining lever to the right to release the flash, and the flash pops up.
9. When the flash pops up, the POPEND switch turns ON. MPU detects that the flash has popped up by pin 55 (POPEND) becoming Low-level.
10. When SW2 is pressed, and the shutter X-sync contact is turned ON, pin 7 (SYNC) of EF IC turns Low-level, and pin 11 (SPCR) is set to Low-level.
11. SPCR line goes low causing a high output from IGBT-DR which gates IGBT on and the flash fires.
12. When the correct exposure is obtained for the light detected by EF IC, pin 11 (SPCR) goes high to turn IGBT off and terminate the flash.

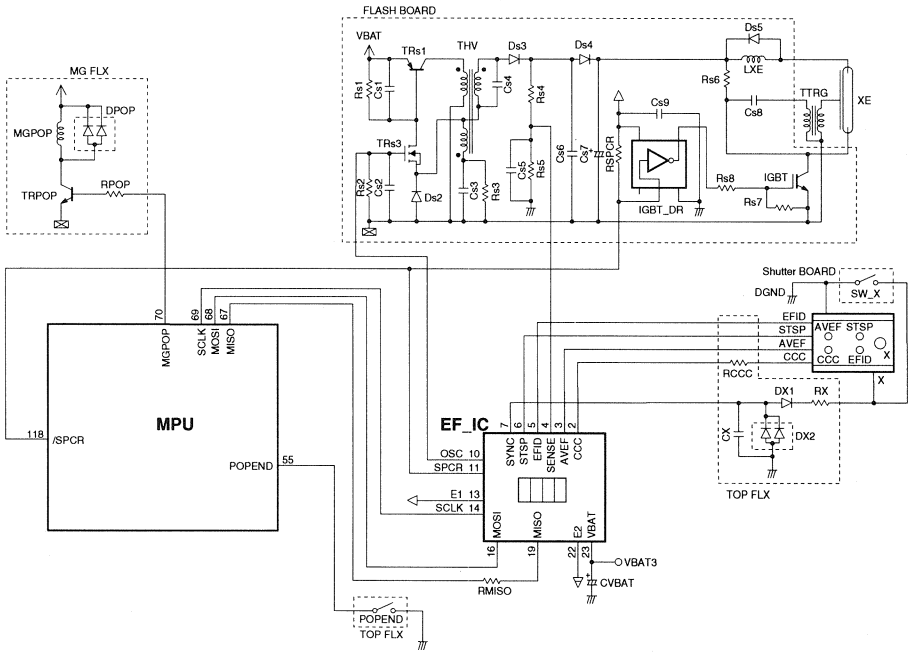


Fig. 2-15 Built-in Flash

2.9 External Flash

1) Pre-flat Firing

The MPU via the EF IC orders the flash to fire a "pre-flat" flash. Pre-flat flash power and duration information is included. Immediately following the information transfer, the trailing edge of the STSP signal is used as the flash trigger.

2) Main Flat Flash (FP sync)

The protocol for main flat-flash firing is the same as the pre-flat flash, but the trigger timing is different. The STSP leading edge signal fires the flash which extends the "flat firing" to cover the entire time span from the start of the 1st curtain run to the end of the 2nd curtain run.

3) Normal Main Flash

Normal main flash is the same as previous EOS systems. Flash triggering is carried out by the X-sync contact.

3. SWITCH NOMENCLATURE & FUNCTIONS

No.	Symbol	Name	Function
Operation Buttons, Dials			
1	SW1	Ranging/Metering	Distance and exposure metering start
2	SW2	Release	Initiates exposure sequence
3	MAIN1,2,3,4 SW	Mode Select (Command Dial)	Selects photographic mode and ISO. Setting of manual rewind. Main Switch turns OFF at "L"
4	PART SW	Partial Metering/ AE Lock	Locks in present exposure value (AE lock remains while metering timer is working)
5	AVM SW	Exposure Compensation SW	Set by electronic dial while ON
6	AFSEL SW	Focusing Point Select	Allows the focusing point to be selected with the Main Dial.
7	MDIAL1,2 SW	Main Electronic Dial	Operated used in combinations with other switches, e.g. shooting mode. AF mode, metering mode
8	SELF SW	Self-timer/Manual Rewind SW	Allows self-timer or remote control shooting
9	STUP SW	Flash SW	Built-in flash pops up SW
10	FUNC SW	Function SW	Sets red-eye reduction, in-focus tone, multiple exposure, AEB, etc.
11	PANORAMA SW	Panorama SW	Switches between Panorama and standard size (New EOS Kiss only)
Internal Switches			
12	BP SW	Back Cover SW	Low when the back cover is open
13	CMSP,CMOR SW	Shutter Phase SW	Detects shutter charged, and mirror up/down.
14	SHBUSY SW	External Flash SW	Senses when an external flash is mounted.
15	POPEND SW	Pop-up End SW	ON when the built-in flash is up
16	X SW	X-sync SW	Flash trigger switch
17	CN2 SW	2nd Shutter Curtain SW	Senses completion of 2nd curtain travel
18	DX1-5 SW	DX Code SW	Reads film speed portion of the DX code
19	PTIN SW	Film Cartridge SW	Film cartridge sensor. Open when a cartridge is loaded.

4. IC PIN DESCRIPTIONS

MPU (MC68HC11SA2)

Pin No.	Name	Function
1 to 4	COM3 to 0	LCD common drive
5 to 25	SEG0 to 20	Segment drive terminals
26	—	Not used
27	E1ON	DC/DC operation start signal. DC/DC operation starts at High
28	/TMOSON	Command signal output for lens drive power supply
29	/TINTE	AF BASIS accumulation completion signal
30	READ	AF BASIS drive reference clock
31	/RES2	E1 voltage detection signal input
32	PLED	Emitter for panorama LEDs
33	DO	Exposure sensor area select
	CSAF1	AF BASIS control system select
34	D2	Exposure sensor area select
	CSAF1	AF BASIS system select control
35	D2	Exposure sensor area select
	CSEF0	EF IC communications select
36	CSEF1	EF IC communications select
37	/RESET	MPU reset
38	VDD	MPU drive power supply
39	DGND	Digital ground
40	XTAL1	16 MHz oscillator connection
41	EXTAL1	16 MHz input
42	/IRQ	(VDD) Not used
43	MODB	MPU drive mode setting
44	MODA	MPU drive mode setting
45	PRON	Film transport photoreflector emitter
46	LAMP	AF illuminator/red-eye reduction lamp emitter
47	XTAL2	32 kHz oscillator connection
48	EXTAL2	32 KHz input
49 to 52	MAIN1 to 4	Mode dial switch inputs
53	BP	Back cover sensor switch input
54	MIF	Mount interface switch input
55	POPEND	Built-in flash pop-up completion sensor
56	PANO SW	Panorama switch input
57	AFSEL	AF mode switch input
58	PART	Partial metering/AE lock switch input
59	—	Not used
60	STUP	Flash switch input
61	SELF	Self-timer input
62	SW1	Release switch 1 input
63	AVM	Exposure compensation switch input
64	FUNC	Function switch input
65	RXD	Serial communications terminal: unused
66	TXD	Serial communications terminal: unused
67	MISO	Communications line from MPU and other ICs (input)
68	MOSI	Communications line from MPU and other ICs (output)
69	SCLK	Communications clock for MPU and other ICs clock
70	MGPOP	Built-in flash pop-up magnet drive signal output
71	DGND	Digital ground

Pin No.	Name	Function
72	CLK2	AF BASIS drive reference clock
73	CLK1	AF BASIS drive reference clock
74	CLK0	AF BASIS drive reference clock
75	MG3-1	Shutter 1st curtain run signal
76	MG3-2	Shutter 2nd curtain run signal
77	FWD	Motor control signal output (forward)
78	REV	Motor control signal output (reverse)
79	SW2	Release switch
80	VDD	Power supply
81	DGND	Digital ground
82	/XIRQ	(VDD) Not used
83	DA2	D/A converter output (channel 2)
84	DA1	D/A converter output (channel 1)
85	ATDVDD	A/D converter power supply
86	VRH	Full-scale reference voltage for A/D and D/A (3.2 C)
87	VRL	Minimum-scale reference voltage for A/D and D/A (AGND)
88	DX1	DX code read terminal
89	DX2	DX code read terminal
90	DX3	DX code read terminal
91	AGND	Panorama switch
92	PRAD	Analog winding PI signal input
93	EFAD	TTL sensor analog signal input
94	AFAD	AF BASIS image signal input
95	AEAD	Exposure sensor analog signal input
96	ATDGND	Analog ground
97	DATE	Date printing signal
98	PANO	Panorama date position signal
99 to 101	DGND	Digital ground
102	PMVSS	Digital ground
103	CN2	2nd Curtain completion signal
104	DX5	DX code read terminal
105	DX4	DX code read terminal
106 to 108	DGND	Digital ground
109	LCLK	Lens communications clock
110	LOUT	Communications line to lens (output)
111	LIN	Communications line to lens (input)
112	DIAL2	Electronic dial switch input
113	DIAL1	Electronic dial switch input
114	SHBUSY	External flash detection switch input
115	PTIN	Cartridge loaded switch input
116	CMSP	Shutter phase switch input
117	CMOR	Shutter phase switch input
118	/SPCR	Flash firing start/stop control
119	BZ	Beeper drive
120	BCLK	BASIS, EF IC drive reference clock
121	FLED	Viewfinder LED lighting
122	DGND	Digital ground
123	VDD-	MPU drive power supply
124	C-	LCD drive potential hold
125	C+	LCD drive potential hold
126	VLCD3	LCD drive reference voltage
127	VLCD2	LCD drive reference voltage
128	VLCD1	LCD drive reference voltage

EF IC (LC4090)

Pin No.	Name	Function
1	IREF	Current reference
2	CCC	External flash charge completion signal
3	AVEF	External flash aperture signal
4	SENSE	Built-in flash DC/DC voltage feedback
5	EFID	External flash communication signal
6	STSP	External flash starting and completing controller
7	SYNC	Shutter X sync trigger
8	STCR	Not used
9	DGND	Digital ground
10	OSC	Built-in flash charge controller
11	SPCR	Built-in flash termination signal
12	BCLK	Reference clock input
13	E1	Logic circuits power supply
14	SCLK	Communications clock input
15	DGND	Digital ground
16	MOSI	Communication line (input)
17	CSEF1	Communications chip selector
18	CSEF0	Communications chip selector
19	MISO	Communication line (output)
20	/RES2	E1 voltage sensor output
21	PWR	VBAT voltage sensor output
22	E2	Analog power supply
23	VBAT	Power supply (battery)
24	AGND	Analog ground
25	VRH	A/D reference voltage output (3.2 V)
26	EFAD	Analog output (TTL data)
27	DAC1	D/A input
28	DAC2	D/A input
29	VC	Reference voltage (1.2 V)
30	AGND	Analog ground

Part 3

Repair Information

1. REPAIR PREPARATIONS

IMPORTANT! READ THIS BEFORE STARTING REPAIR

1.1 BLEED THE MAIN CAPACITOR!

- As soon as the front cover is removed, drain the main flash capacitor with a bleeder resistor of around 500 Ω and at least 10 W.
- The bleed points are the XE + (1.2 m white) lead and the TRIG-GND (0.6 mm white) pads on the top flex as shown below.

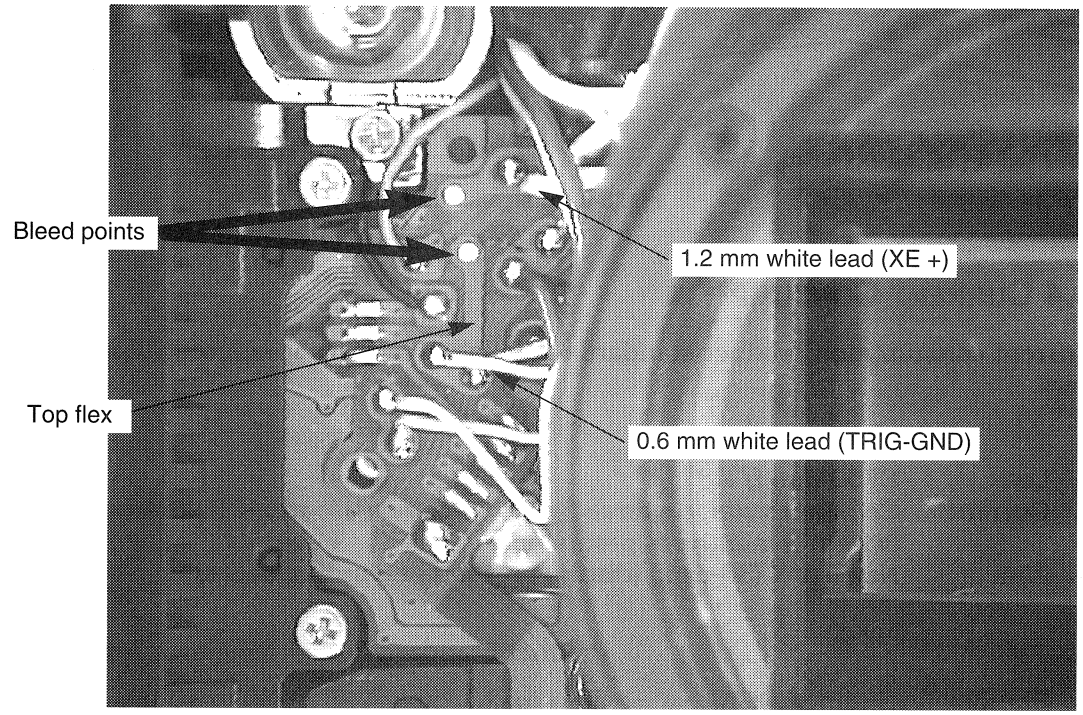


Fig. 3-1 Main Capacitor Bleed Points

1.2 ABOUT ASSEMBLY & DISASSEMBLY

- When the cover unit is removed, do not apply external pressure to the pentamirror. Doing so might cause optical performance to deteriorate.
- Do not draw leads out from the pentamirror.
- Use nothing but a clean blower brush inside the pentamirror. DO NOT use lens paper because it may scratch the pentamirror.

1.3 Position of Panorama Pad (on main flex)

The domestic and export QD models use the same main flex. Service parts are shipped with this pad open. If a new flex is installed in an EOS 500QD bridge this pad or the data will not be imprinted. If it is closed in an EOS KISS, the data position will not switch when in the panorama mode.

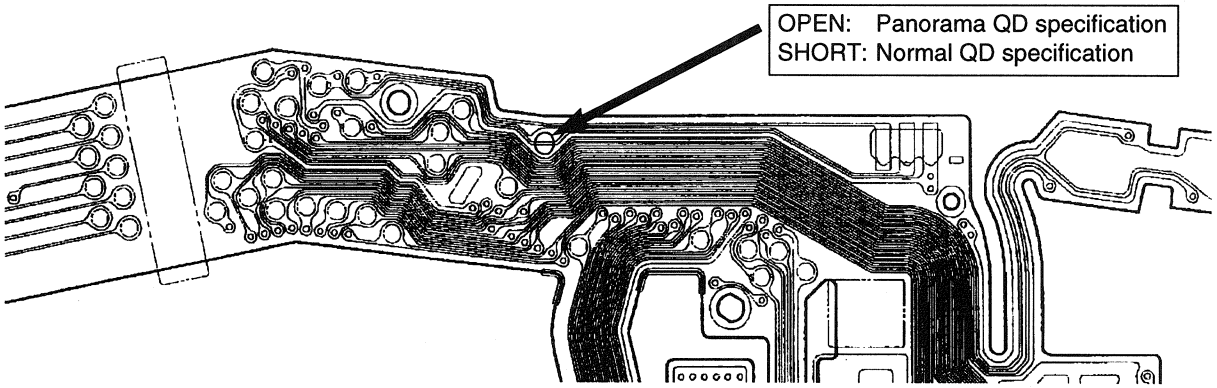


Fig. 3-2 Panorama Pad

1.4 Current Consumption

Current consumption product standards and actual average measured values are as follows.

Lens: EF50 mm f/1.8
Current: Constant voltage source 5.4 V, 0.95 Ω or use new CR123A battery (within 3 months of production)
Film: New Tri-X (36-exp.) (during prewind or winding check)

	Product Standard	Measured Range
Standby (including LOCK)	50 μ max.	30 to 40 μA
SW1 ON	150 mA max.	60 to 70 mA
Self timer	200 mA max.	60 to 70 mA
Battery check	1200 ±200 mA max.	1000 ±100 mA max.

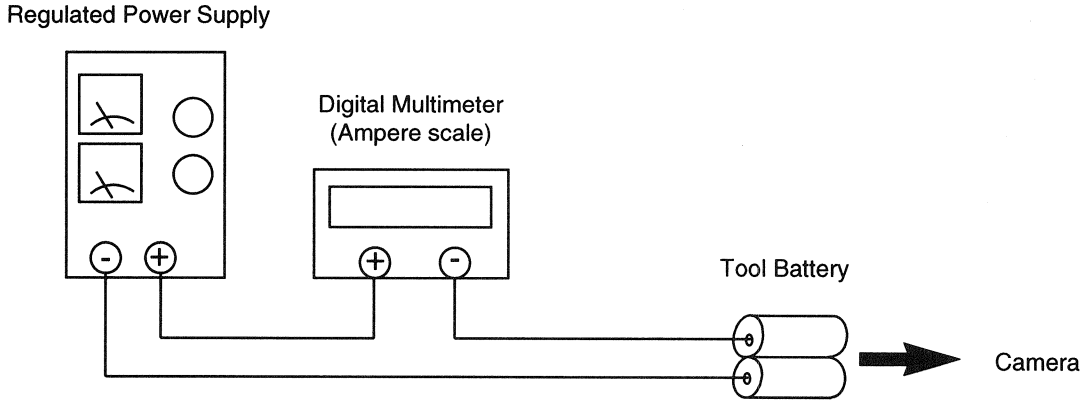


Fig. 3-3 Current Consumption Test Setup

1.5 Tools and Expendables

• The following tools and expendables are required to reassemble and adjust.

1) Tools

New	Test Equipment	Part No.	Adjustment
	HS-I/F	CY9-7082-000	Electrical adjustment
	EF-8000 Multi-camera Tester	CY9-7073-000	Shutter, AE adjustment
	Mirror Angle Testing Tool	CY9-7098-001	Sub-Mirror 42° adjustment
	Sub-mirror gage (42°)	CY9-7098-004	Sub-Mirror 42° adjustment
	Auto collimator (f=300 mm)	CY9-7058-000	Sub-Mirror 42° adjustment
	DC Power Supply (model 532C)	CY9-7038-000	Electrical adjustment
	CR123A Tool Battery Kit	CY9-7091-000	Inhibit Voltage adjustment
	Dial gage	CY9-1001-006	Flange-Focal Plane Distance (FFD) adjustment
	2 mm auxiliary ring	CY9-1001-008	FFD adjustment
	Block gage (44.14 mm)	CY9-1001-007	FFD adjustment
	Optical flat	CY9-1001-003	FFD adjustment
	AF tool standard lens	CY9-1072-001	AF accuracy adjustment
	18% gray paper		Exposure adjustment
	Reflectance paper 2%	CY9-1066-000	AF adjustment
	64%	CY9-1067-000	AF adjustment
	90%	CY9-7076-000	AF adjustment
	Flash meter		Flash exposure adjustment

2) Expendables

New	Expendable	Part No.	Use
	Bond G103	CY9-8002-000	Joining of front panel light shield screen, hot shoe spring
	Aron Alpha 201	CY9-8007-000	Fixing of SPC
	PL015JG	CY9-8073-000	Spool pre-wind base
	ED-16	CY9-8075-000	Back cover latch claw
	H-26	CY9-8079-000	Dial shaft, Release button shaft, Gear shafts, etc.
	IF-10	CY9-8088-000	Mount spring
	Silicon bond KE347B	CY9-8064-000	Pentaprism fixing
	Insulating tape (No. 315)	CY9-9205-000	Main flex
	Three Bond (1401C)	CY9-8011-000	Screw lock for hot shoe
	Three Bond (1401B)	CY9-8012-000	Screw lock for AF sensor

1.6 Locally Fabricated Tools

1) AF Charts

(1) AF reference chart

Attach two 90% white strips centered on 2% black paper as shown below.

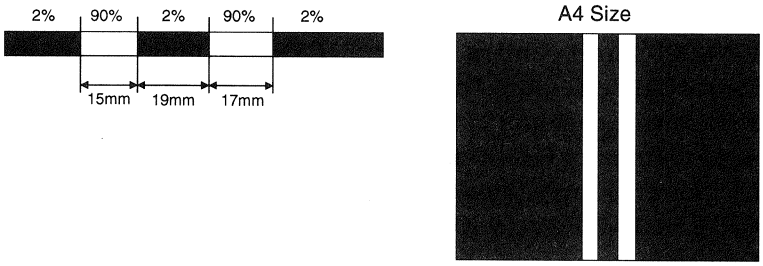


Fig. 3-4 AF Reference Chart

(2) 16 mm bar chart (AF accuracy check)

Attach 16mm 90% paper vertically on 2% A4 sheet as shown below.

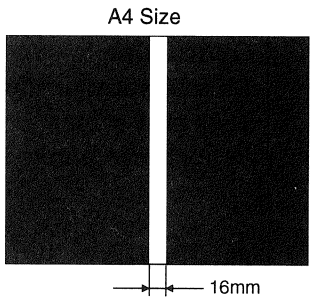


Fig. 3-5 Single Bar (16 mm) Chart

(3) 45° bar chart (AF accuracy check)

Attach 16mm 90% paper diagonally on 2% A4 sheet as shown below.

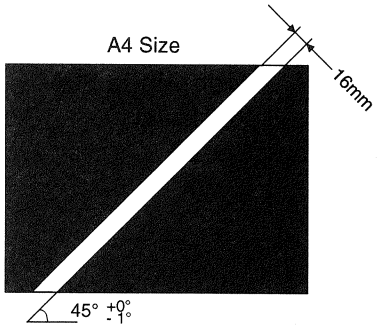


Fig. 3-6 45° Bar Chart

(4) Low contrast chart (AF accuracy check)

Make a chart with a center 15 mm 90% white over a 64% light gray background.

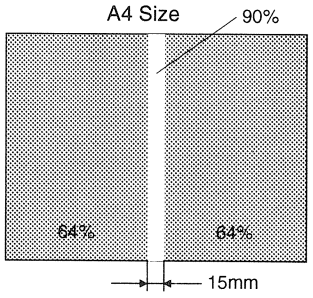


Figure 3-7 Low Contrast Chart

2) SPD Positioning Adjustment Mask

Make a mask of low-reflectance black paper to the following dimensions and cut holes at the locations indicated.

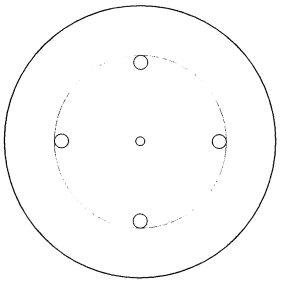


Figure 3-8 SPD Positioning Adjustment Mask

3) X-Sync Time Lag Check Tool

- This tool is used for measuring the X-sync time lag.
- Use a flash accessory shoe with a 4.7 kΩ resistor from the CCC terminal to ground and leads attached as follows.

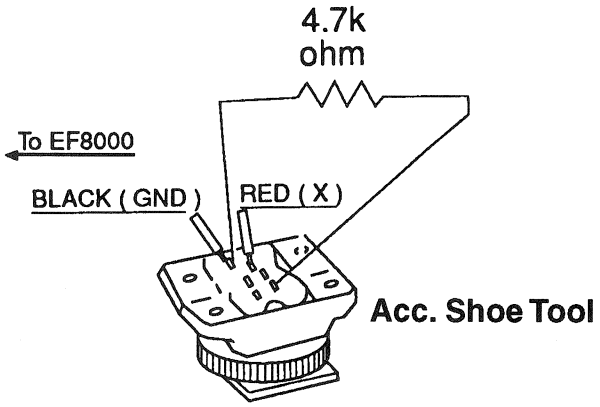


Figure 3-9 Accessory Shoe Tool

4) CR123A Tool Battery

The following describes how to construct this tool from the CR123A Tool Battery Kit (0.83 Ohm), and the precautions when using the tool.

1. Remove two minus headless screws ①.
2. Solder two battery terminals ② to the red and black leads, respectively.
3. As described in [NOTE 1] in the figure below, wind reinforcing tape (insulating tape) along the edge-contacting surface.
4. Install each of the battery terminals, and fasten in place with headless screws ①.
5. As shown in the figure, cut out two holes in the film can to allow the two leads to be passed through.
6. Pass the two leads through the film can and tie them together to restrict resistor movement.
7. Attach the resistor, Zener diode and capacitor. Connect the 0.68 Ohm resistor to the red lead in series, and connect the Zener diode and capacitor to the red and black leads in parallel.
8. Tie the two leads together, and pass them through the film can to restrict resistor movement.
9. Solder each of the probes to the leads.

* When the above procedure is completed, the total resistance including line resistance should be 0.83 Ohm.

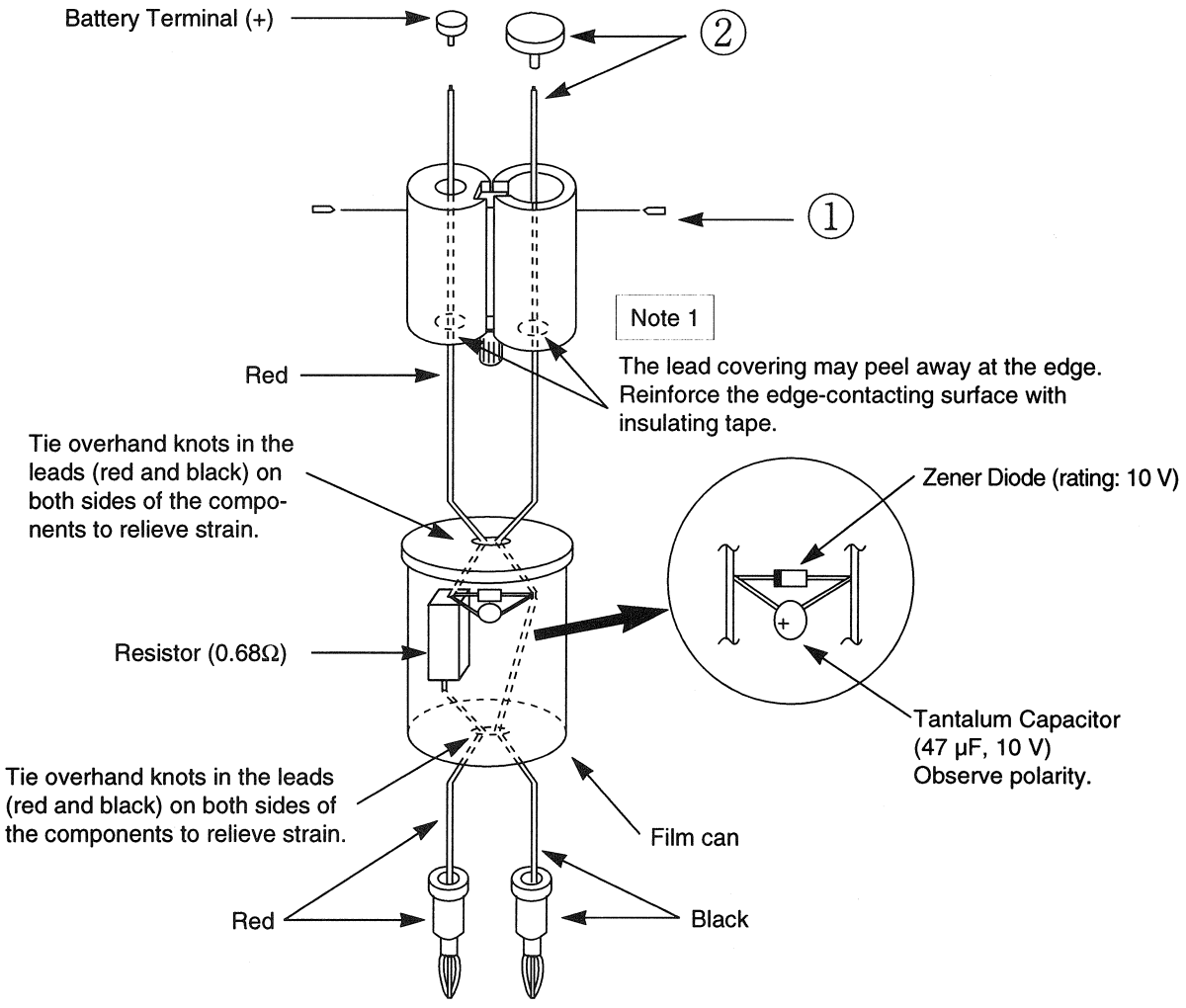


Figure 3-10 Tool Battery Assembly

<MEMO>

2. ASSEMBLY & DISASSEMBLY

2.1 External Cover Removal

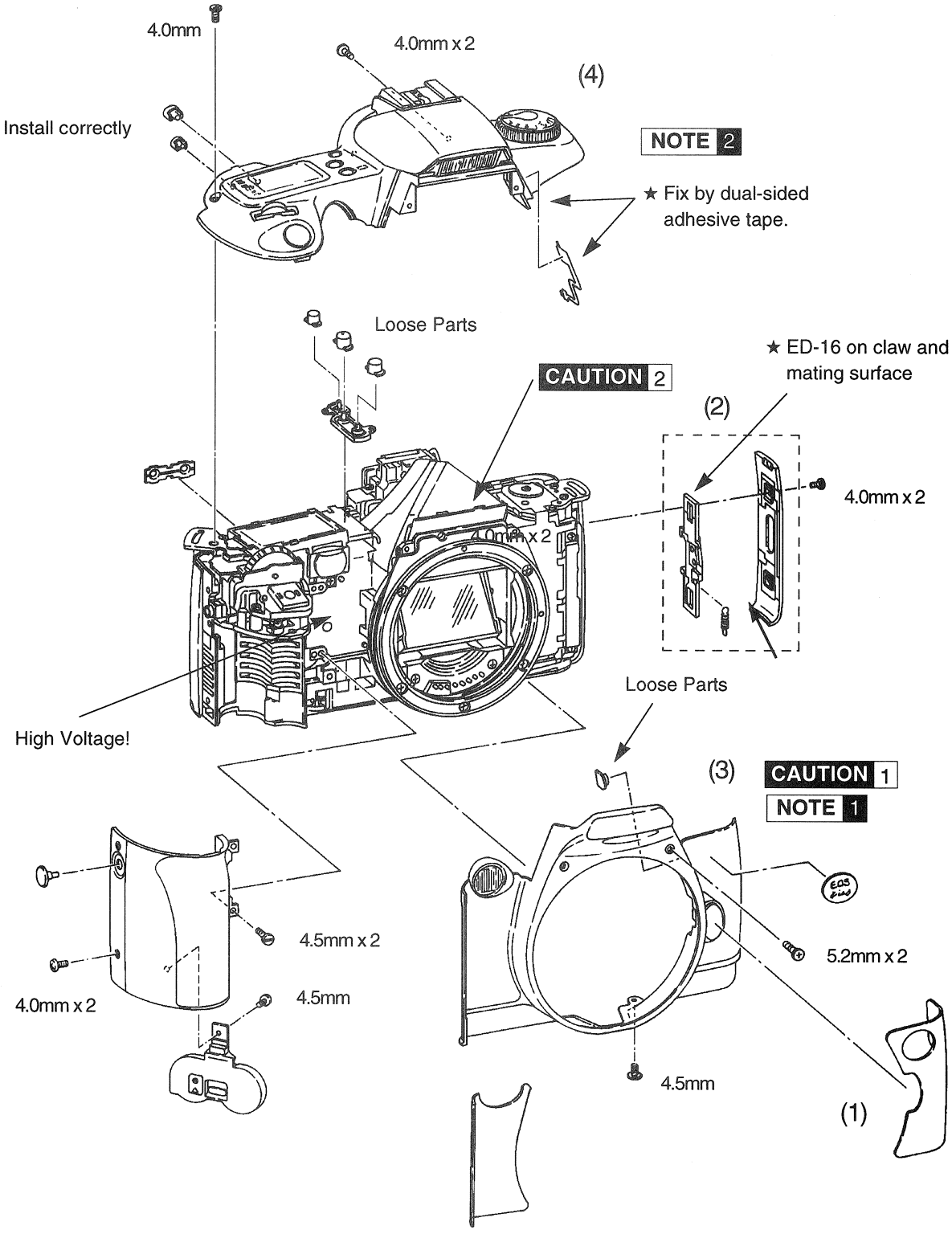


Figure 3-11 External Covers

<ASSEMBLY & DISASSEMBLY NOTES>

CAUTION 1 : Discharge the main flash capacitor!

- Always drain the main flash capacitor as soon as front cover (3) is removed before proceeding. See Fig. 3-12.

CAUTION 2 : Pentaprism protection

- After disassembling top cover (4), do not apply external pressure to the pentamirror.

NOTE 1 : Front Cover Removal

1. Peel off the left apron leather (1) from the back cover latch cover.
2. Loosen the screws on back cover latch cover (2) to raise the latch cover slightly.

* Take care to prevent the flash pop-up button from dropping out.

NOTE 2 : Top Cover Removal

(1) Top Cover Removal

1. Remove the two eyepiece screws.
2. Remove the screw at the right end strap lug.
3. Disconnect the six leads on the top flex (four from flash board and two from shutter board). (Fig. 3-12)
4. Remove the two comb connectors from the flash pop-up switch. (Fig. 3-12)
5. Remove the comb connector from the flash pop-up switch flex. (Fig. 3-13)
6. Disconnect the flash pop-up magnet leads. (Fig. 3-13)
7. Lift the top cover. (Disengage the grip from the top cover before removing the top cover.)

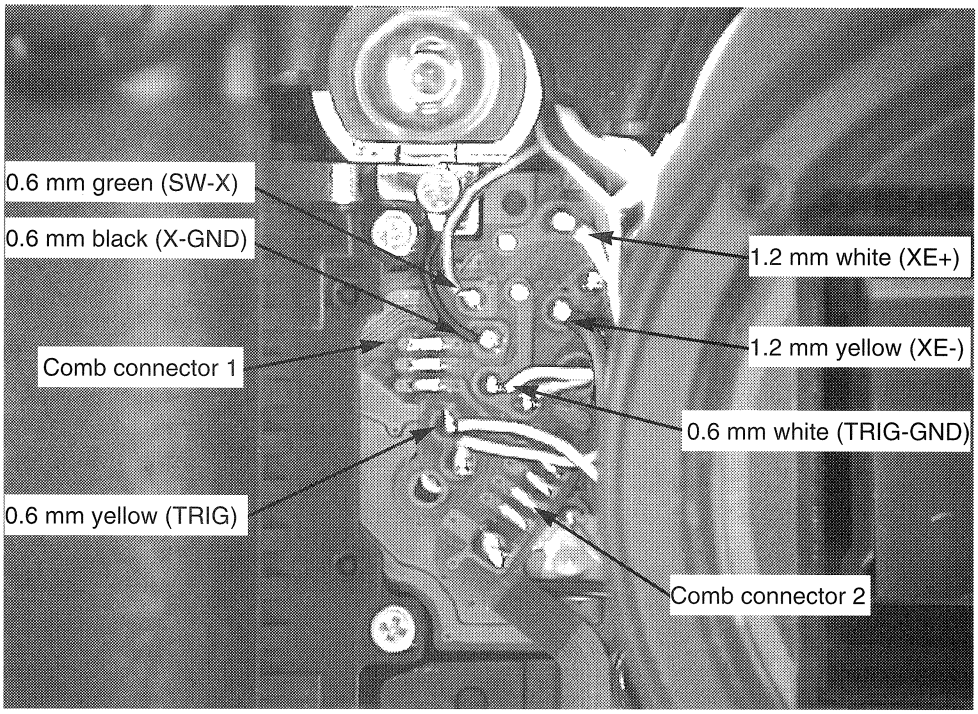


Fig. 3-12 Lead Wiring and Main Capacitor Bleeding

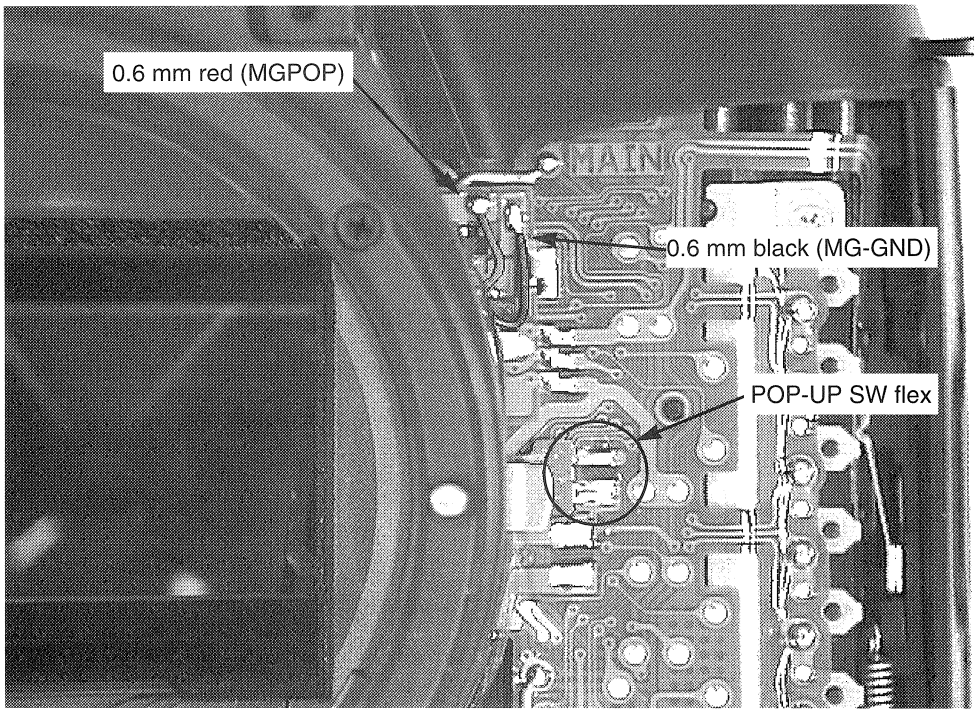


Figure 3-13 Flash Pop-up Magnet Leads

(2) Top Cover Assembly

- When assembling the top cover, the mode dial and the mode contact on the body must be aligned. After assembling the top cover, check mode switching.
- Prevent leads from being pinched and the flex from being broken.

