Canon

| | |
|---|---|
| EOS 7 | C12-8451 |
| EOS ELAN 7E / DATE | C12-8453 / 8454 |
| EOS 30 DATE | C12-8456 / 8457 |
| EOS ELAN 7 / DATE | C12-8463 / 8464 |
| EOS 33 / DATE | C12-8466 / 8467 |

# 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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**First published NOV., 2000**
**Publisher: Yasuhiro Terada (Photo Products Service Administration Div.)**

# 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*

Provides technical information about the mechanism and electronics of the product.

*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 Electrical Adjustment*

Provided the infomation needed to understand how to electrically adjust the product

*Part 5 Parts Catalog*

*Part 6 Electrical Diagrams*

*Appendix*

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## *Part 1. General Information*



## *Part 2. Technical Information*

## *Part 3. Repair Information*

## *Part 4. ELECTRICAL ADJUSTMENTS*

# Part 1

# General Information

# 1. FEATURES

■: Superior to the EOS ELAN II E / 50 E.
□: Same as the EOS ELAN II E / 50 E.

## 1.1 HIGH-PERFORMANCE EYE CONTROL WITH 7-POINT AF

■ High-precision, top-speed Eye Control
- Response time: Approx. 15% shorter than with the EOS-3

■ High-speed, 7-point wide AF

□ Choice of AF modes
- One-Shot AF, AI Servo AF, AI Focus AF, Eye Control Servo AF

■ Automatic focusing point selection (Eye Control information incorporated), Eye Control, manual focusing point selection
* Eye Control information + automatic focusing point selection enables more accurate focusing point selection

■ AF-assist light linked to all seven focusing points
* Built-in flash fires intermittent burst
* With SPEEDLITE 420EX attached: LED patterned beam emitted

## 1.2 EASY-TO-READ VIEWFINDER

□ Clear display of focusing points (superimposed)

□ Built-in dioptric adjustment (-2.5 - +0.5 dpt)
* Adjustable without eyecup removal

□ Panorama feature and masking eliminated (unnecessary for advanced amateurs)

## 1.3 EASY-TO-READ CONTROLS

□ Dial and Levers
- The camera control settings can be known at a glance (* ■ Eye Control ON/OFF switch added)
- Intuitive operation
- Modes, selections, and settings can be set directly

## 1.4 QUICK AND SNAPPY SHOOTING

■ Maximum 4 fps continuous shooting with the built-in motor drive
* With AI Servo AF: Approx. 3.5 fps

■ Snappy quick-return reflex mirror
- Viewfinder blackout time is 20% shorter than the EOS ELAN II E / 50E's

■ Fast and intuitive focusing point selection with the focusing point selection keys

■ Silent film transport on par with the EOS ELAN / EOS 100

■ Depth-of-field preview button

■ BATTERY PACK BP-300 for easy vertical picture-taking
* BATTERY PACK BP-300: Vertical-grip shutter button provided

## 1.5 ATTRACTIVE APPEARANCE

□ Highly refined body with metal exterior
* Black alumite finish on top, front, and flash head covers

■ Fresh and high-quality shape and form

■ Compact body

## 1.6 Top-Notch Basic Features

■ 35-zone evaluative metering linked to the focusing points, partial metering, and centerweighted averaging metering
■ Full Auto, ten AE modes, and manual exposure
□ Shutter speeds: 30”-1/4000 sec., bulb, X-sync at 1/125 sec.
□ Auto pop-up and retractable built-in flash
  * Guide No. 13 (coverage for 28mm lenses at ISO 100 in m), recycling time approx. 2 sec.
□ Red-eye reduction with a mini-lamp
□ Exposure compensation features
  * AE lock, AEB, exposure compensation, flash exposure compensation with the camera (with built-in flash or external Speedlite)
■ Totally compatible with E-TTL autoflash system (as with EOS-1V and EOS-3)
□ Compatible with 3-zone A-TTL/TTL autoflash linked to focusing points
□ Built-in wireless remote control sensor (for RC-1)
□ Remote control terminal provided (for RS-60E3)
■ Mirror lockup (C.Fn-5-1)
□ Midroll rewind

## 1.7 Custom Functions

■ Compared to the EOS ELAN II E / EOS 50 E, there is one additional Custom Function and eleven additional settings (total 13 Custom Functions and 34 settings)

# 2. OVERVIEW

The EOS ELAN 7 E / EOS 30 is a 35mm AF SLR camera succeeding the EOS ELAN II E / EOS 50 E. Two configurations will be offered: The QD (Quartz Date) model and non-QD model. For certain markets, there will be a model with no Eye Control input. In the past, the panorama feature was included in Japan-only models. However, there will be no panorama feature in the EOS ELAN 7 E / EOS 30.

## (1) Design

The EOS ELAN 7 E / EOS 30's design was intended to be fresh-looking, with a sculptural form exuding high quality and a strong presence.

● **Creation of a New SLR Image Emphasizing Packed Features**

(1) Sculptural top cover shaped by aluminum press, and the interface design of the dials is based on the EOS ELAN II E / EOS 50 E's.

(2) Visually appealing with novel looks and fine detail.

The camera dials and buttons are easier to use and shaped like never before. Both shoulders of the camera have inward-curving ribs (shown by the arrows in Fig. 1-1). For visual appeal, there is a character line formed by the pentaprism sides and the top cover. The apron was also designed to be horizontally asymmetrical. The camera thereby boasts a strong shape and form.

● **Smaller and Better Looking**

(1) Metal exterior with black alumite finish (top cover).

The right of the apron and the area around the AE lock button on the top cover is metal with black alumite finish unlike the EOS ELAN II E / EOS 50 E which used molded material exposed as is.

(2) Fine paint finish.

The area around the eyepiece mount, shutter button, and electronic dials have a matte finish similar to the EOS-3's. The apron has a soft-touch rubber skin. The external appearance is thereby enhanced as a whole.

(3) Grid pattern knurling.

The Command Dial and AF mode dial are knurled with a grid pattern (found on Japanese caramel candy) for a high-quality feel befitting an SLR camera.

● **Enhanced User Interface**

(1) Focusing point selection keys

The new focusing point selection keys within the Quick Control Dial enable quick-and-easy selection of the seven focusing points. Also new is the separate Eye Control switch. The top cover now has three dials serving as the user interface.

(2) Smaller size and better holding comfort

To make the camera smaller, the distance between the optical axis and grip end was designed to be 4.4 mm shorter than the EOS ELAN II E / EOS 50 E's. In addition, the camera grip's shape and the layout of the shutter button and electronic dials has been optimized for better operation ease and holding comfort.

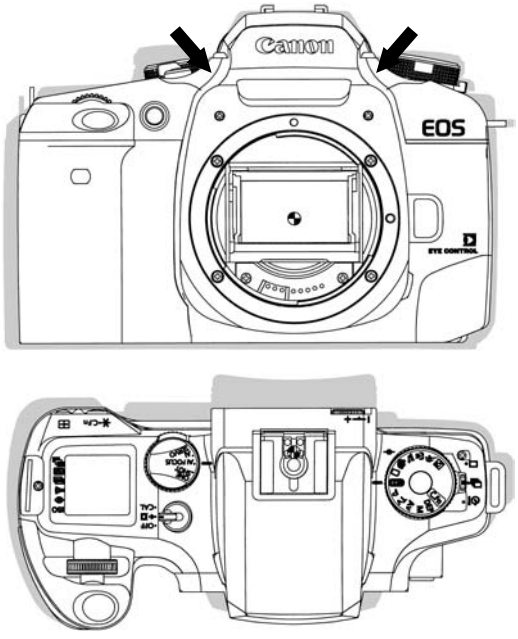



**Fig. 1-1 Size Comparison of EOS ELAN 7 E / EOS 30 and EOS ELAN II E / EOS 50 E**

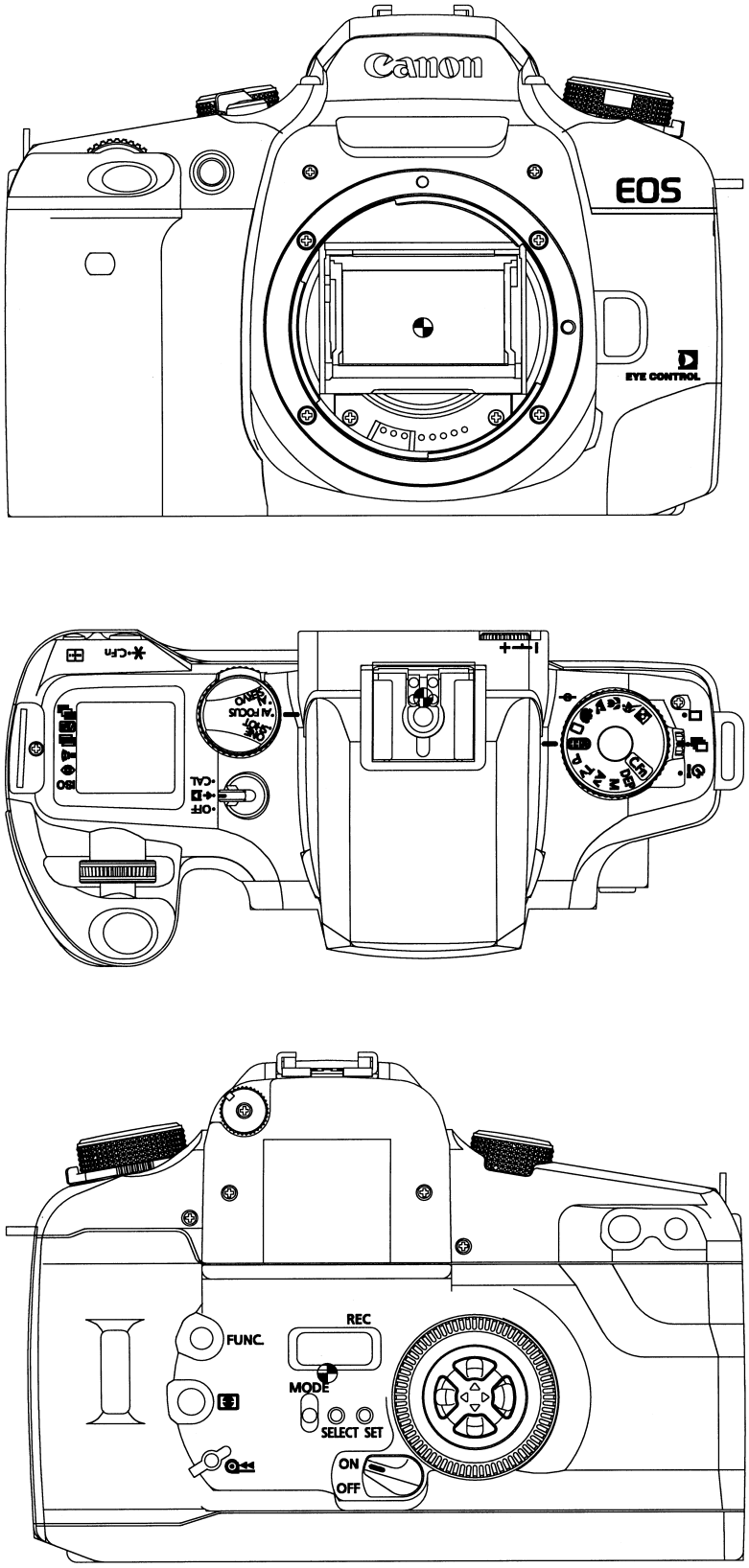



**Fig. 1-2 Three External Views**

## (2) AF

The AF features are as follows:

● **7-point AF**

The EOS ELAN 7 E / EOS 30 has the CMOS sensor (for 7 focusing points) that was developed for the EOS 300/Rebel 2000/EOS REBEL 2000 / EOS 300 (hereinafter referred to as the EOS REBEL 2000 / EOS 300). The seven focusing points are clearly displayed in the viewfinder via a superimposition (SI) system.

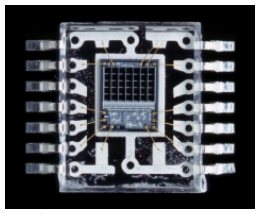


**Fig. 1-3 AF Sensor**

● **Focusing point selection modes**

As with previous Eye Control cameras, the EOS ELAN 7 E / EOS 30 has the following three modes for focusing point selection:

**(1) Automatic selection**

This mode is set automatically in the Full Auto and Programmed Image Control modes. In the Creative Zone modes, automatic focusing point selection can be set by attempting to select a focusing point beyond the outer-most one (at top, bottom, left, or right).

**(2) Eye Control**

A faster eye detection response (about 15% faster than the EOS-3's) makes Eye Control focusing point selection quick. Eye Control Servo AF is also provided (as with the EOS ELAN II E / EOS 50 E and EOS IX E).

**(3) Manual selection (with focusing point selection keys)**

First you press the focusing point selector, then press the focusing point selection keys (within the Quick Control Dial) to select a focusing point as you look at the superimposed focusing points in the viewfinder. Since the keys intuitively correspond to the top, bottom, left, and right focusing points, they make focusing point selection very quick and easy.

The focusing point selection modes available in the respective picture-taking modes are as follows: Only automatic selection in the Full Auto mode, automatic selection and Eye Control in Programmed Image Control modes, and all three focusing point selection modes in Creative Zone modes. Also, C.Fn-11-1 enables you to select the focusing point with the focusing point selection keys directly without having to press the focusing point selector first. And C.Fn-11-2 enables you to select the focusing point with the Main Dial and Quick Control Dial (as with the EOS-1V and EOS-3).

Note: With C.Fn-11-0 (default), the focusing point cannot be selected with the electronic dials as enabled with C.Fn-11-2.

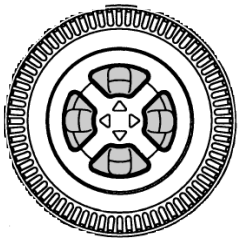


**Fig. 1-4 Focusing Point Selector Keys**

● **New AF algorithm for Full Auto + Eye Control**

The algorithm is based on the EOS REBEL 2000 / EOS 300's, but improved for the EOS ELAN 7 E / EOS 30. When the Eye Control switch is ON in the Full Auto mode, the focusing point selection algorithm incorporates Eye Control information during automatic focusing point selection. The selection priority for each focusing point then changes accordingly in multiple steps. This further improves the chances of the camera selecting the focusing point desired by the user.

● **AF speed and predictive AF performance**

The AF speed and precision in the One-Shot AF mode are the same as the EOS-3's. As for predictive AF, the camera coupled with an EF 300mm f/2.8L IS USM lens can track a moving subject approaching at a speed of 50 kph up to as close as 8 meters. (As with the EOS-1V and EOS-3.)

● **AF-assist**

In low-light conditions, the built-in flash automatically fires an intermittent flash (like the EOS REBEL 2000 / EOS 300) aimed at the area covered by the active focusing point (from among any of the seven). The effective range at the center is 4.5 meters.

## (3) Eye Control

Fast processing by a 32-bit microcomputer, eye detection by four IREDs, and an improved Eye Control detection algorithm make the EOS ELAN 7 E / EOS 30's Eye Control performance faster and more precise than the EOS-3's (see Fig. 1-6). Also, the calibration procedure is required four times (left, right, top, bottom) as with previous Eye Control cameras. Up to five sets of calibrations (CAL-1 to 5) can be saved. The EOS ELAN 7 E / EOS 30's Eye Control detection sensor is the Area BASIS found in the EOS-3. Table 1-1 compares the Eye Control specifications of all EOS cameras having Eye Control.

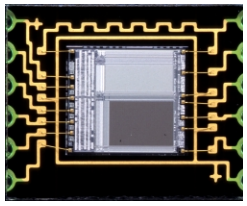


**Fig. 1-5 Eye Control Sensor**

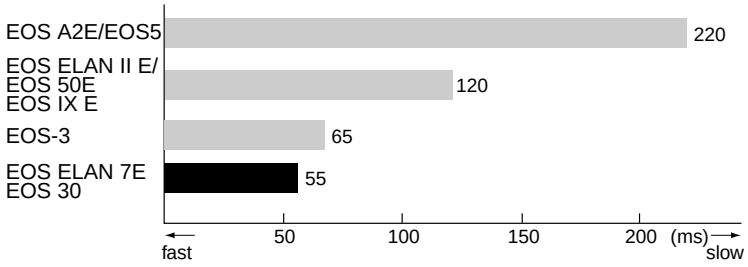



**Fig. 1-6 Eye Control Detection Response Times**

| Item | | EOS ELAN 7 E / EOS 30 | EOS-3 | EOS IX E | EOS ELAN II E / EOS 50 E | EOS A2/A2E/5 |
|---|---|---|---|---|---|---|
| Focusing Points | | 7-point Area | 45-point Area | 3-point hori. | 3-point hori. | 5-point hori. |
| Horizontal Eye Control | | ○ | ○ | ○ | ○ | ○ |
| Vertical Eye Control | | ○ | ○ | ○ | ○ | × |
| CAL | Horizontal | ○ | ○ | ○ | ○ | ○ |
| | Vertical | ○ | ○ | ○ | ○ | × |
| | CAL No. | 5 | 3 | 3 | 3 | 5 |
| | Procedures | 4 | 4 | 2 | 2 | 2 |
| Eye Control Servo AF | | ○ | × | ○ | ○ | × |
| Eye Control DEP | | ○ | ○ | ○ | ○ | × |
| Eye Control DEP Preview | | × | × | × | ○ | ○ |
| Response Time (approx. ms) | | 55 | 65 | 120 | 120 | 220 |
| Sensor Type | | Area BASIS | Area BASIS | Area BASIS | Area BASIS | CCD |
| Pixels | | 7000 | 7000 | 7000 | 7000 | 6000 |

**Table 1-1 Eye Control Specifications Comparison**

## (4) Viewfinder

The basic viewfinder specifications are similar to the EOS ELAN II E / EOS 50 E's with a pentaprism, fixed focusing screen, 90% vertical coverage and 92% horizontal coverage, 0.70x magnification (with 50mm lens at infinity), 19.5mm eye relief, the information display, etc. However, it has the following enhancements:

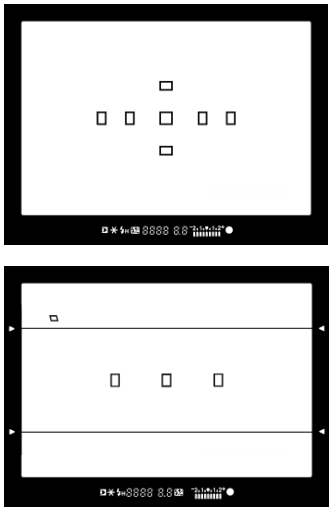



**Fig. 1-7 Viewfinder**

- **Built-in dioptric adjustment**

  The dioptric adjustment range is -2.5 to +0.5 dpt. It is adjustable while the eyecup remains attached.

- **Shorter viewfinder blackout time**

  Due to an improved drive transmission mechanism, the viewfinder blackout time (about 130ms) is 30% shorter than the EOS ELAN II E / EOS 50 E's.

Note 1: The EOS ELAN 7 E / EOS 30 does not have a panorama feature.

Note 2: The EOS ELAN 7 E / EOS 30's flash exposure compensation icon is in a different position from the EOS ELAN II E / EOS 50 E's.

## (5) Metering, Exposure Control, and Shutter

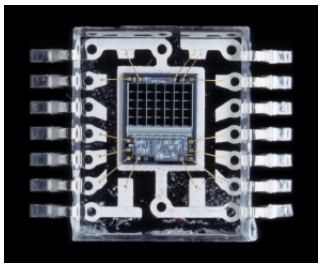


**Fig. 1-8 Metering Sensor**

- **Metering**

  The metering sensor and focusing point-linked evaluative metering algorithm are the same as the EOS REBEL 2000 / EOS 300's. The partial metering area is about 10% of the viewfinder area. The other basic metering specifications are the same as the EOS ELAN II E / EOS 50 E's.

- **Exposure control**

  As shown in Fig. 1-10, the Command Dial is the same as the EOS ELAN II E / EOS 50 E's except for the addition of the Night Scene mode. E-TTL is fully incorporated for flash exposure control. When Speedlite 550EX or MR-14EX is attached to the camera, E-TTL autoflash, FE lock, FP flash, wireless flash control (3 slave groups), flash ratio control, and modeling flash are possible. The camera also has a built-in TTL autoflash sensor for compatibility with EZ-series Speedlites.

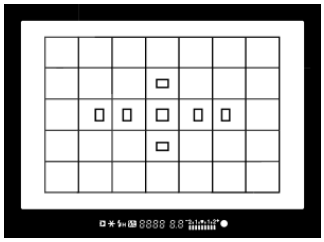


**Fig. 1-9 Focusing Point Positions in the Viewfinder**

- **Shutter**

  All shutter speeds from 30 sec. to 1/4000 sec. are electronically controlled. X-sync is 1/125 sec. The specifications are the same as the EOS ELAN II E / EOS 50 E's.

## (6) Film Transport

The maximum continuous shooting speed is about 4 fps (after focus is achieved in the One-Shot AF mode), the fastest in this camera class. (In the AI Servo AF mode, the maximum speed is about 3.5 fps.) The film transport noise is as quiet as the EOS ELAN / EOS 100 which is known as the quietest EOS camera.

Note: Like the EOS ELAN II E / EOS 50 E, the EOS ELAN 7 E / EOS 30's film transport is detected with an infrared sensor. Therefore, infrared film cannot be used with this camera.


**Fig. 1-10 Command Dial**

## (7) Built-in Flash

The retractable, built-in flash (serial control) in the pentaprism has Guide No. 13 (at ISO 100), 2-sec. recycling time, and 28mm flash coverage. The flash exposure control uses 3-zone TTL autoflash metering linked to the focusing points. In the Full Auto and Programmed Image Control modes, the built-in flash pops up and fires automatically in low-light or backlit conditions. In the Creative Zone modes, you can pop up and fire the built-in flash manually. The built-in flash retracts manually (push it down with your fingers). For red-eye reduction, the red-eye reduction lamp shines a light.

## (8) Camera Controls and LCD Panel

While based on the EOS ELAN II E / EOS 50 E and EOS REBEL 2000 / EOS 300, the EOS ELAN 7 E / EOS 30 has the following improvements to make camera operation easier and more intuitive:

- New Eye Control switch, depth-of-field preview button, and focusing point selection keys.
- Metering modes selectable with a button.
- The film advance mode lever having a new self-timer setting (also remote control).

  Remote control operation is possible with the RC-1 for wireless picture-taking or with the RS-60E3 for wired picture-taking.

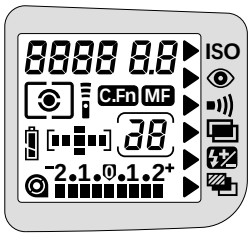



**Fig. 1-11 LCD Panel**

## (9) Custom Functions

The EOS ELAN 7 E / EOS 30 has thirteen Custom Functions (34 settings) many of which are also found in the EOS ELAN II E / EOS 50 E. The following Custom Functions are new. For details, see page 1-39.

- C.Fn-5: Mirror lockup
- C.Fn-7: AF-assist light emission / Main flash firing
- C.Fn-11: Focusing point selection method
- C.Fn-12: Start focusing point selection from center focusing point with M-51 button
- C.Fn-13: Lens AF stop button function

## (10) QD

The EOS ELAN 7 E / EOS 30 QD has a built-in auto calendar adjustable from 1994.1.1 to 2019.12.31. The QD is powered by one CR2025 battery.

## (11) Power Source

The camera is powered by two CR123A lithium batteries (housed inside the grip). With new batteries, Eye Control turned on, and 50% flash use at 20 C, the camera can take about 33 rolls of film. With 100% AE, it can takes about 115 rolls. With BATTERY PACK BP-300 attached, four size-AA batteries can also be used.

## (12) Dimensions and Weight

DATE Model: 146.7 (W) × 103 (H) × 69 (D) mm, 580 g

NON-DATE Model: 146.7 (W) × 103 (H) × 69 (D) mm, 575 g

| Item / Camera | | | EOS ELAN 7 E / EOS 30 | EOS ELAN II E / EOS 50 E |
|---|---|---|---|---|
| AF | Focusing Points | | 7-point Area | 3 horizontal points |
| | Selection Modes | Eye Control | ● | ● |
| | | Automatic | ● | ● |
| | | Manual | ● | ● |
| | AF Modes | One-Shot | ● | ● |
| | | AI Servo | ● | ● |
| | | AI Focus | ● | ● |
| | Working Range (EV at ISO 100) | | 1-18 | 0-18 |
| | Orientation Detection | | ● | ● |
| AF-Assist Light | Type | | Intermittent flash | Pattern beam |
| | Coverage | | 28 | 28 |
| | Effective Range (m) | | 4.5 | 6 |
| Viewfinder | Type | | Pentaprism | Pentaprism |
| | Coverage (V × H, %) | | 90 × 92 | 90 × 92 |
| | Magnification | | 0.70 | 0.71 |
| | Eye Relief (mm) | | 19.5 | 20 |
| | Dioptric Adjustment (dpt) | | ● (-2.5-+0.5) | — |
| | In-focus Indicator | | Superimposed LED | Superimposed LED |
| | Depth-of-field Preview | | ● (Depth-of-field preview button) | ● (Eye Control) |
| Metering | Evaluative Metering Zones/Focusing Point Linkage | | 35/● | 6/ ● |
| | Partial Metering | | ● | ● |
| | Centerweighted Averaging | | ● | ● |
| | Metering Range (EV at 20˚C) | | 1-20 | 1-20 |
| Exposure Control | P/Tv/Av/M | | ● | ● |
| | Depth-of-field AE (DEP) | | ● | ● |
| | Full Auto | | ● | ● |
| | Programmed Image Control Modes | | ● (5) | ● (4) |
| | Exposure Compensation (Increments, range) | Manual | ● (1/2 • ±2) | ● (1/2 • ±2) |
| | | AEB | ● (1/2 • ±2) | ● (1/2 • ±2) |
| | AE Lock | | ● | ● |
| | Flash Exposure System | | E-TTL/A-TTL/TTL | E-TTL/A-TTL/TTL |
| | FE Lock | | ● | ● |
| | Multiple Exposures (Max.) | | ● (9) | ● (9) |
| | ISO Speed Range | Auto | ● (25-5000) | ● (25-5000) |
| | | Manual | ● (6-6400) | ● (6-6400) |
| Shutter | Range (sec., increments) | | 1/4000-30, B • 1/2 | 1/4000-30, B • 1/2 |
| | X-sync Speed (sec.) | | 1/125 | 1/125 |
| Film Transport (24-ex.) | Fully Auto/Silent Advance | | ● / ● | ● / ● |
| | Film Advance Modes | Single | ● | ● |
| | | Continuous | ● | ● |
| | Film Advance Speed (sec. in high-speed mode) | | 4 | 2.5 |
| | Film Rewind Time (sec.) | | 5 | 6 |
| | Midroll Rewind | | ● | ● |
| | Total Rolls (AE 100%/Flash 50%) | | 115 / 33 | 90/35 |
| Built-in Flash | Guide No. (ISO 100 in m) | | 13 | 13 |
| | Coverage (mm) | | 28 | 28 |
| | Recycling Time (sec.) | | 2 | 2 |
| | Flash Metering Zones | | 4 | 4 |
| | Auto Pop-up/Retract | | ● / — | ● / — |
| | Red-eye Reduction | | Lamp | Lamp |
| | Flash Exposure Compensation (Increments, range) | | ● (1/2 • ±2) | ● (1/2 • ±2) |
| Main Interface | | | Main Dial, Quick Control Dial | Main Dial, Quick Control Dial |
| External Display | | | LCD | LCD |
| Custom Functions/Settings | | | 13-34 | 11-23 |
| Date Back (Power source) | | | ● (CR2025 × 1) | ● (CR2025 × 1) |
| Panorama Feature | | | — | ● |
| Remote Control Terminal (for RS-60E3) | | | ● | ● |
| Exterior Material | | | Aluminum + mold | Aluminum + mold |
| Mount Material | | | Metal | Metal |
| Power Source | | | CR123A × 2 | 2CR5 × 1 |
| Size-AA Battery Pack (Model) | | | ● (BP-300) | ● (BP-50) |
| Dimensions (W×H×D mm) | | | 146.7 × 103 × 69 | 152.5 × 104.5 × 71 |
| Weight (QD model excluding batteries) g | | | 580 | 595 |
| Marketing Date | | | Fall 2000 | 1995.09 |
| Price in Japan | | | — | 88.000 |

**Table 1-2 EOS ELAN 7 E / EOS 30 and EOS ELAN II E / EOS 50 E**

# 3. NOMENCLATURE


**Fig. 1-12 Program AE Characteristics**

# 4. DESIGN SPECIFICATIONS

1. Type

| | |
|---|---|
| 1-1 Type: | 35mm AF/AE single-lens reflex camera with focal-plane (vertical travel) shutter and built-in motor drive and flash. |
| 1-2 Picture size: | 24 mm × 36 mm<br>* No panorama mode. |
| 1-3 Compatible lenses: | Canon EF lenses (Max. aperture metering. No stop-down metering.) |
| 1-4 Lens mount: | Canon EF mount |
| 1-5 Standard lens: | Canon EF 28-105mm f/3.5-4.5 II USM<br>Canon EF 28-90mm f/4-5.6 (USM) |

2. AF

| | |
|---|---|
| 2-1 Type: | TTL-CT-SIR (Through-the-Lens Cross-Type Secondary Image Registration) with \|\| $\overline{+}$ \|\| CMOS sensor.<br>(TTL secondary, image-forming phase difference detection) |
| 2-2 Focusing points: | 7 (Extreme left, left, top, center, bottom, right, extreme right) |
| 2-3 Focusing modes: | (1) Autofocus<br>The following three modes are provided:<br>1) One-Shot AF<br>AF operation stops (AF lock) when focus is achieved.<br>* AF-priority: The shutter can be released only when focus is achieved.<br>* With evaluative metering, AE lock is applied when focus is achieved.<br>* When a USM lens is used, manual focusing with the electronic focusing ring is enabled after autofocus is achieved with One-Shot AF or when focus fails to be achieved.<br>* One-Shot AF set automatically in the Portrait, Landscape, Closeup, and Night Scene modes.<br>2) Predictive AF with AI Servo AF<br>Tracks subject movement continuously up to the start of exposure.<br>* For the first frame during single-frame or continuous shooting: Shutter release-priority (in Creative Zone modes). For the first frame during single-frame or continuous shooting: Focus-priority (in Full Auto and Sports modes). For the second and subsequent frames during continuous shooting: Focus-priority.<br>* No in-focus indicator < ● > and no in-focus beeper.<br>* When focus fails, < ● > blinks at 2 Hz.<br>* Predictive AF with AI Servo AF set automatically in Sports mode. |

3) AI Focus AF: Switches between One-Shot AF and Predictive AF/AI Servo AF automatically.
For a still subject: AF operation stops (AF lock) when focus is achieved.
For a moving subject: Tracks subject movement continuously up to the start of exposure.
* When a USM lens is used, manual focusing with the electronic focusing ring is enabled after autofocus is achieved with One-Shot AF or when focus fails to be achieved.
* AI Focus AF is set automatically in the Full Auto mode.

(2) Manual focusing
After the lens focus mode switch is set to MF (or M), manual focusing is enabled with the focusing ring.
* During automatic focusing point selection, Focus Aid is provided for the seven focusing points. During manual focusing point selection, Focus Aid is provided for the selected focusing point. The in-focus indicator < ● > lights. The beeper will sound when enabled with the Func. setting.
* When the shutter button is pressed halfway and metering is active, the MF icon blinks at 2 Hz on the LCD panel.

2-4 Focusing methods:

(1) Focusing point selection with Eye Control
Works in all picture-taking modes except Full Auto.

(2) Automatic focusing point selection
Set automatically in the Full Auto and Programmed Image Control modes. Can be set manually in the Creative Zone modes.
* With the Eye Control switch turned ON in the Full Auto mode, the eye position is detected automatically and this information is incorporated in the automatic focusing point selection algorithm. It increases the chances for the camera to select the focusing point that the user desires.

(3) Manual focusing point selection
Enabled in the Creative Zone modes.
* Not available in the Full Auto and Programmed Image Control modes.

2-5 Focusing point selection:

(1) Eye Control

1) One-Shot AF
The eye selects the focusing point by looking at it in the viewfinder while the shutter button is pressed halfway.

2) AI Servo AF
AF operation starts in the same way as with the One-Shot AF. But while the shutter button is pressed halfway during continuous shooting, the moving subject is tracked by the focusing points which the eye looks at (Eye Control Servo).

3) AI Focus AF
The AF operation starts in the same way as with the One-Shot AF. However, if the subject starts moving after focus is achieved in the One-Shot AF mode, the camera switches automatically to AI Servo AF. While the shutter button is pressed halfway during continuous shooting, the moving subject is tracked by the focusing points which the eye looks at (Eye Control Servo).

● Eye Control Calibration

Calibration is enabled when the Eye Control switch is set to CAL. Up to five sets (CAL-1 to CAL-5) of calibration settings can be saved.

[Calibration Procedure]

• Horizontal orientation

Set the Command Dial to CAL. → The extreme-right focusing point blinks. → Look at that focusing point. → Press the shutter button halfway. → Calibration is confirmed. → The extreme-left focusing point blinks. → Look at that focusing point. → Press the shutter button halfway. → Calibration is confirmed and completed. → The top focusing point blinks. → Look at that focusing point. → Press the shutter button halfway. → Calibration is confirmed. → The bottom focusing point blinks. → Look at that focusing point. → Press the shutter button halfway. → Calibration is confirmed. → The calibration is completed.

• Vertical orientation

Set the Command Dial to CAL. → The top focusing point blinks. → (Same steps as for the horizontal orientation.) → The bottom focusing point blinks. → (Same steps as for the horizontal orientation.) → The right focusing point blinks. → (Same steps as for the horizontal orientation.) → The left focusing point blinks. → (Same steps as for the horizontal orientation.) → Calibration is confirmed and completed.

* If calibration is not executed or if you use a CAL No. set by someone else, Eye Control will be less accurate.
* To delete the calibration settings, first select the CAL No. whose calibration settings are to be deleted. Then press the AE lock button and focusing point selector simultaneously.
* The calibration settings cannot be deleted all at once. They must be deleted individually under each CAL No.

(2) Automatic focusing point selection

Automatic focusing point selection is set when you try to select a focusing point beyond the outer-most one during manual focusing point selection.

1) One-Shot AF: Based on the subject information obtained by the seven focusing points, the camera focuses the optimum subject automatically.
   * With the Eye Control switch turned ON in the Full Auto mode, the eye position is detected automatically and this information is incorporated in the automatic focusing point selection algorithm. This increases the chances for the camera to select the focusing point that the user wants.
2) AI Servo AF: AF starts with the center focusing point. If the subject moves to another focusing point, AI Servo AF continues to track the subject. (The active focusing point switches to the next one.)
3) AI Focus AF: The One-Shot AF mode focuses the optimum subject based on the subject information obtained by the seven focusing points. If the center focusing point focuses the subject first and the subject starts to move, the AF mode switches to AI Servo AF and the subject is tracked even if it moves to another focusing point. Only the center focusing point can detect initial subject movement. (If an off-center focusing point first focuses the subject, any subject movement will not be detected.)

(3) Manual focusing point selection

AF is executed with the manually selected focusing point.
(Selection Procedure (Horizontal orientation)]
(Symbols: < ● > Main Dial < ○ > Quick Control Dial <+> Focusing point selection keys)
• C.Fn-11-0
Pressing the focusing point selector enables the <+> keys.
• C.Fn-11-1
1) Eye Control: After focus is achieved, <+> is enabled.
2) Automatic focusing point selection: While the shutter button is pressedhalfway and the metering active, manual focusing point selection is enabled.
3) Manual focusing point selection: Enabled while the shutter button is pressed halfway and the metering active.
* The focusing point selection keys can be used without having to press the focusing point selector first.
* During automatic focusing point selection, pressing <+> starts the selection with the center focusing point.
* During manual focusing point selection, pressing the focusing point selector switches to automatic focusing point selection.
* Since manual focusing point selection is disabled in the Full Auto and Programmed Image Control modes, this Custom Function setting does not apply in these modes.
• C.Fn-11-2
After the focusing point selector is pressed, < ● > selects a horizontal focusing point and < ○ > selects a vertical focusing point.
* <+> is disabled.
* During manual focusing point selection, if the selection goes beyond the outer-most focusing point, automatic focusing point selection is set.

2-6 Focusing point display: The selected focusing point is indicated by superimposition (SI) in the viewfinder and the icon on the LCD panel.
* The selected focusing point is displayed on the LCD panel as shown below:

* On the LCD panel, the selected focusing point is displayed and the focusing point achieving focus is not displayed.
* C.Fn-10-1 disables the SI display. The SI brightness cannot be changed.

2-7 AF activation: Activated by pressing the shutter button halfway (SW-1).

2-8 AF operation speed: Same as with the EOS-3.

2-9 In-focus indicator: Icon in viewfinder (LCD), superimposed (SI) focusing point display, and beeper.
* The in-focus beeper can be enabled or disabled in all the picture-taking modes.
* In the AI Servo AF mode, the in-focus indicator < l > and beeper are disabled.

2-10 AF precision: Same as with the EOS 650.

2-11 AF working range: EV 1-18 (at ISO 100 with the standard chart)

2-12 AF-assist:

(1) Method: Intermittent burst fired by built-in flash (no patterned beam).
Fired automatically when necessary and linked to all seven focusing points.
Effective range: Approx. 4.5 meters at center and 4 m at periphery.
Coverage: 28mm lenses.

(2) Preconditions: Fired automatically in low light (EV 4 or lower at ISO 100).
- Automatic pop-up and AF-assist light in the Full Auto, Portrait, Closeup, and Night Scene modes.
- Disabled in Landscape and Sports modes.
- In P, Tv, Av, M, and DEP modes: Manual pop-up and firing.

* AF-assist can be enabled/disabled with C.Fn-7 (also applicable to external Speedlites).

(3) AF-assist time, frequency, and consecutive AF assists: 20μs, 28 Hz, max. 8

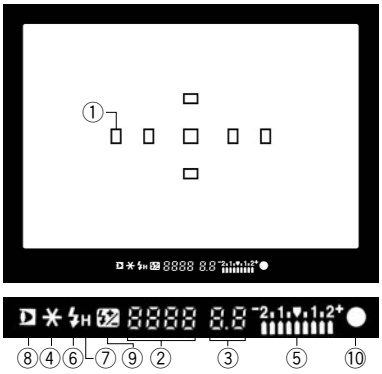
* AF-assist light turns off when the in-focus signal is detected.

(4) With EX/EZ/E-series Speedlites
AF-assist beam is emitted by the external Speedlite.
- SPEEDLITE 420EX: Compatible with all focusing points.
- 550EX/540EZ/ST-E2: The AF-assist patterned beam is not compatible with top and bottom focusing points with which focus cannot be achieved. (Compatible with the other focusing points.)
- With other EOS-dedicated Speedlites: AF-assist beam is not emitted when an off-center focusing point has been selected. (Emitted only when the center focusing point has been selected during automatic or manual focusing point selection.)

3. Viewfinder

| | |
|---|---|
| 3-1 Type: | Eye-level, single-lens reflex type with fixed pentaprism and condensor lens. |
| 3-2 Focusing screen: | Fixed New Laser-matte screen with 7 focusing points. |
| 3-3 Standard diopter: | -1 dpt. |
| 3-4 Dioptric adjustment range: | -2.5 - +0.5 dpt. |
| 3-5 Eye relief: | 19.5 mm |
| 3-6 Viewfinder coverage: | 90% vertical, 92% horizontal. |
| 3-7 Magnification: | 0.70x (with 50mm lens at infinity) |

3-8 Viewfinder information:




(1) On the screen

1. Focusing points with superimposed display

(2) Below the screen:

○ Numeric and textual information with 7-segment LCD (yellow-green)

2. Shutter speed (If unsuitable, blinks at 2 Hz as a warning.)
3. Aperture (If unsuitable, blinks at 2 Hz as a warning.)
   - FEL display (Displayed for about 0.5 sec. during FE lock)
   - DEP display (DEP-1, DEP-2)
   - CAL display (CAL-1 to CAL-5: Blinks if Eye Control fails)
   - END display (End-1 to End-5)

○ Icon display with LCD mask (yellow-green)

4. AE lock, FE lock
5. Exposure level (±2 stops in 1/2-stop increments).
   5-1: Exposure compensation amount
   5-2: Flash exposure compensation amount
   5-3: Manual exposure level
   5-4: AEB range
   5-5: Red-eye reduction lamp-on indicator (progressive)
6. Lights: Flash-ready indicator
   Blinks (2 Hz): Insufficient flash warning during FE lock
7. High-speed sync (FP flash)
8. Eye Control icon (Blinks at 2 Hz when Eye Control fails)
9. Flash exposure compensation icon
10. AF in-focus indicator (Blinks at 2 Hz when AF fails), MF in-focus indicator

* No viewfinder information can be disabled.

3-9 Mirror: Quick-return half mirror (Transmission:reflection ratio of 40:60)

* Viewfinder blackout time: 155 ms or shorter with Tv=1/60 sec. or faster

3-10 Mirror lockup: Enabled with C.Fn-5-1 and executed when shutter button pressed completely (SW-2).

* Mirror lockup with SW-2, SW-1 turns off, then shutter release with SW-2.
* Only one frame is shot even in the continuous shooting mode.
* Mirror lockup operation time: Max. 30 sec. after which the mirror goes back down.

3-11 Mirror vignetting: No vignetting with an EF 600mm f/4L IS USM or shorter lens.

* Except for EF 50mm f/1.0L USM.

3-12 Depth-of-field preview: Depth-of-field preview button provided.

* Enabled in Creative Zone modes only (disabled in Full Auto and Programmed Image Control modes).
* With 550EX, MR-14EX, or 420EX attached, pressing the depth-of-field preview button fires the modeling flash.

3-13 Built-in eyepiece shutter: None. (Eyepiece cover provided on the neck strap.)

3-14 Mirror noise: Lower than 70 dB.

3-15 Other specifications: Eyecup Ed provided

* Angle Finder C, Angle Finder B, and Magnifier S attachable (adapter required) to the eyepiece.

4. Picture-taking Modes See page 1-36.

5. Exposure Control

5-1 Type: TTL max. aperture metering with a 35-zone silicon photocell. The following three metering modes are provided.
Selectable with metering mode button on the back.
(1) Evaluative:
(2) Partial metering at center
(Approx. 10% of viewfinder):
(Metering zones: S13, S14, S15, S24, S34)
* C.Fn-8-1 enables partial metering to be linked to the active focusing point.
(3) Centerweighted averaging metering:
(Metering zones: S12 to S16, S22 to S26, S32 to S36, S42 to S46, S52 to S56)
* In Full Auto and PIC modes: 1. Automatically set (Modes 2 and 3 not selectable.)
* In Creative Zone modes, modes 1, 2, and 3 are selectable.

5-2 AE modes: The following AE modes and manual mode provided.
1. Intelligent program AE (Shiftable)
2. Shutter speed-priority AE (No safety shift)
3. Aperture-priority AE (No safety shift)
4. Depth-of-field AE (DEP/Shiftable)
   4-1 Manual selection: Two DEP points set with the selected focusing point.
   4-2 Automatic selection: Two DEP points set with the center focusing point.
   4-3 Eye Control: Two DEP points set with the focusing point selected with the eye two separate times. (With evaluative or focusing point-linked partial metering, the area to weight the exposure can be set with the eye when the shutter button is pressed halfway a third time.)
5. Full Auto (Intelligent Program AE/Not shiftable)
6. Programmed Image Control modes (5)
   Portrait, Landscape, Closeup, Sports, Night Scene
7. Metered manual
8. E-TTL program flash AE
9. A-TTL program flash AE
10. TTL program flash AE

5-3 Metering range: EV 1-20 (at 20ºC with 50mm f/1.4 lens, ISO 100)

5-4 Insufficient exposure warning: LCD digital display blinks at 2 Hz on LCD panel and in the viewfinder.

5-5 Exposure metering: Activated when shutter button is pressed halfway (SW-1).
* Metering continues to be active for 4 sec. after the shutter button's halfway position is released.

5-6 Film Speed Range: ISO 25-5000 with DX-coded film, set automatically in 1/3-stop increments.
* The ISO film speed is displayed on the LCD panel during the initial film advance to frame 1.

Manual setting: ISO 6-6400 in 1/3-stop increments.
* With non-DX-coded film, the ISO film speed of the film previously loaded is displayed during initial film advance to frame 1. The ISO icon then blinks (which stops when the film speed is set manually) on the LCD panel.

## 5-7 Exposure compensation:

### (1) AEB (Autoexposure bracketing)

1)Availability: AEB is enabled with the Func. setting and settable in the modes listed in the table below.
2)Bracketing range: 0 to ±2 stops in 1/2-stop increments.
3)Bracketing sequence: Correct exposure, underexposure, and overexposure.
* Compatible in the single-frame and continuous film advance modes.
* With the self-timer, all three bracketed shots will be taken after the 10-sec. self-timer delay.
4)Bracketing method: How each picture-taking mode brackets the exposure is shown in the table below. (The bullet indicates the exposure compensation method used.)

| Mode | Shutter Speed | Aperture |
|---|---|---|
| Intelligent Program AE | ● | ● |
| Shutter speed-priority AE | — | ● |
| Aperture-priority AE | ● | — |
| Depth-of-field AE | ● | — |
| Manual | ● | — |

5)AEB cancellation: Enabled by setting the AEB range to 0.
6)AEB reset to first frame: 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 flash is ready, the bracketing amount is changed, the Command Dial is turned, midroll film rewind is started.
* AEB is not canceled even after the lens is interchanged.
* AEB is not available in the Full Auto and Programmed Image Control modes.

### (2) Manual exposure compensation

1)Availability: Exposure compensation is enabled in the modes listed in the table below.
2)Compensation amount: ±2 stops in 1/2-stop increments.
3)Compensation method: How each picture-taking mode compensates the exposure is shown in the table below. (The bullet indicates the exposure compensation method used.)

| Mode | Shutter Speed | Aperture |
|---|---|---|
| Intelligent Program AE | ● | ● |
| Shutter speed-priority AE | — | ● |
| Aperture-priority AE | ● | — |
| Depth-of-field AE | ● | — |
| Manual | — | ● |

4)Exposure compensation cancellation: Enabled by setting the amount to 0.
* Exposure compensation is not available in the Full Auto and Programmed Image Control modes.
* If AEB and exposure compensation are combined, the AEB range will be shifted in accordance with the exposure compensation amount.

### (3) Flash exposure compensation

1)Compatible flash: Built-in flash and EOS-dedicated external Speedlite.
2)Setting method: With Func. setting.
3)Compensation amount: ±2 stops in 1/2-stop increments.
4)Flash exposure compensation cancellation: Enabled by setting the amount to 0.
* If flash exposure compensation is set with both the camera and external Speedlite, the Speedlite's setting will override the camera's.
* Flash exposure compensation is not available in the Full Auto and Programmed Image Control modes.

5-8 AE lock:

(1) Automatic AE lock
* With One-Shot AF and evaluative metering, AE lock is applied when focus is achieved.

(2) AE lock button
* Enables AE lock anytime.
* AE lock button is disabled in Full Auto and Programmed Image Control modes.
* Regardless of the metering mode set, AE lock is applied via partial metering at the center focusing point. (C.Fn-8-1 enables partial metering to be linked to active focusing point.)
* AE lock can be reapplied even during AE lock by pressing the button.
* With an EX-series Speedlite, the button also works as an FE lock button.
* C.Fn-4-1 enables AE lock with the shutter button.

5-9 Multiple exposures:

Max. 9 multiple exposures can be set.
* Setting method: Func. setting
* Canceled automatically after all multiple exposures are taken.
* The number of multiple exposures can be altered (increased, decreased, or canceled) during multiple-exposure shooting.
* Not available in Full Auto and Programmed Image Control modes.
* Cancellation method: Set the number to 1 or turn the Command Dial to Full Auto or a Programmed Image Control mode.

6. Shutter

6-1 Type:

Vertical-travel, focal-plane shutter with all speeds electronically-controlled. First and second curtains both have dedicated electromagnetic release control. (Curtain speed: 4.8 ms/24mm)

6-2 Shutter speeds:

30 to 1/4000 sec. in 1/2-stop increments, X-sync at 1/125 sec.
* No elapsed-time indicator during bulb exposures.

6-3 Shutter release:

Soft-touch electromagnetic release (no cable release socket).

6-4 Shutter release time lag:

1) After SW-1 (shutter button halfway pressing), the time between SW-2 (full pressing) and start of exposure: 100 ms or shorter

2) The time between SW-1 and SW-2 and start of exposure: 230 ms or shorter
* The above shutter release time lag excludes the AF operation time.

6-5 Self-timer:

Electronically-controlled, 10-sec. delay.
* Set with the film advance mode lever.
* Enabled in all picture-taking modes.
* After starting, cancelable by turning the Command Dial, popping up or retracting the built-in flash, or changing the lens.
* Cancels by turning Command Dial to OFF or turning the film advance mode lever.
* After focus is achieved, SW-2 starts the self-timer. (During AI Servo AF or MF, SW-2 starts the self-timer regardless of focus.)
* Mirror lockup sequence: SW-2 (mirror lockup), 10-sec. delay, shutter release (exposure), and film advance.

6-6 Self-timer indicator: Red-eye reduction lamp (Blinks at 2 Hz for first 8 sec., then lights for the remaining 2 sec.).
LCD panel (Frame counter counts down from 10 to 1 in seconds)
Beeper (Beeping at 2 Hz for first 8 sec., then at 8 Hz for the remaining 2 sec.).
* Beeper sounds only when enabled with the Func. setting.

6-7 Camera shake warning: Provided in Full Auto and Programmed Image Control modes.
* If the shutter speed (Tv auto) is slower than 0.5 stop below the reciprocal of the lens focal length, the shutter speed display blinks at 2 Hz as a warning.

7. Film Transport

7-1 Film loading: Automatic take-up with a sprocketless system.
* After the film leader is set properly and the back is closed, the film advances to frame 1 automatically (as displayed on the frame counter), taking about 1 sec.

7-2 Film advance system: Automatic film advance with a small coreless motor.
* Film perforation detected with an infrared photo reflector.
* Not compatible with infrared film.

7-3 Film advance modes: (1) Single-frame shooting (2) Continuous shooting
(3) Self-timer/Remote control
* In Full Auto and Programmed Image Control modes: Set automatically.
* In Creative Zone modes: Set manually with film advance lever.

7-4 Film advance initiation: Exposure-completed signal starts film advance.

7-5 Continuous shooting speed : (max.) Approx. 4 fps (in One-Shot AF mode, Tv = 1/250 sec. or faster, new batteries, 20 C)
* In AI Servo AF mode: Approx. 3.5 fps

7-6 Film advance indicator: The frame counter counts up.

7-7 Battery service life: The table below shows the number of 24-ex. rolls that can be exposed with two new CR123A batteries and EF 50mm f/1.4 USM. Figures for when Eye Control is used or not are also provided.

| Ambient Temperature | Shooting Conditions | | |
|---|---|---|---|
| | AE 100%, FA 0% | AE 50%, FA 50% | AE 0%, FA 100% |
| At 20ºC | 115 (125) | 33 (38) | 17 (19) |
| At -20ºC | 65 (70) | 19 (20) | 9 (10) |

* The testing conditions are detailed in item 14-1.

7-8 Film rewind system: Automatic rewind with a small coreless motor.

7-9 Film rewind initiation: (1) Automatic rewind
Rewind initiated automatically under the following conditions:
1. Detection of end of film roll (no more film).
2. After 36 exposures are taken.

(2) Midroll film rewind
Midroll rewind button starts film rewind.
* During film rewind, pressing the midroll rewind button switches the rewind mode between silent and high-speed rewind.
* For both (1) and (2), C.Fn-1-1 sets high-speed rewind.

7-10 Film rewind indicator: The frame counter counts down.
* The exposure level scale on the LCD panel also indicates film rewind is in progress.
(The scale bars turn off from right to left, then all the bars are displayed again.)

7-11 Film rewind time: (1) Silent mode (C.Fn-1-0): Approx. 13 sec.
(2) High-speed rewind (C.Fn-1-1): Approx. 5 sec.
* With new batteries, 24-ex. film, and 20 C ambient temperature.

7-12 Film rewind stop: (1) Stops automatically after the film leader is rewound completely inside the cartridge (C.Fn-2-0).
(2) Stops automatically with the film leader left outside the cartridge (C.Fn-2-1).
* If the shutter button is pressed completely while the camera back is open, the shutter speed will always be 1/4000 sec. (This is to protect the shutter curtains.)

7-13 Film rewind completed indicator: Film cartridge icon blinks at 2 Hz on the LCD panel.

7-14 Film-loaded indicator: (1) On LCD panel: Indicated by the film cartridge icon.
(2) Film window: Visual confirmation.

7-15 Frame counter: Electronic counter with digital display, counts down or up.

7-16 Film transport noise: (1) Silent rewind: Approx. 47 dB
(2) High-speed rewind: Approx. 55 dB
* At 15 cm from the camera back (official specifications).

8. Built-in Flash

8-1 Type: Built-in, auto pop-up TTL autoflash head in the pentaprism. Manually retractable and series-circuit controlled.

8-2 Guide No.: 13 (at ISO 100 in meters)

8-3 Recycling time: Approx. 2 sec.

8-4 Flash-ready indicator: Flash icon ϟ lights in viewfinder.
* Flash icon turns off when the flash is not ready, and the shutter cannot be released.

8-5 Flash coverage: Covers 28mm lenses.

8-6 Flash switch: None.
* Automatic pop-up when necessary in Full Auto and Programmed Image Control modes.
* Manual pop-up (pull up by hand) in Creative Zone modes.
* Retracts manually.

8-7 Firing preconditions: (1) Full Auto and Programmed Image Control modes
Automatic pop-up and firing under low-light or backlit conditions.
* Except in Landscape and Sports modes.
(2) Creative Zone mode: Fire manually.

8-8 Sync speed: Max. X-sync speed at 1/125 sec.

(1) Full Auto, Program AE, DEP, Portrait, Closeup modes: Automatically set between 1/60 sec. and 1/125 sec.

(2) Night Scene mode: Automatically set between 2 sec. and 1/125 sec. (in 1/2-stop increments).

(3) In shutter speed-priority AE and manual modes: Set manually at 1/125 sec. or slower.

(4) In aperture-priority AE mode: Automatically set between 30 sec. and 1/125 sec. to suit the aperture setting.

8-9 Flash aperture: Set as shown in the table below.

| Picture-taking Mode | Manual Aperture | Auto Aperture | | Remarks |
|---|---|---|---|---|
| | | TTL-P | Shutter speed-priority AE | |
| 1. Program AE | | ● | | |
| 2. Shutter speed AE | | | ● | |
| 3. Aperture-priority AE | ● | | | |
| 4. Depth-of-field AE (DEP) | | ● | | The result is the same as with 1. |
| 5. Full Auto | | ● | | |
| 6. PIC Portrait | | ● | | |
| 7. PIC Closeup | | ● | | PL control at max. aperture |
| 8. PIC Night Scene | | ● | | f/2.8 controlled at max. aperture |
| 9. Manual | ● | | | |

* In the Landscape and Sports modes, the built-in flash cannot fire, but an external Speedlite can (the result will be the same as with 1.).

8-10 Flash exposure system: TTL off-the-film autoflash exposure with focusing point-linked, 3-zone flash metering.

Flash metering is weighted on the selected focusing point.

| Selected Focusing Point | Evaluative Metering Weighting |
|---|---|
| Center, top, bottom | Sensitivity of adjacent zones is reduced by 1 stop. |
| Extreme right, right | Sensitivity of left zones is reduced by 1 stop. |
| Extreme left, left | Sensitivity of right zones is reduced by 1 stop. |

8-11 Flash output control: Automatic flash output reduction for backlit conditions or fill-in flash.

8-12 Flash exposure compensation: Up to ±2 stops in 1/2-stop increments.

* Flash exposure compensation can be set with the camera for the built-in flash or external Speedlite.

8-13 Effective range:

(Unit: meters)

| ISO | With EF 28-105mm f/3.5-4.5 II USM | | | |
|---|---|---|---|---|
| | At 28mm (f/3.5) | | At 105mm (f/4.5) | |
| | Neg. Film | Slide Film | Neg. Film | Slide Film |
| 100 | 1 - 5.2 | 1 - 3.7 | 1 - 4.0 | 1 - 2.8 |
| 200 | 1 - 7.4 | 1 - 5.2 | 1 - 5.7 | 1 - 4.0 |
| 400 | 1 - 10.5 | 1.2 - 7.4 | 1 - 8.1 | 1 - 5.7 |

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

8-14 Insufficient-flash warning: None.

8-15 Sufficient-flash indicator: None.

8-16 Curtain synchronization: 1st-curtain synchronization.
* Second-curtain synchronization (with built-in flash) enabled with C.Fn-6-1.

8-17 Flash duration: 1 ms or shorter.

8-18 Color temperature: Equivalent to daylight.

8-19 Distance to optical axis: 73 mm between the flash head center and lens optical axis.

8-20 Power source: Batteries in the camera.

8-21 Red-eye reduction: With the built-in flash popped up, the red-eye reduction lamp lights and then the flash fires.
1. Type: Lamp
2. Compatible modes: All picture-taking modes except Landscape and Sports.
3. Setting method: Func. setting
4. Lamp-ON preconditions: Lights after shutter button is pressed halfway and focus achieved with One-Shot AF or MF. (In AI Servo AF mode, shutter release-priority takes effect even while the lamp is lit.)
5. Duration: Under the conditions stated in 4 above, the lamp lights while the shutter button is pressed halfway and dims after 1.5 sec. (With the self-timer, it lights for 2 sec. before shutter release.)
6. Lamp-ON indicator: The exposure level scale (bars) on the LCD panel and in the viewfinder indicates lamp-on for 1.5 sec.
7. Shutter release lock: None (shutter-release priority).

* When an external Speedlite is used, the red-eye reduction lamp does not light.

9. Date Imprinting

9-1 Type: Auto date using 7-segment LCD in the imprinting element.

9-2 Date range: 1994.1.1 to 2019.12.31
* Automatic adjustment for leap years.

9-3 Imprinted modes:
1. Month, day, year
2. Day, month, year
3. Year, month, day
4. Day, hour, minute
5. Blank

* Pressing the MODE button changes the imprinting mode in the looping sequence above.

9-4 Imprinting position: Lower right of picture.

9-5 Imprinting color: Orange

9-6 Imprinting confirmation: None

9-7 Imprinting brightness: Automatically set to suit DX-coded film speed.

9-8 QD power source: One CR2025 lithium battery (3 V) housed on the inside of the QD back.
* The date is reset when the battery is replaced.

10. Power Source

10-1 Batteries: Two CR123A lithium batteries (6 V) loaded through the camera grip bottom.

10-2 Battery check: Automatic battery check when the Command Dial is released from OFF.
Battery level is always indicated on the LCD panel in one of four levels.

| Battery OK | Keep spare batteries handy | Replacement warning (Shutter release not locked.) | Replace batteries (Shutter release is locked.) |
|---|---|---|---|
|  |  |  |  |

10-3 Main switch: Command Dial set to OFF turns off camera.

11. Camera Specifications

11-1 Custom Functions: Thirteen Custom Functions (C.Fn-1 to C.Fn-13, 34 settings) provided.
* Settable with the Command Dial turned to C.Fn.
* For details, see the Custom Functions table on page 1-37.

11-2 Camera back: Opened with the camera back latch.
* Film window provided.
* No film memo holder.
* Not detachable.

11-3 Camera orientation detection switch: Provided.

11-4 Flash contacts: X-sync direct contact on hot shoe.
* Speedlite locking pin hole provided.
* No PC terminal.

11-5 Auto flash operation: In Program AE Mode

(1) With EX-series Speedlites: E-TTL autoflash

1) Normal flash

When the flash is ready, the sync speed (1/60 to 1/125 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, a fixed-output preflash is fired right before the mirror goes up. The AE sensor meters the ambient light before the preflash and the light reflected off the subject by the preflash. The output of the main flash is thereby determined before the main flash fires. The main flash then fires. If the EX-series Speedlite's high-speed sync (FP flash) switch is on and the brightness is still too high for the smallest aperture, the high-speed sync mode is set automatically. When high-speed sync is set, the ϟH icon lights in the viewfinder. Automatic fill-in flash is possible.

2) FE lock

When an EX-series Speedlite is attached and the flash is ready, the AE lock button becomes an FE lock button. Pressing the AE lock button fires a preflash. The AE sensor, with partial metering, reads the preflash light reflected off the subject. The flash output is thereby determined and retained in memory. When the shutter button is pressed completely, the flash fires at the output retained in memory. If the EX-series Speedlite's high-speed sync (FP flash) switch is on and the brightness is still too high for the smallest aperture, high-speed sync mode is set automatically. When high-speed sync is set, the ϟH icon lights in the viewfinder. When the FE lock button is pressed and the flash is ready, a preflash is fired and FE lock takes effect. If the flash will be insufficient (underexposure exceeds by more than 0.5 stop compared to the correct flash exposure), the ϟ icon blinks as a warning before the picture is taken. Automatic fill-in flash is possible.

(2) With built-in flash:TTL autoflash

When the flash is ready, the sync speed (1/60 to 1/125 sec.) is set automatically and the aperture is set automatically by the camera's 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 EZ/E-series Speedlite: A-TTL autoflash

When the flash is ready, the sync speed (1/60 to 1/125 sec.) is set automatically and the optimum flash aperture is set automatically by the camera's A-TTL program and the result of the Speedlite's near-infrared preflash to suit the subject's distance and brightness. TTL off-the-film autoflash control with 3-zone flash metering linked to the focusing point. Automatic fill-in flash is possible.

(4) With the ML-3 and 480EG: TTL autoflash metering → Same as (2).

* For (1) to (4) above, a sync speed of 1/125 sec. or slower can be set when the camera is set to shutter speed-priority AE. Also, when an EX-series Speedlite is attached and the high-speed sync (FP flash) switch is on, a sync speed faster than 1/125 sec. can be set. In the aperture-priority AE mode, any aperture can be selected.

(5) With M/T/A-series Speedlites:

Manual or external flash metering required.

* Picture-taking mode: Manual
* Sync speed: Set manually to 30 sec. to 1/125 sec. or bulb.
* Flash aperture: Set the same aperture value manually on the camera and Speedlite.

(6) With a non-Canon flash unit
For compact flash units: Set the sync speed to 1/125 sec. or slower.
For studio flash: Set the sync speed to 1/60 sec. or slower (test required).

| | |
|---|---|
| 11-6 Wireless flash: | Enabled with 550EX or MR-14EX, or ST-E2 (master unit).<br>* Three-group (A, B, C) slave control, high-speed sync, FE lock, flash ratio (A:B) control, FEB, flash exposure compensation, and modeling flash (with flash ratio) enabled.<br>* With the ST-E2, two-group (A, B) slave control enabled. |
| 11-7 Flash exposure compensation: | Settable with camera or EOS-dedicated Speedlite.<br>( ±2 stops in 1/2-stop increments)<br>* If it is set with both the camera and Speedlite, the Speedlite's flash exposure compensation setting takes effect. |
| 11-8 FEB: | Settable with Speedlite (550EX, MR-14EX)<br>* Not settable with camera.<br>* Any flash exposure compensation set with the camera is not combined with FEB. |
| 11-9 Modeling flash: | Fires (at 70 Hz for 1 sec.) with depth-of-field preview button when 550EX, MR-14EX, or SPEEDLITE 420EX is used. |
| 11-10 External display: | Large LCD panel on camera top. |
| 11-11 Tripod socket: | CU 1/4 |
| 11-12 Shutter button lock: | Electronic lock when Command Dial set to OFF. |
| 11-13 Remote control terminal: | For Remote Switch RS-60E3.<br>(2.5 mm dia. mini-jack remote control terminal) |
| 11-14 Interchangeable grip: | None. |
| 11-15 Body material: | Aluminum and polycarbonate resin with glass fiber. |
| 11-16 Exterior color: | Black |
| 11-17 Dimensions: | DATE model<br>146.7 (W) × 103.0 (H) × 69.0 (D) mm<br>5.78 (W) × 4.06 (H) × 2.72 (D) in.<br>Non-DATE model<br>146.7 (W) × 103.0 (H) × 69.0 (D) mm<br>5.78 (W) × 4.06 (H) × 2.72 (D) in. |
| 11-18 Weight: | DATE model: 580g / 20.5 oz.<br>Non-DATE model: 575g, 20.3 oz.<br>* Add 32 g / 1.10 oz. for the batteries. |

12. Wireless Remote Control

| | |
|---|---|
| 12-1 Configuration: | Consists of a built-in sensor in the camera grip and Remote Controller RC-1 (sold separately). |
| 12-2 Channels/Modes (RC-1): | 1 channel / 2 modes, lock<br>(1) Immediate shutter release /(2) 2-sec. delay<br>* Mirror lockup is not possible with (1). |
| 12-3 Setting method: | Film advance lever set to Self-timer/Remote control. |
| 12-4 Transmission: | Enabled with RC-1's transmission button. (Emits intermittent infrared light with a peak wavelength of 950 nm.) |
| 12-5 Reception: | Via the camera grip's built-in SPC. |

12-6 Effective range:

| Transmission Angle | Effective Range (Official) |
|---|---|
| 1. Front and center | Approx. 5 m |
| 2. 25º angle from the film plane | Approx. 3.5 m |

12-7 Reception setting method: Film advance lever set to Self-timer/Remote control.

12-8 Operation indicator: (1) Immediate shutter release signal reception: The red-eye reduction lamp blinks once when the picture is taken.

(2) 2-sec. delay signal reception:
The red-eye reduction lamp lights for 2 sec. a countdown of "2, 1" is displayed on the LCD panel, and the beeper sounds at 8 Hz.
* Beeper sounds only when enabled by the Func. setting.

(Sequence: Remote control signal received, AF, metering, and exposure.)

12-9 Cancellation: No operation by the user for 4 minutes cancels the Remote control setting automatically.
* Setting restored when the user touches the camera controls.

12-10 Misc.: For bulb exposures, the remote control signal reception can start the exposure immediately or after a 2-sec. delay. When the signal is received again, the bulb exposure stops.

13. Major Accessories

13-1 New accessories:
(1) SPEEDLITE 420EX
(2) BATTERY PACK BP-300
(3) Wide Strap EW-100BK
(4) Semi Hard Case EH-14L

13-2 Major EOS System accessories: See "Accessory Compatibility Tables."

14. Other Specifications

14-1 Film transport testing conditions (General-purpose shooting test)

1. Batteries: CR123A × 2
2. Lens: EF 50mm f/1.4 USM
3. Picture-taking mode: Shutter speed-priority AE (at 1/1000 sec.)
4. Subject brightness: EV 15
5. AF mode: One-Shot AF
6. Eye Control: Activated
7. Film advance mode: Continuous
8. Film rewind mode: Silent
9. Film: Kodak Tri-X, 36-ex. (fresh roll)

10. Shooting conditions

1) No flash and 100% AE

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

2) Flash used, 100% FA

The following operations were executed for each frame in accordance with the test procedure described below: Built-in flash popped up and recharged, AF search (infinity to near focus and back to infinity), AF achieved, shutter button pressed halfway for 5 sec., shutter release, and built-in flash retracted.

3) Flash used, 50% AE, 50% FA

1) and 2) above executed alternately.

- At 20ºC: The following procedure was executed repetitively: Film loaded, 36 frames exposed continuously, automatic film rewind (film removed), and 20-sec. rest).
- At -20ºC: The following procedure was executed repetitively: Camera and film exposed to a temperature of -20ºC for 3 hours, film loaded, 5-frame continuous shooting at 20-sec. intervals until 36 frames exposed (the last frame is exposed singly), automatic film rewind (film removed), and 3-min. rest.

14-2 Built-in flash range: The maximum flash range depends on the lens' maximum aperture. Item 8-13 shows the flash range when the EF 28-105mm f/3.5-4.5 II USM lens is used. For other lenses, the maximum flash range 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 18.3 by the maximum aperture's f-number. For ISO 400 film, divide 26 by the maximum aperture's f-number.)

2. For slide film

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

14-3 Default settings: Upon factory shipment, the default settings for the following functions are as follows:

1) AF mode: AI Focus AF
2) Eye Control: Off
3) Focusing point selection: Automatic
4) Film advance mode: Single
5) Red-eye reduction: None (0)
6) Beeper: Enabled (1)
7) Diopter: -1 dpt.
8) Date format: -- -- --

* Japanese model: Correct date and time set upon shipment.
* Export models: Date and time not set.

