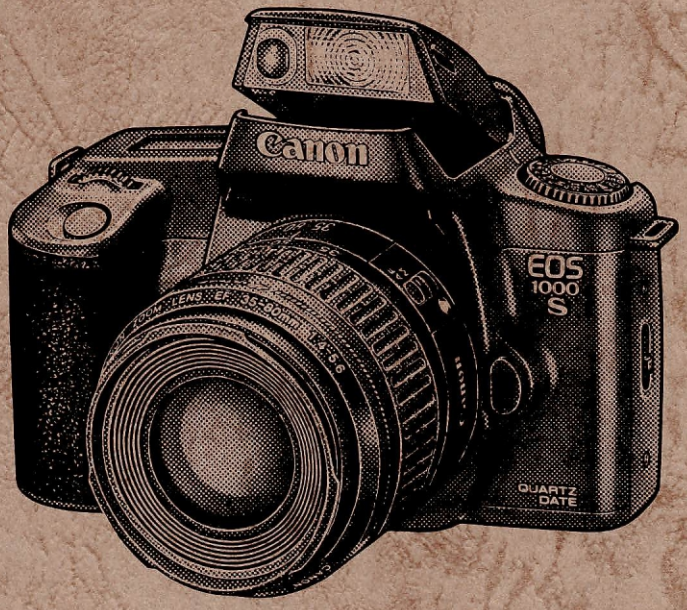
Canon

Service Manual

ENGLISH EDITION

EOS 1000S QD	C12-8181
EOS 1000S QD-P	C12-8182
EOS REBEL II	C12-8183
EOS REBEL II QD	C12-8184
EOS REBEL S II	C12-8185
EOS REBEL S II QD	C12-8186
EOS 1000 N	C12-8187
EOS 1000 F N	C12-8188
EOS 1000 F N QD	C12-8189



CY8-1200-090

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.

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First published April, 1992
Publisher: Takao Tsuji (Camera Service Administration Div.)
Editor: Hideyuki Matsumoto (Camera Technical Support Department)
Editor (English): Harley Ferguson (Camera Technical Support Department)
Production: Atras Japan Corporation

This manual was produced on an Apple Macintosh™ II ci personal computer and Apple LaserWriter™ II NTX-J laser beam printer; block copies were printed on Varityper™ 5300 with 4000-J RIP.
A Canon mo-5001S Magneto-Optical Storage Subsystem with mo-502M Magneto-Optical Storage Disk Cartridge and mo-IF2 interface kit were used for storing large volumes of page layout and graphic data for this manual.
All graphics were produced with Aldus FreeHand™ 2.0J.
All documents and all page layouts were created with QuarkXPress™ 2.0J.

PREFACE

This Service Manual covers eight related models which we will refer to as the "New EOS 1000 series". These models are improved versions of the original EOS 1000 series. (C12-819X).

Basically the difference are built-in flash and quartz data back. There are also certain operational differences between the "REBEL II" models for the North American market and the EOS 1000X models for other markets. Details of these differences are indicated in this manual, mainly in the Specifications section.

As of now, the following medels with different combinations of features are planned.

Model Name	Product No.	Major Differences
EOS 1000S QD	C12-8181	**Japanese** model - only model sold in Japan, it has both built-in flash, data back, and panorama format.
EOS 1000S QD-P	C12-8182	**Japanese** model - only model sold in Japan, it has both built-in flash, data back, and panorama format.
EOS REBEL II	C12-8183	**North American** model - no flash, no QD, no AF in-forcus tone
EOS REBEL II QD	C12-8184	**North American** model, with data back but no flash, and no AF in-focus tone
EOS REBEL S II	C12-8185	**North American** model, with flash but not automatic activation, and no AF in-focus tone
EOS REBEL S II QD	C12-8186	**North American** model, with data back and flash but not automatic activation, and no AF in-focus tone
EOS 1000 N	C12-8187	**Europe and general export** model, no flash, no data back
EOS 1000 F N	C12-8188	**Europe and general export** model, with flash but no data back
EOS 1000 F N QD	C12-8189	**Europe and general export** model, with data back and flash

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Part 1 General Information

Part 2 Technical Information

Part 3 Repair Information

Part 4 Additional Operation

Part 5 Electrical Diagrams

Part 1 GENERAL INFORMATION

1. FEATURES

Basic Development Concept

Up-to-date standard AF SLR model

Optimum balance between "functions, performance, and reliability."
Exterior design appealing to a broad spectrum of users.
Simple, comfortable, and reliable operation.
Lightweight and compact.
Comprehensive cost-reduction measures without sacrificing functions, performance, or reliability.

Silent film transport

Silent body to optimally match Canon's new line of popularly-priced USM lenses.

N Items marked with N and enclosed in a box are newly added features.
Items without special notes are common for all models. Items denoted with (S) are for built-in flash models, and items denoted with (QD) are for models incorporating the auto date function.

(1) High-Speed, High-Performance Quick AF

N •High-speed AF equal to or faster than the EOS 1000 ➡ Fastest AF system ever employed in a beginner/standard-class SLR.

•AI Servo AF with Focus Prediction provides superior focusing performance with moving subjects.
•Optimum AF mode automatically set according to the selected shooting mode.
•Focus-priority AF control.

N •AF in-focus beeper can be turned on or off as desired. No beep in N.A. models.

(2) Easy Picture-Taking Using Simple Basic Operations

•When camera is set to Full Auto mode, all you have to do is to press the shutter button.
•Four built-in Programmed Image Control modes enable easy picture taking of specific subjects.
•3-zone evaluative metering system realizes properly exposed pictures even under difficult lighting conditions such as backlighting.

(3) Numerous Exposure Control Modes Normally Found Only on higher Priced Models

•Equipped with exposure control functions on a par with the EOS 10 and EOS 630.

N • Fast maximum shutter speed—1/2000 sec.

N (4) Silent, Fully-Automated Film Transport With Prewind System

•Silent film transport system reduces audible sound pressure to approximately 1/2 the level of the EOS 1000.

•Prewind system sequentially winds frames back into the film cartridge as they are shot, protecting them from accidental exposure.
•When a roll is completed, the film leader is automatically wound into the film cartridge.

N (5) Easy-to-use Soft Focus Mode
- Just set the command dial to SF and press the shutter button.
- Two soft-focus levels—weak and strong—can be selected.

N (6) Built-in Retractable Flash with Red-Eye Reduction Function and Guide Number of 14 (S)
- Built-in manually-retractable flash.
- When popped up in Full Auto mode or a Programmed Image Control mode: Automatically fires when necessary in low-light and backlit conditions. (* Automatic firing function not provided on North American models.)

N •Built-in, easy-on-the-eyes red-eye reduction function using miniature lamp.
- Recycles quickly in approx. 2 seconds.

(7) Easy Manual Exposure Operation
- Shutter speeds and apertures settable with one hand using the electronic input dial.

(8) Simple Operation and Clear Information Display
- Basic operations are carried out using only the command dial, electronic input dial, and shutter button.
- Large LCD panel on top of the camera displays data using large, easy-to-read, simple-to-understand characters and symbols.
- Full-digital viewfinder information presents data in a manner similar to the EOS-100.

N (9) Musical Self-timer
- Capture natural expression of children with a musical tune.
- Three tunes (Four Seasons—Spring, Turkish March, Minuet) can be selected.
- *Electronic beeper sound as in the EOS 1000 can also be selected.

(10) Lightweight, Compact
- User-friendly, smart design
- Built-in auto calendar programmed to 2019 AD (QD)

1.1 IMPROVEMENTS OVER EOS 1000

This new EOS 1000 series features a number of new and upgraded functions compared to the original EOS 1000 series. The eight primary points of improvement are listed below.

Table 1-1 Points of Improvement

New/Improved Function	New EOS 1000 Series	EOS 1000 Series
(1) Silent Film Transport	●	—
(2) Faster Maximum Shutter Speed	1/2000	1/1000
(3) Overall AF Performance	★★★★>EOS1000	★★★★
(4) Built-in Flash Guide No. (ISO 100 · m)	14	12
(5) Red-eye Reduction Function	●	—
(6) AF In-focus Beeper On/Off Selection (except N.A. model)	●	—
(7) Sound During Selftimer Operation Beeper	●	●
(7) Sound During Selftimer Operation Music	●	—
(8) SF (Soft Focus) Mode	●	—

(1) Silent Film Transport

The New EOS 1000 series cameras incorporate a newly-developed planetary friction reduction mechanism unit integrated with a new BHM (ball head motor—detailed explanation in Part 2: Technical Description). This construction both significantly reduces irritating high-frequency noise and cuts the overall sound pressure level to approximately half the level of the EOS 1000.

(Since this camera is based on the EOS 1000, noise reduction techniques such as the belt drive and floating supports employed in the EOS 100 are not used.)

(2) Faster Maximum Shutter Speed

Through improvement of the EOS 1000's shutter unit, a maximum shutter speed of 1/2000 sec. is realized.

(3) Overall AF Performance

The AF system used is the same high-speed super-microcomputer used in the EOS 630 for improved focusing speed especially from extreme out-of-focus conditions. In actual use with existing lenses, autofocusing performance is equal to or better than the EOS 1000.

When used with the new simultaneously-developed EF 35-80mm f/4-5.6 USM lens, the new EOS 1000 focuses approximately 50% faster than the EOS 1000.

(4) Built-in Flash Guide No. (ISO 100•m)

Through an increase in the efficiency of the flash tube and the capacity of the main capacitor, the built-in flash features a 50% increase in light output compared to the EOS 1000, for a guide number of 14. As a result, when using the EF 35-80mm f/4-5.6 lens with negative film, it has has a longer flash coupling range as shown in Table 2. Due to the increase in flash power, however, the battery life when using flash is decreased by about 20%.

Table 1-2 Flash Shooting Range (using negative film)

ISO	WIDE: 35mm	TELE: 80mm
100	0.7~5 m	0.7~3.5 m
400	0.7~10 m	1~7 m

(5) Red-eye Reduction Function

The red-eye reduction function uses a miniature lamp incorporated in the flash head (like the Autoboy Zoom 105) to illuminate the subject before the flash fires. This lamp lights when the flash is popped up in Full Auto mode (Green mode) or Portrait mode. In these modes, when the light level is below BV1 (ISO 100: EV 6), the red-eye reduction lamp automatically lights after focusing and metering is completed (the lamp remains lit as long as SW-1 is held on).

For the first two seconds the red-eye reduction lamp is lit, the viewfinder's internal display blinks to warn the user to wait until the recommended minimum illumination time is completed before taking the picture. Priority, however, is given to the shutter release, so a picture can be taken immediately if desired without waiting two seconds (there is no shutter release lock like on lens-shutter cameras).

(6) AF In-focus Beeper On/Off Selection

In keeping with the "silent operation" theme, provision is made for turning off the AF in-focus beeper.

Even when the AF in-focus beeper is turned off, the beeper will sound during self-timer operation.

(Note: The North American market models are configured so that the AF in-focus beeper is always off).

(7) Sound During Self-timer Operation

The sound heard during self-timer operation is normally a constant-frequency beeping. With this camera, the user also has the option of selecting one of three music modes.

Table 1-3

<table>
<tr><td rowspan="2">Sound Mode No.</td><td rowspan="2">AF in-focus beep sound</td><td colspan="3">Self-timer elapsed time and corresponding sound</td></tr>
<tr><td colspan="3">START ---------- 8 sec - 9 sec ------ exposure</td></tr>
<tr><td>Blank</td><td>—</td><td rowspan="2">Electronic beeper: 2 Hz</td><td colspan="2" rowspan="2">Last 2 seconds, electronic beeper: 8 Hz</td></tr>
<tr><td>1</td><td>●</td></tr>
<tr><td>2</td><td rowspan="3">●</td><td colspan="2">Music <Four Seasons - Spring, Vivaldi></td><td rowspan="3">Last second, electronic beeper: 8 Hz</td></tr>
<tr><td>3</td><td colspan="2">Music <Turkish March, Beethoven></td></tr>
<tr><td>4</td><td colspan="2">Music <Minuet, Bach></td></tr>
</table>

The desired sound mode is selected by setting the command dial to the sound mode position and operating the electronic input dial until the desired sound mode number appears in the frame counter display. The user can listen to the selected sound by pressing the shutter button to SW-2 while the sound mode number is displayed. (Note: The North American market models do not have a "blank" mode.)

(8) SF (Soft Focus) Mode

This mode automatically takes a double exposure with the first exposure in focus and the second exposure intentionally out of focus to create a simulated soft focus effect. Two degrees of softness can be set—weak (Soft 1) or strong (Soft 2). The degree of softness is controlled by varying the proportion of exposure allotted to the in-focus and out-of-focus exposures. Actual exposure control is carried out using aperture-priority AE giving priority to the lens' maximum aperture (limited to max. f/2.8).

Table 1-4 SF-1, SF-2 Exposure Compensation Allotment

	Soft-1 (weak)	Soft-2 (strong)
Exposure 1	0.5	-1.0
Exposure 2	-1.5	-1.0

1.2 DIFFERENCE IN STYLING, DISPLAY AND OPERATION BETWEEN THE OLD AND NEW EOS 1000 SERIES

Table 1-5 Difference in Styling, Display and Operation Between the Old and New EOS 1000 Series

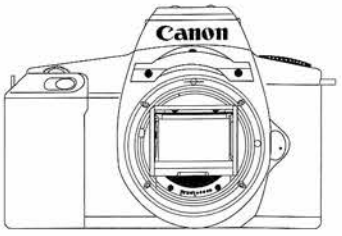
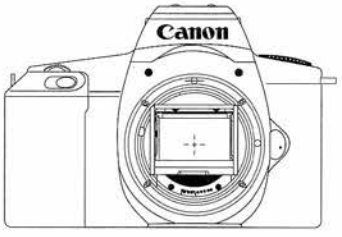
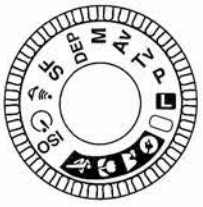
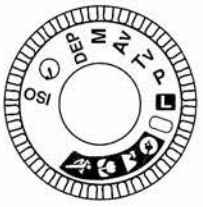
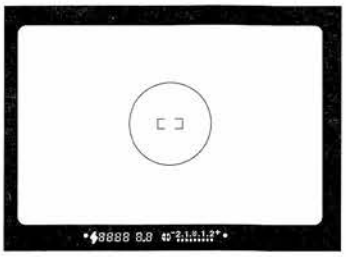
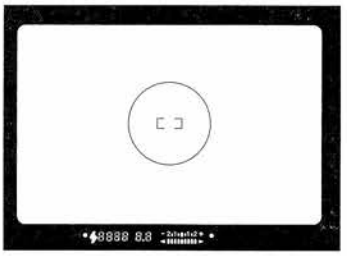
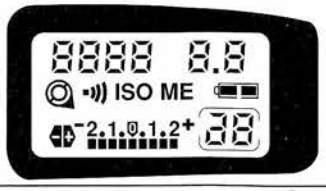
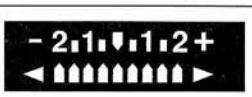
Item	New EOS1000 Series		EOS1000 Series	
External design of built-in flash models				
Name logo	See Table 1-6		←	
Command dial indications				
Viewfinder internal information display				
External LCD panel				
Partial metering and AE lock operation	①With the AE-L button ON, ②metering turned ON ➡ Partial metering and AE-L ; ②→①not possible.		①In metering mode, ②AE-L button pressed ON ➡ partial metering and AE-L ; ②→①also possible.	
Manual exposure lecel display				
Weight (g)	EOS REBEL II 1000N	410	EOS1000	400
	EOS REBEL II 1000FN	460	EOS1000F	450
	EOS 1000SQD 1000FNQD REBEL SIIQD	470	EOS1000 (F) QD	460

Table 1-6 Comparison and Differences Between Old and New EOS 1000 Series Models

Item			Market	Japan	North America		Europe	
			EOS 1000 Series	1000QD	REBEL	REBEL S	1000	1000 F
			New EOS 1000 series	1000S QD	REBEL II	REBEL SII	1000 N	1000 FN
Built-in flash				●	–	●	–	●
"Use flash" warning: blinking ϟ symbol				●	●	●	●	●
Manual pop-up/down				●	–	●	–	●
Flash operation when popped up	A zone	Forced firing		×	–	●	–	×
		Automatic firing		●	–	×	–	●
	B zone	Forced firing		●	–	●	–	●
Auto date function				●	–	–	–	–
Product logo	EOS 1000 series			EOS 1000 QD	EOS REBEL	EOS REBEL S	EOS 1000	EOS 1000F
	New EOS 1000 series			EOS 1000 S	EOS REBEL II	EOS REBEL S II	EOS 1000 N	EOS 1000F N
Dimensions (mm)		W (width)		148	←	←	←	←
		H (height)		99.8	96.3	99.8	96.3	99.8
		D (depth)		69	68	←	←	←
Weight (g)	EOS 1000 series			460	400	400	400	450
	New EOS 1000			470	410	410	410	460
Other points of difference				* 2)	* 1)	← * 2)		* 2)

* 1) EOS REBEL has AF in-focus beeper. EOS REBEL II and REBEL SII do not.

* 2) Film shooting capacity when using flash for the New models with built-in flash is about 20% less than for the corresponding EOS 1000 models.

2. SPECIFICATIONS

2.1 DESIGN DETAIL SPECIFICATIONS

Note: **Boxed items** or items preceded by an open box ☐ are different from the original EOS 1000. Items marked with an ☒ are not applicable to the models without built-in flash (EOS 1000N and EOS REBEL II), and items marked ☒ are not applicable to North American models (EOS REBEL II and EOS REBEL SII).

1. Type

1-1 Type	35mm single-lens reflex AE/AF camera with built-in motor drive and vertical running focal plane shutter
1-2 Format	24mm x 36mm
1-3 Usable lenses	Canon EF lenses
1-4 Standard lenses	EF 35-80mm f/4-5.6 ULTRASONIC, EF 50mm f/1.8II
1-5 Lens mount	Canon EF mount

2. Autofocus

2-1 Type

TTL-SIR system (TTL secondary image-formation phase detection system)
(* SIR: Secondary Image Registration)

2-2 Focusing modes

(1) Autofocus
One of the following two modes is automatically set according to the selected shooting mode (manual setting is not possible). All modes operate as AF priority modes (Initial shutter release is not possible until AF is completed).
1) One-shot AF mode
AF is locked when focus is obtained
2) One-shot AF/AI Servo AF auto switching mode
Stationary subjects: AF is locked when focus is obtained
Moving subjects: Subject movement is tracked continuously until focus is obtained.

(2) Manual focusing
Possible by setting the lens focusing switch to M and operating the manual focusing ring.
* No function is provided for automatically switching to manual focusing when using USM lenses.

2-3 Functional Differences of the New EOS 1000 Models By Market

Like the EOS 1000 series, there are a few differences between models depending on the market. The correspondence between the new EOS 1000 and EOS 1000 models, as well as the points of difference between the models by market, are shown below in Table 1-6. For items where there is no particular differentiation shown between the EOS 1000 and new EOS 1000, the points of difference are the same for both models.

2-4 AF operation

Activated when the shutter button is pressed halfway.

2-5 AF operation speed

Approx. 0.3 sec (EV 12, ∞ → 1m, T) when using the EF 35-80mm f/4-5.6.

2-6 AF in-focus indication

Indicated by the viewfinder LCD display and by a beeper tone, except for North American markets.

(Beeper can be turned off.)

2-7 AF working range EV +1~18 (ISO 100)

2-8 AF auxiliary light

☒ (1) Built-in AF auxiliary light (located on left side of built-in flash)
Near-infrared light (peak wavelength: 695 nm) automatically fires when necessary.
Effective distance range: 1~4 m

☒ (2) Automatic firing conditions
After the flash is manually popped-up, the auxiliary light automatically fires when the subject is low contrast or in low light (ISO 100/EV 3~5 or less).

☒ (3) Firing duration/Number of firings:
320 ms or less/1~5 times (canceled upon detection of in-focus signal)

☒ (4) Light source: High-brightness LED

☒ (5) Pattern: Random stripe (vertical)

(6) When using EZ & E series flash units: AF auxiliary light emission is carried out the same as the EOS 650.

3. Shooting modes

The combination of functions used for each shooting mode is shown below.

Shooting mode		Function combination											Possible auxiliary operations			
		AF		Transport		Metering			Program AE							
		One Shot	One Shot / Servo	S	C	Evaluative	Average	Partial	PH-1	PH-2	PS	PL	Exposure compensation	Multiplex posure	Program shift	AE Lock
Program AE			●		●	●					●		●	●	●	●
Shutter-priority AE	1/2000~30		●		●	●							●	●	–	●
	BULB		●		●	–							–	●	–	–
Aperture-priority AE			●		●	●			–				●	●	–	●
Depth-of-Field AE		●		●		●							●	●	●	●
SF (Soft Focus)		●		●[2]		●							●	–	–	●
Full Auto (Green Zone)			●	●		●					●					
PIC-Portrait		●			●	●				●						
PIC-Landscape		●		●		●						●		–		
PIC-Close-up		●		●				●				●				
PIC-Sports			●		●	●			●							
Manual			●		●		●		–				–	●	–	–
Self-timer		●			●	●					●		●	●	●	●

Notes: Metering in Manual mode is center-weighted average metering.
"PIC" is an abbreviation of Programmed Image Control

2: The film transport mode in SF mode is single-frame shooting, with operation stopping after a single double-exposure frame is completed.

4. Viewfinder

4-1 Type
Pentaprism, eye-level single-lens reflex type
(Fixed pentaprism without condenser lens)

4-2 Focusing screen
Fixed, full-surface new laser-matte screen with AF frame and partial metering mark

4-3 Standard diopter
-1 dpt (eyepoint: 20 mm)

4-4 Field of view
90% vertical and horizontal

4-5 Magnification
0.75 (with 50mm lens at infinity)

4-6 Viewfinder information
Below field of view: Alphanumeric display by 7-segment LCD (yellow-green)

(1) Shutter speed (camera shake and out-of-coupling-range warning: blinks at 2 Hz)
(2) Aperture (out-of-coupling-range warning: blinks at 2 Hz)
(3) Depth-of-Field AE mode (dEP 1, dEP 2)
(4) Soft Focus level (1, 2; blinks warning when soft focus level is impossible)

Below field of view: LCD mask display (yellow-green)

(5) * : AE lock (displayed only in partial metering mode)
(6) ϟ : Flash charge completion (blinks at 2 Hz to advise the user to pop up the flash)
(7) : Manual exposure level
(8) -2.1.0.1.2+ : AE exposure compensation level
(9) ● : AF in-focus (blinks at 2 Hz if focus is impossible)
(10) Entire bottom display blinks for 2 seconds while red-eye reduction lamp is lit
Viewfinder display cannot be turned off.

4-7 Mirror
Quick-return half mirror (transmission:reflection = 40:60)
Viewfinder blockage time: 360 ms or less at shutter speeds of 1/60 sec or faster

4-8 Mirror blockage
None up to 200mm f/5.6 (TELE side of EF 80-200mm f/4.5-5.6) (Excluding EF 50mm f/1.0 L)

4-9 Depth-of-field check
None

4-10 Eyepiece cover
The eyepiece cover is designed into the strap.

4-11 Other
An optional angle finder, magnifier, and dioptric adjustment lenses Eb can be attached to the eyepiece.

5. Exposure control

5-1 Metering system

TTL full-aperture metering using a 3-zone SPC; the following two metering modes can be selected.

(1) Evaluative metering

(2) Central partial metering (diameter: 9 mm, approximately 9.5% of the viewfinder area)

(* Partial metering is used when using AE lock or when PIC - Close-up mode is selected)

5-2 Exposure control system

The following seven AE modes plus manual can be selected.

(1) Shutter-priority AE (without safety shift function)

(2) Aperture-priority AE (without safety shift function)

(3) Intelligent Program AE (shiftable)

(4) 4 types of program AE (PIC)—camera functions automatically set according to shooting mode

(5) Depth-of-Field AE (shiftable; related to AE)

(6) TTL flash program AE

(7) A-TTL flash program AE (when using a speedlite EZ)

(8) Metered manual

5-3 Metering range

EV 2~20 (at normal temperature and humidity; with hypothetical 50mm f/1.4 lens at ISO 100)

5-4 Out-of-coupling-range warning

External and viewfinder LCD digital displays blink at 2 Hz.

5-5 Exposure preview

Displayed when shutter button is pressed halfway (six-second metering timer is activated when pressure is removed from the shutter button).

5-6 Film speed

DX-code automatic setting range: ISO 25~5000, 1/3-stop increments

Manual setting range: ISO 6~6400, 1/3-stop increments

When non-DX-coded film is loaded, the previously-set ISO value is displayed.

5-7 Exposure Compensation

Can be manually set within range of ±2 stops in 0.5-stop increments.

(* Independent flash exposure level compensation possible using the 430EZ.)

5-8 AE lock

By a dedicated AE lock button (metering system automatically switches to partial metering when the AE lock button is pressed)

(When using evaluative metering, AE lock occurs automatically after AF lock).

5-9 Multiple exposure function

(1) Number of exposures is preset before shooting. Up to nine exposures can be preset at one time (can be reset during shooting). Automatically canceled after the specified number of exposures has been shot. Manual cancellation in mid-operation is also possible.

6. Shutter

6-1 Type

Vertical-travel focal-plane shutter with all speeds electronically controlled.
First and second curtain operation controlled by a dedicated release-type EM (electromagnetic) control system.

(Curtain speed: 6.3ms/24mm)

6-2 Shutter speeds

30 sec ~ 1/2000 sec plus bulb. X-sync speed = 1/90 sec.
In shutter-priority AE mode or manual mode, shutter speeds can be set in 1/2-stop increments.

6-3 Shutter release

Soft-touch electromagnetic release system (no cable release socket is provided)

6-4 Release time lag

* Release time lag excluding AF operation time:
(1) Following a pause after SW-1 is switched on, from when SW-2 is turned on to the beginning of exposure .....144 ms
(2) From simultaneous turning on of SW-1 and SW-2 to beginning of exposure .....200 ms

6-5 Self-timer

Electronically-controlled 10-second delay timer
In self-timer mode, self-timer starts when One-shot AF operation is completed (AE lock) and SW-2 is turned on (self-timer will not start until AF operation is completed, even if the shutter button is pressed).
Self-timer operation is indicated by a beeper tone or one of three musical tunes (selectable) as shown below.
Remaining time is counted down on the LCD panel.

<table>
<tr><td colspan="3">Self-timer elapsed time and correspondig sound</td></tr>
<tr><td colspan="3">START ---------- 8sec ----- 9 sec --- exposure</td></tr>
<tr><td colspan="2">2 Hz beep</td><td>8 Hz rapid beep</td></tr>
<tr><td>Music • Four Seasons — Spring</td><td rowspan="3">8 Hz rapid beep</td></tr>
<tr><td>Music • Turkish March</td></tr>
<tr><td>Music • Minuet</td></tr>
</table>

6-6 Camera-shake warning

Provided in Full Auto (Green Zone) mode and Programmed Image Control modes. Shutter speed display blinks at 2 Hz when the shutter speed falls below "1/focal length" minus 0~0.5 stop.

* No warning provided in other modes.

7. Film transport

7-1 Type — Prewind system

7-2 Film loading and prewind — Film is automatically loaded using a fixed toothed spool. After the film is positioned and the back cover is closed, the entire length of the film is automatically wound onto the spool (prewind) while the number of available frames is counted.
(The prewind operation requires approximately nine seconds for a 24-exp. roll.)

7-3 Prewind completion confirmation — OK: Winding automatically stops and the available number of frames is displayed in the frame counter.
NG: The cartridge symbol in the LCD display blinks at 2 Hz and the shutter release locks.

7-4 Film winding system — Film is advanced automatically by a built-in miniature motor.

7-5 Film transport modes — Single-frame and continuous, automatically set according to the shooting mode

7-6 Start of film winding — Film winding starts when the exposure completion signal is received.

7-7 Continuous shooting speed — Approximately 1 f/s in AF-lock state.

7-8 Film transport confirmation — By up/down counting of frame counter

7-9 Shooting capacity — The approximate number of 24-exp. rolls that can be shot using a new 2CR5 battery, the EF 35-80mm f/4-5.6 USM lens and built-in flash (if equipped) is shown in the table below.

	Shooting conditions		
Temperature	AE100%	AE50%:Flash 50%	Flash 100%
Normal (20°C)	75	☒ 30	☒ 12
Low (10°C)	45	☒ 20	☒ 8

7-10 Film rewind system — The film leader is rewound automatically after the last frame (#1) is exposed.

7-11 Mid-roll rewind — Possible (By removing the lens, setting the command dial to "ISO", and pressing the partial metering/AE lock and exposure compensation buttons simultaneously.)

7-12 Rewind completion confirmation — The frame counter is blank and the cartridge symbol on the LCD panel blinks.

7-13 Film-loaded confirmation — (1) Indicated at all times by cartridge symbol on LCD panel.
(2) Visual confirmation using the film check window.

7-14 Frame counter — Electronic counter digitally displayed on the LCD panel (counts up during prewind, down during shooting).

☒ 8. Built-in flash

8-1 Type — Retractable TTL automatic flash housed above the pentaprism. By-pass control system.

8-2 Flash switch — None. Flash is manually popped up or retracted when necessary (user is advised to use the flash when the " ϟ " symbol blinks at 2 Hz or when the camera shake warning occurs).
Popped up: Flash ready mode.
Retracted: Flash-off mode.
Blinking " ϟ "symbol: Indicates backlit conditions or low light level (BV 4.5 or less).

8-3 Guide number — 14 (ISO • m)

8-4 Recycling time — Approximately. 2 seconds; " ϟ " symbol lights in viewfinder upon charge completion.
* When flash is not charged, the " ϟ " symbol remains extinguished and the shutter release locks.

8-5 Flash coverage angle — Equivalent to the coverage angle of a 35mm lens.
Parallax correction: 2° downward

8-6 Flash modes — When in the popped-up state, the flash fires according to the following conditions.

Shooting mode		☒ Automatic firing			Forced firing
		Low light	Backlighting	1/f ≧ 1/90	
Program AE					●
Shutter-priority AE	1/2000~30				●
	BULB				●
Aperture-priority AE					●
Depth-of-Field AE					●*1
SF (Soft Focus)					●*2
Green Zone		●	●	●	
PIC-Portrait		●	●	●	
PIC-Landscape		●	●	●	
PIC Close-up		●	●	●	
PIC-Sports		●	●	●	
Manual					●
Self-timer					●

*1: DEP canceled. *2: Fires for first exposure only.

8-7 Aperture value for flash control

Flash aperture value is set according to the shooting mode as follows.

Shooting mode		AV set	AV auto			Remarks
			TTLP	TV-AE	AV o	
Program AE			●			
Shutter-priority AE	1/2000~30			●		
	BULB	●				
Aperture-priority AE		●				
Depth-of-Field AE			●			Results are the same as for program AE.
SF (Soft Focus)					●	Aperture-priority with max. aperture limited to f/2.8
Green Zone			●			
PIC-Portrait			●			Results are the same as for program AE.
PIC-Landscape			●			
PIC Close-up			●*			Restricted by PL at max. aperture.
PIC-Sports			●			Results are the same as for program AE.
Manual		●				
Self-timer			●			

*: PL: PIC Program Low

8-8 X-sync shutter Fastest sync speed: 1/90 sec

8-9 Flash control system TTL automatic flash metering of light reflected off the film plane.

8-10 Flash output level control Automatic flash output reduction control for backlit situations requiring fill-in flash.

8-11 Flash control coupling range

	EF 35~80mm f/4-5.6 ULTRASONIC			
	WIDE: 35mm		TELE: 80mm	
ISO	Negative film	Slide film	Negative film	Slide film
100	0.7~5	1~3.5	0.7~3.5	1~2.5
400	0.7~10	1.5~7	1~7	1.5~5

8-12 Out-of-coupling-range warning None

8-13 Flash control display None

8-14 Flash duration/ Color temperature 1 ms or less/Equivalent to daylight

8-15 Flash vertical offset distance 70.5 mm from the lens' optical axis to the center of the flash.

8-16 Power source Uses the same power as the body.

8-17 Red-eye reduction function

1. Applicable modes — Full Auto (Green Zone) mode and PIC Portrait mode.
2. Lamp lighting conditions — Lights automatically at SW-1 ON upon AF and metering completion (AF lock/AE lock) when the subject brightness is BV 1 (ISO100:EV 6) or less.
3. Lighting time — Lights continuously while SW-1 is held ON under the conditions described in 2.
4. Lighting continuation advisory indication — Viewfinder internal display blinks at 2 Hz for first two seconds after lamp lights, then returns to normal display.
5. Shutter release lock — None. Shutter release has priority at all times.
6. Lamp extinguishing conditions
   (1) Right before exposure starts at SW-2 ON when a picture is taken
   (2) SW-1 OFF
   (3) When the flash is retracted manually
   (4) When the mode is changed by operating the command dial

8-18 Other — When an external flash is attached: Priority is given to the external flash and operation of the built-in flash is prohibited.

9. Camera body

9-1 Back cover — Can be opened by sliding the back cover latch down. Cannot be removed.
Provided with film check window (but no memo holder).

9-2 Flash contacts — X-sync accessory shoe equipped with directly coupled contacts.

9-3 Automatic flash — With the camera set to Full Auto (Green Zone) or Program AE mode:

☒ (1) TTL automatic flash using built-in flash:
The shutter speed is automatically set to the X-sync speed (1/90 sec) upon flash charge completion. The flash control aperture is then set automatically, determined by body metering (average metering, not evaluative) and the camera's TTL program. Flash output is controlled automatically via measurement of the light reflected off the film plane. Automatic fill-in flash is possible.

(2) A-TTL automatic flash using EZ series flash units:
The shutter speed is automatically set to the X-sync speed (1/90 sec) upon flash charge completion The optimum flash control aperture is then set automatically according to the shooting distance and subject brightness determined by body metering (average metering, not evaluative), the camera's A-TTL program, and a near-infrared pre-flash fired from the flash unit. Flash output is controlled automatically via measurement of the light reflected off the film plane. Automatic fill-in flash is possible. (No warning is given if the subject is out of the flash coupling range.)

(3) TTL automatic flash using the ML-3:
Control is carried out the same as in (1).

* For (1), (2), and (3) above, any shutter speed equal to or slower than 1/90 sec can be freely set in shutter-priority AE mode (in 0.5-stop increments), and any aperture value can be freely set in aperture-priority AE mode.

□ * In SF mode, control is carried out basically the same as in aperture-priority AE mode (slow-sync shooting in low-light conditions).

(4) Other:

1) T and A series flash units must be used in manual exposure mode.
   * Shutter speed: Must be manually set to between 1/90~30 sec or Bulb.
   * Aperture: Same aperture value must be manually set on the camera body and on the flash unit.
2) Other manufacturer's flash units
   General-use compact flash units: Synchronization is possible at speeds of 1/90 sec or slower.
   Large studio-use flash units: Synchronization is possible at 1/60 sec or slower (however, should be verified with tests)

9-4 Power source One 2CR5 six volt lithium battery housed in the grip.

9-5 Main switch Camera is turned off when the command dial is set to "L" (Lock).

9-6 Battery check Battery condition is checked automatically when film is loaded, when the main switch is operated, and each time a picture is taken.
Battery condition is always indicated in the LCD panel by a 4-step display (battery symbol).

9-7 External indications By large LCD panel and command dial.

9-8 Tripod socket CU-1/4

9-9 Remote control Not possible.

9-10 Grip replacement Not possible, but Grip Extension GR 70 can be fitted.

9-11 Material Body: Glass fiber reinforced polycarbonate plastic
Mount: Glass fiber reinforced polycarbonate plastic

9-12 Body color Black (matte and satin finish)

9-13 Dimensions/ Weight

REBEL II and EOS 1000 N: 148.0 (W) X 96.3 (H) X 68 (D) mm; 410 gr
REBEL SII and EOS 1000 FN: 148.0 (W) X 99.8 (H) x 68 (D) mm; 460 gr
REBEL SII QD and EOS 1000SQD: 148.0 (W) X 99.8 (H) X 69 (D) mm; 470 gr
(Without lithium battery; battery adds 40 gr to total weight)

10. Quartz date function

☒ Same as the EOS 1000QD, EOS 700QD and EOS 750QD.

11. Related products

11-1 New related products

(1) Semi-hard Case EH-5S
(2) Wide Strap EW-200
(3) EF 35-80 mm f/4-5.6 ULTRASONIC
(4) EF 80-200 mm f/4.5-5.6 ULTRASONIC
(5) EF 35-105 mm f/4-5.6 ULTRASONIC
(6) EF 75-300 mm f/4-5.6 ULTRASONIC

11-2 Existing related products

(1) Grip Extension GR70
(2) Semi-hard Case EH-5 (EOS 1000 series case)
(3) Speedlite 200E

11-3 General-purpose EOS system accessories

Same as EOS 1000QD.

2.2 VIEWFINDER AND LCD PANEL

2.2.1 VIEWFINDER DISPLAY

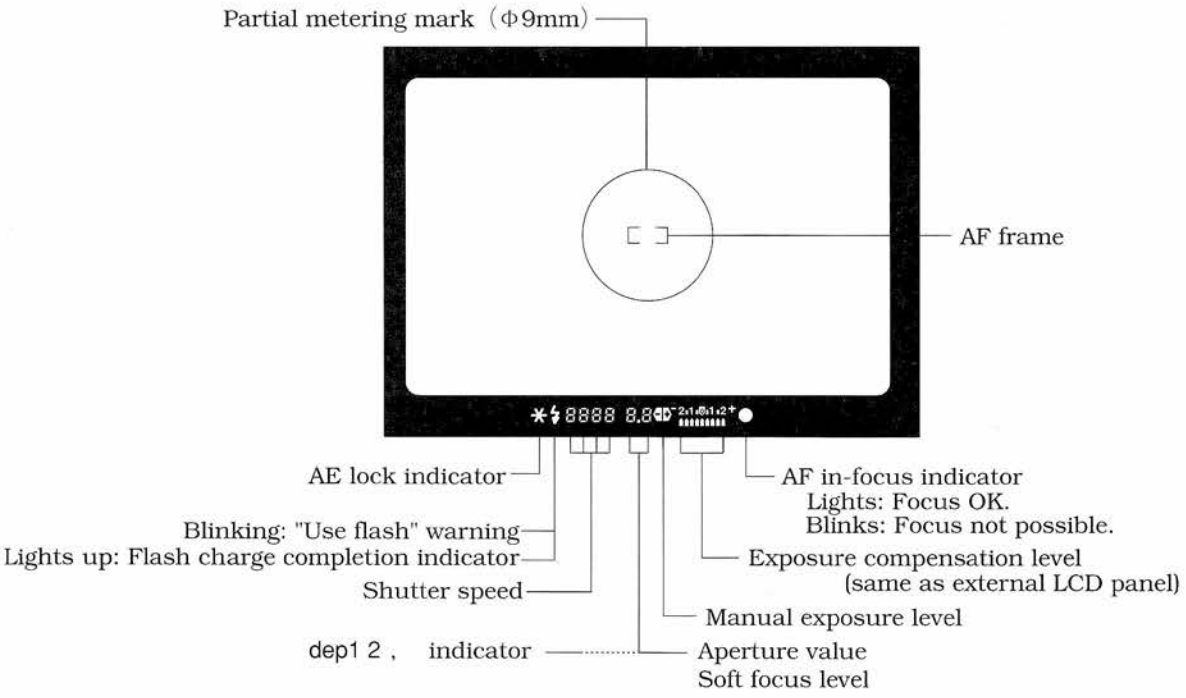


Fig. 1-1 Viewfinder Display

2.2.2 LCD PANEL

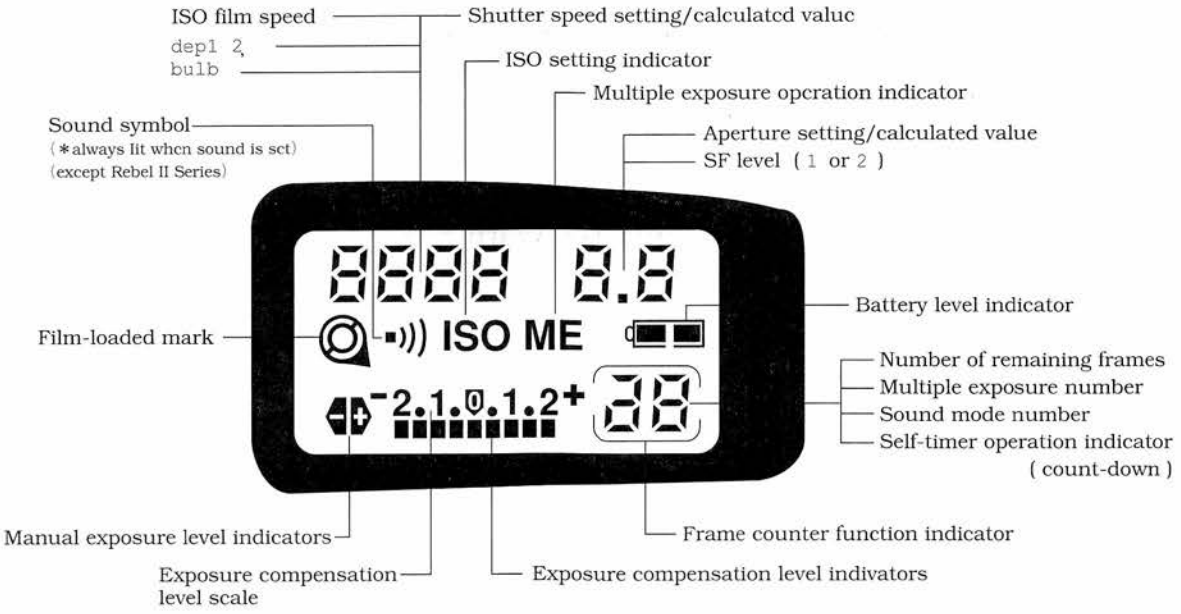


Fig. 1-2 LCD Panel

Note: No sound mark ■))) on the EOS REBEL II, IIQD, SII, and SIIQD models.

2.3 WARNINGS

- [ ] indicates blinking at 2 Hz.
- 60 is the maximum aperture, and AVmin is the minimum aperture of the lens.
- TVset and AVset are the shutter speed and aperture set manually by the user.
- * indicates all shooting modes.
- Used with EF 50 mm f/1.8 and ISO 100.

Table 1-7 Warnings

Warning	Shooting mode	Finder display and warning tone		Notes
Out of range on the low-intesity side	Program AE	TV auto [30"]	AV auto [AVO]	(1)
	Shutter priority	TV set	AV auto [AVO]	(2)
	Aperture priority	TV auto [30"]	AV set	(3)
	Manual	2000 8.0		(4)
Out of range on the high-intensity side	Program AE	TV auto [2000]	AV auto [AV min]	(5)
	Shutter priority	TV set	AV auto [AV min]	(6)
	Aperture priority	TV auto [2000]	AV set	(7)
	Manual	2000 4.0		(8)
AL, prewind error	*	Mark blinking (2 Hz)		(9)
Battery replacement	*	Mark blinking (2 Hz)		(10)
System error	*	Mark blinking (2 Hz)		

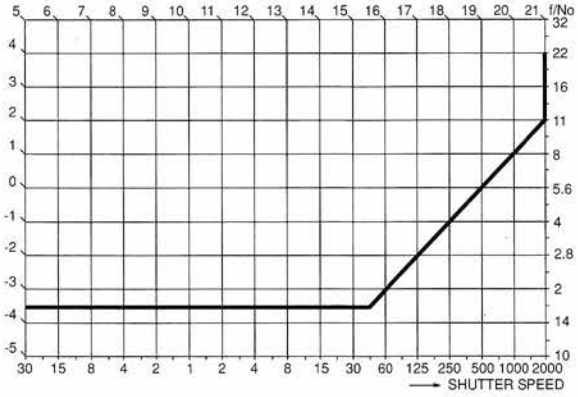
Notes

(1) Use flash or artificial illumination. Use a higher-speed film.
(2) Change to a slower shutter speed until the aperture value stops blinking.
(3) Change to a larger aperture until the shutter speed stops blinking.
(4) Either change to a larger aperture or change to a slower speed until the correct exposure display appears.
(5) Use an ND filter. Use a slower-speed film.
(6) Change to a faster shutter speed until the aperture value stops blinking.
(7) Change to a smaller aperture until the shutter speed stops blinking.
(8) Either change to a smaller aperture or change to a faster speed until the correct exposure display appears.
(9) Reset the film.
(10) Replace the battery.
(11) Camera shake warning in Full Auto and Programmed Image Control modes: Shutter speed display blinks at 2 Hz.
    1. Pop up the built-in flash.
    2. Use a tripod.
(12) "Use flash" warning in Full Auto and Programmed Image Control modes: " ϟ " symbol in viewfinder blinks at 2 Hz.
    1. Pop up the built-in flash.
    2. Use an external flash.
(13) Red-eye reduction lamp advisory indication: Viewfinder internal display blinks for 2 seconds at 2 Hz.
    Ask the subject to look at the lamp and take the picture when the viewfinder display stops blinking.
(14) Insufficient soft focus effect warning: Soft focus value (1 or 2) blinks at 2 Hz.
    1. Zoom the lens to the TELE side.
    2. Move farther away from the subject.
    3. Give up using the soft focus mode for this picture.

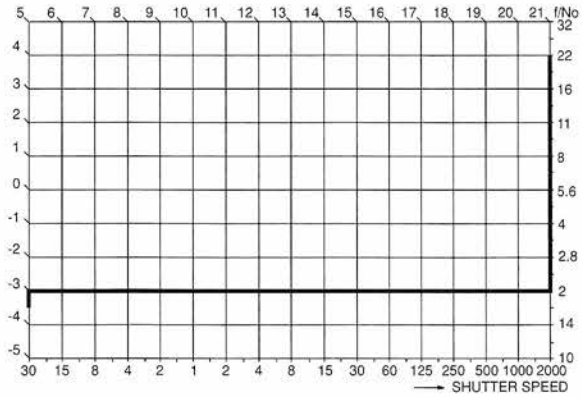
3. PRODUCT DESCRIPTION

3.1 PROGRAM AE CHARACTERISTICS USING THE EF 50mm f/1.8II LENS

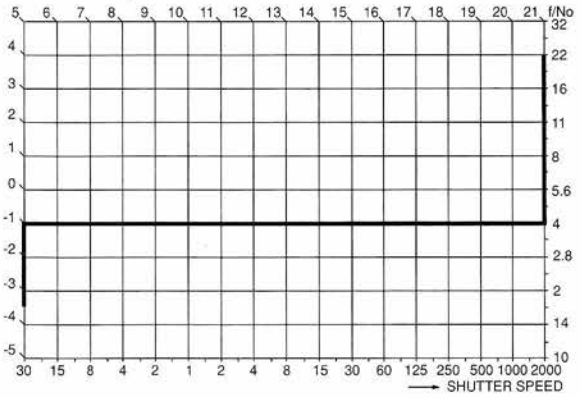
Program AE



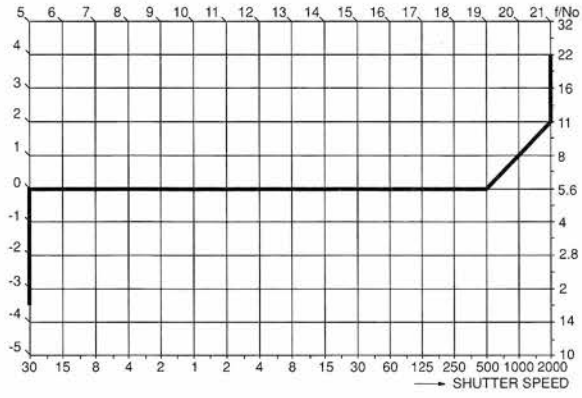
PIC - Portrait



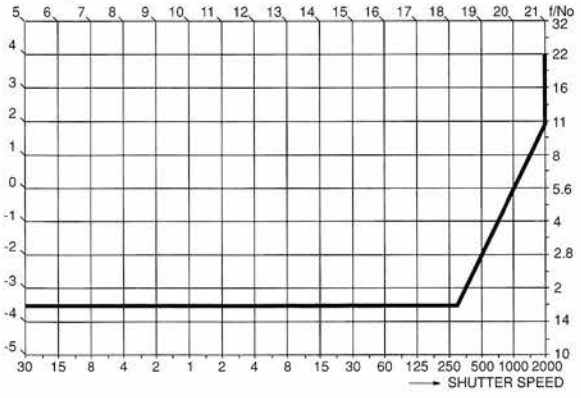
PIC - Close-up



PIC - Landscape



PIC - Sports

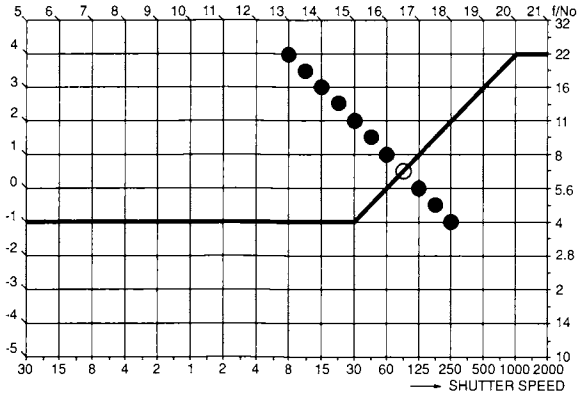


3.2 PROGRAM AE CHARACTERISTICS USING THE EF 35-80mm f/4-5.6

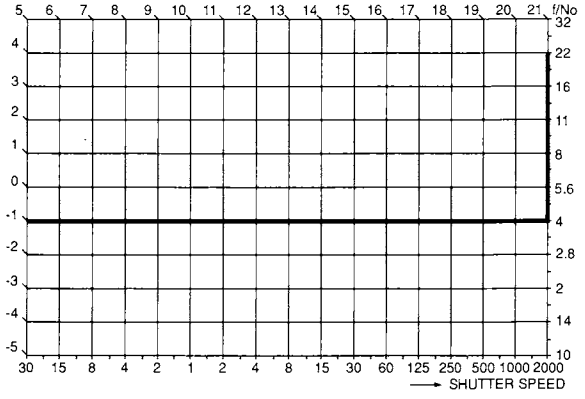
3.2.1 LENS AT THE WIDE (35mm f/4) POSITION

"●" indicates the possible program shift points at EV 12.