<ASSEMBLY NOTES>

1. In principle, carry out assembly in the reverse order to disassembly.
2. When the battery is inserted before installing the top cover unit, the flash will be charged.

   However, when the main flex unit is replaced with a service part, the flash will not charge. It is in the charge inhibited state. (This state is canceled by initialization during electrical adjustment.)

2.2 Back and Bottom Cover Disassembly

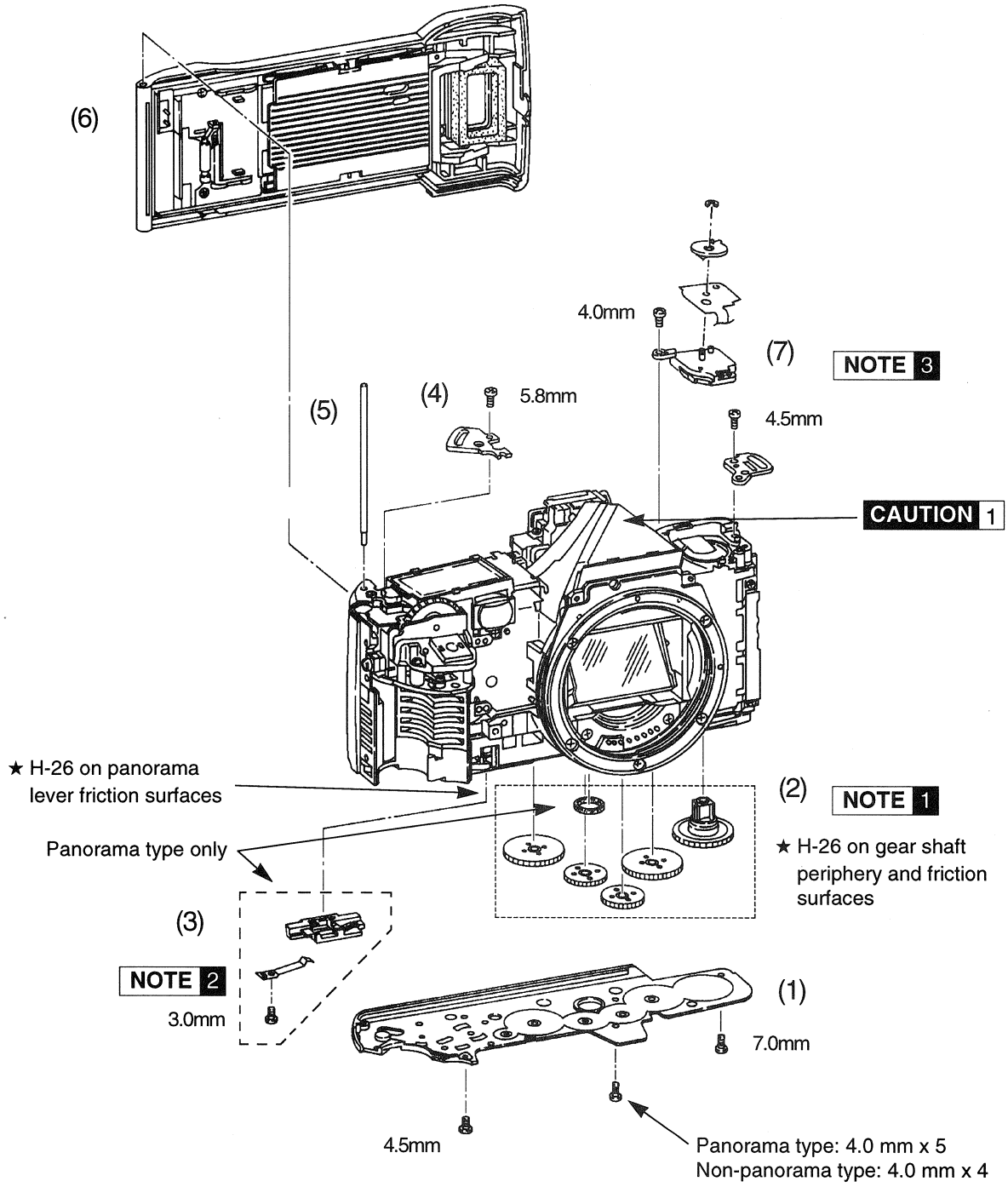


Fig. 3-14 Motor Leads

<ASSEMBLY & DISASSEMBLY NOTES>

CAUTION 1 : Pentamirror Protection

- After removing the top cover, do not apply pressure to the pentamirror.

NOTE 1 : Greasing Locations

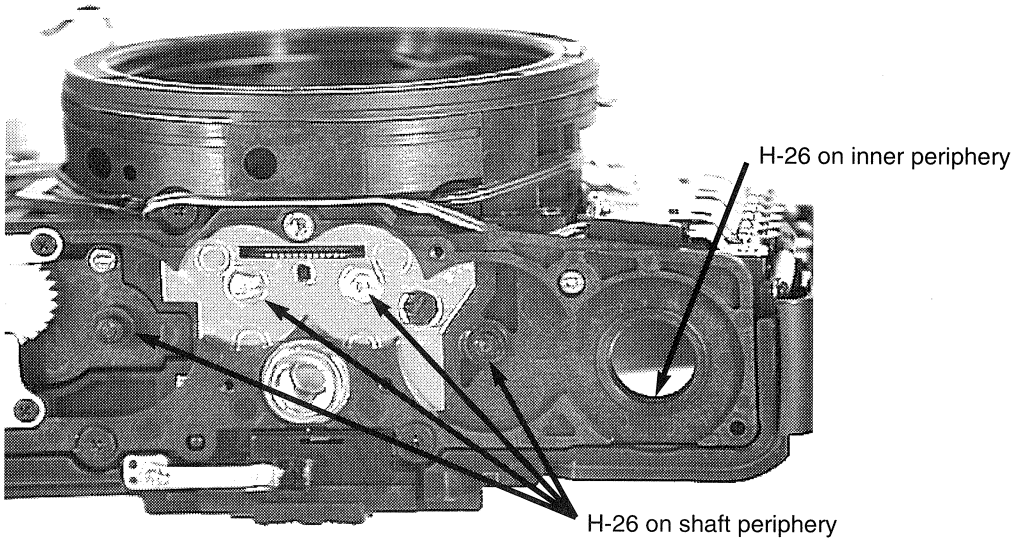


Figure 3-15 Greasing Locations

NOTE 2 : Installation of Panorama/Standard Selector Switch

- When installing the panorama selector switch, make sure that the panorama lever on the front shutter unit is firmly inserted between the switch springs. The springs and panorama lever must not be bent.

NOTE 3 : Mode Base Unit Removal

1. Remove the G-ring and mode contact.
2. Disconnect the two beeper leads from the main flex.

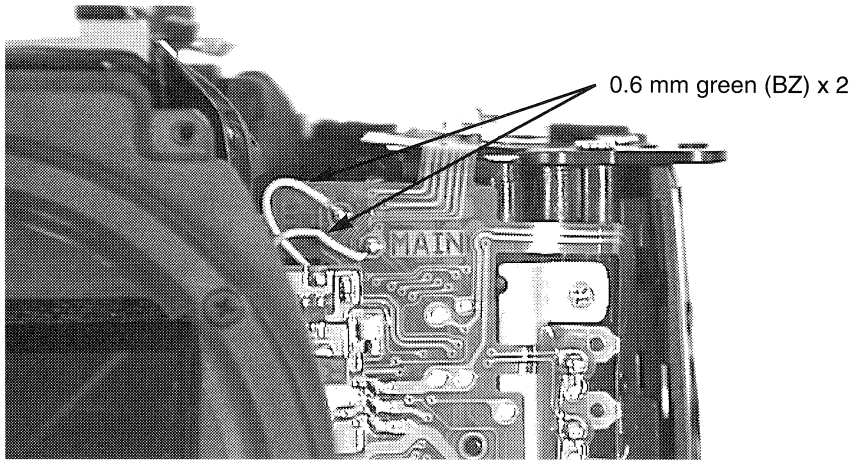


Figure 3-16 Mode Base (Beeper) Leads

2.3 Front Panel Unit Removal

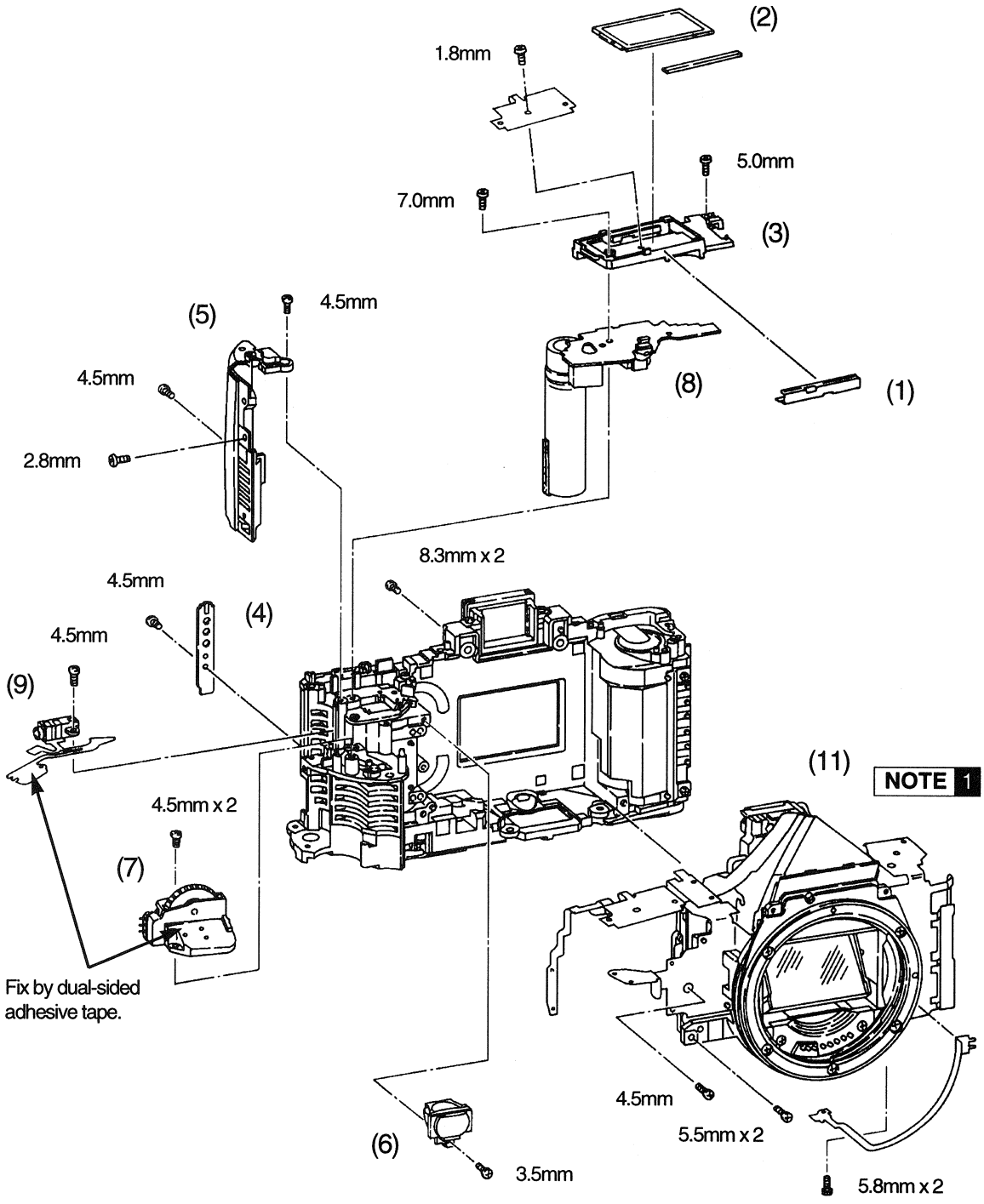


Figure 3-17 Front Panel Unit Removal

<ASSEMBLY & DISASSEMBLY NOTES>

NOTE 1 : About Front Panel Unit

(1) Disassembly of front panel unit

1. Slide LCD holder (1) to the front to remove, and disconnect LCD (2) and LCD connector.
2. LCD case (3) removal
   - Remove the DSP flex fixing screws on the LCD case.
   - Remove the two case fixing screws.
3. Date contact cover (4) removal
   Remove the screw on the date contact cover to remove the date contact cover.
4. Hinge cover (5) removal
   Remove the three screws on the hinge cover to remove the hinge cover.
5. On panorama models, disconnect the two leads from the panorama eyepiece. (Fig. 3-18)

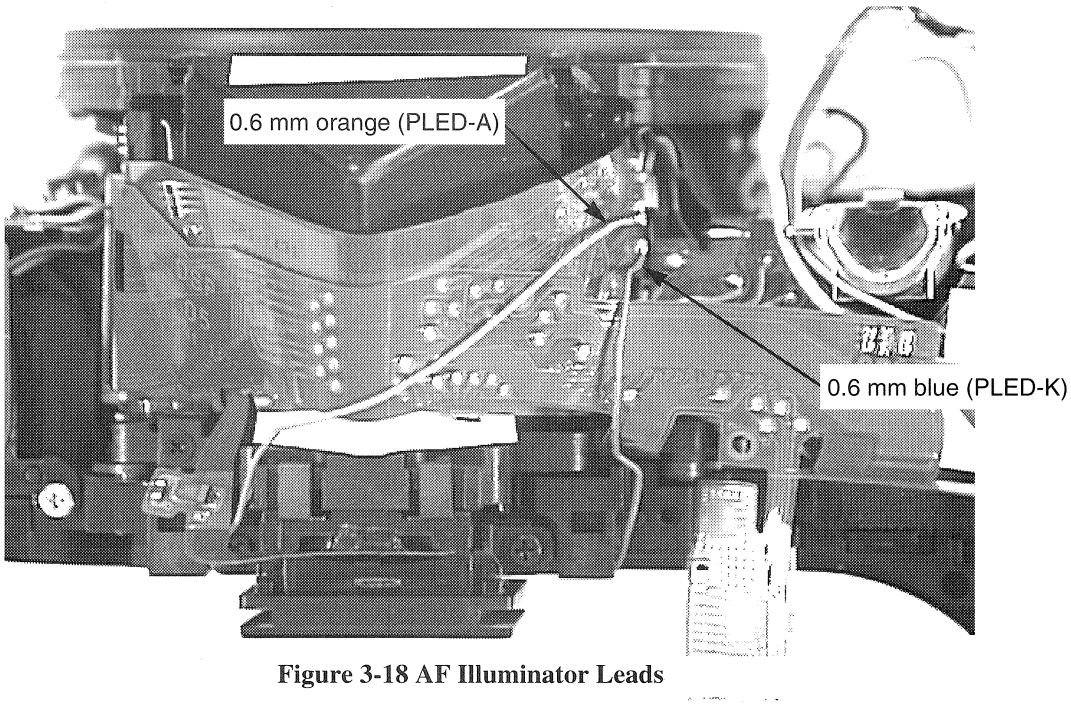


Figure 3-18 AF Illuminator Leads

6. AF illuminator unit (6) removal
   - Remove the AF illuminator unit fixing screw.
   - Disconnect the lead from the flash board. (Fig. 3-19)
7. Electronic dial unit (7) removal
   - Remove the two fixing screws on the electronic dial unit.
   - Unsolder the comb connector from the release flex, and peel off the release switch (fixed by dual-sided adhesive tape).
8. Flash board (8) removal
   - Remove the comb connector from the main flex. (Fig. 3-19)
   - Remove the comb connectors from the shutter board and main flex. (Fig. 3-19)
   - Disconnect the two leads from the battery contact (on release flex). (Fig. 3-20)
   - Draw out the flash board together with the main capacitor upwards.
9. Remove two motor leads. (Fig. 3-19)

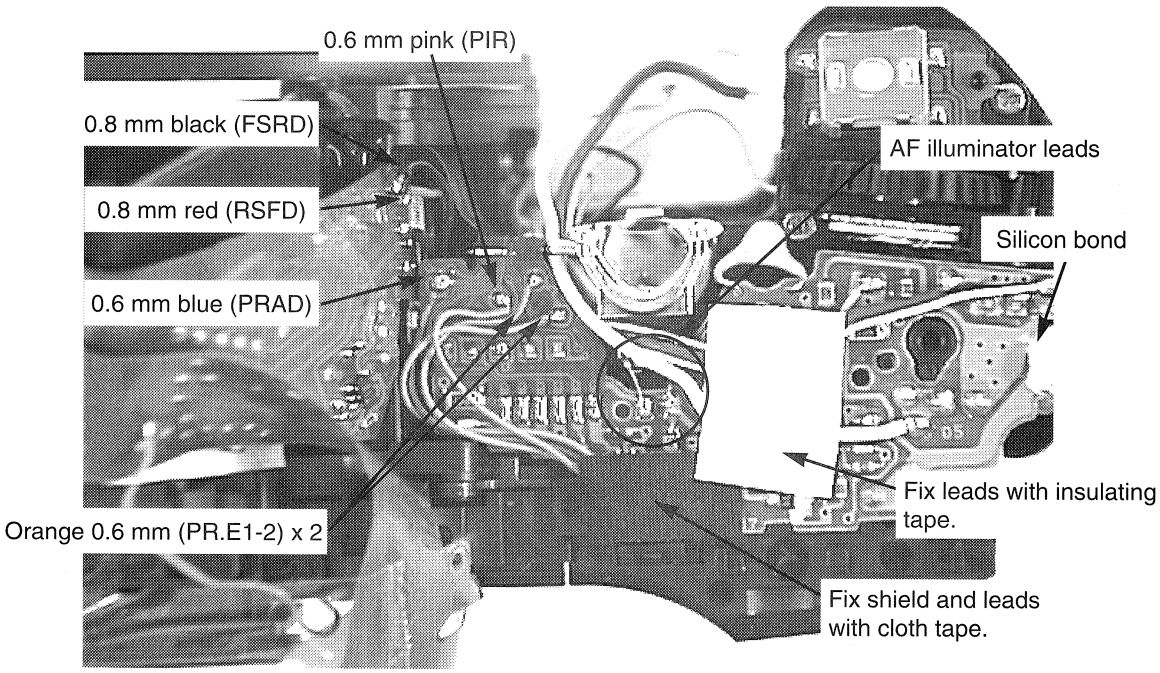


Fig. 3-19 AF Illuminator Unit Removal

10. Release flex unit (9) removal
    - Remove the remote control terminal fixing screw.
    - Remove the comb connector from the main flex. (Fig. 3-20)
11. Unsolder thru holes at battery contact. (Fig. 3-20)

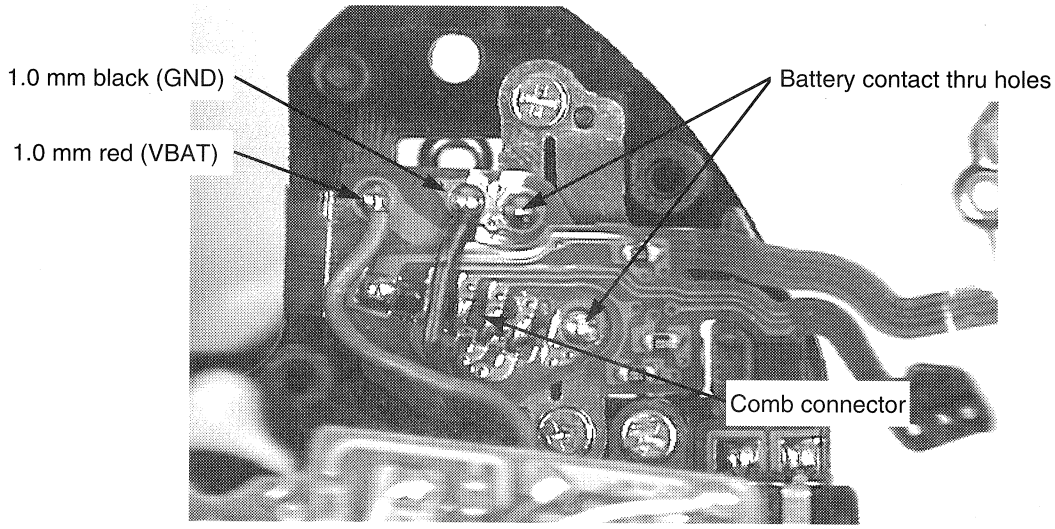


Figure 3-20 Battery Contact

12. On panorama models, remove the comb connector from panorama switch flex (10). (Fig. 3-21)
13. Disconnect the three leads from the phase signal board. (Fig. 3-21)
14. Unsolder the seven thru holes at the DX contact. (Fig. 3-21)
15. The DX contact cover is fixed to the main flex BP switch (back cover switch) by

dual-sided adhesive tape. Take care not to cut the flex when removing this tape.

16. Remove the front mounting screws. (x 7)

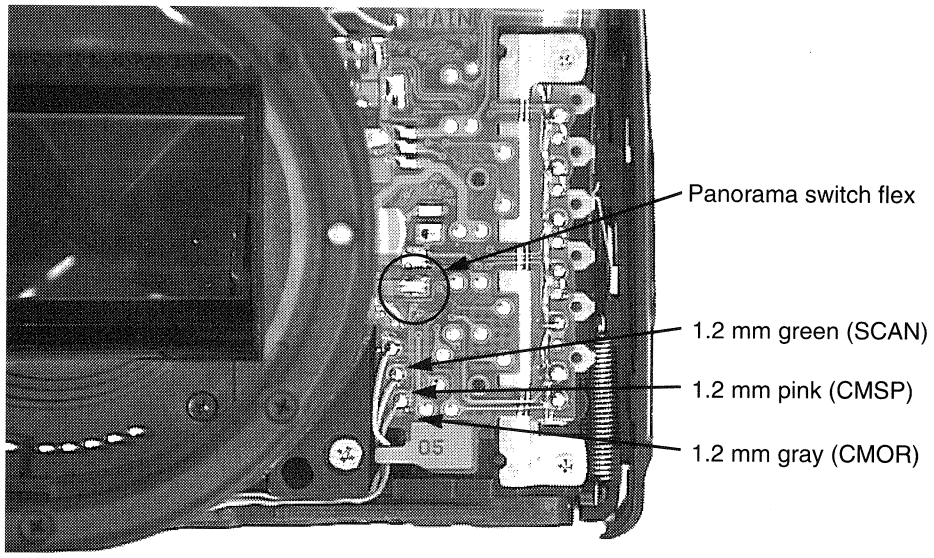


Figure 3-21 DX Contacts

(2) Assembly of front panel unit

1. On panorama models, when installing the front panel unit insert the tip of the shutter unit's panorama lever into the body first, taking care not the bend the lever.
2. Rotate the CHG phase cam gear on the lower base unit, and push the charge lever into the aperture mask side. The figure below shows the positions of the charge lever and mirror-up lever.

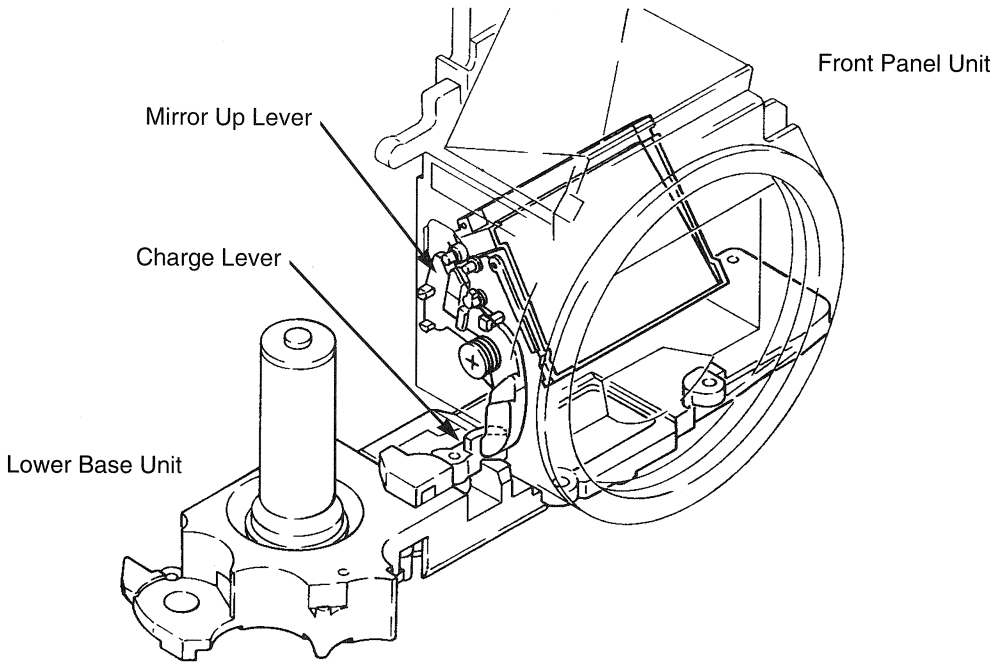


Figure 3-22 Charging the Mirror

2.4 Main Flex Unit Removal

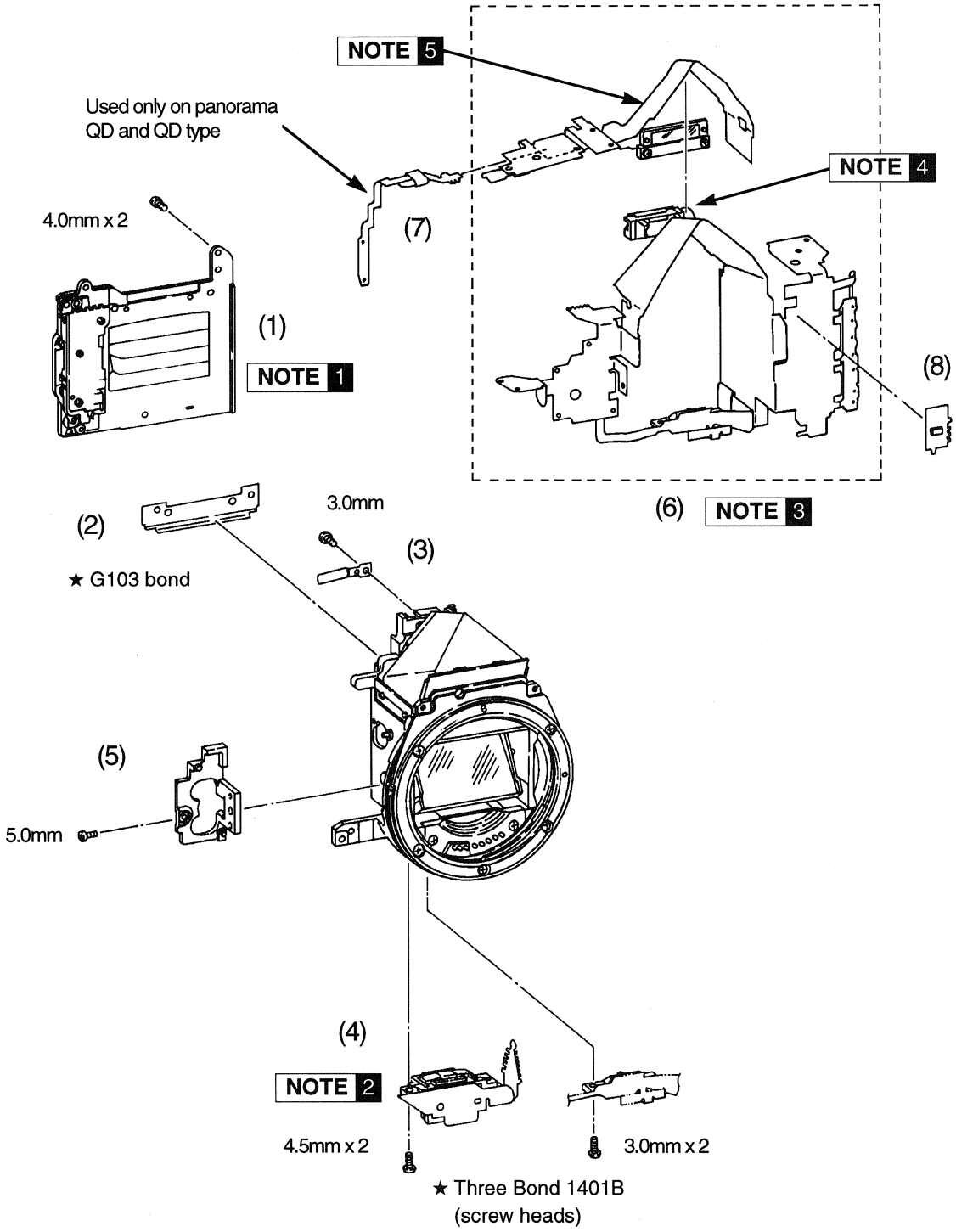


Figure 3-23 Main Flex Removal

<ASSEMBLY & DISASSEMBLY NOTES>

NOTE 1 : Shutter Unit (1)

- The tip of the panorama lever protrudes from the panorama shutter unit. Do not set the front panel unit down in the upright position. Doing so might deform the tip of the panorama lever.

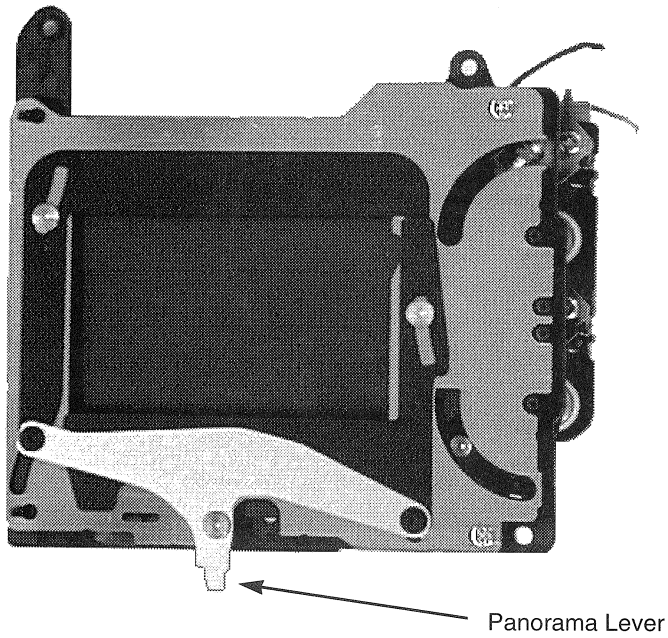


Figure 3-24 Shutter Unit

NOTE 2 : AF Unit (4)

- When the AF unit is removed, the AF Sensor Position adjustment is necessary. After adjusting the position, coat the heads of the screws with bond to fix.
- When the AF sensor has been removed, AF accuracy adjustments (electrical adjustments) are necessary.

NOTE 3 : Main Flex Removal

1. Remove the shutter unit (two screws).
2. Peel off light shield screen (2) to remove ILC holder (3). (one screw)
3. AF unit removal
   - Remove the comb connector from the main flex.
   - Remove the two AF unit fixing screws.
4. Disconnect the three leads from the contact seat unit. (Fig. 3-24)
5. Unsolder the thru holes on the contact seat unit.
6. Remove the two metering sensor holder screws to raise the metering sensor.
7. Remove the metering sensor.
   (If the metering sensor is removed, electrical adjustment is necessary.)
8. Remove the wing fixing screw, and remove main flex unit (6) together with wing (5).

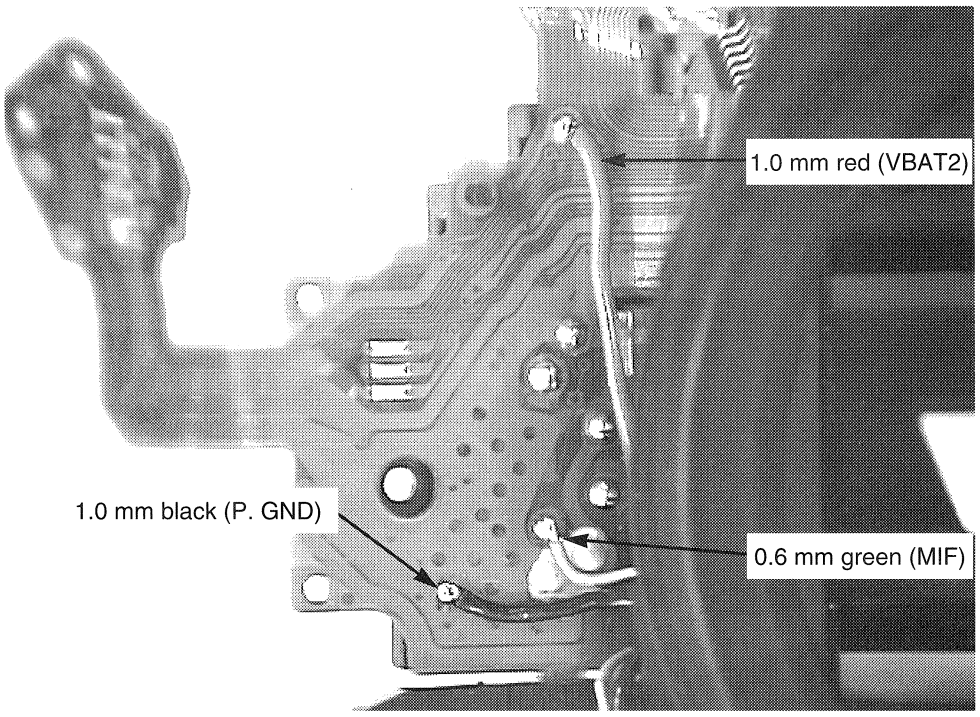


Fig. 3-25 Contact Seat Leads

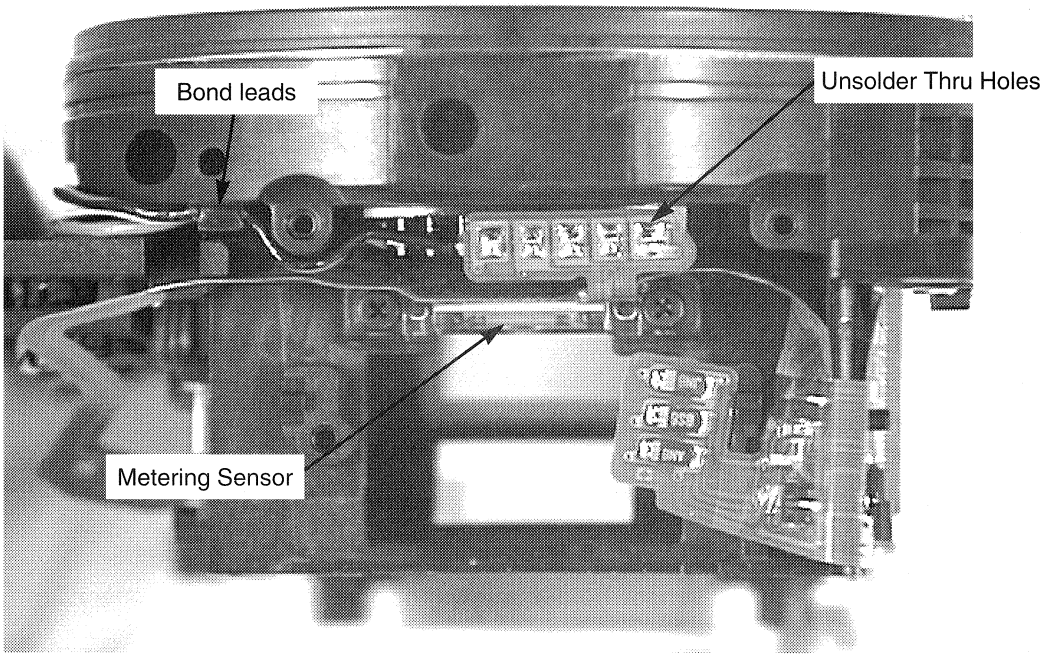


Figure 3-26 Contact Seat Comb connector

NOTE 4 : About DSP Flex

- The DSP flex is defined as a part of the main flex unit. It cannot be replaced as an individually part.
- The DSP flex for panorama types differs from that for QD types. Besides differences in the main flex unit, the state of the panorama pads on the DSP flex also is different. (Fig. 3-27)

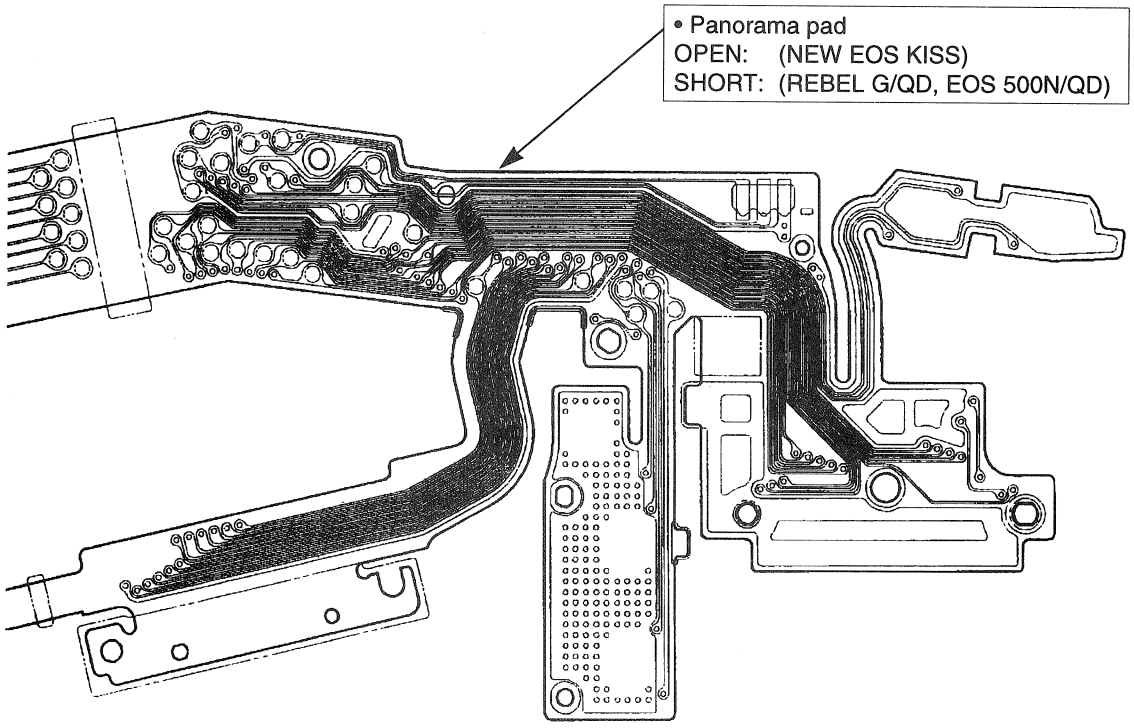


Figure 3-27 Panorama Pad

NOTE 5 : About Date Flex

- The date flex is used on Panorama QD and QD models only.

