English Edition

SERVICE MANUAL

By Portable Document Format

EOS 5D

C12-6091

CY8-1201-295

Canon

Canon

EOS 5D

REF. NO.C12-6091

SERVICE MANUAL

PREFACE

This manual contains information for servicing the product, and has the following sections:

General Information

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

Technical Information

Provides technical information about the mechanism and electronics of the product.
This product has no "Technical Information".

Repair Information

Provides information about ths tools and expendables required for disassembly, reassembly, adjustment and measurement of the product, and their locations and method of use.

Adjustments

Provides information on electrical adjustments (requiring a personal computer) for the product.

Parts Catalog

Circuit Diagrams

Software Information

Provides information explaining correct use of the bundled software.

Appendix

Provides information explaining the interchangeable "Super Precision Matte Ee-S", new in this model.

Picture Style Quick Guide

Provides information explaining the new "Picture style" feature.

Picture Style Setting Guide

Provides information explaining the settings of the new feature "Picture style".

General Information

Trademarks

The product names and company names described in this CD-ROM are the registered trademarks of the individual companies.

Copyright

CONTENTS

1. FEATURES

1.1 35mm full-size sensor, ultra-fine detail, high image quality

●Approx. 12.8 effective megapixels for ultra-fine detail and high image quality
●Newly-developed, full-size, 35.8 × 23.9mm CMOS sensor
＊Enables full-fledged use of wide-angle EF lenses.
●DIGIC II for fast image processing to obtain detailed and natural color reproduction
●Picture Style for obtaining optimum images matching your shooting objective
●Six JPEG recording modes, RAW, RAW+JPEG simultaneous recording
●Optimum auto white balance
＊The CMOS sensor alone obtains the correct white balance. Uses the EOS-1Ds Mark II's AWB algorithm.
●WB correction and WB bracketing provided
●Complies to Design rule for Camera File system 2.0 (compatible with Adobe RGB) and Exif 2.21
＊Selectable between sRGB and Adobe RGB (with the menu).

1.2 Fast response

●Approx. 0.2 sec. startup time from power on
●ISO 100-1600 (1/3-stop increments), ISO extension (L: 50, H: 3200) provided
●Approx. 3 fps continuous shooting: Max. burst 60 shots in JPEG Large/Fine, approx. 17 shots in RAW
●Priority on shooting
＊With C.Fn-18-1, shooting controls will work instantly even during menu operation and image playback.
●USB 2.0 Hi-Speed for fast image transfers to a personal computer

1.3 High-end features and high performance

●High-precision and high-speed 9-point + Assist 6-point AF
＊3 AF points work with f/2.8 lenses
＊Improved AI SERVO AF subject tracking and improved focusing performance from defocused state
●Interchangeable focusing screens
＊Standard Precision Matte Ee-A plus Precision Matte with Grid Ee-D and easy-to-manual-focus Super Precision Matte Ee-S (sold separately).
●Noise level detection and auto noise reduction feature
●1/8000 sec. max. shutter speed, X-sync at 1/200 sec. with high-speed shutter and high-speed sync
●EOS 1D-like features
＊Spot metering (approx. 3.5% of viewfinder area)
＊Full-featured folder/file No. management
＊Compatible with wireless/wired LAN image transmissions (with WFT-E1/E1A)
＊Data for the original image verification system can be appended
●Wide 2.5-in. LCD monitor with approx. 230,000 pixels
＊The image or menu can be clearly viewed from any angle.
＊Easier-to-read (larger) menu text
＊RGB histogram/AF point display
●Highly customizable
＊Current camera settings can be saved as a Mode Dial setting
＊Twenty-one Custom Functions with 57 settings

●Same operation ease as the EOS 20D
●Full-featured camera Direct Printing

1.4 Luxury design with a "status symbol" metal exterior, compact and light body

●Well-proportioned shape for an SLR
＊Optimum size for a 35mm full-size D-SLR for advanced amateurs and comfortable to hold
＊Canon logo with sculptured lettering with white fill-in paint
＊Higher density matte finish for a luxury touch
＊35mm full-size sensor D-SLR measuring 152 × 113 × 75mm, weighing approx.810 g

2. OVERVIEW

2.1 EOS 5D body

The EOS 5D combines the high-end specifications of the EOS-1Ds line (with 35mm full-size sensor) and the operation ease of the EOS 20D. It is a high-end, AF D-SLR for advanced amateurs.

Despite having a 35mm full-size sensor, the body is still relatively compact and light. It has the latest features such as Picture Style, a 2.5-in. wide LCD monitor (larger menu text), and 9-point + Assist 6-point AF.

＊Since this camera is for advanced amateurs, there is no built-in flash and no Basic Zone modes.

Table 001 compares the EOS 5D with the EOS-1Ds Mark II and EOS 20D. Cells shaded in [ ] are specifications superior to that of the EOS-1Ds Mark II, and cells shaded in [ ] are specifications superior to that of the EOS 20D.

Table 001 Specifications Comparison of EOS 5D with EOS-1Ds Mark II and EOS 20D (1/3)

Specification			EOS 5D	EOS-1Ds Mark II	EOS 20D
Image sensor	Image sensor		CMOS		
	Effective Pixels (Approx. megapixels)		12.80	16.70	8.20
	Sensor Size (mm)		35.8 × 23.9	36.0 × 24.0	22.5 × 15.0
	Focal Length Conversion Factor		1×		1.6×
Recording System	Recording Media		CF	CF/SD	CF
	Recorded pixels [Approx. megapixels]		1270/670/420	1660/860/630/420	820/430/200
	RAW+JPEG		Yes (Separate RAW & JPEG files)		
	JPEG Quality		Fixed at Fine/Normal	10 settings	Fixed at Fine/Normal
	Picture Styles		Yes (7)	—	
	Processing Parameters		Incorporated in Picture Styles	Yes	Yes
	Color Matrix			Yes	—
	Color Space		sRGB / Adobe RGB		
	Noise Reduction		Auto/On	On	
	Backup Mode		—	Yes	—
	Folder Creation		Created by Auto, Manual, or File No. reset		Auto
	Selectable Save Folder		Yes		—
	Max. Images Per Folder		9999		100
Imaging processor			DIGIC II		
White Balance	Settings		9	12	9
	WB Bracketing		B/A M/G bias 3 levels, 3 images with one shot		
	WB Correction		B/A M/G bias: 9 levels		
Viewfinder	Coverage (Approx.)		96%	100%	95%
	Magnification		0.71×	0.7×	0.9×
	Eyepoint		20 mm		
	Dioptric Adjustment		-3 to +1 dpt.		
	Focusing Screen	Type	Precision Matte	Laser, New Laser Matte	Precision Matte
		Interchangeable	2 (sold separately)	9 (sold separately)	—

Table 001 Specifications Comparison of EOS 5D with EOS-1Ds Mark II and EOS 20D (2/3)

Specification			EOS 5D	EOS-1Ds Mark II	EOS 20D
Autofocus	AF Points		9 (+ 6 Assist AF points)	45	9
	AF Point Selection		Multi-controller	Main Dial	Multi-controller
	AF Mode	ONE SHOT	Yes		
		AI SERVO		Yes	
		AI FOCUS	Yes	—	Yes
	50 kph predictive AF		8		
	AF-assist beam		External flash		Built-in flash
Exposure Control	Sensor Zones		35	21	35
	Metering Modes (Metering range [%])	Evaluative	Yes		
		Partial at center	Yes (8)	Yes (8.5)	Yes (9)
		Spot at center	Yes (3.5)	Yes (2.4)	—
		Centerweighted averaged	Yes		
	P, Tv, Av, M, Bulb		Yes		
	Full auto		Yes	—	Yes
	Image select, A-DEP		—	—	Yes
	ISO Speed (stops)		100 -1600 (1/3) L: 50, H: 3200		100 -1600 (1) H: 3200
	E-TTL II Autoflash	Evaluative metering	Yes		
		Averaged metering	Yes		
Shutter	Speeds [sec.]		1/8000 sec. - 30 sec., bulb		
	X-sync [sec.]		1/200	1/250	
Built-in Flash			—		Yes
Drive	Drive Modes		Single/Continuous		
	Continuous shooting [fps]		3	4	5
	Max. Burst		JPEG Large: 60 RAW: 17	JPEG Large: 2 RAW: 11	JPEG Large: 23 RAW: 6
LCD Monitor	Monitor Size [in.]		2.5	2.0	1.8
	Pixels (Approx.)		23		11.8
Playback	Display Modes		Single, Single image with Info, 9-image index	Single, Single image with Info, 4-image index, 9-image index	Single, Single image with Info, 9-image index
	Histogram	Brightness	Yes		
		RGB	Yes		—
	Highlight alert		Yes		
	AF point display		Yes		—
	Magnified view		1.5 - 10×		
	Image rotation		Manual/Auto		
	Jump		By 10 shots/100 shots/ date/folder	—	10ñá
Image Protect [unit]			Single	Single /Folder/Card	Single
Sound Recording			—	Yes	—
Custom Functions [Qty/settings]			21/57	20/65	18/50
Personal Functions [Qty]			—	27	—
Camera Setting Registration (Save)			Yes (mode dial)	Yes (memory card)	—
Data Verification Data			Yes		
Wireless/wired LAN			Yes	Yes (with updated firmware)	

Table 001 Specifications Comparison of EOS 5D with EOS-1Ds Mark II and EOS 20D (3/3)

Specification		EOS 5D	EOS-1Ds Mark II	EOS 20D
External Interface	PC port	USB 2.0 Hi-Speed	IEEE1394	USB 2.0 Hi-Speed
	Video OUT	NTSC/PAL		
	Remote control terminal	N3-type		
Power Source	Shots remaining	800	1200	1000 (No flash)
	Battery	BP-511A	NP-E3	BP-511A
	Startup time	0.2		
Exterior	Material	Magnesium alloy		
	Water/dust-resistance	△	◎	△
Dimensions (W × H × D)		152 × 113 × 75 mm	156 × 157.6 × 79.9 mm	144 × 105.5 × 71.5 mm
Weight		810	1215	685
Operation Environment/Relative humidity		0°C - 40°C, 85% or lower	0°C - 45°C, 85% or lower	0°C - 45°C, 85% or lower

1） Image recording

(1)35mm full-size CMOS sensor with approx. 12.8 effective megapixels

The 35mm full-size CMOS sensor with 12.8 effective megapixels was developed and manufactured by Canon (Fig. 001). Besides the outstanding resolution, the noise reduction level matches that of the EOS-1Ds Mark II. The result is very high image quality.

Four image sizes are provided (Table 002). With JPEG, you can select either the Fine or Normal recording quality (fixed compression rate).

The same ISO 100-1600 speed range (1/3-stop increments) provided by the EOS-1Ds Mark II is also provided including the ISO extension of L: 50 and H: 3200. The imaging engine is DIGIC II for very fine and natural color reproduction.

Fig. 001 Imaging sensor (actual size)

Table 002 Image Recording Quality and Pixels

Image Recording Quality	Recorded Pixels (Approx.)
Large	12.70 megapixels
Medium	6.70 megapixels
Small	4.20 megapixels
RAW	12.70 megapixels

(2)White balance (WB)

The specifications for the Auto (using the imaging sensor), Preset, Custom, Color temperature WB, and WB correction are the same as with the EOS 20D. WB bracketing is also possible for RAW and RAW+JPEG shooting.

(3)Noise reduction

The EOS 5D's noise reduction function (C.Fn-02) provides a choice between "OFF" and 1. Auto noise reduction or 2. Noise reduction for all exposures 1 sec. or longer.

＊With Auto noise reduction, the noise reduction is applied only if the camera determines that the noise reduction would be effective for the noise level detected.

(4)Creation and selection of image folders

As with EOS-1D cameras, folders where the images are to be saved can be created and the image file numbers can also be reset. The folder names are appended with the camera's name (Fig. 002).

You can also select the folder where the images are to be saved. (The folder cannot be selected during playback.) Up to 9999 images can be saved in a folder (only 100 with the EOS 20D).

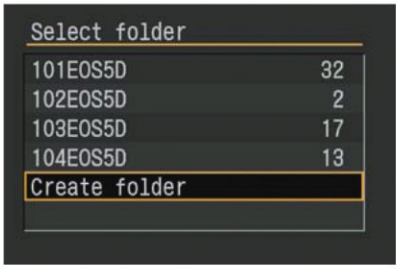


Fig. 002 Folder creation/ selection screen

2） Image processing

(1)Picture Style

Fig. 003 Picture Style selection screen

Until now, EOS Digital camera users could control the internal image processing by setting the processing parameters and color matrix. However, users have had difficulty understanding what effect these settings would have on the image. Especially in the case of the EOS-1D line of cameras, people have complained that the images looked soft. This is because the default setting applies no sharpness.

To remedy this problem and help the user obtain the desired result, a new feature called Picture Style has been incorporated in the EOS 5D. Picture Style combines the processing parameter and color matrix settings in different sets designed to obtain the desired effect. It is like choosing the type of film to obtain the desired result (Fig. 003).

Each Picture Style has preset settings for the sharpness, contrast, color tone, saturation, etc., to obtain the respective image effect.

The following Picture Styles are provided:

1. Standard
   For users who do not want to bother with post processing. The image looks crisp and vivid with the sharpness set to "3" and the color tone and saturation set to obtain vivid colors.
2. Portrait
   The color tone and saturation are set to obtain nice skin tones. The sharpness is set one step weaker than the Standard setting so that the skin and hair look softer.
3. Landscape
   The color tone and saturation are set to obtain deep blues and deep greens for the blue sky and greenery. The sharpness is set one step stronger than the Standard setting so that the outline of mountains, trees, and buildings look more crisp.
4. Neutral
   This is the same as the default setting for EOS-1D-series cameras. Natural color reproduction is obtained, and no sharpness is applied. This setting is ideal for post-processing.
5. Faithful
   This is the same as Digital Photo Professional's Faithful. When the subject is photographed under a color temperature of 5200K, the color is adjusted colorimetrically to match the subject's color. No sharpness is applied.
6. Monochrome
   Same setting as the EOS 20D's monochrome setting.
7. User Defined
   You can register the above 1 to 6 Picture Styles in User Defined 1 to 3 and adjust them and apply the settings. Also, when you have Picture Style files set from the dedicated software
   CameraWindow, you can also register and adjust, and apply those styles.

＊With each Picture Style, you can also manually adjust the sharpness, contrast, color tone, and saturation.
＊Picture Style will be incorporated in all EOS Digital cameras from the EOS 5D onward.

3） Shooting functions

(1)Viewfinder

The viewfinder provides 96% coverage, 0.710 × magnification, 20mm eyepoint, and -3 to +1 dpt dioptric adjustment.

The Precision Matte focusing screen is interchangeable. Besides the standard Ee-A screen (characteristics are almost the same as the EOS 20D's focusing screen), the Ee-D with grid (Fig. 004) and Ee-S screen for easier manual focusing are available and sold separately.

Since each focusing screen has different metering characteristics, you must set C.Fn-00-0/1/2 to match the respective focusing screen.

The viewfinder information is shown at the bottom of Fig. 004. Other than the addition of the FE lock icon, it is the same as the EOS 20D's viewfinder information.

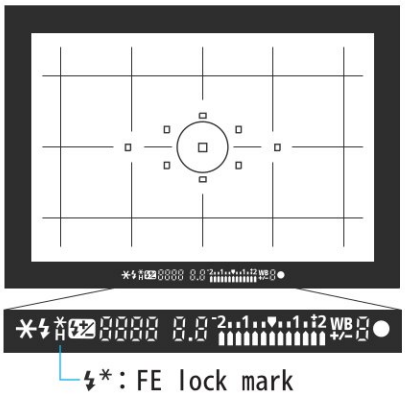


Fig. 004 Grid-type focusing screen and viewfinder information

(2)9 AF points + Assist 6 points and new AF sensor

The 9-point AF sensor (Fig. 005) is newly developed. The AF points have the characteristics below. The AF speed and predictive AF performance are the same as the EOS 20D's.

- Center AF point: With f/2.8 lenses, the center AF point works as a high-precision, cross-type AF point. (Vertical line is detected at f/2.8 and both vertical and horizontal lines are detected at f/5.6.) The f/5.6 horizontal line-sensitive AF point can now better detect major defocus conditions to enable focusing while the lens is way out of focus.
- AF points directly above and below center AF point: Vertical line-sensitive at f/5.6.
- Remaining 6 AF points: Horizontal line-sensitive at f/5.6.

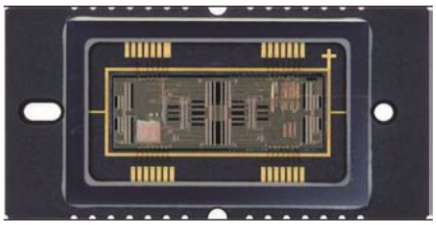


Fig. 005 AF sensor

<Assist AF points>

Within the spot metering circle, there are invisible Assist AF points (□■ in Fig. 006) to help improve the focus tracking performance in the AI SERVO AF mode. In the AI SERVO AF mode, they function as described below. (They do not function in the One-Shot AF mode.)

1. During automatic AF point selection, they work as supplementary AF points. It is like having 15 AF points in AI SERVO AF mode. They are selected automatically.

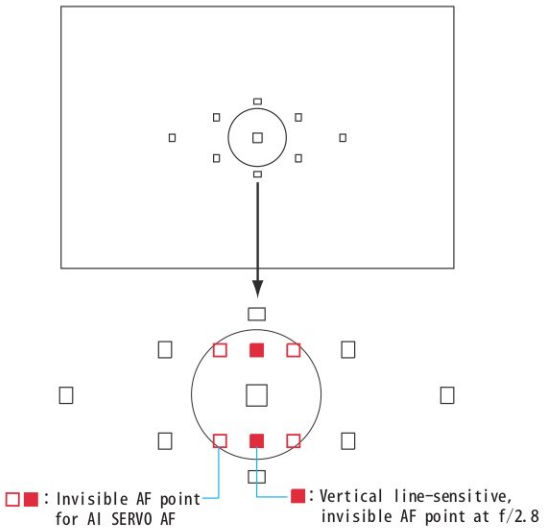


Fig. 006 AF points and invisible AF points

2. When C.Fn-17-1 (AF point activation area) is used to select the center AF point, the Assist AF points function as part of the expanded AF point area. In this case, the seven AF points within the spot metering circle work in the AI SERVO AF mode and are selected automatically.

The ■ AF point in Figure 006 is vertical line-sensitive at f/2.8, and the □ AF point is horizontal line-sensitive at f/5.6. Including the center AF point, three AF points will focus at f/2.8. This improves the focusing precision.

Since the camera has no built-in flash, AF-assist beam will be provided by the Speedlite.

＊Official designation of AF points: The official number of AF points is 9. It does not include the invisible Assist AF points.

(3)Exposure control

The metering sensor is the same 35-zone metering sensor found in the EOS 20D (Fig. 007). There are four metering modes: Evaluative metering, partial (approx. 8% of viewfinder area), spot (approx. 3.5% of viewfinder area), and centerweighted average metering.

The shooting modes (Fig. 008) are P, Tv, Av, M, bulb, Full Auto, and C (Register camera settings. For details, see Customization on p-11.). Basic Zone modes and depth-of-field AE are not provided.

For flash photography, E-TTL II autoflash and averaged flash exposure (C.Fn-14-1) are provided.

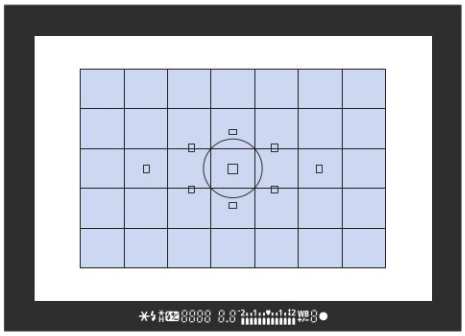


Fig. 007 Metering zones

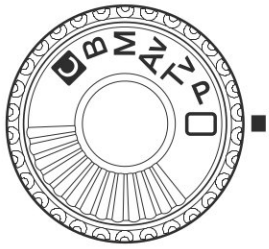


Fig. 008 Mode Dial

Fig. 009 Shutter unit

The shutter unit (Fig. 009) is newly developed for the 35mm full-size sensor. The top speed is 1/8000 sec. with X-sync at 1/200 sec.

(4)Drive

Top speed of 3 fps (One-Shot AF/AI SERVO AF). Maximum burst is 60 shots in JPEG Large/Fine and 17 shots in RAW.

4） LCD monitor and menus

(1)LCD monitor

This is a 2.5-inch, TFT liquid-crystal monitor with about 230,000 pixels. Along with the larger monitor, the menu text is also larger and easier to read (Fig. 010).

EOS 5D (2.5 in.)

EOS 20D (1.8 in.)

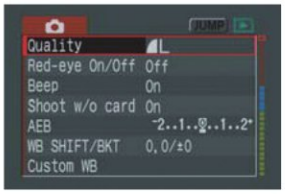


Fig. 010 Menu comparison (actual size)

(2)Image playback

It is basically the same as with the EOS 20D except for the improvements below. If auto power off is disabled and the image playback or menu display is left on for 30 min., the LCD monitor will turn off automatically to save power.

- After shooting, magnify zoom-in is possible during image playback

  With C.Fn-18-1 (shooting priority), magnified/reduced image playback is now possible by pressing the Direct Print button and Magnify/Reduce button simultaneously. (Same operation for the zoom-in operation during image playback.)
- More detailed INFO (Shooting Information) display

  With the menu, you can switch between the histogram and RGB display, and also display the AF points*. And you can also check the image file size (Fig. 011).

  *For the One-Shot AF mode, the AF poi2005.04.15nt which achieved focus is displayed. For the AI SERVO AF mode, the AF point that was selected is displayed.
- Jump feature

  During single-image display (INFO on/off), you can jump by 100 images, by shooting date (same as with the EOS D REBEL XT / 350 D) or by folder* (Fig. 012).

  *When you jump to another folder, the latest image in the folder will be displayed.

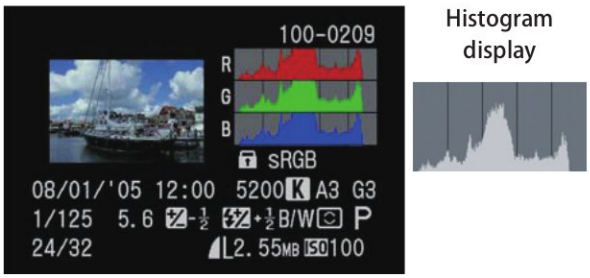


Fig. 011 INFO display

Fig. 012 Jump selection screen

・Menus

As shown in Table 003, the colored cells indicate new or improved features.

The menu operation is the same as with the EOS 20D. You scroll to select the desired item. Menu operations are possible even while image data is being written to the CF card.

Table 003 Menu Functions

Shooting	Playback	Setup
Quality	Protect	Auto power off
Beep	Rotate	Auto rotate
Shoot w/o card	Print Order	LCD Brightness
AEB	Auto Play	Date/Time
WB SHIFT/BKT	Review time	File numbering
Custom WB	AF points	Select folder
Color temp.	Histogram	Language
Color space		Video system
Picture style		Communication
		Format
		Custom Functions(C.Fn)
		Clear settings
		Register camera settings
		Sensor cleaning
		Image transfer (LAN) settings
		Firmware Ver. *

5） Design and operation ease

(1)Design

Prestige design for advanced amateurs and DSLR fans

・Overall design

Based on the "Premium EOS" concept, the EOS 5D's exterior features a well-balanced design. The pentaprism head and lens mount especially are well proportioned with the rest of the body.

The pentaprism sports a new shape never seen before on an EOS camera. Its distinguished good looks well matches an upper middle-class camera. Figure 013 compares the size with the EOS-1Ds Mark II.

・Exterior material and finish

The exterior is made of magnesium alloy, and the three grip surfaces are covered with rubber. The camera feels solid and comfortable in your hands. The paint finish has a higher density, matte surface for a luxury touch.

On the pentaprism, the Canon logo is sculptured and painted in white. Such attention to details convinces advanced amateurs and SLR fans alike that this camera is worthy as a status symbol.

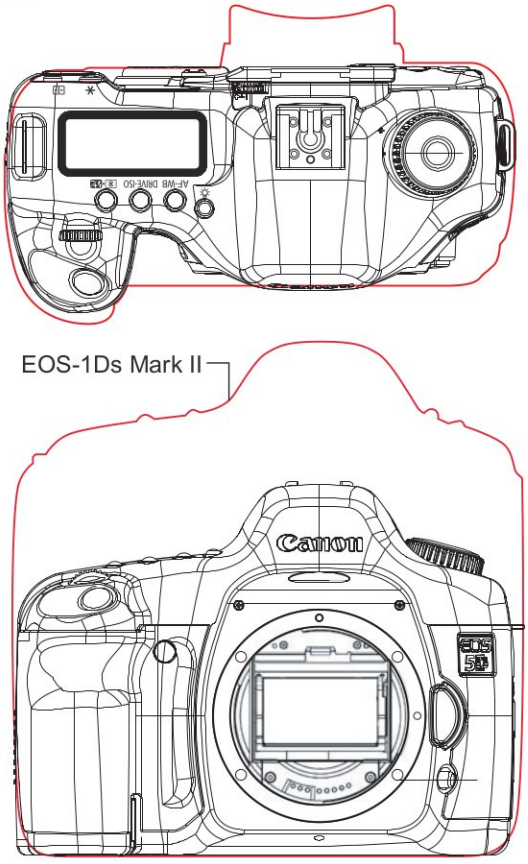


Fig. 013 Size comparison

(2)Operation ease

Other than the Direct Print button on the back, the camera controls and their layout are the same as the EOS 20D's.

6） Customization

(1)Camera setting registration

Under the menu's Setup tab, select "Camera setting registration" to save the current camera settings. The settings that will be saved can be displayed by turning the Mode dial to C. The settings listed in Table 004 will be registered.

Table 004 Camera setting registration

Shooting Settings	Menu Settings
Shooting mode / AF mode / selecting AF points / Metering mode / ISO speed / Drive mode / Exposure compensation amount / Flash exposure compensation amount / White balance mode	Quality / Beep / Shoot w/o card / AEB / WB SHIFT/BKT / Custom WB / Color temp. / Color space / Picture Style (excluding user defined) / Review time / AF points / Histogram / Auto power off / Auto rotate / LCD brightness / File numbering (method) / Custom Functions (C.Fn)

(2)Custom Functions

Twenty-one Custom Functions with 57 settings are provided. Table 005 lists the new Custom Functions not found in the EOS 20D. (For details, see page 44 - 45.)

Table 005 Custom Functions

C.Fn	Custom Function	No	Setting
0	Focusing Screen	0	Ee-A
		1	Ee-D
		2	Ee-S
17	AF point activation area	0	Standard
		1	Expanded
18	LCD displ a Return to shoot.	0	With Shutter Button only
		1	Also with * etc.

<C.Fn-0: Focusing screen>

Set to match the installed focusing screen.

<C.Fn-17: AF point activation area>

Enhances focusing ease in the AI SERVO AF mode.

＊When AI SERVO AF and the center AF point are used, the six invisible AF points within the spot metering circle are activated for focusing.

<C.Fn-18: LCD displ a Return to shoot.>

Set this when you want to be able to return instantly to shooting during menu viewing or image playback. Also set it when you want to switch the ISO speed or when you want to magnify/reduce the image displayed during the image review after shooting. Also, if C.Fn-04-1 is set and you press the AE lock button during menu viewing or image playback, the LCD monitor will turn off and AF will work instantly.

＊The moment you use any camera controls while you are viewing a menu or image, the menu or image playback will quit and the shooting controls will take effect.

＊If you press the Direct Print button and Magnify/Reduce button simultaneously during the image review after shooting, the Magnify/Reduce display will be enabled. (Same procedure as Magnify/Reduce during image playback.)

7） Camera Direct printing

Besides the Direct Print button (same specs as the EOS D REBEL XT / 350 D's), more PictBridge specifications (described below) have been added to improve the camera's operation with Canon PictBridge printers.

<PictBridge>

- Paper size

  The following paper sizes have been added: Wide, 8"×10", 10"×12". (A3 and A3 wide supported.)

- Printing effects

  "Face" effect added for dark faces caused by backlighting.

- Printing layout

  The following printing layouts have been added:

1. Print with shooting information (Fig. 014): The picture's shooting data is displayed below the image. (L size or larger.)
2. 20-up print with shooting information (Fig. 015): The shooting data is printed on the side of each thumbnail image.
3. 35-up contact print (Fig. 016): Contact sheetstyle printing. The folder and file No. are also printed.
4. 35 duplicate images: On one sheet, 35 images of the same picture are printed.

Fig. 014 Print with shooting information

＊The 20-up print with shooting information and 35-up contact print are printed with a DPOF order (the paper size must be A4 or 8.5×11").

The above printing effects and printing layout features can be used only with Canon printers compatible with these features.

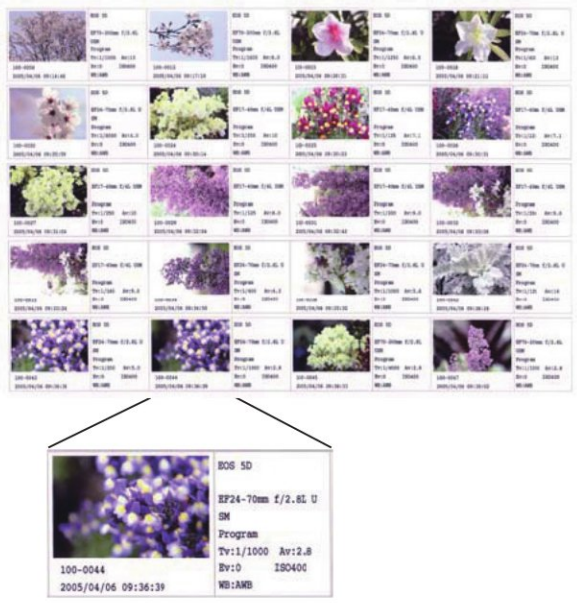


Fig. 015 20-up print with shooting information

Fig. 016 35-up contact print

8） Power source and shooting capacity

The camera can be powered by Battery Pack BP-511A/514/511/512. The EOS 5D's battery grip can accommodate these battery packs as well as size-AA batteries. With a fully-charged BP-511A, the EOS 5D can take approx. 800 shots at 20° C/68° F or 400 shots at 0°C/32°F.

9） Dimensions and weight

Dimensions: 152 (W) × 113 (H) × 75 (D) mm
6.0 (W) × 4.4 (H) × 3.0 (D) in.
Weight: 810 g / 28.6 oz.

2.2 New accessories

●BATTERY GRIP BG-E4

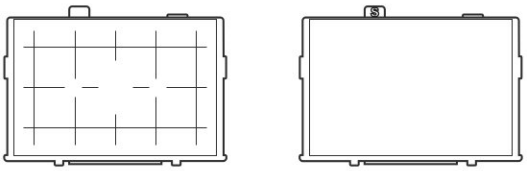
EOS 5D-dedicated, L-shaped battery grip with vertical camera controls (Fig. 017). The front cover and rear cover use the same magnesium alloy as the EOS 5D's exterior. This makes it solid and comfortable to hold.

It can accommodate two BP-511A/514/511/512 battery packs or six size-AA batteries fitted in the battery magazine. The batteries can be alkaline, lithium, or Oxyride.

Fig. 017 BATTERY GRIP BG-E4

●Interchangeable focusing screens

"Precision Matte with Grid Ee-D" for easier alignment of horizontal or vertical lines, and "Super Precision Matte Ee-S" for easier manual focusing easier are prepared.



Ee-D Ee-S

2.3 Software for EOS 5D

The same software bundled with the EOS D REBEL XT / 350 D will be provided.

3. SPECIFICATIONS

1. Type

1-1	Type:	Digital AF/AE single-lens reflex camera
1-2	Compatible lenses:	Canon EF lenses (except EF-S lens)
1-3	Lens mount:	Canon EF mount
1-4	Lens restrictions:	None
1-5	Lens focal length:	Same as the lens focal length markings.

2. Image Sensor

2-1	Type:	High-sensitivity, high-resolution, single-plate, CMOS sensor
2-2	Image size:	35.8 mm × 23.9 mm (Actual size)
2-3	Effective pixels:	Approx. 12.80 megapixels: 4384 (H) × 2918 (V) pixels
2-4	Total pixels:	Approx. 13.30 megapixels: 4480 (H) × 2958 (V) pixels
2-5	Pixel unit:	8.2 µm square
2-6	Aspect ratio:	2:3 (Vertical:Horizontal)
2-7	Color filter type:	RGB primary color filters
2-8	Low-pass filter:	Fixed position in front of the image sensor
2-9	Cleaning mode:	Provided (1)With menu's "Sensor cleaning" (2)With battery pack or AC power. (3)When the battery pack's level becomes exhausted, or the size-AA batteries are used with BATTERY GRIP BG-E4, cleaning is not possible. (4)During cleaning (mirror lockup), "CLn" blinks on the LCD panel. (5)When the battery level becomes low, the following warnings continue until the prohibit voltage: 1. Electronic beeper (Sounds even when disabled), 2. Battery level low icon blinks on LCD panel.

3. Recording System

3-1	Recording media:	CF card
3-2	Media format:	In accordance with the CF card (1)Formatted with the menu's "Format" (2)Compatible with 2 GB and higher CF cards. Automatic file format switching. (3)The formatted CF card's volume name will be "EOS_DIGITAL."

3-3 Image type:

Image-Recording Quality		Pixels	Image Type
Large	Fine	4368 × 2912 (Approx. 12.70 megapixels)	JPEG
	Normal		
Medium	Fine	3168 × 2112 (Approx. 6.70 megapixels)	
	Normal		
Small	Fine	2496 × 1664 (Approx. 4.20 megapixels)	
	Normal		
RAW		4368 × 2912 (Approx. 12.70 megapixels)	Lossless RAW

* Original image verification data can be appended (C.Fn-20-1) in all recording modes.

3-4 RAW+JPEG simultaneous recording:

Enabled in all JPEG recording modes.

- The RAW and JPEG images are saved as separate files in the CF card.

3-5 File size and recording capacity:

Recording Quality			Single Shot Size (Approx.)	Recording Capacity (Approx.)
JPEG	Large	Fine	4.6	101
		Normal	2.3	196
	Medium	Fine	2.7	168
		Normal	1.4	319
	Small	Fine	2.0	233
		Normal	1.0	446
RAW	+Large	Fine	—	22
		Normal		25
	+Medium	Fine		24
		Normal		26
	+Small	Fine		25
		Normal		27
RAW			12.9	29

* The above specifications are based on ISO 100 and Canon's testing standards.
* Figures for the recording capacity apply to a 512 MB Compact Flash card.
* The actual single shot size and recording capacity depend on the subject, shooting mode, ISO speed, and picture style.
* Since monochrome shooting produces smaller file sizes than with color, the number of possible shots will be higher.

3-6 Information recorded:

Complies to Design rule for Camera File system.

- The following is recorded when the image is captured: main, secondary (Exif information), manufacturer's, thumbnails information.

3-7 Image recording format:

Complies with Design rule for Camera File system 2.0 and Exif 2.21

3-8 Folder setting:

Folder creation/selection features:
The folder name will be EOS5D and the folder No. starts from 100EOS5D. It can go up to 999EOS5D.

(1)Automatic creation of folder
- If the CF card does not have a Design rule for Camera File system-compliant folder, one is created automatically.
- Another folder is created automatically if the file No. reaches 9999.

(2)Manual creation of folder
- With the menu's [Select folder] a [Create folder], you can create a new folder.

(3)Manual reset and folder creation
- With the menu's [File No.] a [Manual reset], the file No. is reset to 0001 and a new folder is created.

(4)Folder selection
- With the menu's [Select folder], you can select the folder where the images are to be saved.
- During image playback, the last captured image is displayed instead of the selected folder's image.

3-9 Image file name:

JPEG: IMG_****.JPG (**** is the file No.)
RAW: IMG_****.CR2

＊ If Adobe RGB is set, the "I" in IMG will be underlined.
＊ The extension for RAW images will be CR2 (Canon RAW 2nd Edition).

3-10 File No.:

The following three types of file numbers can be set:

(1)Continuous numbering
The continuous numbering of captured images will continue even after you replace the camera's CF card.

(2)Auto reset
When you replace the camera's CF card, the numbering will be reset to start from IMG-0001. If the new CF card already contains images, the numbering will continue from the last recorded image in the CF card.

(3)Manual reset
Resets the file number to 0001, and creates a new folder automatically.

3-11 Picture style:

Item	Sharpness	Contrast	Color tone	Color saturation	Filter effects	Toning effect	PC Setting
①Standard	3	0	0	0	—	—	—
②Portrait	2	0	0	0	—	—	—
③Landscape	4	0	0	0	—	—	—
④Neutral	0	0	0	0	—	—	—
⑤Faithful	0	0	0	0	—	—	—
⑥Monochrome	3	0	—	—	None	None	—
⑦User Defined	3	0	0	0	—	—	Yes

3-12 Picture style settings:

Item	Settings
Base Picture Style	Standard / Portrait / Landscape / Neutral / Faithful / Monochrome / Picture style file
Sharpness	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7
Contrast	-4 / -3 / -2 / -1 / 0 / +1 / +2 / +3 / +4
Color tone	-4 / -3 / -2 / -1 / 0 / +1 / +2 / +3 / +4
Color saturation	-4 / -3 / -2 / -1 / 0 / +1 / +2 / +3 / +4
Filter effects	N: None, Ye: Yellow, Or: Orange, R: Red, G: Green
Toning effect	N: None, S: Sepia, B: Blue, P: Purple, G: Green

＊A file for the color space will also be created for monochrome shooting.
＊During monochrome shooting, "B/W" will be displayed on the LCD panel.
＊When C.Fn-01-2 (SET function when shooting: Change Picture Style) is set, you can press the SET button to display the Picture Style menu on the LCD panel.
＊The setting will revert to the default when the menu's [Clear all camera settings] is executed.

3-13 Color space: Selectable between sRGB and Adobe RGB.
・ Settable with the menu's "Color space."

4. Recording Media Drive

4-1 Type: Accepts CF card Types I and II
4-2 Slots: One CF card slot, cover provided
4-3 CF card access indicator: Access lamp blinking/lit
4-4 Read error warning: Error warning is displayed on the LCD panel, viewfinder, and LCD monitor. Shutter locks up.
4-5 CF card initialization: Enabled (with menu's "Format").
4-6 No CF card warning: Provided
(1)When you turn on the power switch, [No CF card] will be displayed on the LCD monitor.
(2)With the menu's "Shoot w/o card" the shutter release can be locked ([no CF] displayed in the viewfinder and LCD panel).

5. White Balance

5-1 Type: Auto white balance with the image sensor.
5-2 Modes: The LCD panel displays the selected white balance mode.

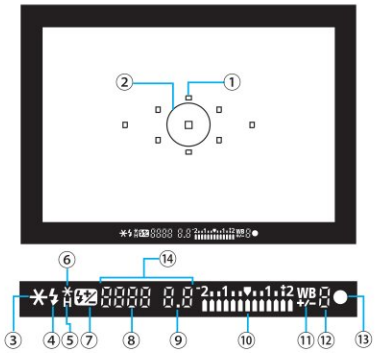
	WB Mode	Color Temperature (Kelvin)
Auto	①Auto (AWB)	Approx. 3000-7000 K
Preset	②Daylight	Approx. 5200 K
	③Shade	Approx. 7000 K
	④Cloudy, twilight, sunset	Approx. 6000 K
	⑤Tungsaten light	Approx. 3200 K
	⑥White fluorescent light	Approx. 4000 K
	⑦Flash	Approx. 6000 K
Manual	⑧Custom (MWB)＊1	Approx. 2000-10000 K
	⑨Color Temperature ＊2	Approx. 2800-10000 K

＊1：Custom: First take a picture of a white subject serving as the white balance standard. Then set the "Custom WB" mode on the on-screen menu and to specify that image.
＊2：Color temperature specified directly with the "Color temp." menu.

5-3	White balance correction	The color temperature of the WB modes (all listed in 5-2) can be corrected as follows: • Blue/amber bias: ±9 levels • Magenta/green bias: ±9 levels (1)Set with the Multi-controller (Pushable in all directions) (2)White balance correction cannot be applied outside 2000K - 10000K. (Although it is settable, the effect is not guaranteed.)
5-4	White balance bracketing:	Based on the color temperature of the current WB mode (among those listed in 5-2), WB bracketing for the "Setting/ blue bias/amber bias" or "Setting/magenta bias/green bias" is executed up to ±3 stops in whole-stop increments with a single shutter release. (1)The blue/amber bias and magenta/green bias cannot be set together. (2)One level of the blue/amber bias is equivalent to 5 Mireds of a color conversion filter. (3)For the magenta/green bias, there is no equivalent in Mireds. (4)White balance correction cannot be applied outside 2000K - 10000K. (Although it is settable, the effect is not guaranteed.) (5)When set together with white balance correction, WB bracketing cannot be set to more than ±9 levels. (6)White balance correction and AEB can also be set in combination with WB-BKT. (With AEB, 9 images will be saved to the CF card.) (7)WB-BKT is possible in RAW mode. (8)Since three images are recorded automatically with a single shot, the writing time to the CF card will take longer. (9)With C.Fn-09 (Bracketing sequence/Auto cancel), the bracketing sequence can be changed and the bracketing can be canceled automatically or not.

6. Viewfinder

6-1	Type:	Eye-level SLR (with fixed pentamirror)
6-2	Focusing screen:	Interchangeable. Standard Precision Matte Ee-A provided. (1)Interchangeable with Ee-D (Precision Matte with Grid) and Ee-S (Super Precision Matte) focusing screens. (2)Set C.Fn-0 to set the respective focusing screen's metering correction value. (3)All three focusing screens are the Precision Matte type.
6-3	Dioptric adjustment:	Adjustable from -3.0 dpt to +1.0 dpt.
6-4	Eye point:	20 mm
6-5	Coverage:	Approx. 96% vertically and horizontally (Coverage against JPEG Large)
6-6	Magnification:	Approx. 0.71× (with 50mm lens at infinity, -1 dpt)

6-7	Viewfinder information:	 1) On the screen ①AF points (9) ②Spot metering circle 2) Below the screen (Major information) ③AE lock, AEB in progress (blinks) ④Flash ready, insufficient flash warning during FE lock (blinks) ⑤High-speed sync (FP flash) ⑥FE lock, FEB shooting (blinks) ⑦Flash exposure compensation ⑧Shutter speed (if camera shake will occur, it blinks), bulb, FE lock (FEL), Processing data (buSY) ⑨Aperture (if unsuitable, it blinks) ⑩Exposure level display: Exposure compensation, Manual exposure level, AEB level, Flash exposure compensation, Red-eye reduction lamp on time display ⑪White balance correction ⑫Max. burst ⑬AF focus confirmation (blinks when focus cannot be achieved), MF focus confirmation ⑭CF card full warning (FuLL CF), CF card error warning (Err CF), No CF card warning (no CF)
6-8	Mirror:	Quick-return half mirror (Transmittance : reflectance ratio of 40:60)
6-9	Viewfinder blackout time:	Approx. 145 ms at 1/60 sec. or faster speeds.
6-10	Mirror lockup:	Enabled with C.Fn-12-1. (1)SW-2 ON for mirror up → SW-1 OFF → SW-2 ON for shutter release. (2)Mirror lockup is maximum 30 sec. (after 30 sec., the mirror goes back down and exposure stops.)
6-11	Mirror cut-off:	No mirror cut-off with lenses up to EF 600mm f/4
6-12	Depth-of-field preview:	Enabled with depth-of-field preview button (1)Disabled in the Full Auto mode. (2)With Speedlite 580EX, 550EX, 430EX, 420EX, MR-14EX, or MT-24EX, pressing the depth-of-field preview button fires a modeling flash.
6-13	Eyepiece shutter:	None (Eyepiece cover provided on strap)
6-14	Misc.:	Eyecup Eb provided

7. Autofocus

7-1 Type: TTL-CT-SIR AF-dedicated CMOS sensor

7-2 AF points: 9 AF points (plus 6 invisible Assist AF points)

(1)Center AF point is vertical line-sensitive to f/2.8 and sensitive to vertical and horizontal lines to f/5.6 as a cross-type sensor.

(2)The AF points above and below the center AF point include six invisible AF points (two of them are vertical line-sensitive to f/2.8). These invisible AF points function only in the AI SERVO AF mode during automatic AF point selection and in the AI SERVO AF mode with C.Fn-17-1 (AF point activation area) and the center AF point selected. (It does not function in the One-Shot AF mode.)

7-3 Focusing modes: 1) Autofocus

Other than the Full Auto mode, the following three AF modes are user selectable.

[One-Shot AF]

When focus is achieved, the AF operation stops and locks (AF lock).

(1)AF-priority (The shutter can be released only when focus is achieved.)

(2)During evaluative metering, AE lock is set when focus is achieved.

(3)In metering modes other than evaluative metering, exposure metering continues in real-time until the shutter is released.

(4)With applicable USM lenses, electronic ring manual focusing can be used after focus is achieved with One-Shot AF or if focus cannot be achieved with One-Shot AF.

[Predictive AI Servo AF]

Tracks subject movement and focuses continuously until the start of exposure.

(1)1st shot during SW-1 ON: Shutter-release priority (shutter releases after the lens drive stops during focusing).

(2)2nd shot onward during continuous shooting: Shutter releases after the lens drive stops during subject tracking.

(3)No focus confirmation light and no beeper.

(4)If focusing is impossible, the focus confirmation icon blinks.

[AI Focus AF (Automatic switching between One-Shot/ Predictive AI Servo AF)]

When the AF point which achieved focus in the One-Shot AF mode detects subject movement, the AI Servo AF mode takes over.

(1)Automatically set in Full Auto mode.

(2)In the AI SERVO AF mode, the beeper sounds.

2) Manual focus (MF)
After the lens focus mode is switched to MF (or M), manual focusing is enabled with the focusing ring.
(1) Focus aid: During automatic AF point selection, works with 9 AF points. Works with the user-selected AF point. When focus is achieved, the focus confirmation light and superimposed AF point display will light.
(2) Electronic manual focusing functions during continuous shooting and during the exposure.

7-4 Focusing point selection:

1) Manually selected
The AF point selected from the nine AF points is used to focus.
- When the center AF point is selected in the AI SERVO AF mode and C.Fn-17-1 (AF point activation area) is set, the six invisible AF points above and below the center AF point will function.

2) Automatic selection
(1) One-Shot AF
- Based on the subject information from the nine AF points, the optimum subject is selected automatically for focusing.
- Generally, the closest subject will be selected for focusing.
- If more than one AF point achieve focus at the same distance, they will all light in the viewfinder.

(2) AI SERVO AF
- The focusing starts at the center. Then if the subject moves to an adjacent AF point, AI SERVO AF continues to focus track the subject.
- All 15 AF points are used.

7-5 AF point selection operation:

Press the AF point selector, then use the Multi-controller (8 directions + center press) or turn the Main Dial or Quick Control Dial to select the AF point.
(1) If you press the AF point selector and then press the center of the Multi-controller, the center AF point will be selected. If you press the Multi-controller in one of the 8 directions, the respective AF point (left, upper left, lower left, top, bottom, lower right, upper right, right) will be selected.
(2) In the manual AF point selection mode, if you push the Multi-controller in the direction of the current AF point, it will switch to automatic AF point selection.
(3) If you press the AF point selector and then turn the Main Dial/Quick Control Dial clockwise, the AF point selection will proceed in the following looping sequence: top, automatic selection, center, upper right, right, lower right, bottom, lower left, left, upper left, top, automatic selection... (If you turn the dial counterclockwise, the selection sequence will be in the reverse order.)

(4)With C.Fn-13-1, the Multi-controller can select the AF point directly. With C.Fn-13-2, the Quick Control Dial can select the AF point directly (without needing to press the AF point selector).

7-6 **AF point display:** Indicated by superimposed display in the viewfinder and on the LCD panel.

7-7 **AF activation:** AF is activated by pressing the shutter button halfway (SW-1)

7-8 **AF operation speed:** Same as the EOS 20D.

7-9 **Focus confirmation:** Indicated by superimposed display in viewfinder (can be disabled with Custom Function), focus confirmation light, and beeper (can be disabled with the power switch).

(1)When the AI Focus AF mode's AI SERVO AF is set, the beeper sounds.

(2)In the AI SERVO AF mode, the beeper does not sound.

(3)No focus confirmation indicator in the AI SERVO AF mode.

(4)The focus confirmation beeper can be enabled or disabled with the menu's [Beep].

(5)The superimposed display can be enabled/disabled with C.Fn-10.

7-10 **AF precision:** Same as the EOS 20D

7-11 **AF working range:** EV -0.5 -18 (at 20ºC and ISO 100, under Canon's testing standards)

7-12 **AF-assist beam:** When an EOS-dedicated Speedlite is used (equipped with AF-assist beam) and turned on, a near-infrared beam (peak wavelength approx. 700 nm) is emitted automatically.

8. **Exposure Control**

8-1 **Type:** Max. aperture TTL metering with 35-zone SPC with the following selectable modes:

(1)Evaluative metering (linked to all AF points)

(2)Partial metering (approx. 8% of viewfinder)

(3)Spot metering (approx. 3.5% of viewfinder)

- During continuous shooting, spot metering is repeated for each shot.

(4)Centerweighted average metering

- In the Full Auto mode, evaluative metering is set automatically.
- AF point-linked partial metering and spot metering are not possible.

8-2 **Exposure modes:**

1) Program AE (shiftable)

2) Shutter-priority AE

- With C.Fn-16-1, safety shift is applied to 1) or 2).

3) Aperture-priority AE

4) Full Auto (non-shiftable)

5) E-TTL II autoflash program AE

- C.Fn-14-0: Evaluative metering, C.Fn-14-1: Averaged metering

6) Manual exposure (including bulb)

8-3 Metering range: EV 1-20 (at 20°C with 50mm f/1.4 lens at ISO 100, under Canon's testing standards)

8-4 Exposure beyond range warning: Shutter speed and aperture displays blink on the LCD panel and in the viewfinder.

8-5 Exposure metering: Activated when shutter button is pressed halfway (SW-1 ON).

- Metering time: Approx. 4 sec. before exposure and approx. 2 sec. after exposure.

8-6 ISO Speed: 100-1600 settable in 1/3-stop increments

- With C.Fn-8-1, ISO 50 and 3200 can also be set.
- In the Full Auto mode with the AE shutter speed slower than 1/500 sec., ISO 400 is set. With 1/500 sec. and faster speeds, ISO 100-400 is set (1/8-stop increments) automatically. With flash, ISO 400 is set. (During continuous shooting, the ISO speed does not change automatically).

8-7 Exposure Compensation:

1) Manual exposure compensation

(1)Bracketing range: Up to ±2 stops in 1/2- or 1/3-stop increments

(2)Bracketing factor: See the bracketing factor used for the respective shooting mode below.

- Not settable in the Full Auto mode.
- Manual exposure compensation cannot be set for manual exposures. Works with AEB.