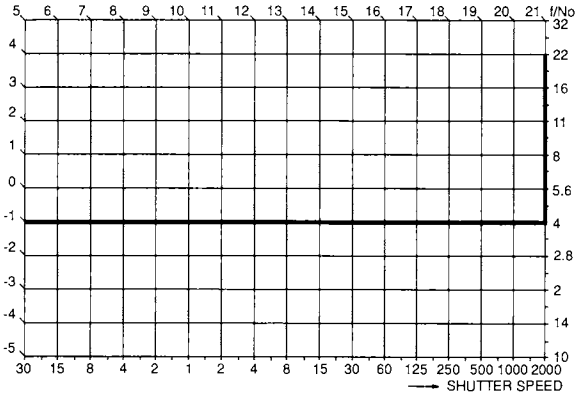
Program AE



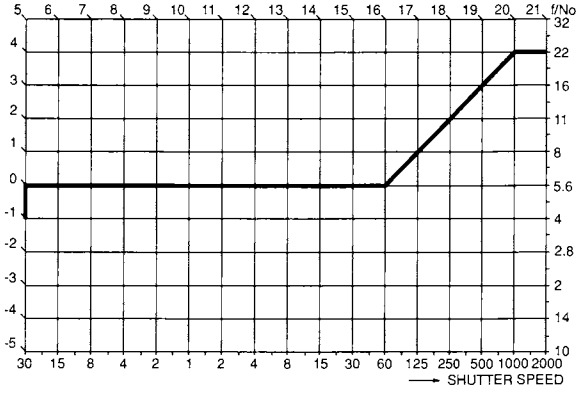
PIC - Portrait



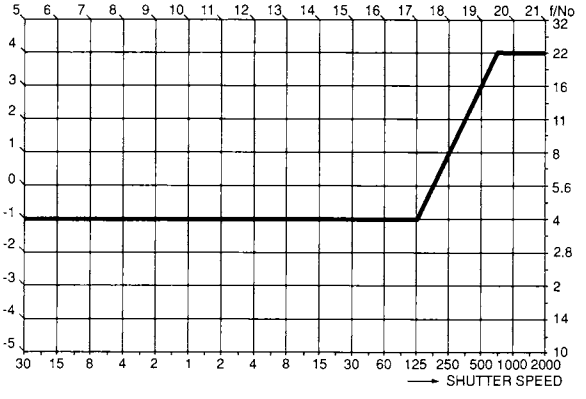
PIC - Close-up



PIC - Landscape

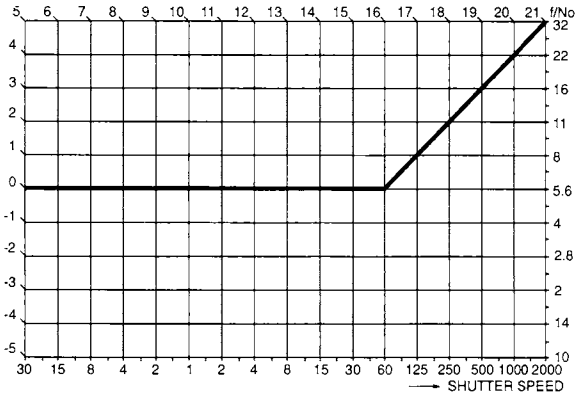


PIC - Sports

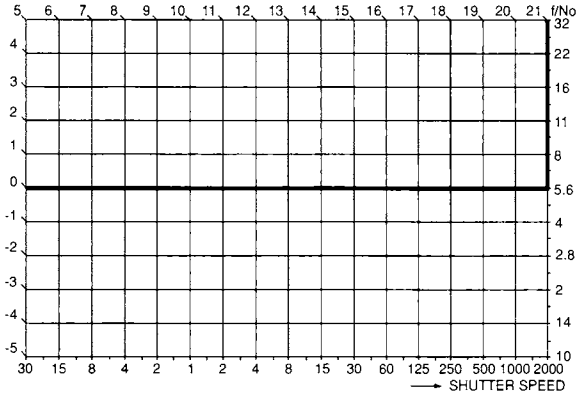


3.2.2 PROGRAM AE CHARACTERISTICS USING THE EF 35-80mm f/4-5.6 LENS AT THE TELE (80mm f/5.6) POSITION

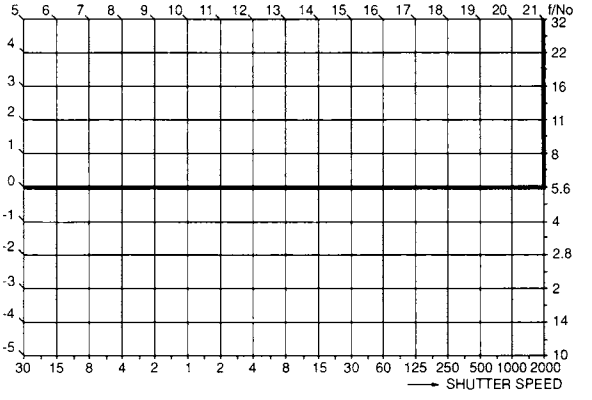
Program AE



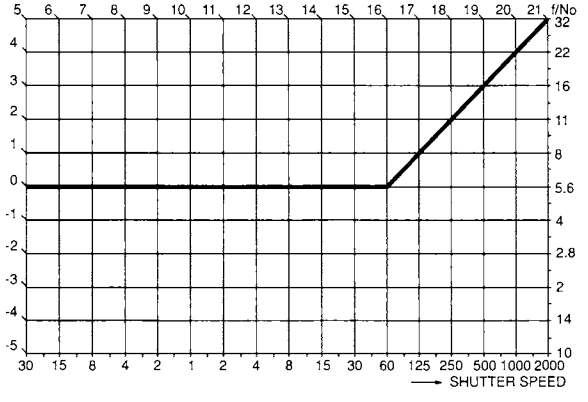
PIC - Portrait



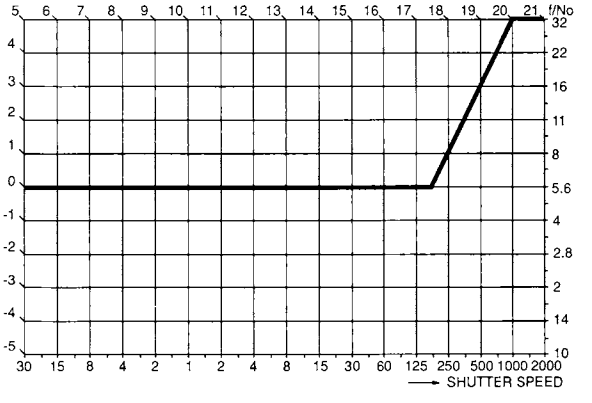
PIC - Close-up



PIC - Landscape

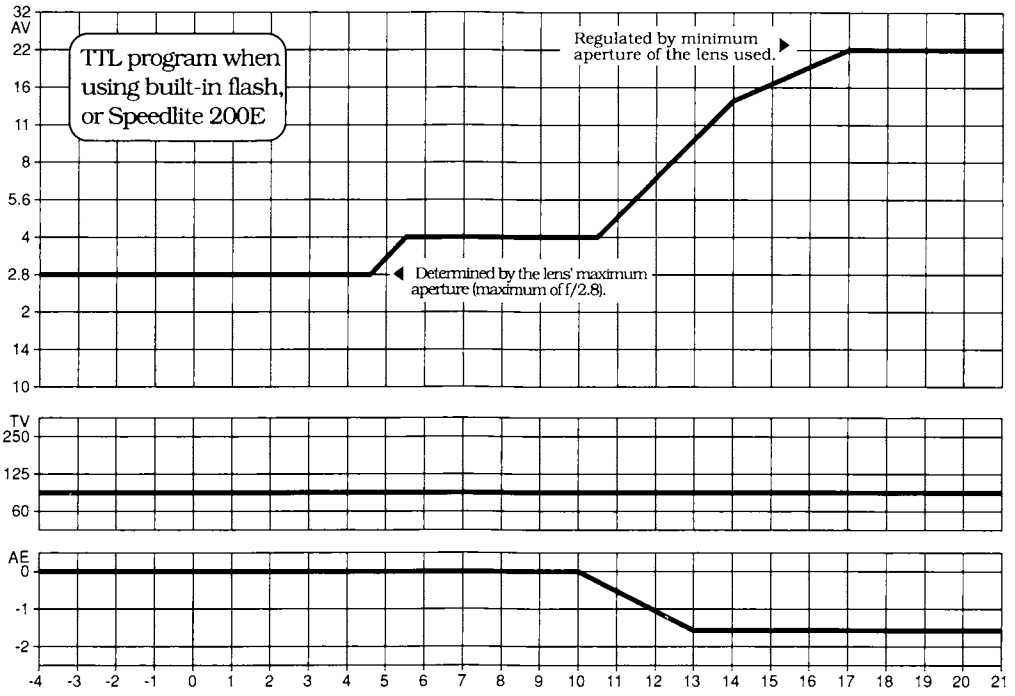


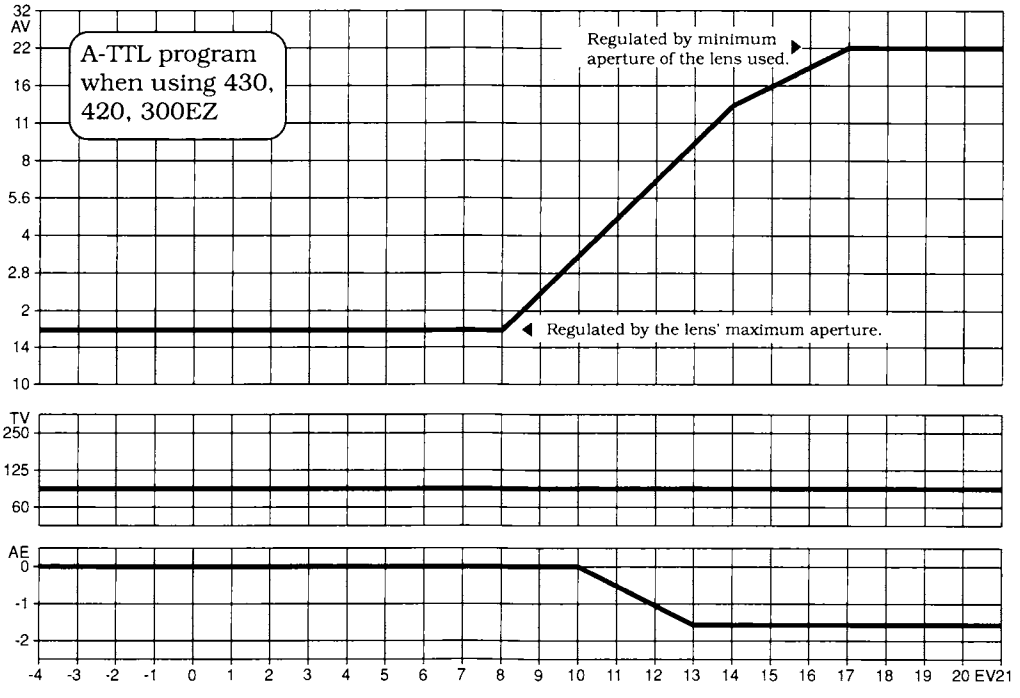
PIC - Sports



3.2.3 PROGRAM AE CHARACTERISTICS USING FLASH

• Using EF 50 mm f/1.8, ISO 100

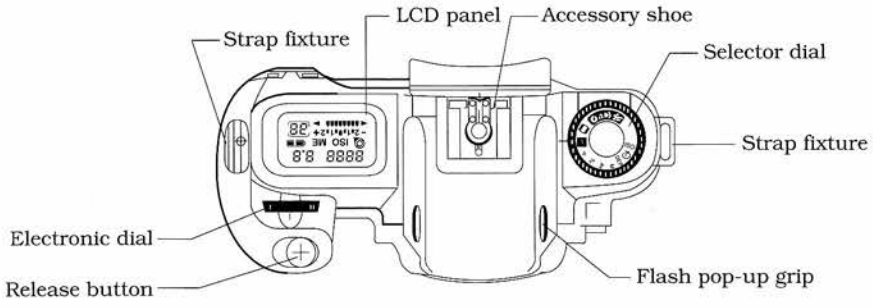


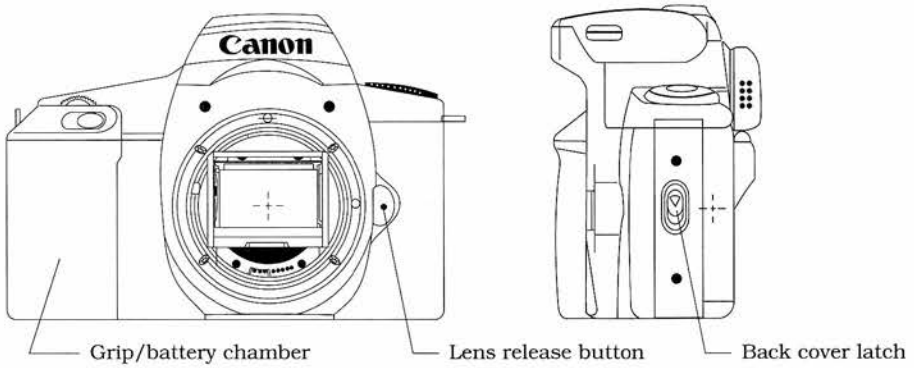


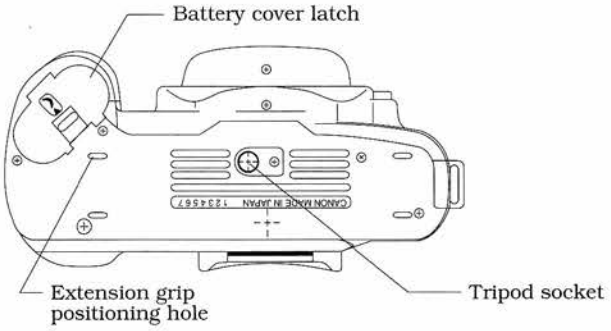
4. GENERAL VIEW

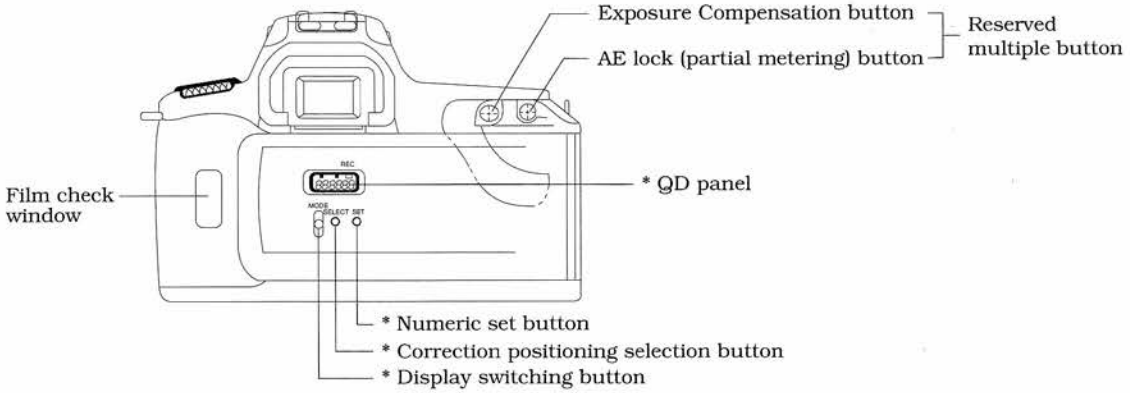
4.1 NOMENCLATURE

The * mark indicates the EOS 1000 QD.



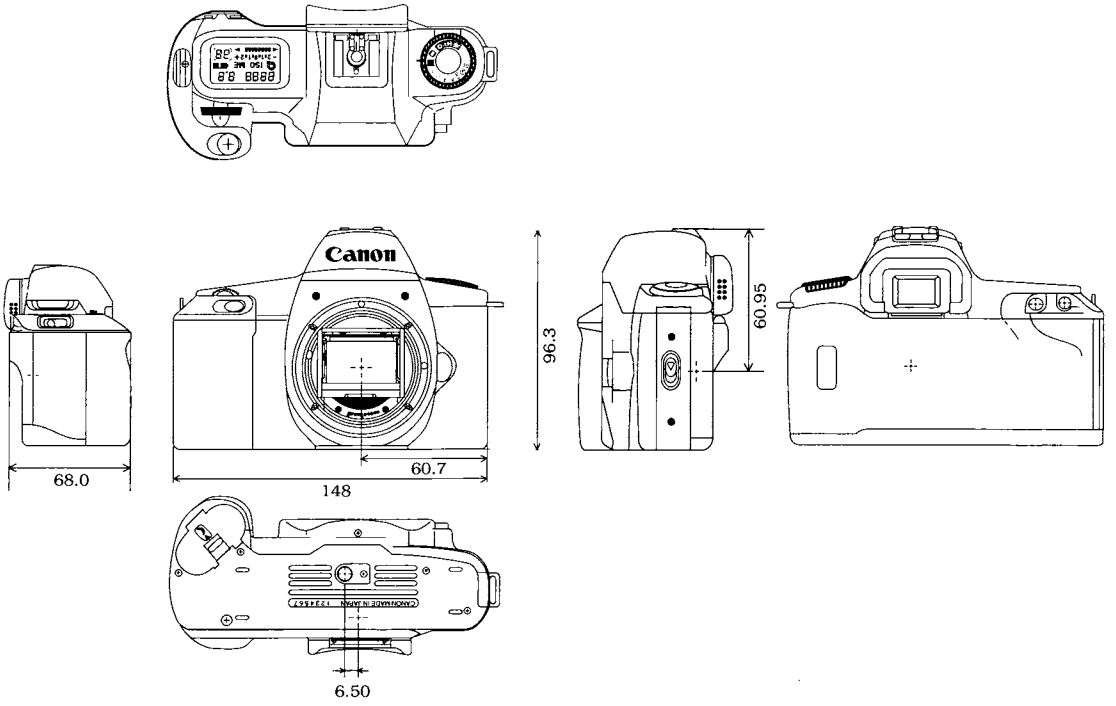






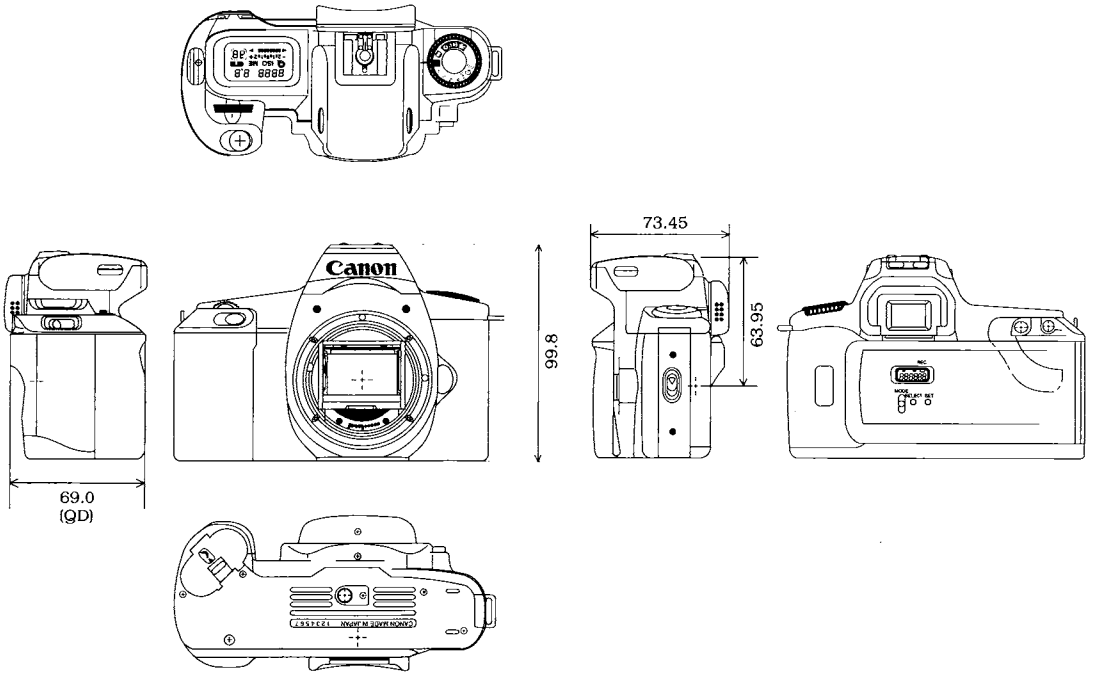
4.2 EXTERNAL DIMENSIONS

EOS 1000N
EOS REBEL II



EOS 1000S QD
EOS REBEL S II QD
EOS 1000F N QD

• Dimensions, where different from the EOS REBEL, 1000.



5. NOTES CONCERNING USE

* mark: Notes on FLASH MODELS only ➨ Troubleshooting

	No.	Cautions	Explanations
	1.	Prewind is impossible when a film is reloaded after the back cover is opened and a film is pulled out forcibly during shooting. (Rewinding the film with release blinks the ⊏⊐ mark on the LCD panel.)	By design ➨ Close the back cover and release once before a new film is loaded. (Loading the film without release causes rewind. Releasing switches the internal mechanism.)
*	2.	Restrictions during SW-1 ON or flash charging when the built-in flash is used (1) USM electronic ring manual focusing is impossible. (2) Soft focus cannot be corrected after infocus when EF135 mm/f2.8 SF is used. (3) Power zooming is impossible when using with EF35-80 mm f/4-5.6 POWER ZOOM.	Because the power cannot be uspplied at the same time due to design ➨ Turn SW-1 on after manual focus. ➨ Detemine the desired softners before AF ➨ Detemine composition with zoom, then operate SW-1 ON for shooting.
*	3.	The AF auxiliary light cannot only be used.	Because the metering method differs between flash ON and OFF, working and metering are performed again if the flahs is off after metering with the AF auxiliary light. ➨ After working with the AF auxiliary light, switch focus mode to manual and turn the flash off for shooting.
*	4.	Notes when the built-in flash is used. (1) Remove the lens hood. (2) A shadow is made at the bottom of the screen at the TELE end even without the hood when using with the EF20~35 mm lens.	Because the flash's light is obstructed by the hood (a shadow is made at the bottom of the screen) for all EF lenses. Because of the obstructed flash light. Be careful with it.
*	5.	When the external flash is used, mount it with the built-in flash down.	If the external flash is mounted with the integral flash up, the AF auxiliary light of the external flash hits the cover of the built-in flash. If the external flash is pushed in forcibly, the up/down feature of the built-in flash will be damaged.
	6.	If the selector dial is in L position, prewind will not operate.	By design. ➨ Use a position other than the L position. (Reference: Prewind is possible in the L position for EOS 750 and 700.)
	7.	The specified number or more of frames can be shot depending on the set length of the film leader.	By design
	8.	If one of the following lenses is used, the camera cannot be set on larger tripods. (1) EF 50 mm f/1.0L (2) EF 80mm f/1.2L (3) EF 28 to 80 mm f/2.8-4L	Because the lens projects below the bottom of the camera and binds against the tripod head.

No.	Cautions	Explanations
9.	There are no display panel and ISO sensitivity display during film loading or prewinding.	For several reasons Set the position of the selector dial/manual ISO for confimation.
10.	When the specified blur amount is greater than the lens' maximum defocus, soft focus operation will be carried out and the subject will be correctly exposed, but the specified soft focus effect will not be obtained.	By design
11.	When soft focus mode is combined with an external flash used in the manual mode, the exposure will be made in aperture-priority AE mode with manual flash. Correct exposure cannnot be guaranteed.	By design
12.	If a picture is taken in soft focus mode with an EF lens set for manual focus, the camera automatically switches the exposure control mode to Program AE and the film transport mode to single-frame shooting. (This also occurs if no lens is mounted in soft focus mode.)	By design
13.	If soft focus mode is set while multiple exposures are still preset, priority is given to soft focus operation. After the soft focus picture is taken, the preset multiple exposures are automatically canceled.	By design

Part 2 TECHNICAL INFORMATION

1. PLANETARY FRICITONAL TRANSMISSION (BHM)

1.1 CONCEPT

By design, micromotors turn in excess of 10,000RPM. This must be reduced to the much lower speed required by the camera. This is normally done with a gear train. Gear trains produce noise of many different frequencies, but the most irritating are the high-pitched sounds produced by gears meshing at high speeds. To reduce these most irritating frequencies and also reduce total sound level, the gears that turn the fastest have been eliminated by a gearless planetary (epicycllic) transmission using steel balls squeezed between races and riding in a retainer/output shaft. In Japanese, this mechanism has been dubbed BHM, short for ball head motor.

1.2 PLANETARY FRICTIONAL TRANSMISSION

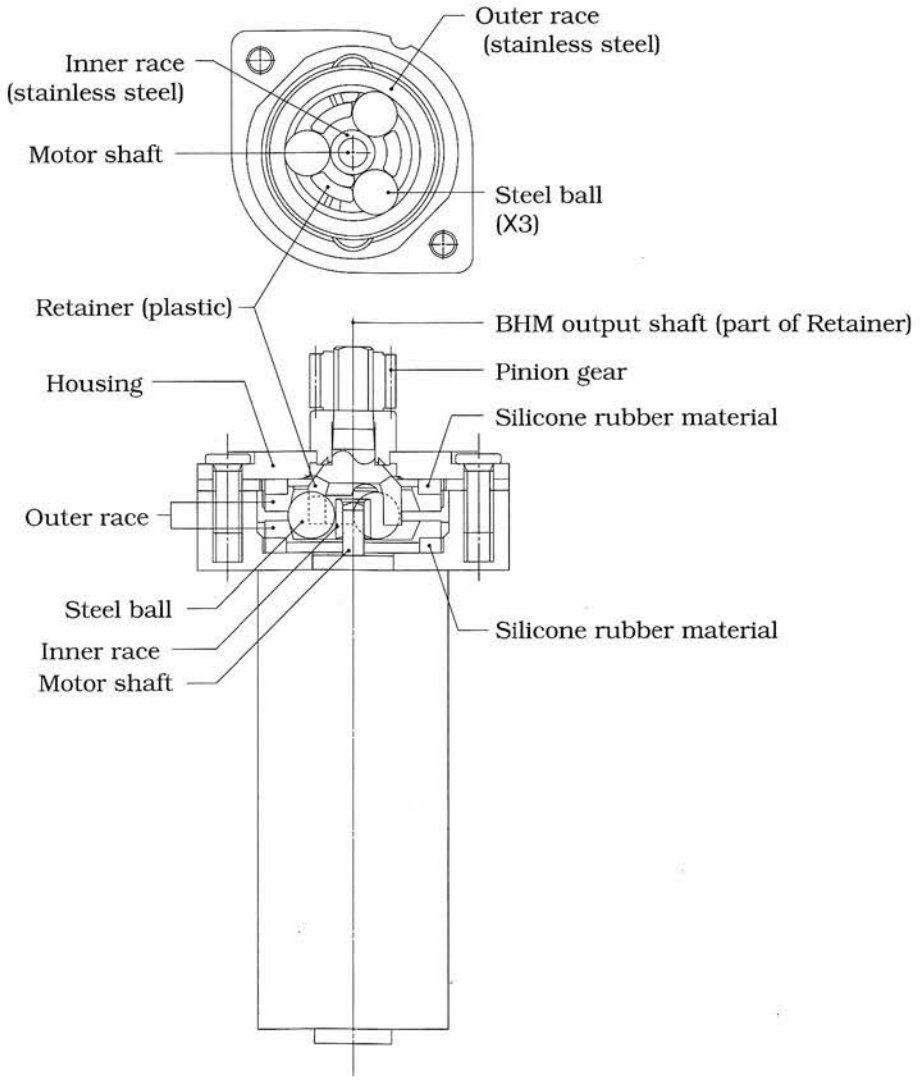


Fig. 2-1 Construction of the BHM Planetary Friction Speed Reducer

1.3 OPERATION

This planetary friction speed reducer is a very clever adaptation of a very old idea, the planetary (epicyclic) transmission. It is a planetary transmission, but it is not a planetary gear set. Instead of a toothed sun and annular gear, it uses stainless steel rings. Instead of the planet gears, it uses steel bearing balls riding in a retainer/output shaft.

When the motor shaft and inner race rotate in the clockwise (arrow) direction, the steel balls, which are under pressure from the stationary outer race, rotate around the motor like planets. The speed of rotation of the ball retainer is reduced by a factor nearly equal to the ratio of the race diameters. The retainer extends through the housing as the output shaft to which a pinion gear is attached. This gear then meshes with the next step in the gear train.

By using this gearless speed reducer in the initial stage, the irritatin high-pitched wine associated with very high speed gears is eliminated, improving sound quality and reducing the overall sound level also.

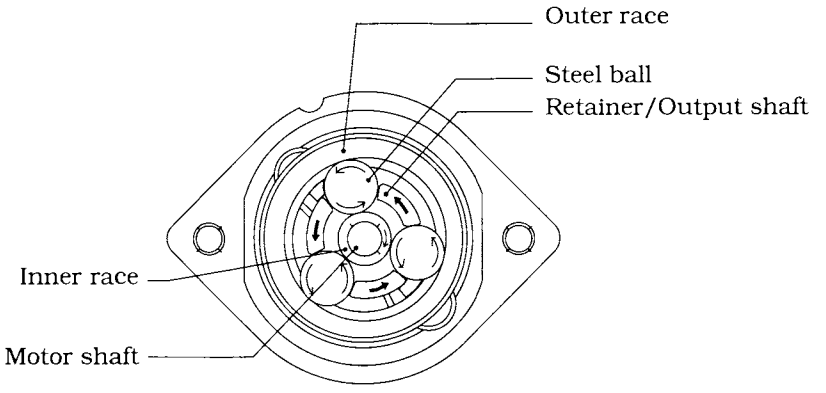


Fig.2-2 BHM Action

2. SF (SOFT FOCUS)

2.1 OVERVIEW

Soft focus mode achieves a quasi-soft-focus effect by automatically making a double exposure, with the first exposure in focus and the second out of focus.

2.2 EXPOSURE CONTROL

Exposure is determined for the maximum aperture of the lens (restricted to f/2.8 to preserve sufficient depth of field) using aperture-priority AE plus automatic exposure compensation. (See Table 2-1, which shows exposure compensation by varying the shutter speed.)

If the shutter speed value calculated by the camera exceeds 1/2000sec, the aperture is automatically stopped down to obtain correct exposure. (This is a "safety shift" function giving priority to correct exposure.)

Table 2-1 AUTOMATIC EXPOSURE COMPENSATION VALUES FOR SF-1 & 2

	Soft-1 (weak)	Soft-2 (strong)
1st exposure	-0.5 F	-1.0 F
2nd exposure	-1.5 F	-1.0 F

When flash is used, control is basically the same as when using flash (either the built-in flash or an external one) in aperture-priority AE mode, automatically providing slow-sync operation in low-light conditions. The flash fires under TTL automatic flash control for the first (in-focus) exposure, but does not fire for the second (out-of-focus) exposure. Actual control of the EMD (electromagnetic diaphragm) is carried out by supplying current to the EMD before the first exposure, then turning the current off until the second exposure is completed.

2.3 AF CONTROL AND WARNING

Normal AF control is carried out for the first (in-focus) exposure. For the second exposure, however, the camera automatically puts the subject out of focus by driving the lens toward the close-focus side by an amount equivalent to 50 times the depth of focus at maximum aperture (50 x AVo x diameter of acceptable circle of confusion).

However, if the above conditions cannot be satisfied due to insufficient distance between the in-focus position and the close focus limit of the lens, control is carried out as described in Table 2-2, items 2 and 3, on the following page.

Also, for the two conditions described below, a soft focus warning will be given but the shutter release will not lock.

1) When the specified amount of blur is greater than the maximum defocus amount of the lens.

→Soft focus operation will be carried out and the subject will be correctly exposed, but the specified soft focus effect will not be obtained.

2) When soft focus mode is combined with use of an external flash in manual mode

→The exposure will be made in aperture-priority AE mode with manual flash. Correct exposure cannot be guaranteed.

2.4 SF OPERATION FLOWCHART

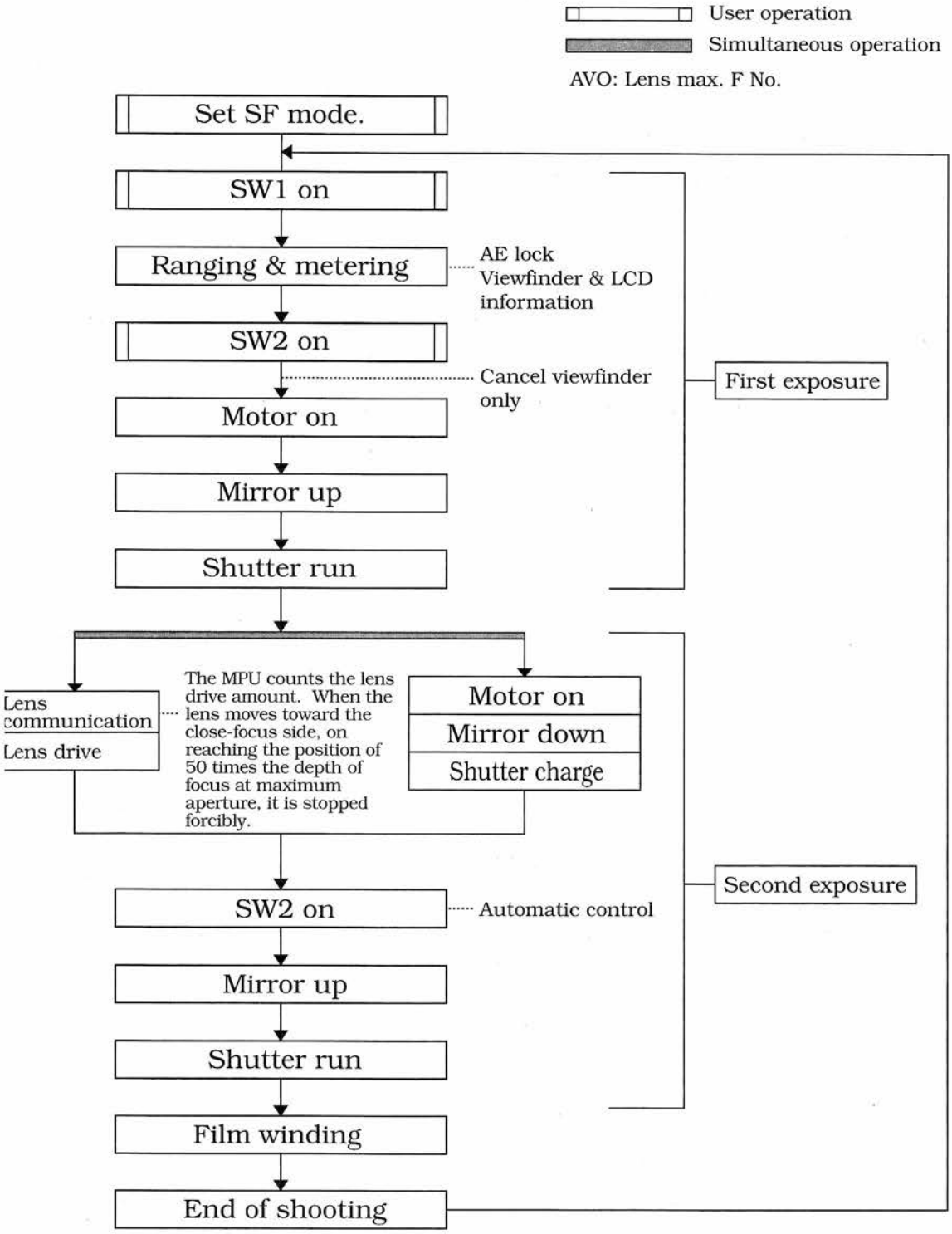


Table 2-2 SOFT FOCUS EFFECT OUT-OF-FOCUS CONDITIONS AND LENS DRIVE OPERATION

Out-of-focus amount necessary for soft focus effect	Lens stop position for second exposure	Warning
(1) Specified out-of-focus amount satisfied 100%	→Lens driven toward close-focus side to the position of 50 times the depth of focus at maximum aperture.	–
(2) Specified out -of-focus amount satisfied 70% or more	→Lens driven to the close-focus limit.	
(3) Specified out -of-focus amount satisfied less than 70% and maximum defocus amount less than 35%	A: →Lens is driven to the close-focus limit and then toward infinity until (1) is satisfied	
	B: →Lens is driven to the close-focus limit and then to the infinity limit.	
(4) Specified out-of-focus amount > Maximum defocus amount	When SW-1 goes on, the soft focus level value in the display blinks at 2Hz to warn about soft focus. If the picture is taken in the warning state, the focus position will be either at the close-focus limit or the infinity limit, and the desired soft focus effect may not be obtained.	●

2.5 CONDITIONS FOR EFFECTIVE SOFT FOCUS RESULTS

As explained in the second exposure and out-of-focus conditions, it is necessary to have shooting conditions (e. g., subject distance, lens zoom setting) that allow the lens to be driven toward the close-focus side by an amount equivalent to 50 times the depth of focus at maximum aperture (50 x AVo x diameter of acceptable circle of confusion) for the second exposure.

In other words, it is important to use a telephoto focal length and maintain an appropriate shooting distance. With the general-use lenses most likely to be used, these conditions translate as follows:

(1) Single focal length lenses: EF50mm f/1.8II - Make sure the shooting distance is greater than 1.1 m.

(2) Zoom lenses: See Tables 2-3~6. In each case, focal lengths shorter than the shortest listed focal length will not satisfy the specified out-of-focus amount conditions, so should be avoided.

Table 2-3 EF 35-80mm f/4-5.6 ULTRASONIC

Focal length	Recommended shooting distance
70mm	1.2m or greater
80mm	0.9m or greater

Table 2-4 EF 35-105mm f/4-5.6 ULTRASONIC

Focal length	Recommended shooting distance
100mm	2.5m or greater
105mm	2.3m or greater

Table 2-5 EF 80-200mm f/4.5-5.6 ULTRASONIC

Focal length	Recommended shooting distance
135mm	4.2m or greater
150mm	3.2m or greater
200mm	2.3m or greater

Table 2-6 EF 75-300mm f/4-5.6 ULTRASONIC

Focal length	Recommended shooting distance
100mm	8.9m or greater
135mm	2.8m or greater
200mm	2.0m or greater
300mm	1.7m or greater

Also, when using a lens with a focus limiter function (such as a macro lens), set the lens for unlimited full-range operation.

2.6 EFFECTIVE SOFT FOCUS SHOOTING DISTANCE

1)Use of a medium-telephoto lens (TELE side of standard zoom lens) or longer focal length lens.

2)The subject should remain as still as possible until both exposures have been completed.

3)For human subjects (portraits), "SF-1" is usually the best choice since it keeps the image somewhat sharp.
However, light-colored, uniform-tone backgrounds such as white walls should be avoided. (The blurred background highlights tend to close in on the subject, degrading the effect.)

4)The highlight areas of the main subject should be moderate (not harsh) for best effect.

2.7 MISCELLANEOUS

As regards combining the soft focus function with other functions, the following should be noted.

1)If a picture is taken in soft focus mode with an EF lens set for manual focus operation, the camera automatically switches the exposure control mode to Program AE and the film transport mode to single-frame shooting. (Same operation if no lens is mounted in soft focus mode.)

2)If soft focus mode is set while multiple exposures are still preset, priority is given to soft focus operation. After the soft focus picture has been taken, the preset multiple exposures are automatically cancelled.

3. SWITCH NAMES AND FUNCTIONS

Note: In an effort to improve feedback communications between field service and product design, Camera Service will use the symbols designated by product design, even when they do not follow standard practice

* : Operational switch

	No.	Symbol	Name	Function
*	1	SW1	Ranging & metering switch	ON → Ranging and metering
*	2	SW2	Release switch	ON → Shooting start
*	3	Main/Mode SW (Self SW)	Main/mode switch (self switch)	Shooting mode selection and power off function, Self-start begins by turning the switch on in self mode.
	4	BP SW	Back cover switch	Back cover (open)→ ON, back cover (close) → OFF AL and prewind starts if the cartridge switch is on (with film) when the back cover is closed.
*	5	AVM-COMP SW	Exposure compensation switch	ON→ Exposure compensation value can be selected. Compensation up to two stops can be selected and set in 1/2 stops by the dial switch.
*	6	Part SW	AE lock switch	ON → AE lock after partial metering
*	7	Dial SW 1, 2	Dial switch	The following six items can be set with other switchs: · Program shift · Exposure compensation value · Shutter speed · ISO sensitibity · Aperture · Number of multiexposure
	8	MIF SW	Lens switch	Detects the attachment and removal of the lens. Attachment → ON (VDD) Removal → OFF (OPEN)
	9	Reset SW	Reset switch	The electric circuit is reset with the battery is installed. Battery installation → OFF (OPEN)
	10	PTIN SW	Cartridge switch	Detects whether there is a film. Film → OFF (OPEN)
	11	Pop End SW	Flash extended switch	Charging starts if Flash is extended completely.
	12	CN2	Back curtain switch	Detects the completion of second curtain travel. Travel completion → OFF (OPEN)
	13	X SW	Flash firing switch	ON (GND) → Firing
	14	CMSP SW CMOR SW	Shutter phase switch	Detects the shutter charge and mirror up/down condition.
	15	FLDY FLMV	Film phase switch	Controls film transport.
	16	DX1 DX2 DX3 DX4 DX5	DX code switch	Detects film ISO sensitivity by DX code.

4. ELECTRICAL PARTS

4.1 MAIN FLEX UNIT

SYMBOL	Spec./MFG.#	Function
AE	LC3072	Metering (three-section metering sensor)
I/O	TB1106F	Controlled by the MPU with an interface between the MPU and the lens, flash, back cover, BASIS as the main function.
MPU	MC68HC-11E8FU	Sequence control of entire system Control of AF operation, communication with the lens,BASIS,shutter, DX read, film transport SW detection, LCD1, and LCD2
FLASH CTL (FLASH MODELS ONLY)	LC4067A	Used only for models with built-in flash. This IC is also used in the EOS 10 and flash-equipped original EOS 1000. Controls the flash circuit and lighting of the AF auxiliary light.
MTDR	MPC1710A	Controls the motor with the same IC as for the EOS camera.
T−MOS	SFX−10	Swith IC for supplying the power (VBAT2) to the lens.
TRmg3-1, TRmg3-2	RN1406	Swithing transistor for control of first and second curtain magnets
TRaux	2SC2982	For ignition of the AF auxiliary light
RVPP, RFAR RCMOR, RCMSP RFLMV, RFLDY RCN2, RSELF	—	For noise prevention
Rdx4, Rdx5	—	For pull-up
CVRH, CMPU CIO, CVC, C10 CSPC, CVBAT Cato, CBA2 CVREF, CEM	—	For stabilizing the power supply
CTRAP	—	For noise prevention
FAR	12MHZ	Clock for operating and controlling the MPU

4.2 LCD FLEX UNIT

SYMBOL	Spec./MFG.#	Function
LCD Driver	SN103931	Swith detector and driver for LCD1 and LCD2
XTAL	32KHZ	Clock for driving LCD DR
CVH, CVM, CVL, C13, C12	—	Time constant
C LCD	—	For stabilizing VDD

4.3 AF UNIT

SYMBOL	Spec./MFG.#	Function
BASIS	LC4016	Autofocus sensor

4.4 FLASH CIRCUIT BOARD

SYMBOL	Spec./MFG.#	Function
TR1, TR2	—	Controls the start and stop of flash charging
Thv	—	Transformer for charging the flash
C6	—	Main capacitor
SCR1	—	For starting the firing of the built-in flash.
R2, R3, C4	—	Elements for detecting charging completion

4.5 PENTAPRISM CIRCUIT BOARD

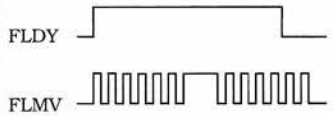
SYMBOL	Spec./MFG.#	Function
SCR11	CRO2AM-8	For built-in flash termination
R11	1kΩ	Current limiter
C11	0.01μf	Noise prevention

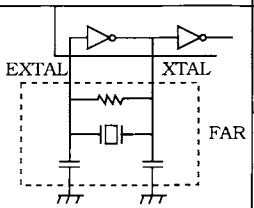
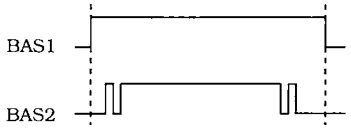
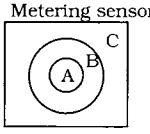
4.6 RED EYE CIRCUIT BOARD

SYMBOL	Spec./MFG.#	Function
TRRED	25D1950	For ignition of the Red eye lamp
RRED	1kΩ	Noise prevention
ZDRED	—	Noise prevention

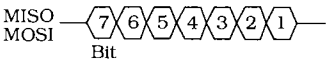
5. IC PIN DESCRIPTION

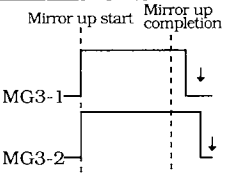
5.1 MPU

<table>
<tr><th>NO</th><th>Name</th><th>I/O signal</th><th>NO</th><th>Name</th><th>I/O signal</th></tr>
<tr><td>1</td><td>SW2</td><td>Release start switch. Normally high because it is pulled up to E1.
SW2 on: 0
SW2 off: 1</td><td>15</td><td>CMSP</td><td rowspan="2">Detect the mirror up completion position and charging completion position according to the combination of CMSP and CMOR.
<table><tr><th></th><th>Mirror up completion</th><th>Charging completion</th></tr><tr><td>CMSP</td><td>0</td><td>1→0</td></tr><tr><td>CMOR</td><td>1→0</td><td>1</td></tr></table></td></tr>
<tr><td>2</td><td>NC</td><td>Unused</td><td rowspan="2">16</td><td rowspan="2">CMOR</td></tr>
<tr><td>3</td><td>NC</td><td>Unused</td></tr>
<tr><td>4</td><td>NC</td><td>Unused</td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>REV</td><td rowspan="2">Rotate the motor forward or in reverse according to combination of FWD and REV.
<Forward rotation>
Prewind
Rewind
<Reverse rotation>
Mirror up
Mirror down
Charge
<table><tr><th>FWD</th><th>REV</th><th>Motor</th></tr><tr><td>1</td><td>1</td><td>Brake</td></tr><tr><td>1</td><td>0</td><td>Forward rotation</td></tr><tr><td>0</td><td>1</td><td>Reverse rotation</td></tr><tr><td>0</td><td>0</td><td>Open</td></tr></table></td><td>17</td><td>FLDY</td><td rowspan="2">Detect the film control and stop signal according to the timing of FLDY and FLMV.
(Rewind)
 
</td></tr>
<tr><td>6</td><td>FWD</td><td>18</td><td>FLMV</td></tr>
<tr><td>7</td><td>EFCG</td><td>Built-in flash/main capacitor charge start signal
EFCG 1: Charging
EFCG 0: Charging stop</td><td>19</td><td>DX5</td><td rowspan="2">Read DX. □ Ground
■ Open
ISO G 2 3 4 5 6
25 □■■■□■ G-GND
50 □□■■□■ 2-DX1 ┐
100 □■□■□■ 3-DX2 ┤ DX1, DX2, and DX3 are monitored by the I/O.
200 □□□■□■ 4-DX3 ┘
400 □■■□□■ 5-DX4 ┐
800 □□■□□■ 6-DX5 ┘ DX4 and DX5 are monitored by the MPU.
1600 □■□□□■
3200 □□□□□■</td></tr>
<tr><td>8</td><td>EFINH</td><td>Built-in flash firing permission signal
(Built-in flash charging-complete detection inhibition/auxiliary light inhibition)
EFINH 1: Flash firing inhibition/ charging-complete detection inhibition
EFINH 0: Flash firing possible/ charging-complete detectable</td><td>20</td><td>DX4</td></tr>
<tr><td>9</td><td>CSLCD</td><td>Select signal during communication with LCD/Dr
CSLCD 1: LCD/Dr select
CSLCD 0: Communication with I/O
Standby
CSIOA : 0
CSIOB : 0
CSIOC : 0</td><td>21</td><td>VRL</td><td>A/D converter minimum input voltage setting pin
A−GND</td></tr>
<tr><td>10</td><td>CSIOC</td><td rowspan="3">Select communication function according to combination of CSIOA, B, and C.
<table><tr><th>A</th><th>B</th><th>C</th><th>I/O select signal</th></tr><tr><td>0</td><td>0</td><td>0</td><td>Standby</td></tr><tr><td>1</td><td>0</td><td>0</td><td>Lens communication</td></tr><tr><td>0</td><td>1</td><td>0</td><td>Flash communication</td></tr><tr><td>1</td><td>1</td><td>0</td><td>Reserved</td></tr><tr><td>0</td><td>0</td><td>1</td><td>DADT</td></tr><tr><td>1</td><td>0</td><td>1</td><td>EFDT</td></tr><tr><td>0</td><td>1</td><td>1</td><td>AEFR</td></tr></table></td><td>22</td><td>VRH</td><td>A/D converter maximum input voltage setting pin
3.2V±5%</td></tr>
<tr><td>11</td><td>CSIOB</td><td>23</td><td>DGND</td><td>MPU ground
Digital ground</td></tr>
<tr><td>12</td><td>CSIOA</td><td>24</td><td>DGND</td><td>Digital ground</td></tr>
<tr><td>13</td><td>IOAD</td><td>This pin switches the I/O analog input signal to FADS and outputs it to the MPU. The voltage applied to this pin is digitized. (0-3.2V)
<table><tr><th>FAD3</th><th>FAD2</th><th>FAD1</th><th>IOAD output</th></tr><tr><td>0</td><td>0</td><td>0</td><td>AR1IN</td></tr><tr><td>0</td><td>0</td><td>1</td><td>DX1</td></tr><tr><td>0</td><td>1</td><td>0</td><td>DX2</td></tr><tr><td>0</td><td>1</td><td>1</td><td>DX3</td></tr><tr><td>1</td><td>0</td><td>0</td><td>AFAD</td></tr><tr><td>1</td><td>0</td><td>1</td><td>TEMP</td></tr><tr><td>1</td><td>1</td><td>0</td><td>VBAT</td></tr><tr><td>1</td><td>1</td><td>1</td><td>DAOUT</td></tr></table></td><td>25</td><td>MODB</td><td>Used with MODA to switch the MPU mode.
Communication is made possible by making MODB low.</td></tr>
<tr><td></td><td></td><td></td><td>26</td><td>NC</td><td>Unused</td></tr>
<tr><td></td><td></td><td></td><td>27</td><td>MODA</td><td>Same as MODB</td></tr>
<tr><td>14</td><td>NC</td><td>Unused</td><td>28</td><td>NC</td><td>Unused</td></tr>
</table>