2.5 Front Panel Unit Disassembly 1

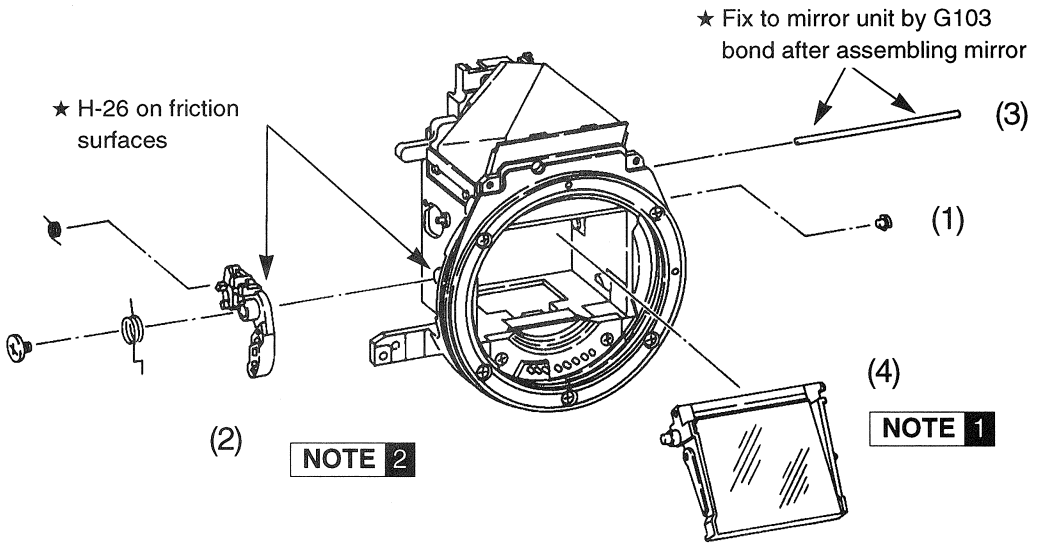


Figure 3-28 Front Panel Unit Disassembly 1

<Assembly & Disassembly Notes>

NOTE 1 : About Mirror Unit (4)

(1) When the mirror unit is replaced, sub-mirror 42° adjustment is required.

(2) Mirror unit removal

1. Remove sub mirror stopper (1).
   The sub mirror stopper is fixed by claws at two locations, and is removed by pressing the head of the stopper from inside the mirror box.
2. Remove mirror up lever (2) taking care to prevent the springs from flying up.
3. Remove the bond from main mirror hinge (3) and mirror unit (4), and draw out the main mirror hinge.
4. Remove the mirror unit from the mount.

NOTE 2 : About Mirror Up Lever

- After assembling the mirror up lever, install and hook the mirror up spring and the mirror return spring as shown in the figure below.

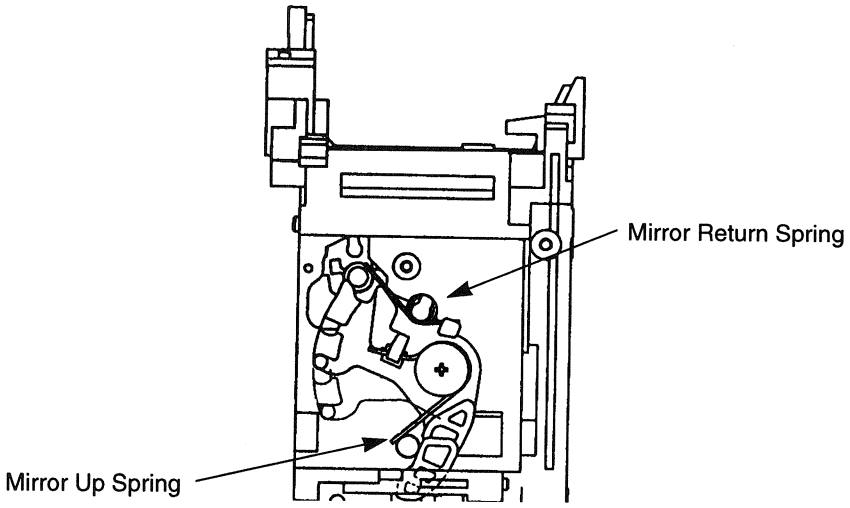


Figure 3-29 Mirror Spring Positions

2.6 Front Panel Unit Disassembly 2

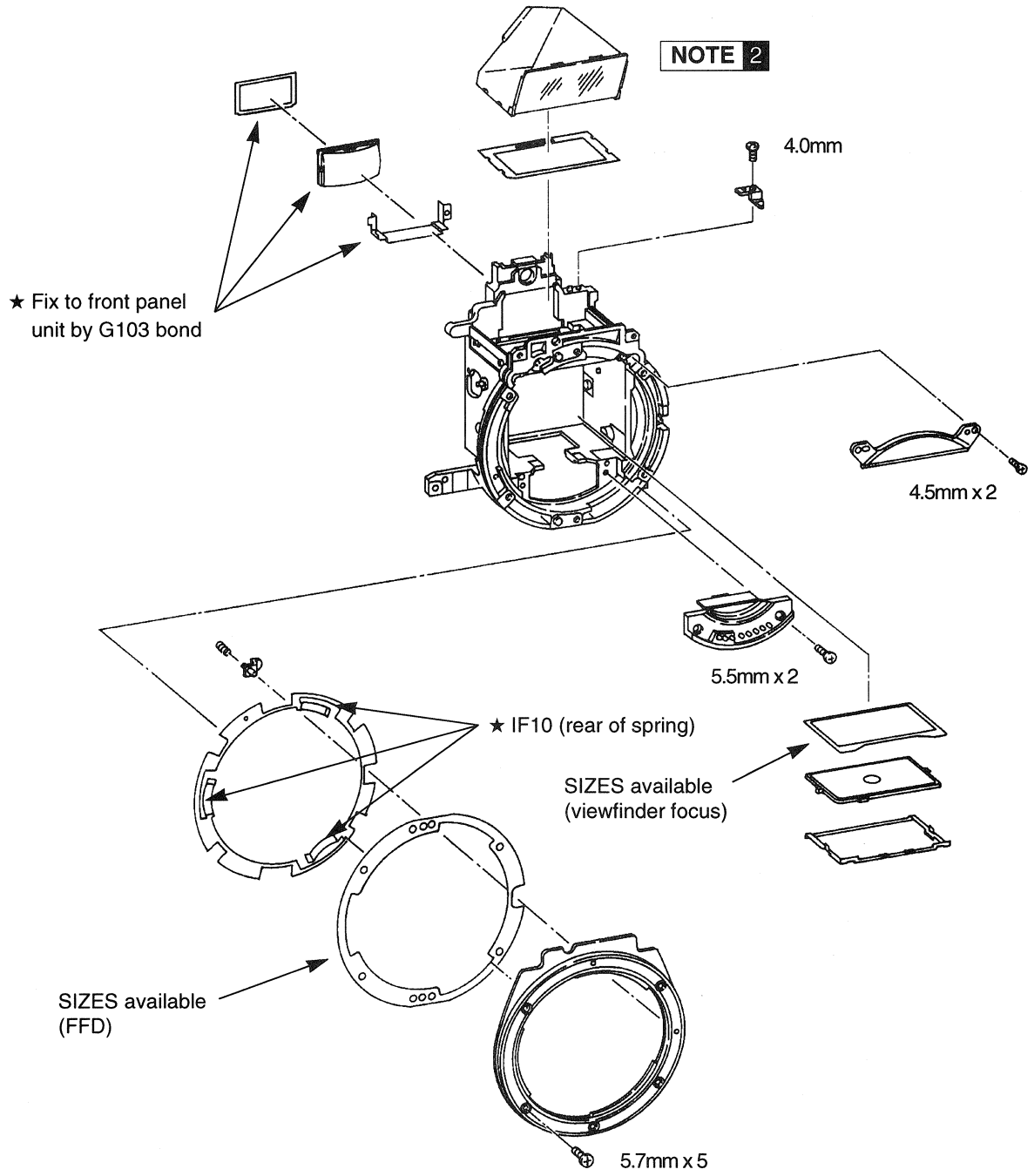


Figure 3-30 Front Panel Unit Disassembly 2

<ASSEMBLY & DISASSEMBLY NOTES>

NOTE 1 : About Pentamirror

1. When replacing the pentamirror, first make sure the interior of the pentamirror is clean. Use nothing but a clean blower brush inside the pentamirror. DO NOT use lens paper because it may scratch the pentamirror.
2. Cleanly wipe off silicon from the mirror box. Apply a coat of Aron Alpha to the four corners before installing in the pentamirror to temporarily hold it. When installing, first insert into the viewfinder side.
3. Seal the periphery of the pentamirror with silicon bond KE375B, and leave for about 12 hours to allow the bond to harden.

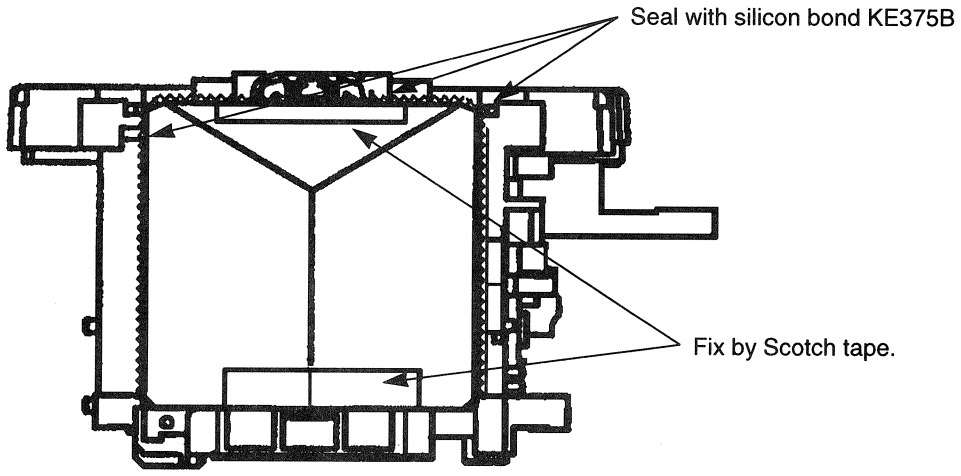


Figure 3-31 Pentamirror Installation

2.7 Body Disassembly

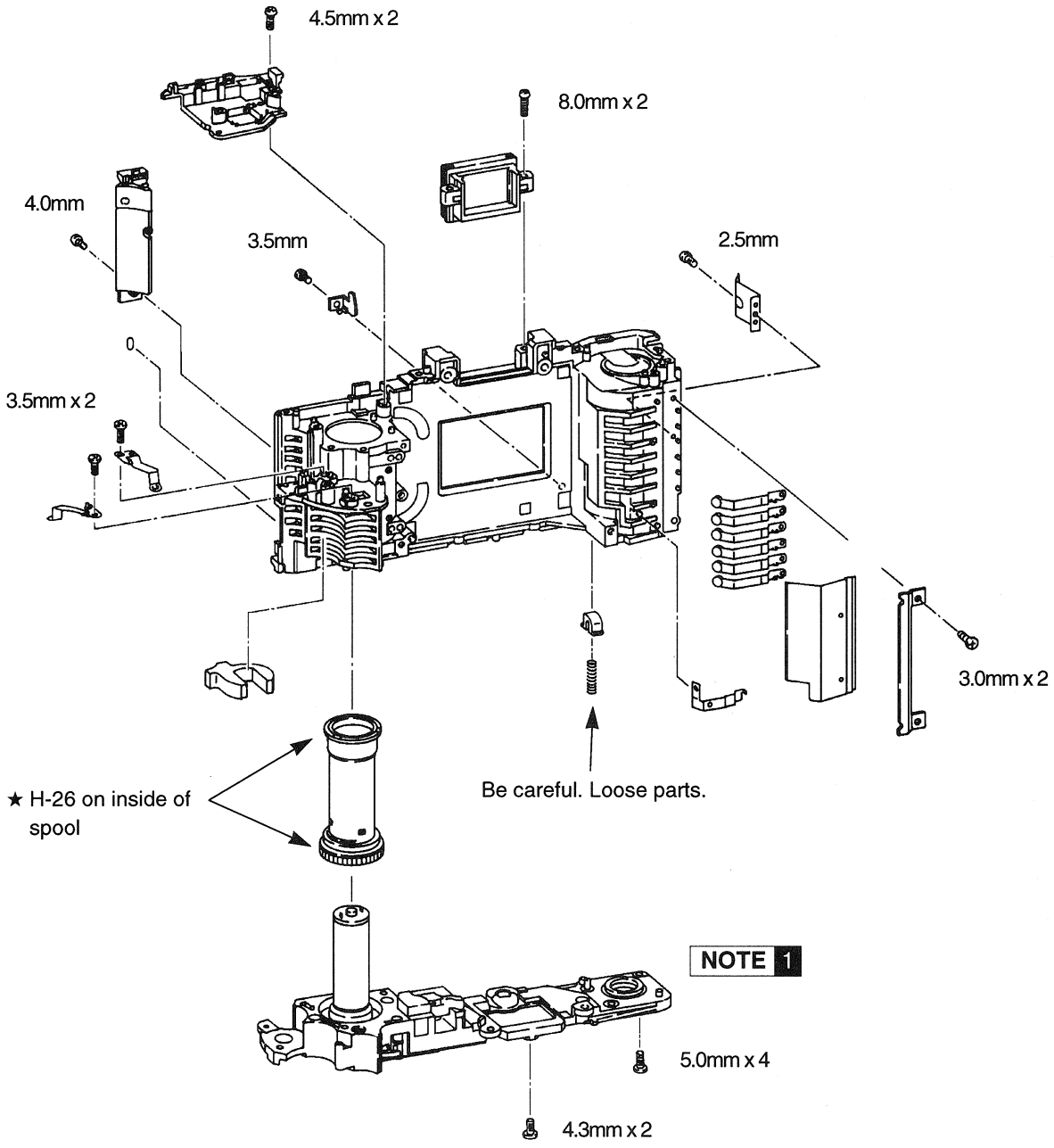


Figure 3-32 Body Disassembly

<ASSEMBLY & DISASSEMBLY NOTES>

NOTE 1 : Transport Unit Removal

- Pay attention to the film cartridge push-up lever. This lever comes away when the lower base unit (transport unit) is removed.
- Remove the transport unit while pressing in the tip of reset lever 2.

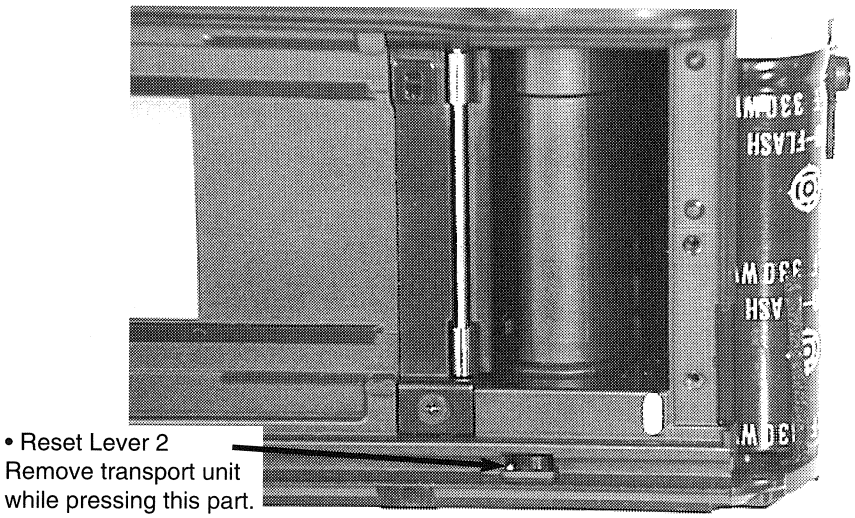


Figure 3-33 Film Transport Unit Reset Lever

2.8 TRANSPORT UNIT DISASSEMBLY

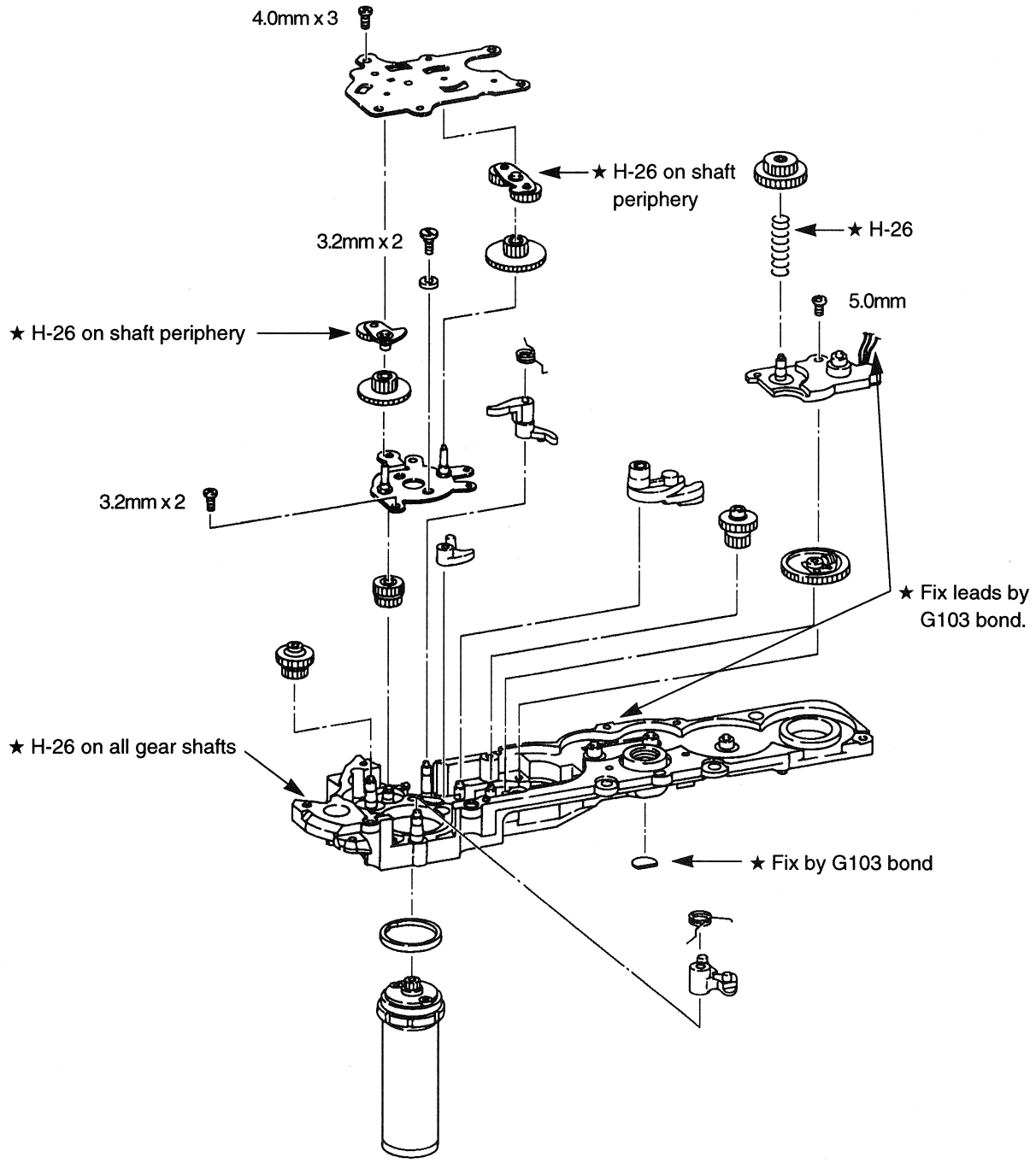


Figure 3-34 Film Transport Unit

2.9 Back Cover Unit Disassembly

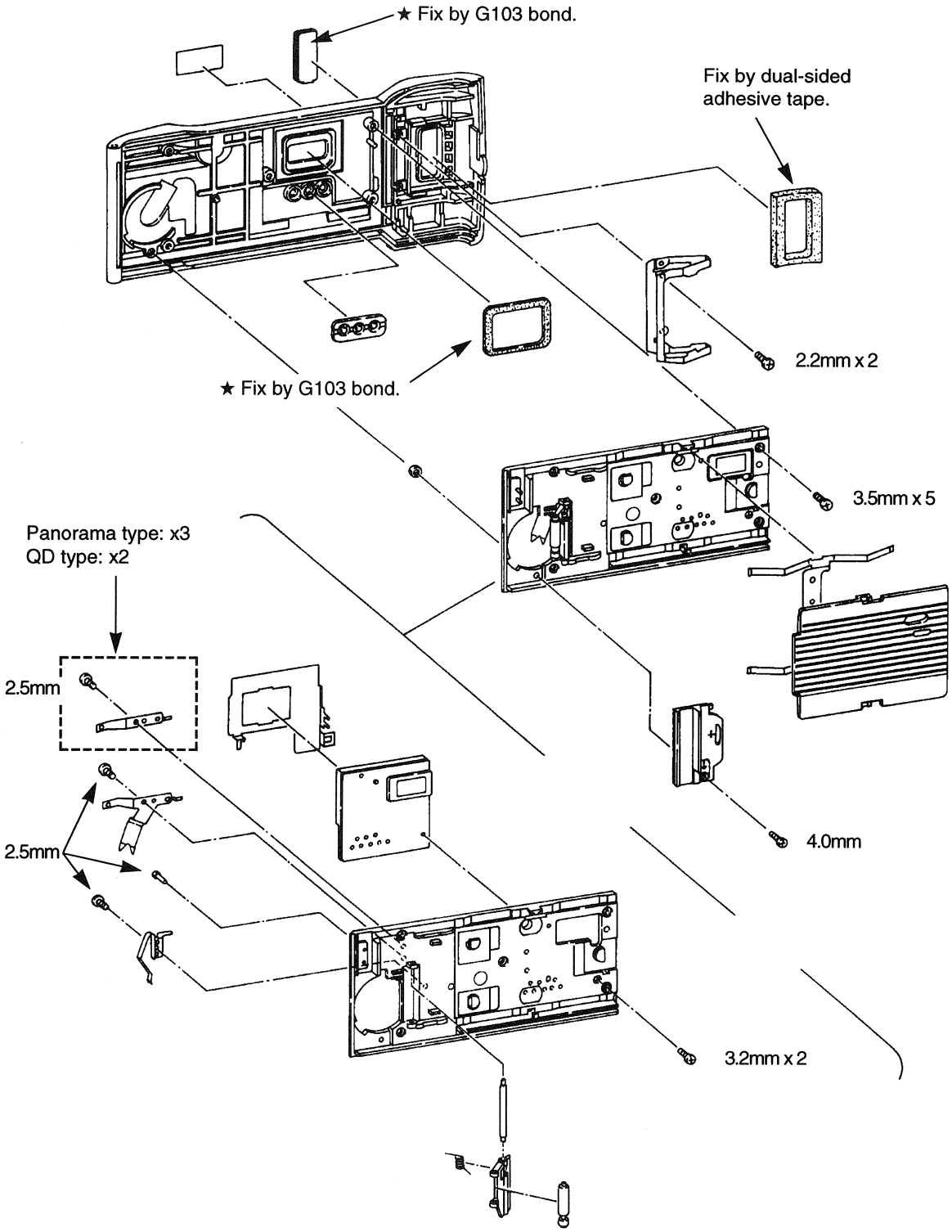


Figure 3-35 Back Cover Unit

2.10 Top Cover Disassembly

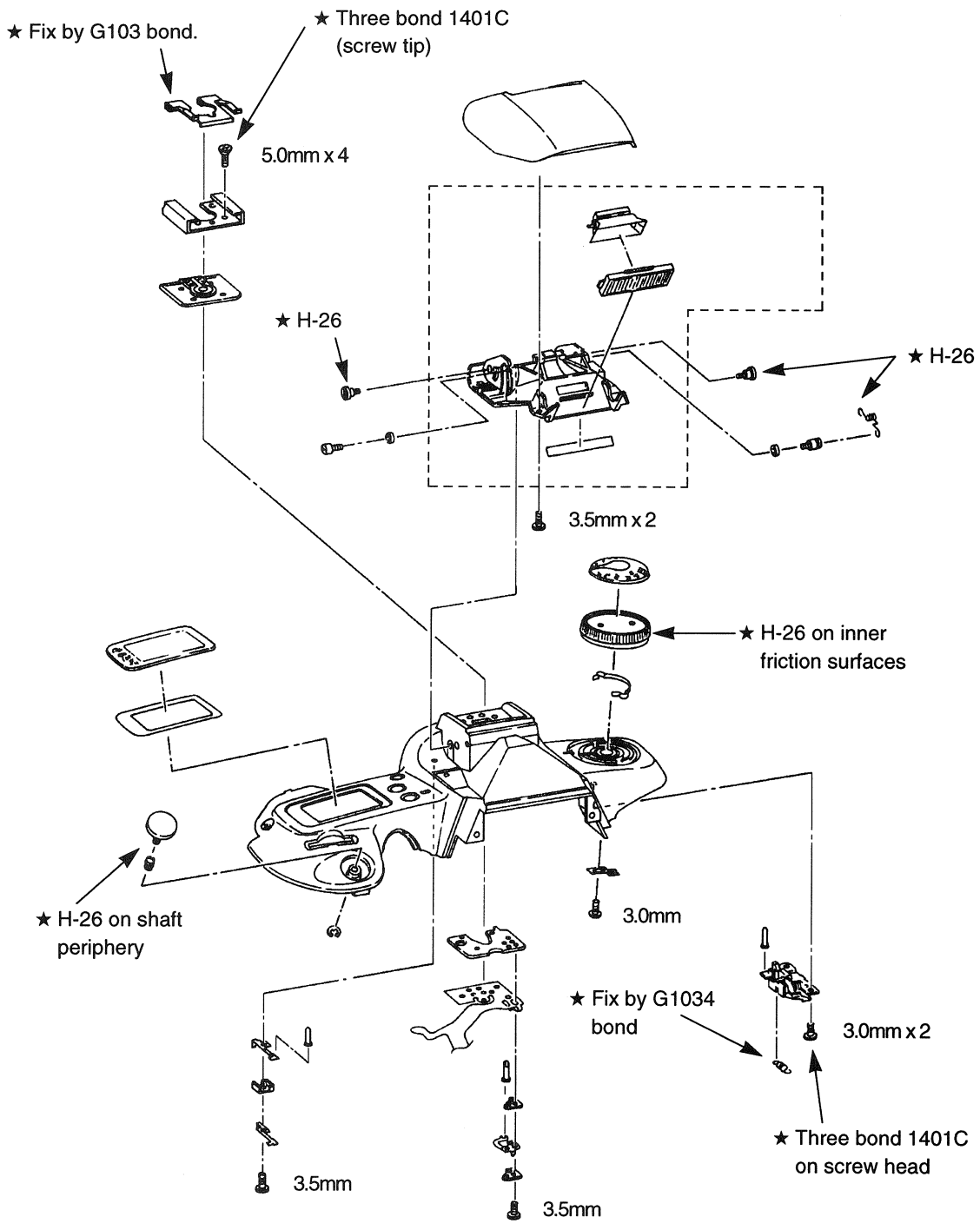


Figure 3-36 Top Cover Unit

<MEMO>

3. MECHANICAL ADJUSTMENTS

3.1 SUB-MIRROR 42° ANGLE ADJUSTMENT

CAUTION
- The sub-mirror angle must be adjusted when the front panel unit or mirror unit is disassembled or replaced.
- The main mirror angle (45°) need not be adjusted.

PURPOSE:

- To adjust the sub-mirror vertically to obtain the mirror angle (42°). (Horizontal alignment is only checked.)

STANDARD:

Vertical	42° ± 5'
Horizontal	42° ± 8'

TOOLS:

- Mirror angle testing tool, Sub-mirror gage (42°)
- Auto collimator (f=300 mm), Hex key (1.3 mm)

PREPARATION:

1. Adjust the flatness of the auto collimator table.
   Align the position of the reflection chart with the center of the auto collimator viewing field using the plane mirror.

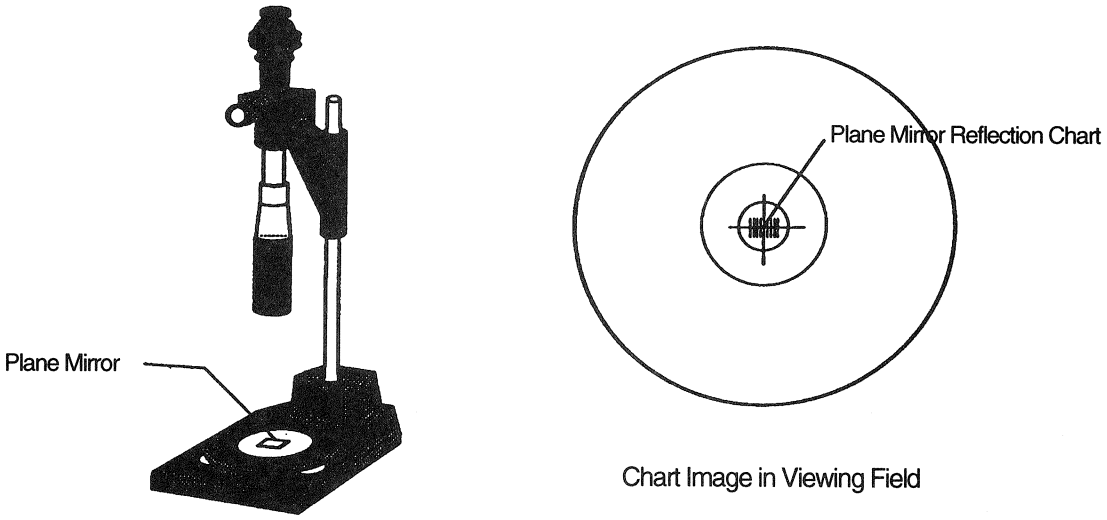


Figure 3-37 Auto Collimator

2. Attach the sub-mirror gage (42°) to the mirror angle testing tool.

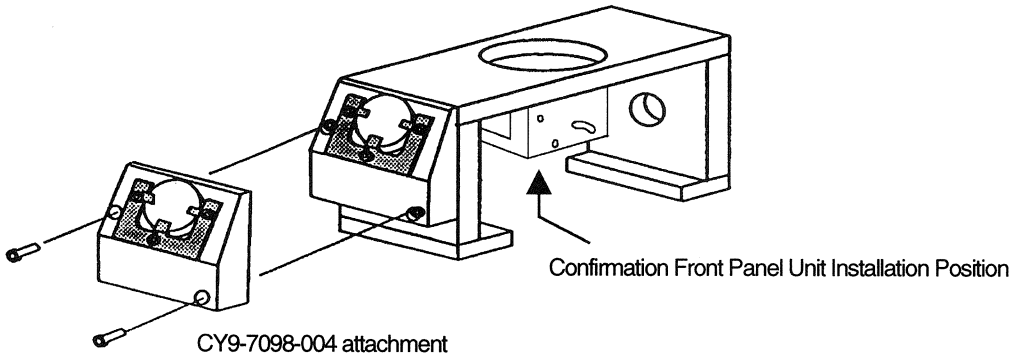


Figure 3-38 Universal Mirror Angle Adjustment Tool

ADJUSTMENT:

1. Remove the mirror up spring as shown (Fig. 3-40) to lower the mirror. (Push the mirror up lever into the mount.)
2. Attach the front panel unit (without AF sensor attached) to the mirror angle testing tool, and place on the auto collimator table.
3. Judge adjustment by the position of the image in the reflection chart inside the auto collimator viewing field.
   * Approx. ±5' if within viewing field

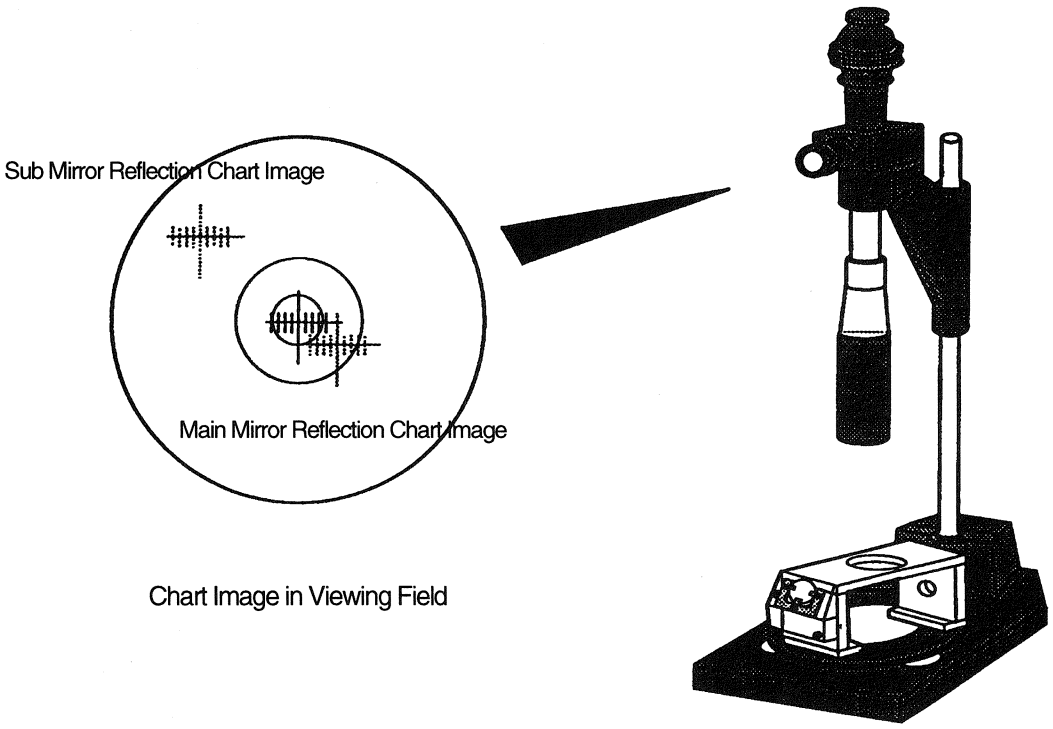


Figure 3-39 Mirror Angle Standard

4. Turn the eccentric dowel inside the mirror box shown in the figure below to vertically adjust the sub-mirror.

* In a normal product state, the eccentric dowel on the front panel unit is a molded eccentric dowel that is bonded into position. For this reason, the dowel does not need adjusting. However, so the front panel unit can be shared with EOS REBEL X / 500, a metal eccentric dowel is used as a service part.

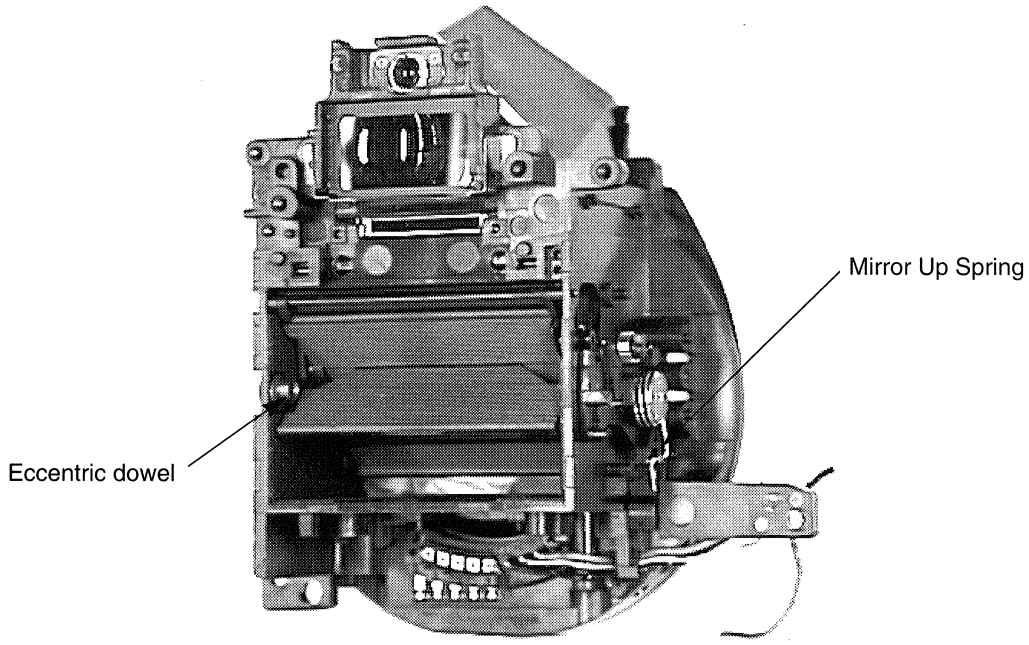


Figure 3-40 Sub Mirror Adjustment Locations

3.2 AF Sensor Positioning (Horizontal)

CAUTION
- The AF sensor position must be adjusted when the AF sensor unit is replaced.
- Adjustment is basically similar to the previous EOS cameras.