Shooting Mode	Shutter Speed	Aperture
Program AE	Yes	Yes
Shutter-priority AE	—	Yes
Aperture-priority AE	Yes	—
Manual	Yes	—

AEB cancellation: Set the AEB amount to 0.

- If 1) and 2) are set in combination, the AEB amount will be shifted by the exposure compensation amount.

2) AEB (Auto Exposure Bracketing)

(1)Activation: Set with the menu's [AEB].

- During AEB: The AEB icon and AEB level on the LCD panel blinks, and the AE lock icon and AEB level blinks in the viewfinder.

(2)Bracketing range: Up to ±2 stops in 1/2- or 1/3-stop increments

(3)Bracketing sequence: Standard exposure, decreased exposure, and increased exposure

- Taken in accordance with the drive mode.
- If the self-timer is used, the three bracketed shots will be exposed successively after the self-timer delay.
- May be used in combination with WB-BKT. (In this case, nine images will be generated.)
- With C.Fn-09 (Bracketing sequence/Auto cancel), the bracketing sequence can be changed.

(4)Bracketing factor: Same as for 1).

(5)AEB cancellation: Set the AEB amount to 0.
- With C.Fn-09 (Bracketing sequence/Auto cancel), AEB can be canceled afterward automatically or not. (If the flash is ready or the flash button is ON, AEB will be canceled afterward automatically regardless of the C.Fn-09 setting.)

8-8 **AE Lock:**
1) Auto AE lock
- In the One-Shot AF mode with evaluative metering, AE lock takes effect when focus is achieved.

2) Manual AE lock
(1)Enabled with AE lock button. (Pressing the button again renews AE lock.)
(2)No AE lock in Full auto modes.
(3)During evaluative metering, AE lock is applied to the exposure setting obtained by the selected AF point. During partial, spot, or centerweighted average metering, AE lock is applied to the exposure setting obtained by the center AF point.
(4)With an EX-series Speedlite, it functions as an FE lock button.

8-9 **Multiple exposures:** Not possible

9. **Shutter**

9-1 **Type:** Vertical-travel, mechanical, focal-plane shutter with all speeds electronically-controlled
- Mechanical shutter: Front and rear curtains each controlled by a dedicated rotary magnet (curtain speed 3.77 ms/24mm).

9-2 **Shutter speeds:** 1/8000 sec. to 30 sec. X-sync at 1/200 sec.
(1)Settable in 1/3-stop increments in shutter speed-priority AE and manual modes.
(2)During bulb exposures, the exposure time is displayed on the LCD panel.

9-3 **Shutter release:** Soft-touch electromagnetic release

9-4 **Shutter-release time lag:**
1) During SW-1 ON, time lag between SW-2 ON and start of exposure: 75 ms
2) Time lag between simultaneous SW-1/SW-2 ON and start of exposure: 130 ms
Note: From the maximum aperture stopped down to f/3.5. (With EF 50mm f/1.8 II. Excluding AF time.)

9-5 **Noise reduction:** Set with C.Fn-02 [Noise reduction] set to [Auto] or [On]
(1)[Auto]: The noise level is detected automatically and noise reduction is performed.
(2)[On]: Noise reduction is performed if the exposure is 1 sec. or longer.

9-6	Self-timer:	10-sec. delay (1)With C.Fn-12-1 (mirror lockup), the self-timer delay is 2-sec. (2)After starting, the self-timer can be canceled by pressing the Drive button.
9-7	Self-timer operation indicator:	1) Self-timer lamp (Blinks at 2Hz for the first 8 sec., then blinks at 8Hz for the last 2 sec.) 2) LCD panel (ISO speed indicator counts down from 10 to 1 in 1-sec. increments) 3) Beeper (Beeps at 2 Hz for the first 8 sec., then at 8 Hz for last 2 sec.)
9-8	Camera shake warning:	In the Full Auto mode, if the shutter speed (Tv-auto) is 0 to 0.5 stop slower than the reciprocal of the lens focal length, the shutter speed display blinks.

10. Flash Specifications

10-1	Flash sync contacts:	1) Hot shoe: X-sync contacts ・ Locking pin hole provided to prevent Speedlite slippage. 2) Lower side terminal: PC terminal (no polarity) (1)Threaded terminal. (2)Both 1) and 2) can be used for simultaneous firing.
10-2	Flash auto:	Enabled with the camera's Program AE mode 1) With EX-series Speedlites E-TTL II autoflash, FE lock 2) With TTL and A-TTL external Canon Speedlites Manual firing, stroboscopic flash, and external flash metering enabled. When TTL or A-TTL is set, the flash is fired at full output. 3) With non-Canon flash units: ・ An external flash unit connected to the hot shoe can synchronize at 1/200 sec. or slower. ・ Large studio flash: Sync at 1/125 sec. or slower (Confirm beforehand.)
10-3	Flash exposure compensation:	1) Manual setting (1)Up to +/- 2 stops in 1/3-stop increments. (2)If flash exposure compensation is set with both the camera and Speedlite, the Speedlite's setting will override the camera's setting and take effect. 2) FEB (Flash Exposure Bracketing) (1)Enabled and set with the 580EX, 550EX, MR-14EX or MT-24EX. (2)During continuous shooting, it stops automatically after three shots. (3)When the flash is unable to fire anymore during FEB continuous shooting, the shutter release locks. (4)The shutter release unlocks when the shutter button is let go. While the flash is not ready, the AE mode takes effect (SW-2).

10-4 **Wireless flash:** Enabled with the 580EX, 550EX, 430EX, 420EX, ST-E2, MR-14EX, or MT-24EX.
(1)Three slave groups (A, B, C) can be controlled, a flash ratio (A: B) can be set, FEB can be set according to the flash ratio.
(2)A modeling flash can be fired.
(3)The 430EX and 420EX can be used as slaves only, and the MR-14EX and MT-24EX can be used as the master unit only.

11. Drive

11-1 **Drive modes:** ①Single ②Approx. 3 fps ③Self-timer

11-2 **Continuous shooting:** Continuous shooting with the internal buffer memory record
(1)When the buffer memory becomes full, shooting will not be possible until at least one image in the internal memory is recorded onto the CF card.
(2)When the shooting stops (SW-1 OFF), the image data continues to be transferred from the internal buffer memory to the CF card to free up the buffer memory and enable more shooting.

11-3 **Continuous shooting speed:** Approx. 3 fps (at 1/250 sec. or faster for all recording quality settings)

11-4 **Maximum burst:** With a Canon 512MB CF card for high-speed writing.

Recording Quality			Maximum Burst
JPEG	Large	Fine	60
		Normal	150
	Medium	Fine	120
		Normal	319
	Small	Fine	200
		Normal	446
RAW			17
RAW+JPEG	Large	Fine	12
		Normal	
	Medium	Fine	
		Normal	
	Small	Fine	
		Normal	

* The maximum burst with JPEG will vary depending on the shooting conditions, processing conditions, and CF card type.
* For Middle/Normal and Small/Normal, continuous shooting is possible until the CF card becomes full.
* The maximum burst is displayed on the viewfinder bottom ("9" displayed if it is 9 shots or higher or "8" to "0" is displayed when it is less than 9). The max. burst is displayed even when the drive mode is Single or Self-timer. Also, note that the max. burst will be displayed even if there is no CF card installed.
* In the B/W mode, the max. burst will be higher than when you shoot in color.
* When the buffer memory becomes full, shooting will not be possible until at least one image in the internal memory is recorded onto the CF card.
* Menu operations are possible during image processing.

11-5 **Battery life:** With Battery Pack BP-511A

Temperature	Shots (Approx.)
At 20°C	800
At 0°C	400

* The battery capacity for BP-511/512 is 1100mAh or -26% compared with the BP-511A (1390mAh).
* Shooting conditions: Fully charged battery pack, EF 50mm f/1.8 II, image review time 2 sec., and Large/Fine image quality.
* Complies to CIPA testing standards.

11-6 **Image review:** Image review time right after image capture is settable with the menu's [Review time].

(1)Settable to 2 sec., 4 sec., 8 sec., or Hold.

(2)If you press the Info button during image review, you can switch the Info display on or off.

(3)Even if "Hold" is set and Auto power off is set to "Off", LCD monitor will turn off after 30 minutes.

12. LCD Monitor

12-1 **Type:** TFT color, liquid-crystal monitor

12-2 **Screen size:** 2.5 in.

12-3 **Pixels:** Approx. 230,000 pixels (Displayed pixels)

12-4 **Coverage:** Approx. 100% (for JPEG images)

12-5 **Brightness adjustment:** 5 levels
- Settable with menu's "LCD brightness"

12-6 **Angle adjustment:** None

12-7 **Protective cover:** None

13. Playback

13-1 **Image display format:**

1) Single image
   (1)During the image display, press the INFO button to switch to normal (image + basic info), image only (no info) or image info display (information + reduced image).
   (2)Turn the Quick Control Dial or Main Dial to view the previous or next image.
2) 9-image index
   - During the image display, press the INFO button to switch between normal (9 images + basic info) or 9 images only (no info)
3) Magnified zoom
   - During the image display, press the INFO button to switch between normal (magnified image + basic info) or magnified image only (no info)
4) Auto play
5) Auto play right after shooting
   - Except when the menu's [Review time: Off] is set, the last image captured is displayed.

13-2 Display conditions: Images saved in Design rule for Camera File system format.
(1)If the image is not in the Design rule for Camera File system format, [?] is displayed on the LCD monitor.
(2)Also applicable to the index's thumbnail images.

13-3 INFO display: 1) Shooting information display (Camera Information)

- Date/time, WB correction amount, WB-BKT setting, Color space, Picture style, Flash exposure compensation amount, Auto power-off, Auto rotated image, Color temperature, CF card space remaining, ISO speed, Register camera settings (shooting mode only), File No., Folder No.

Note: In the Full Auto mode, items that cannot be set will not be displayed (ISO Auto is displayed).

2) Image info display (Playback INFO)

- When an image is displayed and you press the INFO button, the following information will be displayed together with a reduced image:
  Folder No., File No., Reduced image, Histogram, Color space, Shooting date/time, AF point, ISO speed, Metering mode, Shooting mode, Shutter speed, Aperture, Exposure compensation amount, Flash exposure compensation amount, White balance correction amount, Playback number/Total images recorded, Protect, Recording quality, Original image verification data appended, White balance, Color temperature (displayed only when WB setting is K), Monochrome, File size (MB)

Note 1: The RAW+JPEG file size is indicated only for the JPEG image.
Note 2: If a JPEG image not in the Design rule for Camera File system format is selected, [!] is displayed.
Note 3: If an image that cannot be displayed is selected, [?] is displayed.
Note 4: The AF points used are indicated.

13-4 Highlight alert: In the single image (INFO) display mode, the highlight portions containing no image information will blink.

13-5 Histogram display: 1) Brightness
2) RGB

- Switchable with menu's [Histogram].
- Displayed with Single (INFO.).

13-6 Magnify zoom display: With the Magnify button, the image can be magnified from the single image display from approx. 1.5× to 10× in 15 steps.

Magnify	Magnify button
Reduce	Reduce button
Scroll vertically	Multi-controller (Diagonal scrolling also possible. Center button does not function.)
Scroll horizontally	
View next image	Quick Control Dial, Main Dial (The previous or next image can be viewed while the magnified position remains the same.)

* The image magnification will start at the center.
* When C.Fn-18-1 is set, press the Direct Print button and Magnify/Reduce button simultaneously to magnify or reduce the image during the image review right after shooting.

13-7 Index display: Single image display or press the Reduce button for 9-image display

- View the previous/next image with the Quick Control Dial or Main Dial.

13-8 Rotated display:

1) Manual
   (1)With the menu's "Rotate," the image can be rotated clockwise in 90°, 270° and 0°.
   (2)If the image has been appended with data for original image verification, image rotation is possible while keeping the original image recognition intact.
2) Auto image rotation
   (1)Settable with the menu's "Auto rotate."
   (2)When a vertical image is played back in the horizontal orientation, the camera rotates the image automatically to the vertical orientation.
   (3)Image rotation is applied during playback and video OUT (not during image review after image capture).

13-9 Jump: With the Jump button, browse through images during playback or switch the menu category (Shooting, Playback, Setup)

(1)Jump by 1 image
After pressing the JUMP button, press the SET button and turn the Quick Control Dial to select any of the following jump modes. After selecting the jump mode, turn the Quick Control Dial or Main Dial to jump.

- Jump by 10 images: Jump forward or back by 10 images
- Jump by 100 images: Jump forward or back by 100 images
- Jump by shooting date: Jump to the previous or following day. The day's last shot will be displayed first.
- Jump by folder: Jump to the previous or next folder. The folder's newest shot will be displayed first.

Note: Procedure: Image playback → Press JUMP button → Press SET button → Turn Quick Control Dial to select JUMP mode → Press SET button to set → Turn Quick Control Dial or Main Dial to jump.

(2)Jump with 9-image index display
Turn the Quick Control Dial or Main Dial to jump to the previous or next screen of 9 index images.

(3)Jump during magnified view
Turn the Main Dial to jump by 10 images.

(4)Jump during the menu display
Press the JUMP button to jump to the respective menu's first item.

13-10 Video output: Compatible with NTSC/PAL video output terminals.

- Select the type with the menu's "Video system." Use Video Cable VC-100.

14. Protection/Deletion of Recorded Images

14-1 Protection: A single image can be protected or unprotected.
- With the menu's [Protect].

14-2 Erase: A single image or all images stored in a Compact Flash card can be erased if they are unprotected.
(1)During playback, press the Erase button ([Erase] [All] will be displayed).
(2)Images erase-protected with the camera cannot be erased (except during formatting).

15. Menus

15-1 Description: ①Shooting ②Playback ③Setup
- Each menu category is color-coded on the LCD monitor: ①Red, ②Blue, ③Yellow

15-2 LCD monitor language: Any of the following 15 languages can be selected:
English, German, French, Dutch, Danish, Finnish, Italian, Norwegian, Swedish, Spanish, Russian, Chinese (simplified), Chinese (traditional), Korean and Japanese.

15-3 Firmware updating: Enabled by the user.
- Not possible in Full Auto mode. (The menu is not displayed.)

16. Bubble Jet Direct/CP Direct

Note: Hereinafter Bubble Jet Direct abbreviated as BJD and CP Direct as CPD.

16-1 Configuration: BJD/CPD-compatible printer, interface cable IFC-400PCU

16-2 Operation method: By operating the camera, the image is printed directly by the BJD/CPD-compatible printer.

16-3 Compatible printers: CPD-series
BJD-series printers

16-4 Paper sizes: CPD: Card, L, postcard
- The compatible paper sizes will differ depending on the printer.

BJD: A4, L, 2L, card, postcard (when Japanese is selected)

16-5 Transmission protocol: Canon-developed protocol.

16-6 Data transfer system: Data transfer from camera to printer.
CPD: YMC, BJD: JPEG
- With CPD, image processing is executed by the camera, and with BJD, it is executed by the printer.

16-7 Printable images: Design rule for Camera File system-compliant JPEG images
- JPEG images in RAW+JPEG images can be printed, but not RAW images.

16-8 Printing system:

①Single image printing ②DPOF batch printing
(1)Both CPD/BJD compatible with ① and ②.
(2)Printing cancellation: Enabled with ① and ②. Resumable after cancellation: Enabled with ②.
(3)When CPD is connected, image printing in progress cannot be canceled. The printing of all the remaining images will be canceled. When BJD is connected, the printing is canceled and the paper will be discharged.
(4)If an error occurs, [Stop] or [Resume] may appear or only [Stop] may appear depending on the error type.

16-9 Style settings:

1) CPD: On-screen settings (single or split screen)
BJD: Paper (L, 2L, postcard, A4, card)
(1)The split screen can be selected when the card-size paper is used.
(2)BJD: If Japanese is not selected as the language, the choices will be Card#1, Card#2, Card#3, LTR, and A4 instead.
2) Borders (Borders or borderless)
3) Date (ON/OFF)

16-10 Trimming:

Trim horizontally up to 8 steps, vertically up to 5 steps.
Operation Procedure

Reduce outline	Magnify button
Enlarge outline	Reduce button
Move outline horizontally	Multi-controller (Diagonal scrolling also possible. Center button does not function.)
Move outline vertically	
Rotate outline	Info button

(1)Trimming is not possible with DPOF-specified images printed directly.
(2)The image to be trimmed is initially displayed at the center.
(3)The trimming aspect ratio will depend on the style setting.
(4)If the trimming has been set and then the style is changed, the "Readjust trimming" message will appear.
(5)If CP/BJ is connected and the image to be trimmed looks rough due to excessive magnification, the trimming outline color (normally green) will be red.
(6)The guidance icon will appear on the initial trimming screen or when no operation is done for 5 sec. During an operation, the guidance icon will disappear and only the trimming outline is displayed.
(7)When operation is done with a TV set via the video output, the trimming outline might not be displayed properly.

16-11 **Direct Print:** With camera's Direct Print button

(1)When the camera is ready for printing and you playback an image, the Direct Print button's blue lamp lights. Select an image and press the Direct Print button to start the printing.

(2)During printing, the blue lamp blinks.

(3)On the image playback screen, the print settings (paper size, border, date, etc.) are also displayed.

(4)To change the print settings, press the SET button before printing. (Same procedure as normal direct printing.)

17. PictBridge

17-1 **Configuration:** Camera, PictBridge-compatible printer, interface cable IFC-400PCU

- Even while the PictBridge printing screen is displayed, the camera can instantly

17-2 **Operation method:** By operating the camera, the image is printed directly by the PictBridge-compatible printer.

17-3 **Compatible printers:** PictBridge-compatible printers

17-4 **Paper sizes:** L+, 2L+, postcard+, card (5.4×8.6 cm), 10×15 cm, 5"×7"+, 8.5"×11"+, A4+, 11"×17"+, A3+, A3 wide+(13"×19"), roll paper (9/10/13/21 cm), 8.9×25.4 cm+ (panorama), Wide, 10×12 in.+, 8×10 in.+

(1)Selectable paper sizes may differ depending on the printer.

(2)Papers indicated with a + sign enable the Print with shooting information to be printed as well. (Applicable only to Canon printers compatible with this feature.)

17-5 **Paper types:** Plain, Photo (Photo Paper Plus Glossy), Fast Photo (Photo Paper Pro), Default (Photo Paper Plus Glossy)

(1)Canon paper names are in parentheses above.

(2)Selectable paper types may differ depending on the printer.

17-6 **Printing effects (Image optimization):**

1) With Canon printers:
ON (Exif print), OFF (No printing effects), VIVID/NR (Noise reduction), VIVID+NR, Normal (Exif print), Face

2) With non-Canon printers:
ON, OFF, Normal

(1)The settings for ON/Normal are set by the printer manufacturer.

(2)Selectable printer effects may differ depending on the printer.

17-7 **Trimming:** Trim horizontally up to 8 steps, vertically up to 5 steps.

- The trimming method will depend on the BJD/CPD printer.

17-8	Layout:	Borders, borderless, 2/4/8/9/16/20/35-image layout (duplicate images on one sheet), Print with shooting information, 20-up print with shooting information, 35-up contact print, standard setting (borderless with Canon printers) (1)Selectable layouts may differ depending on the printer. (2)20-up print with shooting information and 35-up contact print (35mm contact sheet), images specified with DPOF will be printed. Selectable when A4 or 8.5×11" (Letter) is set (possible only with Canon printers compatible with this feature). (3)Print with shooting information can be set only when the paper size is 9×13 cm or larger (possible only with Canon printers compatible with this feature).
17-9	Date and file No. imprinting:	Date, file No., Both, Off, Standard setting (set to Off by Canon printers). • The printer must be compatible with printing the date or file No.
17-10	DPOF-compatible:	DPOF print ordering possible (1)When index and standard are both set, index printing will be followed by standard printing. (2)For file No. imprinting, the printer must be compatible with printing the file No.
17-11	Transmission protocol:	PTP • Set with the menu's [Communication].
17-12	Data transfer system:	JPEG • Image processing is executed by the printer.
17-13	Printable images:	Design rule for Camera File system-compliant JPEG images • JPEG images in RAW+JPEG images can be printed, but not RAW images.
17-14	Direct Print:	With camera's Direct Print button (1)When the camera is ready for printing and you playback an image, the Direct Print button's blue lamp lights. Select an image and press the Direct Print button to start the printing. (2)During printing, the blue lamp blinks. (3)On the image playback screen, the print settings (paper size, border, date, etc.) are also displayed. (4)To change the print settings, press the SET button before printing. (Same procedure as normal direct printing.)

18. DPOF (Print ordering)

18-1	System:	Complies to DPOF Version 1.1
18-2	Specification with print screen:	1) Individual images 2) All images in the folder 3) All images in the card • Print specification is not possible for RAW images.
18-3	Print type:	1) Standard 2) Index 3) Both

18-4 Date/File No. print:

Print type		CPD		BJD		PictBridge	
		Date	File No.	Date	File No.	Date	File No.
Standard		Yes	Yes	Yes	No	△	△
Index		Yes	Yes	No	No	△	△
Both	Standard	Yes	Yes	Yes	No	△	△
	Index	Yes	Yes	No	No	△	△

＊For index prints with BJD, the date or file No. will not be imprinted even if it is set to [ON].
＊Whether using PictBridge is possible or not depends on the printer.

18-5 Camera direct: With a BJD/CPD printer or PictBridge printer connected, batch printing of specified images is possible.
- Printed after the paper size and borders on/off are specified.

19. Customization

19-1 Camera setting registration: The current camera settings (shooting mode, etc.) can be saved in the Mode Dial's C position.
(1)The camera settings that can be saved are those displayed on the LCD panel and the items and settings in the menus.
(2)The following cannot be saved: Time information, language, communication setting, video output, and other settings which cannot be reset to the default with the camera reset function.
(3)Enabled with the menu's [Register camera settings].

19-2 Custom Functions: 21 Custom Functions with 57 settings settable with the camera.

20. External Interface

20-1 Digital terminal: USB 2.0 Hi-Speed, mini B port

20-2 Video output terminal: Provided (NTSC/PAL)

20-3 Remote control terminal: N3-type terminal

21. Power Source

21-1 Battery: Battery Pack BP-511A/BP-514/BP-511/BP-512 ×1
(1)With the AC Adapter Kit ACK-E2, AC power is possible.
(2)With BATTERY GRIP BG-E4, two battery packs can be used. Or six size-AA batteries can be used.

21-2 Main switch: OFF/ON/ON (Quick Control Dial ON), 3 settings
- Power turns off if the CF card slot cover or battery chamber cover is opened.

21-3 Start-up time: Approx. 0.2 sec.

21-4 Battery check: Automatic battery check when the main switch is turned on. The battery level is indicated by one of three levels on the LCD panel (or four levels if non-display is counted).

21-5	Power-saving feature (Auto power off):	Power turns off after the set time of non-operation elapses. (1)Select from the menu's [Auto power off] the time: 1, 2, 4, 8, 15, or 30 min. (2)The camera turns back on when you press the shutter button, menu button, or another button (except the eight-direction key, Erase button, and JUMP button). (3)If it is [Off] and the LCD monitor is displayed continuously, the monitor will turn off after 30 min. of non-use.
21-6	Max. bulb exposure time:	Approx. 1.5 continuous hours
21-7	Date/time back-up battery:	Lithium CR2016 button battery ×1 Battery life approx. 5 years (1)No backup battery warning. (2)Date/time is reset when the battery is replaced.

22. Body (Chassis) Material — Stainless steel

23. Exterior

23-1	Exterior material:	Top, front, and rear covers made of magnesium alloy
23-2	Exterior color:	Finish: Black, Grip's anti-slip rubber: Black
23-3	Tripod socket:	CU 1/4
23-4	LCD panel illumination:	LCD panel illumination button provided (1)Press the button for 6-sec. illumination. Press again to turn it off. Turns off automatically 2 sec. after image capture. (2)Illumination is prolonged if any shooting-related button or dial is used.

24. Dimensions — 152 (W) × 113 (H) × 75(D) mm
6.0 (W) × 4.4 (H) × 3.0 (D) in.

25. Weight — Approx. 810 g / 28.6 oz. (Battery is 82 g / 2.9 oz.)
(1)Excludes battery pack, body cap, eyecup, and CF card.
(2)Includes backup battery.

26. Operating Environment

26-1	Operating temperature:	0°C to 40°C / 32 to 104°F
26-2	Operating humidity:	85% or less

27. Accessories

27-1	Battery Grip:	BATTERY GRIP BG-E4
27-2	Focusing screen:	Standard Precision Matte Ee-A Precision Matte with Grid Ee-D Super Precision Matte Ee-S
27-3	Battery Pack:	BP-511A
27-4	Battery Charger:	CG-580 CB-5L
27-5	Interface Cable:	IFC-400PCU
27-6	Video cable:	VC-100

27-7	**Strap:**	Wide Strap EW-100DGR
27-8	**EOS System Accessories:**	See the System Accessory Compatibility Table.

4. NOMENCLATURE AND DIMENSIONS

4.1 Nomenclature

Fig. 018 Nomenclature

4.2 Dimensions

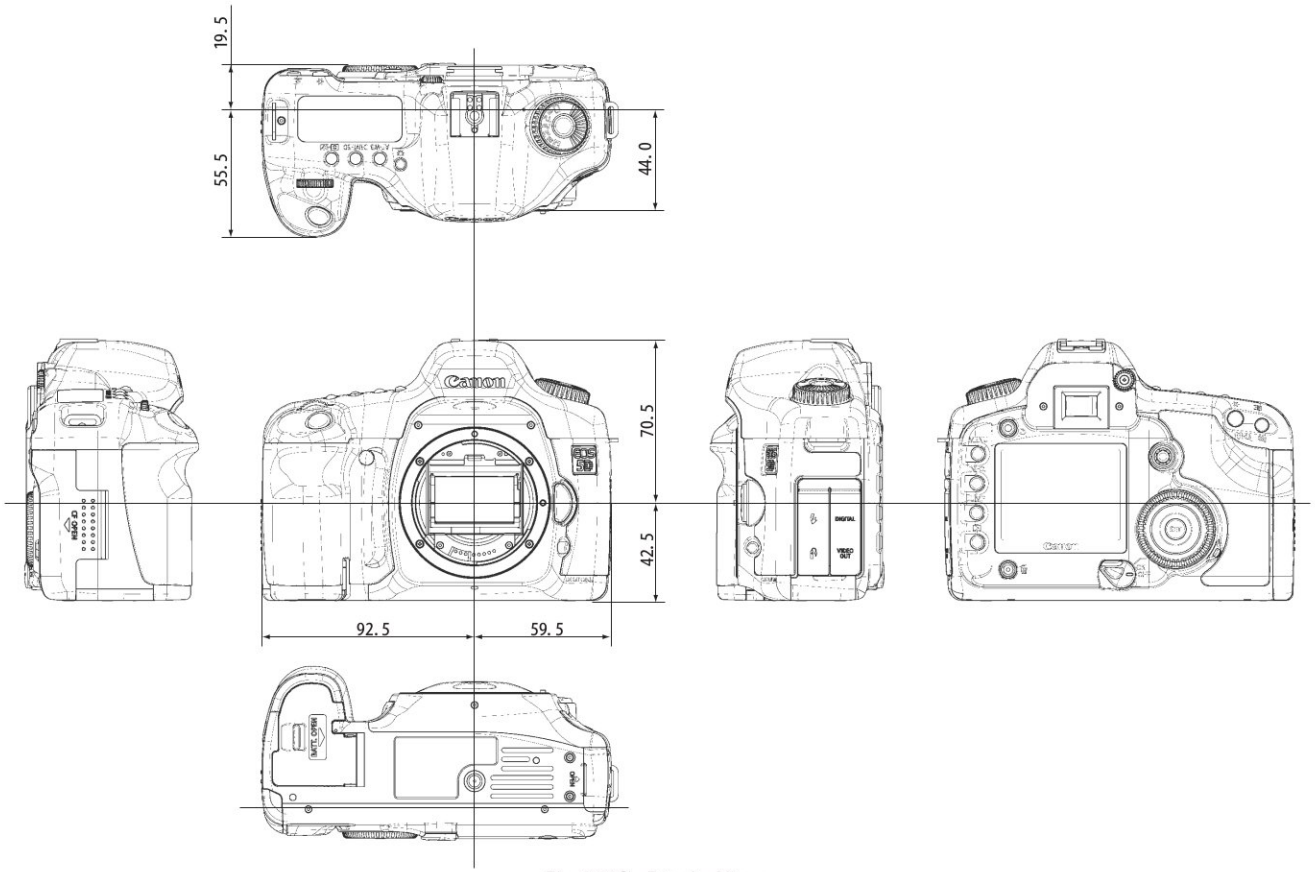
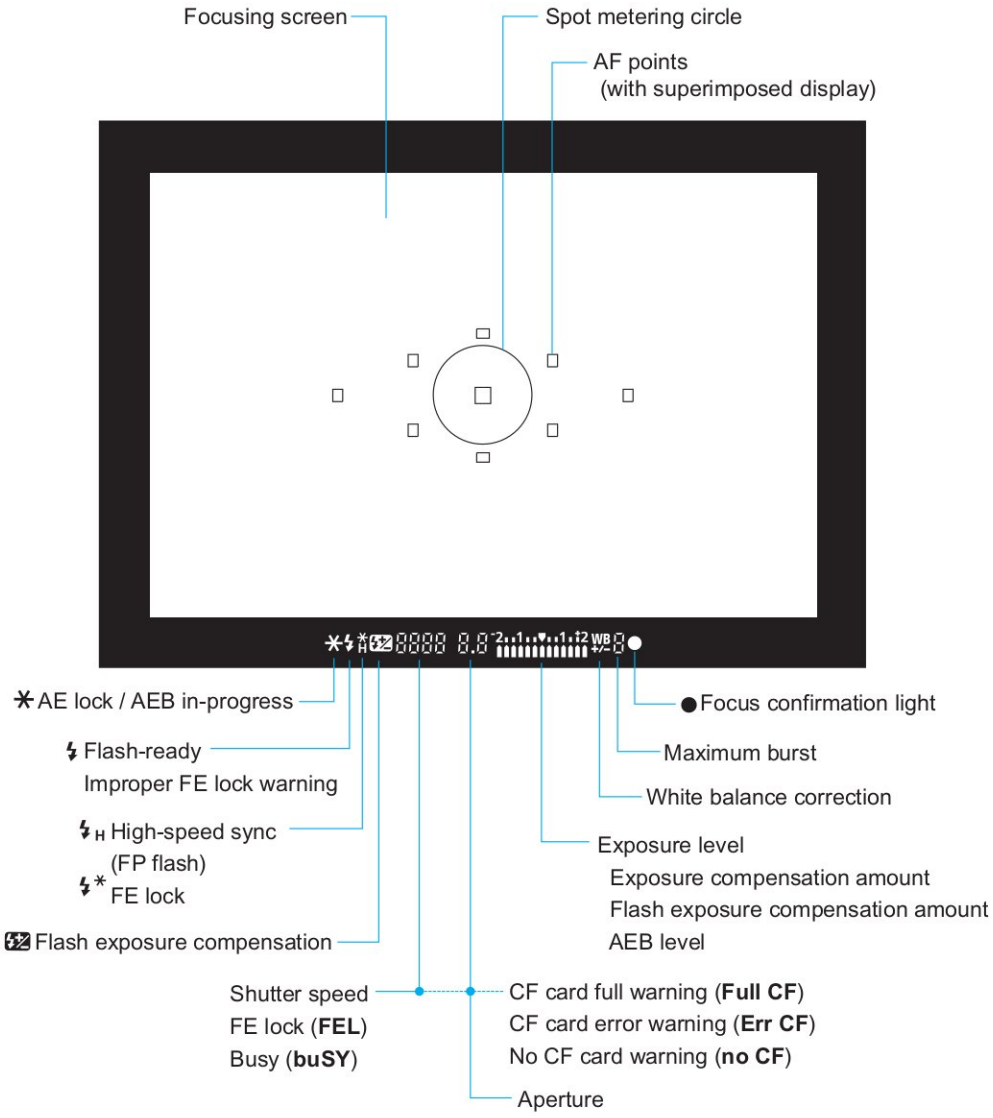


Fig. 019 Six Exterior Views

5. VISUAL INDICATORS

5.1 Viewfinder Information



Grid-type matte screen

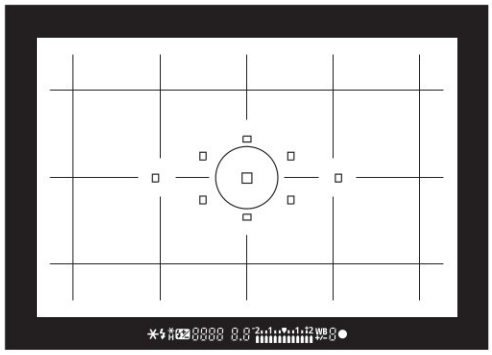


Fig. 020 Viewfinder Information

5.2 LCD Panel Information and Model Dial

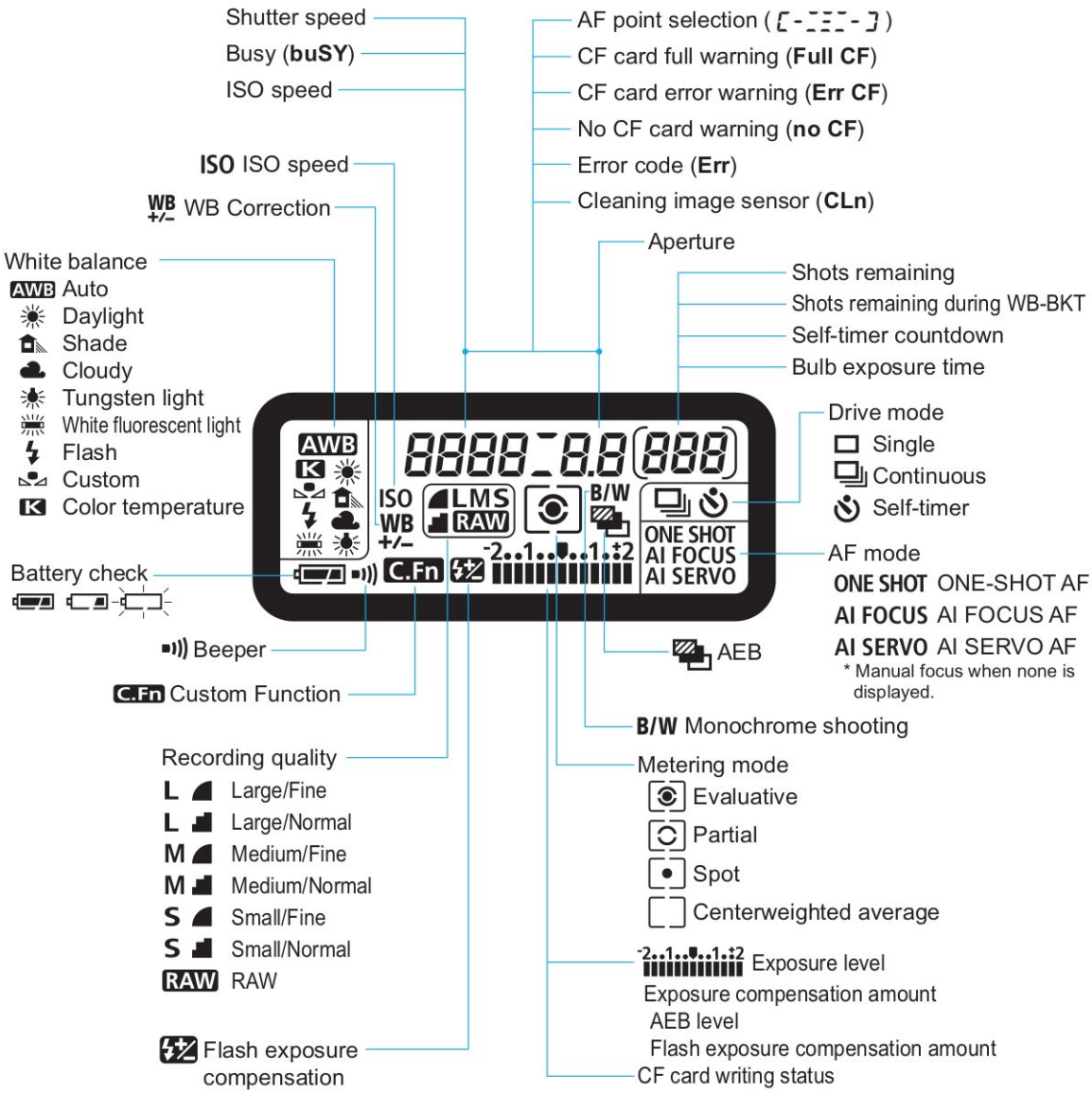


Fig. 021 LCD Panel Information

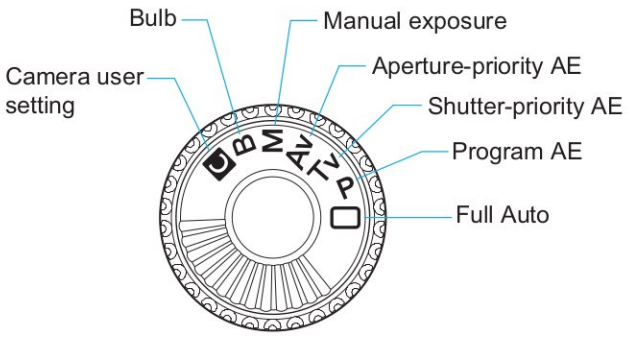


Fig. 022 Mode Dial

5.3 LCD Monitor Menus

1） Shooting Menu

Color	Item	Description			
Shooting Commands	Quality	(→Recording quality setting screen)	L	Full auto mode	RAW+ L
			L		RAW+ L
			M		RAW+ M
			M		RAW+ M
			S		RAW+ S
			S		RAW+ S
					RAW
	Beep	On			
		Off			
	Shoot w/o card	On			
		Off			
	AEB	**0**, ±1/3, ±2/3, ±1, ±1_1/3, ±1_2/3, ±2 (With C.Fn-06-0)			
		0, ±1/2, ±1, ±1_1/2, ±2 (With C.Fn-06-1)			
	WB SHIFT/BKT	(→WB correction/BKT setting screen)	WB correction: B: 9-0-A: 9, M: 9-0-G: 9		
			WB-BKT setting: B/A or M/G bias. 0, ±1,±2, ±3		
	Custom WB	(→Image selection screen/SET button: Set)			
	Color temp.	2800K - 10000K (**5200K**)			
	Color space	sRGB			
		Adbe RGB			
	Picture style	(-> Picture style setting screen)	Standard		
			Portrait	Sharpness	0, 1, 2, 3, 4, 5, 6, 7
			Landscape	Contrast	-4, -3, -2, -1, 0, +1, +2, +3, +4
			Neutral	Saturation	-4, -3, -2, -1, 0, +1, +2, +3, +4
			Faithful	Color tone	-4, -3, -2, -1, 0, +1, +2, +3, +4
			Monochrome	Sharpness	0, 1, 2, 3, 4, 5, 6, 7
				Contrast	-4, -3, -2, -1, 0, +1, +2, +3, +4
				Filter effect	N:None/Ye:Yellow/Or:Orange/R:Red/G:Green
				Toning effect	N:None/S:Sepia/B:Blue/P:Purple/G:Green
			User Defined	Select the base Picture Style, register it, and adjust its parameters.	

Fig. 023 Menu Functions (Shooting)

2） Playback Menu

Color	Item	Description			
Playback Commands	Protect	(→Image selection screen/SET button: Protect, cancel)			
	Rotate	(→Image selection screen/SET button: 90°→270°→0°)			
	Print Order	(→Print specification screen)	Order	(→Image selection screen, quantity setting)	
			Set up	Print Type	Standard/Index/Both
				Date	On/Off
				File No.	On/Off
			All	Mark all	
				Clear all	
			Print	Cancel/OK/Style/Resume	
	Auto Play	(→Autoplay screen/SET button: Playback, Pause)			
	Review time	Off			
		2 sec.			
		4 sec.			
		8 sec.			
		Hold			
	AF points	Not display			
		Display			
	Histogram	Bright.			
		RGB			

Fig. 024 Menu Functions (Playback)

3） Set-up Menu

Items which are not displayed in Full Auto mode.

Color	Item	Description		
Setup Commands	Auto power off	1 min.		
		2 min.		
		4 min.		
		8 min.		
		15 min.		
		30 min.		
		Off		
	Auto rotate	On		
		Off		
	LCD brightness	(→Brightness setting screen/5 levels with Quick Control Dial, image and gray chart also displayed)		
	Date/Time	(→Date/time setting screen)	yy/mm/dd, mm/dd/yy, dd/mm/yy	
	File numbering	Continuous		
		Auto reset		
		Manual reset		
	Select folder	(→Select/Create folder screen)		
	Language	(→Language setting screen)	English	Svenska
			Deutsch	Español
			Français	Русский(Russian)
			Nederlands	简体中文(Simplified Chainese)
			Dansk	繁体中文(Traditional Chinese)
			Suomi	한국어 (Korean)
			Italiano	日本語(Japanese)
			Norsk	
	Video system	NTSC		
		PAL		
	Communication	Print/PTP		
		PC connect.		
	Format	(→CF card formatting screen/Cancel/OK)		
	Custom Functions(C.Fn)	(→Custom Function setting screen/C.Fn-00 to 20)		
	Clear settings	(→Reset screen)	Clear all camera settings	Cancel/OK
			Clear all Custom Functions	Cancel/OK
			Clear registered Camera set.	Cancel/OK
	Reqister camera settings	(→Camera setting registration screen)		
	Sensor cleaning	(→Sensor cleaning screen/Cancel/OK)		
	Image transfer (LAN) settings	(→LAN setting screen)		
	Firmware Ver. *	(To firmware update screen with SET button/Cancel/OK)		

* Factory defaults:
For Japan: Japanese/NTSC/Year, month, day
For N. America: English/NTSC/Month, day, year
Other regions: English/PAL/Day, month, year

Fig. 025 Menu Functions (Setup)

6. CUSTOM FUNCTION

6.1 Custom Function List

Table 006 Custom Functions (1/2)

C.Fn	Custom Function	No.	Setting
00	Focusing Screen	0	Ee-A
		1	Ee-D
		2	Ee-S
01	SET function when shooting	0	Default (no function)
		1	Change quality
		2	Change Picture Style
		3	Menu display
		4	Image replay
02	Long exposure noise reduction	0	Off
		1	Auto
		2	On
03	Flash sync. speed in Av mode	0	Auto
		1	1/200 sec. (Fixed)
04	Shutter/AE lock button	0	AF/AE lock
		1	AE lock/AF
		2	AF/AF lock, no AE lock
		3	AE/AF, no AE lock
05	AF-assist beam	0	Emits
		1	Does not emit
06	Exposure level increments	0	1/3-stop
		1	1/2-stop
07	Flash firing	0	Fires
		1	Does not fire
08	ISO expansion	0	Off
		1	On
09	Bracket sequence/Auto cancel	0	0,-,+/Enable
		1	0,-,+/Disable
		2	-,0,+/Enable
		3	-,0,+/Disable
10	Superimposed display	0	On
		1	Off
11	Menu button display position	0	Previous (top if power off)
		1	Previous
		2	Top
12	Mirror lockup	0	Disable
		1	Enable
13	AF point selection method	0	Normal
		1	Multi-controller direct
		2	Quick Control Dial direct

Table 006 Custom Functions (2/2)

C.Fn	Custom Function	No.	Setting
14	E-TTL II	0	Evaluative
		1	Average
15	Shutter curtain sync.	0	1st-curtain sync.
		1	2nd-curtain sync.
16	Safety shift in Av or Tv	0	Disable
		1	Enable
17	AF point activation area	0	Standard
		1	Expanded
18	LCD displ → Return to shoot.	0	With Shutter Button only
		1	Also with ✳ etc.
19	Lens AF stop button function	0	AF stop
		1	AF start
		2	AE lock while metering
		3	AF point:M→Auto/Auto→ctr.
		4	ONE SHOT ⇔ AI SERVO
		5	IS start
20	Add original decision data	0	Off
		1	On

7. PROGRAM DIAGRAMS

7.1 Program Diagrams

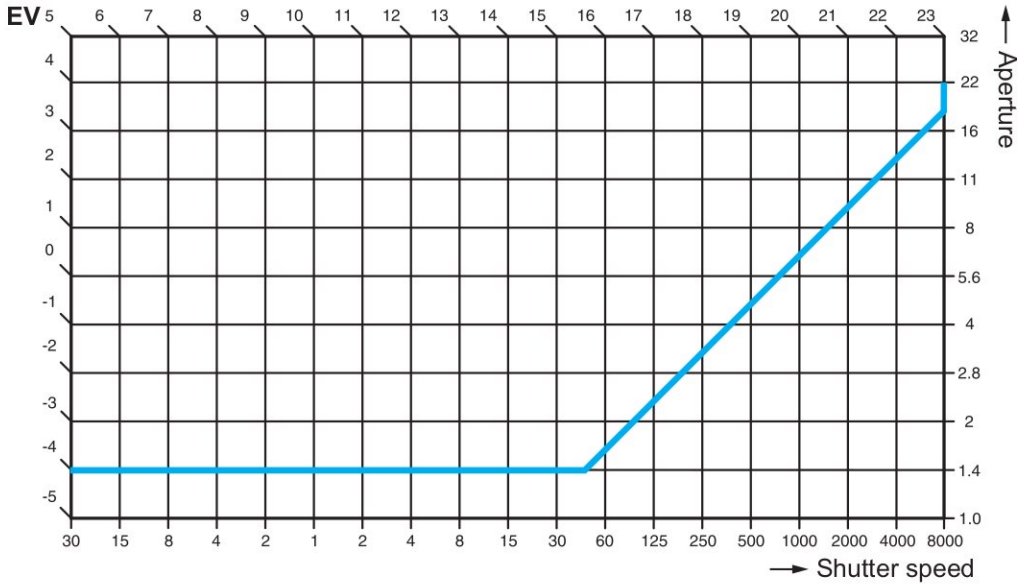


Fig. 026 Program AE Lines (EF50mm f/1.4 USM)

7.2 E-TTL Program Diagrams

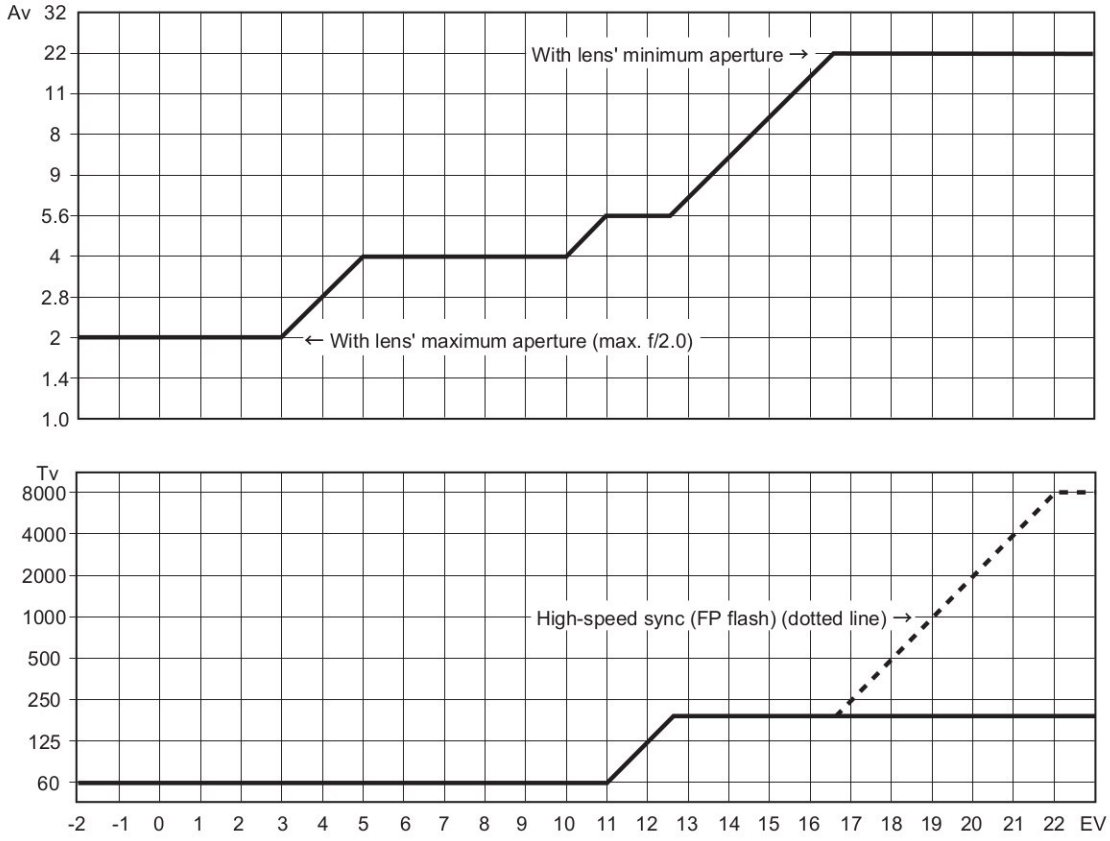


Fig. 027 E-TTL II autoflash program line

8. SYSTEM ACCESSORIES COMPATIBILITY TABLES

8.1 System Accessories

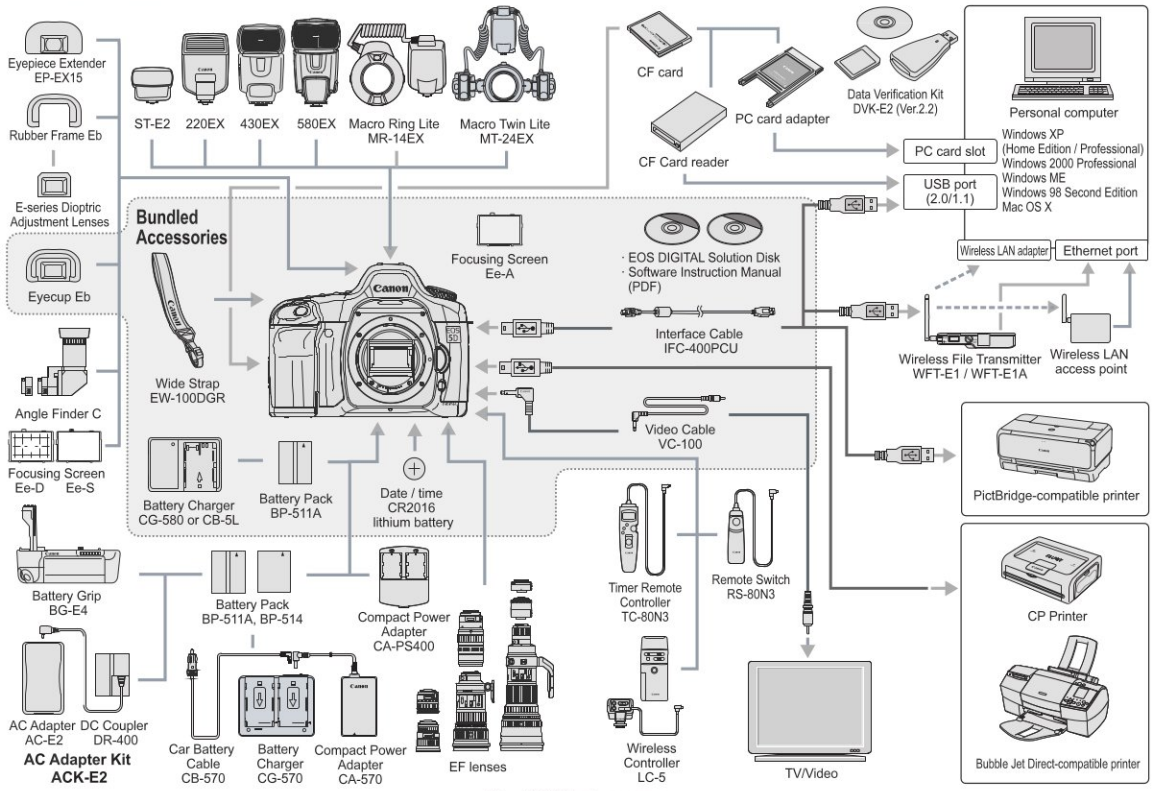


Fig. 028 System map

8.2 System Accessory Compatibility

Note that the following system accessories have some restrictions when used with the EOS 5D.