NO	Name	I/O signal
29	ECLK	1/4 the frequency (12MHz) input to EXTAL and XTL with the I/O reference clock 3MHz
30	NC	Unused
31	EXTAL	FAR oscillator input example 12MHz
32	NC	Unused
33	XTAL	FAR oscillator output example 12MHz 
34	TINTE	BASIS accumulation start/end signal (accumulation state) Start ← Accumu-lation → End
35	NC	Unused
36	BAS1	Clock used to generate the BASIS drive clock 
37	BAS2	
38	CAGC	BASIS bit switching
39	S0	Switch the metering sensor output according to the combination of S0 and S1. Metering sensor 
40	S1	
41	VB2ON	Signal used to output the lens drive power VB20N goes low when lens communication is OK. ↓ T-MOS turns on.
42	NC	Unused
43	RESET	MPU reset signal (Malfunction prevention on rising edge of DC/DC) If E1 becomes 4.2V or less, the I/O makes this pin low. RESET 0: Reset

	SO	SI
A	1	1
B	0	1
C	1	0
C	0	0

NO	Name	I/O signal
44	NC	Unused
45	E1	XIRQ : Asynchronous interrupt pin IRQ : Asynchronous interrupt pin after reset Pulled up to E1 because it is not used.
46	E1	
47	NC	Unused
48	NC	Unused
49	DGND	Digital ground
50	TXD	Special boot transmit data pin Communicate with the PC.
51	MISO	MISO : Serial communication signal I/O →MPU-LCD MOSI : Serial communication signal MPU →I/O-LCD SCLK : Serial communication asynchronous signal MPU →I/O-LCD
52	MOSI	
53	SCLK	 Transmit the MSB (bit 7) directly first.
54	REDEYE	Red lamp lighting
55	E1	5.5±0.4V
56	AUX	Auxiliary light output signal AUX 1: Auxiliary light LED on (When PWR is high)
57	BEEP	Sound generator frequency signal 8 Hz: In-focus sound/self 2 Hz: Self
58	LEDMD	Viewfinder LED intensity modulation Duty ratio 1/8 to 31/32 EV8 to EV14 (3/4)
59	MG3-2	Second shutter curtain run signal See 62
60	NC	Unused

NO	Name	I/O signal	NO	Name	I/O signal
61	NC	Unused	63	CN2	First shutter curtain run completion signal CN2 1: First curtain run
62	MG3-1	First shutter curtain run signal MG3-1 0 : Run start MG3-1 MG3-2 0 : Run start MG3-2 	64	LBUSY	Lens communication clock

5.2 I/O

NO	Name	Function	NO	Name	Function
1	VBAT	Battery check input pin (battery voltage is input) VBAT/2 is output to the IOAD pin.	15	/TINTE	BASIS accumulation start/end signal Pulled up in the I/O. H · · · Accumulation start MPU → I/O L · · · Accumulation end I/O → MPU
2	/PWR	Output pin that monitors VBAT (voltage drop detection) Goes low when VBAT is less than 2.3V Low : Motor on inhibition : Flash charging inhibition : Built-in auxiliary light on inhibition	16	ECLK	I/O reference clock 3 MHz (input from the MPU)
3	NC	Unused	17	LEDMOD	Viewfinder LED intensity modulation input pin (500Hz) Output from the MPU.
4	NC	Unused	18	CSIOC	Select communication function according to the combination of CSIOA, B, and C.
5	VC	Camera system reference output voltage The voltage is not changed by temperature. The metering IC in the I/O is used for the reference voltage VC=1.22±0.05V	19	CSIOB	
6	VRH	MPU A/D converter reference voltage. The MPU divides the potential difference (3.2V) between VRH and VRL by 256 and performs digitization. Supplied to the MPU. VRH=(3.2/1.22) VC±3% [≒ 3.2V]	20	CSIOA	
7	CT	Flash integration capacitor (220pF) connection pin Normally the same level as VRH 3.2V Flash completion 2.2V	21	E1	I/O digital system power supply 5.5±0.4V
8	ANOD	Flash sensor anode connection pin Shorted with AGND.	22	SCLK	Serial communication (MISO, MOSI) synchronous signal Synchronized on the rising edge.
9	CATD	Flash sensor cathode connection pin	23	D-GND	I/O digital system ground
10	NC	Unused	24	MOSI	MOSI : Serial communication MPU → I/O MISO : Serial communication I/O → MPU MOSI MISO bit7 bit8 ---- bit0 SCLK
11	DATE	Data Back imprinting control. Low: Shutter charge (Normally 1.6V) Changes the printing time (output low time) depending on the film speed.	25	MISO	
12	/RES2	Monitors the E1 potential. If E1 becomes 4.2V or less, this pin goes low. Low: LCD/Dr, MPU reset	26	LCLK	Lens communication (serial) synchronous signal Low during lens aperture drive (LBUSY) Low for one-byte communication (LBUSY)
13	BAS2	BASIS drive waveform generation reference clock (Input from the MPU) Pulled up in the I/O. BAS1 BAS2	27	LIN	LIN : Lens serial communication (lens → I/O) LOUT : Lens serial communication (I/O → lens) LIN LOUT bit7 bit8 ---- bit0 LCLK
14	BAS1		28	LOUT	

C	B	A	I/O selection
0	0	0	STANBY
0	0	1	Lens communication
0	1	0	Flash communication
0	1	1	Reserved communication
1	0	0	D/A data
1	0	1	EFID
1	1	0	AEAF
1	1	1	(TEST)

NO	Name	Function	NO	Name	Function
29	NC	Unused	43	STSP	Flash communication clock (synchronized on the rising edge) 65.5 kHz Low: Flash firing permission Stop flash firing when this pin goes high.
30	ΦST2	BASIS drive clock	44	EFID	Flash communication pin (camera→flash)
31	ΦST1	BASIS drive clock	45	AVEF	Flash communication pin (flash→camera)
32	ΦSR2	BASIS drive clock	46	CCC	CCC pin voltage 1.22V (VC)---Flash charging completion detection 1.22V (VC)---External flash, pre-firing 3.2V (VRH)---External flash, AF auxiliary light
33	Φ HRS	BASIS drive clock	47	TEMP	Insert a diode for AGND. (MA151A) Passes a 50-μA constant current, amplifies the voltage by four, and outputs the voltage to IOAD. When the temperature falls, the diode output (VF) increases.
34	ΦSR1	BASIS drive clock	48	IREF	The resistor (12.2kΩ) for current source adjustment is connected. I/O constant-current source, supplied to CCC, TEMP, AELED, AFLED.
35	Φ T	BASIS drive clock	49	VREF	AF sensor BASIS signal reference potential If E1=E2=5.5±1V, VC changes, and there is no load, or there is a 3-mA DC load or a 15-mA, 20-μs pulse load, Output voltage=1.9 ± 0.1 V
36	ΦRES	BASIS drive clock	50	VD	BASIS dark level (output when illumination is 0)
37	ΦVRS	BASIS drive clock	51	VP	BASIS peak level
38	Φ 2	BASIS drive clock	52	VIDEO	BASIS output for each bit
39	Φ 1	BASIS drive clock	53	A-GND	Analog system ground
40	AELED	Viewfinder LED on pin Change the LED intensity with the duty ratio input to LEDMOD. LED current=20mA	54	QVC	I/O AF amplifier reference power supply. AFAD amplifier, VP-VD comparator, DAC offset
41	AFLED	The pin is shared by AELED, but is not used by software.	55	E2	I/O analog system power 5.5±0.4V
42	STSP2	Stops the built-in flash firing. Stops on the rising edge.	56	IOAD	Output for each sensor and other analog signal output Select AR11N, DX1, DX2, DX3, AF AD, TEMP, VBAT, or DAOUT according to communication.

NO	Name	Function
57	AR1IN Metering sensor output input pin	Metering sensor output input pin
58	DX1 Film DX code input pin	DX read ISO G 2 3 4 5 6 25□■■■□■ G-GND 50□□■■□■ 2-DX1 ┐ DX1, DX2, and 100□■□■□■ 3-DX2 ┤ DX3 are monitored 200□□□■□■ 4-DX3 ┘ by the I/O. 400□■■□□■ 5-DX4 ┐ DX4 and DX5 are 800□□■□□■ 6-DX5 ┘ monitored 1600□■□□□■ by the MPU. 3200□□□□□■ □ GND ■ Open A current of 2mA flows through each DX source to read DX.
59	DX2 Film DX code	
60	DX3 Film DX code input pin	

5.3 LCD DR

PIN.NO	Name	Function
1	SW1	Release button first-stroke detection signal (metering switch) ON : Low OFF : OPEN
2	MIF	Lens mount completion signal (MIF detection switch) Lens mount completion : High Not mounted : Open
3	NC	Unused
4	NC	Unused
5	NC	Unused
6	NC	Unused
7	NC	Unused
8	NC	Unused
9	DIAL 1	Electronic dial SW input Determines the rotational direction according to the timing of the two signal inputs (DIAL1 and DIAL2) of the dial pad, which are generated by rotating the electronic dial, and increments or decrements the built-in counter. The counter data is output by communication with the MPU, and reset.
10	DIAL 2	
11	GND	IC drive power supply (negative side) DGND system
12	E1ON	DC/DC converter on/off control signal output When the PUC pin goes high and each SW input changes, the LCDdr circuit (MISO) makes E1ON low, raises E1/EM, and turns off by communication with the MPU. Since switch input has higher priority than turn-off by communication with the MPU, the DC/DC converter is kept on if the switch is on. If the MPU sends OFF, then makes CSLCD low (communication end), a low pulse is always output to RES2 so it can be distinguished from a malfunction due to another cause. Forced off if the battery error circuit functions. E1/EM on: Low E1/EM off: High (open collector)
13	NC	Unused
14	TRAP	I/O RES2 output monitor input pin This pin is used to monitor the I/O RES2 output. The MPU is reset and the battery error circuit is controlled according to the input to this pin. I/O RES2 output E1>4.2V : Hi E1>4.2V : Low
15	CSLCD	Chip select signal This pin is used for chip selection if communication with LCDdr is performed. Communication: High
16	NC	Unused

PIN.NO	Name	Function
17	RES2	MPU reset output The MPU is initialized (reset) by the output (low) from this pin. When battery error function operates: Forced low PUC=Low: Low TRAP=Low: Low If CSLCD goes low after the MPU sends E1OFF by communication (communication end), a low pulse is output.
18	MOSI	Serial communication data input pin MPU-LCD/IO
19	SCLK	Serial communication synchronous signal input pin
20	MISO	Serial communication data output pin LCD/IO-MPU
21	NC	Unused
22	PUC	Power-up clear pin When this pin is low, all functions, including the LCDdr battery error circuit, are reset. This pin is pulled up internally by 200kΩ. To prevent malfunction, the low (reset) state is kept until the power stabilizes when a battery is installed. This is done by charging the capacitor when the power (VDD) is turned on by connecting the capacitor to the output.
23	NC	Unused
24	NC	Unused
25	TEST2	Unused
26	CLK32K	XTAL frequency external output
27	TEST1	Unused
28	XTAL1	Oscillator connection pin 1 (in) 32.768kHz
29	NC	Unused
30	NC	Unused
31	NC	Unused
32	VL	The three-level liquid crystal drive voltage is generated by stepping up the built-in regulator output of 1.5V. Liquid crystal drive voltage smoothing capacitor connection pin: VL, VM, VH VL=Regulator voltage (1.5V) VM=VL x 2 (3.0V) VH=VL x 3 (4.5V) Liquid crystal drive voltage step-up circuit capacitor connection pin: CHP1, CHP2, CHP3 Connect the capacitor for stepping up VL to generate VM and VH.
33	VM	
34	VH	
35	CHP3	
36	CHP2	
37	CHP1	
38	VDD	IC drive power supply (positive side) 3.5 to 6.5V DC/DC converter VDD output, to which power is always supplied from VBAT and E1 through a diode

PIN.NO	Name	Function
39	SEG26	SEG1 to SEG26 LCD segment output COM1 to COM3 LCD common output OLC (external liquid crystal display)/ILC (viewfinder internal liquid crystal display) drive output pins that display according to combinations of COM output, SEG output, and output voltage Each SEG pin has a display for three COMs, and one SEG output controls three displays at the same time.
40	SEG25	
41	SEG24	
42	SEG23	
43	SEG22	
44	SEG21	
45	SEG20	
46	SEG19	
47	SEG18	
48	SEG17	
49	SEG16	
50	SEG15	
51	SEG14	
52	SEG13	
53	SEG12	
54	SEG11	
55	SEG10	
56	SEG 9	
57	SEG 8	
58	SEG 7	
59	SEG 6	
60	SEG 5	
61	SEG 4	
62	SEG 3	
63	SEG 2	
64	SEG 1	
65	COM3	
66	COM2	
67	COM1	
68	LIN	Lens communication (DLC) monitor output When this pin is made low, the DC/DC converter turns on. (A low signal is output from the E1ON pin.) If VBAT2 (lens distance ring, aperture, or zoom drive power supply) needs to be turned on by the lens when the DC/DC converter is off, the lens outputs a low signal to DLC. The DC/DC converter is turned on and the MPU starts. If this pin is kept low for some reason, the DC/DC converter is kept on.

PIN.NO	Name	Function
69	PART	Partial metering button (AELOCK) input ON : Low OFF : OPEN
70	MAIN4	Main dial input The MPU reads the combination of four inputs by communication and determines the mode. Modes and combinations
71	MAIN2	
72	MAIN1	
73	MAIN3	

MODE	MAIN1	MAIN2	MAIN3	MAIN4
ISO	1	0	0	0
	1	0	1	0
	0	0	1	0
SF	0	1	1	0
DEP	1	1	1	0
M	1	1	1	1
Av	0	1	1	1
Tv	0	0	1	1
P	1	0	1	1
	1	0	0	1
	0	0	0	1
	0	1	0	1
	1	1	0	1
	1	1	0	0
	0	1	0	0

0 : Low 1 : OPEN

PIN.NO	Name	Function
74	NC	Unused
75	PTIN	Cassette detection switch input Cassette present : Open Cassette absent : Low
76	POPEND	Built-in flash up/down detection switch input UP : Low DOWN : OPEN
77	AVM • COMP	Manual AV/exposure correction button input ON : Low OFF : OPEN
78	NC	Unused
79	BP	Back open/closed detection switch input Back open : Low Back closed : Open
80	NC	Unused

5.4 OTHER ICS

See the EOS 1000QD/REBEL manual.

Part 3 REPAIR INFORMATION

1. PRELIMINARY INSTRUCTIONS & CAUTIONS

1.1 ASSEMBLY, DISASSEMBLY, AND REPAIR

Except for the addition of the red-eye reduction lamp and its wiring, this model is physically identical to the original EOS 1000 - Rebel series cameras. For this reason, the Assembly and Disassembly portion of the Repair Instructions has not been included. Refer to the original EOS 1000 - Rebel Service Manual (CY8-1200-072R). For wiring and lead dress, refer to the Wiring Diagrams in this manual.

1.2 BLEED THE MAIN CAPACITOR

Whenever either of the covers are removed, always bleed the main flash capacitor. There is VERY good chance that it is charged, and it must be discharged before commencing repair work. Bleed at either set of connections shown in the drawing.

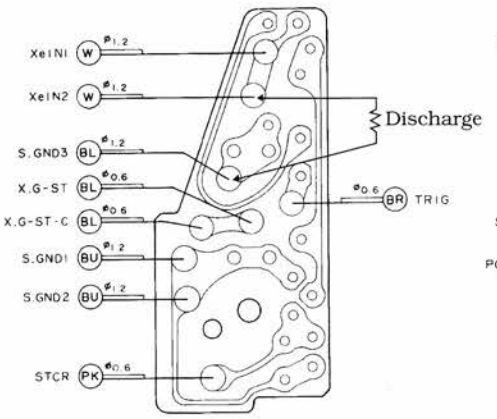


Fig. 3-1 Penta Board

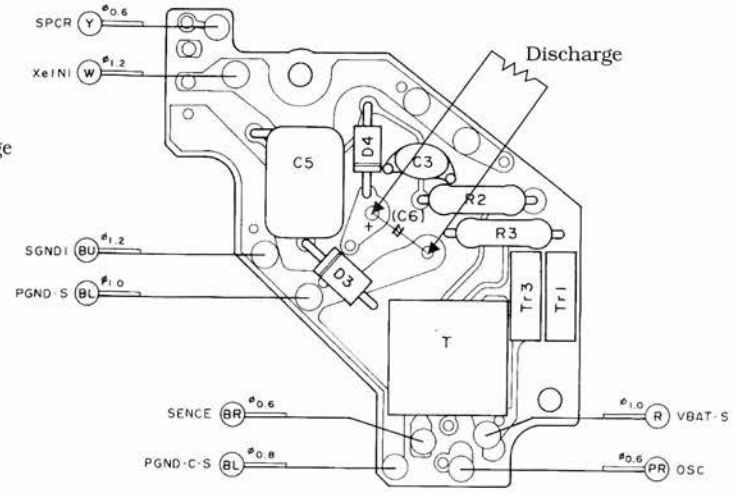


Fig. 3-2 Bottom Board

1.3 FRAME COUNTER

As in the original EOS 1000 - Rebel, remove the film, close the back cover and release the shutter once. (The shutter must be released once to insure that the gear train has switched to the prewind position.)

1.4 CURRENT CONSUMPTION STANDARD

The current consumption product standards and actual values are listed below.

Lens:	EF50mm/1.8
Power source:	Constant voltage source 5.4 V, 0.7Ω
	New 2CR5 lithium battery (within three months production)
Film:	New Tri-X (36-exp.) (during prewind or winding check).

	Product standard	Actual measured range
Standby (including LOCK)	50μA	18-25μA
SW1 ON	150mA	60-75mA
Self timer	200mA	60-75mA
Prewind (measuring the 20th frame)	700mA	280-400mA
Winding (measuring not immediately after start but during stability)	500mA or less	230-330mA

1.5 TOOLS AND EXPENDABLES

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

●Tools

New	Test Equipment	Part No.	Adjustment
	HS-I/F	CY9-7082-000	Electrical adjustment
	EF-8000 high-speed multi-camera tester	CY9-7073-000	Shutter, AE adjustment
	EF-500 multi-camera tester*	CY9-7020-000	Shutter, AE adjustment
	EF5300 shutter tester*	CY9-7066-000	Shutter adjustment
	Universal 90° collimator-3	CY9-7077-000	Sub-Mirror 45°angle adjustment
	Sub-mirror gage (45°)	CY9-7077-004	ditto
	Universal 500-mm collimator	CY9-7057-000	Viewfinder focus adjustment
	DC power supply (model 532C)	CY9-7038-000	Electrical adjustment
	Upper cover of tool battery	CY4-0071-000	ditto
	Lower cover of tool battery	CY4-0072-000	ditto
	Tool battery contact	CY4-0070-000	ditto
	Resistor (0.82Ω, 2W, 10%)	CY4-0073-000	ditto
	Dial gage	CY9-1001-006	Flange-Focal Plane (FFD) adjustment
	Auxiliary ring	CY9-1001-008	ditto
	Block gage (44.14 mm)	CY9-1001-007	ditto
	Optical flat	CY9-1001-003	ditto
	EF50 mm f/1.8 product lens (not type II)		
	18% gray paper		Exposure adjustment
	Reflectance paper 2%	CY9-1066-000	AF adjustment
	64%	CY9-1067-000	ditto
	90%	CY9-7076-000	ditto

*Unnecessary if EF-8000 is used

●Expendables

New	Expendable	Part No.	Use
	Bond G103	CY9-8002-000	Joining of front panel light shield screen Joining of hot shoe spring Hot shoe spring fixing screws
	Aron alpha 201	CY9-8007-000	Fixing of SPC
	Arontite L	CY9-8008-000	Flash fixing screw
	Three Bond 1401B	CY9-8012-000	AF sensor screws
	Silicon KE347B	CY9-8064-000	Pentaprism fixing
	PL015JG	CY9-8073-000	Spool, Prewind base
	ED-16	CY9-8075-000	Back cover latch pawl
	H-26	CY9-8079-000	Dial shaft Release button shaft Gear shafts, etc.
	IF-10	CY9-8088-000	Mount spring section
	Insulation tape (No.315)	CY9-9205-000	Main flex

2. ASSEMBLY AND DISASSEMBLY

Refer to the original EOS 1000 - Rebel Service Manual (CY8-1200-072R) for Assembly and Disassembly Procedures. For wiring and lead dress, refer to the Wiring Diagrams in this manual.

3. ADJUSTMENT

3.1 SUB-MIRROR 45° ANGLE ADJUSTMENT

Adjust the angle of the sub-mirror when the front panel unit or mirror unit is disassembled or replaced.

Purpose To adjust the sub-mirror vertically to obtain the mirror angle (45°). (Horizontal alignment is checked.)

Standard
Vertical 45° ± 10'
Horizontal 45° ± 13'

Tools
Universal 90° Collimator-3
Hex key (1.2mm)
Sub-mirror gage (45°)

Preparation Attach the sub-mirror gage (45°) to the universal 90° Collimator-3 to calibrate the sub-mirror magnifier. (Refer to the Universal 90° Collimator Operating Instructions for details on calibration.)

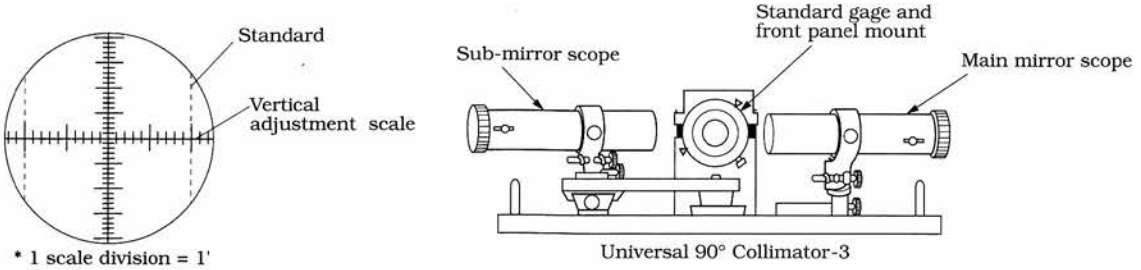


Fig. 3-3 Universal 90° Collimator

Adjustment
1) Attach the front panel unit to be tested with the mirror unit and no AF sensor unit to the universal 90° Collimator-3.
2) For vertical adjustment, use the hex key to turn the eccentric dowel in the mirror box, as shown in the below illustration.
3) After adjustment, directly connect constant voltage power to the motor. Apply 2 to 3 V for several seconds, so the mirror cycles up and down to check that it is within the standard.
4) If it is not within the standard, readjust it.

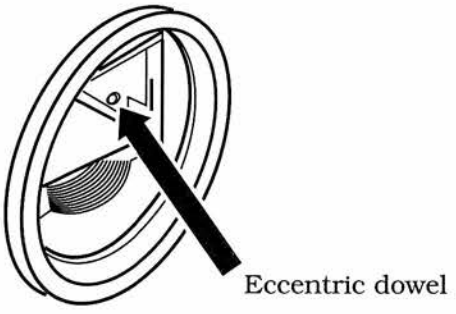


Fig. 3-4 Eccentric Dowel

3.2 AF SENSOR POSITIONING (HORIZONTAL)

* Position the AF sensor when the AF sensor unit is replaced. Adjustment is basically similar to the previous EOS cameras.

Purpose

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

Tools

•EF50 mm/1.8 (product) Pen light or illuminator

Standard

The center of the sensor must be inside the central AF frame, but adjust so it is as close to centered in the center focus frame as possible.

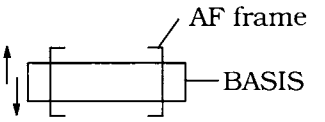


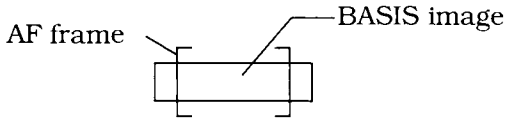
Fig. 3-5 AF Frame

Preparations

1. Use the body of the EOS series camera to stop down the EF50 mm/1.8 lens to f/8.
   - When EOS 10QD is used: Mount EF50 mm/1.8 and set the shutter to "B" and the aperture to f/8 in manual mode . Remove the lens while holding SW2 on.
   - When EOS-1/650/620/630/RT is used: Mount EF50 mm/1.8 and set the aperture to f/8 in the manual mode . Remove the lens while pressing the depth-of-field confirmation button.
2. Set the distance scale of the lens to the end (to make the AF frame clear).

Adjustment

1. Install EF50 mm/1.8 to the front panel with the mirror unit, focusing screen, and AF sensor unit (temporary).
2. Illuminating the AF sensor unit with a pen-light, look in the lens and check the AF frame and a BASIS image as shown below.



3. Move the AF sensor unit vertically to adjust the position of the sensor to the center of the AF frame.
4. Slightly tighten the screws in the AF sensor unit and apply Three Bond 1401B to the head of the screws.

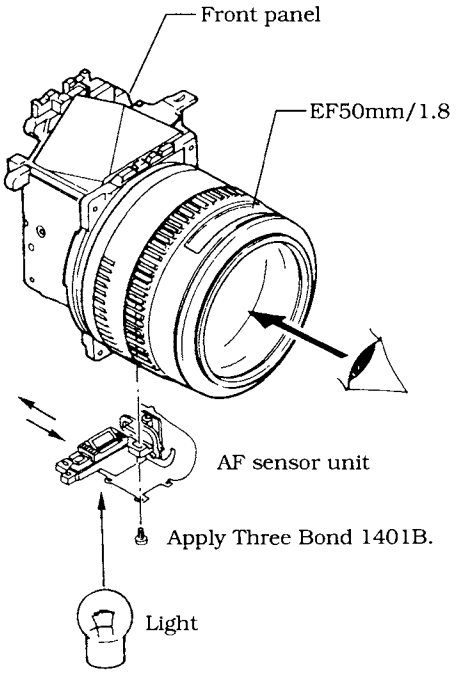


Fig. 3-6 AF Sensor Positioning

3.3 FLANGE TO FOCAL PLANE DISTANCE ADJUSTMENT

Adjust the FFD when the front panel unit or mount has been replaced. After adjustment, check the viewfinder focus.

Purpose Adjust the FFD to 44.14 mm.

Standard

FFD	44.14 ± 0.05 mm
Pressure plate center	44.17 ± 0.05 mm
Parallelism (difference in measured values at four corners)	0.03mm or less

* Use FFD data on the pressure plate center for electric adjustment AF basic adjustment.

Tools
Dial gage
Auxiliary ring (2 mm)
Optical flat
Flange gage (44.14 mm or 42.14 mm)

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

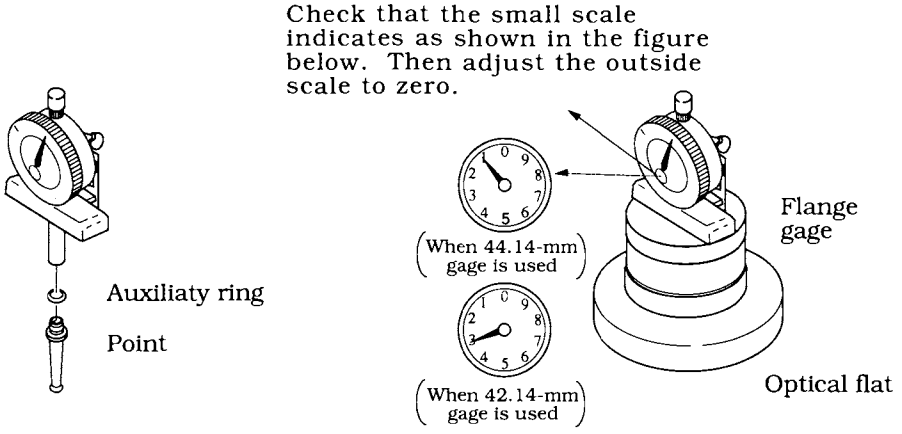


Fig. 3-7 Dial Gage

Adjustment

1)Set the display to bulb in the manual mode. Continue to press SW1 during adjustment.
2)Place the dial gage on the mount and measure the FFD.
3)If it is out of limit, change the mount spacer.
4)Measure the four corners of the pressure plate to check parallelism. If it is out of limit, change the adjustment washers.

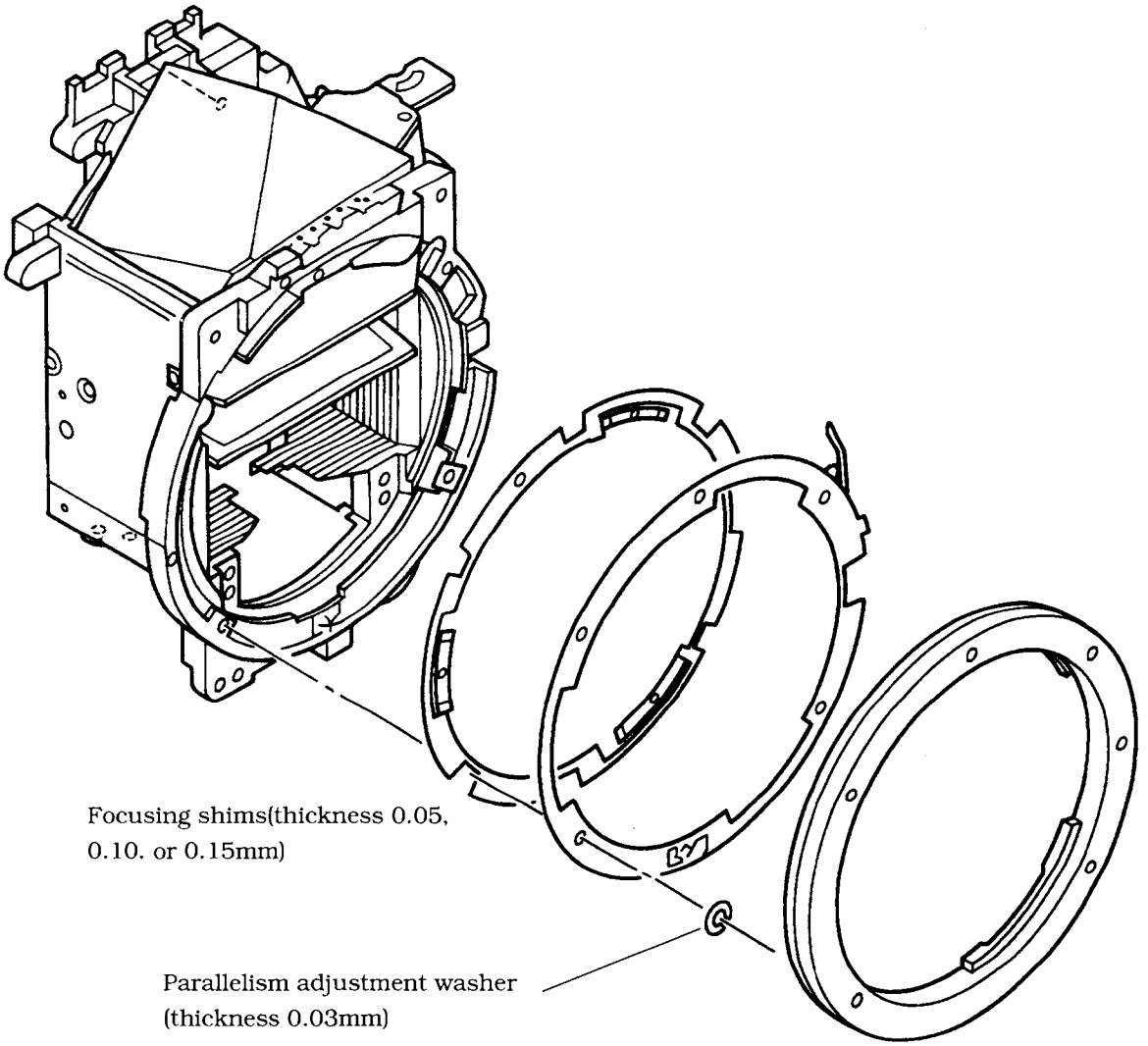


Fig. 3-8 Flange to Focal Plane Adjustment

3.4 VIEWFINDER FOCUS ADJUSTMENT

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

Purpose To match the viewfinder focus with the film focus position.

Tools
AD-S magnifier
EF50 mm/1.8
Universal 500 mm collimator

Adjustment
1) Install the magnifier on the eyepiece and adjust it to your eyesight. (The lens should not be installed at this point.)
Eyesight adjustment procedure
Aim the camera at a bright source (white wall or light source of shutter tester), and turn the eyesight adjustment ring of the magnifier until the focusing frame is as sharp as possible.
2) Install an EF50 mm/1.8 to set the focusing scale to manual.

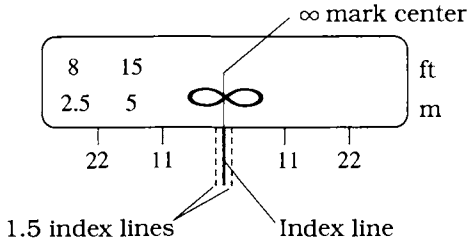
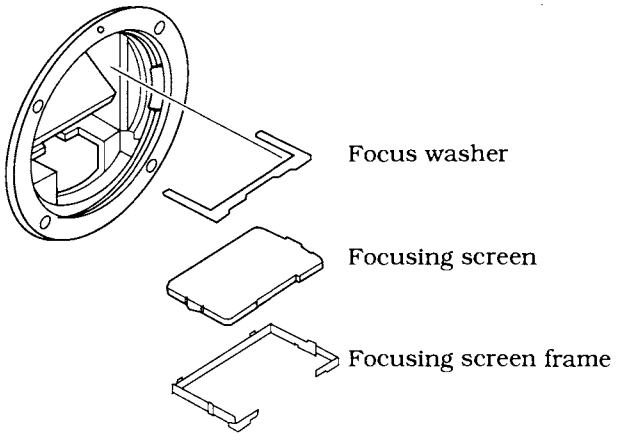


Fig. 3-9 Lens Focusing Scale

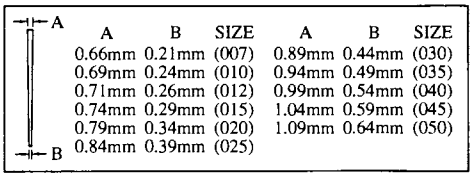
3) Find a distant target at least 250 meters away (lighting rod or chimney if possible) and select the sharpest focus washer.
4) If the collimator is used, select a focus washer in which the sharpest scale of the collimator can be seen.

Focus washer replacement

As shown in the figure below, pulling the focusing screen frame toward you lets you remove the focus washer with the focusing screen.



Focusing washers



A	B	SIZE	A	B	SIZE
0.66mm	0.21mm	(007)	0.89mm	0.44mm	(030)
0.69mm	0.24mm	(010)	0.94mm	0.49mm	(035)
0.71mm	0.26mm	(012)	0.99mm	0.54mm	(040)
0.74mm	0.29mm	(015)	1.04mm	0.59mm	(045)
0.79mm	0.34mm	(020)	1.09mm	0.64mm	(050)
0.84mm	0.39mm	(025)			

Fig. 3-10 Focusing Washers

4. ELECTRICAL ADJUSTMENTS

4.1 INTRODUCTION

The following electrical adjustments can be made.

Shutter adjustment:	Adjusting shutter speeds.
SPD positioning:	Positioning IC1 (AE IC).
AE accuracy adjustment:	Adjusting data output of IC1 (AE IC).
AF basic adjustment:	Adjusting data output of BASIS.
AF focus adjustment:	Adjusting focus data obtained from data output of BASIS.
Flash adjustment:	Adjusting the data output of the flash sensor.
Inhibit voltage adjustment:	Adjusting inhibit voltage for the camera.
Temperature correction:	Correcting data output of the temperature sensor.
AE shift:	Shifting foward overexposure or underexposure at user request.
Sensor data output:	Displaying data output from BASIS to check AF accuracy.
Focus data output:	Displaying focus data to check AF accuracy.
AF focus shift:	Correcting rare slight AF focus errors resulting from use of a lens with a short shallow depth of focus (EF50 mm f/1.0L or EF 85 mm f/1.2 L).
Self check:	Checking the liquid crystal displays (LCD) and beeper of the camera, and lens data communications.
Data transfer:	Initializing, storing, or transferring camera data.

4.2 ELECTRICAL ADJUSTMENTS FOR DISASSEMBLY AND REPLACEMENT

Table 3-1 Electrical Adjustment for Disassembly and Replacement

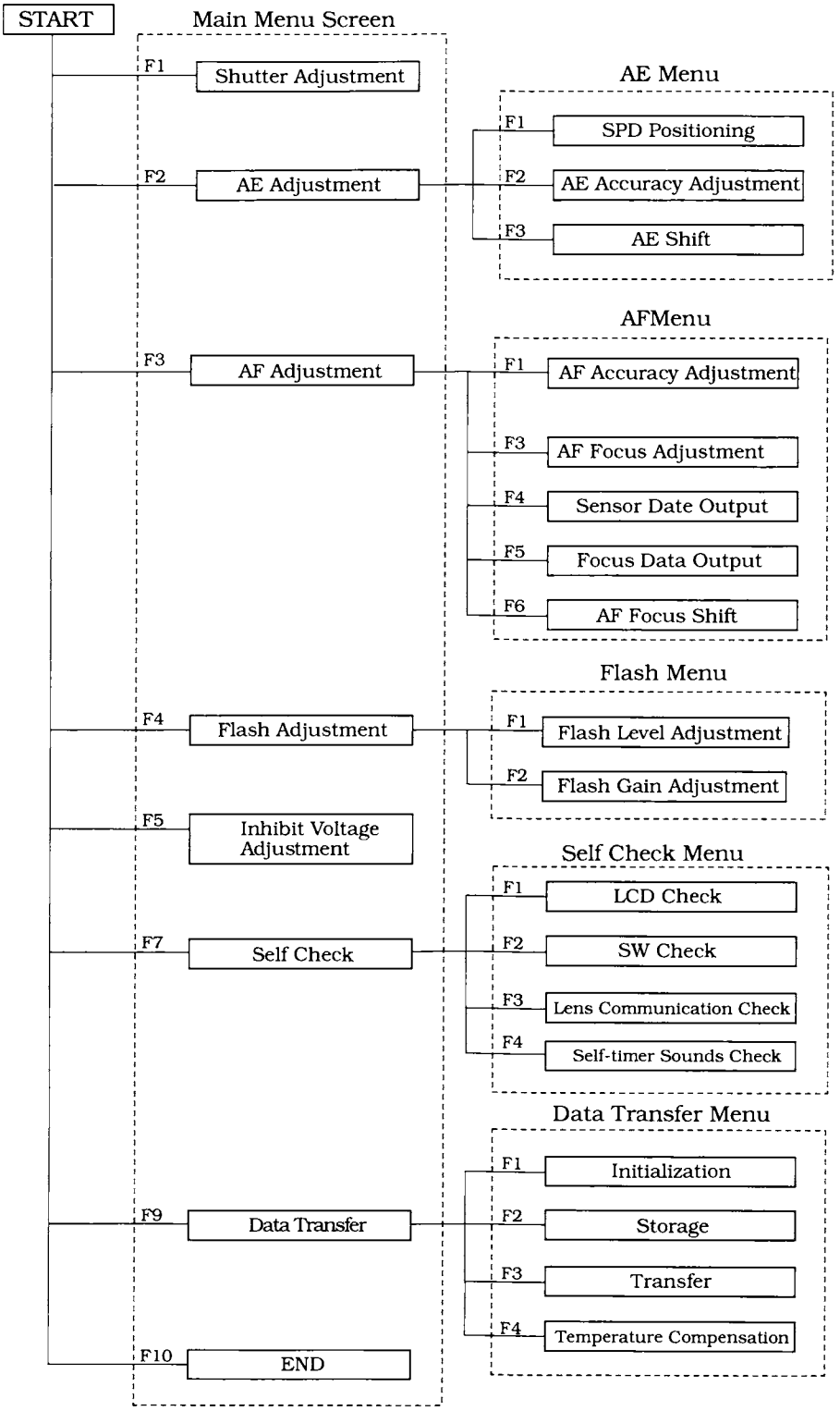
Adjustment / Replaced Parts	Initia-lization	Temperature correction	Inhibit voltage	Shutter	AE			AF			Flash
					SPD	Accuracy	Shift	Accuracy	Focus	Focus shift	
AE IC					●	●	▲				
I/O IC		●	●	●	●	●	▲	●	●		●
Main flex (Data not readable)	●	●	●	●	●	●	▲	●	●		●
Main flex (Data readable)		●	●		●	●					●
AF unit								●	●		
Shutter unit				●							
Mirror unit									●		

(Note) The items marked ▲ in the above table are optional.

(Note) Inhibit voltage adjustment and temperature correction must always be made immediately after initialization.

4.3 ADJUSTMENT ITEMS TABLE

Table 3-2 Adjustment Items Table



4.4 PREPARATION FOR ELECTRICAL ADJUSTMENTS

Electrical adjustments require the following tools and devices:

Personal computer: IBM PC/XT or later versions (Software for Japanese NEC PC98 series is available in Japanese only)
MS-DOS (PC-DOS) System (Version 3.1 x or later)
RS-232C cable
HS-I/F (hot shoe interface)
Adjustment software program (stored on a work disk)
Regulated DC power supply
Tool battery
Tripod
Light (approximately 500 W)
EF-800 (or EF-500/FS-5300)
Digital tester
Standard reflector
SPD positioning mask
AF reference chart
16mm bar chart
45° bar chart
Low-contrast chart

4.5 LOCALLY FABRICATED TOOLS

- SPD positioning mask
  Cut a hole in a piece of flat black paper as shown in the figure.

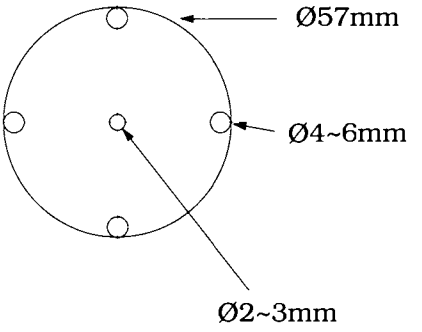
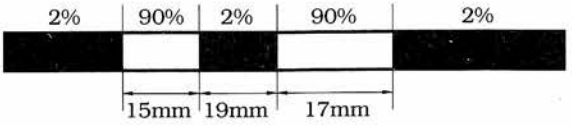


Fig. 3-11 Positioning Mask

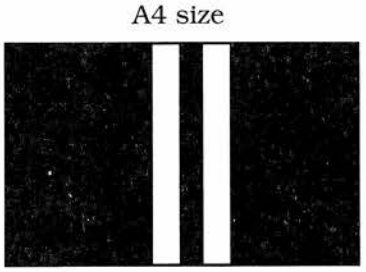
* Reflective Paper for Charts

Reflective paper (black) (2%)	CY9-1066-0000
Reflective paper (gray) (64%)	CY9-1067-0000
Reflective paper (white) (90%)	CY9-7076-0000

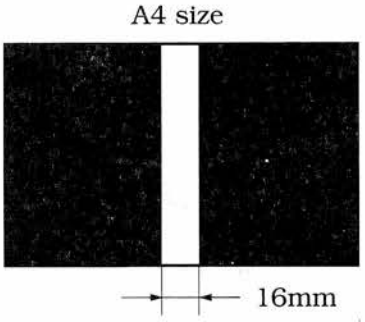
- AF reference chart



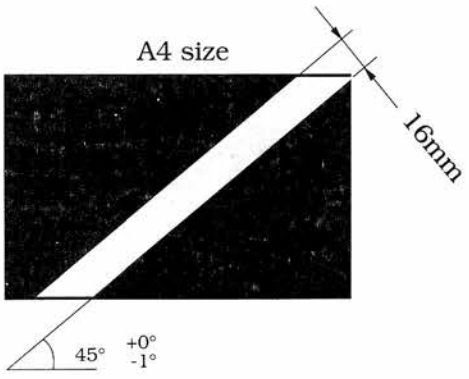
Attach 90% white paper to 2% black base as shown in the above figure.



- 16mm bar chart (AF accuracy check)
  Attach 16mm wide 90% paper vertically to A4 size 2% paper as shown in the right figure.



- 45° bar chart (AF accuracy check)
  Attach 16mm wide 90% paper diaganally to A4 size 2% paper as shown in the right figure.



- Low-contrast chart (AF accuracy check)
  `Make chart with one half 64% light gray and the other half 90% white chart paper.

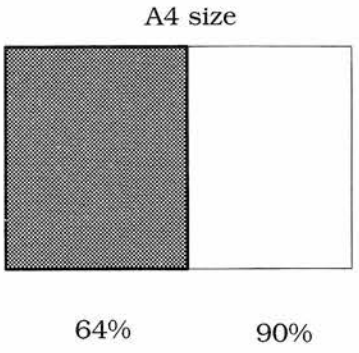


Fig. 3-12 Locally Fablicated Tools

4.6 CONNECTING THE CAMERA TO THE PERSONAL COMPUTER

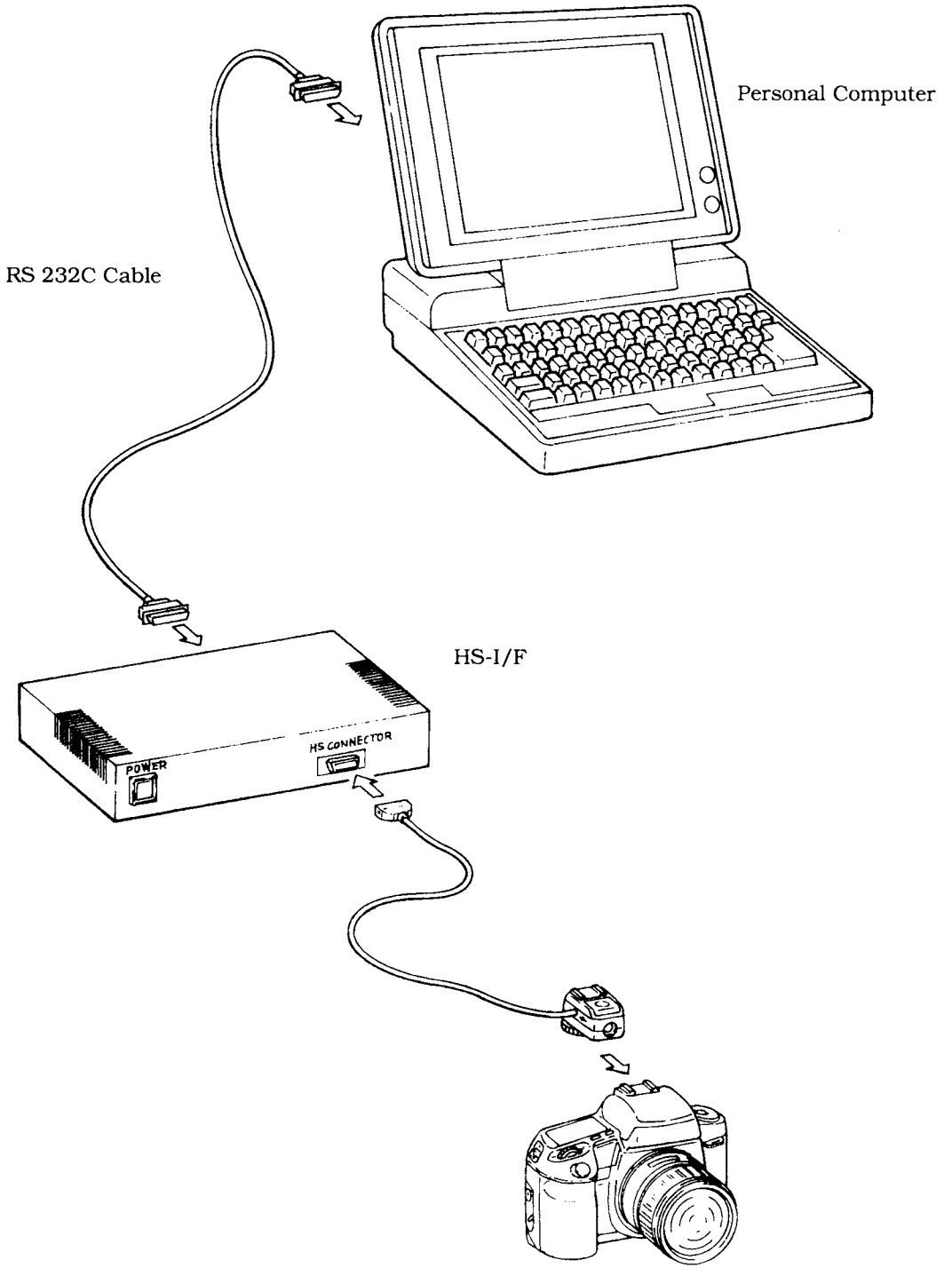


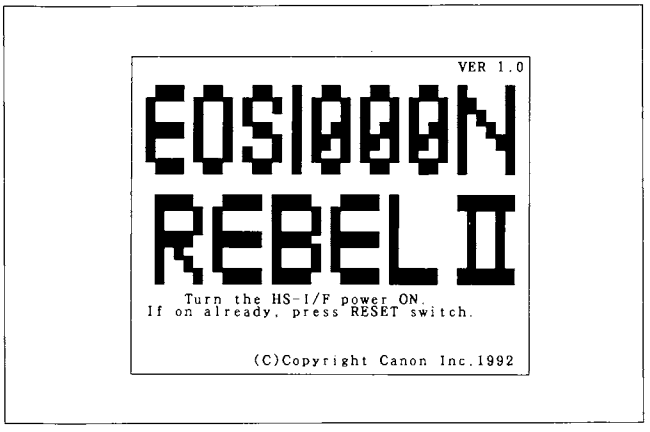
Fig. 3-13 Connecting the Camera to the Personal Computer

4.7 ADJUSTMENT START-UP PROCEDURES

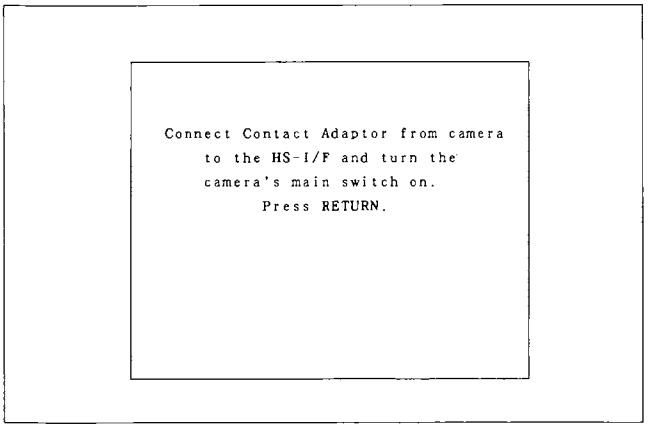
Caution:
Do not connect the camera to the personal computer before turning on the HS-I/F (to prevent the camera from malfunctioning).