Purpose:

- To align the center position of the AF sensor with the optical axis. (Horizontal axis only)

Standard:

- The center of the sensor must be inside the central AF frame

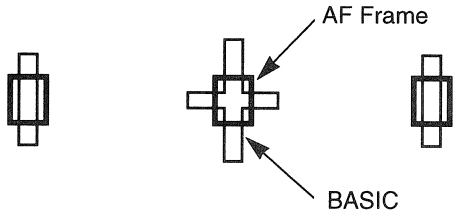


Figure 3-41 AF Frame and BASIS Alignment

Tools:

- EF50mm f/1.8 (product), Pen light or illuminator

Preparations

1. Use a EOS camera body to stop down the EF50mm f/1.8 lens to f/8.

   * When EOS 1000 is used
   Mount an EF50mm f/1.8, and set the AV mode and the aperture to f/8. Shade the lens with your hand to cause a long shutter speed. Press the shutter button and remove the lens while the shutter is open.

2. Set the distance scale of the lens to infinity (to make the AF frame clear).

Adjustment:

1. Install the EF50mm f/1.8 on the front panel with the mirror unit, focusing screen and AF sensor unit installed temporarily.
2. Illuminating the AF sensor unit with the penlight, look in the lens and check the AF frame and BASIS image as shown in the figure on the right.
3. Move the AF sensor unit horizontally to adjust the position of the sensor to the center of the AF frame.
4. Slightly tighten the screws in the AF sensor and apply Three Bond 1401B to the head of the screws.

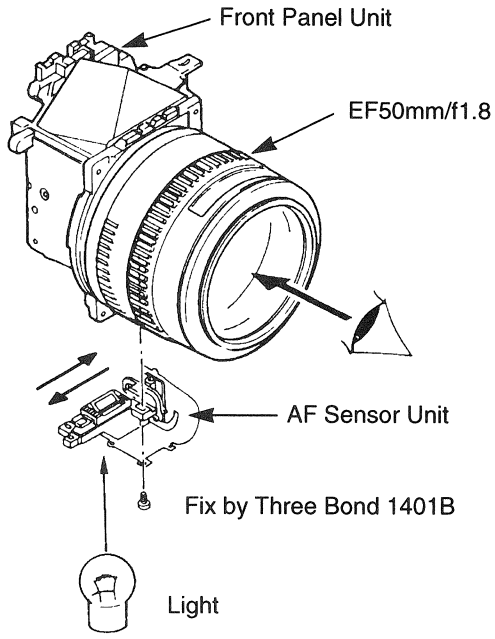


Figure 3-42 AF Sensor Positioning

3.3 Flange to Focal Plane Distance Adjustment

CAUTION
- The Flange to Focal Plane Distance (FFD) must be adjusted when the front panel unit or mount has been replaced.
- Before making the adjustment, place the focusing rail optical flat on the rails to check for gross misalignment.
- After adjustment, check the viewfinder focus.

Purpose:

- To adjust the FFD to 44.14mm (with optical flat on outer rails)

Standard:

- FFD: 44.14 ±0.04 mm (measure at outer rail using optical flat)
- Parallelism: 0.03 mm or less (difference in four corners)
- Pressure plate center: 44.17 ±0.04 mm (measure center of pressure plate)
  * Use this data on the pressure plate center for electric adjustment AF Standard adjustment.)
- Pressure Plate Center Depression: 0.030 ±0.020 mm (using outer rail reference)
  * Pressure Plate Center Depression is measured at the "E" point in the figure on the right.
  * "E" should be lower (more +) than any of ABCD, but one of the four points can be as much as +15um, and one more can be +5um compared to E.

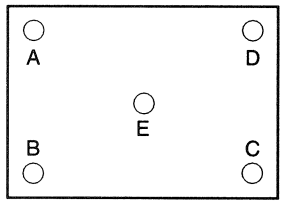


Figure 3-43 Pressure Plate Points

Tools:

- Dial gage, Auxiliary ring (2 mm), Optical flat
- Flange gage (44.14 mm or 42.14 mm), Optical flat
  * When measuring the FFD with greater precision, use the CY9-7094 dial gage. This dial gage allows measurement in 0.001mm steps.

Preparations:

1. Insert the auxiliary ring (2mm) between the leg of the dial gage and the point.
   - This is because the dial gage was designed for the FD lens (42.14mm) standard.
2. Use the flange gage (44.14mm or 42.14mm) and optical flat to adjust the dial gage to zero.

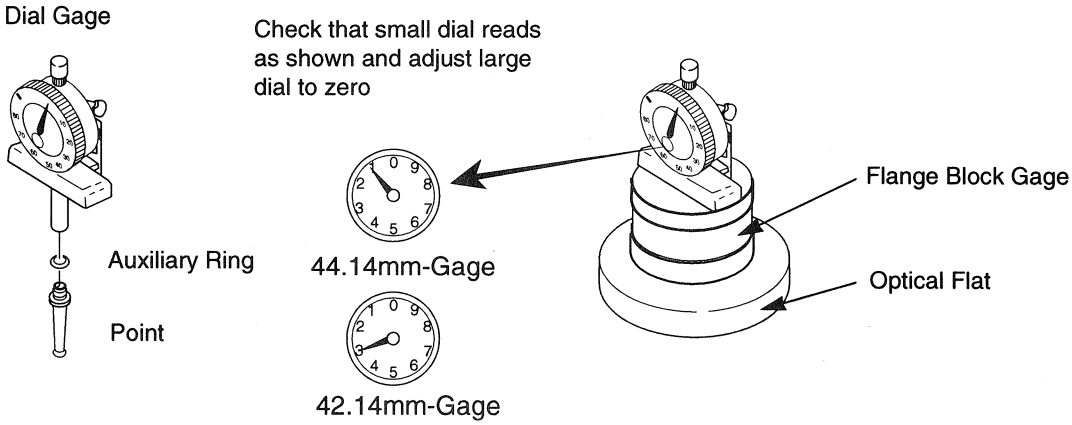


Figure 3-44 Dial Gage

ADJUSTMENT:

1) Flange Back

   1. Set the optical flat on the outer rails, and set the camera to bulb.
   2. Place the dial gage on the mount, and measure the FFD at A, B, C, D and E.
   3. If FFD is out of limit, change the mount spacer to adjust. Measure the four corners of the pressure plate to check parallelism. If it is out of limit, change the parallelism adjustment washers as necessary.
      * If the rail surface is grossly misaligned, FFD cannot be adjusted, and the camera body must be replaced.

2) Pressure Plate Center

   1. Close the back cover, and open the shutter.
   2. Place the dial gage on the mount, and measure the FFD to the pressure plate center (E).
   3. If it is out of limit, change the pressure plate.

3) Pressure Plate Center Depression

   - From the results of 1) and 2), calculate the pressure plate center depression. If it is out of limit, change the pressure plate.

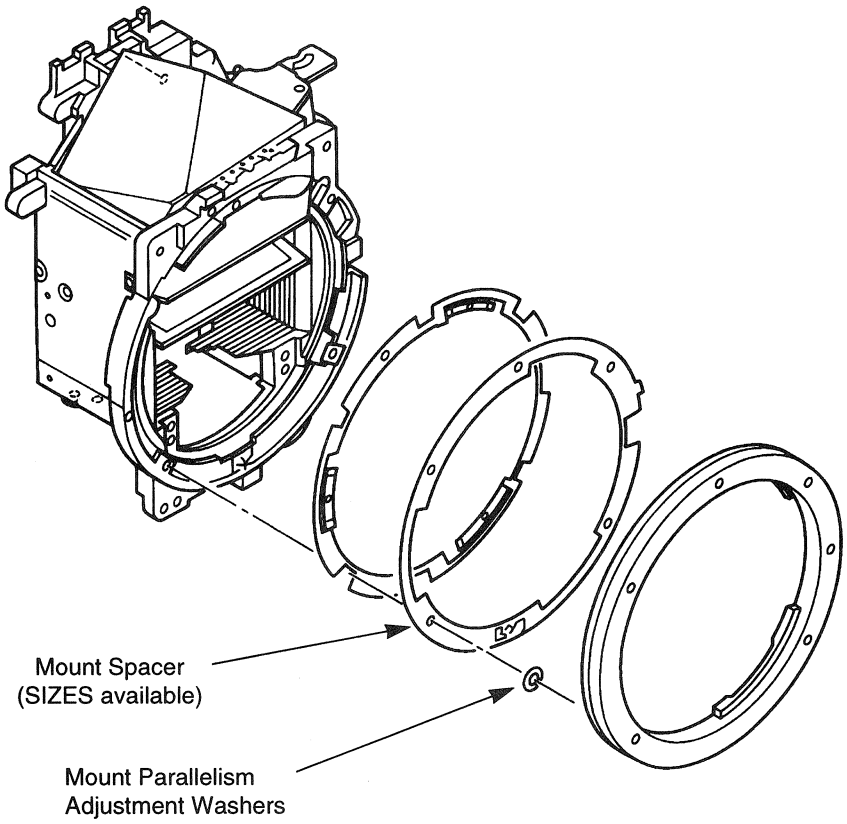


Figure 3-45 Flange Back Adjustment

3.4 VIEWFINDER FOCUS ADJUSTMENT

CAUTION Be sure to adjust the viewfinder focus after the FFD adjustment.

PURPOSE:

To match the viewfinder focus with the film focus position.

STANDARD:

The viewfinder should be sharpest within 1.5 index line widths, as shown in Fig. 3-42.

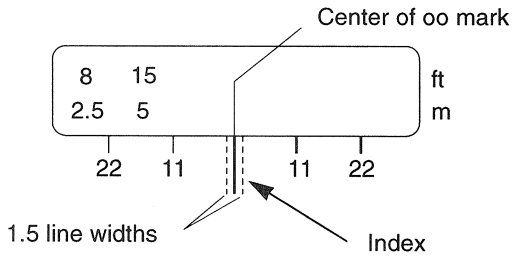


Figure 3-46 Lens Focusing Scale and Index

TOOLS:

- AD-S magnifier
- EF50 mm f/1.8 (product)
- Universal 500 mm collimator

ADJUSTMENT:

1. Install the magnifier on the eyepiece and adjust it to your eyesight. (The lens should not be installed at this point.)

   Eyesight Adjustment Procedure

   Aim the camera at a bright EV 12 or more (white wall or light source of shutter tester) and turn the eyesight adjustment ring of the magnifier until the focusing frame is as sharp as possible.

2. Install an EF50mm f/1.8 to set the focusing scale to infinity in manual. (Set so that the center of the infinity mark is within 1.5 index line widths.)
3. Find a distant target at least 250 meters away (lighting rod or chimney if possible), and select the sharpest focus washer.
4. If the collimator is used, select a focus washer in which the sharpest scale of the collimator can be seen.

FOCUS WASHER REPLACEMENT:

Grip in the middle of the front of the focusing screen holder with tweezers, push in and pull down to free the focusing screen.
The holder may be permanently deformed if too much pressure is used.

CAUTION

- Do not scratch the focusing screen.
- Make sure that the focusing screen and holder are all squarely in place.

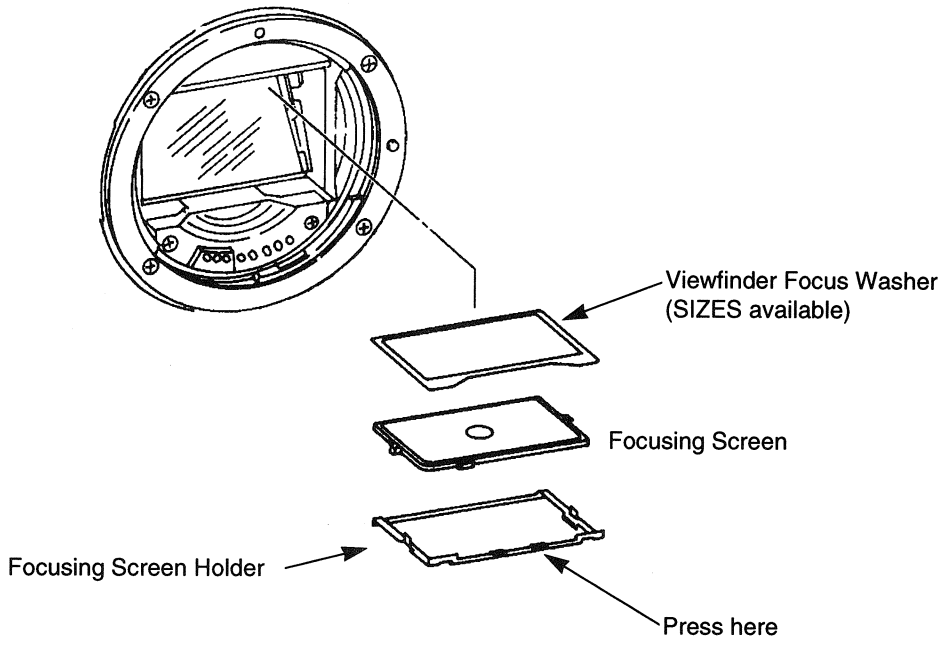


Figure 3-47 Viewfinder Focus Washer

<MEMO>

4. ELECTRICAL ADJUSTMENTS

4.1 COMMUNICATING WITH THE CAMERA

Camera wake-up is preformed with SW1.

There is no problem making the adjustments if you use wake-up conditions other than SW1 to start communications when the message "Switch camera SW1 ON " is displayed. This also applies to EOS KISS or the NEW EOS KISS. However, if you turn SW2 ON with the NEW EOS KISS, etc., an internal function of the camera cancels the communication. If you make a mistake and press SW2 when turning SW1 ON, this communication cancellation function will trip causing a camera communication error.

Be careful not to press SW2 when pressing SW1 to wake up the camera.

4.2 ELECTRICAL ADJUSTMENT

Shutter adjustment:	Adjusting shutter speeds.
SPD positioning	Positioning AE-IC (mechanical adjustment).
AE adjustment	Adjusting data output of AE-IC.
AE shift	Shifting automatic exposure level in 1/8th units at user request.
AF basic adjustment	Adjusting data output of BASIS.
AF focus adjustment	Adjusting focus data from BASIS.
Image data output	Displays data output from BASIS as a waveform. This is used to check chart settings and AF accuracy.
Focus data output	Displays the focus data output gained from the data output from BASIS. This is used to check AF accuracy.
AF focus shift	Correcting rare slight AF focus errors resulting from use of a lens with shallow depth of focus (EF50mm f/1.0L, EF85mm f/1.2L, or EF135mm f/2.8).
Flash adjustment	Adjusting the output of the flash sensor.
Inhibit voltage adjustment	Adjusting inhibit voltage for the camera.
Data transfer	Initializing, storing, or transferring camera data
Temperature correction	Correcting data output of the camera's temperature sensor.

4.3 ADJUSTMENTS AFTER PARTS REPLACEMENT

The numbers in the following table indicate the order of adjustment. Please carry out the adjustments in the correct order.

The AE-IC/AF unit must be adjusted not only when replaced but also if it has been repositioned.

Table 3-1 Adjustments After Parts Replacement

Adjustment / Replacement Part	Initial-ization	Temp. Correct.	Inhibit Voltage	Shutter	AE			AF			Flash
					SPD	Accuracy	Shift	Basis	Focus	Focus Shift	
AE					1	2	◆				
Main Flex (Data not readable)	1	2	3	4	5	6	◆	7	8		9
Main Flex (Data readable)		1	2		3	4					5
AF Unit								1	2		
Shutter Unit				1							
Mirror Unit								1	2		

Notes:

- The items marked ◆ in the above table are optional.
- Temperature correction and inhibit voltage must be adjusted immediately after initialization.

4.4 Adjustment Software for this Camera

1. Starting the Adjustment Software

The filename for this software is EOS 500 N.EXE. After a work disk has been make, the software will be started automatically from the AUTOEXEC.BAT file.

2. Running the Adjustment Software

This software only requires operation of the RETURN (ENTER) key, SPACE bar, and Cursor keys. Follow the instructions on the screen to adjust the camera.

3. Connecting the Camera to the Computer

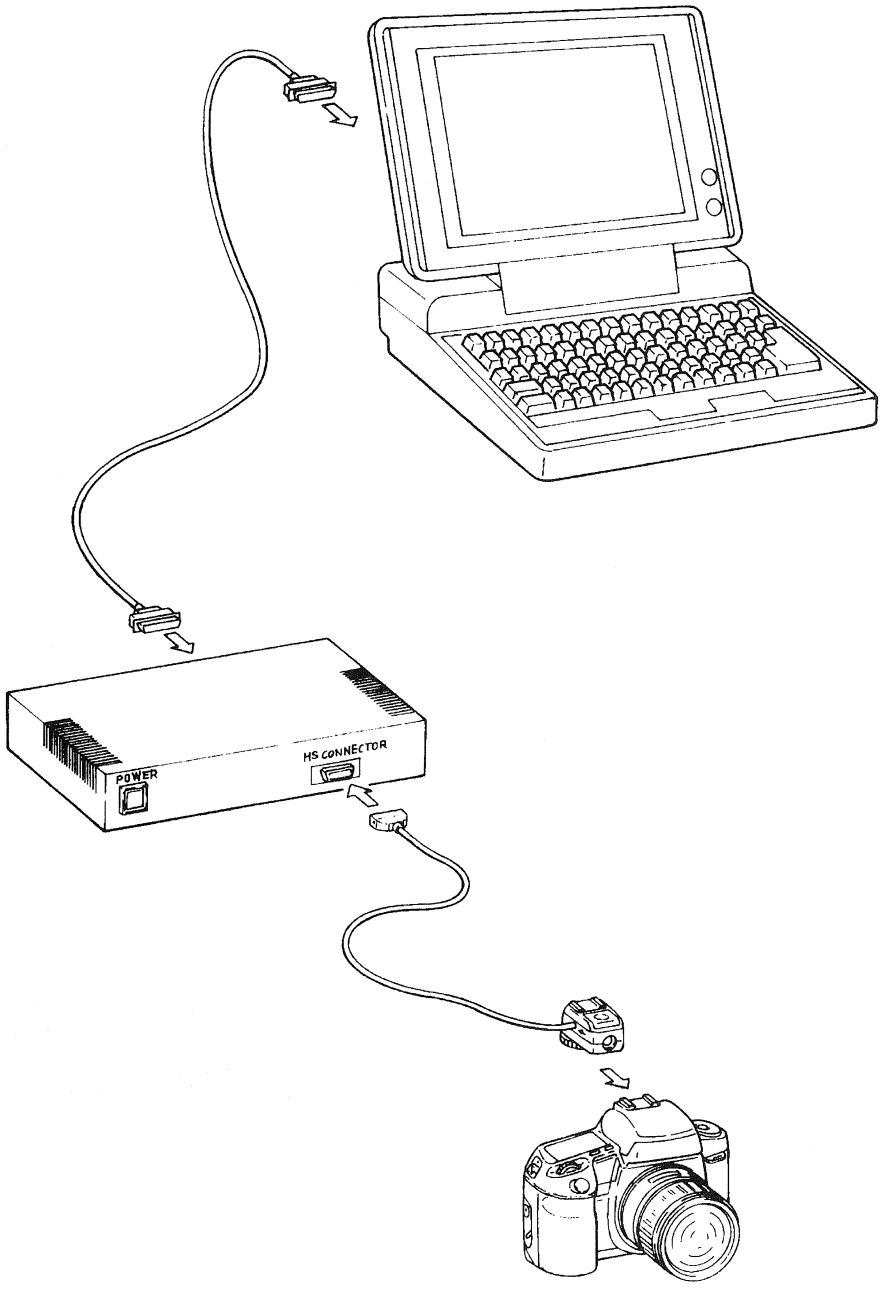


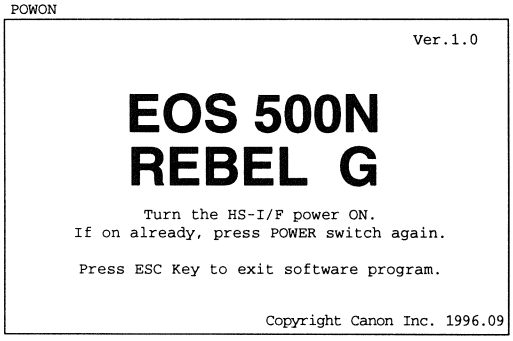
Fig. 3-48 Camera Connection

4. Adjustment Start-up Procedures

Load the work disk in the computer then turn it on. The title screen appears as shown at right.

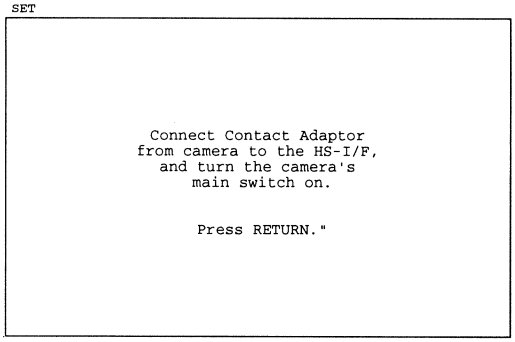
Turn on the HS-I/F in accordance with the directions displayed on the screen. If the HS-I/F has already been turned on, turn it off once and then turn it on.

POWON



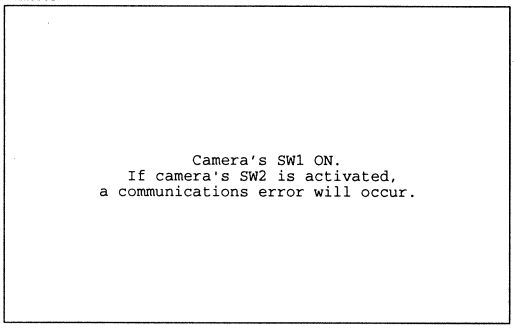
After communication has been established between the computer and HS-I/F, the screen shown at right appears. Connect the camera to the HS-I/F as indicated, then turn on the main switch on the camera. When the connection is complete, press the Return key.

SET



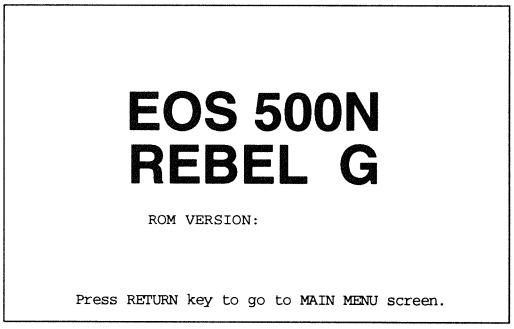
It is sometimes necessary to press the camera's AE lock button to establish communication. Follow the instructions on the screen. If more than a minute passes before the AE lock button is pressed, an error will occur.

WakeUP



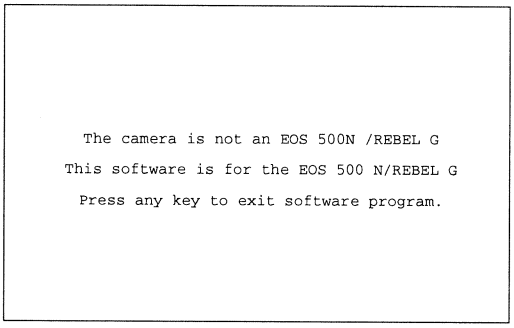
The adjustment software checks that communication has been established with the camera, then displays the camera's ROM version number on the screen.

POWON2

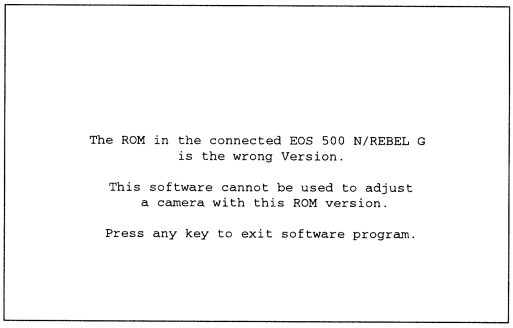


If a camera other than the EOS 500 N/REBEL G or the camera has an unsupported ROM, this message will appear.

ERRCAM



ERRCVER



5. Adjustment Software Menu Structure

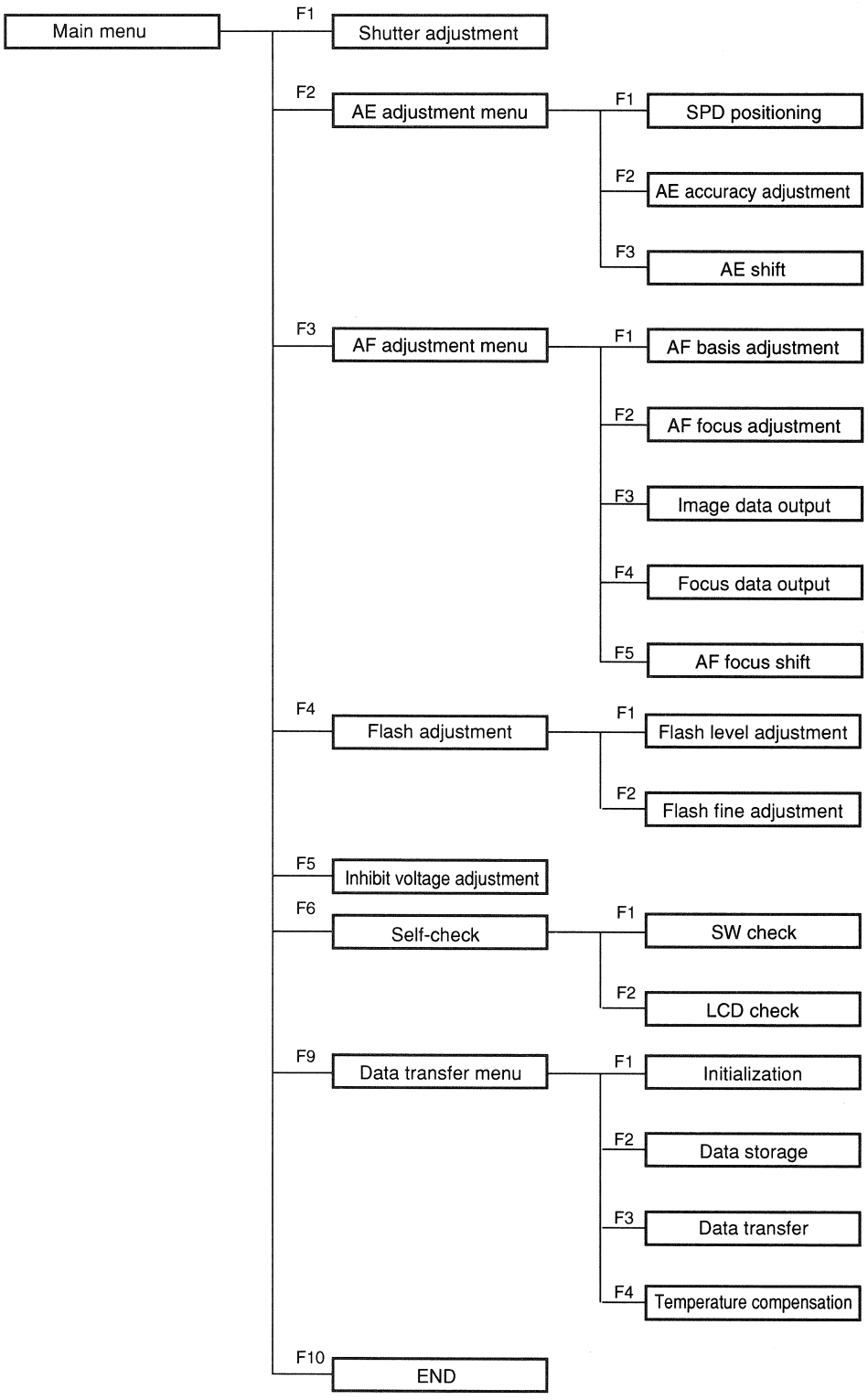


Fig. 3-49 Adjustment Software Menu Structure

4.5 SHUTTER ADJUSTMENT

PURPOSE:

To adjust shutter speeds. If the maximum shutter speed is within the limits, all shutter speeds have been adjusted.

STANDARD:

At a shutter speed of 1/2000

Center value: 0.488ms

Standard limits: 0.345 to 0.691ms

CAUTION Replace the shutter unit if the shutter curtain travel times are not within the limits.

Curtain speed limits:

First curtain travel time: 5.5 ± 0.2ms

Second curtain travel time: 5.5 ± 0.2ms

TOOLS:

Personal computer

RS-232C cable

HS-I/F

DC stabilized power supply

Work disk for adjustment software

EF-8000

EF50mm f/1.8 production lens

PREPARATION:

1) Start the adjustment software, connect the camera to the HS-I/F, and select (F1) Shutter adjustment from the menu.
2) Mount the EF50mm f/1.8 production lens on the camera, set the TV to 2000 in manual mode, set the camera on the EF-8000, and set the EF-8000 to shutter speed mode.

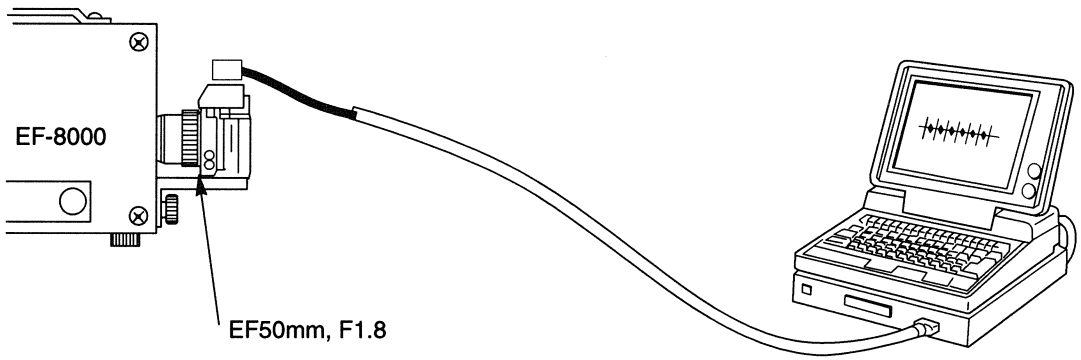
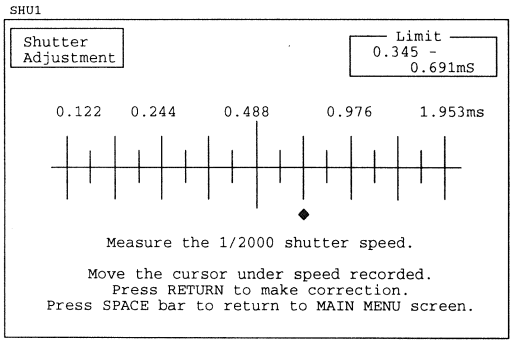


Fig. 3-50 Shutter Adjustment

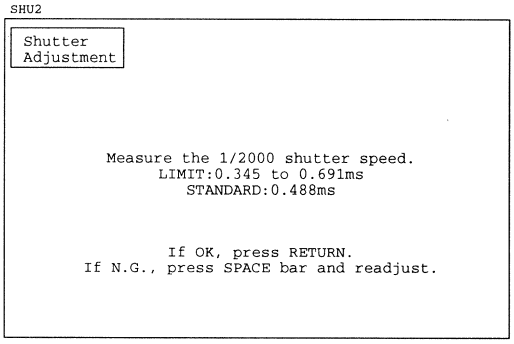
ADJUSTMENT:

1) Measure the shutter speed and press the cursor keys to move the cursor to enter the measured value, then press the Return key.

   The program writes the shutter correction value to the camera.



2) After completion of communications, measure the shutter speed again to check that it conforms to the standard. If not, press the Space bar and return to step 1.



4.6 Checking the X Time Lag

Tool:

EF-8000 or FS-5300

X time lag shoe

Standard:

Shutter speed:	1/90
Line A:	0.33ms min.
Line B:	2.50ms min.

Adjustment:

1) Set a shutter speed of 1/125 in TV mode, then trip the shutter.
2) Connect the camera to the EF-8000 as shown below, set the EF-8000 in DELAY mode, then measure the shutter speed.
   (Mounting the X time lag shoe locks the shutter speed at 1/90.).

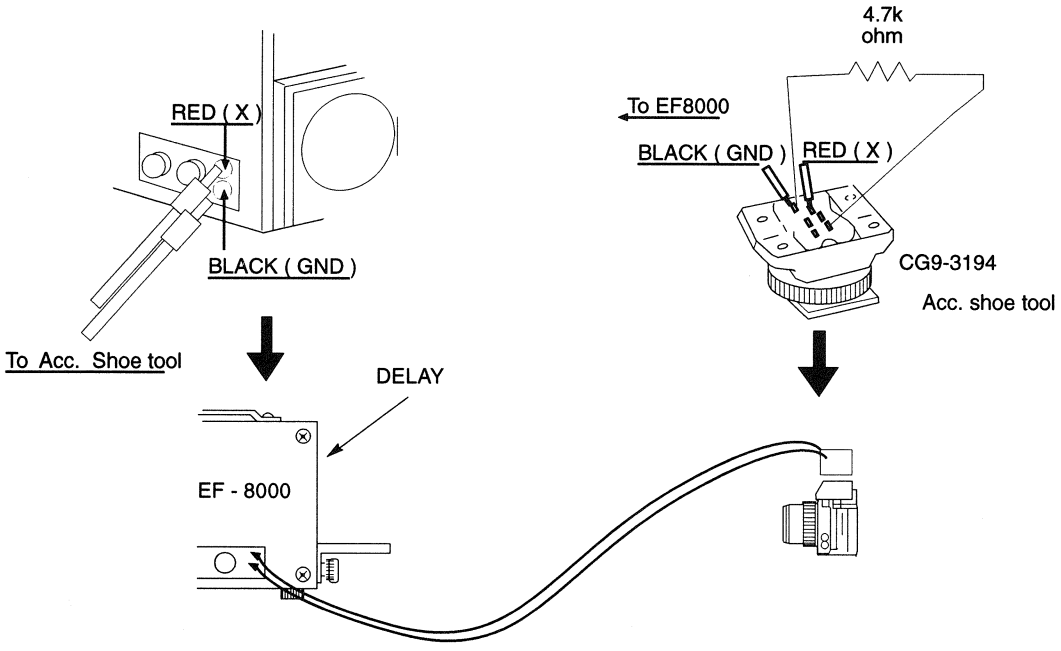


Fig. 3-51 X Time Lag Check

4.7 SPD POSITIONING

PURPOSE:

To align the center of SPD with the optical axis of the camera.

CAUTION Carry out approximate AE accuracy adjustment (F2) before SPD positioning. Then, after finishing SPD positioning, perform the final AE accuracy adjustment (F2).

TOOLS:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF-8000
EF50mm f/1.8 production lens
SPD positioning mask (use the mask for EOS KISS)

PREPARATION:

1) Start the adjustment software, connect the camera to the HS-I/F, and select (F2) AE adjustment menu from the main menu.
2) Mount the EF50mm f/1.8 production lens on the camera, then mount the camera on the tripod facing the light source.
3) Mount the SPD positioning mask on the light source of the EF-8000 and set the brightness to LV15.
4) Position the camera 45cm from the SPD positioning mask and align the center of the mask with the center of the focus frame of the finder. Manually focus the lens.

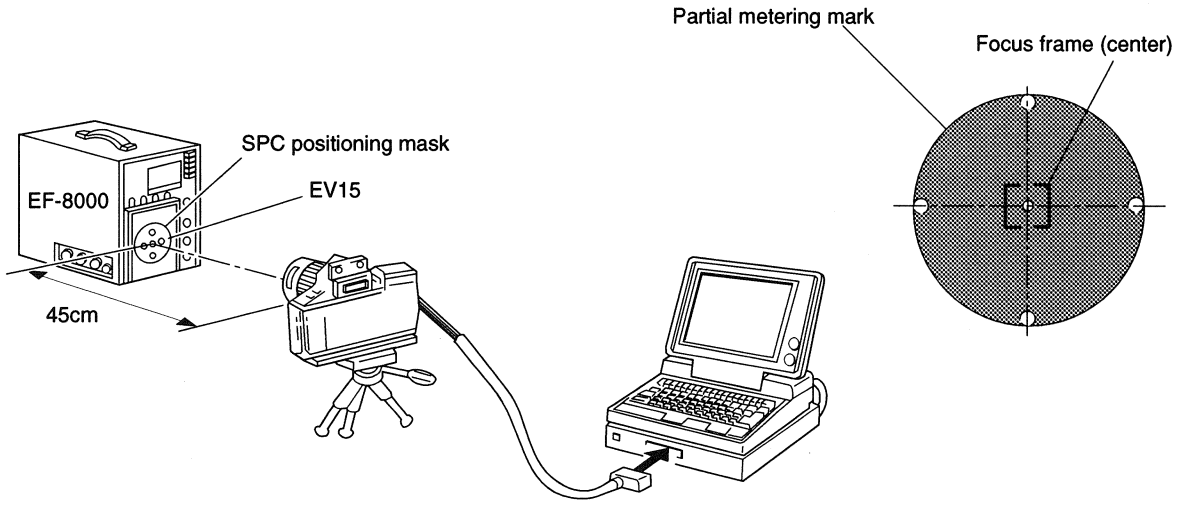


Fig. 3-52 SPD Positioning

ADJUSTMENT:

1) Select F1, SPD Positioning on the AE adjustment menu. The nearest EV values of individual photometric sensors of the SPD will be displayed.