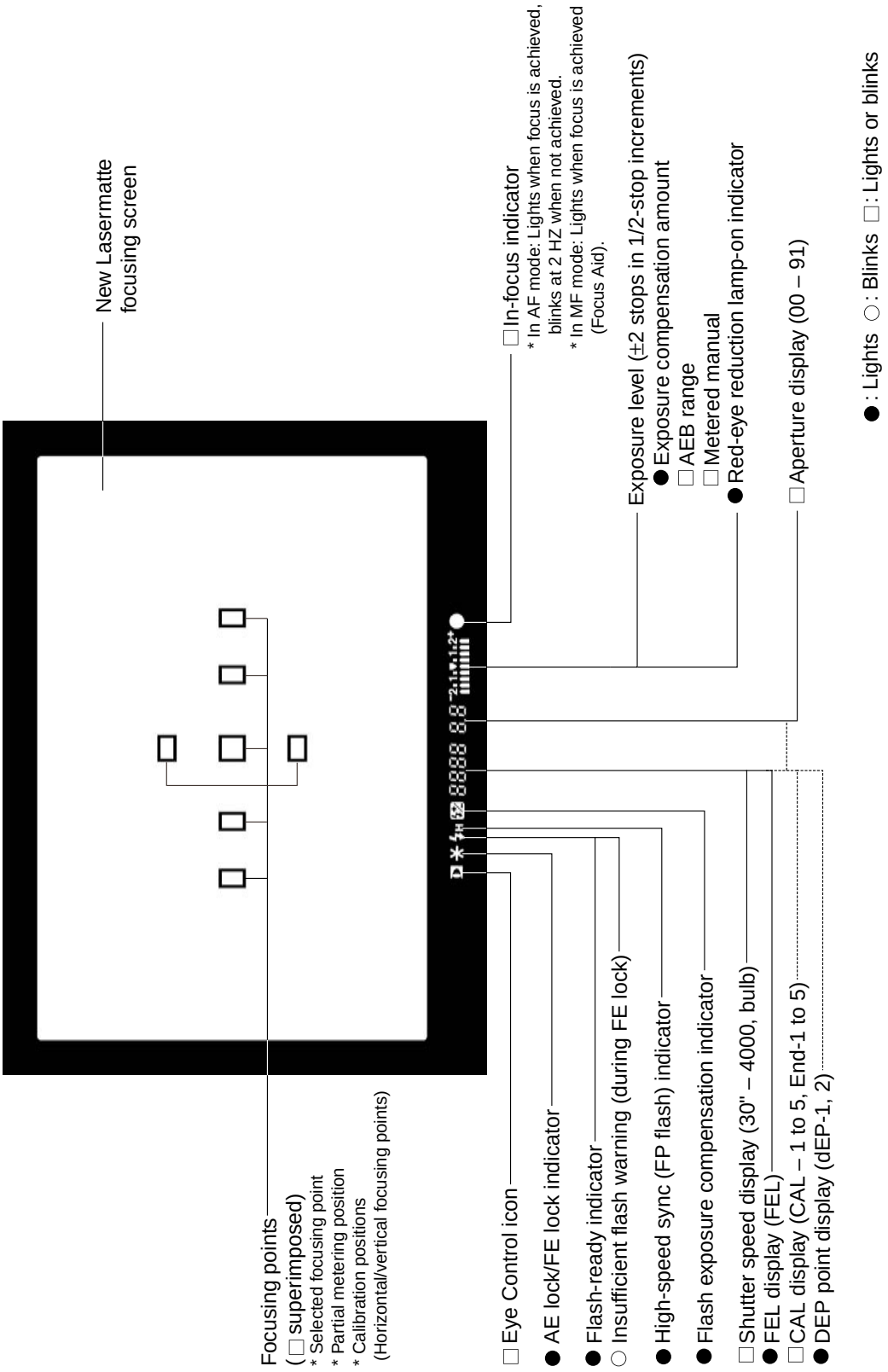



**Fig. 1-13 Viewfinder Infomation**

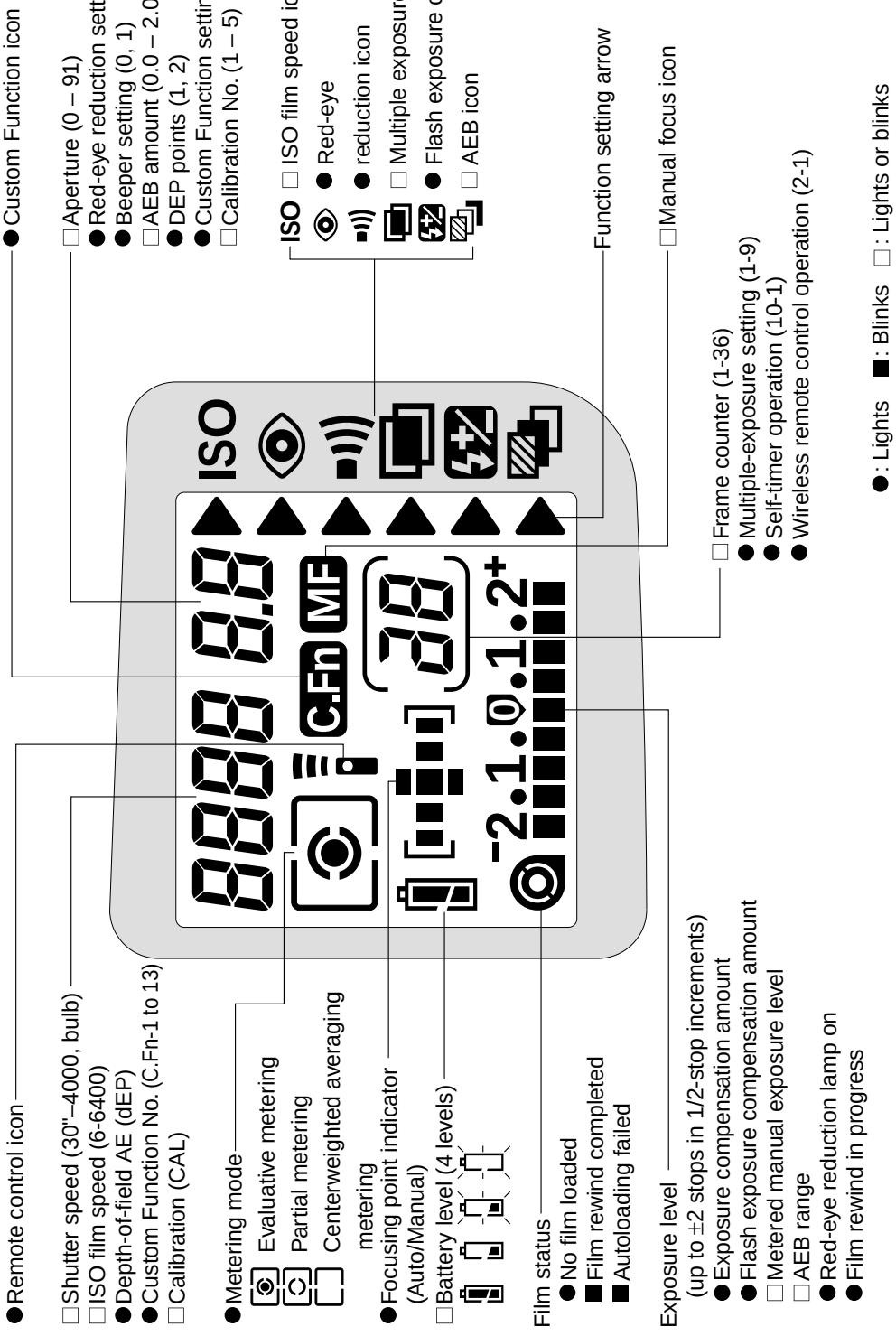



**Fig. 1-14 LCD Panel Information**

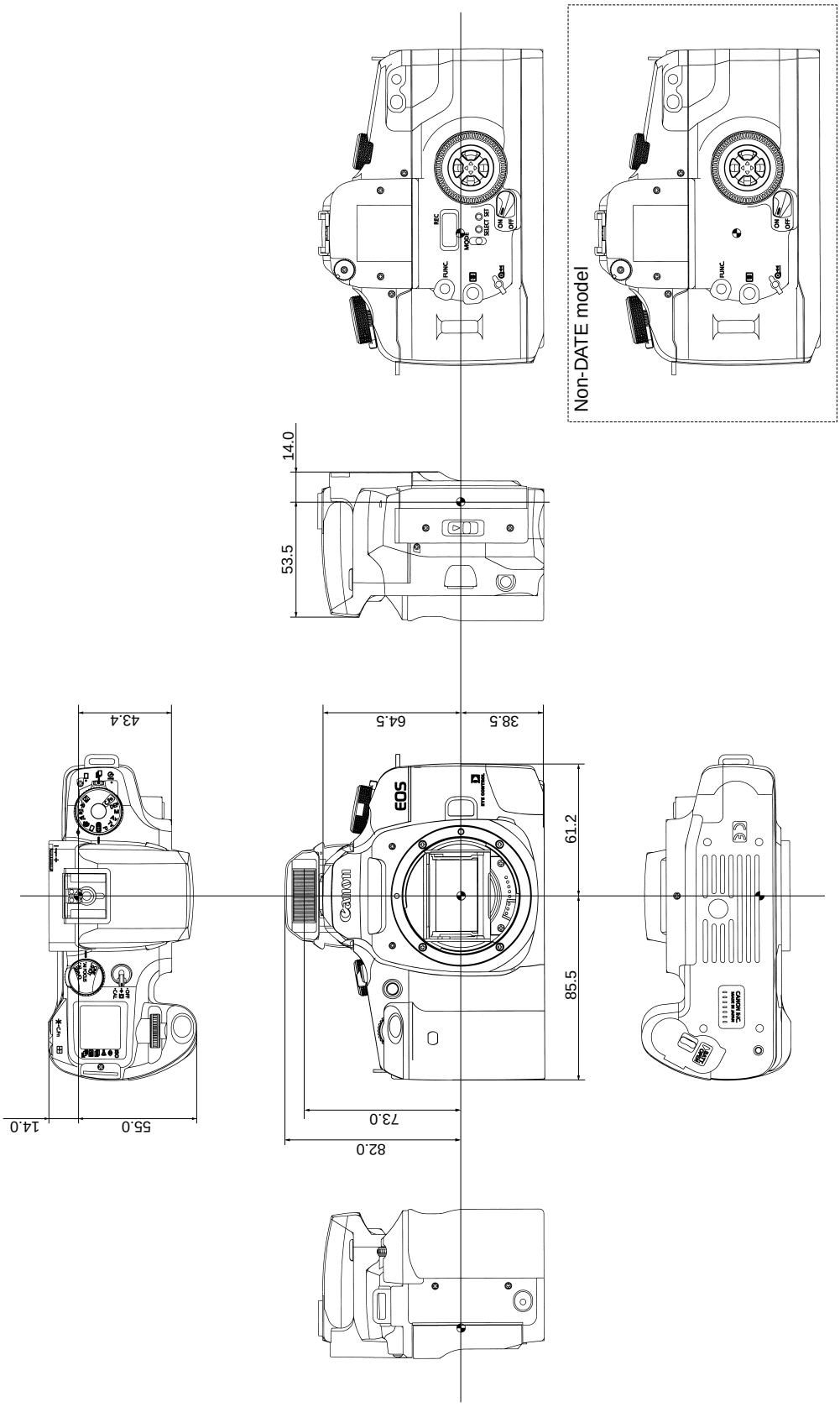



**Fig. 1-15 External Dimensions**

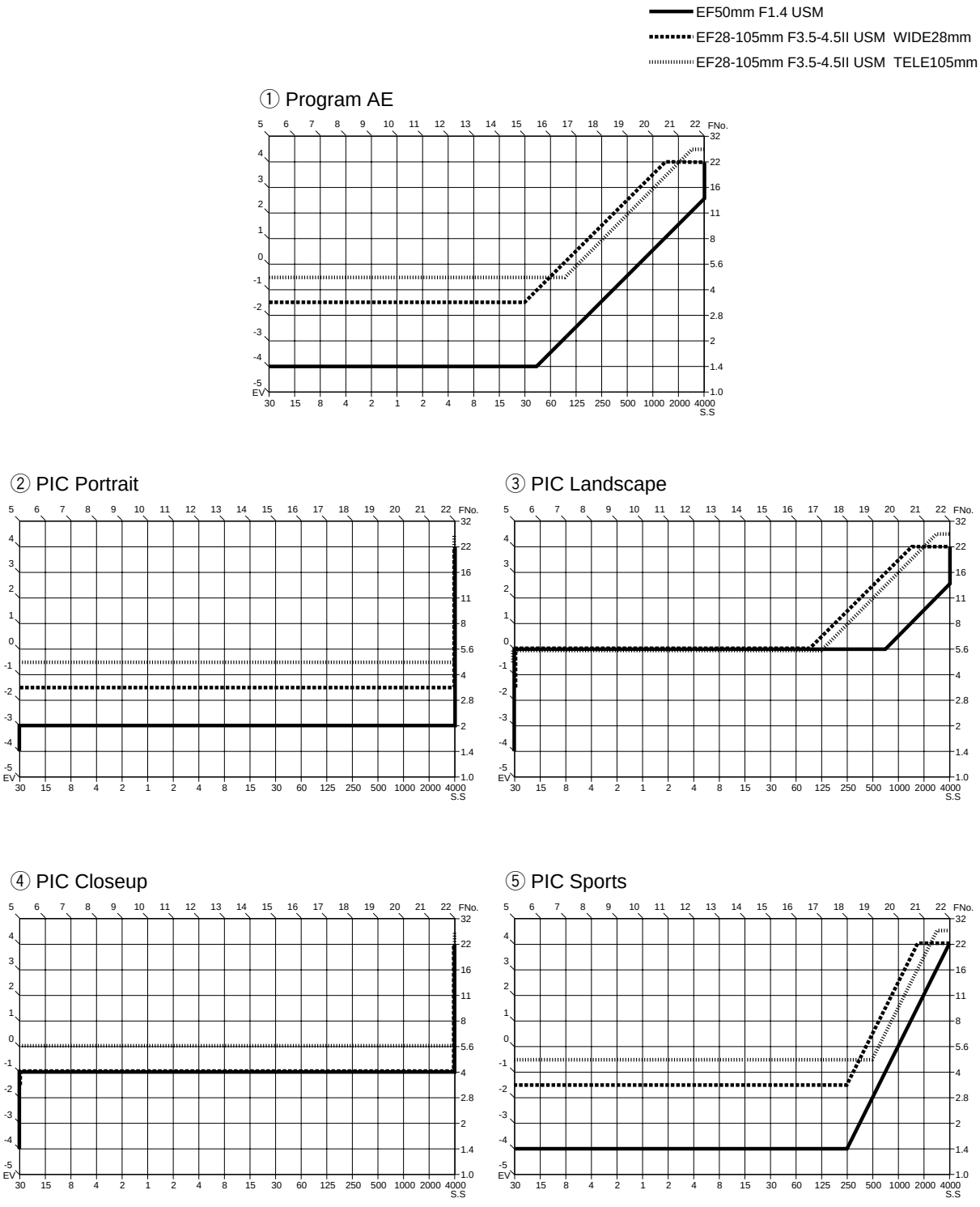



**Fig. 1-16 Program AE Lines**

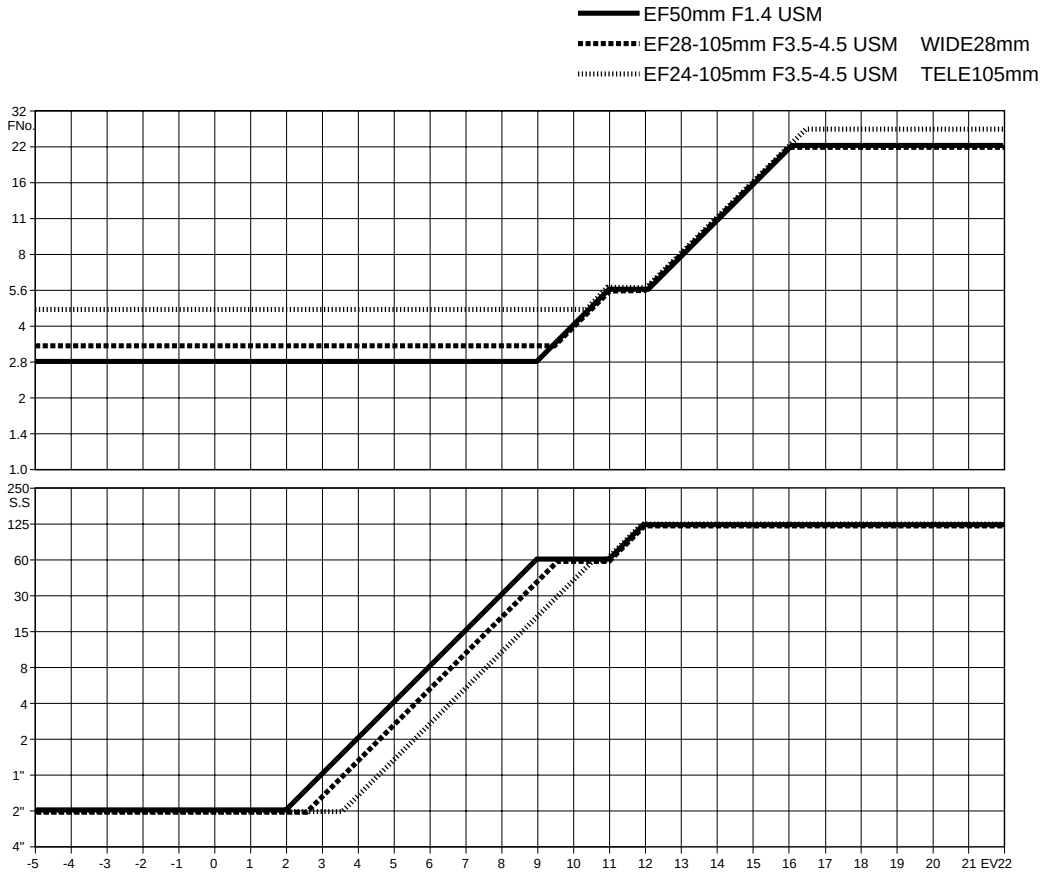



**Fig. 1-17 ⑥ PIC Night Scene**

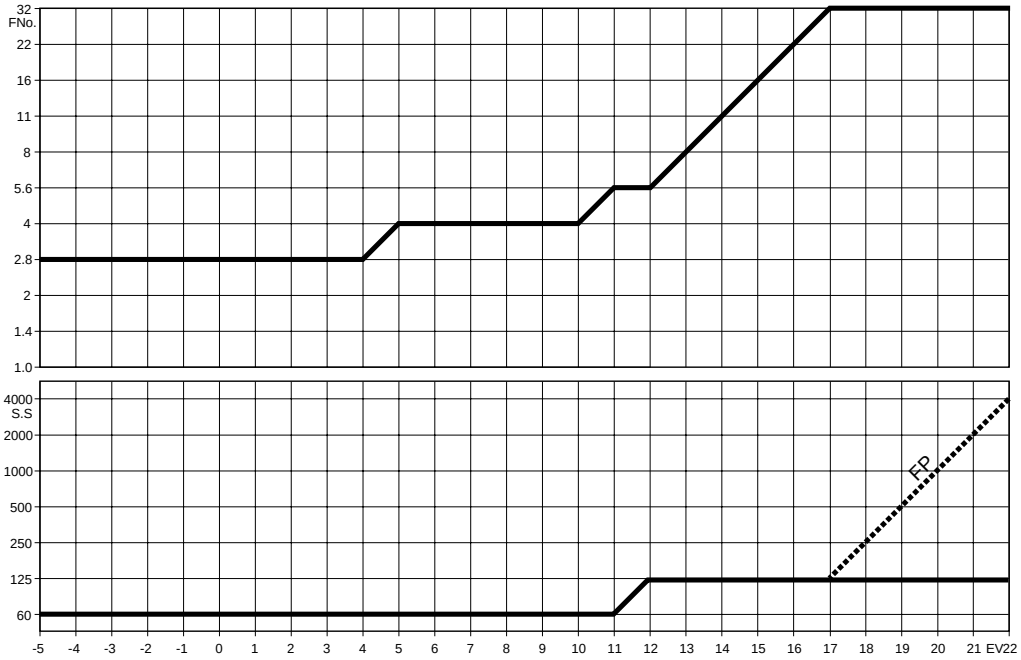



**Fig. 1-18 E-TTL Autoflash Program Lines**

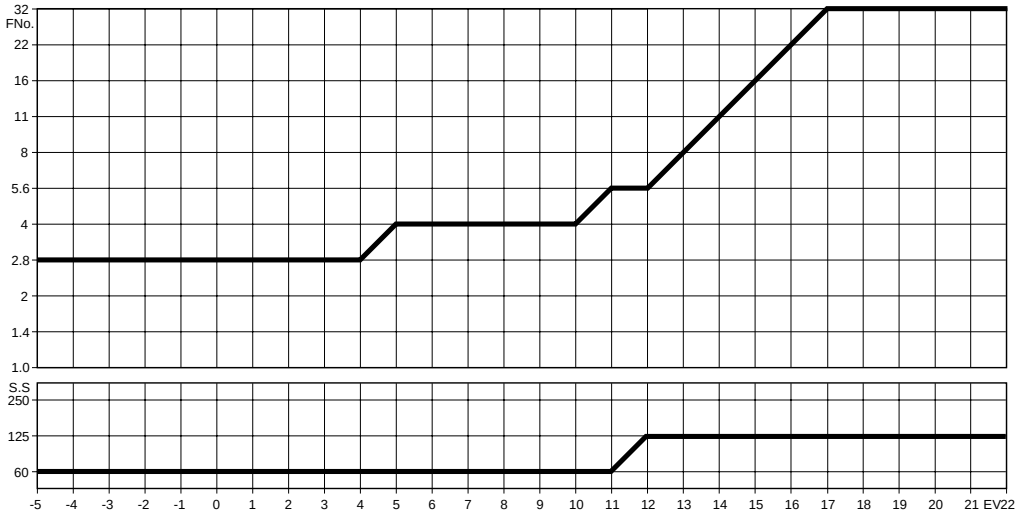



**Fig. 1-19 TTL Autoflash Program Lines**

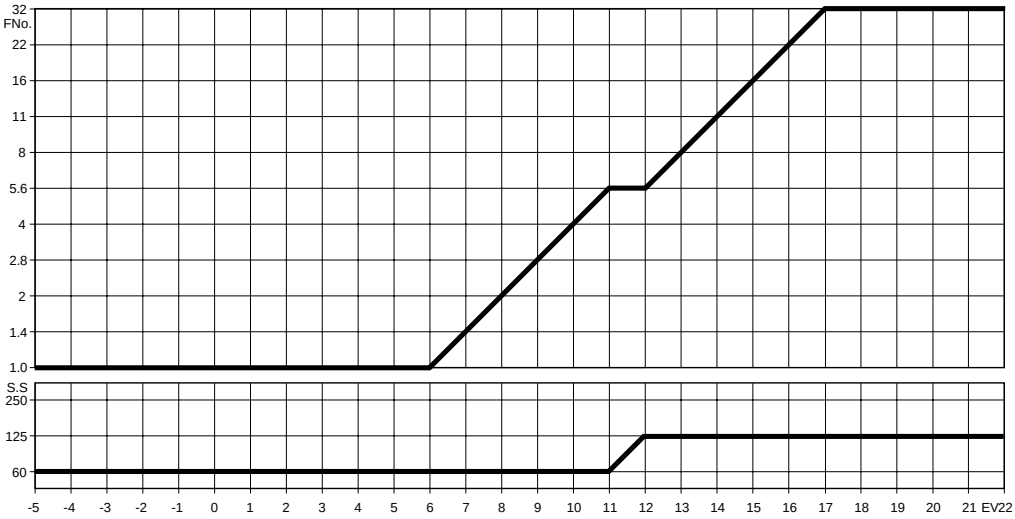



**Fig. 1-20 A-TTL Autoflash Program Lines**

| Command Dial Mode | AF | | | | | Film Advance | | Metering Mode | | | Program AE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One-Shot | AI Servo | AI Focus | Focusing Point Selection | | Single | Continuous | Evaluative | Partial | Centerweighted Avg. | Standard | Sports | Portrait | Closeup | Landscape | Shift |
| | | | | Eye Control | Auto | | | | | | | | | | | |
| ① Program AE | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | | | | | ○ |
| ② Shutter speed AE | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | |
| ③ Aperture-priority AE | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | |
| ④ Depth-of-field AE (DEP) | ● | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | |
| ⑤ Full Auto | | | ● | ◆ | ● | ● | | ● | | | ● | | | | | |
| ⑥ PIC Portrait | ● | | | ○ | ● | | ● | ● | | | | | ● | | | |
| ⑦ PIC Landscape | ● | | | ○ | ● | ● | | ● | | | | | | | ● | |
| ⑧ PIC Closeup | ● | | | ○ | ● | ● | | ● | | | | | | ● | | |
| ⑨ PIC Sports | | ● | | ○ | ● | | ● | ● | | | | ● | | | | |
| ⑩ PIC Night Scene | ● | | | ○ | ● | ● | | ● | | | ● | | | | | |
| ⑪ Manual | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | |

| Command Dial Mode | Built-in Flash | | | Exposure Compensation | AE Lock | FE Lock | Functions | | | | | | Midroll Rewind | Custom Functions (C.Fn) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Auto Firing | Manual Firing | AF-Assist | | | | ISO Speed | Red-eye Reduction | Beeper | Multiple Exposures | Flash Exposure Compensation | AEB | | |
| ① Program AE | | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ② Shutter speed AE | | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ③ Aperture-priority AE | | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ④ Depth-of-field AE (DEP) | | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ⑤ Full Auto | ● | | ● | | | | | ○ | ○ | | | | ○ | |
| ⑥ PIC Portrait | ● | | ● | | | | | ○ | ○ | | | | ○ | |
| ⑦ PIC Landscape | | | | | | | | | ○ | | | | ○ | |
| ⑧ PIC Closeup | ● | | ● | | | | | ○ | ○ | | | | ○ | |
| ⑨ PIC Sports | | | | | | | | | ○ | | | | ○ | |
| ⑩ PIC Night Scene | ● | | ● | | | | | | ○ | | | | ○ | |
| ⑪ Manual | | ○ | ● | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

* ●:Set automatically. ○:User-selectable/settable. ◆:When the Eye Control switch is ON, Eye Control information is incorporated for automatic focusing point selection.
** PIC is the abbreviation for Programmed Image Control mode.
*** The AF-assist light can be disabled by a C.Fn.

**Table 1-3 Feature Availablity Table**

| Function | Custom Function No. | Setting | Silent | New | From EOS ELAN II E / EOS 50 E | Remarks |
|---|---|---|---|---|---|---|
| Film rewind speed | C.Fn-1 | 0 | Low speed (silent) | | ● | 1: Useful when you need to replace the film quickly. |
| | | 1 | High speed | | ● | |
| Film leader position after film rewind | C.Fn-2 | 0 | Rewinds film leader into the cartridge. | | ● | 1: Convenient when you want to develop your own film. |
| | | 1 | Leaves film leader outside the cartridge. | | ● | |
| DX-coded film speed setting method | C.Fn-3 | 0 | Enabled. | | ● | 1: Useful when you want to set the actual film speed. You need not set the film speed each time you load film. |
| | | 1 | Disable | | ● | |
| (◯) Shutter button and (•) AE lock button functions | C.Fn-4 | 0 | (◯): AF and AE start, (•): AE lock. | | ● | 1: AE lock with shutter button pressed halfway.<br>2: Useful when you use AI Servo AF. |
| | | 1 | (◯): AE lock, (•): AF and AE start. | | ● | |
| | | 2 | (◯): AF and AE start, (•): AF stop. | ● | | |
| Mirror lockup | C.Fn-5 | 0 | Disabled (Normal operation). | ● | | 1: Useful for closeups, super telephoto shots, etc. A tripod is required. (Not limited to self-timer and remote control operations like the EOS ELAN II E |
| | | 1 | Enabled. | ● | | |
| Shutter curtain sync w/ built-in/external flash | C.Fn-6 | 0 | 1st-curtain sync (Normal operation) | | ● | 1: When used with a slow sync speed, the subject's light trail can be captured. (Effective with the built-in flash, SPEEDLITE 420EX, 380EX, and 220EX.) |
| | | 1 | 2nd-curtain sync | | ● | |
| AF-assist light emission / Main flash firing | C.Fn-7 | 0 | Built-in/external flash: Emits AF-assist/Fires main flash. | ● | | The AF-assist light can be enabled or disabled and the main flash can also be enabled or disabled to suit the shooting conditions. |
| | | 1 | Built-in/external flash: No AF-assist/Fires main flash. | ● | | |
| | | 2 | Built-in flash: No AF-assist, External flash: AF-assist emitted Built-in/external flash: Fires main flash. | ● | | |
| | | 3 | Built-in/external flash: Emits AF-assist/No main flash. | ● | | |
| Partial metering linkage with focusing point/FE lock | C.Fn-8 | 0 | Disabled (Partial metering and FE lock at center focusing point). | | ● | 1: Useful when the light level of the subject and background differ greatly and you want to compose the shot properly. |
| | | 1 | Enabled. | | ● | |
| Flash sync speed in aperture-priority AE mode | C.Fn-9 | 0 | Set automatically. | | ● | 1: Useful when you need not care about the background exposure and just need the flash. |
| | | 1 | Set to 1/125 sec. | | ● | |
| In-focus focusing point flashing | C.Fn-10 | 0 | Enabled (superimposed). | | ● | 1: Useful if the lighting of the focusing point is distracting. |
| | | 1 | Disabled. | | ● | |
| Focusing point selection method | C.Fn-11 | 0 | Focusing point selector and keys | ● | | 1: It makes focusing point selection easier.<br>2: Same method as with the EOS-1V, EOS-3 |
| | | 1 | Direvtly with keys | ● | | |
| | | 2 | Focusing point selector and Main/Quick Control Dials | ● | | |
| Switch to center focusing point with focusing point selector | C.Fn-12 | 0 | Disabled. | ● | | 1: Convenient when you want to start with the center focusing point whenever you select a focusing point manually.<br>C.Fn-11-1: Automatic focusing point selection is disabled. |
| | | 1 | Enabled. (Starts from center focusing point) | ● | | |
| Lens AF stop button function | C.Fn-13 | 0 | AF stop. | ● | | 1: AF operates while the button is held down and stops when the button is released. AF cannot be operated with the camera.<br>2: Effective when metering has been activated with the camera.<br>3: Handy while you are using manual focusing point selection. Automatic focusing point selection takes effect only while you hold down the button. Let go of the button and manual focusing point selection returns.<br>4: Holding down the button switches to the other AF mode. Let go and the original AF mode is restored. This does not work for AI Focus AF.<br>5: This works when the Image Stabilizer switch has been turned on. AE is not executed. |
| | | 1 | AF start. | ● | | |
| | | 2 | AE lock during metering. | ● | | |
| | | 3 | Focusing point selection mode switching (Auto/Manual) | ● | | |
| | | 4 | AF mode switching (between One-Shot AF and AI Servo AF) | ● | | |
| | | 5 | Start Image Stabilizer. | ● | | |

**Table 1-4 Custom Functions**

# 5. ACCESSORY COMPATIBILITY TABLES

**1. Interchangeable Lenses**

◎ : Compatible. ●: Compatible under certain conditions. ✕: Not compatible.

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | EF14mm f/2.8 L | ◎ | |
| 002 | EF15mm f/2.8 FE | ◎ | |
| 003 | EF20mm f/2.8 USM | ◎ | |
| 004 | EF24mm f/1.4 L USM | ◎ | |
| 005 | EF24mm f/2.8 | ◎ | |
| 006 | EF28mm f/1.8 USM | ◎ | |
| 007 | EF28mm f/2.8 | ◎ | |
| 008 | EF35mm f/1.4 L USM | ◎ | |
| 009 | EF35mm f/2 | ◎ | |
| 010 | EF50mm f/1.0 L USM | ◎ | |
| 011 | EF50mm f/1.4 USM | ◎ | |
| 012 | EF50mm f/1.8 | ◎ | |
| 013 | EF50mm f/1.8 II | ◎ | |
| 014 | EF50mm f/2.5 MACRO | ◎ | |
| 015 | MP-E 65mm f/2.8 1-5✕ | ◎ | |
| 016 | EF85mm f/1.2 L USM | ◎ | |
| 017 | EF85mm f/1.8 USM | ◎ | |
| 018 | EF100mm f/2 USM | ◎ | |
| 019 | EF100mm f/2.8 MACRO USM | ◎ | |
| 020 | EF100mm f/2.8 MACRO | ◎ | |
| 021 | EF135mm f/2 L USM | ◎ | |
| 022 | EF135mm 2.8 SF | ◎ | |
| 023 | EF180mm f/3.5L MACRO USM | ◎ | |
| 024 | EF200mm f/1.8 L USM | ◎ | |
| 025 | EF200mm f/2.8 L USM | ◎ | |
| 026 | EF200mm f/2.8 L II USM | ◎ | |
| 027 | EF300mm f/2.8 L IS USM | ◎ | |
| 028 | EF300mm f/2.8 L USM | ◎ | |
| 029 | EF300mm f/2.8 L II USM | ◎ | |
| 030 | EF300mm f/2.8 L III USM | ◎ | |
| 031 | EF300mm f/4 L IS USM | ◎ | |
| 032 | EF300mm f/4 L USM | ◎ | |
| 033 | EF400mm f/2.8 L IS USM | ◎ | |
| 034 | EF400mm f/2.8 L USM | ◎ | |
| 035 | EF400mm f/2.8 L II USM | ◎ | |
| 036 | EF400mm f/5.6 L USM | ◎ | |
| 037 | EF500mm f/4 L IS USM | ◎ | |
| 038 | EF500mm f/4.5 L USM | ◎ | |
| 039 | EF500mm f/4.5 L II USM | ◎ | |
| 040 | EF600mm f/4 L IS USM | ◎ | |
| 041 | EF600mm f/4 L USM | ◎ | |
| 042 | EF600mm f/4 L II USM | ◎ | |
| 043 | EF1200mm f/5.6 USM | ◎ | |
| 044 | EF17-35mm f/2.8 L USM | ◎ | |
| 045 | EF20-35mm f/2.8 L | ◎ | |
| 046 | EF20-35mm f/3.5-4.5 USM | ◎ | |
| 047 | EF22-55mm f/4-5.6 USM | ◎ | |
| 048 | EF24-85mm f/3.5-4.5 USM | ◎ | |
| 049 | EF28-70mm f/2.8 L USM | ◎ | |
| 050 | EF28-70mm f/3.5-4.5 | ◎ | |
| 051 | EF28-70mm f/3.5-4.5 II | ◎ | |
| 052 | EF28-80mm f/2.8-4 L USM | ◎ | |
| 053 | EF28-80mm f/3.5-5.6 | ◎ | |
| 054 | EF28-80mm f/3.5-5.6 II | ◎ | |
| 055 | EF28-80mm f/3.5-5.6 USM | ◎ | |
| 056 | EF28-80mm f/3.5-5.6 II USM | ◎ | |
| 057 | EF28-80mm f/3.5-5.6 III USM | ◎ | |
| 058 | EF28-80mm f/3.5-5.6 IV USM | ◎ | |
| 059 | EF28-80mm f/3.5-5.6 V USM | ◎ | |
| 060 | EF28-90mm f/4-5.6 | ◎ | |
| 061 | EF28-90mm f/4-5.6 USM | ◎ | |
| 062 | EF28-105mm f/3.5-4.5 USM | ◎ | |
| 063 | EF28-105mm f/3.5-4.5II USM | ◎ | |
| 064 | EF28-135mm f/3.5-5.6 IS USM | ◎ | |
| 065 | EF35-70mm f/3.5-4.5 | ◎ | |
| 066 | EF35-70mm f/3.5-4.5 A | ◎ | |
| 067 | EF35-80mm f/4-5.6 PZ | ◎ | |
| 068 | EF35-80mm f/4-5.6 | ◎ | |
| 069 | EF35-80mm f/4-5.6 II | ◎ | |
| 070 | EF35-80mm f/4-5.6 III | ◎ | |
| 071 | EF35-80mm f/4-5.6 USM | ◎ | |
| 072 | EF35-105mm f/3.5-4.5 | ◎ | |
| 073 | EF35-105mm f/4.5-5.6 | ◎ | |
| 074 | EF35-105mm f/4.5-5.6 USM | ◎ | |
| 075 | EF35-135mm f/3.5-4.5 | ◎ | |
| 076 | EF35-135mm f/4-5.6 USM | ◎ | |
| 077 | EF35-350mm f/3.5-5.6 L USM | ◎ | |
| 078 | EF38-76mm f/4.5-5.6 | ◎ | |
| 079 | EF50-200mm f/3.5-4.5 | ◎ | |
| 080 | EF50-200mm f/3.5-4.5 L | ◎ | |
| 081 | EF55-200mm f/4.5-5.6 USM | ◎ | |
| 082 | EF70-200mm f/2.8 L USM | ◎ | |
| 083 | EF70-200mm f/4 L USM | ◎ | |
| 084 | EF70-210mm f/4 | ◎ | |
| 085 | EF70-210mm f/3.5-4.5 USM | ◎ | |
| 086 | EF75-300mm f/4-5.6 | ◎ | |
| 087 | EF75-300mm f/4-5.6 II | ◎ | |
| 088 | EF75-300mm f/4-5.6 III | ◎ | |
| 089 | EF75-300mm f/4-5.6 USM | ◎ | |
| 090 | EF75-300mm f/4-5.6 II USM | ◎ | |
| 091 | EF75-300mm f/4-5.6 III USM | ◎ | |
| 092 | EF75-300mm f/4-5.6 IS USM | ◎ | |
| 093 | EF80-200mm f/2.8 L USM | ◎ | |
| 094 | EF80-200mm f/4.5-5.6 | ◎ | |
| 095 | EF80-200mm f/4.5-5.6 II | ◎ | |
| 096 | EF80-200mm f/4.5-5.6 USM | ◎ | |
| 097 | EF100-200mm f/4.5 A | ◎ | |
| 098 | EF100-300mm f/5.6- | ◎ | |
| 099 | EF100-300mm f/5.6 L | ◎ | |
| 100 | EF100-300mm f/4.5-5.6 USM | ◎ | |
| 101 | EF100-400mm f/4.5-5.6 IS USM | ◎ | |
| 102 | TS-E24mm f/3.5 L | ◎ | |
| 103 | TS-E45mm f/2.8 | ◎ | |
| 104 | TS-E90mm f/2.8 | ◎ | |
| 105 | Extender EF 1.4x | ◎ | |
| 106 | Extender EF 2x | ◎ | |
| 107 | Extension Tube EF12 | ◎ | |
| 108 | Extension Tube EF25 | ◎ | |
| 109 | Life-size Converter E | ◎ | |
| 110 | Lens Mount Converter FD-EOS | ● | *1 |
| 111 | Macro Lens Mount Converter FD-EOS | ● | *1 |
| 112 | Close-up Lens 250D | ◎ | |
| 113 | Close-up Lens 500D | ◎ | |
| 114 | Close-up Lens 500 | ◎ | |

**Table 1-5**

### 2. Speedlites

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | SPEEDLITE 420EX | ◎ | |
| 002 | 220EX | ◎ | |
| 003 | 380EX | ◎ | |
| 004 | 550EX | ◎ | |
| 005 | ST-E2 | ◎ | |
| 006 | 480EG | ◎ | |
| 007 | 540EZ | ◎ | |
| 008 | 430EZ | ◎ | |
| 009 | 420EZ | ◎ | |
| 010 | 300EZ | ◎ | |
| 011 | 200E | ◎ | |
| 012 | MR-14EX | ◎ | |
| 013 | ML-3 | ◎ | |
| 014 | Wired System Accessories | ◎ | |

### 3. EOS Camera Cases

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | EOS ELAN 7 E / EOS 30 case | ◎ | |
| 002 | EOS-1V/EOS-3 cases | × | |
| 003 | EOS A2/A2E case | × | |
| 004 | EOS Elan II/Elan II E/50/50 E/55 case | × | |
| 005 | EOS 300/Rebel 2000/EOS Kiss III case | × | |
| 006 | EOS-1N case | × | |
| 007 | EOS-1 case | × | |
| 008 | EOS 10S/10 case | × | |
| 009 | EOS ELAN / EOS 100/ELAN case | × | |
| 010 | EOS Rebel G/500 N/New EOS Kiss case | × | |
| 011 | EOS 650/620/630 case | × | |
| 012 | EOS IX E case | × | |
| 013 | EOS IX 7/IX Lite/IX 50 case | × | |

### 4. Remote Control

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | Remote Switch 60T3 | × | |
| 002 | Remote Switch RS-60E3 | ◎ | |
| 003 | Remote Switch RS-80N3 | × | |
| 004 | Timer Remote Controller TC-80N3 | × | |
| 005 | Remote Controller RC-1 | ◎ | |
| 006 | Wireless Controller LC-3 | × | |
| 007 | Wireless Controller LC-4 | × | |

### 5. Grips and Motor Drives

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | BATTERY PACK BP-300 | ◎ | |
| 002 | GR10 | × | |
| 003 | GR20 | × | |
| 004 | GR50 | × | |
| 005 | GR60 | × | |
| 006 | GR70 | × | |
| 007 | VG10 | × | |
| 008 | GR-100TP | × | |
| 009 | GR-80TP | × | |
| 010 | GR-E1 | × | |
| 011 | PB-E1 | × | |
| 012 | PB-E2 | × | |
| 013 | BP-E1 | × | |
| 014 | BP-5/B | × | |
| 015 | BP-50 | × | |
| 016 | BP-200 | × | |
| 017 | BP-8 | × | |

### 6. Viewfinder Accessories

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | Eyecup E | × | |
| 002 | Eyecup Eb | × | |
| 003 | Eyecup Ec | × | |
| 004 | Eyecup Ec-II | × | |
| 005 | Eyecup Ed | ◎ | |
| 006 | Eyecup Ed-E | × | |
| 007 | Eyecup Ee | × | |
| 008 | Anti-fog Eyepiece Ec | × | |
| 009 | Anti-fog Eyepiece Ed | ◎ | |
| 010 | Dioptric adjustment lens E | × | |
| 011 | Dioptric adjustment lens Ed | × | |
| 012 | Dioptric adjustment lens Ee | × | |
| 013 | Rubber Frame Ec | × | |
| 014 | Rubber Frame Eb | × | |
| 015 | Focusing Screen E | × | |
| 016 | Focusing Screen Ec | × | |
| 017 | Focusing Screen Ed | × | |
| 018 | Magnifier S | ◎ | |
| 019 | Angle Finder B | ◎ | |
| 020 | Angle Finder C | ◎ | |
| 021 | Angle Finder Adapter Ed | × | |
| 022 | Angle Finder Adapter EdII | ◎ | |
| 023 | Eyepiece Extender EP-EX15 | × | |

### 7. Data Backs

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | Quartz Date Back E | × | |
| 002 | Quartz Date Back DB-E2 | × | |
| 003 | Technical Back E | × | |
| 004 | Keyboard Unit TB | × | |
| 005 | Interface Unit TB | × | |
| 006 | Command Back E1 | × | |

### 8. Other Accessories

| No. | Accessory | Status | Remarks |
|---|---|---|---|
| 001 | Panorama Adapter PA-1000 | ● | *2 |

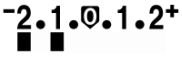
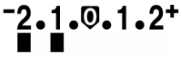
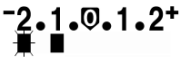
*1: Compatible in manual exposure mode.
(Officially stated as incompatible due to the exposure error that occurs.)

*2: Although attachment is physically possible, it is not recommended because there will be no panorama masking lines in the viewfinder and the date imprinting will not be compatible.

# 6. OPERATION CAUTIONS

■: Items to be mentioned in the Instructions. ◆: Indicates countermeasures.

| Caution | Explanation and Remarks |
|---|---|
| ■ 1. When the built-in flash is used, any lens hood must be detached. | An attached lens hood will obstruct part of the built-in flash coverage. ◆ Use an external flash unit. |
| ■ 2. The built-in flash's maximum coverage suits 28mm and longer lenses. Therefore, if the lens is shorter than 28mm, there will be light fall-off along the periphery. | As per the design.<br>◆ When using the built-in flash, do not use a lens shorter than 28mm.<br>◆ To obtain wider flash coverage, use Speedlite 550EX or 540EZ. |
| ■ 3. While the built-in flash is used or recycling, the electronic focusing ring for manual focusing on USM lenses cannot be used. | As per the design.<br>(Power cannot be supplied to the built-in flash and lens.) |
| ■ 4. 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 always fire and the exposure will be controlled by the autoflash program. |
| ■ 5. Before attaching an external Speedlite to the camera, the camera's built-in flash must be retracted. | This is to prevent the external Speedlite's AF-assist emitter from hitting the built-in flash's cover. |
| ■ 6. In the P, Tv, Av, M, or DEP mode, the AF-assist light will not be emitted in low light unless the built-in flash is popped up manually. | As per the design. |
| ■ 7. If an external Speedlite other than SPEEDLITE 420 EX is attached and an off-center focusing point is selected, AF-assist light might not be emitted or it might be emitted but fails to assist focus. | As per the design.<br>(The AF-assist beam is not linked to the seven focusing points.)<br>With 550EX, 540EZ, and ST-E2:<br>AF will fail if the top or bottom focusing point is selected.<br>With other Speedlites:<br>AF-assist beam is not emitted when an off-center focusing point is manually selected. (During automatic focusing point selection, focus can be achieved only with the center focusing point.) |
| ■ 8. Infrared film cannot be used. | The photo reflector (used to detect the film perforation) emits infrared light which will expose infrared film. |
| ■ 9. If film is loaded while the Command Dial is set to OFF, automatic film advance to frame 1 will not be executed. | When the Command Dial is turned to any setting except OFF, the film advances to frame 1 automatically. |

| | |
|---|---|
| ■ 10. When the Command Dial is turned to the P, Tv, Av, or DEP mode (which executes automatic film advance to frame 1) and AEB has been set together with exposure compensation exceeding the exposure level scale, the AEB and exposure compensation will still take effect. However, the setting will be displayed on the exposure level scale as shown on the right. | Indicates AEB of ±1 stop.  <br>Indicates ±1-stop AEB and -1-stop exposure compensation.  <br>Indicates ±1-stop AEB and -1.5-stop exposure compensation.  <br>Indicates ±1-stop AEB and -2-stop exposure compensation.  |
| ■ 11. In the M mode, when AEB is set and the exposure (shutter speed and aperture) set by the user results in underexposure by more than 2 stops, the AEB amount will still take effect. However, the setting will be displayed on the exposure level scale as shown on the right. | Indicates -2-stop exposure compensation.  <br>Indicates exposure compensation exceeding -2 stops.  |
| ■ 12. When C.Fn-4-1/2 is set, FE lock will be disabled. | As per the design. |
| ■ 13. During mirror lockup with C.Fn-5-1, do not point the camera lens toward the sun or other bright light source. | This is to prevent the shutter curtains from scorching and to prevent stray light from entering. |
| ■14. During automatic focusing point selection, AI Servo AF, and continuous shooting, the continuous 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. Time is required for refocusing, causing the irregular shooting speed. |
| ■ 15. When an external Speedlite is attached and AI Servo AF is set, the AF-assist light is disabled. | As per the design.<br>(One-Shot AF is recommended for flash photography.) |

# 7. EF LENS COMPATIBILITY WITH THE BUILT-IN FLASH

## 7.1 SINGLE LENS

◎ : No problem even with the designated hood attached.
△ : Flash coverage is obstructed by the attached hood, but no problem without the hood.
× : Incompatible. Flash coverage is obstructed with or without a hood attached.
— : Not applicable.

| No. | Lens | Hood | Shooting Distance (m) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 001 | EF14mm f/2.8 L | Built-in | — | — | — | — | — | — | — | — |
| 002 | EF15mm f/2.8 FE | Built-in | — | — | — | — | — | — | — | — |
| 003 | EF20mm f/2.8 USM | EW-75 II | — | — | — | — | — | — | — | — |
| 004 | EF24mm f/1.4 L USM | EW-83D II | — | — | — | — | — | — | — | — |
| 005 | EF24mm f/2.8 | EW-60 II | — | — | — | — | — | — | — | — |
| 006 | EF28mm f/1.8 USM | EW-63 II | — | △ | △ | △ | △ | △ | △ | △ |
| 007 | EF28mm f/2.8 | EW-65 II | — | △ | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 008 | EF35mm f/1.4 L USM | EW-78C | — | × | × | × | △ | △ | △ | △ |
| 009 | EF35mm f/2 | EW-65 II | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 010 | EF50mm f/1.0 L USM | ES-79 II | — | △ | △ | △ | △ | △ | △ | △ |
| 011 | EF50mm f/1.4 USM | ES-71 II | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 012 | EF50mm f/1.8 | ES-65 | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 013 | EF50mm f/1.8 II | ES-62 | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 014 | EF50mm f/2.5 MACRO | None | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| | (EF50mm f/2.5 MACRO+LSC) | — | — | — | — | — | — | — | — | — |
| 015 | MP-E 65mm f/2.8 1-5× | None | — | — | — | — | — | — | — | — |
| 016 | EF85mm f/1.2 L USM | ES-79 II | — | △ | △ | △ | △ | △ | △ | △ |
| 017 | EF85mm f/1.8 USM | ET-65 III | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 018 | EF100mm f/2 USM | ET-65 III | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 019 | EF100mm f/2.8 MACRO USM | ET-67 | — | △ | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 020 | EF100mm f/2.8 MACRO | None | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 021 | EF135mm f/2 L USM | ET-78 II | — | △ | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 022 | EF135mm 2.8 SF | ET-65 III | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 023 | EF180mm f/3.5 L MACRO USM | ET-78 II | — | △ | △ | △ | ◎ | ◎ | ◎ | ◎ |
| 024 | EF200mm f/1.8 L USM | ET-123 | — | — | — | × | × | × | × | × |
| 025 | EF200mm f/2.8 L USM | Built-in | — | — | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 026 | EF200mm f/2.8 L II USM | ET-83B II | — | — | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 027 | EF300mm f/2.8 L IS USM | ET-120 | — | — | — | × | × | × | × | × |
| 028 | EF300mm f/2.8 L USM | ET-118 II | — | — | — | × | × | × | × | × |
| 029 | EF300mm f/2.8 L II USM | ET-118 II | — | — | — | × | × | × | × | × |
| 030 | EF300mm f/2.8 L III USM | ET-118 II | — | — | — | × | × | × | × | × |
| 031 | EF300mm f/4 L IS USM | Built-in | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 032 | EF300mm f/4 L USM | Built-in | — | — | — | △ | ◎ | ◎ | ◎ | ◎ |
| 033 | EF400mm f/2.8 L IS USM | ET-155 | — | — | — | × | × | × | × | × |
| 034 | EF400mm f/2.8 L USM | ET-161B II | — | — | — | — | × | × | × | × |
| 035 | EF400mm f/2.8 L II USM | ET-161B II | — | — | — | — | × | × | × | × |
| 036 | EF400mm f/5.6 L USM | Built-in | — | — | — | — | ◎ | ◎ | ◎ | ◎ |
| 037 | EF500mm f/4 L IS USM | ET-138 | — | — | — | — | — | × | × | × |
| 038 | EF500mm f/4.5 L USM | ET-123B | — | — | — | — | — | × | × | × |
| 039 | EF500mm f/4.5 L II USM | ET-123B | — | — | — | — | — | × | × | × |
| 040 | EF600mm f/4 L IS USM | ET-160 | — | — | — | — | — | — | × | × |
| 041 | EF600mm f/4 L USM | ET-161 II | — | — | — | — | — | — | × | × |
| 042 | EF600mm f/4 L II USM | ET-161 II | — | — | — | — | — | — | × | × |
| 043 | EF1200mm f/5.6 USM | Built-in | — | — | — | — | — | — | — | — |
| 044 | TS-E24mm f/3.5 L | EW-75B II | — | — | — | — | — | — | — | — |
| 045 | TS-E45mm f/2.8 | EW-79B II | — | △ | △ | △ | △ | △ | △ | △ |
| 046 | TS-E90mm f/2.8 | ES-65 III | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |

**Table 1-6**

## 7.2 ZOOM LENS

◎ : No problem even with the designated hood attached.
△ : Flash coverage is obstructed by the attached hood, but no problem without the hood.
✕ : Incompatible. Flash coverage is obstructed with or without a hood attached.
— : Not applicable.

| No. | Lens | Hood | Shooting Distance (m) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | |
| | | | W | T | W | T | W | T | W | T | W | T | W | T | W | T |
| 047 | EF17-35mm f/2.8 L USM | EW-83C II | — | ✕ | — | ✕ | — | ✕ | — | ✕ | — | ✕ | — | ✕ | — | ✕ |
| 048 | EF20-35mm f/2.8 L | EW-75 | — | ✕ | — | ✕ | — | △ | — | △ | — | △ | — | △ | — | △ |
| 049 | EF20-35mm f/3.5-4.5 USM | EW-83 II | — | △ | — | △ | — | △ | — | △ | — | △ | — | △ | — | △ |
| 050 | EF22-55mm f/4-5.6 USM | EW-60D | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ |
| 051 | EF24-85mm f/3.5-4.5 USM | EW-73 II | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ |
| 052 | EF28-70mm f/2.8 L USM | EW-83B II | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ |
| 053 | EF28-70mm f/3.5-4.5 | EW-68A | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 054 | EF28-70mm f/3.5-4.5 II | EW-68A | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 055 | EF28-80mm f/2.8-4 L USM | EW-79 | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ |
| 056 | EF28-80mm f/3.5-5.6 | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 057 | EF28-80mm f/3.5-5.6 II | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 058 | EF28-80mm f/3.5-5.6 USM | EW-68A | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 059 | EF28-80mm f/3.5-5.6 II USM | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 060 | EF28-80mm f/3.5-5.6 III USM | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 061 | EF28-80mm f/3.5-5.6 IV USM | EW-60C | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 062 | EF28-80mm f/3.5-5.6 V USM | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 063 | EF28-90mm f/4-5.6 | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 064 | EF28-90mm f/4-5.6 USM | EW-60C | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 065 | EF28-105mm f/3.5-4.5 USM | EW-63 II | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 066 | EF28-135mm f/3.5-5.6 IS USM | EW-78B II | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | ◎ | ✕ | ◎ | ✕ | ◎ | ✕ | ◎ |
| 067 | EF28-200mm f/3.5-5.6 | EW-78D | △ | △ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 068 | EF28-200mm f/3.5-5.6 USM | EW-78D | △ | △ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 069 | EF35-70mm f/3.5-4.5 | EW-68B | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 070 | EF35-70mm f/3.5-4.5 A | EW-68B | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 071 | EF35-80mm f/4-5.6 PZ | None | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 072 | EF35-80mm f/4-5.6 | EW-62 | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 073 | EF35-80mm f/4-5.6 II | EW-54 II | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 074 | EF35-80mm f/4-5.6 III | EW-54 II | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 075 | EF35-80mm f/4-5.6 USM | EW-54 II | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 076 | EF35-105mm f/3.5-4.5 | EW-68B | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 077 | EF35-105mm f/4.5-5.6 | EW-68B | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 078 | EF35-105mm f/4.5-5.6 USM | EW-60B | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 079 | EF35-135mm f/3.5-4.5 | EW-68B | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 080 | EF35-135mm f/4-5.6 USM | EW-62 | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 081 | EF35-350mm f/3.5-5.6 L USM | EW-78 II | ✕ | — | ✕ | — | ✕ | △ | ✕ | ◎ | ✕ | ◎ | ✕ | ◎ | ✕ | ◎ |
| 082 | EF38-76mm f/4.5-5.6 | EW-54 II | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 083 | EF50-200mm f/3.5-4.5 | ET-62 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 084 | EF50-200mm f/3.5-4.5 L | ET-62 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 085 | EF55-200mm f/4.5-5.6 USM | ET-54 | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 086 | EF70-200mm f/2.8 L USM | ET-83 II | — | — | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ | ✕ | △ |
| 087 | EF70-200mm f/4 L USM | ET-74 | — | — | ✕ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 088 | EF70-210mm f/4 | ET-62 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 089 | EF70-210mm f/3.5-4.5 USM | ET-65 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ |
| 090 | EF75-300mm f/4-5.6 | ET-65 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 091 | EF75-300mm f/4-5.6 II | ET-60 | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 092 | EF75-300mm f/4-5.6 III | ET-60 | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 093 | EF75-300mm f/4-5.6 USM | ET-60 | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 094 | EF75-300mm f/4-5.6 II USM | ET-60 | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 095 | EF75-300mm f/4-5.6 III USM | ET-60 | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 096 | EF75-300mm f/4-5.6 IS USM | ET-64 II | — | — | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | △ | ◎ | ◎ | ◎ |
| 097 | EF80-200mm f/2.8 L USM | ES-79 | — | — | ✕ | △ | △ | △ | △ | △ | △ | ◎ | △ | ◎ | △ | ◎ |
| 098 | EF80-200mm f/4.5-5.6 | ET-62 II | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 099 | EF80-200mm f/4.5-5.6 II | ET-54 | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 100 | EF80-200mm f/4.5-5.6 USM | ET-54 | — | — | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 101 | EF100-200mm f/4.5 A | ET-62 II | — | — | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 102 | EF100-300mm f/5.6 | ET-62 II | — | — | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 103 | EF100-300mm f/5.6 L | ET-62 II | — | — | △ | ◎ | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 104 | EF100-300mm f/4.5-5.6 USM | ET-65 III | — | — | △ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| 105 | EF100-400mm f/4.5-5.6 IS USM | ET-83C | — | — | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ | △ |

**Table 1-7**

# 8. COMPARISON WITH COMPETINGMODELS

| ↓ Item | Manufacturer → | | Canon | Nikon | Minolta | Pentax |
|---|---|---|---|---|---|---|
| | Camera → | | EOS ELAN 7 E / EOS 30 QD | F 70D | 507si | MZ-3 |
| AF | Focusing Points | | | [ + ] wide | [ \| - \| ] | [ \| - \| ] |
| | Selection Modes | Eye Control | ● | — | — | — |
| | | Automatic | ● | — | ● | ● |
| | | Manual | ● | ● (wide/spot) | ● (wide/spot) | ● (wide/spot) |
| | AF Modes | One-Shot | ● | ● | ● | — |
| | | AI Servo | ● | ● | ● | — |
| | | AI Focus | ● | — | ● | ● |
| | Working Range (EV at ISO 100) | | 1-18 | -1 - 19 | -1 - 19 | -1 - 18 |
| | Orientation Detection | | ● | — | — | — |
| AF-Assist Light | Type | | Intermittent flash | — | Intermittent flash | — |
| | Coverage (mm) | | 28 | — | 28 | — |
| | Effective Range (m) | | 4 | — | 5 | — |
| Viewfinder | Type | | Pentaprism | Pentaprism | Pentaprism | Pentaprism |
| | Coverage (%) | | 90 × 92 | 92 | 90 × 94 | 92 |
| | Magnification | | 0.70 | 0.77 | 0.75 | 0.8 |
| | Eye Relief (mm) | | 19.5 | 18 | 18.4 | |
| | Built-in Dioptric Adjustment (dpt) | | ● (-2.5 - +0.5) | — | ● (-2.5 - +0.5) | ● (-2.5 - +0.5) |
| | In-focus Indicator | | Superimposed LED | LCD | LCD | LCD |
| | Depth-of-field Preview | | ● | — | ● | ● |
| | Panorama Feature (Mask type) | | — | ● (Lines + LED) | — | ● (Mask) |
| Metering | Evaluative Metering Zones/Focusing Point Linkage | | 35/ ● | 8 | 14/ ● | 6 / — |
| | Spot Metering | | — | ● | ● | ● |
| | Partial Metering | | ● | — | — | — |
| | Centerweighted (Averaging) | | ● | ● | ● | ● |
| | Metering Range (EV at 20˚C) | | 1-20 | -1 - 20 | 0 - 20 | 0 - 20 |
| Exposure Control | P/Tv/Av/M | | ● | ● | ● | ● |
| | Depth-of-field AE (DEP) | | ● | — | — | — |
| | Full Auto | | ● | ● | — | — |
| | Programmed Image Control Modes | | ● (5) | ● (8) | — | — |
| | Exposure Compensation (Increments, range) | Manual | ● (1/2 • ±2) | ● (1/3 • ±5) | ● (1/2 • ±3) | ● (1/2 • ±3) |
| | | AEB | ● (1/2 • ±2) | ● (1/3 • ±2/3) | ● (1/2 • ±0.5) | ● (1/2 • ±1) |
| | AE Lock | | ● | ● | ● | ● |
| | Flash Exposure System | | E-TTL/A-TTL/TTL | TTL (Multi-sensor) BLACK | TTL | TTL |
| | FE Lock | | ● | — | — | — |
| | Multiple Exposures (Max.) | | ● (9) | — | ● (9) | — |
| | ISO Speed Range | Auto | ● (25-5000) | ● (25-5000) | ● (6-6400) | ● (25-5000) |
| | | Manual | ● (6-6400) | ● (6-6400) | ● (6-6400) | ● (6-6400) |
| Shutter | Range (sec., increments) | | 1/4000-30,B • 1/2 | 1/4000-30,B • 1/3 | 1/4000-30,B • 1/2 | 1/4000-1,B • 1/1 |
| | X-sync Speed (sec.) | | 1/125 | 1/125 | 1/200 | 1/125 |
| Film Transport (24-ex.) | Fully Auto/Silent Advance | | ● / ● | ● / ● | ● / ● | ● / — |
| | Film Advance Modes | Single | ● | ● | ● | ● |
| | | Continuous | ● | ● | ● | ● |
| | Film Advance Speed (fps) | | 4 | 3.7 | 2 | 2 |
| | Film Rewind Time (sec.) | | 6 | 9 | 15 | 13 |
| | Midroll Rewind | | ● | ● | ● | ● |
| | Total Rolls (AE 100%/Flash 50%) | | 115/33 (with Eye Control) | 150 / 30 | 60 / 25 | |
| Built-in Flash | Guide No. (ISO 100 in m) | | 13 | 14 | 12 | 11 |
| | Coverage (mm) | | 28 | 28 | 28 | 28 |
| | Recycling Time (sec.) | | 2 | 3 | 2 | 3 |
| | Flash Metering Zones | | 4 | 5 | | |
| | Auto Pop-up/Retract | | ● / — | — / — | — / — | — / — |
| | Red-eye Reduction | | Lamp | Intermittent flash | Intermittent flash | Intermittent flash |
| | Flash Exposure Compensation (Increments, range) | | ● (1/2 • ±2) | ● (1/3 • -3 - +1) | ● (1/2 • ±2) | — |
| | FEB (Flash bracketing) | | — | ● (±1/3,1/2,2/3) | ● (1/2 • ±2) | — |
| Main Interface | | | Main Dial, Quick Control Dial | Electronic dial | Front and back electronic dials | Shutter dial |
| External Display | | | LCD | LCD | LCD | LCD |
| Custom Functions | | | 13 | — | — | — |
| Date Back (Power source) | | | ● (CR2025 × 1) | ● (CR2025 × 1) | ● (CR2025 × 1) | ● (CR2025 × 1) |
| Remote Control Terminal | | | ● | ● | ● | ● |
| Wireless Flash | | | — | — | ● | — |
| Exterior Material | | | Aluminum + mold | Mold | Mold | Mold |
| Mount Material | | | Metal | Metal | Metal | Metal |
| Power Source | | | CR123A × 2 | CR123A × 2 | 2CR5 × 1 | CR2 × 2 |
| Battery Pack | | | ● | — | ● | ● |
| Dimensions (W×H×D mm) | | | 146.7 × 103.0 × 69.0 | 151 × 103 × 71 | 156 × 98 × 73.5 | 135 × 90 × 61.5 |
| Weight (QD model excluding batteries) g | | | 580 | 600 | 585 | 425 |
| Marketing Date | | | Fall 2000 | 1999.11 | 1995.02 | 1997.07 |
| Price in Japan | | | — | 95,000 | 75,000 | 83,000 |

**Table 1-8**

# 9. OUTLINE OF MODEL WITH NO EYE CONTROL INPUT

The EOS ELAN 7 / EOS 33 has been planned and developed to expand this camera series. The only difference with the EOS ELAN 7 / EOS 33 is that it has no Eye Control-related controls, displays, etc. All other specifications are the same as with the Eye Control model. Also, the Non-Eye Control model is available with or without a QD back.

## 9.1 SPECIFICATIONS

(Differences with the EOS ELAN 7 E / EOS 30)

- Exterior
  - No Eye Control switch (including printed markings).
- Viewfinder display
  - No Eye Control icon (All other indicators are in the same position as in the Eye Control model.)
  - No CAL display.
- LCD panel (Identical)
  - No CAL display.
- Specifications
  - ■ No Eye Control AF (One-Shot/AI Servo AF) functions.
    - * No calibration function.
    - * No function executed by pressing the AE lock button + Focusing point selector (deletion of CAL information).
    - * No new AF algorithm for the Full Auto mode (+ Eye Control SW-ON: Not provided).
    - * No Eye Control DEP mode.
  - ■ Battery service life: Same as the Eye Control model when Eye Control is OFF.
  - ■ Weight: QD: 575 g/20.3 oz. / Non-QD: 570 g/20.1 oz.3. Detailed Design Specifications

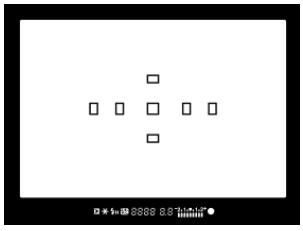


**Fig. 1-21 Viewfinder**


**Fig. 1-22 EOS ELAN 7 E / EOS 30 Exterior**

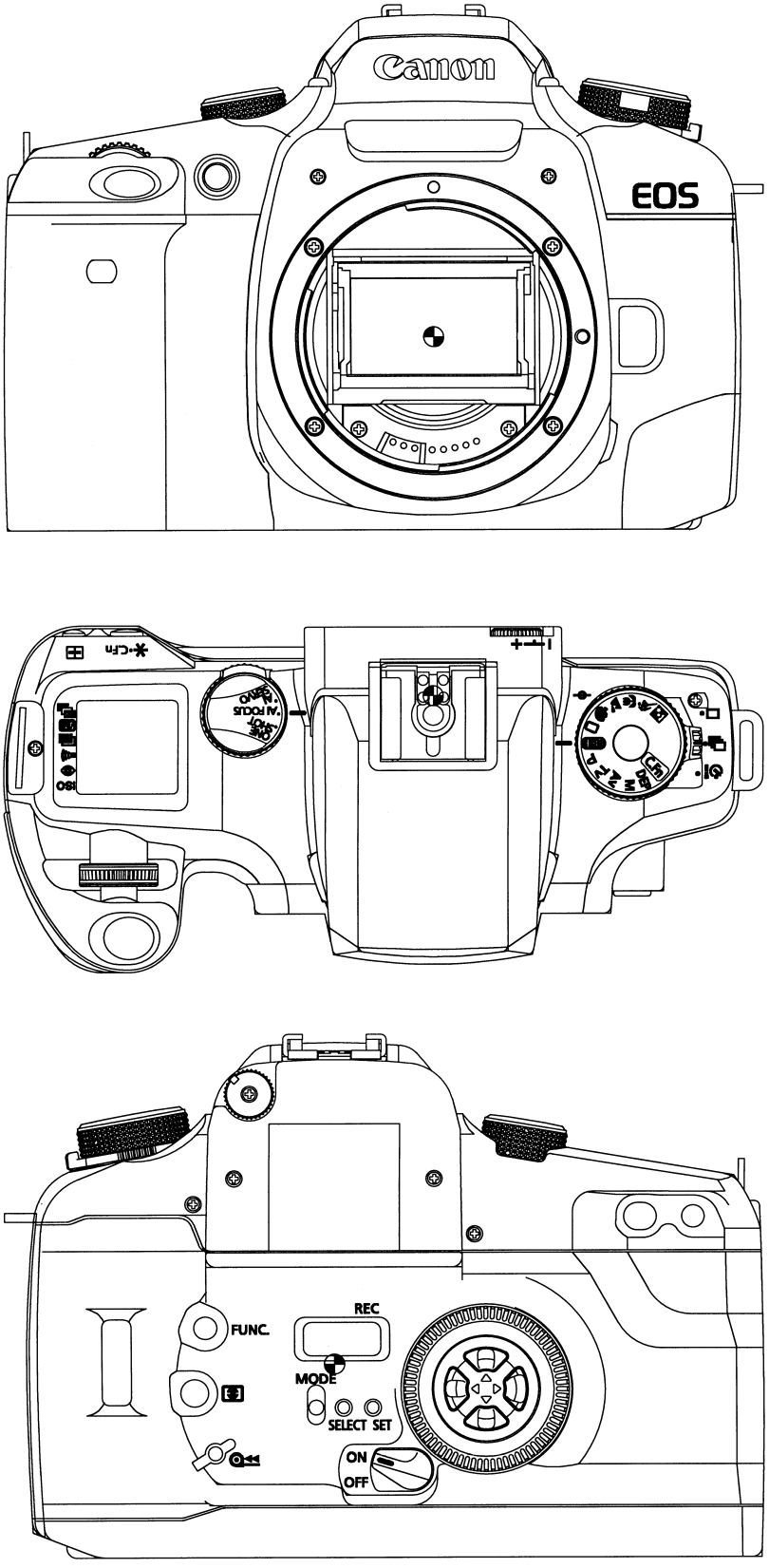



**Fig. 1-23 Three External Views**

# 10. NEW ACCESSORIES

The following system accessories have been developed at the same time as the camera.

### (1) SPEEDLITE 420EX (Shoe-mounted Speedlite)

Developed as the successor to the 380EX, the SPEEDLITE 420EX has an autozoom head, maximum Guide No. 42 (with 105mm lens at ISO 100 in meters), and E-TTL autoflash metering. While retaining the 380EX's best features, it has additional features such as AF-assist light linked to 7 focusing points, horizontal bounce flash, and wireless slave unit setting. The size (volume) is also about 10 percent smaller.


**Fig. 1-24 Exterior of 420EX.**

### (2) BATTERY PACK BP-300 (Battery pack with vertical-grip shutter button)

Dedicated to the EOS ELAN 7 E / EOS 30, this battery pack attaches to the camera bottom. The vertical grip has a shutter button and AE/FE lock button. It houses four size-AA batteries (Ni-Cd or nickel hydride only, lithium cannot be used). Also, by moving the built-in spacer in the battery chamber, the EOS ELAN 7 E / EOS 30's two CR123A batteries can also be used.


**Fig. 1-25 BATTERY PACK BP-300 attached to the camera.**

### (3) EF 28-105mm f/3.5-4.5 II USM

This lens has only a few cosmetic changes compared to the EF 28-105mm f/3.5-4.5 USM. It is the EOS ELAN 7 E / EOS 30's best-matching lens. The optical specifications are the same as the older lens.

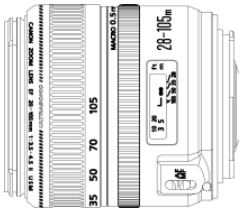



**Fig. 1-26 EF 28-105mm f/3.5-4.5 II USM**

### (4) Wide Strap EW-100BK

Wide shoulder strap (with eyepiece cover) that comes with the EOS ELAN 7 E / EOS 30. Compared to the EW-100BB, the major differences are in the belt portion which has a different design and the use of a different material for a luxury feel. It also has a non-slip surface.

### (5) Semi-hard Case EH14-L

The case was designed to accommodate the camera attached with the EF 28-105mm f/3.5-4.5 II USM. It is the quick-opening type.
Only the L size is available.

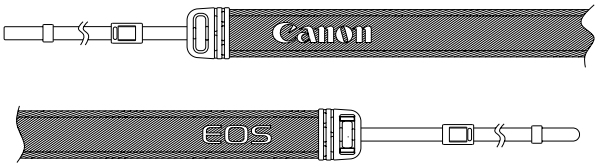



**Fig. 1-27 EW-100BK**


**Fig. 1-28 EH14-L**

# 10.1 BATTERY PACK BP-300

## 10.1.1 Overview

Developed at the same time as the EOS ELAN 7 E / EOS 30, this EOS ELAN 7 E / EOS 30-dedicated battery pack features a shutter button and AE lock button on the vertical grip. It houses four size-AA alkaline, Ni-Cd, or Ni-MH batteries. (Size-AA lithium batteries cannot be used.) Also, a battery spacer in the battery chamber can be propped up to enable two CR123A lithium batteries (which also powers the camera) to be used.

## 10.1.2 Features

### (1) Compatible with four size-AA batteries or two CR123A lithium batteries

- Uses alkaline, Ni-Cd, or Ni-MH batteries.
- Uses CR123A lithium batteries.

### (2) Vertical-grip shutter button provided

- ON/OFF switch provided.

### (3) Vertical-grip AE/FE lock button provided

### (4) Compact and lightweight

- 152.4 (W) × 78.5 (H) × 67.3 (D) mm, 150 g (excluding batteries)

### (5) Built-in cover for electrical contacts

- The cover opens automatically when the battery pack is attached to the camera.
- When the battery pack is detached from the camera, the cover closes automatically to protect the contacts.

### (6) Hand strap eyelet and tripod socket provided (hand strap sold separately)


**Fig. 1-29 EOS ELAN 7 E / EOS 30 + BATTERY PACK BP-300**

## 10.1.3 Nomenclature

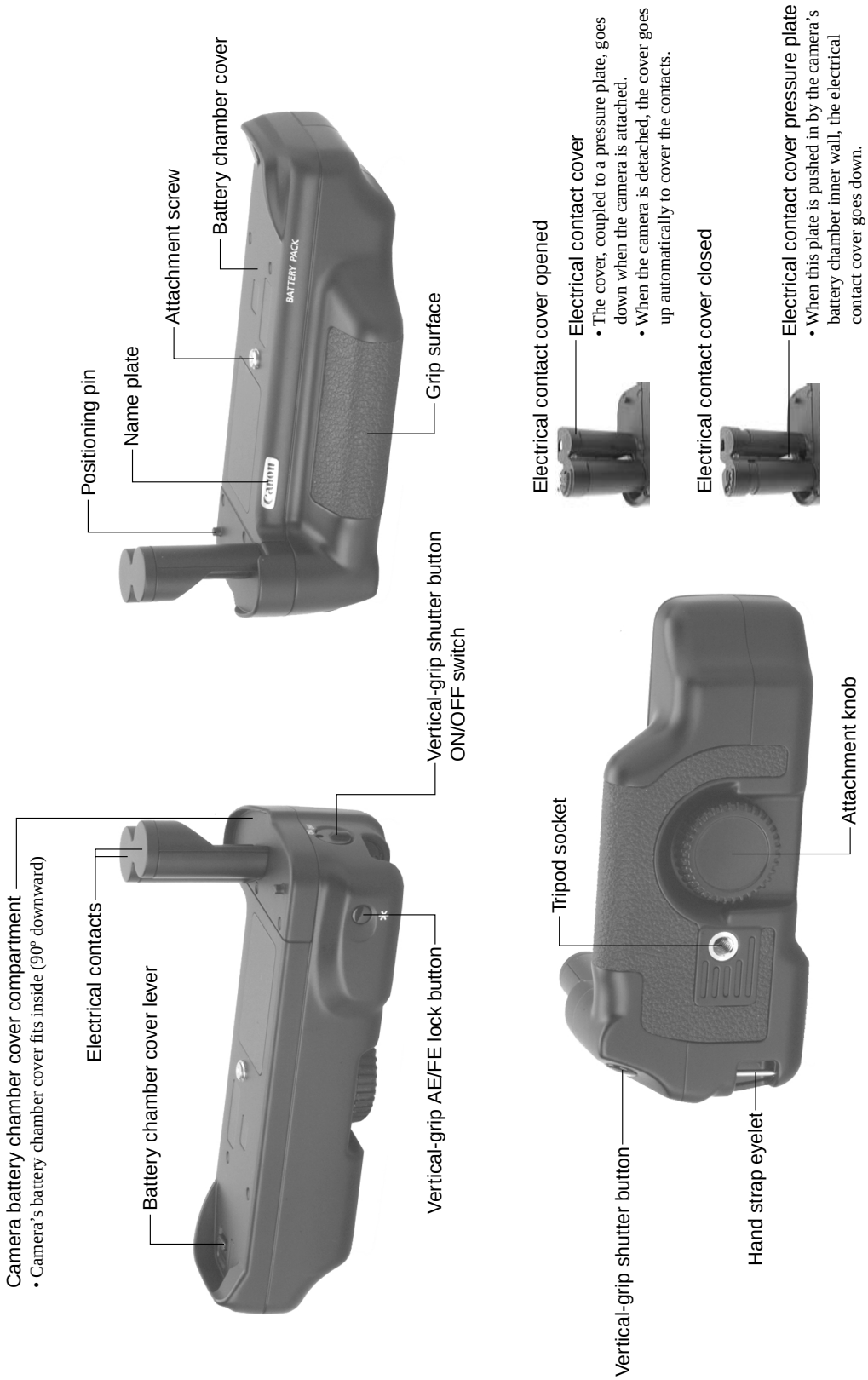



**Fig. 1-30**

### 10.1.4 Design Specifications

1. Type

| | |
|---|---|
| 1-1 Type: | Camera bottom-attached power pack with vertical-grip shutter button and AE/FE lock button. |

2. Configuration

| | |
|---|---|
| 2-1 Compatible Camera: | EOS ELAN 7 E / EOS 30 |
| 2-2 Components: | Battery magazine, battery chamber cover, battery chamber spacer, electrical contacts, electrical contact cover, shutter button, shutter button ON/OFF switch, AE lock button, attachment screw and knob, hand strap eyelet, and CU 1/4 tripod socket. |

3. Attachment to Camera

| | |
|---|---|
| 3-1 Attachment: | The EOS ELAN 7 E / EOS 30's two CR123A lithium batteries must first be removed. Then the BATTERY PACK BP-300's electrical contact tower is fitted into the camera's battery chamber. (The camera's battery chamber cover fits into a space in the BATTERY PACK BP-300.) The BATTERY PACK BP-300's attachment screw is screwed into the EOS ELAN 7 E / EOS 30's tripod socket. |
| 3-2 Signal transmission: | Conducted with four electrical contacts connected directly. |

4. Film Transport

| | |
|---|---|
| 4-1 Film Transport Mode: | As per the EOS ELAN 7 E / EOS 30 specifications. |
| 4-2 Film Transport Speed: | As per the EOS ELAN 7 E / EOS 30 specifications. |

4-3 Shooting Capacity: Refer to the table below. (Figures based on a new set of batteries with and without Eye Control use.)

(1) With size-AA alkaline batteries [24-ex. rolls]

| Temperature | Shooting Conditions | | |
|---|---|---|---|
| | AE 100% : FA 0% | AE 50% : FA 50% | AE 0% : FA 100% |
| At 20º C | 115 (125) | 30 (34) | 15 (17) |
| At -20º C | 0 (0) | 0 (0) | 0 (0) |

(2) With size-AA Ni-Cd batteries

| Temperature | Shooting Conditions | | |
|---|---|---|---|
| | AE 100% : FA 0% | AE 50% : FA 50% | AE 0% : FA 100% |
| At 20º C | 85 (93) | 24 (27) | 12 (13) |
| At -20º C | 50 (55) | 15 (17) | 7 (8) |

(3) With Ni-MH batteries

| Temperature | Shooting Conditions | | |
|---|---|---|---|
| | AE 100% : FA 0% | AE 50% : FA 50% | AE 0% : FA 100% |
| At 20º C | 140 (155) | 40 (45) | 20 (22) |
| At -20º C | 85 (95) | 25 (28) | 12 (13) |

* The testing conditions are as stipulated in the EOS ELAN 7 E / EOS 30 Technical Information.
* Size-AA lithium batteries cannot be used.
* The figures in parentheses apply when Eye Control is OFF.
* The shooting capacity with only CR123A 5 2 batteries is the same as when the battery pack is attached to the EOS ELAN 7 E / EOS 30.

4-4 Film Transport Noise: As per the EOS ELAN 7 E / EOS 30 specifications.

4-5 Continuous shooting speed: [frames per sec.]

| Power Source/AF Mode | ONE SHOT AF | AI SERVO AF |
|---|---|---|
| Lithium CR123A × 2 | Approx. 4 fps | Approx. 3.5 fps |
| Size-AA × 4 | Approx. 4 fps | Approx. 3 fps |

5. Controls:

(1) Shutter button
(2) Shutter button ON/OFF switch
(3) AE/FE lock button
(4) Battery chamber cover lever
(5) Attachment knob
(6) Battery chamber spacer

6. Power Source

6-1 Types:

(1) Four size-AA alkaline batteries (6 V)
(2) Four size-AA Ni-Cd batteries (4.8 V)
(3) Four size-AA Ni-MH batteries (4.8 V)
(4) Two size-AA CR123A lithium batteries (6 V)

* Size-AA lithium batteries (FR6) cannot be used.

| | |
|---|---|
| 6-2 Spacer: | The battery chamber spacer enables four size-AA batteries or two CR123A batteries to be loaded. (See Fig. 1-33.)<br>* When spacer is down, four size-AA batteries can fit inside. When the spacer is up, two CR123A batteries can fit inside. |
| 6-3 Battery check: | Battery check executed and displayed with the camera. |

7. Dimensions

BATTERY PACK BP-300 Only
152.4 (W) × 78.5 (H) × 67.3 (D) mm
6.0 (W) × 3.09 (H) × 2.65 (D) in
EOS ELAN 7 E / EOS 30 QD (or non-QD) + BATTERY PACK BP-300
152.4 (W) × 98.5 (H) × 70.5 (D) mm
6.0 (W) × 3.88 (H) × 2.78 (D) in.