1. Load the work disk in the personal computer then turn it on. If the personal computer is already turned on, load the work disk and press the reset switch.

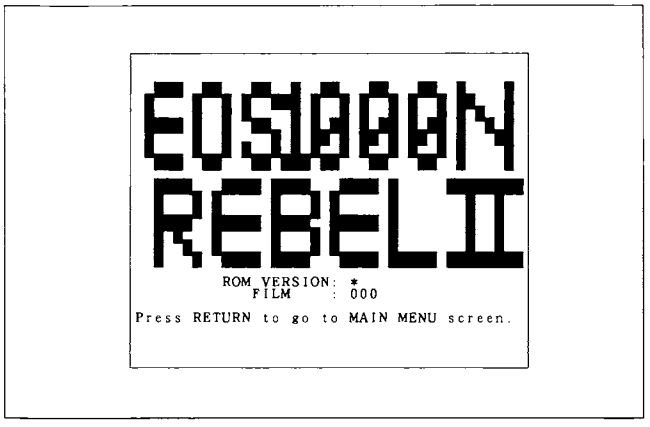
2. After a while, the title screen appears as shown at the right. Turn on the HS-I/F in accordance with the directions displayed on the screen. If HS-I/F has already been turned on, turn it off once and then turn it on.



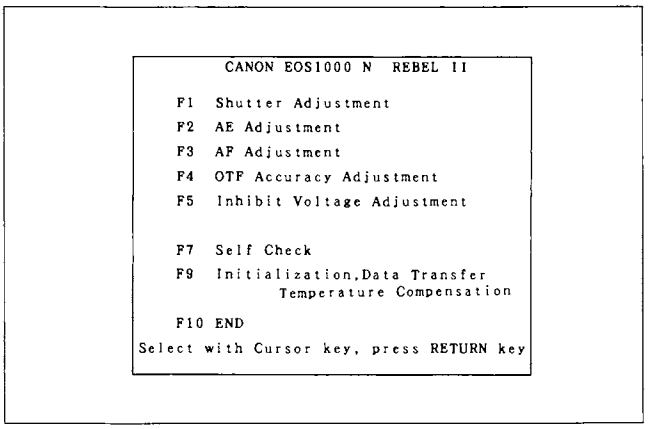
3. Upon establishment of communications between the personal computer and HS-I/F, the screen shown at the right appears. Connect the camera to HS-I/F. Then, turn on the main switch and then SW1 on the camera.



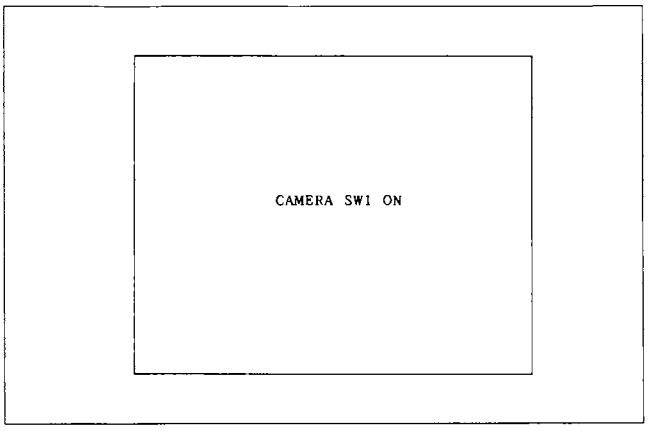
4. Upon establishment of communications between the personal computer and the camera, ROM version number, number of films transported, and other information appear as shown. Press the Return key to display the main menu screen.



5. Move the cursor to select the desired adjustment item on the main menu screen.



Notes 1): **Pressing the shutter button halfway.**
SW1 must be on to wake up the camera, whenever this screen appears.



Notes 2): **Adjustment Software Errors**
The adjustment software may cause an error for some reason.
In this event, turn off the camera (to clear the error from the camera).
If the adjustment software causes an error during adjustment of the camera, be sure to readjust the camera after recovering from the error.

4.8 SHUTTER ADJUSTMENT

Shutter adjustment must always be made when replacing the shutter unit.
Shutter adjustment is necessary if it is impossible to store or transfer camera data before replacing the main flex.
Otherwise, shutter adjustment is unnecessary.

Purpose To adjust shutter speeds.
If the maximum shutter speed (1/2000sec) is within the limits all shutter speeds have been adjusted.

Standard Shutter speed standard
Marked shutter speed: 1/2000
Exposure time: 0.488ms
Limits: 0.300-0.700ms

Caution Check that the shutter curtain travel times conforms to the standard. If not, replace the shutter unit.
Shutter curtain travel time standard
First curtain travel time: 5.1 ± 0.2ms
Second curtain travel time: 5.1 ± 0.2ms

Tools
Personal computer
RS-232C cable
HS-I/F
Regulated DC powers supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000/or FS-5300
EF50mm f/1.8 production lens (if EF-8000 is used)

Preparation
1) Start adjustment program (see "Start-up procesures"), connect the camera to the personal computer, and select "Shutter Adjustment" on the menu screen.
2) Attach the EF50mm f/1.8 production lens to the camera, set TV and AV to 2000 and 1.8 respectively in the manual mode, and set the camera on the EF-8000. Set the light source to LV15. (On the FS-5300 the lens is not used.)

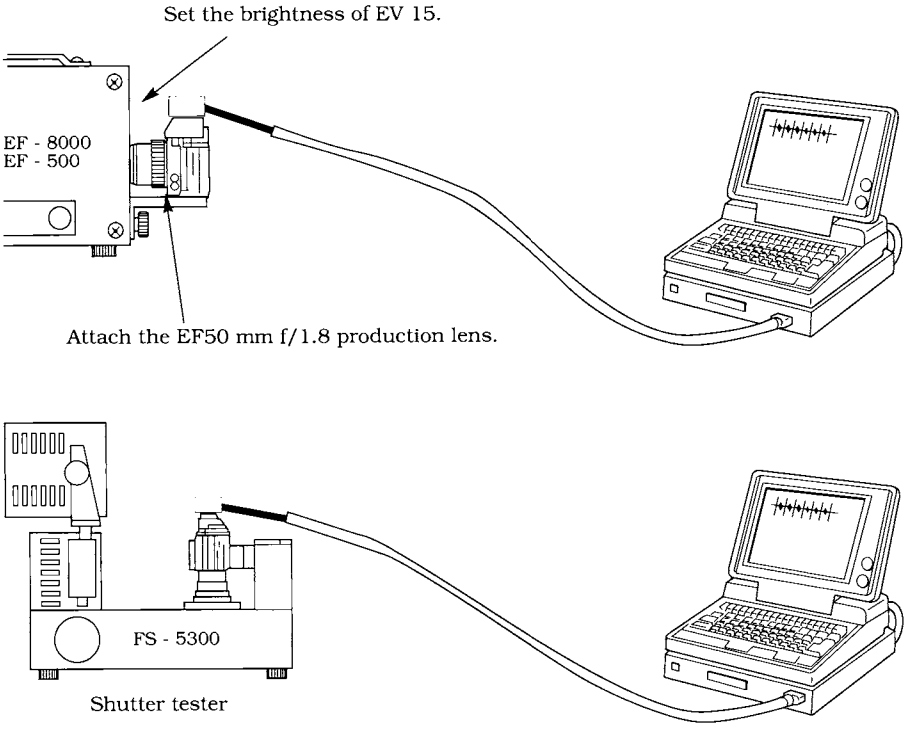
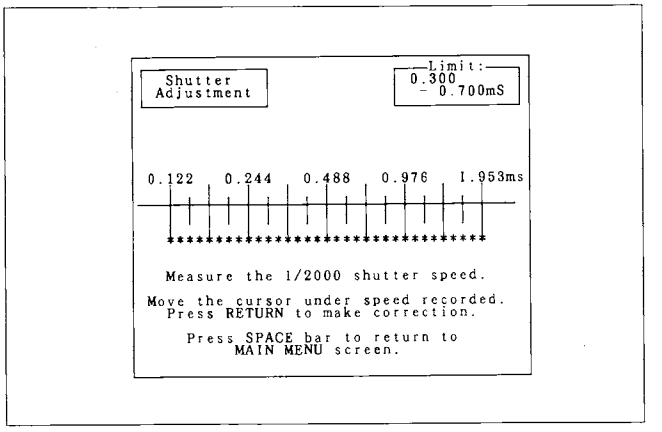


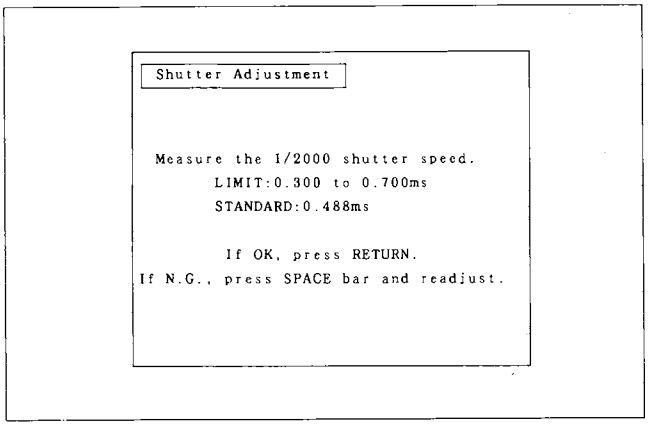
Fig. 3-14 Shutter Adjustment

Procedure

1) Measure the shutter speed and press the ← and → keys to move the cursor to enter the measured value.
   Press the Return key and then SW1 on the camera to establish communications between the two to change camera data.



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



4.8.1 X Time Lag Check

Tool EF-8000 or FS-5300

Standard

Shutter speed:	1/90
Line A:	0.33 ms or more
Line B:	2.50 ms or more

Procedure

1) Set a shutter flash speed of 1/90 in the TV mode or manual mode.
2) Mount a compatible flash or a hot shoe unit (CG9-3194-000) with a 4.7K ohm resistor from the CCC terminal to ground.
3) Test with EF-8000/FS5300, and checks lines A and B.

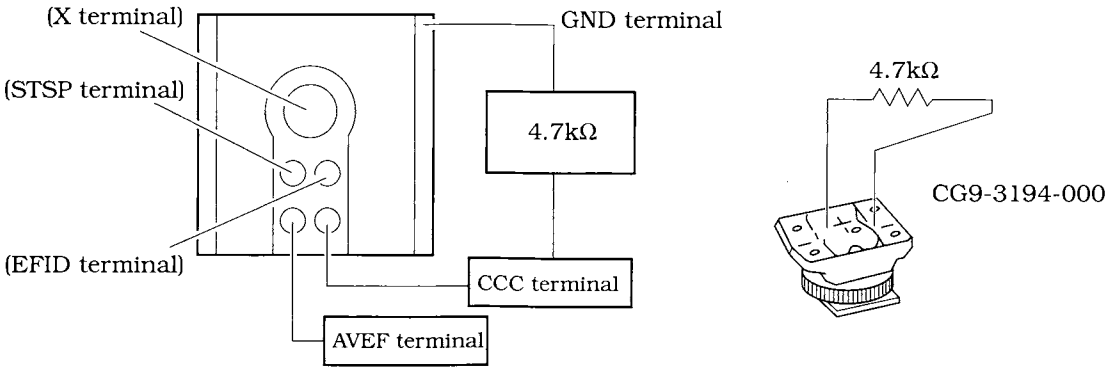


Fig. 3-15 X Time Lag Check

4.9 AE ADJUSTMENT

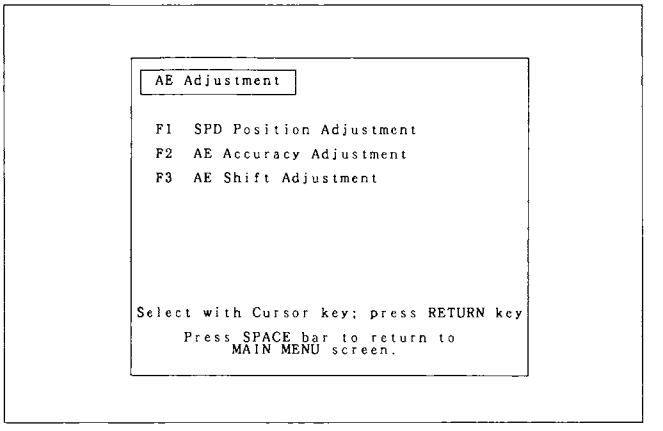
The AE adjustment is intended to control exposure through SPD (AE-IC) output level/ gain/offset adjustment and positioning.

1. SPD positioning:	Aligning the center of SPD (AE-IC) with the optical axis of the camera.
2. AE accuracy adjustment:	Adjusting the output level, gain, and offset of SPD (AE-IC).
3. AE shift:	Setting overexposure or underexposure optionally.

SPD positioning, AE accuracy adjustment, and AE shift must always be made in this order when replacing the main flex or SPD (AE-IC).
The AE accuracy adjustment clears any previous AE shift.

1) Start the adjustment program, connect the camera to the personal computer, and select "AE Adjustment" on the menu screen to display the AE menu screen shown at the right.

   Move the cursor to select the desired AE adjustment item on the menu screen.



4.9.1 SPD Positioning

SPD positioning must always be made when the SPD of the main flex is distrubed.
SPD positioning is necessary whether it is possible or impossible to store or transfer camera data before replacing the main flex because SPD positioning is not affected by camera data.
SPD positioning must always be accompanied by AE accuracy adjustment because the position of SPD affects the accuracy of AE.

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

Caution Do not expose SPD to any light other than the light source in a dark room.

Tools
Personal computer
RS-232C cable
HS-I/F
Regulated DC power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500
EF50 mm f/1.8 production lens
Tripod
SPD positioning mask

Preparation
1) Attach the EF50 mm f/1.8 production lens to the camera and fix the camera on the tripod toward the light source.
2) Attach the SPD positioning mask to the light source of EF-8000 (or EF-500) and set the brightness of EV 15.
3) Set the camera 45 cm away from the SPD positioning mask and align the center of the SPD positioning mask with that of the range measuring frames in the finder. Set the lens manually at the closest distance (45 cm).

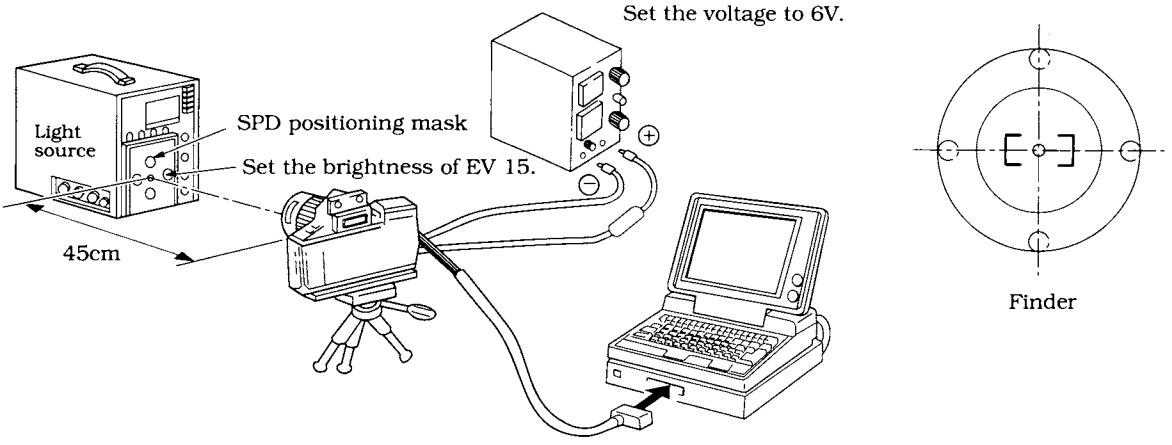
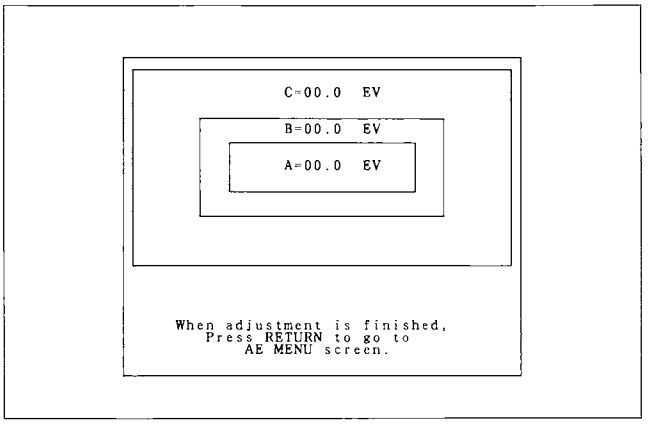


Fig. 3-16 SPD Positioning

Procedure

1) Select "SPD Positioning" on the AE menu screen. Then, approximate EV values of individual photometric sensors of the SPD will be displayed.



2) Shield the lower four holes from light as shown in Figure 1 and read the EV value of the photometric sensor A.

3) Shield the left, upper, and then right four holes sequentially from light as shown in Figure 2 and read the EV values of the photometric sensor A in individual conditions.

4) Position the SPD so that the EV values fall within 2 stops.

5) After positioning the SPD, fix the SPD holder with instant adhesive agent.

* After fixing the cover, repeat steps 2) and 3).

Figure 1

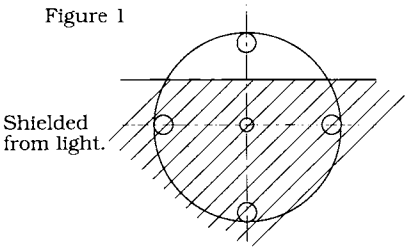
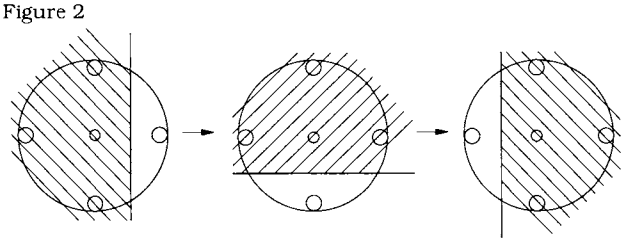


Figure 2



Fixed with instant adhesive agent after SPD potitioning.

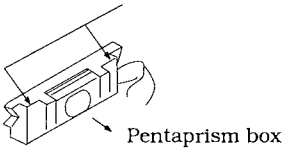


Fig. 3-17 Positioning Method

4.9.2 AE Accuracy Adjustment

AE accuracy adjustment must always be made when replacing the SPD, or if it is impossible to store or transfer camera data before replacing the main flex.
Otherwise, AE accuracy adjustment is unnecessary.
AE accuracy adjustment clears AE shift.

Purpose To adjust the output level, gain, and offset of SPD.

Standard

Light source	Quantity of light on image surface
EV9	0 +/- 0.5 EV
EV12	0 +/- 0.5 EV
EV15	0.5 +/- 0.5 EV

Caution AE accuracy adjustment must always be preceded by shutter adjustment and SPD positioning.
AE accuracy also requires a correctly cabrated light source.

EV9	64cd/m^2	K value = 12.5
EV12	512cd/m^2	K value = 12.5
EV15	4096cd/m^2	K value = 12.5

Tools
Personal computer
RS-232C cable
HS-I/F
Regulated DC power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500
EF50 mm f/1.8 production lens

Preparation 1) Attach the EF50 mm f/1.8 production lens to the camera and direct it toward the light source of the EF-8000 (or EF-500) with the camera's eyepiece shielded from light so that it will not be affected by external light.

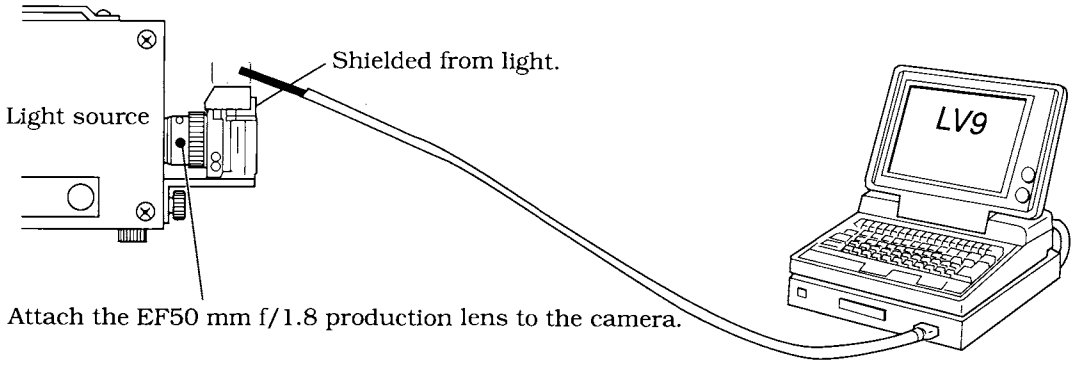
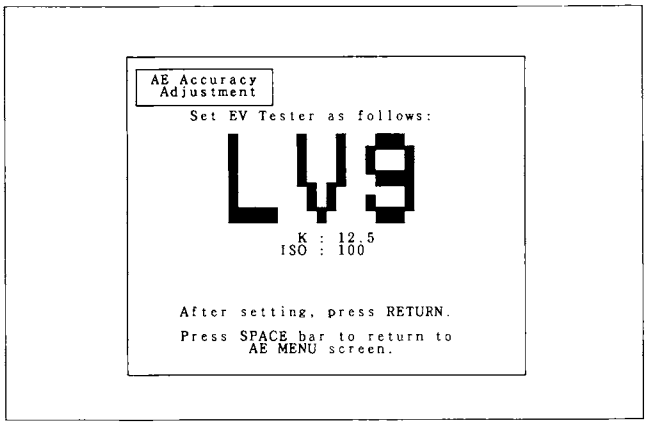


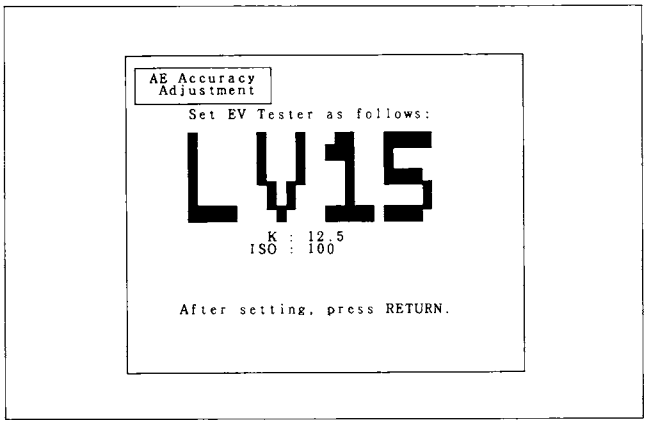
Fig. 3-18 AE Accuracy Adjustment

Procedure

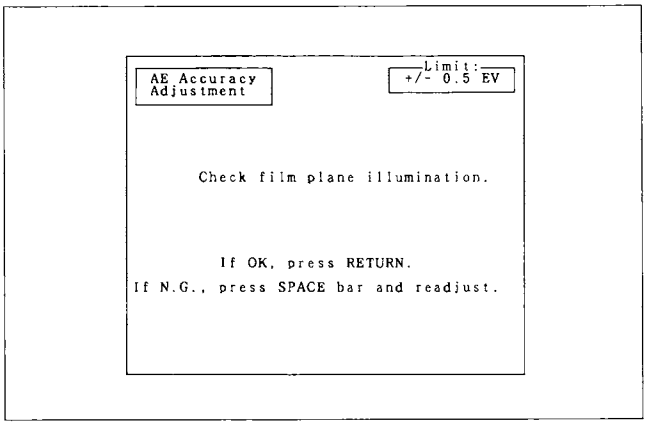
1) Select "AE Accuracy Adjustment" on the AE menu screen.
2) Expose the camera to the light source with the brightness of LV9 and press the Return key.



3) Expose the camera to the light source with the brightness of LV15 and press the Return key.
4) Confirm that communications between the camera and the personal computer are established to change camera data.
   Also, adjust AE accuracy under the light source with the brightness of LV12.



5) After completion of the communications, check whether AE accuracy conforms to the standard under the light sources with the brightness of LV9, LV12, and LV15 in the mode.
   If not, return to step 1).



4.9.3 AE Shift

AE shift is intended to shift the center exposure to the users preference. Whereas AE accuracy adjustment adjusts the output level, gain, and offset of SPD, AE shift adjusts only the level. AE accuracy adjustment clears AE shift.

Tools

Personal computer
RS-232C cable
HS-I/F
DC regulated power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500
EF50 mm f/1.8 production lens

Preparation In the same manner as AE accuracy adjustment, attach the EF50 mm f/1.8 production lens to the camera and direct it toward the light source with its eyepiece shielded. (See "AE Accuracy Adjustment".)

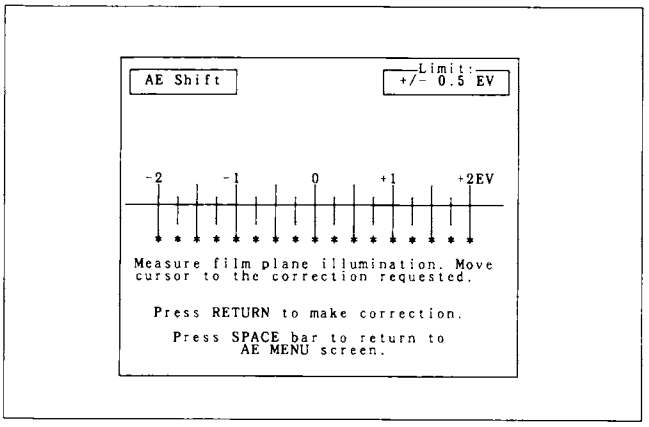
Procedure

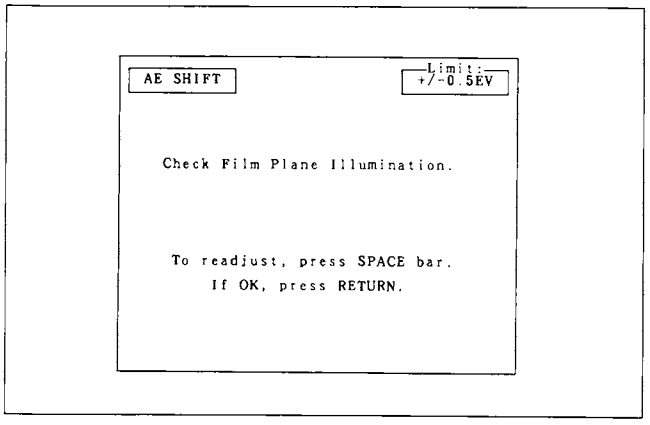
1) Select "AE Shift" on the AE menu screen.
2) Move the cursor to select the desired amount of shift.

   Exposure can be incremented in about 0.25 stops. For example, to increment exposure by 1 stop, press the ← and → keys to move the cursor to the position of +1.

* To increment or decrement exposure by 2 or more stops, press the ← and → keys to move the cursor to the position of +2 or -2 and press the Return key to establish communications between the personal computer and the camera. When the confirmation screen appears, press the Space key to return to the AE shift screen and make AE shift again.

3) After completion of the communications, measure exposure at LV9, LV12, and LV15.





4.10 AF ADJUSTMENT

AF adjustment is intended to correct the data output by BASIS to provide accuratc autofocusing.

1. AF Accuracy adjustment	Dark current, AGC, and sensor balance
2. AF focus adjustment	Adjust AF focus electrically to match the mechanical FDD adjustment performed earlier. The FDD must be input into the multiple tool before this adjustment can be made.
3. Sensor graph output	The displays the output of the sensors. It is used to insure even lighting of the charts, and check for dust specs, etc. on the sensors.
4. Defocus output	Used as the final check of AF adjustments.
5. AF Focus Shift	This adjustment is included to correct possible focus errors when using lenses with extermely shallow depth of focus, such as the EF50 mm f/1.0L.

* ADJUSTMENTS

- **After AF unit replacement**

1. Accuracy
2. AF Focus

- **AF Focus Check**

4. Defocus output

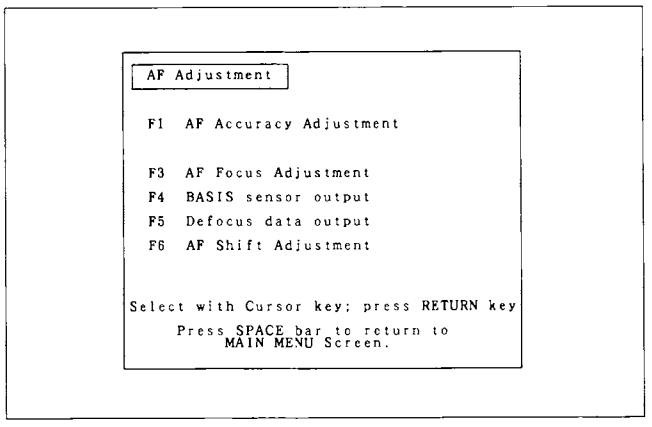
- **Chart Illumination Adjustment**

3. Sensor Graph Output

- **Slight focus errors with very large aperture lenses (50/1.0, 85/1.2)**

5. AF Focus Shift

1) Start adjustment program, connect the camera to the personal computer, and select "AF Adjustment" on the menu screen to display the AF menu screen shown in the right figure. Move the cursor to select a desired AF adjustment item on the menu screen.



4.10.1 Chart Illumination

- Chart illumination, for all adjustments that use charts, must be even over the area of the chart and above EV10. A DC power source is also best, but not absolutely necessary. Lighting from both sides at 45° with tungsten or quartz lighting (no fluorescent lights) works best, but a single strong light (about 500W) can be used if it provides even illumination.
- Adjust the balance on the chart surface by referring to AF section 4 (sensor graph output).
- Confirm that the brightness on the surface of the AF reference chart ranges is at least EV10.
- The figure below shows the recommended setting of two light sources. One light source can be used as their substitute if it has an adequate brightness (approximafly 500W).

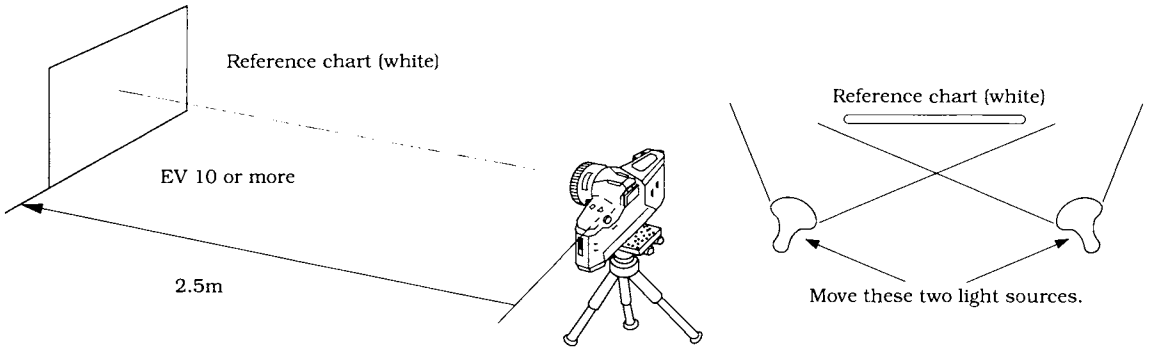
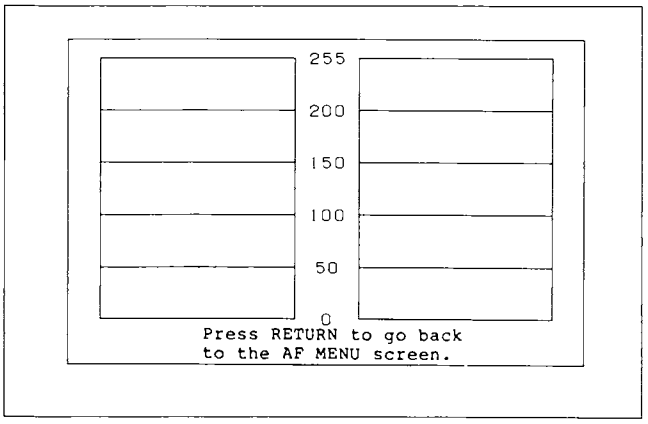


Fig. 3-19 Setting Lighting Equipment

Insure that image data output has a linear waveform as shown in the right figure.



4.10.2 AF Accuracy Adjustment

AF Accuracy adjustment must always be made when replacing the AF unit.
AF Accuracy adjustment is necessary if it is impossible to store or transfer camera data before replacing the main flex.
Otherwise, this adjustment is unnecessary.

Purpose

AGC adjustment: Adjusting the gain of SPD to suit the brightness of the light source to insure an optimum image output.

DARK adjustment: Correcting minute electric current that BASIS (AF sensor) will generate even in the absence of light (dark current).

Caution

AF Accuracy adjustment must alwasy be preceded by AF sensor positioning. There must also be no dirt adhering to the main mirror, sub mirror, or light receiving section of the AF sensor.

Tools

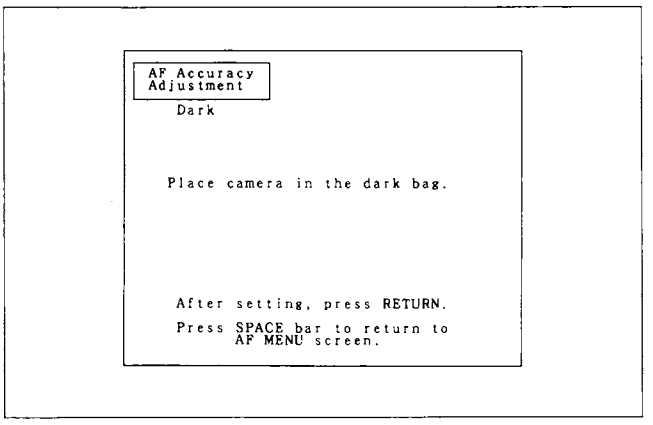
Personal computer
RS-232C cable
HS-I/F
DC regulated power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500
EF50 mm f/1.8 production lens
Light
Tripod
Dark bag
SPD positioning mask

Preparation

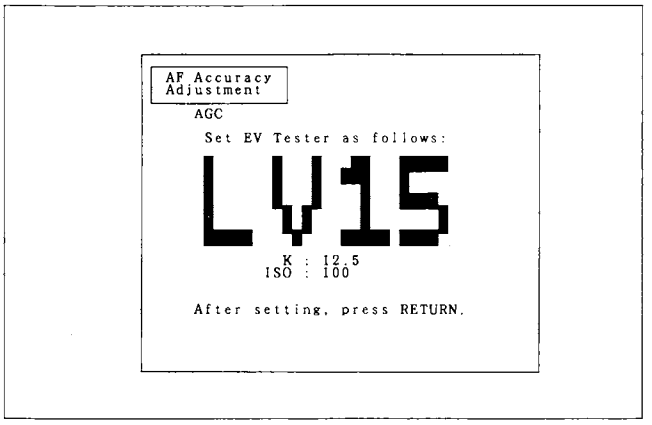
Set lighting equipment. (See "Setting Lighting Equipment.")

Procedure

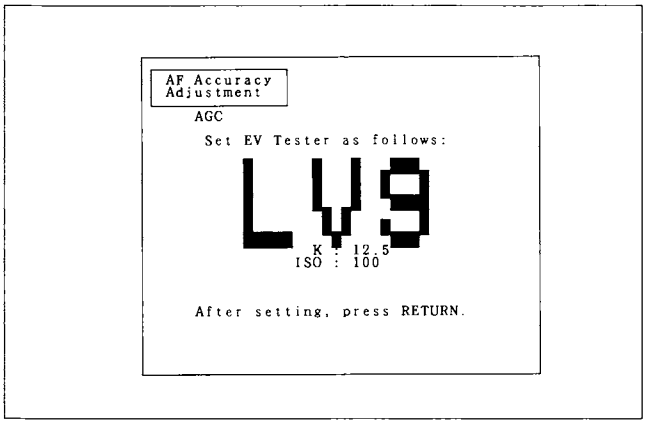
1) Call up the AF MENU screen, and press function key F2. After communications are complete, the screen at the right appears. Place the camera in a dark bag and press RETURN.



2) After communications are complete, the screen at the right appears.
Remove the camera from the dark bag, reset the light source to LV15 and again press RETURN.

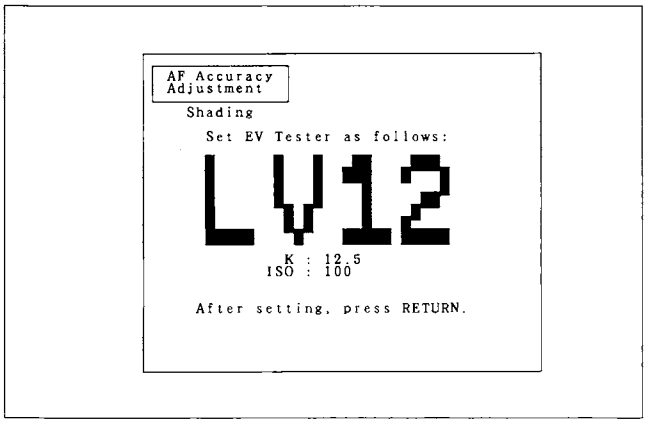


3) After communications are complete, the screen at the right appears.
Reset the light source to LV9 and Press RETURN again.



4) After communications are complete, the screen at the right appears.
Reset the light source to LV12 and Press RETURN again.

This completes this adjustment.
Press RETURN to call up the AF MENU screen and proceed.



4.10.3 AF Focus Adjustment

AF focus adjustment clears AF shift.

Purpose The purpose of the AF focus adjustment is to match the AF sensor focus with the film focus. Before this adjustment is made, the flange to focal plane distance (FFD) at the center of the pressure plate must be measured.

Caution The main mirror, sub mirror, and light receiving section of the AF sensor must be clean when making this adjustment.

Tools
Personal computer
RS-232C cable
HS-I/F
DC regulated power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500
EF50 mm f/1.8 tool lens
Light
Tripod
Dial gage set (44.14 mm gage or 42.14+2 mm adapter)

Preparation
1) Set lighting equipment. (See "Setting Lighting Equipment.")
2) Set the camera at "bulb" and measure the FFD at the certer of the pressure plate with a 44.14 mm gage (or 42.14+2 mm adapter).

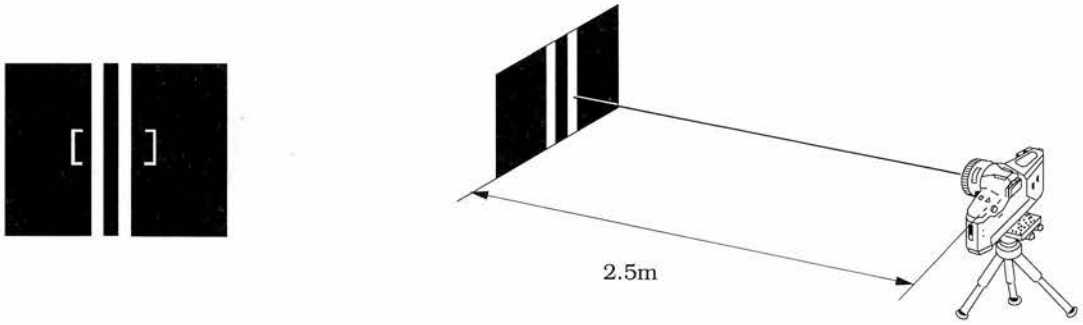
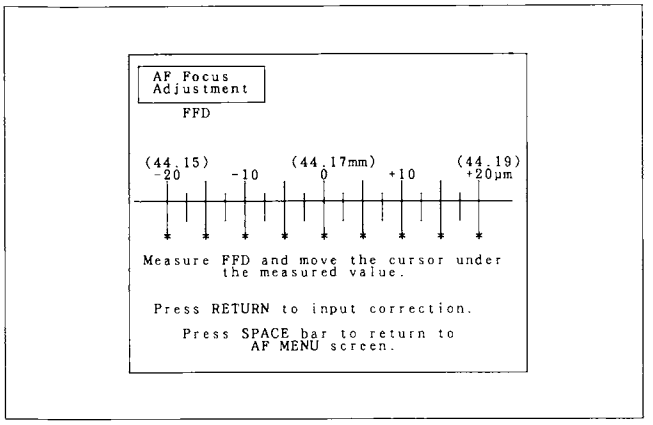


Fig. 3-20 Setting Lighting Equipment for AF Focus Adjustment

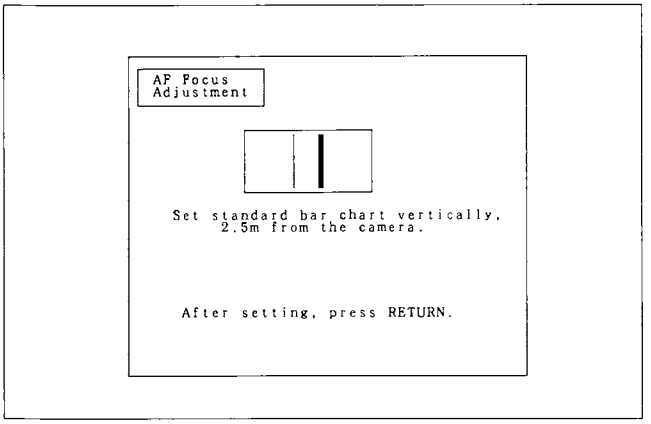
Procedure

1) Select "AF Focus Adjustment" on the AF menu screen to display the screen shown on the right. Move the cursor to the measured FFD.



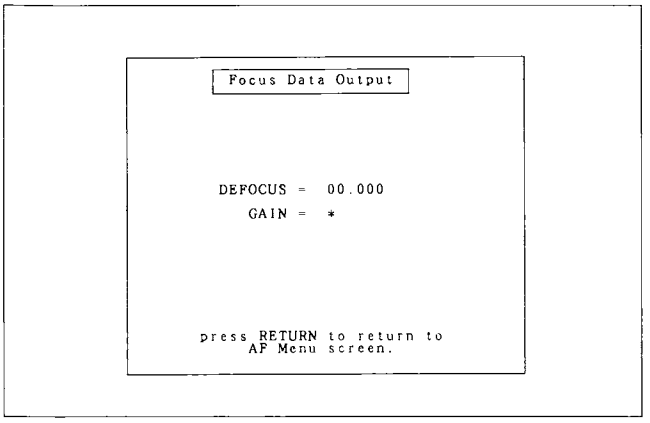
2) Press the Return key to display the screen shown at the right. Place the camera 2.5 m+10 mm away from the AF reference chart, set the lens to infinity, and then manually focus it to the scribed 2.5 m line. Align the autofocus frame of the finder with the bars of the AF reference chart and press the Return key.

* When using a tool lens with a focus variation lable reading other than "0.00" proceed to step 3).



3) Select "Focus Data Output" on the AF menu screen to display the screen shown at the right.
Turn the focusing ring of the lens from the infinity end while observing the "DEFOCUS" indication.
Stop the focusing ring when the "DEFOCUS" indication reaches a value which is equal to and which has an opposite sign to the variation marked on the tool lens. (See that GAIN is set to L.)

* When the focusing ring is overturned, be sure to set it back to the infinity end and then turn it again.

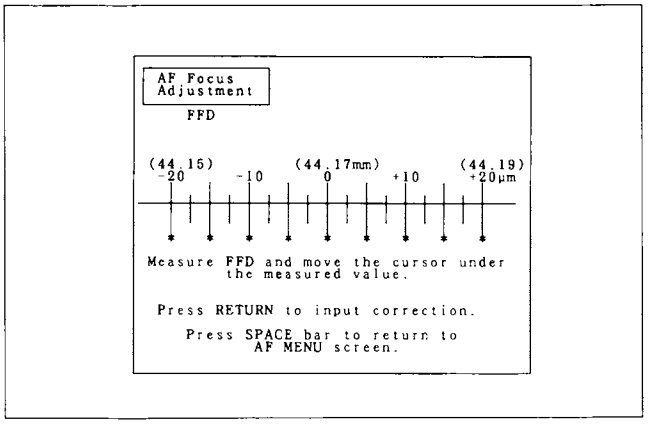


(Example) When the defocus is +0.03, stop the focusing ring when the "DEFOCUS" indication reaches -0.03.

4) Press the Return key to return to the AF menu screen.

5) Press the F3 key to display the screen shown at the right. Move the cursor to the position of the same measured value as in step 1) and then press the Return key.

6) Repeat steps 2) and 3) to make AF focus adjustment again.



4.10.4 AF Sensor Dirt Check

Tools

Personal computer
RS-232C cable
HS-I/F
DC regulated power supply
Tool battery
Adjustment software (stored on a work disk)
EF-8000 or EF-500

Preparation Set the camera at the light source without a lens attached to the camera and the brightness of the light source set to LV12. (Be sure to shield the eyepiece from external light.)

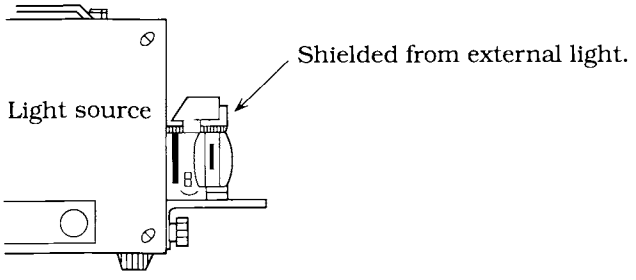
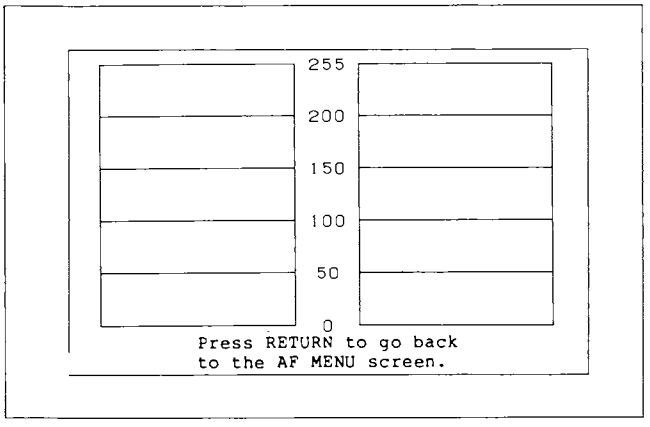


Fig. 3-21 AF Sensor

1) Select "Image Data Output" on the AF menu screen to display the image data.

2) Check whether the output waveform is linear. If not, dust may be on the AF sensor.

3) Press the Return key to return to the sensor data menu screen.



4.10.5 Defocus Data Check

Tools

Personal computer
RS-232C cable
HS-I/F
Regulated DC power supply
Tool battery
Adjustment software (stored on a work disk)
Light
Tripod
AF reference chart, 16 mm bar chart, and 45° chart

Procedure

1) Set lighting equipment. (See "Setting Lighting Equipment.")
2) Set the AF reference chart, as shown in the figure below.
3) Set the lens to AF and focus. (Upon completion of focusing, set the lens back to manual mode.)