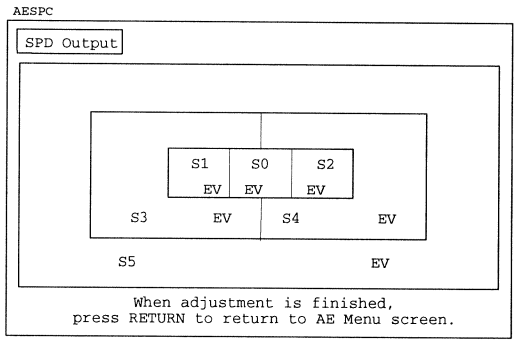
2) Shield the four holes, as shown at the left of Figure 3-53 and check the EV value of the S0 sensor.

3) As shown in Figure 3-53, shield the left, top, and right holes in turn and measure the EV values of the S0 sensor in each case.

4) Position the SPD so that the displayed values for top, bottom, left, and right fall within ±2EV.

5) After making the adjustment, fix the SPD holder using "Aron Alpha".

* After mounting the cover, repeat steps 2 and 3 to check the values.



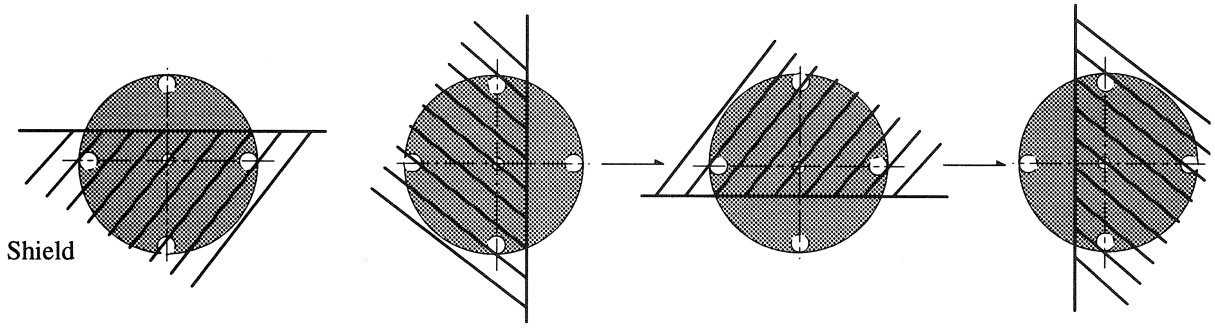


Fig. 3-53 SPD Positioning Check

4.8 AE Accuracy Adjustment

Purpose:

To adjust the gain and level of the SPD output.

Standard:

Light source	Film plane illumination
EV9	0 ± 0.5 EV
EV12	0 ± 0.5 EV
EV15	0 ± 0.5 EV

Tools:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF-8000
EF50mm f/1.8 production lens

Preparation:

1) Start the adjustment software, connect the camera to the HS-I/F, and select (F2) AE adjustment menu from the main menu.
2) Mount the EF50mm f/1.8 production lens on the camera, then position the camera facing the light source of the EF-8000. Shield the camera's eyepiece so that it is not affected by external light.

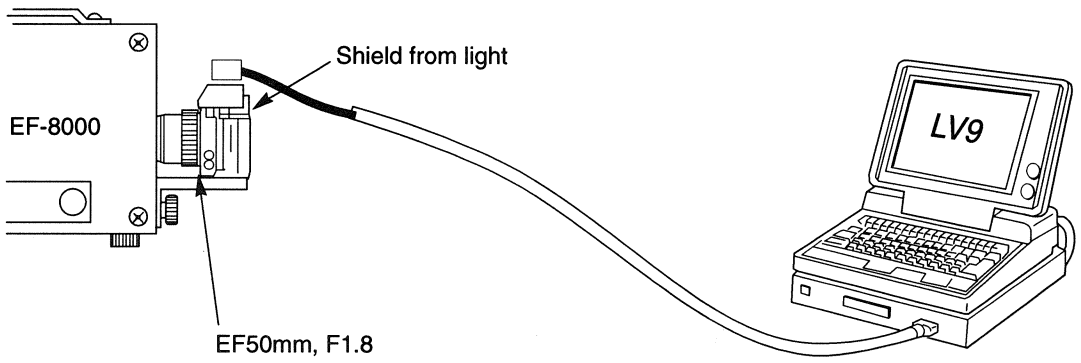
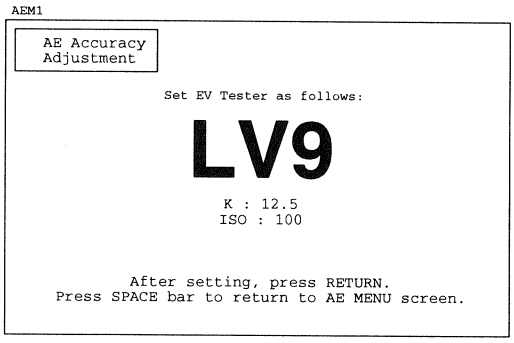


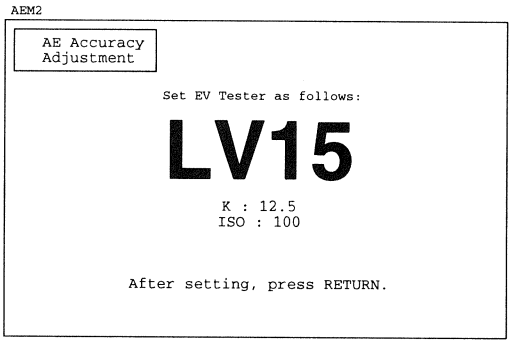
Fig. 3-54 AE Adjustment

ADJUSTMENT:

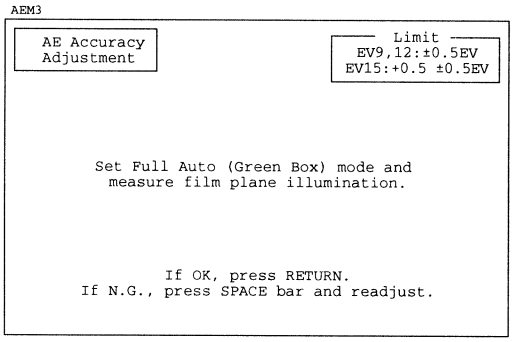
1) Select F2 AE accuracy adjustment from the AE adjustment menu.
2) Set the brightness to LV9, then press the Return key.



3) When communication has been established and the screen at right is displayed, set the brightness to LV15 and press the Return key.



4) After completion of communications, set the main dial to full auto mode (□), then check the amount of light on the film plane at EV9, EV12, and EV15. If the values are not within the limits, press the Space bar and repeat the adjustment.



4.9 AE SHIFT

PURPOSE:

The user can request that the camera be set for over- or under-exposure. This adjustment shifts the offset resulting from adjusting the level in AE accuracy adjustment.

TOOLS:

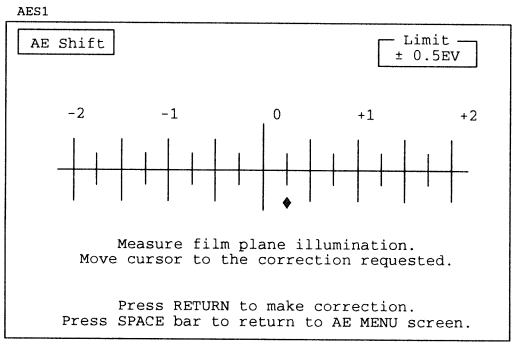
Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF-8000
EF50mm f/1.8 production lens

PREPARATION:

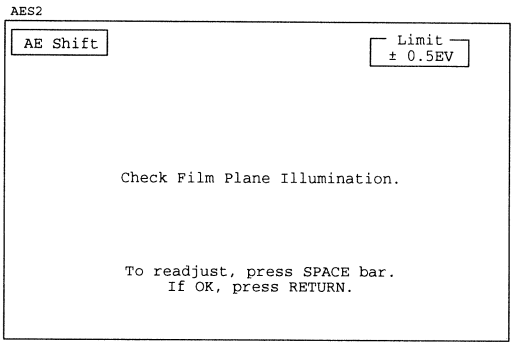
1) Start the adjustment software, connect the camera to the HS-I/F, and select (F2) AE adjustment menu.
2) Mount the EF50mm f/1.8 production lens on the camera, then position the camera facing the light source of the EF-8000. Shield the camera's eyepiece so that it is not affected by external light. (This is the same preparation as AE accuracy adjustment.)

ADJUSTMENT:

1) Select F3, AE shift from the AE adjustment menu.
2) Move the cursor to select the desired amount of shift. Exposure can be adjusted in approximately 0.25 stops. For example, to shift the exposure by +1 stop, move the cursor to +1.



3) After completion of communications, set the main dial to full auto mode (□), then check the amount of light on the film plane at EV9, EV12, and EV15.



4.10 AF Basis Adjustment

This adjustment must be carried out if the AF unit has been replaced.

This adjustment must also be carried out if the main flex unit has been replaced and the existing data cannot be stored or transferred. It is not required if the existing data can be stored and transferred.

Purpose:

To adjust the data output from BASIS.

AGC:	Adjusting the AGC so that the BASIS output waveform is intact.
Dark:	To store and correct the output waveform in the absence of light.
Shading:	To store and correct bit-by-bit variations in the BASIS output waveform.

CAUTION AF basis adjustment must always be preceded by AF sensor positioning. There must also be no dirt adhering to the main mirror, sub mirror, and AF sensors. Remove the lens before starting AF basis adjustment.

Tools:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
Light
Tripod
Changing bag

Preparation:

1) Start the adjustment software, and select (F3) AF adjustment menu from the main menu.

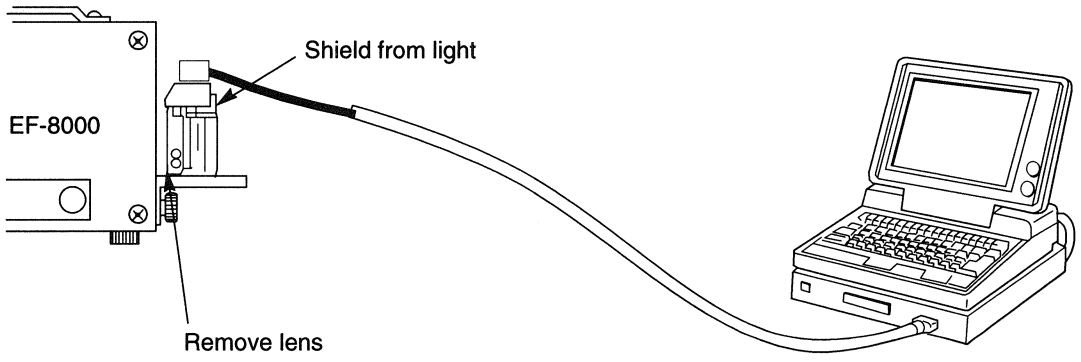
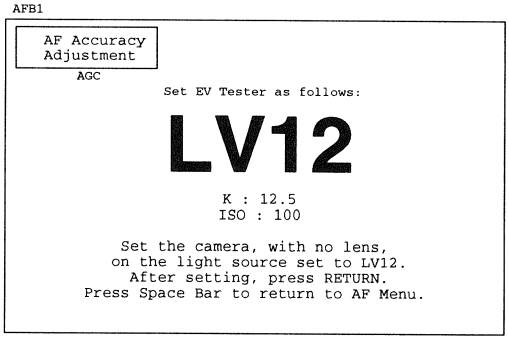


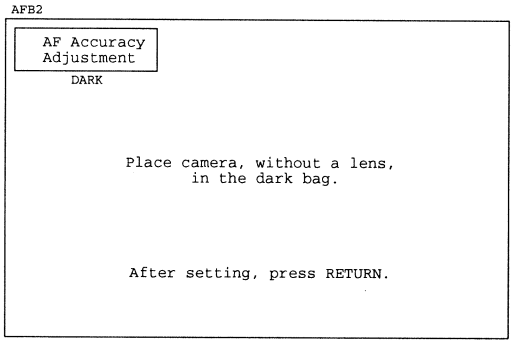
Fig. 3-55 AGC Adjustment

ADJUSTMENT:

1) The screen at right is displayed when you select AF basis adjustment. Press Return to start AGC adjustment.

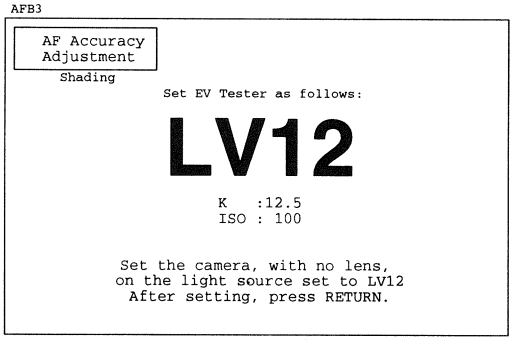


2) The screen at right is displayed when AGC adjustment is complete. Place the camera in the changing bag, then press Return to start dark adjustment.



3) The screen at right is displayed when dark adjustment is complete. Press Return to start shading adjustment.

   Execution returns to the AF adjustment menu on completion of shading adjustment.



4.11 AF Focus Adjustment

Purpose:

Center adjustment: This adjustment is carried out in preparation for AF focus adjustment. The value of the center of the pressure plate (the distance between the mount and the center of the pressure plate) is measured and is used as the reference data for the AF focus adjustment data.

AF focus adjustment: To measure the distance to the reference chart, calculate the defocus amount, and electronically make the necessary correction.

CAUTION The main mirror, sub mirror, and light receiving section of the AF sensor must be clean when making this adjustment.Note that the shift data is cleared if you adjust the AF focus after adjusting the AF focus shift.

Tools:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
Light
Tripod
Charts

Preparation:

1) Set the camera to BULB, then use a dial gauge adjusted using a 44.14mm block gauge (or 42.14mm+2mm) to measure the distance to the center of the pressure plate.
2) Set up the camera and chart for focus adjustment.
3) Start the adjustment software, and select the AF adjustment menu from the main menu.

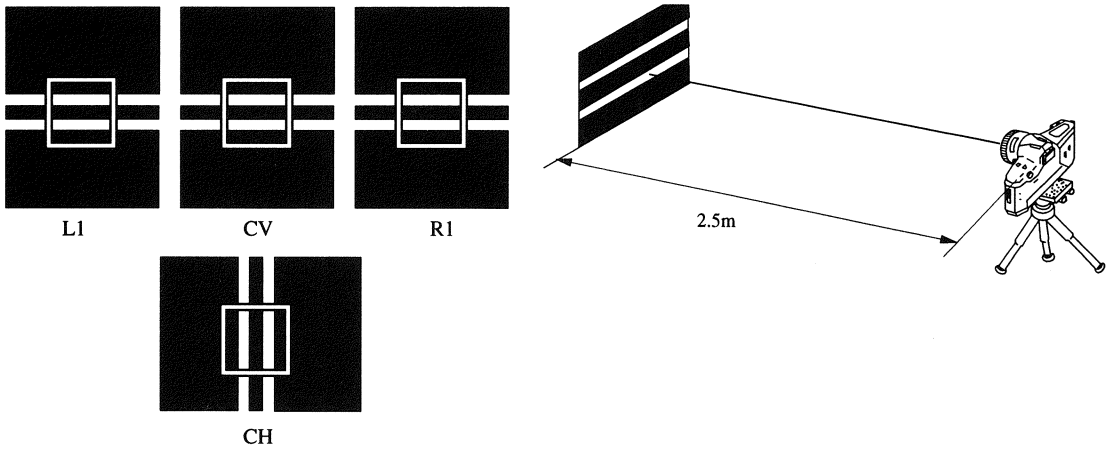
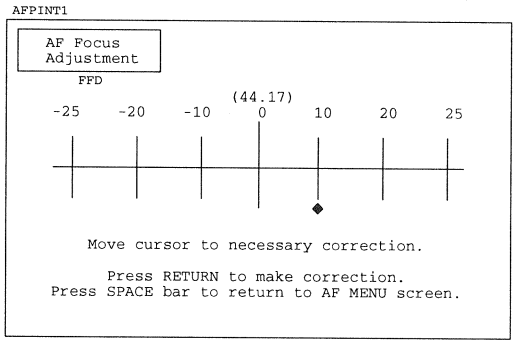


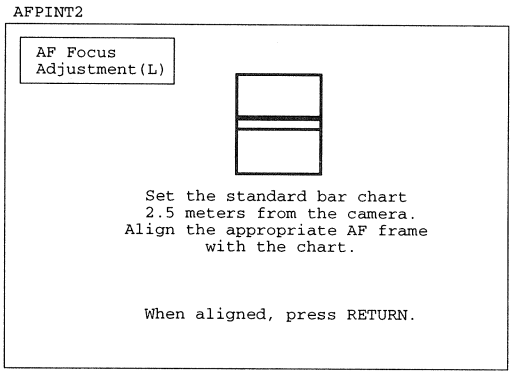
Fig. 3-56 Setup for AF Focus Adjustment

ADJUSTMENT:

1) Select AF focus adjustment from the AF focus menu. The screen shown at right is displayed. Move the cursor to the measurement, then press Return.



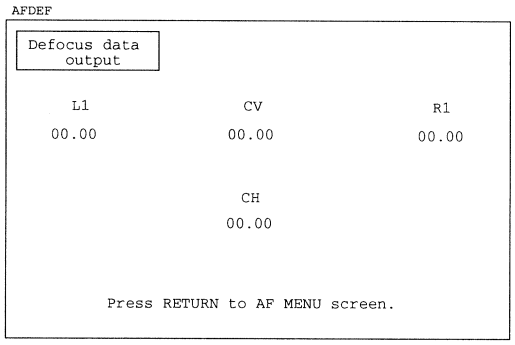
2) Press Return to display the screen at right. Position the camera 2.5m ±10mm from the reference chart. Set the lens to infinity, then manually focus it to the scribed 2.5m line. Align the center autofocus frame in the finder with the bars of the AF reference chart, then press Return.



Repeat for other AF frames. Adjust L1, CV, and R1CH as instructed on the screen. Execution returns to the AF menu on completion of the adjustments.

If you use a tool lens with a focus variation label, proceed as follows.

Select focus data output from the AF menu. The screen at right is displayed. While monitoring the DEFOCUS indication, rotate the focusing ring from infinity until the indication reaches a value with the opposite sign but equal to the amount of deviation marked on the tool lens.



Example: If the amount of deviation is +0.03, stop rotating the focusing ring when the DEFOCUS indication reaches -0.03.

Press Return to return to the AF menu.

Select AF focus adjustment from the AF menu and repeat steps 1 and 2.

4.12 AF Sensor Dust Check

Purpose:

To check the BASIS output waveform, which can show if there is any dirt in the BASIS light path.

Tools:

Personal computer
RS-232C cable
HS-I/F
EF-8000
DC stabilized power supply
Work disk for adjustment software

Preparation:

1) Position the camera at the light source without a lens attached to it. Set the brightness of the light source to LV12. (Be sure to shield the eyepiece from external light.)

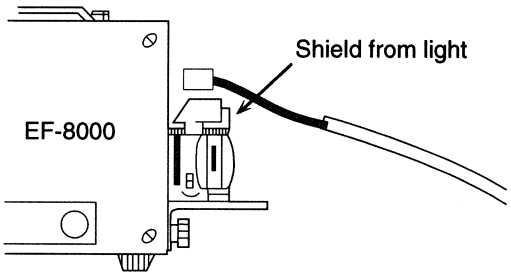
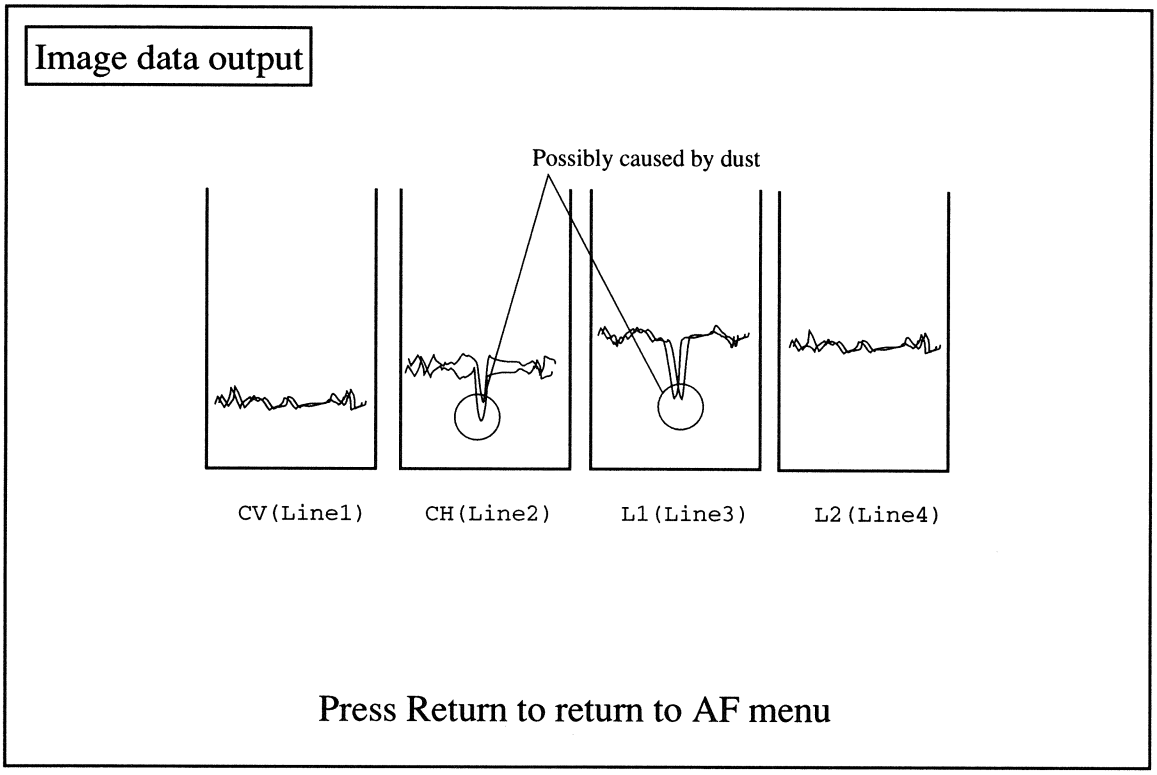


Fig. 3-57 AF Sensor Dust Check

2) Select F3, Image data output from the AF menu.
Check that the output waveform is more or less linear.

AFBASIS



3) If the line indicates that there may be some dirt, use a blower, etc., to remove the dirt.
4) If using a blower, etc., does not correct the line deviation, replace the AF unit.

4.13 AF FOCUS DATA CHECK

PURPOSE:

This procedure is used to check the AF focus adjustment.

TOOLS:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
Light
Tripod
Charts

CONFIRMATION PROCEDURE:

1) Set up the charts and camera as indicated for focus adjustment.
2) Start the adjustment software and select F3, AF Adjustment menu from the main menu.
3) Set up the chart and allow the camera to automatically focus, then set the lens to manual mode.
4) Select F4, Focus data output from the AF menu.

   Use autofocusing on each chart to check that the DEFOCUS amount is within the limits shown in the following table.

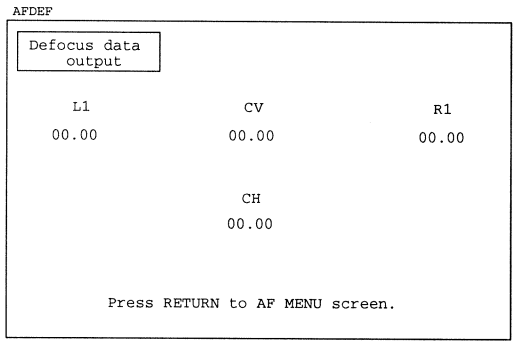


Table 3-2 Defocus Standards

	Reference chart			Single bar chart			45° bar chart		
	Center vertical	Center horizontal	Periphery	Center vertical	Center horizontal	Periphery	Center vertical	Center horizontal	Periphery
4/ 50mm f1.8 tool lens	± 0.03	±0.03	±0.04	±0.06	±0.06	±0.08	±0.12	±0.14	±0.13

4.14 AF Focus Shift

Purpose:

To correct the rare slight AF focus errors resulting from use of a lens with a shallow depth of focus such as EF50mm f/1.0L, EF85mm f/1.2L, or EF135mm f/2.8.

AF focus shift must never be used to correct defocus caused by lenses other than EF50mm f/1.0L, EF85mm f/1.2L, and EF135mm f/2.8.

CAUTION The AF focus shift adjusts the total deviation in AF focusing caused by the combination of camera and lens on the camera itself. This adjustment must therefore be carried out only on the combination of camera and lens specified by the user requesting the adjustment. Before adjusting the AF focus shift, make sure that the camera and lens have both been adjusted.

Minute Defocus:

EOS Series cameras and lenses are designed so that their defocus does not exceed standard values of 0±0.03mm and 0.02mm, respectively. EF50 f/1.0L, EF85 f/1.2L and EF135 f/2.8SF also conform to these standards. However, these lenses have very shallow depth of focus. Therefore, when used in combination with a camera whose defocus has the same sign, the combination may exceed the acceptable depth of focus even if the defocus values of the lens and the camera individually conform to the standards. In this event, the user of the lenses may complain of a lack of focus.

Example: Worst combination of camera and lens (Camera: +0.03mm, Lens: +0.02mm)

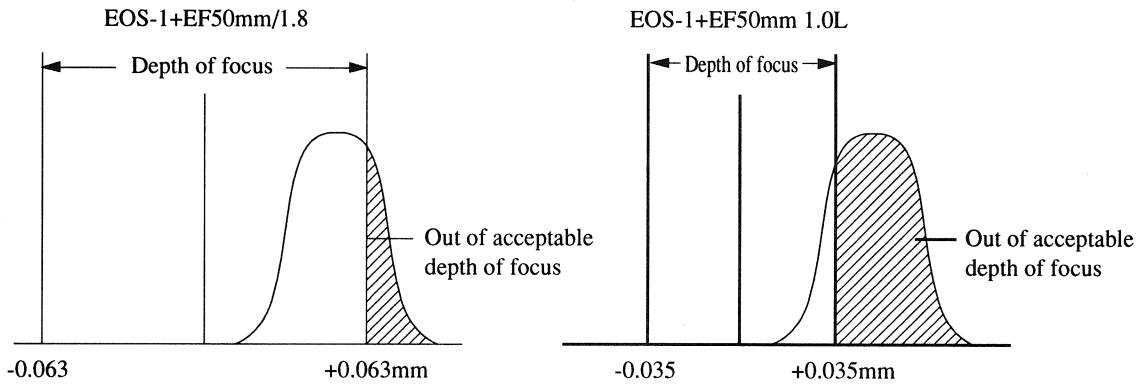


Fig. 3-58 Minute Defocus

A lens with a shallow depth of focus may prove in focus without AF focus shift despite complaints from the user. This phenomenon can be attributed to the following:

(1) Variations in range measurement that result from shooting an object on which it is difficult to focus.

(2) A slight shift in the object between turning on SW2 and making the exposure.

TOOLS:

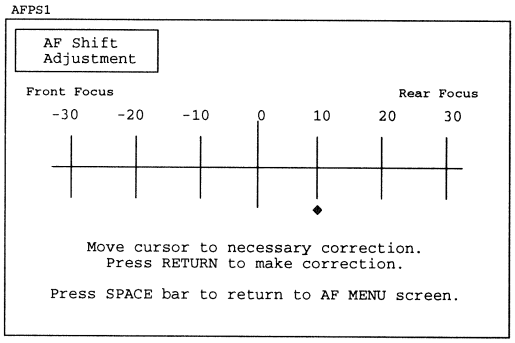
Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
Light
Tripod
Charts

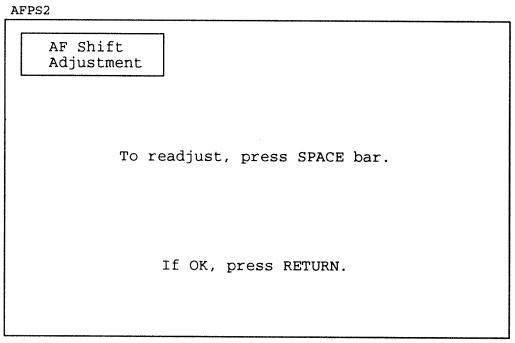
PREPARATION:

1) Set up the charts and camera as indicated for focus adjustment.
2) Start the adjustment software and select F3, AF Adjustment menu from the main menu.
3) Set up the camera 2.5m±10mm from the reference chart.

ADJUSTMENT:

1) Select AF Focus Shift from the AF menu to display the screen shown at right. Select -30, then press Return.
2) Set the lens to infinity, then press SW1 to start the AF and make an exposure. Repeat this procedure 10 times (with the aperture fully open).
3) After making the exposures, press the Space bar to return to the screen in step 1. Move the cursor to +30, then press Return. (The focus shift returns to 0.) Now repeat step 2.
4) Press the Space bar to return to the screen in step 1. Move the cursor to +30, then press Return. (The focus shift is set to +30.) Now repeat step 2.
5) Press the Space bar to return to the screen in step 1. Move the cursor to -30, then press Return. (The focus shift is set to 0.)
6) Review the results of the exposures and select the optimum setting, then press Return to complete the AF focus shift.





<MEMO>

4.15 FLASH ADJUSTMENT

If the main flex or flash sensor has been replaced, this adjustment is mandatory. The shutter must be adjusted before carrying out flash adjustment.

PURPOSE:

To adjust the level and gain of the flash sensors for correct flash control.

TOOLS:

Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
EF-8000 or flash meter
Speedlight (300EZ or 420EZ, etc.)
Tripod
Standard reflective board

CAUTION Use the standard reflective board in a dark place (EV3 max. or a dark-room) to get the average for several cameras. Make the adjustments using the average values.

STANDARD:

Average ±1EV

PREPARATION:

1) Run the adjustment software and select F4, Flash Adjustment and F1 Flash Level Adjustment from the main menu.
2) Mount the camera on the tripod and mount the tool lens and Speedlight. Set the camera's main dial to P and set AF ON. (The flash sensors are automatically selected.)

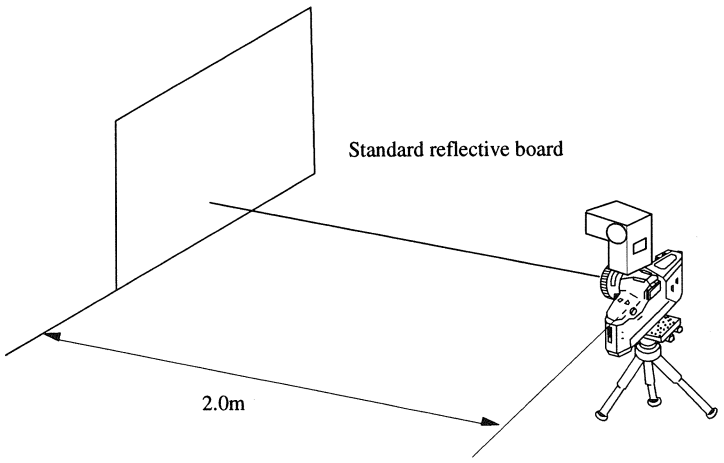
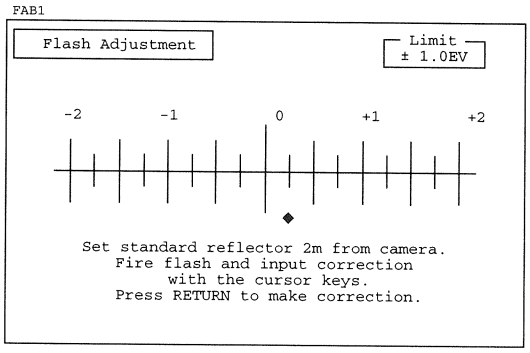


Fig. 3-59 Setup for Flash Adjustment

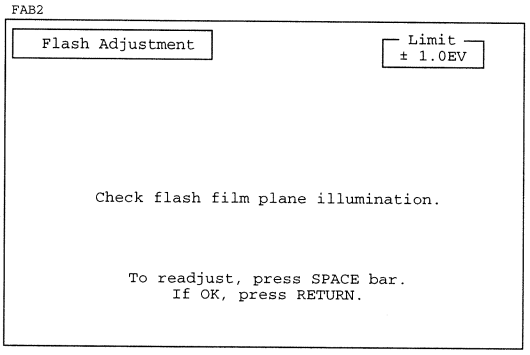
ADJUSTMENT:

1) Press the Return key to display the screen at right. The left sensor is adjusted first. Measure the film plane illumination, then move the cursor to the correction amount and press Return.



2) Check the adjustment of the flash level of the left sensor. Measure the illumination of the film plane and, if OK, press Return.

3) Repeat the flash level adjustment for the vertical, right, and horizontal sensors. The adjustment software automatically selects which sensor to adjust.



4.16 Flash Exposure Shift Adjustment

Adjust the shutter before carrying out this adjustment.

Purpose:

The user can specify that the camera is set for under- or over-exposure. This procedure shifts the level correction value, determined in AE accuracy adjustment.

Tools:

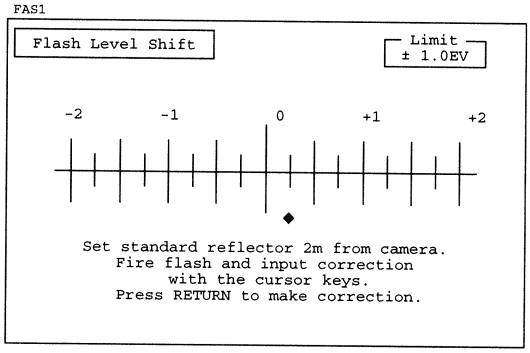
Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Work disk for adjustment software
EF50mm f/1.8 tool lens
Speedlight (300EZ or 420EZ, etc.)
Tripod
Standard reflective board

Preparation:

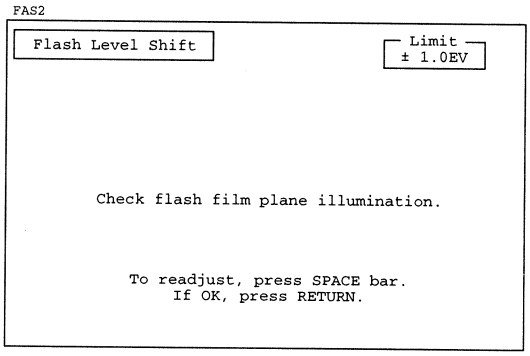
1) Start the adjustment software and select F4, Flash Adjustment and F2, Flash Exposure Shift Adjustment from the main menu.
2) Mount the camera on the tripod, then mount the production/tool lens and Speedlight. Set the camera for ISO100, TTL mode, a shutter speed of 1/90, and an aperture of f5.6.

ADJUSTMENT:

1) Press Return to display the screen shown at right. Move the cursor to the desired correction value, then press Return.



2) Measure the illumination of the film plane and, if OK, press Return.



4.17 INHIBIT VOLTAGE ADJUSTMENT

This adjustment must be carried out if the main flex unit has been replaced.

PURPOSE:

To ensure the operational accuracy of individual parts of the camera by setting the minimum voltage for camera operation.

TOOLS:

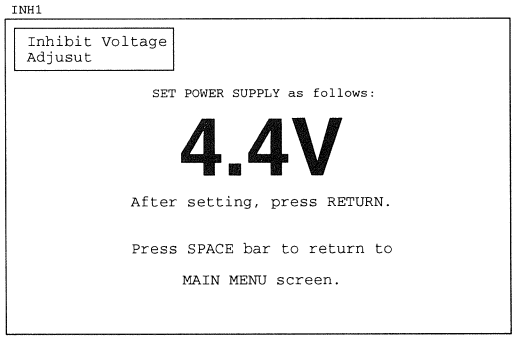
Personal computer
RS-232C cable
HS-I/F
DC stabilized power supply
Tool battery (created using CY9-7091-000) (for EOS KISS)
Work disk for adjustment software
EF50mm f/1.8 tool lens
Multimeter

PREPARATION:

Start the adjustment software and select F5, Inhibit Voltage Adjustment from the main menu.

ADJUSTMENT:

1) Adjust the supply voltage to the value indicated on the screen, then press Return.



2) On completion of communication, the screen at right is displayed. Drop the supply voltage from 6.0V to check that shutter release is inhibited at 4.4V.

4.18 DATA TRANSFER

The data transfer menu consists of five operations:

1. **Initialization:** Transfers default settings to the camera
2. **Data storage:** Stores the camera data.
3. **Data transfer:** Transfers stored data.
4. **Temperature compensation:** Stores the temperature compensation value in the camera. (This value corrects for any error in the camera's internal temperature sensor. This data is used in the AE and AF sequences.)

(1) Initialization

Select Initialization to display the screen shown at right. Press Return to initialize the data.

INIT

ATTENTION

Do you wish to INITIALIZE

<CAMERA DATA WILL BE DESTROYED>

To initialize, press RETURN.

Press SPACE bar to return to

DATA TRANSFER MENU screen.

(2) Data storage

Select Data Storage to display the screen shown at right. Use the Up and Down cursor keys to select a file, then press Return. You can include a comment. After entering your comment, press Return to store the camera data.

DATC_T

DATA TRANSFER

Camera --> Disk

Select file number with cursor keys.
Press RETURN and type in comment if
desired. Press RETURN to transfer data.

FILES
1.
2.
3.
4.
5.

Press SPACE bar to return to
DATA TRANSFER MENU screen.

(3) Data transfer

Select Data Transfer to display the screen shown at right. Use the Up and Down cursor keys to select a file, then press Return to transfer the camera data.