8. Weight

BATTERY PACK BP-300 Only
150 g/ 5.3 oz
* The weight specifications above excludes batteries. To include the battery weight, add the following:
  • Four size-AA batteries: 100 g/3.53 oz
  • Two CR123A lithium batteries: 32 g/1.12 oz

9. Other Specifications

| | |
|---|---|
| 9-1 Material: | Mainly polycarbonate resin mixed with glass fiber |
| 9-2 Exterior Color: | Black (Leather-tone paint and synthetic-leather covering) |
| 9-3 Tripod socket: | CU 1/4 |
| 9-4 Electrical contact cover: | Built-in<br>* When pressure plate is pushed in by the camera's battery chamber inner wall, the electrical contact cover goes down to expose the electrical contacts.<br>* When the camera is detached, the cover goes up automatically to cover the contacts. |
| 9-5 Electrical contact protection cap: | Provided |
| 9-6 Hand strap: | Not provided (Hand Strap E1 attachable) |
| 9-7 Case: | None |

### 10.1.5 BATTERY PACK BP-300 External Dimensions

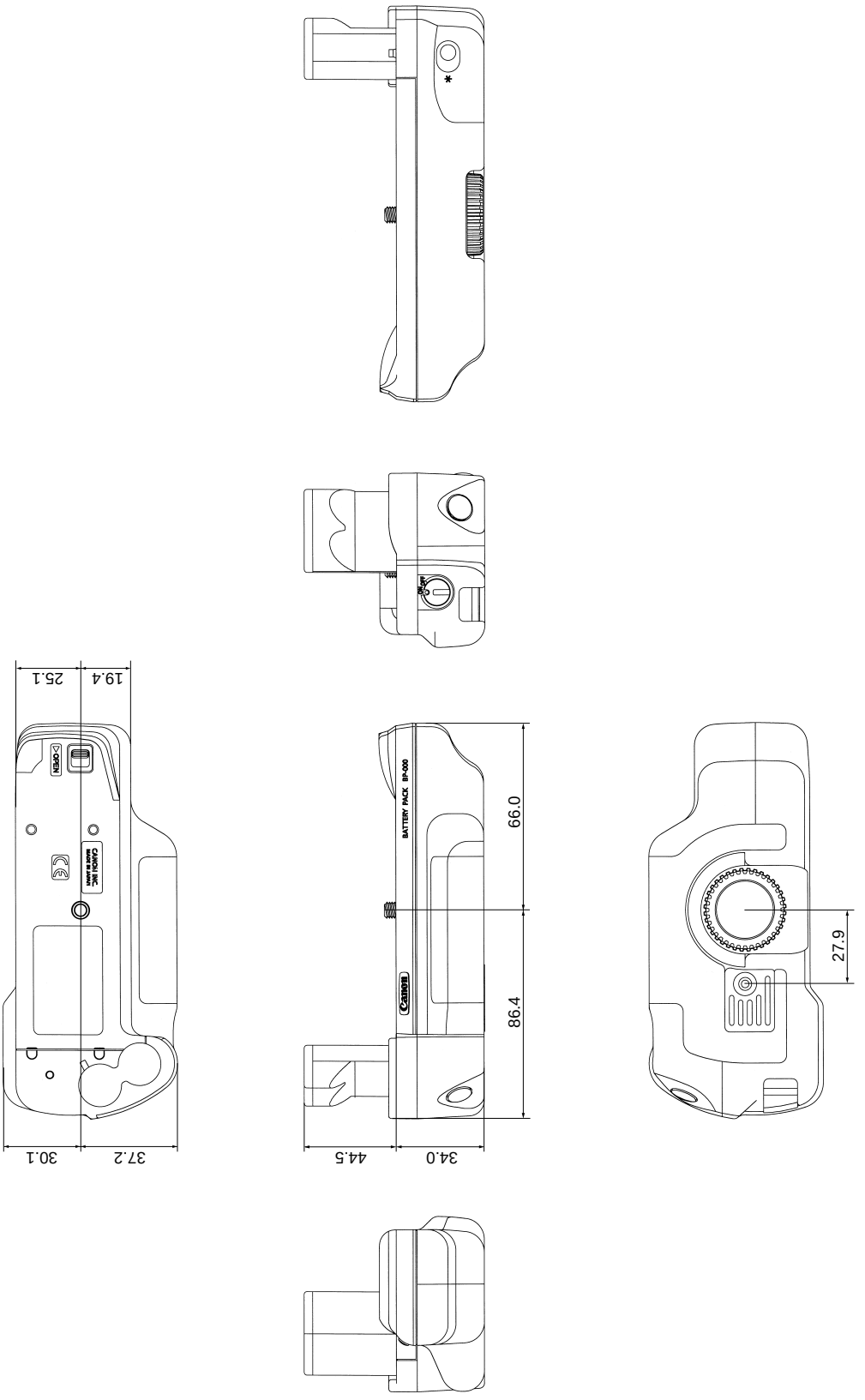



**Fig. 1-31**

### 10.1.5 EOS ELAN 7 E / EOS 30 + BATTERY PACK BP-300 External Dimensions

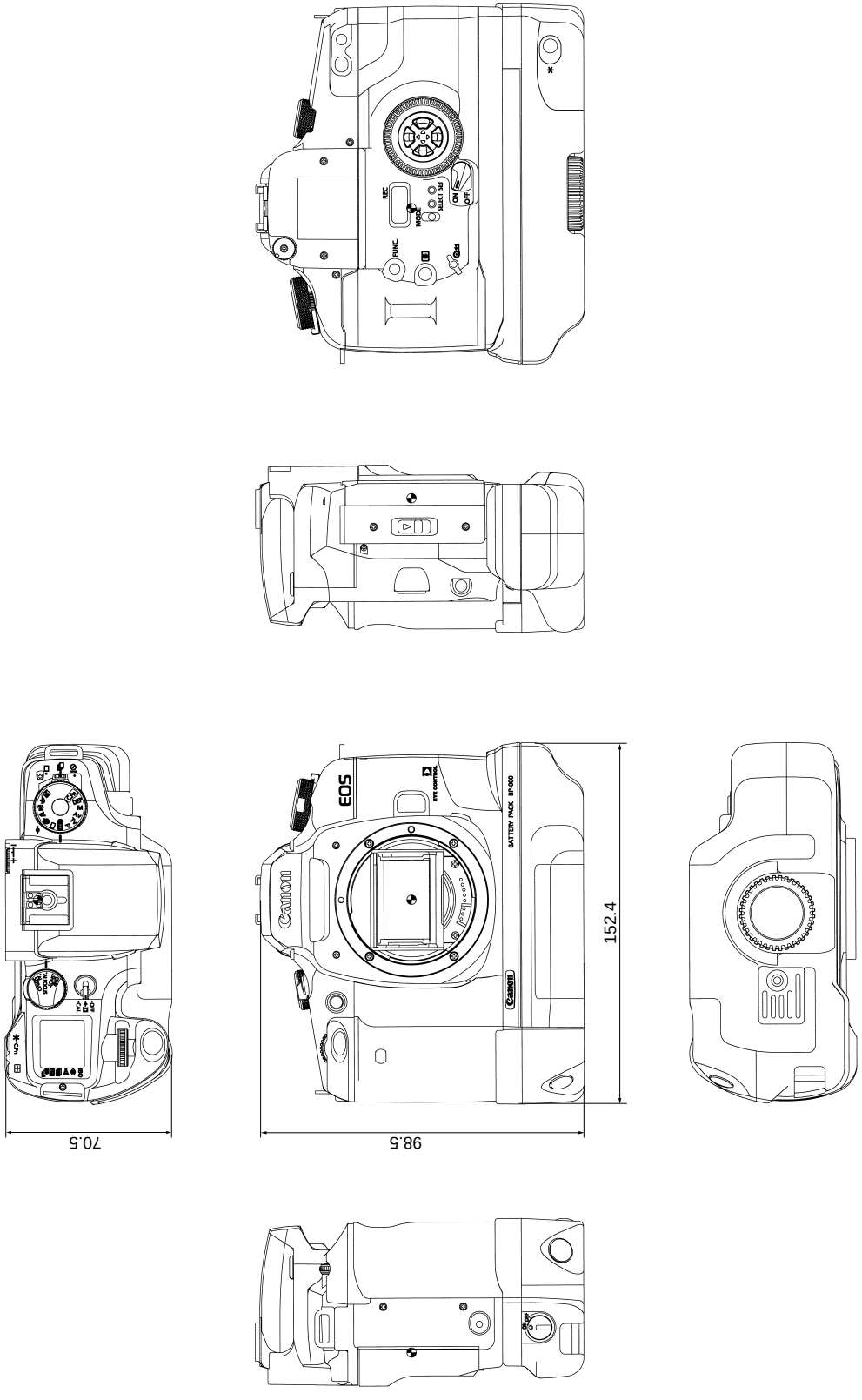
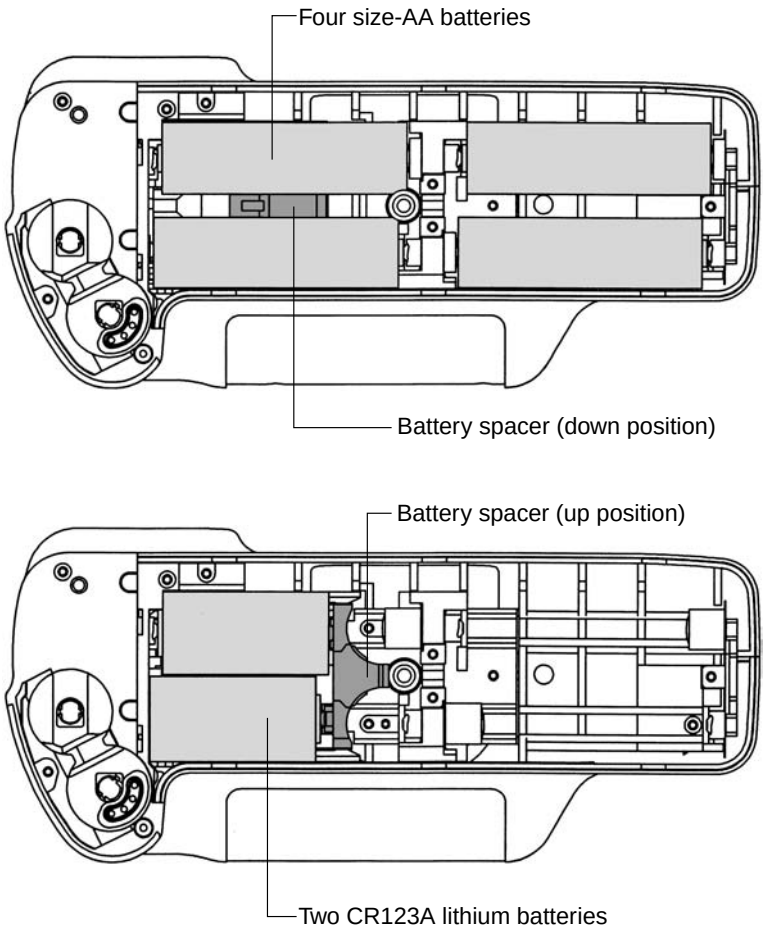
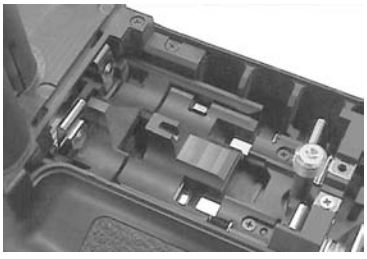



**Fig. 1-32**

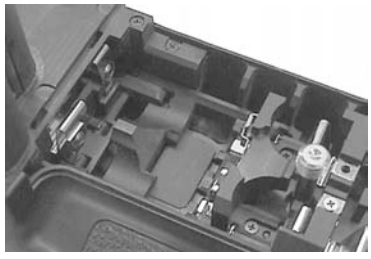
### 10.1.6 Battery Chamber




Spacer down



Spacer up



Battery Loading Procedure

1. Slide the battery chamber cover lever to OPEN and remove the battery chamber cover.
2. To load four size-AA batteries, set the battery spacer to the down position.
   To load two CR123A lithium batteries, pull up the battery spacer with your fingers.
3. While inserting the battery chamber cover's side protrusion into the camera, close the battery chamber cover and slide the battery chamber cover in the opposite direction of OPEN.

**Fig. 1-33**

# 10.2 SEMI HARD CASE & STRAP

## 10.2.1 Overview

The EH14-L is a semi-hard case for the EOS ELAN 7 E / EOS 30. It consists of a body case and a front case (snout). Only one size (L) is available (accommodates the EF 28-105mm f/3.5-5.6 II USM or EF 28-90mm f/4-5.6).

The EW-100BK is a wide shoulder strap that comes with the EOS ELAN 7 E / EOS 30. While based on the EW-100BB strap, it has a few improvements such as a modified belt design, a different material for a luxury feel, and non-slip pad.

## 10.2.2 Design Specifications

### (1) Semi-hard Case

| | |
|---|---|
| 1-1 Type: | Ever-ready, semi-hard, stitched case. |
| 1-2 Material and Color: | Exterior: Synthetic leather made of polyvinyl chloride (black).<br>Interior: French pile (black). |
| 1-3 Items Accommodable: | 1. Camera body, 2. Lens, 3. Filter, 4. Hood (attached in reverse), 5. Front lens cap |
| 1-4 Configuration: | Body case and front case<br>(Two hooks and Velcro taping fasten the two parts together)<br>Body case: Cardboard core on the sides and bottom. Tripod screw for attachment to camera.<br>Front case: Core material inside the front side up to the pentaprism part. Padding inside the top side. The other sides have an outer covering and inner lining only. |
| 1-5 Markings: | Body case: Bottom: Case designation (EH14) embossed.<br>Front case: Top: Canon nameplate made of ABS resin + Gold hot stamp<br>Bottom: Case designation (EH14-L) embossed. |
| 1-6 Dimensions & Weight: | 158.2 (W) × 119 (H) × 164 (D) mm, 185 g<br>6.23 (W) × 4.68 (H) × 6.46 (D) in., 6.53 oz. |


**Fig. 1-34 Exterior of EH14-L**

## (2) Wide Strap

| | |
|---|---|
| 2-1 Type: | Wide-type neck strap |
| 2-2 Material and Color: | Wide strap:Acrylic + nylon belt with herringbone weave<br>Eyepiece cover:Polyethylene (black)<br>Attachment strap:Polypropylene plain-weave belt (black). |
| 2-3 Dimensions: | Wide strap + eyepiece cover<br>610 (W) × 38 (H) × 2 (D) mm<br>24.02 (W) × 1.50 (H) × 0.08 (D) in.<br>Attachment strap<br>365 (W) × 10.5 (H) × 1.5 (D) mm<br>14.37 (W) × 0.41 (H) × 0.06 (D) in. |
| 2-4 Weight: | 50 g/1.76 oz. |
| 2-5 Misc.: | Eyepiece cover is the same as for the EW-100BB. |

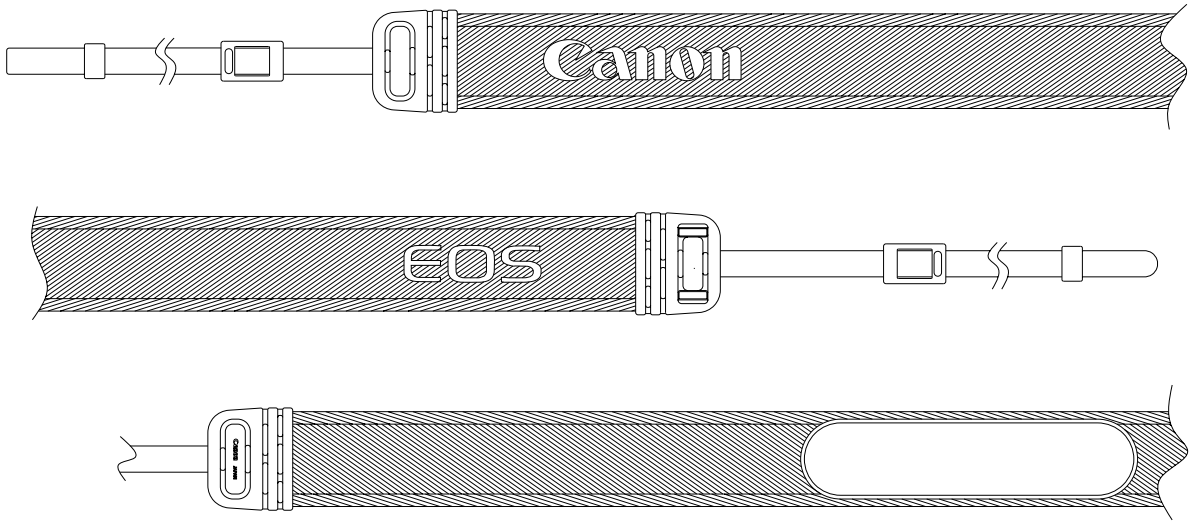



**Fig. 1-35 External Views of EW-100BK**

Accommodable Items: 1. Camera body, 2. Lens, 3. Front lens cap, 4. Hood, 5. Filter
Symbols: ○: Accommodable. △: Accommodable on condition (A: Slightly loose fit, B: Slightly tight fit).
▼: Accommodable without any filter and hood (1+2+3). ×: Not accommodable.

| No. | Lens | Hood | Full Compatibility (1-5) | Accommodable Items | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | 1+2+3 | 1+2+3+4 | 1+2+3+5 | |
| 001 | EF14mm f/2.8 L | Built-in | × | × | — | — | |
| 002 | EF15mm f/2.8 FE | Built-in | △A | △A | — | — | |
| 003 | EF20mm f/2.8 USM | EW-75 II | △B | ○ | △B | △B | |
| 004 | EF24mm f/1.4 L USM | EW-83D II | × | × | × | × | |
| 005 | EF24mm f/2.8 | EW-60 II | × | × | × | × | Too big. |
| 006 | EF28mm f/1.8 USM | EW-63 II | × | × | × | × | Too big. |
| 007 | EF28mm f/2.8 | EW-65 II | × | × | × | × | Too big. |
| 008 | EF35mm f/1.4 L USM | EW-78C | × | × | × | × | |
| 009 | EF35mm f/2 | EW-65 II | × | × | × | × | Too big. |
| 010 | EF50mm f/1.0 L USM | ES-79 II | × | × | × | × | |
| 011 | EF50mm f/1.4 USM | ES-71 II | × | × | × | × | Too big. |
| 012 | EF50mm f/1.8 | ES-65 | × | × | × | × | Too big. |
| 013 | EF50mm f/1.8 II | ES-62 | × | × | × | × | Too big. |
| 014 | EF50mm f/2.5 MACRO | None | △A | △A | — | △A | |
| | (EF50mm f/2.5 MACRO+LSC) | — | × | × | × | × | |
| 015 | MP-E 65mm f/2.8 1-5× | None | × | × | × | × | |
| 016 | EF85mm f/1.2 L USM | ES-79 II | × | × | × | × | |
| 017 | EF85mm f/1.8 USM | ET-65 III | ○ | ○ | ○ | ○ | |
| 018 | EF100mm f/2 USM | ET-65 III | ○ | ○ | ○ | ○ | |
| 019 | EF100mm f/2.8 MACRO USM | ET-67 | × | × | × | × | |
| 020 | EF100mm f/2.8 MACRO | None | × | × | — | × | |
| 021 | EF135mm f/2 L USM | ET-78 II | × | × | × | × | |
| 022 | EF135mm 2.8 SF | ET-65 III | × | × | × | × | |
| 023 | EF180mm f/3.5L MACRO USM | ET-78 II | × | × | × | × | |
| 024 | EF200mm f/1.8 L USM | ET-123 | × | × | × | × | |
| 025 | EF200mm f/2.8 L USM | Built-in | | | — | | |
| 026 | EF200mm f/2.8 L II USM | ET-83B II | × | × | × | × | |
| 027 | EF300mm f/2.8 L IS USM | ET-120 | × | × | × | × | |
| 028 | EF300mm f/2.8 L USM | ET-118 II | × | × | × | × | |
| 029 | EF300mm f/2.8 L II USM | ET-118 II | × | × | × | × | |
| 030 | EF300mm f/2.8 L III USM | ET-118 II | × | × | × | × | |
| 031 | EF300mm f/4 L IS USM | Built-in | × | × | — | × | |
| 032 | EF300mm f/4 L USM | Built-in | × | × | — | × | |
| 033 | EF400mm f/2.8 L IS USM | ET-155 | × | × | × | × | |
| 034 | EF400mm f/2.8 L USM | ET-161B II | × | × | × | × | |
| 035 | EF400mm f/2.8 L II USM | ET-161B II | × | × | × | × | |
| 036 | EF400mm f/5.6 L USM | Built-in | × | × | — | × | |
| 037 | EF500mm f/4 L IS USM | ET-138 | × | × | × | × | |
| 038 | EF500mm f/4.5 L USM | ET-123B | × | × | × | × | |
| 039 | EF500mm f/4.5 L II USM | ET-123B | × | × | × | × | |
| 040 | EF600mm f/4 L IS USM | ET-160 | × | × | × | × | |
| 041 | EF600mm f/4 L USM | ET-161 II | × | × | × | × | |
| 042 | EF600mm f/4 L II USM | ET-161 II | × | × | × | × | |
| 043 | EF1200mm f/5.6 USM | Built-in | × | × | — | × | |
| 044 | TS-E24mm f/3.5L | EW-75B II | × | × | × | × | |
| 045 | TS-E45mm f/2.8 | EW-79B II | × | × | × | × | |
| 046 | TS-E90mm f/2.8 | ES-65 III | × | × | × | × | |

**Table 1-9 Semi-Hard Case EH14-L Accommodation List**

Accommodable Items: 1. Camera body, 2. Lens, 3. Front lens cap, 4. Hood, 5. Filter
Symbols: ○: Accommodable. △: Accommodable on condition (A: Slightly loose fit, B: Slightly tight fit).
▼: Accommodable without any filter and hood (1+2+3). ×: Not accommodable.

| No. | Lens | Hood | Full Compatibility (1-5) | Accommodable Items | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | 1+2+3 | 1+2+3+4 | 1+2+3+5 | |
| 047 | EF17-35mm f/2.8 L USM | EW-83C II | × | × | × | × | |
| 048 | EF20-35mm f/2.8 L | EW-75 | × | × | × | × | |
| 049 | EF20-35mm f/3.5-4.5 USM | EW-83 II | ▼ | ○ | × | ○ | |
| 050 | EF22-55mm f/4-5.6 USM | EW-60D | × | × | × | × | Too big. |
| 051 | EF24-85mm f/3.5-4.5 USM | EW-73 II | ○ | ○ | ○ | ○ | |
| 052 | EF28-70mm f/2.8 L USM | EW-83B II | × | × | × | × | |
| 053 | EF28-70mm f/3.5-4.5 | EW-68A | ○ | ○ | ○ | ○ | |
| 054 | EF28-70mm f/3.5-4.5 II | EW-68A | ○ | ○ | ○ | ○ | |
| 055 | EF28-80mm f/2.8-4 L USM | EW-79 | × | × | × | × | |
| 056 | EF28-80mm f/3.5-5.6 | EW-60C | ○ | ○ | ○ | ○ | |
| 057 | EF28-80mm f/3.5-5.6 II | EW-60C | ○ | ○ | ○ | ○ | |
| 058 | EF28-80mm f/3.5-5.6 USM | EW-68A | ○ | ○ | ○ | ○ | |
| 059 | EF28-80mm f/3.5-5.6 II USM | EW-60C | ○ | ○ | ○ | ○ | |
| 060 | EF28-80mm f/3.5-5.6 III USM | EW-60C | ○ | ○ | ○ | ○ | |
| 061 | EF28-80mm f/3.5-5.6 IV USM | EW-60C | ○ | ○ | ○ | ○ | |
| 062 | EF28-80mm f/3.5-5.6 V USM | EW-60C | ○ | ○ | ○ | ○ | |
| 063 | EF28-90mm f/4-5.6 | EW-60C | ○ | ○ | ○ | ○ | |
| 064 | EF28-90mm f/4-5.6 USM | EW-60C | ○ | ○ | ○ | ○ | |
| 065 | EF28-105mm f/3.5-4.5 USM | EW-63 II | ○ | ○ | ○ | ○ | |
| 066 | EF28-135mm f/3.5-5.6 IS USM | EW-78B II | × | × | × | × | |
| 067 | EF28-200mm f/3.5-5.6 | EW-78D | × | × | × | × | |
| 068 | EF28-200mm f/3.5-5.6 USM | EW-78D | × | × | × | × | |
| 069 | EF35-70mm f/3.5-4.5 | EW-68B | △A | △A | △A | △A | |
| 070 | EF35-70mm f/3.5-4.5 A | EW-68B | △A | △A | △A | △A | |
| 071 | EF35-80mm f/4-5.6 PZ | None | ○ | ○ | — | ○ | |
| 072 | EF35-80mm f/4-5.6 | EW-62 | ○ | △A | ○ | ○ | |
| 073 | EF35-80mm f/4-5.6 II | EW-54 II | △A | △A | △A | △A | |
| 074 | EF35-80mm f/4-5.6 III | EW-54 II | △A | △A | △A | △A | |
| 075 | EF35-80mm f/4-5.6 USM | EW-54 II | △A | △A | △A | △A | |
| 076 | EF35-105mm f/3.5-4.5 | EW-68B | × | △B | △B | × | |
| 077 | EF35-105mm f/4.5-5.6 | EW-68B | ○ | △A | △A | ○ | |
| 078 | EF35-105mm f/4.5-5.6 USM | EW-60B | ○ | △A | △A | ○ | |
| 079 | EF35-135mm f/3.5-4.5 | EW-68B | × | × | × | × | |
| 080 | EF35-135mm f/4-5.6 USM | EW-62 | × | × | × | × | |
| 081 | EF35-350mm f/3.5-5.6 L USM | EW-78 II | × | × | × | × | |
| 082 | EF38-76mm f/4.5-5.6 | EW-54 II | ○ | ○ | ○ | ○ | |
| 083 | EF50-200mm f/3.5-4.5 | ET-62 II | × | × | × | × | |
| 084 | EF50-200mm f/3.5-4.5 L | ET-62 II | × | × | × | × | |
| 085 | EF55-200mm f/4.5-5.6 USM | ET-54 | × | × | × | × | |
| 086 | EF70-200mm f/2.8 L USM | ET-83 II | × | × | × | × | |
| 087 | EF70-200mm f/4 L USM | ET-74 | × | × | × | × | |
| 088 | EF70-210mm f/4 | ET-62 II | × | × | × | × | |
| 089 | EF70-210mm f/3.5-4.5 USM | ET-65 II | × | × | × | × | |
| 090 | EF75-300mm f/4-5.6 | ET-65 II | × | × | × | × | |
| 091 | EF75-300mm f/4-5.6 II | ET-60 | × | × | × | × | |
| 092 | EF75-300mm f/4-5.6 III | ET-60 | × | × | × | × | |
| 093 | EF75-300mm f/4-5.6 USM | ET-60 | × | × | × | × | |
| 094 | EF75-300mm f/4-5.6 II USM | ET-60 | × | × | × | × | |
| 095 | EF75-300mm f/4-5.6 III USM | ET-60 | × | × | × | × | |
| 096 | EF75-300mm f/4-5.6 IS USM | ET-64 II | × | × | × | × | |
| 097 | EF80-200mm f/2.8 L USM | ES-79 | × | × | × | × | |
| 098 | EF80-200mm f/4.5-5.6 | ET-62 II | ▼ | ○ | × | ○ | |
| 099 | EF80-200mm f/4.5-5.6 II | ET-54 | ▼ | ○ | ○ | × | |
| 100 | EF80-200mm f/4.5-5.6 USM | ET-54 | ▼ | ○ | ○ | × | |
| 101 | EF100-200mm f/4.5 A | ET-62 II | × | × | × | × | |
| 102 | EF100-300mm f/5.6 | ET-62 II | × | × | × | × | |
| 103 | EF100-300mm f/5.6 L | ET-62 II | × | × | × | × | |
| 104 | EF100-300mm f/4.5-5.6 USM | ET-65 III | × | × | × | × | |
| 105 | EF100-400mm f/4.5-5.6 IS USM | ET-83C | × | × | × | × | |

**Table 1-10 Semi-Hard Case EH14-L Accommodation List**

# Part 2

# Technical Information

# 1. TECHNICAL DESCRIPTION

## 1.1 EYE CONTROL

### (1) Basic Configuration of Eye Control Optics

The basic configuration of the Eye Control optics is shown in Fig. 2-1. The infrared-emitting diodes (IRED) are integrated in the eyepiece frame. They illuminate the photographer's eye, and the light reflecting off the eye enters the camera to reach the dichroic mirror. The dichroic mirror reflects the upper part of the light which enters the image-formation lens. An image of the eye thereby forms on the Eye Control BASIS.

The dichroic mirror has a special coating that enables 85 percent or higher transmittance of visible light, a reflectance of 90 percent or higher of the Eye Control IRED light (infrared: approx. 880 nm), and a 90 percent or higher transmittance of SI-LED light (red: approx. 660 nm).

The IRED illumination optics (Fig. 2-2) consists of eight IREDs in the eyepiece frame, like the EOS Elan II E/50 E/55. As shown in Table 2-1, each IRED has a specific function in detecting the eye in the respective camera orientation (vertical or horizontal). The camera orientation is detected by a small camera orientation detection switch (Fig. 2-5) which is also used in the EOS Elan II E/50 E/55.

The basic operating principles of Eye Control are almost the same as with previous Eye Control cameras.

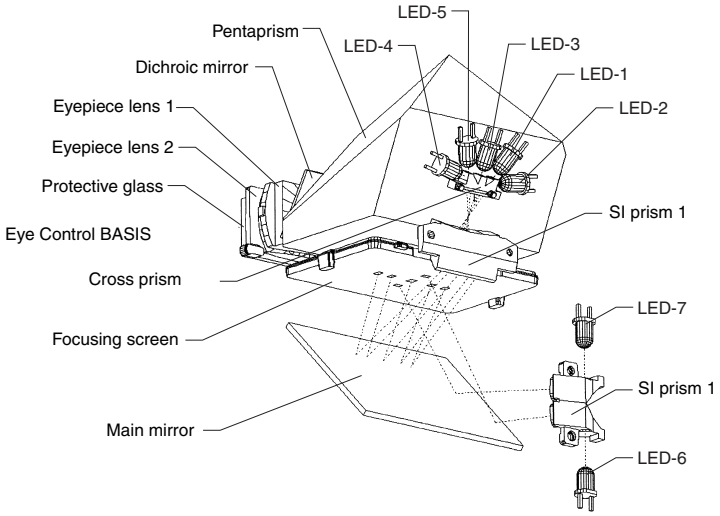



**Fig. 2-1 Eye Control Optics**

## (2) Eye Control Precision

Previous EOS Eye Control cameras use the illumination of two IREDs on the bottom of the eyepiece frame to detect the eye. With the EOS ELAN 7 E / EOS 30, two IREDs on the top of the eyepiece frame also illuminate the eye. By having a total of four IREDs illuminating the eye simultaneously, the Eye Control precision is better.

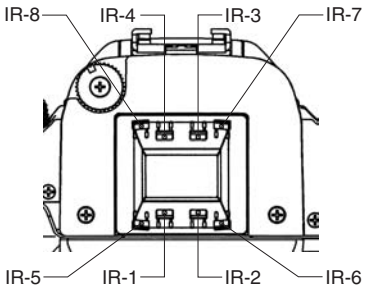



**Fig. 2-2 IRED Illumination Optics**

The photographer's eye is illuminated by the IREDs, and the eye's image is captured by the Eye Control BASIS. The Purkinje image (P image) and the eyeball's rotational angle with respect to the pupil's center are calculated to detect where the eye is looking. With the EOS ELAN 7 E / EOS 30, since two upper P images are also added, the Eye Control precision is about 1.5 times higher (especially in the vertical orientation with 3 horizontal focusing points and 5 vertical focusing points) than previous Eye Control cameras. The Eye Control precision is also enhanced by an improved Eye Control algorithm.

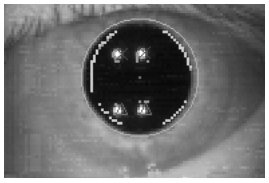


**Fig. 2-3 P image and Pupil**

If harsh shooting conditions prevent the camera from obtaining all four P images, as long as it obtains at least the two lower P images, Eye Control will still be possible in the same way as with previous EOS Eye Control cameras.

Also, the algorithm has been improved to better match the shooting environment and the user's Eye Control characteristics. As a result, there is less chance for Eye Control to be difficult to use.

## (3) Calibration

The purpose and refinement method of Eye Control calibration are the same as with the EOS Elan II E/50/50 E/55. The EOS ELAN 7 E / EOS 30 can store calibration data in up to five (instead of three with the EOS Elan II E/50 E/55) CAL channels. As with the EOS-3, the calibration procedure provides for both the horizontal and vertical camera orientations by incorporating the top and bottom (y-axis) points in addition to the right and left (x-axis) points. This enhances Eye Control precision. Calibration data in a CAL channel can be deleted by selecting the CAL channel No. and pressing the AE lock (C.Fn) button and focusing point selector simultaneously.

When Eye Control is used, the Eye Control icon lights in the viewfinder (except in the Full Auto mode). If Eye Control is not possible, the icon blinks and automatic focusing point selection is set automatically.

## (4) Eye Control BASIS

This is the same as the EOS-3's.

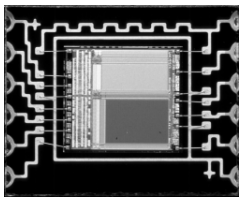


**Fig. 2-4 Eye Control BASIS**

## (5) Eye Control Response Time

The 32-bit RISC microcomputer improves the processing performance and the improved Eye Control algorithm increases the processing speed. The EOS ELAN 7 E / EOS 30's Eye Control response time is less than half the EOS Elan II E/50 E/55's. The response time during the calibration procedure is also shorter.

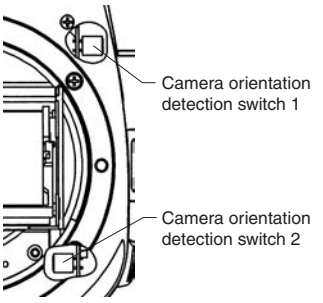



**Fig. 2-5 Camera Orientation Detection Switch**

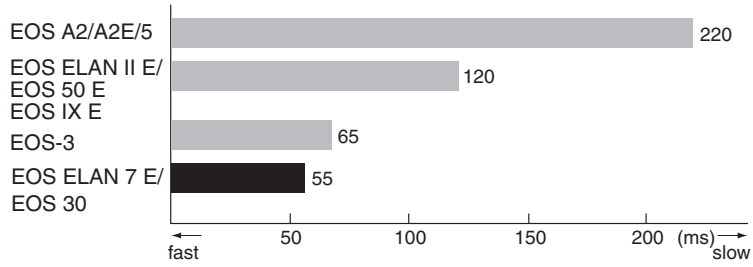



**Fig. 2-6 Eye Control Response Time**

| Orientation/Eyeglass Use | | Without Eyeglasses | | With Eyeglasses | |
|---|---|---|---|---|---|
| | | Lower IREDs | Upper IREDs | Lower IREDs | Upper IREDs |
| Horizontal | Right Side Up | IR-1, IR-2 | IR-3, IR-4 | IR-5, IR-6 | IR-7, IR-8 |
| | Upside Down | IR-3, IR-4 | IR-1, IR-2 | IR-7, IR-8 | IR-5, IR-6 |
| Vertical | Grip Upward | IR-1, IR-4 | IR-2, IR-3 | IR-5, IR-8 | IR-6, IR-7 |
| | Grip Downwar | IR-2, IR-3 | IR-1, IR-4 | IR-6, IR-7 | IR-5, IR-8 |

**Table 2-1 Camera Orientation and IRED Illumination**

## 1.2 AF SYSTEM

### (1) Basic Configuration of Focusing Optics

The basic configuration of the focusing optics, AF sensor, and AF unit are the same as the EOS 300/Rebel 2000/EOS Kiss III's. The actual focusing optics are shown in Fig. 2-7. The light comes through the camera lens, the focusing light flux passes through the semi-silvered mirror (40% transmittance), then it is refracted downward by 81 deg. by the secondary mirror (flat and fully reflective). Then it goes through the field lens, AF mirror (fully reflective), infrared filter, fixed diaphragm, and the secondary image-formation lens before reaching the AF sensor.

### (2) AF Sensor

As with the EOS 300/Rebel 2000/EOS Kiss III, the EOS ELAN 7 E / EOS 30 uses a 7-point CMOS sensor. For technical details on the AF sensor, see the EOS 300/Rebel 2000/EOS Kiss III's Service Manual.

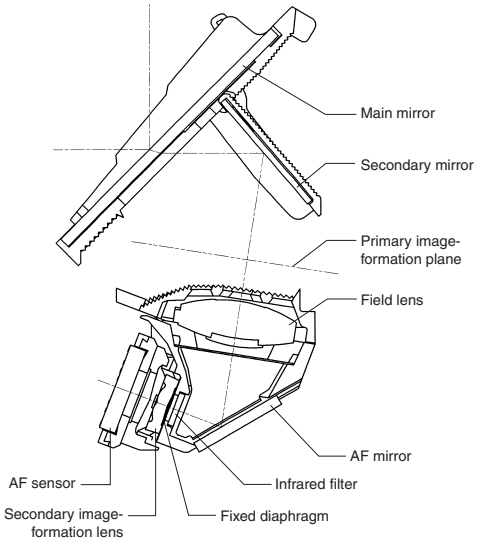



**Fig. 2-7 Focusing Optics**

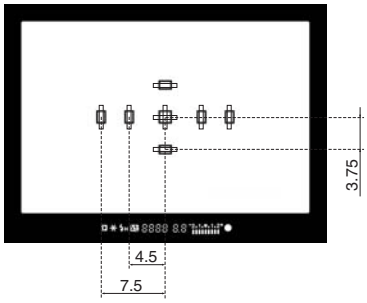



**Fig. 2-8 Focusing Points**

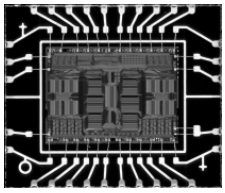


**Fig. 2-9 AF Sensor**

### (3) AF Speed and AF Processing

1) Faster AF speed

A high-speed microcomputer with a 33.554 MHz clock speed and a command execution time of only 0.03 ms makes the AF speed during automatic focusing point selection just as fast as the EOS-3's.

| Camera | Clock Speed | Command Execution Time |
|---|---|---|
| EOS ELAN 7 E / EOS 30 | 33.554MHz | 0.03 μs |
| EOS ELAN II E / EOS 50 E | 16.0MHz | 0.0625 μs |
| EOS-3 | 24.576MHz | 0.04 μs |
| EOS 300 / Rebel 2000 / EOS Kiss III | 16.0MHz | 0.12 μs |

**Table 2-2 CPU Performance Comparison**

Table 2-2 compares the CPU performance of recent EOS cameras.

2) Processing

The algorithm for automatic focusing point selection is based on the EOS 300/Rebel 2000/EOS Kiss III's. The algorithm increases the chances of selecting the focusing point that the user wants. For details on the algorithm, see the EOS 300/Rebel 2000/EOS Kiss III's Service Manual.

### [Automatic selection mode + Eye Control ON]

In the Full Auto mode (automatic focusing point selection) while Eye Control is ON, the algorithm mentioned above is incorporated in the Eye Control operation to increase the precision of the automatic focusing point selection.

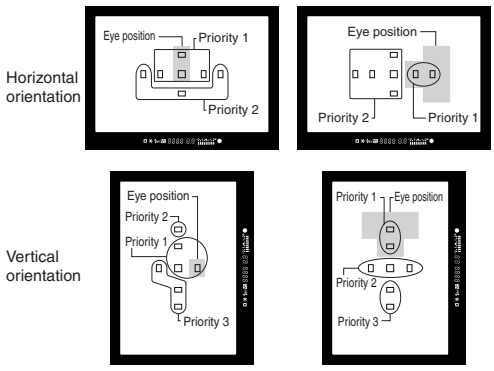



**Fig. 2-10 Automatic focusing point selection algorithm in the Full Auto + Eye Control mode (example)**

When Eye Control is OFF in the EOS ELAN 7 E / EOS 30 or EOS 300/Rebel 2000/EOS Kiss III, the automatic focusing point selection algorithm changes depending on whether the priority focusing point selection grouping is for the horizontal or vertical orientation. Only two patterns are provided. However, when the EOS ELAN 7 E / EOS 30's Eye Control is ON, a total of 28 grouping patterns for the horizontal and vertical orientations are provided based on the Eye Control information. This increases the chances for the camera to automatically select the focusing point that the user wants. When the shutter button is pressed halfway (SW-1 ON), all the focusing points start to focus. The focusing point achieving focus on the closest subject is A, and the other focusing points achieving focus on other subjects within a certain distance are set as B or C. Then the grouping pattern selected to match the eye's position is incorporated and a focusing point in the high-priority group is used to focus. This algorithm is the same one used in the EOS 300/Rebel 2000/EOS Kiss III.

## (4) Predictive AI Servo AF control

As with the EOS-1V, the fundamental objective of AI Servo AF control is to improve the focus tracking of the subject and the focusing precision. This in turn stabilizes the film advance speed.

1) AI Servo AF control for the first frame

The EOS ELAN II E / EOS 50 E uses the following sequence: The lens stops immediately at SW-2 ON, the reflex mirror goes up, the EMD stops down, and the exposure sequence begins. The EOS ELAN 7 E / EOS 30 improves upon this sequence: The lens continues to be driven even after SW-2 ON. Then the reflex mirror goes up, the EMD stops down, the lens drive stops, and the exposure sequence begins (the mechanical parts and predictive lens are driven simultaneously). As a result, there is less predictive lens driving (front lens rotation) up to the start of the exposure. This reduces the error or difference between the predictive lens position and the actual point of focus. This operation requires CR123A × 2 batteries whose remaining battery level is at least half. Or, it requires BATTERY PACK BP-300 + four size-AA batteries having a full charge. If the battery voltage is lower than the required level, the following sequence is executed at SW-2 ON when the lens driving stops: The reflex mirror goes up, the EMD stops down, and the exposure begins.

2) AI Servo AF control from the second frame

As with the EOS-1V, the EOS ELAN 7 E / EOS 30 executes predictive AF by using statistical calculation and analysis. Also, during continuous shooting, focusing is executed twice while the mirror goes down once. This improves the focusing efficiency.

3) Stabilizing the film advance speed

As with the EOS-1V, the EOS ELAN 7 E / EOS 30 provides a standby time after the lens is driven. This standby time absorbs any irregular lens driving time so that the continuous shooting speed remains stable.

4) Predictive AF control

The EOS ELAN 7 E / EOS 30's One-Shot AF speed is about the same as the EOS-3's. The AI Servo AF's predictive focusing performance is also the same as the EOS-1V and EOS-3's. With an EF 300mm f/2.8L IS USM lens attached, the EOS ELAN 7 E / EOS 30 can focus track a subject approaching at 50 kph up to about eight meters away. This was made possible by: 1. An improved AF algorithm, 2. An improved picture-taking sequence, and 3. A CPU capable of high-speed processing.

## (5) AF Modes

Like the EOS ELAN II E / EOS 50 E, the EOS ELAN 7 E / EOS 30 has three AF modes: 1. One-Shot AF, 2. AI Servo AF, and 3. AI Focus AF. In the Full Auto and Programmed Image Control modes, the AF mode is set automatically. In the Creative Zone modes (except DEP), the user can select one of the three AF modes.

As with the EOS ELAN II E / EOS 50 E, the algorithm used for focusing point selection during automatic focusing point selection + AI Servo AF requires the subject to be first focused with the center focusing point. The off-center focusing points remain on standby and if the subject moves from the center focusing point to an adjacent focusing point, autofocusing continues. When Eye Control is ON in the AI Servo AF mode, Eye Control Servo AF takes effect. This enables the user to focus the subject continuously just by looking at the moving subject in the viewfinder.

## (6) Focusing point selection

The EOS ELAN 7 E / EOS 30 has focusing point selection keys on the Quick Control Dial. The keys make focusing point selection faster and more intuitive than with any previous EOS camera. You first press the focusing point selection, then press any of the keys.

For details on the effects and operation of C.Fn-11-1/2 and C.Fn-12-1, see “1.10 Custom Functions.”

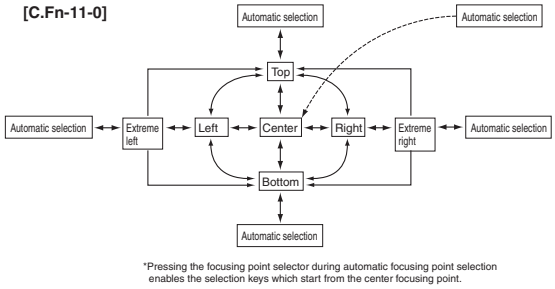



**Fig. 2-11 Focusing Point Selection Operation**

## (7) AF-assist light

Like the EOS 300/Rebel 2000/EOS Kiss III, the EOS ELAN 7 E / EOS 30 uses the built-in flash to fire an intermittent flash burst as the AF-assist light. When necessary, the AF-assist light is emitted automatically in all the picture-taking modes except in the Landscape and Sports modes. In the Creative Zone modes, you must manually pop-up the built-in flash beforehand. The AF-assist light is emitted when the ambient light is lower than EV 4. The AF-assist light's firing frequency is 28 Hz and the firing time is 280 ms per burst. The AF-assist light's coverage is good for lenses as short as 28mm. The effective range is about 4.5 meters at the center and about 4 meters along the periphery.

| Camera | Automatic Selection | Manual Selection | | | |
|---|---|---|---|---|---|
| | | Center | Top/Bottom | Extreme Left/Right | Left/Right |
| 420EX | ○ | ○ | ○ | ○ | ○ |
| 220EX | ○* | ○ | × | × | × |
| 380EX | ○* | ○ | × | × | × |
| 550EX | ○ | ○ | × | ○ | ○ |
| ST-E2 | ○ | ○ | × | ○ | ○ |
| 430EZ | ○* | ○ | × | × | × |
| 540EZ | ○ | ○ | × | ○ | ○ |

* Focuses on the center focusing point only.

**Table 2-3 External Speedlite and AF Assist**

Also, if an EOS-dedicated Speedlite is attached to the camera, the AF-assist light will come from the external Speedlite instead. Table 2-3 shows how the AF-assist light works with external, EOS-dedicated Speedlites.

In response to customer demand, C.Fn-7 (AF-assist light emission/Speedlite's main flash firing) has been added. When it is not desirable to emit the AF-assist light or to fire the Speedlite (where flash photography is prohibited), this Custom Function enables you to prevent the AF-assist light and the built-in flash or external Speedlite from firing.

## (8) In-focus beeper enabled/disabled

As with the EOS 300/Rebel 2000/EOS Kiss III, the beeper can be enabled or disabled with a Custom Function. If it is disabled, the beeper will not sound even during self-timer and remote control operations.

## 1.3 VIEWFINDER

The EOS ELAN 7 E / EOS 30 is the first EOS camera to have a viewfinder incorporating three optical systems: Eye Control, dioptric correction, and SI display.

The viewfinder's basic optical system is similar to the EOS ELAN II E / EOS 50 E's viewfinder. However, it also has dioptric correction optics. The viewfinder magnification of 0.7x is also the same as the EOS ELAN II E / EOS 50 E's viewfinder, thanks to the optical light path made short by the pentaprism's highly refractive glass.

### (1) Configuration

As shown in Fig. 2-12, the viewfinder's basic optical system consists of a 45-deg. partially-silvered mirror (60% reflectance and 40% transmittance), New Lasermatte focusing screen (with fresnel lens), mask, pentaprism, dichroic mirror, concave eyepiece lens (eyepiece lens 1), convex eyepiece lens (eyepiece lens 2), protective glass, and other components.

### (2) SI display optics

Like the EOS A2/A2E/5, the EOS ELAN 7 E / EOS 30 has SI-LEDs in front of the pentaprism to illuminate the five horizontal focusing points. In addition, it has SI-LEDs on the sides of the mirror box for illuminating the top and bottom focusing points. Thus, it has two separate SI display optical systems. By making the SI optical system for the top and bottom focusing points separate from the horizontal system, the light flux is separate from the one for the five horizontal focusing points. The result is excellent visibility.

The SI-LEDs used and the brightness are the same as with the EOS ELAN II E / EOS 50 E. Figure 2-13 shows the SI display optical system.

### (3) Dioptric correction

The eyepiece lens consists of 2 elements in 2 groups. By using a different material for element (plastic polycarbonate or acrylic) chromatic aberrations are effectively corrected. Dioptric correction (–2.5 to +0.5) is enabled by moving eyepiece lens 2 (convex) forward or back.

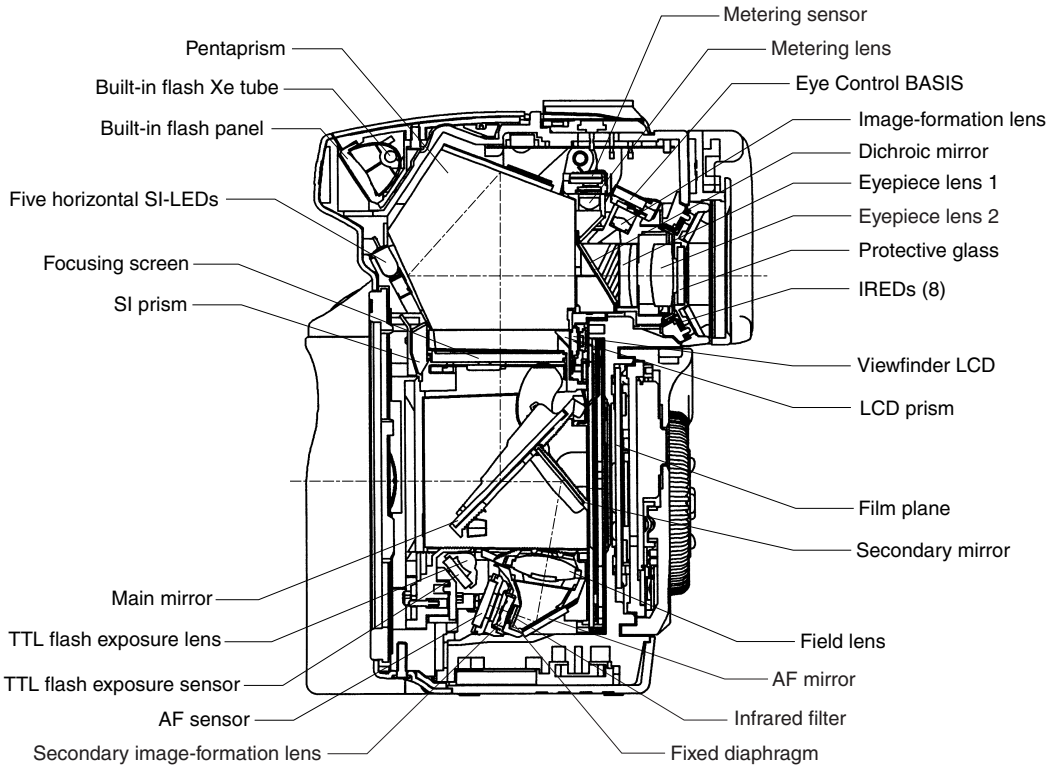



**Fig. 2-12 Cross Section at Center**

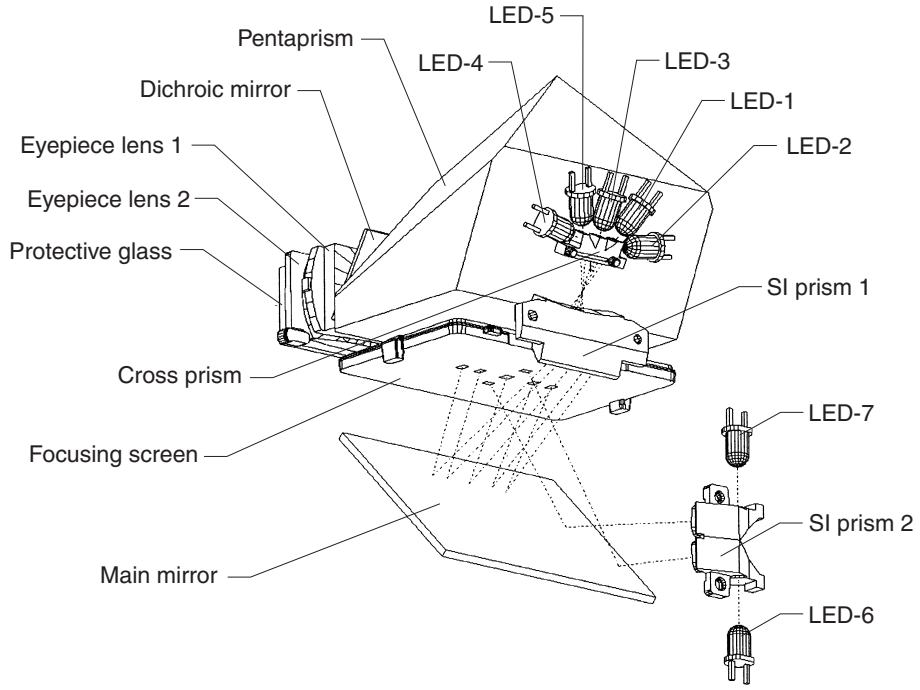



**Fig. 2-13 SI display optical system**

## 1.4 EXPOSURE CONTROL

### (1) Metering

1) Metering optics and AE sensor

The EOS ELAN 7 E / EOS 30's metering optics (see Fig. 2-12) are directly behind the pentaprism toward the top. This is to prevent it from obstructing the Eye Control optics.

Like the EOS 300/Rebel 2000/EOS Kiss III, the EOS ELAN 7 E / EOS 30 uses a 35-zone SPC as the AE sensor. Also, the 3-zone flash sensor for TTL autoflash exposure enables the six metering modes listed in 2) below.

For details on the AE sensor, see the EOS 300/ Rebel 2000/EOS Kiss III Service Manual

2) Metering modes and metering patterns

The EOS ELAN 7 E / EOS 30 has the same metering modes as the EOS 300/Rebel 2000/ EOS Kiss III: ① Evaluative (focusing point-linked with 35 zones), ② Partial metering at center, ③ Centerweighted averaging metering, ④ Preflash metering, ⑤ 3-zone, off-the-film TTL flash metering, and ⑥ TTL/A-TTL autoflash.

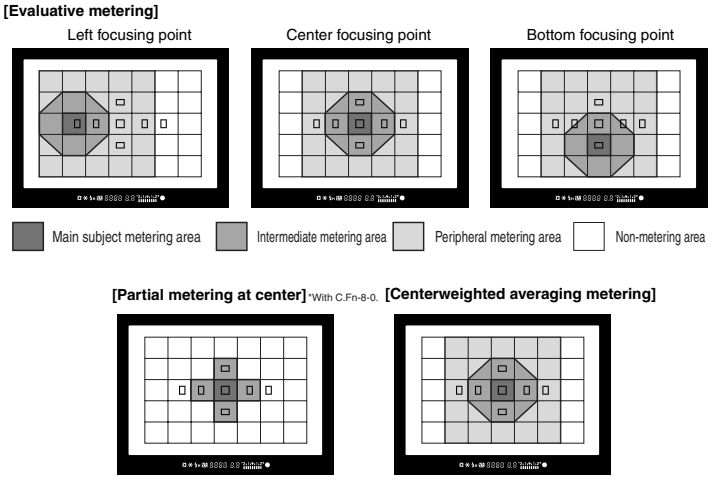



**Fig. 2-14 Metering Areas**

The metering algorithm is also the same as the EOS 300/Rebel 2000/EOS Kiss III's. The 35 metering zones are divided into three groups: a (main subject metering area), b (intermediate metering area), and c (peripheral metering area). The three metering areas are compared to calculate and obtain the correct exposure. Because the above metering algorithm is used, the metering patterns are almost the same as the EOS 300/Rebel 2000/EOS Kiss III's. For details, see the EOS 300/Rebel 2000/EOS Kiss III Service Manual

## (2) Exposure control

1) Automatic exposure control

In addition to all the picture-taking modes that the EOS ELAN II E / EOS 50 E has, the EOS ELAN 7 E / EOS 30 also has the Night Scene mode.

2) Shutter

The shutter unit is based on the EOS ELAN II E / EOS 50 E's shutter unit. Table 2-4 shows the shutter's design specifications.

| Item | Specification |
|---|---|
| 1. Type | Vertical-travel, focal-plane shutter |
| 2. Shutter Blade Type | Parallel, four-sided link type |
| 3. Shutter Blades | 8 blades (four each for the 1st and 2nd curtains) |
| 4. Shutter Blade Material | Metallic and engineering plastic |
| 5. Driving System | 1st and 2nd curtains each driven by a torsion spring |
| 6. Shutter Speed Control | Electromagnetic holding dedicated to each of the 1st and 2nd curtains. All speeds electronically controlled by the electromagnet which releases the curtain while the power is off. |
| 7. Curtain Speed | Approx. 4.8 ms/24mm |
| 8. Shutter Speeds | 30 sec. – 1/4000 sec., bulb |
| 9. Max. Sync Speed | 1/125 sec. |
| 10. Signal | X-sync, 2nd curtain travel-completed signal |

**Table 2-4 Shutter Design Specifications**

## 1.5 FILM TRANSPORT

### (1) Overview

As shown in Fig. 2-16, the film transport system consists of the main motor (M1) and secondary motor (M2). By running forward or in reverse, the respective motor executes the operations listed in Table 12.

| Motor | Direction | Function |
|---|---|---|
| M1 (ø12.5-L31mm) | Forward | Film advance (High or Low) |
| | Reverse | Film rewind |
| | | Mirror movement |
| | | Shutter cocking |
| M2 (ø10×8-L15mm) | Reverse | Control cam phase switching |
| | Forward | Flash pop-up |

**Table 2-5 Functions of the Motors**

Figure 2-19 shows a time chart of how the M1 motor's running direction (forward or reverse) drive a series of operations such as the reflex mirror up/down movement, shutter cocking, and film advance. The M1 motor's driving power is relayed to the film advance mechanism. The film advance mechanism's two-speed (High and Low) gear ratio and film rewind mode are selected by the drive transmission mechanism relayed by M2. With the EOS Elan II/Elan II E/50/50 E/55, one motor drives everything. With the EOS ELAN 7 E / EOS 30, the M2 motor switches the driving so that the M1 motor does not need to do it. As a result, the film advance speed is faster and the film transport is quieter.

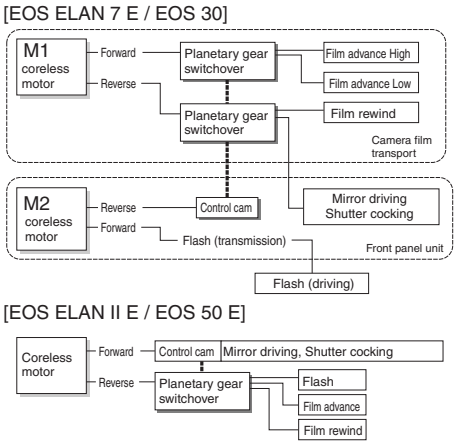



**Fig. 2-15 Drive System Configuration**

Also, as mentioned above, the EOS ELAN 7 E / EOS 30's film advance mechanism has a two-speed (High and Low) gear. By making the High gear's gear ratio small, the film advance time is greatly shortened. Also, in low temperatures and other conditions which exhaust the batteries faster, the mechanism switches from High gear to Low gear automatically to ensure that the film transport can be driven.

The M1 and M2 motors and almost all the driver units are concentrated in the grip portion of the camera. This makes the driving more efficient and the camera more compact (the distance between the optical axis and grip is almost the same as the EOS 300/Rebel 2000/EOS Kiss III's).

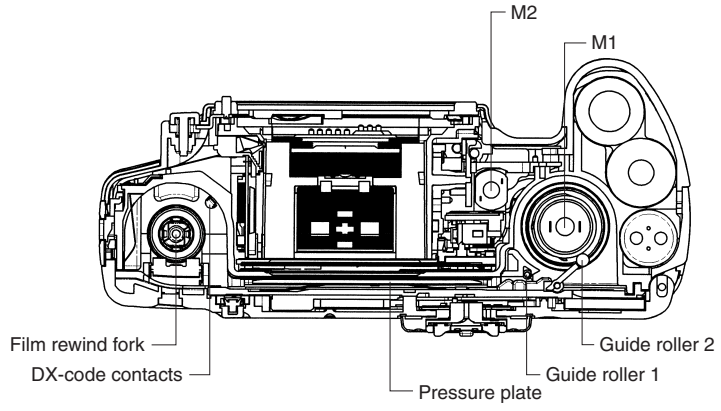



**Fig. 2-16 Cross Section at Center**

## (2) Silent film transport

The following measures have been taken for a silent film transport.

1) Coreless motor for M1

   The M1 motor runs smoothly with little vibration and noise (especially at high frequencies). The coreless motor is quieter than ever.

2) Timing belt for the first gear and film rewind transmission

   The film transport and rewind noise (M1 motor noise) is reduced with vibration-resistant rubber.

3) Floating support incorporating rubber bushings for the film transport unit

   The camera's vibration noise caused by the film transport unit is reduced with the use of vibration-resistant rubber.

4) PWM (pulse-width modulation) control for a quieter low-speed control with the low-speed film rewind motor.

5) Drive transmission switchover with the M2 motor

   In the operation sequence, the M1 motor does not execute the driving transmission switchover. This eliminates one source of noise.

6) Reduced sound pressure at the audible level

   The length of time that driving noise is generated by each internal mechanism has been shortened to reduce the sound pressure at the audible level.

7) Reflex mirror up-movement shock absorption

   A high-density material is now used for the mirror stopper (molt plane). The 3mm thickness is also thicker than the 1mm thickness of the mirror stopper in previous cameras. It reduces the noise generated when the mirror goes up.

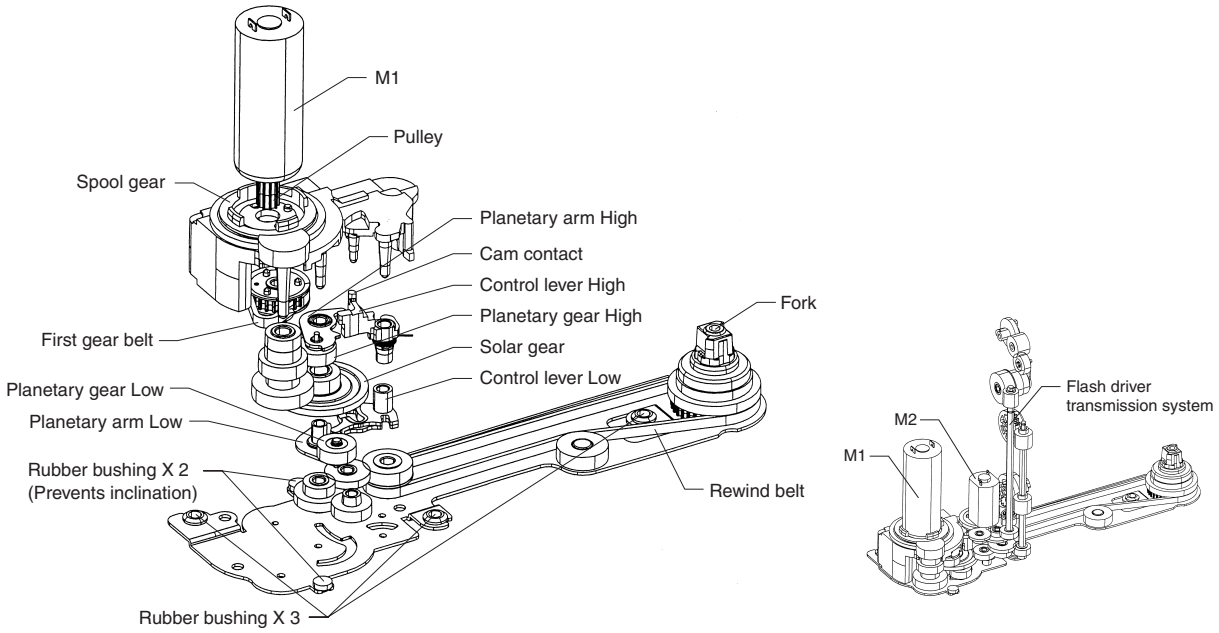



**Fig. 2-17 Film Transport Mechanism**

### (3) Key points for high-speed continuous shooting

The EOS ELAN 7 E / EOS 30 has the following features to attain high-speed continuous shooting. (A few of them have been mentioned previously.)

1) M2 motor for M1 driving transmission switchover

   The EOS ELAN II E / EOS 50 E uses the one and only motor for the driving transmission switchover. Whereas the EOS ELAN 7 E / EOS 30 uses the M2 motor instead of the M1. In the continuous shooting sequence, the driving transmission switchover need not be executed by the M1 motor. This improves the continuous shooting speed.

2) Two-speed (High and Low) gear-switching mechanism for film advance

   With a two-speed gear in the film advance mechanism, the High gear's gear ratio has been made small to shorten the film advance time.

3) 32-bit RISC microcomputer for high-speed processing

   The 32-bit RISC microcomputer with a standard clock speed of 33.554 MHz enables high-speed processing.

4) In the continuous shooting sequence, the mechanisms and the predictive lens are driven simultaneously.

   As with the EOS-1V, in the AI Servo AF mode, the lens is driven simultaneously during all sequences except during the exposure. This increases the continuous shooting speed and improves the tracking ease of a moving subject during predictive focusing.

### (4) Autoloading and automatic ISO speed setting with the DX code

Basically, it is the same as with the EOS ELAN II E / EOS 50 E. During autoloading, about 3.5 frames (28 perforation holes) are wound around the take-up spool, taking about 1 sec. The ISO film speed is read from the film cartridge's DX code and set automatically within ISO 25 to 5000. The ISO speed can also be set manually within ISO 6 and 6400. Infrared film cannot be used because it will get fogged by the camera's infrared photo reflector.

### (5) Film rewind

When the frame counter reaches “36” or when the end of the film is reached, autoreverse begins. During the film rewind, the film perforation continues to be detected. After the frame counter is “0” and the stipulated time elapses, the motor stops. If C.Fn-2-1 has been set, the motor stops at a shorter time after the frame counter becomes “0.” This leaves the film leader outside the cartridge.

## 1.6 BUILT-IN FLASH

In the Full Auto and Programmed Image Control modes, the built-in flash's automatic pop-up movement (retraction is done manually) is driven by the M2 motor. In Creative Zone modes, manual pop-up is required. Other features such as 3-zone TTL autoflash control and red-eye reduction are based on the EOS 300/Rebel 2000/EOS Kiss III.

| Mode | Start of Recycling | Pop-Up | Down |
|---|---|---|---|
| Creative Zone | ① After manual pop-up.<br>② After the flash fires. | Manual | Manually |
| Creative Zone Full Auto & PIC | ① After the picture-taking mode is set.<br>② At SW-1 ON.<br>③ After the flash fires. | Automatic pop-up for low light or fill flash after flash is ready and AF and metering are executed. | |

**Table 2-6 Built-in Flash Pop-up/Down Operation**

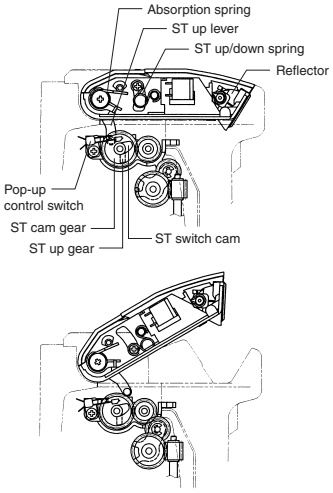



**Fig. 2-18 Built-in Flash Operation Mechanism**

## 1.7 OVERALL OPERATION

### (1) Overall operation and basic sequence

Figure 2-19 shows the basic time chart, and Fig. 2-20 shows the basic sequence.

### (2) Shutter release mechanism

The EOS ELAN 7 E / EOS 30's shutter release mechanism has a switch with two click stops. At the first click stop (SW-1 ON), Eye Control, metering, and autofocusing are activated. At the second click stop (SW-2 ON), the shutter is released to take the picture.

| Condition | Stroke | Pressure |
|---|---|---|
| Shutter button up stroke | 0.0mm | — |
| Normal position to SW-1 ON | 0.7mm | 140g |
| SW-1 ON to SW-2 ON | 0.2mm | 330g |
| Leeway beyond SW-2 ON | 0.2mm | — |

**Table 2-7 Shutter Release Stroke and Pressure**

### (3) Mirror-driving mechanism

To attain a continuous shooting speed of 4 fps, the EOS ELAN 7 E / EOS 30 features improvements in the mirror-driving system as described below.

The EOS ELAN II E / EOS 50 E's mirror-driving system uses a spring for the mirror's up movement and a cam for the down movement. Although this makes the mirror-up time stable, the shutter-cocking load and mirror-up spring's cocking load occur at the same time. This does not allow the gear ratio to be made small, and the power consumption and time loss are large. To resolve this problem, the EOS ELAN 7 E / EOS 30 uses a cam to move the mirror up and a spring to bring it back down. It uses the same system as the EOS A2/A2E/5 where the mirror- and shutter-driving lever and cam gear are driven independently. The load during the mirror's up movement and the shutter cocking is thereby dispersed and the power current consumed is reduced. The result is faster continuous shooting.

Also, since a mirror-dedicated cam is used to drive the mirror, the viewfinder blackout time is shortened at the same time.

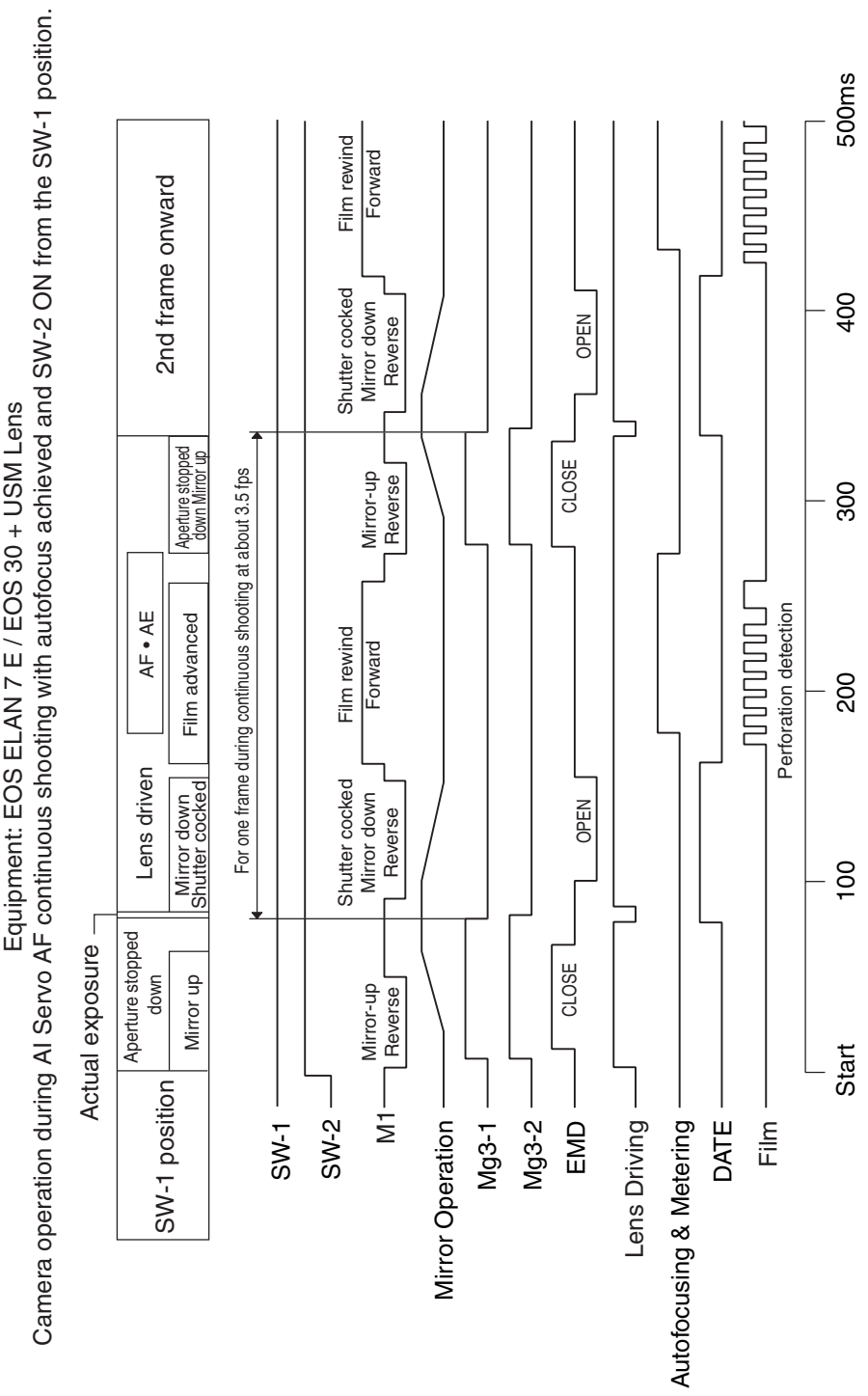



**Fig. 2-19 Overall Operation and Basic Time Chart**

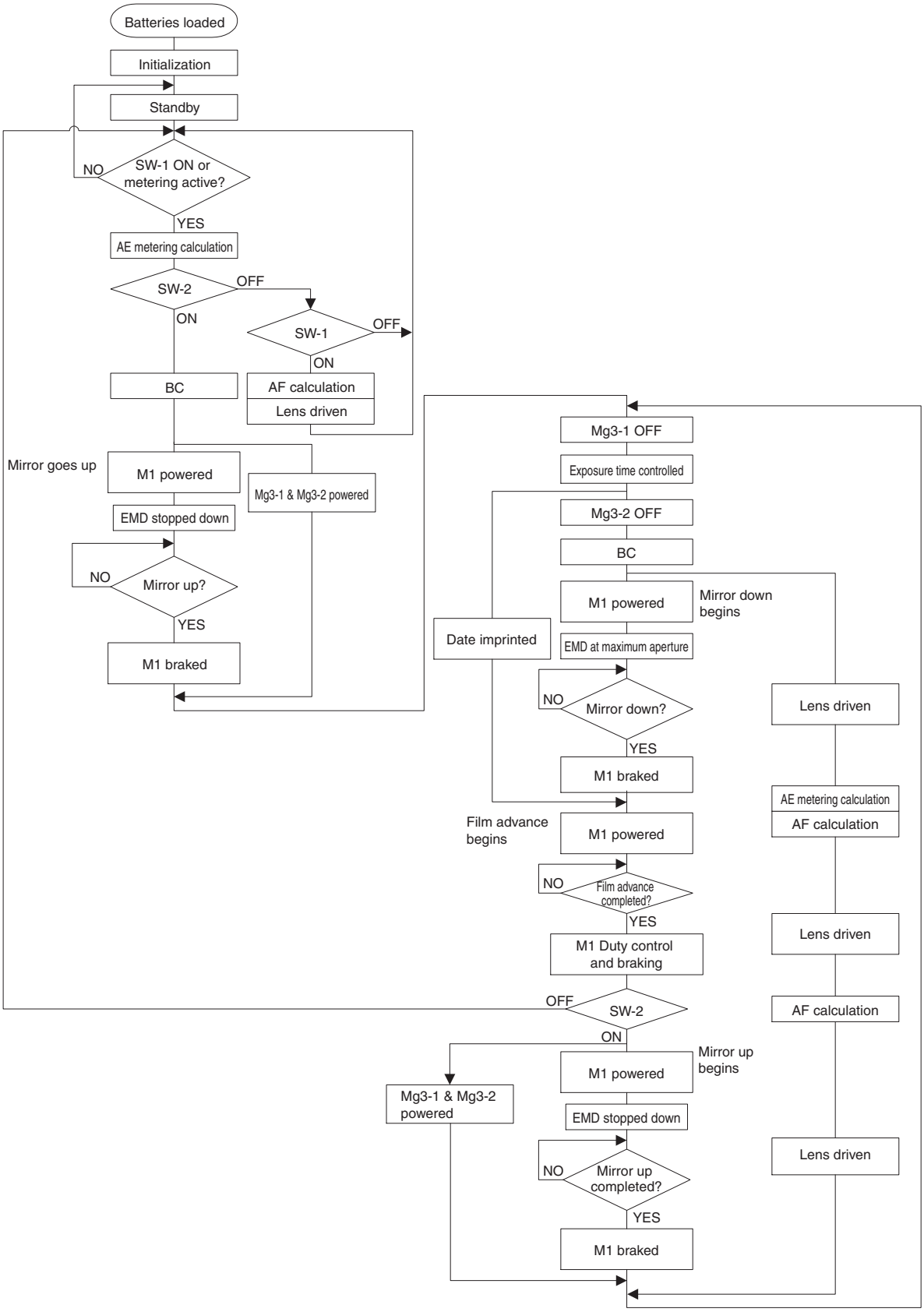



**Fig. 2-20 Overall Operation and Basic Sequence (AI Servo AF)**

## 1.8 ELECTRONIC CIRCUITRY AND POWER SOURCE

### (1) Overview

Centering on two CPUs, the electronic circuitry consists of twenty-four LSIs and ICs, a quartz oscillator, display elements, and other components. Calculations and the camera sequence control are executed with 33.554 MHz clock pulses. The displays and switch-entry detection are executed with 4.19 MHz clock pulses. Figure 2-21 shows a block diagram of the circuitry.

| | |
|---|---|
| LSI, IC | 24 |
| Motors | 2 |
| Magnets | 0 |
| Display Elements | 2 |
| Light-emitting Elements | 9 |
| Light-sensing Elements | 4 |

**Table 2-8 Electronic Circuit Components**

### (2) CPU Configuration

There are two CPUs. The 32-bit RISC microcomputer mainly detects Eye Control movements, calculates AF and AE operations, and controls operation sequences. And the 16-bit microcomputer mainly controls the display system and switches. These two CPUs operate in parallel and independently from each other. Table 2-9 shows the main specifications of the two CPUs.

| Item | EOS ELAN 7 E / EOS 30 | | EOS ELAN II / ELAN II E / 50 / 50 E |
|---|---|---|---|
| | MAIN CPU MB91133 | SUB CPU M30221M3 | MB90233 |
| 1. Main clock | 33.554MHz | 4.19MHz | 16MHz |
| 2. Max. processing speed | 0.03 μs | 0.24 μs | 0.0625 μs |
| 3. Commands | 165 | 91 | 412 |
| 4. Performance | Addition & subtraction: 32-bit<br>Multiplication & division: 32 × 32 → 64-bit | Addition, subtraction, & division: 16-bit<br>Multiplication: 16 × 16 → 32-bit | Addition, subtraction, multiplication, & division: 32-bit |
| 5. Internal resistors | 32bit × 16 | 16bit × 20 | 16bit × 8 |
| 6. ROM | 254KB | 24KB | 48KB |
| 7. RAM | 8KB | 1.5KB | 2KB |
| 8. EEPROM | (External: 8 KB) | — | (External: 2 KB) |
| 9. Timer | 16bit × 25 | 16bit × 14 | 16bit × 10 8bit × 1 |

**Table 2-9 CPU Specifications**

### (3) Power source

Two CR123A batteries serve as the power source. The battery check is automatic and displayed at all times on the LCD panel when the Command Dial is not at the Lock position.