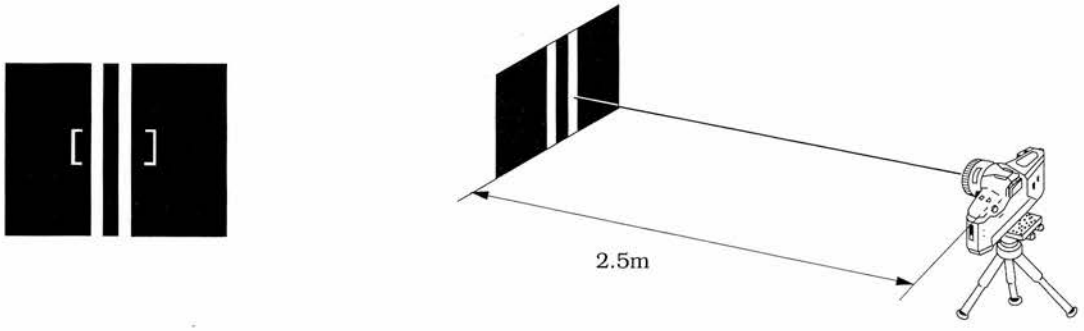


Fig. 3-22 Defocus Data Check

4) Select "Focus Data Output" on the AF menu screen to display this screen.
   * When the lens is in focus, "DEFOCUS" is displayed as "0".

   Make measurements on the AF reference chart, 16 mm bar chart, and 45° chart and check whether the defocus conforms to the standard specified in Table 3-3 below.

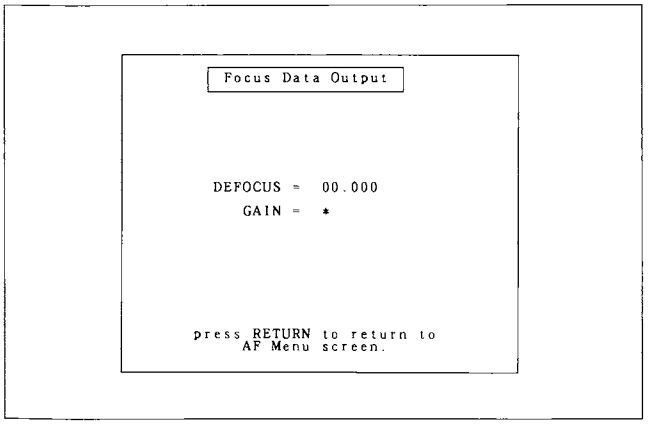


Table 3-3 Defocus Standard

	AF reference chart	16mm bar chart	45° bar chart
Tool lens	±0.060	±0.090	±0.105
Brighter than f/2.0 lens	±0.100	±0.125	±0.145
Brighter than f/2.8 lens	±0.115	±0.140	±0.155
Brighter than f/4.0 lens	±0.115	±0.145	±0.150
Brighter than f/5.6 lens	±0.140	±0.160	±0.180
f/5.6 or darker	±0.180	±0.200	±0.210

4.10.6 AF Focus Shift

Purpose To correct minute AF defocus that many result from use of a lens with very shallow depth of focus, such as EF 50 *f*/1.0 L and EF 86 *f*/1.2 L.

* AF focus shift must never be made to correct defocus caused by any lenses other than EF 50 *f*/1.0 L or EF 85 *f*/1.2 L.

Minute Defocus

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

Example) Unsatisfactory combination of camera and lens (Camera: 0+0.03 mm Lens: 0+0.02 mm)

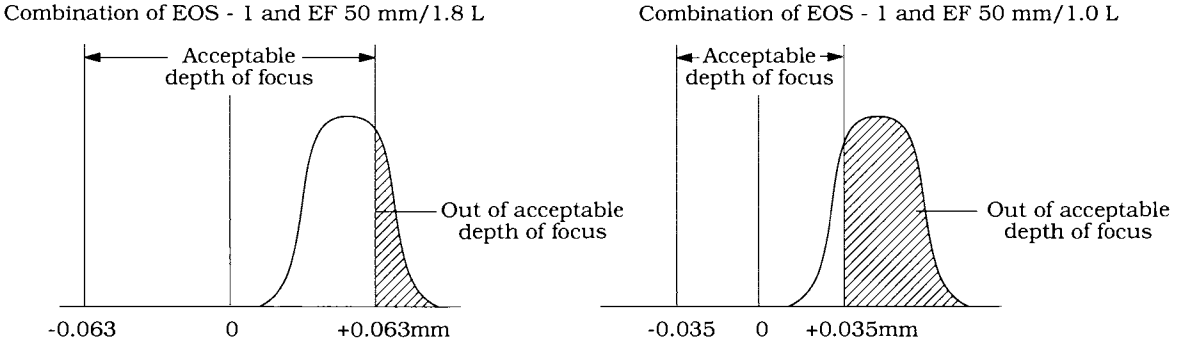


Fig. 3-23 Minute Defocus

Caution AF focus shift is intended to correct total AF defocus resulting from use of a particular camera in combination with a lens with a shallow depth of focus. Therefore, AF focus shift must always be made on that camera and lens.

AF focus shift must also be made after adjusting both the camera and lens.

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

(1) Variations in range measurement that result from shooting of an object difficult to focus.

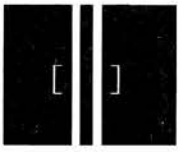
(2) Shift of an object in the period between turning on of SW2 and exposure.

Tools

Personal computer
RS-232C cable
HS-I/F
DC regulated power supply
Tool battery
Adjustment software (stored on a work disk)
Light
Tripod
AF reference chart

Preparation

1) Set lighting equipment. (See "Setting Lighting Equipment.")
2) Set the AF reference chart as shown in the figure below.



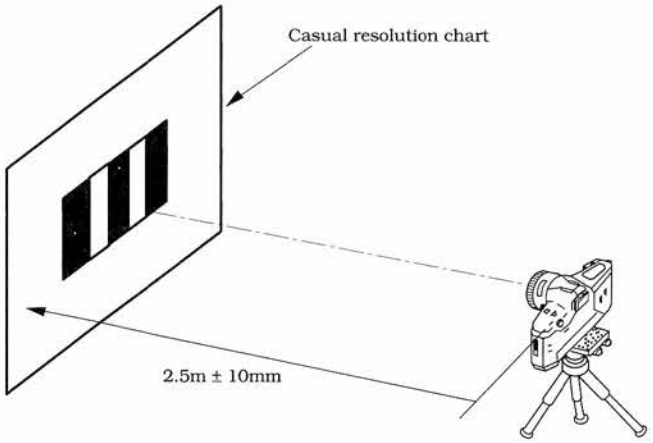


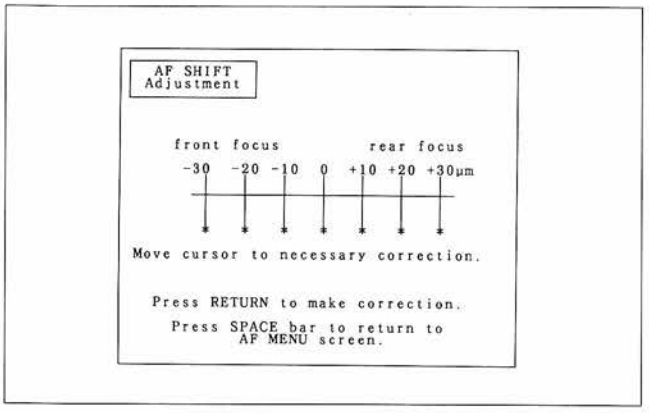
Fig. 3-24 Focus Shift Setting

Procedure

1) Select "AF Focus Shift" on the AF menu screen to display this screen. Move the cursor to the position of -30 and press Return.

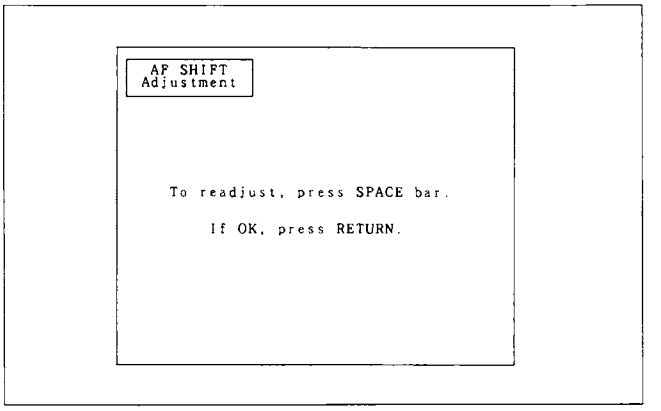
2) Attach the lens and press SW1 to focus and shoot the object ten times (with the aperture fully open).

3) After shooting, confirm that the screen shown at the right appears. Press the Space key to return to the screen displayed in step 1). Move the cursor to the position of +30 and press Return to reset the AF focus shift to zero. Shoot the object ten times in the same manner as in step 2).



4) Press the Space key to return to the screen displayed in step 1). Move the cursor to the position of +30 and press the Return key. Shoot the object ten times as in step 2).

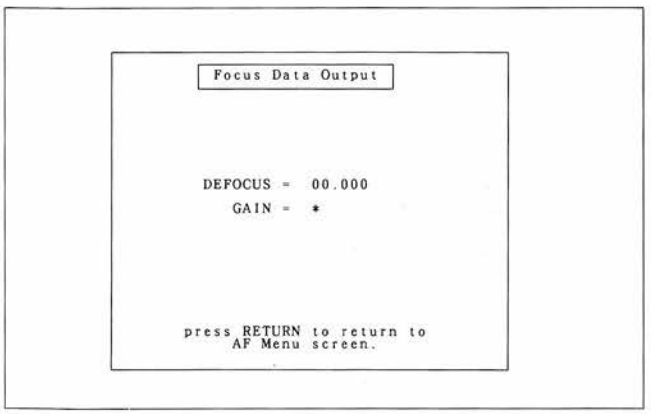
5) Press the Space key to return to the screen displayed in step 1). Move the cursor to the position of -30 and press Return to reset the AF focus shift amount to zero. Review the results obtained from shooting on the screen displayed in step 1) and select the optimum one.
Press the Return key to complete AF focus shift.



4.10.7 Total AF Accuracy Check (on Both Camera Body and Lens)

Procedure

1) Attach the lens to the camera and set the lens to infinity in the manual mode.
2) Set the AF reference chart so that the distance between the AF reference chart and the film surface is 50 times the focal length of the lens.
3) Autofocus on the chart. (Upon completion of focusing, set the lens to manual.)
4) Select "Focus Data Output" on the AF menu screen to display the screen shown in the right figure.
   * When the lens is in focus, "DEFOCUS" is displayed as "0".
5) Press the Return key to return to AF menu screen.
   Focus on the AF reference chart, 16 mm bar chart, and 45° chart several times and check whether the defocus amount conforms to the standard specified in Table 3-1.



6) Set the 16 mm bar chart as shown in the figure below.
7) Repeat steps 3) to 5) to check AF accuracy at least five points moving the camera slightly each so the image of the bar moves from one side of the autofocus frame to the other.

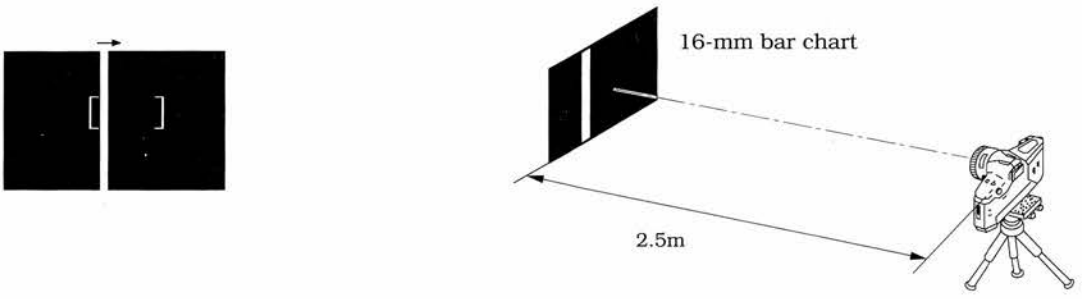


Fig. 3-25 16mm Bar Chart

8) Set the 45° bar chart as shown in the figure below.
9) Repeat steps 3) to 5) to check AF accuracy.

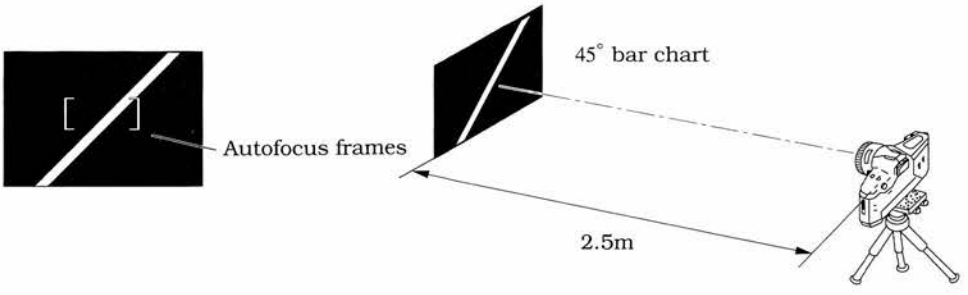


Fig. 3-26 45° Bar Chart

If a defocus amount fails to conform to the standard, check the body with the standard tool lens as described on the next page.

4.10.8 Partial AF Accuracy Check (on Camera Body Only)

Procedure

Caution: Shift the central standard defocus amount in Table 3-1 by the dislocation amount marked on the tool lens.
(Example) When the tool lens is marked with a dislocation amount of +0.03:

AF reference chart:	-0.030 to +0.090
16 mm bar chart:	-0.060 to +0.120
45° chart:	-0.075 to +0.135

1) Set lighting equipment (see "Setting Lighting Equipment"), attach the tool lens to the camera, set the AF reference chart, and align the center of the AF reference chart with that of the autofocus frames of the finder.
2) Read an output defocus amount.
3) If the defocus amount is +0.060 or less, AF accuracy is acceptable. If it is more than +0.060, AF focus adjustment is inadequate. In this event, make AF focus adjustment again.
4) Replace the AF reference chart with the 16mm bar chart and align the bar of the chart with the left side of the autofocus of the finder.
5) Read the defocus as in step 2). If it is +0.090 or less, AF accuracy is acceptable.
6) Shift the camera so the image of the bar gradually moves to the right side of the autofocus frame to read the defocus at least five points.
7) If the defocus amount read at any point is more than +0.090, AF accuracy adjustment may have been made with dirt adhering to the main mirror, sub mirror, and light receiving section of the AF sensor.
In this event, air-clean them and make AF accuracy adjustment again.
8) Replace the 16 mm bar chart with the 45° bar chart and align the bar of the chart as shown in step 7 of the total check.
9) Read an output defocus amount in the same manner as in step 2). If it is +0.105 or less, AF accuracy is acceptable. If it is more than +0.105, the AF sensor may be faulty.

4.10.9 Unresolved Focusing Problems

If a camera and lens has been brought to service with a specific claim of poor autofocusing, but all data in the previous test proves normal, the two most probable causes are:

1. Difficult subjects for autofocus
2. Defective sensor (shock damage or dust)

*1: Difficult Subjects for Autofocus

Table 3-4 Difficult Subjects for Autofocus

Focusing Impossible

Subject condition	Cause
1. Subject has no, or very low contrast	Subject image cannot be detected. This is the same situation as trying to focus your eyes on a blank wall.
2. Subject is very dark (brightness within AF frame is EV 0 or less).	It is impossible to detect the range of image, because the intensity of subject is below the minimum intensity of range sensor.
3. Subject has high reflection factor (like a mirror).	Range cannot be measured. Computed signal becomes error signal, because the balance between images is influenced by the exterme reflecting light.
4. Subject is strongly backlit.	Range cannot be measured. Computed signal becomes error signal, because the balance between images is influenced by the extreme backlight.

Focusing on Intended Subject is Difficult

Subject condition	Cause
1. More than one subject at different distances.	AF cannot determine which subject to focus on
2. Subject moving rapidly directly toward or away from the camera.	Speed exceeds processors capacity.

*2: Deformation of the AF sensor (from such causes as shocks) or dirt adhering to the AF sensor.
Some faults such as extremely low contrast cannot be attributed to shooting of an object difficult to focus and must therefore be identified by the following methods.

1) Make total AF accuracy check (on both the camera body and the lens) and partial AF accuracy check (on the camera body only) to identify which, the body or the lens, is faulty.
2) If the camera body is suspected of being faulty, set lighting equipment in the same manner as in partial AF accuracy check, set a low-contrast chart, and read an output defocus amount.

If the defocus amount is more than +0.120, the AF sensor is deformed.
If the defocus amount is +0.120 or less, dirt may be or may have been adhering to the AF sensor. In this event, clean the AF sensor and confirm that it is free of dirt.

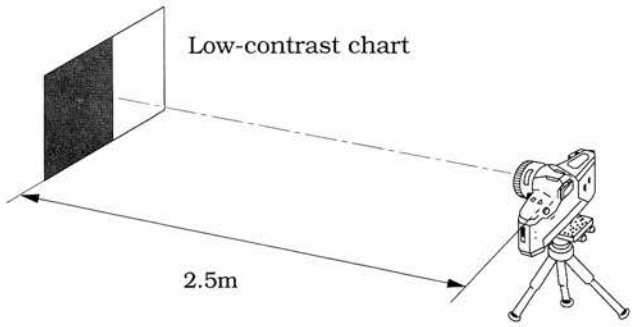


Fig. 3-27 Low-contrast Chart

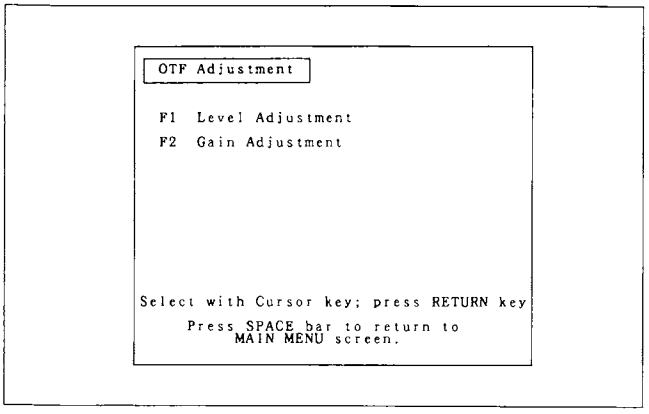
4.11 FLASH ADJUSTMENT

Flash adjustment is intended to adjust the output level and gain of the flash sensor to provide precise flash exposure control.

1. Flash level adjustment: Adjusting the output level of the flash sensor so that an appropriate quantity of light may be applied to an image surface by the flash (ISO 100).
2. Flash gain adjustment: Adjusting the gain of the flash sensor so that the same quantity of light may be applied to an image surface at both ISO 100 and ISO 400.

Flash adjustment must always be made when replacing the main flex or flash sensor. Flash adjustment must also be preceded by shutter adjustment.

1) Start the adjustment program, connect the camera to the personal computer, and select "Flash Adjustment" on the menu screen to display the flash menu screen shown at the right.



Purpose To adjust the output level of the flash sensor for correct flash film plane exposure at ISO 100, and to adjust the gain of the flash sensor for correct baleace of flash film plane exposure at ISO 100 and ISO 400.

Standard Average ±1EV or less

Caution Ambient light should be under EV3, eapecially for the ISO 400 gain adjustment. If a dark room is not available, establish a test area with stable conditions and no highly reflective objects. Test about ten cameras from stock and establish an average.

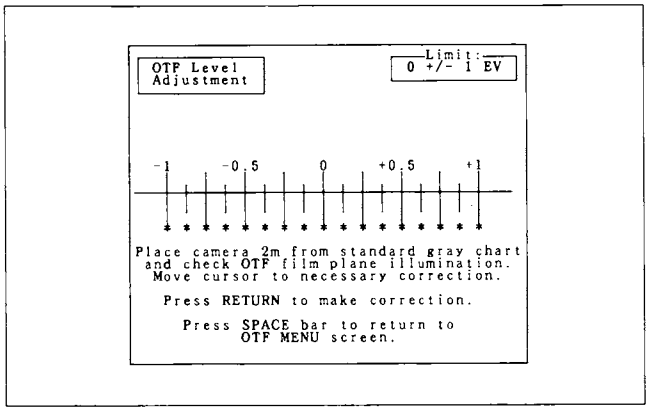
Tools
Personal computer
RS-232C cable
HS-I/F
DC stable power
Tool battery
Adjustment program (stored on a work disk)
EF-8000 or EF-500 (Direct flash sensor DIR201)
EF50 mm f/1.8 production lens
Speedlite (300 EZ, 420 EZ, or 430 EZ)
Tripod

Preparation 1) Fix the camera on the tripod and attach the EF50 mm f/1.8 production lens and speedlite to the camera.
2) Set the camera in ISO 100 mode and the speedlite in ATTL mode and position the camera 2m + 10mm away from the reflector.

4.11.1 Flash Level Adjustment

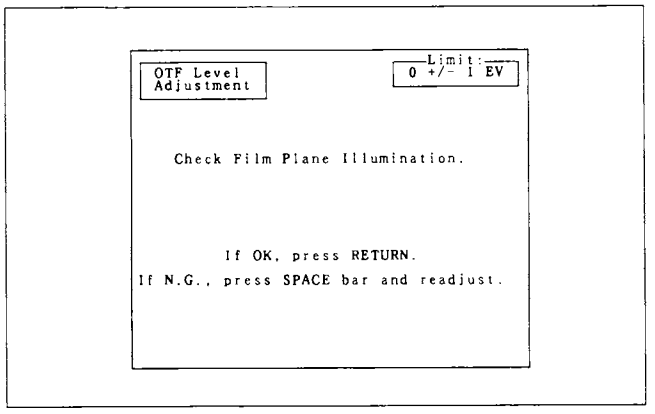
Procedure

1) Press the F1 key to display this screen. Confirm that the ISO sensitivity of the tester is set to ISO 100.



2) Measure the flash accuracy of the camera several times and press the ← and → keys to move the cursor to the position of a desired value for correcting the measured flash accuracy.

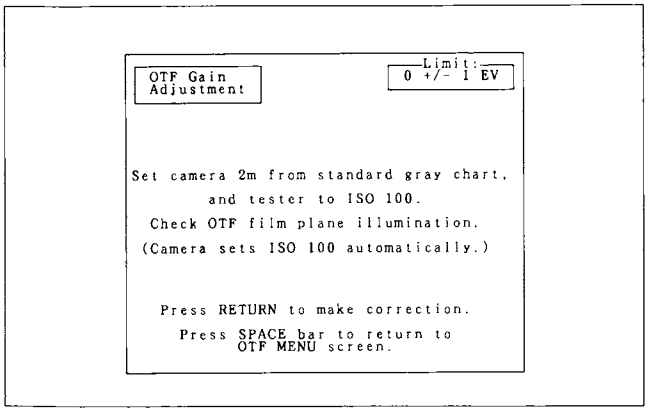
3) Press the Return key to display the screen shown at the right. Check the flash accuracy in accordance with the directions displayed on the screen.
If the flash accuracy is acceptable, press the Return key to return to the flash menu screen. Otherwise, press the Space key and adjust again.



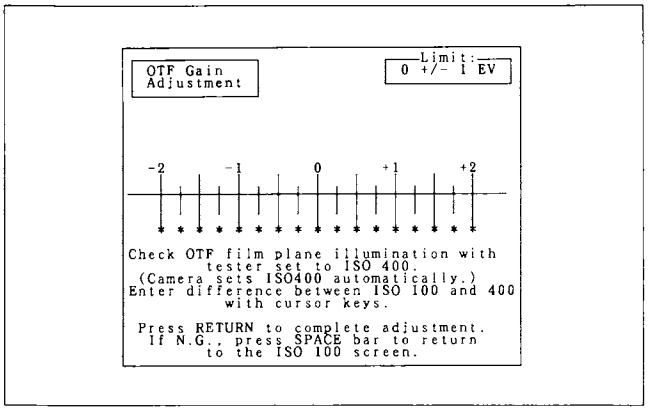
4.11.2 Flash Gain Adjustment

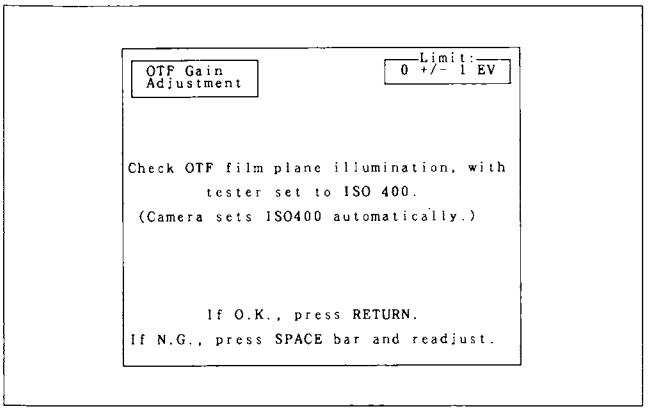
Procedure

1) Press the F2 key to display this screen. Confirm that the ISO of the tester is set to ISO 100.
2) Measure the flash accuracy of the camera several times at ISO 100 and store its average flash accuracy in the memory of the camera.

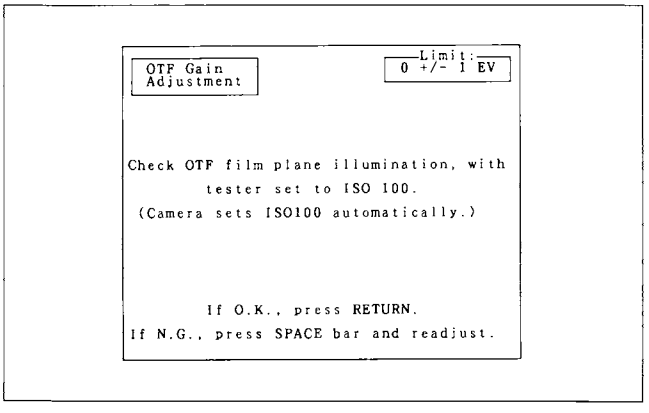


3) Press the Return key to display the screen shown at the right. Set the ISO of the tester to ISO 400.
   Measure the flash accuracy of the camera several times at ISO 400 and determine the difference between this value and the measurement at ISO 100. Press the ← and → keys to move the cursor to the position of the difference.
4) Press the Return key to display this screen. Check the flash accuracy at ISO 400 in accordance with the directions displayed on the screen. If the flash accuracy is acceptable, press the Return key. Otherwise, press the Space key to correct it again.





5) Press the Return key to display the screen shown at the right. Check the flash accuracy at ISO 100 in accordance with the directions displayed on the screen.
   If the flash accuracy is acceptable, press the Return key to return to the flash menu screen. Otherwise, press the Space key and readjust.



4.12 INHIBIT VOLTAGE ADJUSTMENT

Inhibit voltage check must always be made when replacing the main flex.

Purpose To insure the operating accuracy of individual parts of the camera by setting the minimum voltage for camera operation.

Tools
Personal computer
RS-232C cable
HS-I/F
DC stable power
Tool battery
Adjustment program (stored on a work disk)
Digital tester

Preparation
1) I Start adjustment program, connect the camera to the personal computer, and select "Inhibit Voltage Adjustment" on the menu screen.
2) Set the camera as shown in the figure below.

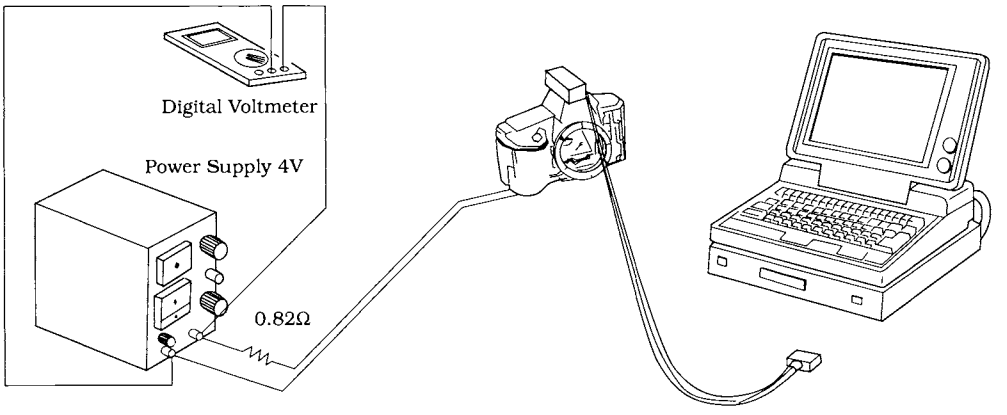
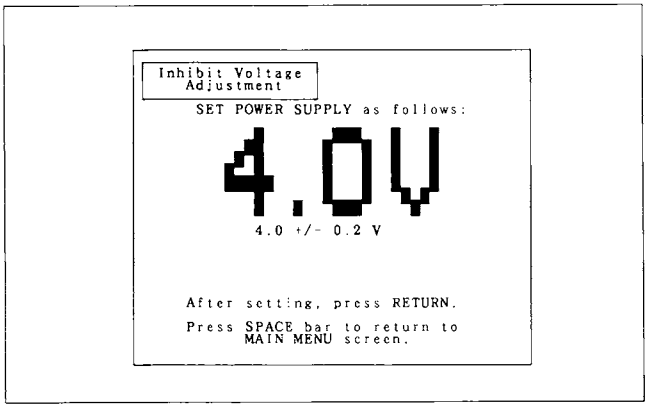
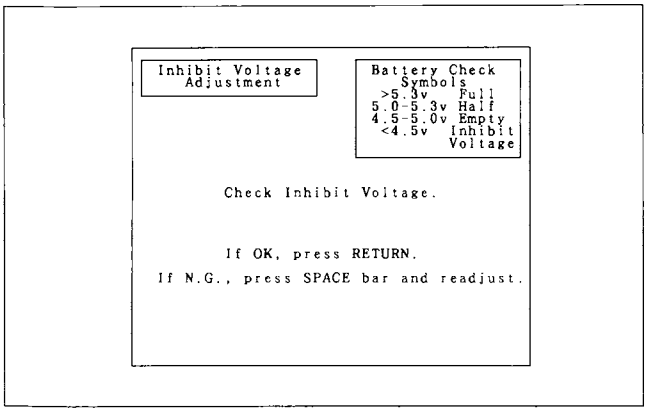


Fig. 3-28 Inhibit Voltage Adjustment

Procedure
1) Set supply voltage to 4.0 V and press the Return key to display this screen.



2) Check the inhibit voltage in the method described below.



Check method

Check inhibit voltage from the operation of the camera and the battery check mark. When checking the battery check mark, be sure to start at the higher voltage and decrease.

Table 3-5

Model	EOS 1000SQD 1000N / REBEL II
Display system	Bettery capacity desplay on LCD
Display level	5.3V or more 5.0-5.3V 4.5-5.0V 4.5 V or less

Note: The voltages listed above are adjusted to compensate for the difference between the internal resistance of the "tool battery" and the actual battery, with the normal battery installed, the transition points are 0.3 volts lower than those listed.

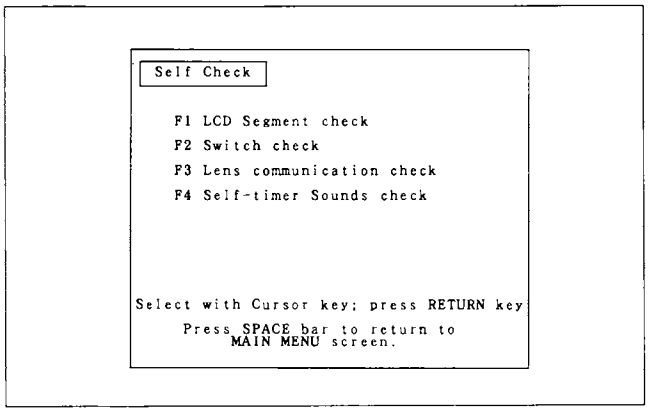
4.13 SELF CHECK

Self check can be classified into the following three types:

1. LCD check: Checking all the segments of the liquid crystal displays (LCDs).
2. SW check: Checking the condition of the individual switches of the camera.
3. Lens data communication check: Checking the communications between the lens and camera.
4. Self-timer sounds check: Check four types of self-timer music beeper.

Preparation

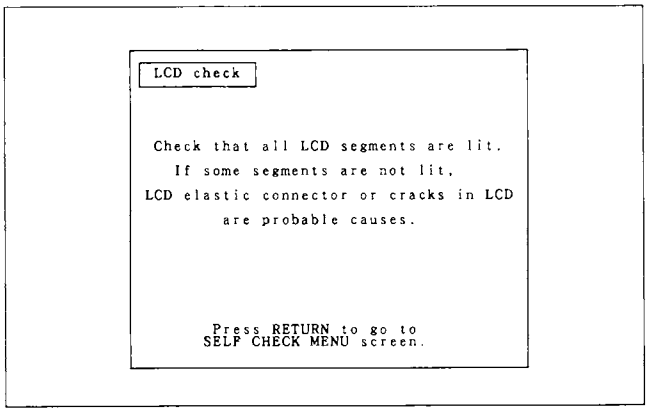
1) Start adjustment program, connect the camera to the personal computer, and select "Self Check" on the menu screen to display the self check menu screen shown at the right.



4.13.1 LCD Check

Procedure

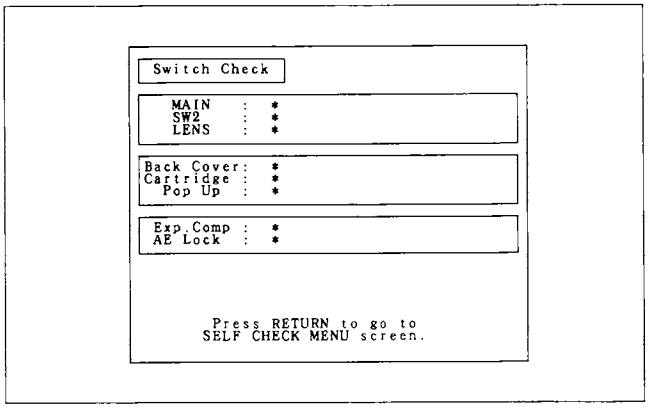
1) Press the F1 key to display this screen. Any LCD which fails to come on at this time is suspected of being faulty.
   Press the Return key to return to the self check menu screen.



4.13.2 SW Check

Procedure

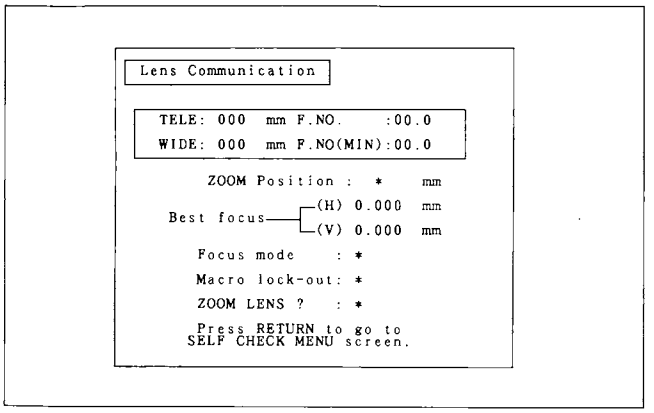
1) Press the F2 key to display the screen shown at the right. Any switch whose state fails to coincide with that displayed on this screen is suspected of being faulty.
   Press the Return key to return to the self check menu screen.



4.13.3 Lens Data Communication Check

Procedure

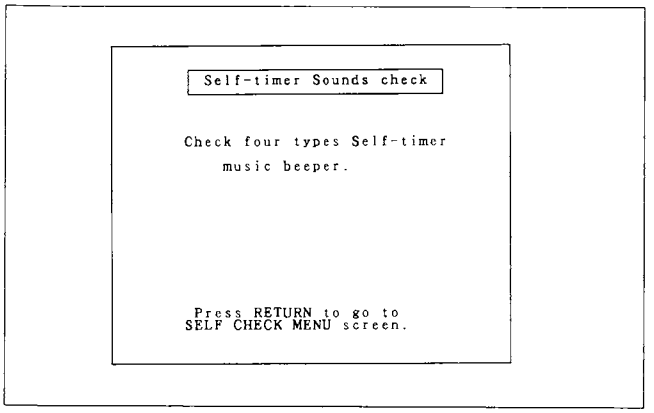
1) Press the F3 key to display this screen. If the lens data fails to coincide with that displayed, the lens is suspected of being faulty. Press the Return key to return to the self check menu screen.



4.13.4 Self-timer Sounds Check

Procedure

1) Press the F4 key to display this screen. Check four types of self-timer music beeper.
Press the Return key to return to the self check menu screen.



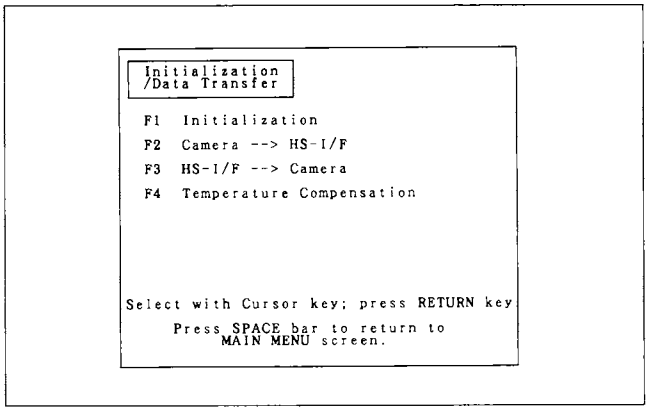
4.14 INITIALIZATION AND DATA TRANSFER

The data transfer menu consist of four operations: Initialization, data transfer from the camera to the PC, data transfer back to the camera from the PC, and temperature compensation.

1. Initialization: Transferring default data to the camera and setting the model designation if it was impossible to store camera data before replacing the main flex.
2. Storage: Storing camera data in the PC.
3. Transfer: Transferring stored camera data back to the camera.
4. Temperature compensation: Storing temperature corrections in the memory of the camera. (Correcting measuring errors made by the internal thermometer of the camera. This data is used in the AE and AF sequences.)

Preparation

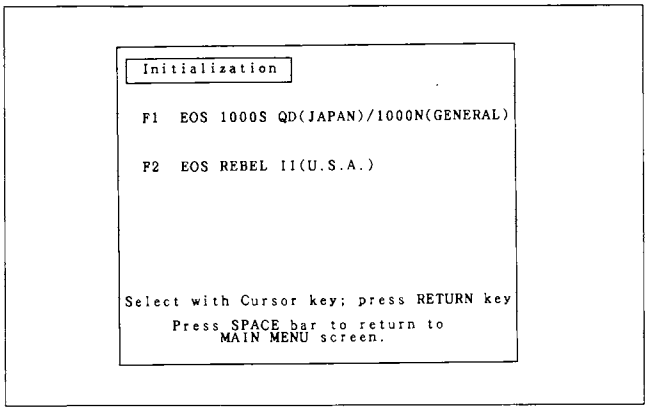
1) Start the adjustment program, connect the camera to the personal computer, and select "Data Transfer" on the menu screen to display the data transfer menu screen.



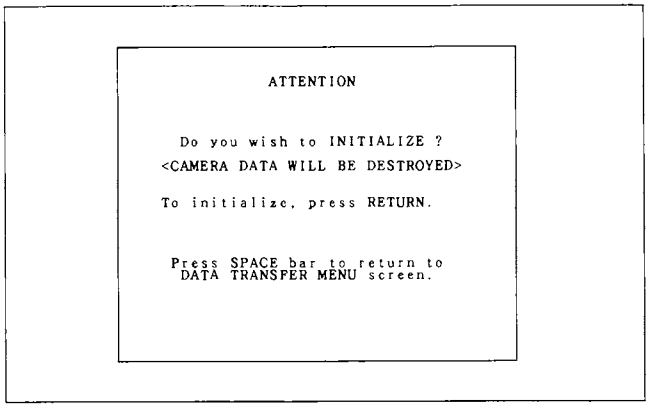
4.14.1 Initialization

Procedure

1) Press the F1 key to display the screen shown at the right. There model names will appear. Select the correct model.



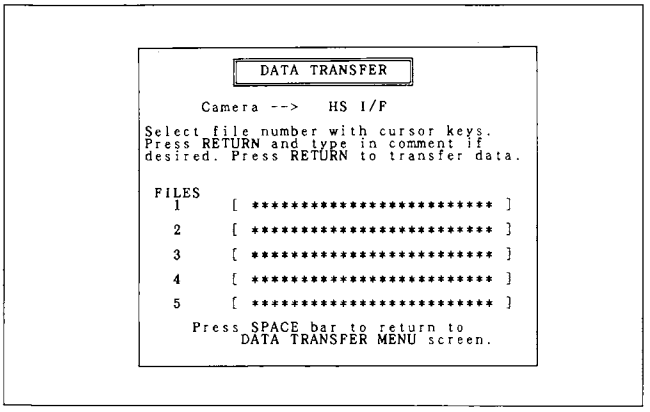
2) Confirm that the screen shown at the right appears. When choosing to initialize camera data, press the Return key. Otherwise, press the Space key to return to the data transfer menu screen.



4.14.2 Storage

Procedure

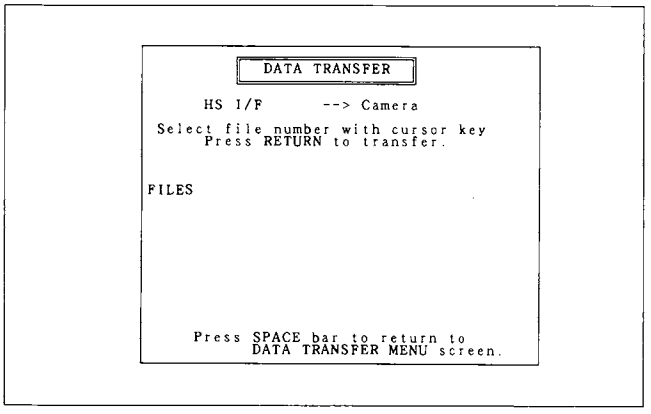
1) Press the F2 key to display the screen shown at the right. Press the ↑ and ↓ keys to move the cursor to the file position in which camera data is to be stored. Press the Return key to move the cursor to the comment column and enter your comment. Then, press the Return key again to return to the data transfer menu screen.
   * One comment can contain a maximum of 10 alphanumeric characters.



4.14.3 Transfer

Procedure

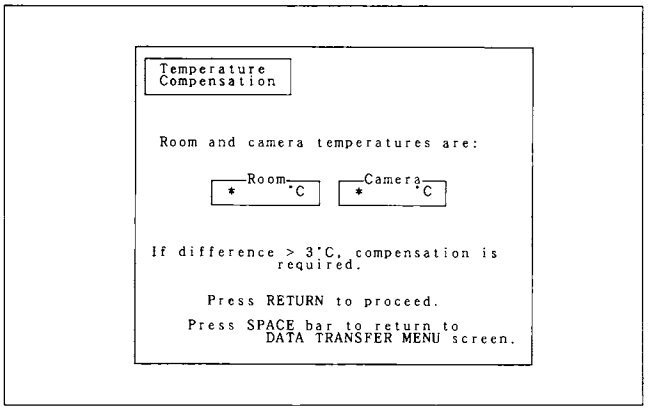
1) Press the F3 key to display the screen shown at the right. Press the ↑ and ↓ keys to move the cursor to the position of a file which contains the camera data to be transferred to camera.
   Press the Return key to transfer the data back to the camera.
   After communications are completed, the data transfer menu screen will reappear.



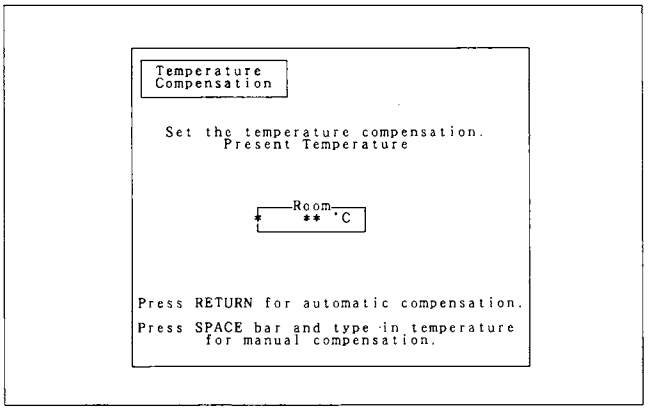
4.14.4 Temperature Compensation

Procedure

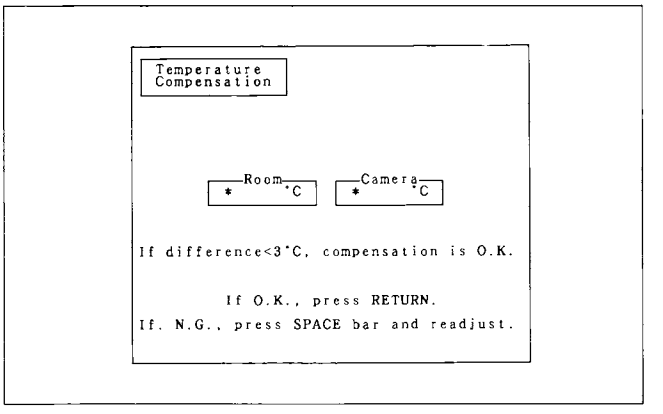
1) Press the F4 key to display this screen, showing the room temperature measured by the HS-I/F and the temperature measured by the camera. Check whether there is a difference of more than 3°C between the two.



2) If so, press the Return key to display the screen shown at the right, showing the room temperature measured by HS-I/F. Check whether the room temperature is normal. If so, press the Return key to return to the data transfer menu screen.
If not, press the Space key to move the cursor to the position of the room temperature. Then, press the numeric keys to enter actual room temperature measured with a thermometer.



3) Press the Return key to display the screen shown in the right figure, showing the room temperature measured by HS-I/F and the temperature measured by the camera. Check whether there is a difference of more than 3°C between the two.
If so, press the Space key to correct the room temperature again. If not, press the Return key to the data transfer menu screen.



Part 4 ADDITIONAL INFORMATION

1. EOS SYSTEM ACCESSORIES COMPATIBILITY CHART

The NEW EOS1000 is based on the original EOS1000. The barcode accessory, wireless remote controller, and related accessories for the EOS10 and EOS100 cannot be used. The special accessories for the EOS-1 cannot be used.

Compatibility: ○: Possible △: Possible under certain conditions ×: Not possible

1.1 INTERCHANGEABLE LENS (ZOOM LENS)

Product name	Compatibility	Note
EF20-35mm f/2.8L	○	
EF28-70mm f/3.5-4.5	○	
EF28-70mm f/3.5-4.5II	○	
EF28-80mm f/2.8-4.0LU	○	
EF28-80mm f/3.5-5.6U	○	
EF35-70mm f/3.5-4.5	○	
EF35-80mm f/4.0-5.6	○	
EF35-105mm f/3.5-4.5	○	
EF35-105mm f/4.5-5.6	○	
EF35-135mm f/3.5-4.5	○	
EF35-135mm f/4.0-5.6U	○	
EF50-200mm f/3.5-4.5	○	
EF50-200mm f/3.5-4.5L	○	
EF70-210mm f/4.0	○	
EF70-210mm f/3.5-4.5U	○	
EF75-300mm f/4.0-5.6	○	
EF80-200mm f/2.8L	○	
EF80-200mm f/4.5-5.6	○	
EF100-300mm f/5.6	○	
EF100-300mm f/5.6L	○	
EF100-300mm f/4.0-5.6U	○	
EF35-70mm f/3.5-4.5A	○	
EF35-80mm f/4.0-5.6PZ	○	
EF100-200mm f/4.5A	○	

1.2 INTERCHANGEABLE LENS

Product name	Compatibility	Note
EF14mm f/2.8LU	○	
EF15mm f/2.8FE	○	
EF24mm f/2.8	○	
EF28mm f/2.8	○	
EF35mm f/2.0	○	
EF50mm f/1.0L	○	
EF50mm f/1.8	○	
EF50mm f/1.8II	○	
EF50mm f/2.5MACRO	○	
EF85mm f/1.2L	○	
EF100mm f/2.0U	○	
EF100mm f/2.8MACRO	○	
EF135mm f/2.8SF	○	
EF200mm f/1.8LU	○	
EF200mm f/2.8LU	○	
EF300mm f/2.8LU	○	
EF300mm f/4.0LU	○	
EF400mm f/2.8LU	○	
EF600mm f/4LU	○	
TS-E24mm f/3.5L	○	
TS-E45mm f/2.8	○	
TS-E90mm f/2.8	○	
EXTENDER EF 2x	○	
EXTENDER EF 1.4x	○	

LIFE SIZE CONVERTER EF	○
EXTENTION TUBE EF25	○
LENS CONVERTER FD-EOS	×
M-LENS CONVERTER FD-EOS	×

1.3 SPEEDLITES

Product name	Compatibility	Note
420EZ	○	
430EZ system	○	
300EZ	○	
200E	○	
160E	○	
200M	○	
ML-3set	○	
Multiple flash system	○	
Off-camera Shoe Cord	○	

1.4 GRIPS

Product name	Compatibility	Note
GR10 (650)	×	
GR20 (for EOS620, w/remote control) terminal	×	
GR50 (for EOS750/850/700)	×	
GR60 (EOS10 Grip Extension)	×	
GR70 (EOS1000 Grip Extension)	○	

1.5 VIEWFINDER ACCESSORIES

Product name	Compatibility	Note
Eye Cup E (650/620)	△	Can be used but does not match the shape of the pentaprism.
Eye Cup Eb (750/850)	○	
Eye Cup Ec (EOS-1)	△	As above.
Dioptric Adjustment Lens E (10 kinds)	○	
Rubber Frame E (650)	△	As above.
Rubber Frame Eb (750)	○	
Rubber Frame Ec (EOS-1)	△	As above.
Focusing Screen E (650 group)	×	
Focusing Screen Ec (EOS-1)	×	

1.6 DATA BACKS

Product name	Compatibility	Note
Quartz Date Back E	×	Back not interchangeable.
Technical Back E	×	
Keyboard Unit TB	×	
Interface Unit TB	×	
Command Back E1	×	

1.7 FILTERS (NEW) (Old: ○ Except for Color Filters)

Product name	Compatibility	Note
Drop-in Circular Polarizing Filter PL-kC48	○	
Circular Polarizing Filter PL-C52	○	
Circular Polarizing Filter PL-C58	○	
Circular Polarizing Filter PL-C72	○	
Drop-in Gelatin Filter Holder II	○	
Gelatin Filter Holder E52/58/72	○	

1.8 GENERAL-PURPOSE EOS CASES

Product name	Compatibility	Note
Snap Case SA-4	○	
Snap Case SB-4	○	
EOS650/620 cases	×	
EOS750/850 cases	×	
EOS-1 cases	×	
EOS10 cases	×	
EOS1000 cases	△	Can be used but does not match the shape of the pentaprism.