DATT_C

DATA TRANSFER

Disk --> Camera

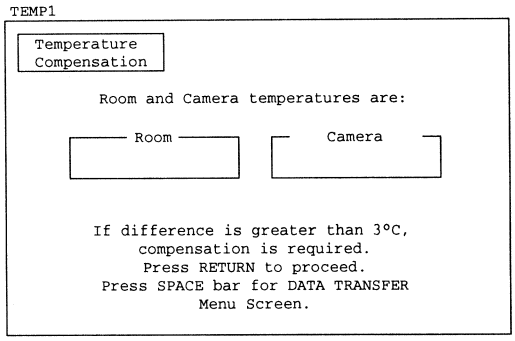
Select file number with cursor key"
Press RETURN to transfer.

FILES
1.
2.
3.
4.
5.

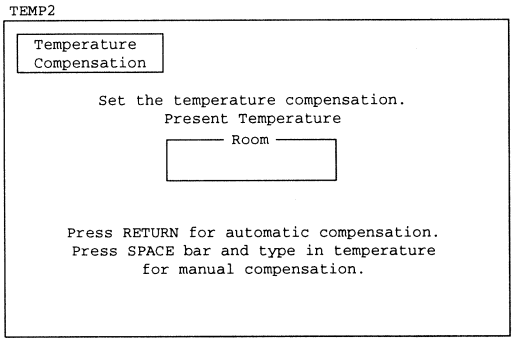
Press SPACE bar to return to
DATA TRANSFER MENU screen.

(4) Temperature compensation

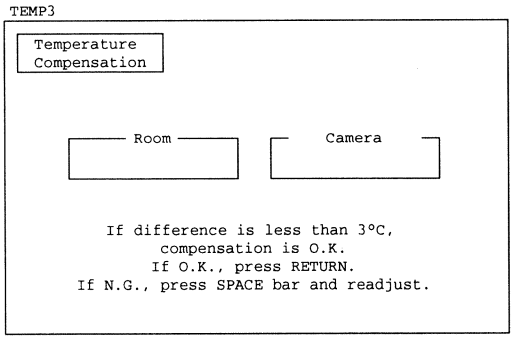
1) Select Temperature Compensation to display the room temperature (measured by the HS-I/F) and the temperature measured by the camera, as shown at right. If the difference between the room temperature and measured temperature is 3°C or more, press Return to carry out temperature compensation.



2) Press Return to display the room temperature (measured by the HS-I/F). Compare the value with the current room temperature and press the Space bar to carry out compensation, if necessary. If not, press Return.



3) Press Return. On completion of communication, the screen at right is displayed. Check that the room temperature (measured by the HS-I/F) and the temperature measured by the camera are within 3°C, then press Return. If not within 3°C, press the Space bar and repeat from step 1.



4.19 SELF CHECK

Self check can be classified into the following types:

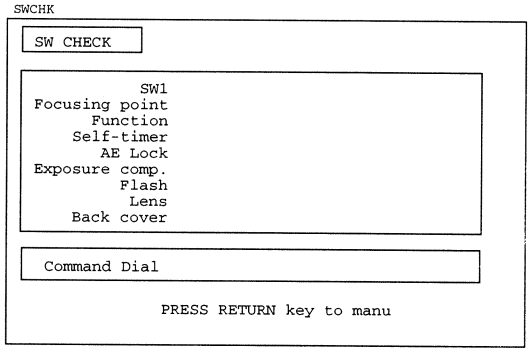
PREPARATION:

Start adjustment program, connect the camera to the personal computer, and select F7Self Check on the menu screen to display the self check menu screen. Select the required screen.

1. SW check:
2. LCD check:

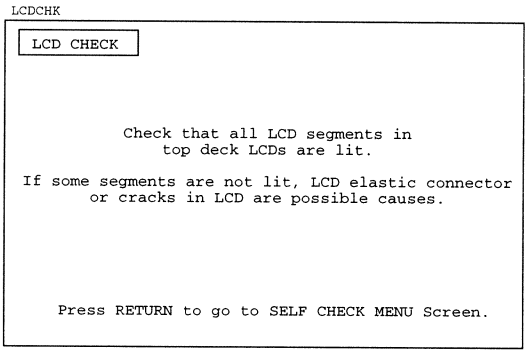
SW CHECK:

Press the F1 key to display the screen. Any switch whose state fails to coincide with that displayed on this screen is suspected of being faulty. Press the Return key to return to the self check menu screen.



LCD CHECK:

Press the F2 key to display this screen. Any LCD switch fails to come on at this time is suspected of being faulty. Press the Return key to return to the self check menu screen.



Part 4

Parts Catalog

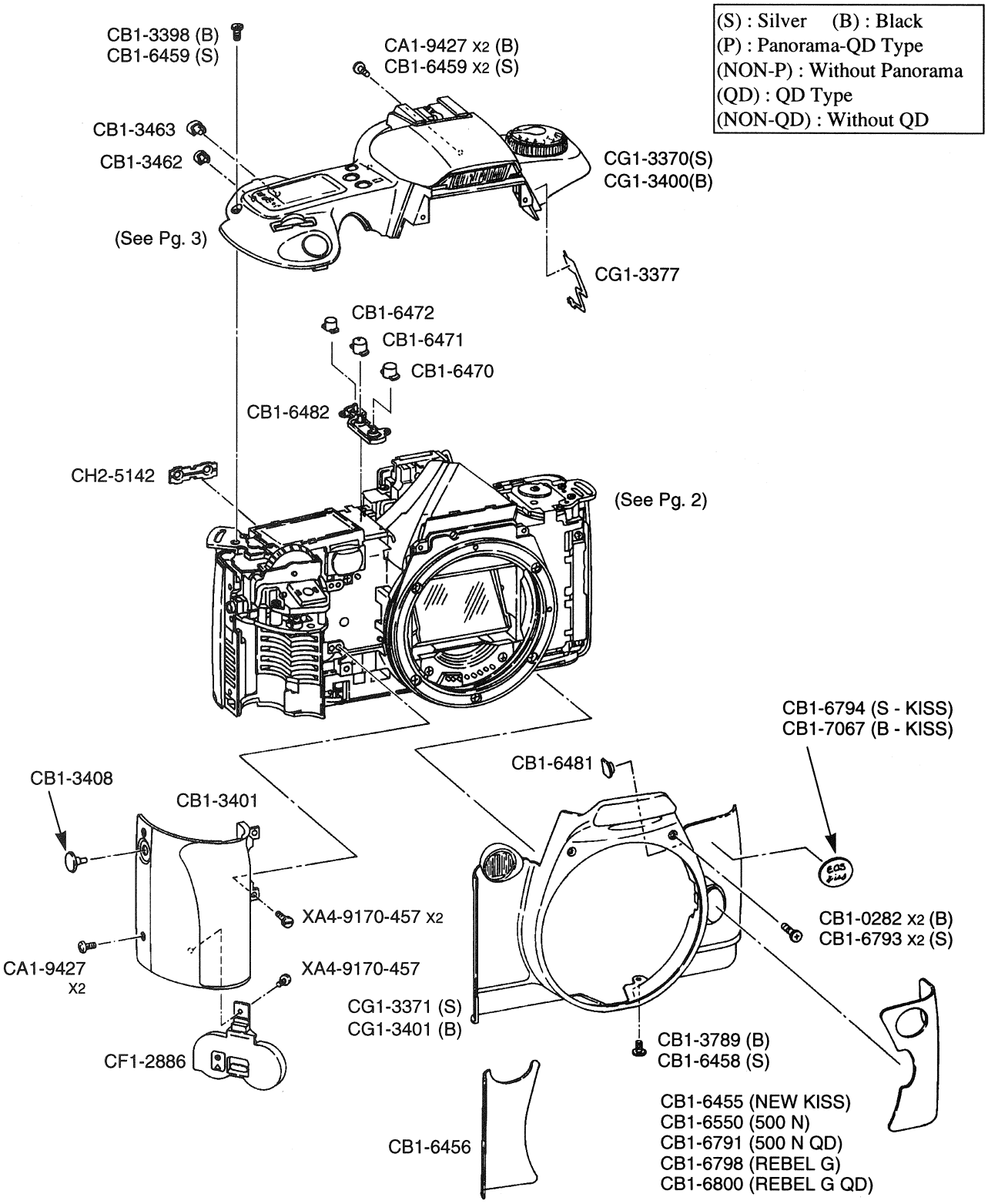
Canon

NEW EOS KISS (SILVER)	REF.NO. C12-8341
NEW EOS KISS (BLACK)	C12-8351
EOS 500 N (SILVER)	C12-8346
EOS 500 N QD (SILVER)	C12-8347
EOS REBEL G (BLACK)	C12-8353
EOS REBEL G QD (SILVER)	C12-8344
EOS 500 N (BLACK)	C12-8356
EOS 500 N QD (BLACK)	C12-8357

PARTS CATALOG

CANON NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357

(S) : Silver (B) : Black
(P) : Panorama-QD Type
(NON-P) : Without Panorama
(QD) : QD Type
(NON-QD) : Without QD



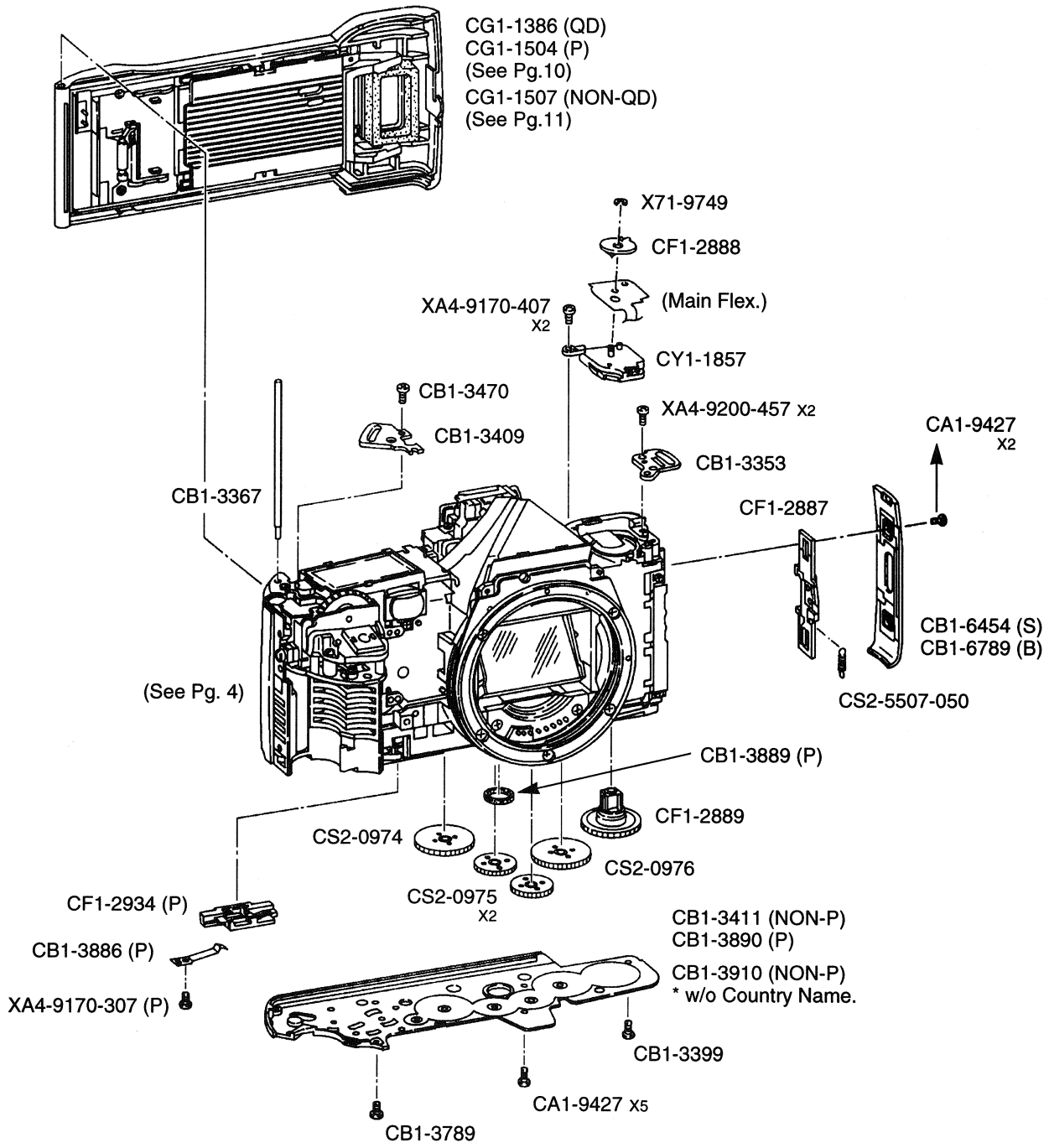
PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-9427-000		4	SCREW,	
	CB1-0282-000		2	SCREW,	
	CB1-3398-000		1	SCREW,	
	CB1-3401-000	E	1	GRIP	グリップ
	CB1-3408-000	C	1	CAP, REMOTE	リモートターミナルキャップ
	CB1-3462-000	E	1	BUTTON, EXPOSURE	露出補正ボタン
	CB1-3463-000	E	1	BUTTON, AE LOCK	AEロックボタン
	CB1-3789-000		1	SCREW,	
*	CB1-6455-000	C	1	COVER, LEATHER (KISS)	エプロンゴム（KISS）
*	CB1-6456-000	C	1	COVER, LEATHER (RIGHT)	右エプロンゴム
*	CB1-6458-000		1	SCREW,	(SILVER)
*	CB1-6459-000		3	SCREW,	(SILVER)
*	CB1-6470-000	E	1	BUTTON, AF SELECT	測距点選択ボタン
*	CB1-6471-000	E	1	BUTTON, FUNCTION	ファンクションボタン
*	CB1-6472-000	E	1	BUTTON, SELF-TIMER	セルフタイマーボタン
*	CB1-6481-000	E	1	BUTTON, FLASH POP-UP	ストロボアップボタン
*	CB1-6482-000	E	1	CONTACT, RUBBER	TOPスイッチ
*	CB1-6550-000	C	1	COVER, LEATHER (500N)	エプロンゴム（500N）
*	CB1-6791-000	C	1	COVER, LEATHER (500N QD)	エプロンゴム（500N QD）
*	CB1-6793-000		2	SCREW,	(SILVER)
*	CB1-6794-000	C	1	PLATE, NAME (SILVER)	ネームプレートKISS（白）
*	CB1-6798-000	C	1	COVER, LEATHER (REBEL G)	エプロンゴム（REBEL G）
*	CB1-6800-000	C	1	COVER, LEATHER (REBEL G QD)	エプロンゴム（REBEL G QD）
*	CB1-7067-000	C	1	PLATE, NAME (BLACK)	ネームプレートKISS（黒）
	CF1-2886-000	C	1	COVER ASS'Y, BATTERY	電池蓋ユニット
*	CG1-3370-000	C	1	COVER ASS'Y, TOP (SILVER)	上カバーユニット（白）
*	CG1-3371-000	C	1	COVER ASS'Y, FRONT (SILVER)	前カバーユニット（白）
*	CG1-3377-000	D	1	FPC, POP-UP SWITCH	ポップアップスイッチフレキ
*	CG1-3400-000	C	1	COVER ASS'Y, TOP (BLACK)	上カバーユニット（黒）
*	CG1-3401-000	C	1	COVER ASS'Y, FRONT (BLACK)	前カバーユニット（黒）
	CH2-5142-000	E	1	CONTACT, RUBBER	背面スイッチ
	XA4-9170-457		3	SCREW,	

CANON

NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357

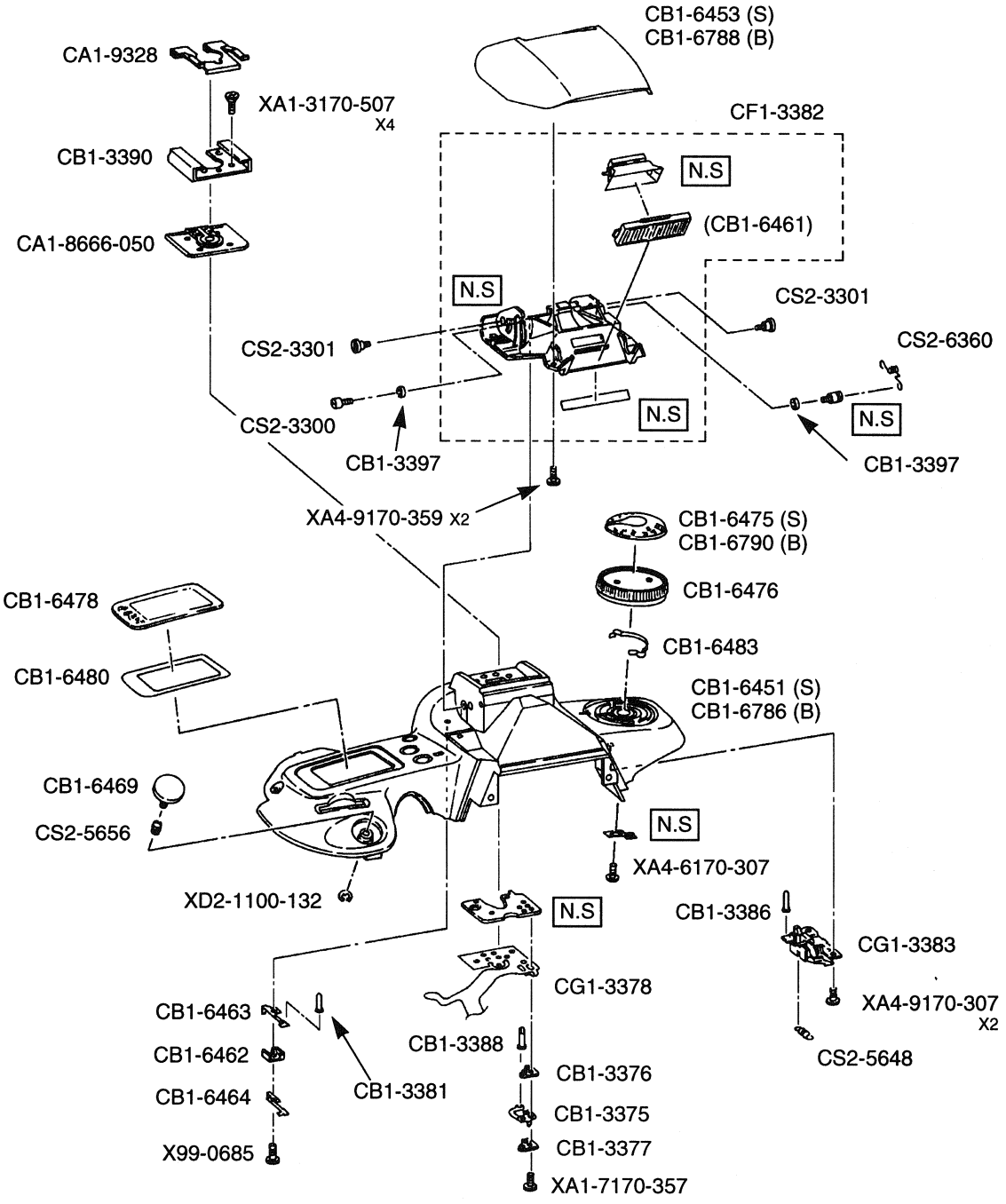


PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-9427-000		7	SCREW,	
	CB1-3353-000	E	1	LUG, NECKSTRAP (LEFT)	左耳環
	CB1-3367-000	E	1	HINGE, BACK COVER	背蓋ヒンジ軸
	CB1-3399-000		1	SCREW,	
	CB1-3409-000	E	1	LUG, NECKSTRAP (RIGHT)	右耳環
	CB1-3411-000	C	1	COVER, BASE (NON-P)	底蓋（NON-P）
	CB1-3470-000		1	SCREW,	
	CB1-3789-000		1	SCREW,	
	CB1-3886-000	E	1	SPRING, PANORAMA CLICK	パノラマクリックバネ
	CB1-3889-000	D	1	SHIELD, LIGHT	パノラマモルト
	CB1-3890-000	C	1	COVER, BASE (PANORAMA)	パノラマ底蓋
	CB1-3910-000	C	1	COVER, BASE (GENERIC)	底蓋（生産国名無し）
*	CB1-6454-000	C	1	COVER, LATCH (SILVER)	背蓋ラッチカバー（白）
*	CB1-6789-000	C	1	COVER, LATCH (BLACK)	背蓋ラッチカバー（黒）
	CF1-2887-000	D	1	LEVER, LATCH	背蓋ラッチレバー
	CF1-2888-000	E	1	CONTACT, MODE	モード接片ユニット
	CF1-2889-000	E	1	FORK ASS'Y	フォークギアユニット
	CF1-2934-000	D	1	PANORAMA LEVER ASS'Y	パノラマ切換レバーユニット
	CG1-1386-000	D	1	COVER ASS'Y, BACK (QD)	QD背蓋
	CG1-1504-000	D	1	COVER ASS'Y, BACK (PANORAMA)	パノラマ背蓋
	CG1-1507-000	D	1	COVER ASS'Y, BACK (NON-QD)	NON-QD背蓋
	CS2-0974-000	E	1	GEAR, REWIND 1	巻戻しギア 1
	CS2-0975-000	E	2	GEAR, REWIND 2	巻戻しギア 2
	CS2-0976-000	E	1	GEAR, REWIND 3	巻戻しギア 3
	CS2-5507-050	E	1	SPRING, BACK COVER LATCH	背蓋ラッチバネ
*	CY1-1857-000	E	1	MODE SWITCH BASE UNIT	モードスイッチ地板ユニット
	X71-9749-000	E	1	G RING	
	XA4-9170-307		1	SCREW,	
	XA4-9170-407		2	SCREW,	
	XA4-9200-457		2	SCREW,	

CANON	NEW EOS KISS (S) / (B)	REF. C12-8341, 8351
	EOS 500 N / QD (S)	C12-8346, 8347
	EOS REBEL G (B) / QD (S)	C12-8353, 8344
	EOS 500 N / QD (B)	C12-8356, 8357



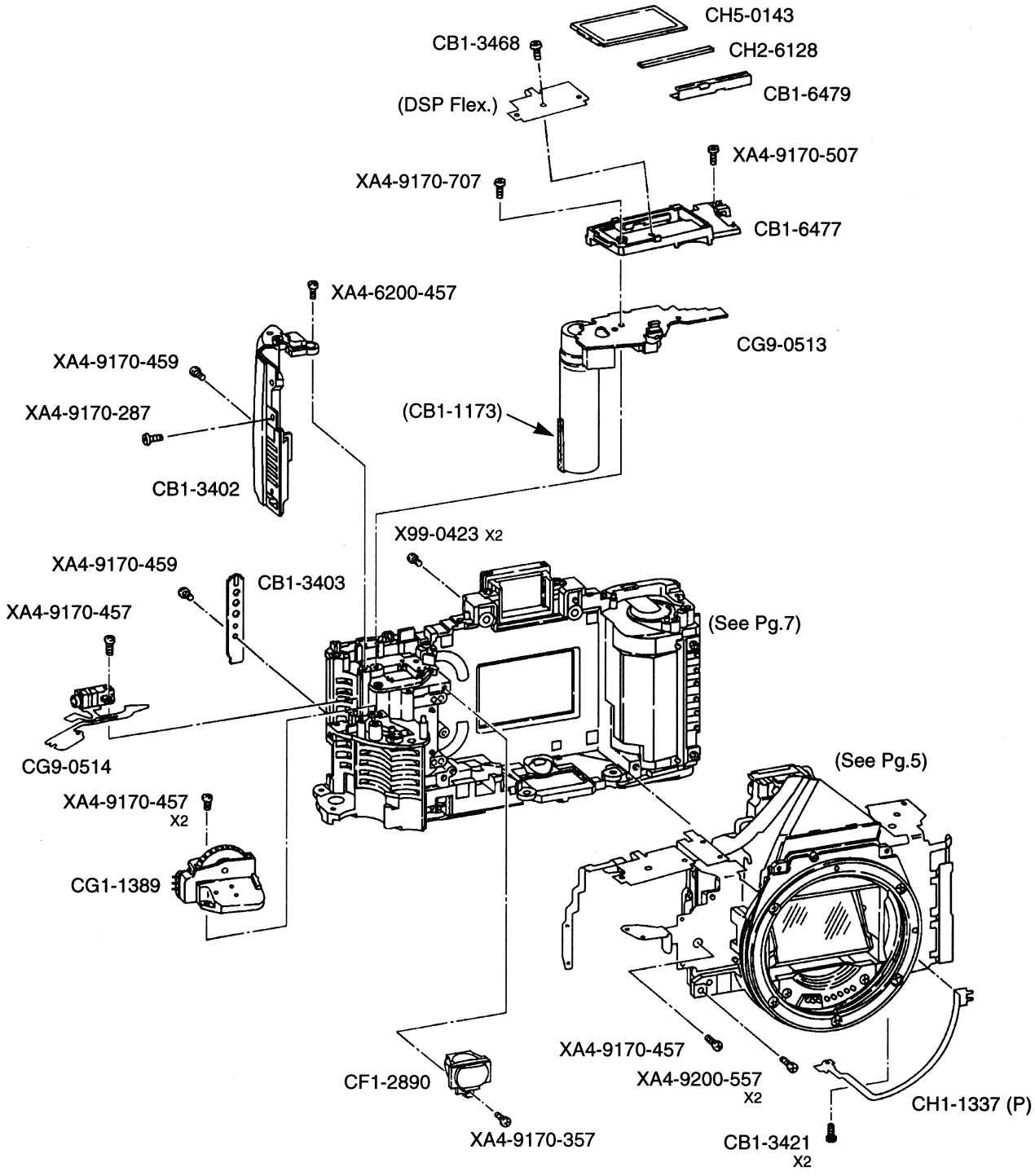
PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-8666-050	E	1	BASE, ACC. SHOE	アクシューベース
	CA1-9328-000	E	1	SPRING, PLATE	アクシュースプリング
	CB1-3375-000	E	1	CONTACT, SHOE IN USE	シュービジー接片
	CB1-3376-000	E	1	BASE, SHOE IN USE 1	シュービジー接片座1
	CB1-3377-000	E	1	BASE, SHOE IN USE 2	シュービジー接片座2
	CB1-3381-000	E	1	PIN, POP-END SWITCH	ポップエンド押しピン
	CB1-3386-000	D	1	PIN, ARMATURE SPRING	アマチュアバネ押しピン
	CB1-3388-000	E	1	PIN, ACC. SHOE	アクシューピン
	CB1-3390-000	E	1	SHOE, ACCESSORY	アクシュー
	CB1-3397-000	E	2	STOPPER, RUBBER	ストロボストップゴム
*	CB1-6451-000	D	1	COVER, TOP (SILVER)	上カバー（白）
*	CB1-6453-000	C	1	COVER, FLASH (SILVER)	ストロボカバー（白）
*	CB1-6461-000	D	1	PANEL, FLASH	ストロボパネル
*	CB1-6462-000	E	1	BASE, POP-END SWITCH	ポップエンドスイッチ台
*	CB1-6463-000	E	1	CONTACT, POP-END 1	ポップエンド接片1
*	CB1-6464-000	E	1	CONTACT, POP-END 2	ポップエンド接片2
*	CB1-6469-000	D	1	BUTTON, RELEASE	レリーズボタン
*	CB1-6475-000	D	1	CAP, MODE DIAL (SILVER)	モードダイヤル蓋（白）
*	CB1-6476-000	D	1	DIAL, MODE	モードダイヤル
*	CB1-6478-000	D	1	WINDOW, OUTSIDE LCD	OLC窓
*	CB1-6480-000	D	1	TAPE, DOUBLE-SIDED	OLC窓接着テープ
*	CB1-6483-000	E	1	CLICK SPRING, MODE DIAL	モードダイヤルクリックバネ
*	CB1-6786-000	D	1	COVER, TOP (BLACK)	上カバー（黒）
*	CB1-6788-000	C	1	COVER, FLASH (BLACK)	ストロボカバー（黒）
*	CB1-6790-000	D	1	CAP, MODE DIAL (BLACK)	モードダイヤル蓋（黒）
*	CF1-3382-000	D	1	FLASH HEAD UNIT	ストロボ発光部ユニット
*	CG1-3378-000	D	1	FPC ASS'Y, TOP	上カバーフレキユニット
*	CG1-3383-000	D	1	FLASH MAGNET ASS'Y	ストロボ緊定地板ユニット
	CS2-3300-000	E	1	SCREW,	
	CS2-3301-000	E	2	SCREW,	
	CS2-5648-000	E	1	SPRING, FLASH MAGNET	ストロボ緊定バネ
	CS2-5656-000	E	1	SPRING, COIL	レリーズボタンバネ
	CS2-6360-000	E	1	SPRING, POP UP	ストロボバネ
	X99-0685-000		1	SCREW,	
	XA1-3170-507		4	SCREW,	
	XA1-7170-357		1	SCREW,	
	XA4-6170-307		1	SCREW,	
	XA4-9170-307		2	SCREW,	
	XA4-9170-359		2	SCREW,	
	XD2-1100-132		1	E RING	

CANON

NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357



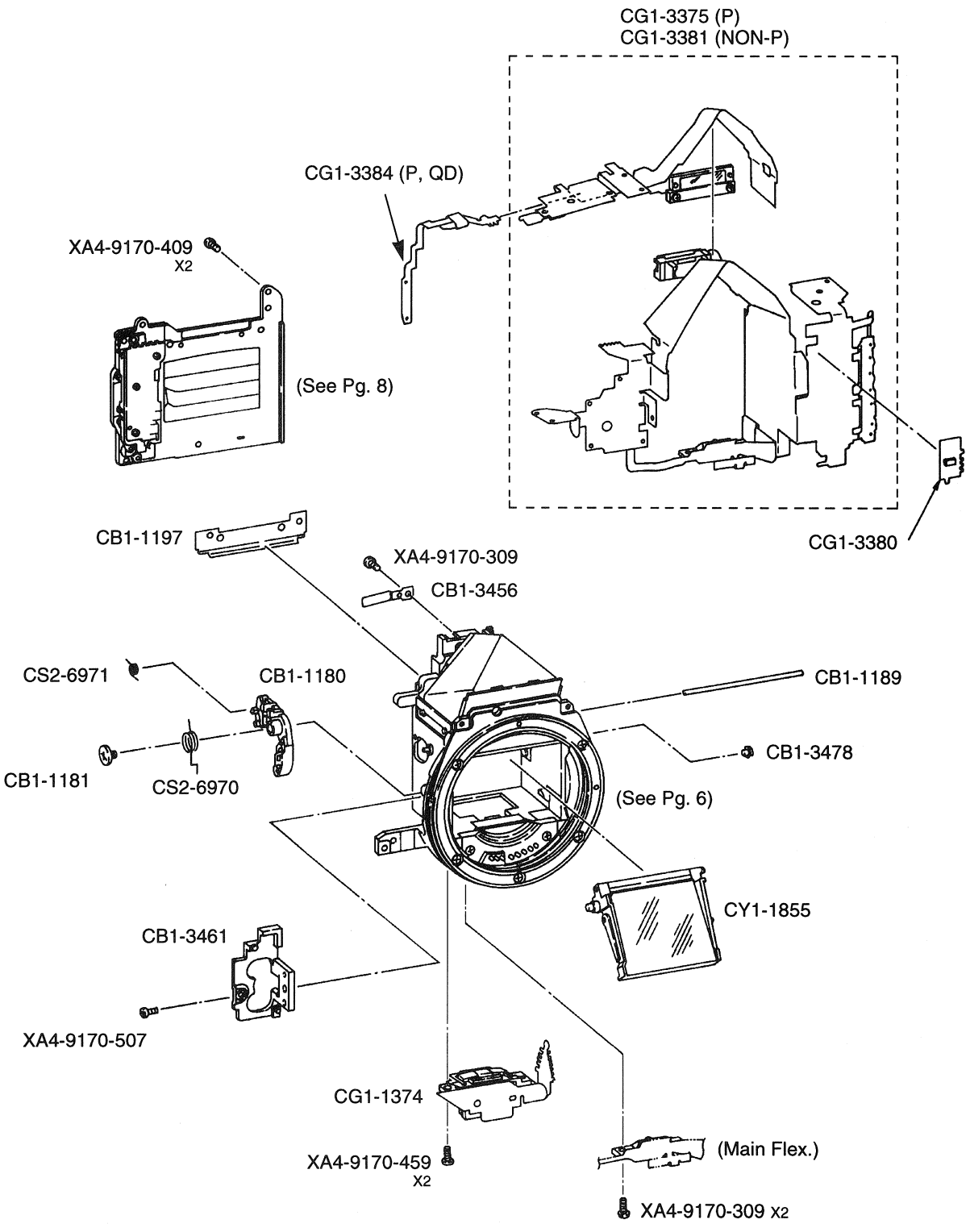
PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CB1-1173-000	E	1	CUSHION, FOAM RUBBER	モルトプレーン
	CB1-3402-000	D	1	COVER, HINGE	ヒンジカバー
	CB1-3403-000	E	1	COVER, DATE CONTACT	デート接点カバー
	CB1-3421-000		2	SCREW,	
	CB1-3468-000		1	SCREW,	
*	CB1-6477-000	E	1	CASE, OUTSIDE LCD	OLCケース
*	CB1-6479-000	E	1	HOLDER, OUTSIDE LCD	OLCホルダー
	CF1-2890-000	E	1	AF LED ASS'Y	AF補助光ユニット
	CG1-1389-000	D	1	DIAL ASS'Y	電子ダイヤルユニット
*	CG9-0513-000	C	1	PCB ASS'Y, FLASH	ストロボ基板ユニット
*	CG9-0514-000	D	1	FPC ASS'Y, RELEASE	レリーズフレキユニット
	CH1-1337-000	E	1	FPC, PANORAMA SWITCH	パノラマスイッチフレキ
*	CH2-6128-000	E	1	CONNECTOR, OUTSIDE LCD	OLCコネクター
*	CH5-0143-000	C	1	LCD, OUTSIDE	OLC
	X99-0423-000		2	SCREW,	
	XA4-6200-457		1	SCREW,	
	XA4-9170-287		1	SCREW,	
	XA4-9170-357		1	SCREW,	
	XA4-9170-457		4	SCREW,	
	XA4-9170-459		2	SCREW,	
	XA4-9170-507		1	SCREW,	
	XA4-9170-707		1	SCREW,	
	XA4-9200-557		2	SCREW,	

CANON

NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357



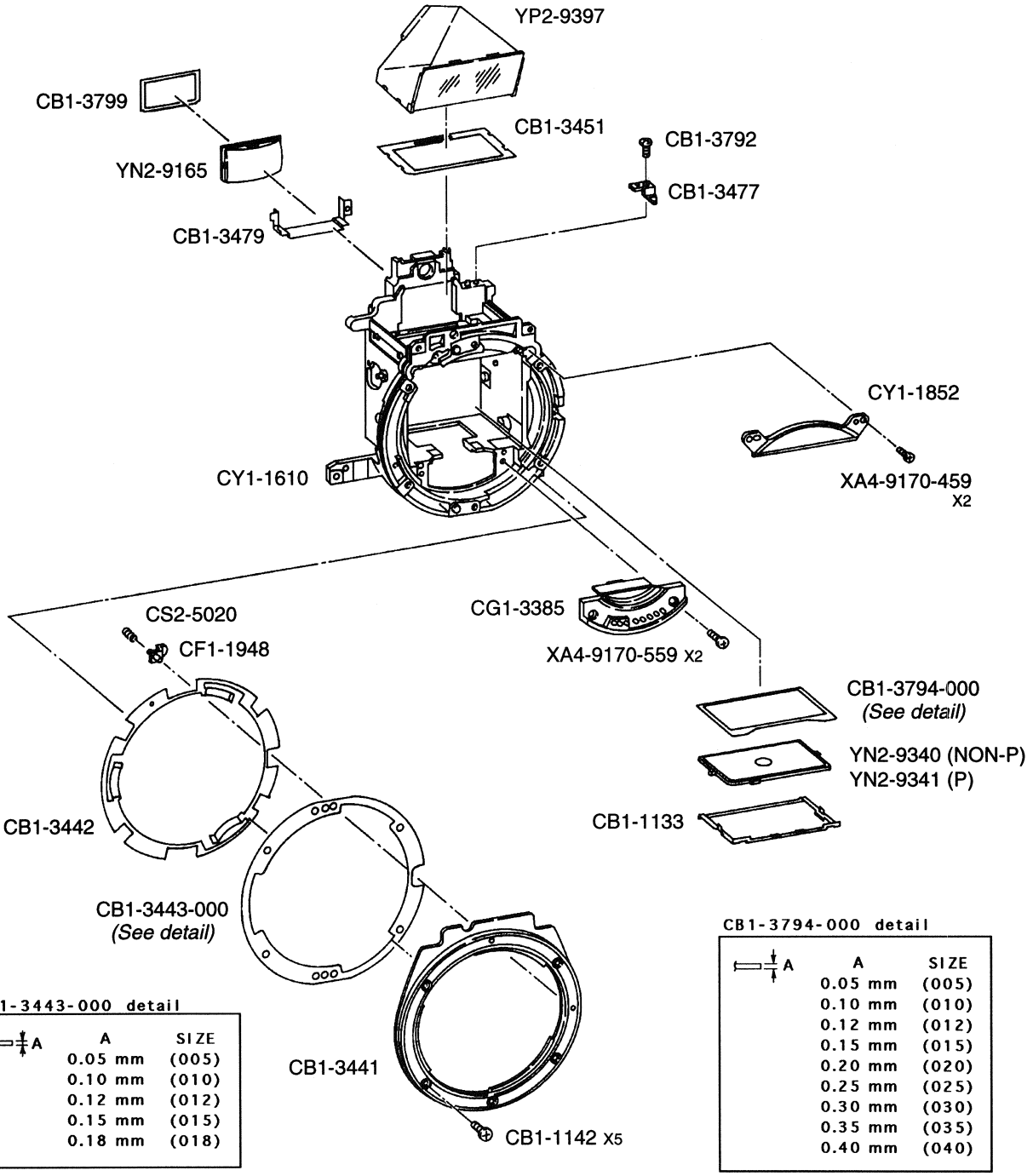
PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CB1-1180-000	E	1	LEVER, MIRROR UP	ミラーアップレバー
	CB1-1181-000	E	1	SCREW,	ミラー駆動レバービス
	CB1-1189-000	E	1	HINGE, MAIN MIRROR	主ミラーヒンジ
	CB1-1197-000	E	1	SHIELD, LIGHT	遮光幕
	CB1-3456-000	E	1	HOLDER, INSIDE LCD	ILC押さえ
	CB1-3461-000	E	1	WING	ウイング
	CB1-3478-000	E	1	STOPPER, SUB MIRROR	サブミラー反転ダボ
	CG1-1374-000	D	1	AUTO FOCUS UNIT	AFユニット
*	CG1-3375-000	C	1	FPC ASS'Y, MAIN (PANORAMA)	メインフレキユニット（NON-P）
*	CG1-3380-000	C	1	FPC ASS'Y, MAGNET	MGフレキユニット
*	CG1-3381-000	C	1	FPC ASS'Y, MAIN (NON-P)	パノラマメインフレキユニット
*	CG1-3384-000	D	1	FPC ASS'Y, DATE	デートフレキユニット
	CS2-6970-000	E	1	SPRING, MIRROR UP	主ミラーアップバネ
	CS2-6971-000	E	1	SPRING, MIRROR RETURNING	主ミラー戻しバネ
	CY1-1855-000	D	1	MIRROR UNIT	ミラーユニット
	XA4-9170-309		3	SCREW,	
	XA4-9170-409		2	SCREW,	
	XA4-9170-459		2	SCREW,	
	XA4-9170-507		1	SCREW,	