During bulb exposures, a current of 150 mA flows constantly to the electronic circuit which includes the electromagnet controlling the 2nd shutter curtain. Maximum battery life is about 8 hours during a bulb exposure.

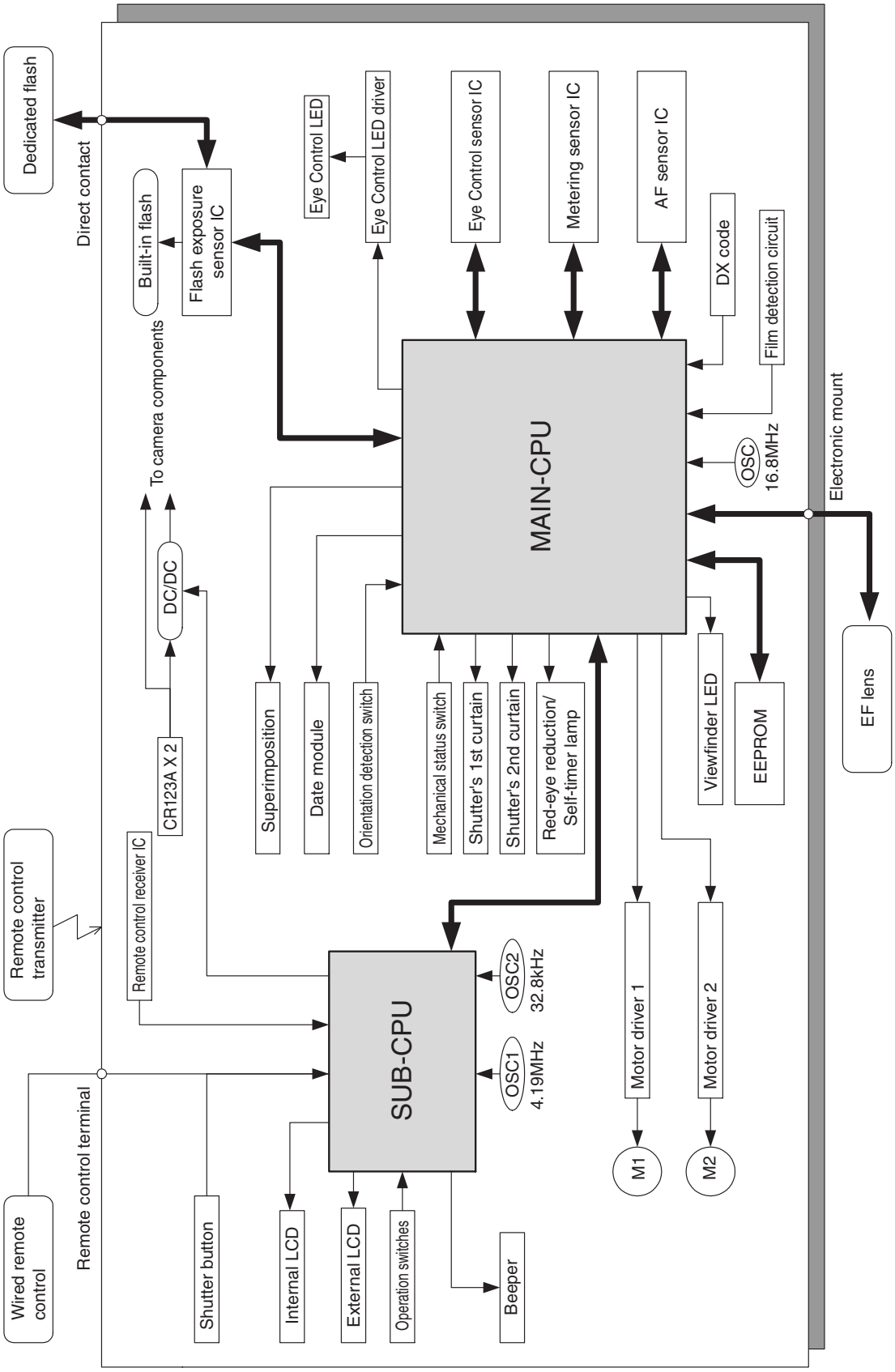



**Fig. 2-21 Electronic Circuit Block Diagram**

## 1.9 INTERNAL CONSTRUCTION

### (1) Covers

The camera's covers consist mainly of the top cover, bottom cover, front cover, camera back, and grip. The top, front, and flash head covers have a double-walled construction with 0.8mm-thick aluminum on the outside and an inner cover made of engineering plastic. The aluminum covers have a black alumite finish.

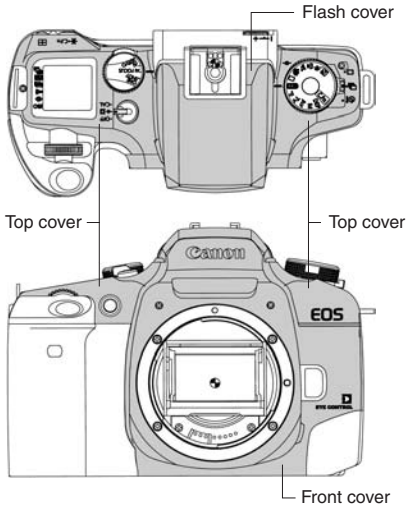



**Fig. 2-22 Covers**

### (2) Internal construction and components

The camera body and front cover are made of engineering plastic which boasts high strength and precision. The major components are housed within. Figure 2-23 shows the location of the main components, and Table 2-10 lists the parts count.

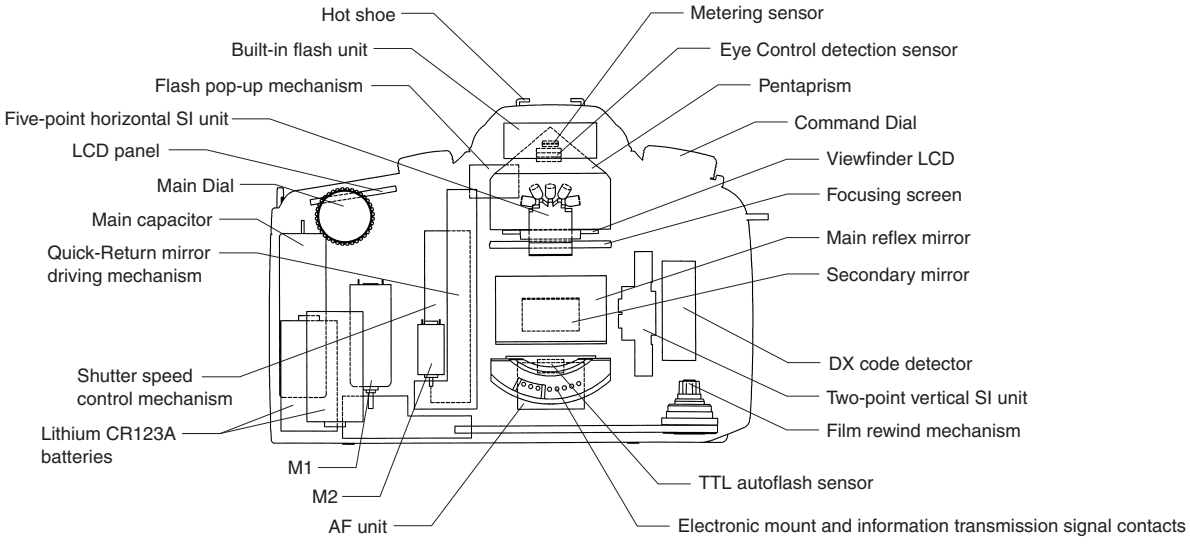



**Fig. 2-23 Location of Major Components**

| Part | EOS ELAN 7 E DATE<br>EOS 30 E DATE | EOS ELAN 7 E<br>EOS 30 | EOS ELAN 7 DATE<br>EOS 33 DATE | EOS ELAN 7<br>EOS 33 |
|---|---|---|---|---|
| Electrical Parts | 260 | 257 | 251 | 248 |
| Mounted Components | 77 | 73 | 77 | 73 |
| Mechanical Parts | 330 | 311 | 322 | 303 |
| Screws & Washers | 147 | 145 | 147 | 145 |
| Optical Elements | 21 | 21 | 19 | 19 |
| Total | 835 | 807 | 816 | 788 |
| Official Total | 688 | 662 | 669 | 643 |

● The shutter, pressure plate, M1, and M2 all count as one part each.
● The official total does not include the number of screws and washers.

**Table 2-10 Parts Count**

## (3) Electrical components

The EOS ELAN 7 E / EOS 30's electrical system is in the same class as the EOS A2/A2E/5's, but it has a higher integration with 19 flexible printed circuit boards (FPC) and 7 hard printed circuit boards (PCB). The major features of the electrical components are described below. Figure 2-24 shows the electrical components.

- 4-layer/2-layer build-up FPC

  This type of FPC enables higher integration than conventional, multi-layer printed boards.

- BGA packaging of main CPU

  A BGA having a fine pitch of 0.8 mm (1.27 mm in the EOS 300/Rebel 2000/EOS Kiss III) makes the CPU package smaller (12 mm × 12 mm) so that the mounting surface can be greatly compressed.

- FPC board connector with 0.3mm pitch

  Unlike the conventional FPC board whose electrical contacts are 0.5 mm apart, this connector's contacts are in a zigzag pattern and 0.3 mm apart. The surface area of the FPC board's connector is thereby reduced and the connector is smaller.

- External metallic parts connected to GND

  The metallic top cover and front cover are connected directly to GND to protect electronic circuits and to prevent camera misoperation caused by induced noise.

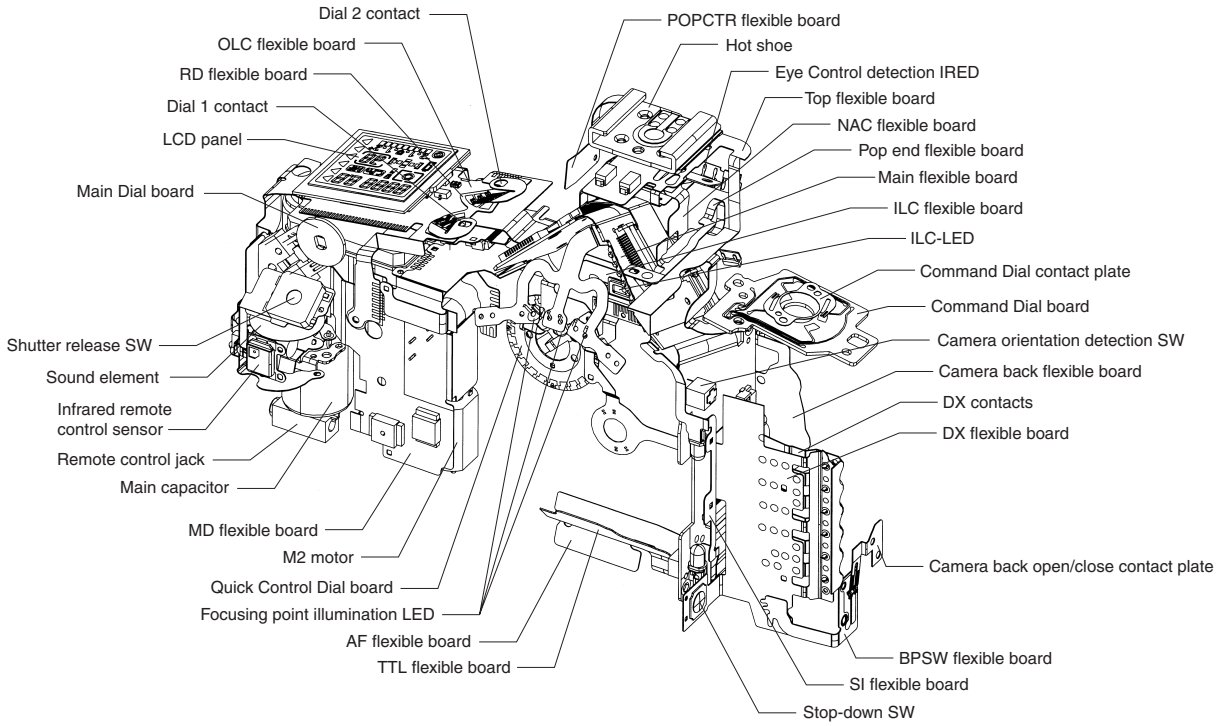



**Fig. 2-24 Electronic Components.**

## 1.10 CUSTOM FUNCTIONS

The new Custom Functions provided by the EOS ELAN 7 E / EOS 30 are described below.

**[C.Fn-7: AF-assist light emission / Main flash firing]**

This enables/disables the AF-assist light emitted by the built-in flash or external, EOS-dedicated Speedlite. It also enables/disables the main flash from firing. It is useful during a joint photo session when your AF-assist light would bother the other photographers shooting the same subject. This Custom Function is also effective if you are using an external, EOS-dedicated Speedlite and want to use the AF-assist light but not fire any flash (which may be prohibited in museums, etc.).

C.Fn-7-1: The built-in flash or external Speedlite emits the AF-assist light and fires the main flash.

C.Fn-7-2: The built-in flash does not emit the AF-assist light, but fires the main flash.

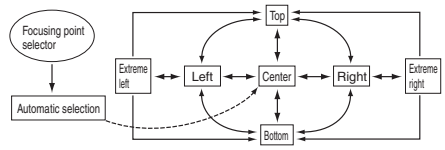
The external Speedlite emits the AF-assist light and fires the main flash.

C.Fn-7-3: The built-in flash or external Speedlite emits the AF-assist light and does not fire the main flash.

**[C.Fn-11: Focusing point selection method]**

C.Fn-11-1: Regardless of the AF mode, this setting enables you to select any focusing point intuitively during picture-taking. At SW-1 ON or while metering is still active, you can select the focusing point directly with the selection keys without having to press the focusing point selector first.

[C.Fn-11-1]




*Pressing the focusing point selector sets the automatic focusing point selection mode and enables the selection keys which start from the center focusing point.

[C.Fn-11-2]

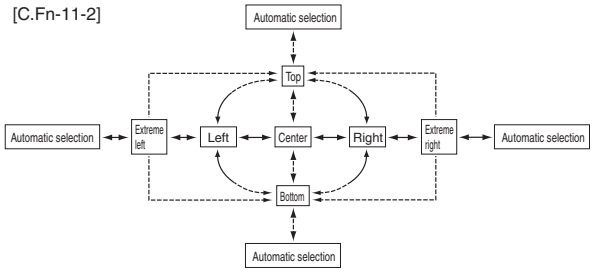



**Fig. 2-25 Focusing Point Selection Operation.**

C.Fn-11-2: This enables you to select the focusing point in the same way as with the EOS-1V and EOS-3. After you press the focusing point selector, you turn the Main Dial to select a horizontal focusing point or turn the Quick Control Dial to select a vertical focusing point. If you try to select a focusing point beyond the peripheral one, automatic focusing point selection is set.

**[C.Fn-12: The focusing point selector selects the center focusing point]**

C.Fn-12-1: This enables the same function as the EOS-1V's C.Fn-18-1 + Assist button. By pressing the focusing point selector, you can switch to the center focusing point. Unlike the EOS-1V, it cannot switch to any other focusing point.

# 2. SWITCHES AND THEIR FUNCTIONS

## 2.1 OPERATION SWITCHES

| No. | Code | Name | Function |
|---|---|---|---|
| 1 | SW1 | Focusing/metering | Focusing and metering starts at SW-1. |
| 2 | SW2 | Shutter release | Picture-taking starts at SW-2. |
| 3 | MAIN1,2,3,4SW | Picture-taking mode selector (Command Dial) | Selects the picture-taking mode. |
| 4 | SPDN SW | Depth-of-field preview button | Stops down the aperture in the Creative Zone modes. Also fires a modeling flash with the 550EX, MR-14EX, or 420EX attached. |
| 5 | AELK SW | AE lock, partial metering, FE lock | When ON in a Creative Zone mode, AE lock takes effect. Partial metering at center (switchable to focusing point-linked partial metering with C.Fn 8-1) takes effect regardless of the set metering mode. With an EX Speedlite attached, FE lock takes effect. |
| 6 | AFSEL SW | Focusing point selector | When ON, focusing point selection is enabled with the Main Dial or focusing point selection keys. (The selection method can be altered with C.Fn 11.) |
| 7 | MDIA1,2 SW | Main Dial | Operated in conjunction with other camera controls (to set exposure compensation, AEB, multiple exposures, etc.) |
| 8 | FUNC SW | Function button | Sets the ISO film speed, red-eye reduction, beeper, multiple exposures, flash exposure compensation, and AEB. |
| 9 | MES SW | Metering mode button | Selects evaluative, partial, or centerweighted metering mode. |
| 10 | REW SW | Midroll rewind | When ON, rewinds the film in midroll. |
| 11 | AF MODE SW | AF mode selector | Selects the ONE SHOT, AI SERVO, or AI FOCUS AF mode. |
| 12 | DRIVE/SELF SW | Film advance selector | Selects single or continuous shooting, self-timer, or wireless remote control operation. |
| 13 | SUBON SW | Quick Control Dial switch | When ON, the Quick Control Dial operation is allowed. |
| 14 | SDIAL1,2 SW | Quick Control Dial | Operated in conjunction with other camera controls (to set exposure compensation, aperture setting in manual mode, flash exposure compensation, etc.) |
| 15 | CAL SW | Eye Control switch | Selects the Eye Control's ON, OFF, or CAL. |

## 2.2 SENSOR SWITCHES

| No. | Code | Name | Function |
|---|---|---|---|
| 1 | BP SW | Camera back open/close switch | Becomes Low when the camera back is open. |
| 2 | CMSP1,,2,3SW | Shutter-cocking phase switch | Detects the shutter cocking, mirror up/down operations. |
| 3 | MIF SW | Lens switch | Detects the attachment/detachment of the lens. Turns ON when the lens is attached. |
| 4 | SHBUSY SW | External flash detection switch | Detects the attachment/detachment of the external flash. |
| 5 | POPEND SW | Pop-up detection switch | Turns ON after the built-in flash pops up. |
| 6 | POPCTR SW | Pop-up control switch | When the flash phase changes from H→L→H, the motor stops. |
| 7 | X SW | X switch | Flash fires. |
| 8 | CN2 SW | 2nd-curtain switch | Turns ON when the shutter's 2nd curtain's traveling ends. |
| 9 | DX1-5 SW | DX code switch | Detects the film ISO speed. |
| 10 | PTIN SW | Film cartridge detection switch | Detects whether or not a film cartridge is present. Opens when there is a film cartridge. |

# 3. ELECTRICAL COMPONENTS AND THEIR FUNCTIONS

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 1 | MPU | MAIN | Microcomputer for camera control |
| 2 | OSCM | MAIN | Microcomputer's oscillator |
| 3 | CMPU1 | MAIN | MPU power source (VDD) smoothing capacitor |
| 4 | CMPU2 | MAIN | MPU power source (VDD3) smoothing capacitor |
| 5 | CMPU5 | MAIN | MPU power source (VDD) smoothing capacitor |
| 6 | CMPU6 | MAIN | MPU power source (VDD3) smoothing capacitor |
| 7 | CVRH2 | MAIN | Standard power source-stabilizing capacitor |
| 8 | CLREG | MAIN | Signal-stabilizing capacitor |
| 9 | RVRH | MAIN | Standard power source-stabilizing resistor |
| 10 | RPTIN | MAIN | PTIN detection resistor |
| 11 | ROSCM | MAIN | Oscillator circuit resistor |
| 12 | RLREG | MAIN | Signal-stabilizing resistor |
| 13 | EEPROM | MAIN | Data memory IC |
| 14 | CEE | MAIN | EEPROM capacitor |
| 15 | EMI1 | MAIN | MPU power source (VDD) EMI filter |
| 16 | EMI2 | MAIN | MPU power source (VDD3) EMI filter |
| 17 | RAE | MAIN | AE sensor operation-stabilizing resistor |
| 18 | CAE | MAIN | AE sensor operation-stabilizing capacitor |
| 19 | OPAMP1 | MAIN | DAC voltage conversion OPAMP |
| 20 | CAMP | MAIN | OPAMP1's smoothing capacitor |
| 21 | CDA1 | MAIN | MPU's DAC output-stabilizing capacitor |
| 22 | CDA2 | MAIN | MPU's DAC output-stabilizing capacitor |
| 23 | RDA1 | MAIN | OPAMP's standard voltage-dividing resistor |
| 24 | RDA2 | MAIN | OPAMP's standard voltage-dividing resistor |
| 25 | RDA3 | MAIN | OPAMP1 operation-stabilizing resistor |
| 26 | RDA4 | MAIN | OPAMP1 gain-determining resistor |
| 27 | RDA5 | MAIN | OPAMP1 gain-determining resistor |
| 28 | RDA6 | MAIN | OPAMP operation-stabilizing resistor |
| 29 | DXON | MAIN | DX-reading control transistor |
| 30 | CDX1 | MAIN | DX terminal noise-countering capacitor |
| 31 | CDX2 | MAIN | DX terminal noise-countering capacitor |
| 32 | CDX3 | MAIN | DX terminal noise-countering capacitor |
| 33 | CDX4 | MAIN | DX terminal noise-countering capacitor |
| 34 | CDX5 | MAIN | DX terminal noise-countering capacitor |
| 35 | RDX1 | MAIN | DX terminal pull-up resistor |
| 36 | RDX2 | MAIN | DX terminal pull-up resistor |
| 37 | CE2 | MAIN | E2 system-stabilizing capacitor |
| 38 | TRBC | MAIN | Battery check load-applying transistor |
| 39 | RBC1 | MAIN | Battery check load resistor |
| 40 | RBC2 | MAIN | Battery check load current-measuring resistor |
| 41 | RBC3 | MAIN | Transistor driving resistor |
| 42 | COMPIC | MAIN | FLED drive control comparator |
| 43 | GATEIC | MAIN | FLED drive circuit logic |
| 44 | TRFLED | MAIN | FLED drive FET |
| 45 | CFLED1 | MAIN | Power source-stabilizing capacitor for FLED drive control circuit |
| 46 | CFLED2 | MAIN | Power source-stabilizing capacitor for FLED drive control circuit |
| 47 | RFLED1 | MAIN | FLED drive control resistor |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 48 | RFLED2 | MAIN | FLED drive control circuit standard voltage-dividing resistor |
| 49 | RFLED3 | MAIN | FLED drive control circuit standard voltage-dividing resistor |
| 50 | RFLED4 | MAIN | FLED drive control circuit resistor |
| 51 | HV1 | MAIN | Orientation detection sensor |
| 52 | HV2 | MAIN | Orientation detection sensor |
| 53 | TRHVON | MAIN | Orientation detection sensor-driving transistor |
| 54 | RHV1 | MAIN | Orientation detection sensor-driving resistor |
| 55 | RHV2 | MAIN | Orientation detection sensor output pull-up resistor |
| 56 | IREDDR | MAIN | IRED (Eye Control LED) drive |
| 57 | ICCYL1 | MAIN | YLED-IC's power source-stabilizing capacitor |
| 58 | CYL2 | MAIN | IRED lighting capacitor |
| 59 | RYL0 | MAIN | |
| 60 | RYL1 | MAIN | IRED current-determining resistor |
| 61 | RYL2 | MAIN | IRED current-determining resistor |
| 62 | RYL3 | MAIN | IRED current-determining resistor |
| 63 | RYL4 | MAIN | IRED current-determining resistor |
| 64 | RYL5 | MAIN | IRED lighting resistor |
| 65 | RYL7 | MAIN | IRED current-monitoring resistor |
| 66 | RESIC2 | MAIN | VDD3 monitoring IC |
| 67 | CPUC3 | MAIN | RESIC2 capacitor |
| 68 | CPUC4 | MAIN | RESIC2 capacitor |
| 69 | TRMIF | MAIN | Lens-mounted detection FET |
| 70 | RLCLK1 | MAIN | LCLK line's pull-up resistor |
| 71 | RLCLK2 | MAIN | LCLK line's protective resistor |
| 72 | RLIN | MAIN | Lens transmission terminal pull-up resistor |
| 73 | RLOUT | MAIN | LOUT line's protective resistor |
| 74 | RMIF | MAIN | Lens-mounted detection resistor |
| 75 | TRPR | MAIN | Film transport photo reflector driving transistor |
| 76 | CPR | MAIN | Film transport photo reflector output noise-control capacitor |
| 77 | RPR1 | MAIN | Film transport photo reflector ON current-determining resistor |
| 78 | RPR2 | MAIN | Film transport photo reflector drive circuit resistor |
| 79 | RPR3 | MAIN | Film transport photo reflector output detection resistor |
| 80 | SPLIC | MAIN | Superimposition circuit-driving IC |
| 81 | CSPL | MAIN | SPLIC's power source-stabilizing capacitor |
| 82 | RSPL1 | MAIN | Superimposition ON current-determining resistor |
| 83 | RSPL2 | MAIN | Superimposition ON current-determining resistor |
| 84 | TRDATE | MAIN | Dateback module-driving transistor |
| 85 | EEPROM | MAIN | Data memory ROM |
| 86 | OPAMP1 | MAIN | DAC power source conversion OPAMP |
| 87 | DXON | MAIN | DX-reading control transistor |
| 88 | TRHVON | MAIN | HV switch-driving transistor |
| 89 | RESIC2 | MAIN | VDD3 power source-monitoring IC |
| 90 | TRDATE | MAIN | Dateback module-driving transistor |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 91 | AEIC | AE | AE sensor |
| 92 | CAEVC1 | AE | AE sensor's internal power source-stabilizing capacitor |
| 93 | CAEVCC | AE | AE sensor's power source-stabilizing capacitor |
| 94 | LPU | DSP | Display/switch-detecting CPU |
| 95 | VREF | DSP | Liquid-crystal-driving power source IC |
| 96 | DLCD | DSP | Liquid-crystal drive voltage-generating diode |
| 97 | OSCL1 | DSP | LPU clock oscillator |
| 98 | OSCL2 | DSP | LPU secondary clock crystal |
| 99 | CLPU1 | DSP | LPU power source-stabilizing capacitor |
| 100 | CLPU2 | DSP | LPU power source-stabilizing capacitor |
| 101 | COL1 | DSP | Oscillation capacitor |
| 102 | COL2 | DSP | Oscillation capacitor |
| 103 | CP | DSP | Liquid-crystal drive voltage-generating capacitor |
| 104 | CVH | DSP | Liquid-crystal drive voltage-generating capacitor |
| 105 | CVM | DSP | Liquid-crystal drive voltage-generating capacitor |
| 106 | CVL | DSP | Liquid-crystal drive voltage-generating capacitor |
| 107 | CVREF | DSP | Liquid-crystal drive voltage-generating capacitor |
| 108 | RVREF | DSP | Liquid-crystal drive voltage-generating resistor |
| 109 | CMDI1 | DSP | Main Dial noise-control capacitor |
| 110 | CMDI2 | DSP | Main Dial noise-control capacitor |
| 111 | CSDI1 | DSP | Quick Control Dial noise-countering capacitor |
| 112 | CSDI2 | DSP | Quick Control Dial noise-countering capacitor |
| 113 | RESIC1 | DSP | System reset IC |
| 114 | CPUC1 | DSP | Reset circuit capacitor |
| 115 | CPUC2 | DSP | Reset circuit capacitor |
| 116 | RPUC1 | DSP | Reset terminal pull-up resistor |
| 117 | EMI4 | DSP | LPU's power source (VDD) EMI filter |
| 118 | TRREM | DSP | Wireless remote control's power source control transistor |
| 119 | RREMJ1 | DSP | Remote switch EMI-countering resistor |
| 120 | RREMJ2 | DSP | Remote switch EMI-countering resistor |
| 121 | RREMJG | DSP | Remote switch EMI-countering resistor |
| 122 | LFLED | DSP | FLED driving coil |
| 123 | OLC | DSP | External LCD panel |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 124 | DCDC1 | MD | DCDC converter IC for control system power source |
| 125 | DCDC2 | MD | VDD3 DCDC converter IC |
| 126 | REGPS1 | MD | VDD power source regulator |
| 127 | REGPS2 | MD | E1, E2 power source regulator |
| 128 | REGPS3 | MD | VDD3 power source regulator |
| 129 | TRPS1 | MD | DCDC converter transistor |
| 130 | TRPS2 | MD | DCDC converter transistor |
| 131 | DPS1 | MD | DCDC converter diode |
| 132 | DPS2 | MD | DCDC converter diode |
| 133 | DPS4 | MD | DCDC converter diode |
| 134 | FUSE | MD | Power source FUSE |
| 135 | LPS1 | MD | DCDC converter coil |
| 136 | LPS2 | MD | DCDC converter coil |
| 137 | CPS1 | MD | DCDC converter input-smoothing capacitor |
| 138 | CPS2 | MD | DCDC converter internal-smoothing capacitor |
| 139 | CPS3 | MD | VDD smoothing capacitor |
| 140 | CPS4 | MD | E1, E2-smoothing capacitor |
| 141 | CPS5 | MD | REGPS2-stabilizing capacitor |
| 142 | CPS6 | MD | VDD3-smoothing capacitor |
| 143 | CPS7 | MD | VDD3-smoothing capacitor |
| 144 | CPS8 | MD | DCDC2's drive power source-stabilizing capacitor |
| 145 | CAID | MD | Power source backup capacitor |
| 146 | RDCON | MD | DCDC control signal pull-down resistor |
| 147 | MD11 | MD | M1 motor driver |
| 148 | MD21 | MD | M2 motor driver |
| 149 | ZDM1 | MD | Motor noise-absorbing diode |
| 150 | ZDM2 | MD | Motor noise-absorbing diode |
| 151 | CMD11 | MD | Motor driver capacitor |
| 152 | CMD12 | MD | Motor driver capacitor |
| 153 | CMD13 | MD | Motor driver capacitor |
| 154 | CMD14 | MD | Motor driver capacitor |
| 155 | CMD15 | MD | Motor driver capacitor |
| 156 | CMD23 | MD | Motor driver capacitor |
| 157 | CMD25 | MD | Motor driver capacitor |
| 158 | RMD1 | MD | Motor driving control signal pull-down resistor |
| 159 | RMD2 | MD | Motor driving control signal pull-down resistor |
| 160 | ZDMIF2 | MD | Lens transmission terminal protection diode |
| 161 | TRVB1 | MD | VBAT power source control FET |
| 162 | TRVB2 | MD | VBAT3 power source problem detection transistor |
| 163 | RVB1 | MD | DVB current-limiting resistor |
| 164 | RVB2 | MD | TRVB2-driving resistor |
| 165 | CVB | MD | TRVB2-driving capacitor |
| 166 | DVB | MD | Rectifier diode |
| 167 | TRRED | MD | Red-eye reduction lamp drive transistor |
| 168 | RRED | MD | TRRED control signal pull-down resistor |
| 169 | TRMG3A1 | MD | Shutter-driving transistor |
| 170 | TRMG3A2 | MD | Shutter-driving transistor |
| 171 | TRMG3C | MD | Shutter-driving transistor |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 172 | YBASIS | FINDER(EYE) | Eye Control AF sensor |
| 173 | CYE2 | FINDER(EYE) | YBASIS power source-stabilizing capacitor |
| 174 | CYVC1 | FINDER(EYE) | YBASIS standard voltage-stabilizing capacitor |
| 175 | RY1 | FINDER(EYE) | BCLK noise-control resistor |
| 176 | YIRED0 | FINDER(EYE) | Eye Control illumination LED |
| 177 | YIRED1 | FINDER(EYE) | Eye Control illumination LED |
| 178 | YIRED2 | FINDER(EYE) | Eye Control illumination LED |
| 179 | YIRED3 | FINDER(EYE) | Eye Control illumination LED |
| 180 | YIRED4 | FINDER(EYE) | Eye Control illumination LED |
| 181 | YIRED5 | FINDER(EYE) | Eye Control illumination LED |
| 182 | YIRED6 | FINDER(EYE) | Eye Control illumination LED |
| 183 | YIRED7 | FINDER(EYE) | Eye Control illumination LED |
| 184 | DX1 | TOP | High-voltage flash countering diode |
| 185 | DX2 | TOP | High-voltage flash countering diode |
| 186 | CX | TOP | High-voltage flash countering capacitor |
| 187 | RX | TOP | High-voltage flash countering resistor |
| 188 | FCCC | TOP | EMI countering coil |
| 189 | FEFID | TOP | EMI countering coil |
| 190 | REMU | RLS | Wireless remote control sensor |
| 191 | CREM | RLS | Wireless remote control's power source-stabilizing capacitor |
| 192 | SPLED1 | SI | Superimposition LED |
| 193 | SPLED2 | SI | Superimposition LED |
| 194 | SPLED3 | SI | Superimposition LED |
| 195 | SPLED4 | SI | Superimposition LED |
| 196 | SPLED5 | SI | Superimposition LED |
| 197 | SPLED6 | SI | Superimposition LED |
| 198 | SPLED7 | SI | Superimposition LED |
| 199 | AFIC | AF | AF sensor |
| 200 | CVCCAF | AF | AF sensor power source-stabilizing capacitor |
| 201 | CVRES | AF | AF sensor internal power source-stabilizing capacitor |
| 202 | CVGR | AF | AF sensor internal power source-stabilizing capacitor |
| 203 | CVDDAF | AF | AF sensor power source-stabilizing capacitor |
| 204 | CVCAF | AF | AF sensor internal power source-stabilizing capacitor |
| 205 | RMOSI | AF | AF sensor noise-countering capacitor |
| 206 | RCLKAF | AF | AF sensor noise-countering capacitor |
| 207 | LAF | AF | AF sensor noise-countering coil |
| 208 | DTEMP | AF | AF temperature detection diode |
| 209 | RTEMP | AF | AF sensor resistor |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 210 | EFIC | TTL | Flash metering and external flash transmission IC |
| 211 | CEF1 | TTL | EFIC power source-stabilizing capacitor |
| 212 | CEF2 | TTL | EFIC power source-stabilizing capacitor |
| 213 | CEF3 | TTL | EFIC power source-stabilizing capacitor |
| 214 | CEFVC | TTL | EFIC internal power source-stabilizing capacitor |
| 215 | CVRH1 | TTL | EFIC standard power source-stabilizing capacitor |
| 216 | REF | TTL | EFIC resistor |
| 217 | CS5 | TTL | Internal flash-charging voltage detection circuit-stabilizing capacitor |
| 218 | RS5 | TTL | Internal flash-charging voltage detection resistor |
| 219 | IGBTDR | FLASH PCB | IGBT drive IC |
| 220 | IGBT | FLASH PCB | Flash firing control IGBT |
| 221 | TR1s | FLASH PCB | Flash-charging transistor |
| 222 | TR2s | FLASH PCB | Flash-charging transistor |
| 223 | D1s | FLASH PCB | Flash-charging diode |
| 224 | D2s | FLASH PCB | Flash-charging diode |
| 225 | D3s | FLASH PCB | Flash-charging diode |
| 226 | D4s | FLASH PCB | Flash-charging diode |
| 227 | CSM1 | FLASH PCB | Flash main capacitor |
| 228 | CS1 | FLASH PCB | Flash-charging capacitor |
| 229 | CS2 | FLASH PCB | Flash-charging capacitor |
| 230 | CS3 | FLASH PCB | Flash-charging capacitor |
| 231 | CS4 | FLASH PCB | Flash-charging capacitor |
| 232 | CS6 | FLASH PCB | Internal flash-charging voltage detection circuit-stabilizing capacitor |
| 233 | CS7 | FLASH PCB | Flash firing control capacitor |
| 234 | CS8 | FLASH PCB | Flash firing control capacitor |
| 235 | CS9 | FLASH PCB | Power source-stabilizing capacitor for IGBT-driving IC |
| 236 | RS1 | FLASH PCB | Flash-charging resistor |
| 237 | RS2 | FLASH PCB | Flash-charging resistor |
| 238 | RS3 | FLASH PCB | Flash-charging resistor |
| 239 | RS4 | FLASH PCB | Flash-charging voltage detection resistor |
| 240 | RS6 | FLASH PCB | Flash firing control resistor |
| 241 | RS8 | FLASH PCB | Flash firing control resistor |
| 242 | RS9 | FLASH PCB | IGBT-driving resistor |
| 243 | RS10 | FLASH PCB | IGBT-driving resistor |
| 244 | RS11 | FLASH PCB | Firing-control signal pull-up resistor |
| 245 | THV | FLASH PCB | Flash-charging transistor |
| 246 | XE | FLASH CASE | XE lamp |
| 247 | TTRG | FLASH CASE | Flash-firing trigger coil |
| 248 | FLED | ILC | Internal liquid-crystal display illumination |
| 249 | ILC | ILC | Internal display liquid crystal |
| 250 | PRFLMV | SIGNAL | Film transport photo reflector |
| 251 | LAMP | BODY | Red-eye reduction lamp |
| 252 | FBREM | BODY | Wired remote control EMI countermeasure |
| 253 | BZ | DIAL | Buzzer |

| No. | Code | Applicable Unit | Function |
|---|---|---|---|
| 254 | DATE | BACK COVER | Dateback module |
| 255 | M1 | FILM DRIVE | Film transport motor |
| 256 | M2 | FRONT PANEL | Mirror-driving motor |
| 257 | BATT1 | - | Power source battery |
| 258 | BATT2 | - | Power source battery |
| 259 | BAT_DATE | - | Dateback battery |

# 4. ERROR CODE DISPLAY

When the camera is inoperative (bc blinks), normally the battery level icon will blink. When you select "Error Code Display" with the repair adjustment software program, the error code will appear on the LCD panel as shown on the right. It indicates the camera's error condition.

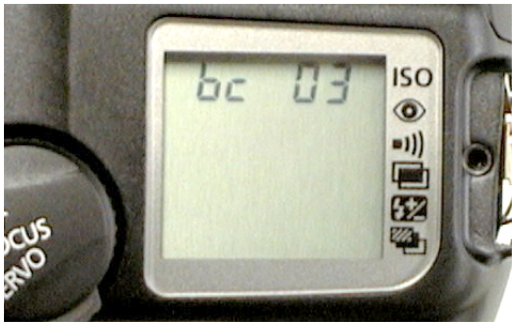



**Fig. 2-26 Error Code Display.**

### <Battery-Related Errors>

| Error No. | Error | Condition | Probable Cause |
|---|---|---|---|
| 00 | No-load BC error | ① A battery check (no load) while E1 is ON shows a battery voltage lower than the metering prohibit voltage. | Battery exhausted. |
| | | ② A battery check (no load) during an exposure shows a battery voltage lower than the focusing prohibit voltage. | Battery exhausted. |
| 01 | BC error | ① A battery check before shutter release shows a battery voltage lower than the prohibit voltage. | Battery exhausted. |
| | | ② A battery check after an exposure and before film advance shows a battery voltage lower than the prohibit voltage. | Battery exhausted. |
| | | ③ A battery check before auto film loading shows a battery voltage lower than the prohibit voltage. | Battery exhausted. |
| | | ④ A battery check after an exposure and before film advance shows a battery voltage lower than the prohibit voltage. | Battery exhausted. |
| | | ⑤ A battery check before the built-in flash's pop-up operation shows a battery voltage lower than the prohibit voltage. | Battery exhausted. |
| 02 | (Blank) | | |

### <Mechanical-Related Errors>

| Error No. | Error | Condition | Probable Cause |
|---|---|---|---|
| 03 | Mirror-up operation error | ① The mirror-up completion signal (CMSP) is not established within the stipulated time after the start of mirror-up operation (M1 motor runs in reverse). | Faulty front plate. |
| | | ② The mirror-up completion signal (CMSP) is not established before the shutter runs (mirror stablization timer end & shutter release time lag stabilization timer end & diaphragm drive end) during shutter release. | Faulty front plate (overrun). |
| 04 | The diaphragm does not stop down. | The maximum aperture SW is still open even after the diaphragm is driven for the stop-down operation during shutter release. | Lens maximum aperture SW is faulty. |
| 05 | A lens communication error prompted shutter release. | Shutter release occurred with a lens communication error. | The lens is not properly attached. |
| 06 | During the mirror-up operation at shutter release, CN2 turned OFF. | The CN2 signal turned OFF (2nd curtain travel completed signal) before the shutter traveled (mirror stablization timer end & shutter release time lag stablization timer end & diaphragm drive end) during shutter release. | Faulty shutter system. |
| 07 | CN2 does not turn OFF after shutter release. | The CN2 signal does not turn OFF (2nd curtain travel completed signal) within 30 ms after the exposure operation ends (MG32 conduction turns OFF). | Faulty shutter system.<br>MG32 wire disconnected. |
| 08 | X signal turned ON during mirror-up operation. | The X signal (1st curtain travel completed signal) turned ON before the shutter traveled (mirror stablization timer end & shutter release time lag stablization timer end & diaphragm drive end) during shutter release. | Faulty shutter system. |
| 09 | (Blank) | | |
| 10 | The diaphragm does not open. | When the diaphragm supposed to return to the maximum aperture after the exposure, the maximum aperture SW still indicates stop-down even after the diaphragm is driven to open again. | Lens maximum aperture SW is faulty. |
| 11 | Faulty mirror-down operation. | ① The mirror-down completion signal (CMSP) is not established within the stipulated time after the start of mirror-down operation (M1 motor runs in reverse). | Faulty front plate. |
| | | ② The mirror-down completion signal (CMSP) is not established before the film advance (after the film advance start timer ends) during shutter release. | Faulty front plate (overrun). |
| 12 | The built-in flash does not pop-up. (Faulty POPEND signal.) | The pop-up signal (POPEND signal) does not arrive even after trying to pop up (M2 motor running forward) the built-in flash twice. | Built-in flash's pop-up system is faulty. |
| 13 | X signal does not turn ON at shutter release. | The X signal does not arrive within the stipulated time after the exposure operation (after MG32 conduction ends). | Faulty shutter system. |

### <Mechanical-Related Errors>

| Error No. | Error | Condition | Probable Cause |
|---|---|---|---|
| 14 | Failed phase switching (faulty POCH signal). | ① During the phase switching operation (Lo-wind) before autoloading, the Lo-wind phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| | | ② During the phase switching operation (Hi-wind) before autoloading, the Hi-wind phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| | | ③ During the phase switching operation (Rew) before film rewind, the Rew phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| | | ④ During the phase switching operation (Lo-wind) when film rewind ends, the Lo-wind phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| | | ⑤ During the Hi-Lo switching operation before the film advances at shutter release, the Hi-wind phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| | | ⑥ During the Hi-Lo switching operation before the film advances at shutter release, the Lo-wind phase (POCH) is not established within 300 ms after the phase switching operation starts (M2 motor runs in reverse). | Faulty phase switch in the drive transmission system. |
| 15 | (Blank) | | |
| 16 | The POPCNTR signal does not come during flash pop-up control. | The POPCNTR signal does not switchover within 2000 ms after the built-in flash's pop-up operation starts (M2 motor runs forward). | The built-in flash's pop-up system is faulty. |

### <Inter-Task Communication Errors>

| Error No. | Error | Condition | Probable Cause |
|---|---|---|---|
| 30 | Timeout of af_task cancel process. | The AF stop process does not end within the stipulated time. | Faulty task status transition. |
| 31 | Timeout of af_task EMDACT process. (Stop-down error) | The stop-down process does not end within the stipulated time. | Faulty task status transition. |
| 32 | Timeout of af_task EMDACT process. (Diaphragm conduction stop error) | The stop-down conduction stop process does not end within the stipulated time. | Faulty task status transition. |
| 33 | Timeout of af_task EMDACT process. (Maximum aperture error) | The maximum aperture opening process does not end within the stipulated time. | Faulty task status transition. |
| 34 | Timeout of nac_task stop process. | The Eye Control detection stop process does not end within the stipulated time. | Faulty task status transition. |

### <Eye Control Errors>

| Error No. | Error | Condition | Probable Cause |
|---|---|---|---|
| 50 | Faulty current during Eye Control IRED/ON. | The total IRED current during Eye Control IRED/ON is very abnormally larger than the normal set current. | Circuit problem due to a damaged IRED driver, current leakage, etc. |
| 51 | Faulty current during Eye Control IRED/OFF. | The total IRED current during Eye Control IRED/OFF is about 49 mA or larger instead of 0 mA. | Circuit problem due to a damaged IRED driver, current leakage, etc. |

# Part 3

# Repair Information

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# 1. REPAIR PREPARATIONS

## IMPORTANT! READ THIS BEFORE STARTING REPAIR

### 1.1 BLEED THE MAIN CAPACITOR

- As soon as you remove the front cover, be sure to drain the main capacitor with a bleeder resistor of around 500 ohms, 10 W.
- The flash bleed points are at the soldered parts of XE-P (red) on the viewfinder flex (EYE model) or VIA flex (NON-EYE model), and TRG-G (blue). See the figure below.

**CAUTION** • Beware that it is a high-voltage circuit and prevent electrical shock.

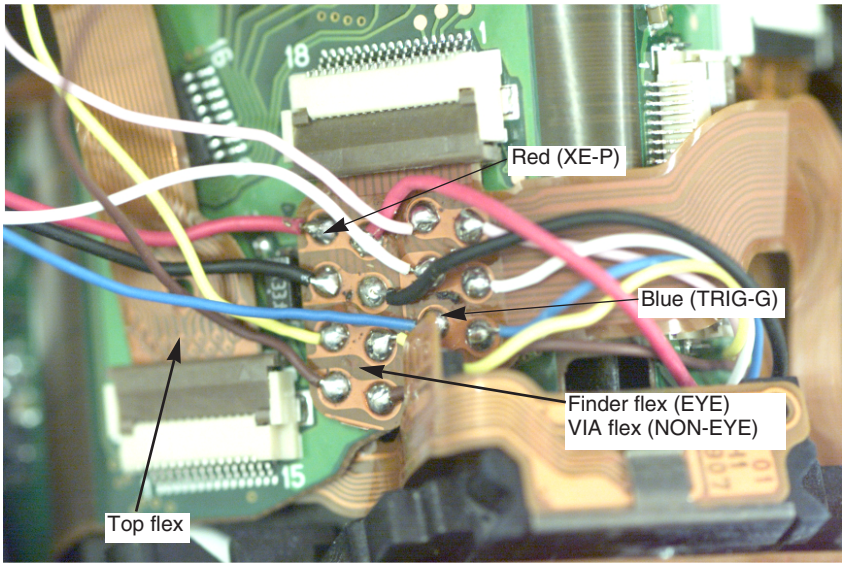



**Fig. 3-1 Bleed points**

### 1.2 FLASH CHARGING INHIBIT MODE

You can use the adjustment software to set the camera to the flash charging inhibit mode.

Flash charging inhibit mode setting procedure:

Main menu → Self-Check menu → Select Flash Charging Inhibit.

The screen on the right will then appear with the flash inhibit mode set. The adjustment software will exit automatically.

To cancel, select Flash Charging Inhibit again or select Exit on the Main menu.

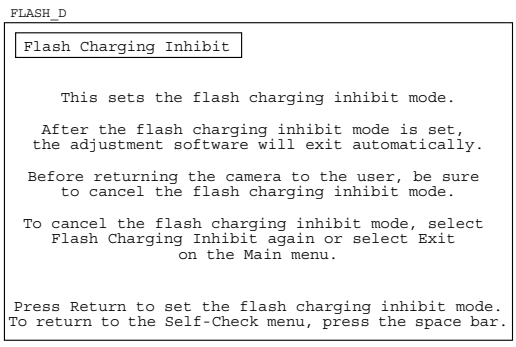



**Fig. 3-2 Flash charging inhibit screen**

## 1.3 Cautions for Disassembly and Reassembly

- After removing the top cover unit, do not apply pressure against the flexible boards.
- Before disassembly, see how the lead wires are routed.
- As a general rule, reassemble by following the disassembly procedure in reverse.
- During the procedure, take adequate measures against static charge.
- When using the service battery, be sure to note the positive and negative contacts.

## 1.4 Operation in No Top Cover Ass'y State

Operation check after disassembling is possible in no Top Cover Ass'y state.

- Camera mode: Full-auto
- be stop condition: Slower shutter speed than 1/125 second.

## 1.5 Temporary Treatment for Top Cover Ass'y and BP FPC Section

For a temporary countermeasure against malfunction of the mode dial, the small flex (Fig. 3-3) or the PCB with a capacitor (Fig. 3-4) has been installed at the back of the Mode Dial (command dial PCB) in the Front Cover Ass'y. The service part Top Cover Ass'y has either of those parts.

For a temporary countermeasure for malfunction of the back cover release latch, a capacitor has been installed to the soldered portion on the BP flex. If the capacitor is removed for the DX flex or BP flex replacement, resolder it as it was.

Above two countermeasure are related with the DSP PCB Ass'y, and they will no longer used if the DSP PCB Ass'y is changed to the new type.
The infomation about permanent countermeasure will be announced in Service Manual Report when they are taken.

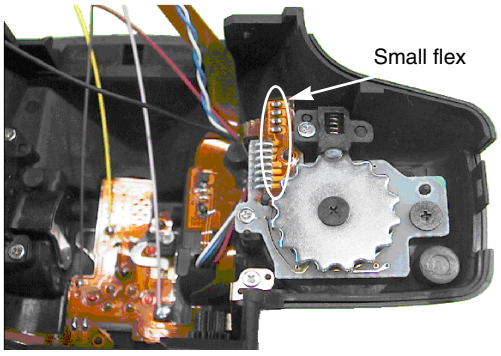



Fig. 3-3 Small flex

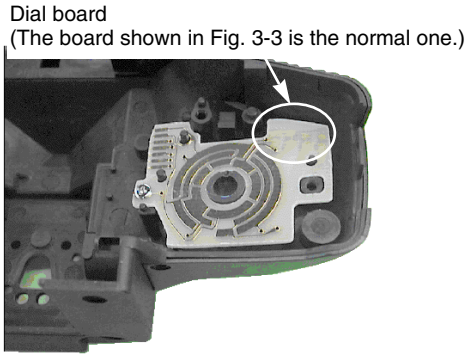



Fig. 3-4 Dial board

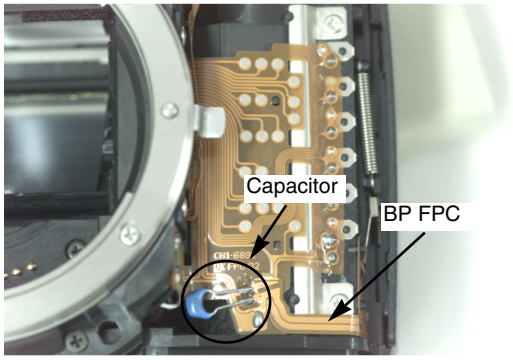



Fig. 3-5 BP FPC

## 1.6 CURRENT CONSUMPTION STANDARDS

Regarding the power current consumption, the product standard and the product's actual consumption are shown below.

Measure all the items that can be measured and check that they match the product's actual consumption.
(Depending on the camera, there may be irregular values.)

| | |
|---|---|
| Lens: | EF 50mm f/1.8 II |
| Temperature and humidity: | Room temperature and humidity (60% or less) |
| Power source: | Constant voltage power source of 6.2 [V] 1.2 [ohm] (includes line resistance and contact resistance)<br>Or use new CR123A x 2 (6 V) batteries (less than 3 months old).<br>For film transport measurements, constant voltage power source of 5.4 [V] 0.68 [ohm] |
| Film: | Tri-X (36-ex.) fresh roll (Film advance: Measure at around frame 20) |

| | Product Standard | Product's Actual Consumption (Approx.) |
|---|---|---|
| At standby (including LOCK) | 60 µA or less | 30 µA |
| SW-1 ON | 150 mA or less | 80 mA |
| During self-timer (with lamp on) | 200mA or less | 150 mA |
| Red-eye reduction lamp ON | 350 mA or less | 270 mA |
| AF serch | 350mA or less | 280 mA |
| Film advance | | |
| Shutter cocking (Peak value excluding the rush during cocking) | 1500 mA or less | 950 mA |
| Film (Peak value excluding the rush during film advance) | Hi 1100 mA or less | 800 mA |
| Film rewind (Average value from 3 sec. after film rewind starts to the end) | 800 mA or less | 400 mA |

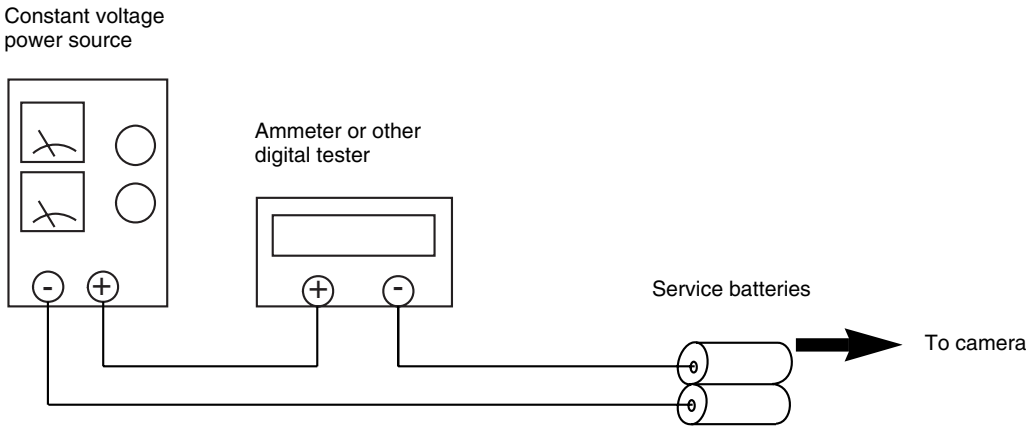



**Fig. 3-6 Current consumption measurement set-up**

## 1.7 TOOLS AND CONSUMABLES

- Procure the following tools and consumables required for reassembly and adjustments.

### 1) Tools

| New | Tool | Part No. | Application |
|---|---|---|---|
| | Multiple Tool II | CY9-7099-000 | Electrical adjustment |
| | (HS-I/F unit + expended memory) | | As above |
| | Additional memory) | | |
| | DC power source | - | As above |
| | EF-8000 high-speed multi-camera tester | CY9-7073-000 | Shutter AE adjustment |
| | AF adjustment chart 2% | CY9-1066-000 | AF adjustment |
| | 64% | CY9-1067-000 | As above |
| | 90% | CY9-7076-000 | As above |
| | Standard AF chart | CY9-7113-000 | As above |
| | Tripod | - | As above |
| | Video light | - | As above |
| | AF tool normal lens | CY9-1072-001 | AF precision adjustment |
| | Dark bag | - | AF/ECF adjustment |
| | IRED positioning tool | CY9-1106-000 | ECF adjustment |
| | CCD adjustment chart | CY9-7088-000 | As above |
| | Mask holder | CY9-1097-000 | As above |
| | CR123A service battery | CY9-7091-001 | Inhibit voltage adjustment |
| | Dial gauge | CY9-1001-006 | Flange focal distance adjustment |
| | 2mm reinforcement ring | CY9-1001-008 | As above |
| | Block gauge (44.14mm) | CY9-1001-007 | As above |
| | Optical flat | CY9-1001-003 | As above |
| | Mirror angle checking tool | CY9-7098-001 | Secondary mirror 40.5 deg. angle setting |
| | Secondary mirror gauge (40.5 deg.) | CY9-7098-007 | As above |
| | Auto collimator (f=300mm) | CY9-7112-100 | As above |
| | 18% reflectance paper | - | Flash exposure metering adjustment |
| | Flash meter | - | As above |
| | Speedlite (EZ and EX series) | - | As above |
| | EF 28-135mm f/3.5-5.6 IS lens | - | Exposure program rewriting |
| | Grounded wrist strap | CY9-6158-000 | Disassembly and reassembly |

## 2) Consumables

| New | Consumable | Part No. | Application |
|---|---|---|---|
| | Aron Alpha 201 | CY9-8007-000 | SPC fixing |
| | Three Bond 1401C | CY9-8011-000 | Screw fixing |
| | GE-C9 | CY9-8043-000 | Back Cover Dial friction parts |
| | Silicon KE347B | CY9-8064-000 | Pentaprism fixing |
| | PL-015JG | CY9-8073-000 | Unlock button |
| | | | Spool friction parts |
| | | | Mirror shaft |
| | IF-10 | CY9-8088-000 | Mount spring |
| | Logenest Lambda A-74 | CY9-8102-000 | Film transport unit |
| | Logenest Lambda NK-74C | CY9-8117-000 | Gears and friction parts |
| | Diabond 1663G Black | CY9-8129-000 | Adhesion fixing |
| | Double-sided tape | CY9-4034-000 | Flex/lead wire fixing |
| | Cellophane tape | CY9-4031-000 | Preview button |
| | | | Trigger coil |
| | | | Flash board lead wire fixing |
| | Black marker pen (tentative) | - | Lug plate in top cover |

## 1.8 LOCALLY FABRICATED TOOLS

### 1) Charts

(1) AF standard chart (Included in tool list. CY9-7113-000)

As shown in the figure, paste two strips of 90% reflectance paper on an A1-size (594 x 840mm) 2% reflectance paper.

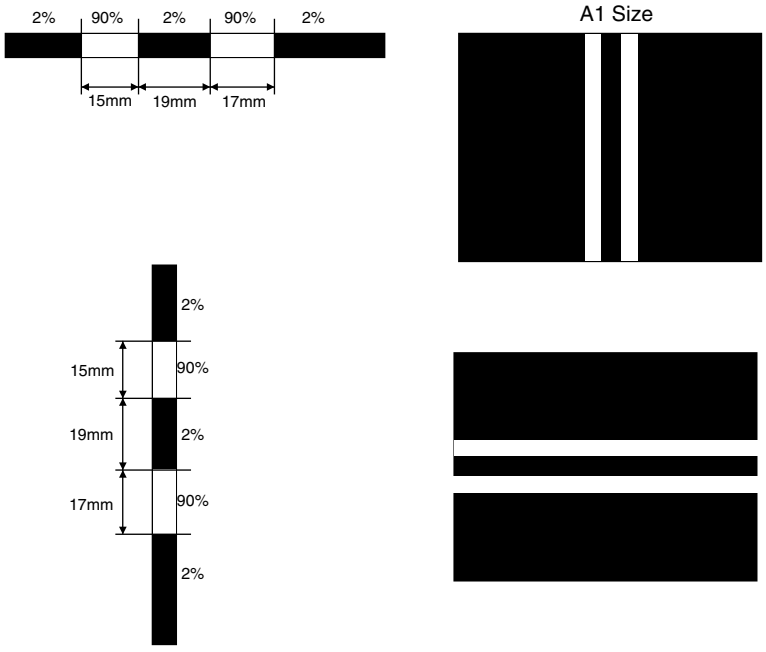



**Fig. 3-7 AF standard chart**

(2) AGC chart (Provided at the end of this chapter).

As shown in the figure, paste strips of 90% reflectance paper on an A3-size (210 x 297mm) 2% reflectance paper.

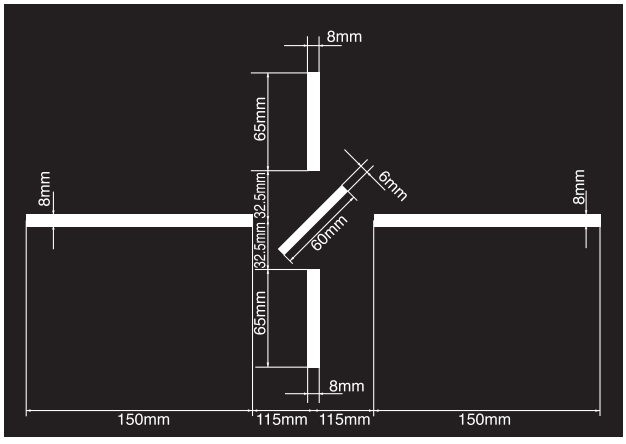



**Fig. 3-8 AGC chart**

### 2) SPD positioning adjustment mask

As shown in the figure below, open holes in a low-reflectance black sheet of paper.

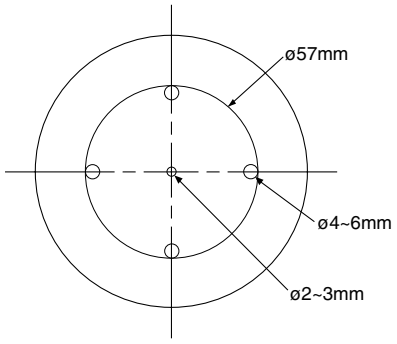



**Fig. 3-9 SPD positioning adjustment mask**

### 3) X time lag checking tool

- Used for measuring the X time lag.
- As shown in the figure below, attach a 4.7 Kohm resistor between the CCC line and GND on the flash shoe.

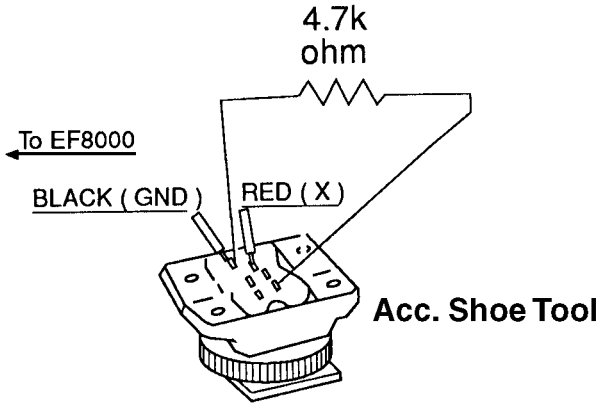



**Fig. 3-10 ACC. Shoe Tool**

# 2. DISASSEMBLY AND REASSEMBLY

## 2.1 DISASSEMBLY OF EXTERNAL COVERS

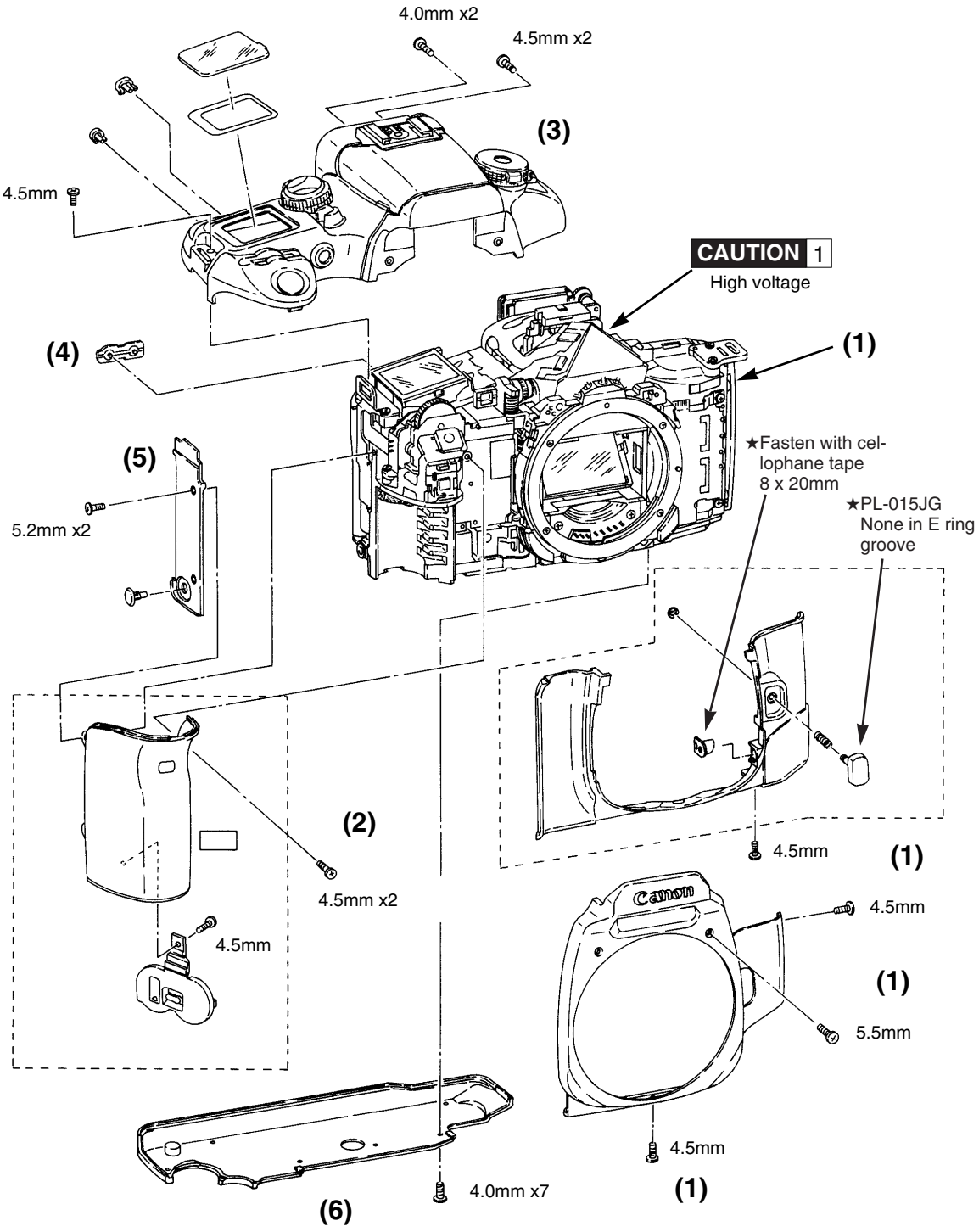



**Fig. 3-11 Disassembly of external covers**

## <DISASSEMBLY PROCEDURE>

(1) Removing the front cover
1. Remove the five screws on the front cover.
2. Loosen the two screws on the camera back latch cover.

(2) Removing the grip
1. Remove the remote control cap.
2. Remove the four screws (two on mount, two on hinge cover).
3. During removal, be careful not to break the hooks clinging to the top cover.

**CAUTION 1** : Bleeding the main capacitor
After removing the top cover unit, be sure to drain the main capacitor. (Drain from the red and blue lead wires shown in Fig. 3-12.)

(3) Removing the top cover
1. Remove the five screws on the top cover (one on the right side, four on the back).
2. Bleed the main capacitor.
3. Disconnect the seven lead wires from the top cover and the TOP flex from its connector.

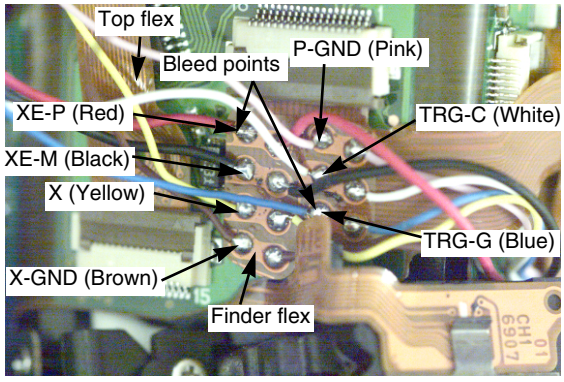



**Fig. 3-12 Top cover lead wires**

(4) Remove the camera back switch rubber.

(5) Remove the hinge cover.

(6) Remove the bottom cover (removal not necessary when the front panel unit is removed).
1. Seven screws

## <REASSEMBLY NOTES>

1. Make sure the soldering is not short-circuited.
2. Make sure no lead wires protrude outside or get caught between the cover edges.
3. Top cover reassembly
- Make sure the flex is securely connected to the TOP flex connector.
- Remove or raise the AF button and AE lock button so it does not contact the camera back switch rubber. (Otherwise, the button will not work properly.)
- Installing the dioptric adjustment dial
  1) Look at the viewfinder unit's gear from the camera back and place the dial against it in the counterclockwise direction.
  2) Look at the top cover's dioptric adjustment dial from the rear and push it in the clockwise direction.
  3) Install the top cover and check the operation of the dioptric adjustment dial.

## 2.2 FRONT PANEL UNIT REMOVAL

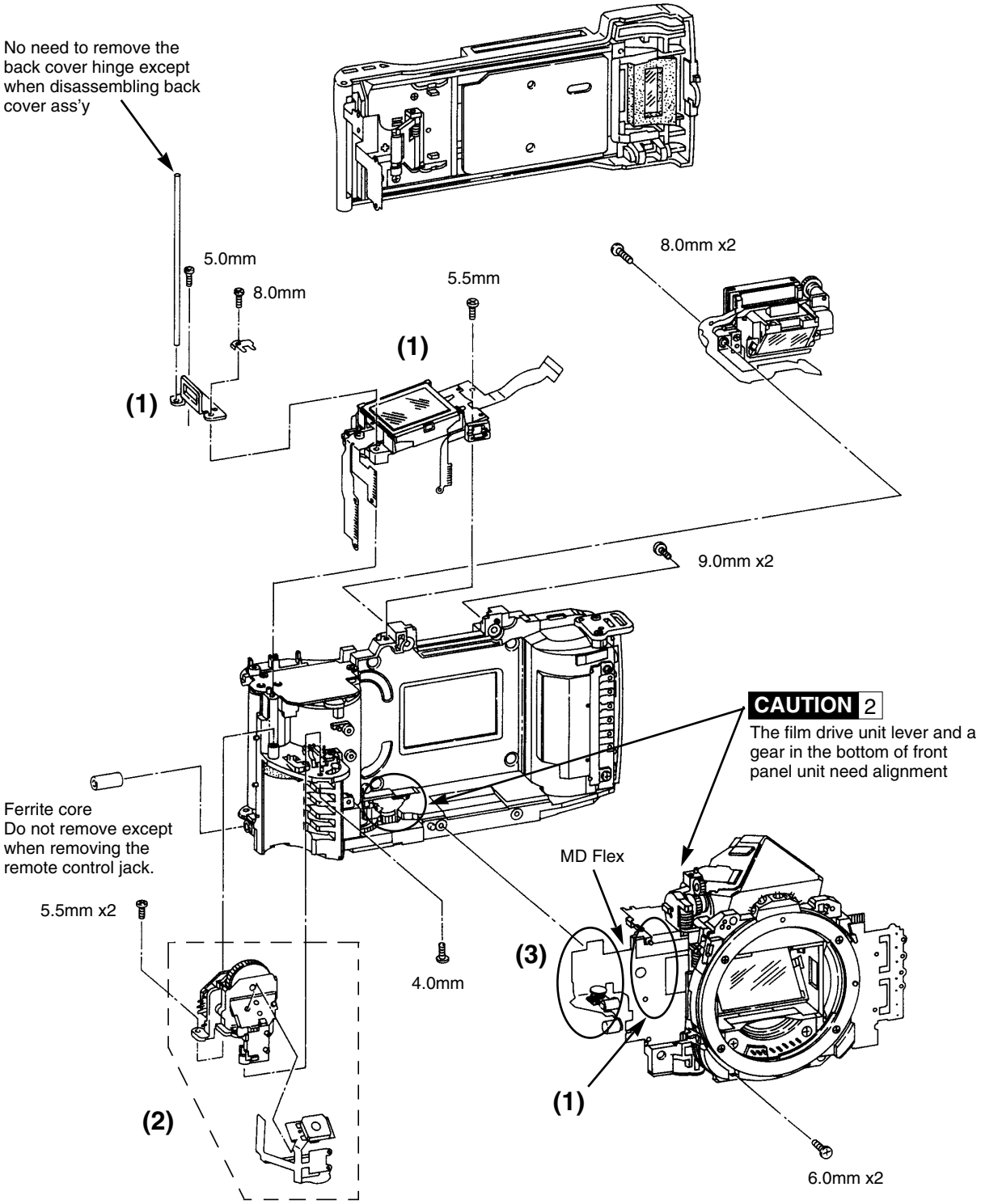



**Fig. 3-13 Front panel unit removal**

## <DISASSEMBLY PROCEDURE>

(1) Removing the DSP flex unit
1. On the MD flex, desolder the five lead wires, lamp prongs, and flex prongs. (See Fig. 3-14.)
2. On the right of the body, desolder the dial contact plate and camera back flex.
3. Disconnect the remote control jack's lead wires.
4. Remove the right strap lug (two screws).
5. Remove the flex connector on the pentaprism.
6. Remove the screw.
7. Disconnect the ILC flex from the connector on the rear of the DSP flex unit.