Table 007 Accessories with Restrictions

Interchangeable Lenses	
Lens Mount Converter FD-EOS	Although it can be used with manual exposure, exposure error occurs. Therefore, these items will be officially listed as incompatible.
Macro Lens Mount Converter FD-EOS	
Speedlites	
480EG	Compatible with external flash metering and manual flash (Full output with TTL autoflash)
540EZ	Compatible with manual flash (Full output with TTL autoflash)
430EZ	
420EZ	
ML-3	Full output only
300EZ	
200E	
Wired multi-Speedlite accessories	The above restrictions for the Speedlites apply.
Remote Control	
Remote Switch 60T3	Compatible when used with RA-N3.
Wireless Remote Controller LC-3	Compatible when used with RA-N3. The 1SR cannot cancel the auto power off mode. Also, shutter release is not possible while the metering is not active. When it is ON, shutter release may not work when the shutter button is pressed completely in one stroke.
Wireless Remote Controller LC-4	The 1SR cannot cancel the auto power off mode. Also, shutter release is not possible while the metering is not active. When it is ON, shutter release may not work when the shutter button is pressed completely in one stroke.

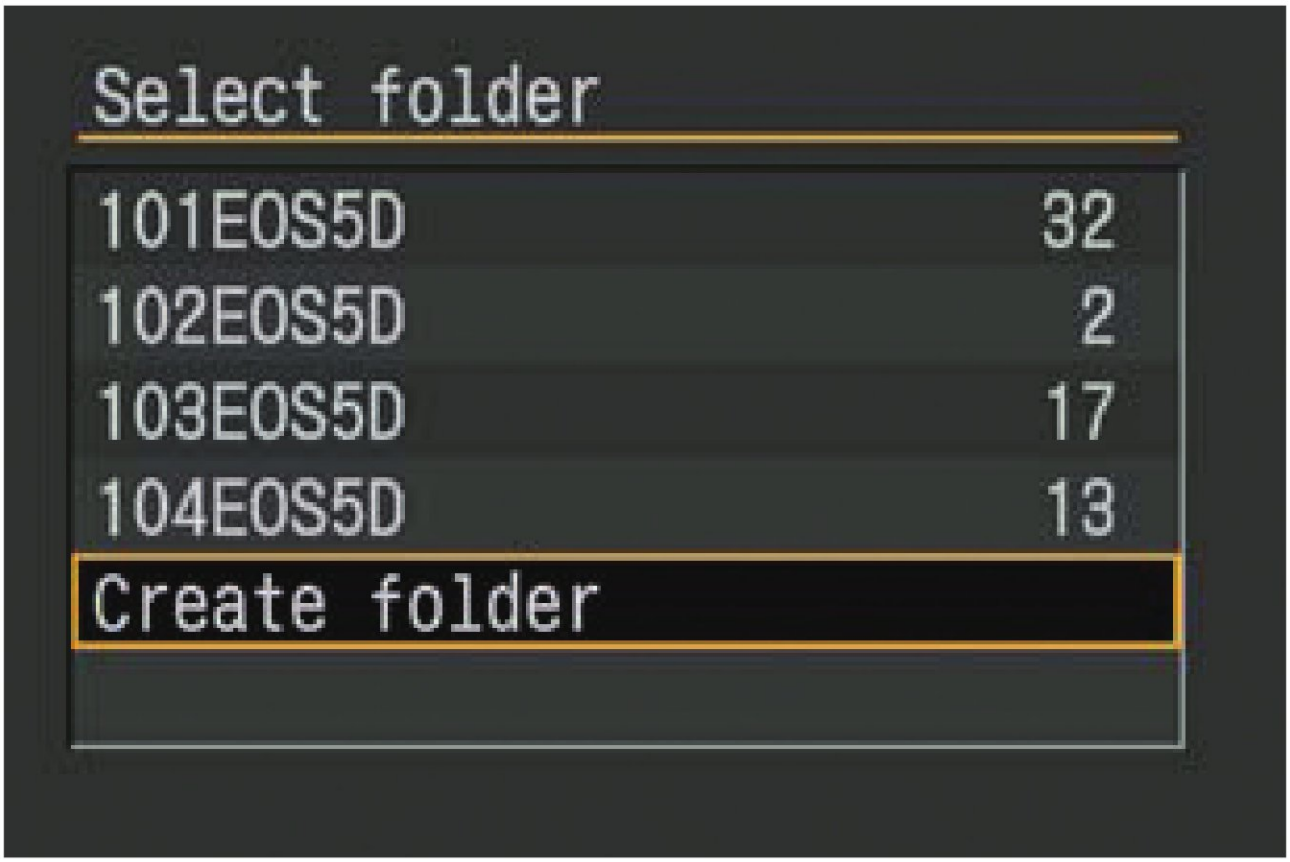
System accessories not listed above are completely compatible with EOS 5D.

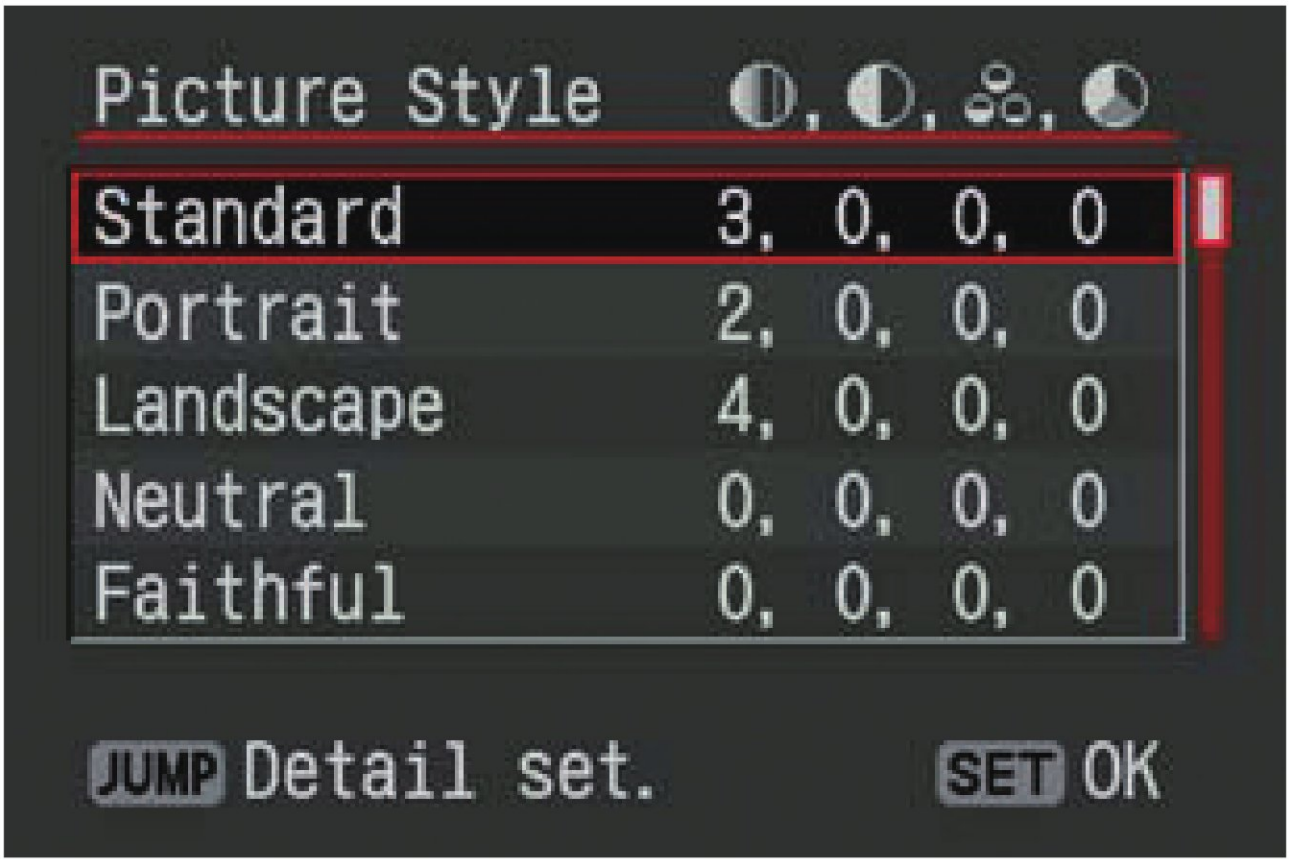
9. OPERATION CAUTIONS

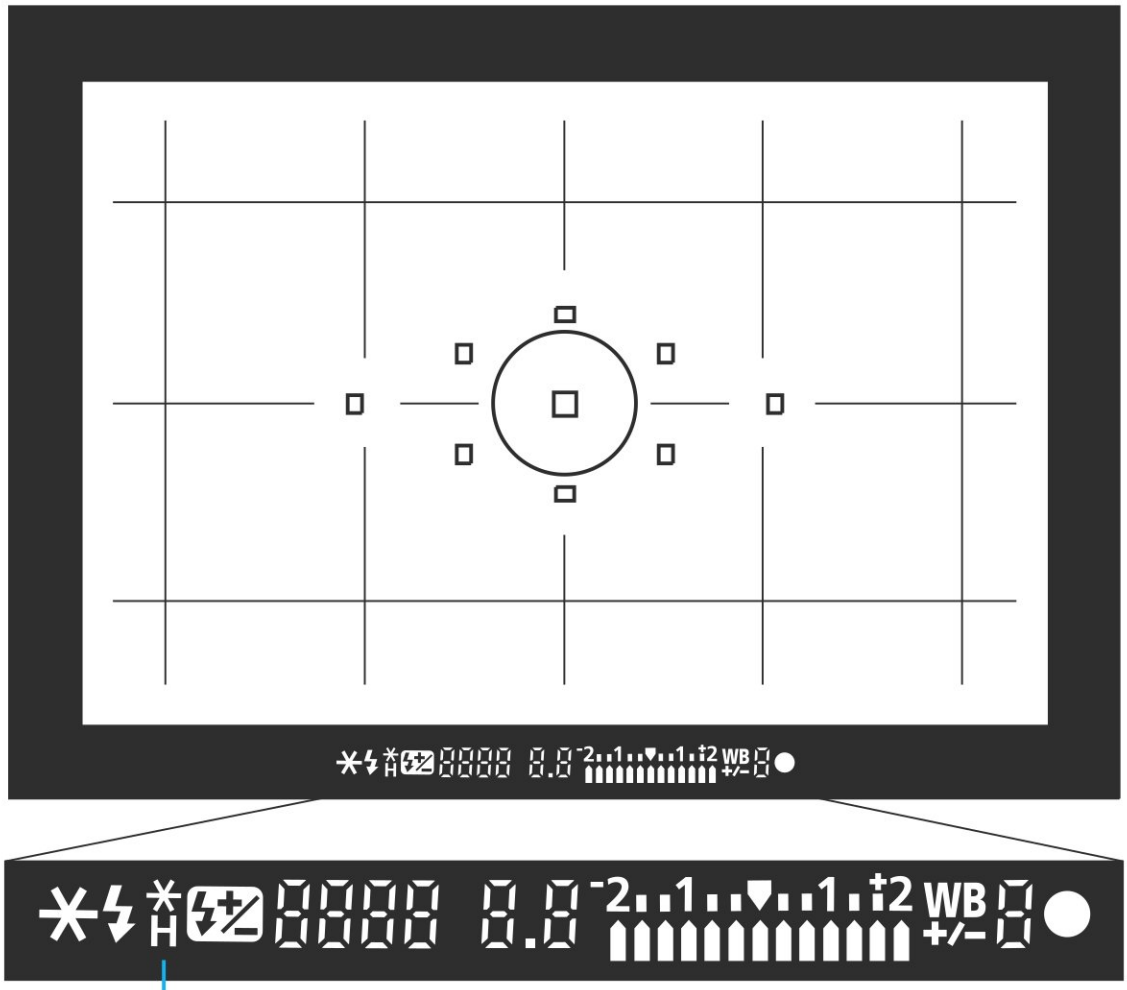
Cautions	Remarks
[Imaging sensor]	
1. When cleaning the CMOS sensor, use only a hand blower to blow off dust, etc. Never touch the CMOS surface with any brush, cloth, or cleaning agent. Also do not use pressurized (canned) air or gas to clean the CMOS sensor.	This is to prevent damage to the sensor
2. If there is a strong light source within the image area, ghosting might occur at a symmetrical position or near the light source.	As per the design of low-pass filter.
[Image Recording and Playback]	
3. While the access lamp is blinking, do not shake or subject the camera to any physical shock and do not open the Compact Flash card slot cover or remove the battery.	Doing so may damage the stored images, Compact Flash card, or even the camera itself.
4. Do not leave or use the camera near a strong magnetic field such as a television, audio speaker, or magnet.	A magnetic or electromagnetic field can adversely affect the image on the LCD monitor. It may also prevent proper shooting and image recording and damage images in the Compact Flash card.
5. Do not leave or use the camera near an electronic transmission tower, etc., which emits a strong magnetic field.	The electric wave can adversely affect the image on the LCD monitor. It may also prevent proper shooting and image recording and damage images in the Compact Flash card.
6. If a high ISO speed is set, fewer images can be captured.	As per the design. (The LCD panel will show the remaining shots which varies depending on the ISO speed.)
7. When an image captured with Adobe RGB is displayed on the LCD monitor or TV set, displayed in an sRGB environment, or printed by an sRGB printer, the image will have low color saturation.	This occurs because the color space is not suitable. (Compared to sRGB, Adobe RGB's color reproduction range is wider. If the image is displayed via sRGB without profile conversion, the color reproduction range becomes narrow.) (To obtain accurate reproduction of Adobe RGB in an sRGB environment, use image-editing software like Adobe Photoshop to convert the profile to sRGB.) ＊There is no problem printing with a CP printer.

Cautions	Remarks
[White balance]	
8. When WB-BKT is set, the shots remaining will decrease to about one-third of the normal quantity.	With WB-BKT, each shot yields three images. The number of shooting times remaining is displayed when WB-BKT is set.
9. When using the specified color temperature in ambient light having an adverse color cast, set the white balance correction by adjusting the green or amber bias.	Since the color temperature is based on a blackbody locus, if the bad ambient light does not conform to the blackbody locus, the correct white balance will not be obtained.
10. If you enter in the camera the color temperature reading (to specify the color temperature) taken with a commerciallyavailable color temperature meter, you might not obtain the correct white balance.	The color temperature standard may differ between the camera and color temperature meter. The color temperature meter's reading might also include a margin of error.
[AF]	
11. With the EF 70-200mm f/2.8L USM attached with an Extender, use the center AF point to focus.	Focusing is possible with all the AF points. However, the focusing precision cannot be guaranteed with the AF points other than the center AF point.
12. During continuous shooting with automatic AF point selection and AI SERVO AF, when the subject moves to another AF point, the continuous shooting speed may become irregular.	During focusing when the subject moves to another AF point, focusing is disabled momentarily. It then takes time to refocus again, causing the irregular shooting speed. (The same thing occurs with the EOS-1V.)
[Flash]	
13. Regardless of the C.Fn-09 setting, the FEB sequence will follow the Speedlite's setting.	The C.Fn-09 setting applies only to AEB and WBBKT.
14. With EOS-dedicated Speedlites other than the EX-series, autoflash is not possible.	This is because it does not have a flash exposure sensor for A-TTL/TTL. In the A-TTL/TTL mode, the flash fires at full output.
15. Do not connect a 250V or higher high-voltage flash unit to the PC terminal.	A voltage of 250V or higher will damage the PC terminal's internal circuitry.
16. Do not connect a high-voltage flash unit to the hot shoe.	It may not fire.
[Interface]	
17. Do not excessively bend or disassemble the interfaceable.	Malfunction may result due to cable disconnection or short-circuiting.
18. Before displaying captured images on a TV monitor, check whether it uses the NTSC or PAL system.	If the TV monitor uses a different system, the images will not be displayed properly. (The default setting is NTSC for the Japan and N. America, and PAL for other countries.)

Cautions	Remarks
[LCD Monitor]	
19. When the LCD monitor is on, there might be black, red, or green dots that are always visible.	These are dead pixels which number 0.02% or less of the LCD monitor's total number of effective pixels. The recorded images are not affected.
[Custom/Personal Functions]	
20. C.Fn-00 must be set to match the respective focusing screen.	The camera has three types of correction data for the three focusing screens. If the wrong correction data is used for the installed focusing screen, the exposure will be thrown off.
21. With C.Fn-12-1 (mirror lockup) set, do not point the camera toward the sun or any bright light source.	Doing so can damage the shutter curtains, cause stray light to enter, or damage the imaging sensor.
[Camera & Misc.]	
22. There is a small noise when the camera is shaken.	This is the sound of the ball in the camera orientation detection unit.

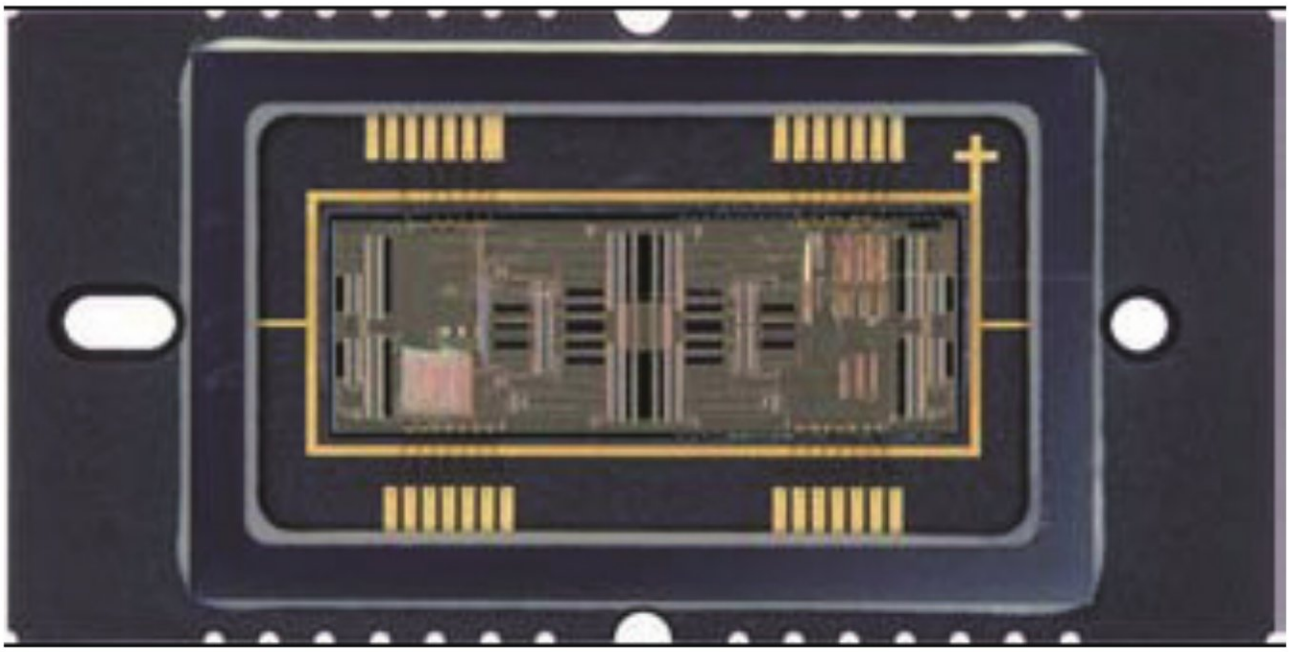


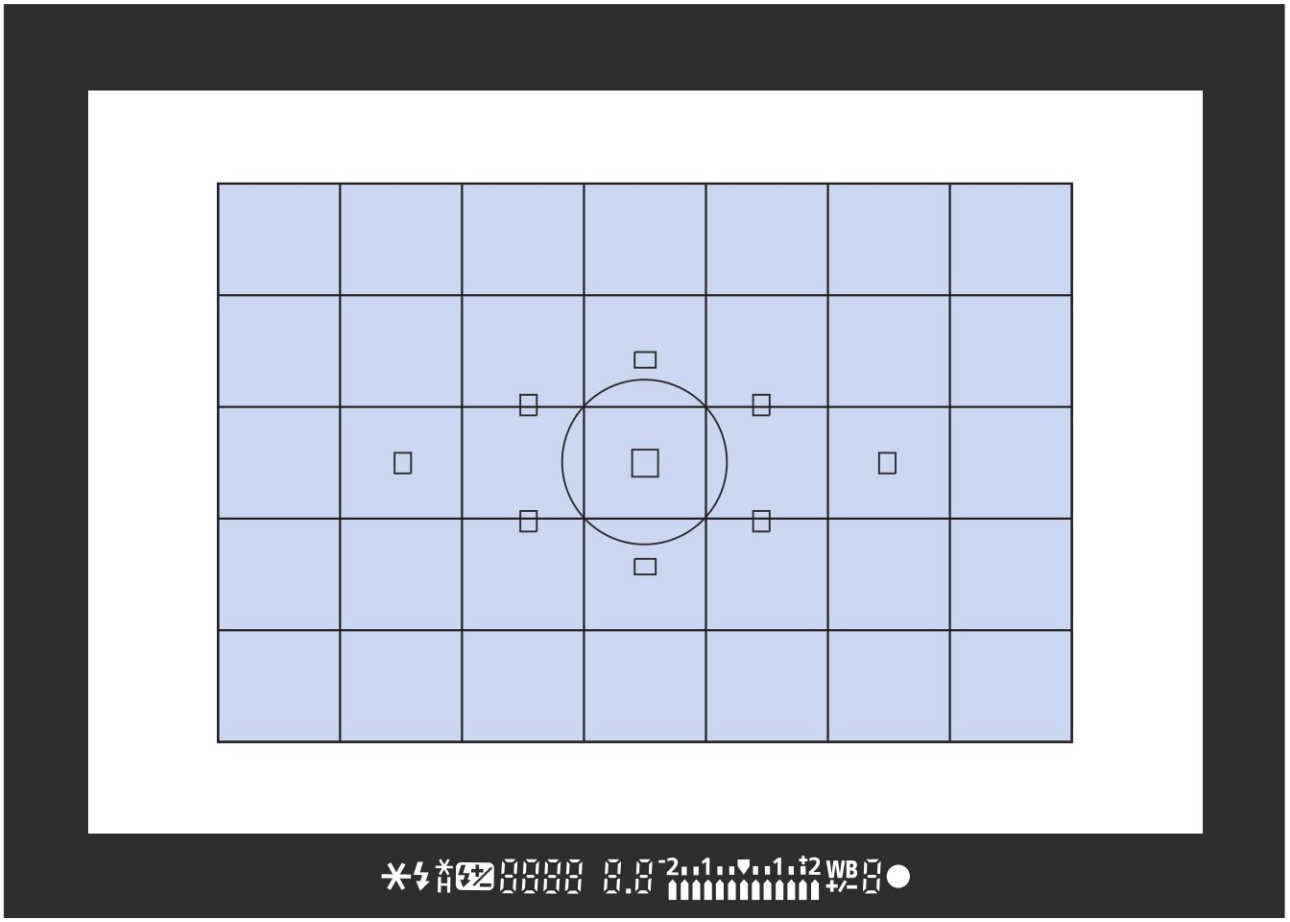


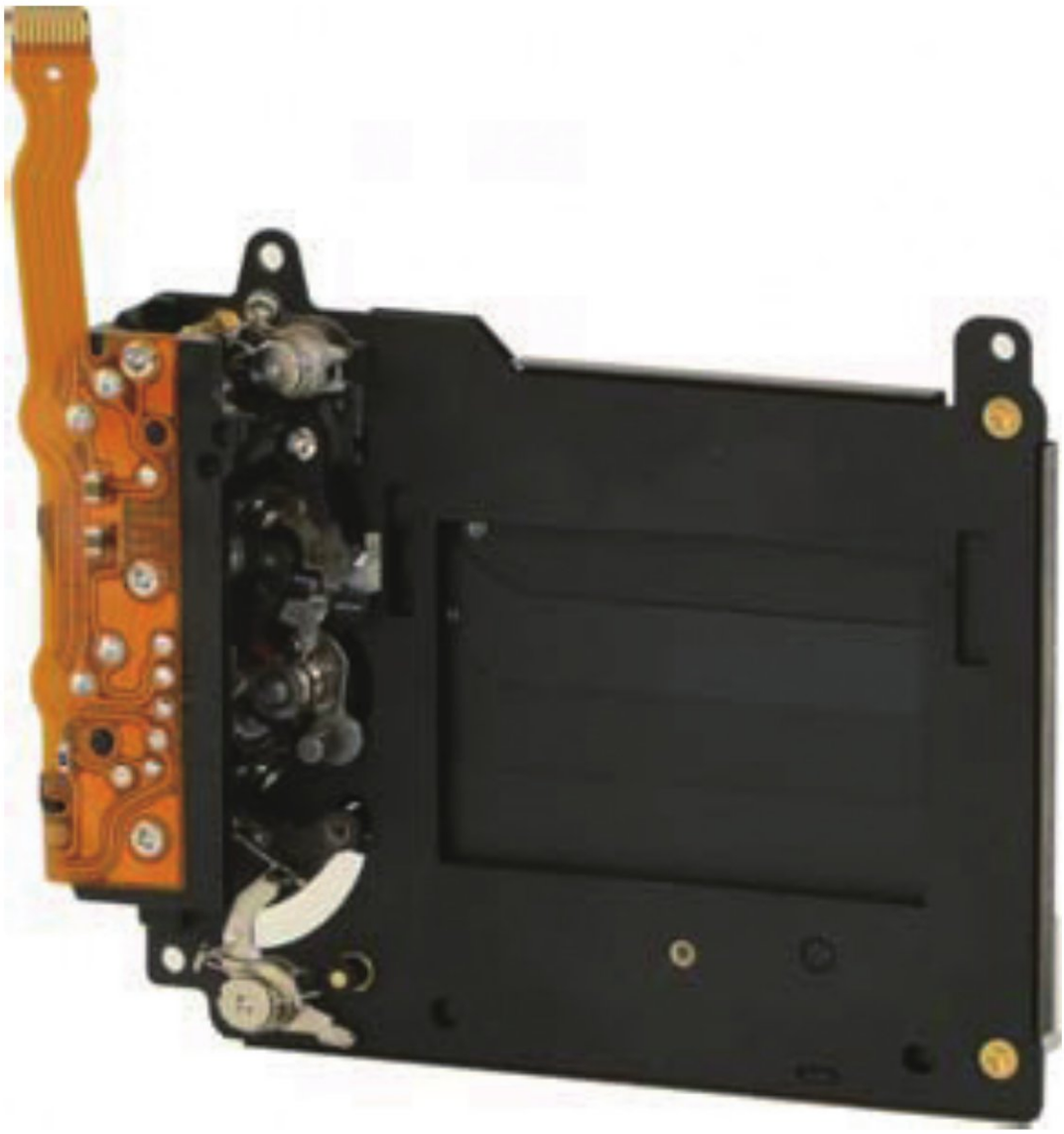


*: FE lock mark

Back







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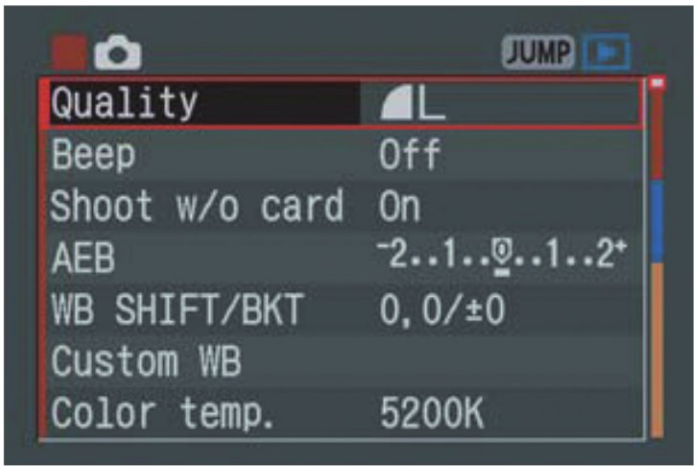
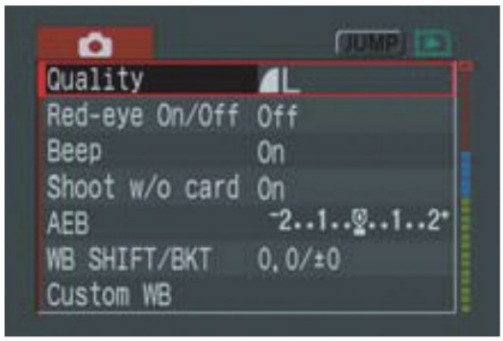
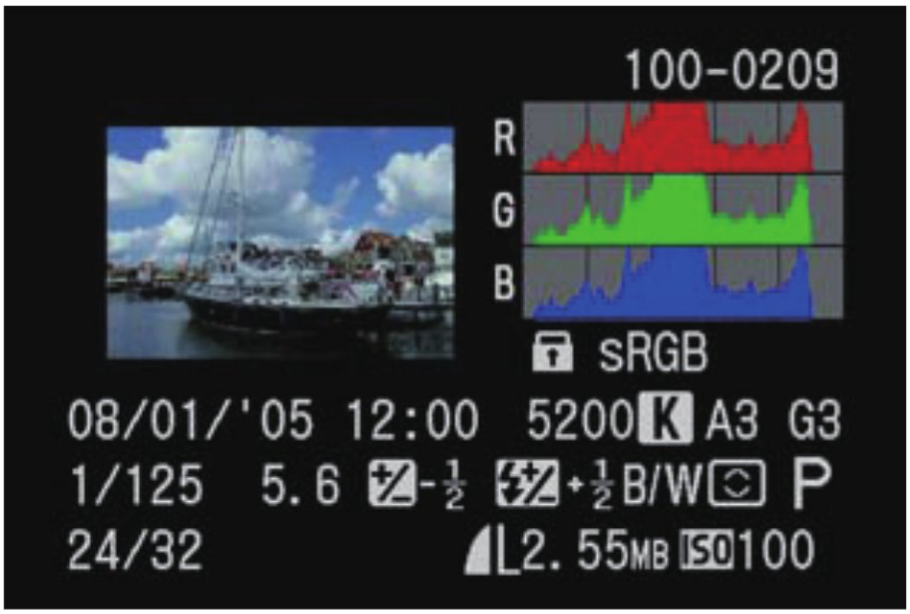
EOS 5D (2.5 in.)



EOS 20D (1.8 in.)





Histogram display

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EOS 5D EF24-70mm f/2.8L USM P 1/500 f/2.8 ISO400

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Technical Information

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Technical Information

1. TECHNICAL INFORMATION

1.1 Image sensor – CMOS sensor

1） Overview

The 35mm, full-frame CMOS sensor (Fig. 001) developed and manufactured by Canon has enabled the camera to attain the top overall performance in its class. It features high resolution (approx. 12.8 effective megapixels), wide ISO speed range (ISO 50, 100-1600, 3200), low image noise (same level as the EOS-1Ds Mark II), high-speed signal reading (for approx. 3 fps continuous shooting), and low power consumption. Table 001 shows the major specifications.

Table 001 CMOS sensor specifications

Effective pixels (approx.)	12.80 million: 4384 × 2918
Total pixels (approx.)	13.30 million: 4480 × 2958
Effective sensor size (mm)	35.8 × 23.9
Pixel size (µm)	8.2 × 8.2
Color filter	RGB primary color filter
Aspect ratio	3 : 2

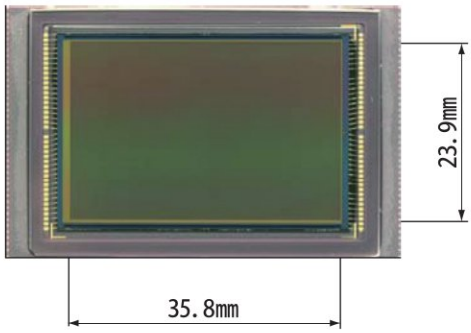


Fig. 001 CMOS sensor (actual size)

2） Wide ISO speed range and low noise

With the same technologies as the EOS 20D's CMOS sensor and the larger pixel size of 8.2 µm square (compared to EOS 20D's 6.4 µm square) to receive more light, the camera provides a wide ISO speed range of 100-1600 (L: 50, H: 3200) while minimizing image noise.

Table 002 Pixel Size and ISO Range

Camera	Pixel Size	ISO Speed
EOS 5D	8.2 × 8.2µm	50 • 100 - 1600 • 3200
EOS-1Ds Mark II	7.2 × 7.2µm	
EOS-1D Mark II	8.2 × 8.2µm	
EOS 20D	6.4 × 6.4µm	100 - 1600 • 3200
EOS Kiss Digital N	6.4 × 6.4µm	100 - 1600

- The large microlens gathers light highly efficiently for the photodiode.
- Optimum photodiode construction for the CMOS sensor.
- Improved dynamic range with a finer CMOS process and optimized photodiode construction.
- Second-generation, on-chip, noise reduction circuit for effectively minimizing random noise and eliminating fixed-pattern noise.

3） Four-channel reading

As with the EOS 20D, 4-channel reading is performed per line (Fig. 002) so that the continuous shooting speed can be as fast as 3 fps even with approx. 12.8 megapixels.

Also, the increase in power consumption caused by the 4-channel reading is held to an absolute minimum. As with the EOS 20D, power consumption is reduced by decreasing the output amp's power consumption, cutting off power to the output amp during long exposures, and cutting off the standard power current driving the circuitry.

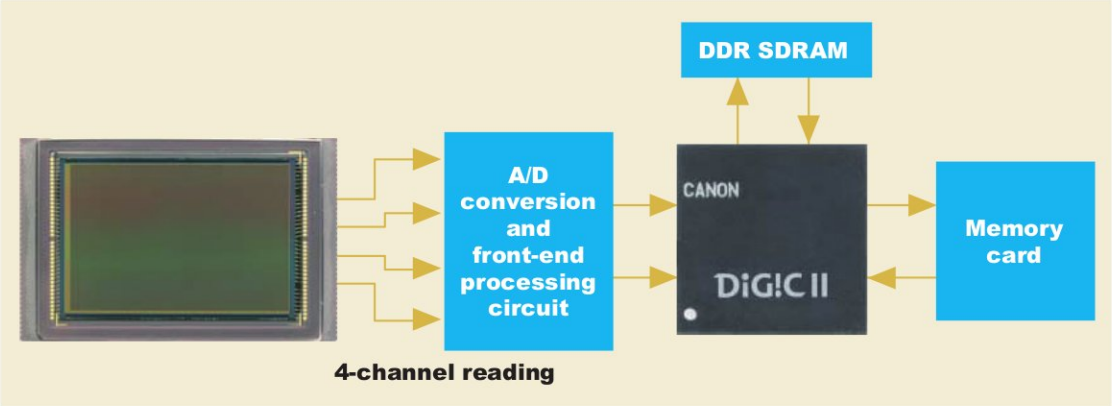


Fig. 002 Four-channel reading and image processing diagram

4） Infrared-blocking, low-pass filter

The infrared-blocking, low-pass filter basically consists of an infrared-blocking filter, low-pass filter, phase plate, and low-pass filter.

The EOS 20D's infrared-blocking, low-pass filter has the same basic construction with an infrared-absorbing glass and three crystal plates. However, the EOS 5D's filter has one independent crystal plate which also functions as the CMOS sensor package's cover glass (Fig. 003).

This makes it unnecessary to have a relatively expensive cover glass. Therefore, the cost is reduced without affecting the infrared-blocking, low-pass filter's performance.

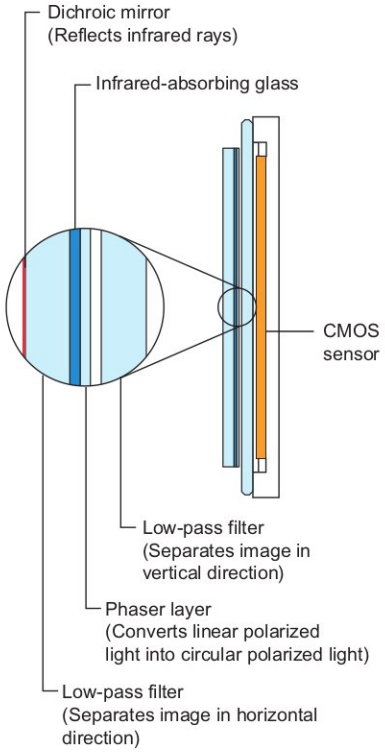


Fig. 003 Cross section of infrared cut, low-pass filter

1.2 Image recording and processing

1） Image processing by DIGIC II

As with the EOS-1Ds Mark II, high-speed and high-quality image processing is executed by DIGIC II (Fig. 004). Also, DIGIC II and the DDR SDRAM (EOS 20D: SDR SDRAM) buffer memory work together to attain a continuous shooting speed of approx. 3 fps and a maximum burst of 60 shots (Large/Fine).

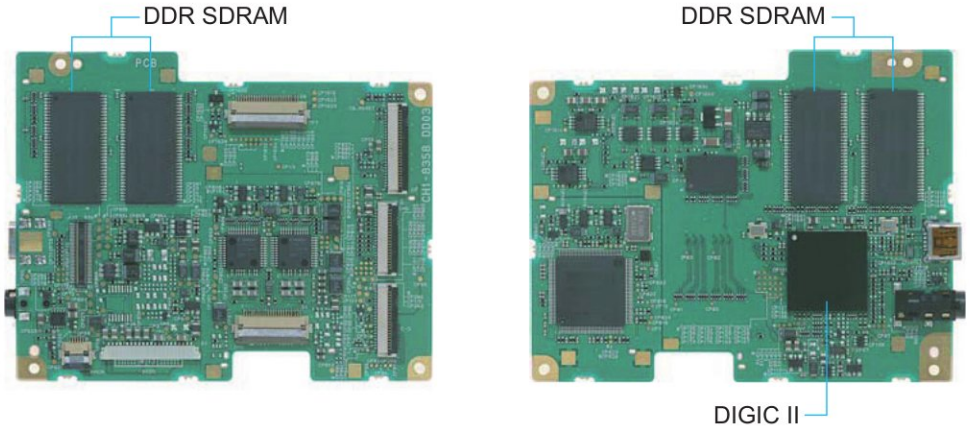


Fig. 004 Digital control circuit board

2） Picture Styles

Picture Styles consolidate the processing parameters and color matrix settings and take it a step further. It is a new feature enabling even the beginner digital photographer to select preset settings which match his or her photographic preferences to obtain the desired image effect (Fig. 005).

The basic elements for image creation, including the color tone, color saturation, sharpness, and contrast, are set differently to obtain a specific photographic effect. For example, the "Landscape" Picture Style tweaks the color tones and saturation for blue skies and green trees to make the image look more impressive. Also, the "Faithful" Picture Style, which is the same as Digital Photo Professional's Faithful setting of RAW image Editing, obtains a colormetric and natural color reproduction even with JPEG images.

Each Picture Style allows the user to adjust the sharpness by 8 levels (0 to 7), and contrast, color tone and color saturation by 9 levels (-4 to +4) (Fig. 006).

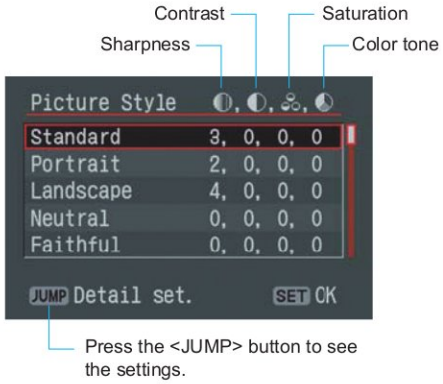


Fig. 005 Picture Style selection screen

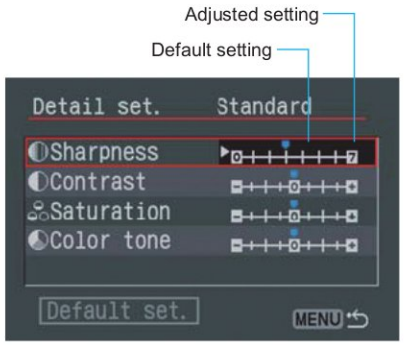


Fig. 006 Picture Style adjustment screen

3） Image-recording quality

Table 003 shows the correlation between the recording quality and file size. Specifications for RAW+JPEG simultaneous recording, color space (sRGB/Adobe RGB) RAW, Design rule for Camera File System, Exif, etc., are the same as the EOS 20D's.

Table 003 Recording Quality and File Size

Image-recording Quality		Pixels (Approx.)	Image Type	Compression Rate	Single Image Size (Approx. MB)	Possible Shots (Approx.)	Print Size
Large	Fine	4368 × 2912 (12.70 megapixels)	JPEG	Low compression	4.6	101	A3 or larger
	Normal			High compression	2.3	196	
Medium	Fine	3618 × 2112 (6.70 megapixels)		Low compression	2.7	168	A4 - A3
	Normal			High compression	1.4	319	
Small	Fine	2496 × 1664 (4.20 megapixels)		Low compression	2.0	233	A4 or smaller
	Normal			High compression	1.0	446	
RAW		RAW: 4368 × 2912 (12.70 megapixels)	RAW	RAW: Lossless Compression	12.9	29	A3 or larger
RAW+Large/Fine			RAW + JPEG		—	22	—
RAW+Large/Normal						25	
RAW+Medium/Fine						24	
RAW+Medium/Normal						26	
RAW+Small/Fine						25	
RAW+Small/Normal						27	

＊The number of possible shots apply to a Canon 512MB CF card.

＊The single image size and number of possible shots will vary depending on the subject, shooting mode, Picture Style, ISO speed, etc.

4） White balance

Specifications for the auto white balance, white balance correction, and white balance bracketing are the same as the EOS 20D's.

5） Long exposure noise reduction

C.Fn-2 for noise reduction of long exposures can be set to "Off" or "Auto noise reduction" or "On."

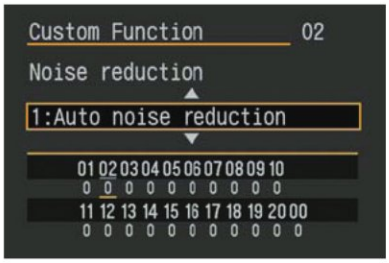


Fig. 007 C.Fn-2 setting screen

[Auto noise reduction]

For long exposures 1 sec. or longer, noise caused by a long exposure or high temperature (spotty noise or reddish corners) is detected. If it is determined to be noise, noise reduction is performed. Normally, this setting is most effective.

[On]

For long exposures 1 sec. or longer, noise reduction is always performed. This setting is effective for reducing noise generated (rarely) in low temperatures that cannot be detected automatically.

Note: With the "Auto noise reduction" and "On" setting, noise reduction will be performed according to the two conditions above regardless of the ISO speed.

Like the EOS-1Ds Mark II, the EOS 5D enables continuous shooting even while noise reduction is performed as long as the buffer memory is free. Also, when shutter speed-priority AE or manual exposure is set and continuous shooting is done at the same shutter speed, noise reduction will be performed in a single process on all the shots based on the first shot.

6） Image recording to CF card

(1)Writing to CF card

Thanks to DIGIC II and an improved card-writing process, high-speed data writing on par＊ with the EOS 20D is attained.

＊With a Canon 512MB CF card.

(2)Folder creation and selection

As with the EOS-1D-series cameras, the folder can be created automatically, manually (Fig. 008), or when the image file number is reset manually. A folder can also be created with a personal computer.

The folder created by the camera will be named ***EOS5D (where *** is the folder number). If the folder is created with a personal computer, the name will have five characters with a three-digit folder number followed by a half-width letter and underbar.

The user can select the folder where the captured images are to be saved. A folder can contain a maximum of 9999 images. If the selected folder reaches 9999 images, a new folder is created automatically for saving captured images.

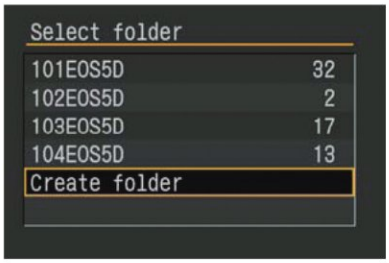


Fig. 008 Folder creation and selection screen

Note: For example, if there are folders 100 and 101 and folder 100 reaches image number 9999, folder 102 will be created automatically to save the images captured thereafter. This will occur even if folder 101 has room for more images. (This is to avoid confusion between the existing and new images in folder 101.)

(3)Image file number

As with EOS-1D-series cameras, the file numbering can be set to Continuous, Auto reset, or Manual reset. If Manual reset is set, a new folder will be created automatically and the image file number will start from 0001.

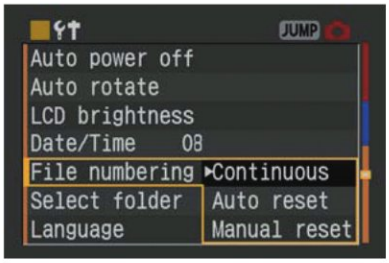


Fig. 009 Image file number setting screen

7） Startup time

Thanks to DIGIC II, an optimized system processing sequence for the startup, a revamped CF card access method, and faster startup processes, the startup time has been reduced to approx. 0.2 sec.

Note: From power off to power on when startup is completed and SW-1 ON functions (ready for shooting).

1.3 AF

1） AF system

The new AF system aims to improve the subject detection and focusing precision at the center which is used most often. It also aims to enhance subject tracking performance. As shown in Fig. 010, the AF points are concentrated at the center. The extreme left and right AF points are positioned at the same place as the EOS-1Ds Mark II's extreme left and right AF points. Subject framing can thereby be given priority.

The AF sensor (Fig. 011) on the CMOS sensor has nine AF points (plus 6 Assist AF points). They have been newly developed to greatly improve focusing performance at the center. The AF algorithm and AF circuitry also have a new, dedicated design to attain high-speed and high-precision AF.

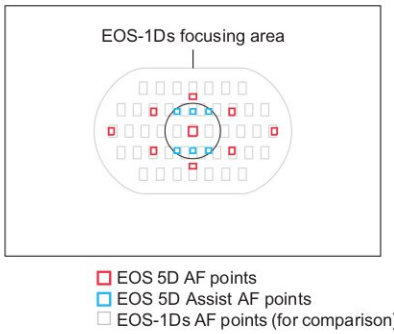


Fig. 010 Position of AF points in viewfinder

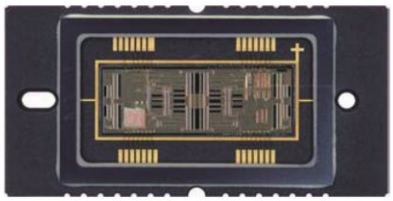


Fig. 011 AF sensor

(1)High-performance focusing at center

The following technologies have been incorporated so that the frequently-used center AF point can focus better:

- Extreme defocus detection sensor

  A subject way out of focus can be detected when the center AF point sensitive to horizontal lines at f/5.6 (Fig. 012) has a line twice as long. As a result, the lens focus driving for detecting the subject is shorter so that the AF is fast and easy.

- f/2.8-sensitive sensor

  With lenses brighter than f/2.8, the center AF point uses the f/2.8 light flux to focus. The base line of the f/2.8 and vertical line-sensitive sensor is about twice as long as the f/5.6-sensitive sensor. The focusing detection is thereby faster.*

  *Except with EF50mm f/2.5 MACRO and EF28-80mm f/2.8-4L USM.

- Four-line focusing with f/5.6-sensitive, cross-type center AF point

  The center AF point's f/5.6-sensitive, vertical/horizontal line-sensitive sensors each have two lines in a zigzag pattern for a total of four lines for cross-type focusing at the center. It reduces irregular focusing detection and increases the chances of focusing difficult subjects.

  If the lens is brighter than f/2.8, first the f/5.6-sensitive, cross-type center sensor is used to focus. When focus is almost achieved, it switches to the f/2.8-sensitive sensor for high-precision focusing. It is a two-step focusing control process.

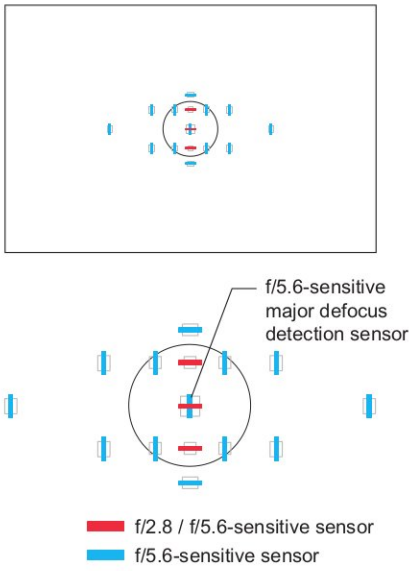


Fig. 012 AF sensor positions

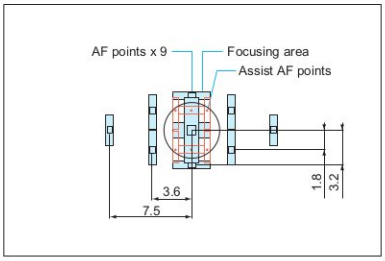


Fig. 013 Actual focusing area

In other words, the center AF point's vertical line-sensitive sensor has two types, one for f/2.8 and another for f/5.6. It enables cross-type focusing at the center with any EF lens.

(2)Outstanding AI SERVO AF subject tracking

Above and below the center AF point, are a total of six invisible Assist AF points (Fig. 014). They do an excellent job of tracking the subject in the AI SERVO AF mode as described below.

All six Assist AF points are f/5.6-sensitive. Two of them ■ are also f/2.8-sensitive when a lens brighter than f/2.8 is used. They use the f/2.8 light flux to detect the focus.*

*Except with the EF50mm f/2.5 MACRO and EF28-80mm f/2.8-4L USM.