1.9 LENS COMPATIBILITY CHART FOR CASES

Standard housed components: 1. Body, 2. Lens, 3. Filter, 4. Hood, 5. Lens Cap

Compatibility rating—◎: Optimum ○: Possible △: Possible under certain conditions

×: Not possible

Lens	EH-5S					EH-5				
	Compatibility	Simultaneously housable components			Remarks	Compatibility	Simultaneously housable components			Remarks
		3	4	5			3	4	5	
1. EF 14mm f/2.8 L	×	–	–	×		△	–	–	×	
2. EF 15mm f/2.8	△	–	–	●	Much excess space	△	–	–	●	Much excess space
3. EF 20mm f/2.8	△	●	×	●		◎	●	●	●	
4. EF 24mm f/2.8	△	●	●	●	Much excess space	△	●	●	●	Much excess space
5. EF 28mm f/2.8	△	●	●	●	〃	△	●	●	●	〃
6. EF 35mm f/2	△	●	●	●	〃	△	●	●	●	〃
7. EF 50mm f/1.0 L	×	×	×	×		△	●	×	●	Hard to insert and remove
8. EF 50mm f/1.8	△	●	●	●	Much excess space	△	●	●	●	Much excess space
9. EF 50mm f/1.8 II	△	●	●	●	〃	△	●	●	●	〃
10. EF 50mm f/2.5 M	△	●	–	●	〃	△	●	–	●	〃
11. EF 85mm f/1.2 L	×	×	×	×		△	●	×	●	Hard to insert and remove
12. EF 85mm f/1.8	△	●	●	●	Hard to insert and remove	△	●	●	●	〃
13. EF 100mm f/2	△	●	●	●	〃	△	●	●	●	〃
14. EF 100mm f/2.8 MACRO	×	×	×	×		×	×	×	×	
15. EF 135mm f/2.8 SF	×	×	×	×		△	×	●	●	Hard to insert and remove
16. EF 200mm f/1.8 L	×	×	×	×		×	×	×	×	
17. EF 200mm f/2.8 L	×	×	×	×		×	×	×	×	
18. EF 300mm f/2.8 L	×	×	×	×		×	×	×	×	
19. EF 300mm f/4 L	×	×	×	×		×	×	×	×	
20. EF 400mm f/2.8 L	×	×	×	×		×	×	×	×	
21. EF 500mm f/4.5 L	×	×	×	×		×	×	×	×	
22. EF 600mm f/4 L	×	×	×	×		×	×	×	×	
23. EF 20~ 35mm f/2.8 L	×	×	×	×		△	●	×	●	Hard to insert and remove
24. EF 28~ 70mm f/3.5-4.5 II	△	●	●	●	Hard to insert and remove	◎	●	●	●	
25. EF 28~ 80mm f/2.8-4 L	×	×	×	×		×	×	×	×	
26. EF 28~ 80mm f/3.5-5.6 U	◎	●	●	●		△	●	●	●	Some excess space
27. EF 35~ 70mm f/3.5-4.5	○	●	●	●		△*	●	●	●	〃
28. EF 35~ 80mm f/4-5.6	○	●	●	●		△*	●	●	●	〃
29. EF 35~ 80mm f/4-5.6 U	○	●	●	●		△	●	●	●	〃
30. EF 35~105mm f/3.5-4.5	△	×	×	●	Hard to insert and remove	◎	●	●	●	
31. EF 35~105mm f/4.5-5.6	○	●	●	●		△	●	●	●	Some excess space
* 32. EF 35~105mm f/4.5-5.6 U	◎	●	●	●		△	●	●	●	〃
33. EF 35~135mm f/3.5-4.5	×	×	×	×		△	×	●	●	Hard to insert and remove
34. EF 35~135mm f/4-5.6 USM	×	×	×	×		◎	●	●	●	〃
35. EF 50~200mm f/3.5-4.5	×	×	×	×		×	×	×	×	
36. EF 50~200mm f/3.5-4.5 L	×	×	×	×		×	×	×	×	
37. EF 70~210mm f/4	×	×	×	×		×	×	×	×	
38. EF 70~210mm f/3.5-4.5 USM	×	×	×	×		×	×	×	×	
* 39. EF 80~200mm f/4.5-5.6	△	●	×	●	Hard to insert and remove	◎	●	●	●	
40. EF 80~200mm f/4.5-5.6 U	○	●	●	●		◎	●	●	●	
41. EF 80~200mm f/2.8 L	×	×	×	×		×	×	×	×	
42. EF 75~300mm f/4-5.6	×	×	×	×		×	×	×	×	
43. EF 75~300mm f/4-5.6 U	×	×	×	×		×	×	×	×	
44. EF100~300mm f/5.6	×	×	×	×		×	×	×	×	
45. EF100~300mm f/5.6 L	×	×	×	×		×	×	×	×	
46. EF100~300mm f/4.5-5.6 USM	×	×	×	×		×	×	×	×	
47. EF 35~ 70mm f/3.5-4.5 A	○	●	●	●		△**	●	●	●	Some excess space
48. EF 35~ 80mm f/4-5.6 PZ	○	●	–	●		△	●	–	●	Much excess space
49. EF100~200mm f/4.5 A	×	×	×	×		×	×	×	×	

* Best-fit lens: Used as basis for determining case dimensions. EH-5 : 80~200/4.5-5.6 EH-5S : 35~105/4.5-5.6 Ultrasonic

* * The "△*" rating in the EH-5 compatibility column indicates that the lens was previously given a "○" rating for the EOS 1000, but since it is given a "○" rating in the EH-5S column, the EH-5 rating is dropped to a "△".

2. COMPETITIVE PRODUCT COMPARISON

↓ Item	→ Maker / → Model	CANON EOS 1000S QD	CANON EOS 1000 QD	PENTAX Z-10 QD	MINOLTA α-3 x iQD	Nikon F-401 x QD
AF	AF modes: One-shot AF	→	●	●	●	●
	AF modes: Servo AF	→	●	●	●	–
	AF modes: Focus Prediction AF	→	●	●	●	–
	Manual	→	●	●	▲	●
	AF speed	→	★★★★	★★★★	★★★	(★★★)
	AF focusing area	→	–	–	–	–
	In-focus indication LED/beep	→	●/●	●/●	●/–	●/–
	AF working range (EV)	→	+1~18	+1~18	-1~18	-1~19
	Built-in AF auxiliary light	→	●	–	● Flash multi firing	–
Viewfinder	Magnification/Eyepoint (mm)	→	0.75/20	0.77/	0.75/	0.8/
	Pentaprism	→	Glass	Hollow	Hollow	Glass
	Viewfinder internal display	→	Full digital display, metered manual	6LED	6LED	5LED
	Interchangeable screen	→	–	–	–	–
Fully automatic modes	Program AE	→	●	●	●	●
	Shutter-priority AE	→	●	–	–	–
	Landscape	→	●	–	–	–
	Portrait	→	●	–	–	–
	Close-up	→	●	–	–	–
	Sports	→	●	–	–	–
	Double-exposure soft focus	●	–	–	–	–
Metering	Evaluative metering (zones)	→	● (3)	● (6)	● (8)	● (5)
	Center-weighted average/Partial	→	–/●	–/●	–/–	●/–
	Metering range (EV, normal temp.)	→	2~20	1~21	1~20	0~19
	Film speed range (step): DX auto	→	25~5000 (1/3)	25~5000	25~5000 (1/3)	25~5000 (1/3)
	Film speed range (step): Manual	→	6~6400 (1/3)	–	–	–
External display/Main input method		→	LCD/electronic & mechanical dials	LCD/UP-DOWN buttons	LCD/Slide switches	2 mechanical dials
Exposure control	Shutter-priority AE	→	●	–	●	●
	Aperture-priority AE	→	●	●	●	●
	Intelligent Program AE	→	●	●	●	(▲)
	Manual exposure	→	●	●	●	Zero method
	AE lock AF-coupled/M	→	●/●	●/–	/	●/●
	Shutter speed range (step)	1/2000~30, B (1/2)	1/1000~30, B (1/2)	1/2000~30, B (1/2)	1/2000~30, B (1)	1/2000~30, B, T (1)
	Max. X-sync speed (sec)	→	1/90	1/100	1/90	1/125
	Exposure compensation/step	→	●±2/1/2	●±3/1/2	–	–
	Multiple exposure (preset)	→	●	–	–	–
Film transport (data based on 24EX film)	Transport system/fully automated	→ *Silent	Prewind/●	Normal/●	Normal/●	Normal/REW SW
	Winding speed (fps)	→	1	–	(1)SINGLE	2.5
	Rewind time (sec)	→	9 (prewind)	15	11	20
	Shooting capacity AE 100%/FA 50%	→	75/40	120/40	60/25	75/30
Built-in flash	Built in	→	●	●	●	●
	G No. (ISO 100•m)	14	12	12	12	12
	UP/DOWN AUTO or M	→	M/M	M/M	A/M	M/M
	Auto firing in low light and backlighting	→	●	Warning	●	Warning
	Recycle time (sec)	→	2	2.4	2	4.5
	Slow-sync	→	●	●	–	–
	Offset from lens axis	→	70.5mm	63mm	80.5mm	70mm
	Red-eye reduction function	●	–	–	●	–
External flash wireless control function		–	–	–	●	–
Self-timer		→ *Music	●	●	●	●
Zero time start function		–	–	–	●	–
Power source		→	2CR5 x 1	2CR5 x 1	2CR5 x 1	AA x 4
QD		→	●	●	●	●
Dimensions (W × H × D) mm		→	148 x 99.8 x 69	146 x 92.5 x 70	146.5 x 92 x 64	154 x 102 x 65
Weight (W/O battery) gr		470	460	510	435	655
Release date		(1992. 03)	1990. 09	1991. 06	1991. 09	1991. 09
Price (Japan)		(→)	¥47,000	¥52,000	¥50,000	¥69,000

3. BLOCKAGE OF BUILT-IN FLASH BY EF LENSES

◎ : No problem even when a hood attached.
△ : Flash blocked by hood, but no problem if the hood is removed.
× : Flash blocked even if hood is removed → built-in flash cannot be used with this lens under the indicated conditions.
— : Lens coverage is not completely covered by the flash or the lens' minimum shooting distance is greater than the flash coupling distance.

3.1 BUILT-IN FLASH BLOCKAGE BY EF SIGNAL LENGTH LENSES

NO	Lens	Shooting distance [m]					
		0.5	1	2	3	4	5
01.	EF 14mm f/2.8 L	—	—	—	—	—	—
02.	EF 15mm f/2.8 FE	—	—	—	—	—	—
03.	EF 20mm f/2.8	—	—	—	—	—	—
04.	EF 24mm f/2.8	—	—	—	—	—	—
05.	EF 28mm f/2.8	—	—	—	—	—	—
06.	EF 35mm f/2	—	◎	◎	◎	◎	◎
07.	EF 50mm f/1.0 L	—	△	△	△	△	△
08.	EF 50mm f/1.8	△	◎	◎	◎	◎	◎
09.	EF 50mm f/1.8 II	△	◎	◎	◎	◎	◎
10.	EF 50mm f/2.5 M	◎	◎	◎	◎	◎	◎
11.	EF 85mm f/1.2 L	—	△	△	△	△	△
12.	EF 85mm f/1.8	(Not yet tested; data will be added at a later date.)					
13.	EF100mm f/2	—	○	◎	◎	◎	◎
14.	EF100mm f/2.8 M	◎	◎	◎	◎	◎	◎
15.	EF135mm f/2.8 SF	—	—	◎	◎	◎	◎
16.	EF200mm f/1.8 L	—	—	—	×	×	×
17.	EF200mm f/2.8 L	—	—	◎	◎	◎	◎
18.	EF300mm f/2.8 L	—	—	—	×	×	×
19.	EF300mm f/4 L	—	—	—	◎	◎	◎
20.	EF400mm f/2.8 L	—	—	—	—	—	×
21.	EF500mm f/4.5 L	—	—	—	—	—	—
22.	EF600mm f/4 L	—	—	—	—	—	—

23.	TS-E 24mm f/3.5 L	* Judged to be inappropriate for use with built-in flash; not checked.
24.	TS-E 45mm f/2.8	
25.	TS-S 90mm f/2.8	

3.2 BUILT-IN FLASH BLOCKAGE BY EF ZOOM LENSES

NO	Lens	Shooting distance [m]											
		0.5		1		2		3		4		5	
		W	T	W	T	W	T	W	T	W	T	W	T
01.	EF 20~35mm f/2.8 L	–	×	–	×	–	×	–	×	–	△	–	△
02.	EF 28~70mm f/3.5-4.5 II	×	△	△	◎	△	◎	△	◎	△	◎	△	◎
03.	EF 28~80mm f/2.8-4 L	×	×	×	△	×	△	×	△	×	△	×	△
04.	EF 28~80mm f/3.5-5.6 U	×	△	×	◎	△	◎	△	◎	△	◎	△	◎
05.	EF 35~70mm f/3.5-4.5	△	△	△	◎	△	◎	△	◎	△	◎	△	◎
06.	EF 35~80mm f/4-5.6	△	◎	△	◎	△	◎	△	◎	△	◎	◎	◎
07.	EF 35~80mm f/4-5.6 U	△	◎	△	◎	△	◎	△	◎	◎	◎	◎	◎
08.	EF 35~105mm f/3.5-4.5	△	◎	△	◎	△	◎	△	◎	△	◎	△	◎
09.	EF 35~105mm f/4.5-5.6	–	–	△	◎	△	◎	△	◎	△	◎	△	◎
10.	EF 35~105mm f/4.5-5.6 U	–	–	△	◎	△	◎	△	◎	△	◎	△	◎
11.	EF 35~135mm f/3.5-4.5	–	–	△	◎	△	◎	△	◎	△	◎	△	◎
12.	EF 35~135mm f/3.5-4.5 USM	–	–	△	◎	△	◎	△	◎	△	◎	△	◎
13.	EF 50~200mm f/3.5-4.5	–	–	×	◎	△	◎	△	◎	△	◎	△	◎
14.	EF 50~200mm f/3.5-4.5 L	–	–	×	◎	△	◎	△	◎	△	◎	△	◎
15.	EF 70~210mm f/4	–	–	–	–	△	◎	△	◎	△	◎	△	◎
16.	EF 70~210mm f/3.5-4.5 USM	–	–	–	–	△	◎	△	◎	△	◎	△	◎
17.	EF 80~200mm f/2.8 L	–	–	–	–	×	△	△	△	△	△	△	△
18.	EF 80~200mm f/4.5-5.6	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
19.	EF 80~200mm f/4.5-5.6 U	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎
20.	EF 75~300mm f/4-5.6	–	–	–	–	△	◎	△	◎	△	◎	◎	◎
21.	EF 75~300mm f/4-5.6 U	–	–	–	–	△	◎	△	◎	△	◎	◎	◎
22.	EF100~300mm f/5.6	–	–	–	–	△	◎	△	◎	△	◎	◎	◎
23.	EF100~300mm f/5.6 L	–	–	–	–	△	◎	△	◎	△	◎	◎	◎
24.	EF100~300mm f/4.5-5.6 USM	–	–	–	–	△	◎	△	◎	△	◎	△	◎
25.	EF 35~70mm f/3.5-4.5 A	△	△	△	◎	△	◎	△	◎	△	◎	△	◎
26.	EF 35~80mm f/4-5.6 PZ	○	○	○	○	○	○	○	○	○	○	○	○
27.	EF100~200mm f/4.5 A	–	–	–	–	◎	◎	◎	◎	◎	◎	◎	◎

Notes: No. 26 was actually judged as a △, but since there is no specified hood available, it is given a ○rating.

W : Wide
T : Tele

4. WORK DISK CREATION

Introduction

Canon provides HS-I/F adjustment software for the IBM PC (5-inch (2D), 3.5-inch (2DD)), and for the NEC PC9801 (5-inch, 3.5-inch (2HD) (Japanese only)). Canon does not provide the MS-DOS software because of the copyright and MS-DOS variations for different personal computers. The user must create an adjustment software work disk using the following procedure. The procedure with a floppy disk is different from the procedure with a hard disk. Use the appropriate procedure.

4.1 IBM PC SERIES

1. When using double disk drives
   (1) Insert the MS-DOS system disk into drive A, and switch the power on.
   (2) When the system starts, insert a new disk into drive B.
   (3) The new disk in drive B is formatted.
   Type the following:

```
FORMAT_B:/S      [RETURN]
      ||  └─── Transfer the MS-DOS system file.
      |└────── Drive to be formatted
      └─────── Space
```

   Format the disk as instructed. (For details, see the MS-DOS manual (FORMAT).)

   (4) After formatting, type as follows to copy the following files in the MS-DOS disk and start the adjustment program:
   (File name: ANSI.SYS (Make screen display possible))

```
COPY_A:ANSI.SYS_B:   [RETURN]
    |             └── Drive to which data is copied (new disk)
    └──────────────── Drive from which data is copied (MS-DOS system)
```

   (5) After copying, remove the MS-DOS system disk from drive A, and insert the original disk.
   (6) Type as follows to start copying:

```
MCOPY_A:_B:    [RETURN]
     |   └──── Drive to which data is copied (new disk)
     └──────── Drive from which data is copied (original disk)
```

   The work disk has been created. To check the disk, switch the power off or reset the computer, and type the adjustment software file name as follows:

FILE NAME [RETURN]

The program starts and the first screen of the adjustment software appears.

2. When using a hard disk drive
   (1) Insert the original disk into drive A. A> is displayed on the screen.
   (2) Type as follows (if the hard disk is drive C):

```
MCOPY_A:_C:_H   [RETURN]
    ||   |  └── Copy to the hard disk.
    ||   └───── Drive to which data is copied (new disk)
    |└───────── Drive from which data is copied (original disk)
    └────────── Space
```

   When you type H, the files on the original disk, except AUTOEXEC.BAT and CONFIG.SYS, are transferred.

   (3) Type as follows to check that the following files are present.

   [CONFIG.SYS
   ANSI.SYS······File for making RS-232C usable]

```
C:     [RETURN]

DIR    [RETURN]
```

   (4) If the ANSI.SYS file is present, go to step 5.
   If not, insert the MS-DOS system disk into drive A, and type as follows:

```
COPY_A:ANSI.SYS_C:   [RETURN]
    |           └── Drive to which data is copied (hard disk)
    └────────────── Drive from which data is copied (MS-DOS system)
```

   (5) If the CONFIG.SYS file is present, type as follows to check its contents. (TYPE command) If the CONFIG.SYS file is absent, go to step 10.

```
TYPE_CONFIG.SYS   [RETURN]
```

   (6) Write down the file contents shown on the screen.

```
FILES=20
BUFFERS=10
DEVICE=CANON6A.SYS
DEVICE=CANON6B.SYS
```

* If the personal computer has an editor or wordprocessing function, type DEVICE=ANSI.SYS at the end of the file and press the return key. (Steps (7) to (9) can be skipped.)

(7) Type as follows to rewrite the file:

```
COPY_CON_CONFIG.SYS     [RETURN]
```

(8) Type the written CONFIG.SYS file contents, then type the following line:

```
DEVICE=ANSI.SYS         [RETURN]
```

(9) Hold down the control key, and press the Z key. The following appears. Then press the return key.

```
^Z      [RETURN]
```

(10) If the CONFIG.SYS file is absent, type as follows to copy it from the original disk:

```
COPY_A:CONFIG.SYS_C:  [RETURN]
     |            └── Drive to which data is copied (hard disk)
     └─────────────── Drive from which data is copied (original disk)
```

The work disk has been created. To check the disk, switch the power off or reset the computer, and type the adjustment software file name as follows:

FILE NAME [RETURN]

The program starts and the first screen of the adjustment software appears.

4.2 PRECAUTIONS

(1) Before connecting the camera to the HS-I/F, switch the personal computer and the HS-I/F on, and run the program.

(2) Place the HS-I/F in a place where it does not receive heat from the personal computer, because the tool has a thermostat at the back.

(3) For handling the personal computer, see its manual.

5. ERROR CODES

5.1 EXPLANATION

If an error occurs in the HS-I/F, the corresponding error code is displayed. This section describes the measures to be taken if an error code is displayed.

5.2 ERROR TYPES

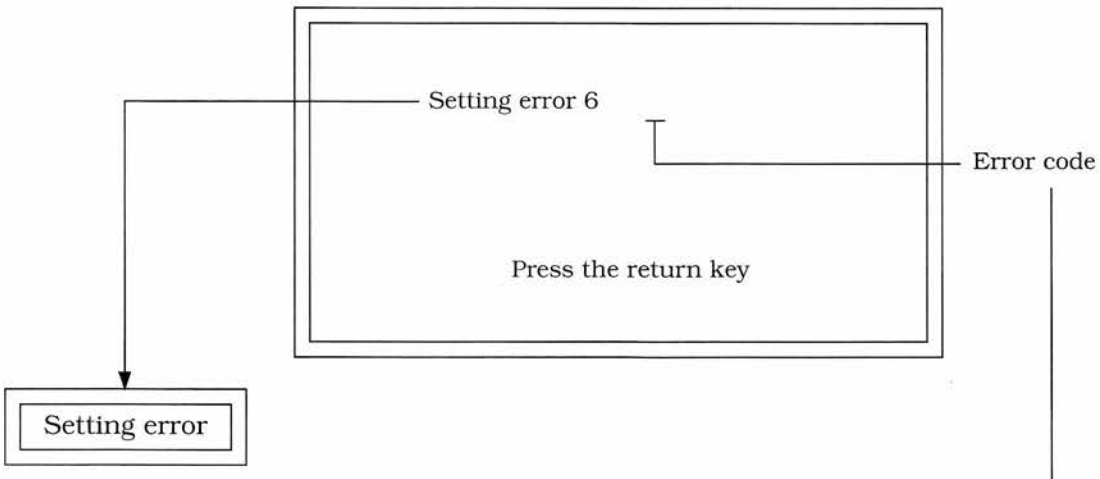
(1) Setting error: Error caused by operator setting or an operation mistake
(2) Software error: Adjustment software error
(3) Hardware error: Personal computer or HS-I/F error
(4) Error: Error not included in (1) to (3)

* If a system error other than (1) to (4) occurs, the following screen appears. In this case, describe the error on a copy of the inquiry sheet on the last page, and contact us.

[Display example (There are various messages.)]
Illegal function call in line 0 of module XXXX at address xxxx : xxxx

5.3 ERROR CODES

Example of error code display



Error code	Cause	Corrective measure
6	The personal computer did not calculate correctly	(1) The intensity or voltage was not adjusted as instructed in the manual. Adjust as instructed in the manual. (2) Camera sensor error. Check with other cameras.

5.4 SETTING ERROR

* If the following measures do not correct the error, describe the error on a copy of the inquiry sheet on the last page, and contact us.

Error code	Cause	Corrective measure
6	The personal computer did not calculate correctly.	(1) The intensity or voltage was not adjusted as instructed in the manual. Adjust as instructed in the manual. (2) Camera sensor error. Check with other cameras.
7	The personal computer has insufficient memory.	(1) Check whether the personal computer has a memory of 640K bytes or more. (The memory is checked when the power is switched on.) (2) This error occurs if the disk memory space is used by software other than the adjustment software. Store adjustment software for each model on one disk.
11	The personal computer did not calculate correctly.	(1) The intensity or voltage was not adjusted as instructed in the manual. Adjust as instructed in the manual. (2) Camera sensor error. Check with other cameras.
53	The specified file does not exist on the disk.	(2) Create the work disk again as instructed in the manual.
68	The RS-232C communication function is not available.	(1) See the personal computer manual, and check whether it has the RS-232C communication function. (2) If it does not have the RS-232C function, contact the shop where you bought your computer. (Buy RS-232C.)
73	The disk was formatted with a version of MS-DOS earlier than 3.1.	(1) Format the disk with MS-DOS version 3.1 or later, and create the work disk again.
76	The specified file does not exist on the disk.	(1) Create the work disk again as instructed in the manual.
100 105	A communication error occurred between the HS-I/F and the camera.	(1) Confirm that the camera is powered on. (2) Check whether the power is being supplied. (3) Check whether the camera is connected to the contact adapter properly, and whether the HS-I/F is connected to the contact adapter properly. (4) The camera is defective. Check whether other cameras can be adjusted correctly. (5) The work disk is not suited to the camera. Remove the adjustment software disk from the personal computer, and check the model name. (6) The HS-I/F may have failed. Switch the HS-I/F power off, leave it for about one minute, switch the power on, and try again from the beginning.

101	Data from the camera was incorrect.	(1) Check whether the camera is connected to the contact adapter properly, and whether the HS-I/F is connected to the contact adapter properly. (2) The camera is defective. Check whether other cameras can be adjusted correctly.
102 103 104	An error occurred during transfer of a program or data between the personal computer and HS-I/F.	(1) Check whether the personal computer is connected to the HS-I/F correctly.
200 201	The specified file does not exist on the disk.	(1) Create the work disk again as instructed in the manual.
202	The disk contents are destroyed.	(1) Create the work disk again as instructed in the manual.

5.5 SOFTWARE ERROR

* If a software error occurs, describe the error on a copy of the inquiry sheet on the last page, and contact us.

5.6 HARDWARE ERROR

Error code	Cause	Corrective measure
150	HS-I/F failure.	(1) Check whether the personal computer is connected to the HS-I/F correctly. (2) If the problem persists, ask for repair.
151	HS-I/F memory unit failure.	(1) Ask for repair.
152	The HS-I/F program does not run normally.	(1) Since the HS-I/F program is contained on the work disk, the work disk may be defective. (2) HS-I/F failure. Ask for repair.
153	The thermometer in the HS-I/F has failed.	(1) Ask for repair.

5.7 ERROR

Error code	Cause	Corrective measure
58	The file name cannot be entered because it already exists on the disk.	(1) Enter a different file name.
61	There is no disk space.	(1) This error occurs if several kinds of adjustment software are stored on one disk. Store adjustment software for each model on one disk.
64	The file name is not accepted.	(1) Enter a different file name.
70	Data cannot be written to the disk.	(1) The disk is write-protected. Remove the write-protect tab or write-protect notch.
71	The disk drive is not ready.	(1) Close the disk drive door and enter again.

5.8 INQUIRY SHEET

Inquiry Sheet

Issue	Adjustment Software	Personal Computer
Department	Model Japanese/English	Manufacturer/model
Name	Software version	Memory Kbyte
Date	MS-DOS version No.	Peripheral equipment (hard disk, etc.)

Type of Inquiry

		Error code No.
☐ Error inquiry	☐ Setting error	[ ]
☐ Software improvement request	☐ Software error	[ ]
☐ Manual improvement request	☐ Hardware error	[ ]
☐ Others	☐ Error	[ ]
	☐ Others	

Details of Inquiry

CANON INC. Camera Technical Service Dept.	Acceptance date Answer date	Person in charge of software Person in charge of manual

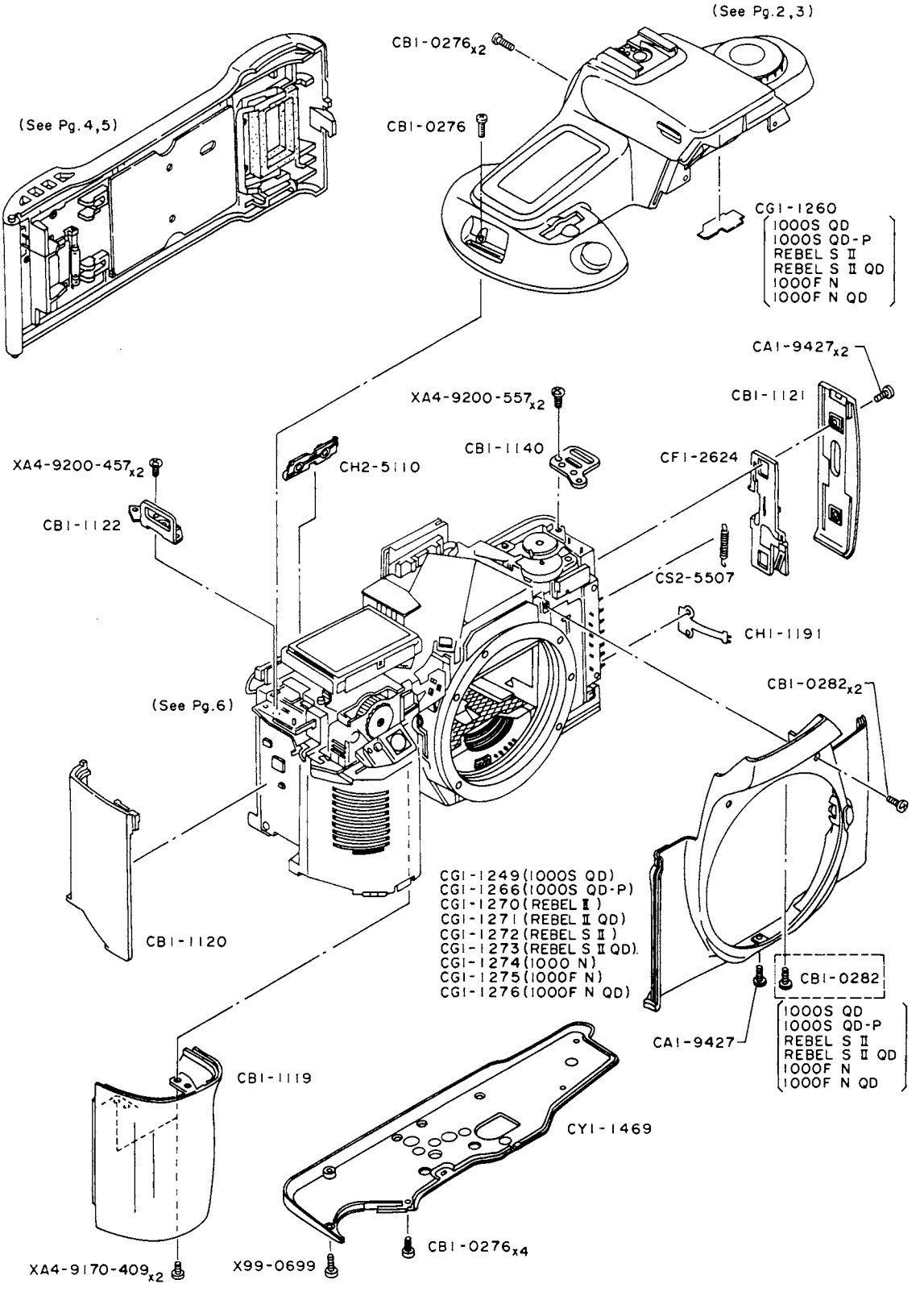
Canon

PARTS CATALOG

REF.NO. C12-8181~9

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



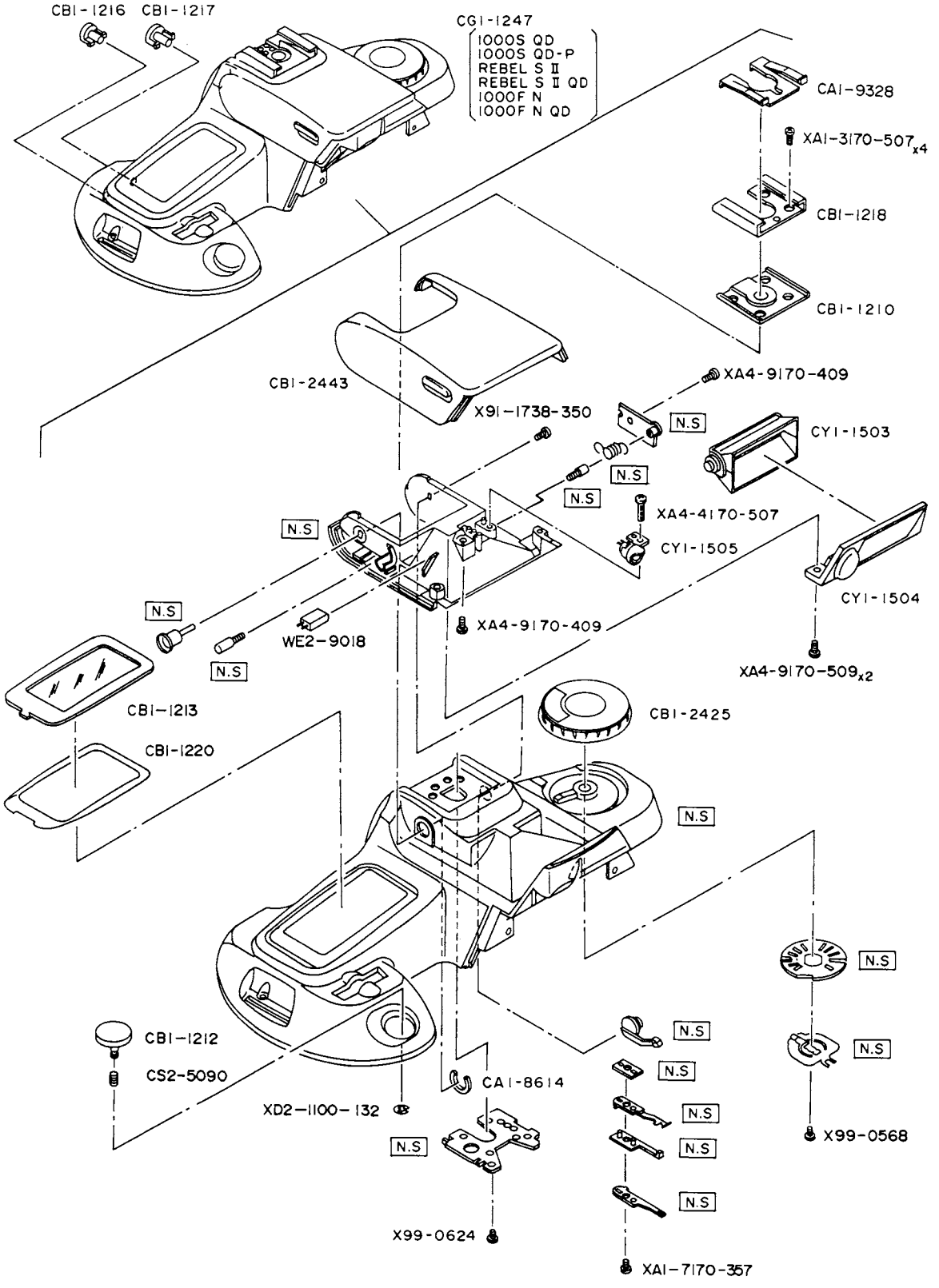
P A R T S L I S T

REF. NO. C12−8181〜9

NEW	PART NO.	CLASS	QTY	D E S C R I P T I O N	
	CA1-9427-000		3	SCREW, CROSS-RECESS, PH	
	CB1-0276-000		7	SCREW, CROSS-RECESS, PH	
	CB1-0282-000		3	SCREW, CROSS-RECESS, PH	
	CB1-1119-000	D	1	GRIP	グリップ
	CB1-1120-000	D	1	COVER, HINGE	ヒンジカバー
	CB1-1121-000	E	1	COVER, LATCH	ラッチカバー
	CB1-1122-000	E	1	LUG, NECK STRAP	縦耳環
	CB1-1140-000	E	1	LUG, NECK STRAP	横耳環
	CF1-2624-000	E	1	BACK COVER SWITCH ASS'Y	背蓋スイッチユニット
*	CG1-1249-000	D	1	FRONT PANEL ASS'Y(1000 SQD)	エプロンユニット
*	CG1-1260-000		1	RED EYE CIRCUIT BOARD	赤目緩和ランプ基板ユニット
*	CG1-1266-000	D	1	FRONT PANEL ASS'Y(1000S QD-P)	エプロンユニット
*	CG1-1270-000	D	1	FRONT PANEL ASS'Y(REBEL II)	エプロンユニット
*	CG1-1271-000	D	1	FRONT PANEL ASS'Y(REBEL II QD)	エプロンユニット
*	CG1-1272-000	D	1	FRONT PANEL ASS'Y(REBEL S II)	エプロンユニット
*	CG1-1273-000	D	1	FRONT PANEL ASS'Y(REBEL S II QD)	エプロンユニット
*	CG1-1274-000	D	1	FRONT PANEL ASS'Y(1000 N)	エプロンユニット
*	CG1-1275-000	D	1	FRONT PANEL ASS'Y(1000 F N)	エプロンユニット
*	CG1-1276-000	D	1	FRONT PANEL ASS'Y(1000 F N QD)	エプロンユニット
	CH1-1191-000	E	1	FLEX, BP	BPフレキ
	CH2-5110-000	E	1	SWITCH, RUBBER	AEロックスイッチ
	CS2-5507-000	E	1	SPRING, BACK COVER LATCH	背蓋ラッチスプリング
	CY1-1469-000	C	1	COVER, BASE	底蓋
	X99-0699-000		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-409		2	SCREW, CROSS-RECESS, PH	
	XA4-9200-457		2	SCREW, CROSS-RECESS, PH	
	XA4-9200-557		2	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



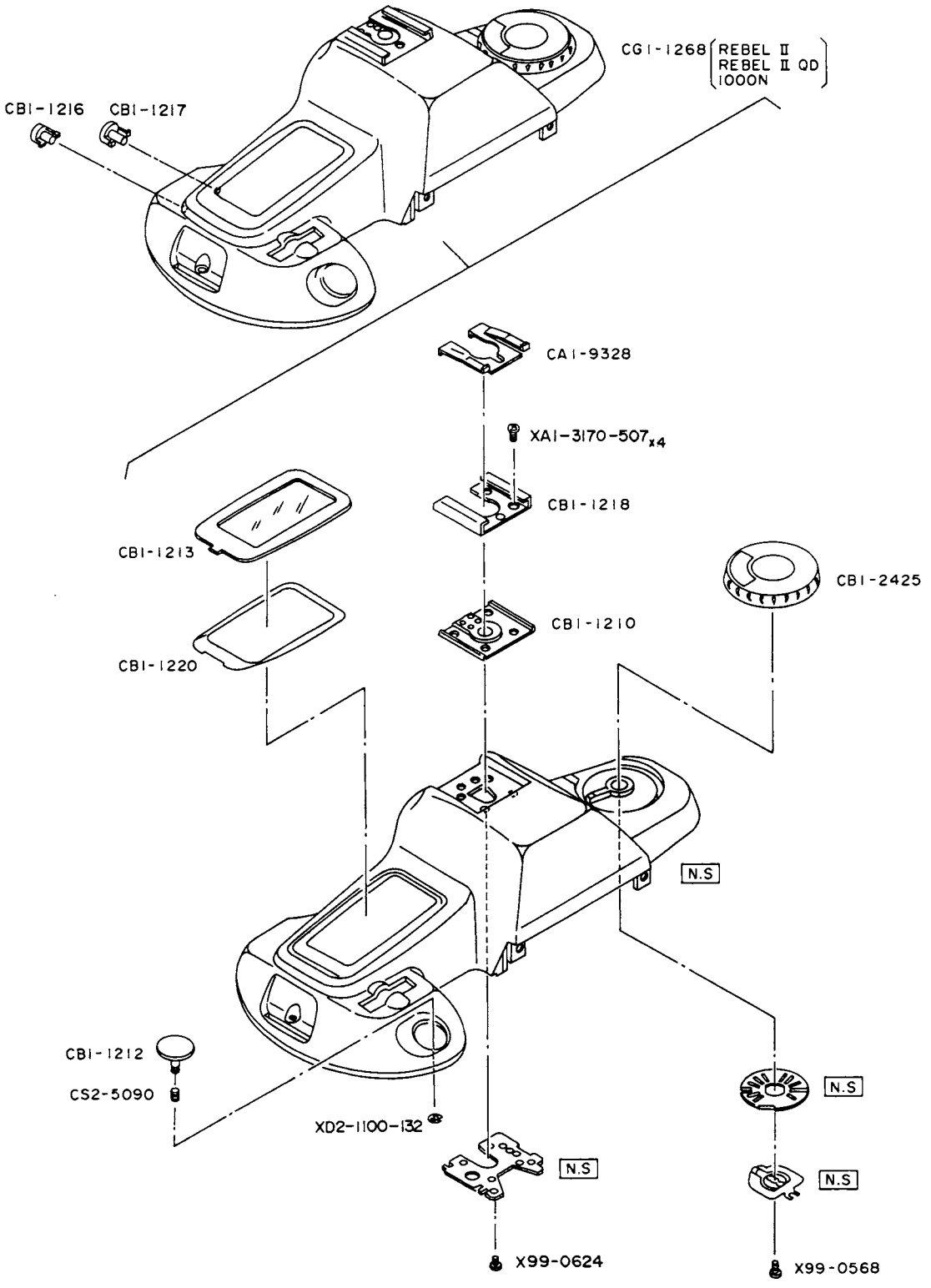
P A R T S L I S T

REF. NO. C12−8181〜9

NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CA1-8614-000	E	1	CLASP	止メ金
	CA1-9328-000	C	1	SPRING, PLATE(BL)	板スプリング（黒）
	CB1-1210-000	E	1	BASE, ACC. SHOE	アクシュー台
	CB1-1212-000	D	1	BUTTON, RELEASE	レリーズボタン
	CB1-1213-000	D	1	WINDOW, LCD	LCD 窓
	CB1-1216-000	E	1	BUTTON, AEL	AEL ボタン
	CB1-1217-000	E	1	BUTTON, CORRECTION	補正ボタン
	CB1-1218-000	D	1	SHOE, ACC	アクセサリーシュー
	CB1-1220-000	D	1	TAPE, LCD WINDOW	LCD 窓テープ
*	CB1-2425-000	D	1	DIAL, MODE	モードダイアル
*	CB1-2443-000	D	1	COVER, FLASH	フラッシュカバー
*	CG1-1247-000	D	1	TOP COVER ASS'Y	上蓋ユニット
	CS2-5090-000	E	1	SPRING, RELEASE	レリーズスプリング
*	CY1-1503-000	E	1	XENON LAMP ASS'Y	クセノンランプユニット
*	CY1-1504-000	D	1	FLASH PANEL ASS'Y	フラッシュパネルユニット
*	CY1-1505-000	D	1	RED EYE LAMP ASS'Y	赤目緩和ランプユニット
	WE2-9018-000	E	1	COIL, TRIGGER	トリガーコイル
	X91-1738-350		1	SCREW, CROSS-RECESS, PH	
	X99-0568-000		1	SCREW, CROSS-RECESS, PH	
	X99-0624-000		1	SCREW, CROSS-RECESS, PH	
	XA1-3170-507		4	SCREW, CROSS-RECESS, FCH	
	XA1-7170-357		1	SCREW, CROSS-RECESS, PH	
	XA4-4170-507		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-409		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-509		2	SCREW, CROSS-RECESS, PH	
	XD2-1100-132		1	WASHER, RETAINING 1.3MM	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



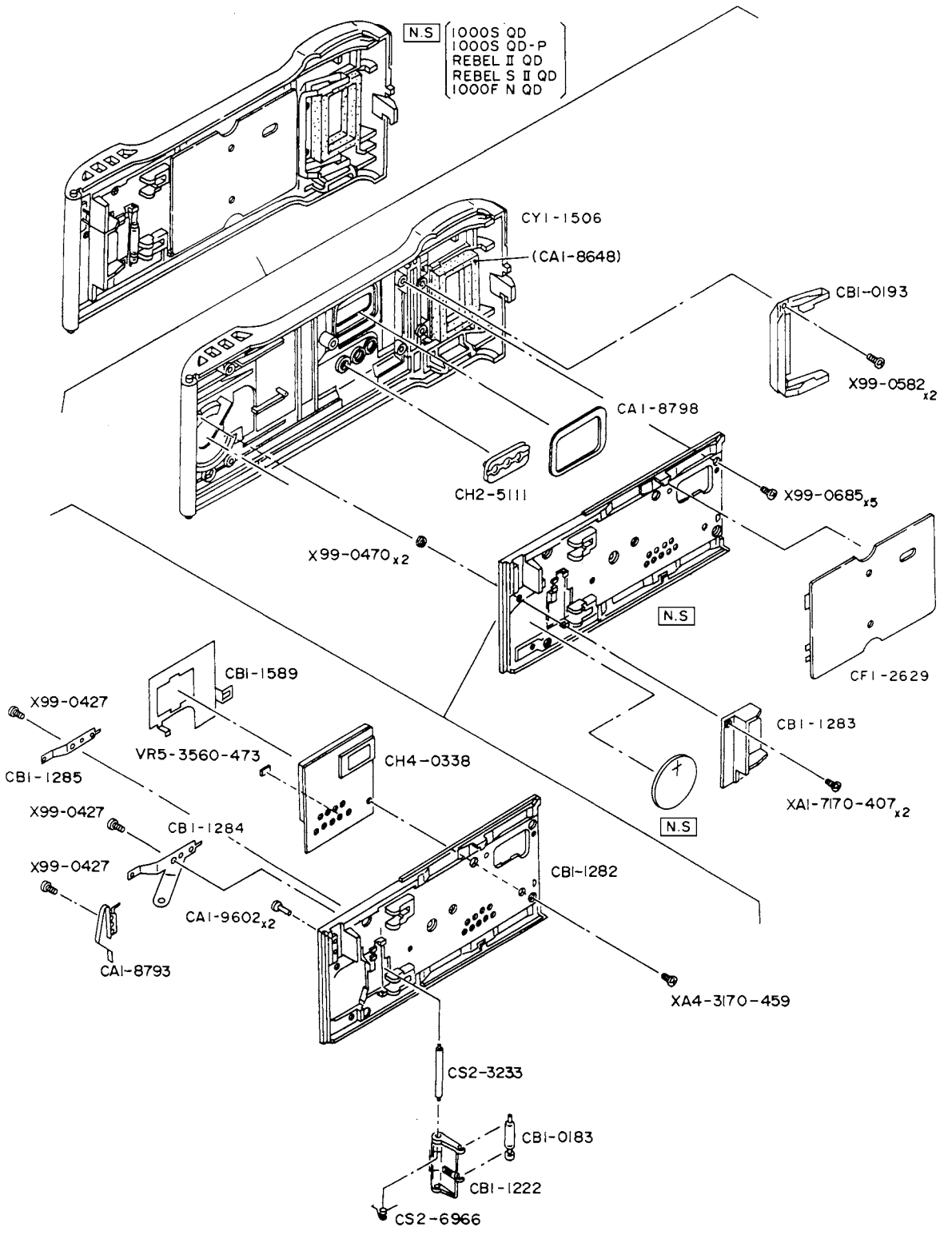
P A R T S L I S T

REF. NO. C12-8181~9

NEW	PART NO.	CLASS	QTY	D E S C R I P T I O N	
	CA1-9328-000	C	1	SPRING, PLATE(BL)	板スプリング（黒）
	CB1-1210-000	E	1	BASE, ACC. SHOE	アクシュー台
	CB1-1212-000	D	1	BUTTON, RELEASE	レリーズボタン
	CB1-1213-000	D	1	WINDOW, LCD	LCD 窓
	CB1-1216-000	E	1	BUTTON, AEL	AEL ボタン
	CB1-1217-000	E	1	BUTTON, CORRECTION	補正ボタン
	CB1-1218-000	D	1	SHOE, ACC	アクセサリーシュー
	CB1-1220-000	D	1	TAPE, LCD WINDOW	LCD 窓テープ
*	CB1-2425-000	D	E	DIAL, MODE	モードダイアル
*	CG1-1268-000	D	1	TOP COVER ASS'Y	上蓋ユニット
	CS2-5090-000	E	1	SPRING, RELEASE	レリーズスプリング
	X99-0568-000		1	SCREW, CROSS-RECESS, PH	
	X99-0624-000		1	SCREW, CROSS-RECESS, PH	
	XA1-3170-507		4	SCREW, CROSS-RECESS, FCH	
	XD2-1100-132		1	WASHER, RETAINING 1.3MM	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