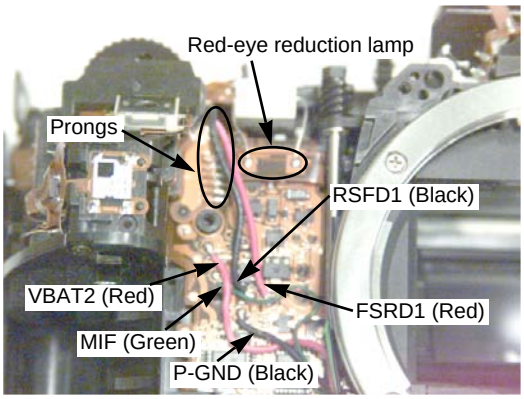


**Fig. 3-14 MD flex**

(2) Removing the dial unit
1. Remove the three screws (two on top and one on bottom).
2. Desolder the flex connected to the battery contacts on the bottom side of the dial unit.

(3) Desolder the thru hole on the MD flex.
1. Battery contacts
2. Flash board

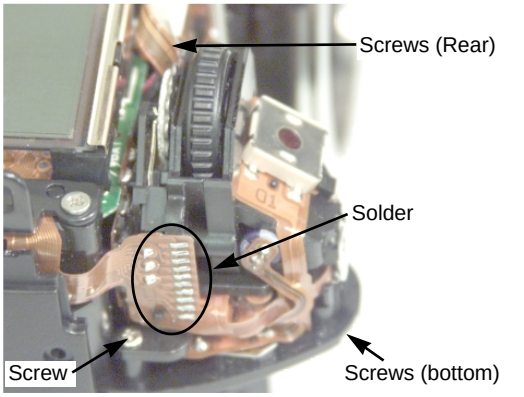


**Fig. 3-15 Dial unit**

(4) Removing the viewfinder flex's lead wires (For non-EYE models, look on top of the VIA flex.)
1. Five leads from the flash board.
2. Two leads from the shutter board.

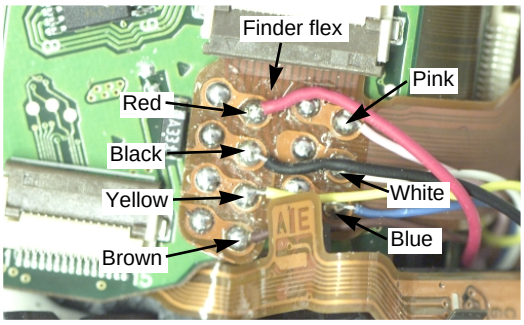


**Fig. 3-16 Viewfinder flex**

(5) Removing the signal unit lead wires
1. Remove the four lead wires.

(6) Desolder the prongs on the flash board.

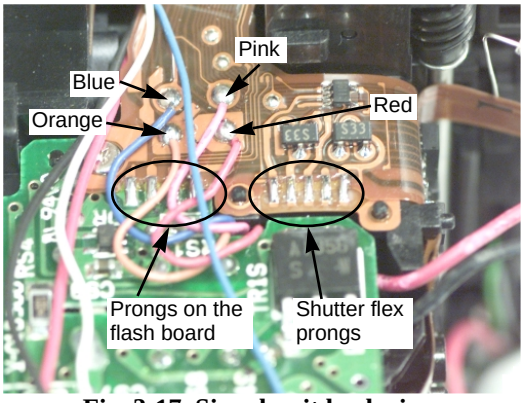


**Fig. 3-17 Signal unit lead wires**

(7) Desoldering the DX flex
1. Seven through-holes on DX contact plate
2. BP flex prongs

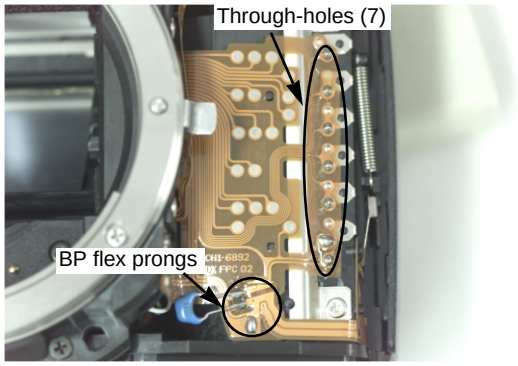



**Fig. 3-18 DX flex**

(8) Removing the viewfinder unit
1. Disconnect only the EYE viewfinder unit flex from the connector.
   For a NON-EYE viewfinder unit, there is no connector because the VIA flex is soldered onto the main board.
2. Remove the two screws.
   (The viewfinder unit must be removed to enable the screws on the rear of the front panel unit to be removed.)

(9) Removing the front panel unit
1. Remove the four screws (two on front and two on rear).

## <REASSEMBLY NOTES>

1. Make sure no soldering is missing.
2. Make sure the lead wires do not get caught between parts.
3. Make sure the flex is securely inserted into the connector.

**CAUTION 2** : **Front Panel Unit Reassembly**
Position the change lever and a gear in the film drive unit as shown in Fig. 3-19. Position the cam gear in the bottom of the front panel unit as shown in Fig. 3-20, and reassemble the front panel unit to the body.

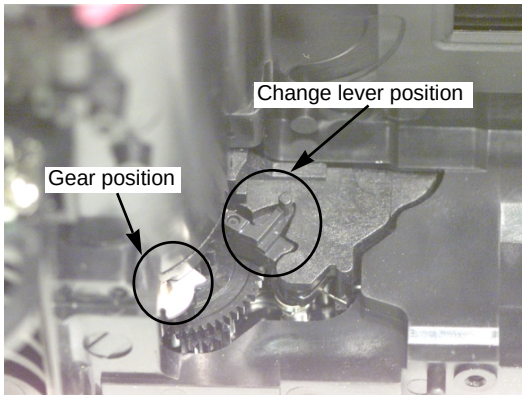



**Fig. 3-19 Lever position on the body**

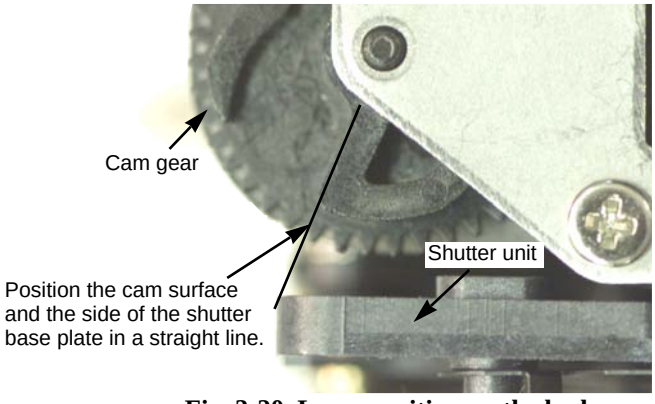



**Fig. 3-20 Lever position on the body**

<MEMO>

## 2.3 MAIN FLEX UNIT REMOVAL

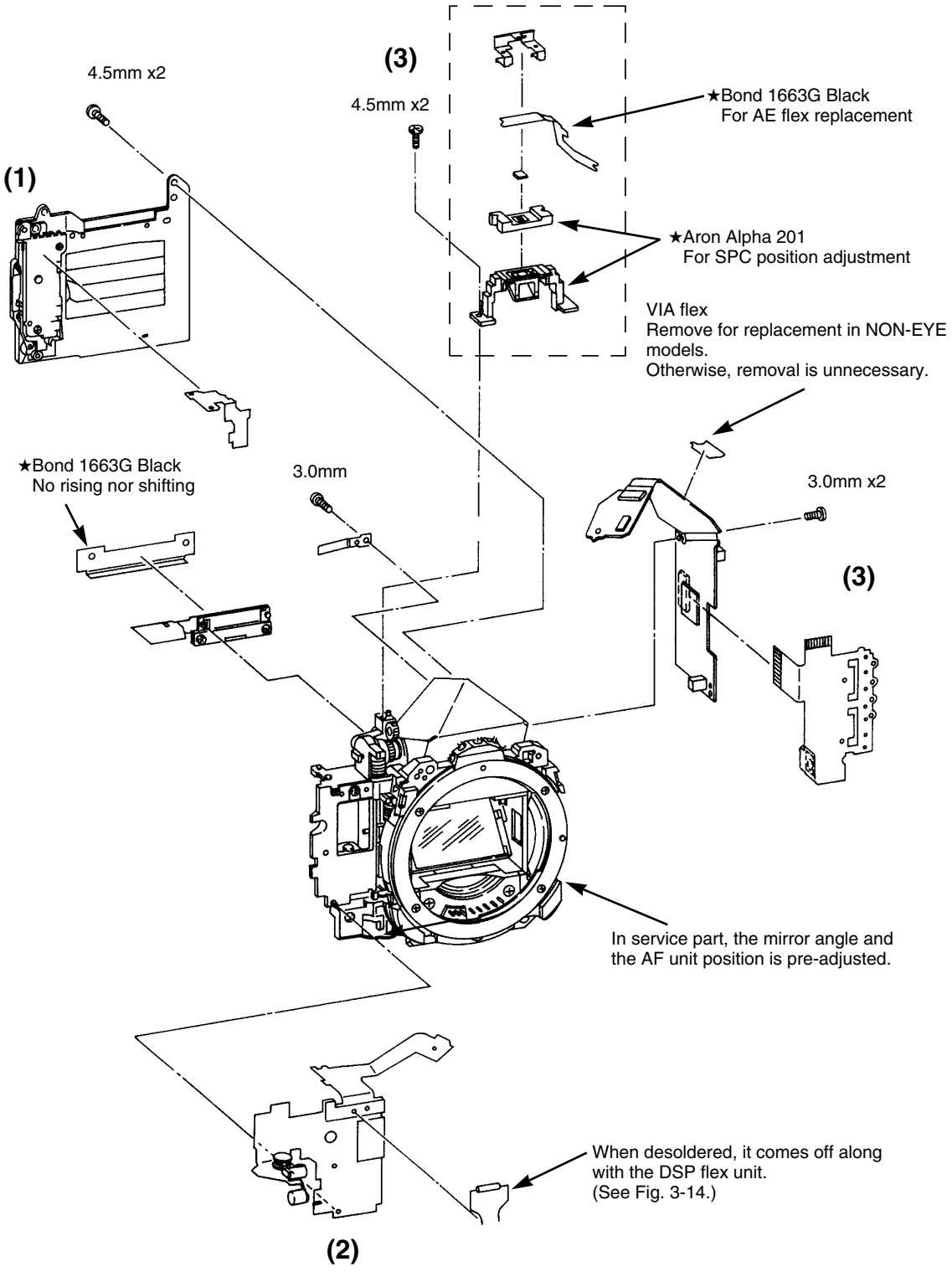



**Fig. 3-21 Main flex unit removal**

## <DISASSEMBLY PROCEDURE>

(1) Removing the shutter unit
1. Remove the shutter flex from the positioning dowels.
2. Remove the two screws.

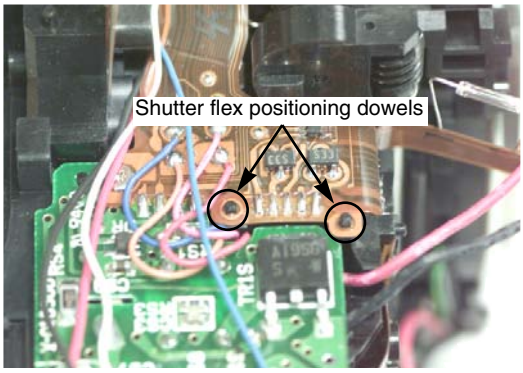



**Fig. 3-22 Shutter flex**

(2) Removing the MD flex unit
1. Remove the two M2 motor lead wires on the back of the wing. (Fig. 3-23)
2. Remove the main flex's connector.
3. Remove the two screws.

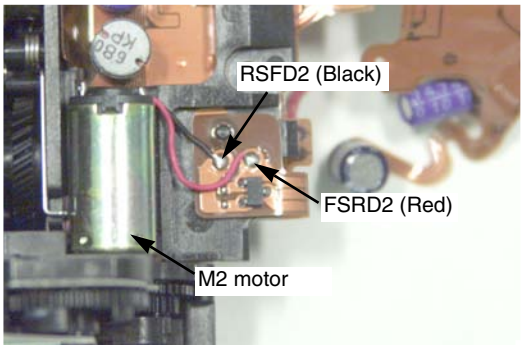



**Fig. 3-23 M2 motor lead wires**

(3) Removing the main flex unit
1. On the main flex, disconnect the DX, TTL, and AF flexes from the connectors.
2. Desolder the six lead wires on the left side of the AF flex connector. (Fig. 3-24)
3. Desolder the prongs from the SI flex.
4. Remove the DX flex's tact switch from the front panel's positioning dowel.
5. Remove the two screws on the SPC ground plate.
6. Remove the two screws on the main flex.

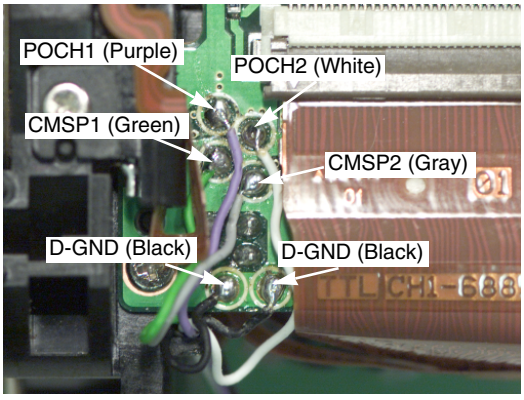



**Fig. 3-24 Main flex lead wires**

## <REASSEMBLY NOTES>

1. When replacing the MD flex, make sure the short pads are open as shown on the right.

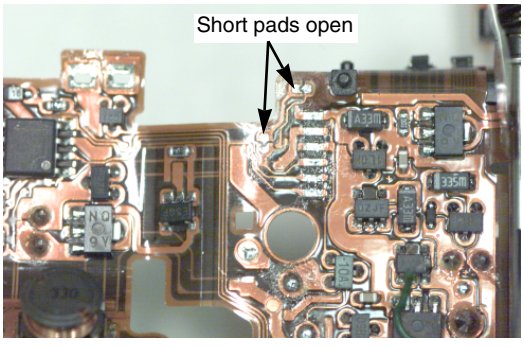



**Fig. 3-25 MD flex pads**

## 2.4 FRONT PANEL UNIT DISASSEMBLY 1

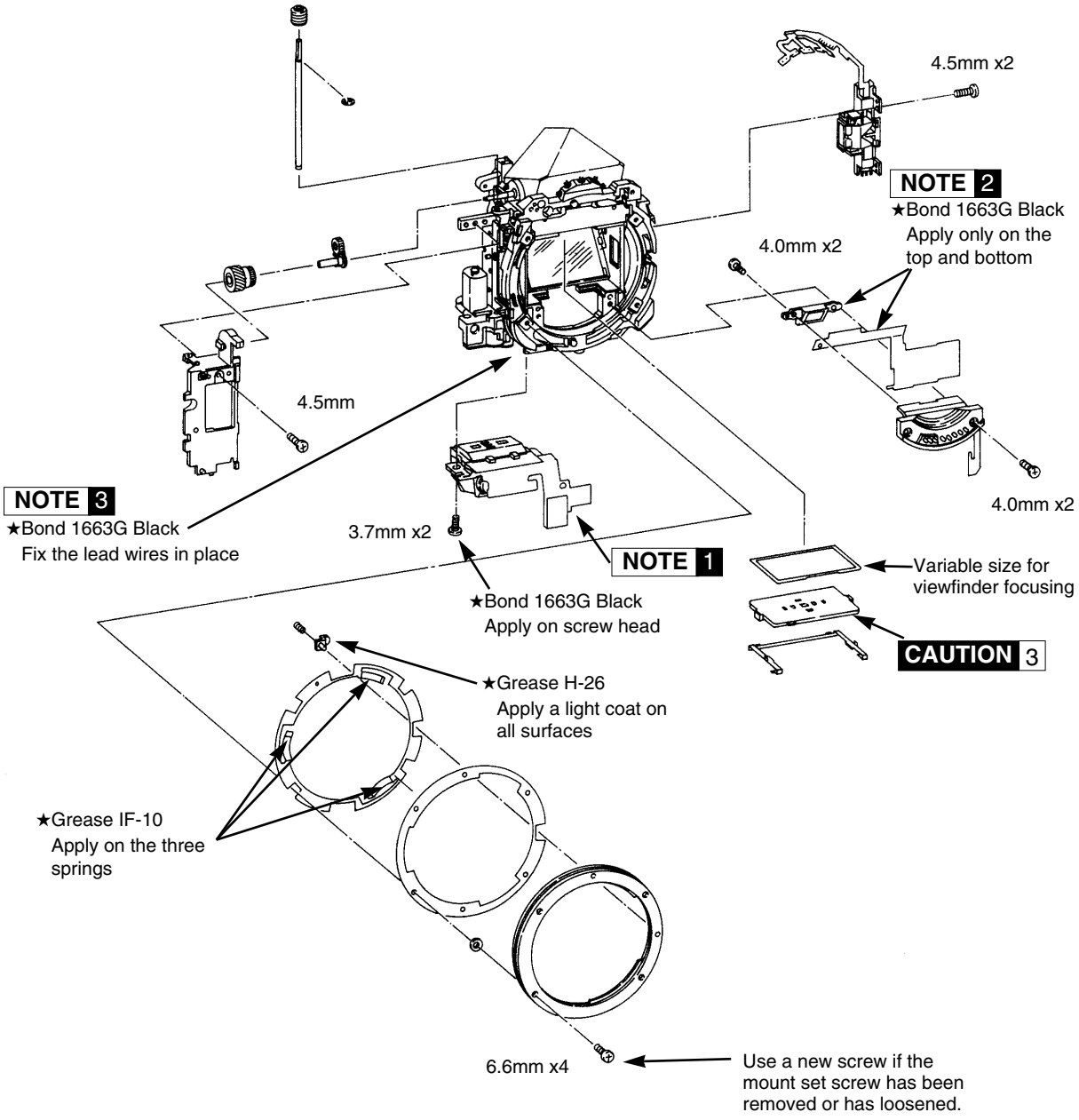



**Fig. 3-26 Front panel unit disassembly 1**

## <DISASSEMBLY AND REASSEMBLY NOTES>

**NOTE 1**: AF unit

- When the AF unit is removed, the position relative to the focusing screen must be adjusted.

**NOTE 2**: Gluing TTL flex and TTL lens in place

- If the TTL flex or TTL lens has been removed for replacement, etc., eliminate play by positioning it in the direction of the arrows, then apply Diabond 1663G Black on the top and bottom.

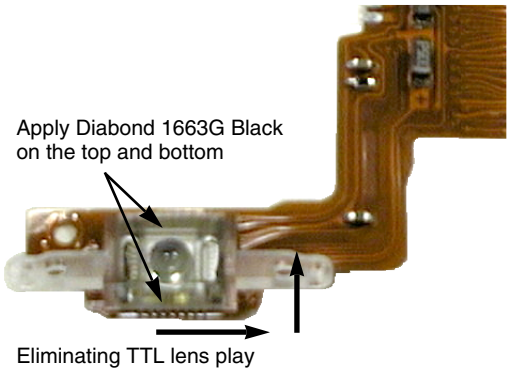



**Fig. 3-27 TTL lens fixing**

**NOTE 3**: Fixing the contact plate and phase board lead wires in place

- As shown in the right figure, after setting the contact plate and the phase board's lead wires, fix with Diabond 1663G Black. Note that if you pull the contact plate's lead wires too much, it will not operate properly. Be sure to check that the pins work.

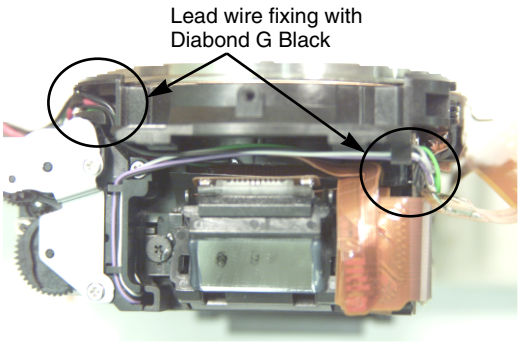



**Fig. 3-28 Bottom of front panel**

**CAUTION 3**: Focusing Screen Replacement

- Check that there is no difference in exposure level before and after the focusing screen replacement. If the difference is large, carry out the AE adjustment.
- To replace the focusing screen, unhook the both side of the focusing screen holder. Be careful not to damage the focusing screen, and after replacement, check that the focusing screen is assembled properly.

## 2.5 FRONT PANEL UNIT DISASSEMBLY 2

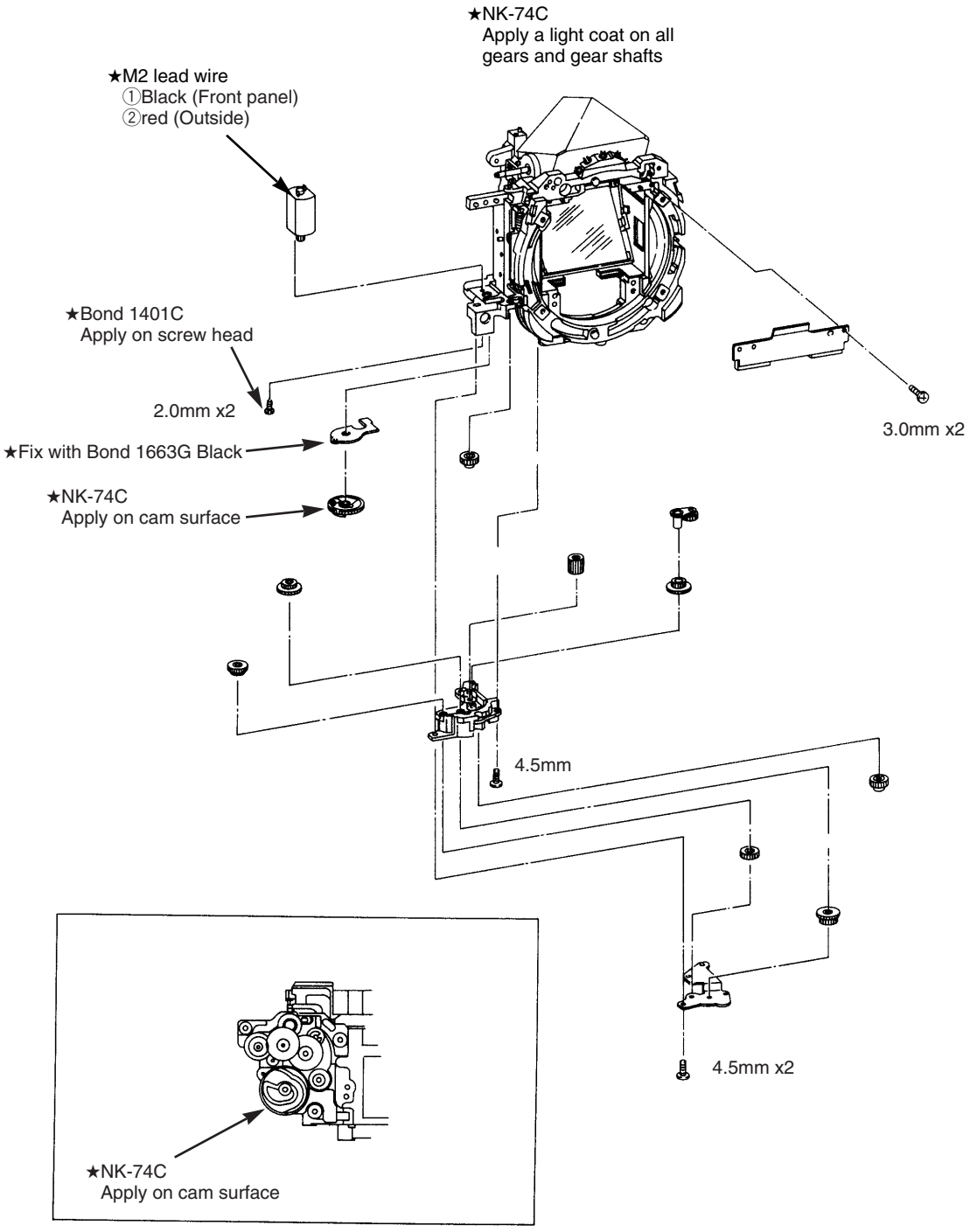



**Fig. 3-29 Front panel unit disassembly 2**

<MEMO>

## 2.6 FRONT PANEL UNIT DISASSEMBLY 3

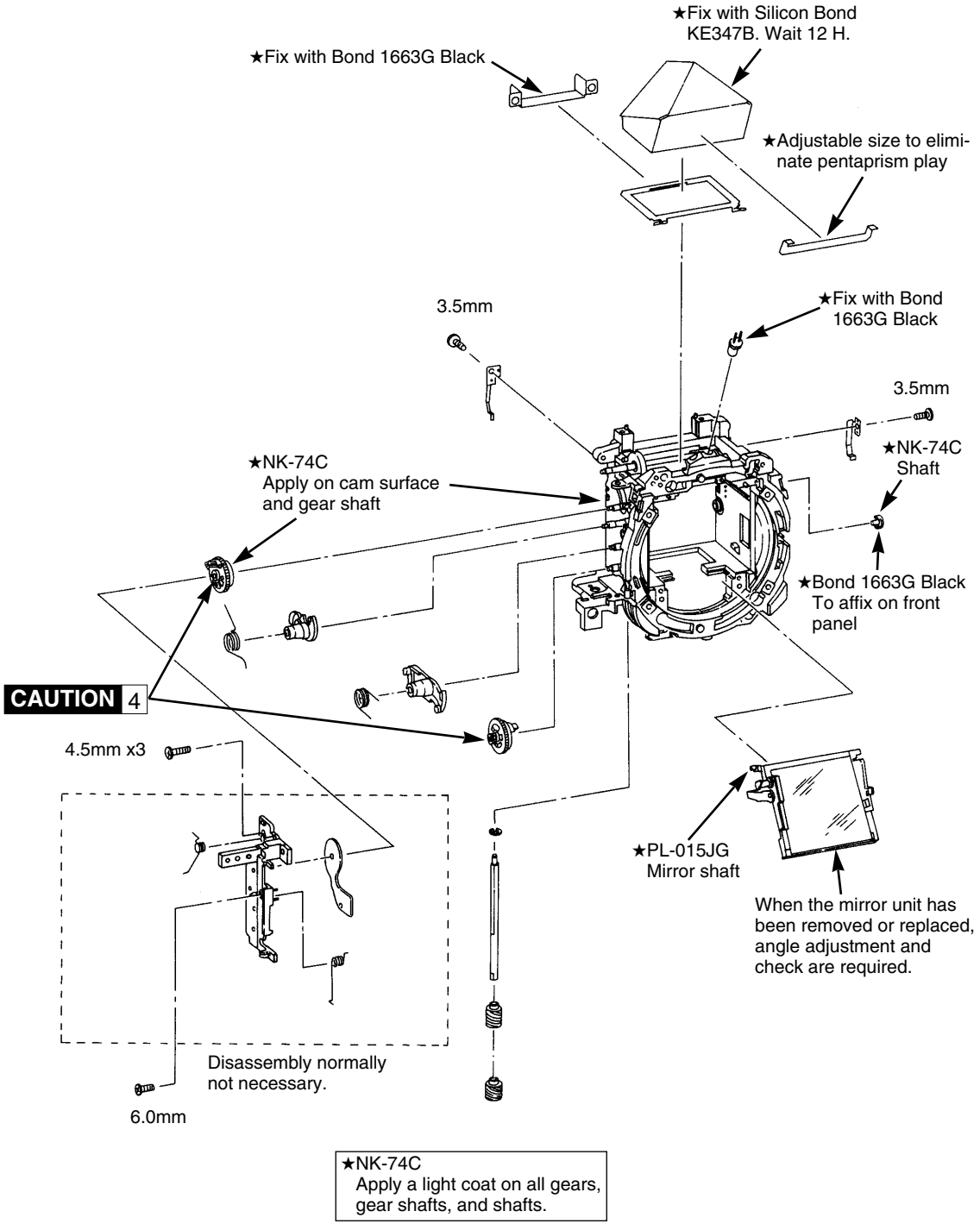



**Fig. 3-30 Front panel unit disassembly 3**

## <DISASSEMBLY AND REASSEMBLY NOTES>

**CAUTION 4** : Gear Arrangement

- The mirror cam gear and the charge gear must be installed in proper arrangement. For your reference, when you set as shown in Fig. 3-32 before disassembling gears, check the position of the hole on the charge gear when conduction ceases. (Fig. 3-33).

1) With moving the shutter drive lever, align the hole on the charge gear with the positioning dowel.
2) Align the bonded dowel (contact side) on the mirror cam gear with the positioning dowel.
3) Install the gear cover.
4) Connect the tester to the mirror charge PCB leads (black and gray) so that conduction check can be done.
5) Rotate the worm gear shaft, and check the position of the charge gear hole when conduction ceases. (Fig. 3-32 and 3-33)

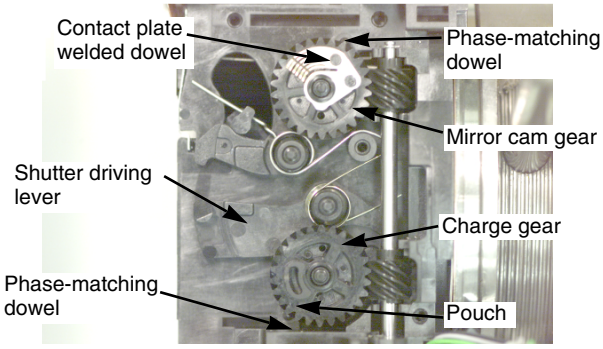



**Fig. 3-31 Gear phase-matching**

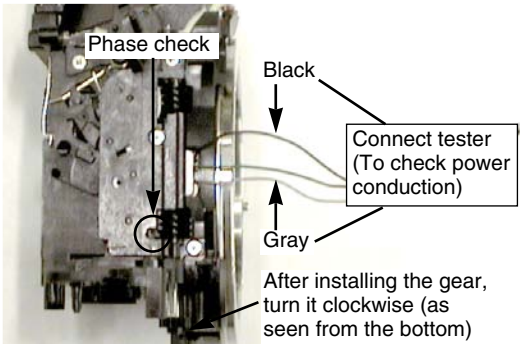



**Fig. 3-32 Gear phase check**

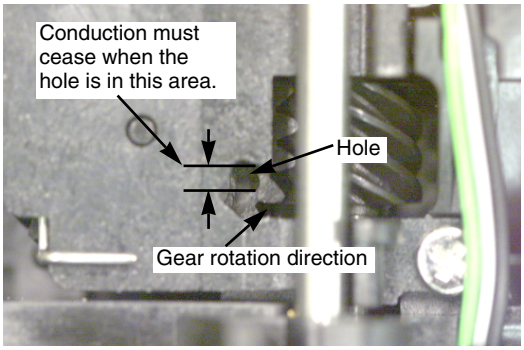



**Fig. 3-33 Gear phase check 2**

## 2.7 BODY UNIT DISASSEMBLY 1

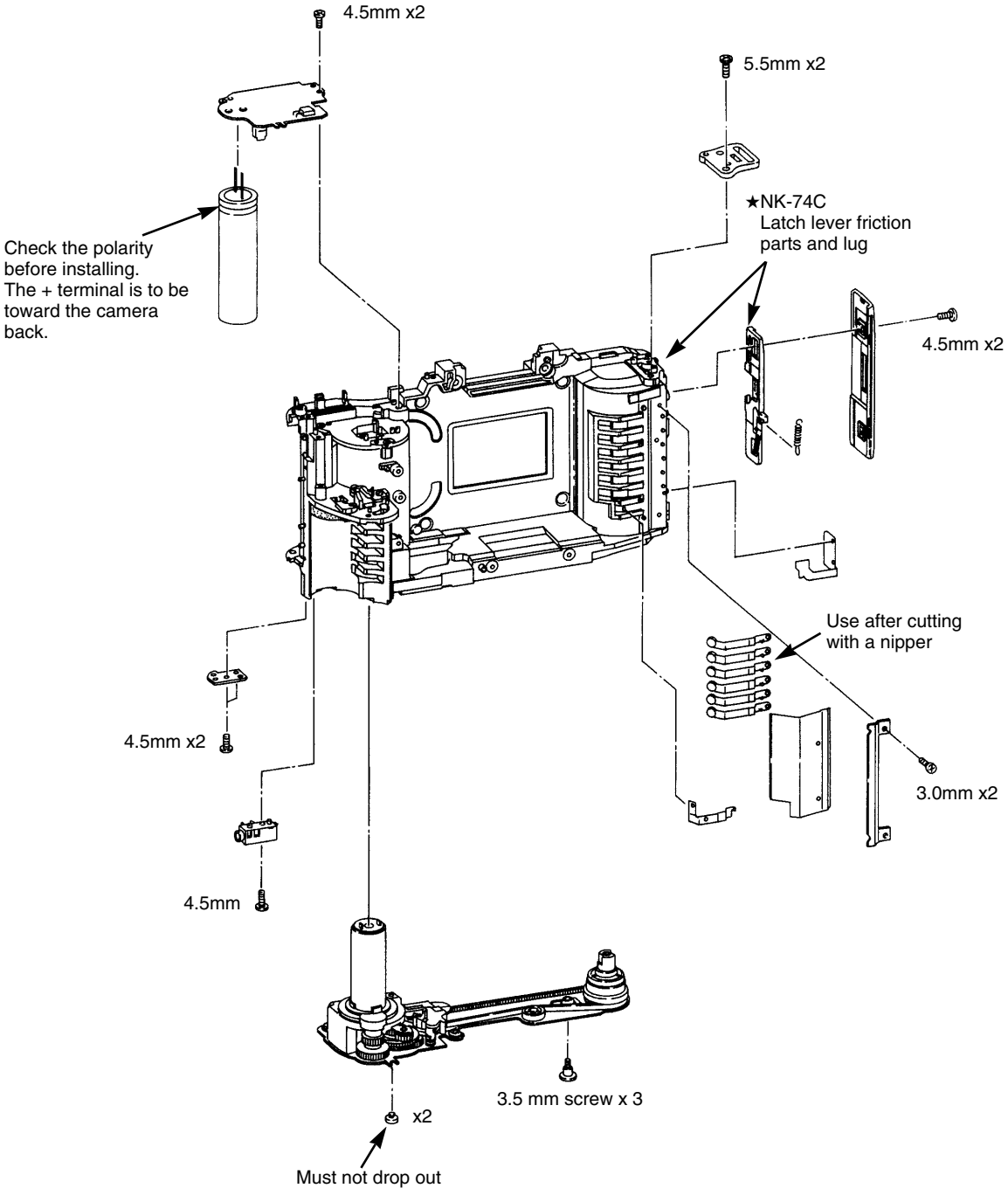



**Fig. 3-34 Body unit disassembly 1**

## 2.8 BODY UNIT DISASSEMBLY 2

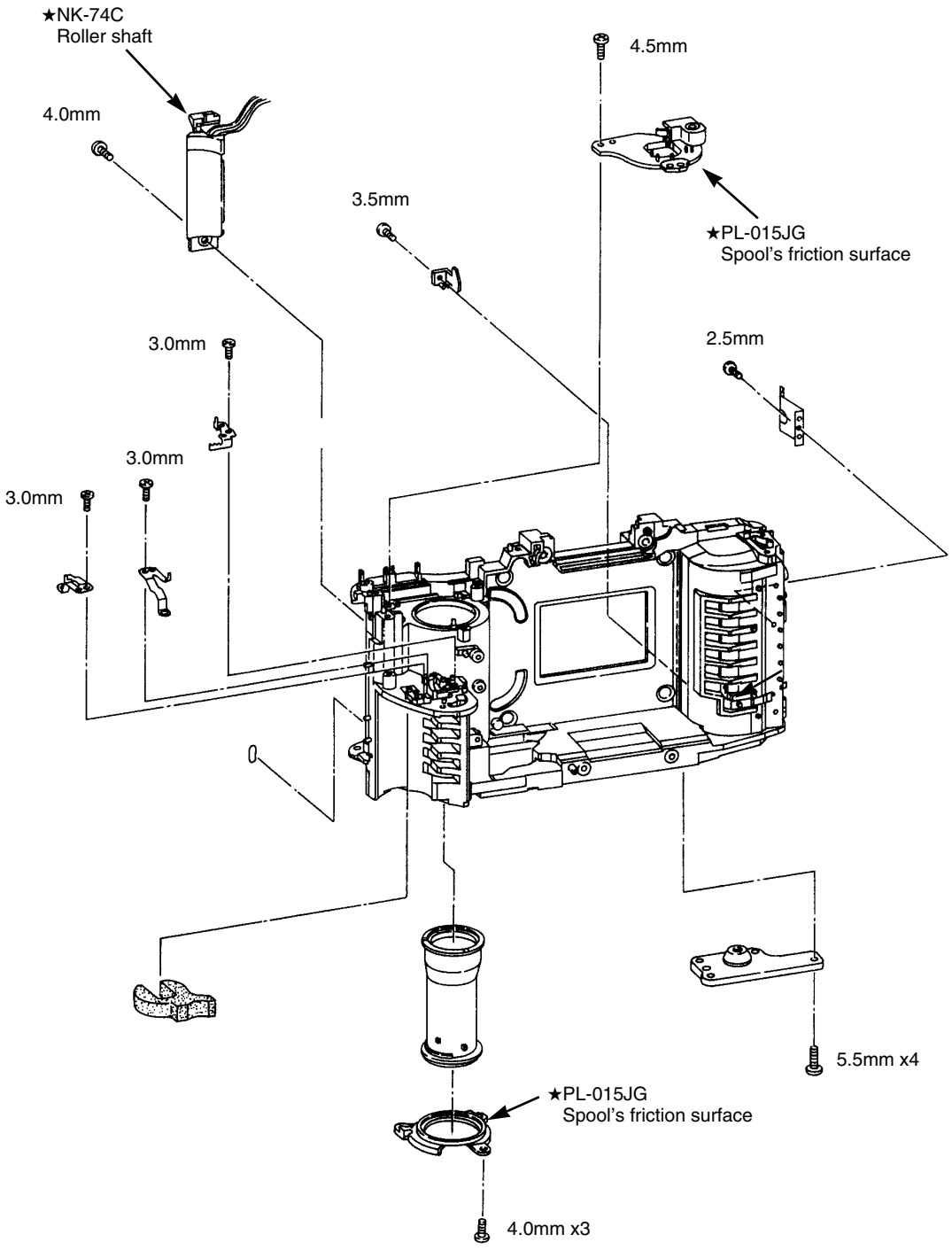



**Fig. 3-35 Body unit disassembly 2**

## 2.9 TOP COVER UNIT DISASSEMBLY 1

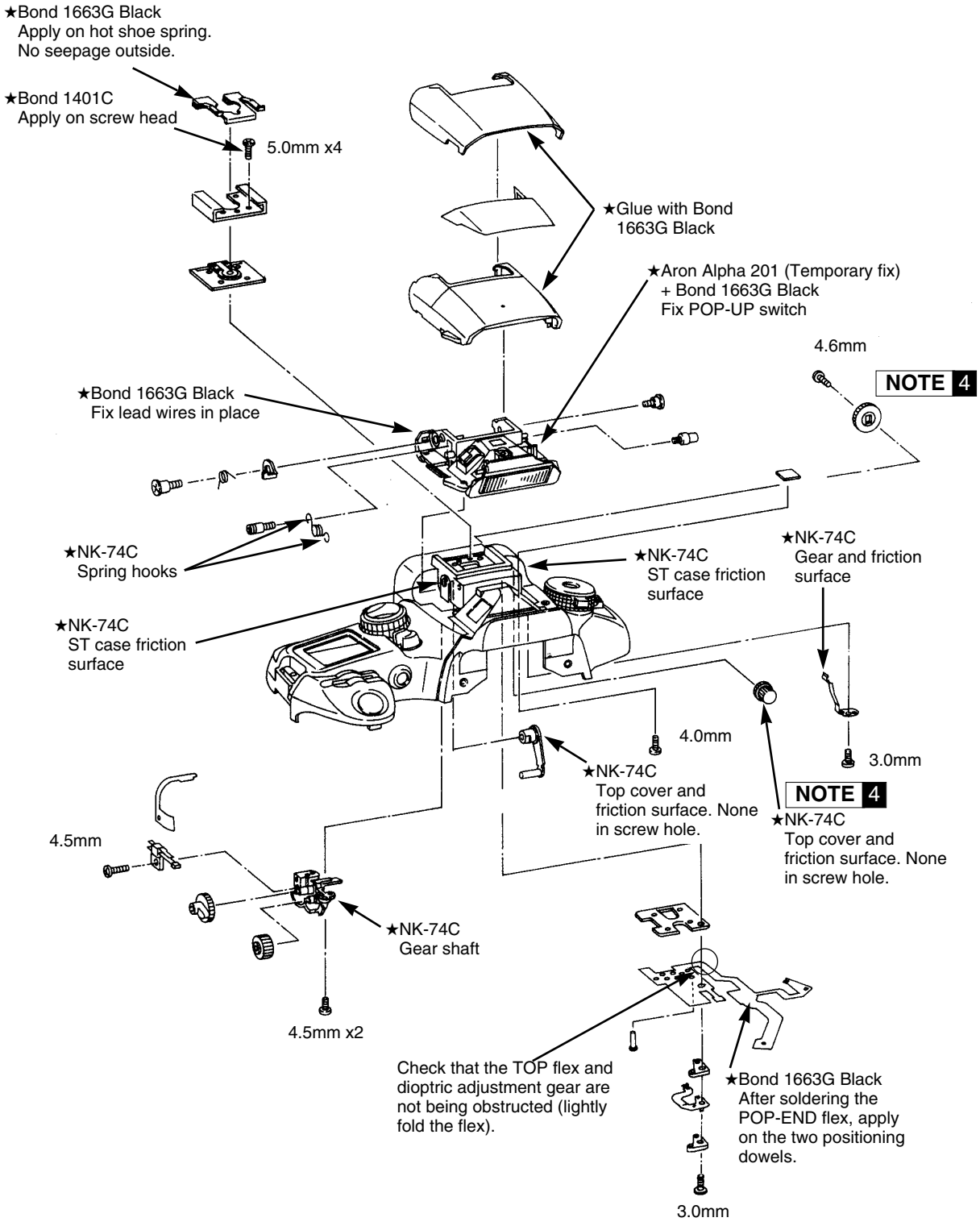



**Fig. 3-36 Top cover unit disassembly 1**

## <DISASSEMBLY AND REASSEMBLY NOTES>

**NOTE 4**: Installing the dioptric adjustment dial

1) Install the dioptric adjustment gear and turn it until it stops toward the Command Dial.
2) Install so that the dioptric adjustment dial's index is positioned as shown in the figure. Then fix with a screw.

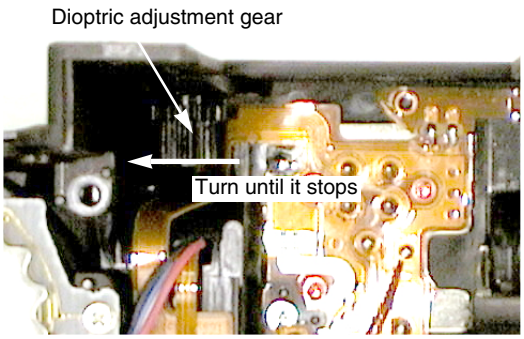



**Fig. 3-37 Installing the dioptric adjustment gear**

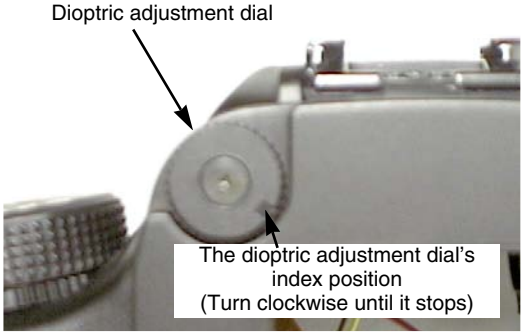



**Fig. 3-38 Installing the dioptric adjustment dial**

## 2.10 TOP COVER UNIT DISASSEMBLY 2

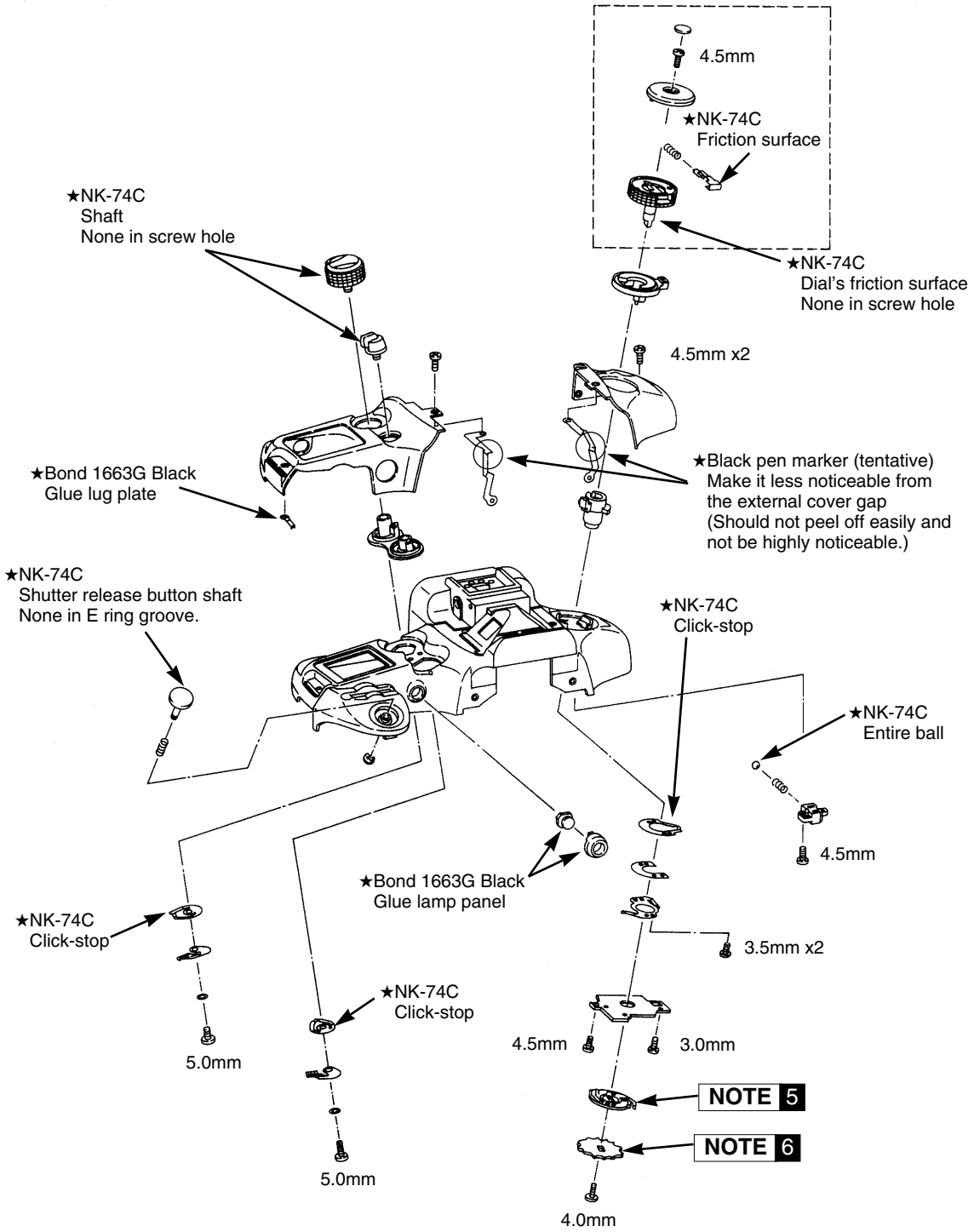



**Fig. 3-39 Top cover unit disassembly 2**

## <DISASSEMBLY AND REASSEMBLY NOTES>

**NOTE 5**: Installing the dial contact plate

- With the Command Dial set to OFF, install so that the contact plate mold's notch is toward the dioptric adjustment gear.

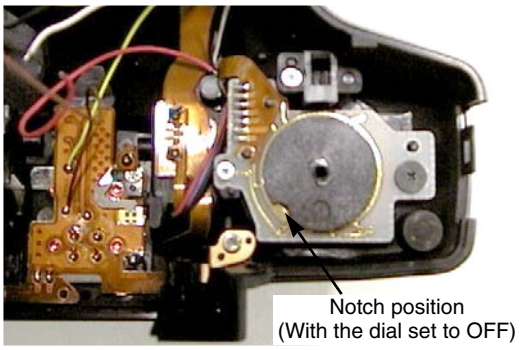



**Fig. 3-40 Installing the dial contact plate**

**NOTE 6**: Installing the click-stop plate

- When installing the click-stop plate, the rounded side is the top side to be screwed on.

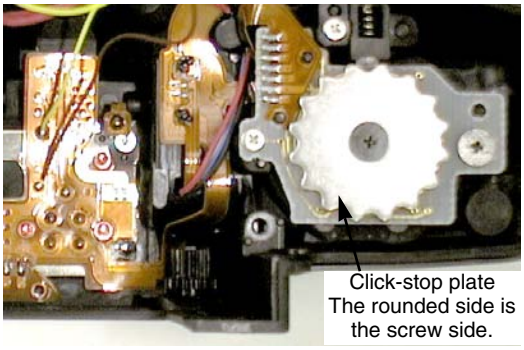



**Fig. 3-41 Installing the dial click-stop plate**

## 2.11 DSP FLEX UNIT DISASSEMBLY

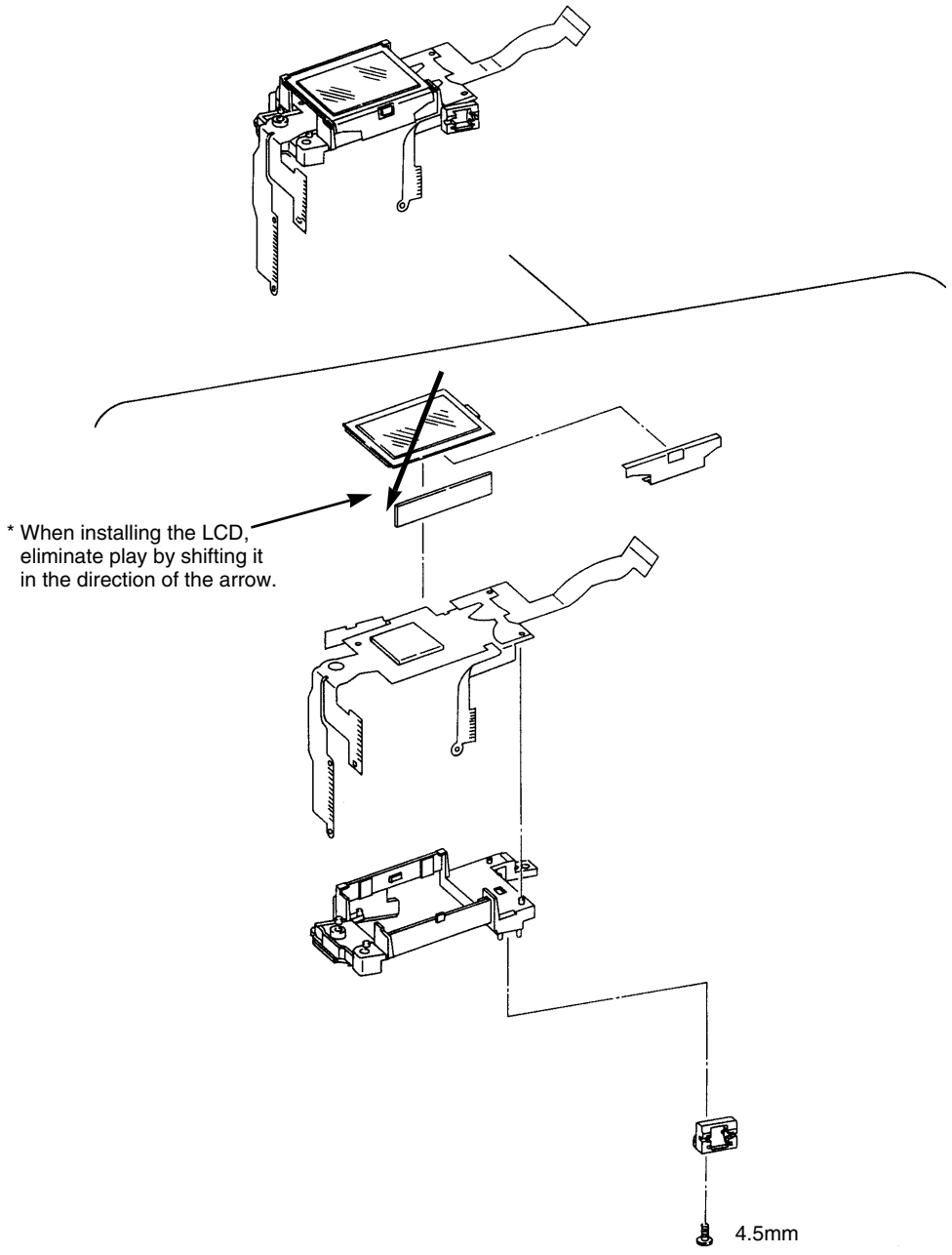



**Fig. 3-42 DSP flex unit disassembly**

## 2.12 VIEWFINDER UNIT DISASSEMBLY

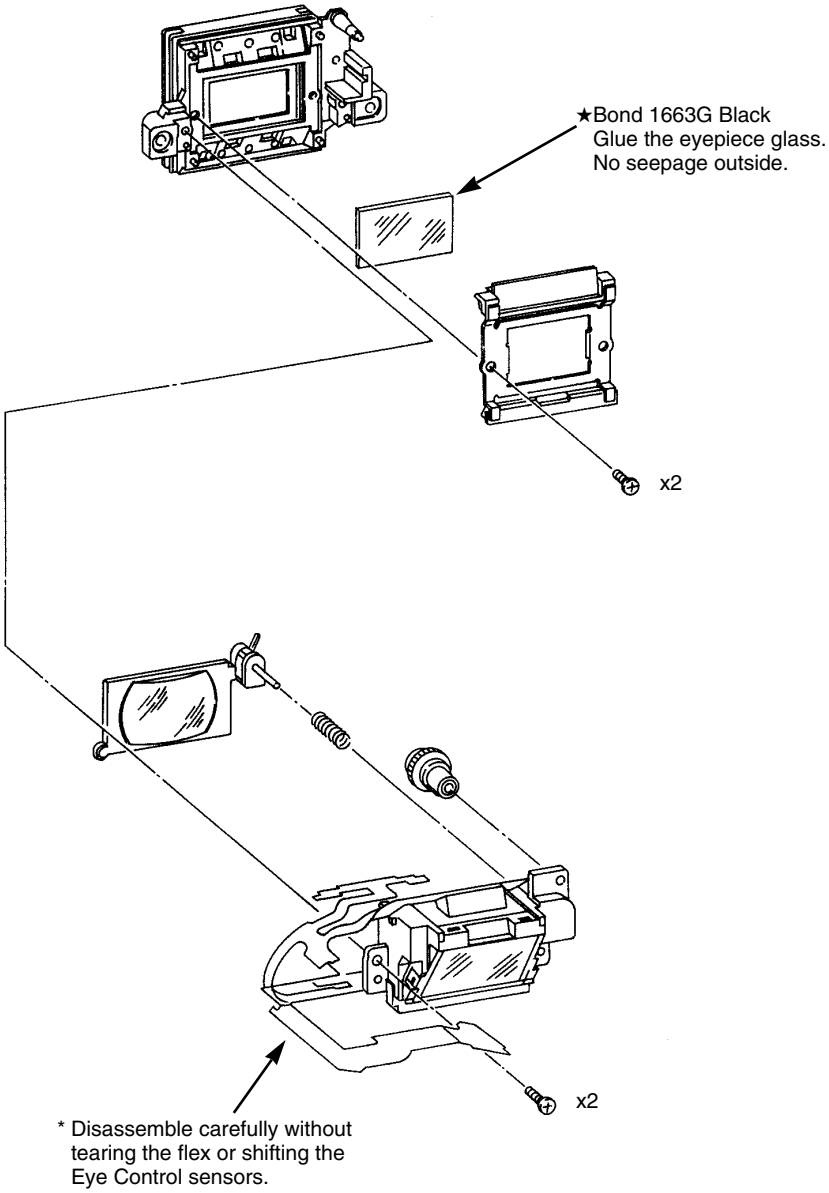



**Fig. 3-43 Viewfinder unit disassembly**

## 2.13 CAMERA BACK UNIT DISASSEMBLY

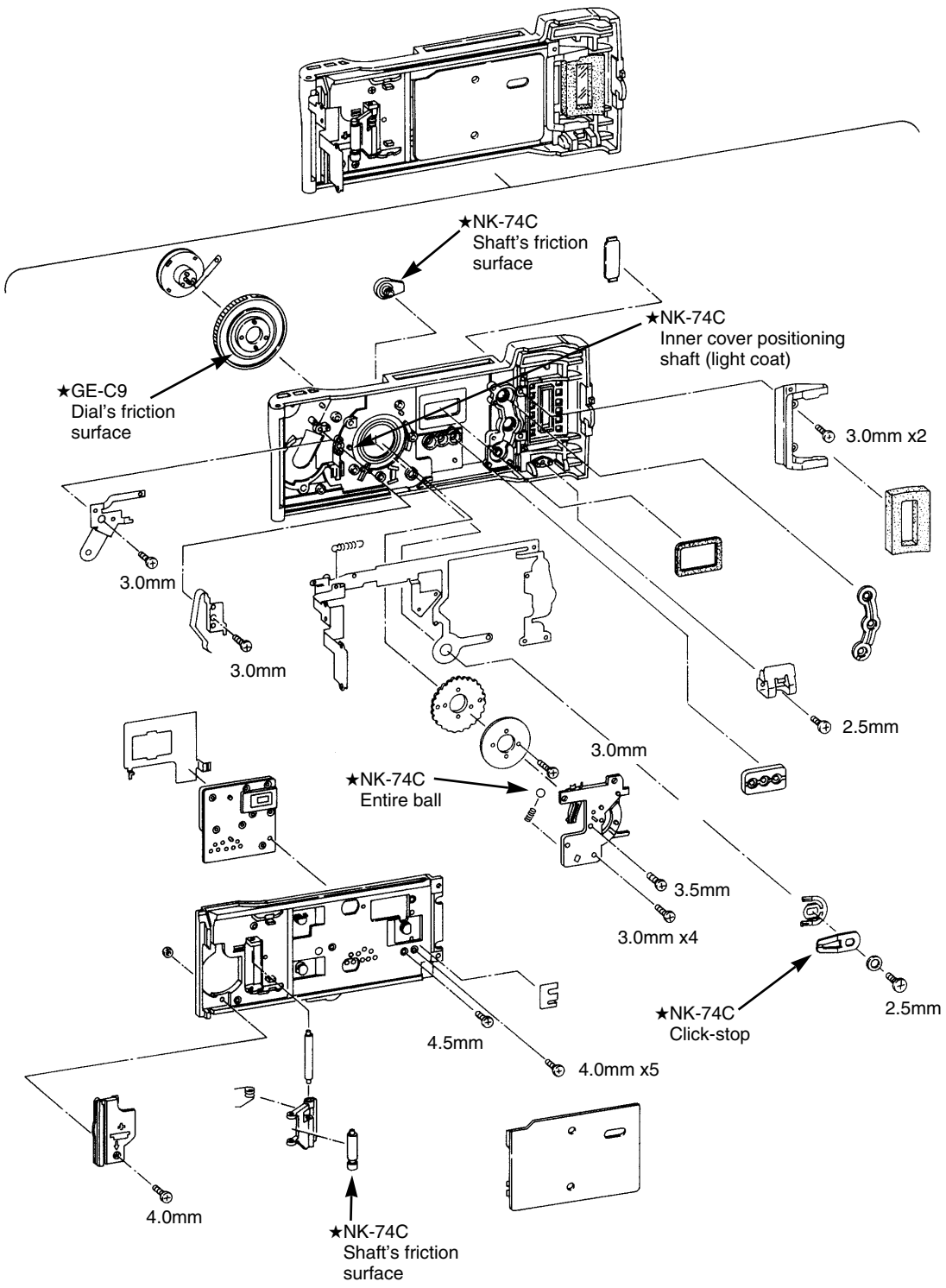



**Fig. 3-44 Camera back unit disassembly**

## 2.14 SHUTTER UNIT DISASSEMBLY

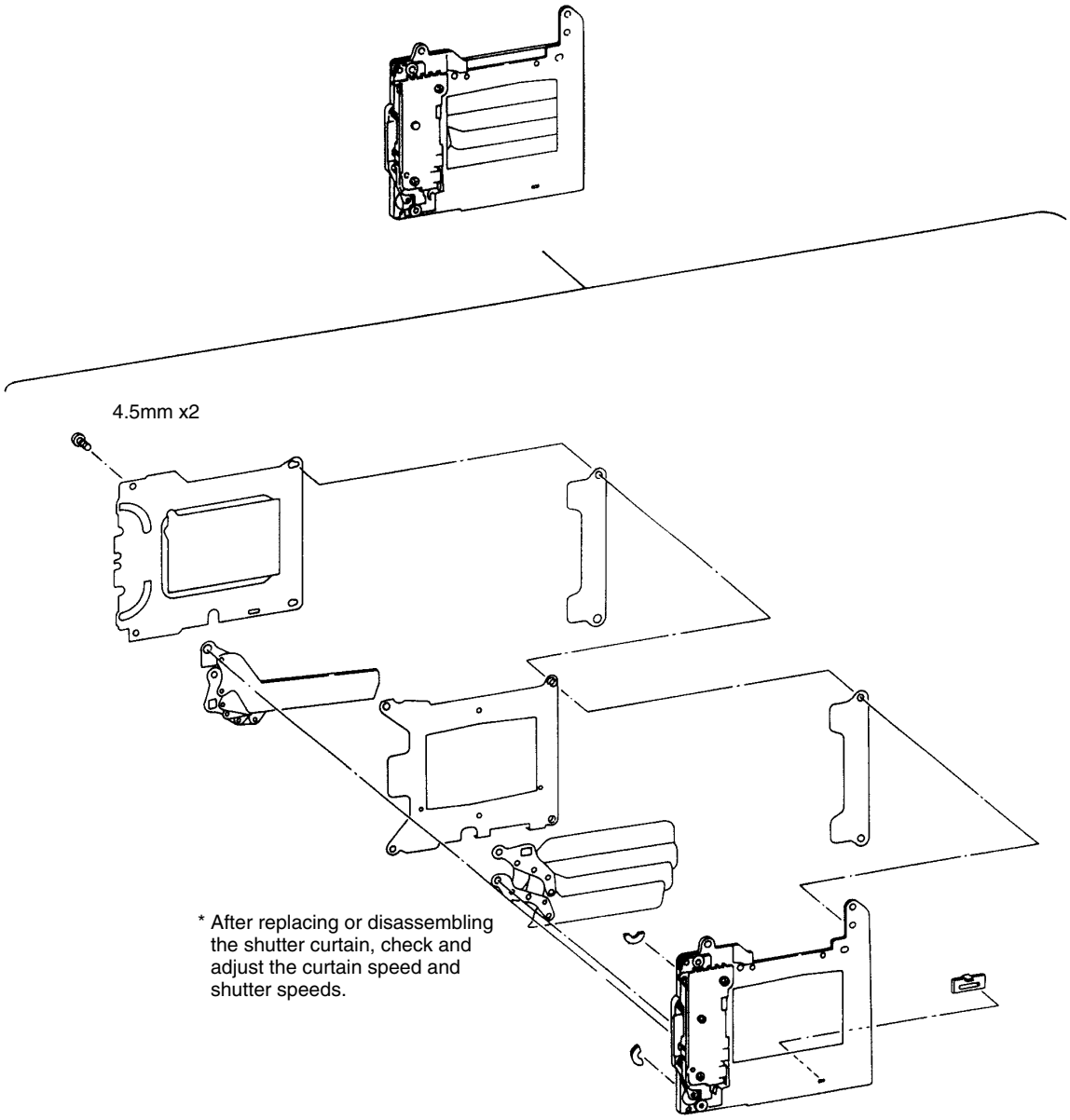



**Fig. 3-45 Shutter unit disassembly**

## 2.15 FILM TRANSPORT UNIT DISASSEMBLY

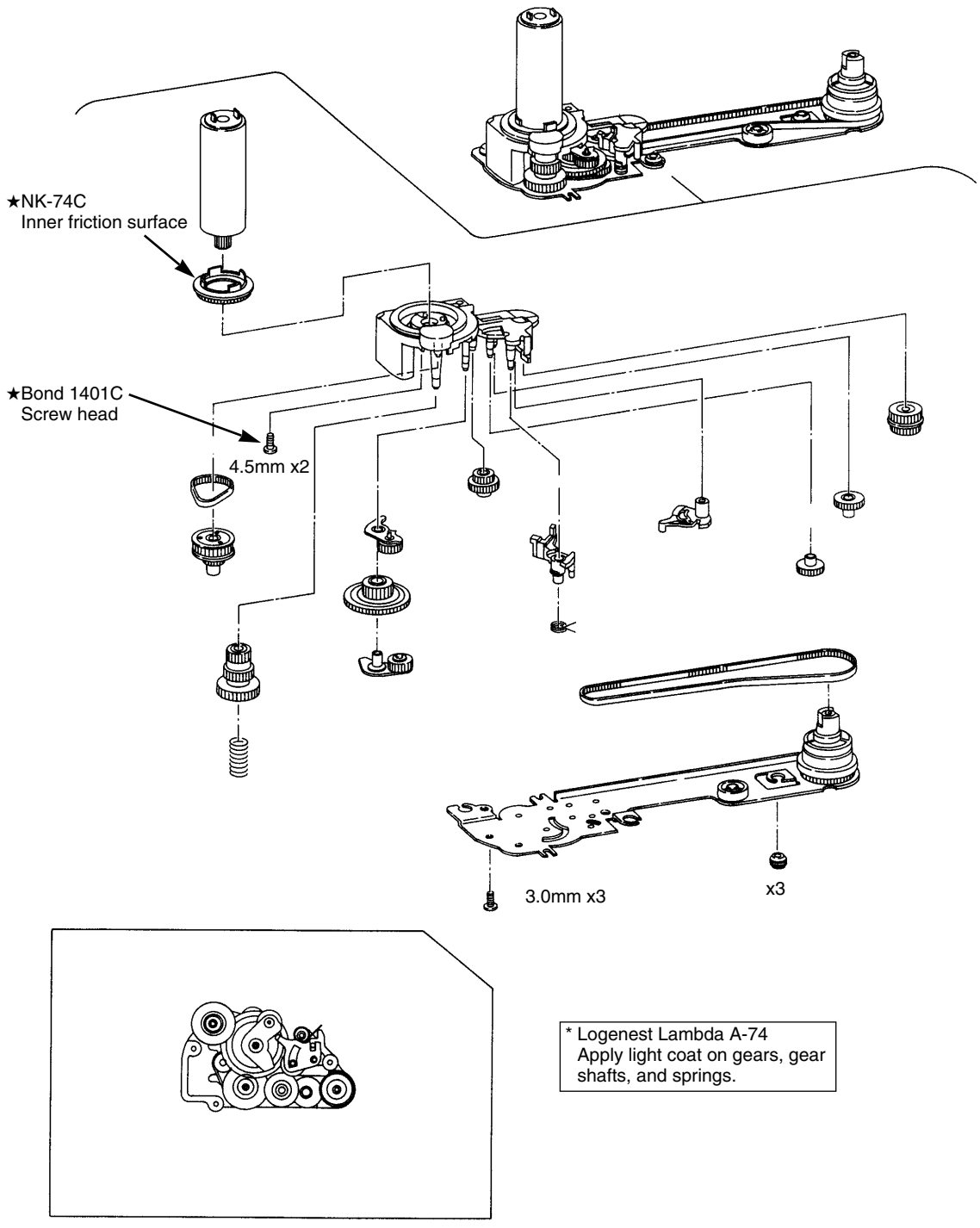



**Fig. 3-46 Film transport unit disassembly**

<MEMO>

# 3. MECHANICAL ADJUSTMENTS

## 3.1 SECONDARY MIRROR 40.5 DEG. ANGLE ADJUSTMENT

**CAUTION**
- Carry out when the front panel unit is disassembled, or when the mirror unit is replaced.
- Angle (45 deg.) adjustment of the main mirror is unnecessary.

**<PURPOSE>**

- Vertical adjustment and angle adjustment (40.5 deg.) of the secondary mirror. (Horizontal adjustment check)

**<STANDARD>**

Vertical 40.5 deg. ± 10'
Horizontal 0 deg. ± 8'

**<TOOLS>**

- Mirror angle adjustment tool, secondary mirror gauge (40.5 deg.)
- Auto collimator (f=300mm), alien key wrench 1.3 mm

**<PREPARATION>**

1. Adjust the flatness of the table where the auto collimator is set.
   Use the flat mirror and position the reflective chart at the center of the auto collimator's viewing area.

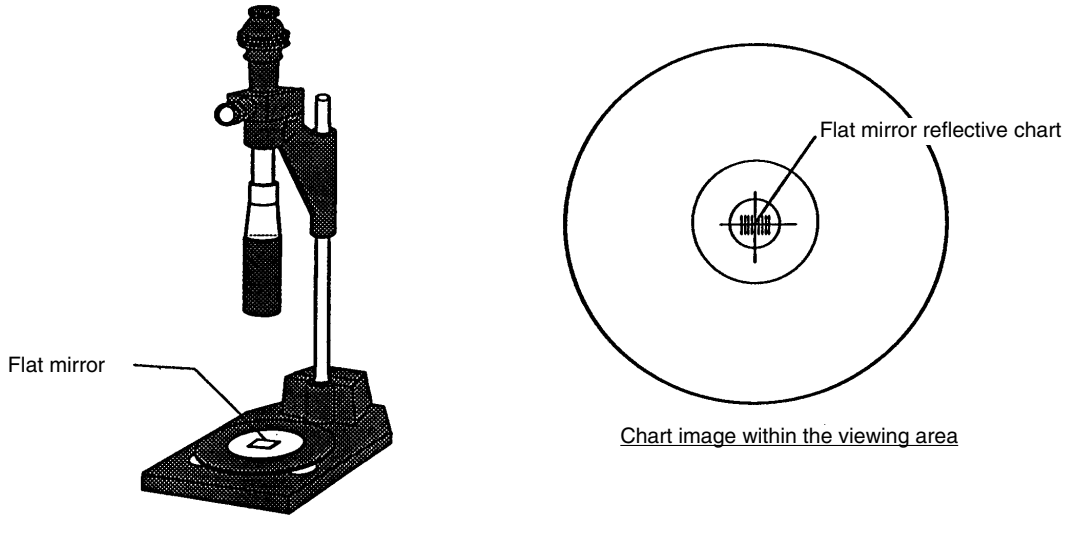



**Fig. 3-47 Auto collimator**

2. Attach the 40.5 deg. secondary mirror gauge to the mirror angle checking tool.

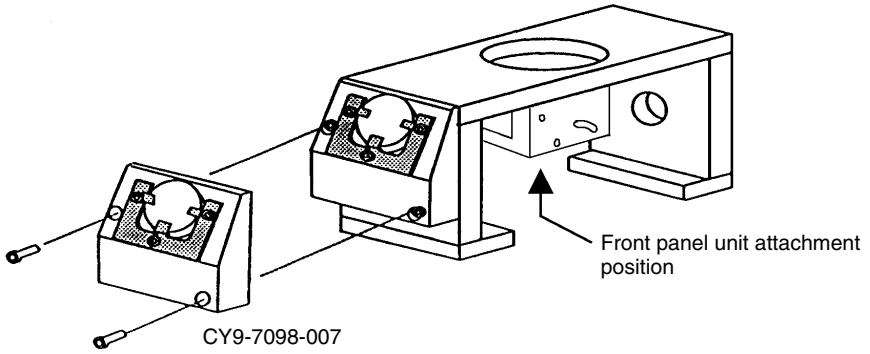



**Fig. 3-48 Mirror angle checking tool**

**<ADJUSTMENT>**

1. Rotate the gear so that the mirror goes down completely.
   If you rotate the gear too much, rotate the gear again in the same direction so that the mirror is at the down position.
2. Detach the AF unit from the front panel unit, and attach the front panel unit to the mirror angle checking tool. Put it on the same table as the auto collimator.
3. Look at the reflective chart's image position within the auto collimator's viewing area to determine whether it is good or not.
   * If it is within the viewing area, it should be within approx. ± 5'.