CANON

NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357



CB1-3443-000 detail

A	SIZE
0.05 mm	(005)
0.10 mm	(010)
0.12 mm	(012)
0.15 mm	(015)
0.18 mm	(018)

CB1-3794-000 detail

A	SIZE
0.05 mm	(005)
0.10 mm	(010)
0.12 mm	(012)
0.15 mm	(015)
0.20 mm	(020)
0.25 mm	(025)
0.30 mm	(030)
0.35 mm	(035)
0.40 mm	(040)

PARTS LIST

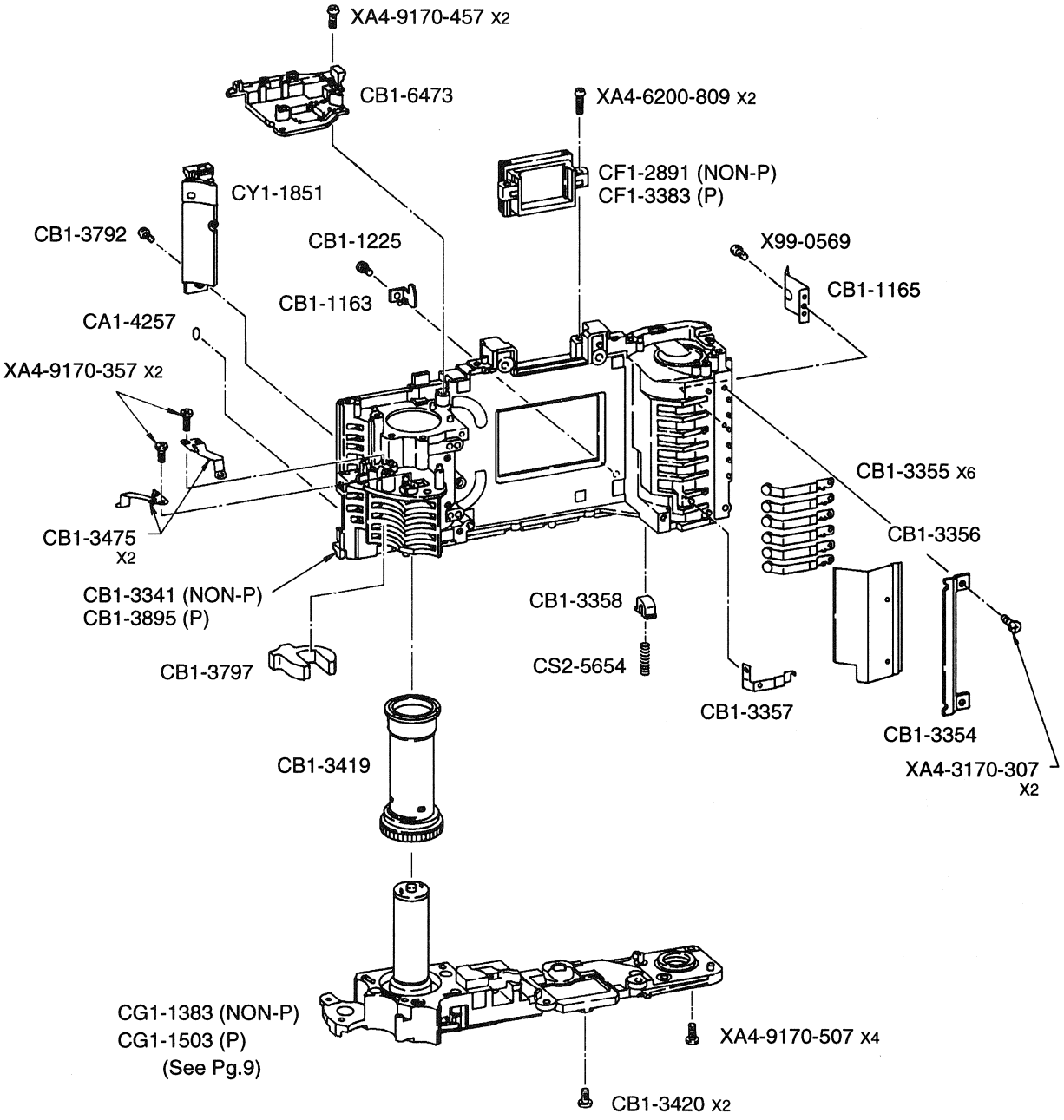
REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.		CLASS	QTY	DESCRIPTION	
	CB1-1133-000		E	1	HOLDER, FOCUSING SCREEN	ピント板押さえ
	CB1-1142-000			5	SCREW,	
	CB1-3441-000		C	1	MOUNT, BODY	マウント
	CB1-3442-000		E	1	SPRING, MOUNT	MIFスプリング
	CB1-3443-000	(005)	D	1	SPACER, MOUNT	マウントスペーサー
		(010)	D	1	SPACER, MOUNT	マウントスペーサー
		(012)	D	1	SPACER, MOUNT	マウントスペーサー
		(015)	D	1	SPACER, MOUNT	マウントスペーサー
		(018)	D	1	SPACER, MOUNT	マウントスペーサー
*	CB1-3451-000		E	1	MASK, FINDER	ファインダー枠
	CB1-3477-000		E	1	STOPPER, MAIN FLEX.	メインフレキ押さえ
	CB1-3479-000		E	1	SHIELD, EYEPIECE LIGHT	接眼レンズ遮光板
	CB1-3792-000			1	SCREW,	
	CB1-3794-000	(005)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(010)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(012)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(015)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(020)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(025)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(030)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(035)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
		(040)	D	1	SPACER, FOCUSING SCREEN	ピントワッシャー
	CB1-3799-000		E	1	MASK, ,EYEPIECE	接眼枠
	CF1-1948-000		E	1	LEVER, LENS LOCK	ロックピンユニット
*	CG1-3385-000		D	1	MOUNT CONTACT UNIT	接点座ユニット
	CS2-5020-000		E	1	SPRING, COIL	ロックピンバネ
	CY1-1610-000		D	1	MIRROR BOX UNIT	ミラーボックスユニット
	CY1-1852-000		D	1	PLATE, PROTECTION	前板ボロ隠しユニット
	XA4-9170-459			2	SCREW,	
	XA4-9170-559			2	SCREW,	
	YN2-9165-000		E	1	EYEPIECE, FRONT	接眼フロントレンズ
*	YN2-9340-000		D	1	SCREEN, FOCUSING (NON-P)	ピント板
*	YN2-9341-000		D	1	SCREEN, FOCUSING (PANORAMA)	パノラマピント板
*	YP2-9397-000		C	1	PENTAMIRROR ASS'Y	ペンタミラーユニット

CANON

NEW EOS KISS (S) / (B)
EOS 500 N / QD (S)
EOS REBEL G (B) / QD (S)
EOS 500 N / QD (B)

REF. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

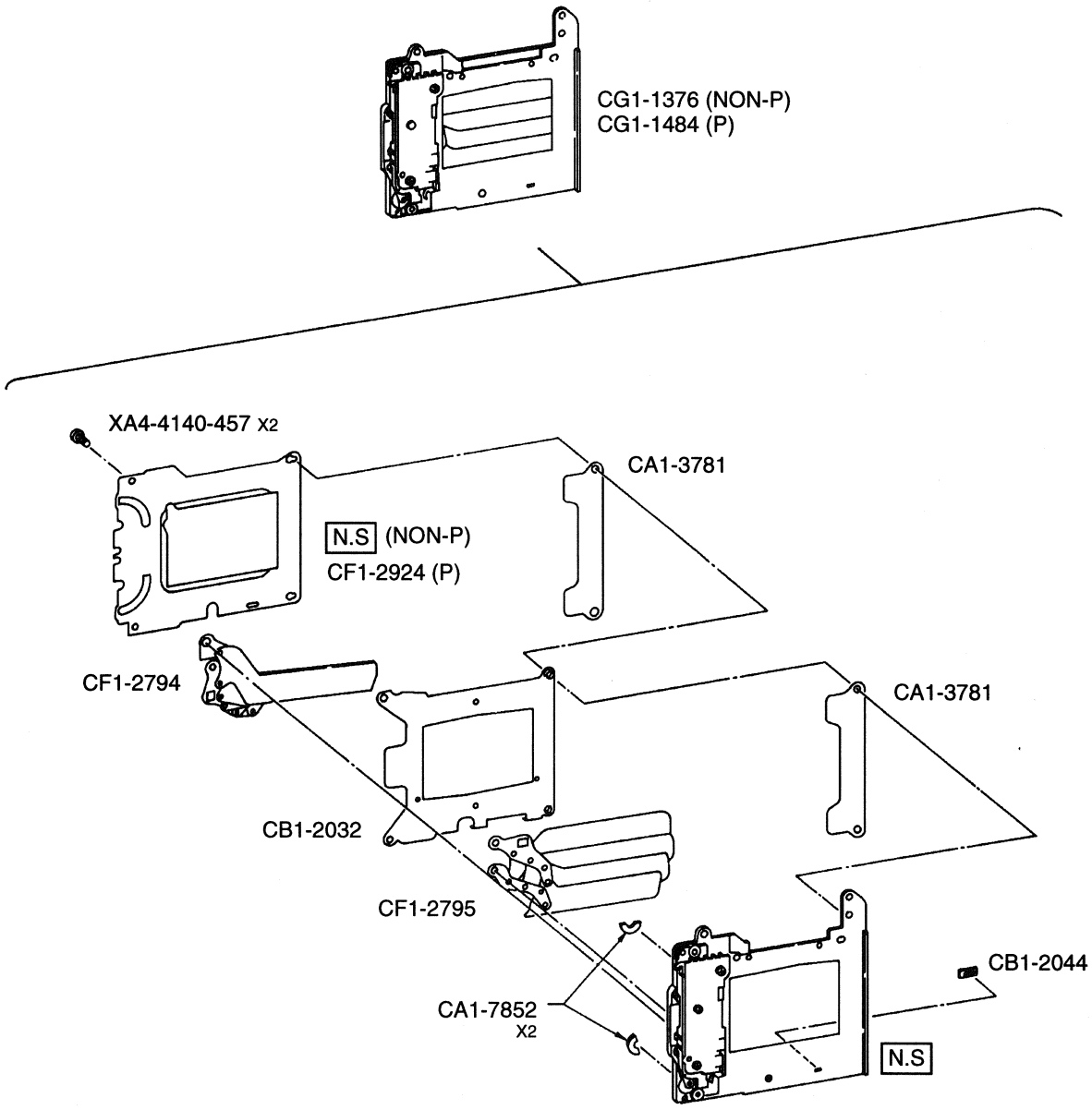


PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-4257-000	E	1	SEAL, FILM	フィルム先端シール
	CB1-1163-000	E	1	JAW, FILM CARTRIDGE	パトローネアゴ
	CB1-1165-000	E	1	GUIDE, FILM CARTRIDGE	パトローネガイド
	CB1-1225-000	E	1	SCREW,	
	CB1-3341-000	E	1	BODY (NON-P)	本体
	CB1-3354-000	E	1	HOLDER, DX CONTACT	DX接片押さえ
	CB1-3355-000	E	6	CONTACT, DX	DX接片
	CB1-3356-000	E	1	COVER, DX CONTACT	DXシート
	CB1-3357-000	E	1	CONTACT, FILM CARTRIDGE	パトローネ接片
	CB1-3358-000	E	1	UP LEVER, FILM CARTRIDGE	パトローネ押し上げレバー
	CB1-3419-000	E	1	SPOOL	スプール
	CB1-3420-000		2	SCREW,	
	CB1-3475-000	E	2	CONTACT, BATTERY	電池接片
	CB1-3792-000		1	SCREW,	
	CB1-3797-000	E	1	CUSHION, BATTERY	電池クッション
	CB1-3895-000	E	1	BODY (PANORAMA)	パノラマ本体
*	CB1-6473-000	E	1	BASE, SPOOL	スプール上地板
	CF1-2891-000	E	1	EYEPIECE ASS'Y (NON-P)	アイピースユニット
*	CF1-3383-000	E	1	EYEPIECE ASS'Y (PANORAMA)	パノラマアイピースユニット
	CG1-1383-000	D	1	BOTTOM PLATE ASS'Y (NON-P)	下面地板ユニット
	CG1-1503-000	D	1	BOTTOM PLATE ASS'Y (PANORAMA)	パノラマ下面地板ユニット
	CS2-5654-000	E	1	SPRING, COIL	パトローネ押し上げバネ
	CY1-1851-000	E	1	SIGNAL ASS'Y	信号ユニット
	X99-0569-000		1	SCREW,	
	XA4-3170-307		2	SCREW,	
	XA4-6200-809		2	SCREW,	
	XA4-9170-357		2	SCREW,	
	XA4-9170-457		2	SCREW,	
	XA4-9170-507		4	SCREW,	

CANON	NEW EOS KISS (S) / (B)	REF. C12-8341, 8351
	EOS 500 N / QD (S)	C12-8346, 8347
	EOS REBEL G (B) / QD (S)	C12-8353, 8344
	EOS 500 N / QD (B)	C12-8356, 8357



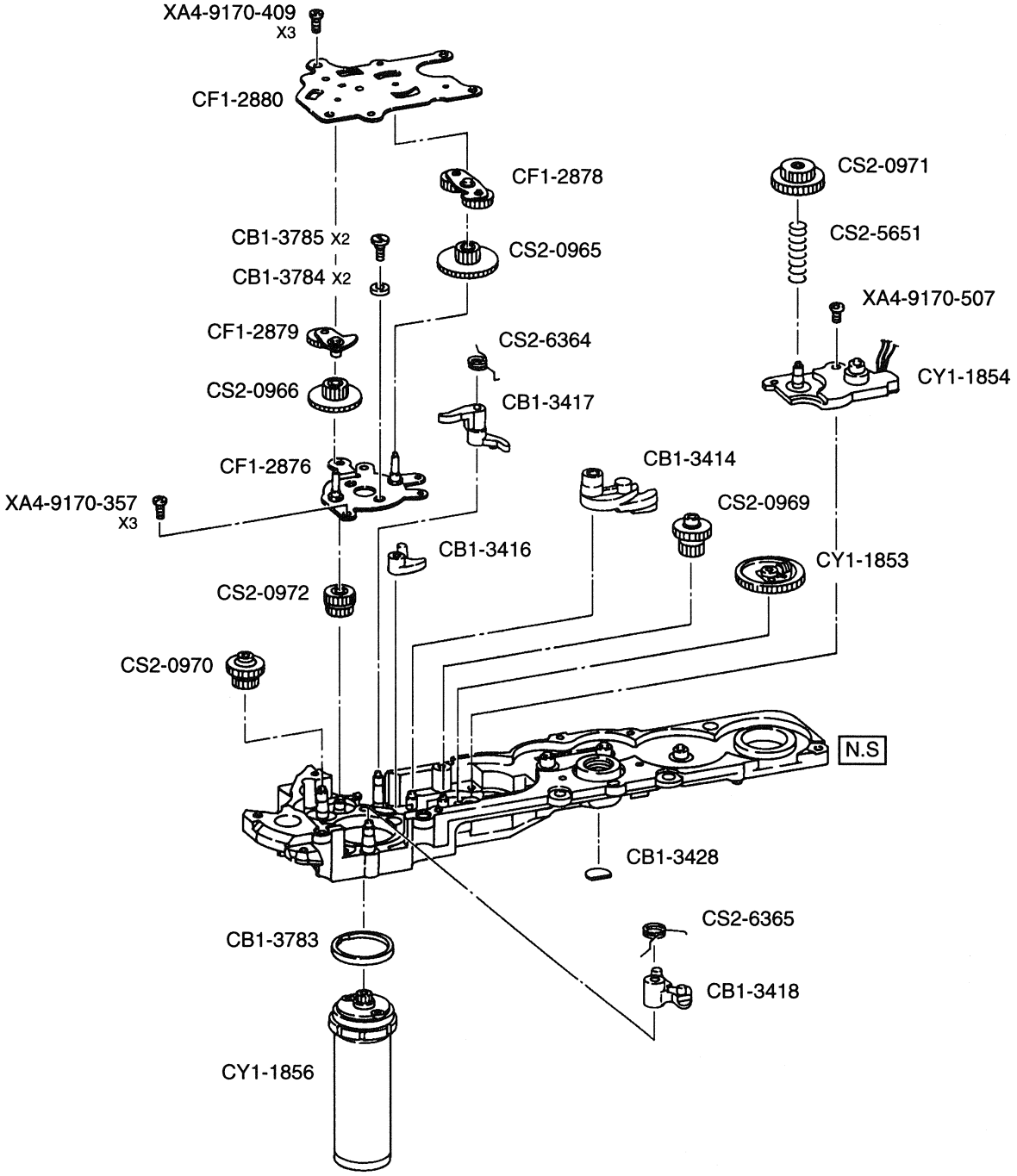
PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-3781-000	E	2	SPACER	スペーサー
	CA1-7852-000	E	2	STOPPER, RUBBER	ストッパー
	CB1-2032-000	E	1	PLATE, SEPARATOR	仕切板
	CB1-2044-000	E	1	STOPPER, SHUTTER CURTAIN	羽根ストッパー
	CF1-2794-000	C	1	CURTAIN, 2ND SHUTTER	後幕ユニット
	CF1-2795-000	C	1	CURTAIN, 1ST SHUTTER	先幕ユニット
	CF1-2924-000	D	1	PANORAMA COVER ASS'Y	PNカバーユニット
	CG1-1376-000	C	1	SHUTTER UNIT (NON-P)	シャッターユニット
	CG1-1484-000	C	1	SHUTTER UNIT (PANORAMA)	パノラマシャッターユニット
	XA4-4140-457		2	SCREW	

CANON

NEW EOS KISS (S) / (B) REF. C12-8341, 8351
EOS 500 N / QD (S) C12-8346, 8347
EOS REBEL G (B) / QD (S) C12-8353, 8344
EOS 500 N / QD (B) C12-8356, 8357

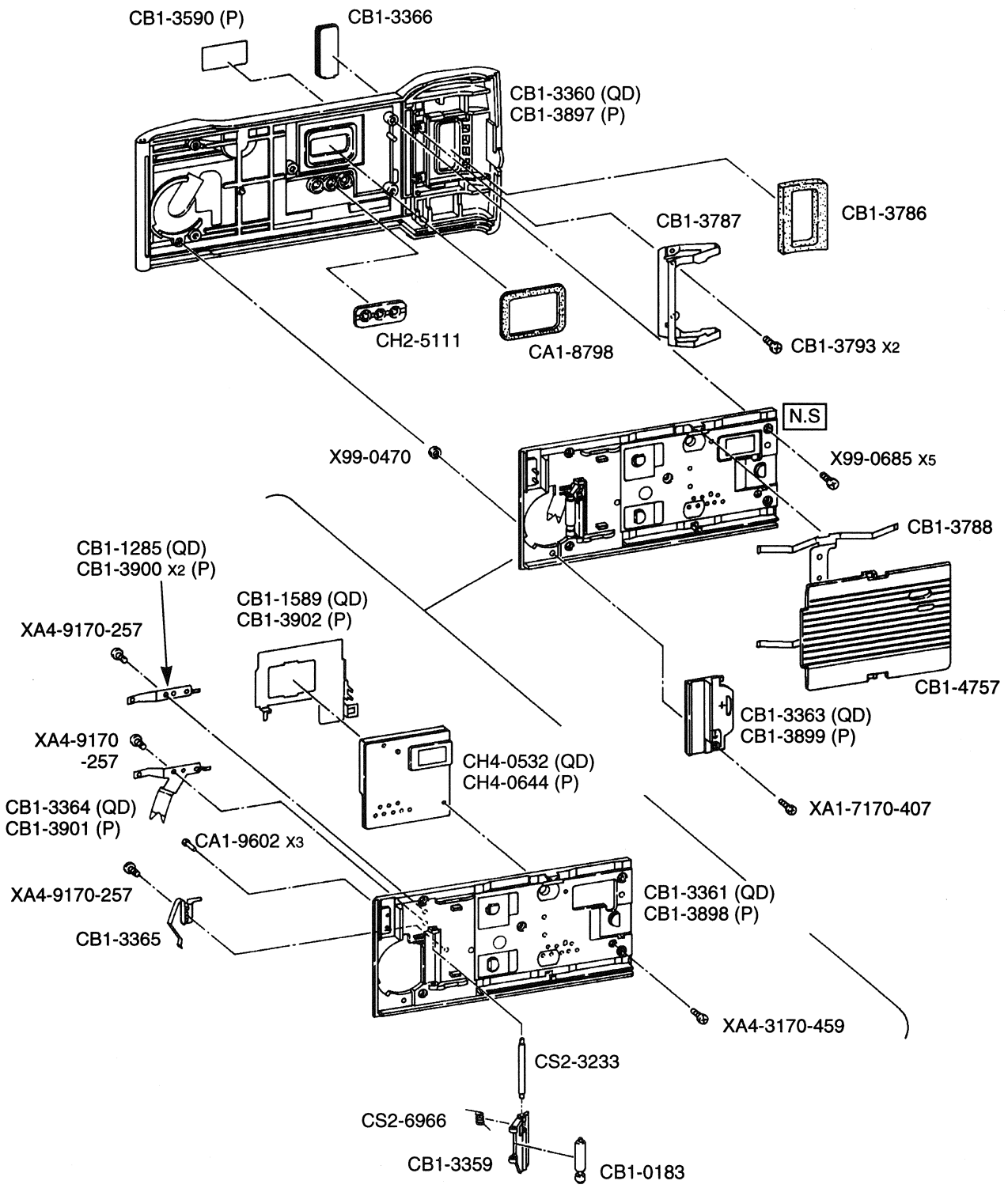


PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CB1-3414-000	E	1	LEVER, CHARGE	チャージレバー
	CB1-3416-000	E	1	LEVER, RESET-1	リセットレバー1
	CB1-3417-000	E	1	LEVER, RESET-2	リセットレバー2
	CB1-3418-000	E	1	LEVER, BACK COVER	背蓋レバー
	CB1-3428-000	E	1	COVER, TRIPOD	三脚ネジ蓋
	CB1-3783-000	E	1	CUSHION, MOTOR	モータークッション
	CB1-3784-000	E	2	WASHER, RUBBER	ゴムワッシャー
	CB1-3785-000		2	SCREW,	
	CF1-2876-000	E	1	GEAR COVER ASS'Y	ギアカバーユニット
	CF1-2878-000	E	1	PLANETARY GEAR ASS'Y 1	遊星ギアユニット1
	CF1-2879-000	E	1	PLANETARY GEAR ASS'Y 2	遊星ギアユニット2
	CF1-2880-000	E	1	LOWER COVER ASS'Y	下面カバーユニット
	CS2-0965-000	E	1	GEAR, CHARGE SUN	チャージ太陽ギア
	CS2-0966-000	E	1	GEAR, PREWIND SUN	巻上げ太陽ギア
	CS2-0969-000	E	1	GEAR, CHARGE TRANSFER	チャージ伝達ギア
	CS2-0970-000	E	1	GEAR, PREWIND TRANSFER	巻上げ伝達ギア
	CS2-0971-000	E	1	GEAR, REWIND TRANSFER	巻戻し伝達ギア
	CS2-0972-000	E	1	GEAR, SPOOL TRANSFER	スプール伝達ギア
	CS2-5651-000	E	1	SPRING, REWIND FRICTION	巻戻しフリクションバネ
	CS2-6364-000	E	1	SPRING, RESET	リセットバネ
	CS2-6365-000	E	1	SPRING, BACK COVER RESET	背蓋リセットバネ
	CY1-1853-000	D	1	CAM GEAR ASS'Y	カムギアユニット
	CY1-1854-000	D	1	PHASE SIGNAL ASS'Y	信号カバーユニット
	CY1-1856-000	D	1	MOTOR ASS'Y	モーターユニット
	XA4-9170-357		3	SCREW,	
	XA4-9170-409		3	SCREW,	
	XA4-9170-507		1	SCREW,	

CANON	NEW EOS KISS (S) / (B)	REF. C12-8341, 8351
	EOS 500 N QD (S)	C12-8347
	EOS REBEL G QD (S)	C12-8344
	EOS 500 N QD (B)	C12-8357

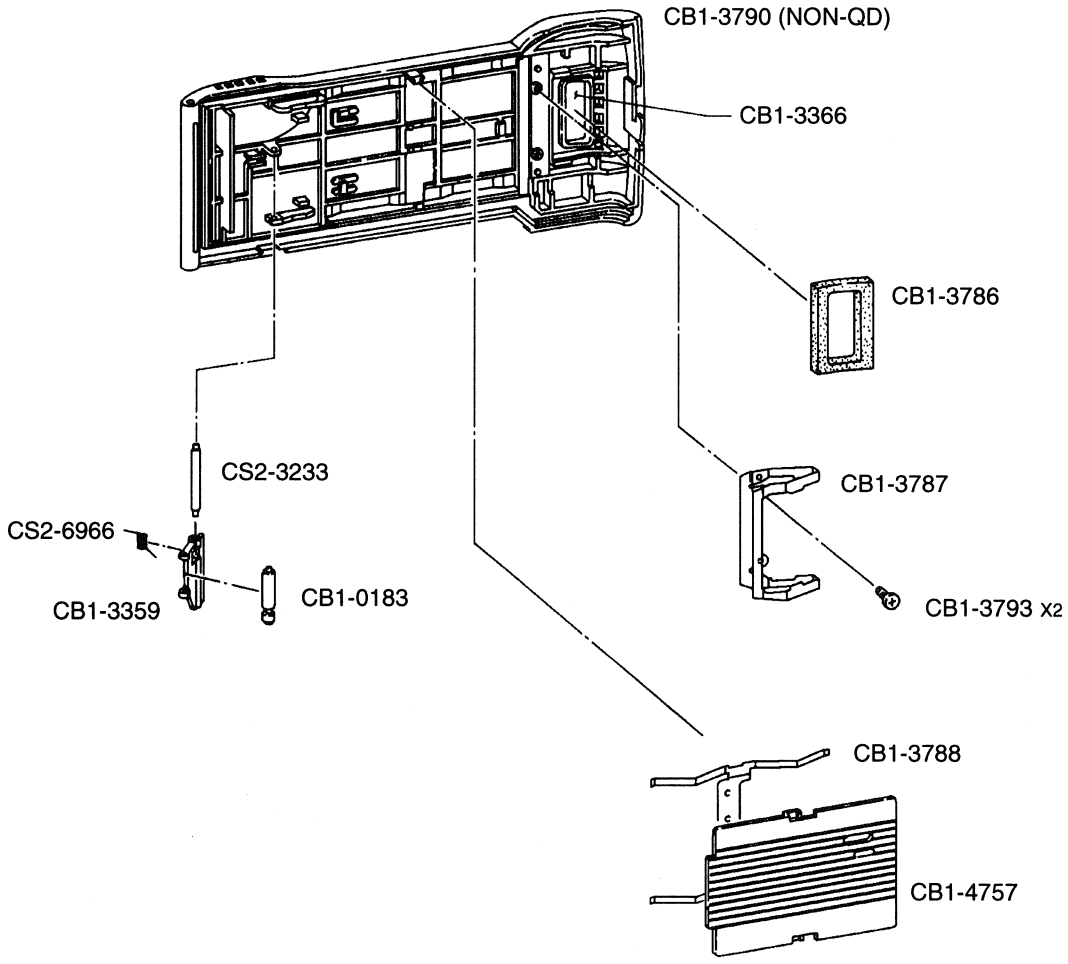


PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CA1-8798-000	D	1	LIGHT SHIELD, DATE WINDOW	DATE遮光材
	CA1-9602-000	E	3	PIN, DATE CONTACT	DATE信号ピン
	CB1-0183-000	E	1	ROLLER, BACK COVER GUIDE	背蓋ガイドローラー
	CB1-1285-000	E	1	CONTACT, DATE SIGNAL	デート接片
	CB1-1589-000	E	1	PLATE, SHIELD (QD)	QDシールド板
	CB1-3359-000	E	1	HOLDER, ROLLER	背蓋可動レバー
	CB1-3360-000	D	1	COVER, BACK (QD)	QD背蓋
	CB1-3361-000	E	1	COVER, INNER (QD)	QD内蓋
	CB1-3363-000	E	1	COVER, BATTERY (QD)	QD電池蓋
	CB1-3364-000	E	1	CONTACT, DATE BATTERY (-)	デート電池接片（一）
	CB1-3365-000	E	1	CONTACT, DATE BATTERY (+)	デート電池接片（十）
	CB1-3366-000	E	1	WINDOW, FILM	フィルム窓
	CB1-3590-000	D	1	SEAL, PANORAMA	パノラマシール
	CB1-3786-000	D	1	SHIELD, LIGHT	フィルム窓モルトプレーン
	CB1-3787-000	E	1	SPRING, CARTRIDGE	パトローネ押さえ
	CB1-3788-000	D	1	SPRING, PRESSURE PLATE	圧板バネ
	CB1-3793-000		2	SCREW	
	CB1-3897-000	E	1	COVER, BACK (PANORAMA)	パノラマ背蓋
	CB1-3898-000	E	1	COVER, INNER (PANORAMA)	パノラマ内蓋
	CB1-3899-000	E	1	COVER, BATTERY (PANORAMA)	パノラマ電池蓋
	CB1-3900-000	E	2	CONTACT, DATE SIGNAL	デート接片
	CB1-3901-000	E	1	CONTACT, DATE BATTERY (-)	デート電池接片（一）
	CB1-3902-000	E	1	PLATE, SHIELD (PANORAMA)	パノラマシールド板
	CB1-4757-000	D	1	PLATE, PRESSURE	圧板
	CH2-5111-000	E	1	SWITCH, DATE	デートスイッチ
	CH4-0532-000	D	1	PCB ASS'Y, DATE (QD)	デートモジュール
	CH4-0644-000	D	1	PCB ASS'Y, DATE (PANORAMA)	パノラマデートモジュール
	CS2-3233-000	E	1	SHAFT, ROLLER HOLDER	ローラー軸
	CS2-6966-000	E	1	SPRING, TORSION	ローラースプリング
	X99-0470-000		1	NUT	六角ナット
	X99-0685-000		5	SCREW,	
	XA1-7170-407		1	SCREW,	
	XA4-3170-459		1	SCREW	
	XA4-9170-257		3	SCREW,	

CANON	EOS 500 N (S)	REF.C12-8346
	EOS REBEL G (B)	C12-8353
	EOS 500 N (B)	C12-8356



PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION	
	CB1-0183-000	E	1	ROLLER, BACK COVER GUIDE	背蓋ガイドローラー
	CB1-3359-000	E	1	HOLDER, ROLLER	背蓋可動レバー
	CB1-3366-000	E	1	WINDOW, FILM	フィルム窓
	CB1-3786-000	D	1	SHIELD, LIGHT	フィルム窓モルトプレーン
	CB1-3787-000	E	1	SPRING, CARTRIDGE	パトローネ押さえ
	CB1-3788-000	D	1	SPRING, PRESSURE PLATE	圧板バネ
	CB1-3790-000	D	1	COVER, BACK (NON-QD)	ノーマル背蓋
	CB1-3793-000		2	SCREW,	
	CB1-4757-000	D	1	PLATE, PRESSURE	圧板
	CS2-3233-000	E	1	SHAFT, ROLLER HOLDER	ローラー軸
	CS2-6966-000	E	1	SPRING, TORSION	ローラースプリング

ELECTRIC PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

NEW	SYMBOL	PARTS NO.	DESCRIPTION	REMARK	PAGE
	EF IC	CH4-0641-000	EF IC, LC4090		
	AE IC	CH4-0642-000	AE IC, LC4089		
	T-MOS	WA2-5620-000	MOS-FET, SFX50		
	DC/DC IC	WA4-5457-000	DC/DC IC, MB3776APNF		
	MOTIR DR	WA4-6332-000	MOTOR DRIVER, MPC17A10SVM		
		Y11-3402-000	LEAD	BLACK	
		Y11-3403-000	LEAD	RED	
		Y11-3702-000	LEAD	BLACK	
		Y11-3703-000	LEAD	RED	
		Y11-3901-000	LEAD	WHITE	
		Y11-3902-000	LEAD	BLACK	
		Y11-3903-000	LEAD	RED	
		Y11-3904-000	LEAD	PINK	
		Y11-3906-000	LEAD	ORANGE	
		Y11-3907-000	LEAD	YELLOW	
		Y11-3909-000	LEAD	GREEN	
		Y11-3911-000	LEAD	BLUE	
		Y11-3914-000	LEAD	GLAY	
		Y11-5001-000	LEAD	WHITE	
		Y11-5011-000	LEAD	BLUE	

INDEX OF PARTS LIST

REF.NO. C12-8341, 8351
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INDEX OF PARTS LIST

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C12-8353, 8344
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INDEX OF PARTS LIST

REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

INDEX OF PARTS LIST

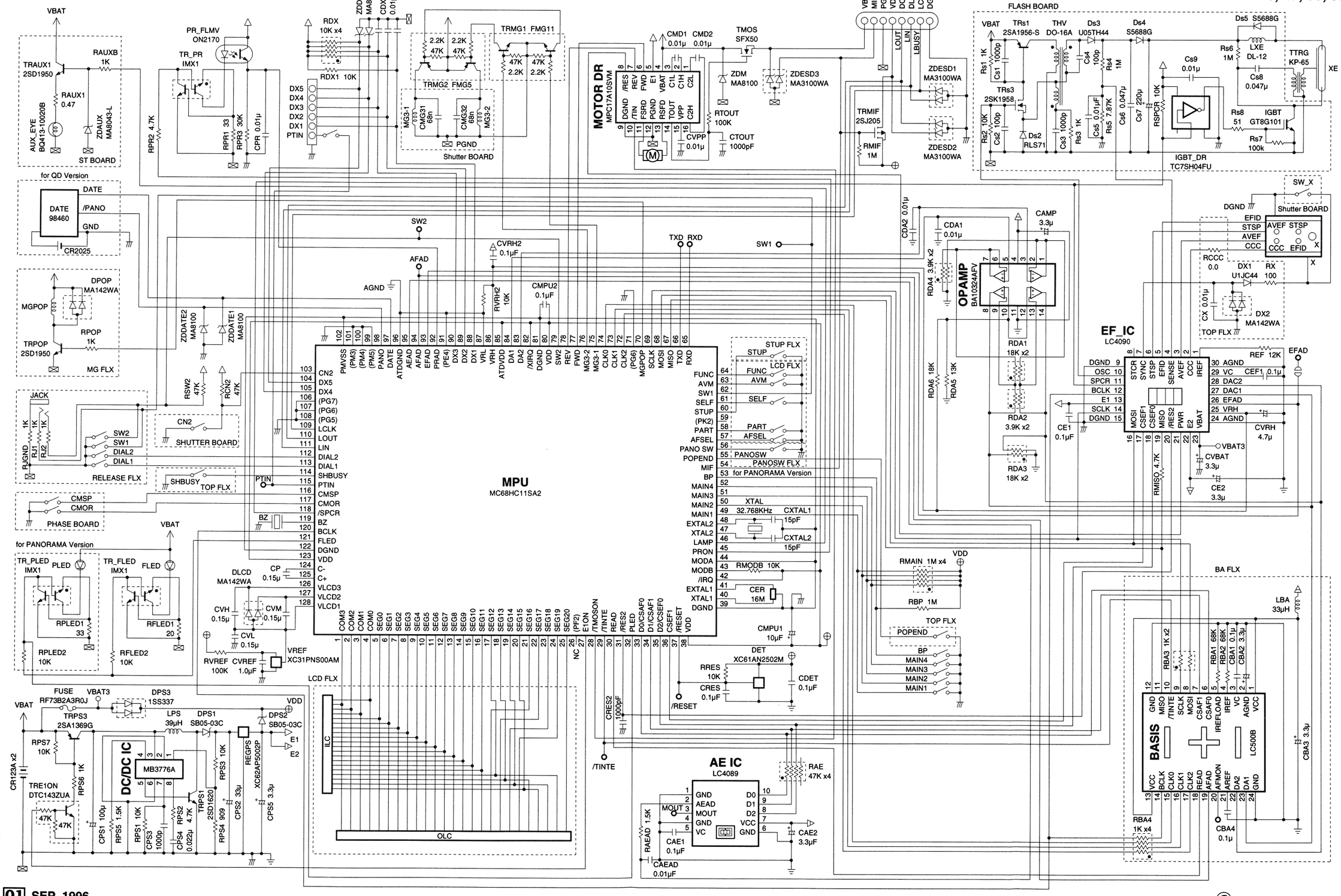
REF.NO. C12-8341, 8351
C12-8346, 8347
C12-8353, 8344
C12-8356, 8357