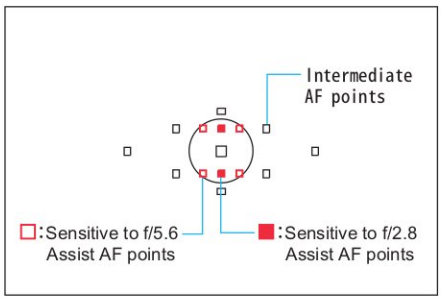


Fig. 014 Assist AF points

- Wide-area, automatically-selected, 15-point AI SERVO AF

  In the AI SERVO AF mode and automatic AF point selection set, a total of 15 AF points, including the six Assist AF points, will automatically function. This enhances the subject tracking performance and enables a smoother transition from the center AF point to adjacent AF points. As with previous cameras, the focusing starts with the center AF point, and if it cannot track the subject, the other AF points will help to track it.

- AI SERVO AF with 7 automatically-selected AF points at center

  With C.Fn-17-1 "AF point activation area", AI SERVO AF, and the center AF point, subject tracking at the center is enhanced with seven AF points including the Assist AF points.

(3)Intermediate AF points for superb focusing detection precision

Since the four f/5.6-sensitive, intermediate, vertical sensors have a long base line, the focusing detection is more precise. The left and right AF points have the same base line length as f/5.6-sensitive sensors in previous cameras.

2） AF unit

(1)Configuration of focusing optics

Fig. 015 shows the configuration of the focusing optics. After passing through the lens, the 19 (11 vertical and 8 horizontal) by 38 light flux are sampled individually. The image-formed on the primary image-formation surface (image plane) goes through the secondary image-formation lens for each focusing area before it forms again on the AF sensor. Six horizontal light flux at the center are set for f/2.8 for focusing. The other 32 light flux are set for f/5.6 (same as the focusing light flux of previous EOS cameras).

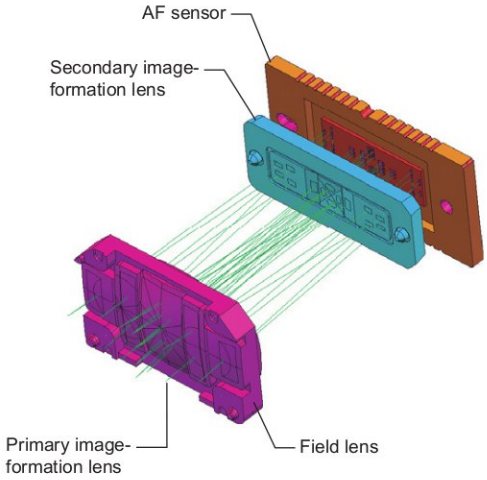


Fig. 015 Focusing optics

(2)Focusing principle

It is the same as the TTL-SIR (Through-The-Lens Secondary Imaged Registration) system used in previous EOS cameras.

(3)Actual focusing optics

Fig. 016 shows the actual focusing optics. The focusing light flux passes through the camera lens and half-silvered mirror (40%), then it is reflected downward by the secondary mirror (flat, fully reflective). It passes through the field-of-view aperture, field lens, AF mirror (fully reflective), infrared-blocking filter, fixed aperture, secondary image-formation lens, and reaches the focusing sensor.

Fig. 017 shows the AF unit's basic construction. The unit is designed to create no ghosting. It also uses materials which can withstand changes in the temperature and humidity, for more stable AF performance.

Note 1: Ghosting countermeasures: The field-of-view aperture eliminates stray light, and the separators use a low-reflectance material.

Note 2: Temperature/humidity countermeasures: The focusing optics and chassis use materials having a low-line expansion coefficient and low absorption coefficient.

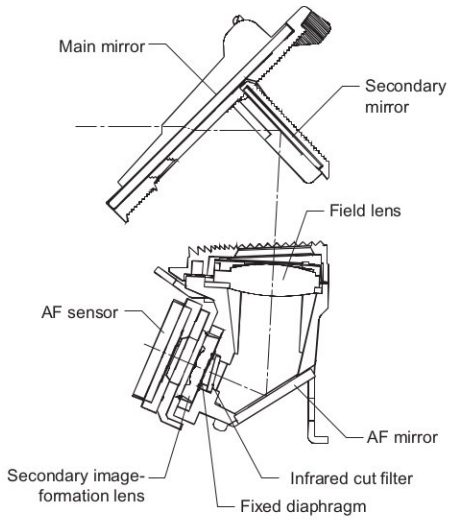


Fig. 016 Actual AF optics

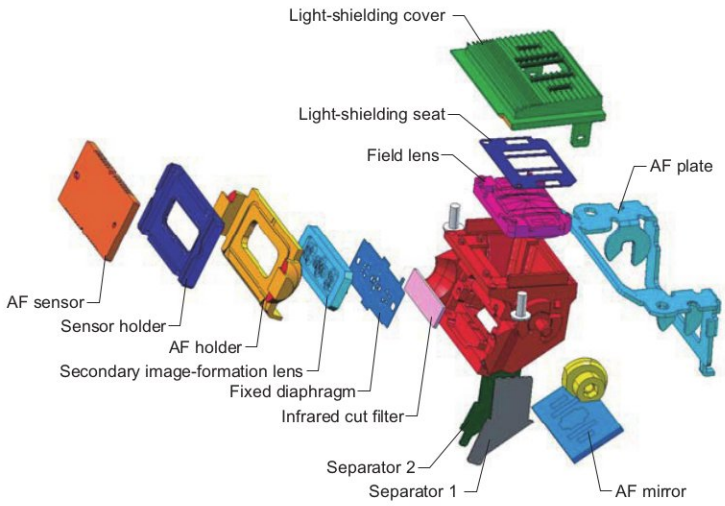


Fig. 017 AF unit construction

3） AF mode and AF point selection

The One-Shot AF, AI SERVO AF, and AI Focus AF modes are provided. In the Full Auto mode, AI SERVO AF is set automatically. In other shooting modes, the user can set any of the three AF modes. Specifications for AF point selection are the same as with the EOS 20D.

4） Focusing computation

The AF-dedicated, 32-bit RISC (main clock speed 32MHz) microcomputer enables high-speed computing. Also, the parallel processing of the AF sequence (SI display and metering at the same time as the lens driving and mirror reflex) helps to attain the same AF speed as the EOS 20D.

5） AI SERVO AF

(1)Predictive AF computation

Predictive AF can focus track a subject approaching at 50 kph up to 8 meters away with an EF300mm f/2.8L IS USM.

As with the EOS-1Ds Mark II, the EOS 5D's predictive AF computation uses statistical prediction that incorporates the focusing data of past focusing operations. Since it can repeat more focusing operations in a short length of time, the predictive AF control can effectively operate from the first shot even for a subject moving erratically.

Also, even if the subject movement changes right before the shot is taken, the predictive AF control will have a good chance of catching it.

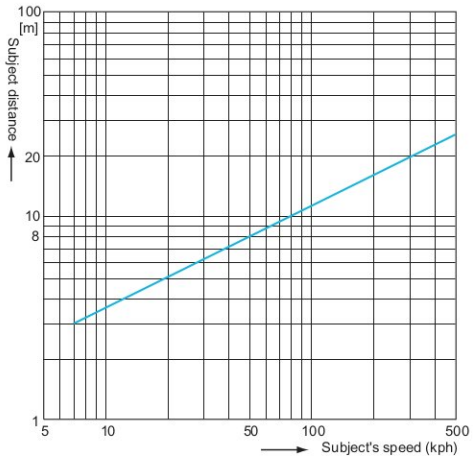


Fig. 018 Predictive subject tracking with AI SERVO AF

(2)For still subjects

Even for still subjects in the AI SERVO AF mode, the focus control is stable so that the lens drive does not move minutely. If the subject has major movement, the focus detection is always active to enable subject tracking.

(3)Single-stroke, complete pressing of shutter button

As with the EOS-1D Mark II, when focusing is possible, the lens drive is executed based on the focusing result right before shutter release.

6） Automatic AF point selection

Automatic AF point selection uses a new algorithm designed for the wide-area, 9-point, One-Shot AF and wide-area, 15-point and 7-point center AI SERVO AF. The automatic AF point selection speed and the AF point selection accuracy (matching the user's intended subject) are as good as or better than the EOS 20D's.

1.4 Viewfinder

1） Viewfinder optics

The viewfinder optics are newly developed. Except for the viewfinder coverage, the basic performance is on par with the EOS-1Ds Mark II's (Table 004).

Fig. 020 shows a cross section at the center.

Table 004 Major Specifications of Viewfinder

Item	EOS 5D	EOS-1D Mark II
Coverage (Approx.)	96%	100%
Magnification	0.71×	0.7×
Eyepoint	20mm	
Dioptric Adjustment	-3 - +1dpt	

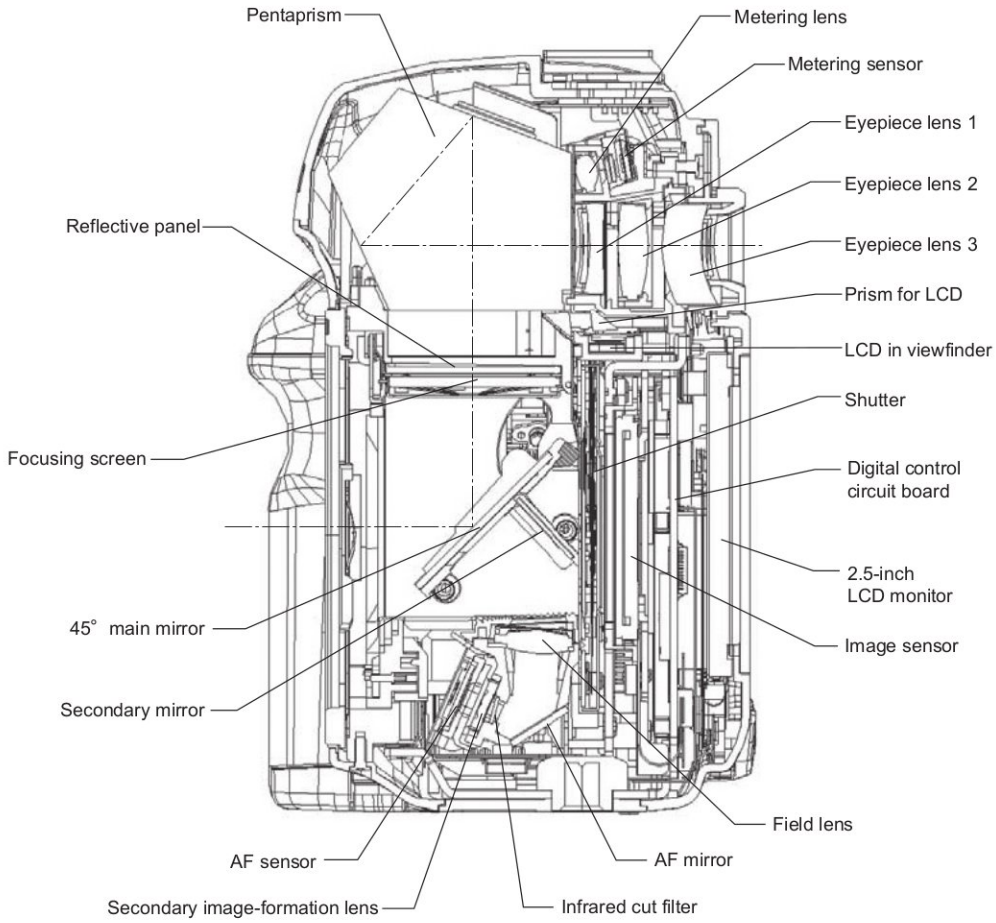


Fig. 019 Cross section at center

2） Superimposition display

The superimposition display optics consists of the SI-LED, SI lens, and SI prism. They are in front of the pentaprism. The SI-LED's light beam goes through the pentaprism and it is projected onto the reflective panel that has the AF points' reflective areas. The light path is shown in Fig. 021.

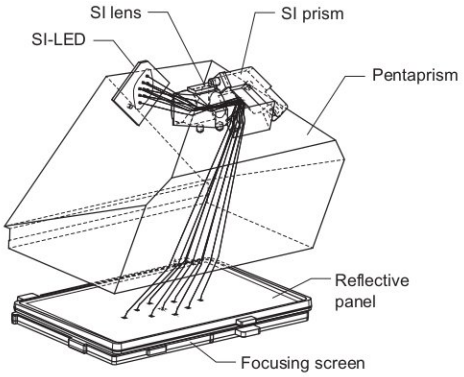


Fig. 020 SI optics

3） Focusing screen

The focusing screens are all Precision Matte. The Ee-A standard focusing screen and Ee-D (with grid) focusing screen have almost the same characteristics as the EOS 20D's focusing screen. The Ee-S focusing screen, which makes manual focusing easier, is also available. The focusing screen is interchangeable by using the special tool provided with the focusing screen.

The Ee-S focusing screen's matte has finer microlenses than the other two types. With f/2.8 or brighter lenses, the characteristics of the wide-area light distribution angle is controlled (Fig. 022). The bokeh characteristic for the defocus near the point of focus is very different compared to the other two types. This makes it easier to see the point of focus during manual focusing.

Standard Precision Matte　　Super Precision Matte

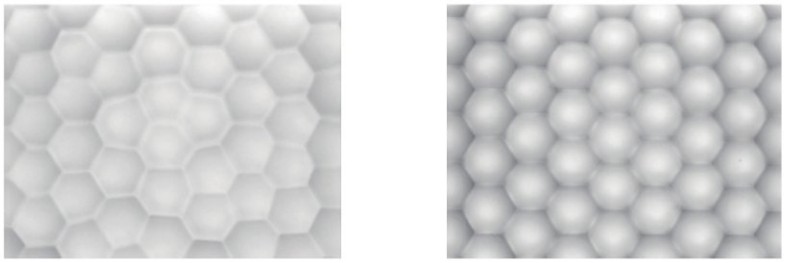


Fig. 021 Focusing screen enlargement

1.5 Exposure control

1） Metering

(1)Metering optics and metering sensor

The metering optics has the metering lens and 35-zone metering sensor (Fig. 023) positioned behind the pentaprism. For the 9 AF points, the metering lens magnification has been set to obtain an optimum correlation between the metering sensor zone areas.

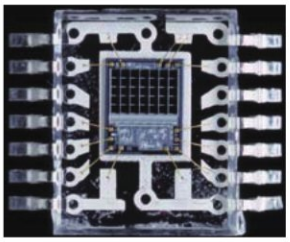


Fig. 022 Metering sensor

(2)Metering modes

Evaluative, partial, spot, and centerweighted average metering are provided. Partial metering uses approx. 8% of the viewfinder area at the center, and spot metering uses approx. 3.5% of the viewfinder area.

(3)Evaluative metering/E-TTL II algorithm

The basic characteristics of evaluative metering/ E-TTL II autoflash have been adjusted to make them the same as with the EOS 20D that has the same 35-zone metering sensor and One-Shot AF with 9 AF points.

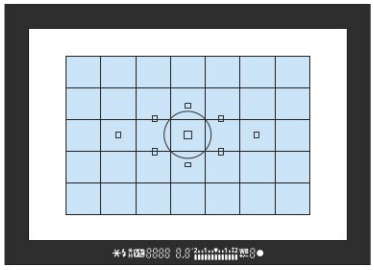


Fig. 023 Metering zones

2） Exposure control

Besides the P, Tv, Av, M, and B modes found in EOS-1D-series cameras, the Full Auto mode is also provided for quick and easy snapshooting.

3） Shutter

A high-speed, highly durable shutter unit for the 35mm full-size sensor has been newly developed (Fig. 025).

Fig. 024 Shutter unit

(1)High-speed 1/8000 sec.

With the high-torque, shutter-cocking mechanism and slit-type shutter curtains made of lightweight and strong ultra-duralumin material, a high shutter speed of 1/8000 sec. (X-sync 1/200 sec.) is attained.

(2)Highly durable with 100,000 shutter cycles

High durability of 100,000 shutter cycles is achieved with the shutter plate and lever made of metal, a high-strength cocking gear, and a cocking motor using carbon brush.

Also, with the electronic X-contact added to the sync contacts, the shutter unit's X-sync function uses an optically-detected, contactless switch instead of a mechanical switch. This contributes to high durability and high reliability when a Speedlite is used. Table 005 shows the shutter design specifications.

Table 005 Shutter Design Specifications

Item	Specification
1. Type	Vertical-travel, focal-plane shutter
2. Shutter curtain type	Parallelogram link type
3. Shutter curtain blades	1st curtain: 4 blades 2nd curtain: 4 blades, total 8
4. Shutter curtain material	1st curtain: 3 blades made of KN Mylar, one blade made of Duralimin 2nd curtain: 3 blades made of KN Mylar, one blade made of Duralimin
5. Drive system	1st curtain: Dedicated torsion spring 2nd curtain: Dedicated torsion spring
6. Speed control method	All speeds electronically controlled with the electrical conduction interval of the 1st curtain's dedicated magnet and the 2nd curtain's dedicated magnet. (The magnet attracts the curtain when turned on, and releases when turned off.)
7. Curtain speed	Approx. 3.77 ms/24 mm
8. Shutter speed range	1/8000 sec. - 30 sec., bulb
9. Max. flash sync	1/200 sec.
10. Signals	1. X-sync (electronic X), 2. 2nd curtain travel-completed signal

4） ISO speed

ISO 100-1600 can be set in 1/3-stop increments. With C.Fn-08-1 (ISO speed extension), ISO 50 or 3200 (H) can also be set.

Table 006 shows the ISO speed set in the Full Auto mode.

Table 006 ISO Speed in Full Auto Mode

Shooting Setting	ISO Speed
AE, slower than 1/500	400
AE, 1/500 or faster	100-400 (1/8-stop increments)
With Flash	400

1.6 Drive

1） Continuous shooting speed

With a CMOS sensor enabling 4-channel signal reading, DIGIC II for high-speed image processing, and DDR SDRAM, the continuous shooting speed in both the One-Shot AF and AI SERVO AF modes is approx. 3 fps.

With the BATTERY GRIP BG-E4 battery grip and size-AA batteries, the continuous shooting speed is approx. 2.5 fps in the AI SERVO AF mode.

2） Maximum burst

With the DDR SDRAM buffer memory enabling high-speed data transfers and a memory capacity the same as the EOS-1Ds Mark II's, a maximum burst of approx. 60 shots in JPEG Large/Fine or approx. 17 shots in RAW is attained. (The maximum burst is higher because the pixel size is a little bit smaller and the continuous shooting speed is slower than with the EOS-1Ds Mark II.)

Table 007 Maximum burst during continuous shooting

Image-recording Quality	L/F	L/N	M/F	M/N	S/F	S/N	RAW	RAW+JPEG
Max. Burst [Approx.]	60	150	120	319	200	446	17	12

＊With a Canon 512MB CF card (Super High-speed type).

＊The maximum burst during continuous shooting in JPEG varies depending on the shooting conditions, processing conditions, and CF card type.

＊For Middle/Normal and Small/Normal, continuous shooting is possible until the CF card becomes full.

1.7 Basic operation concept and LCD monitor

1） Basic operation concept

The basic operation for selecting and setting various functions with the Main Dial, Quick Control Dial, multicontroller, and various operation buttons is the same as with the EOS 20D.

As with previous EOS Digital cameras, you can instantly return to shooting by pressing the shutter button during any camera operation (except during direct printing).

2） LCD monitor

This is a 2.5-inch, polysilicon TFT LCD color monitor with 230,000 pixels. It has a wide viewing angle, and the display area is about double that of the EOS 20D's 1.8-inch screen.

Previous LCD monitors had a narrow, vertical viewing angle. The screen would lose the picture brightness if you looked at it from even a slight vertical angle. However, the EOS 5D's LCD monitor retains the same picture and brightness from any viewing angle (Fig. 026, Fig. 027).

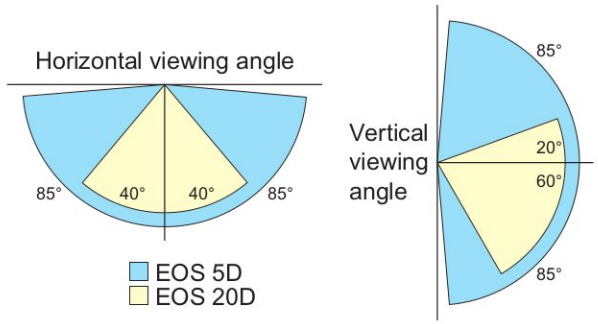


Fig. 025 Actual LCD monitor viewing angle

The backlight uses six LED modules that illuminate the large LCD monitor evenly. (The 1.8-inch monitor uses 3 LED modules.)

Fig. 026 LCD monitor viewing angle comparison

3） Image playback

Single image, shooting information display, 9-image index, magnified view, jump display, auto playback, image protection, and image rotation are possible (same specifications as the EOS 20D).

With the single-image display, jumping by 10 or 100 images or by folder or date is possible. This makes it faster to find an image among many images (Fig. 028).

Fig. 027 Jump menu

Fig. 029 shows the information screen. The shooting information includes the file size, brightness or RGB histogram (switchable), and AF point(s) used. The camera setting information screen mainly shows the shooting-related information.

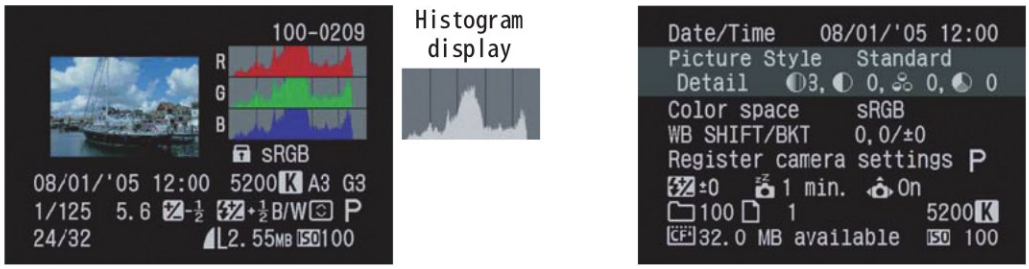


Fig. 028 Information screen

4） Customization

With the "Register camera settings" in the Setup menu, you can save the current camera settings (Table 008) to the Mode Dial's <C> (Camera settings) setting. Even at the <C> setting, you can still change the shooting functions and menu settings. Any changed settings can be saved by following the procedure for "Register camera settings" in the Setup menu.

Table 008 Camera setting registration

Shooting Settings	Menu Settings
Shooting mode and settings / AF mode / AF point selection / Metering mode / ISO speed / Drive mode / Exposure compensation / Flash exposure compensation / White balance	Quality / Beep / Shoot w/o card / AEB / WB SHIFT/BKT / Custom WB / Color temp. / Color space / Picture Style (excluding user defined) / Review time / AF points / Histogram / Auto power off / Auto rotate / LCD brightness / File numbering (method) / Custom Functions (C.Fn)

1.8 Camera direct printing/Print ordering (DPOF)

Other than the added features described in the General Information, the specifications are the same as with the EOS 20D's.

1.9 Interface

It is the same as the EOS 20D.

1.10 Power source

With a power-saving circuit design, DIGIC II with low power consumption, and a power-saving CMOS sensor, approx. 800 shots can be taken at 20°C / 68°F or approx. 400 shots at 0°C / 32°F.

Note 1: Shooting capacity of EOS 5D is less than the EOS20D (approx. 1000 shots), due to EOS 5D's full size 35mm CMOS sensor, DDR SDRAM and backlit LCD monitor illuminated with 6 LED modules that consume larger power source.

Note: 2 With a fully-charged BP-511A according to CIPA testing standards.

Bulb exposures can be as long as approx. 1.5 hours with a fully-charged BP-511A battery.

1.11 Exterior and internal construction

1） Exterior and internal construction

The top, front, and rear covers are made of magnesium alloy known for light weight and high strength (Fig. 030). Also, the USB port, video terminal, and other external interface connectors concealed under the left cover use special engineering plastic having excellent electromagnetic shielding properties.

The camera body consists of a stainless steel chassis and mirror box made of high-strength engineering plastic. Also, the mirror box, to which the mount and imaging element are attached, is very securely attached to the chassis to prevent the flange focal distance from changing due to static pressure on the attached lens. Since the grip and front cover are one piece, the body rigidity is excellent. (Fig. 031)

The exterior surface finish is a high-quality, black satin finish with a leathery touch. The satin, leathery finish with finer graininess feels smoother in the hands.

Fig. 029 Magnesium alloy exterior

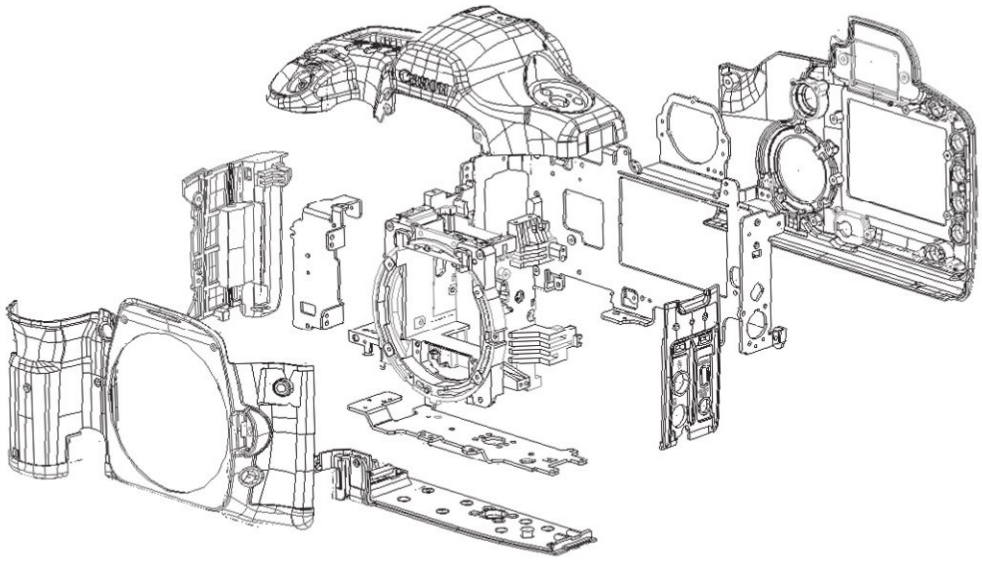


Fig. 030 Exterior covers and internal construction

2） Internal construction and major parts configuration

The EOS 5D's basic internal construction and major parts configuration are the same as the EOS 20D's. Thanks to the design and manufacturing know-how accumulated with previous EOS Digital cameras and the low-pass filter integrated with the CMOS cover glass, the EOS 5D could be made more compact at lower cost.

Table 009 shows the parts count.

Table 009 Parts Count

Item	EOS 5D	EOS 20D
Optics	20	20
Mechanical parts	321	301
Electrical parts	1110	826
Circuit boards	24	27
Lead wires	7	19
Total (Official)	1482	1193
Screws and washers	162	167
Total	1644	1360

＊The shutter unit is counted as one part.
＊The DC/DC converter is counted as one part.
＊The E-ring is counted as a washer.
＊The official total excludes the screws and washers.

3） Shutter-release mechanism

The shutter-release mechanism is basically the same as the EOS-1D-series cameras. The shutter-release time lag from SW-1 ON is approx. 75 ms (maximum aperture to f/3.5 or less). The viewfinder blackout time is approx. 145 ms.

Table 010 Shutter-release stroke and pressure

State	Stroke	Pressure
Shutter button protrusion	1.3 mm	—
Standby position to SW-1 ON	0.6 mm	85 g
SW-1 ON to SW-2 ON	0.25 mm	350 g

Note: Stroke adjustment is not possible by a service center.

4） Electrical components

The EOS 5D's circuit board configuration consists of four hard boards consisting of the digital control circuit board, camera control circuit board, display control circuit board, and power source circuit board (Fig. 032). Through various connectors, these boards are connected to 20 flexible circuit boards.

On page 21, Fig. 033 shows the location of the major mechanical components, Fig. 034 shows the location of major circuit boards, and Fig. 035 shows a cross section at the center.

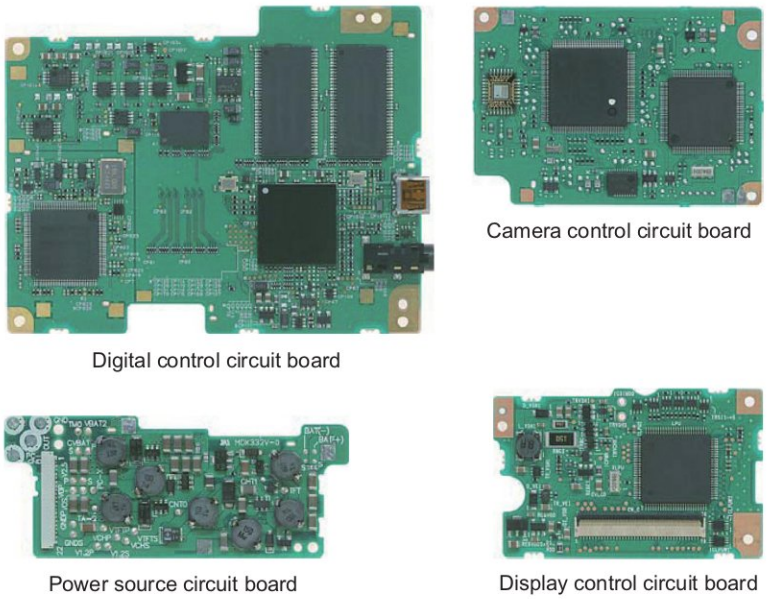


Fig. 031 Major circuit boards

(1)Digital control circuit board

This board is a highly-integrated, 10-layer (3-4-3) board. It contains the following: The ADIC that converts the output from the CMOS sensor into digital signals, the imaging signal processing circuit which includes the TG IC that generates the CMOS sensor's drive pulse, the digital image processing circuit that includes DIGIC II, the memory circuit that includes the DDR SDRAM for the image buffer memory, the USB port, and the video OUT terminal.

The board's number 2 and 9 layers are basically GND layers to prevent signal interference between the top and bottom patterns and internal layers and to prevent misoperation caused by noise.

(2)Camera control circuit board

This board has four layers fitted with the following: The microcomputer IC which controls the camera operation by controlling the various sensors and mechanical components, the AFcontrol IC, the flash-control IC, and EEPROM that retains various adjustment data (AE, AF, etc.).

(3)Display control circuit board

This board has four layers fitted with the following: LCD panel, viewfinder display, display IC that drives and controls the superimposed display, motor driver IC, and power source circuit to supply power to the camera control circuit board.

(4)Power source circuit board

This board has four layers fitted mainly with a power source circuit to supply power to the digital control circuit board.

5） Compliance to RoHS directive (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment)

The RoHS directive will ban the use of the following six toxic substances in any electrical and electronic equipment: Lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl, and polybrominated diphenyl ether. It will take effect from July 1, 2006 and be applied to products sold in the EU. The EOS 5D meets this directive.

Note: RoHS directive: Restriction of the use of certain Hazardous Substances in electrical and electronic equipment.

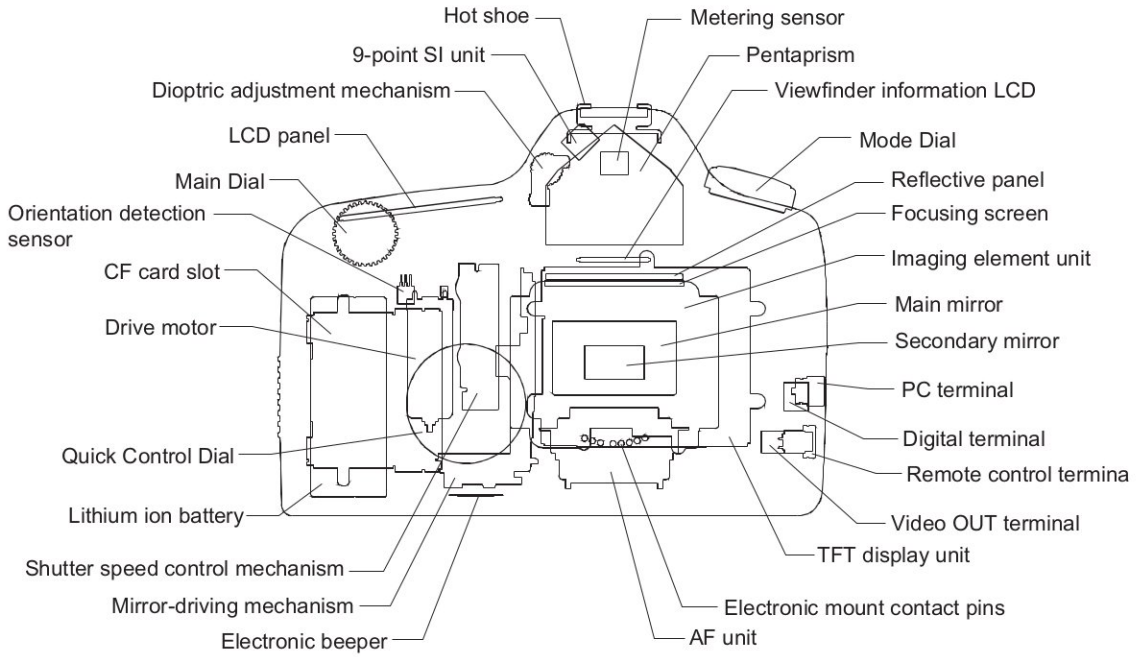


Fig. 032 Location of major mechanical components

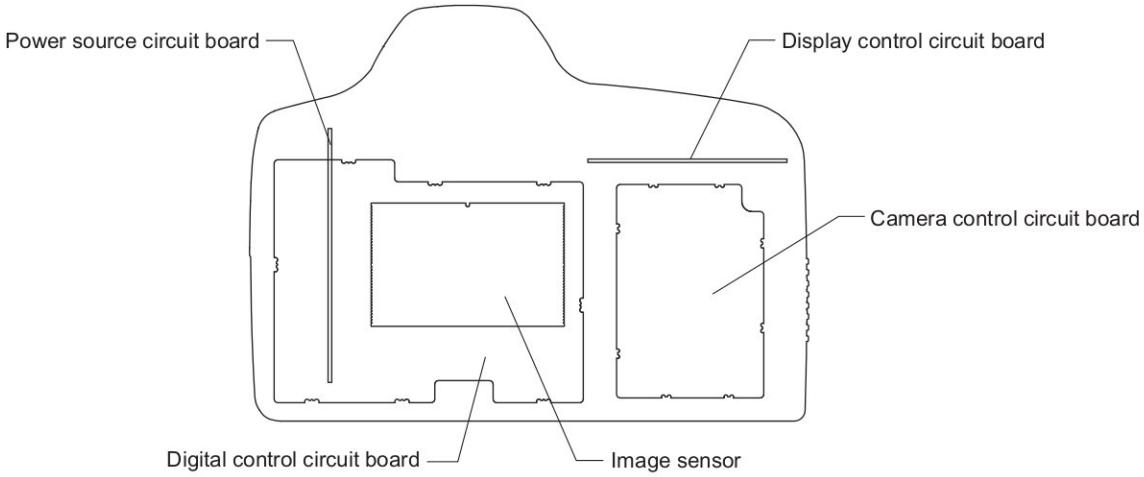


Fig. 033 Location of major circuit boards

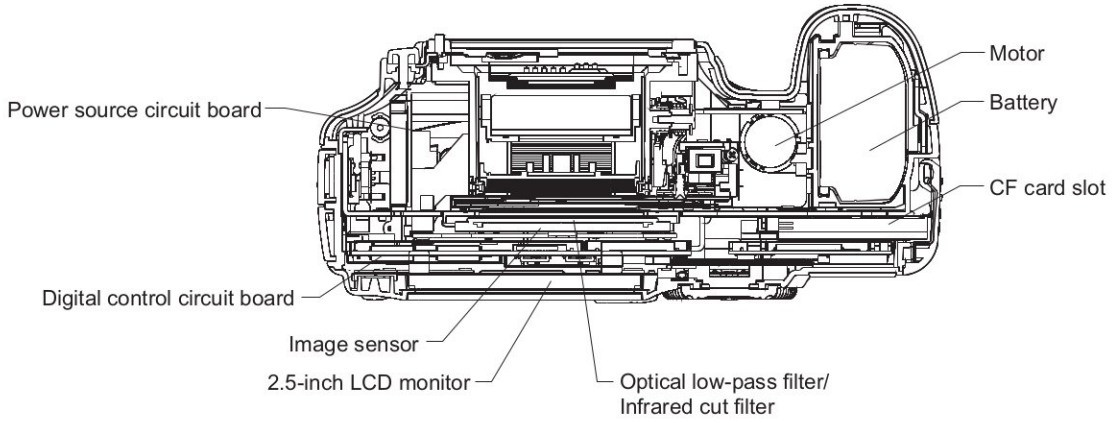


Fig. 034 Cross section at center

Repair Information

CONTENTS

1. INITIAL CHECK LIST

1.1 Initial Check List

Assembly and Disassembly:

1) Antistatic measure

Be sure to use an antistatic wrist strap when assembling or disassembling.

2) Measuring environment

Before using major measuring tools (Light Source, AF Chart Stand, or Standard Tool Lens), be sure to make an inspection and keep a record of the result routinely.

3) Reliability Parts

Insure that the following parts are correctly in place during final reassembly.

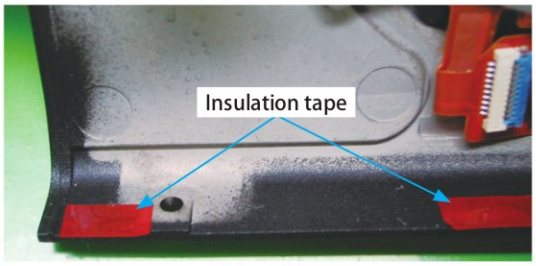


Fig. 001

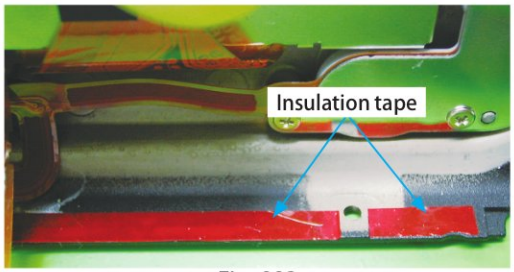


Fig. 002

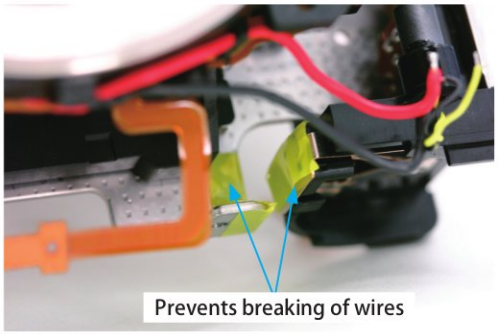


Fig. 003

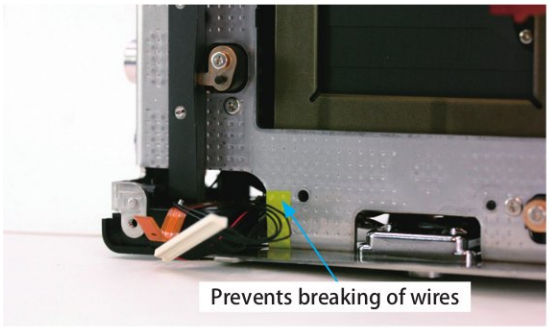


Fig. 004

4) Dust cleaning of the imaging surface (LPF surface)

Make sure that DIA (Digital Image Analyzer) displays "PASS" in the dust check when returning repaired products to users.

(1)DIA Software Guide:

Detects dust elements on designated image and counts the number. Based on the location, size, and number of dust specs, DIA judges "PASS" or "FAIL".

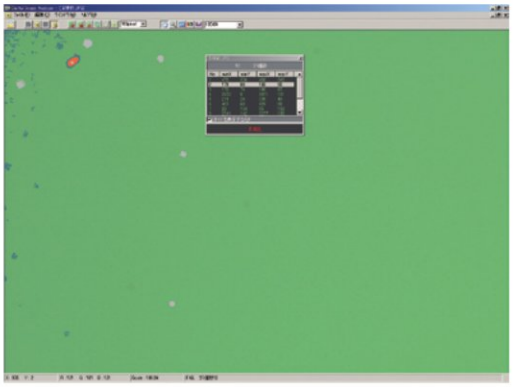


Fig. 005

1. Take a picture
   Shooting condition
   - EF 50/1.8 lens
   - Av Priority AE (F22)
   - ISO 100, AEB
   - JPEG Large/Fine
   - Light Source (EF-1,8000 or Light Box)
2. Download the image to PC.
3. Open the JPEG file on DIA.
4. The result of the judgement
   In case of "FAIL", click the No. and check where the dust is located if necessary. Then, clean the dust.

Fig. 006

Fig. 007

(2)Dust Loupe (CY9-1132):

Use the dust loupe set as a service tool to check dust. The imaging surface from which all dust viewable with the loupe has been cleaned should meet the cleaning standard.

Fig. 008

5) Viewfinder Cleaning Holes

Dust between the pentaprism and the Superimpose Indicator Plate can be blown out through these holes.

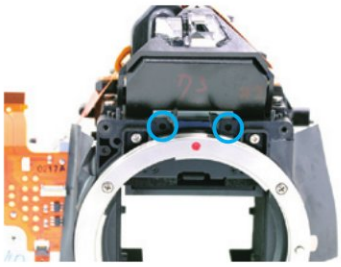


Fig. 009

1.2 Power Current Consumption

Current Consumption Standards

Lens: EF 50mm f/1.8
Power source: Constant voltage 8.0 V, 0.40 Ω (No CF card installed)
Ambient conditions: Room temperature, normal humidity (below 60%)

Camera Status	Standard	Actual Measurement
Standby	150mA or lower	Approx. 50mA
Lock	100μA or lower	Approx. 41.4μA
SW1-ON	400mA or lower	Approx. 111mA

＊The Actual Measurement data is taken from the initial lot of mass production cameras. It may differ slightly with subsequent lots.
＊Standby means the condition where the camera stands by while Main SW is on.

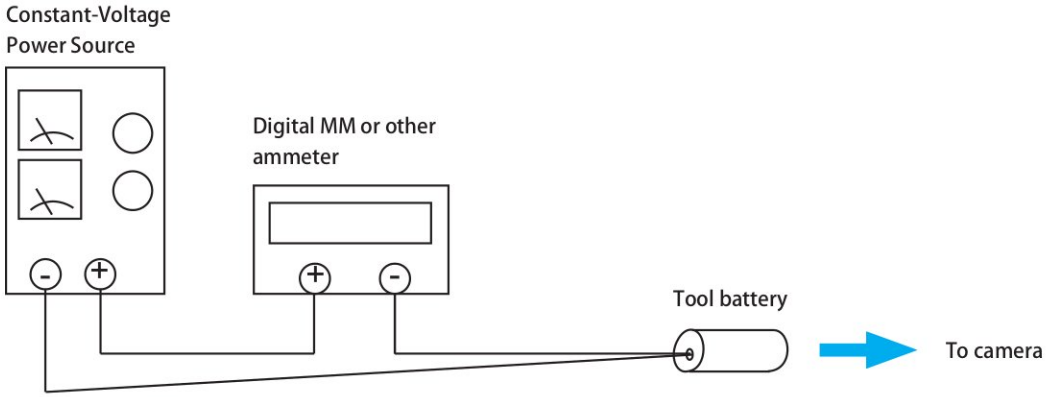


Fig. 010

1.3 Residual Battery Display

Tool: Use a tool battery.
Power: Set the constant voltage to 8.0[V].
(1)Insert the tool battery into the camera.
(2)Turn on the main SW.
(3)With SW1-On, slowly reduce the supply voltage gradually so that the display changes through the battery indications and check that the switch points are within the specified limits.

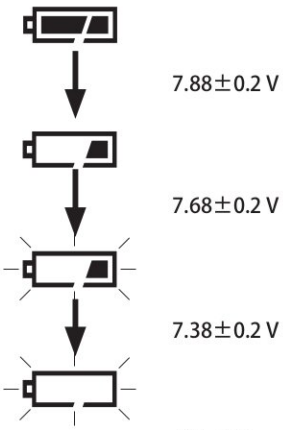


Fig. 011

1.4 Serial No. Location

This number is used in service manual reports and other information after the product release. In particular, when a part is replaced with a service part, the serial number does not reflected the change. Therfore, be sure to copy the forth and fifth digit of the serial number on the surface of TFT holder unit base inside the camera.

Fig. 012

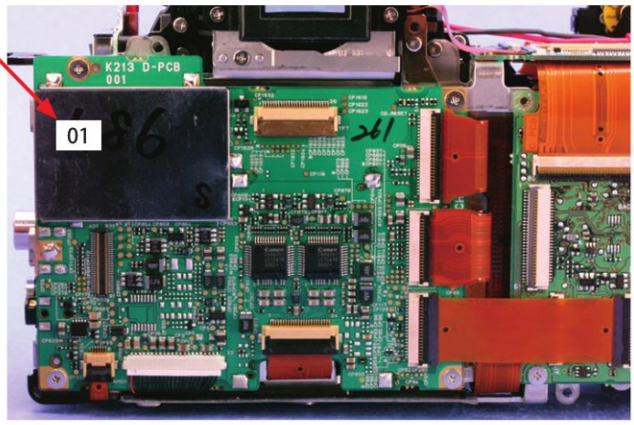


Fig. 013

1.5 Repair Tools and Materials List

The following tools and materials are required for camera reassembly and adjustment.

1) Tools List

New	Name	Part No.
	Lead-free solder	CY9-4045-000
	Wrist Strap (Earth)	CY9-6158-000
	Conductive Sheet	CY9-1061-000
	Liquid Dispenser	CY9-4017-000
	Tweezers (AA type/GG type)	CY9-4018-001/002
	Blower	CY9-4020-000
	Lens Tissue (K-1 thick/K-3 thin)	CY9-4023-001/003
	Screw Driver Handle	CY9-7014-001
	Hi-Torque Screwdriver	CY9-7015-000
	Cross-Recess Bit TB35-5 (ϕ 3mm, L=50mm)	CY9-7014-002
	Cross-Recess Bit TB35-6 (ϕ 2.5mm,L=115mm)	CY9-7014-003
	Cross-Recess Bit TB35-7 (ϕ 2.5mm, L=50mm)	CY9-7014-004
	Cross-Recess Bit TB35-8 (ϕ 2mm, L=50mm)	CY9-7014-005
	Electric Screw Driver	CY9-7061-000
	Power Supply (100, 120, 220, 240)	CY9-7062-000 (xxx)

2) Charts and Locally-Made Tools

New	Name	Part No.	Purpose/Subject
	Tool battery	Locally-made	Inhibit voltage Adjustment
	Load Resistor	Locally-made	Inhibit voltage Adjustment

＊For details, see "About Locally-Made Tools."

3) Other Products for Testing

New	Name	Part No.	Purpose/Subject
	EF 50mm f/1.8 production lens		Camera operations, adjustments, checking
	Speedlite (380EX, 550EX, Flash metering adjustment or other E-TTL model)		Flash metering check

4) Expendables List

New	Name	Part No.	Purpose/Subject
	Light-shield tape	CY9-4026-000	M2 motor
	Scotch tape (No. 315)	CY9-4031-000	—
	Double-sided tape	CY9-4034-000	Adhesive for body
	Aron Alpha 201	CY9-8007-000	Securing SPD and SI in place
	Arontite L	CY9-8008-000	Screw heads
	Three Bond 1401C	CY9-8011-000	Screw lock
	UTLM-10	CY9-8031-000	Mirror parts
	Silicon KE347B	CY9-8064-000	Water resistance
	Humi-Seal 1B-66	CY9-8069-000	Moisture-proof insulation
	Grease IF-10	CY9-8088-000	Mount Spring Friction surface
	Variator SJF-102	CY9-8100-000	Parts assembly
	Logenest Lambda A-74	CY9-8102-000	M2 gear shafts
	Cemedine Super X8008B	CY9-8118-000	Mount ring adhesion, etc.
	Nox Guard ST-420	CY9-8123-000	Parts assembly
	Logenest Lambda NFH-743C	CY9-8125-000	Front cover's friction surfaces
	Diabond 1663G	CY9-8129-000	Adhesive for parts
	Friction Inhibitor [hf1] 923	DY9-3042-000	Flex pattern

1.6 Tool Battery Fabrication

1) Required Parts

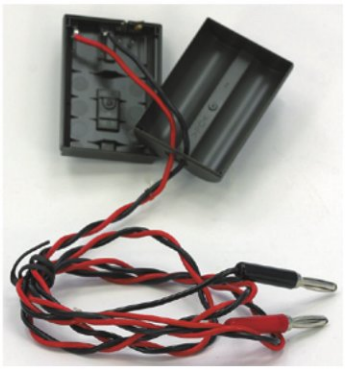
(1) CY9-1101-000 Tool Battery Probe Kit (2)
(2) DY9-1374-000 Charge Adjustment Tool (1)

2) Fabrication Procedure

(1) Prepare the aformentioned products.
(2) Remove the leads soldered to DY9-1374, and solder the CY9-1101lead wires to the battery contacts, and put the wires through the hole in the battery cover.
(3) Solder banana plugs to the end of the leads.
(4) Tape the tool battery covers together.

DY9-1374-000

After installing the leads as shown at the right, close the battery covers.



Finished Kludge

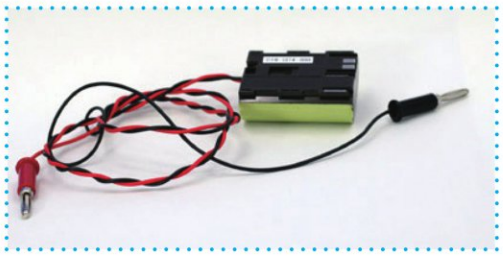


Fig. 014

1.7 Load Resistor Fabricatiion

1) Things to Prepare

(1) 35mm Film can (1 ea.) (Local Purchase)
(2) Banana Plug (1 ea.) (Local Purchase)
(3) Joint Plug (1 ea.) (Local Purchase)
(4) Two 0.5Ω 5W Ceramic(Cement) Resistors (p/o CY9-1101-000 TOOL BATTERY PROBE KIT)

2) Procedures

(1) Prepare the parts listed in 1)
(2) Make hole in the film can bottom and cap for the plugs. Install the banana plug and joint plug in the holes and fix them with their retainers.
(3) Wire the two ceramic resistors in parallel (A-A', B-B') and solder the ends to the plugs.
(4) Solder the banana plug.