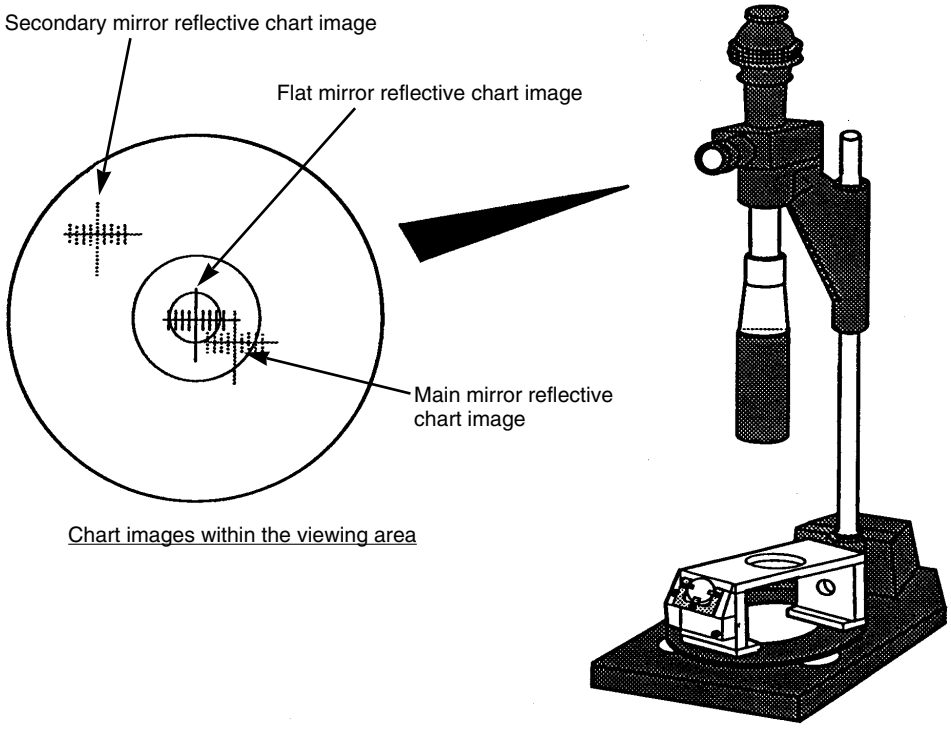



**Fig. 3-49 Mirror angle standard**

4. For the vertical adjustment, use an alien key wrench to turn the eccentric dowel in the mirror box as shown below.

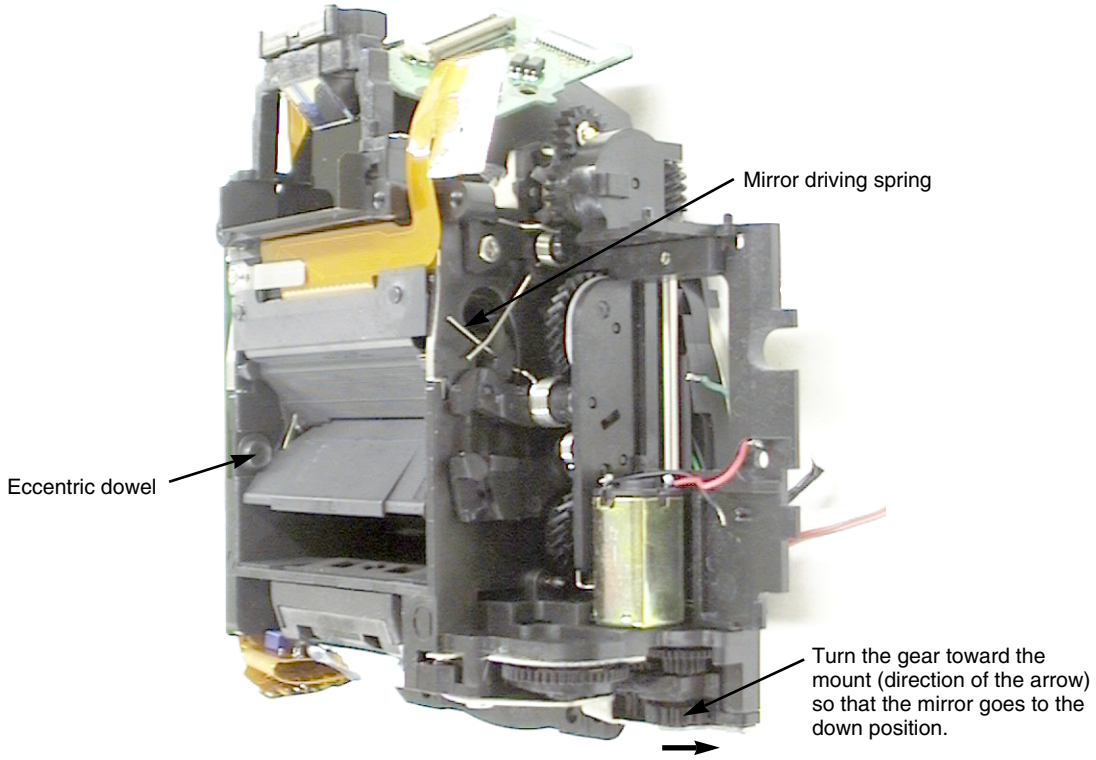



**Fig. 3-50 Secondary mirror adjustments**

## 3.2 AF Sensor Positioning (Horizontal)

**CAUTION**
- Do this after replacing the AF sensor unit.
- The adjustment procedure is basically the same as with previous EOS cameras.

**<Purpose>**

- To align the AF sensor's center with the optical axis. (Horizontal adjustment only)

**<Standard>**

- Adjust so that the sensor's center is within the focusing point.

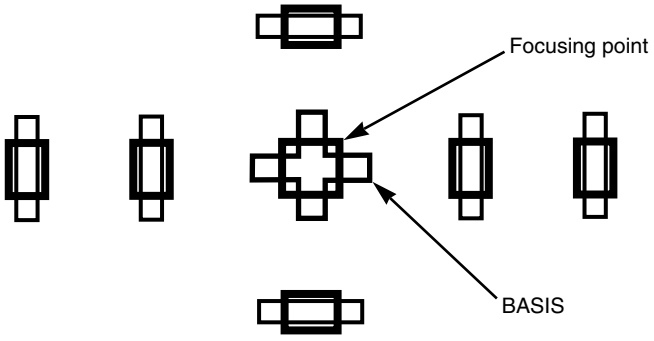



**Fig. 3-51 Focusing point and BASIS**

**<Tools>**

- EF 50mm f/1.8 (Production lens), penlight or illuminator

**<Preparation>**

1. Use an EOS camera body and stop down the EF 50mm f/1.8 to f/8.
   *If you use an EOS 1000:
   Attach the EF 50mm f/1.8 and set the picture-taking mode to Av and set the aperture to f/8. Cover the lens with your hand so that the shutter speed is several seconds. Then while pressing the shutter button completely, detach the lens.
2. Set the lens focus to infinity. (To make it easy to see the focusing points.)

**<ADJUSTMENT>**

1. With the mirror unit, focusing screen, and AF unit (attached temporarily) attached to the front panel unit, attach an EF 50mm f/1.8 lens to the front panel unit.
2. With the mirror down, use a penlight to shine the light at the AF unit. When you look through the lens, you can see the focusing points and BASIS image as shown above.
3. Move the AF unit left or right so that the BASIS image is centered within the focusing points.
4. Tighten the screw to fix the AF unit in place. (Use a new screw.)
5. Apply Diabond 1663G Black on the screw head.

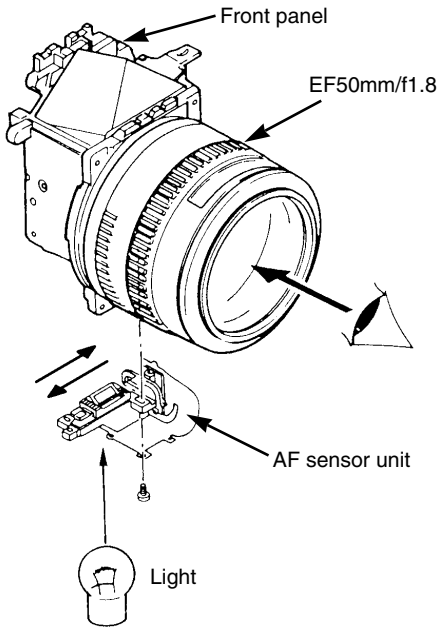



**Fig. 3-52 AF sensor positioning**

## 3.3 FLANGE FOCAL DISTANCE ADJUSTMENT

**CAUTION**
- Do this adjustment after replacing the front panel unit, mount, or body unit.
- Before measuring the flange focal distance, use a parallel glass to check that there are no gross distortions on the rail surface.
- After the adjustment, be sure to check the viewfinder focus.

**<PURPOSE>**

- To adjust the flange focal distance (mount standard surface - outer rail surface) to 44.14 mm.

**<STANDARD>**

- Flange focal distance: 44.14 ± 0.04mm (Measured with the parallel glass used for the outer rail)
- Parallelism: 0.05 mm or less (against the glass surface)
- Pressure plate center value: 44.17 ± 0.04mm (Pressure plate's center measured)

  * The pressure plate center value data is used for the AF basic adjustment during electrical adjustments.
- Tunnel amount: 0.21 ± 0.02mm (Difference between inner and outer rails)
- Pressure plate's center depression: 0.030 ± 0.020mm (Based on outer rail)

  * The pressure plate's center depression is represented by E in the figure on the right.
  * Within the aperture in the left figure, E must be a depression among the five points. Compared to E, one of the A, B, C, and D points must be +15 um or less and one other point must be +5 um or less, and the remaining two points must be a negative amount.

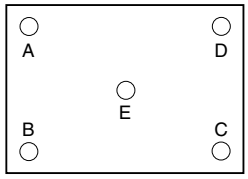



**Fig. 3-53 Measurement points on the pressure plate**

**<TOOLS>**

- Dial gauge, reinforcement ring (2mm)
- Optical flat
- Flange focal distance gauge (44.14 mm or 42.14 mm), parallel glass

  * To measure the flange focal distance with high precision, use a dial gauge (CY9-7094) that can measure in 0.001mm increments.

**<PREPARATION>**

1. Insert a 2mm reinforcement ring between the dial gauge's prong and contact element.

   (This is necessary because the dial gauge is designed for a flange focal distance of 42.14 mm.)
2. Use the flange focal distance gauge (44.14mm or 42.14mm) and the optical flat, and set the dial gauge to 0.

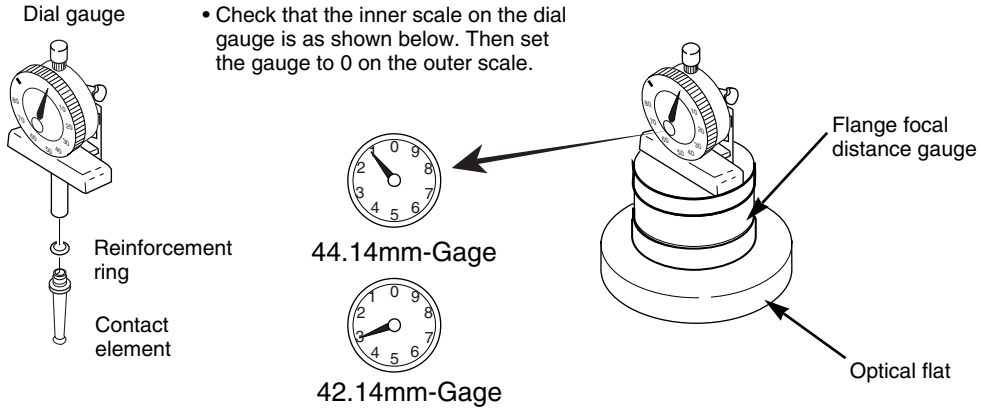



**Fig. 3-54 Dial gauge**

**<ADJUSTMENT>**

**1) Flange focal distance**

1. Place the parallel glass against the outer rail surface, and set the camera to bulb.
2. Place the dial gauge on the mount, and measure the aperture's center and four corners.
3. If the flange focal distance is not within the standard, change the mount spacer to adjust.
   If the parallelism does not meet the standard, change the parallelism adjustment washer to adjust.
   * If the rail surface is grossly distorted, corrective adjustments will be futile. (The body must be replaced.)

**2) Pressure plate center**

1. Close the camera back and set the camera to bulb.
2. Place the dial gauge on the mount and measure the pressure plate center.
3. If it does not meet the standard, replace the film pressure plate.

**3) Pressure plate center depression**

Calculate the center depression with 1) and 2) above. If it does not meet the standard, replace the film pressure plate.

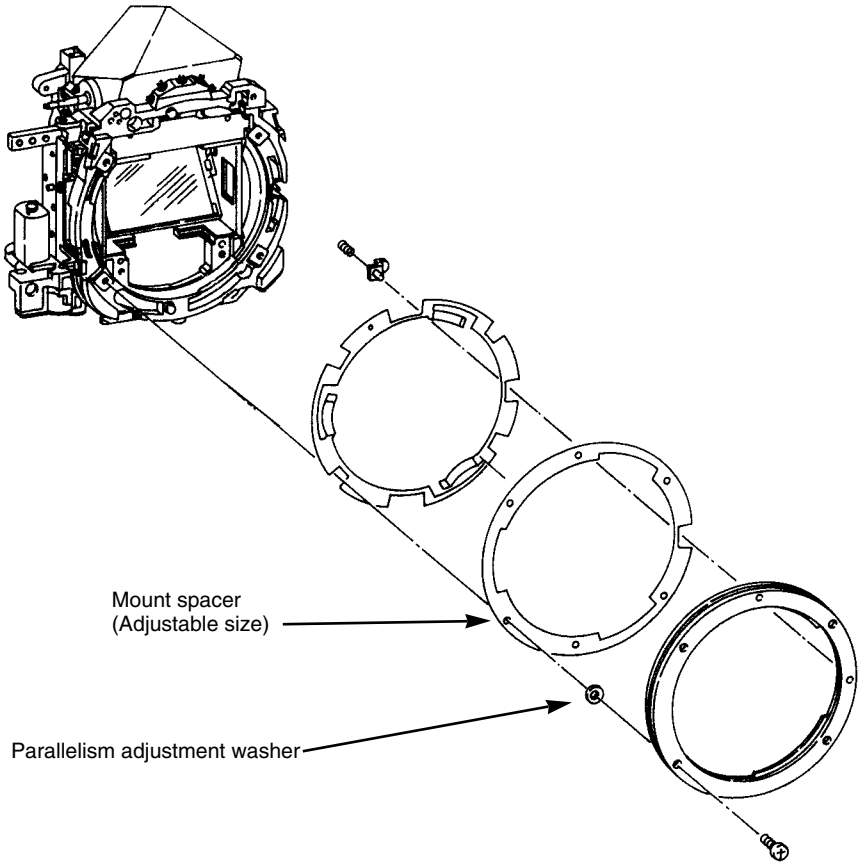



**Fig. 3-55 Flange focal distance adjustment**

## 3.4 VIEWFINDER FOCUSING ADJUSTMENT

**CAUTION** • Be sure to do this adjustment after adjusting the flange focal distance.

**<PURPOSE>**

To match the film plane's focusing position and the viewfinder's focusing position.

**<STANDARD>**

As shown in the figure below, the focusing must be within 1.5 lines to the left or right of the index mark at infinity.

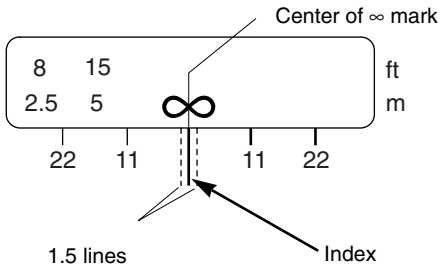



**Fig. 3-56 Lens focusing distance window**

**<TOOLS>**

- Magnifier AD-S
- EF 50mm f/1.8 (production lens)
- General-purpose 500mm collimator

**<ADJUSTMENT>**

1. Attach the magnifier to the camera's eyepiece, and adjust the magnifier's diopter.
   (Do this without any lens attached to the camera.)

   **Dioptric adjustment**
   While looking at a bright, highly reflective wall (white wall at EV12 or a light source from a shutter tester), turn the magnifier's dioptric adjustment ring until the focusing points look clear.
2. Attach an EF 50mm f/1.8 lens and set the focus to infinity manually.
   (The center of the infinity symbol must be within the thickness of 1.5 lines of the index.)
3. Look at an object (preferably a smokestack, antenna, etc.) at least 250 meters away. Select the focusing washer that makes the object look the clearest.
4. If you use a collimator, select the focusing washer that makes the collimator's scale look the clearest.

**REPLACING THE FOCUSING WASHER**

While pushing in the focusing screen presser's left and right round holes with a pair of tweezers, unhook the hook on the inner side. The focusing screen and focusing washer will come off.

Do not push in the holes too hard or bend them toward the inside. Doing so will weaken the focusing screen presser's spring force or deform the presser.

After reinstalling the focusing screen, be sure to check that there is no shifting of the focusing screen and that the focusing screen presser is properly installed.

**CAUTION**
- During the job, be careful not to damage the focusing screen or the mirror.
- During reassembly, be sure that the focusing screen and presser are securely installed.

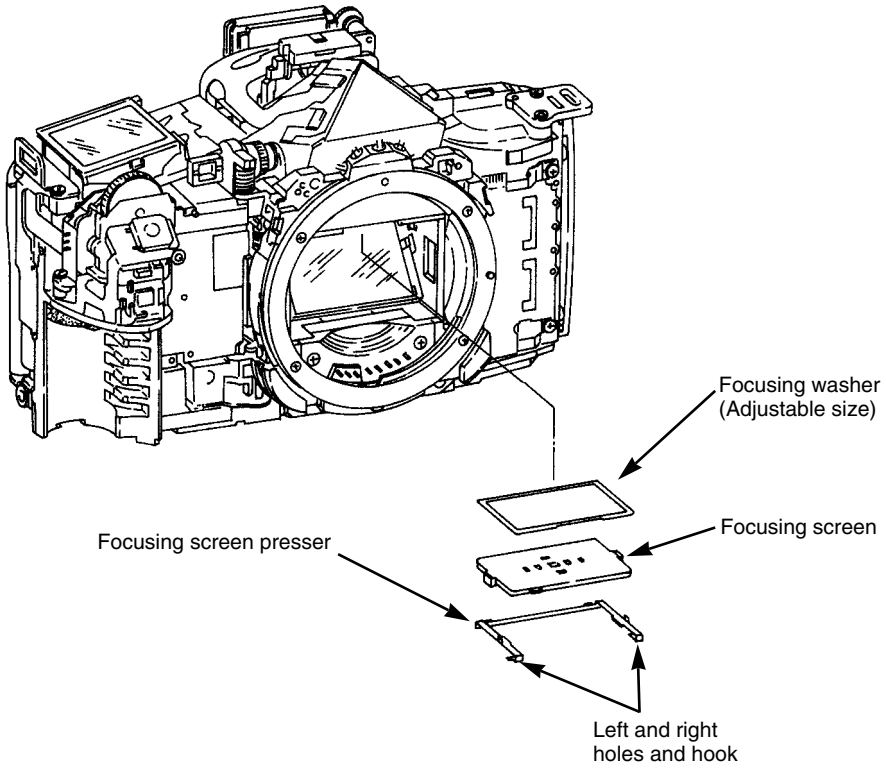



**Fig. 3-57 Focusing washer replacement**

# Part 4

# Electrical Adjustment

# 1. ELECTRICAL ADJUSTMENTS

## 1.1 PRECAUTION WHEN MAKING ELECTRICAL ADJUSTMENTS

- The adjustment software supports the Multiple Tool II and the HS-I/F. You can, however, double or triple the data transfer speed when the HS-I/F is used compared with when memory is not expanded by using the expanded memory (CY9-7082-002). We recommend using expanded memory to finish adjustments more quickly.

  The Multiple Tool II transfers data at the same speed as when memory is expanded.
- Before you replace the main board with a new one, be sure to initialize the main flex and make all the adjustments. The new main board is not written with initialize data.
- Be sure to terminate the adjustment by selecting F10 Quit. This clears the charging inhibit.
- When communications is carried out with the camera, never press switch SW2. Doing so will result in an error. Also, do not press the switches (e.g. AE, ranging) after communications is started. Doing so might prevent adjustment, in particular AF adjustment, from being carried out correctly.
- Do not attach or remove the lens during AF basic adjustments. Doing so might prevent adjustment from being carried out correctly.

## 1.2 ELECTRICAL ADJUSTMENTS

| | |
|---|---|
| Shutter adjustment | Adjusts shutter speeds. |
| SPC positioning | Adjusts and checks the position of the AE sensor. (Also describes mechanical adjustment and adjustment method that does not require the use of tools.) |
| AE adjustment | Adjusts output of AE sensor. |
| AE shift adjustment | Shifts exposure in 1/8 steps at user request. |
| AF basic adjustment | Adjusts the AF sensor to the optimum output. |
| AF focus adjustment | Adjusts the focus to the optimum value. |
| AF sensor image | Displays data output from AF sensor as a waveform. This is used to check chart settings. |
| Focus output | Displays the AF sensor focus data. This is used to check AF accuracy. |
| AF focus shift | Corrects rare slight AF focus errors resulting from use of a lens with a shallow depth of focus such as EF 50 mm f/1.0L, and EF 85 mm f/1.2L. |
| Flash adjustment | Adjusts the output of the A-TTL, E-TTL flash sensor. |
| Inhibit voltage | Adjusts inhibit voltage for the camera. |
| Self check | LCD full display, error No. display, charging inhibited, and other camera modes can be set. |
| Eye Control adjustment | Eye Control adjustments. |
| Data transfer | Initializes, stores, or transfers camera data. |
| Temperature compensation | Compensates the camera's temperature sensor. |
| Counter reset | Clears the film counter or writes the film counter to any value. |

## 1.3 ADJUSTMENTS AFTER PARTS REPLACEMENT

**Table 4-1 Adjustments After Parts Replacement**

| Replacement Part / Adjustment | | Main Board (Data not redable) | MD Flex (AE Sensor) | TTL Flex (A-TTL Sensor) | AF Unit | Shutter Unit | ECU Sensor Unit | Shutter Unit |
|---|---|---|---|---|---|---|---|---|
| Initialization | | 1 | | | | | | |
| Temperature compensation | General | 2 | | | | | | |
| | AE | | 2 | | | | | |
| | TTL | | | 1 | | | | |
| | AF | | | | 1 | | | |
| Inhibit Voltage | | 3 | | | | | | |
| Shutter | | 4 | | | | 1 | | |
| AE | SPC position | | 1 | | | | | |
| | Accuracy | 5 | 3 | | | | | |
| | Shift | ▲ | ▲ | | | | | |
| | Exposure Program Rewrite | | | | | | | ▲ |
| AF | Basic | 6 | | | 2 | | | |
| | Focus | 7 | | | 3 | | | |
| | Focus Shift | | | | ▲ | | | |
| Flash | Shift | 8 | | 2 | | | | |
| | Basic | ▲ | | ▲ | | | | |
| | Focus | ▲ | | | | | | |
| | Focus Shift | ▲ | | | | | | |
| Eye Control | ECF Sensor Unit Adjustment | 9 | | | | | 1 | |
| | ECF Sensor Unit Check | | | | | | | |
| Counter Reset | | 3 | | | | 2 | | |

Notes:

- Items marked ▲ in the above table are optional.
- Temperature correction and inhibit voltage must be adjusted immediately after initialization.
- When the front panel unit is removed, the FFD and AF focus adjustments must be carried out

## 1.4 ADJUSTMENTS SOFTWARE FOR THIS CAMERA

### 1) Starting the Adjustment Software

The filename for this software is ELAN 7.EXE or EOS30.BAT, EOS33.BAT, After a work disk has been made, the software will be started automatically from the AUTOEXE.BAT file.

<Reference>
If communication errors occur often, reduce the communication speed with ELAN 7 (Space) /9 (Return). Fewer errors will result.

### 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) Tools Used

The adjustment software is supported on both the Multiple Tool II and the HS-I/F. The following descriptions and screens displayed in this manual are for the Multiple Tool II only. However, operations are exactly the same for the HS-I/F. Note, however, that we recommend use of expanded memory when the HS-I/F is used.

### 4) Connecting the Camera to the Multiple Tool II and HS-I/F

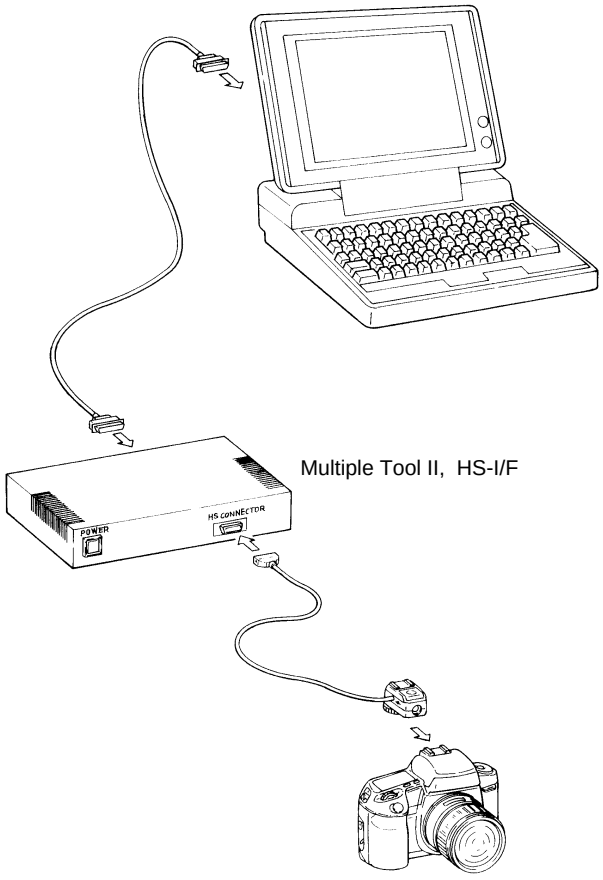



**Fig. 4-1 Camera Connection**

### 5) Adjustment Startup Procedure

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

POWON

Ver.1.0

**EOS ELAN 7/7E/7DATE**
**EOS 30/30DATE/33/33DATE**
**EOS 7**

Turn the Maltiple Tool II or Hs-I/F Power on.
Press a ESC Key to exit software program.

(C) Copyright Canon Inc. 10,1,2000

Turn the Multiple Tool II or HS-I/F ON in accordance with the directions displayed on the screen. If the Multiple Tool II or HS-I/F is already ON, turn it OFF and then back ON again.

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

SET

Connect Contact Adapter to the camera,
and turn the camera's main switch on.
Press RETURN.

It is sometimes necessary to turn the camera's electronic dial to establish communication. Follow the instructions on the screen. If more than a minute passes before the electronic dial turns ON, an error will occur.

WakeUP

Turn the Electric Dial or
press AE Lock (*) Button.
DO NOT press the SW1 or SW2.
A communications error may arise.

**NOTE 1** : Pressing SW1 or SW2 results in an error.

The adjustment software checks that communication has been established with the camera, then displays the total number of film transports, camera's ROM version number and error code on the screen.

POWON2

**EOS ELAN 7/7E/7DATE**
**EOS 30/30DATE/33/33DATE**
**EOS 7**

Number of used film roll: 00000000000000
Camera ROM Version: 00000000000000
Error: 00

To go to Main Menu, press RETURN.
To end the adjustment software, press space bar.

The ROM version is compatible with MPU 3E7733 and LPU 11 or later.
The details of past occurring errors are stored to memory as error codes. Error codes can be cleared by selecting Clear Error Code in the Self Check Menu.
For details on error codes, see "Modes in Which Error Nos. Are Lit at All Times" on page 2-32.

Multiple Tool II or HS-I/F ROM version 1.1 or later is required for electrical adjustment of EOS 7.
If the Multiple Tool II or HS-I/F ROM version is earlier than Ver.1.1, the adjustment software will display the message on the right.

ERRHSVER

HS-I/F ROM is not Ver. 1.1 or later.
This adjustment software runs under
HS-I/F ROM 1.1 or later.
Press any key to exit software program.

If a camera other than the EOS 7. has an unsupported ROM, this message will appear.

ERRCAM

The camera is not an EOS 7 2000/ 300.
This software is for the EOS 2000/ 300 only.
Press any key to exit software program.

ERRCVER

The ROM version of the connected EOS 7/ELAN7,30,33 is:
00000000000000000000
This software cannot be used to cameras with above ROM version.
Press any key to exit software program.

## 6) Exiting the Adjustment Software

Be sure to end electrical adjustment by selecting F10 Quit. Selecting F10 Quit clears the charging inhibit mode and the error number display settings, and returns the camera to the user mode.

## 7) Adjustment Software Menu Structure

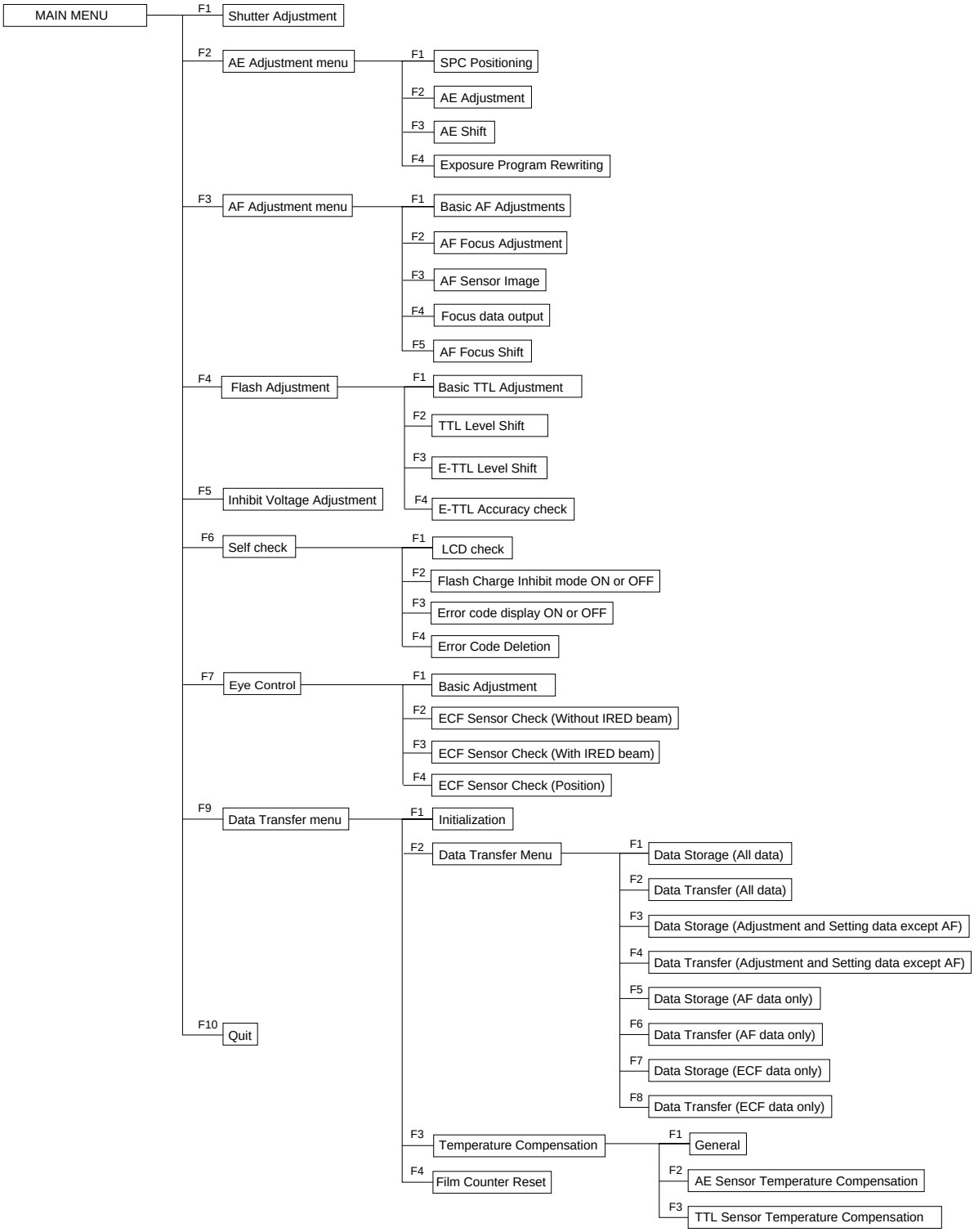



**Fig. 3-64 Adjustment Software Menu Structure**

## 1.5 SHUTTER ADJUSTMENT

**PURPOSE:**

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

**CAUTION**

- Check the shutter curtain speed. If it is not within the limits, the curtain speed must be adjusted. It cannot be adjusted. If it is within the limits, replace the shutter unit.
  Curtain speed limits
  First curtain travel time 4.8 ± 0.2 ms
  Second curtain travel time 4.8 ± 0.2 ms

**STANDARD:**

At a shutter speed of 1/4000

Center value: 0.290 ms

Standard limits: 0.210 to 0.410 ms

**TOOLS:**

EF-8000/5000

EF 50 mm f/1.8 lens

Shutter sensor (for EF-8000/5000)

**PREPARATIONS:**

1) Mount the EF 50 mm f/1.8 lens on the camera as shown in the figure, and set the EF-8000 to the shutter speed measurement mode.
2) Start up the adjustment software, connect the Multiple Tool II or HS-I/F, and select [F1] Shutter Adjustment from the MAIN MENU.

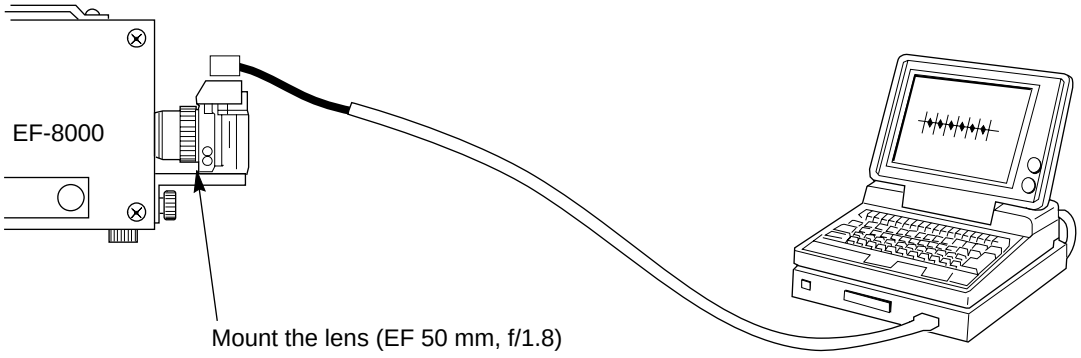



**Fig. 4-3 Shutter Adjustment**

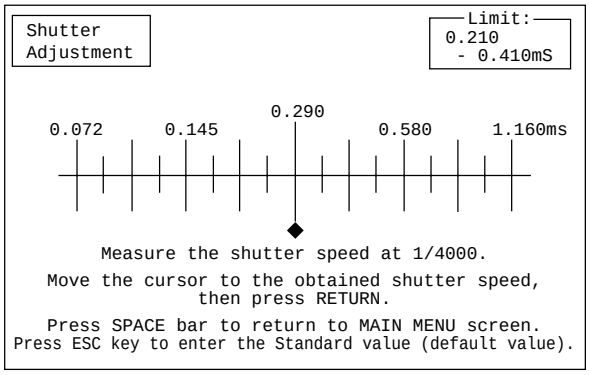
**ADJUSTMENT:**

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

   The program writes the shutter correction value to the camera.

   • If the adjustment does not go well, press ESC key to enter the standard value (default).

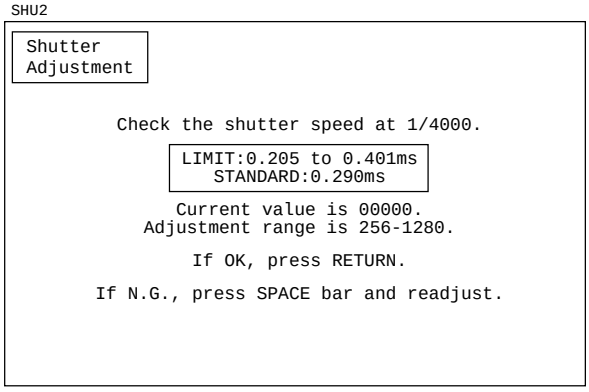
SHU1




2) After communication is completed, measure the shutter speed again to check that it conforms to the standard. If not, press the space bar and repeat the procedure.

   "The current value. xxx" is a guide for this adjustment. If it is devices greatly from this adjustment range, the setting may be improper or the shutter unit may be defective.

SHU2



## 1.6 CHECKING THE X-SYNC TIME LAG

**PURPOSE:**

To check that the shutter curtains are fully open when the flash is fired. The time lag cannot be adjusted. If the user complains about vignetting by shutter curtains, etc., check the time lag. If the time lag is not within specification, replace the shutter unit.

**STANDARD:**

Shutter speed 1/125

Line A: 0.33 ms min. (until first curtain starts and X-sync contact turns ON)

Line B: 2.50 ms min. (until second curtain starts to close after the X-sync contact turns ON)

**TOOLS:**

EF-8000 or EF-5000

X-sync time lag shoe

**CHECK:**

1) Connect as follows, and set the EF-8000 or EF-5000 to the DELAY mode to start measurement.
2) Set the camera to TV priority, and set the shutter speed to 1/125 in the manual mode.

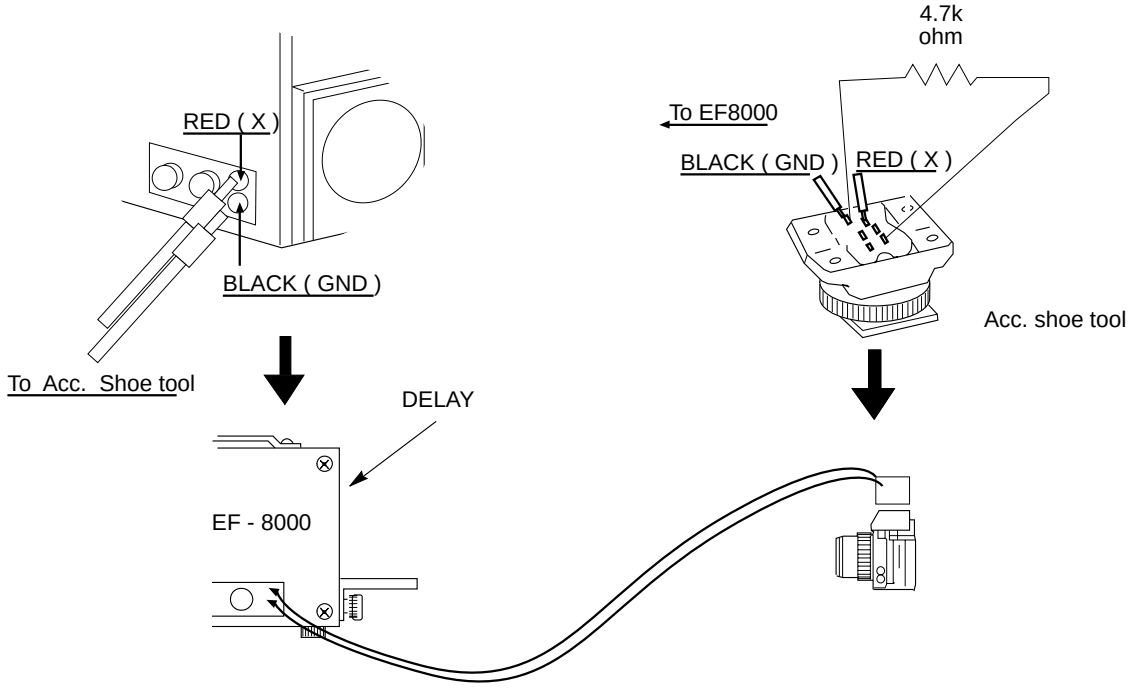



**Fig. 4-4 Checking X-Sync Time Lag**

## 1.7 SPC POSITIONING

**PURPOSE:**

To align the center of the SPC sensor with the center of the camera's optical axis. To do the adjustment, you can either use Multiple Tool II and HS-I/F or not use them at all. If you do not use these tools, you will need a bright penlight and expert skill.

• Adjustment Without Multiple Tool II and HS-I/F

**CAUTION** • Without these tools, expert skill will be required. Until you gain expert skill, follow the adjustment procedure which uses these tools.

**TOOLS:**

Bright penlight
EF 50 mm f/1.8 production lens
Aron Alpha

**PREPARATIONS:**

1) Attach an EF 50mm f/1.8 lens to the camera.
2) While covering part of the viewfinder with your hand, use a penlight to illuminate the SPC side (clear portion) within the AF sensor positioning area.
3) Look through the lens and move the penlight so that you can see the SPC's S14 and adjacent boundary lines. To make it easier, cover part of the viewfinder so that the focusing point at the viewfinder's center looks faint. Also, fixing the penlight in place makes it easier to move the SPC.

**ADJUSTMENT:**

1) Move the SPC so that S14 is aligned with the focusing point at the viewfinder's center.
2) Make fine adjustments so that the focusing points on the left and right of the viewfinder are also centered.

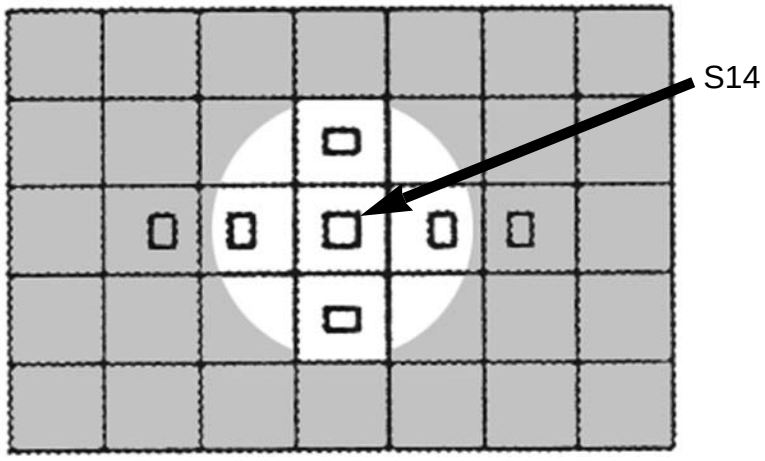



**Fig. 4-5 SPC Positioning**

• Adjustment With Multiple Tool II and HS-I/F

**CAUTION** • Carry out approximate AE Accuracy Adjustment [F2] before SPC positioning. Then, after finishing SPC positioning, carry out the final AE Accuracy Adjustment [F2].

**TOOLS:**

BF-8000/5000

EF 50 mm f/1.8 lens

SPC positoning mark (same as EOS Kiss)

Aron Alpha

**PREPARATIONS:**

1) Mount the EF 50 mm f/1.8 lens on the camera, and fix the camera on the tripod facing the light source. We recommend covering the SPC with a blackout curtain so that it is not affected by external light.
2) Start up the adjustment software, connect the Multiple Tool II and HS-I/F, and select [F2] Shutter Adjustment from the MAIN MENU.
3) Attach the SPC positioning mask on the EF-8000/5000 light source, and set the brightness to LV15.
4) Position the camera 45 cm from the SPC positioning mask, and align the center of the mask with the center of the focus frame of the viewfinder. Manually focus the lens.

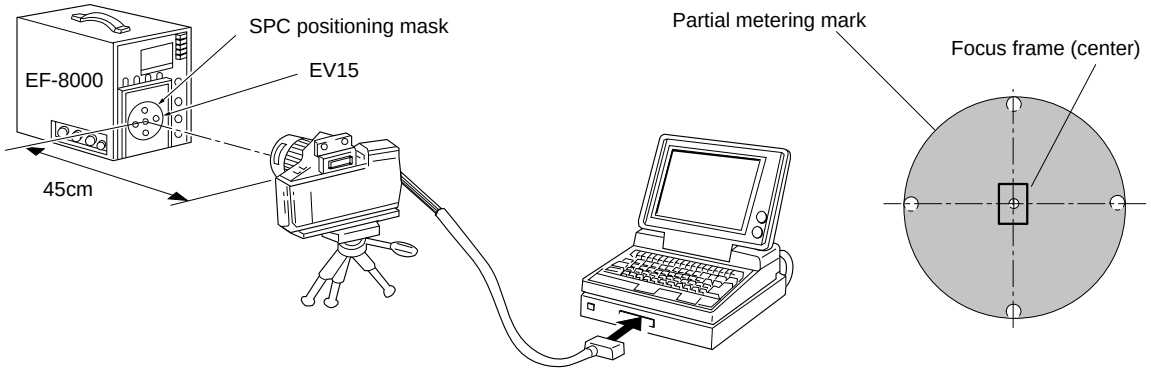



**Fig. 4-6 SPC Positioning**

**ADJUSTMENT:**

1) Select [F1] SPC Positioning in the AE Adjustment menu. The nearest EV values of the individual photometric sensors of the SPC will be displayed.
2) Shield the four holes, as shown at the left in Fig. 1 and measure the EV values of the S14 sensor.
3) As shown in Fig. 2, shield the left, top and bottom holes in turn and measure the EV values of the S14 sensor in each case.
4) Position the SPC so that the displayed values for top, bottom, left and right fall within 2 stops.
5) After making the adjustment, fix the SPC holder using Aron Alpha. After mounting the cover, repeat steps 2) and 3) to check the values.

AESPC

SPD Positioning Adjustment

Unit: EV

| | | | | | | |
|---|---|---|---|---|---|---|
| S57 | S56 | S55 | S54 | S53 | S52 | S51 |
| 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| S37 | S36 | S35 | S34 | S33 | S32 | S31 |
| 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| S17 | S16 | S15 | S14 | S13 | S12 | S11 |
| 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| S27 | S26 | S25 | S24 | S23 | S22 | S21 |
| 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |
| S47 | S46 | S45 | S44 | S43 | S42 | S41 |
| 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 | 00.0 |

When adjustment is finished, press RETURN.

Fig. 1

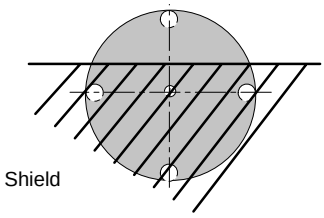



Fig. 2

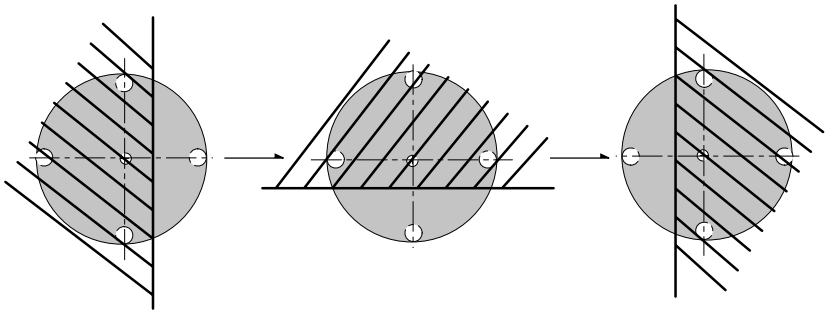


**Fig. 4-7 SPC Positioning**

## 1.8 AE ACCURACY ADJUSTMENT

**CAUTION**
- Before carrying out this adjustment, the AE temperature compensation must already have been carried out.
  This adjustment doubles as the E-TTL basic metering adjustment, so check E-TTL accuracy after adjustment.

**PURPOSE:**

To adjust the gain and output level of the SPC sensor

**STANDARD:**

| Light source | Film plane Illumination* | When checking SPC positioning output |
|---|---|---|
| EV9 | 0+/-0.5EV | EV9, 0+/-0.25 |
| EV12 | 0+/-0.5EV | EV12, 0+/-0.25 |
| EV15 | 0.5+/-0.5EV | EV15, 0+/-0.25 |

* During evaluative metering

**TOOLS:**

EF-8000/5000, AE sensor

EF 50 mm f/1.8 lens

**PREPARATIONS:**

1) Start the adjustment software, connect the camera to the HS-I/F, and select [F2] AE Adjustment menu in the MAIN MENU.
2) Mount the EF 50 mm f/1.8 lens on the camera, then position the camera facing the light source of the EF-8000/5000. Shield the camera's eyepiece so that it is not affected by external light.

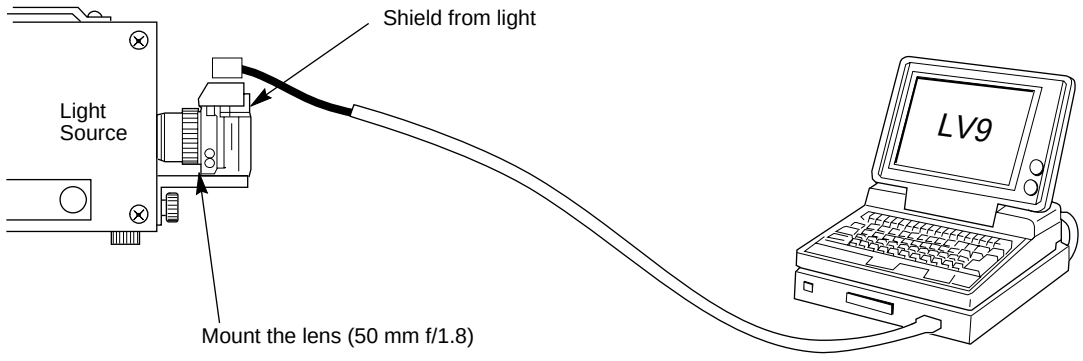



**Fig. 4-8 AE Accuracy Adjustment**

**ADJUSTMENT:**

1) Select [F2] AE Accuracy Adjustment in the AE Adjustment menu.
2) Set the brightness to LV9 and press the RETURN key.

   K: 12.5
   ISO: 100

AEM1

AE Accuracy Adjustment

**LV9**

Set EU Tester as follows:
K value: 12.5
ISO : 100

After setting, press RETURN.

Press SPACE bar to return to AE MENU screen.

3) When communication ends, and the screen on the right appears, set the brightness to LV15 and press the RETURN key.

   K: 12.5
   ISO: 100

AEM2

AE Accuracy Adjustment

**LV15**

Set the light source as follows:
K value: 12.5
ISO : 100

After setting, press RETURN.

Press SPACE bar to return to AE MENU screen.

4) When communication is completed, the camera is automatically set to the program mode., and measure 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.

   SPC positioning can also be used to check AE accuracy.

AEM3

AE Accuracy Adjustment

Limit:
EV9,12:0 +/- 0.5 EV
EV15:0.5 +/- 0.5 EV

Set Evaluative metering mode and measure film plane illumination.

If OK, press RETURN.

If N.G., press SPACE bar and readjust.

**NOTE 3**: Before you check the amount of light on the film plane, finish the shutter adjustment.

Use only the EF 50 mm f/1.8 lens for SPC positioning. Using other lenses may cause the values to vary.

## 1.9 AE SHIFT

**PURPOSE:**

Shifting exposure level to + or - at user's request. This adjustment shifts the offset resulting from adjusting the level in AE accuracy adjustment.

**TOOLS:**

EF-8000/5000, AE sensor

EF 50 mm f/1.8 lens

**PREPARATIONS:**

1) Start the adjustment software, connect the camera to the Multiple Tool II or HS-I/F, and select [F2] AE Adjustment in the MAIN MENU.
2) Mount the EF 50 mm f/1.8 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.)

K: 12.5

ISO: 100

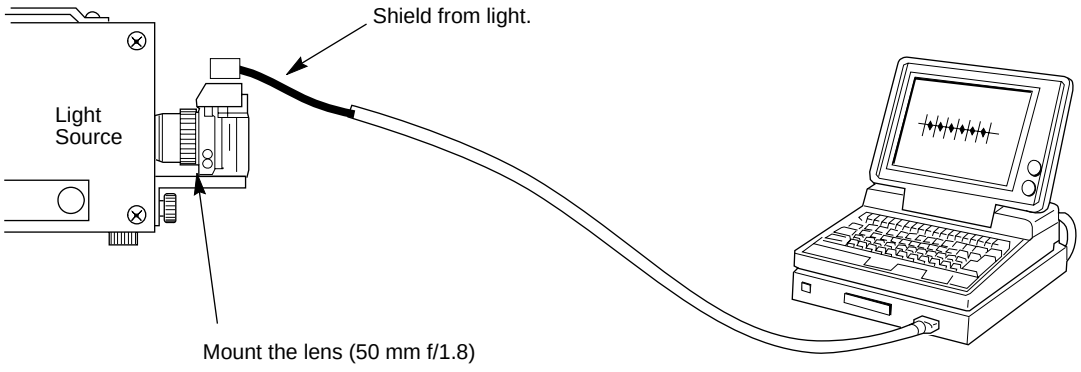
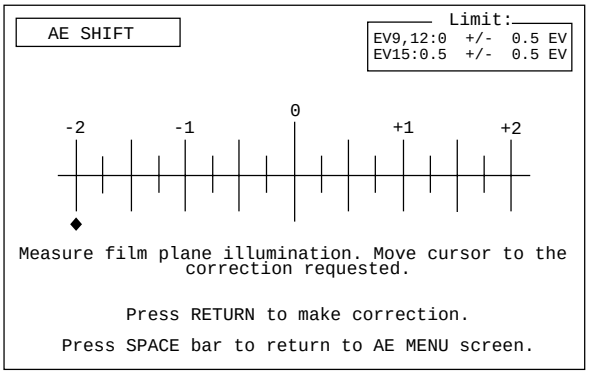



**Fig. 4-9 AE Shift**

**ADJUSTMENT:**

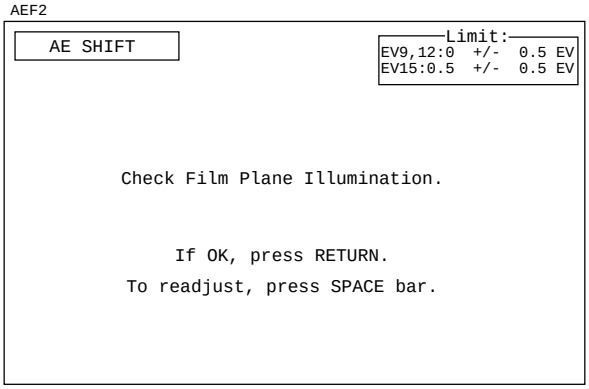
1) Select [F3] AE Shift in the AE Adjustment menu.
2) Move the cursor key to select the desired amount of shift. Exposure can be adjusted in approximately 0.25 f/stop steps. For example, to shift the exposure by +1 stop, move the cursor to +1.

AEF1




3) When communication ends, the camera is automatically set to the program mode. Measure the amount of light on the film plane at EV9, EV12 and EV15.

AEF2



## 1.10 EXPOSURE PROGRAM REWRITING

**CAUTION** • Before rewriting the exposure program, execute the basic AE Adjustments. For normal servicing, select "Normal (0)." Or set the compensation amount (+ or -) according to the user's preference. (Initialization will set it to "Normal [0].")

**PURPOSE:**

As with the EOS-3 and EOS-1V, the EOS-7 has compensation data for each maximum aperture. It can make finer compensation adjustments.

**TOOLS:**

EF-8000, 5000

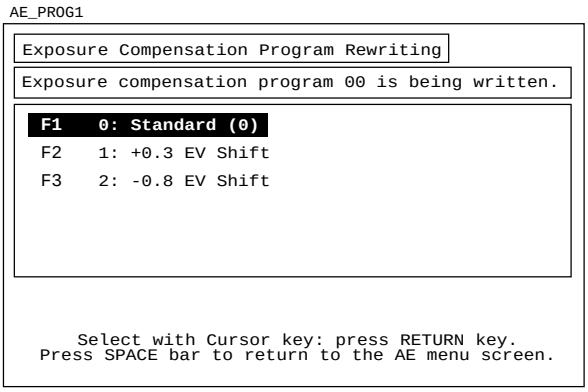
EF 50mm f/1.8 lens, user's lens or EF 28-135mm f/3.5-5.6 IS lens

**PREPARATIONS:**

1) On the AE Adjustment menu, select [F4] Exposure Program Rewrite.
2) Attach an EF 50mm f/1.8 lens to the camera, and set the camera to Av-priority and the aperture to f/8.0. Set the lens to manual-focus infinity and measure the exposure level of each brightness.
3) Next, attach the user's lens or an EF 28-135mm f/3.5-5.6 IS lens to the camera. Do the same measurement as in step 2 (Av-priority and f/8.0).

**ADJUSTMENT:**

1) 1) Select the EV difference between the EF 50mm f/1.8 lens and the user's lens or EF 28-135mm f/3.5-5.6 IS lens.




Example:

EF 50mm f/1.8 lens exposure: -0.15 EV

User's lens: +0.10 EV

-0.15 EV - (+0.10 EV) = -0.25 EV

Here, the compensation is altered so that the exposure level becomes the same as with the EF 50mm f/1.8 lens which serves as the standard.

<Reference>

To change all the lenses to + or -, use AE shift.

## 1.11 BASIC AF ADJUSTMENT

This adjustment must be carried out if the AF unit has been replaced. It 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. However, the AF sensor dust check and the AF focus data check must be carried out.

**PURPOSE:**

To adjust the data output from the BASIS sensor.

AGC: Adjust the AGC (Auto Gain Control) so that the BASIS sensor output waveform is intact.

Dark: Store and correct the output waveform in the absence of light.

Shading: Store and correct bit-by-bit variations in the BASIS sensor output.

**CAUTION**

- AF basic adjustment must always be preceded by AF sensor positioning adjustment and AF temperature compensation. The main mirror, sub-mirror and light-receiving section of the AF sensor must be free of dirt and dust when making this adjustment.

**TOOLS:**

EF 50 mm f/1.8 tool lens

Video light

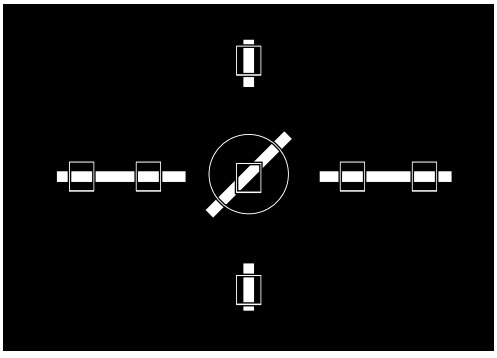
Tripod

Dark bag

Charts (For details of AGC charts, refer to "Locally Fabricated Tools" provided at the end of this manual.)

**PREPARATIONS:**

1) Mount the EF 50 mm f/1.8 production lens at about 1 m from the AGC adjustment chart as shown in Fig. 4-10. Illuminate the surface of the AGC adjustment chart with the video light so that the light amount is about EV9 (about TV=1/15, AV=F5.6 in the program mode).
2) Start the adjustment software, and select [F3] AF Adjustment menu in the MAIN MENU.



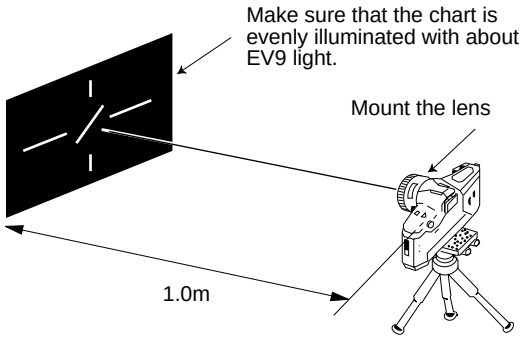
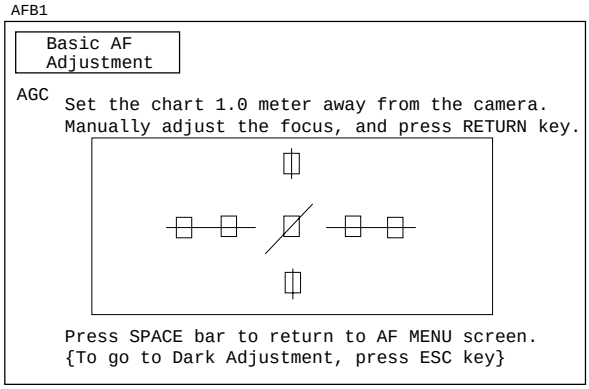


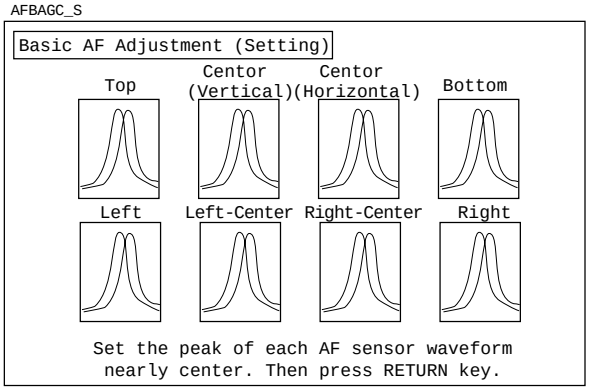

**Fig. 4-10 AGC Adjustment**

**ADJUSTMENT:**

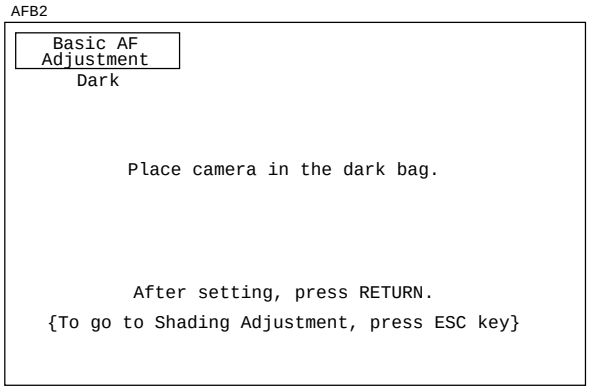
1) The screen on the right appears when you select Basic AF Adjustment. Set up the camera, and press RETURN key to start AGC adjustment.

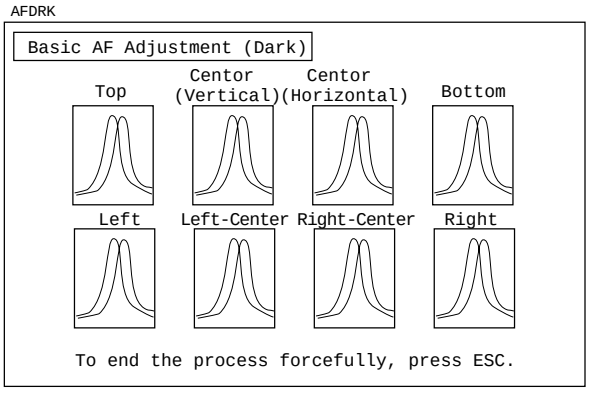



2) When the RETURN key is pressed, the waveform like the one on the right is displayed. Set up the camera so that the peaks of the waveform are at the center. When you have finished setting up the camera, press the RETURN key to start the adjustment.



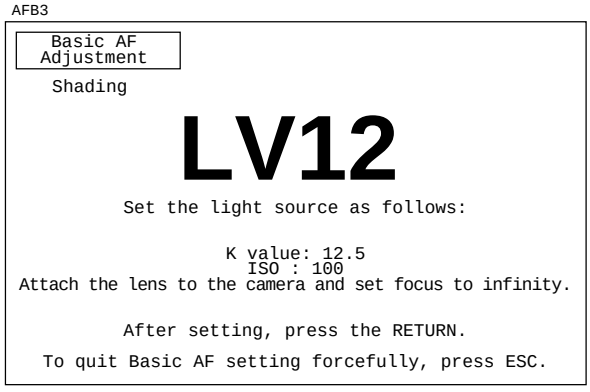

3) The screen on the right appears when AGC adjustment is completed. Place the camera in a dark bag, and press RETURN key to start dark adjustment.



4) The screen on the right appears when dark adjustment is completed. Shading adjustment setting is carried out. Mount the lens on the camera and set the camera on the light source stand. When setting is completed, press the RETURN key to start shading adjustment.

   After shading adjustment is completed, the AF Adjustment menu is redisplayed.




**NOTE 4** : Mount the lens and carry out the adjustment except for the dark adjustment. (The lens may be mounted during the adjustment). During the shading adjustment, the lens is stopped down by the adjustment software to minimize surface reflection inside the AF sensor. So, lens stopping down must function correctly.

Prevent the intrusion of powerful light from the eyepiece.

## 1.12 AF FOCUS ADJUSTMENT

**PURPOSE:**

To store the AF reference distance to memory.

**CAUTION**

- Before carrying out this adjustment, the AF temperature compensation, AF basic adjustment and flange back adjustments must already have been carried out.
  The main mirror, sub-mirror and light-receiving section of the AF sensor must be free of dirt and dust when making this adjustment.

**TOOLS:**

EF 50 mm f/1.8 tool lens

Video light

Tripod

AF STANDARD charts (CY9-7113-000)

**PREPARATIONS:**

1) Locate the camera at about 2.5 m ± 1 cm from the vertical reference chart as shown in Fig. 4-11. Illuminate the surface of the AF reference chart with the video light so that the light amount is about EV12 (about TV=1/125, AV=f/5.6 in the program mode).
2) Start the adjustment software, and select [F3] AF Adjustment menu in the MAIN MENU.

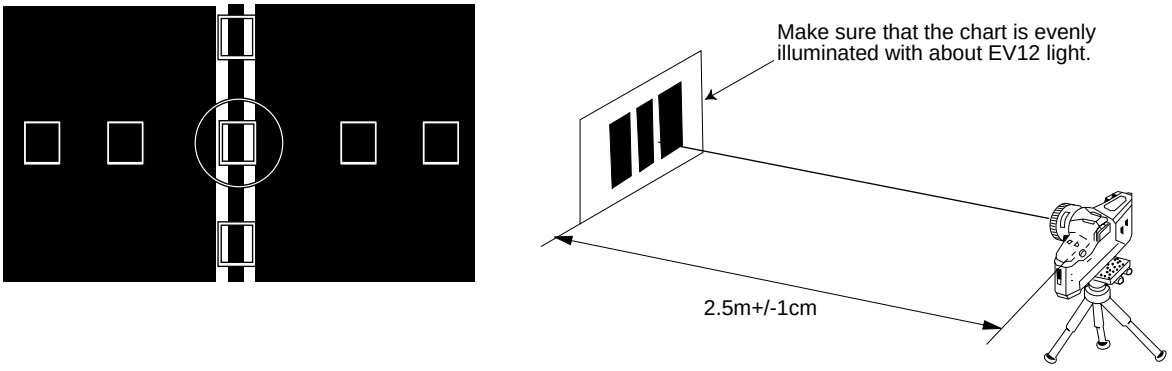
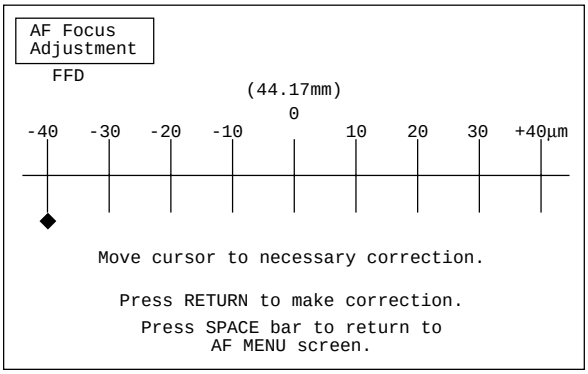



**Fig. 4-11 Setup for AF Focus Adjustment**

**ADJUSTMENT:**

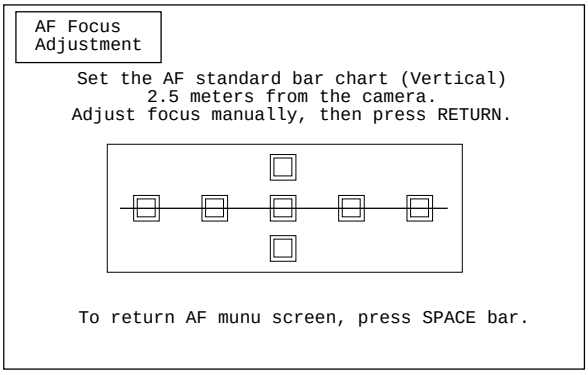
1) Select [F5] AF Focus Adjustment in the AF focus menu. The screen on the right appears. Move the center value of the flange back using the cursor keys, and press RETURN key.

AFPINT1



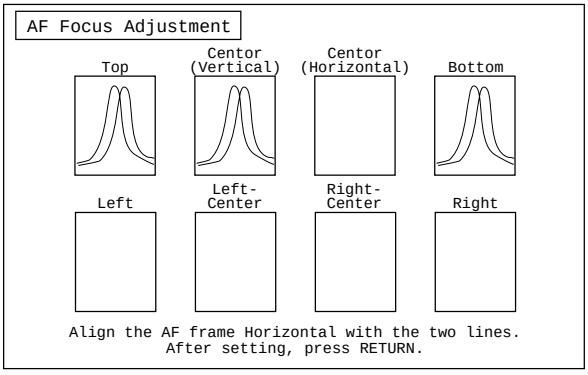

2) Press RETURN key to display the screen at the right. Position the camera 2.5 m ± 10 mm from the reference chart. Set the lens to infinity, then manually focus it to the scribed 2.5 m line. Align the center autofocus frame in the viewfinder with the bars of the AF reference chart, and press RETURN key. Adjustment starts from horizontal sensors (top, bottom and center).

AFPINT2




3) Adjust the AF sensor so that it captures reliable images of the chart. Set so that the peaks of the horizontal sensor (top, bottom and center) waveform are at the center. When you have finished setting up the camera, press the RETURN key to start the adjustment.

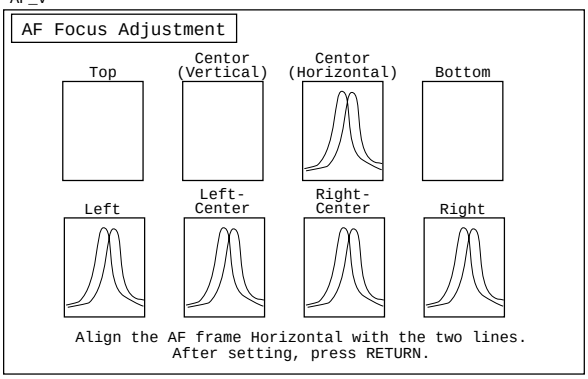
AF_H




4) Next, the vertical sensor is adjusted. Change the chart to the vertical chart, and press the RETURN key.

5) Adjust the AF sensor so that it captures reliable images of the chart. Set so that the peaks of the vertical sensor waveform are at the center. When you have finished setting the camera, press the RETURN key to start the adjustment.

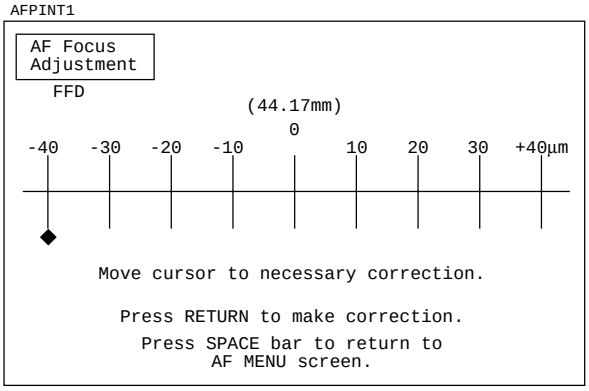
AF_V



**NOTE 4**

If you use a tool lens with a focus variation label, the AF focus can be adjusted by adding the amount of deviation during the flange back adjustment.

Example:
If the amount of deviation is +0.03, and the flange back correction amount is “0”, compensate the AF focus to 0.03 (-30µ).



## 1.13 AF Sensor Dust Check

**Purpose:**

To check the AF sensor output waveform (image data output).This waveform can show if there is any dirt in the AF sensor light path.

**Tools:**

EF-8000/5000

**Check Procedure:**

1) Position the camera at the light source with a lens mounted to it. Set the brightness of the light source to LV12. (Be sure to shield the eyepiece from external light.)

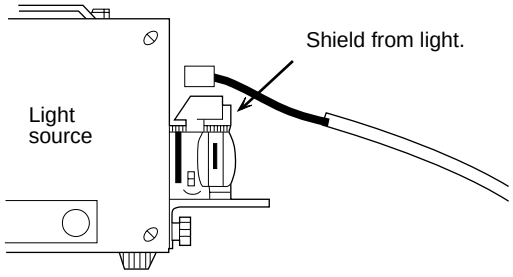
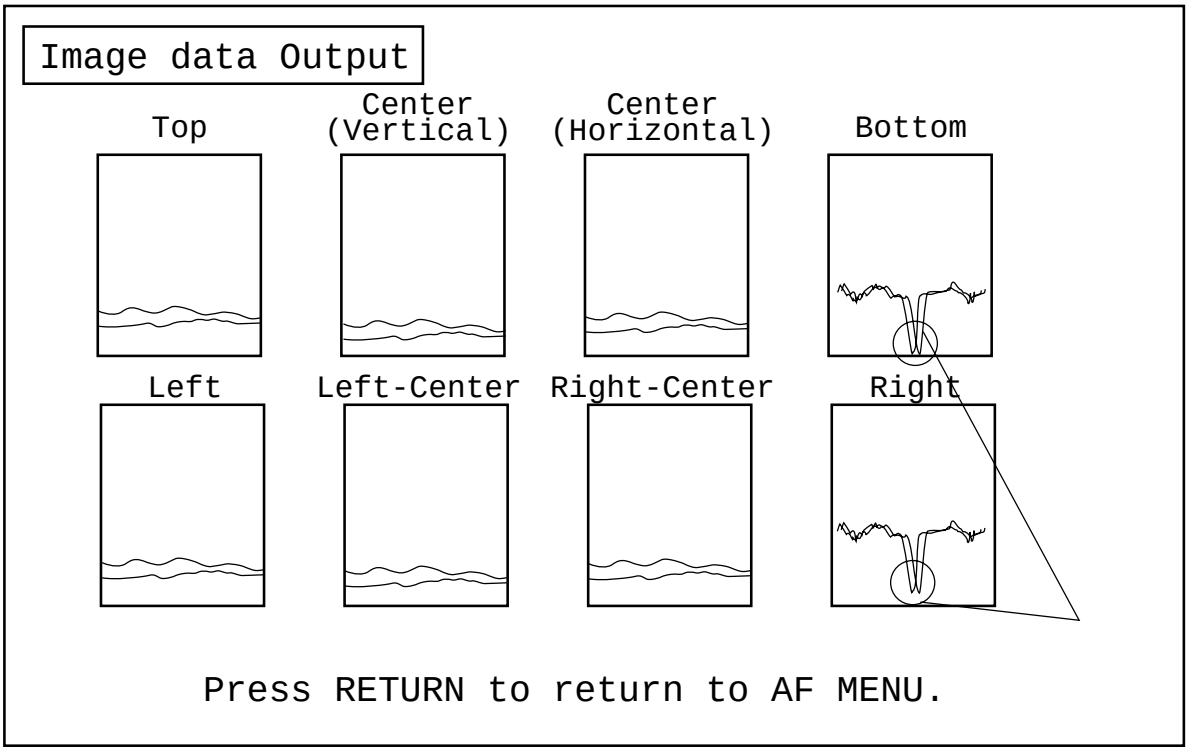



**Fig. 4-12 AF Sensor Dust Check**

2) Select [F3] AF sensor image in the AF menu.
   Make sure that the output waveform is almost flat.
3) If the output waveform has changed greatly, the AF Unit may be defective, so replace the AF unit.

AFIMG8



## 1.14 AF Focus Data Check

**Purpose:**

To check the AF focus adjustment.

**Tools:**

EF 50 mm f/1.8 tool lens
Video Light
Tripod
Charts

**Check Procedure:**

1) Set up the charts and camera as indicated for focus adjustment.
2) Start the adjustment software, and select [F3] AF Adjustment menu in the Main menu.
3) Set up the chart, and set the lens to the manual mode. Align the chart with the line inscribed on the tool lens.
4) Select [F4] Focus Data Output in the AF menu.

   Use autofocusing on each chart to check that the focus amount is within the standard shown in the following table.
5) If the result is not within the standard, replace the AF unit.

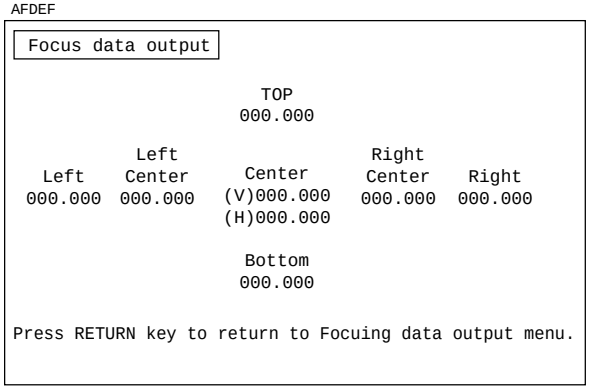



**Table 4-2 Defocus Standards**

| | Reference chart | | | Single bar chart | | | 45˚ bar chart | | |
|---|---|---|---|---|---|---|---|---|---|
| | Center vertical | Center horizontal | Periphery | Center vertical | Center horizontal | Periphery | Center vertical | Center horizontal | Periphery |
| 50 mm f/1.8 tool lens | ± 0.030 | ± 0.030 | ± 0.039 | ± 0.060 | ± 0.060 | ± 0.080 | ± 0.120 | ± 0.140 | ± 0.130 |

## 1.15 AF SHIFT

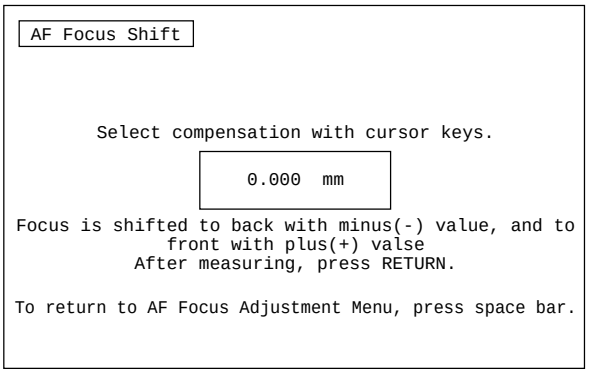
**PREPARATIONS:**

1) First do the AF Focus Data Check to see how much adjustment is needed.