Part 5

Electrical Diagrams

1. SCHEMATIC DIAGRAM

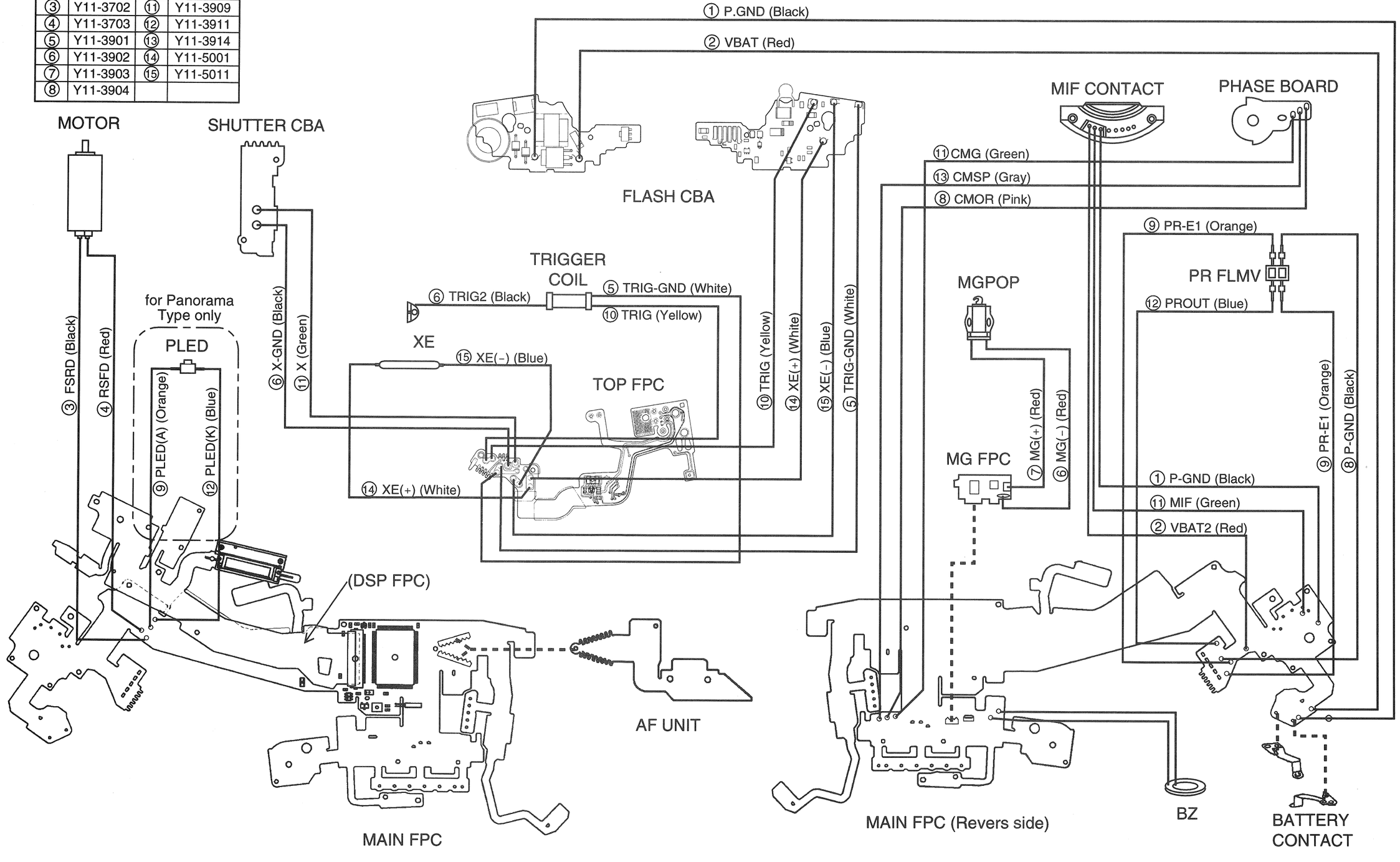
REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57



2. WIRING DIAGRAM

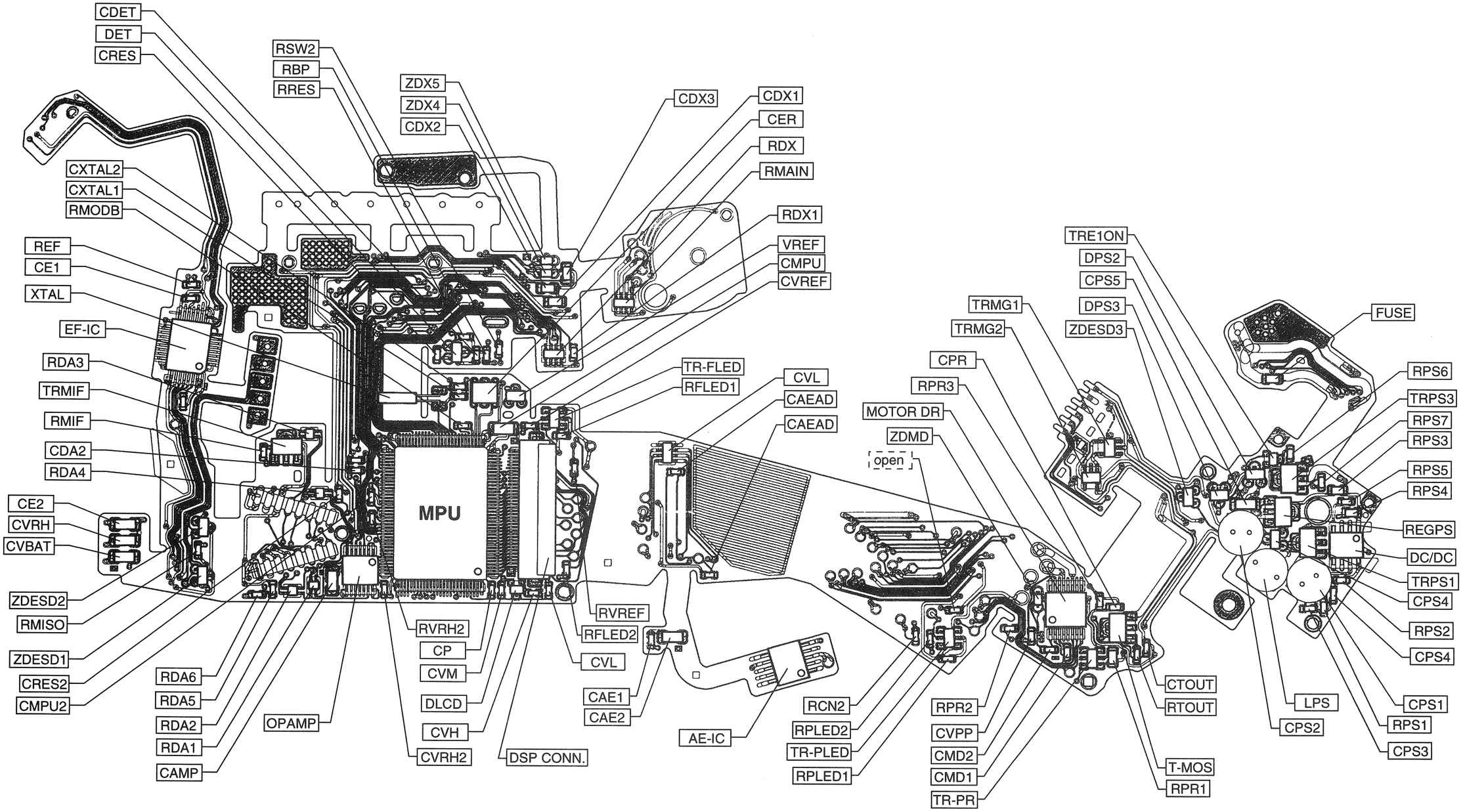
REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57

NO.	Parts No.	NO.	Parts No.
①	Y11-3402	⑨	Y11-3906
②	Y11-3403	⑩	Y11-3907
③	Y11-3702	⑪	Y11-3909
④	Y11-3703	⑫	Y11-3911
⑤	Y11-3901	⑬	Y11-3914
⑥	Y11-3902	⑭	Y11-5001
⑦	Y11-3903	⑮	Y11-5011
⑧	Y11-3904		

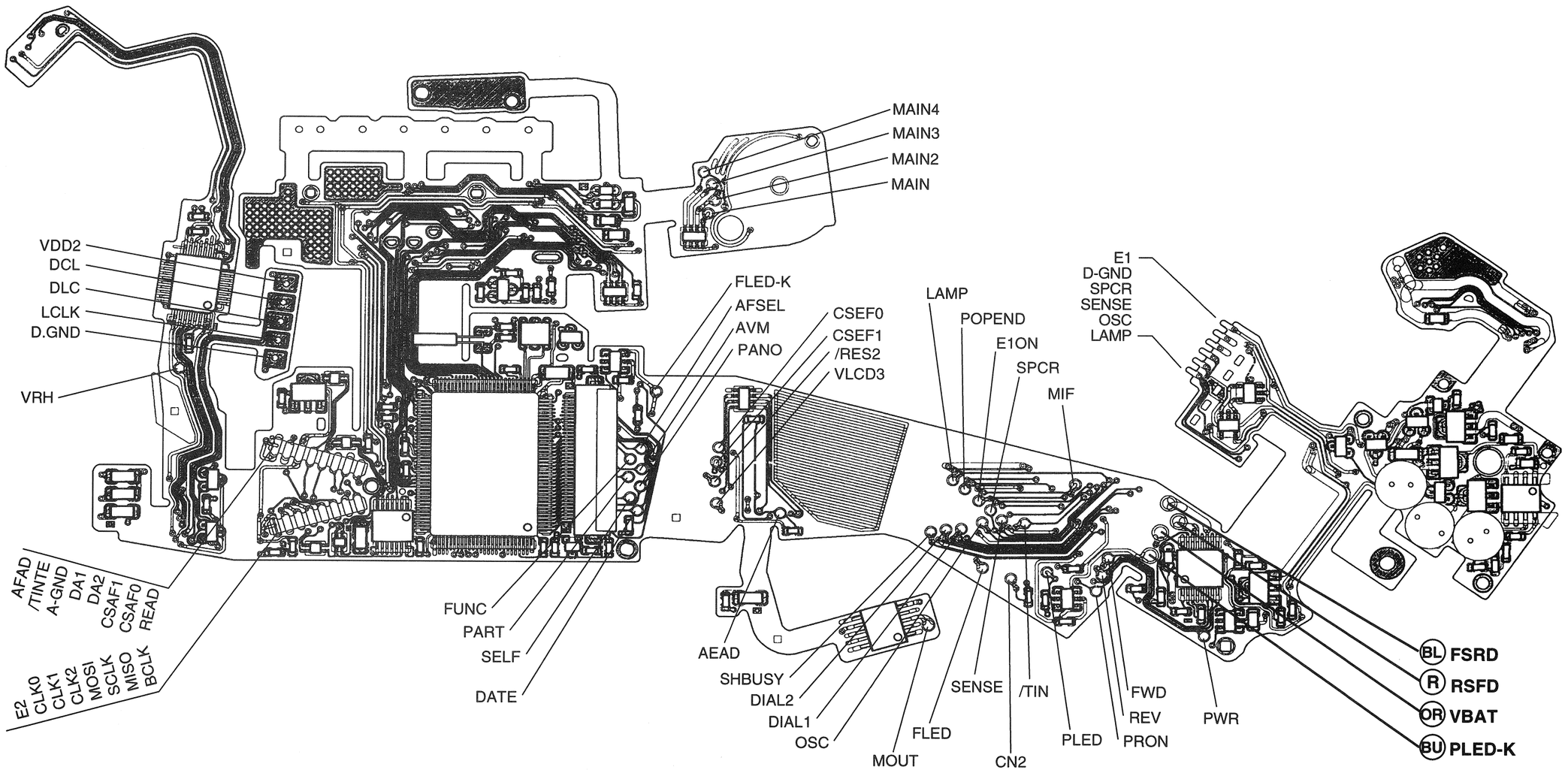


3. P.C.B. DIAGRAM
3.1-1 MAIN FPC

REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57

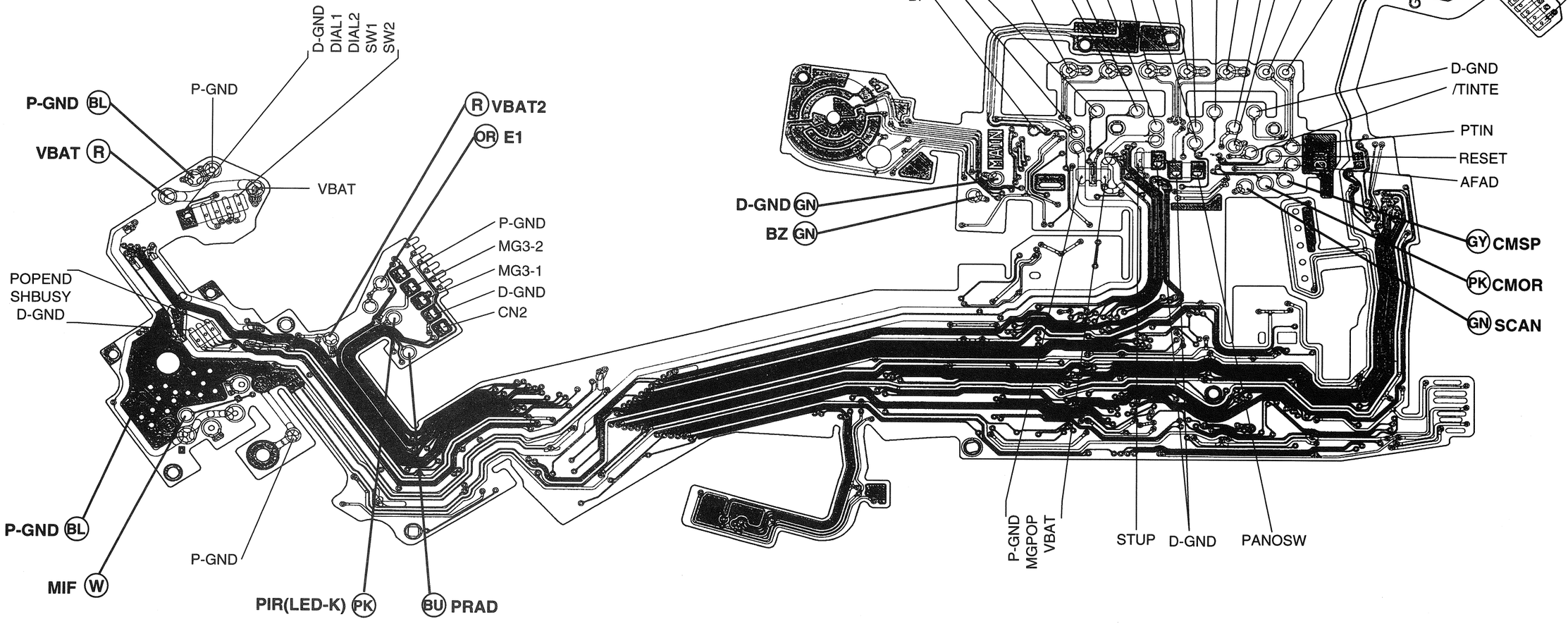


REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57



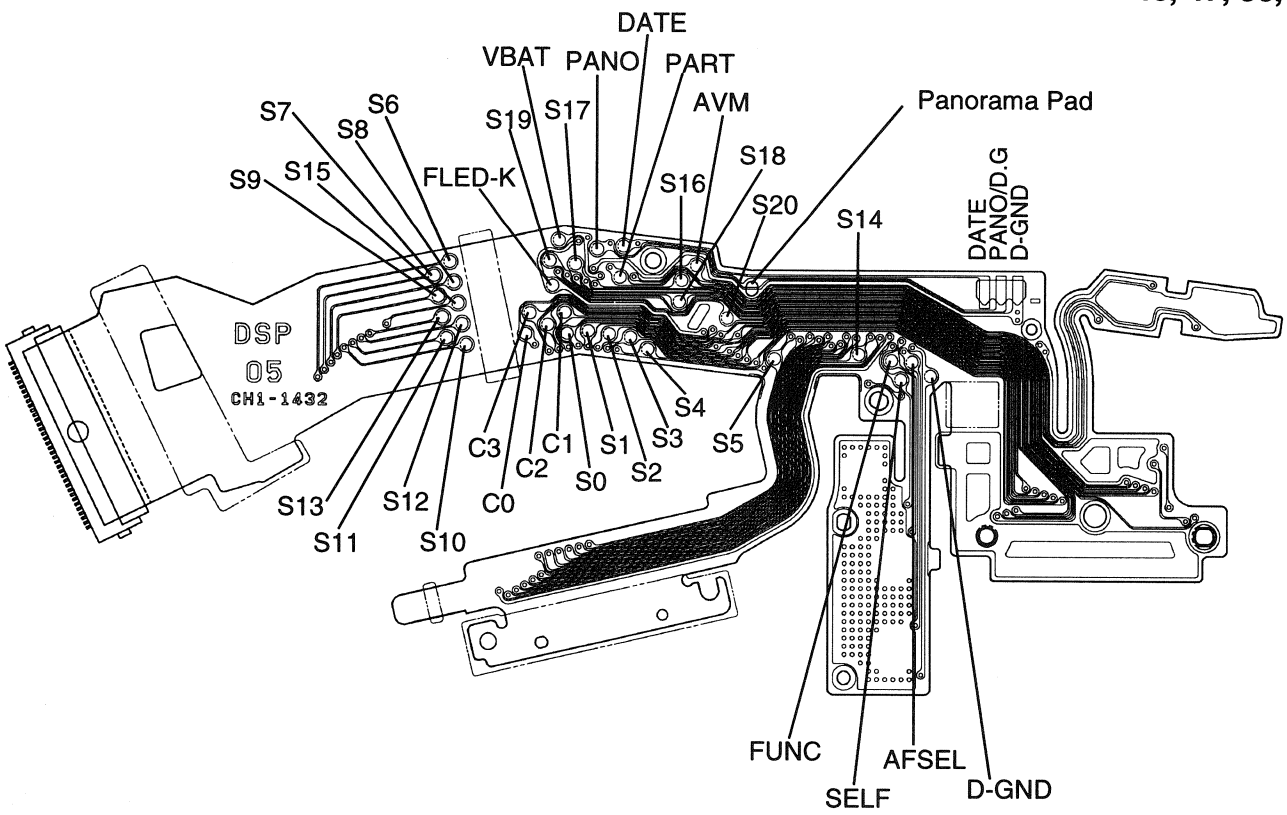
3.1-3 MAIN FPC

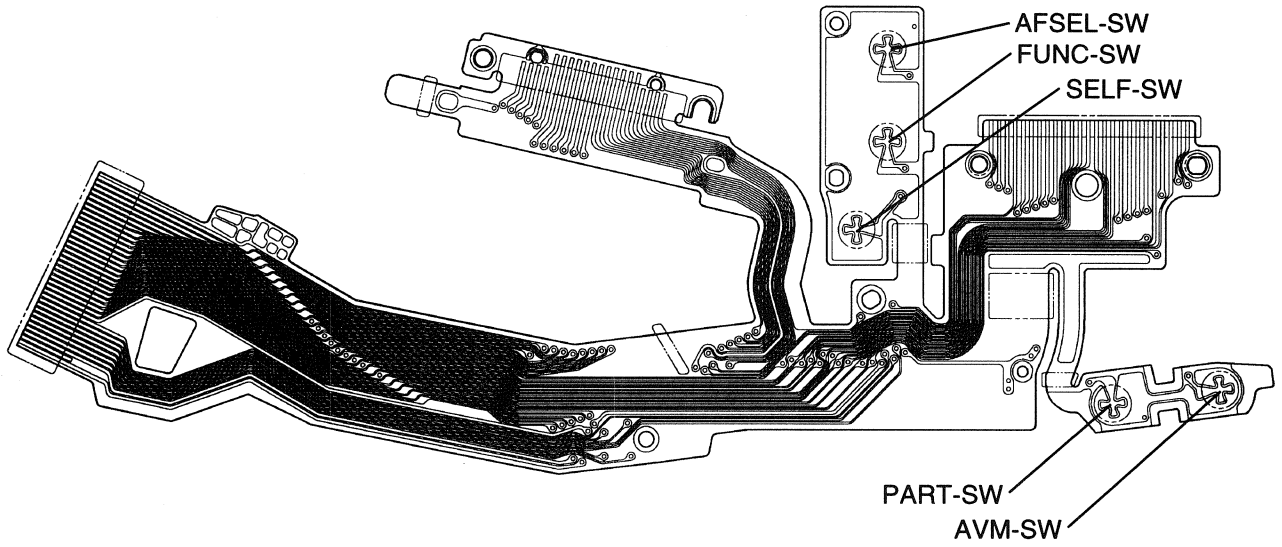
REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57



3.2 DSP FPC

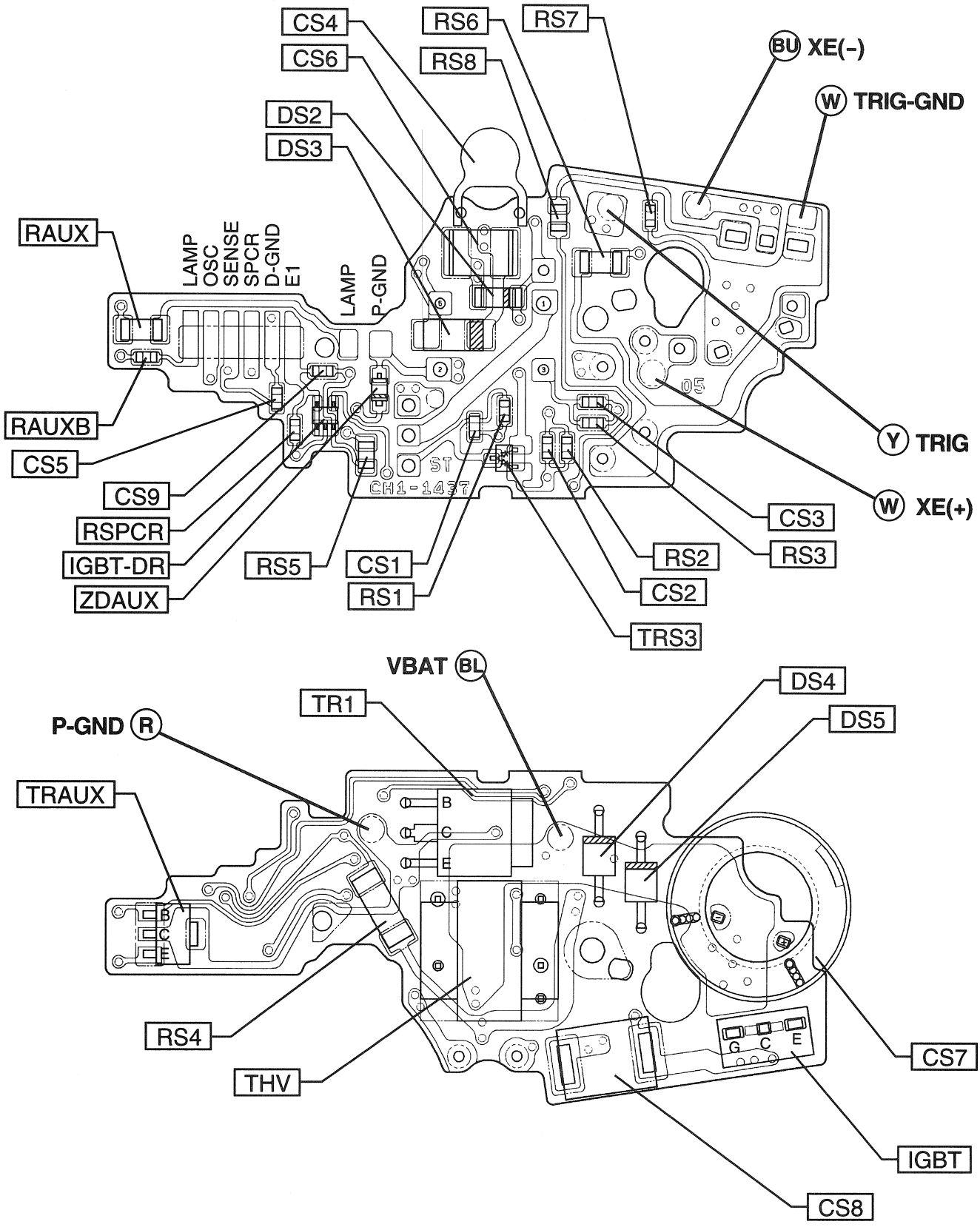
REF. NO. C12-8341, 51, 53, 44 46, 47, 56, 57





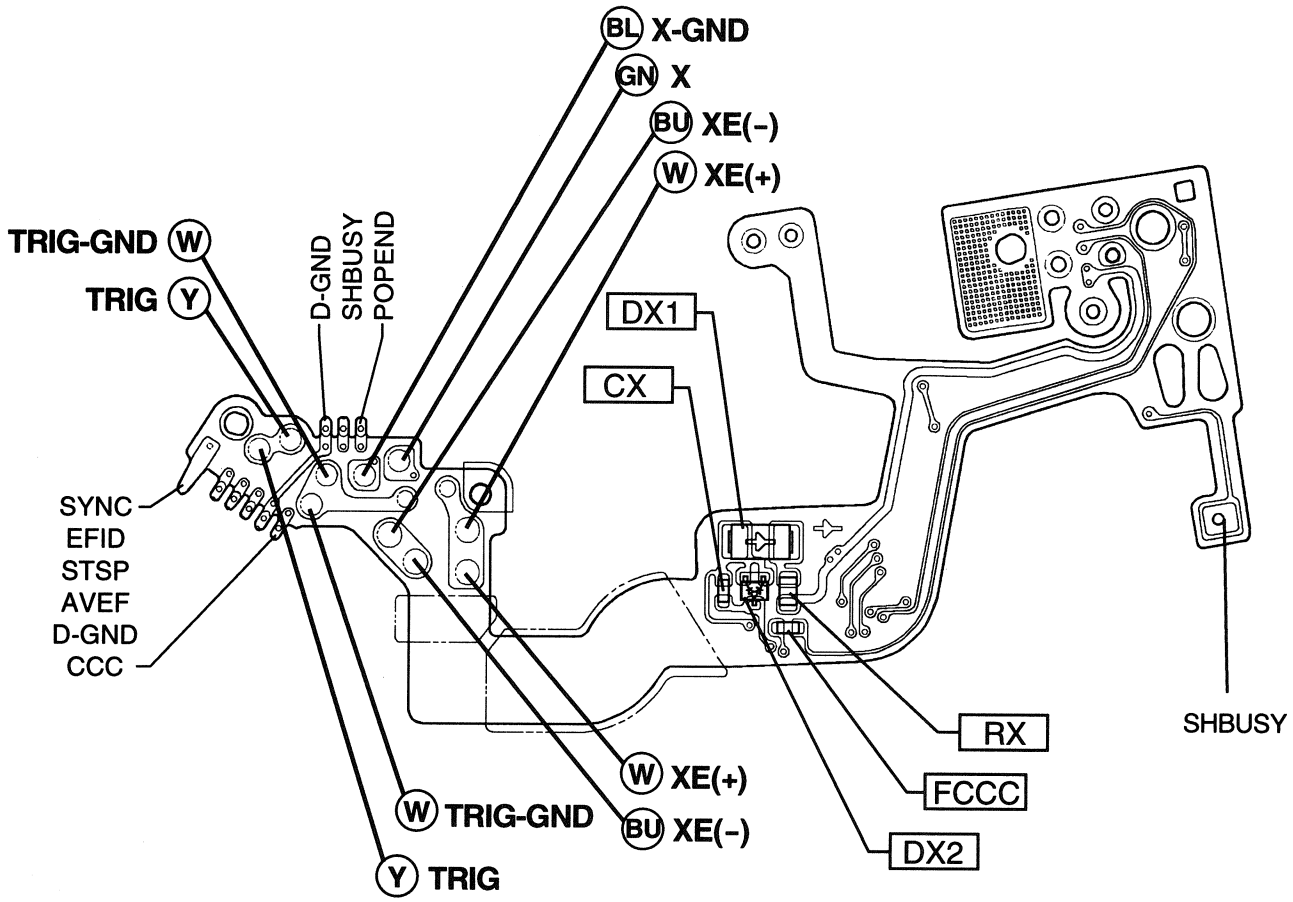
3.3 FLASH PCB

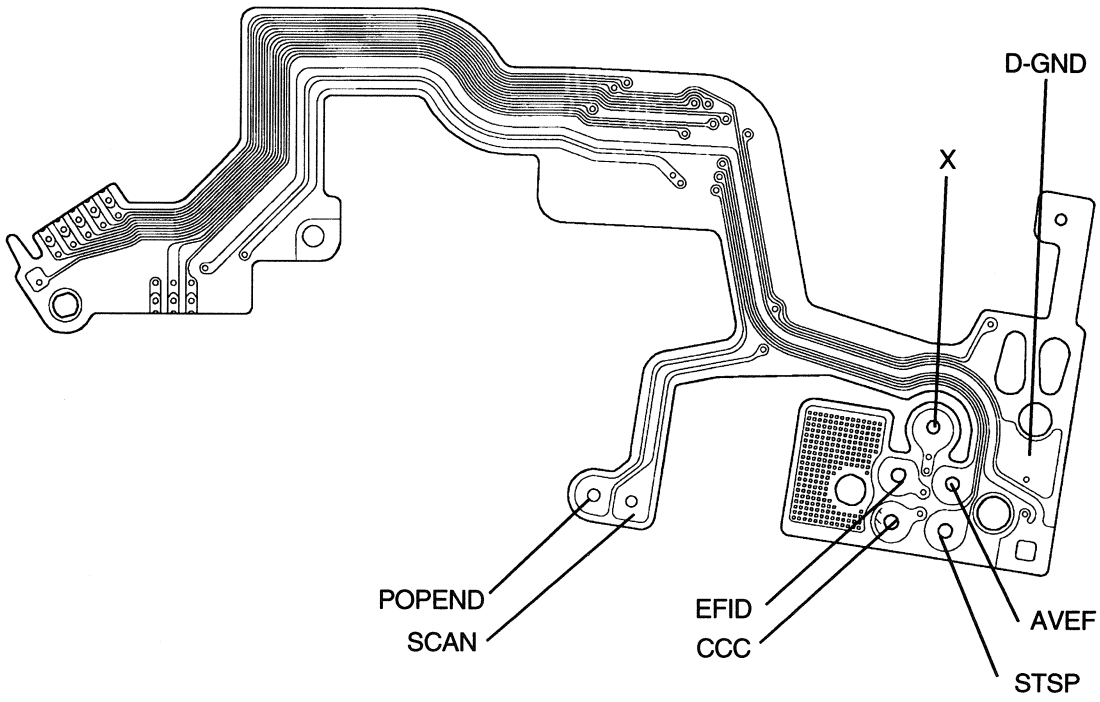
REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57



3.4 TOP FPC

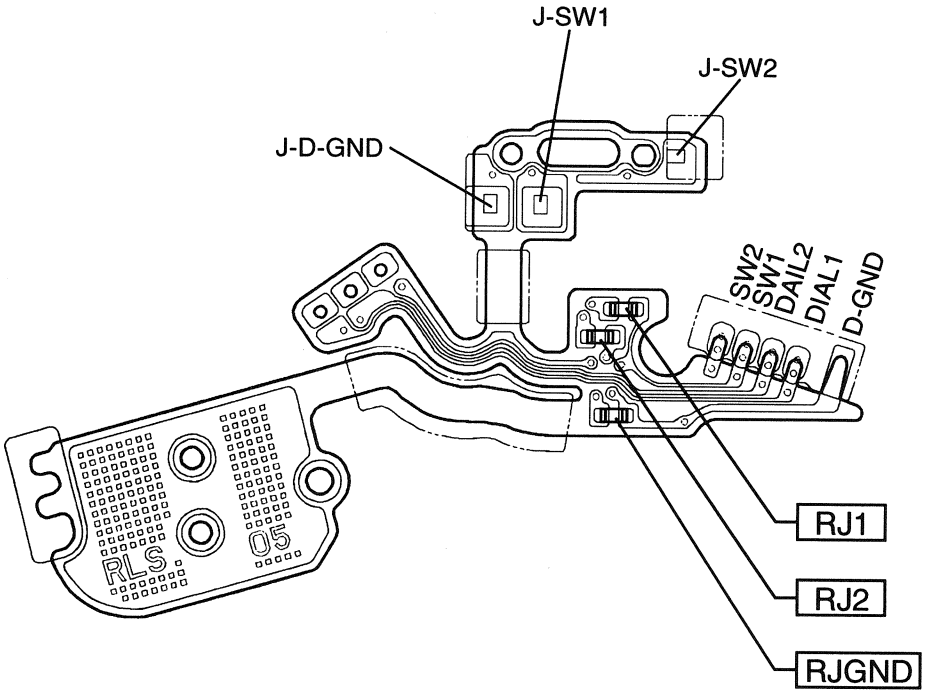
REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57

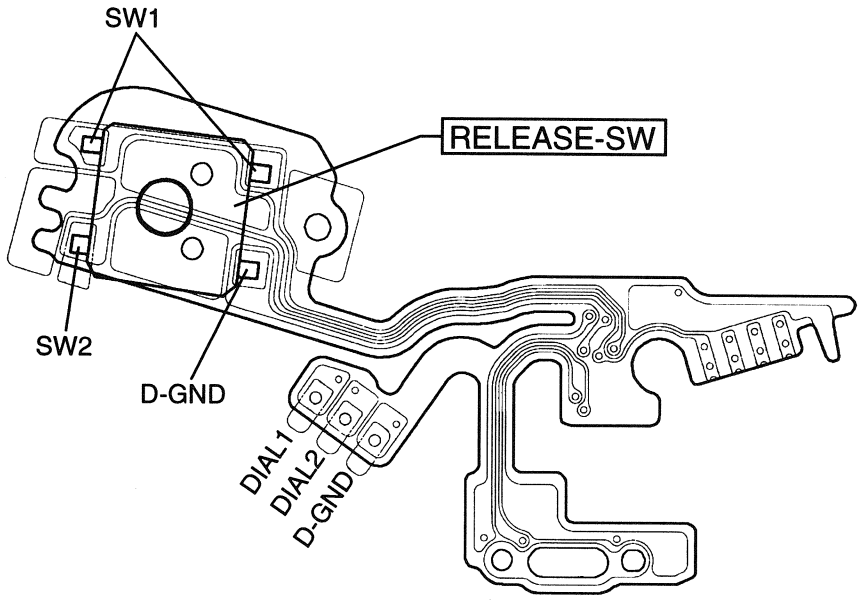




3.5 RELEASE FPC

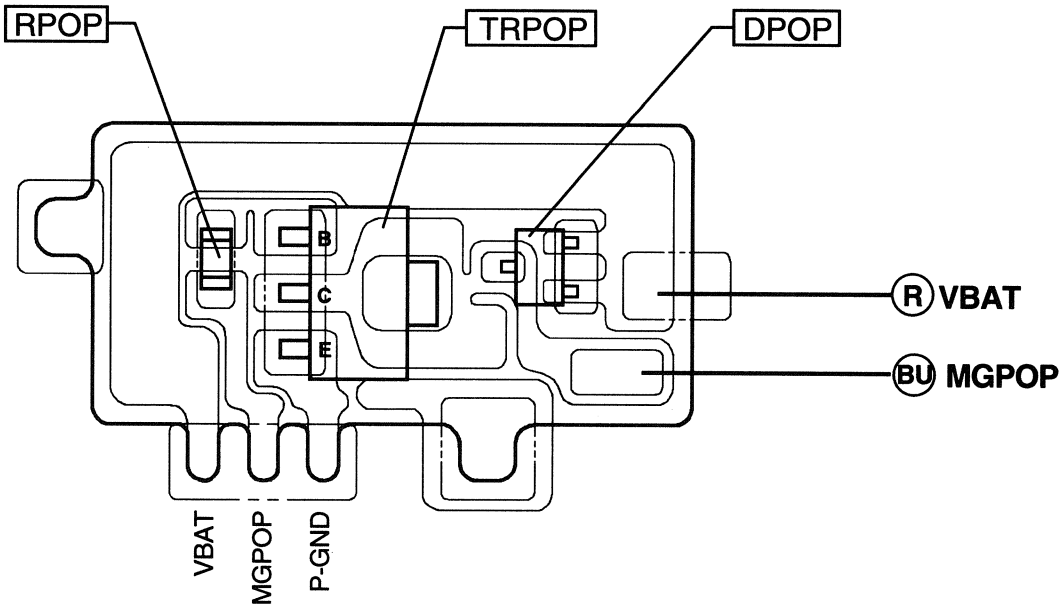
REF. NO. C12-8341, 51, 53, 44 46, 47, 56, 57





3.6 MAGNET FPC

REF. NO. C12-8341, 51, 53, 44
46, 47, 56, 57



3.7 POP-UP SWITCH FPC