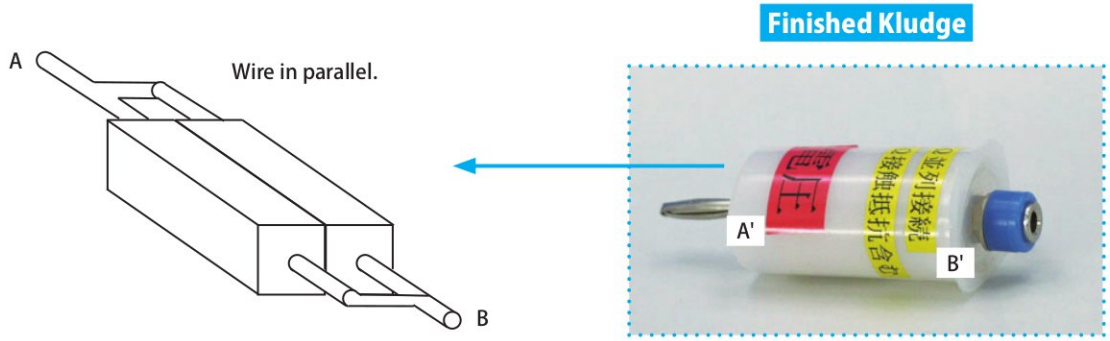


Fig. 015

2. DISASSEMBLY AND ASSEMBLY

2.1 External Covers and Battery Case Removal

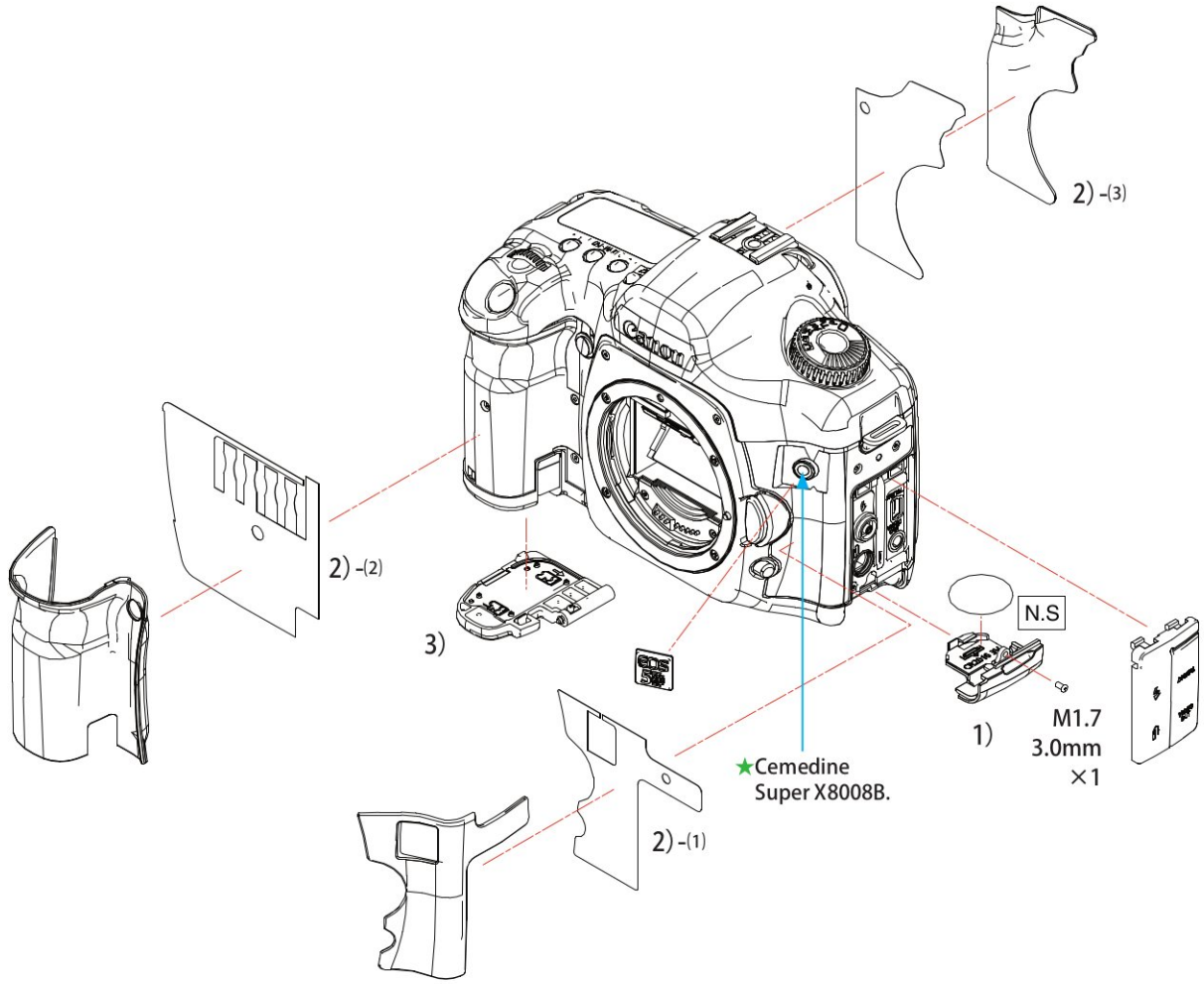


Fig. 016 External Covers and Battery Case Removal

<Disassembly Procedure>

1) Date Battery Case Removal

(1) Move the Interface cap out of the way, remove the screw, and remove the Date Battery Case.

Fig. 017 Date Battery Case Removal 1

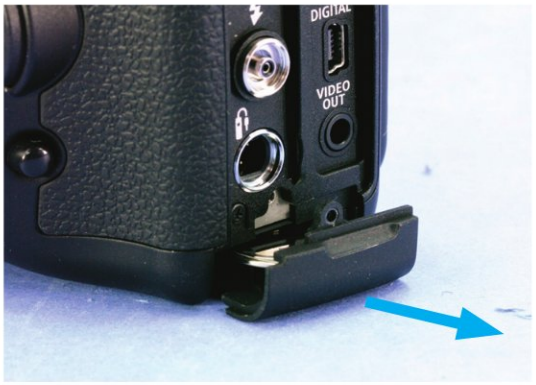


Fig. 018 Date Battery Case Removal 2

2) Rubber Covers Removal

(1) Using tweezers, lift the edge of the Front Left Cover and gently pull it off.
(2) Remove the Grip Holding Cover.
(3) Remove the rear grip Holding Cover.

Fig. 019 Rubber Covers Removal 1

Fig. 020 Rubber Covers Removal 2

3) Battery Cover Removal

(1) Slide the cover hinge pin and remove the Battery Cover Ass'y.

Fig. 021 Battery Cover Ass'y Removal

2.2 Front & Back Cover Removal

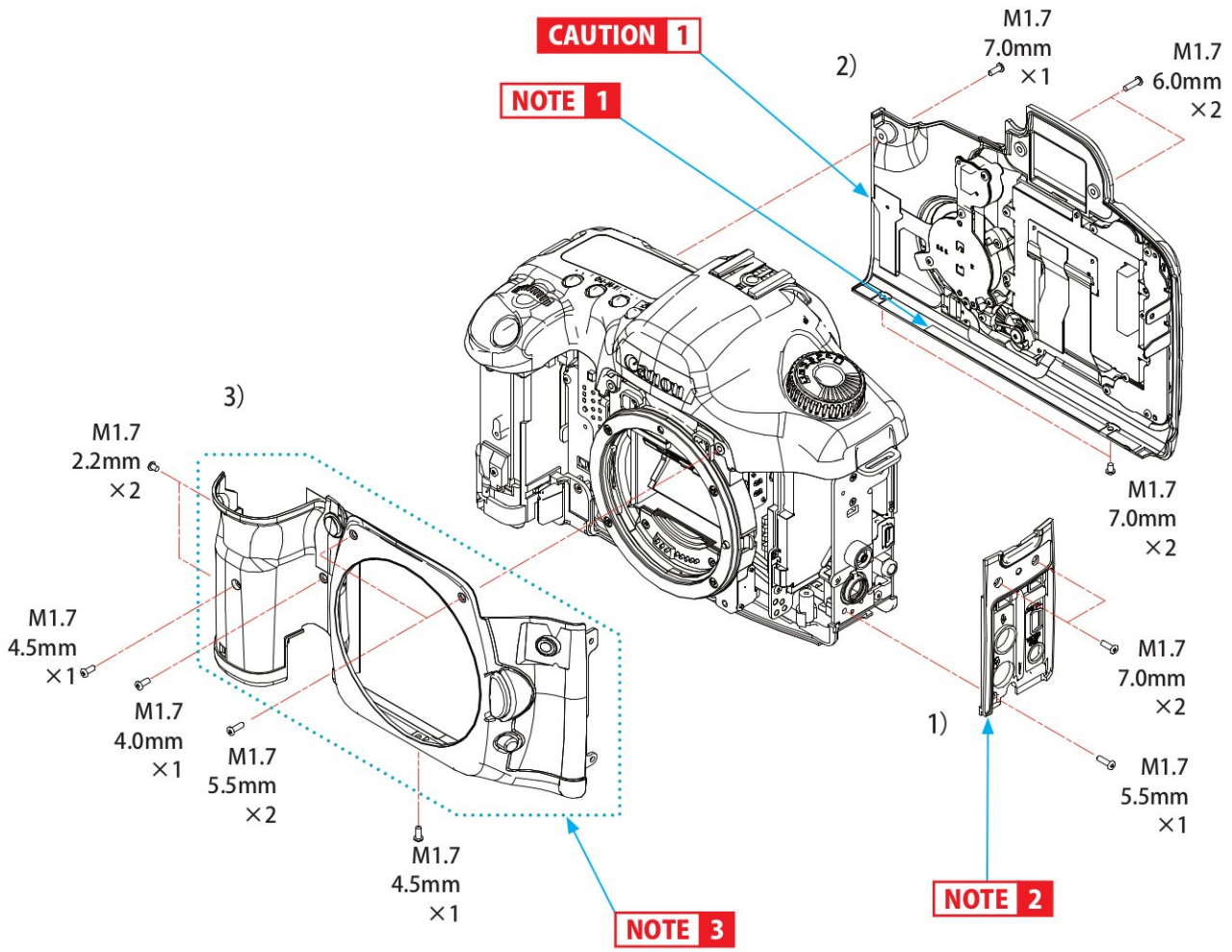


Fig. 022 Front & Back Cover Removal

<Disassembly Procedures>

1) Interface Cover Removal

(1) Remove two screws in the upper portion and one at the bottom of the Interface Cover.
(2) Remove one screw from the back cover side, lift the back cover slightly as shown and remove the Interface Cover.

Fig. 023 Interface Cover Removal 1

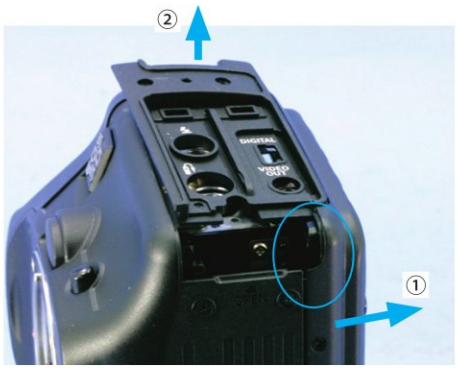


Fig. 024 Interface Cover Removal 2

2) Back Cover Removal

(1) Remove three screws from the back and one from the bottom edge.
(2) Disconnect two flexes and remove the Back Cover.

CAUTION 1
- Don't tear the flexes.
- Connectors cannot be inserted diagonally.

Fig. 025 Back Cover Removal 1

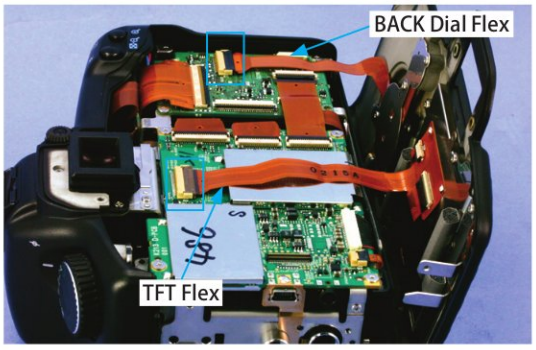


Fig. 026 Back Cover Removal 2

3) Front Cover Removal

(1) Remove seven screws (Upper front 2 screws, Below the mount 1, Grip side 1, Grip front 1, Bottom 1)

Fig. 027 Front Cover Removal

＜Reassembly Procedures＞

NOTE 1

Make sure that the insulation tape is not missing (3 places).

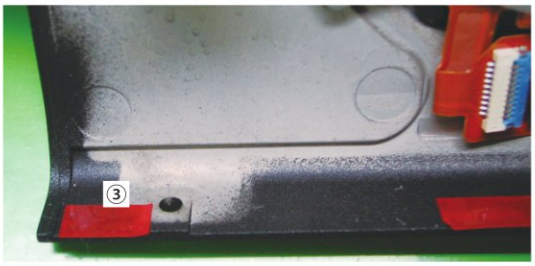


Fig. 028 Insulating Tape 1

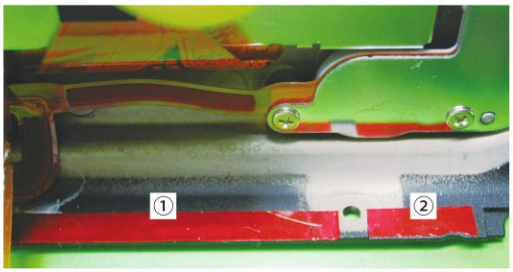


Fig. 029 Insulating Tape 2

NOTE 2

Install the Interface Cover in the arrow-marked direction.

Fig. 030 Interface Cover Installation

NOTE 3

(1) Insure the lead is dressed as shown by the arrow.
*If the lead is on top of the circuit board, it will be pinched when the front cover is installed and could cause the DC/DC Converter to blow and the camera to malfunction.

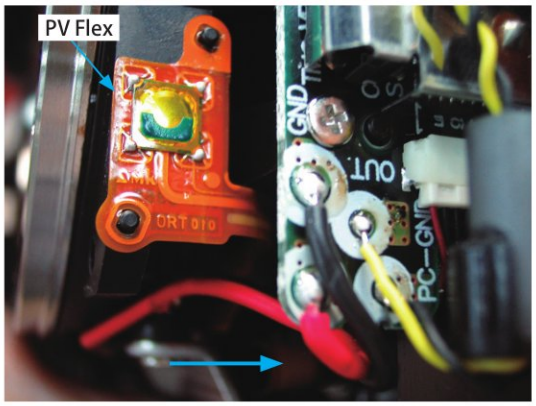


Fig. 031 Lead Dress

(2) Insure the light shield sheet does not overlap the top cover. And insure no interior parts are visible from the outside.

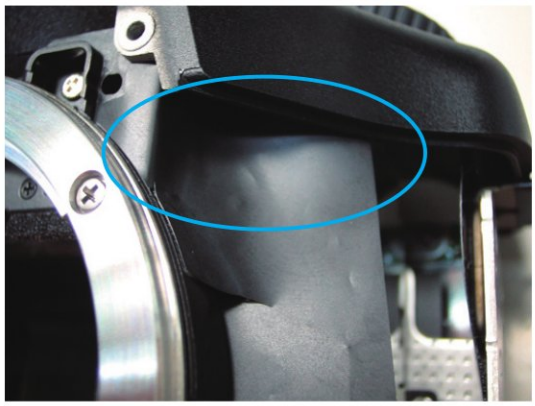


Fig. 032 Light Shield Tape 1

(3) Insure the light shield sheet overlaps the connector, and insure no interior parts are visible from the outside.

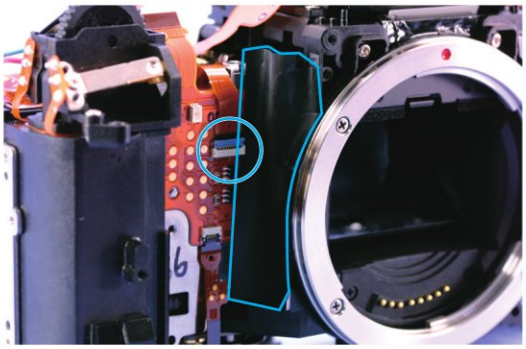


Fig. 033 Light Shield Tape 2

2.3 Top & Bottom Cover Removal

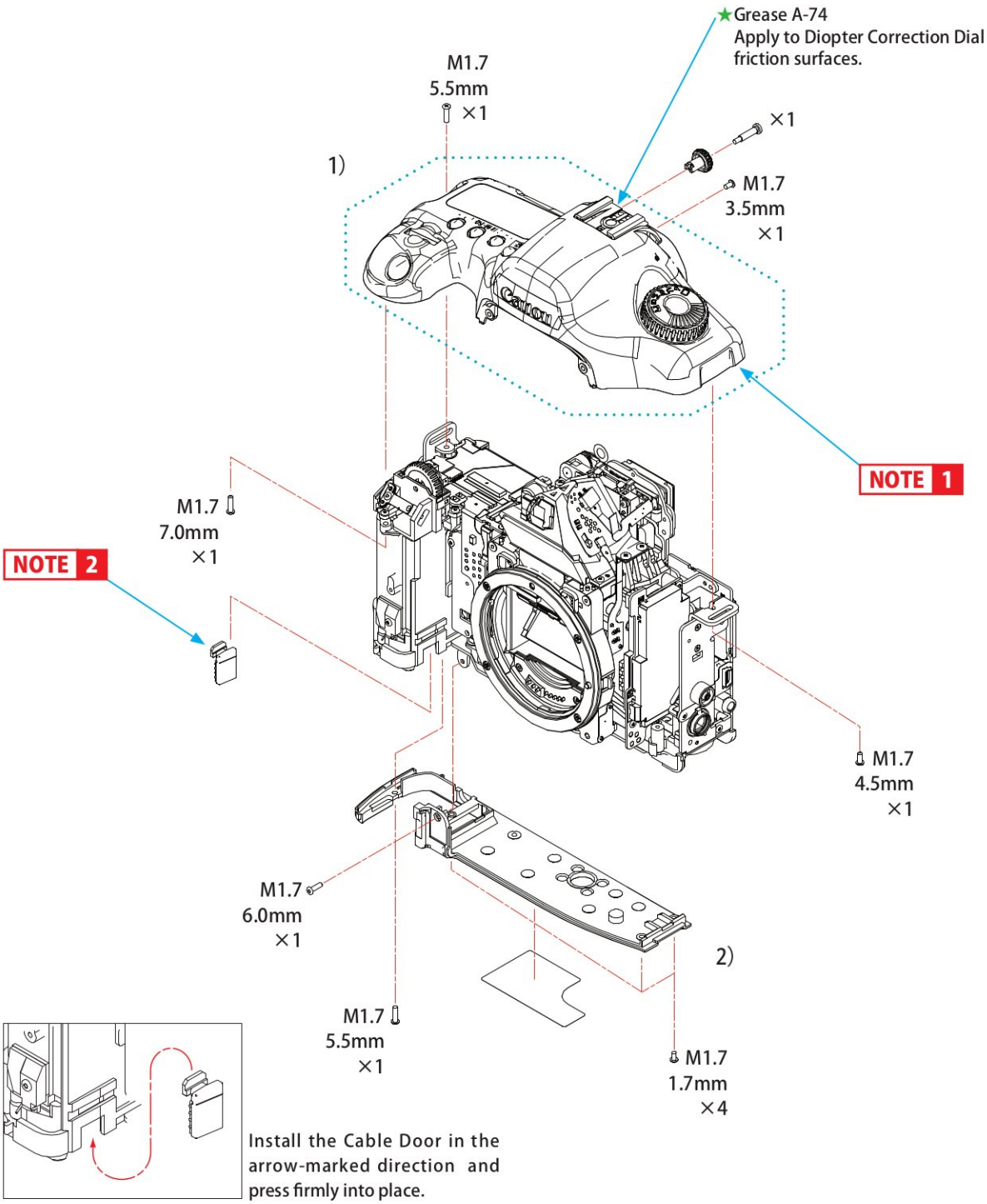


Fig. 034 Top & Bottom Cover Removal

<Disassembly Procedure>

1) Top Cover Removal

(1) Remove the axial screw and the Diopter Correction Dial.
(2) Remove four screws (one on top, two below, and one at the rear) and gently lift the top cover.
(3) Disconnect the connector and gently lift the top cover off.

Fig. 035 Top Cover Removal 1

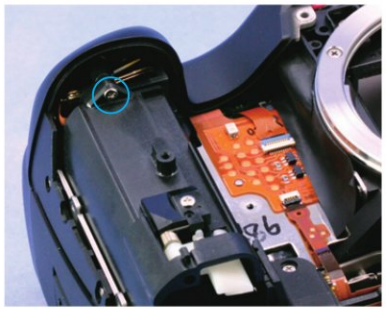


Fig. 036 Top Cover Removal 2

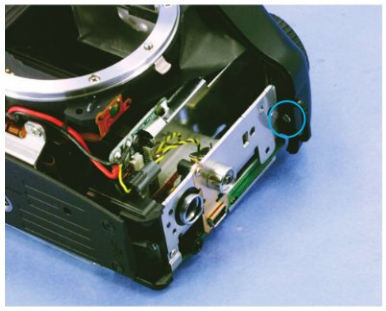


Fig. 037 Top Cover Removal 3

2) Bottom Cover Removal

(1) Remove the Cable Door.
(2) Remove five screws at the bottom and one at the top and remove the bottom cover.

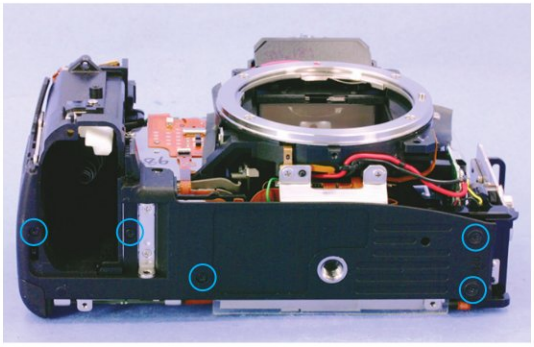


Fig. 038 Bottom Cover Removal 1

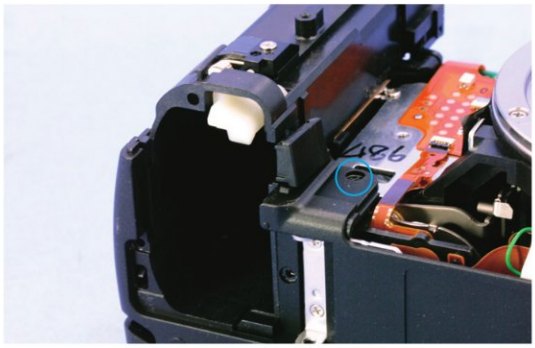


Fig. 039 Bottom Cover Removal 2

<Reassembly Notes>

NOTE 1

(1) Make sure that the lead wire runs under the nut lug.

(2) Make sure that the OLC Flex to LPU circuit board is clean and nothing is caught in it when the connection is made.

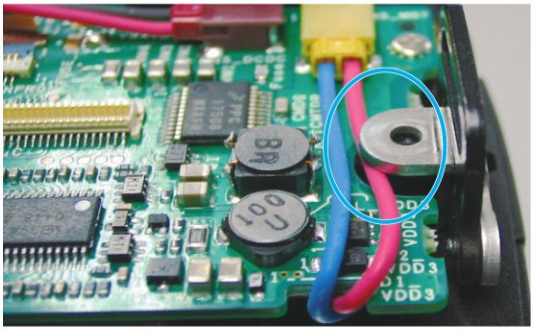


Fig. 040 Top Cover Installation Caution 1

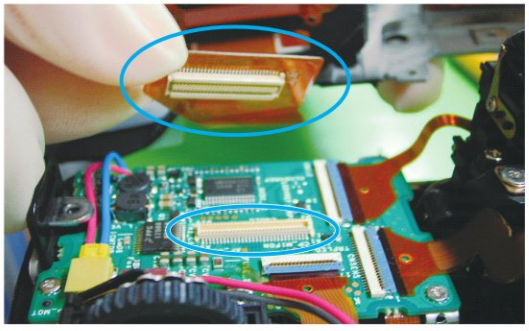


Fig. 041 Top Cover Installation Caution 2

(3) Be careful that the DC/DC-LPU Connect Cable is not pinched when installing the top cover.

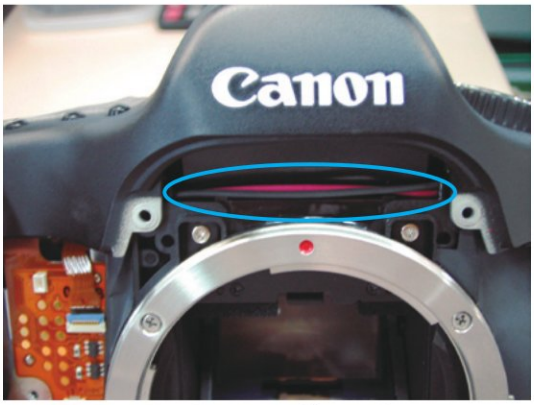


Fig. 042 Top Cover Installation Caution 3

NOTE 2

(4) Be sure to properly align with the bottom cover groove. If not aligned properly, the Front Cover cannot be installed.

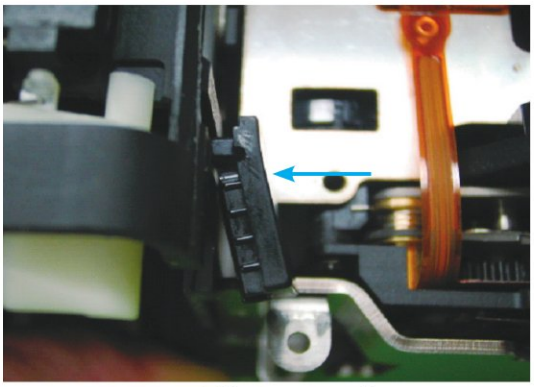


Fig. 043 Cable Door Installation

2.4 Digital PCB / Camera PCB / Imaging Unit Removal

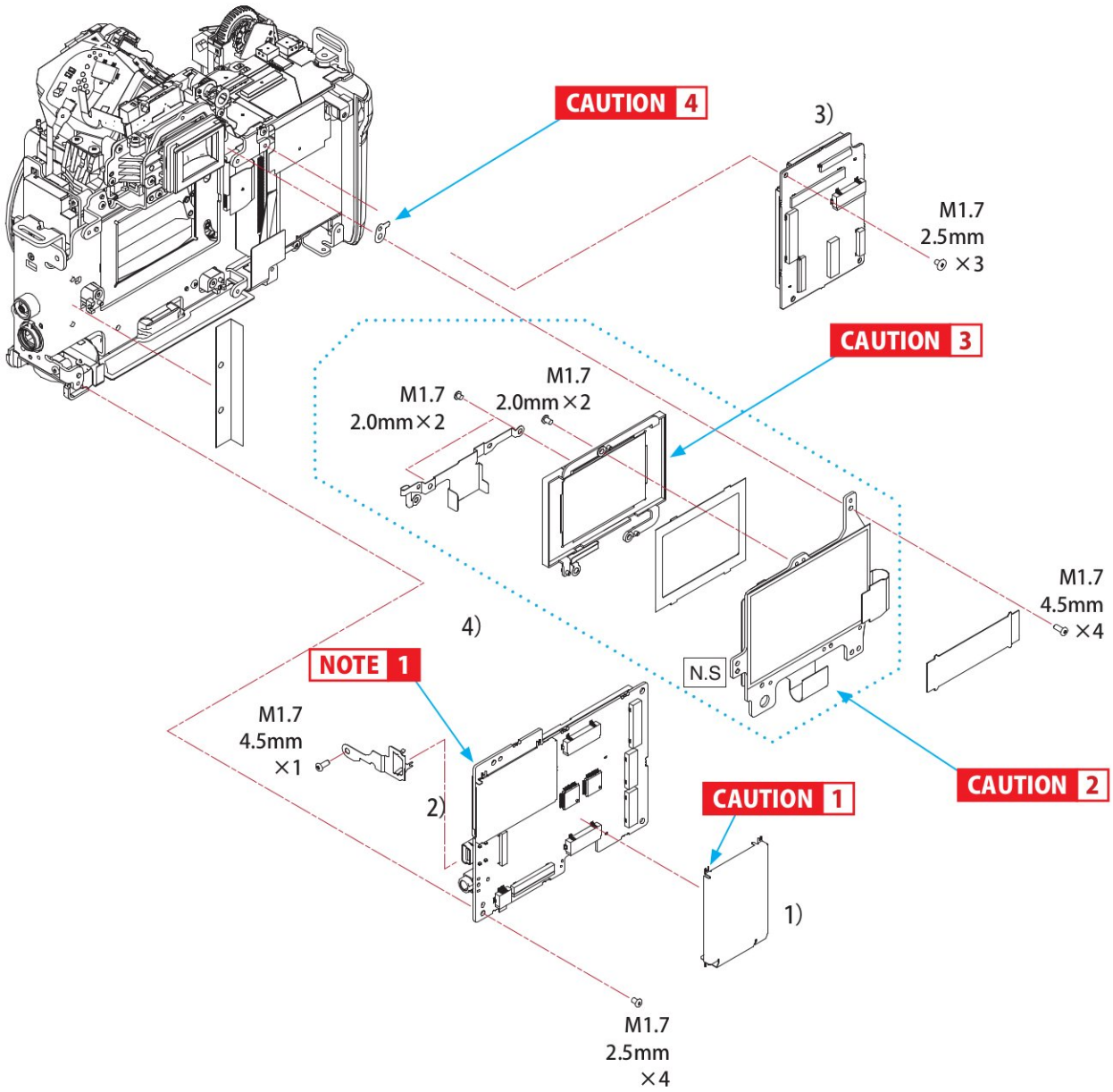


Fig. 044 Digital PCB / Camera PCB / Imaging Unit Removal

<Disassembly Procedure>

1) Digital PCB Shield Cover Removal

(1) Unsolder at four points and remove the shield cover.

> **CAUTION 1** When soldering, be careful not the short the PCB (D) shield to the other shield.

Fig. 045 Digital PCB Shield Cover Removal

2) Digital PCB Ass'y Removal

(1) Disconnect five flexes and one cable connections.
(2) Remove four screws from the top of the PCB and one from the side. Remove the D PCB.
(3) Unsolder one connection and remove the USB Lag Plate from the Digital PCB Ass'y.

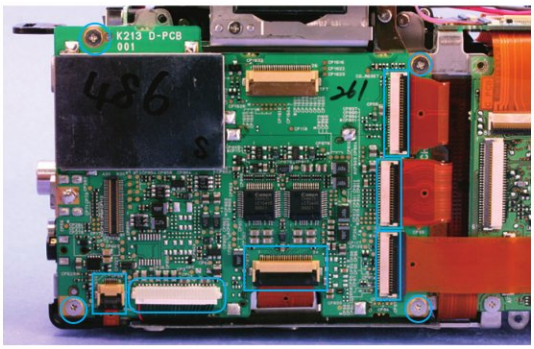


Fig. 046 Digital PCB Ass'y Removal 1

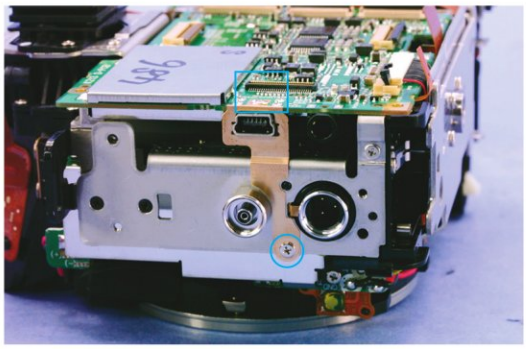


Fig. 047 Digital PCB Ass'y Removal 2

3) Camera PCB Ass'y Removal

(1) Disconnect four flex connections.
(2) Remove three screws and remove the Camera PCB.

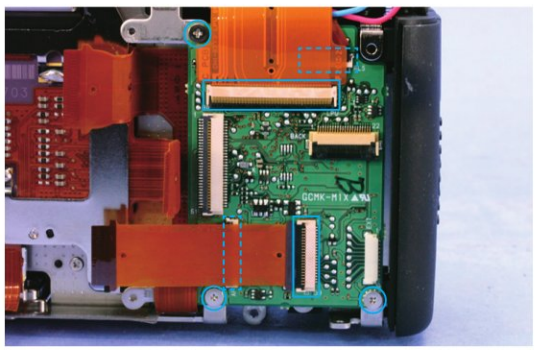


Fig. 048 Camera PCB Ass'y Removal

4) Imaging Unit Removal

(1) Remove four screws and remove the Imaging Unit.
Washers may fall off at this point. Be careful not to loose them.
(2) With the washers in place, temporarily fix the unit with three screws.

CAUTION 2
- When working on the Imaging Unit, always wear a grounded wrist strap.
- Be very careful not to scratch or soil the Imaging unit.

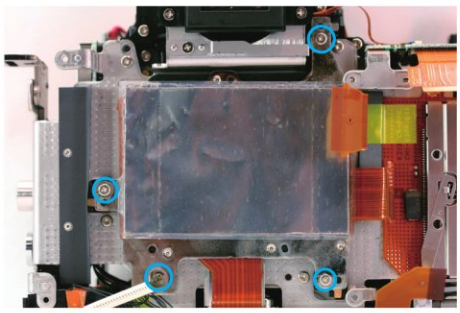


Fig. 049 Imaging Unit Removal 1

(3) Remove two screws from the Imaging Unit and remove the Image Sensor Shield Holder.
(4) Remove two screws and slowly remove the Low Pass Filter Ass'y. It is fixed with double-sided tape.

CAUTION 3 The filter is fixed with double-sided tape. Take great care not to damage it when it is removed.

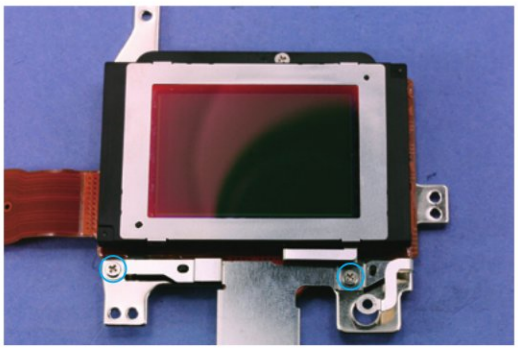


Fig. 050 Imaging Unit Removal 2

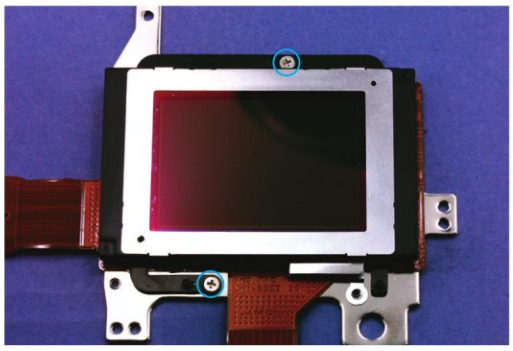


Fig. 051 Imaging Unit Removal 3

<Reassembly Notes>

1) Imaging Unit Reassembly

CAUTION 4 When reinstalling the Imaging Unit, the Flange to Focal Distance (FFD) adjustment is mandatory.

2) Digital PCB Ass'y Reassembly

NOTE 1

(1) Before installing the Digital PCB Ass'y, insure that the two plates do not touch at the blue line in the drawing.

(2) Dress the Digital PCB leads so they fit in the recess as shown.

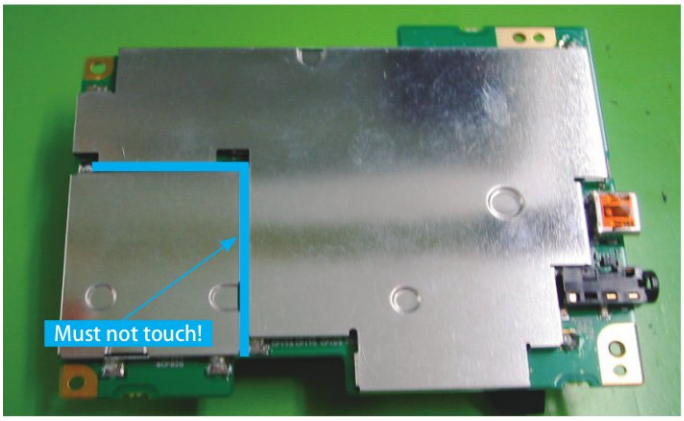


Fig. 052 Imaging Unit Reassembly 1

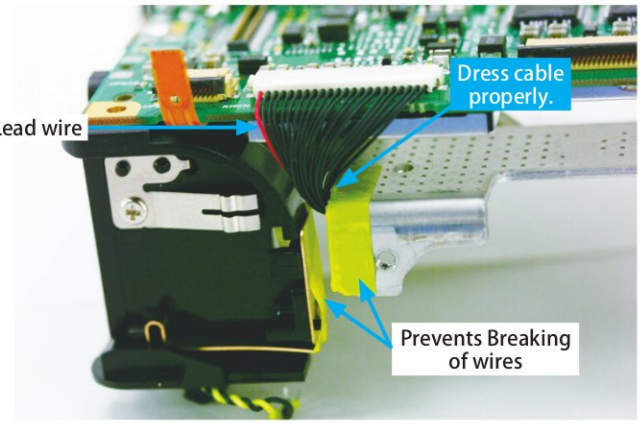


Fig. 053 Imaging Unit Reassembly 2

2.5 Baseplate / AF Sensor Unit / Eyepiece Cover Removal

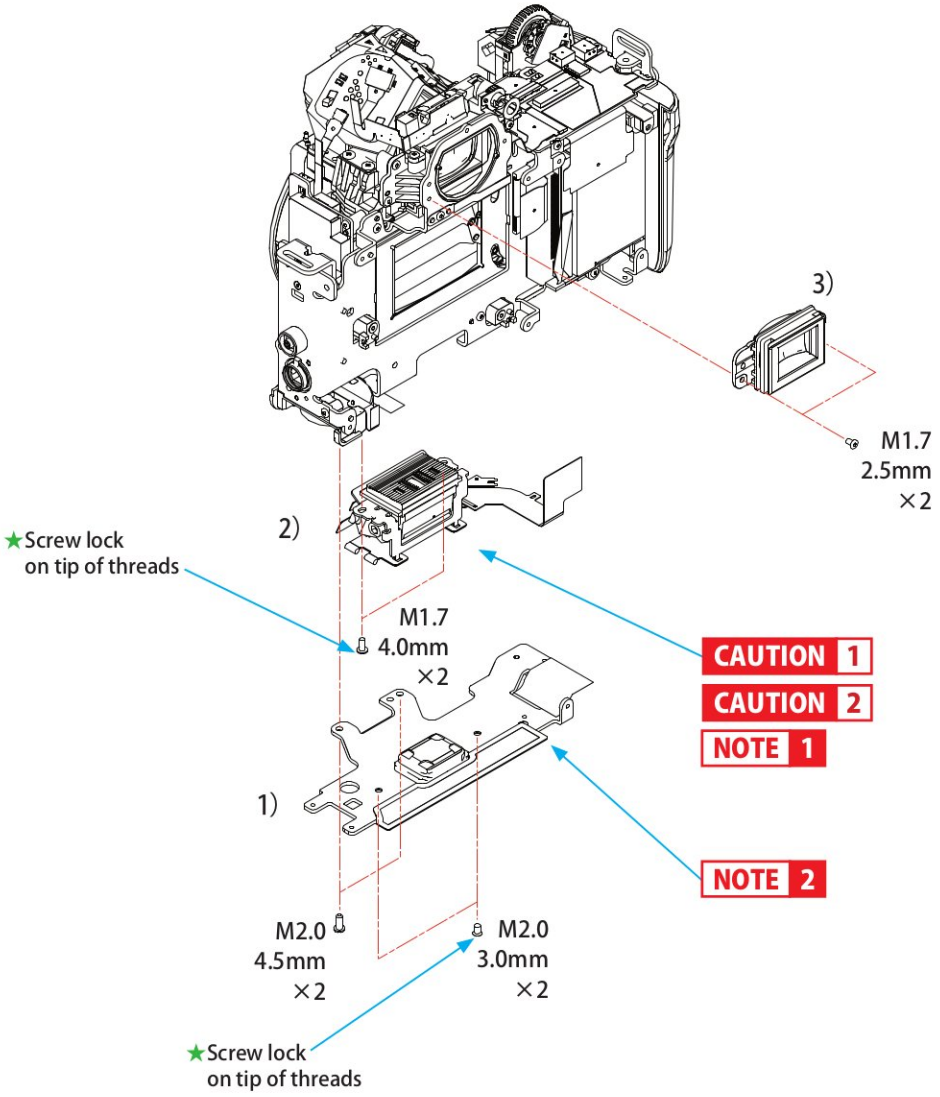


Fig. 054 Baseplate / AF Sensor Unit / Eyepiece Cover Removal

<Disassembly Procedures>

1) Baseplate Removal

(1) Remove four screws and remove the Baseplate.

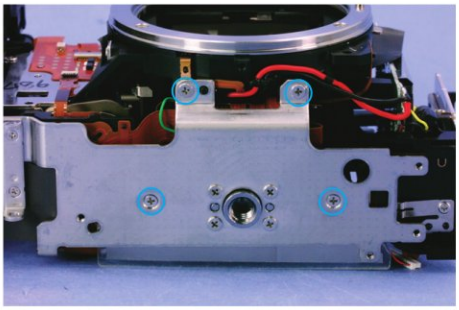


Fig. 055 Baseplate Removal

2) Auto Focus FPC Ass'y Removal

(1) Remove flex at one point.
(2) Unsolder the green lead. Lift the flex out of the way and unsolder the beeper at two points.
(3) Remove two screws, and remove the Auto Focus FPC Ass'y.

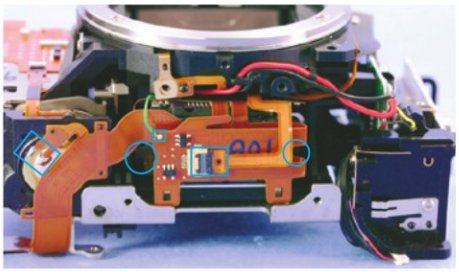
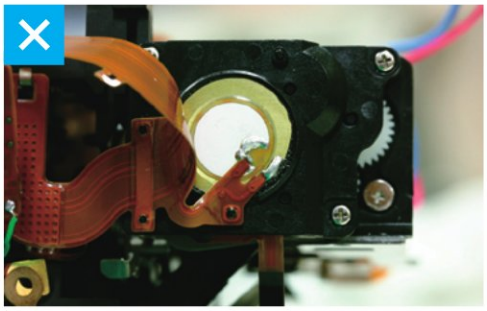
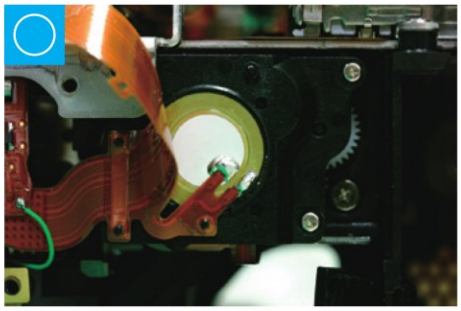


Fig. 056 Auto Focus FPC Ass'y Removal 1

CAUTION 1 When unsoldering the beeper, be careful to not melt it.



NG



OK

3) Eyepiece Cover Removal

(1) Remove two screws, and remove the Eyepiece Unit.

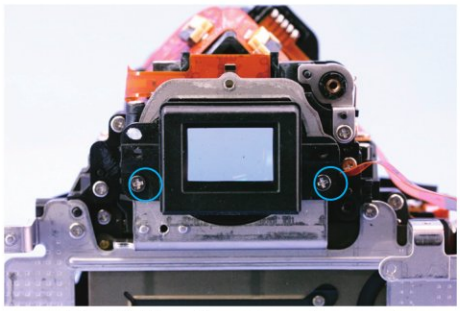


Fig. 057 Eyepiece Cover Removal

<Reassembly Notes>

1) Auto Focus FPC Ass'y Installation

CAUTION 2 After completing the reassembly, except for external covers, perform the AF sensor Positioning Adjustment using the Electrical Adjustments software. (Refer the Help of the Electrical Adjustment Software for details.)

NOTE 1

(1) Clean the main and sub mirror with compressed air to insure they are clean and lint and dust free.

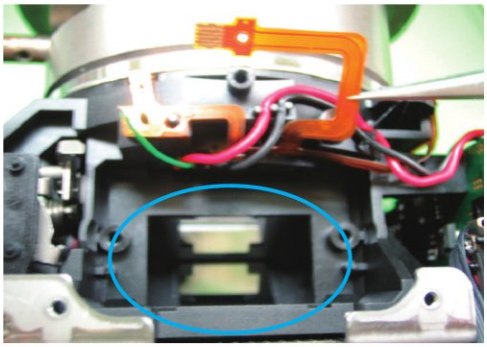


Fig. 058 Auto Focus FPC Ass'y Assembly 1

(2) Ensure the area marked in the picture is clean with compressed air.

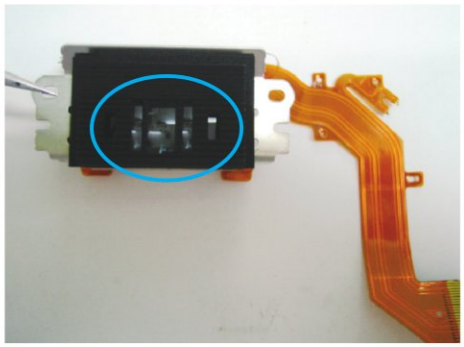


Fig. 059 Auto Focus FPC Ass'y Assembly 2

(3) Attach the AF Flex to three clips.

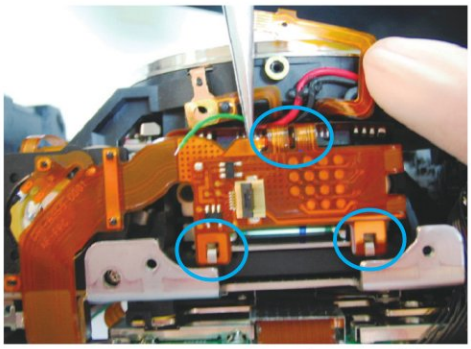


Fig. 060 Auto Focus FPC Ass'y Assembly 3

(4) Attach the AF Flex to the four pins.

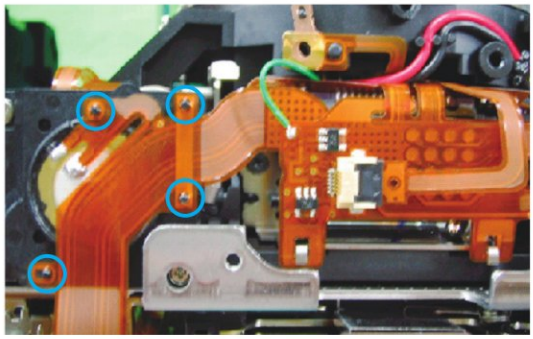


Fig. 061 Auto Focus FPC Ass'y Assembly 4

NOTE 2

(1) If the cable is pinched, it will lead to broken leads or stress causing poor contact. Also, be sure to check that the anti-magnetic sheet is correctly installed.

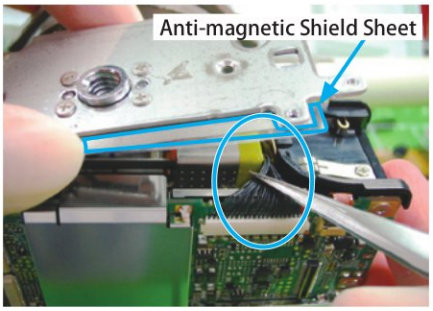


Fig. 062 Auto Focus FPC Ass'y Assembly 5

(3) Do not reuse the two screws. Use new screws when reassembling, and tighten firmly to prevent loosening during use.

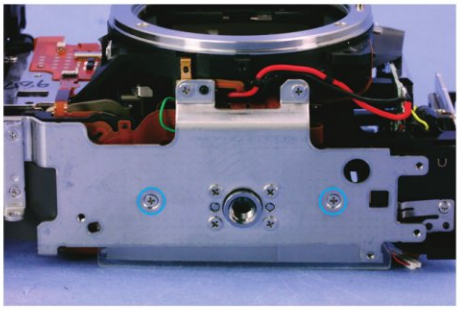


Fig. 064 Auto Focus FPC Ass'y Assembly 7

(2) It is easy to leave screws floating (insufficiently tightened). Be sure the screws are properly tightened.

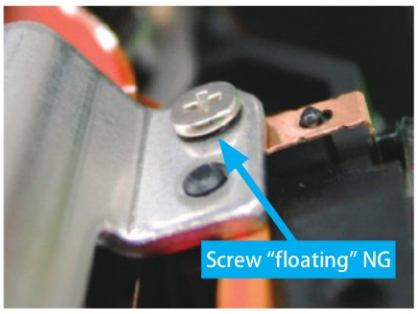


Fig. 063 Auto Focus FPC Ass'y Assembly 6

2.6 LPU PCB / DC/DC PCB / CF Slot Cover / CF Slot Cover Ass'y Removal

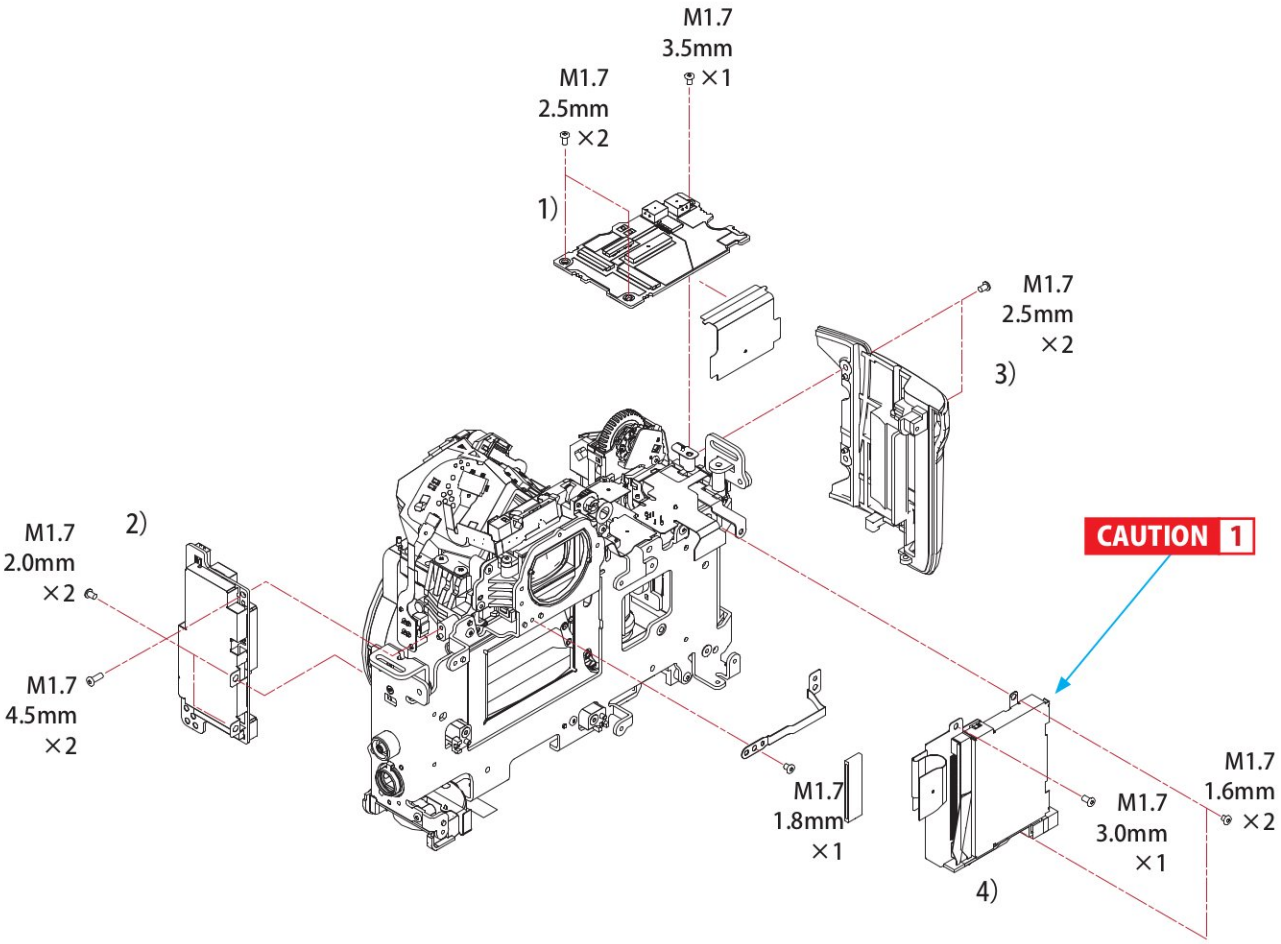


Fig. 065 LPU PCB / DC/DC PCB / CF Slot Cover / CF Slot Ass'y Removal

<Disassembly Procedure>

1) LPU PCB Removal

(1) Disconnect three flex connections, two cable connections and remove three screws.
(2) Unsolder two connections and remove the LPU PCB.