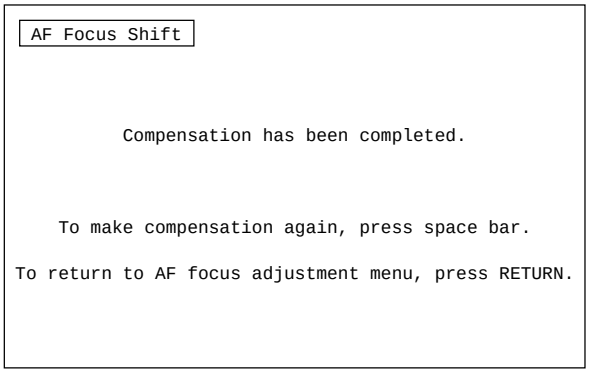
**ADJUSTMENT:**

1) On the AF Adjustment menu, select [F5] AF Shift.
2) Use the cursor keys to select the desired compensation amount. If the AF Focus Data Check indicates minus (-), select a plus (+) amount. If plus (+) is indicated, select a minus (-) amount. The amount can be set in 0.005mm increments.
3) To set the compensation again, press the space bar. Press the Return key to return to the AF Focus menu.

AFSHIFT1




AFSHIFT2



## 1.16 FLASH ADJUSTMENT

**PURPOSE:**

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

**CAUTION**

- Use the standard reflective board (or white wall with less spectral reflection) in a dark place (EV3 max. or a darkroom) to obtain the average for several cameras. Make adjustments using these average values.
- Carry out this adjustment if the main flex or flash sensor has been replaced.
- Before this adjustment, be sure to finish the shutter adjustment and flash sensor temperature compensation.
- Use the TTL Speedlite (540EZ, 300EZ, etc.) for adjusting TTL, and E-TTL Speedlite (550EX, 380EX) for adjusting E-TTL.
- If the adjustment value is changed, the shutter may no longer fully close. So, when the adjustment value has been changed, the flash must be turned OFF then ON again.

**TOOLS:**

EF 50 mm f/1.8 tool lens

Speedlite (already adjusted)

Tripod

Standard reflective chart (Though 18% reflection is preferable, any wall with less reflection is acceptable.)

**STANDARD:**

Average ±1 EV

**PREPARATIONS:**

1) Attach the camera on the tripod, and then attach the EF 50 mm f/1.8 tool lens and the Speedlight.
2) Set up the camera at distance 2 m from the standard reflective board (or white wall with less reflection). Manually set the lens to 2.0 m, and TV=1/125, AV=F5.6 in the manual mode.

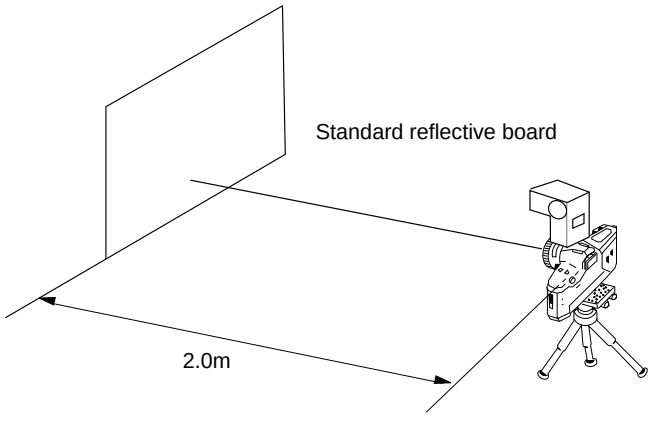



**Fig. 4-13 Setup for Flash adjustment**

## • Basic TTL Adjustment

**CAUTION** • Be sure to use the TTL flash (540 EZ, 300 EZ, etc.)

**PURPOSE:**

To adjust the gain level of the flash sensor.

**STANDARD:**

Average ±1 EV

**PREPARATIONS:**

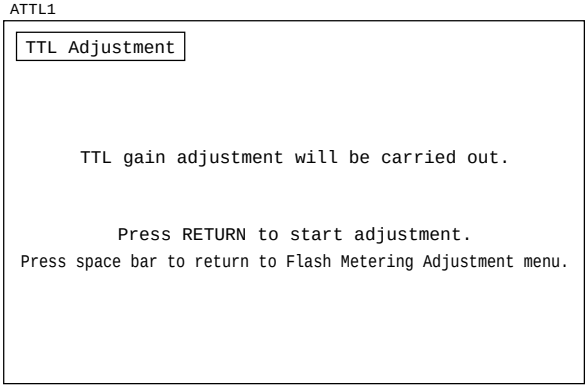
None

**ADJUSTMENT:**

1) The screen on the right appears. If OK, press the RETURN key.

2) The adjustment is carried out automatically.

3) After adjustment ends, the TTL level adjustment is started. After the TTL level adjustment, follow the procedure below to check the results of the adjustment.




**CHECK PROCEDURE:**

1) Attach the camera on the tripod, and then attach the EF 50 mm f/1.8 tool lens and the Speedlight.
2) Set TV=1/125, AV=F5.6 in the manual mode.
3) Set the camera to ISO 100, set the measuring tool (flash meter or EF8000, 5000) to ISO 100, release the shutter and take a measurement. Next, set to ISO 800, and release the shutter again and take a measurement.
4) If the measurement is within the standard at ISO 100 and 800, the camera is normal (properly adjusted).
5) If the value is out of standard even if the adjustment is done, replace the TTL sensor.

## • TTL Level Shift

**CAUTION**
- Be sure to use the TTL flash (540 EZ, 300 EZ, etc.)
- If the adjustment value is changed, the shutter may no longer fully close. So, when the adjustment value has been changed, the flash must be turned OFF then ON again.

**PURPOSE:**

To adjust the level of the flash sensors. The TTL gain adjustment must be finished before you start this adjustment. (Normally, this adjustment is not necessary.)

**STANDARD:**

Average ±1 EV

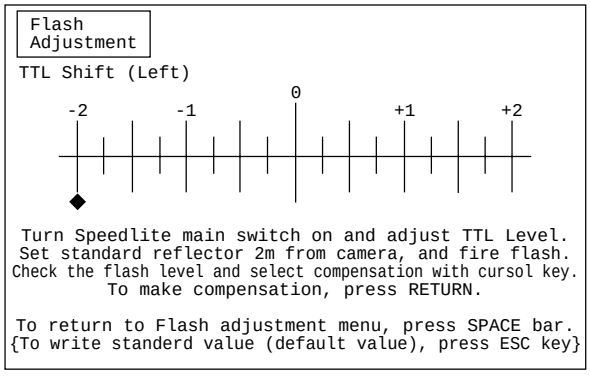
**PREPARATIONS:**

1) Attach the camera on the tripod, EF 50 mm f/1.8 tool lens and Speedlite.
2) Set TV=1/125, AV=F5.6 in the manual mode.
3) Set the measuring tool to ISO 100.

**ADJUSTMENT:**

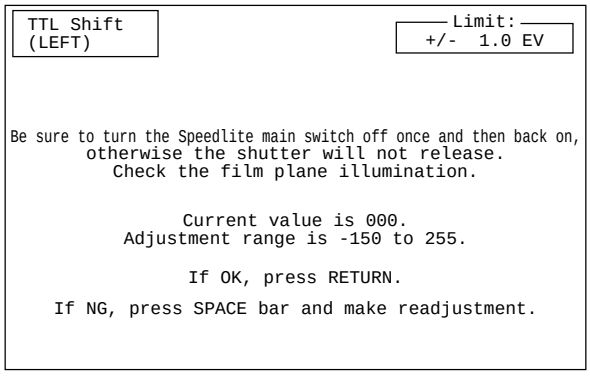
1) Select [F2] TTL Shift in the Flash Adjustment Menu. First check the adjustment of the flash level for the left sensor. Measure the amount of light on the film plane. Move the cursor key to select the compensation amount, and press the RETURN key.
   - If the adjustment does not go well, press ESC key to enter the standard value (default).

ATTLSFT1




2) Check the adjustment of the flash level of the right sensor. Measure the amount of light on the film plane. If OK, press the RETURN key.
   - "The current value. xxx" is a guide for this adjustment. If it deviates greatly from this adjustment range, the setting may be improper or the TTL sensor unit may be defective.

ATTLSFT2




3) In the same way as the left sensor, adjust the flash level of the center, left and outside sensors. Sensor selection is automatically adjusted by the adjustment software.

## • E-TTL Level Shift

**CAUTION** Be sure to use the E-TTL flash (550 EX, 380 EX, etc.)
There is no E-TTL basic adjustment. This is determined by AE basic adjustment.
- If the adjustment value is changed, the shutter may no longer fully close. So, when the adjustment value has been changed, the flash must be turned OFF then ON again.

**PURPOSE:**

To compensate the level of E-TTL flash gain. This operation is used when the user request that the camera be set for over- and under-exposure.

**STANDARD:**

Average ±1 EV

**PREPARATIONS:**

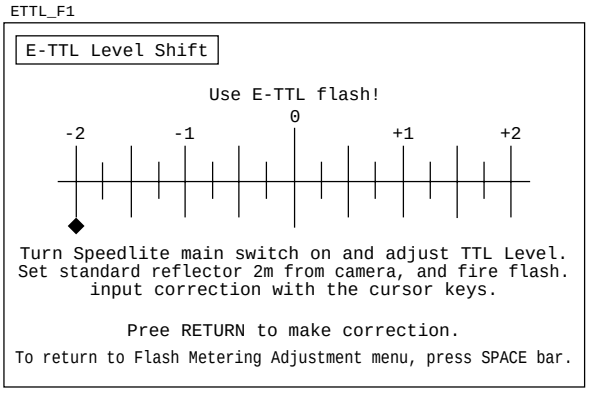
1) Attach the camera on the tripod, EF 50 mm f/1.8 tool lens and Speedlite.
2) Set TV=1/125, AV=F5.6 in the manual mode.
3) Set the measuring tool to ISO 100.

**ADJUSTMENT:**

1) Select [F3] E-TTL Level Shift in the Flash Adjustment menu.
2) Move the cursor key to select the compensation amount.

   • Compensation is possible in approximately 0.25 stops. To set an overexposure of 1 stop, set the compensation amount to +1.

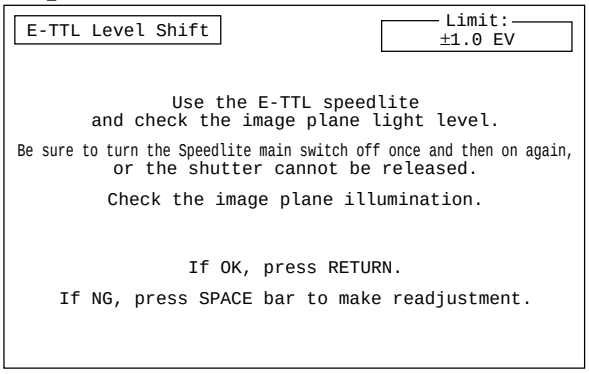
ETTL_F1




3) When communications ends, release the shutter. Make sure that the flash is fully charged.

4) If the result is within the standard, press the RETURN key to end the adjustment.

ETTL_F2



## E-TTL ACCURACY ADJUSTMENT

**CAUTION** • The following adjustment procedure is a simple check. For users with high accuracy requirements, conduct the check using the regular E-TTL flash.

**PURPOSE:**

To conduct a simple check on E-TTL accuracy

**STANDARD:**

Average +/- 1EV

**PREPARATIONS:**

1) Attach the EF 50 mm, f/1.8 lens on the camera as shown in the figure below, and fix it in position on a tripod facing the light source. We recommend covering the SPC unit with a blackout curtain to prevent external light from entering the lens.
2) Start up the adjustment software, connect the Multiple Tool II or HS-I/F, and select [F4] Flash Adjustment from the Main menu.

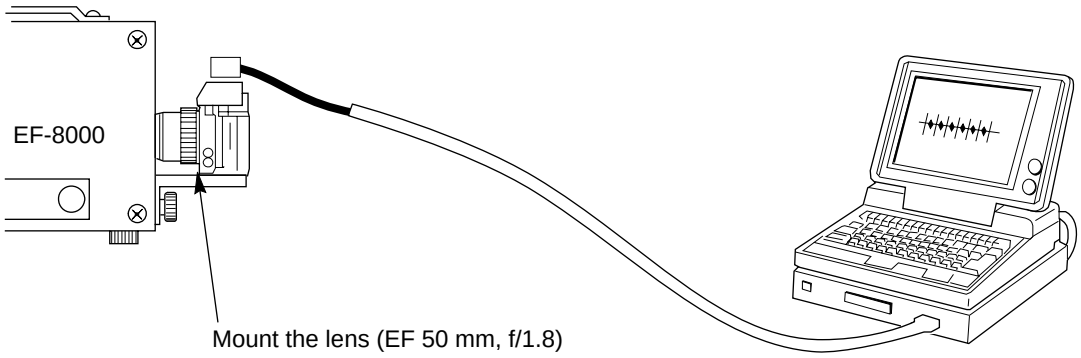



**Fig. 4-14**

**ADJUSTMENT:**

1) Attach the EF 50 mm, f/1.8 lens on the camera, and fix it in position on a tripod facing the light source. We recommend covering the SPC unit with a blackout curtain to prevent external light from entering the lens.
2) Start up the adjustment software, connect the Multiple Tool II or HS-I/F, and select [F4] Flash Adjustment from the Main menu.
3) Select [F4] E-TTL Accuracy Adjustment from the Flash Adjustment menu.
4) The EV values of each metering sensor in the SPC unit are displayed. These values are the E-TTL exposure levels.

TTLSPC

E-TTL Accuracy Check

| | | | | | | |
|---|---|---|---|---|---|---|
| S57 00.0 | S56 00.0 | S55 00.0 | S54 00.0 | S53 00.0 | S52 00.0 | S51 00.0 |
| S37 00.0 | S36 00.0 | S35 00.0 | S34 00.0 | S33 00.0 | S32 00.0 | S31 00.0 |
| S17 00.0 | S16 00.0 | S15 00.0 | S14 00.0 | S13 00.0 | S12 00.0 | S11 00.0 |
| S27 00.0 | S26 00.0 | S25 00.0 | S24 00.0 | S23 00.0 | S22 00.0 | S21 00.0 |
| S47 00.0 | S46 00.0 | S45 00.0 | S44 00.0 | S43 00.0 | S42 00.0 | S41 00.0 |

Check the E-TTL(SPC) output for each brightness.
If the all values are normal, the flash metering level is also normal.
Press RETURN key to return to Flash Metering Menu.

## 1.17 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.

**STANDARD:**

| | |
|---|---|
| Full display | 5.25 V ± 0.15 V |
| Flashing display | 4.70 V ± 0.15 V |
| Release inhibit | 4.40 V ± 0.1 V |

**TOOLS:**

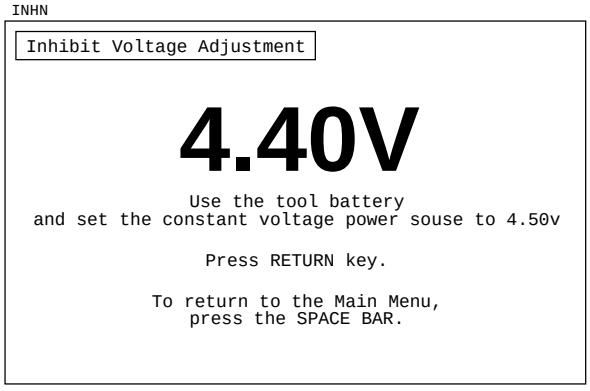
DC power supply
Tool battery (CY9-7091-001)
Adjustment software work disk
Tester

**PREPARATIONS:**

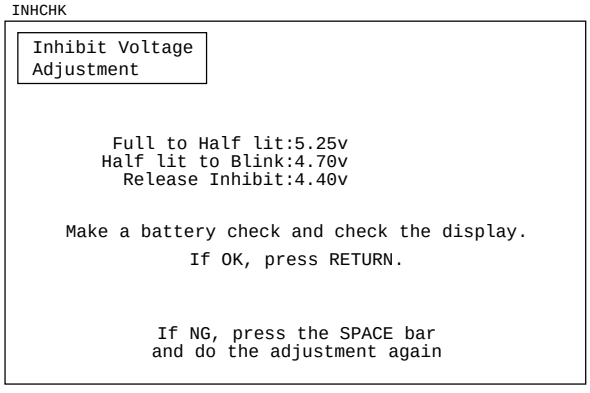
Start the adjustment software and select [F5] Inhibit Voltage Adjustment in the Main menu.

**ADJUSTMENT:**

1) Adjust the supply voltage to the value indicated on the screen, and press the RETURN key.




2) When communications ends, the screen on the right appears. Press the release button to check that shutter release is inhibited.

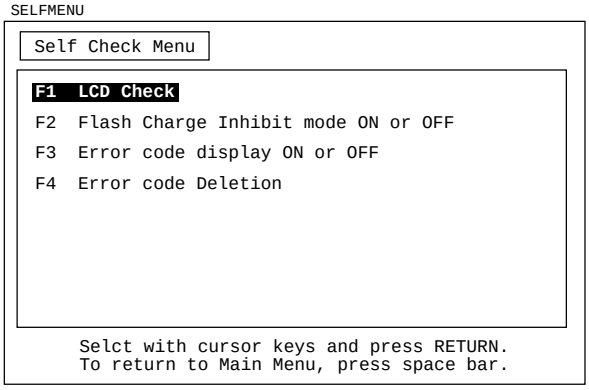


## 1.18 SELF CHECK

The self check can be classified into the following checks and settings:

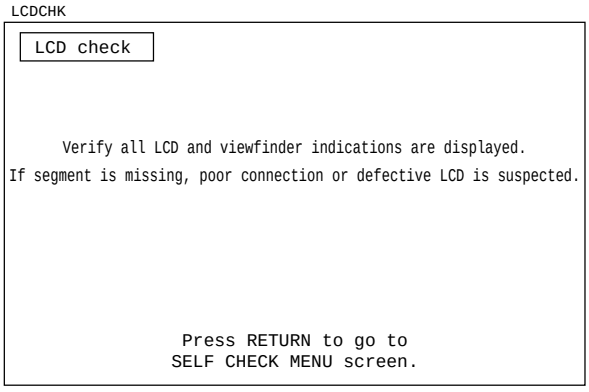
1. LCD Check: Display the all indications in viewfinder and LCD panel, and check that no segment is missing.
2. Flash Charge Inhibit mode ON or OFF: Inhibits flash charging and prevents discharge.
3. Error Code display ON or OFF: In this mode, the battery mark flashes and the error code is displayed at the same time.
4. Error Code Deletion: Deletes the error code.

Select Self Check in the Main menu to display the Self Check menu.




### LCD CHECK:

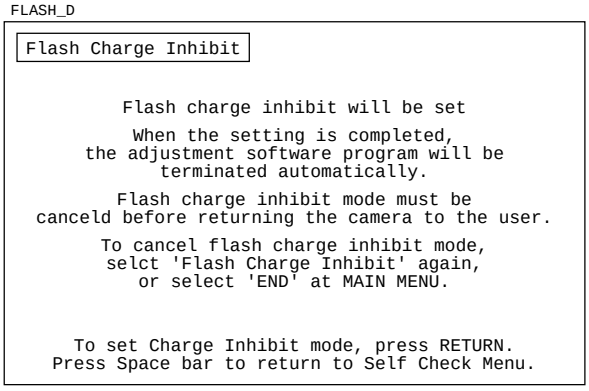
When LCD check is selected, the screen on the right appears and all LCD panel indications are displayed. If there are any missing segments, the LCD may be defective, or connection may be poor.



## FLASH CHARGE INHIBIT

This item sets the camera to the flash inhibit mode.

When [F2] is selected in the Self Check menu, the screen on the right appears, the flash inhibit mode is set, and the adjustment software is automatically quit.



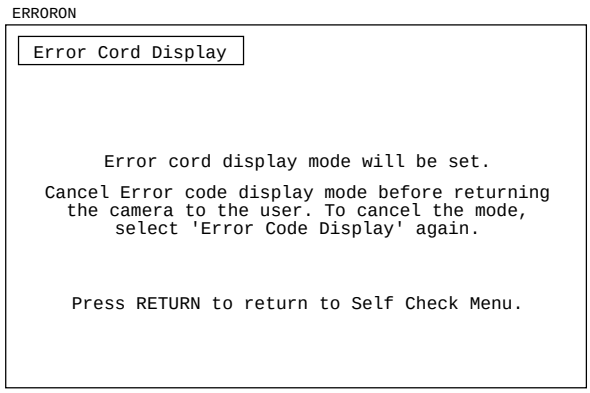

To cancel this mode, select Flash Charge Inhibit again. This mode can also be canceled by selecting [F10] Quit in the Main menu.

**NOTE 7**: Be sure to cancel flash charge inhibit mode when returning the camera to the user.

## ERROR CODE DISPLAY ON AND OFF MODE

If an error occurs in the normal camera mode battery mark only flashes and you cannot tell which error has occurred. If the “error code display ON and OFF mode” is set, error codes are displayed at the top right of the camera’s external LCD panel.

When [F2] is selected in the Self Check menu, the screen on the right appears, and the “error code display ON and OFF mode” is set.



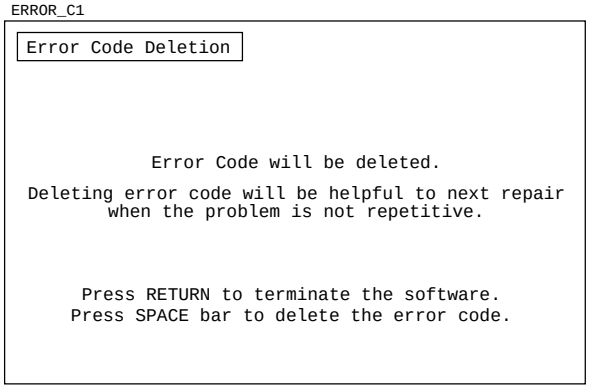

To cancel this mode, select [F2] again. This mode can also be canceled by selecting [F10] Quit in the Main menu.

**NOTE 9**: Be sure to cancel error code display when returning the camera to the user.

## ERROR CODE DELETION

This deletes the error code. If there is a non-repeating malfunction, deleting the error code will serve as reference information the next time the camera is serviced.

On the Self-Check menu, select [F2] Error Code Deletion. The screen on the right will then appear. Press Return to delete the error code.



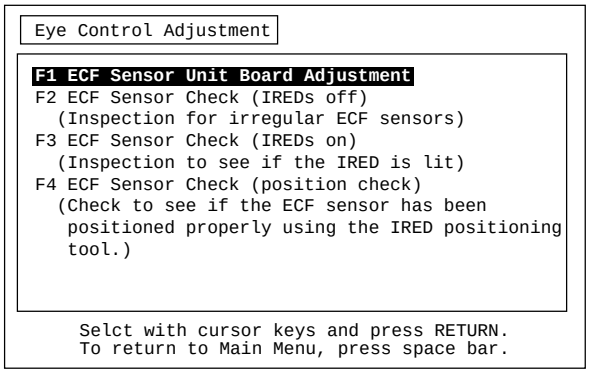
## 1.19 ECF (EYE CONTROL) ADJUSTMENT MENU

ECF sensor unit adjustments:

1. ECF sensor unit adjustment: Execute when the ECF sensor unit is replaced or readjusted.
2. ECF sensor check (IREDs off): Inspection for irregular ECF sensors.
3. ECF sensor check (IREDs on): Inspection to see if the ECF sensor's IRED is lit.
4. ECF sensor check (position check): Check to see if the ECF sensor has been positioned properly.

**TOOLS:**

IRED positioning tool (CY9-1106)
CCD adjustment chart (CY9-7088)
Mask holder (CY9-1097)
EF8000, 5000
Dark bag




## ECF SENSOR UNIT ADJUSTMENT

**CAUTION**
- When replacing the ECF sensor unit or main flexible board, be sure to save the data.
- When executing an adjustment or check, keep the body cap on the camera.

**PURPOSE:**

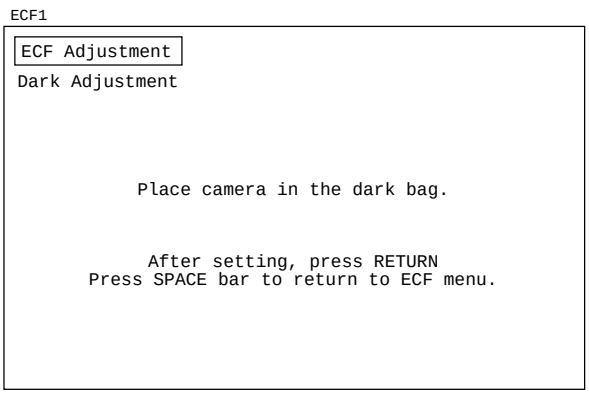
Adjustment of the ECF sensor unit. Adjustment of the ECF sensor unit's IRED brightness and position, and the reception sensor's BASIS sensitivity.

**PREPARATIONS:**

1) On the ECF Adjustment menu, select [F1] ECF Sensor Unit Adjustment.

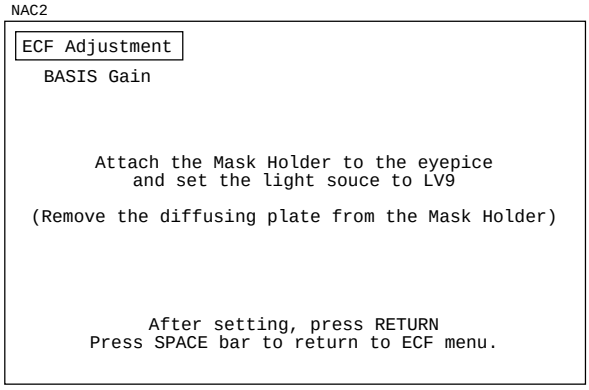
**ADJUSTMENT:**

1) When the screen on the right appears, put the camera in a dark bag and press Return.



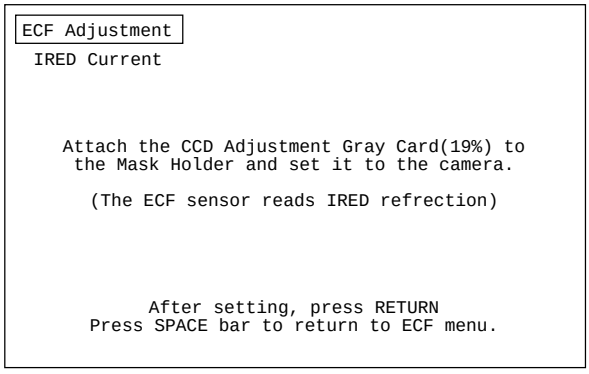
2) After the communication, the screen on the right appears. Set the camera and EF 8000, 5000 to EV9. Then press Return.

NAC2



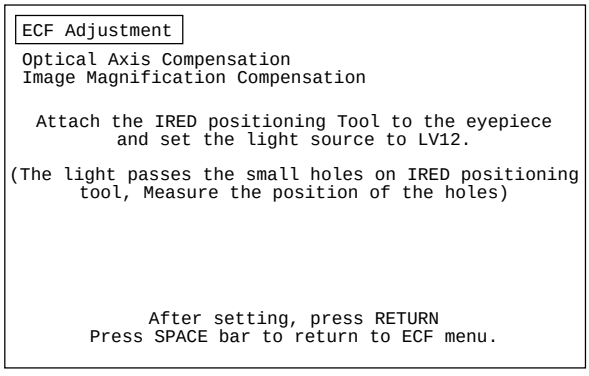

3) After the communication, the screen on the right appears. Attach a 19% reflector to the mask holder and press Return.

NAC3




4) After the communication, the screen on the right appears. Attach the IRED positioning tool and set the EF8000 or 5000 to EV15. Then press Return.

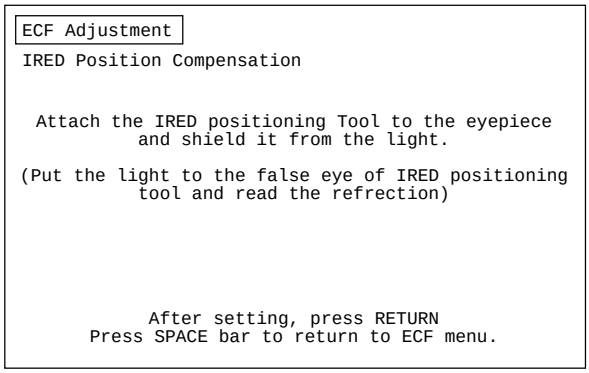
NAC4




5) After the communication, the screen on the right appears. Remove the IRED positioning tool from the EF 8000, 5000 and cover it with a dark cloth. (Since the IRED positioning tool has tiny holes, light may leak through them and affect the adjustment data.)

6) After all the steps are completed, the ECF sensor adjustment will be completed.

NAC5



## ECF SENSOR UNIT CHECK

**PURPOSE:**

This is for checking the ECF sensor unit. Select this item if the user complains about Eye Control focusing problems.

Items to be checked:

- ECF sensor output
- IRED illumination position and output
- ECF sensor position

**CAUTION** Many ECF problems are caused by a dirty eyepiece lens. Before executing the above checks, clean the eyepiece lens.

### • ECF sensor check (IREDs off)

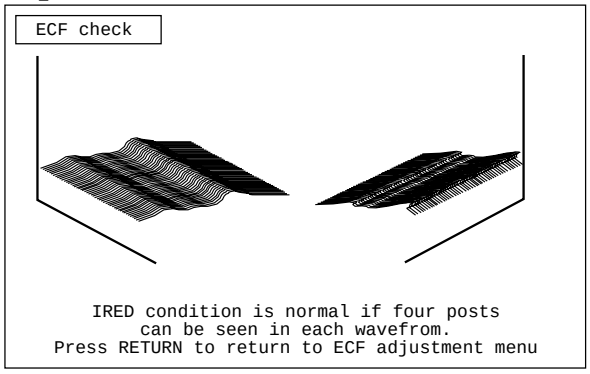
**PREPARATIONS:**

1) On the ECF Adjustment menu, select [F2] ECF Sensor Check (IREDs off).

**CHECK PROCEDURE:**

1) After a few moments, the waveforms as shown on the right will appear. Cover the eyepiece or shine a light source (about EV12) on it. The waveforms should look even. If there is an irregular peak or depression somewhere, check for any smudges on the eyepiece and do the ECF sensor unit adjustment. After the adjustment, check the waveforms again. If nothing improves, the ECF sensor is probably faulty.

NAC_C2



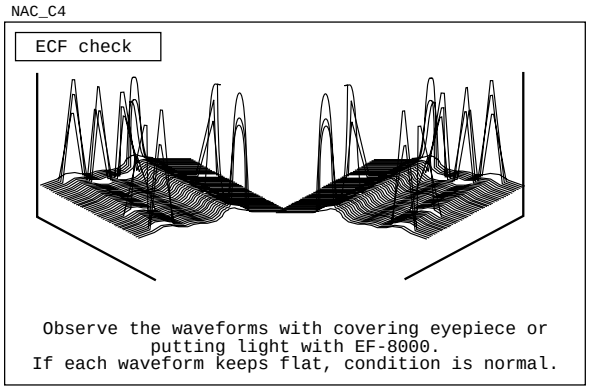
## • ECF Sensor Check (IREDs on)

**PREPARATIONS:**

1) Attach the IRED positioning tool to the eyepiece.
2) On the ECF Adjustment menu, select [F3] ECF Sensor Check (IREDs on).

**CHECK PROCEDURE:**

1) After a few moments, the waveforms as shown on the right will appear. Four pillars on the left and right (total of eight) should be displayed alternately. The pillars are the IREDs' light reflecting off the IRED positioning tool's eye. If you do not see the four pillars, it means the IRED is not lit. The ECF sensor is therefore faulty.



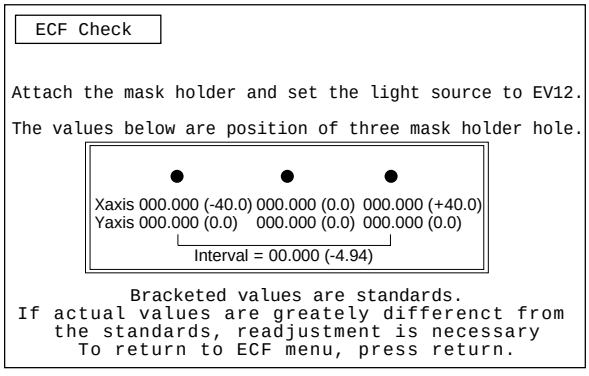

## • ECF Sensor Check (Position Check)

**PREPARATIONS:**

1) Securely attach the IRED positioning tool to the eyepiece.
2) Shine a light source (EV12) on the eyepiece.
3) On the ECF Adjustment menu, select [F4] ECF Sensor Check (Position Check).

**CHECK PROCEDURE:**

1) After a few moments, the numbers as shown on the right will appear. Check if the numbers are close to the target values. These numbers indicate the position of the holes in the IRED positioning tool. When the ECF unit is operating normally, the numbers displayed will be close to the target values. If the numbers are far off from the target values 1.5 or more), do the adjustment again and check again. If the numbers are the same as before the adjustment, the ECF sensor is probably faulty.

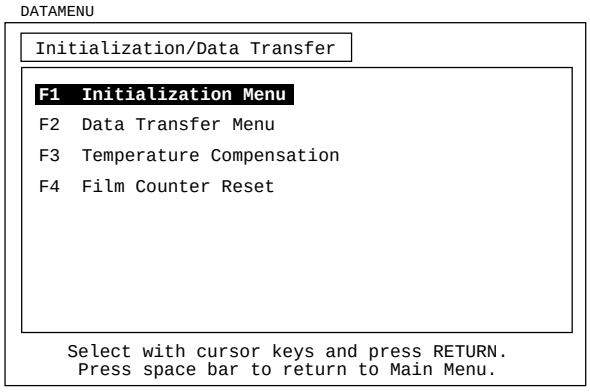


## 1.20 DATA TRANSFER

The Data Transfer menu consists of five operations:

1. Initialization: This is divided into initialization of all data, AF data or settings. Select the required item to initialize as required.
2. Data storage: All data, AF data and settings can be selected.
3. Data transfer: Same as data storage
4. Temperature compensation: Stores the temperature compensation value in the camera. Temperature compensation for each of the AE sensor, TTL sensor and AF sensor is performed. (This value corrects for any error in the camera's internal temperature.)
5. Film counter reset: Resets the film counter.

Select Data Transfer in the MAIN MENU to display the Data Transfer menu.

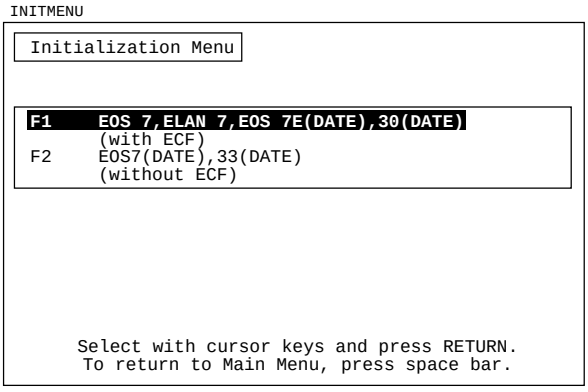


## • Initialization

**CAUTION**

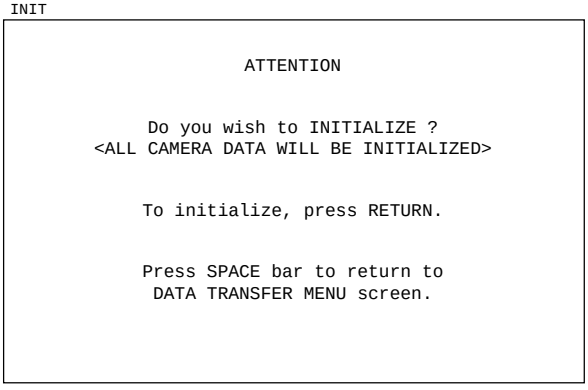
- The Main Flex Unit for servicing is not written with the initialization data. Therefore, before doing the adjustment, be sure to execute the initialization.
- The initialization data differs depending on whether there is Eye Control.
- The exposure program will be written according to the Standard (0).

1) When you select Initialization, the screen on the right appears. Select the item to suit the camera you are using or the Main Flex Unit.




2) When you select the main board, the adjustment software ask you if it is OK to execute initialization.

To execute initialization, press the RETURN key. To cancel initialization, press the space bar.



## • Data Storage

Like initialization, you can select all data, AF data or settings when storing data.

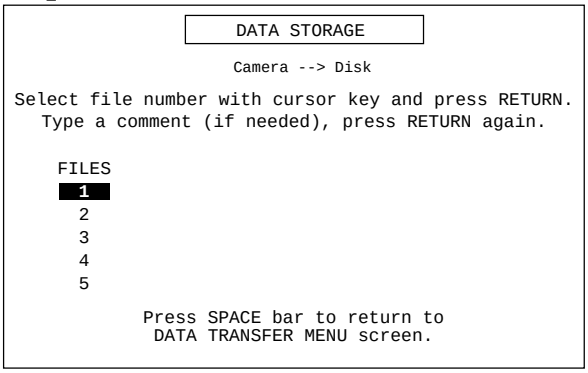
Tip: Before you start repair, note down the camera's current settings. This will make it easier to return the settings to the user settings after repair

1) In the Data Storage menu, select the data to save with the up and down cursor keys, and press the RETURN key.

2) The screen on the right appears. Select the file with the up and down cursor keys, and press the RETURN key. You can now enter a comment.

3) Enter the comment and press the RETURN key. This stores the camera data.

DATC_T

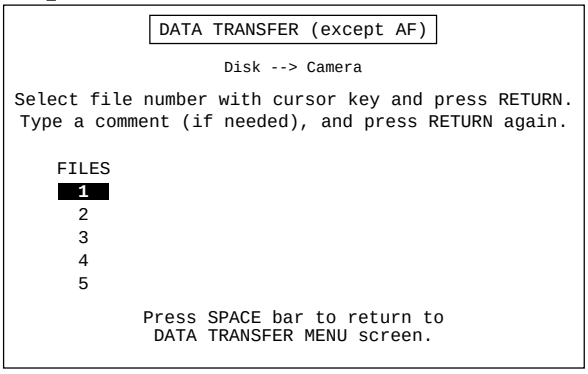



## • Data Transfer

1) In the Data Storage menu, select the data to transfer with the up and down cursor keys, and press the RETURN key.

2) The screen on the right appears. Select the file with the up and down cursor keys, and press the RETURN key to transfer the camera data.

DATT_C

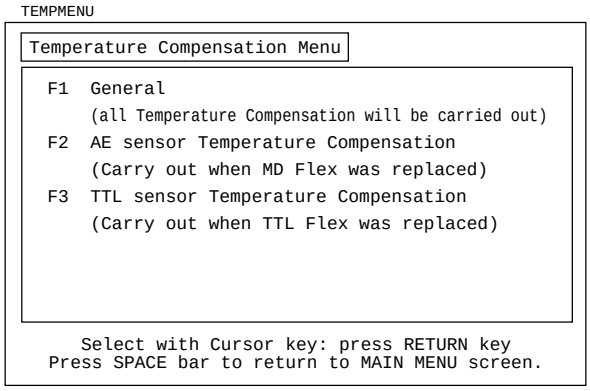


## Temperature Compensation

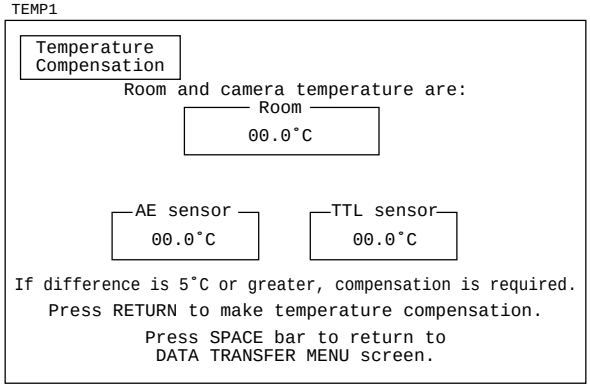
Up till now there was only one type of temperature compensation. On the EOS REBEL 2000/300, however, additional temperature compensation must be carried out on the AE sensor, TTL (A-TTL) sensor and AF sensor. In all, the following compensations are available:

General compensation: Compensates all sensors.
AE sensor: Compensates only the AE sensor. Use this item when the AE sensor (MD flex) has been replaced.
TTL sensor: Compensates only the TTL sensor. Use this item when the TTL sensor (TTL flex) has been replaced.

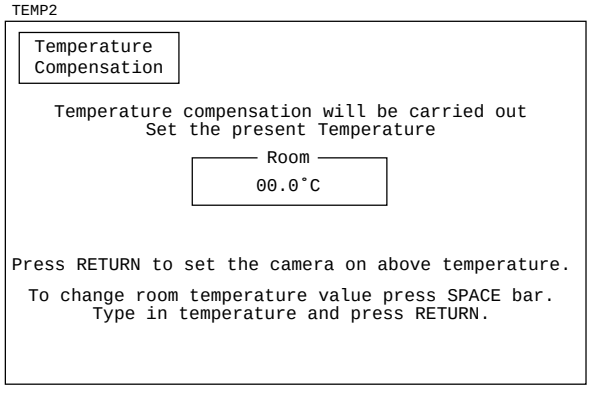
1) Select Temperature Compensation. The Temperature Compensation Menu appears as shown on the right.



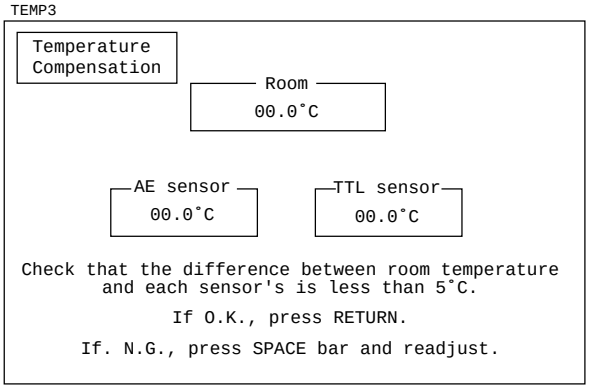

2) If necessary, select the compensation using the cursor keys and press the RETURN key. Select Temperature Compensation (General Compensation) to display the room temperature (measured by the Multiple Tool II, HS-I/F) and the temperature measured by the camera as shown at the right. If the difference between the room temperature and measured temperature is 5°C or more, press the RETURN key to carry out temperature compensation.




3) Press the RETURN key to display the room temperature (measured by the Multiple Tool II, HS-I/F). Compare the value with the current room temperature, and press the space bar to enter the compensation by the number keys if necessary. If OK, press the RETURN key.



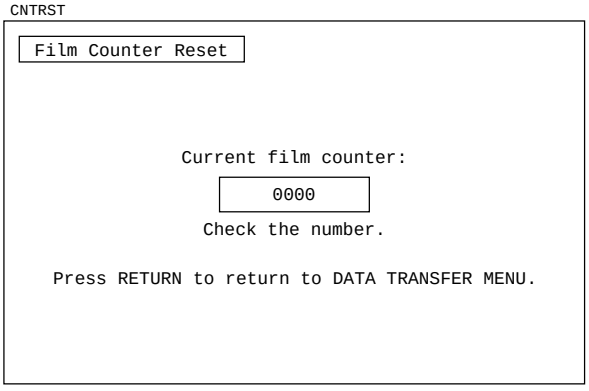
4) Press the RETURN key. When communications ends, the screen on the right is displayed. Check that the room temperature (measured by the Multiple Tool II, HS-I/F) and the temperature measured by the camera are within 5°C, then press the RETURN key. If they are not within 5°C, press the space bar, and repeat the procedure from step 1).




## Film Counter Reset

This item resets the film counter. The film counter must be reset when the film counter has been reset or is set to a desired film count, for example, when the shutter has been replaced.

When [F5] in the Data Transfer menu is selected, the screen on the right is displayed, and the counter is reset to “0” (zero). The desired number of films can also be set by pressing the ESC key. Press the space bar to redisplay the Data Transfer menu.



# Part 5

# Parts Catalog

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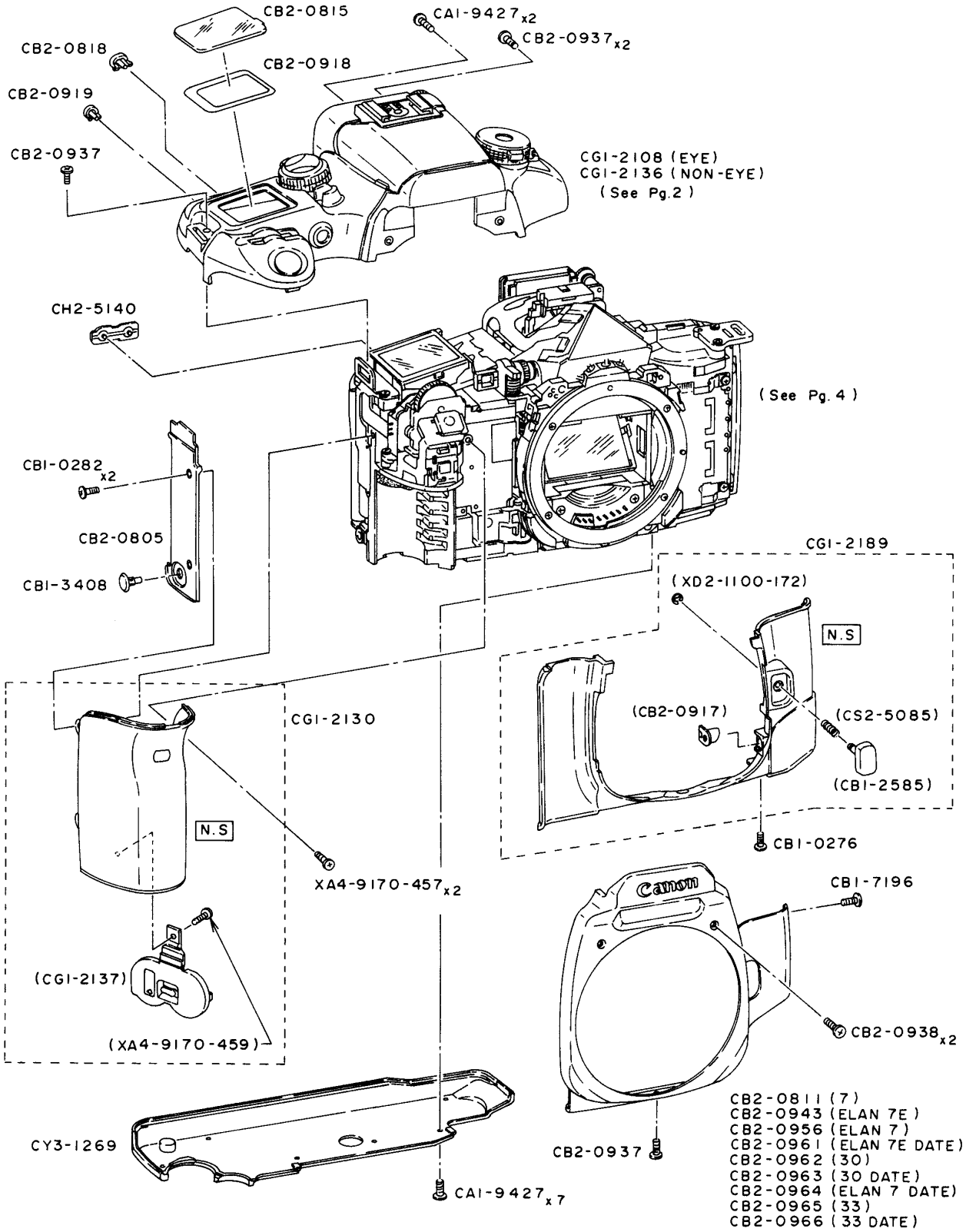
Canon

| | |
|---|---|
| EOS 7 | REF.No.C12-8451 |
| EOS ELAN 7E / DATE | C12-8453 / 8454 |
| EOS 30 / DATE | C12-8456 / 8457 |
| EOS ELAN 7 / DATE | C12-8463 / 8464 |
| EOS 33 / DATE | C12-8466 / 8467 |

# PARTS CATALOG

# CANON EOS 7
# EOS ELAN 7E/DATE
# EOS 30/DATE
# EOS ELAN 7/DATE
# EOS 33/DATE

REF. NO. CI2-8451
CI2-8453/8454
CI2-8456/8457
CI2-8463/8464
CI2-8466/8467



# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CA1-9427-000 000 | F | 9 | SCREW |
| | CB1-0276-000 000 | F | 1 | SCREW |
| | CB1-0282-000 000 | F | 2 | SCREW |
| | CB1-2585-000 000 | E | 1 | BUTTON, ANLOCK |
| | CB1-3408-000 000 | C | 1 | CAP, REMOTE |
| | CB1-7196-000 000 | D | 1 | SCREW |
| * | CB2-0805-000 000 | C | 1 | COVER, HINGE |
| * | CB2-0811-000 000 | C | 1 | COVER, FRONT (7) |
| * | CB2-0815-000 000 | C | 1 | WINDOW, OUTSIDE LCD |
| * | CB2-0818-000 000 | C | 1 | BUTTON, AE LOCK |
| * | CB2-0917-000 000 | C | 1 | BUTTON, PRE VIEW |
| * | CB2-0918-000 000 | C | 1 | TAPE, DOUBLE SIDED |
| * | CB2-0919-000 000 | C | 1 | BUTTON, AF |
| * | CB2-0937-000 000 | C | 4 | SCREW |
| * | CB2-0938-000 000 | C | 2 | SCREW |
| * | CB2-0943-000 000 | C | 1 | COVER, FRONT (ELAN 7E) |
| * | CB2-0956-000 000 | C | 1 | COVER, FRONT (ELAN 7) |
| * | CB2-0961-000 000 | C | 1 | COVER, FRONT (ELAN 7E DATE) |
| * | CB2-0962-000 000 | C | 1 | COVER, FRONT (30) |
| * | CB2-0963-000 000 | C | 1 | COVER, FRONT (30 DATE) |
| * | CB2-0964-000 000 | C | 1 | COVER, FRONT (ELAN 7 DATE) |
| * | CB2-0965-000 000 | C | 1 | COVER, FRONT (33) |
| * | CB2-0966-000 000 | C | 1 | COVER, FRONT (33 DATE) |
| * | CG1-2108-000 000 | C | 1 | COVER ASS'Y, TOP (EYE) |
| * | CG1-2130-000 000 | C | 1 | GRIP UNIT |
| * | CG1-2136-000 000 | C | 1 | COVER ASS'Y, TOP (NON-EYE) |
| * | CG1-2137-000 000 | C | 1 | BATTERY COVER UNIT |
| * | CG1-2189-000 000 | C | 1 | COVER ASS'Y, FRONT BASE |
| | CH2-5140-000 000 | D | 1 | CONTACT, RUBBER |
| | CS2-5085-000 000 | D | 1 | SPRING, COIL |
| * | CY3-1269-000 000 | C | 1 | COVER, BOTTOM |
| | XA4-9170-457 000 | F | 2 | SCREW |
| | XA4-9170-459 000 | F | 1 | SCREW |
| | XD2-1100-172 000 | F | 1 | E RING |

# CANON EOS 7
# EOS ELAN 7E/DATE
# EOS 30/DATE
# EOS ELAN 7/DATE
# EOS 33/DATE

REF. NO. CI2-8451
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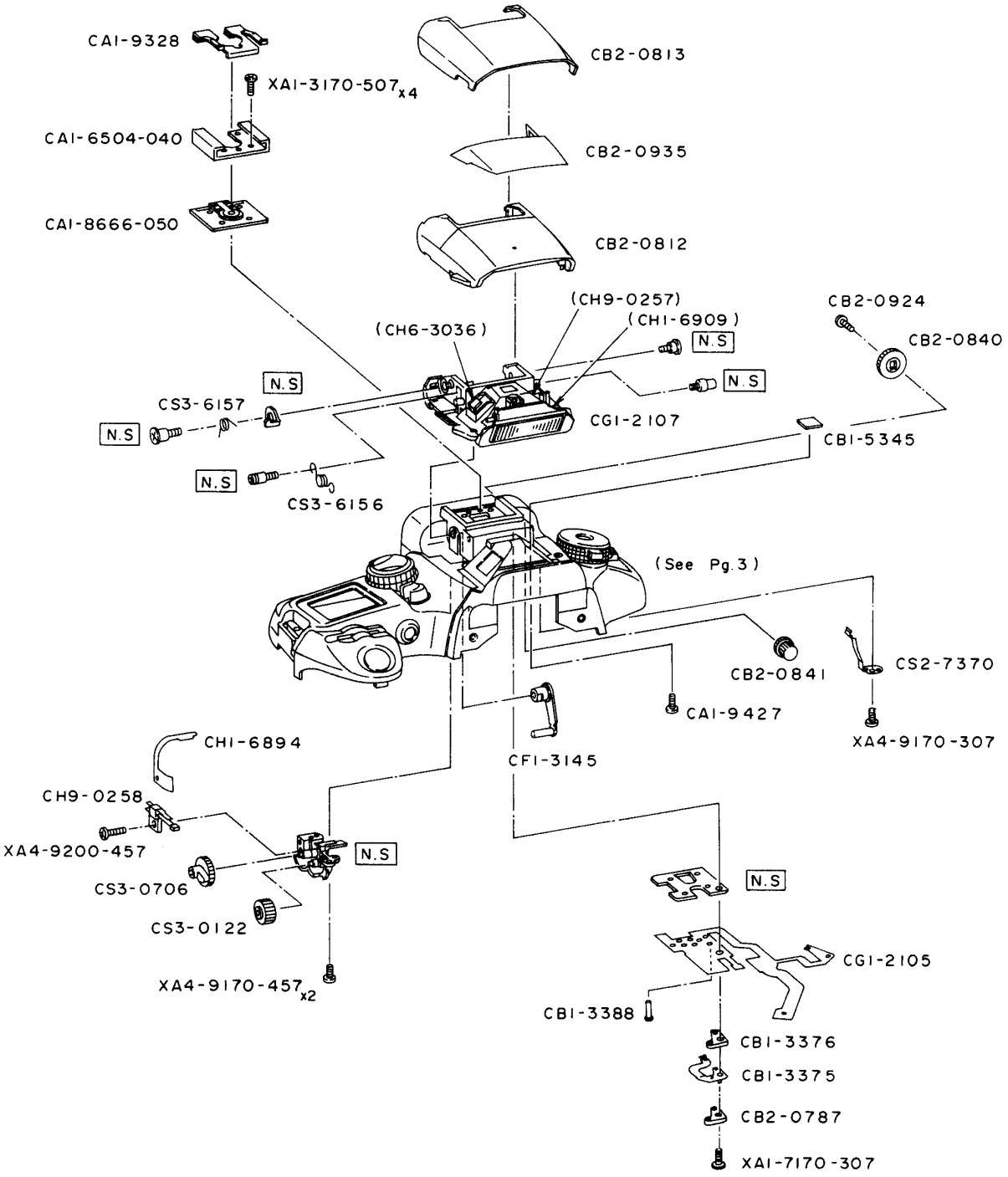
CI2-8456/8457
CI2-8463/8464
CI2-8466/8467



# P A R T S L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CA1-6504-040 | 000 | E | 1 | SHOE, ACCESSORY |
| | CA1-8666-050 | 000 | E | 1 | BASE, ACC. SHOE |
| | CA1-9328-000 | 000 | E | 1 | SPRING, PLATE |
| | CA1-9427-000 | 000 | F | 1 | SCREW |
| | CB1-3375-000 | 000 | E | 1 | CONTACT, SHOE IN USE |
| | CB1-3376-000 | 000 | E | 1 | BASE, SHOE IN USE 1 |
| | CB1-3388-000 | 000 | E | 1 | PIN, ACCESSORY SHOE |
| * | CB1-5345-000 | 000 | C | 1 | PLATE, MASK |
| * | CB2-0787-000 | 000 | C | 1 | BASE, SHOE IN USE 2 |
| * | CB2-0812-000 | 000 | C | 1 | COVER, FLASH INNER |
| * | CB2-0813-000 | 000 | C | 1 | COVER, FLASH OUTER |
| * | CB2-0840-000 | 000 | C | 1 | DIAL, DIOPTRIC |
| * | CB2-0841-000 | 000 | C | 1 | GEAR, DIOPTRIC |
| * | CB2-0924-000 | 000 | C | 1 | SCREW |
| * | CB2-0935-000 | 000 | C | 1 | PLATE, FLASH SHIELD |
| | CF1-3145-000 | 000 | C | 1 | FLASH UP LEVER UNIT |
| * | CG1-2105-000 | 000 | C | 1 | PCB ASS'Y, TOP |
| * | CG1-2107-000 | 000 | C | 1 | FLASH CASE UNIT |
| * | CH1-6894-000 | 000 | C | 1 | FPC, POPCTR |
| * | CH1-6909-000 | 000 | C | 1 | FPC, POPEND |
| | CH6-3036-000 | 000 | E | 1 | COIL, TRIGGER |
| * | CH9-0257-000 | 000 | C | 1 | SWITCH, FLASH POP-UP |
| | CH9-0258-000 | 000 | E | 1 | SWITCH, LEAF |
| * | CS2-7370-000 | 000 | C | 1 | PLATE, DIOPT CLICK |
| | CS3-0122-000 | 000 | E | 1 | GEAR, FLASH 4 |
| * | CS3-0706-000 | 000 | C | 1 | GEAR, FLASH CAM |
| * | CS3-6156-000 | 000 | C | 1 | SPRING, FLASH |
| * | CS3-6157-000 | 000 | C | 1 | SPRING, FLASH LEVER |
| | XA1-3170-507 | 000 | F | 4 | SCREW |
| | XA1-7170-307 | 000 | F | 1 | SCREW |
| | XA4-9170-307 | 000 | F | 1 | SCREW |
| | XA4-9170-457 | 000 | F | 2 | SCREW |
| | XA4-9200-457 | 000 | F | 1 | SCREW |

# CANON EOS 7
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# EOS 30/DATE
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# EOS 33/DATE

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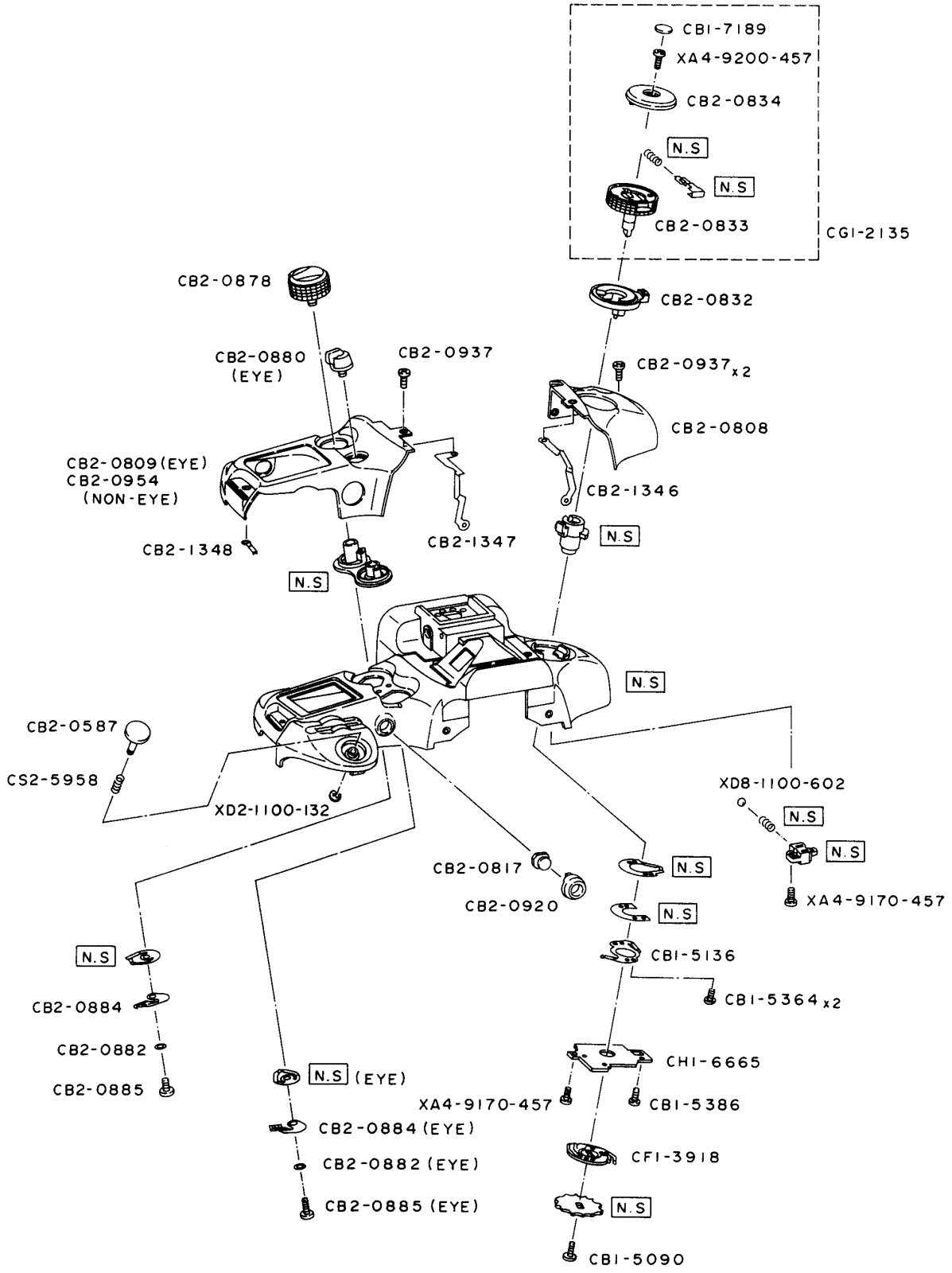
C12-8463/8464
C12-8466/8467



# P A R T S L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CB1-5090-000 000 | F | 1 | SCREW |
| | CB1-5136-000 000 | E | 1 | CONTACT, METERING, DIAL |
| | CB1-5364-000 000 | F | 2 | SCREW |
| | CB1-5386-000 000 | F | 1 | SCREW |
| | CB1-7189-000 000 | D | 1 | CAP, BLIND (BLACK) |
| * | CB2-0587-000 000 | C | 1 | BUTTON, RELEASE |
| * | CB2-0808-000 000 | C | 1 | COVER, TOP L |
| * | CB2-0809-000 000 | C | 1 | COVER, TOP R (EYE) |
| * | CB2-0817-000 000 | C | 1 | PANEL, LAMP |
| * | CB2-0832-000 000 | C | 1 | DIAL, FILM ADVANCE MODE |
| * | CB2-0833-000 000 | C | 1 | DIAL, COMMAND |
| * | CB2-0834-000 000 | C | 1 | COVER, COMMAND DIAL |
| * | CB2-0878-000 000 | C | 1 | DIAL, AF MODE |
| * | CB2-0880-000 000 | C | 1 | DIAL, EYE CONTROL SWITCH |
| * | CB2-0882-000 000 | C | 2 | WASHER, DIAL |
| * | CB2-0884-000 000 | C | 2 | CONTACT, DIAL |
| * | CB2-0885-000 000 | C | 2 | SCREW |
| * | CB2-0920-000 000 | C | 1 | COVER, LAMP |
| * | CB2-0937-000 000 | C | 3 | SCREW |
| * | CB2-0954-000 000 | C | 1 | COVER, TOP R (NON-EYE) |
| * | CB2-1346-000 000 | C | 1 | PLATE, RAG (TOP L) |
| * | CB2-1347-000 000 | C | 1 | PLATE, RAG (TOP R) |
| * | CB2-1348-000 000 | C | 1 | SPRING, RAG (TOP R) |
| * | CF1-3918-000 000 | C | 1 | LD MARKER HOLDER UNIT |
| * | CG1-2135-000 000 | C | 1 | LD TOP UNIT |
| | CH1-6665-000 000 | D | 1 | PCB, COMMAND DIAL |
| * | CS2-5958-000 000 | C | 1 | SPRING, RELEASE BUTTON |
| | XA4-9170-457 000 | F | 2 | SCREW |
| | XA4-9200-457 000 | F | 1 | SCREW |
| | XD2-1100-132 000 | F | 1 | E RING |
| | XG8-1100-602 000 | F | 1 | BALL, STEEL |

# CANON EOS 7
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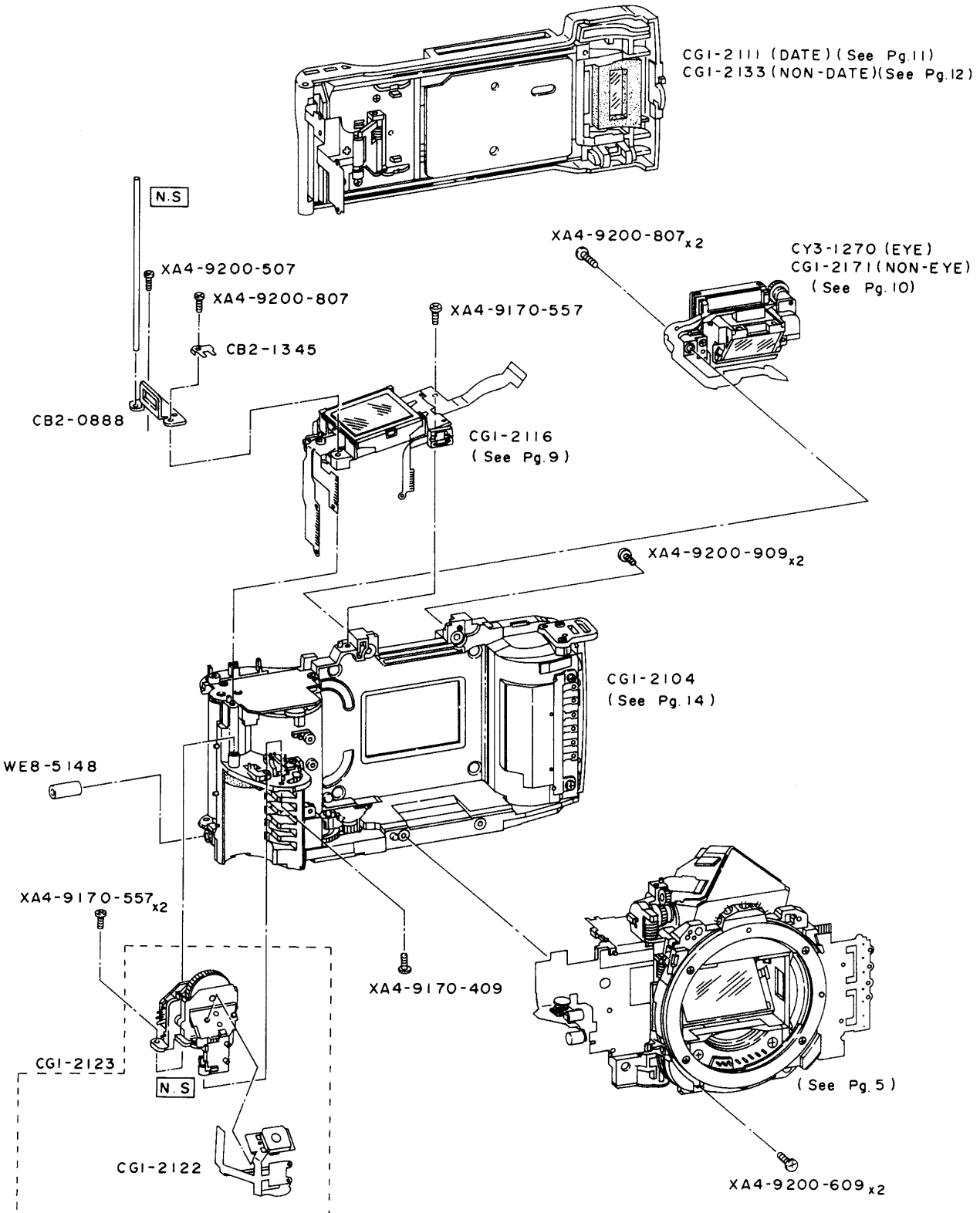
C12-8463/8464
C12-8466/8467



# P A R T S L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| * | CB2-0888-000 | 000 | C | 1 | LUG, NECK STRAP (RIGHT) |
| * | CB2-1345-000 | 000 | C | 1 | PLATE, RAG |
| * | CG1-2104-000 | 000 | C | 1 | BODY UNIT |
| * | CG1-2111-000 | 000 | C | 1 | COVER ASS'Y, BACK (DATE) |
| * | CG1-2116-000 | 000 | C | 1 | LCD UNIT (OUTSIDE) |
| * | CG1-2122-000 | 000 | C | 1 | PCB ASS'Y, RELEASE |
| * | CG1-2123-000 | 000 | C | 1 | DIAL UNIT |
| * | CG1-2133-000 | 000 | C | 1 | COVER ASS'Y, BACK (NON-DATE) |
| * | CG1-2171-000 | 000 | C | 1 | FINDER UNIT (NON-EYE) |
| * | CY3-1270-000 | 000 | C | 1 | FINDER UNIT (EYE) |
| | WE8-5148-000 | 000 | E | 1 | FILTER, NOISE |
| | XA4-9170-409 | 000 | F | 1 | SCREW |
| | XA4-9170-557 | 000 | F | 3 | SCREW |
| | XA4-9200-507 | 000 | F | 1 | SCREW |
| | XA4-9200-609 | 000 | F | 2 | SCREW |
| | XA4-9200-807 | 000 | F | 3 | SCREW |
| | XA4-9200-909 | 000 | F | 2 | SCREW |

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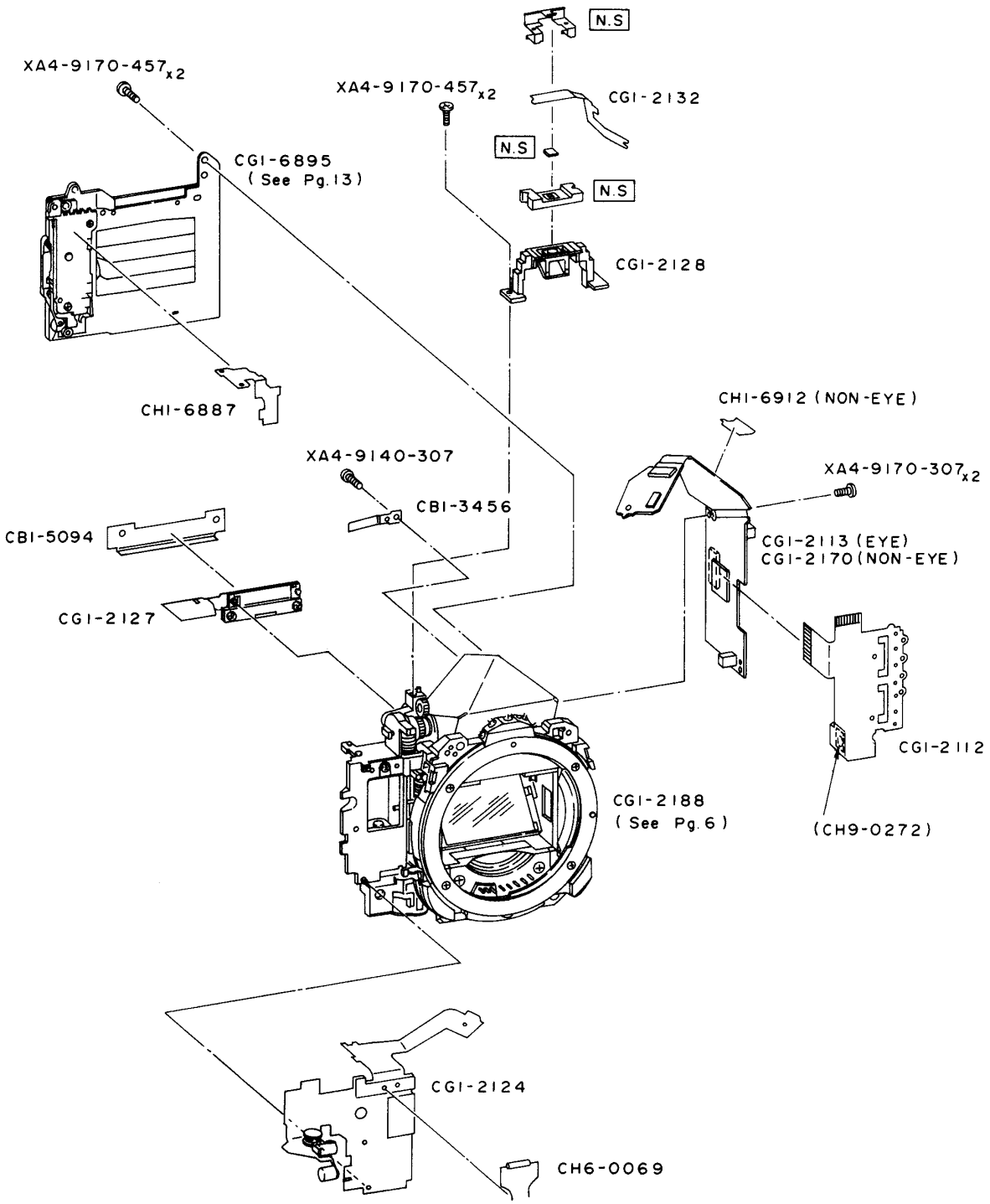
C12-8463/8464
C12-8466/8467



# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CB1-3456-000 000 | E | 1 | HOLDER, INSIDE LCD |
| | CB1-5094-000 000 | E | 1 | SHEET, LIGHT SHIELD |
| * | CG1-2112-000 000 | C | 1 | PCB ASS'Y, DX |
| * | CG1-2113-000 000 | B | 1 | PCB ASS'Y, MAIN (EYE) |
| * | CG1-2124-000 000 | C | 1 | PCB ASS'Y, MD |
| * | CG1-2127-000 000 | C | 1 | PCB ASS'Y, ILC |
| * | CG1-2128-000 000 | C | 1 | SPC BASE UNIT |
| * | CG1-2132-000 000 | C | 1 | PCB ASS'Y, AE |
| * | CG1-2170-000 000 | B | 1 | PCB ASS'Y, MAIN (NON-EYE) |
| * | CG1-2188-000 000 | C | 1 | FRONT BASE UNIT |
| * | CG1-6895-000 000 | B | 1 | SHUTTER UNIT |
| * | CH1-6887-000 000 | C | 1 | FPC, SH |
| * | CH1-6912-000 000 | C | 1 | FPC, VIA (NON-EYE) |
| * | CH6-0069-000 000 | C | 1 | LAMP, INCANDESCENT |
| | CH9-0272-000 000 | E | 1 | SWITCH, ELEMENT KEY |
| | XA4-9140-307 000 | F | 1 | SCREW |
| | XA4-9170-307 000 | F | 2 | SCREW |
| | XA4-9170-457 000 | F | 4 | SCREW |