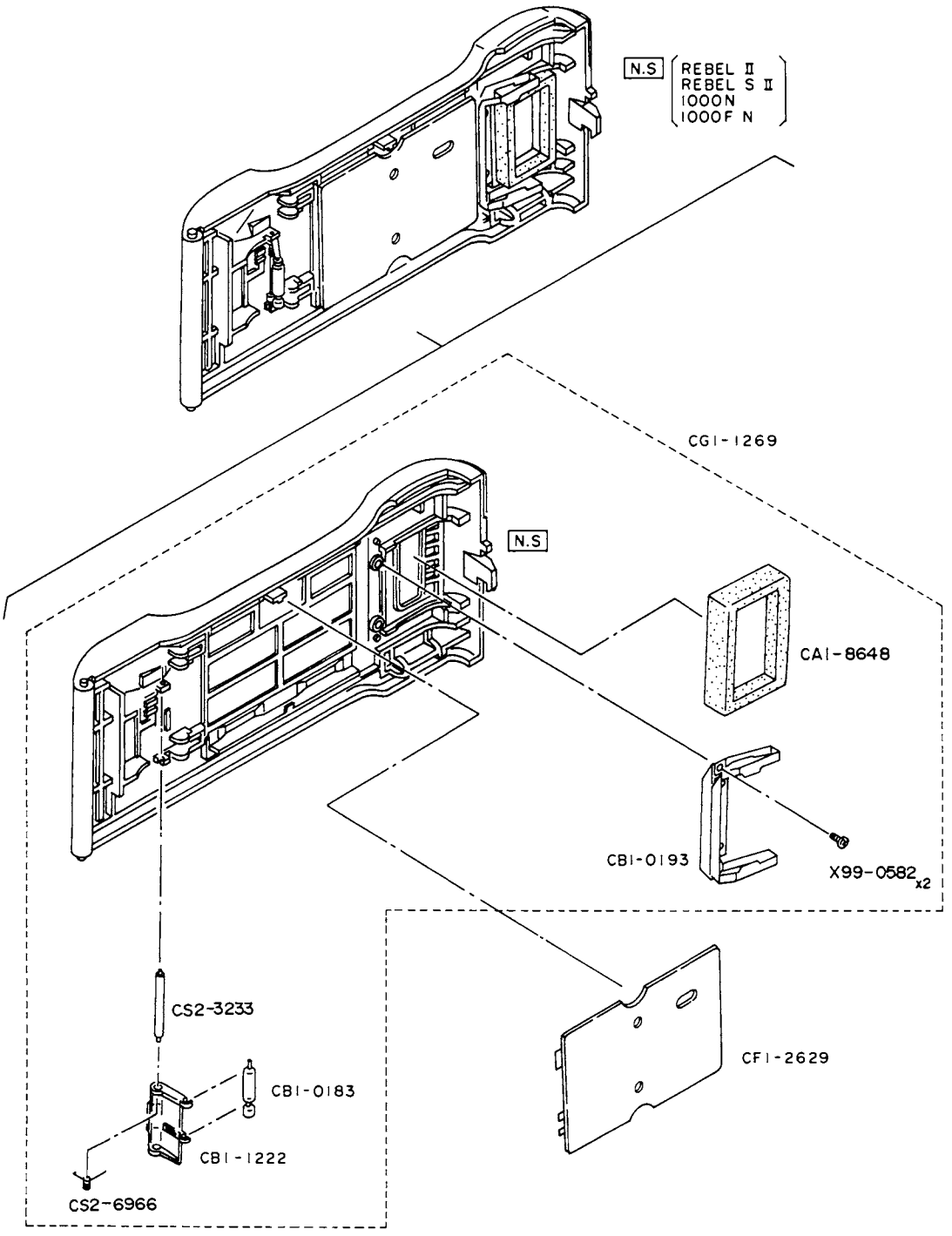
P A R T S L I S T

REF. NO. C12−8181〜9

NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CA1-8648-000	D	1	SHIELD, LIGHT	モルトプレーン
	CA1-8793-000	E	1	CONTACT 1, DATE BATTERY	デート電池接片 1
	CA1-8798-000	E	1	LIGHT SHIELD, DATE WINDOW	デート窓モルトプレーン
	CA1-9602-000	D	2	PIN, CONTACT	接片ピン
	CB1-0183-000	D	1	ROLLER-1, BACK COVER GUIDE	背蓋ガイドローラー 1
	CB1-0193-000	E	1	SPRING, CARTRIDGE	
	CB1-1222-000	E	1	HOLDER, ROLLER	ローラーホルダー
	CB1-1282-000	E	1	COVER, DATE INNER	デート内蓋
	CB1-1283-000	E	1	COVER, DATE BATTERY	デート電池カバー
	CB1-1284-000	E	1	CONTACT 2, DATE BATTERY	デート電池接片 2
	CB1-1285-000	E	1	CONTACT, DATE SIGNAL	デート信号接片
	CB1-1589-000	E	1	PLATE, DATE SHIELD	デートシールド板
	CF1-2629-000	D	1	PLATE, PRESSURE	圧着板
	CH2-5111-000	E	1	SWICH, DATE	デートスイッチ
	CH4-0338-000	E	1	DATE, CBA	デート基板
	CS2-3233-000	E	1	SHAFT, ROLLER HOLDER	ローラー軸
	CS2-6966-000	E	1	SPRING, ROLLER	ローラースプリング
*	CY1-1506-000	D	1	COVER, BACK (QD)	デート外蓋
	VR5-3560-473	E	1	RESISTOR 47 K OHM	抵抗47 KΩ
	X99-0427-000		3	SCREW, CROSS-RECESS, PH	
	X99-0470-000		2	NUT	ナット
	X99-0582-000		2	SCREW, CROSS-RECESS, PH	
	X99-0685-000		5	SCREW, CROSS-RECESS, PH	
	XA1-7170-407		2	SCREW, CROSS-RECESS, PH	
	XA4-3170-459		1	SCREW, CROSS-RECESS, FCH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD,QD-P
EOS REBEL II,II QD,S II,S II QD
EOS 1000N,F N,F N QD



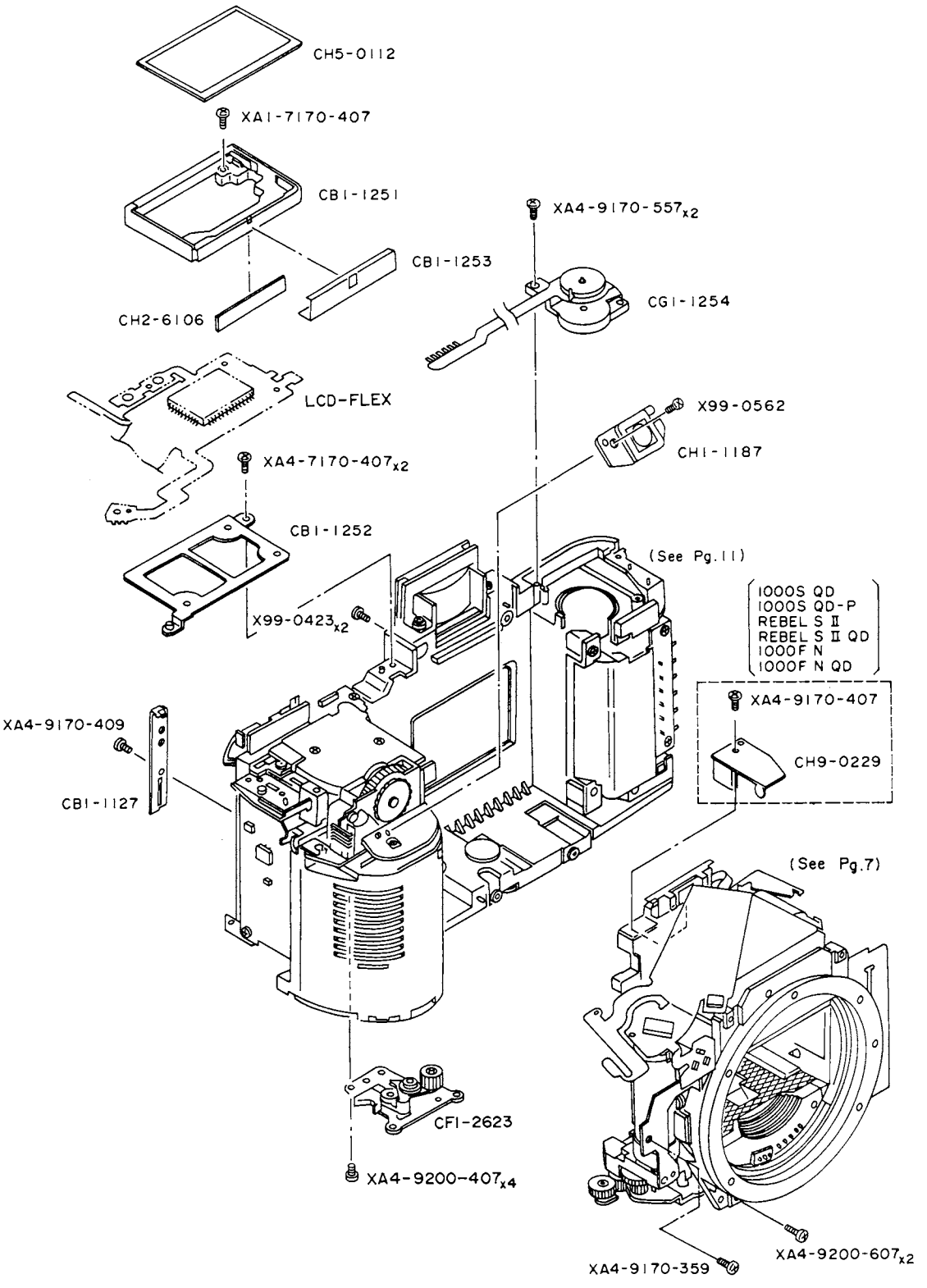
P A R T S L I S T

REF. NO. C12－8181～9

NEW	PART NO.	CLASS	QTY	D E S C R I P T I O N	
	CA1-8648-000	D	1	SHIELD, LIGHT	モルトプレーン
	CB1-0183-000	D	1	ROLLER-1, BACK COVER GUIDE	背蓋ガイドローラー 1
	CB1-0193-000	E	1	SPRING, CARTRIDGE	
	CB1-1222-000	E	1	HOLDER, ROLLER	ローラーホルダー
	CF1-2629-000	D	1	PLATE, PRESSURE	圧着板
*	CG1-1269-000	D	1	BACK COVER ASS'Y	背蓋ユニット
	CS2-3233-000	E	1	SHAFT, ROLLER HOLDER	ローラー軸
	CS2-6966-000	E	1	SPRING, ROLLER	ローラースプリング
	X99-0582-000		2	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



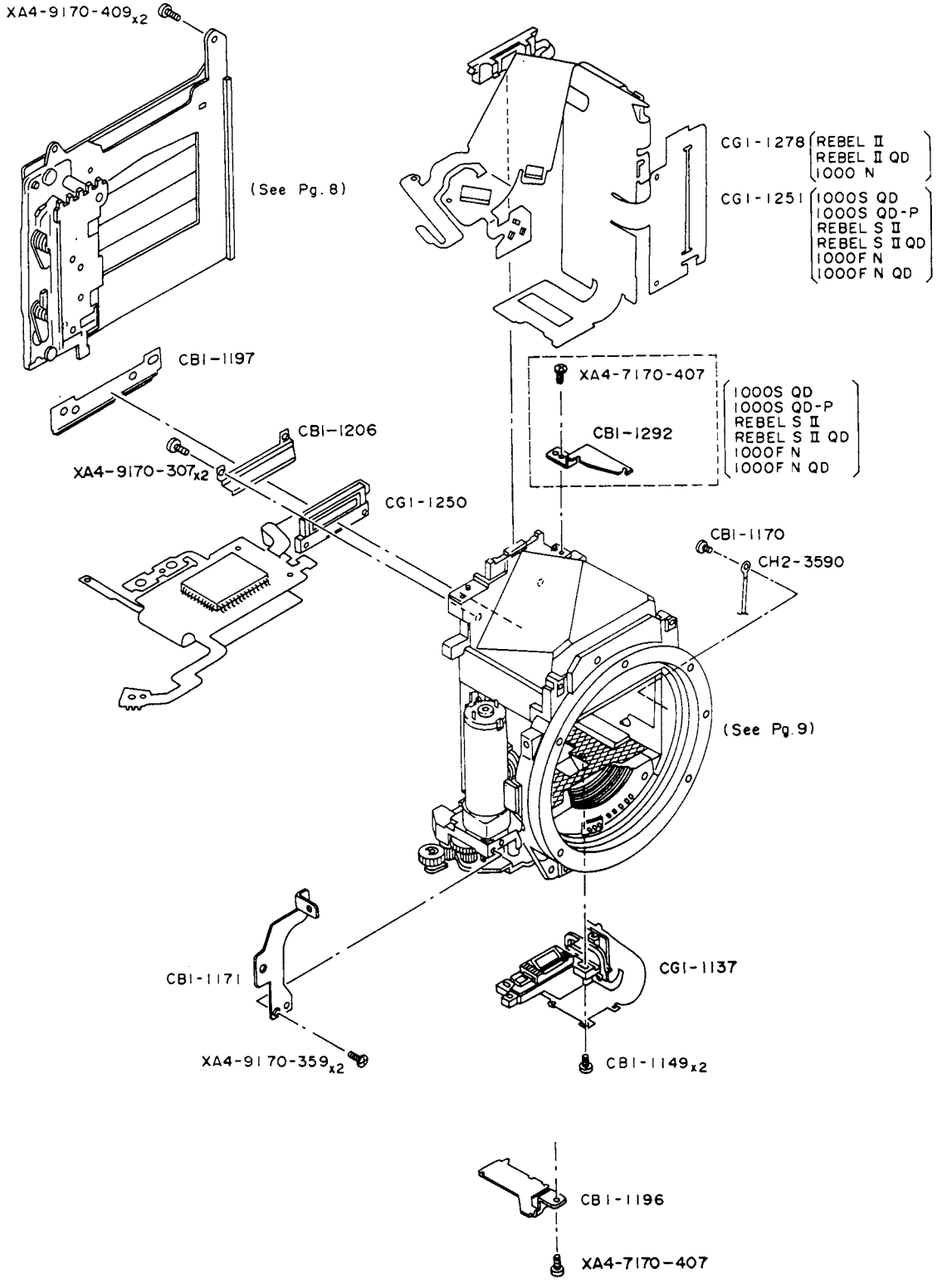
P A R T S L I S T

REF. NO. C12−8181〜9

NEW	PART NO.	CLASS	QTY	D E S C R I P T I O N	
	CB1-1127-000	E	1	COVER, DATE CONTACT	デート接片カバー
	CB1-1251-000	E	1	CASE, OLC	OLCケース
	CB1-1252-000	E	1	BASE, OLC	OLCベース
	CB1-1253-000	D	1	SPRING, OLC HOLDER	OLCホルダースプリング
	CF1-2623-000	E	1	LOWER PLATE ASS'Y	下面プレートユニット
*	CG1-1254-000	E	1	MODE BASE ASS'Y	モード地板ユニット
	CH1-1187-000	D	1	BOARD, RELEASE	レリーズ基板
	CH2-6106-000	D	1	CONNECTOR, LCD	LCDコネクター
*	CH5-0112-000	D	1	LCD	LCD
*	CH9-0229-000	E	1	CIRCUIT, PENTA BOARD	ペンタ基板回路
	X99-0423-000		2	SCREW, CROSS-RECESS, PH	
	X99-0562-000		1	SCREW, CROSS-RECESS, PH	
	XA1-7170-407		1	SCREW, CROSS-RECESS, PH	
	XA4-7170-407		3	SCREW, CROSS-RECESS, PH	
	XA4-9170-359		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-409		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-557		2	SCREW, CROSS-RECESS, PH	
	XA4-9200-407		4	SCREW, CROSS-RECESS, PH	
	XA4-9200-607		2	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



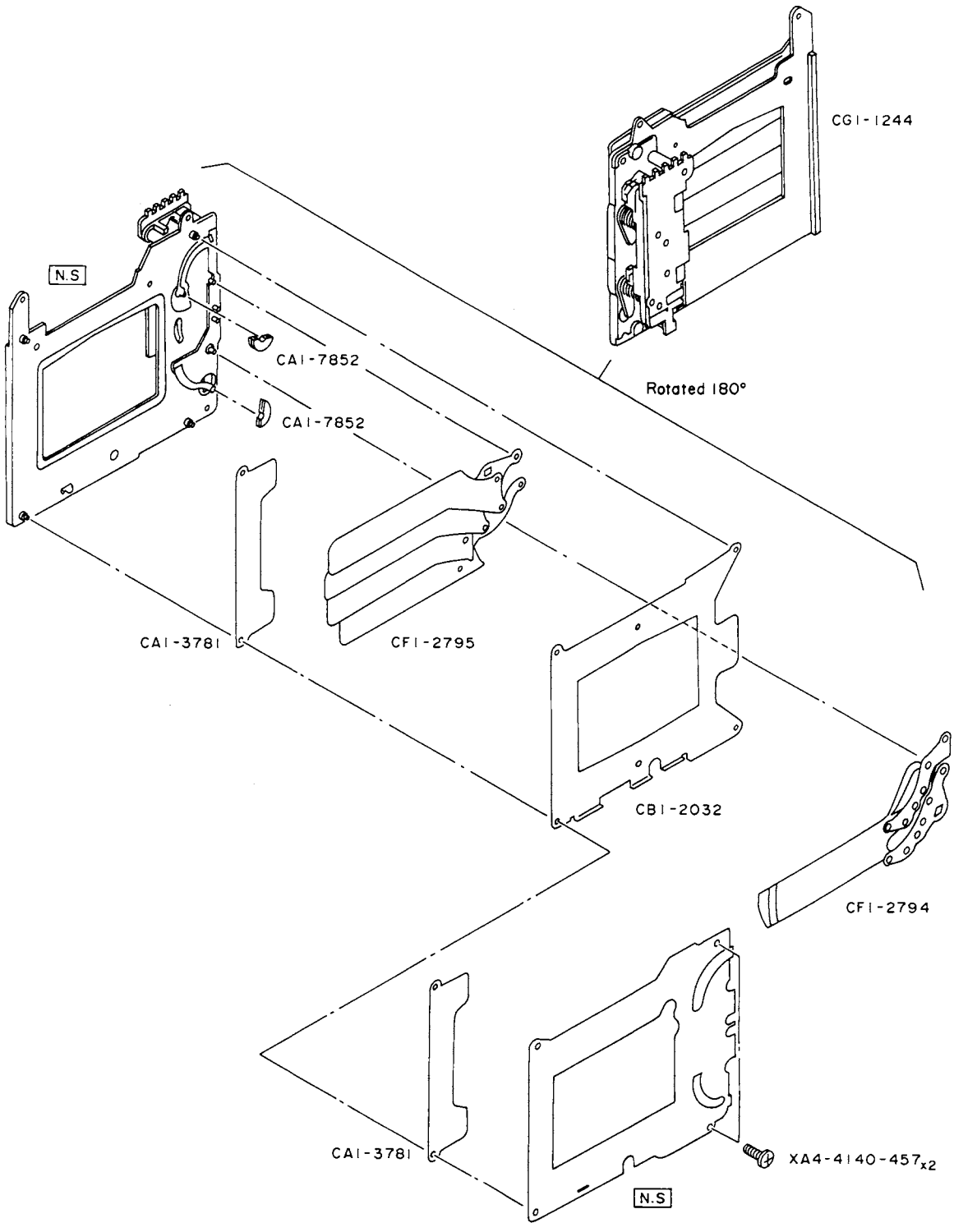
P A R T S L I S T

REF. NO. C12−8181～9

NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CB1-1149-000		2	SCREW, CROSS-RECESS, PH	
	CB1-1170-000		1	SCREW, CROSS-RECESS, PH	
	CB1-1171-000	E	1	WING	ウイング
	CB1-1196-000	E	1	BASE, CONNECT	コネクトベース
	CB1-1197-000	E	1	SHIELD, LIGHT	遮光板
	CB1-1206-000	E	1	HOLDER, ILC	ILC ホルダー
	CB1-1292-000	E	1	HOLDER, FLEX	フレキホルダー
	CG1-1137-000	D	1	AF ASS'Y	AF ユニット
*	CG1-1250-000	E	1	LCD FLEX ASS'Y	LCD フレキユニット
*	CG1-1251-000	E	1	MAIN FLEX ASS'Y(FLASH MODELS)	メインフレキユニット
*	CG1-1278-000	E	1	MAIN FLEX ASS'Y	メインフレキユニット
	CH2-3590-000	D	1	WIRE, LEAD	端子付リード線
	XA4-7170-407		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-307		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-359		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-407		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-409		1	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



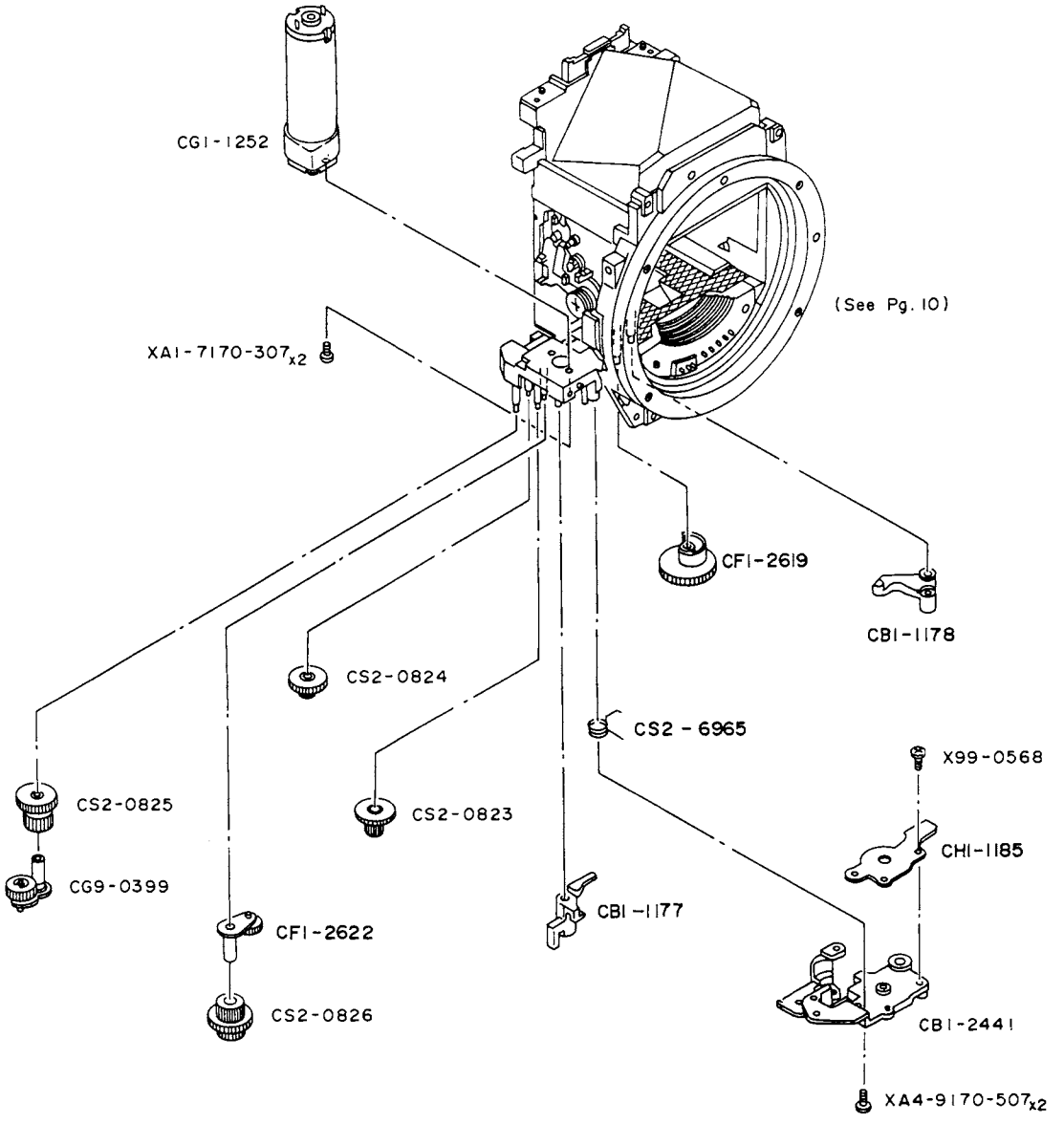
P A R T S L I S T

REF. NO. C12−8181～9

NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CA1-3781-000	E	2	SPACER	スペーサー
	CA1-7852-000	E	2	STOPPER	ストッパー
	CB1-2032-000	E	1	PLATE, SEPARATOR	仕切板
*	CF1-2794-000	C	1	CURTAIN, 1ST SHUTTER	先幕
*	CF1-2795-000	C	1	CURTAIN, 2ND SHUTTER	後幕
*	CG1-1244-000	C	1	SHUTTER UNIT	シャッターユニット
	XA4-4140-457		2	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



P A R T S L I S T

REF. NO. C12−8181〜9

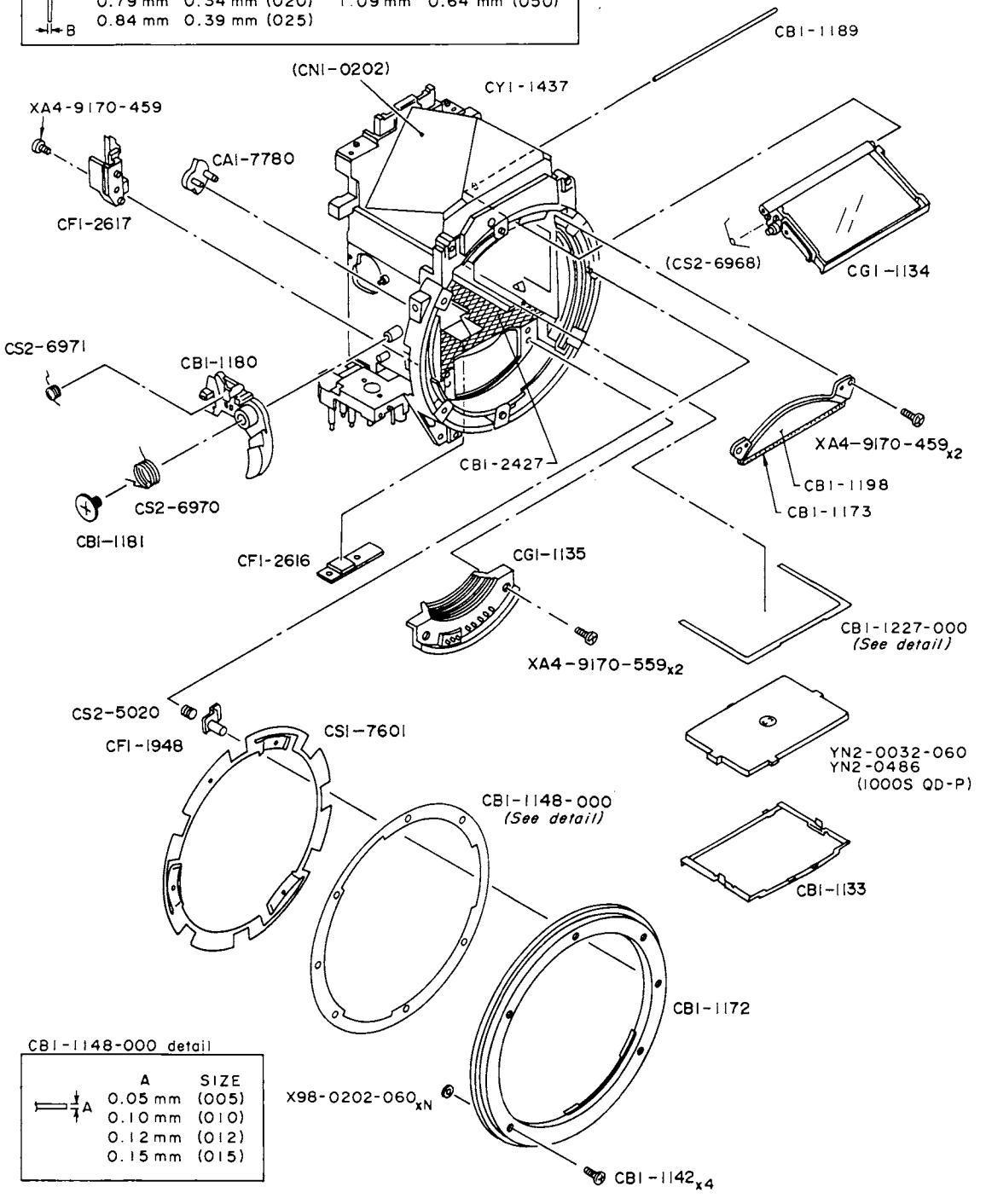
NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CB1-1177-000	E	1	LEVER, RELEASE	レリーズレバー
	CB1-1178-000	E	1	LEVER, CHARGE	チャージレバー
*	CB1-2441-000	E	1	COVER, GEAR	ギアカバー
	CF1-2619-000	E	1	CHARGE CAM GEAR UNIT	チャージカムギアユニット
	CF1-2622-000	E	1	CHG PLANETARY ARM ASS'Y	CHG 遊星アームユニット
*	CG1-1252-000	D	1	MOTOR UNIT	モーターユニット
*	CG9-0399-000	E	1	PRE PLANETARY ARM ASS'Y	PRE 遊星アームユニット
	CH1-1185-000	E	1	BOARD, PHASE CIRCUIT	位相基板
*	CS2-0823-000	E	1	GEAR, 1ST	第1ギア
*	CS2-0824-000	E	1	GEAR, 2ND	第2ギア
*	CS2-0825-000	E	1	GEAR, PRW SUN	PRW 太陽ギア
*	CS2-0826-000	E	1	GEAR, CHG SUN	CHG 太陽ギア
	CS2-6965-000	E	1	SPRING, RELEASE LEVER	レリーズレバースプリング
	X99-0568-000		1	SCREW, CROSS-RECESS, PH	
	XA1-7170-307		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-507		2	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD

CB1-1227-000 detail

A	B	SIZE	A	B	SIZE
0.66 mm	0.21 mm	(007)	0.89 mm	0.44 mm	(030)
0.69 mm	0.24 mm	(010)	0.94 mm	0.49 mm	(035)
0.71 mm	0.26 mm	(012)	0.99 mm	0.54 mm	(040)
0.74 mm	0.29 mm	(015)	1.04 mm	0.59 mm	(045)
0.79 mm	0.34 mm	(020)	1.09 mm	0.64 mm	(050)
0.84 mm	0.39 mm	(025)			



CB1-1148-000 detail

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

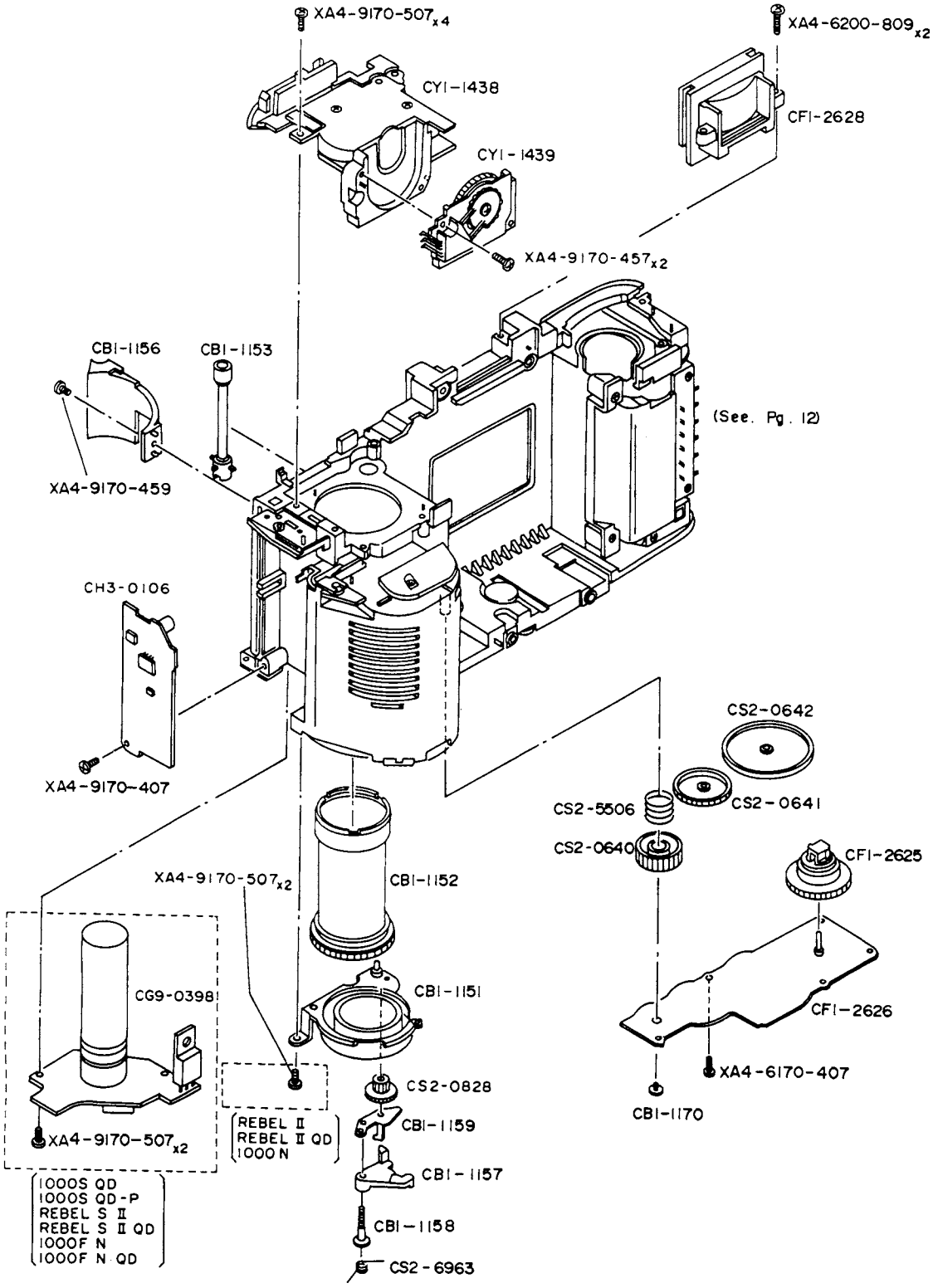
P A R T S L I S T

REF. NO. C12－8181～9

NEW	PART NO.	CLASS	QTY	D E S C R I P T I O N	
	CA1-7780-000	E	1	INTERLOCK, LENS MOTOR	レンズモーターインターロック
	CB1-1133-000	E	1	HOLDER, FOCUSING PLATE	ピント板押え
	CB1-1142-000	E	4	SCREW, CROSS-RECESS, PH	
	CB1-1148-000 (XXX)	E	1	SPACER, MOUNT	マウントスペーサー
	CB1-1172-000	C	1	MOUNT, BODY	ボデーマウント
	CB1-1173-000	D	1	CUSHION, MIRROR	
	CB1-1180-000	E	1	LEVER, MIRROR UP	ミラーアップレバー
	CB1-1181-000		1	SCREW, CROSS-RECESS, PH	
	CB1-1189-000	E	1	HINGE, MAIN MIRROR	メインミラーヒンジ
	CB1-1198-000	D	1	PLATE, PROTECTION	
	CB1-1227-000 (XXX)	E	1	WASHER, FINDER BACK ADJ.	
	CB1-2427-000	E	1	SHEET, LIGHT SHIELD	遮光幕
	CF1-1948-000	E	1	LEVER, LENS LOCK	レンズロックレバー
	CF1-2616-000	E	1	AUTO FLASH SENSER ASS'Y	調光センサーユニット
	CF1-2617-000	E	1	SWITCH, LENS DETECTOR	検知スイッチ
	CG1-1134-000	D	1	MIRROR UNIT	ミラーユニット
	CG1-1135-000	D	1	MOUNT CONTACT ASS'Y	マウント接片ユニット
	CN1-0202-000	E	1	PENTAPRISM	ペンタプリズム
	CS1-7601-000	D	1	SPRING, MOUNT	マウントスプリング
	CS2-5020-000	E	1	SPRING, COIL	コイルスプリング
	CS2-6968-000	E	1	SPRING	
	CS2-6970-000	E	1	SPRING, MIRROR UP	ミラーアップスプリング
	CS2-6971-000	E	1	SPRING, MIRROR RETURNING	ミラー戻しスプリング
	CY1-1437-000	E	1	PENTAPRISM/MIRROR BOX ASS'Y	ペンタ／ミラーボックスユニット
	X98-0202-060		N	WASHER	
	XA4-9170-459		3	SCREW, CROSS-RECESS, PH	
	XA4-9170-559		2	SCREW, CROSS-RECESS, PH	
	YN2-0032-060	D	1	SCREEN, FOCUSING	ピント板
	YN2-0486-000	D	1	SCREEN, FOCUSING	ピント板 (1000 S QD-P)

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



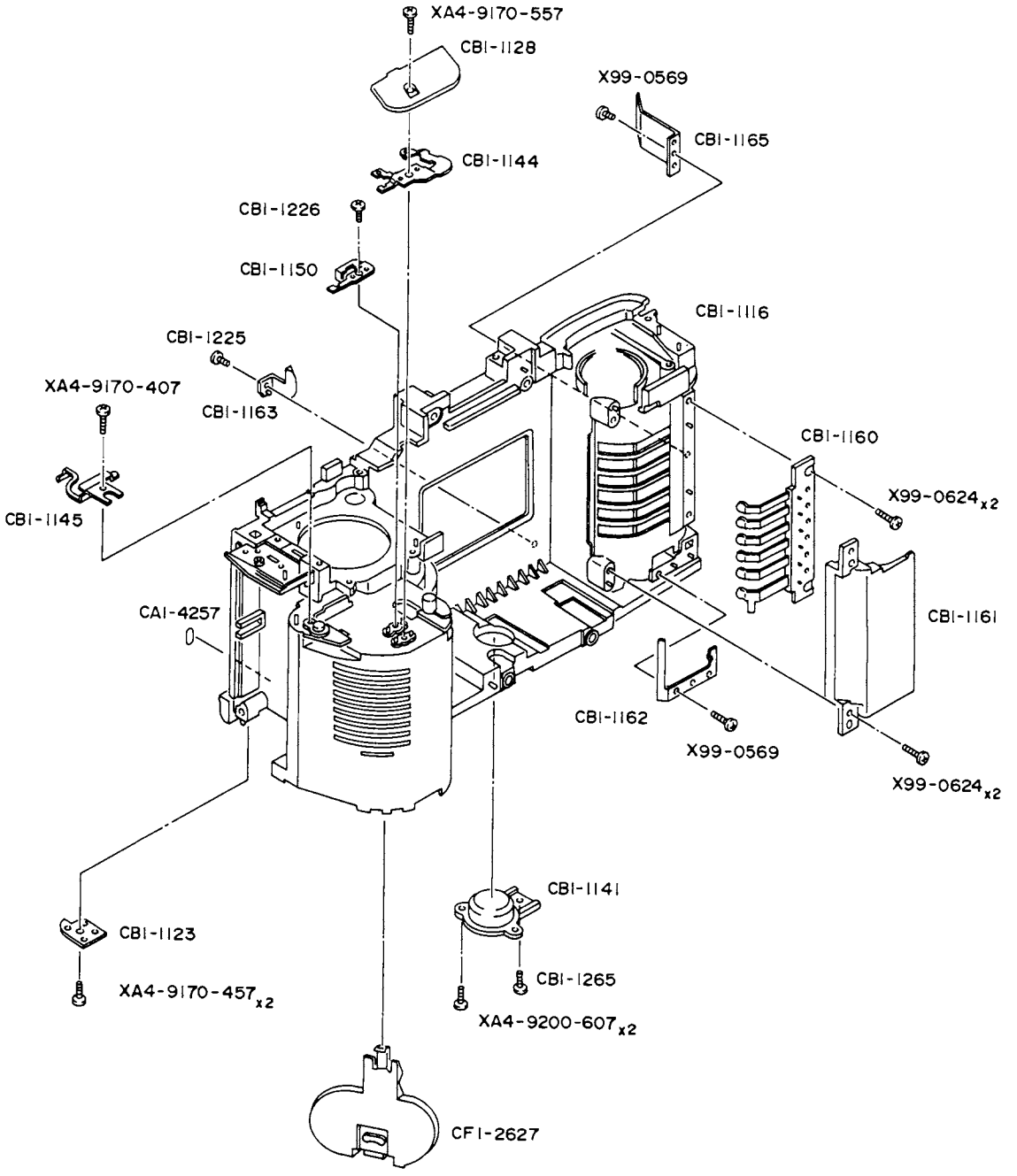
P A R T S L I S T

REF. NO. C12−8181〜9

NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CB1-1151-000	E	1	BASE, PRE WIND	プリワインド地板
	CB1-1152-000	D	1	SPOOL	スプール
	CB1-1153-000	E	1	PLATE, SIGNAL	信号板
	CB1-1156-000	E	1	GUIDE, AL	ALガイド
	CB1-1157-000	E	1	LEVER, RESET	リセットレバー
	CB1-1158-000		1	SCREW, CROSS-RECESS, PH	
	CB1-1159-000	E	1	PLATE, PRE WIND GEAR	プリワインドギアプレート
	CB1-1170-000		1	SCREW, CROSS-RECESS, PH	
	CF1-2625-000	E	1	FORK ASS'Y	フォークユニット
	CF1-2626-000	E	1	REW GEAR PLATE ASS'Y	ギアプレートユニット
	CF1-2628-000	D	1	EYEPIECE	接眼
*	CG9-0398-000	E	1	LOWER SIDE BOARD ASS'Y	下面基板ユニット
*	CH3-0106-000	E	1	DC/DC ASS'Y	DC/DCユニット
	CS2-0640-000	E	1	GEAR 1, IDLE	アイドルギア 1
	CS2-0641-000	E	1	GEAR 2, IDLE	アイドルギア 2
	CS2-0642-000	E	1	GEAR 3, IDLE	アイドルギア 3
*	CS2-0828-000	E	1	GEAR, PRE WIND TRANSMIT	プリワインド伝達ギア
	CS2-5506-000	E	1	SPRING, REW FRICTION	REW フリクションスプリング
	CS2-6963-000	E	1	SPRING, COIL	コイルスプリング
	CY1-1438-000	E	1	SIGNAL BASE ASS'Y	信号地板ユニット
	CY1-1439-000	D	1	DIAL ASS'Y	ダイヤルユニット
	XA4-6170-407		1	SCREW, CROSS-RECESS, PH	
	XA4-6200-809		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-407		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-457		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-459		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-507		8	SCREW, CROSS-RECESS, PH	

REF. NO. C12-8181,2
C12-8183,4,5,6
C12-8187,8,9

CANON EOS 1000S QD, QD-P
EOS REBEL II, II QD, S II, S II QD
EOS 1000N, F N, F N QD



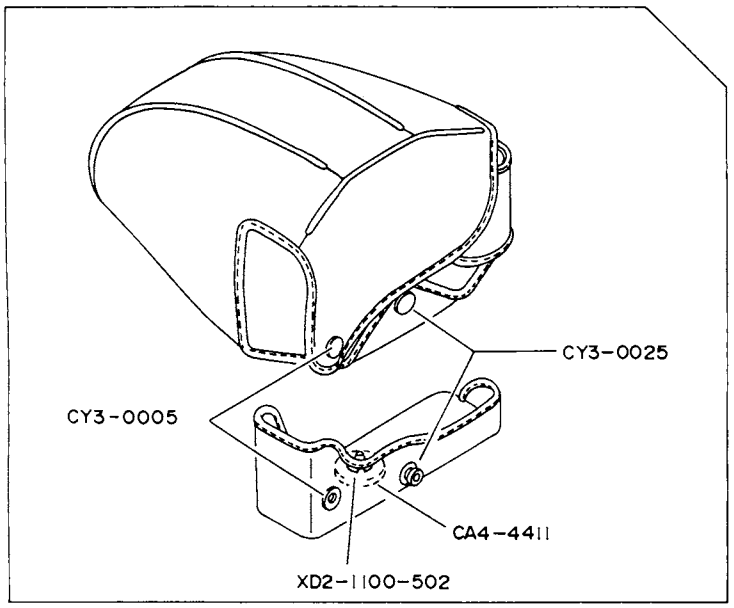
P A R T S L I S T

REF. NO. C12－8181～9

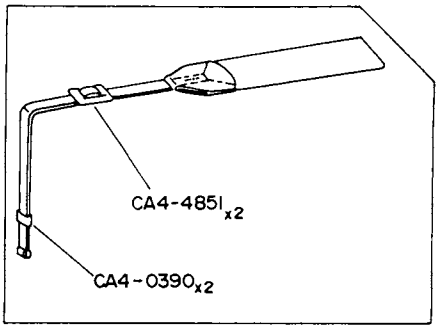
NEW	PART NO.	CLASS	QTY	DESCRIPTION	
	CA1-4257-000	D	1	SEAL, FILM	フィルムシール
	CB1-1116-000	E	1	BODY	本体
	CB1-1123-000	E	1	HINGE, BACK COVER LOWER	背蓋下ヒンジ
	CB1-1128-000	E	1	PLATE, RELEASE	レリーズ板
	CB1-1141-000	D	1	SOCKET, TRIPOD	三脚座
	CB1-1144-000	E	1	CONTACT-1, BATTERY	電池接片 1
	CB1-1145-000	E	1	CONTACT-2, BATTERY	電池接片 2
	CB1-1150-000	E	1	CONTACT, RESET	リセット接片
	CB1-1160-000	E	1	CONTACT, DX	DX接片
	CB1-1161-000	E	1	COVER, DX	DXカバー
	CB1-1162-000	E	1	CONTACT, FILM CARTRIDGE	パトローネ接片
	CB1-1163-000	E	1	JAW, FILM CARTRIDGE	パトローネアゴ
	CB1-1165-000	D	1	GUIDE, FILM CARTRIDGE	パトローネガイド
	CB1-1225-000		1	SCREW, CROSS-RECESS, PH	
	CB1-1226-000		1	SCREW, CROSS-RECESS, PH	
	CB1-1265-000		1	SCREW, CROSS-RECESS, PH	
	CF1-2627-000	C	1	BATTERY COVER ASS'Y	電池蓋ユニット
	X99-0569-000		2	SCREW, CROSS-RECESS, PH	
	X99-0624-000		4	SCREW, CROSS-RECESS, PH	
	XA4-9170-407		1	SCREW, CROSS-RECESS, PH	
	XA4-9170-457		2	SCREW, CROSS-RECESS, PH	
	XA4-9170-557		1	SCREW, CROSS-RECESS, PH	
	XA4-9200-607		2	SCREW, CROSS-RECESS, PH	

CANON EOS 1000S, REBEL II, 1000N (ACC)

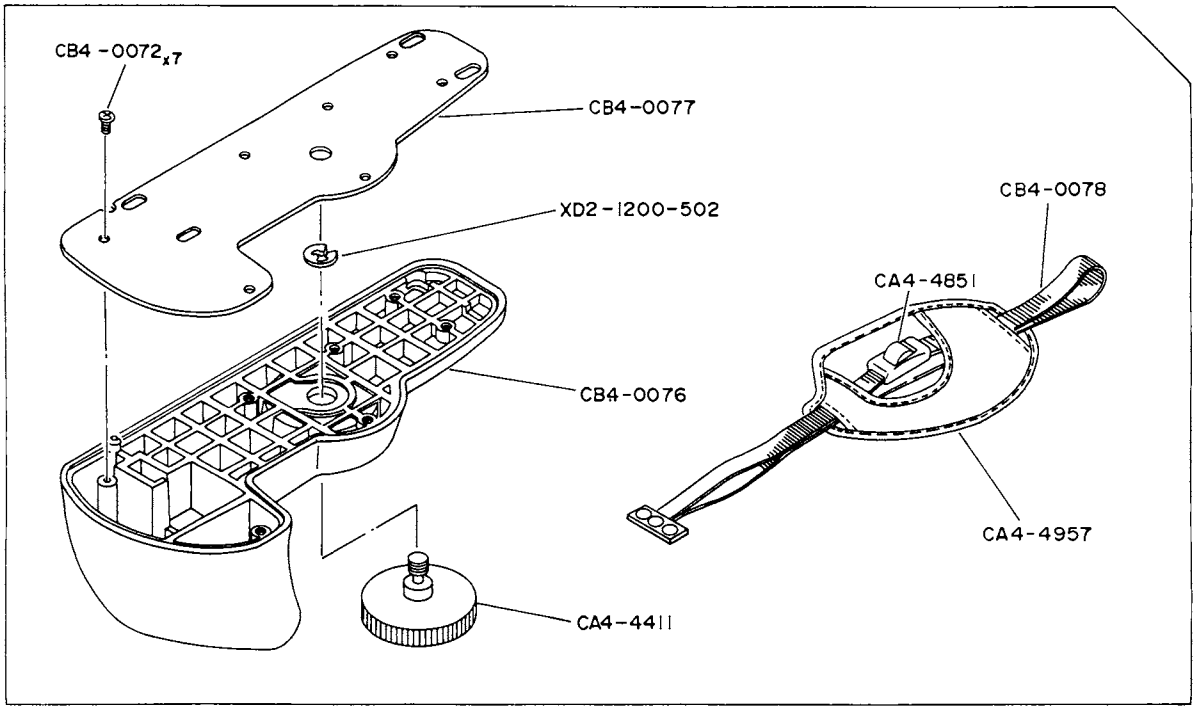
C46-1742 SEMI HARD CASE EH5-S



C56-1561 WIDE STRAP EW-200



C51-9991 GRIP EXTENSION GR-70



SEMI HARD CASE EH5-S & WIDE STRAP EW-200

REF. NO. C46-1742, C56-1561

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	CA4-0390-000	D	2	LOOP	環
	CA4-4411-000	D	1	SCREW, TIGHTENING	締付けビス
	CA4-4851-000	E	2	CLASP	止メ金
	CY3-0005-000	D	1	HOOK	ホック
	CY3-0025-000	D	1	HOOK	ホック
	XD2-1100-502		1	RETAINING RING(E-TYPE)	E リング