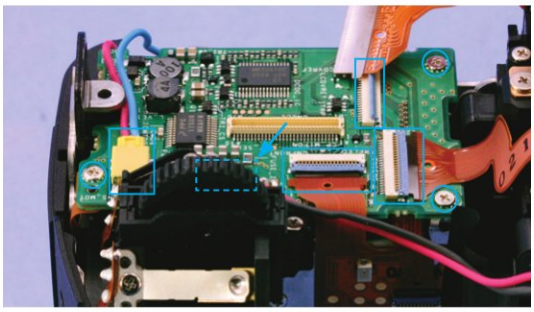


Fig. 066 LPU PCB Removal 1

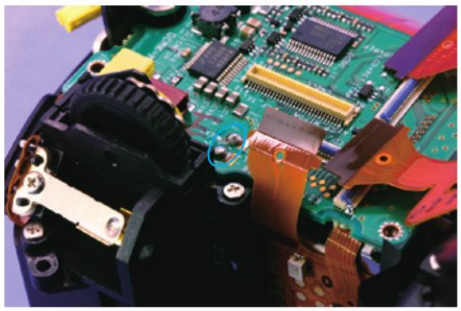


Fig. 067 LPU PCB Removal 2

2) DC/DC PCB Removal

(1) Unsolder four leads.
(2) Remove two screws at the front and two at the back.
(3) Remove two cables, one from the LPU PCB and the other from the Digital PCB and remove the DC/DC PCB.

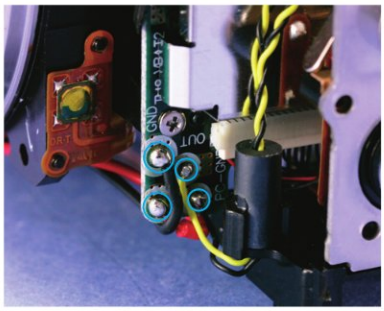


Fig. 068 DC/DC PCB Removal 1

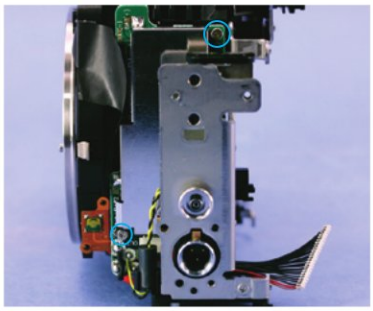


Fig. 069 DC/DC PCB Removal 2

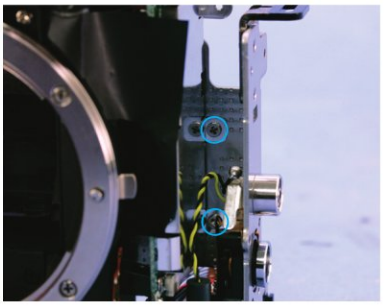


Fig. 070 DC/DC PCB Removal 3

3) CF Slot Cover Removal

(1) Remove two screws and remove the CF Slot Cover.

Fig. 071 CF Slot Cover Removal

4) CF Slot Pin Ass'y Removal

(1) Remove three screws and remove the CF Slot Cover Ass'y.

> **CAUTION 1** When removing the upper screw it is impossible to place the screwdriver straight, so be careful not to strip the screw head.

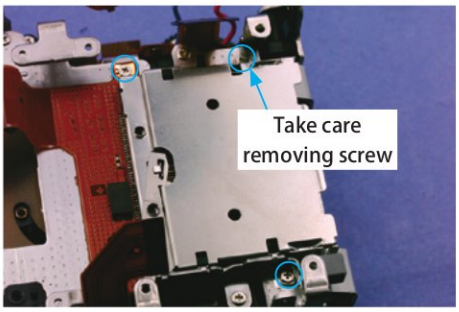


Fig. 072 CF Slot Ass'y Installation

5) Second Ground Plate Removal

(1) Remove the single screw and remove the Second Ground Plate.

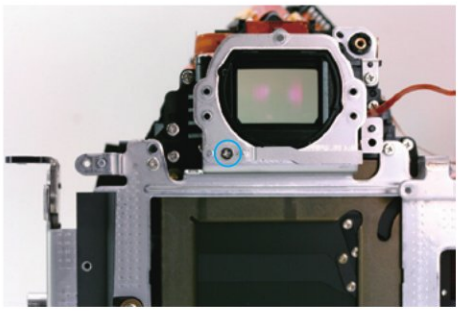


Fig. 073 Second Ground Plate Removal

<Reassembly Notes>

1) LPU PCB Installation

Dress the DC/DC-LPU connect cable as shown and bond in place.

Run the Blue/Red cable under the LPU PCB.

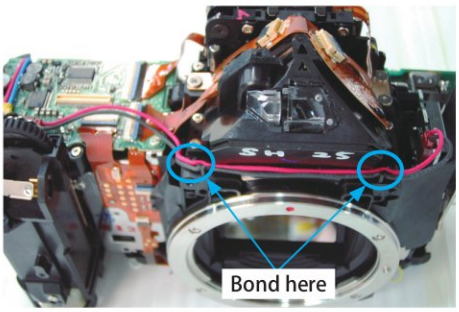


Fig. 074 LPU PCB Installation

2) DC/DC PCB Installation

(1) When installing the DC/DC PCB, be sure to connect the two cables between the LPU PCB and the Digital PCB.

(2) Dress and bond the lead wires as shown in the photo.

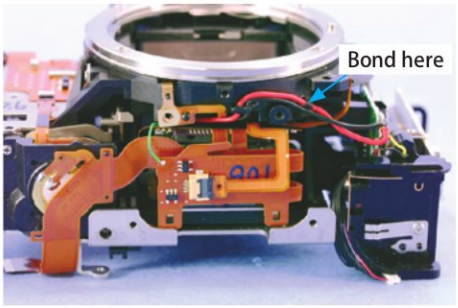


Fig. 075 DC/DC PCB Installation

3) CF Slot Pin Ass'y Installation

Fix the ferrite core to the CF flex as shown in the photo.

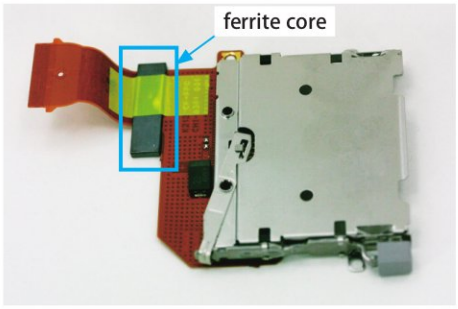


Fig. 076 CF Slot Pin Ass'y Installation

2.7 Mirror Box Ass'y, Battery Box Ass'y, Interface FPC Ass'y Removal

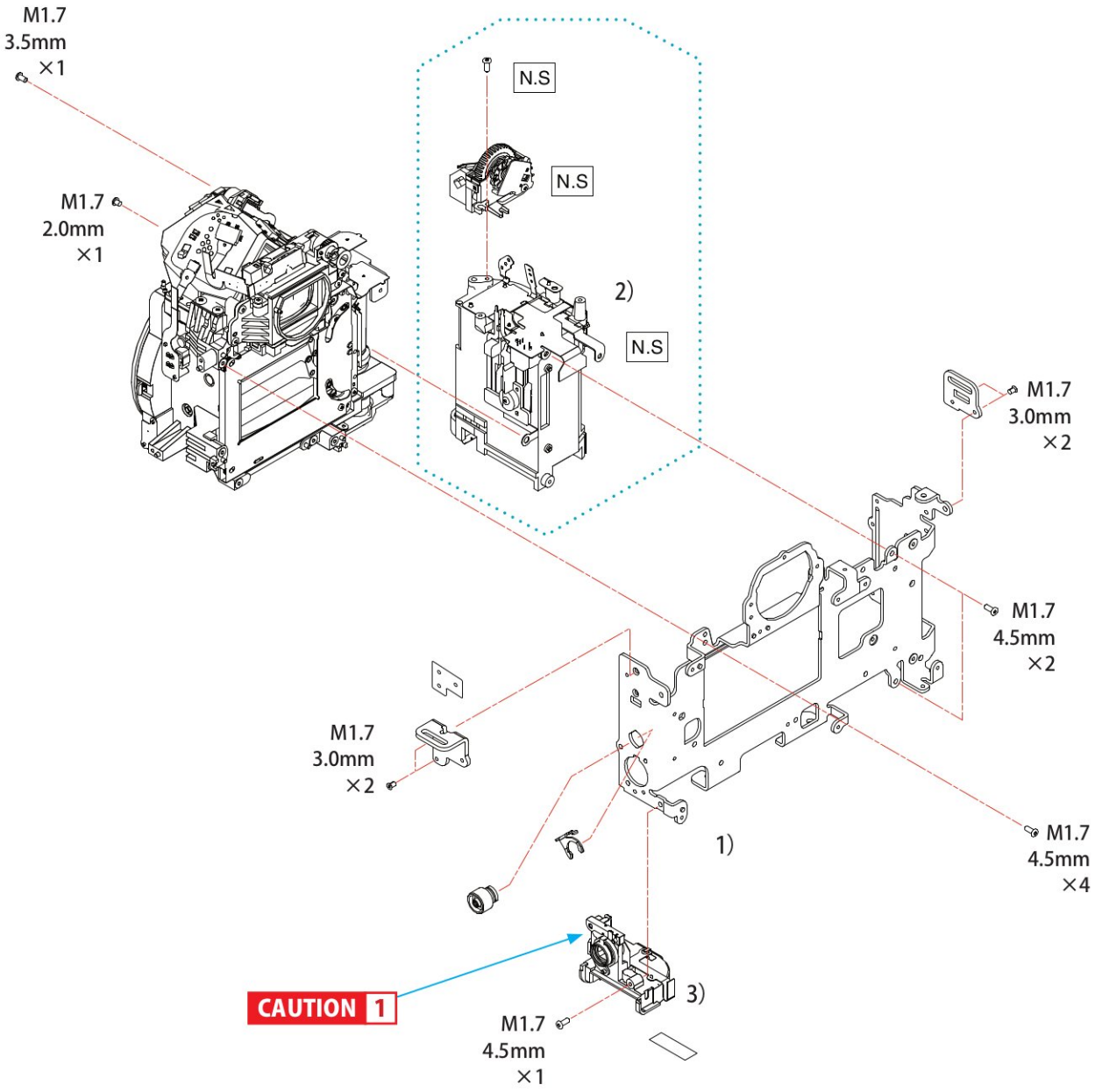


Fig. 077 Mirror Box Ass'y, Battery Box Ass'y, Interface FPC Ass'y Removal

<Disassembly Procedure>

1) Mirror Box Ass'y Removal

(1) Remove four screws from the rear.
(2) Remove one screw from the front and remove the Mirror Box Ass'y from the baseplate.

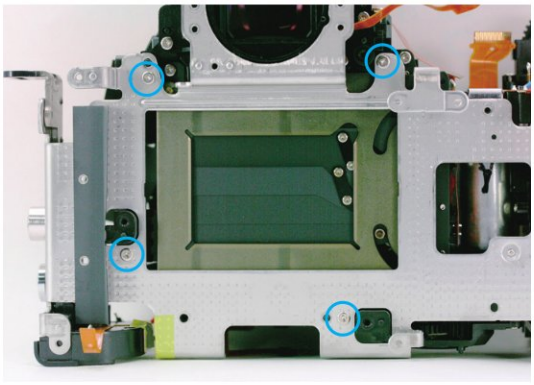


Fig. 078 Mirror Box Ass'y Removal 1

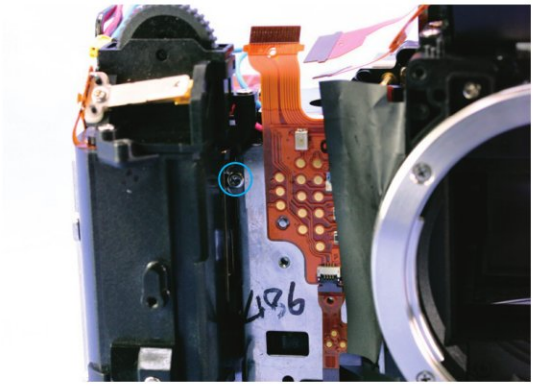


Fig. 079 Mirror Box Ass'y Removal 2

2) Battery Box Ass'y Removal

(1) Remove two screws from the rear and one from the front. Remove the Battery Box Ass'y.

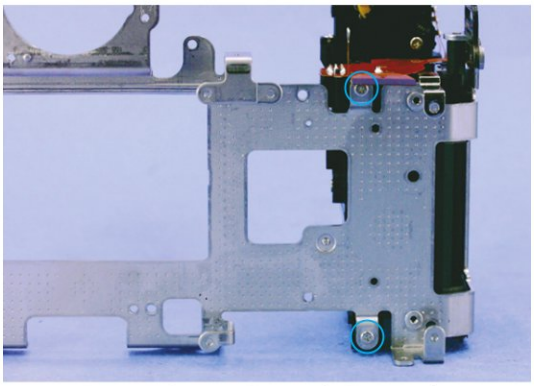


Fig. 080 Battery Box Ass'y Removal 1

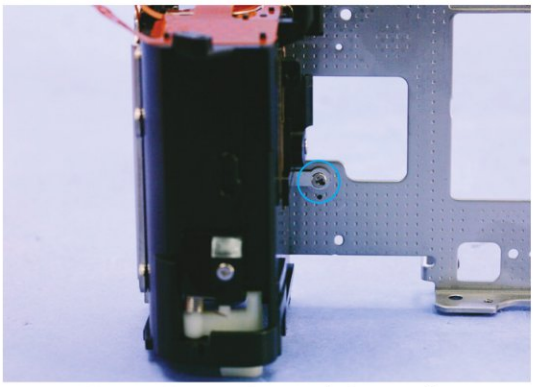


Fig. 081 Battery Box Ass'y Removal 2

3) Interface FPC Ass'y Removal

(1) Remove one screw and remove the Interface FPC Ass'y.

CAUTION 1 When installing the Interface FPC Ass'y, run the lead wires through the ferrite core as shown.

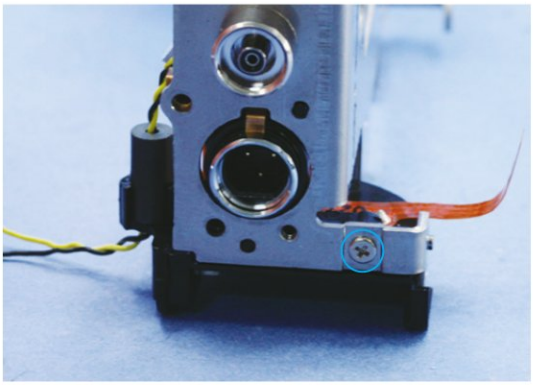


Fig. 082 Interface FPC Ass'y Removal

2.8 Shutter Ass'y / Auto Exposure FPC Ass'y / Eyepiece Ass'y Removal

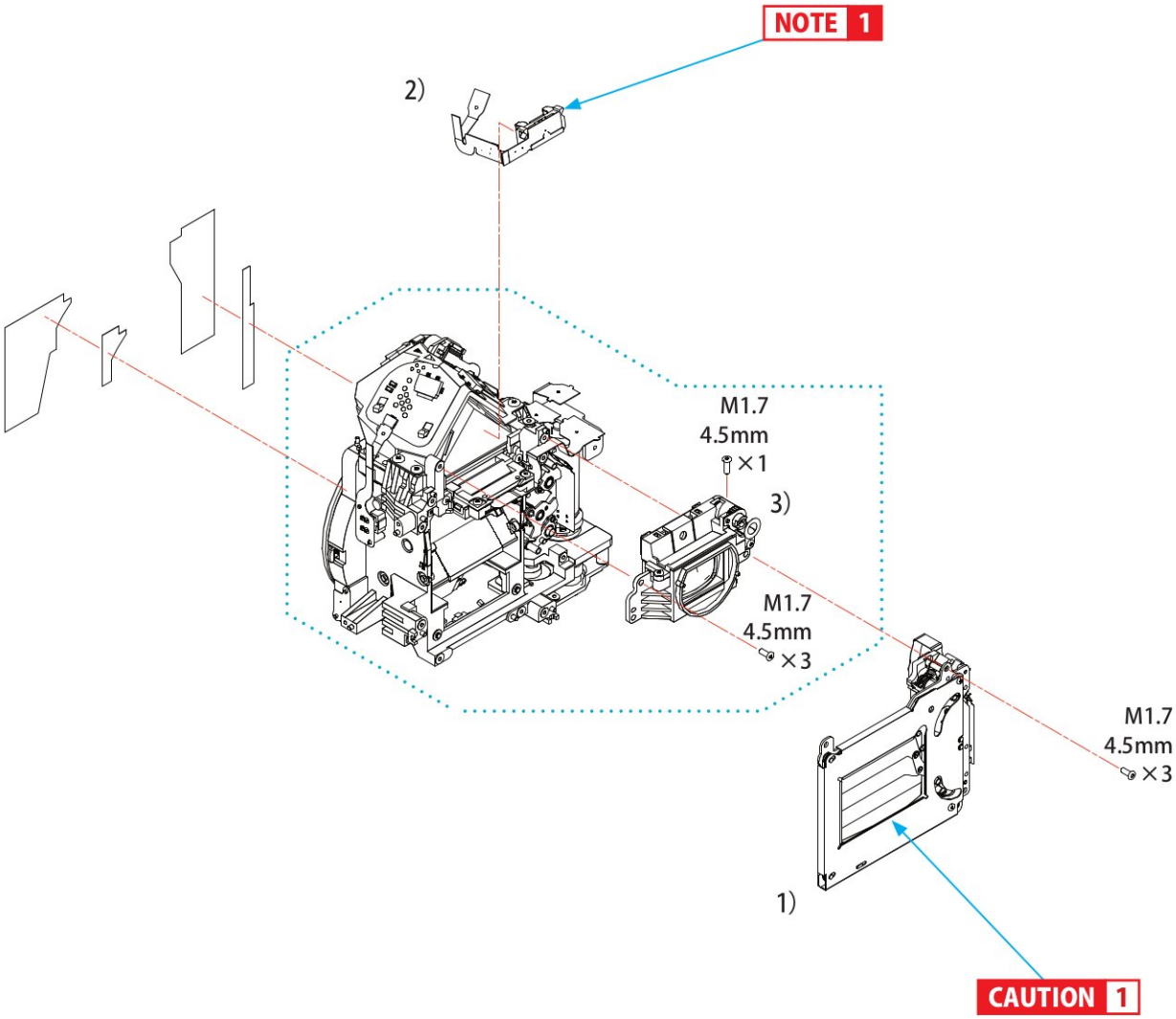


Fig. 083 Shutter Ass'y / Auto Exposure FPC Ass'y / Eyepiece Ass'y Removal

<Disassembly Procedure>

1) Shutter Ass'y Removal

(1) Remove three screws at the back and disconnect one flex at the front. Remove the Shutter Ass'y.

> **CAUTION 1** Do not operate the shutter manually. There is a possibility of damaging it.

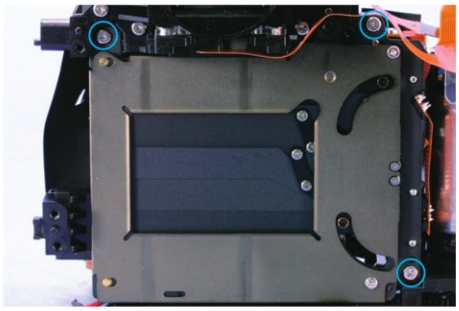


Fig. 084 Shutter Ass'y Removal

2) Auto Exposure FPC Ass'y Removal

(1) Remove one flex connection on the top, and remove the Auto Exposure FPC Ass'y.

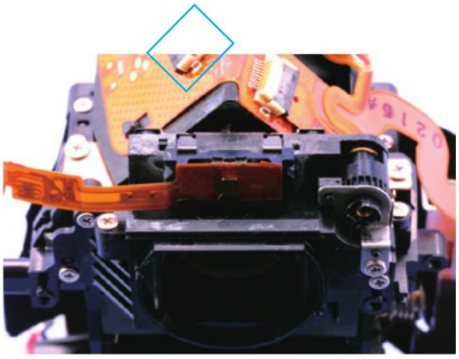


Fig. 085 Auto Exposure FPC Ass'y Removal

3) Eyepiece Ass'y Removal

(1) Remove three screws at the back and one at the top. Remove the Eyepiece Ass'y.

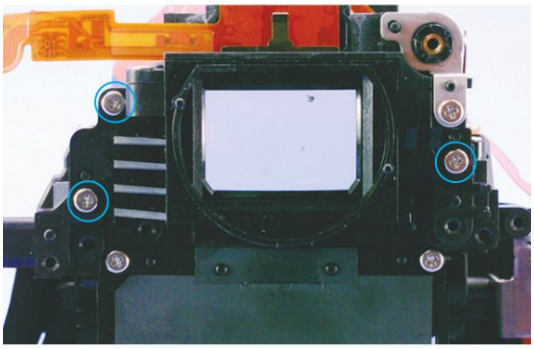


Fig. 086 Eyepiece Ass'y Removal 1

Fig. 087 Eyepiece Ass'y Removal 2

<Reassembly Notes>

1) Shutter Ass'y Installation

When installing the shutter ass'y, insure that the clips engage the mirror box as shown.

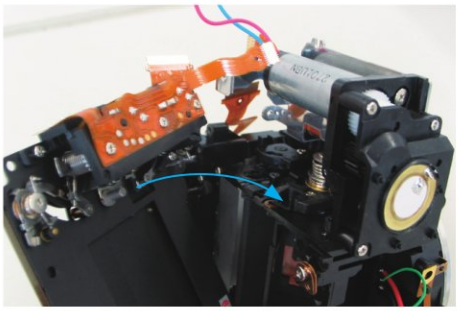


Fig. 088 Shutter Ass'y Installation

2) Auto Exposure FPC Ass'y Installation

After installing and setting the position, bond the Auto Exposure FPC Ass'y in place.

NOTE 1

SPC Adjustment is an electrical adjustment. Refer to the Electrical Adjustment Software's HELP section if necessary.

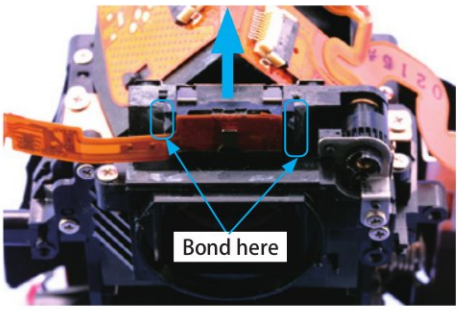


Fig. 089 Auto Exposure FPC Ass'y Installation

3) Eyepiece Ass'y Installation

When installing, dress the flex as shown and fix it in place.

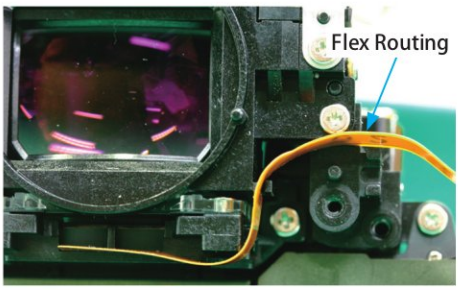


Fig. 090 Eyepiece Ass'y Installation

4) Light Shield Plate Installation

Install the Light Shield Plates as shown.

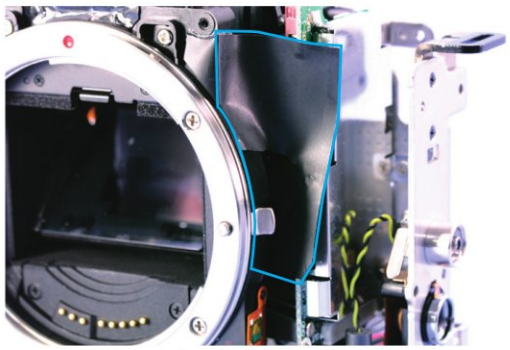


Fig. 091 Light Shield Plate Installation 1

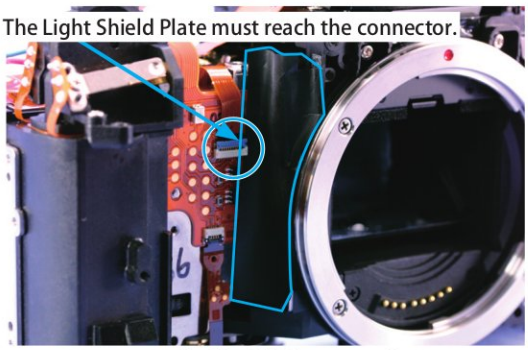


Fig. 092 Light Shield Plate Installation 2

2.9 TFT LCD Ass'y Removal

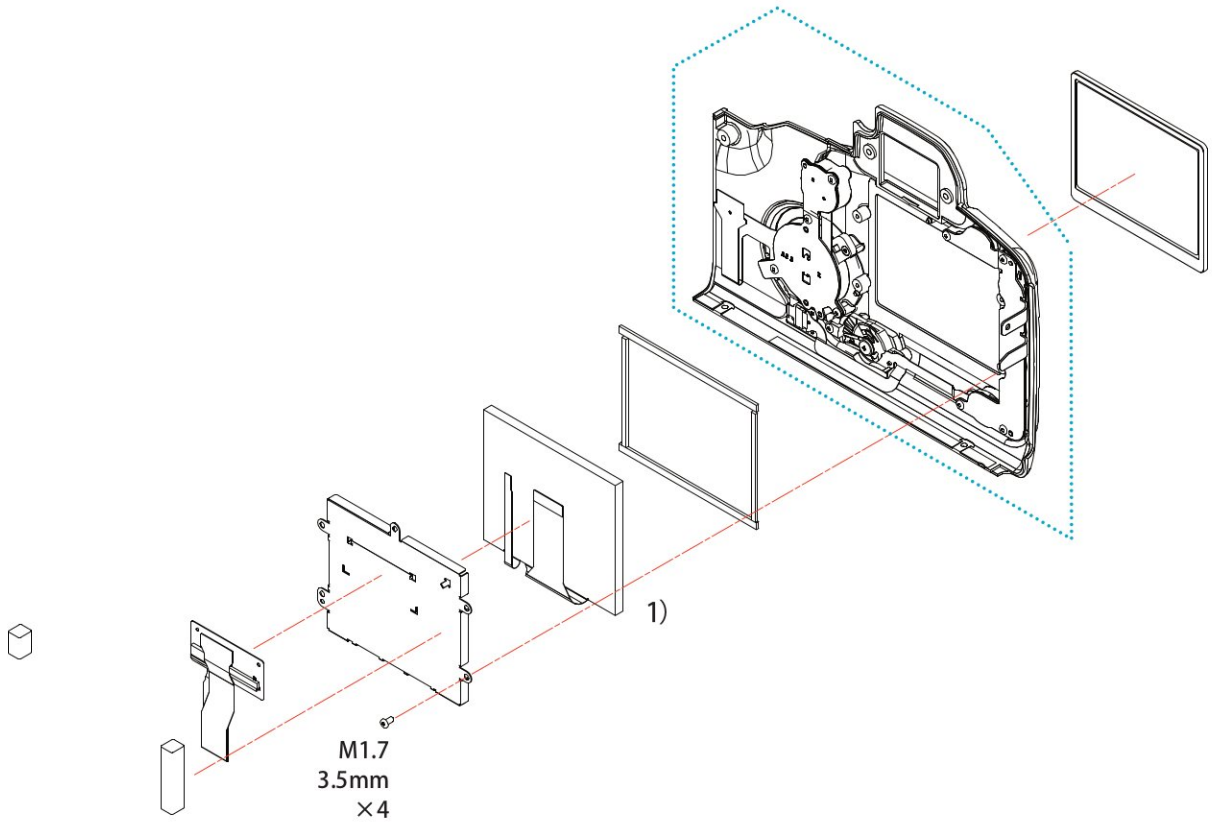


Fig. 093 TFT LCD Ass'y Removal

<Disassembly Procedure>

1) TFT LCD Ass'y Removal

(1) Remove four screws and remove the TFT.

(2) Disconnect two flex connections, and remove the TFT LCD Ass'y from the TFT Holder.

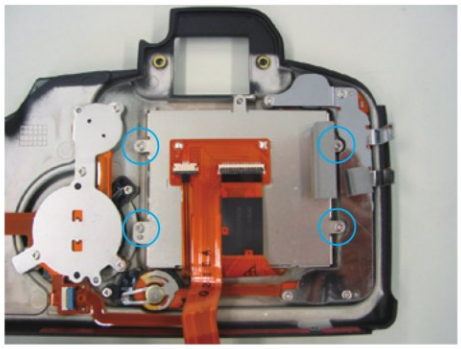


Fig. 094 TFT LCD Ass'y Removal 1

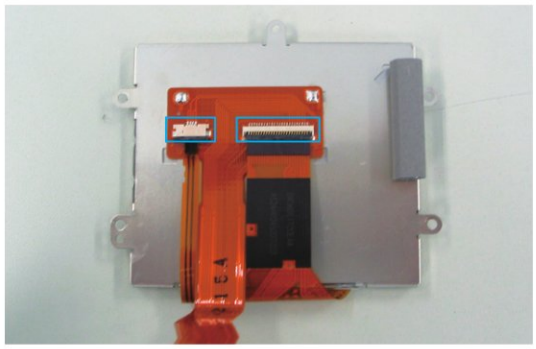


Fig. 095 TFT LCD Ass'y Removal 2

<Reassembly Notes>

1) TFT LCD Ass'y Installation

When installing the TFT LCD Ass'y in the TFT Holder remove any slack by pushing the unit in the arrow-marked direction.

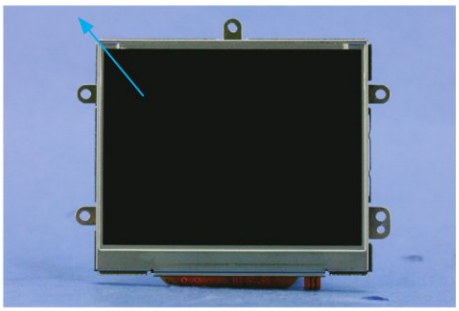


Fig. 096 TFT LCD Ass'y Installation

2.10 Outer LCD Ass'y Removal

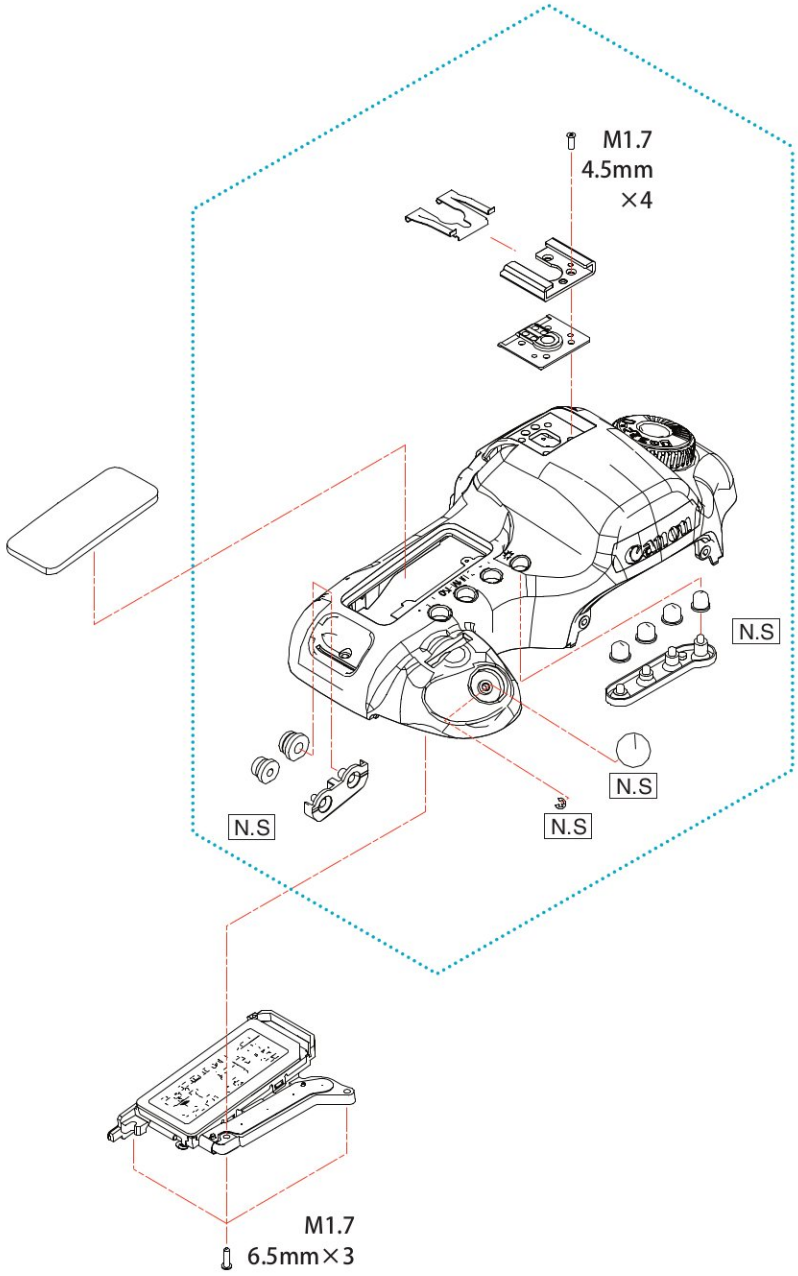


Fig. 097 Outer LCD Ass'y Removal

<Disassembly Procedure>

1) Outer LCD Ass'y Removal

(1) Remove three screws and one flex connection and remove the Outer LCD Ass'y.

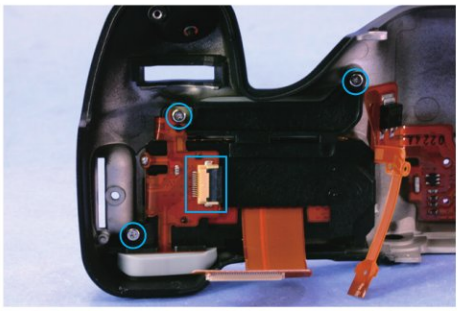


Fig. 098 Outer LCD Ass'y Removal

Adjustments

CONTENTS

1. REPAIR PREPARATIONS

1.1 Pre-Adjustment Cautions

1) Firmware Upgrade

When the firmware version is upgraded, be sure to download the new version from the Canon site and make sure it is correctly copied to a CF card. Then perform the upgrade.

2) Before Starting the Adjustment

Before starting the adjustment, check the luminance of the EF-1 Multi Camera Tester or EF8000 with BM-3000. Also, check the angle of the 3D chart with the angle gauge.

1.2 Tools List

Prepare the following tools required for the adjustment.

1) Tools List

New	Name	Part No.	Purpose
	AF Lamp Box Unit	CY9-7122-000	To illuminate the AF chart
	Halogen Lamp (AC100V/250W)	CY9-7122-001	For replacement
	Heat Absorbing	CY9-7122-002	Absorb heat wave of the lamp Filter (replacement)
	Stand, AF Chart	CY9-7123-000	Chart stand for AF charts
	AF Chart, 3D	CY9-7119-000	3D Chart
	AF Chart, Single-Point	CY9-7119-001	AF Chart for 3D Chart
	EF-1 Multi Camera Tester (100V)	CY9-7116-100	Light source A & shutter speed measurement
	EF-1 Multi Camera Tester (200V)	CY9-7116-200	Light source A & shutter speed measurement
	Color viewer (5600K)	DY9-2039-100	Electrical adjustment
	Color-bar chart	DY9-2002-000	Electrical adjustment (color adjustment)
	Stable DC power source		Measure power current consumption
	Mount Fastening Block	CY9-1547-000	Flange focal distance adjustment
	Digital micrometer	Commercially available	Flange focal distance adjustment
	EF50/1.8 Tool lens	CY9-1072-001	AF precision adjustment
	Video light	Commercially available	AF adjustment
	Flash meter	Commercially available	Metering adjustment
	Pen light	Commercially available	SPC positioning
	Tripod	Commercially available	
	Dark bag	Commercially available	
	Tester	Commercially available	Voltage reading
	C12 filters (2 ea.)	CY9-1546-000	White balance adjustment
*	AE MULTI-TESTER ADAPTER	CY9-1130-001	Shutter adjustment
*	STAND, AF/AE POSITIONING	CY9-7126-000	AF/AE sensor positioning
*	GAUGE, AF/AE POSITIONING	CY9-7126-001	AF/AE sensor positioning

New	Name	Part No.	Purpose
*	LIGHT BOX, AF/AE POSITIONING	CY9-7126-002	AF/AE sensor positioning
*	CHART, AF STANDARD NON AREA-B	CY9-7119-007	AF adjustment
*	CHART, AGC 21POINT/AF-H	CY9-7119-008	AF adjustment
*	ADAPTER, SHOE FOR DSLR/SLR 5PIN	CY9-1138-000	Shutter & X sync electrical adjustment

2) Charts and Locally-Made Tools

New	Name	Part No.	Purpose
	Tool battery	Locally-made	Inhibit voltage adjustment
	Load Resistor	Locally-made	Inhibit voltage adjustment

3) Other Products for Testing

New	Name	Part No.	Purpose
	EF 50mm f/1.8		Camera operations, adjustments, production lens checking
	Speedlite (380EX, 550EX, Flash metering adjustment or other E-TTL model)		Flash metering adjustment
	Ni-MH Battery		Product

2. MECHANICAL ADJUSTMENTS

2.1 Flange to Focal Plane Distance (FFD) Adjustment

CAUTION

- Adjustment procedure is same as the EOS-1D series.
- FFD adjustment is required when replacing the Front Panel (Mirror Box) Ass'y or the mount.
- It is also required when tilted images occur due to impact caused by dropping, etc.

<Purpose>

FFD implies the distance between a reference plane of the lens mount and the CMOS sensor plane. It cannot be measured at service; therefore, measure the distance from the mount plane to CMOS mounting washer plane (washer included) to adjust FFD to be within the spec.

<Service Parts>

Front panel unit: Compensation washers are not attached as before.
IMG unit: Offset values based on the specification are written.

<Specifications>

Front panel unit replacement: Set the distance from the lens mount to the image unit installation surface to the same distance as before front panel unit replacement.

IMG unit: Add or subtract the IMG unit compensation amount to/from the difference calculated by subtracting the original distance between the lens mount and the image unit installation surface (washer included) from the specified distance. Select a washer that meets calculated value to make FFD be within the specification.

Reference)
FFD: The dimension from the lens mount surface to the FFD (Flange to imaging plane) is 44.00 +/- 0.02mm.

<Tools>

- Digital micrometer (Commercially available)
- Mount Fastening Tool (CY9-1547-000)

<Preparation>

- Place the mount fastening block on the digital micrometer, and place the measuring point on the mount reference plane. Reset the meter so that "0" is displayed.

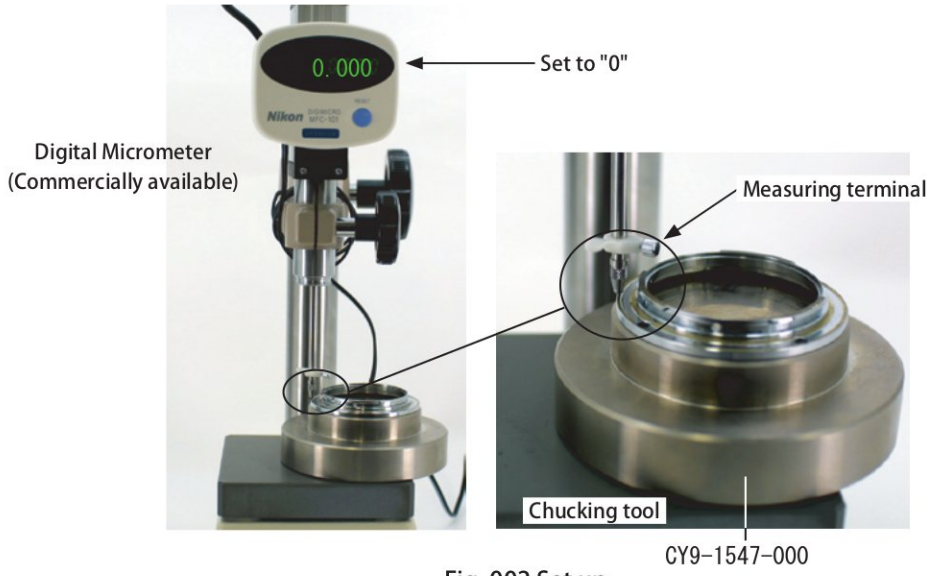


Fig. 002 Set up

<Adjustment Procedure>

1) When replacing IMG Unit (Using the original Mirror Box Ass'y)

CAUTION Service parts are set to 47.2mm at the factory, and their image units are adjusted. Each offset data is attached to the parts. Therefore, based on the 47.2mm standard, the offset needs to be added or subtracted to calculate the final distance. Then, finally select washers that meet the calculated distance.

Washer Calculation Procedure:

(1) Ex: Offset values of the replacement parts
Upper Right: −0.069
Bottom Left: 0.02
Bottom Right: 0.051

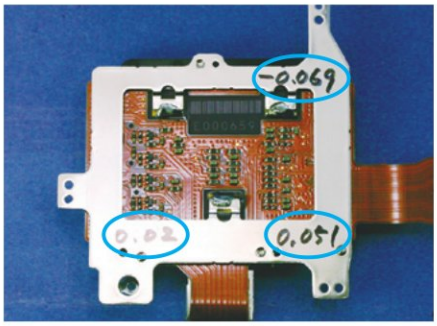


Fig. 003

(2) Measure the distance between the mount plane and the CMOS mounting washer planes.
Upper Right: 46.97mm
Bottom Left: 46.96mm
Bottom Right: 46.93mm

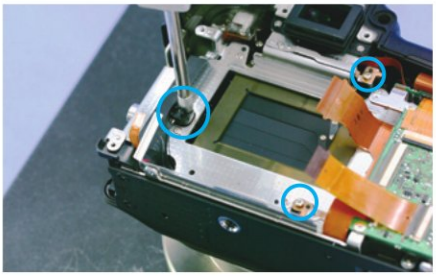


Fig. 004

(3) Calculate the washer offset values.
Upper Right: 47.2−0.069−46.97=0.16mm (URW)
Bottom Left: 47.2+0.020−46.96=0.26mm (BLW)
Bottom Right:47.2+0.051−46.93=0.32mm (BRW)

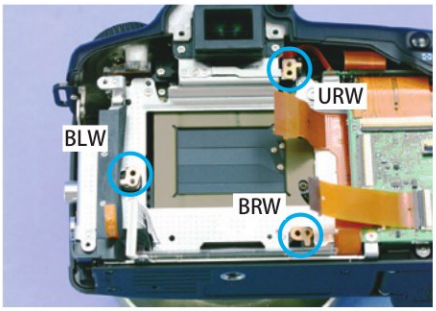


Fig. 005

(4) Attach the washer. (Do not glue)

CB32-0682-000 (XXX)

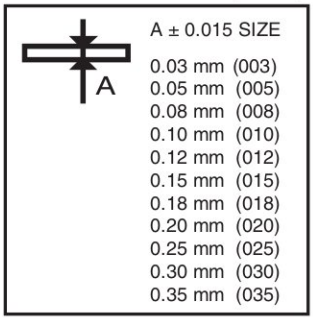


Fig. 006

2) When replacing Mirror Box Ass'y (Using the original IMG Unit)

CAUTION If the washer offsets for the IMG unit are unknown, select washer offsets and insert the washer to make the distance the same as the approximate distance from the lens mount surface to image sensor installation surface (washer included) on the camera that was replaced.

(1) Before replacing the Mirror Box Ass'y, remove the IMG unit, and measure the existing dimension from the lens mount surface to the image sensor installation surface (including the washer) (three points).

(2) After replacing the Mirror Box Ass'y, measure the distance from the mount surface to the image sensor installation surface (three points). Select and attach washers to make the distance the same as before replacement.

Example: When the existing measured value (lens mount surface to the image sensor installation surface) is 46.8mm, a 0.1mm washer is attached, and the measured value after replacement is 46.9. As the measured value after replacement is 46.9 (46.8 + 0.1 = 46.9), washers are not necessary.

3) When replacing both the Mirror Box Ass'y and IMG Ass'y

CAUTION Mirror Box Ass'y service parts are pre-adjusted to 47.2mm with the front panel gage. Offset values are marked on the parts, so only the IMG unit correction for a Mirror Box of 47.2mm is necessary.

(1) Ex: Offset values of the replacement parts
Upper Right: −0.069
Bottom Left: 0.02
Bottom Right: 0.051

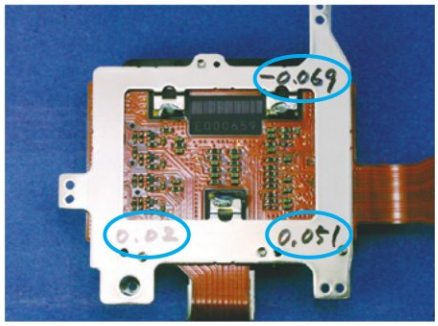


Fig. 007

(2) Measure the distance between the lens mount plane and the flange-back washer planes.
Upper Right: 42.97mm (46.97mm)
Bottom Left: 42.96mm (46.96mm)
Bottom Right: 42.93mm (46.93mm)

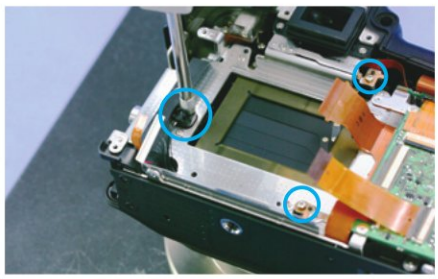


Fig. 008

(3) Calculate the washer offset values.
Upper Right: 47.2−0.069−46.97=0.16mm
Bottom Left: 47.2+0.020−46.96=0.26mm
Bottom Right: 47.2+0.051−46.93=0.32mm

(4) Attach the washer. (Do not glue)

2.2 Finder Focus Adjustment

CAUTION • Be sure to perform the Finder Focus Adjustment after the FFD Adjustment is completed.

<Purpose>

To fit the position of CMOS sensor plane and the viewfinder focus point.

<Specifications>

The center of the infinity mark must be positioned within 1.5 index line widths of the index line as shown below.

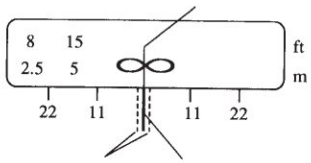


Fig. 009 Lens Focusing Scale Window

<Tools>

- Magnifier AD-S
- Lens with focusing scale. Lens of 100mm focal length or less is desirable.
- General purpose 500mm collimator

<Preparation>

1) Without the lens attached to the camera, turn the diopter adjustment dial of the camera to adjust the AF frame to be at the center of the viewfinder.
2) Attach the magnifier to the camera eyepiece and adjust the diopter of the magnifier. (Perform without the lens attached.)

<Adjustment Procedure>

1) Look through an object that is located at least 250m away (such as lightening rod or chimney) and turn the manual ring to find the position that gives the clearest view of the object.
2) Check if the center of the infinity mark is positioned within 1.5 index line equivalent widths. If not, replace the focus washer and try again.
   * When a collimator is used, select the focus washer that gives the clearest view of the collimator scale.

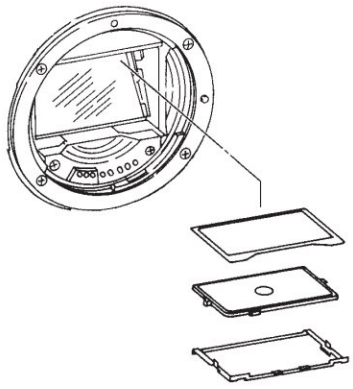


Fig. 010 Focus Washer Replacement

3. ELECTRICAL ADJUSTMENTS

3.1 Adjustment Software Operation

1) Service Parts

OS: Windows 2000, Windows XP
CPU: Pentium II, 233MHz or better
RAM: 256 MB or more required
Display: 1024 × 768 required
Hard disk space: Approx. 70 MB required

2) Operation

Basically, the adjustment software can be operated with the mouse, cursor keys, space bar, and enter key.

Follow the instructions that appear in the message area to operate.

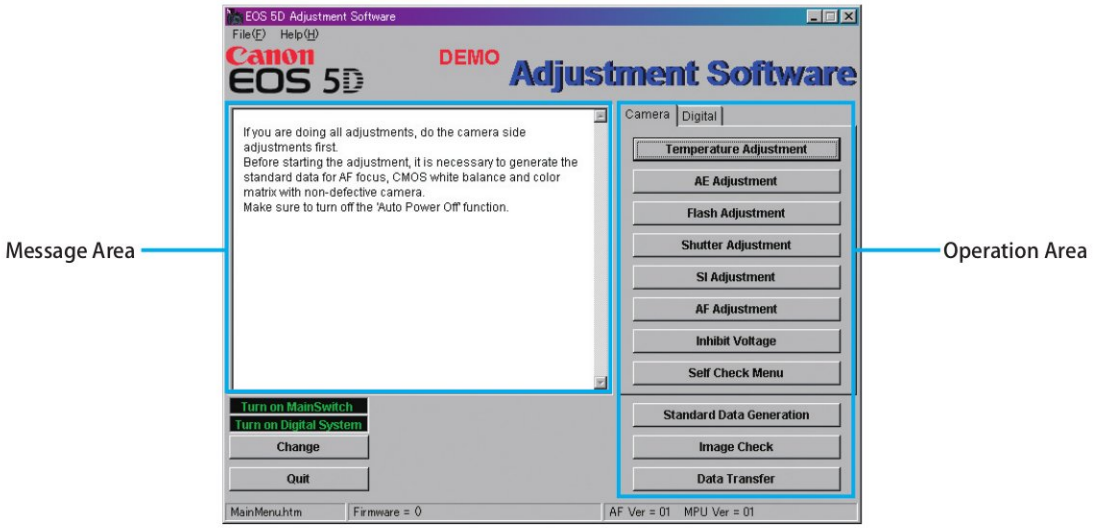


Fig. 011 Menu Window

The names of each area of the adjustment software is shown below.