# CANON EOS 7
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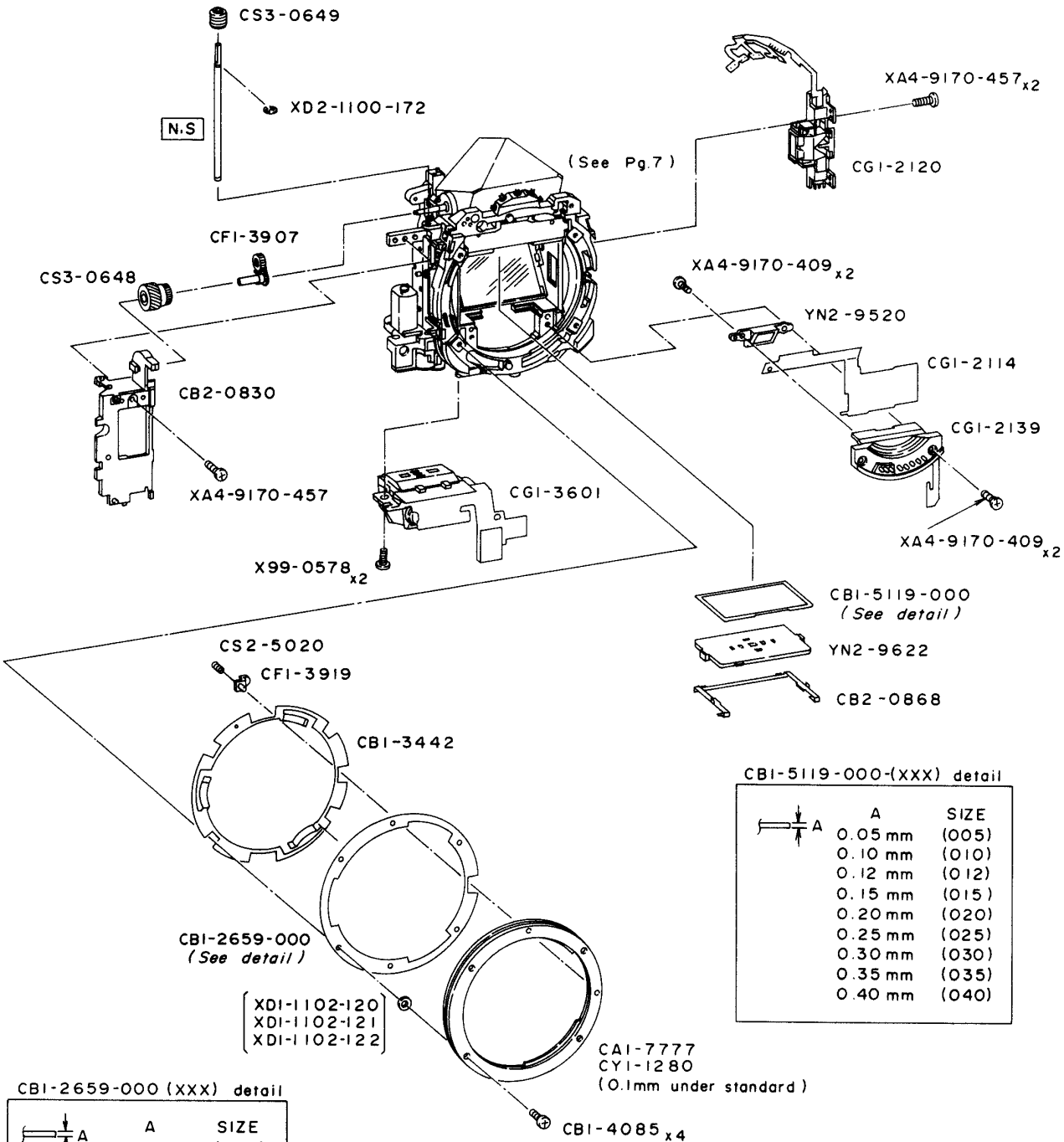
C12-8463/8464
C12-8466/8467




CB1-5119-000-(XXX) 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) |

CB1-2659-000 (XXX) detail

| A | SIZE |
|---|---|
| 0.05 mm | (005) |
| 0.08 mm | (008) |
| 0.10 mm | (010) |
| 0.12 mm | (012) |
| 0.15 mm | (015) |
| 0.18 mm | (018) |

# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CA1-7777-000 | 000 | C | 1 | MOUNT, BODY |
| | CB1-2659-000 | xxx | E | 1 | SPACER, MOUNT |
| | CB1-3442-000 | 000 | E | 1 | SPRING, MOUNT |
| | CB1-4085-000 | 000 | F | 4 | SCREW |
| | CB1-5119-000 | xxx | D | 1 | SPACER, FOCUSING SCREEN |
| * | CB2-0830-000 | 000 | C | 1 | HOLDER, WING |
| * | CB2-0868-000 | 000 | C | 1 | HOLDER, FOCUSING SCREEN |
| * | CF1-3907-000 | 000 | C | 1 | GEAR ASS'Y, FLASH PLANET |
| * | CF1-3919-000 | 000 | D | 1 | LOCK PIN UNIT |
| * | CG1-2114-000 | 000 | C | 1 | PCB ASS'Y, TTL |
| * | CG1-2120-000 | 000 | C | 1 | PCB ASS'Y, SI |
| * | CG1-2139-000 | 000 | C | 1 | MOUNT CONTACT UNIT |
| | CG1-3601-000 | 000 | D | 1 | AUTO FOCUS UNIT |
| | CS2-5020-000 | 000 | E | 1 | SPRING, COIL |
| * | CS3-0648-000 | 000 | C | 1 | GEAR, FLASH POP-UP SUN |
| * | CS3-0649-000 | 000 | C | 1 | GEAR, FLASH WORM |
| | CY1-1280-000 | 000 | C | 1 | MOUNT, BODY (t=-0.1mm) |
| | X99-0578-000 | 000 | F | 2 | SCREW |
| | XA4-9170-409 | 000 | F | 4 | SCREW |
| | XA4-9170-457 | 000 | F | 3 | SCREW |
| | XD1-1102-120 | 000 | F | N | WASHER (0.05mm) |
| | XD1-1102-121 | 000 | F | N | WASHER (0.1mm) |
| | XD1-1102-122 | 000 | F | N | WASHER (0.2mm) |
| | XD2-1100-172 | 000 | F | 1 | E RING |
| * | YN2-9520-000 | 000 | C | 1 | LENS, TTL |
| * | YN2-9622-000 | 000 | B | 1 | SCREEN , FOCUSING |

# CANON EOS 7
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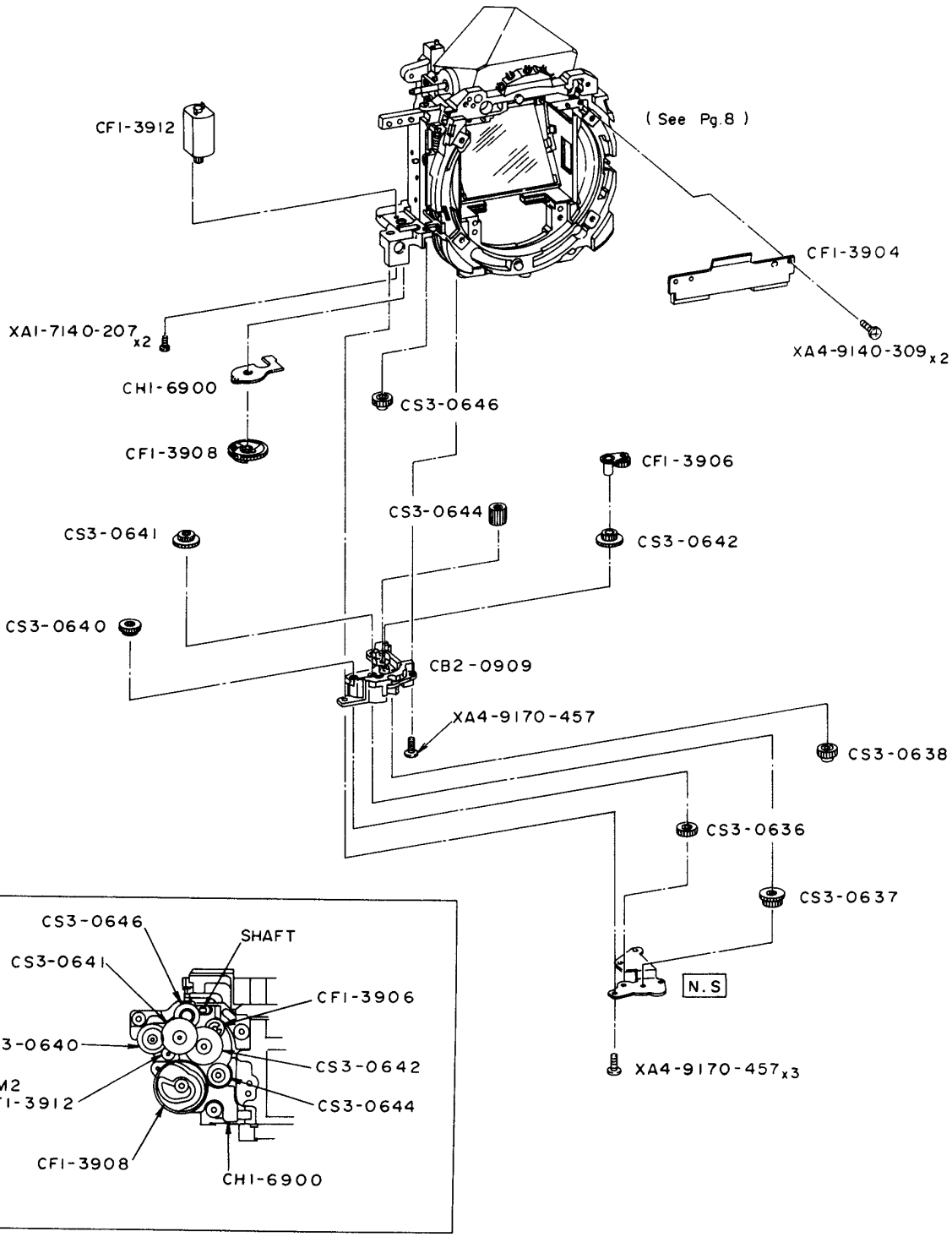

# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| * | CB2-0909-000 000 | C | 1 | BASE, CHARGE GEAR |
| * | CF1-3904-000 000 | C | 1 | PROTECT PLATE UNIT |
| * | CF1-3906-000 000 | C | 1 | GEAR ASS'Y, SUB PLANET |
| * | CF1-3908-000 000 | C | 1 | GEAR ASS'Y, CHARGE CAM |
| * | CF1-3912-000 000 | D | 1 | MOTOR ASS'Y, M2 |
| * | CH1-6900-000 000 | C | 1 | PCB, FILM DRIVE CHANGE |
| * | CS3-0636-000 000 | C | 1 | GEAR, CHARGE TRANS 1 |
| * | CS3-0637-000 000 | C | 1 | GEAR, CHARGE TRANS 2 |
| * | CS3-0638-000 000 | C | 1 | GEAR, CHARGE TRANS 3 |
| * | CS3-0640-000 000 | C | 1 | GEAR, SUB 1 |
| * | CS3-0641-000 000 | C | 1 | GEAR, SUB 2 |
| * | CS3-0642-000 000 | C | 1 | GEAR, SUB SUN |
| * | CS3-0644-000 000 | C | 1 | GEAR, CAM TRANS |
| * | CS3-0646-000 000 | C | 1 | GEAR, FLASH TRANS |
| | XA1-7140-207 000 | F | 2 | SCREW |
| | XA4-9140-309 000 | F | 2 | SCREW |
| | XA4-9170-457 000 | F | 4 | SCREW |

# CANON EOS 7
# EOS ELAN 7E / DATE
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REF. NO. CI2-8451
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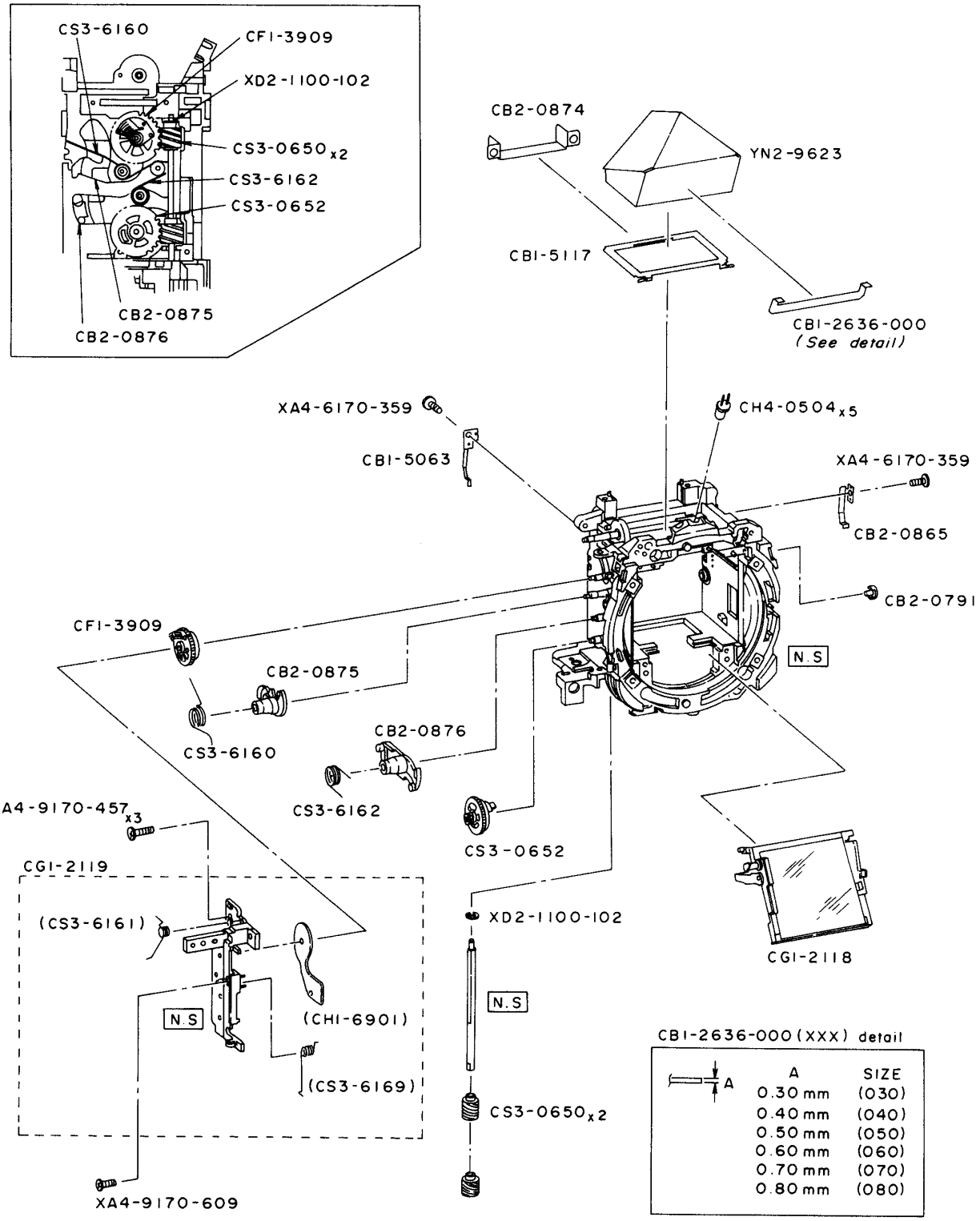
CI2-8463/8464
CI2-8466/8467




CB1-2636-000 (XXX) detail

| A | SIZE |
|---|---|
| 0.30 mm | (030) |
| 0.40 mm | (040) |
| 0.50 mm | (050) |
| 0.60 mm | (060) |
| 0.70 mm | (070) |
| 0.80 mm | (080) |

# P A R T S  L I S T

REF.No. C12-8451
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C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CB1-2636-000 | xxx | E | 1 | SPACER, PENTAPRISM |
| | CB1-5063-000 | 000 | E | 1 | HOLDER, MIRROR 1 |
| | CB1-5117-000 | 000 | E | 1 | MASK, FINDER |
| * | CB2-0791-000 | 000 | C | 1 | SHAFT, SUB MIRROR CHANGE |
| * | CB2-0865-000 | 000 | C | 1 | HOLDER, MIRROR LEFT |
| * | CB2-0874-000 | 000 | C | 1 | PLATE, EYEPIECE |
| * | CB2-0875-000 | 000 | C | 1 | LEVER, MIRROR |
| * | CB2-0876-000 | 000 | C | 1 | LEVER, SHUTTER |
| * | CF1-3909-000 | 000 | C | 1 | GEAR ASS'Y, MIRROR CAM |
| * | CG1-2118-000 | 000 | C | 1 | MIRROR UNIT |
| * | CG1-2119-000 | 000 | C | 1 | COVER ASS'Y, FRONT GEAR |
| * | CH1-6901-000 | 000 | C | 1 | PCB, MIRROR CHARGE |
| | CH4-0504-000 | 000 | E | 5 | LED, SI |
| * | CS3-0650-000 | 000 | C | 2 | GEAR, WORM |
| * | CS3-0652-000 | 000 | C | 1 | GEAR, CHARGE |
| * | CS3-6160-000 | 000 | C | 1 | SPRING, MIRROR DRIVE 1 |
| * | CS3-6161-000 | 000 | C | 1 | SPRING, MIRROR DRIVE 2 |
| * | CS3-6162-000 | 000 | C | 1 | SPRING, SHUTTER |
| * | CS3-6169-000 | 000 | C | 1 | SPRING, CHARGE BRAKE |
| | XA4-6170-359 | 000 | F | 2 | SCREW |
| | XA4-9170-457 | 000 | F | 3 | SCREW |
| | XA4-9170-609 | 000 | F | 1 | SCREW |
| | XD2-1100-102 | 000 | F | 1 | E RING |
| * | YN2-9623-000 | 000 | C | 1 | PENTAPRISM |

# CANON EOS 7
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REF. NO. C12-8451
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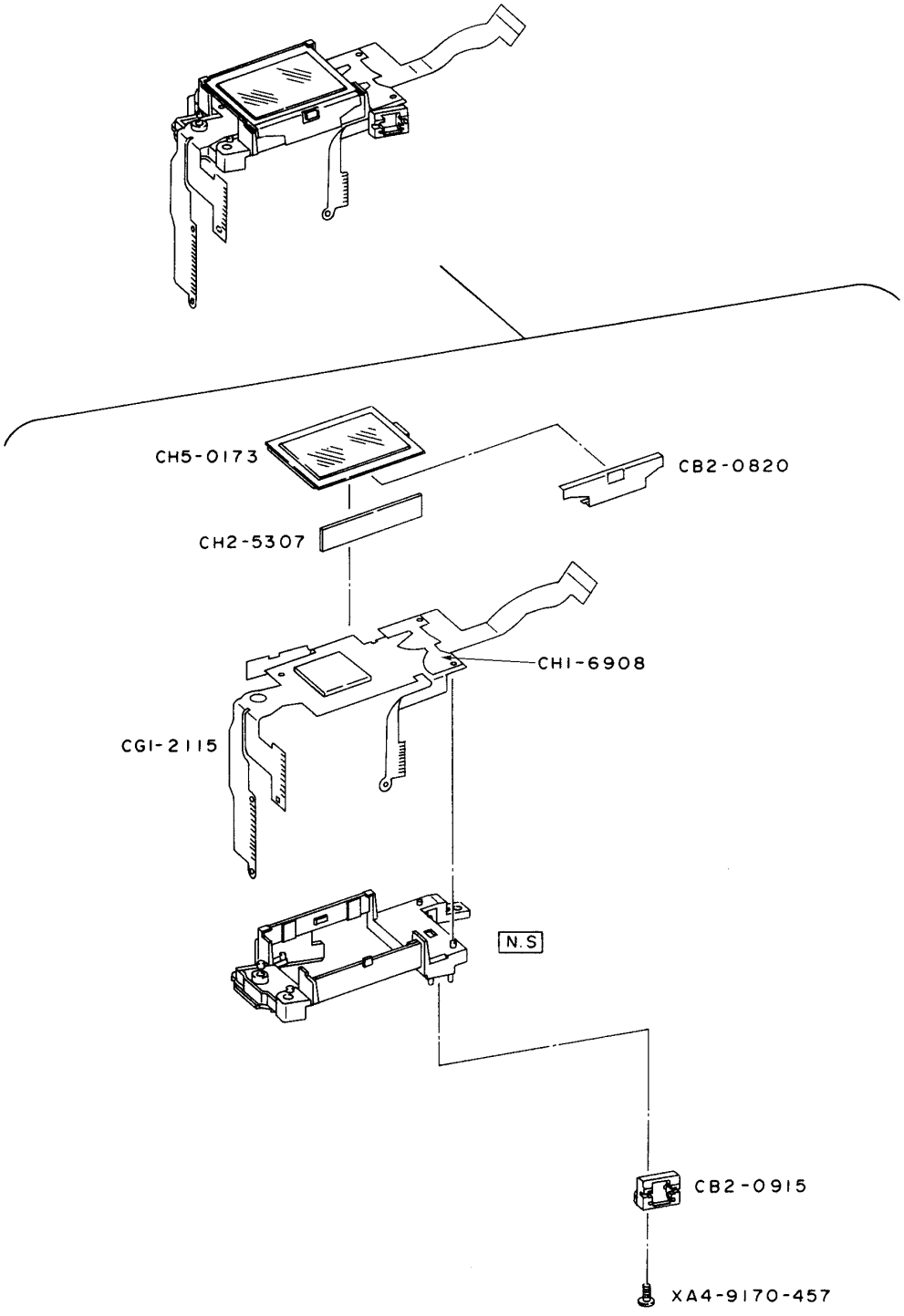
C12-8463/8464
C12-8466/8467



# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| * | CB2-0820-000 | 000 | C | 1 | HOLDER, OUTSIDE LCD |
| * | CB2-0915-000 | 000 | C | 1 | HOLDER, LAMP |
| * | CG1-2115-000 | 000 | C | 1 | PCB ASS'Y, DSP |
| * | CH1-6908-000 | 000 | C | 1 | FPC, RD |
| * | CH2-5307-000 | 000 | C | 1 | CONNECTOR, OUTSIDE LCD |
| * | CH5-0173-000 | 000 | C | 1 | LCD |
| | XA4-9170-457 | 000 | F | 1 | SCREW |

# CANON EOS 7
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REF. NO. C12-8451
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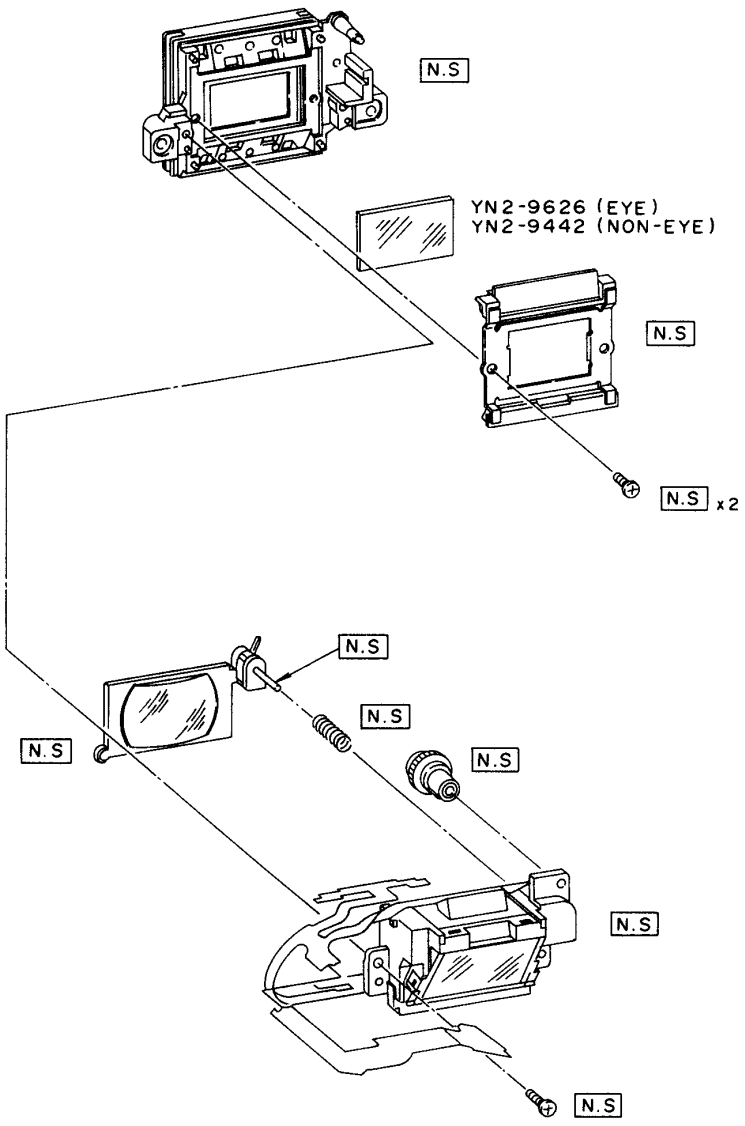
C12-8463/8464
C12-8466/8467



# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| * | YN2-9442-000 000 | C | 1 | GLASS, FLAT (NON-EYE FINDER) |
| * | YN2-9626-000 000 | C | 1 | GLASS, FLAT (EYE FINDER) |

# CANON EOS 7
# EOS ELAN 7E DATE
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# EOS 33 DATE

REF. NO. CI2-8451
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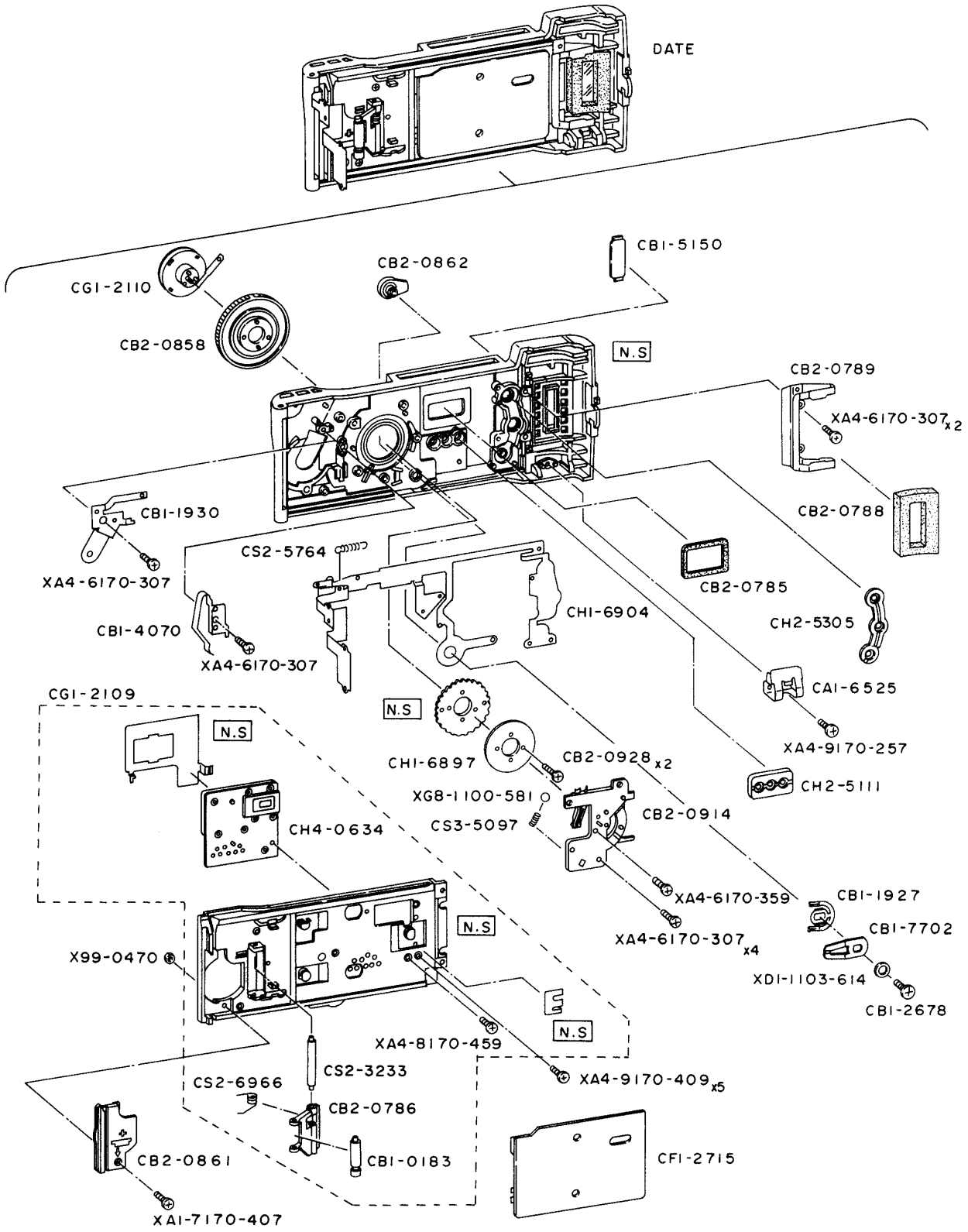
CI2-8467



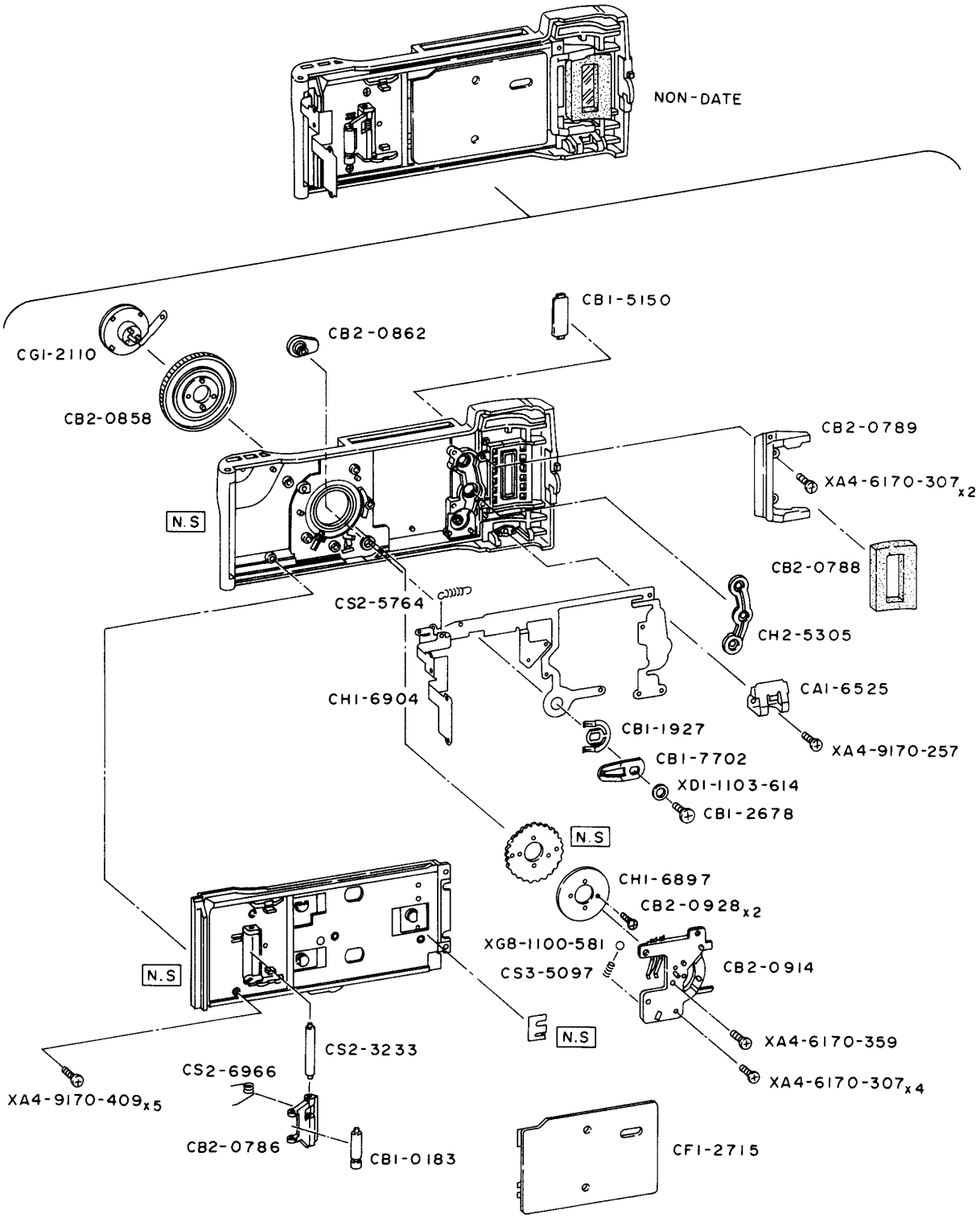
# P A R T S L I S T

REF.No. C12-8451
C12-8454
C12-8457
C12-8464
C12-8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CA1-6525-000 000 | E | 1 | SPRING, PLATE |
| | CB1-0183-000 000 | E | 1 | ROLLER, BACK COVER GUIDE |
| | CB1-1927-000 000 | E | 1 | CONTACT, DIAL LOCK SWITCH |
| | CB1-1930-000 000 | E | 1 | CONTACT, DATE BATTERY (-) |
| | CB1-2678-000 000 | F | 1 | SCREW |
| | CB1-4070-000 000 | E | 1 | CONTACT, DATE BATTERY (+) |
| * | CB1-5150-000 000 | C | 1 | WINDOW, DX |
| | CB1-7702-000 000 | D | 1 | PLATE, S-DIAL CLICK |
| * | CB2-0785-000 000 | C | 1 | SHIELD, LIGHT (DATE WINDOW) |
| * | CB2-0786-000 000 | C | 1 | LEVER, FILM GUIDE |
| * | CB2-0788-000 000 | C | 1 | SHIELD, LIGHT (DX WINDOW) |
| * | CB2-0789-000 000 | C | 1 | SPRING, CARTRIDGE |
| * | CB2-0858-000 000 | C | 1 | DIAL, CD |
| * | CB2-0861-000 000 | C | 1 | COVER, DATE BATTERY |
| * | CB2-0862-000 000 | C | 1 | KNOB, DIAL LOCK SWITCH |
| * | CB2-0914-000 000 | C | 1 | CONTACT, CD DIAL |
| * | CB2-0928-000 000 | C | 2 | SCREW |
| | CF1-2715-000 000 | D | 1 | PLATE, PRESSURE |
| * | CG1-2109-000 000 | C | 1 | COVER ASS'Y, INNER BACK (DATE) |
| * | CG1-2110-000 000 | C | 1 | AF SELECT KEY UNIT |
| * | CH1-6897-000 000 | C | 1 | PCB, CD DIAL |
| * | CH1-6904-000 000 | C | 1 | FPC, BKP |
| | CH2-5111-000 000 | E | 1 | SWITCH, DATE |
| * | CH2-5305-000 000 | C | 1 | CONTACT, FUNCTION BUTTON |
| | CH4-0634-000 000 | D | 1 | PCB ASS'Y, DATE |
| | CS2-3233-000 000 | E | 1 | SHAFT, ROLLER HOLDER |
| | CS2-5764-000 000 | E | 1 | SPRING, COIL |
| | CS2-6966-000 000 | E | 1 | SPRING, TORSION |
| * | CS3-5097-000 000 | C | 1 | SPRING, CD DIAL CLICK |
| | X99-0470-000 000 | F | 1 | NUT |
| | XA1-7170-407 000 | F | 1 | SCREW |
| | XA4-6170-307 000 | F | 8 | SCREW |
| | XA4-6170-359 000 | F | 1 | SCREW |
| * | XA4-8170-459 000 | F | 1 | SCREW |
| | XA4-9170-257 000 | F | 1 | SCREW |
| | XA4-9170-409 000 | F | 5 | SCREW |
| | XD1-1103-614 000 | F | 1 | WASHER |
| | XG8-1100-581 000 | F | 1 | BALL, STEEL |

# CANON EOS ELAN 7E
# EOS 30
# EOS ELAN 7
# EOS 33

REF. NO. CI2-8453
CI2-8456
CI2-8463
CI2-8466



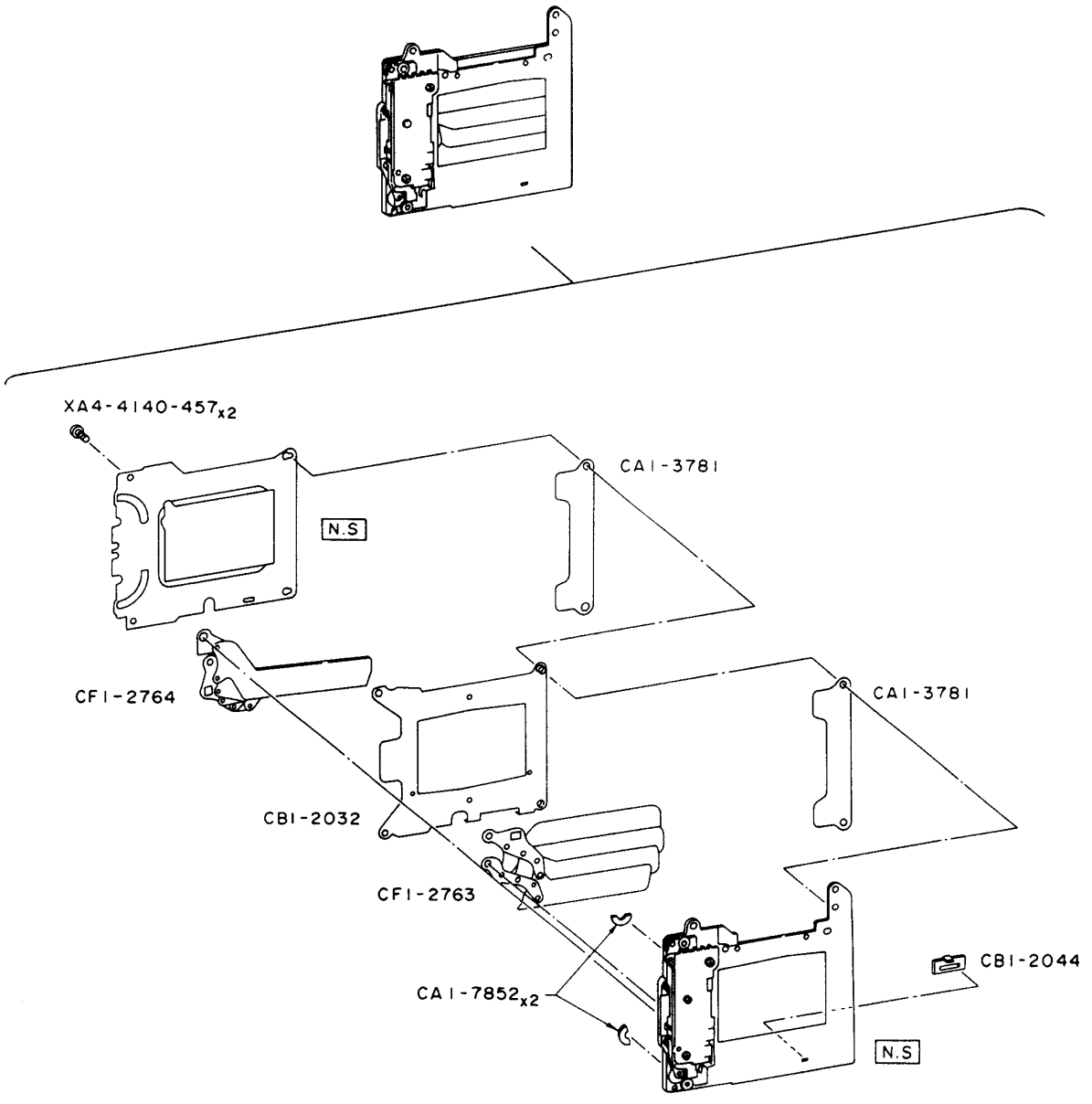
# P A R T S L I S T

REF.No. C12-8453
C12-8456
C12-8463
C12-8466

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CA1-6525-000 | 000 | E | 1 | SPRING, PLATE |
| | CB1-0183-000 | 000 | E | 1 | ROLLER, BACK COVER GUIDE |
| | CB1-1927-000 | 000 | E | 1 | CONTACT, DIAL LOCK SWITCH |
| | CB1-2678-000 | 000 | F | 1 | SCREW |
| * | CB1-5150-000 | 000 | C | 1 | WINDOW, DX |
| | CB1-7702-000 | 000 | D | 1 | PLATE, S-DIAL CLICK |
| * | CB2-0786-000 | 000 | C | 1 | LEVER, FILM GUIDE |
| * | CB2-0788-000 | 000 | C | 1 | SHIELD, LIGHT (DX WINDOW) |
| * | CB2-0789-000 | 000 | C | 1 | SPRING, CARTRIDGE |
| * | CB2-0858-000 | 000 | C | 1 | DIAL, CD |
| * | CB2-0862-000 | 000 | C | 1 | KNOB, DIAL LOCK SWITCH |
| * | CB2-0914-000 | 000 | C | 1 | CONTACT, CD DIAL |
| * | CB2-0928-000 | 000 | C | 2 | SCREW |
| | CF1-2715-000 | 000 | D | 1 | PLATE, PRESSURE |
| * | CG1-2110-000 | 000 | C | 1 | AF SELECT KEY UNIT |
| * | CH1-6897-000 | 000 | C | 1 | PCB, CD DIAL |
| * | CH1-6904-000 | 000 | C | 1 | FPC, BKP |
| * | CH2-5305-000 | 000 | C | 1 | CONTACT, FUNCTION BUTTON |
| | CS2-3233-000 | 000 | E | 1 | SHAFT, ROLLER HOLDER |
| | CS2-5764-000 | 000 | E | 1 | SPRING, COIL |
| | CS2-6966-000 | 000 | E | 1 | SPRING, TORSION |
| * | CS3-5097-000 | 000 | C | 1 | SPRING, CD DIAL CLICK |
| | XA4-6170-307 | 000 | F | 6 | SCREW |
| | XA4-6170-359 | 000 | F | 1 | SCREW |
| | XA4-9170-257 | 000 | F | 1 | SCREW |
| | XA4-9170-409 | 000 | F | 5 | SCREW |
| | XD1-1103-614 | 000 | F | 1 | WASHER |
| | XG8-1100-581 | 000 | F | 1 | BALL, STEEL |

# CANON EOS 7
# EOS ELAN 7E / DATE
# EOS 30 / DATE
# EOS ELAN 7 / DATE
# EOS 33 / DATE

REF. NO. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467



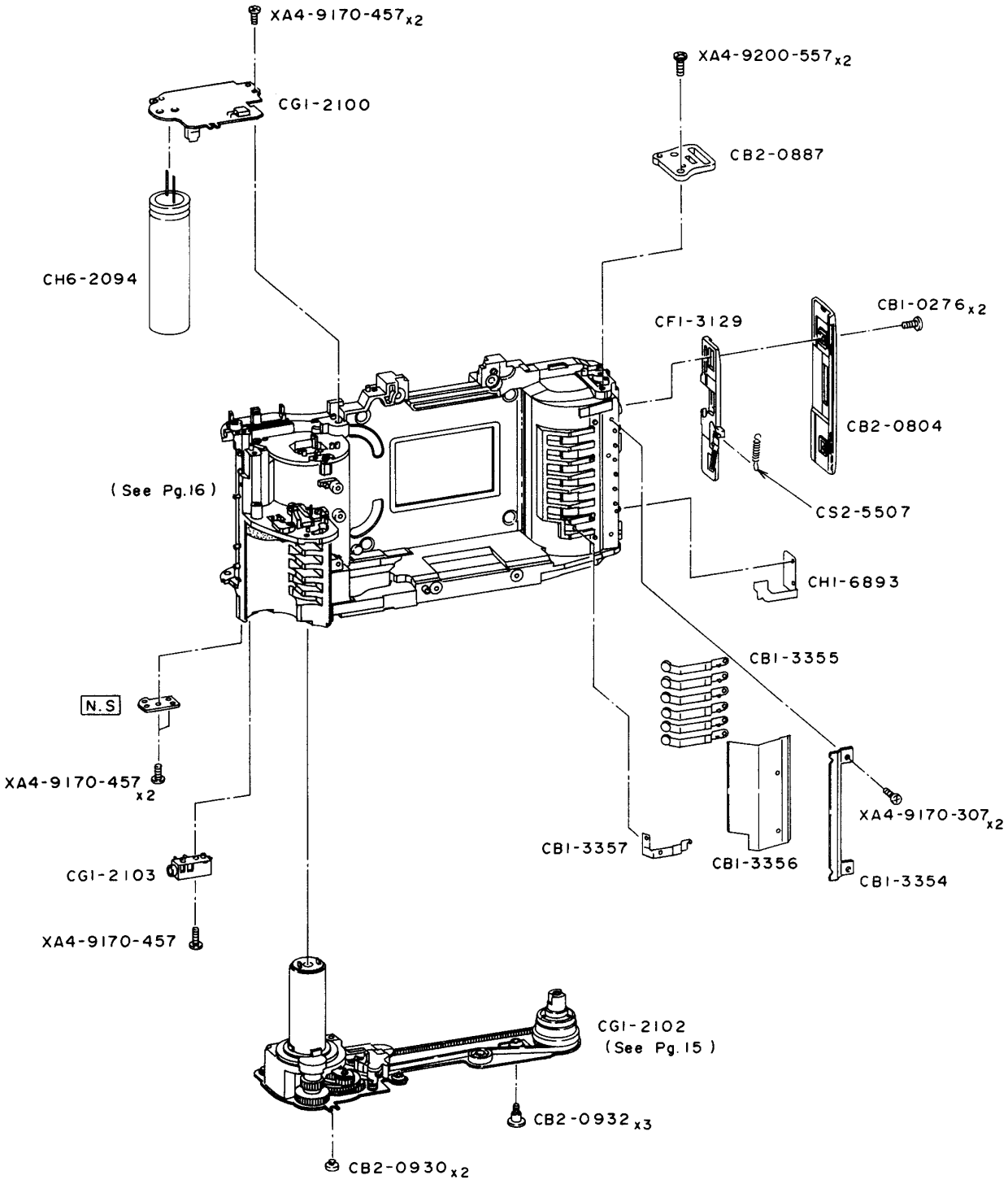
# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CA1-3781-000 000 | E | 2 | SPACER |
| | CA1-7852-000 000 | E | 2 | STOPPER, RUBBER |
| | CB1-2032-000 000 | E | 1 | PLATE, SEPARATOR |
| | CB1-2044-000 000 | E | 1 | RUBBER, STOPPER |
| | CF1-2763-000 000 | C | 1 | CURTAIN, 2ND SHUTTER |
| | CF1-2764-000 000 | C | 1 | CURTAIN, 1ST SHUTTER |
| | XA4-4140-457 000 | F | 2 | SCREW |

# CANON EOS 7
# EOS ELAN 7E / DATE
# EOS 30 / DATE
# EOS ELAN 7 / DATE
# EOS 33 / DATE

REF. NO. CI2-8451
CI2-8453/8454
CI2-8456/8457
CI2-8463/8464
CI2-8466/8467



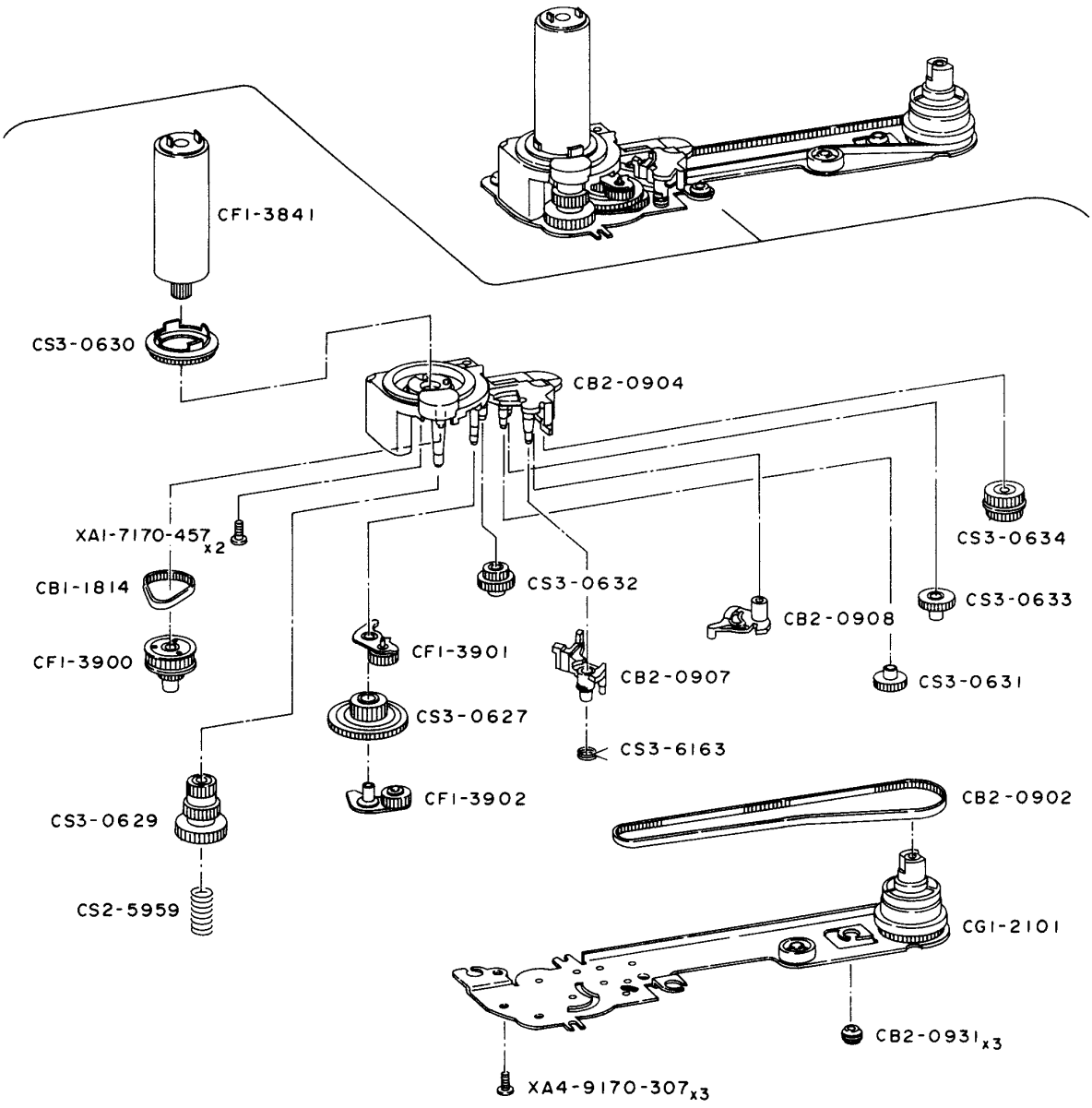
# P A R T S  L I S T

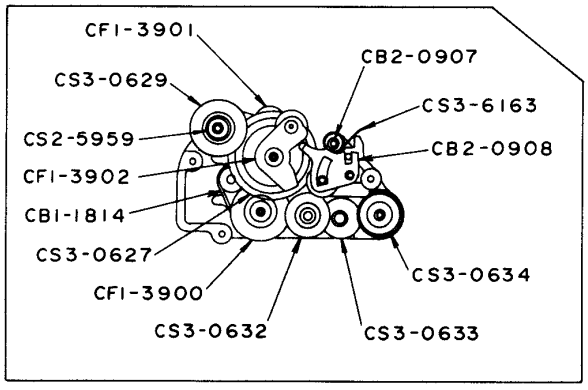
REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CB1-0276-000 | 000 | F | 2 | SCREW |
| | CB1-3354-000 | 000 | E | 1 | HOLDER, DX |
| | CB1-3355-000 | 000 | E | 1 | CONTACT, DX |
| | CB1-3356-000 | 000 | E | 1 | SHEET, DX |
| | CB1-3357-000 | 000 | E | 1 | CONTACT, FILM CARTRIDGE |
| * | CB2-0804-000 | 000 | C | 1 | COVER, LATCH |
| * | CB2-0887-000 | 000 | C | 1 | LUG, NECK STRAP (LEFT) |
| * | CB2-0930-000 | 000 | C | 2 | CUSHION, RUBBER |
| * | CB2-0932-000 | 000 | C | 3 | SCREW |
| | CF1-3129-000 | 000 | E | 1 | LEVER, BACK COVER LATCH |
| * | CG1-2100-000 | 000 | C | 1 | PCB ASS'Y, FLASH |
| * | CG1-2102-000 | 000 | C | 1 | FILM DRIVE UNIT |
| * | CG1-2103-000 | 000 | C | 1 | JACK ASS'Y, REMOTE CONTROL |
| * | CH1-6893-000 | 000 | C | 1 | FPC, BP |
| * | CH6-2094-000 | 000 | C | 1 | CAPACITOR |
| | CS2-5507-000 | 000 | E | 1 | SPRING, COIL |
| | XA4-9170-307 | 000 | F | 2 | SCREW |
| | XA4-9170-457 | 000 | F | 5 | SCREW |
| | XA4-9200-557 | 000 | F | 2 | SCREW |

# CANON EOS 7
# EOS ELAN 7E / DATE
# EOS 30 / DATE
# EOS ELAN 7/DATE
# EOS 33/DATE

REF. NO. CI2-8451
CI2-8453/8454
CI2-8456/8457
CI2-8463/8464
CI2-8466/8467



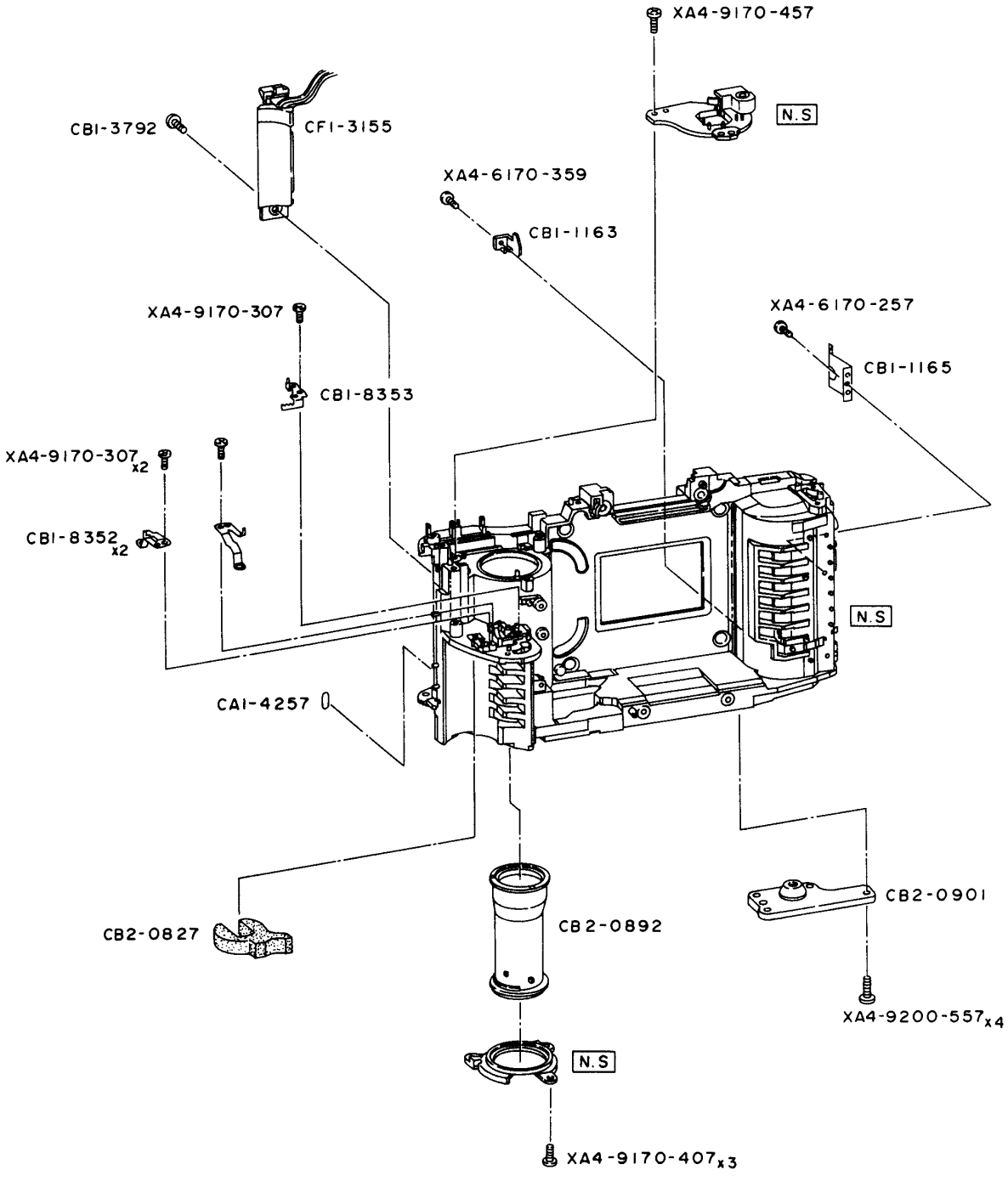
# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CB1-1814-000 | 000 | D | 1 | BELT, GEAR DRIVE |
| * | CB2-0902-000 | 000 | C | 1 | BELT, FILM REWIND |
| * | CB2-0904-000 | 000 | C | 1 | BASE, FILM GEAR |
| * | CB2-0907-000 | 000 | C | 1 | LEVER, CHANGE (Hi) |
| * | CB2-0908-000 | 000 | C | 1 | LEVER, CHANGE (Lo) |
| * | CB2-0931-000 | 000 | C | 3 | MOUNT, VIBRATION |
| * | CF1-3841-000 | 000 | D | 1 | MOTOR ASS'Y, M1 |
| * | CF1-3900-000 | 000 | C | 1 | GEAR ASS'Y, FILM FIRST |
| * | CF1-3901-000 | 000 | C | 1 | GEAR ASS'Y, FILM PLANET Hi |
| * | CF1-3902-000 | 000 | C | 1 | GEAR ASS'Y, FILM PLANET Lo |
| * | CG1-2101-000 | 000 | D | 1 | FORK GEAR COVER UNIT |
| * | CS2-5959-000 | 000 | C | 1 | SPRING, SPOOL TRANS |
| * | CS3-0627-000 | 000 | C | 1 | GEAR, FILM SUN |
| * | CS3-0629-000 | 000 | C | 1 | GEAR, SPOOL TRANS |
| * | CS3-0630-000 | 000 | C | 1 | GEAR, SPOOL |
| * | CS3-0631-000 | 000 | C | 1 | GEAR, REWIND TRANS 1 |
| * | CS3-0632-000 | 000 | C | 1 | GEAR, REWIND TRANS 2 |
| * | CS3-0633-000 | 000 | C | 1 | GEAR, REWIND TRANS 3 |
| * | CS3-0634-000 | 000 | C | 1 | GEAR, REWIND TRANS PULLEY |
| * | CS3-6163-000 | 000 | C | 1 | SPRING, CHANGE |
| | XA1-7170-457 | 000 | F | 2 | SCREW |
| | XA4-9170-307 | 000 | F | 3 | SCREW |

# CANON EOS 7
# EOS ELAN 7E / DATE
# EOS 30 / DATE
# EOS ELAN 7 / DATE
# EOS 33 / DATE

REF. NO. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467



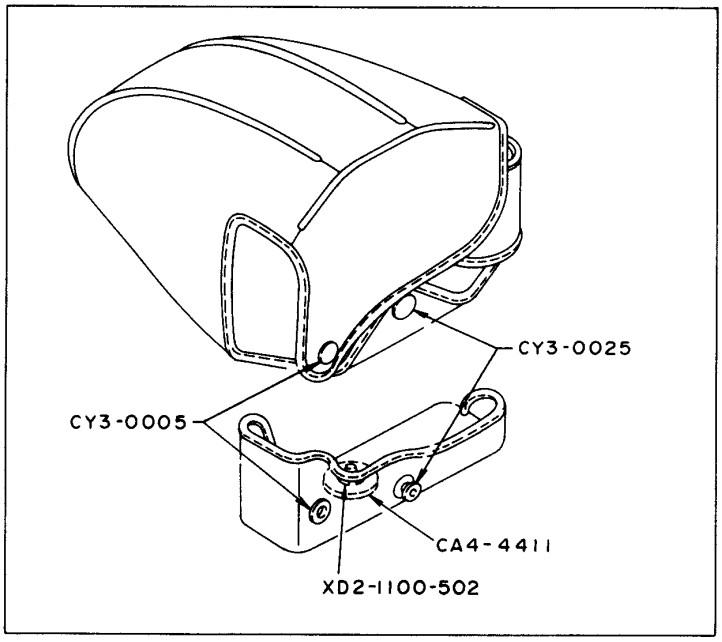
# P A R T S  L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

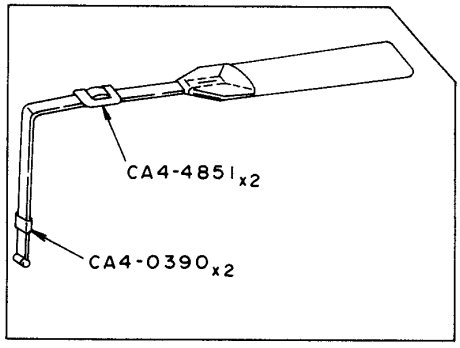
| NEW | PARTS No. | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|
| | CA1-4257-000 000 | E | 1 | SEAL, FILM |
| | CB1-1163-000 000 | E | 1 | JAW, FILM CARTRIDGE |
| | CB1-1165-000 000 | D | 1 | GUIDE, FILM CARTRIDGE |
| | CB1-3792-000 000 | F | 1 | SCREW |
| | CB1-8352-000 000 | E | 2 | CONTACT, BATTERY |
| | CB1-8353-000 000 | E | 1 | CONTACT, RESET |
| * | CB2-0827-000 000 | C | 1 | CUSHION, BATTERY |
| * | CB2-0892-000 000 | C | 1 | SPOOL |
| * | CB2-0901-000 000 | C | 1 | PLATE, TRIPOD |
| | CF1-3155-000 000 | E | 1 | SIGNAL ASS'Y |
| * | XA4-6170-257 000 | F | 1 | SCREW |
| | XA4-6170-359 000 | F | 1 | SCREW |
| | XA4-9170-307 000 | F | 3 | SCREW |
| | XA4-9170-407 000 | F | 3 | SCREW |
| | XA4-9170-457 000 | F | 1 | SCREW |
| | XA4-9200-557 000 | F | 4 | SCREW |

# ( ACCESSORY )

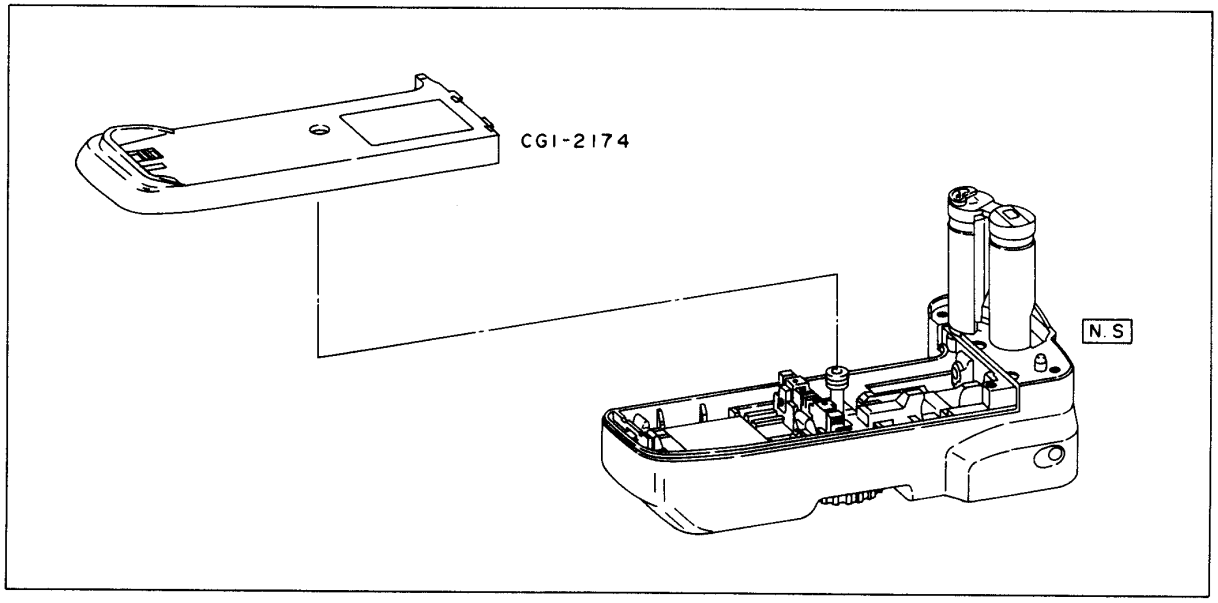
C46-2121 SEMI HARD CASE EH14-L




C56-1712 WIDESTRAP EW-100 BK




C50-8021 BATTERY PACK BP-300



# P A R T S  L I S T

REF.No. C46-2121 SEMI HARD CASE EH14-L
C56-1712 WIDESTRAP EW-100BK

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| | CA4-0390-000 | 000 | E | 2 | LOOP |
| | CA4-4411-000 | 000 | E | 1 | SCREW, TIGHTENING |
| | CA4-4851-000 | 000 | E | 2 | CLASP |
| | CY3-0005-000 | 000 | E | 1 | HOOK |
| | CY3-0025-000 | 000 | E | 1 | HOOK |
| | XD2-1100-502 | 000 | F | 1 | E RING |

REF.No. C50-8021 BATTERY PACK BP-300

| NEW | PARTS No. | | CLASS | QTY | DESCRIPTION |
|---|---|---|---|---|---|
| * | CG1-2174-000 | 000 | C | 1 | COVER ASS'Y, BATTERY (BP-300) |

# E L E C T R I C P A R T S L I S T

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

| NEW SYMBOL | PARTS No. | DESCRIPTION | REMARK | PAGE |
|---|---|---|---|---|
| | Y11-3401-000 000 | LEAD | WHITE | |
| | Y11-3702-000 000 | LEAD | BLACK | |
| | Y11-3703-000 000 | LEAD | RED | |
| | Y11-3901-000 000 | LEAD | WHITE | |
| | Y11-3902-000 000 | LEAD | BLACK | |
| | Y11-3903-000 000 | LEAD | RED | |
| | Y11-3904-000 000 | LEAD | PINK | |
| | Y11-3906-000 000 | LEAD | ORANGE | |
| | Y11-3907-000 000 | LEAD | YELLOW | |
| | Y11-3909-000 000 | LEAD | GREEN | |
| | Y11-3911-000 000 | LEAD | BLUE | |
| | Y11-3912-000 000 | LEAD | PURPLE | |
| | Y11-3913-000 000 | LEAD | BROWN | |
| | Y11-3914-000 000 | LEAD | GRAY | |
| | Y11-4402-000 000 | LEAD | BLACK | |
| | Y11-4403-000 000 | LEAD | RED | |

# INDEX OF PARTS LIST



REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

# INDEX OF PARTS LIST

REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

# INDEX OF PARTS LIST



REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

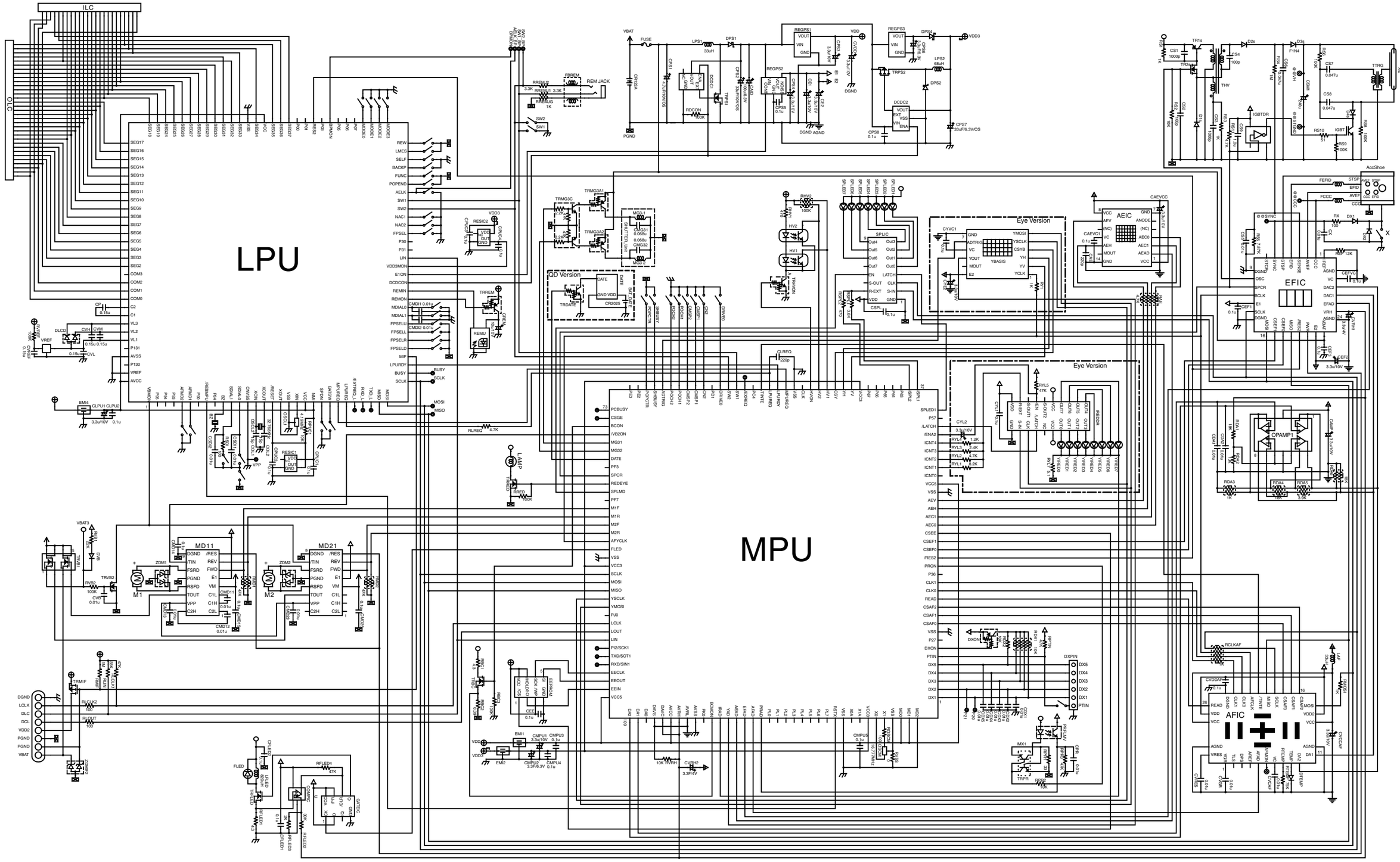
# INDEX OF PARTS LIST

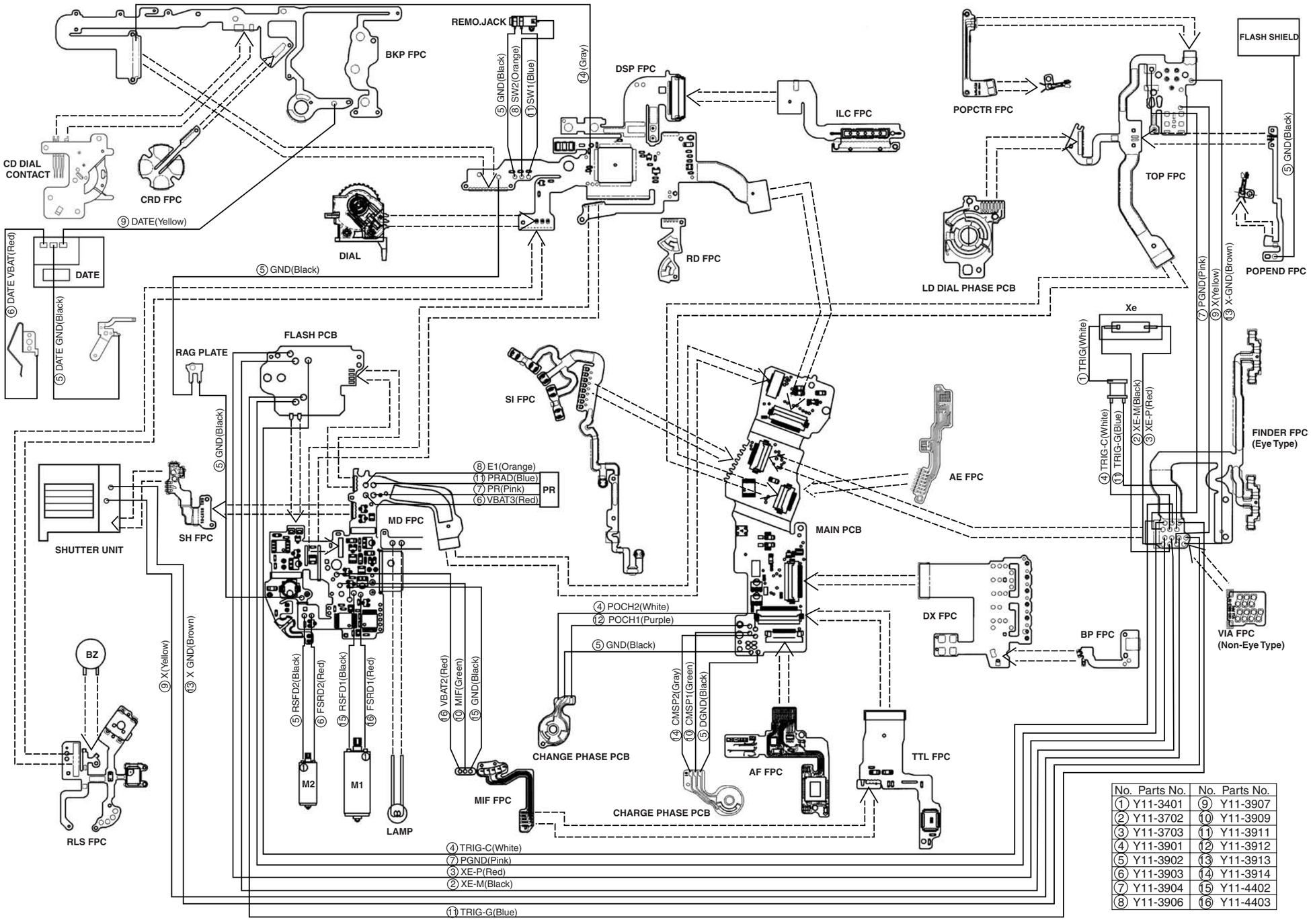
REF.No. C12-8451
C12-8453/8454
C12-8456/8457
C12-8463/8464
C12-8466/8467

# Part 6

# Electrical Diagrams

REF. No. C12-8451/ 3/ 4/ 6/ 7
C12-8463/ 4/ 6/ 7






| No. | Parts No. | No. | Parts No. |
|---|---|---|---|
| ① | Y11-3401 | ⑨ | Y11-3907 |
| ② | Y11-3702 | ⑩ | Y11-3909 |
| ③ | Y11-3703 | ⑪ | Y11-3911 |
| ④ | Y11-3901 | ⑫ | Y11-3912 |
| ⑤ | Y11-3902 | ⑬ | Y11-3913 |
| ⑥ | Y11-3903 | ⑭ | Y11-3914 |
| ⑦ | Y11-3904 | ⑮ | Y11-4402 |
| ⑧ | Y11-3906 | ⑯ | Y11-4403 |