GRIP EXTENSION GR-70

REF. NO. C51-9991

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	CA4-4411-000	D	1	SCREW, TIGHTENING	締付けビス
	CA4-4851-000	E	1	CLASP	止メ金
	CA4-4957-000	D	1	PAD, GRIP	グリップ当て
	CB4-0072-000		7	SCREW, CROSS-RECESS, PH	
	CB4-0076-000	E	1	BODY, GRIP	グリップ本体
	CB4-0077-000	E	1	PLATE, GRIP(GR-70)	補強板
	CB4-0078-000	E	1	STRAP, WRIST	リストストラップ
	XD2-1200-502	F	1	RENTAINING RING(E-TYPE), M5	

ELECTRIC PARTS & LEADS

REF. NO. C12-8181~9

NEW	SYMBOL	PARTS NO.	CLASS	QTY	DESCRIPTION
	T-MOS	CH4-0213-000	D	1	T-MOS IC
	M. DR	CH4-0218-000	D	1	MOTOR DRIVER IC
	FLASH. CTL	CH4-0560-000	D	1	FLASH CONTROL IC
	AE	CH4-0567-000	D	1	AE IC
	I/O	CH4-0568-000	E	1	I/O IC
	LCD DR	CH4-0570-000	E	1	LCD DRIVER IC
	XTAL	WK2-0188-000	E	1	OSCILLATOR
	FAR	WK2-0541-000	E	1	OSCILLATOR
		Y11-3006-000			LEAD (ORANGE)
		Y11-3901-000			LEAD (WHITE)
		Y11-3902-000			LEAD (BLACK)
		Y11-3903-000			LEAD (RED)
		Y11-3904-000			LEAD (PINK)
		Y11-3907-000			LEAD (YELLOW)
		Y11-3909-000			LEAD (GREEN)
		Y11-3910-000			LEAD (SKY BLUE)
		Y11-3911-000			LEAD (BLUE)
		Y11-3912-000			LEAD (PURPLE)
		Y11-3913-000			LEAD (BROWN)
		Y11-3914-000			LEAD (GRAY)
		Y11-4402-000			LEAD (BLACK)
		Y11-4403-000			LEAD (RED)
		Y11-4702-000			LEAD (BLACK)
		Y11-4703-000			LEAD (RED)
		Y11-4901-000			LEAD (WHITE)
		Y11-4902-000			LEAD (BLACK)
		Y11-4904-000			LEAD (PINK)
		Y11-4906-000			LEAD (ORANGE)
		Y11-4907-000			LEAD (YELLOW)
		Y11-4909-000			LEAD (GREEN)
		Y11-4911-000			LEAD (BLUE)
		Y11-4912-000			LEAD (PURPLE)
		Y11-5001-000			LEAD (WHITE)
		Y11-5002-000			LEAD (BLACK)
		Y11-5011-000			LEAD (BLUE)

INDEX OF PARTS LIST

REF. NO. C12−8181~9

INDEX OF PARTS LIST

REF. NO. C12-8181~9

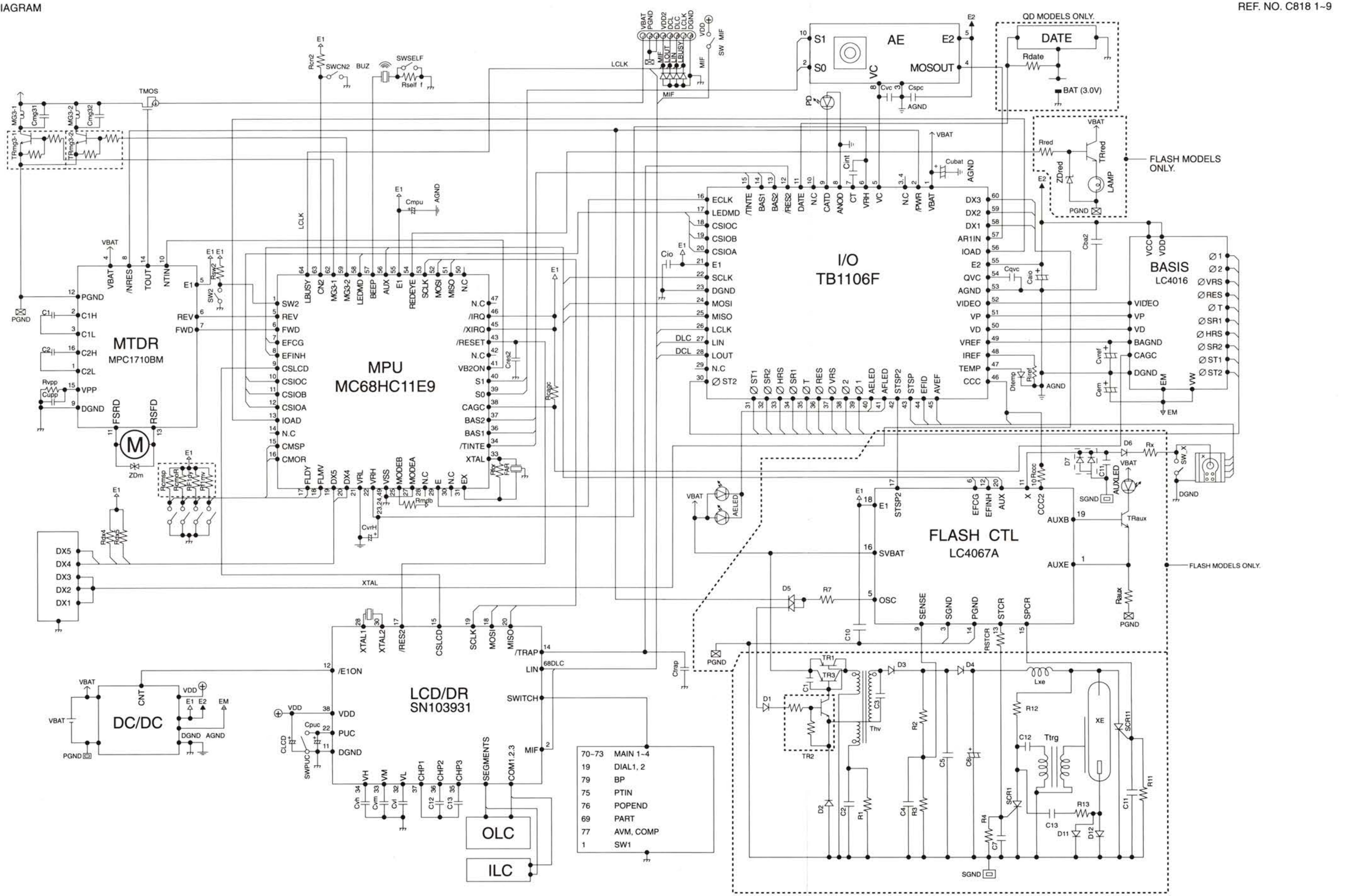
INDEX OF PARTS LIST

REF. NO. C12-8181~9

INDEX OF PARTS LIST

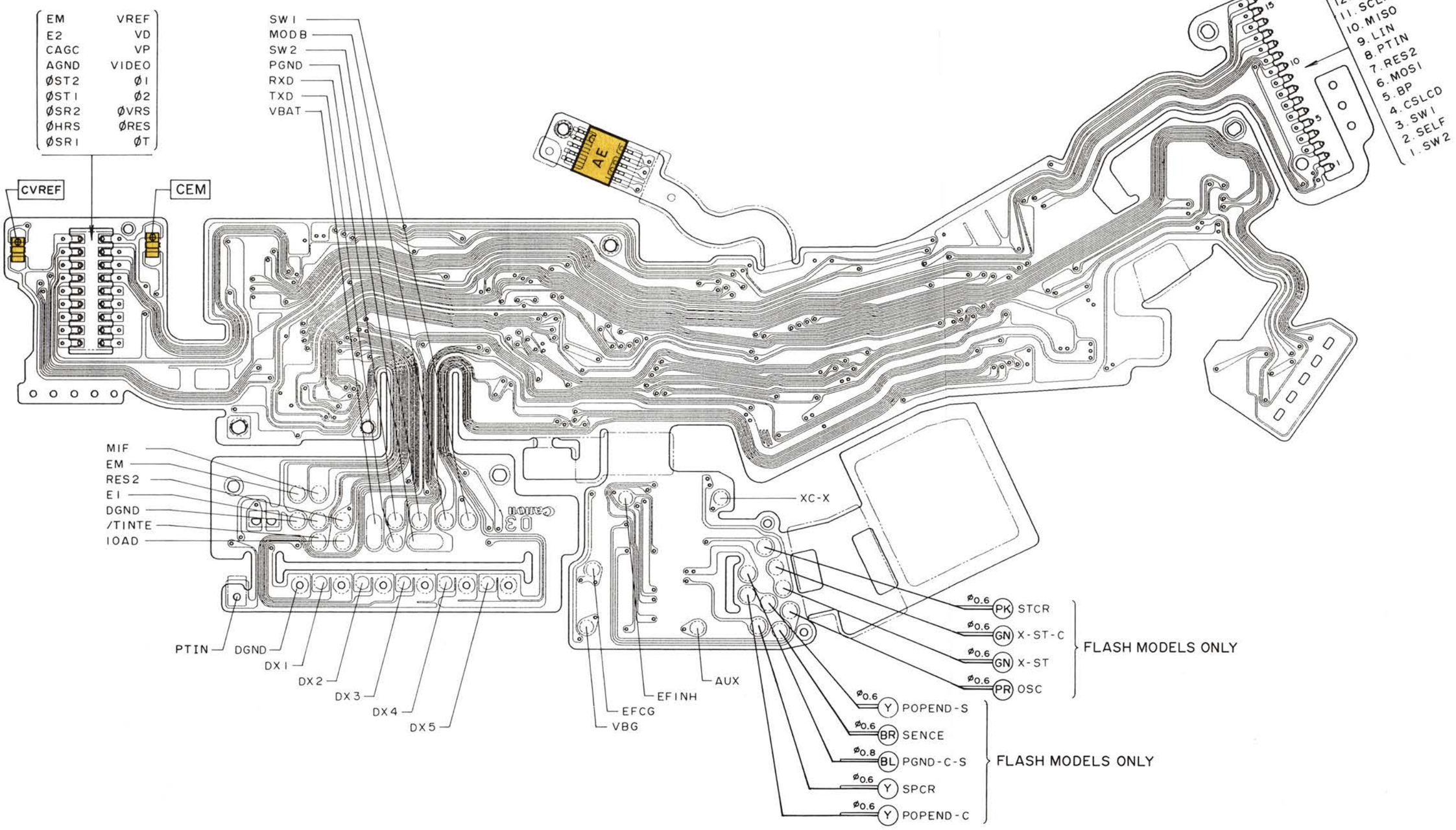
REF. NO. C12-8181~9

NEW	PARTS NO.	PAGE	NEW	PARTS NO.	PAGE
	Y11-4907-000	14			
	Y11-4909-000	14			
	Y11-4911-000	14			
	Y11-4912-000	14			
	Y11-5001-000	14			
	Y11-5002-000	14			
	Y11-5011-000	14			
	YN2-0032-060	10			
	YN2-0486-000	10			


MTDR
MPC1710BM
MPU
MC68HC11E9
I/O
TB1106F
AE
DATE
QD MODELS ONLY.
BAT (3.0V)
FLASH MODELS ONLY.
BASIS
LC4016
FLASH CTL
LC4067A
LCD/DR
SN103931
DC/DC
OLC
ILC
XTAL
LCLK
MIF
TMOS
70~73 MAIN 1~4
19 DIAL1, 2
79 BP
75 PTIN
76 POPEND
69 PART
77 AVM, COMP
1 SW1

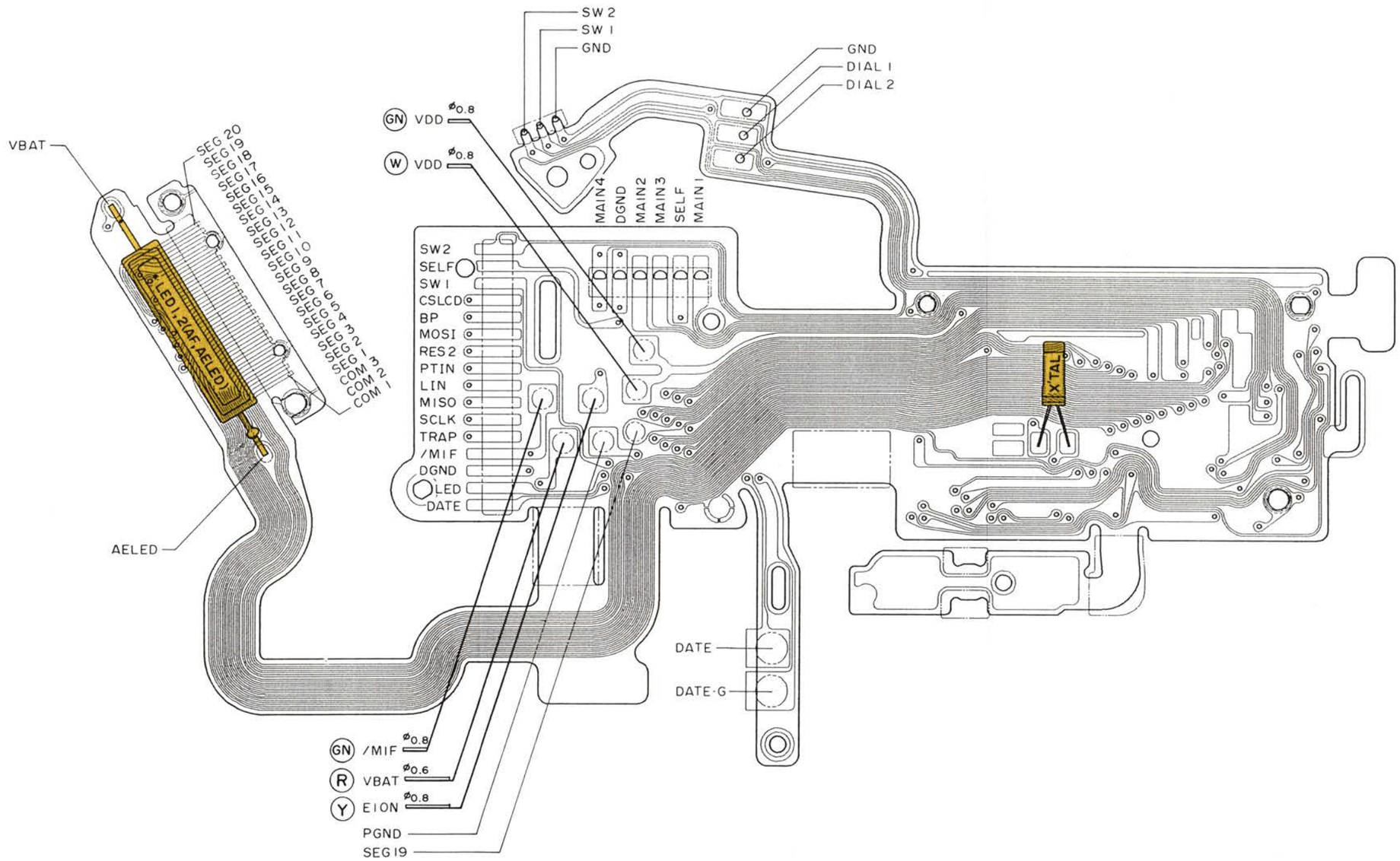
P.C.B. DIAGRAM

(MAIN FLEX B)



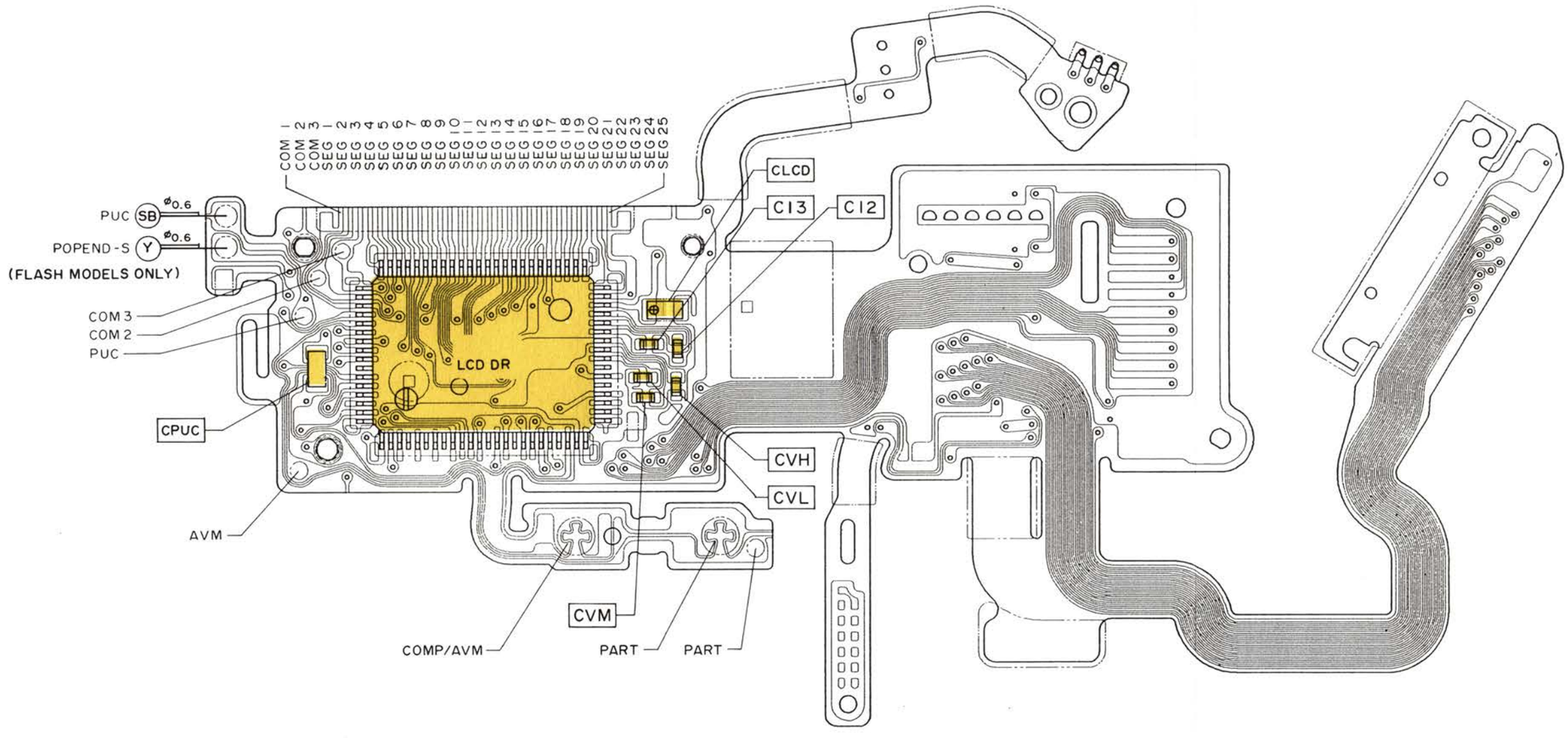
01 APR, 1992

(LCD FLEX A)



01 APR, 1992

(LCD FLEX B)

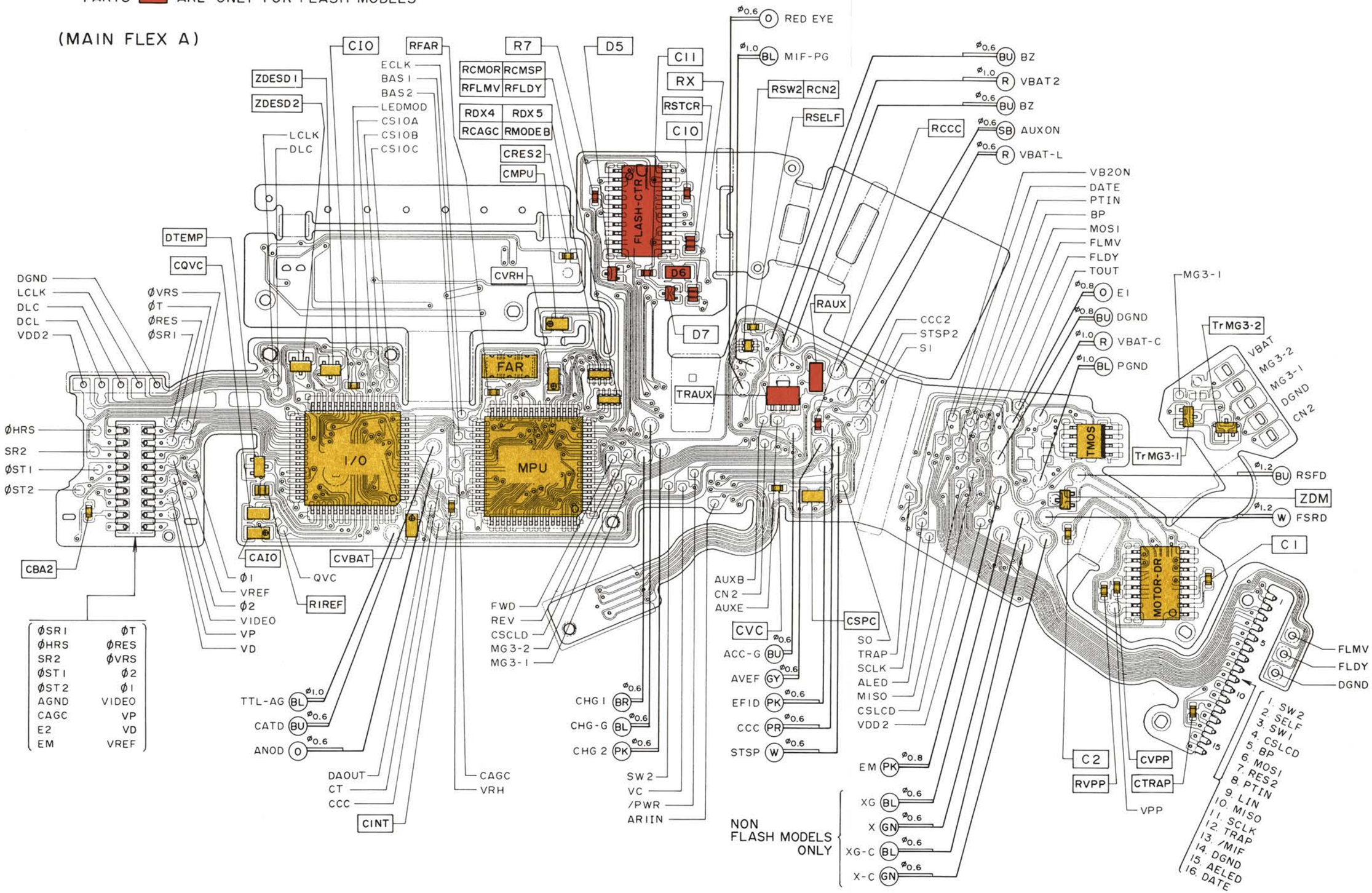

COM 1
COM 2
COM 3
SEG 1
SEG 2
SEG 3
SEG 4
SEG 5
SEG 6
SEG 7
SEG 8
SEG 9
SEG 10
SEG 11
SEG 12
SEG 13
SEG 14
SEG 15
SEG 16
SEG 17
SEG 18
SEG 19
SEG 20
SEG 21
SEG 22
SEG 23
SEG 24
SEG 25
PUC (SB) ø0.6
POPEND-S (Y) ø0.6
(FLASH MODELS ONLY)
COM 3
COM 2
PUC
CPUC
AVM
LCD DR
CLCD
C13
C12
CVH
CVL
CVM
COMP/AVM
PART
PART

P. C. B. DIAGRAM

PARTS ▭ ARE ONLY FOR FLASH MODELS

REF. NO. C12-8181~9

(MAIN FLEX A)

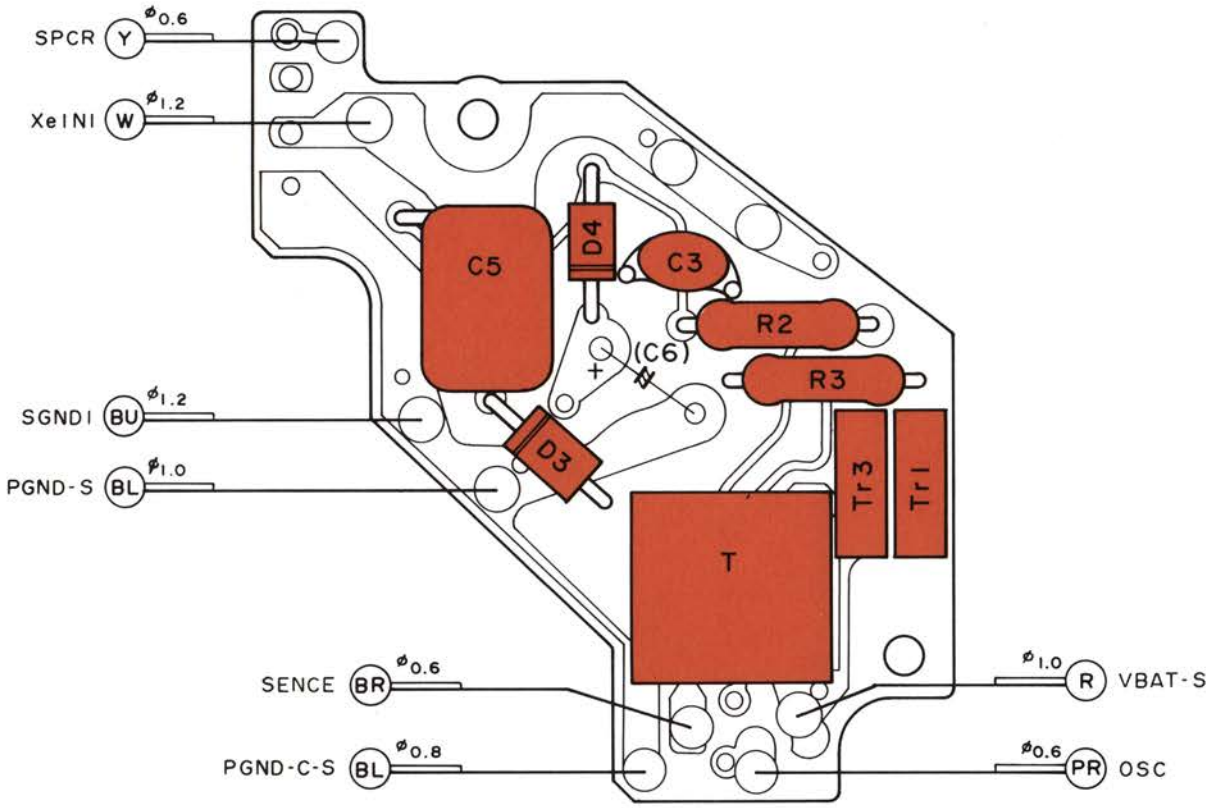


01 APR, 1992

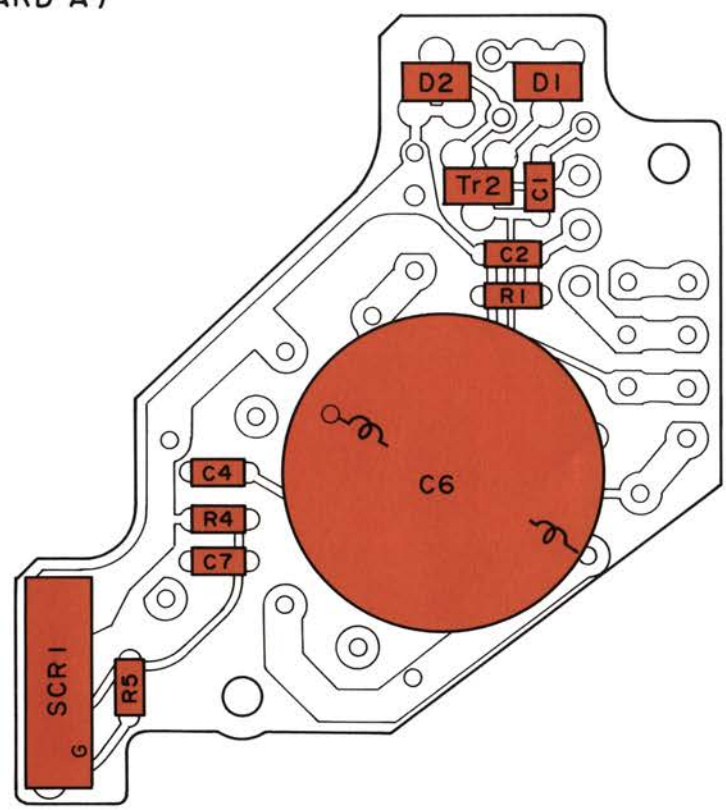
P. C. B. DIAGRAM
(FLASH MODELS ONLY)

REF. NO. C12-8181,2,5,6,8,9

(BOTTOM BOARD B)



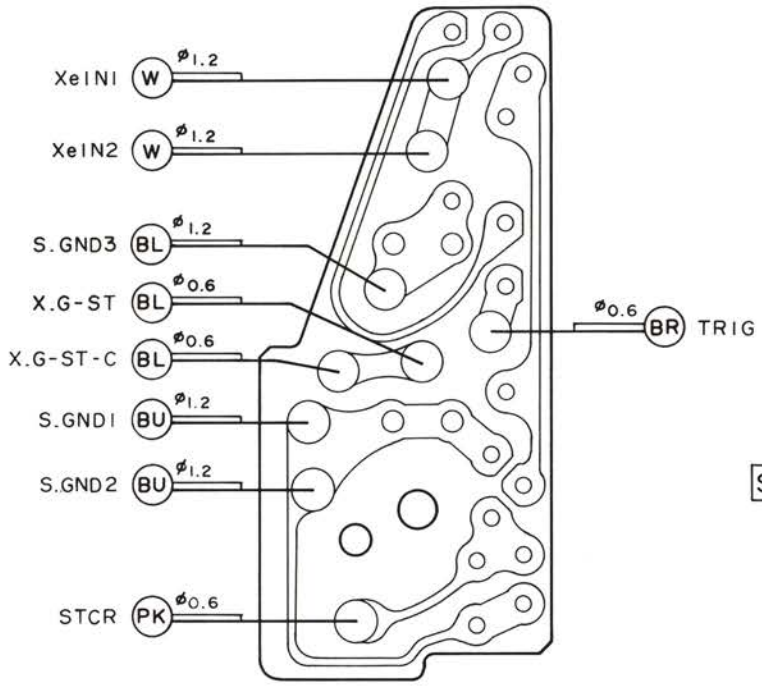
(BOTTOM BOARD A)



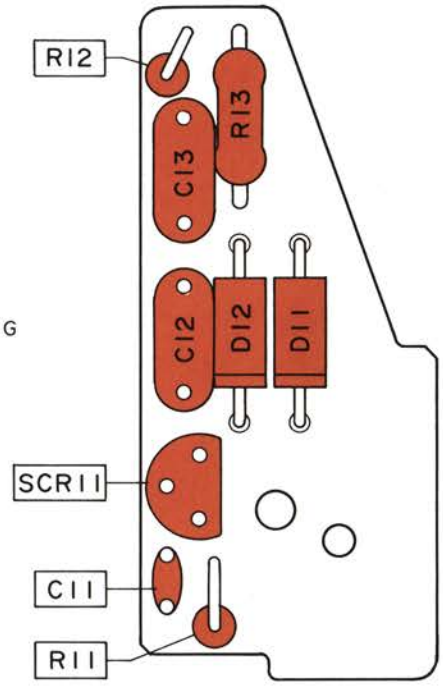
P. C. B. DIAGRAM
(FLASH MODELS ONLY)

REF. NO. C12-8181,2,5,6,8,9

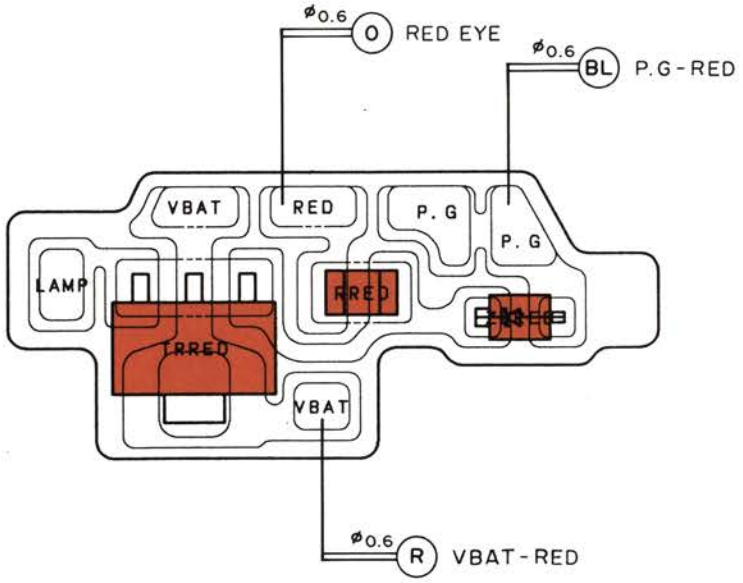
(PENTA BOARD A)



(PENTA BOARD B)



(RED EYE BOARD)

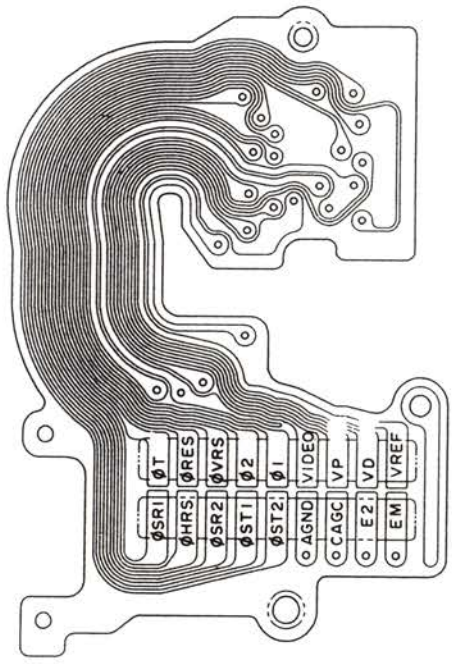


01 APR, 1992

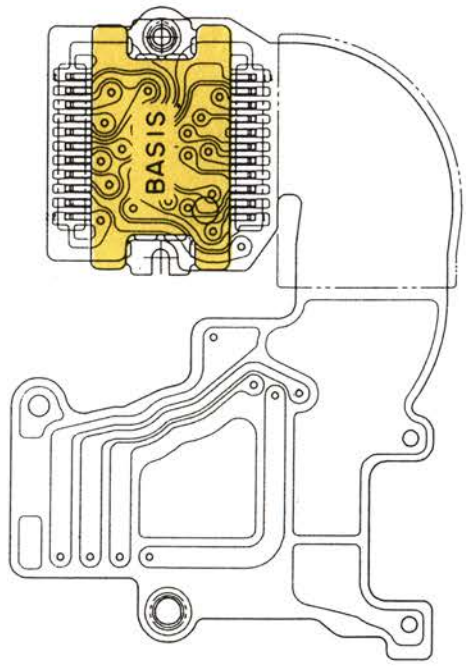
P. C. B. DIAGRAM

REF. NO. C12-8181-9

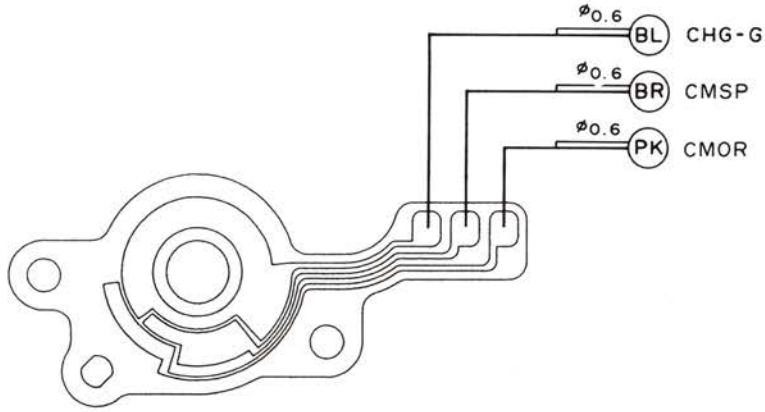
(BA FLEX A)



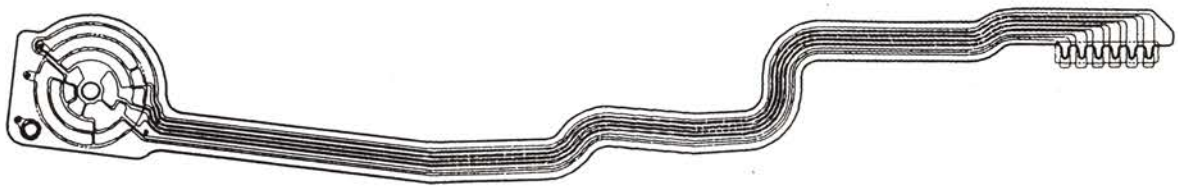
(BA FLEX B)



(PHASE BOARD)



(MODE FLEX)



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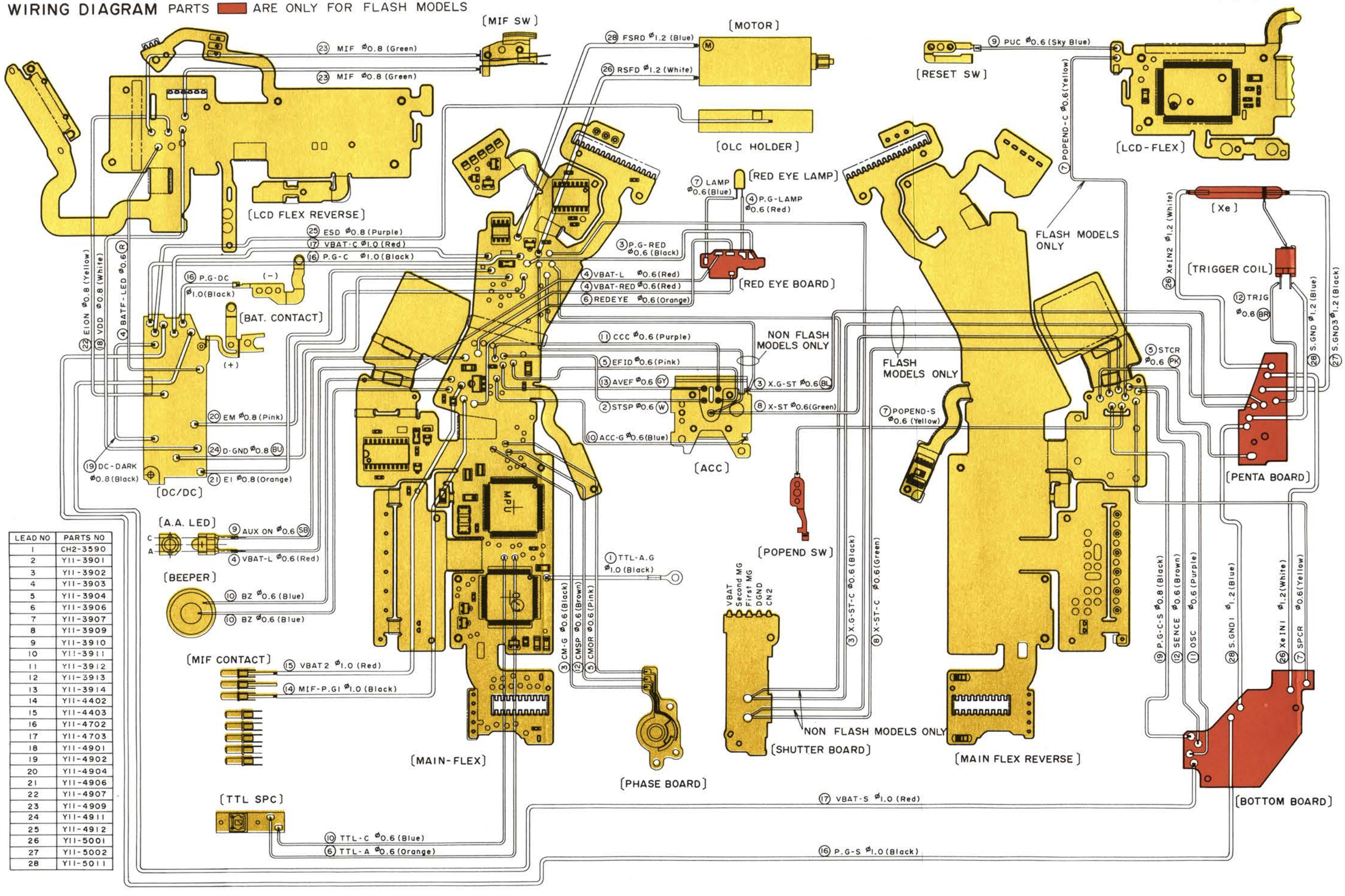
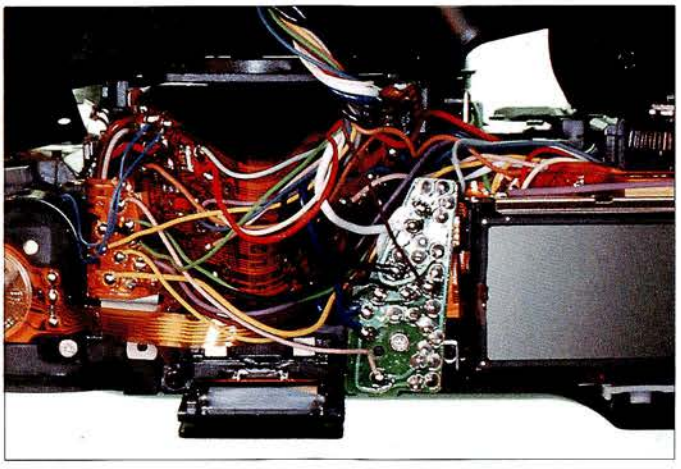
WIRING DIAGRAM PARTS ■ ARE ONLY FOR FLASH MODELS

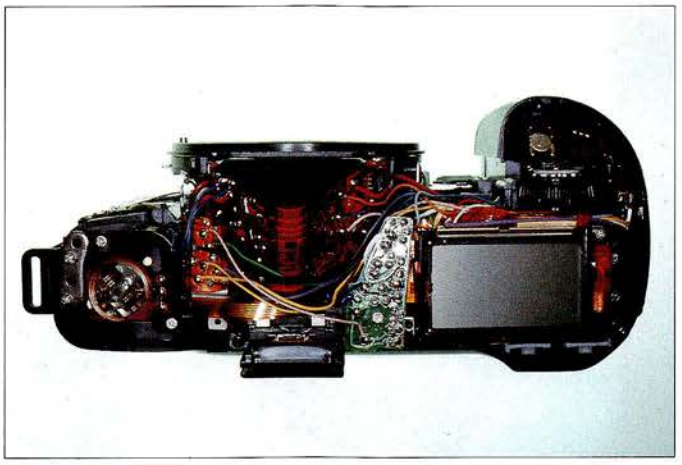


LEAD NO	PARTS NO
1	CH2-3590
2	Y11-3901
3	Y11-3902
4	Y11-3903
5	Y11-3904
6	Y11-3906
7	Y11-3907
8	Y11-3909
9	Y11-3910
10	Y11-3911
11	Y11-3912
12	Y11-3913
13	Y11-3914
14	Y11-4402
15	Y11-4403
16	Y11-4702
17	Y11-4703
18	Y11-4901
19	Y11-4902
20	Y11-4904
21	Y11-4906
22	Y11-4907
23	Y11-4909
24	Y11-4911
25	Y11-4912
26	Y11-5001
27	Y11-5002
28	Y11-5011

WIRING LAYOUT

REF. No. C12-8181~9





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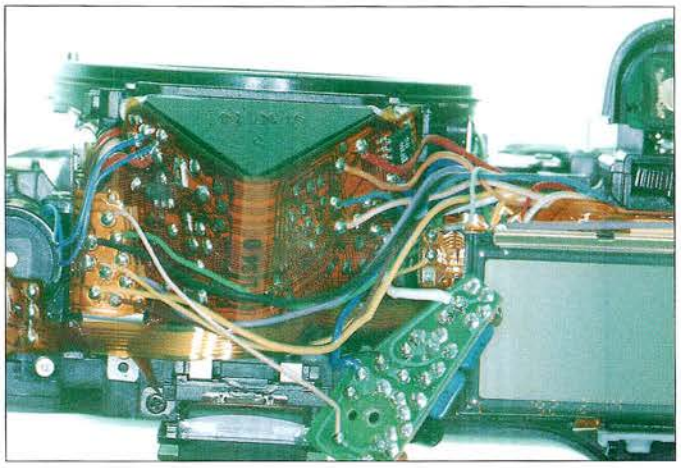
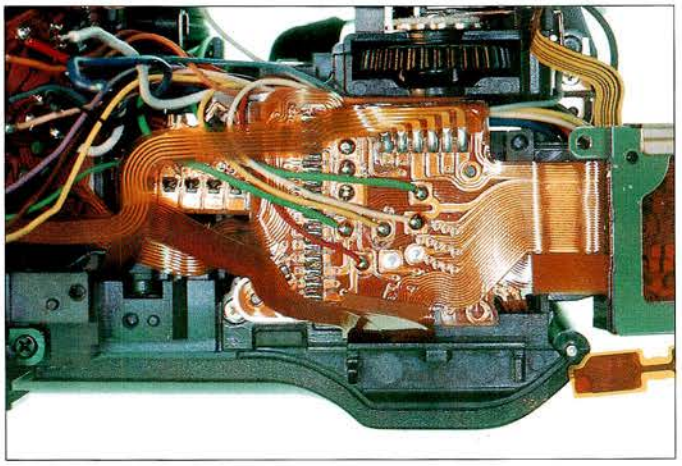
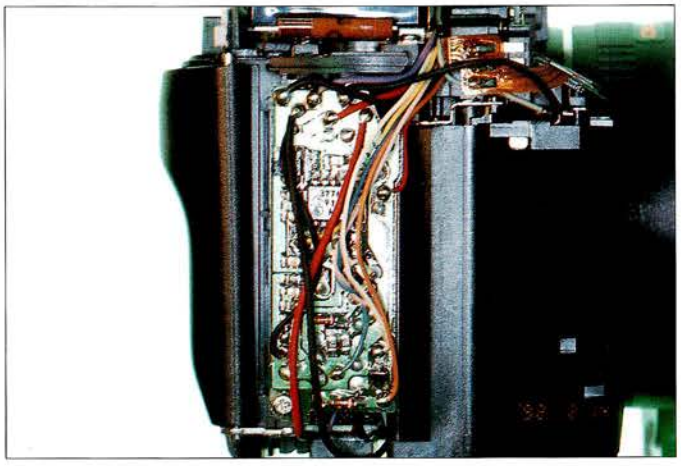
WIRING LAYOUT

REF. No. C12-8181~9

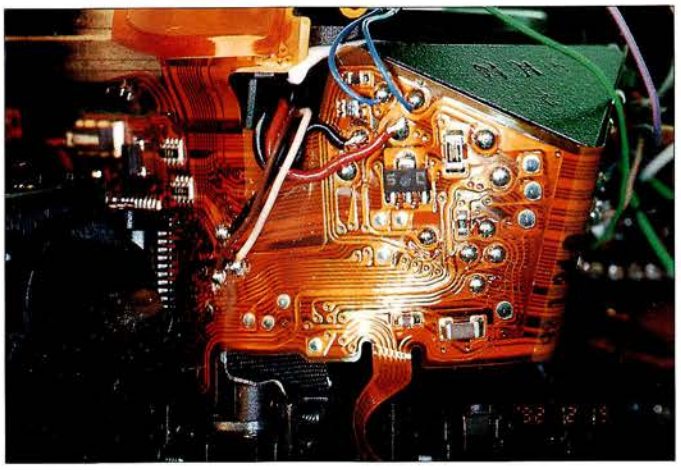


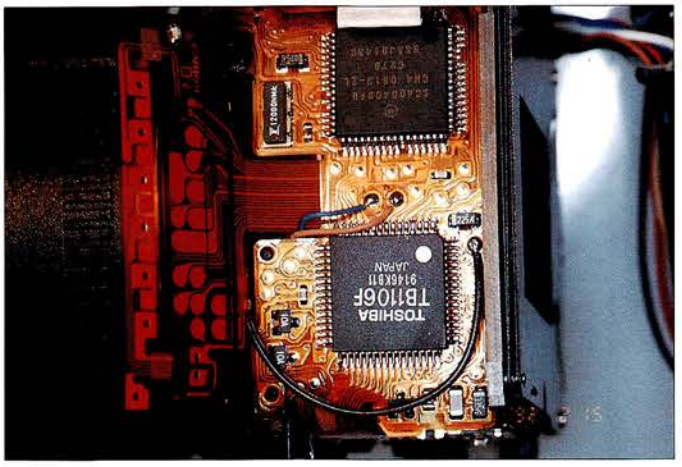


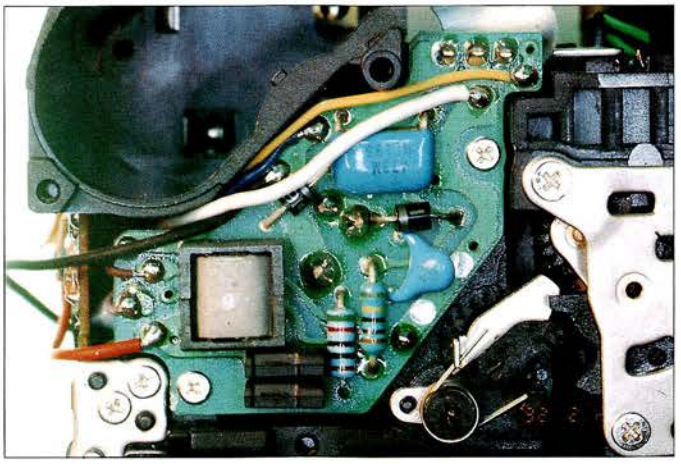


WIRING LAYOUT

REF. No. C12-8181~9







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