3) Demonstration Mode

The adjustment software operations can be checked without connecting the camera. When starting up the adjustment software, click on "Demo".

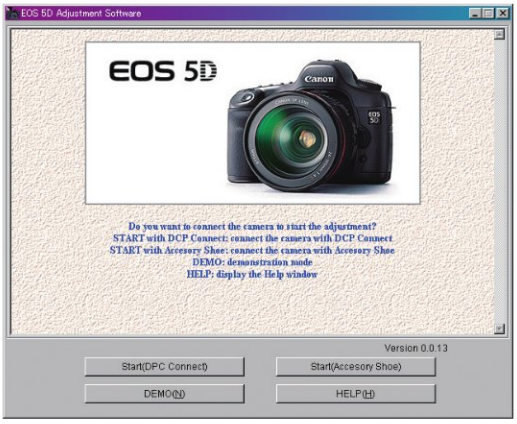


Fig. 012 Connecting the Camera

4) Log Management

This adjustment software has a log management function. You can check the record of adjustments.

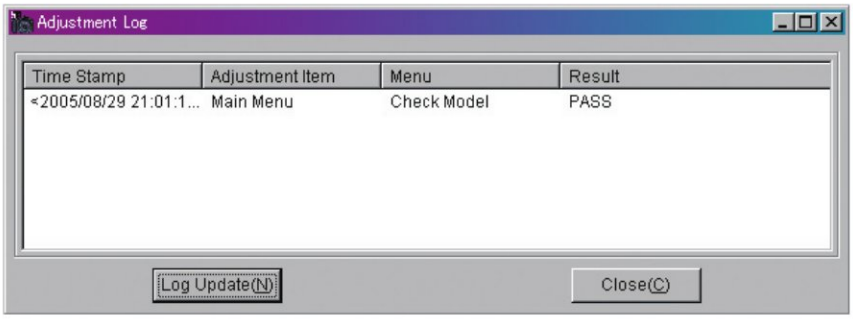


Fig. 013 Log Management

5) HTML Help

When starting up the adjustment software, the help window will be displayed automatically.

The help window is contextual, so you choose the AE adjustment, the AE adjustment help window will be displayed.

6) How to use HTML Help

On left side of the help window, topics (table of contents) are displayed. Each topic book can be opened or closed. Also, you may move to linked topics in the help window, then the topic (table of contents) will also be selected. If you wish to go back to the previous topic, click the "Back" button.

Fig. 014 Help Window1

(1) Show/Hide
Shows or hides the topics (table of contents).
(2) Back
Goes back to the previous topic.
(3) Print
Prints out the topic.
(4) Options
Internet Options for Internet Explorer can be set.

7) How to print HTML Help

You can select the topic and click the "Print" button to print it out. If a book icon topic is selected, the following message will appear.

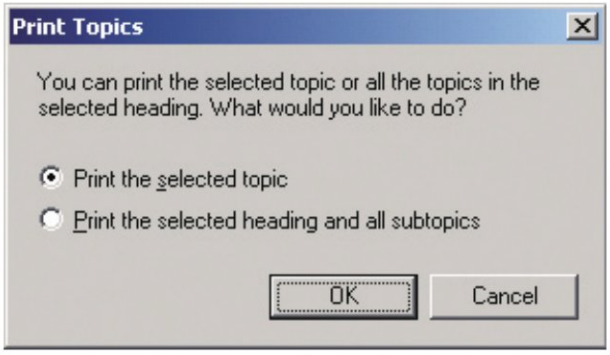


Fig. 015 Help Window2

3.2 Install/Uninstall

1) Installation

(1) Before installing the adjustment software
It is necessary to install the TWAIN driver from EOS DIGITAL SOLUTION DISK first, then install the adjustment software from the service manual.
Also, Internet explorer 4 or later is required to view the HTML help.

(2) Supplied software
- Camera adjustment software: EOS 5D***.exe (***=Version)
- Imager File Update program: Imager Update2.exe
- This software sets the camera to the adjustment mode: Canon camera DCP Connect.exe
- Accessory Shoe Communications Interface Driver: Win2kXpcom.inf

(3) Required software:
- Internet explorer 4 or later
- A driver for EOS 5D (EOS DIGITAL SOLUTION DISK Ver. 11.0)

2) Installation procedure

(1) Install Internet explorer 4 or later.
(2) Install TWAIN driver. (EOS DIGITAL SOLUTION DISK)
(3) Make sure it operates before installing the adjustment software.
(4) Install the camera adjustment software.
(5) Install the image file update program.

3) Uninstallation procedure

Refer to adjustment software Help for details about uninstallation.
(1) Move the folder of the imager file update program (Imager Update2.exe) to the trash bin.
(2) Move the folder of the adjustment software (EOS 5D***.exe) to the trash bin.
(3) Uninstall the TWAIN driver. (Refer to the instruction book)

4) Installation procedure of the camera adjustment procedure

(1) Double-click the EOS 5D***.exe.
(2) You will be asked the storage location, then choose appropriate location. If you click "Reference", you can choose the storage location.
(3) The name of the camera adjustment software is "EOS 5D***.exe". If you double-click this file, you can start the adjustment software.

5) Installation procedure for the imager file update program

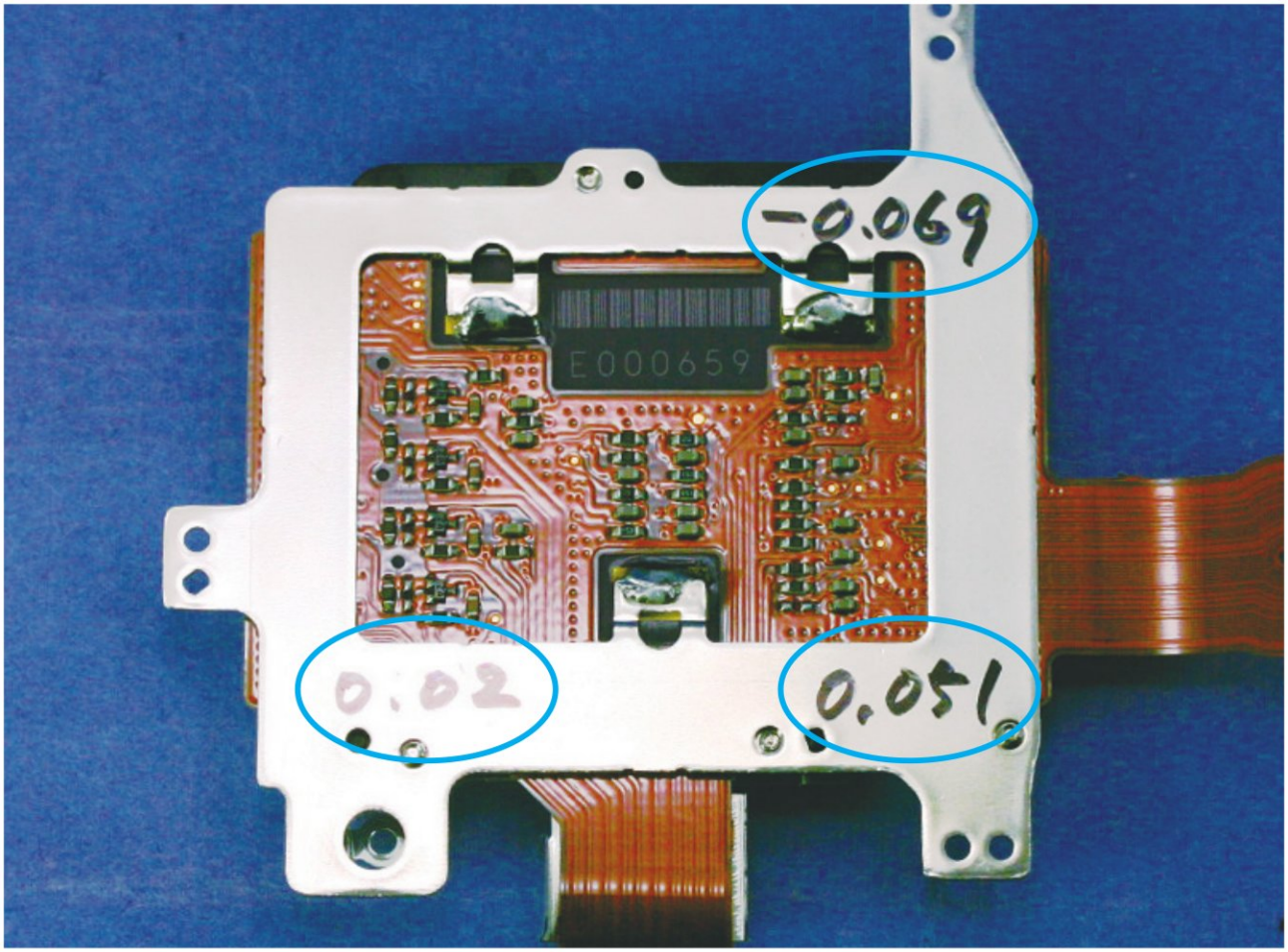
(1) Double-click the Imager Update.
(2) You will be asked the storage location. Choose an appropriate location.
(3) The name of the imager file update program is "ImagerFileUpdate2.exe". If you double-click this file, you can start the CMOS imager file update program.

6) Installation procedure of the Canon Camera DCP connect

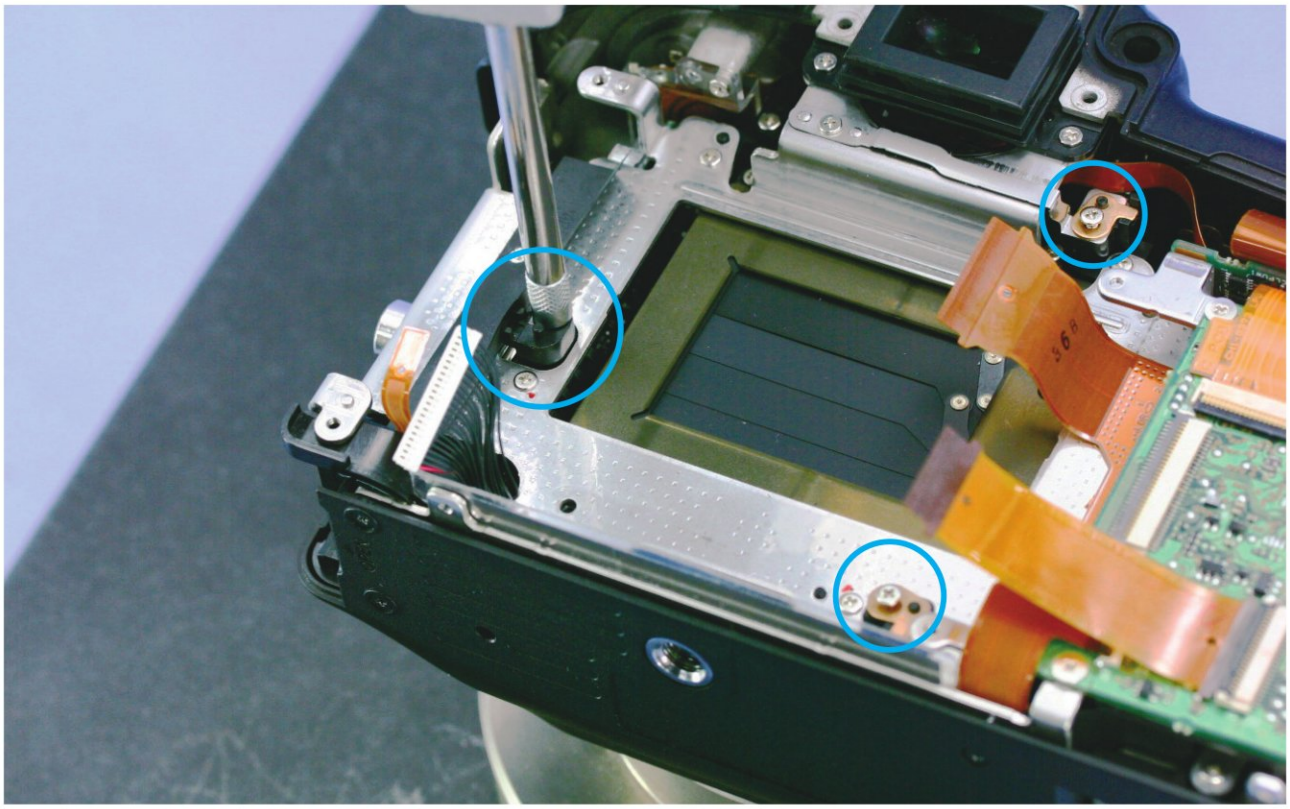
Please refer to "Help" in the adjustment software for details.

7) Accessory Shoe Communication Interface

Refer to Help of the adjustment software for details.



Back



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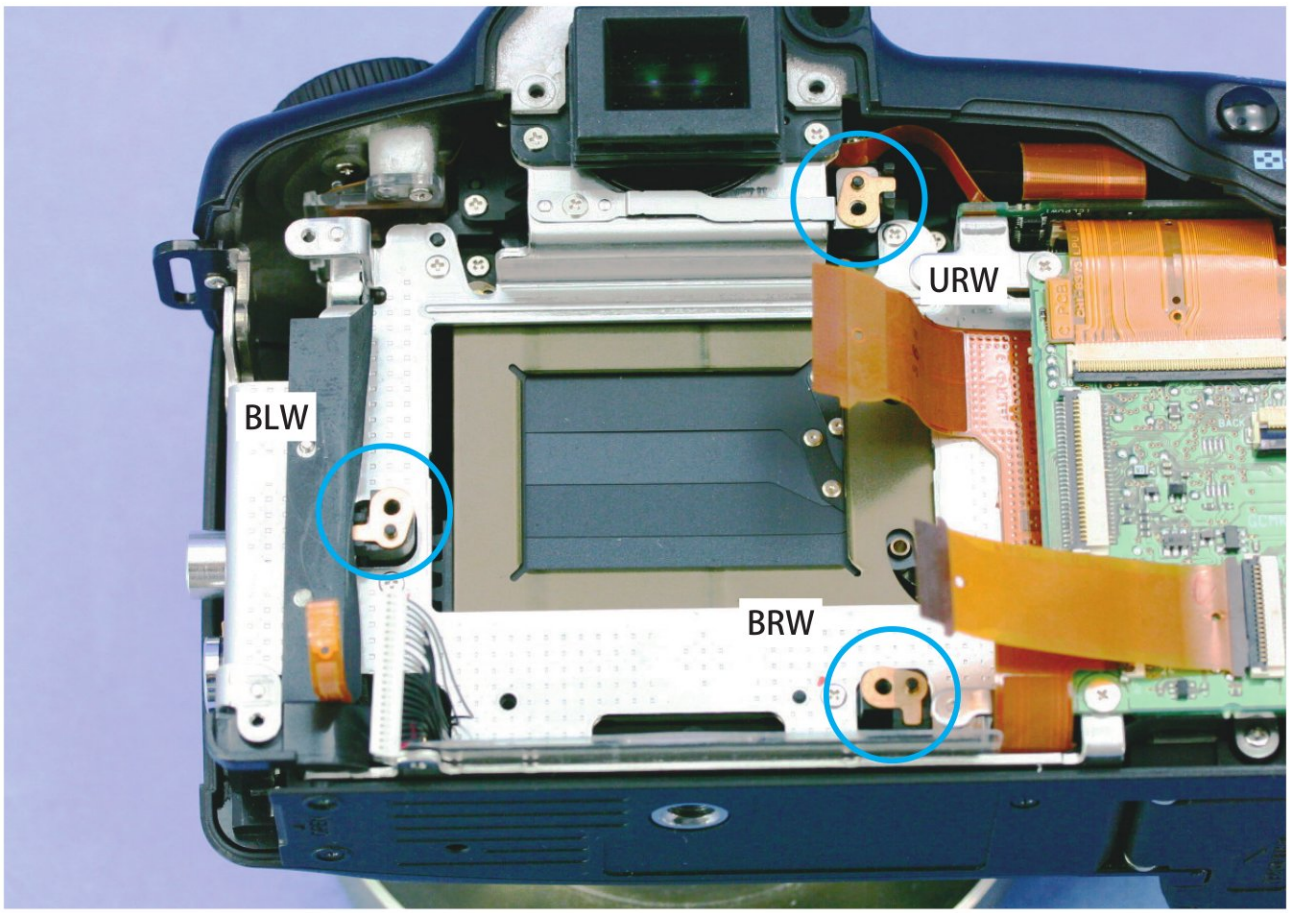

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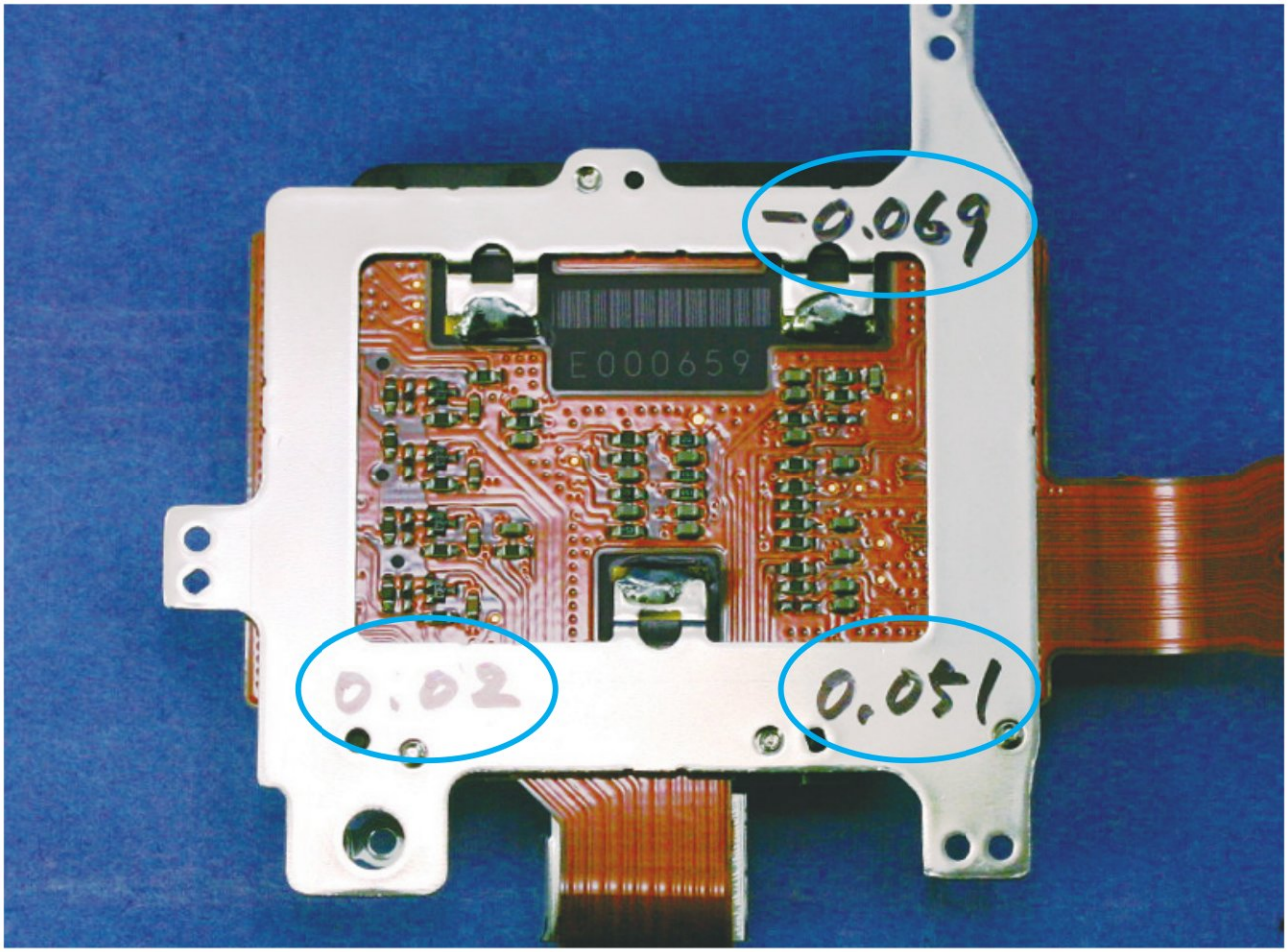

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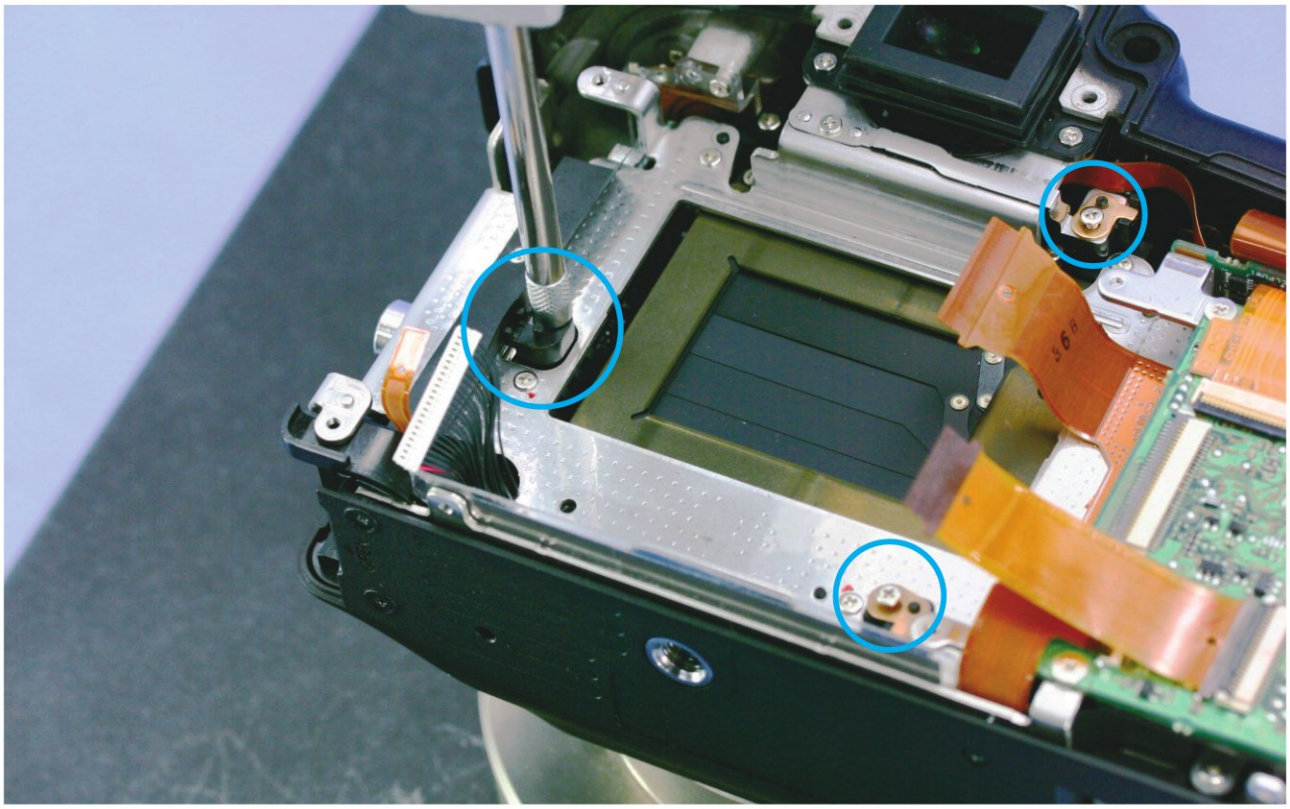

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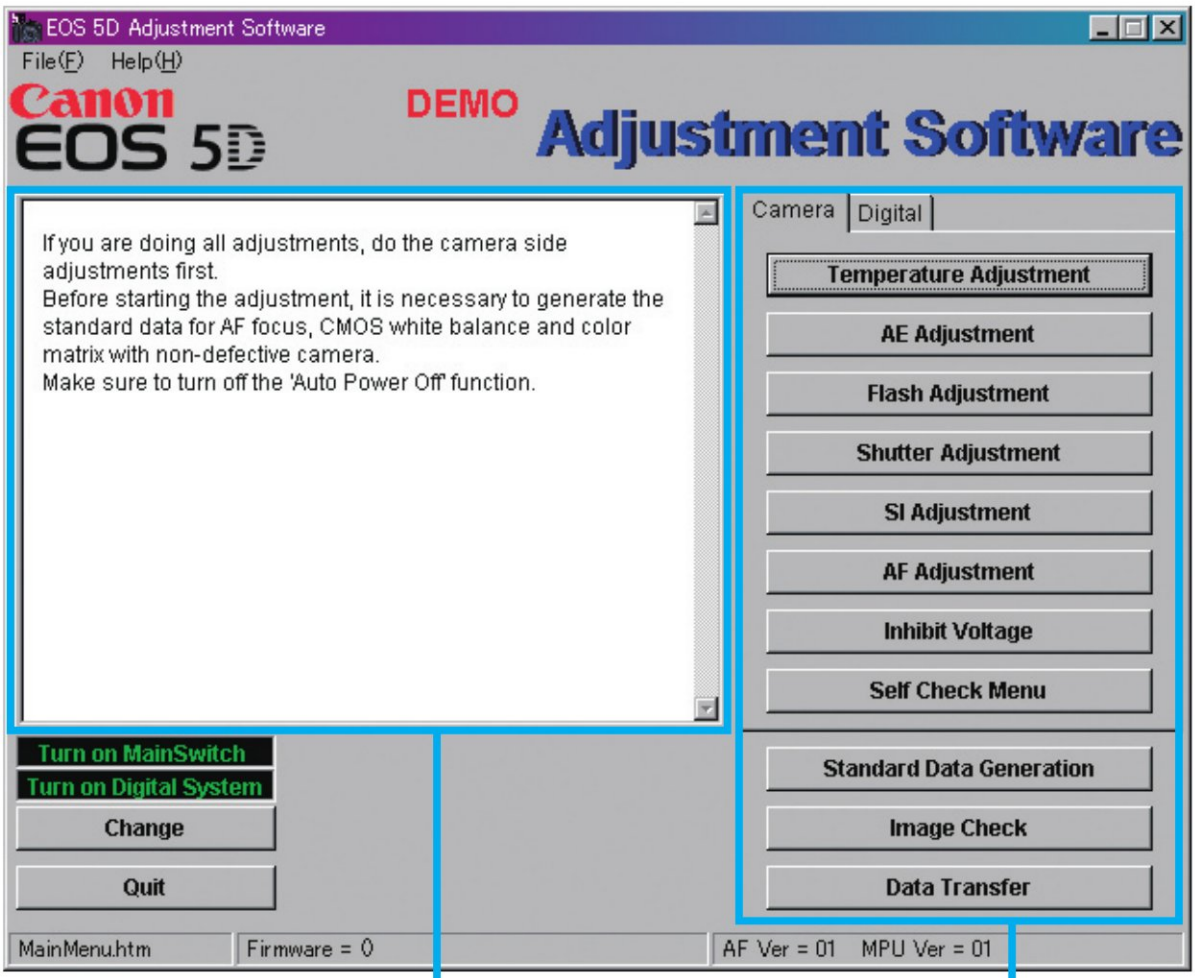
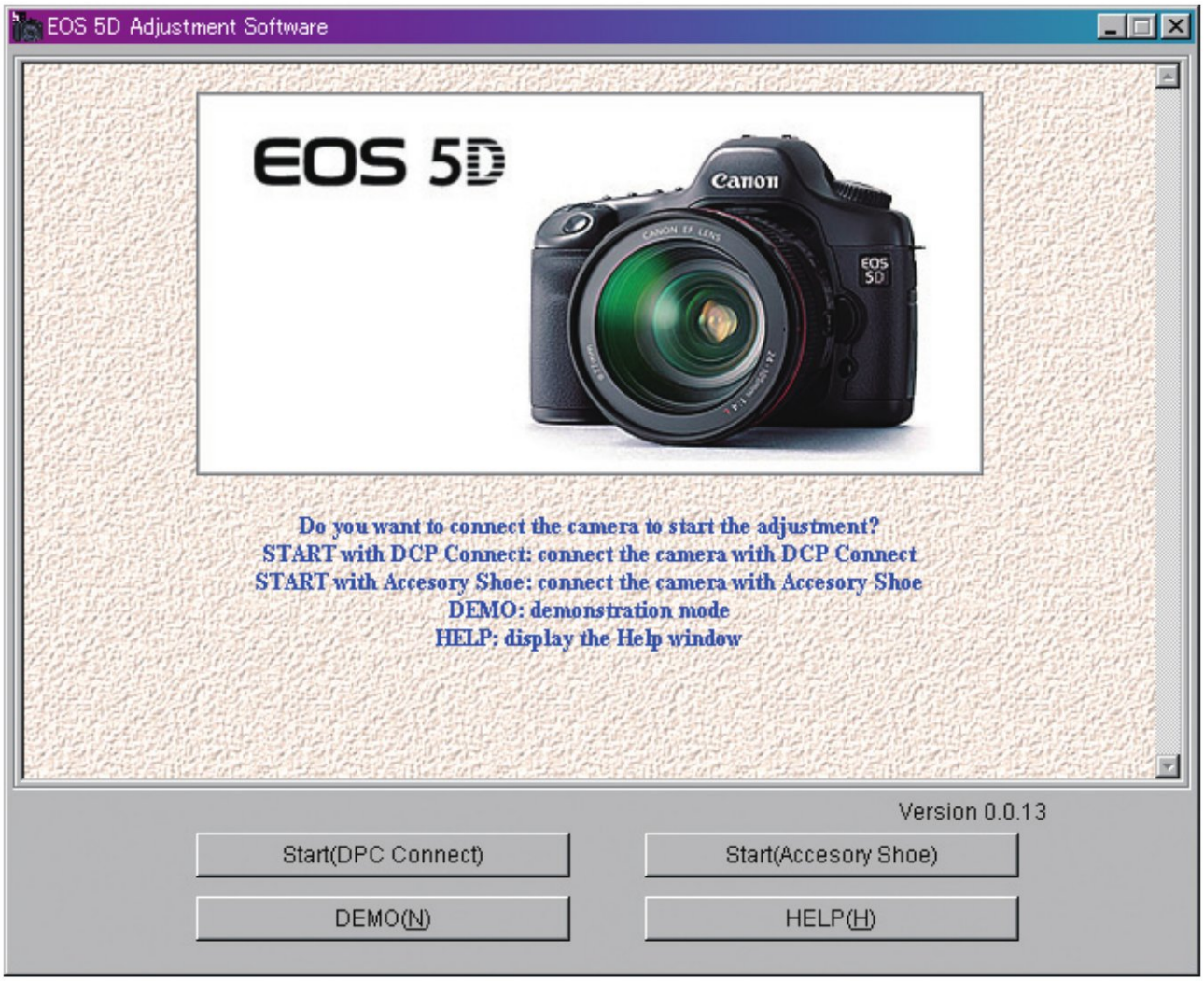


Message Area

Operation Area

Back



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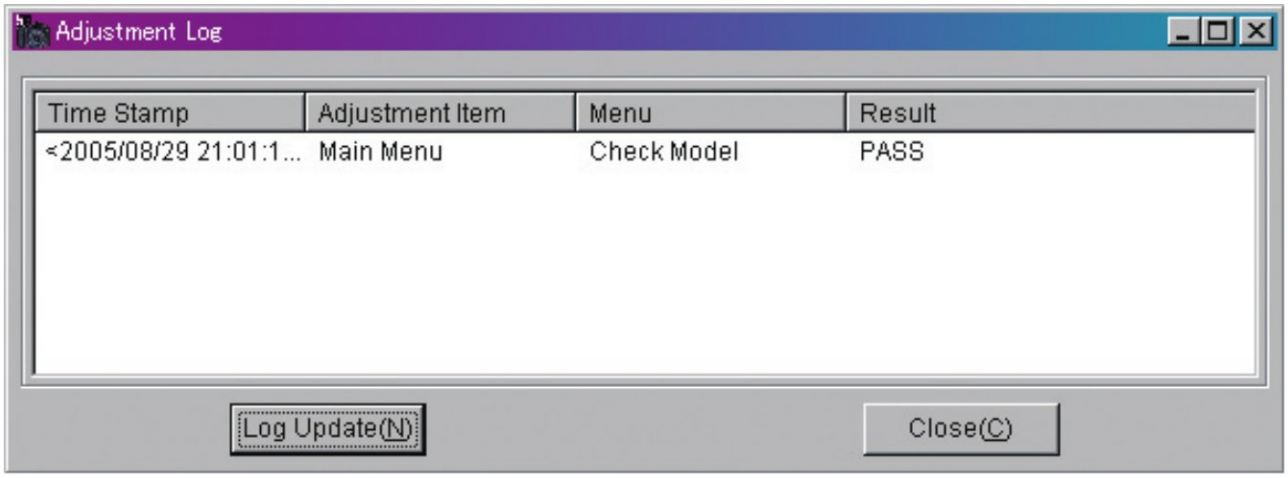

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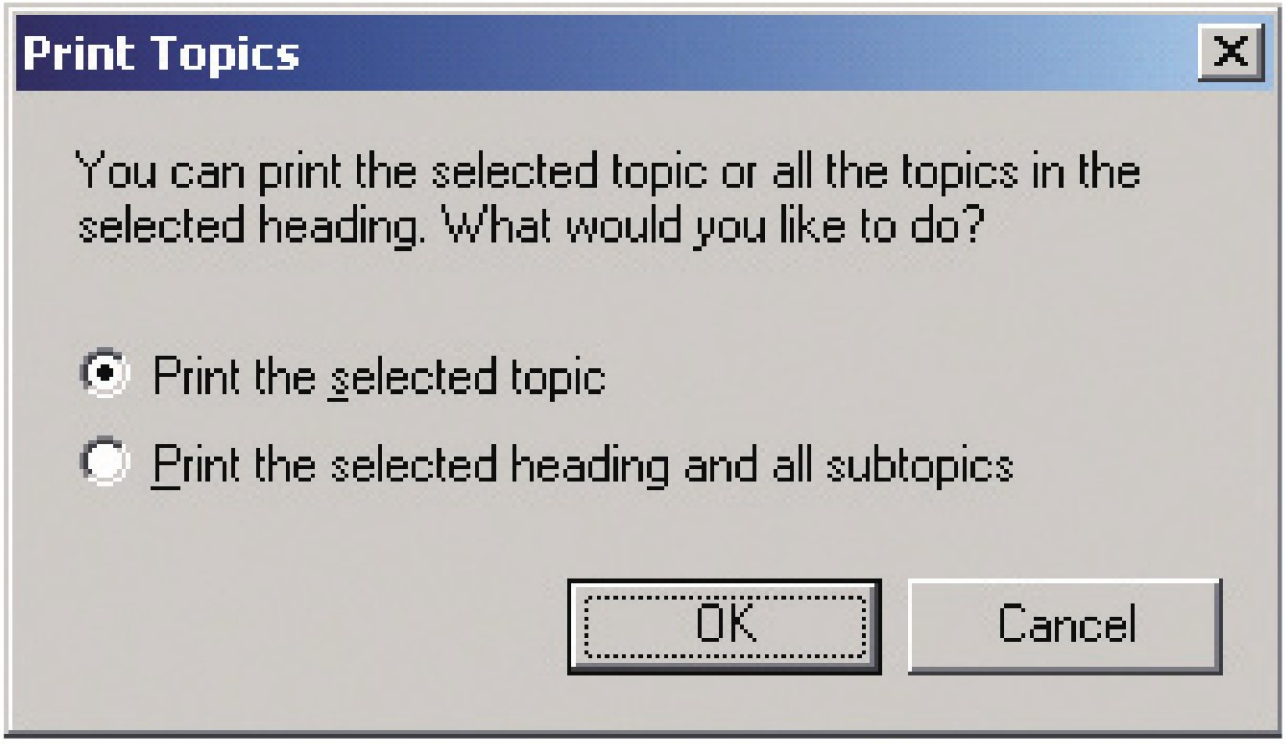


Parts Catalog

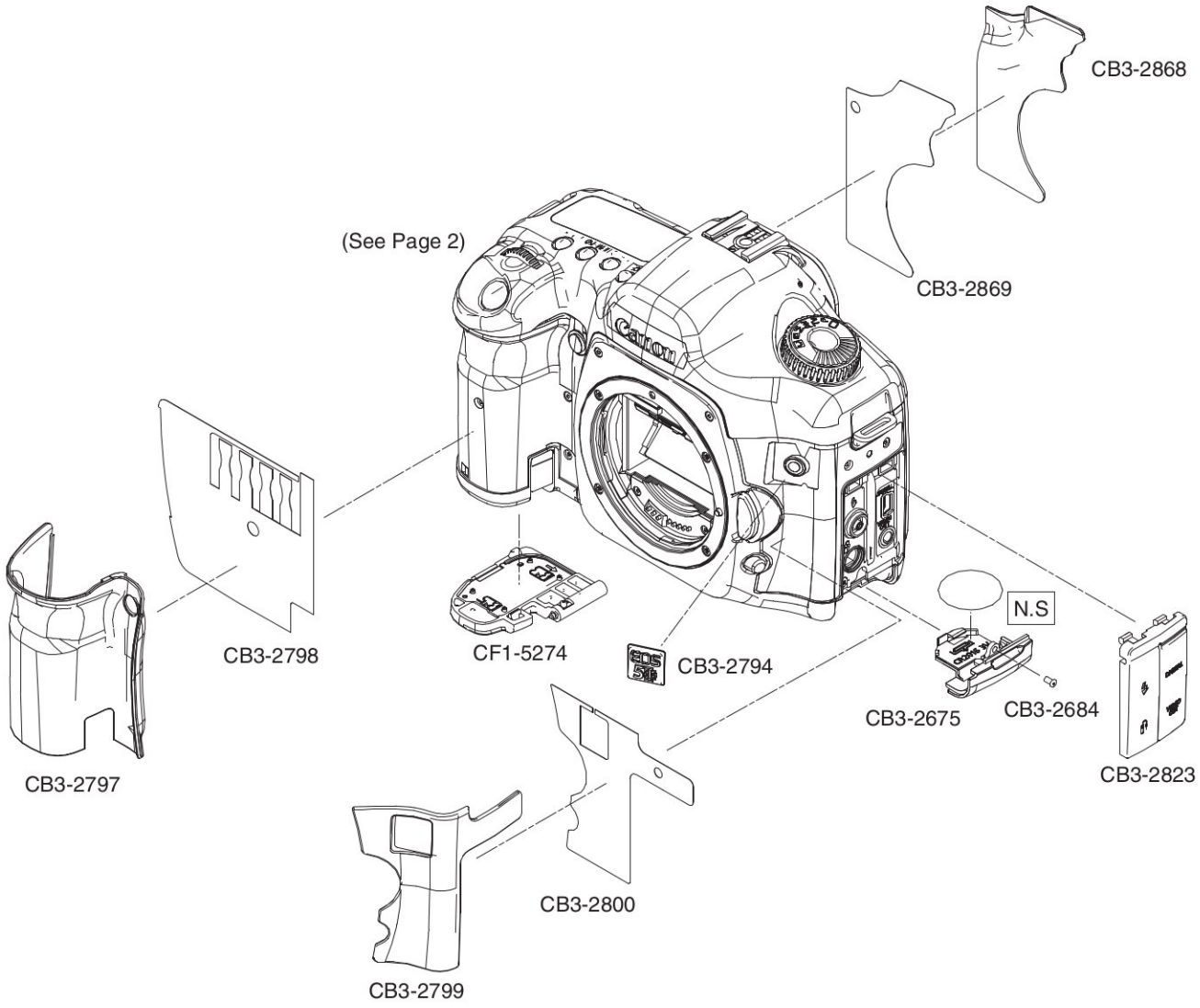
Canon

EOS 5D

REF. NO.C12-6091

PARTS CATALOG

CANON EOS 5D

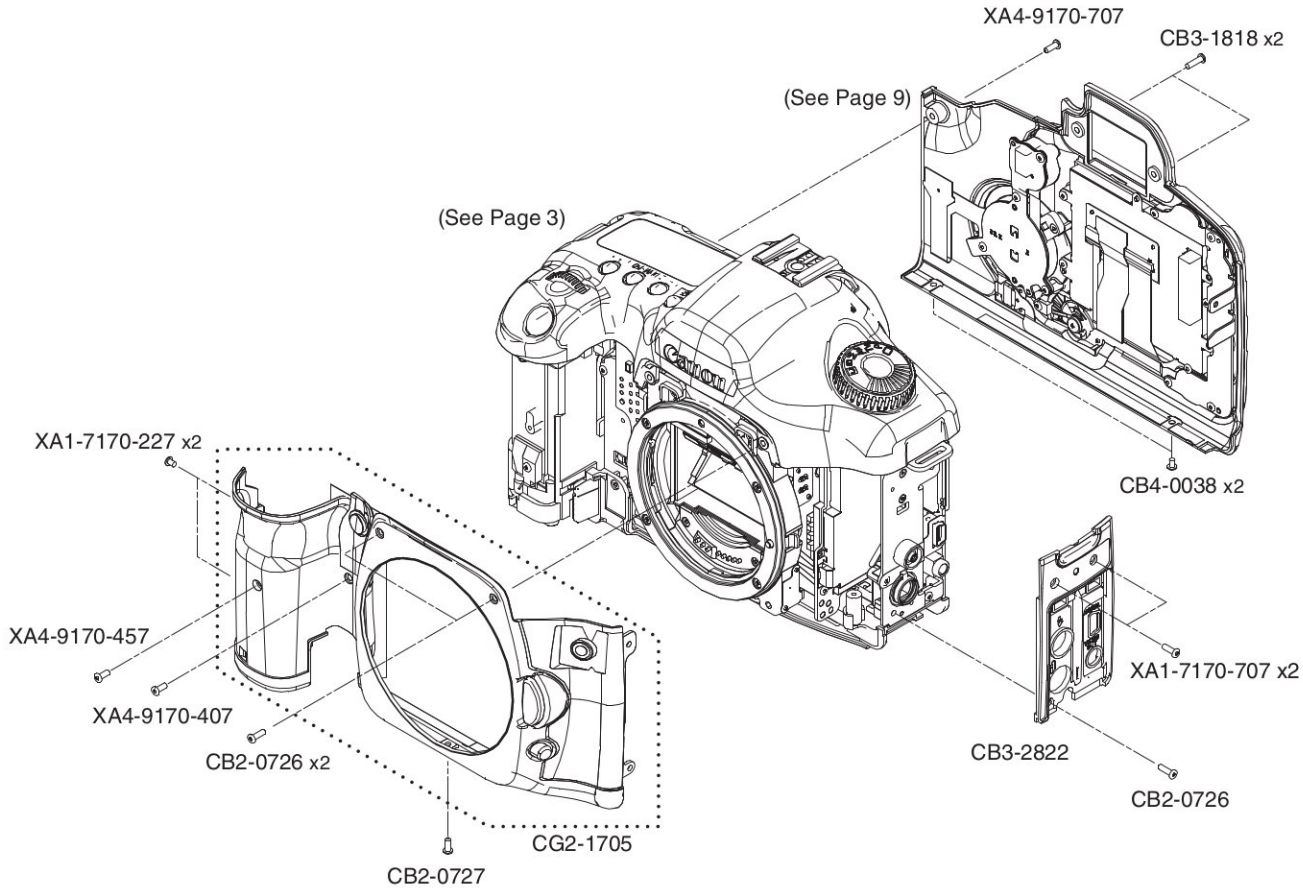


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
*	CB3-2675-000 000	C	1	CASE, DATE BATTERY
*	CB3-2684-000 000	C	1	SCREW
*	CB3-2794-000 000	B	1	PLATE, NAME
*	CB3-2797-000 000	B	1	COVER, GRIP HOLDING
*	CB3-2798-000 000	B	1	TAPE, DOUBLE SIDE
*	CB3-2799-000 000	B	1	COVER, FRONT, LEFT
*	CB3-2800-000 000	B	1	TAPE, DOUBLE SIDE
*	CB3-2823-000 000	B	1	CAP, INTERFACE
*	CB3-2868-000 000	B	1	COVER, HOLDING
*	CB3-2869-000 000	B	1	TAPE, DOUBLE SIDE
*	CF1-5274-000 000	B	1	COVER ASS'Y, BATTERY

CANON EOS 5D

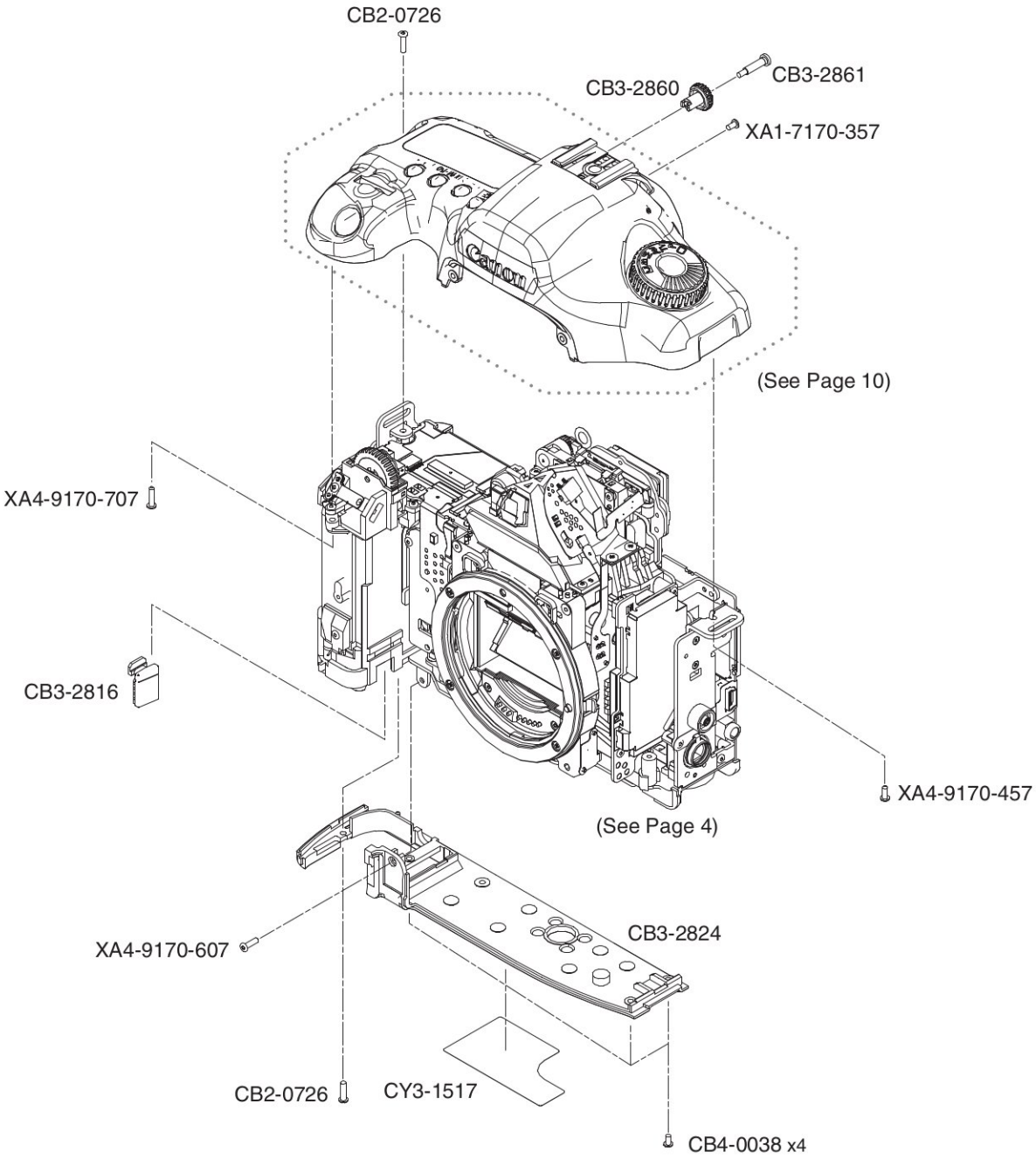


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CB2-0726-000 000	C	3	SCREW M17X5.5
	CB2-0727-000 000	C	1	SCREW M17X4.5
	CB3-1818-000 000	F	2	SCREW
*	CB3-2822-000 000	B	1	COVER, INTERFACE
	CB4-0038-000 000	F	2	SCREW, CROSS-RECESS, PH
*	CG2-1705-000 000	B	1	COVER ASS'Y, FRONT
	XA1-7170-227 000	F	2	SCREW, CROSS-RECESS, PH
	XA1-7170-707 000	F	2	SCREW
	XA4-9170-407 000	F	1	SCREW
	XA4-9170-457 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-707 000	F	1	SCREW, CROSS-RECESS, PH

CANON EOS 5D

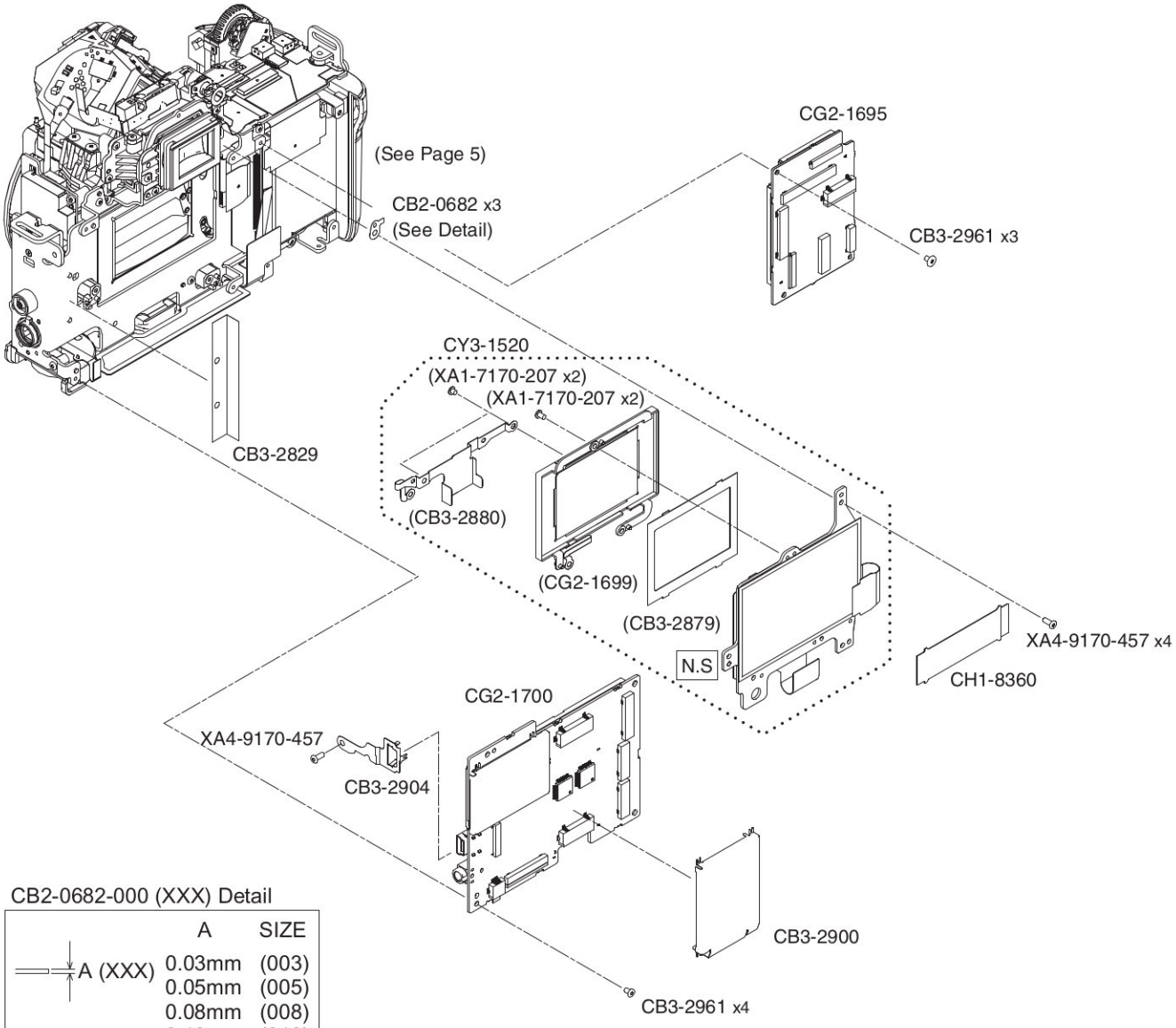


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CB2-0726-000 000	C	2	SCREW M17X5.5
*	CB3-2816-000 000	C	1	DOOR, CABLE
*	CB3-2824-000 000	B	1	COVER, BOTTOM
*	CB3-2860-000 000	C	1	DIAL, DIOPTER CORRECTION
*	CB3-2861-000 000	C	1	SCREW
	CB4-0038-000 000	F	4	SCREW, CROSS-RECESS, PH
*	CY3-1517-000 000	B	1	LABEL, BODY NUMBER
	XA1-7170-357 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-457 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-607 000	F	1	SCREW, CROSS-RECESS, PH S
	XA4-9170-707 000	F	1	SCREW, CROSS-RECESS, PH

CANON EOS 5D



CB2-0682-000 (XXX) Detail

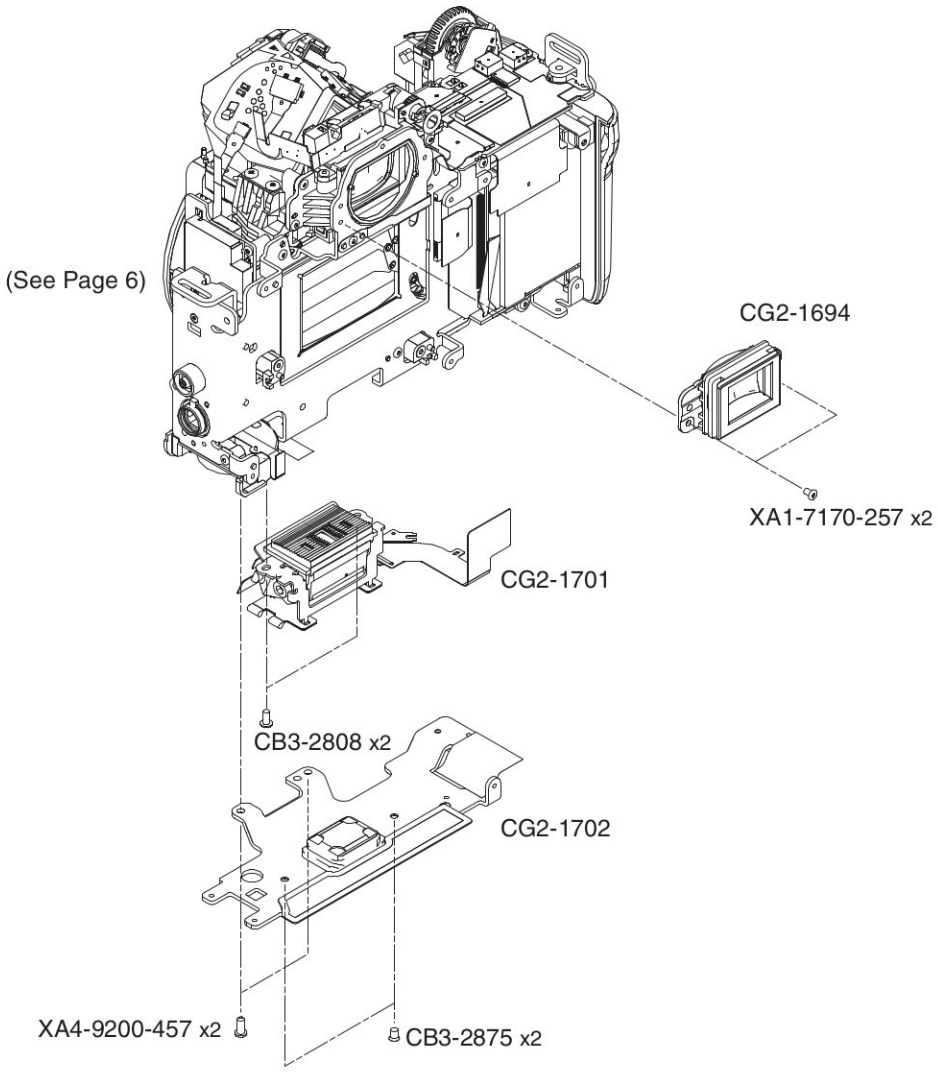
	A	SIZE
A (XXX)	0.03mm	(003)
	0.05mm	(005)
	0.08mm	(008)
	0.10mm	(010)
	0.12mm	(012)
	0.15mm	(015)
	0.18mm	(018)
	0.20mm	(020)
	0.25mm	(025)
	0.30mm	(030)
	0.35mm	(035)

PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CB2-0682-000 (XXX)	C	3	WASHER, FLANGE BACK
*	CB3-2829-000 000	C	1	PLATE, LIGHT SHIELD
*	CB3-2879-000 000	B	1	TAPE, DOUBLE SIDE, MASK
*	CB3-2880-000 000	N	1	HOLDER, IMAGE SENSOR SHIELD
*	CB3-2900-000 000	N	1	COVER, DIGITAL PCB SHIELD
*	CB3-2904-000 000	C	1	PLATE, USB LAG
*	CB3-2961-000 000	C	7	SCREW
*	CG2-1695-000 000	B	1	PCB ASS'Y, CAMERA
*	CG2-1699-000 000	B	1	FILTER ASS'Y, LOW PASS
*	CG2-1700-000 000	A	1	PCB ASS'Y, DIGITAL
*	CH1-8360-000 000	C	1	FPC, D C CONNECT
*	CY3-1520-000 000	A	1	PCB ASS'Y, IMAGING PROCESSING
	XA1-7170-207 000	F	4	SCREW, CROSS-RECESS, PH
	XA4-9170-457 000	F	5	SCREW, CROSS-RECESS, PH

CANON EOS 5D

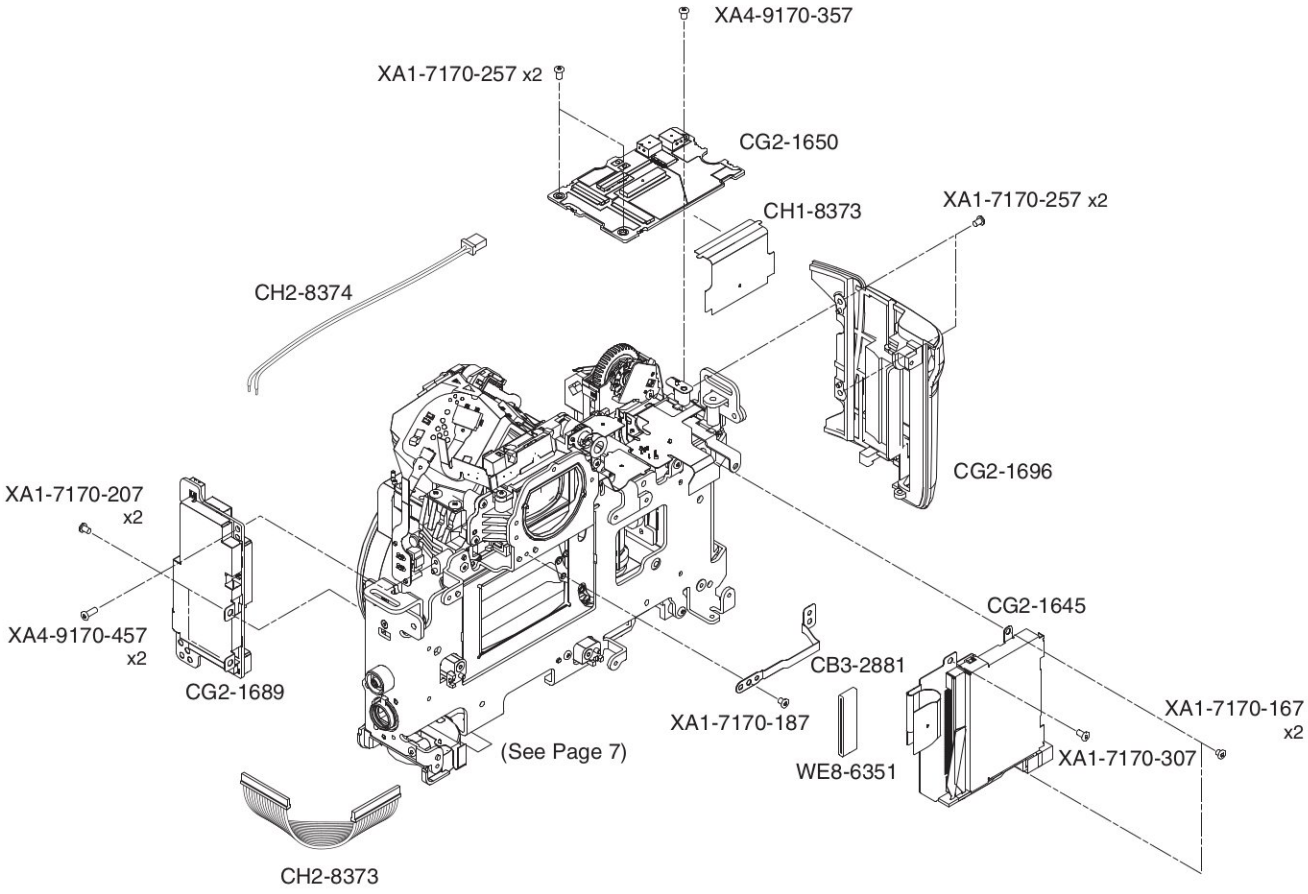


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
*	CB3-2808-000 000	C	2	SCREW
*	CB3-2875-000 000	F	2	SCREW, PH2X3 (S)
*	CG2-1694-000 000	B	1	COVER ASS'Y, EYEPIECE
*	CG2-1701-000 000	C	1	FPC ASS'Y, AUTO FOCUS
*	CG2-1702-000 000	C	1	PLATE ASS'Y, BASE
	XA1-7170-257 000	F	2	SCREW, CROSS-RECESS, PH
	XA4-9200-457 000	F	2	SCREW, CROSS-RECESS, PH

CANON EOS 5D

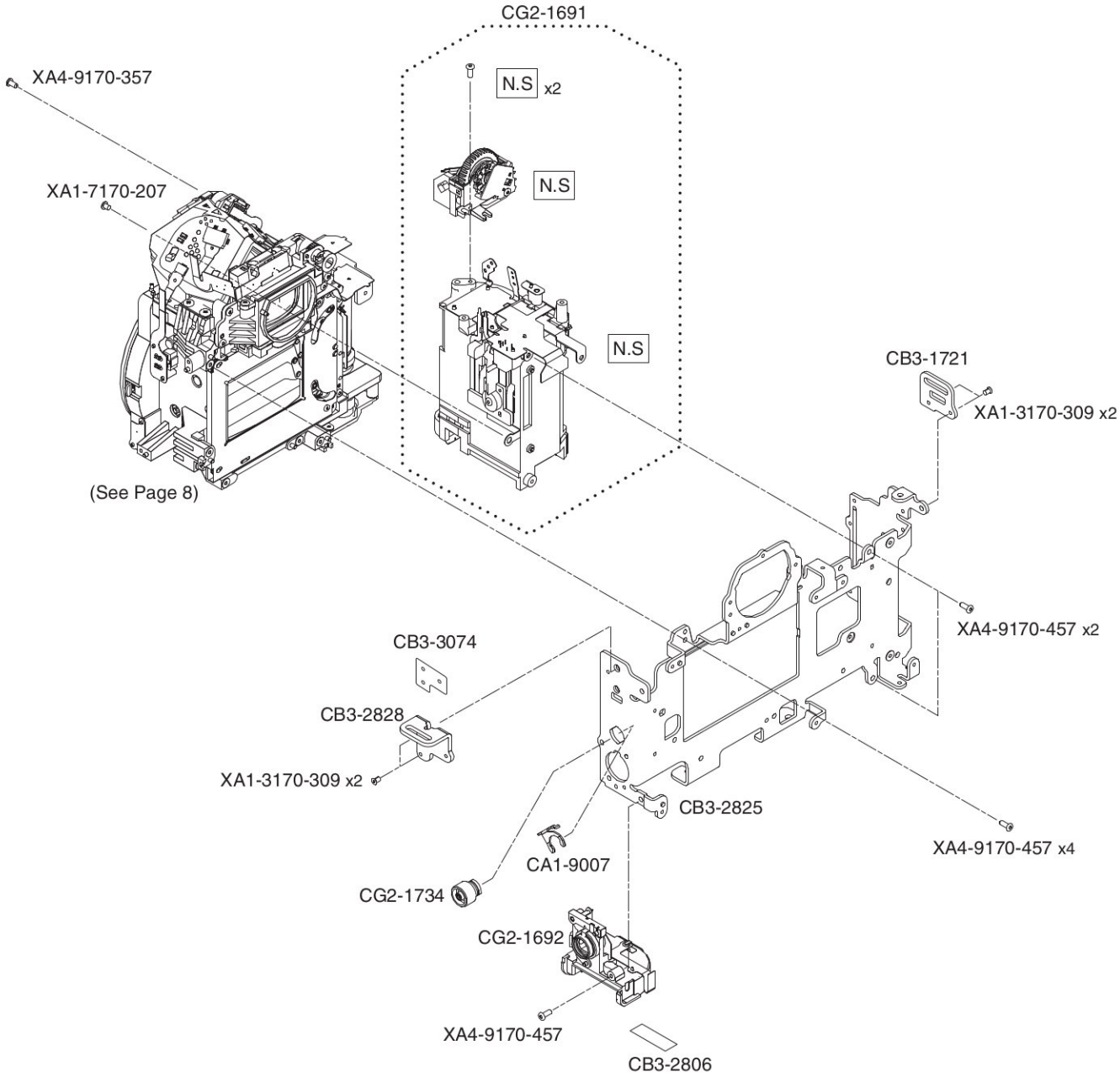


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
*	CB3-2881-000 000	C	1	PLATE, 2ND GND
*	CG2-1645-000 000	B	1	PIN ASS'Y, CF SLOT
*	CG2-1650-000 000	B	1	PCB ASS'Y, LPU
*	CG2-1689-000 000	A	1	PCB ASS'Y, DC/DC
*	CG2-1696-000 000	B	1	COVER ASS'Y, CF SLOT
*	CH1-8373-000 000	C	1	FPC, LPU C CONNECT
*	CH2-8373-000 000	C	1	CABLE ASS'Y, LPU-D CONNECT
*	CH2-8374-000 000	C	1	CABLE ASS'Y, DC/DC LPU CONNECT
*	WE8-6351-000 000	C	1	CORE, FERRITE
	XA1-7170-167 000	F	2	SCREW, CROSS-RECESS, PH
	XA1-7170-187 000	F	1	SCREW, CROSS-RECESS, PH
	XA1-7170-207 000	F	2	SCREW, CROSS-RECESS, PH
	XA1-7170-257 000	F	4	SCREW, CROSS-RECESS, PH
	XA1-7170-307 000	F	1	SCREW, MACH. PANHEAD, M1.7X3
	XA4-9170-357 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-457 000	F	2	SCREW, CROSS-RECESS, PH

CANON EOS 5D

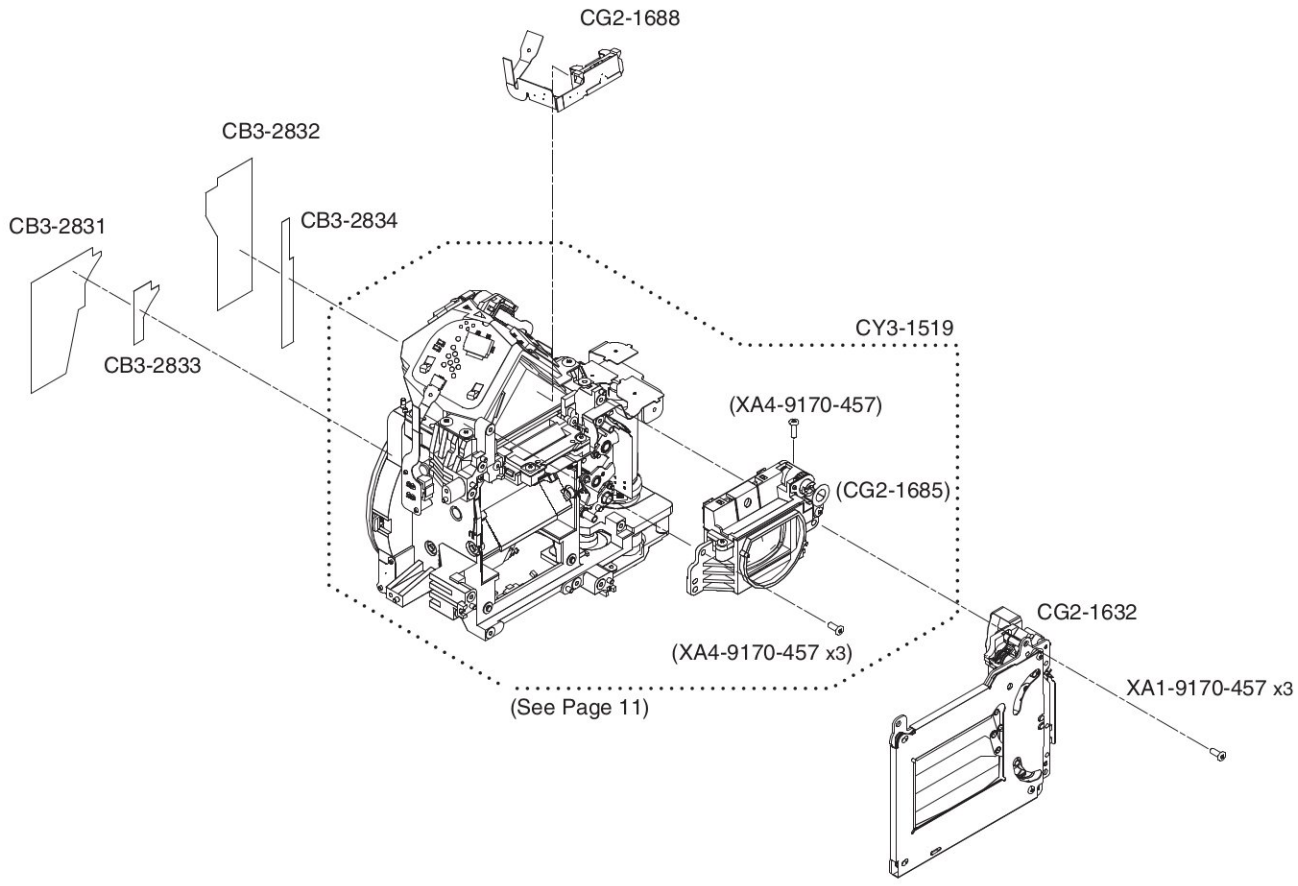


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-9007-000 000	D	1	RING, PC RETAINER
	CB3-1721-000 000	C	1	HOLDER, STRAP, RIGHT
*	CB3-2806-000 000	C	1	TAPE, PROTECT
*	CB3-2825-000 000	C	1	PLATE, MAIN BASE
*	CB3-2828-000 000	C	1	HOLDER, STRAP, LEFT
*	CB3-3074-000 000	C	1	PLATE, LIGHT SHIELD
*	CG2-1691-000 000	B	1	BOX ASS'Y, BATTERY
*	CG2-1692-000 000	B	1	FPC ASS'Y, INTERFACE
*	CG2-1734-000 000	C	1	TERMINAL ASS'Y, PC
	XA1-3170-309 000	F	4	SCREW, CROSS-RECESS, FCH
	XA1-7170-207 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-357 000	F	1	SCREW, CROSS-RECESS, PH
	XA4-9170-457 000	F	7	SCREW, CROSS-RECESS, PH

CANON EOS 5D

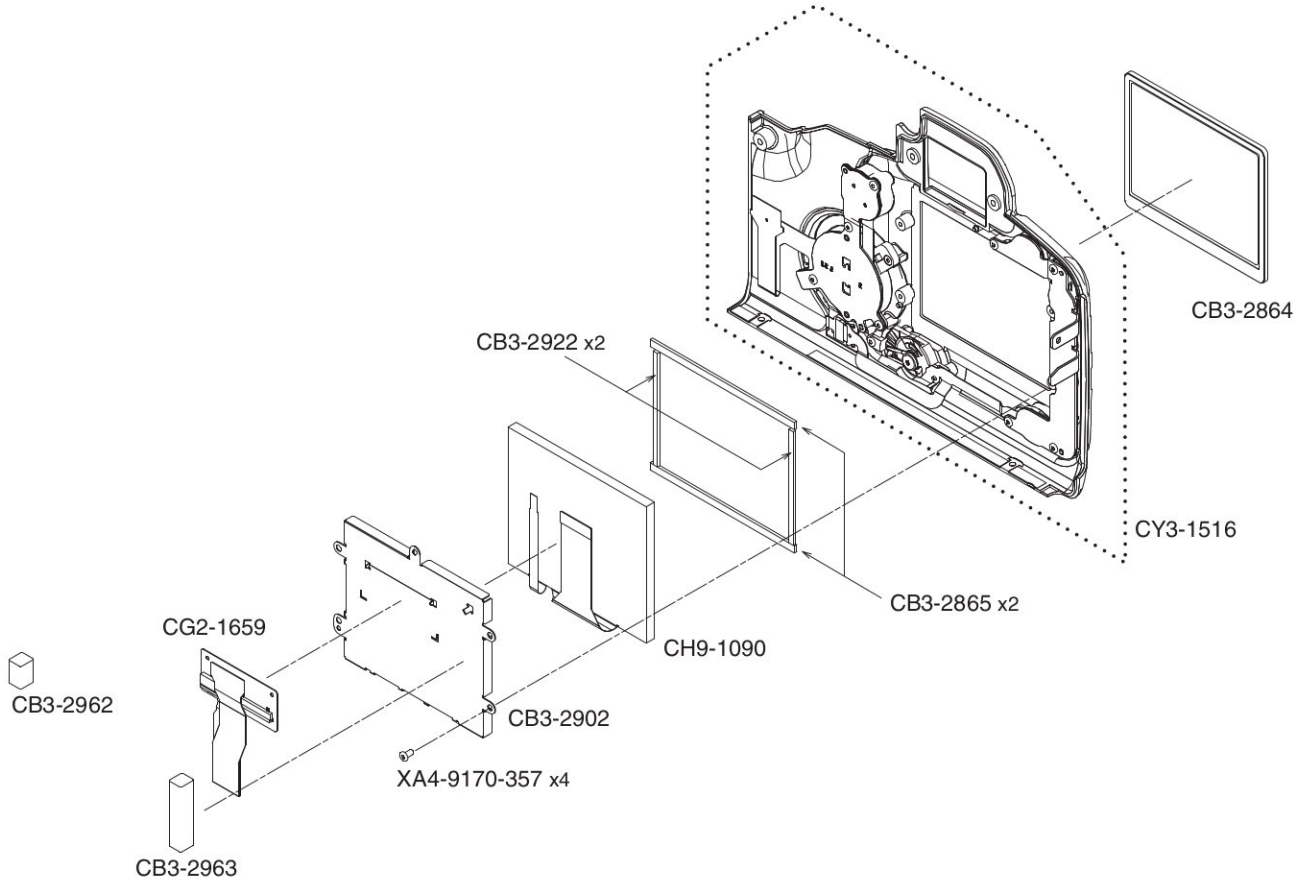


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
*	CB3-2831-000 000	C	1	PLATE, LIGHT SHIELD
*	CB3-2832-000 000	C	1	PLATE, LIGHT SHIELD
*	CB3-2833-000 000	B	1	TAPE, DOUBLE SIDE
*	CB3-2834-000 000	B	1	TAPE, DOUBLE SIDE
*	CG2-1632-000 000	A	1	SHUTTER ASS'Y
*	CG2-1685-000 000	N	1	EYEPIECE ASS'Y
*	CG2-1688-000 000	B	1	FPC ASS'Y, AUTO EXPOSURE
*	CY3-1519-000 000	B	1	MIRROR BOX ASS'Y
	XA4-9170-457 000	F	7	SCREW, CROSS-RECESS, PH

CANON EOS 5D

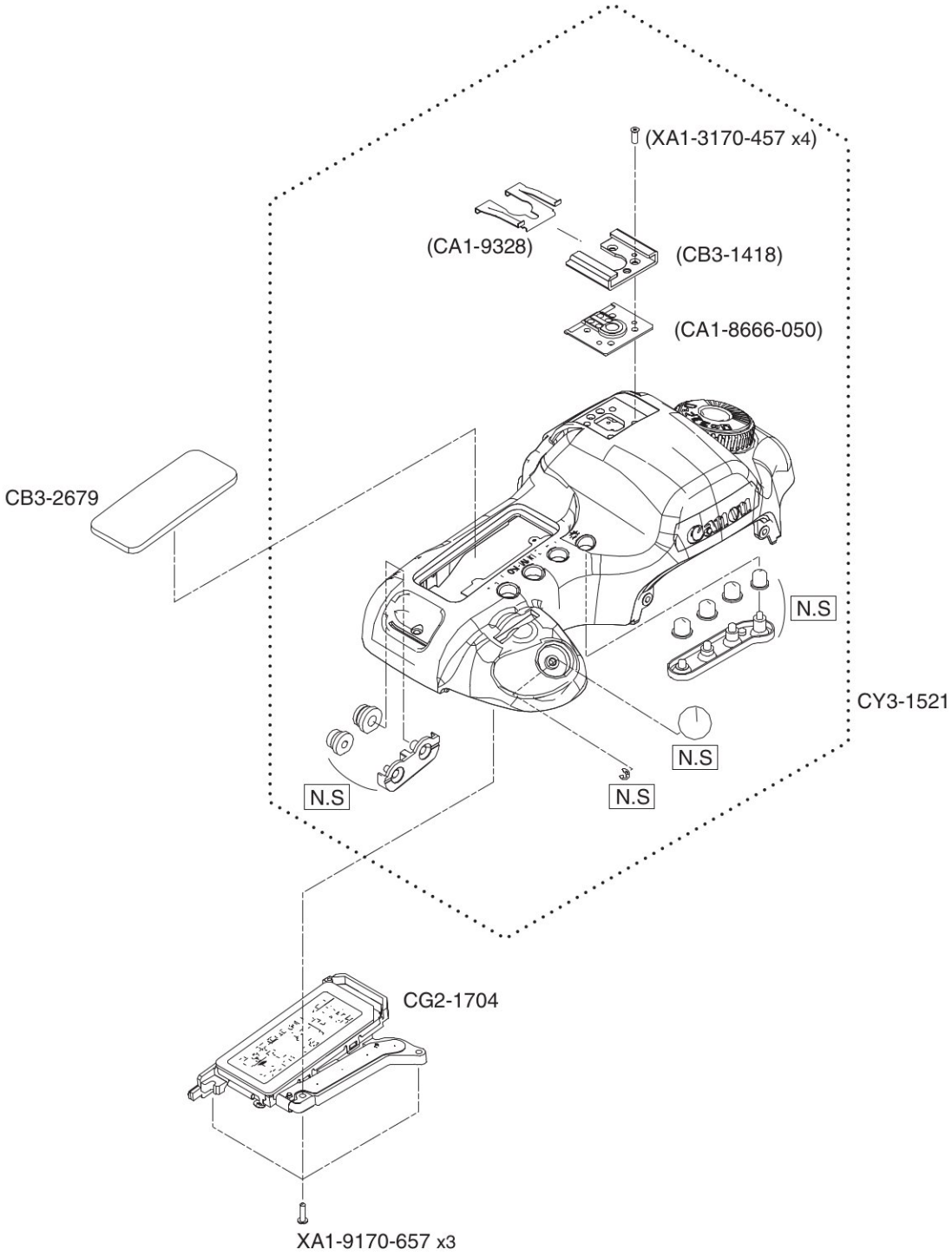


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
*	CB3-2864-000 000	A	1	WINDOW, TFT DISPLAY
*	CB3-2865-000 000	C	2	CUSHION, TFT TOP/BOTTOM
*	CB3-2902-000 000	C	1	HOLDER, TFT
*	CB3-2922-000 000	C	2	CUSHION, TFT RIGHT/LEFT
*	CB3-2962-000 000	B	1	GASKET, EMI, BACK
*	CB3-2963-000 000	B	1	GASKET, EMI, TFT
*	CG2-1659-000 000	C	1	FPC ASS'Y, TFT-D CONNECT
*	CH9-1090-000 000	B	1	LCD ASS'Y, TFT
*	CY3-1516-000 000	B	1	COVER ASS'Y, BACK
	XA4-9170-357 000	F	4	SCREW, CROSS-RECESS, PH

CANON EOS 5D

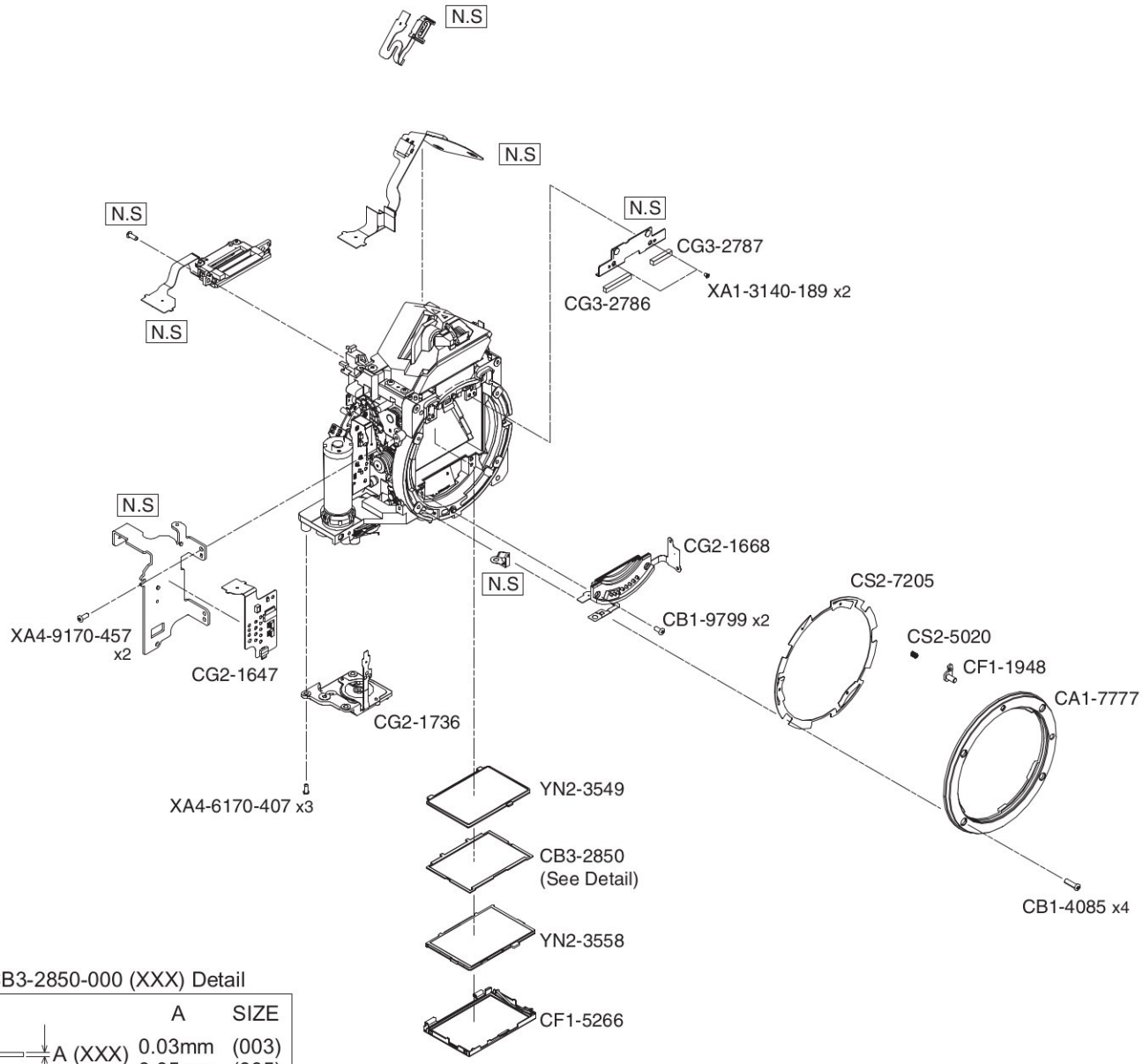


PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-8666-050 000	E	1	BASE, ACC. SHOE
	CA1-9328-000 000	C	1	SPRING, PLATE (BL)
	CB3-1418-000 000	C	1	SHOE, ACCESSORY
*	CB3-2679-000 000	A	1	WINDOW, DISPLAY
*	CG2-1704-000 000	B	1	LCD ASS'Y, OUTER
*	CY3-1521-000 000	A	1	COVER ASS'Y, TOP
	XA1-3170-457 000	F	4	SCREW
	XA4-9170-657 000	F	3	SCREW, CROSS-RECESS, PH

CANON EOS 5D



CB3-2850-000 (XXX) Detail

	A	SIZE
A (XXX)	0.03mm	(003)
	0.05mm	(005)
	0.08mm	(008)
	0.10mm	(010)
	0.12mm	(012)
	0.15mm	(015)
	0.18mm	(018)
	0.20mm	(020)
	0.25mm	(025)
	0.28mm	(028)
	0.30mm	(030)

PARTS LIST

REF. NO. C12-6091

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	CA1-7777-000 000	C	1	MOUNT, BODY
	CB1-4085-000 000	F	4	SCREW, M2X6.5
	CB1-9799-000 000	E	2	SCREW
*	CB3-2786-000 000	B	1	CUSHION, MIRROR
*	CB3-2787-000 000	B	1	CUSHION, MIRROR
*	CB3-2850-000 (XXX)	C	1	WASHER, FINDER BACK ADJUST
	CF1-1948-000 000	C	1	LEVER, LENS LOCK
*	CF1-5266-000 000	C	1	FRAME, SCREEN HOLDER
*	CG2-1647-000 000	B	1	FPC ASS'Y, FRONT
*	CG2-1668-000 000	C	1	CONTACT ASS'Y, LENS
*	CG2-1736-000 000	C	1	BASE ASS'Y, BEEP
	CS2-5020-000 000	E	1	SPRING, COIL
	CS2-7205-000 000	D	1	SPRING, MOUNT
	XA1-3140-189 000	F	2	SCREW, CROSS-RECESS, FCH
*	YN2-3549-000 000	B	1	PLATE, SUPER IMPOSE INDICATE
*	YN2-3558-000 000	B	1	PLATE, FOCUSING SCREEN
	XA4-6170-407 000	F	3	SCREW
	XA4-9170-457 000	F	2	SCREW, CROSS-RECESS, PH

Accessories

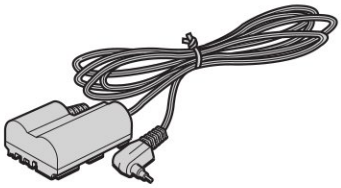
Wide Strap EW-100DGR

N.S (Product Available)

Battery Pack BP-511/511A BP-512

N.S (Product Available)

DC Coupler DR-400

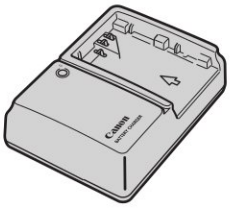


N.S (Product Available)

Interface Cable IFC-400 PCU(USB)

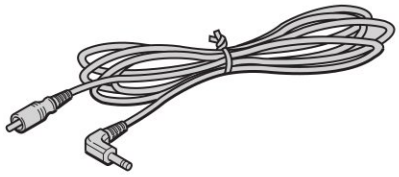
N.S (Product Available)

Battery Charger CG-580



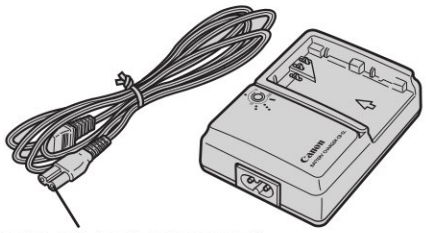
N.S (Product Available)

Video Cable VC-100



FH6-3922

Battery Charger CB-5L



D82-0643(EUROPE)
D82-0645-001(AUSTRALIA)
WT3-5087(CHINA)

N.S (Product Available)

BATTERY CHARGER CB-5L

REF. NO. C50-8101

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	D82-0643-000 000	C	1	CABLE, AC, EUROPE
	D82-0645-001 000	A	1	CABLE, AC, AUSTRALIA
	WT3-5087-000 000	C	1	CABLE, AC, CHINA

VIDEO CABLE VC-100

REF. NO. FH-3922

NEW	PARTS NO.	CLASS	QTY	DESCRIPTION
	FH6-3922-000 000	C	1	VIDEO CABLE VC-100

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INDEX OF PARTS LIST

REF. NO. C12-6091

Circuit Diagrams

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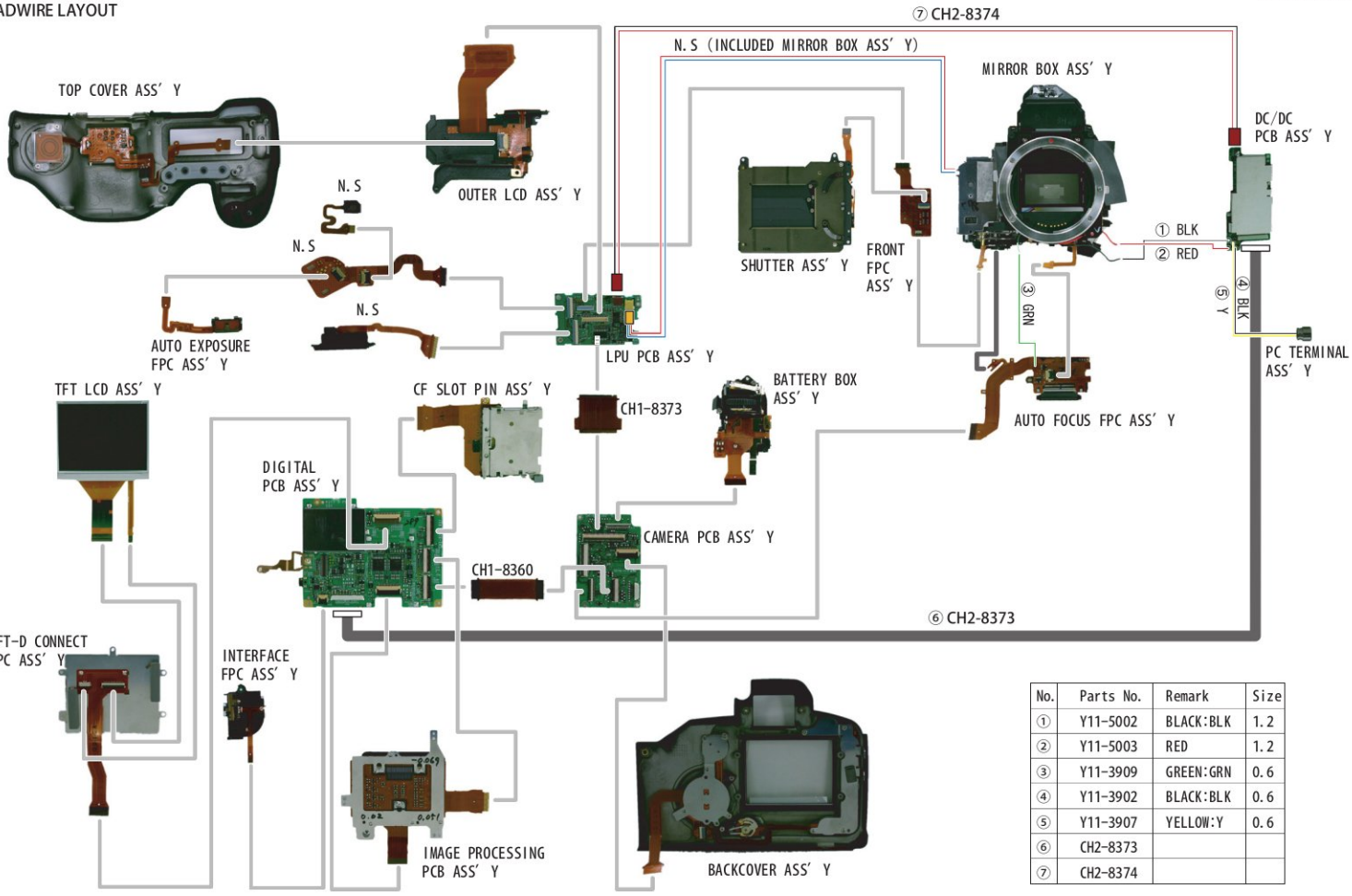
Circuit Diagrams

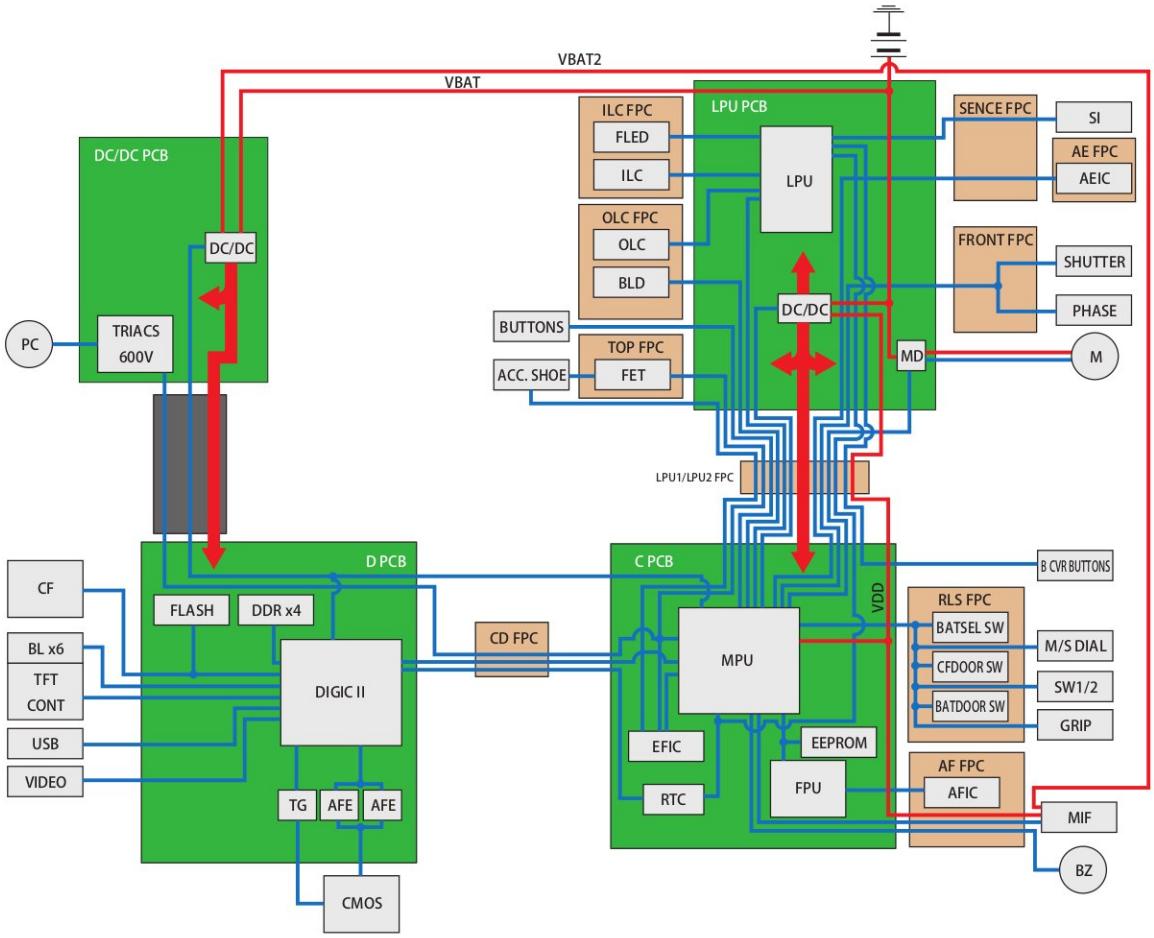
1. WIRING DIAGRAM
LEADWIRE LAYOUT

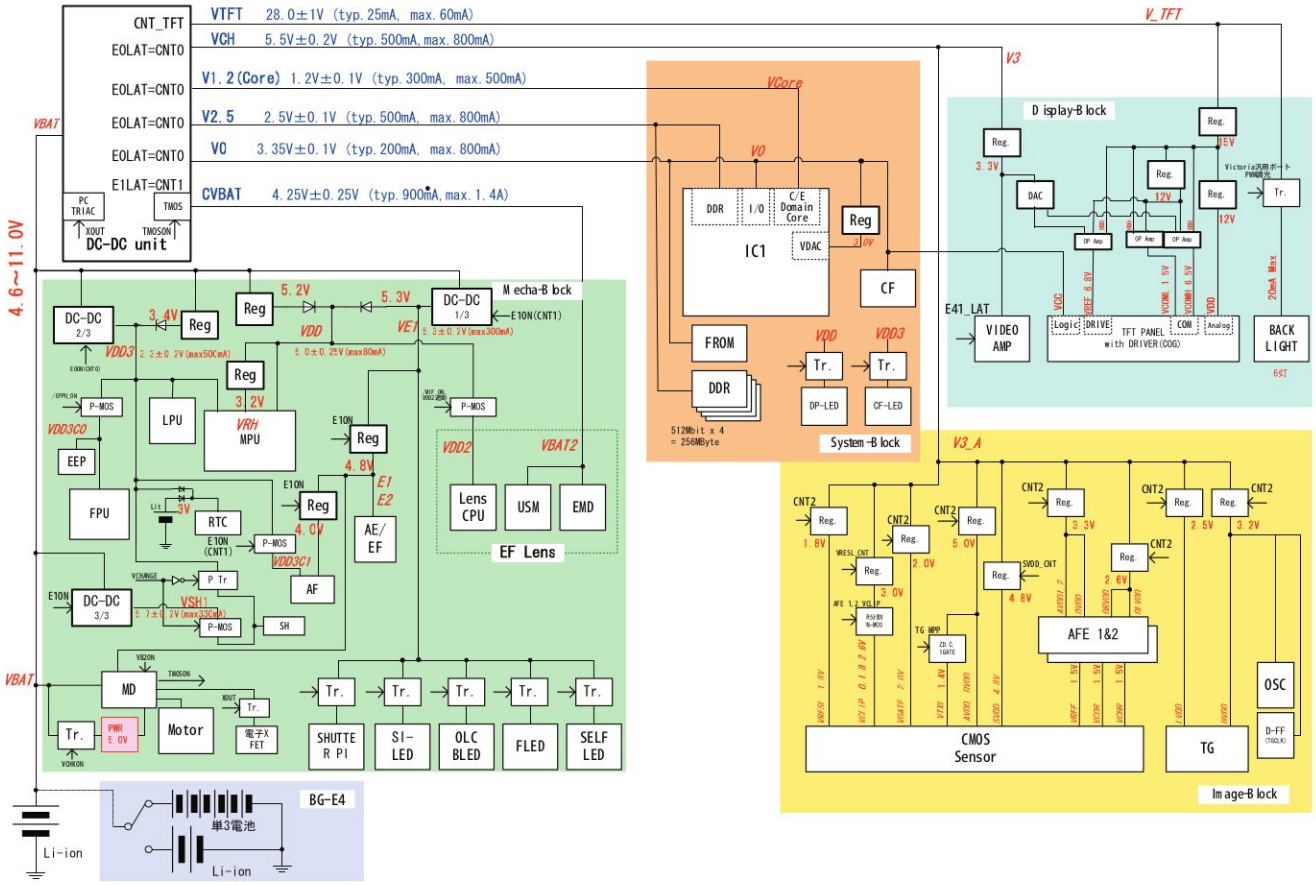
REF. NO. C12-6091



No.	Parts No.	Remark	Size
①	Y11-5002	BLACK:BLK	1.2
②	Y11-5003	RED	1.2
③	Y11-3909	GREEN:GRN	0.6
④	Y11-3902	BLACK:BLK	0.6
⑤	Y11-3907	YELLOW:Y	0.6
⑥	CH2-8373		
⑦	CH2-8374		

01 SEP., 2005





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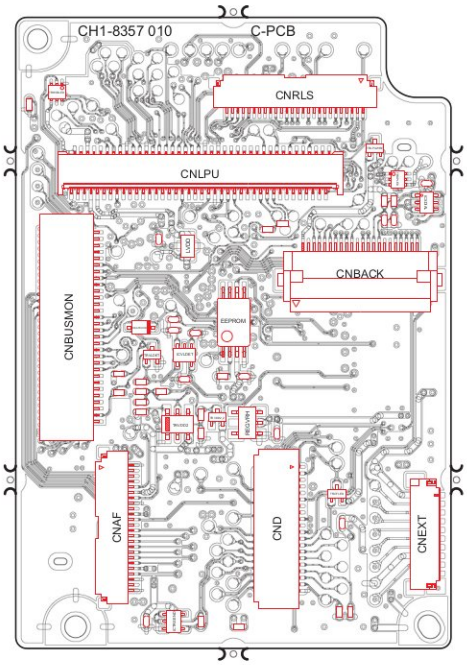

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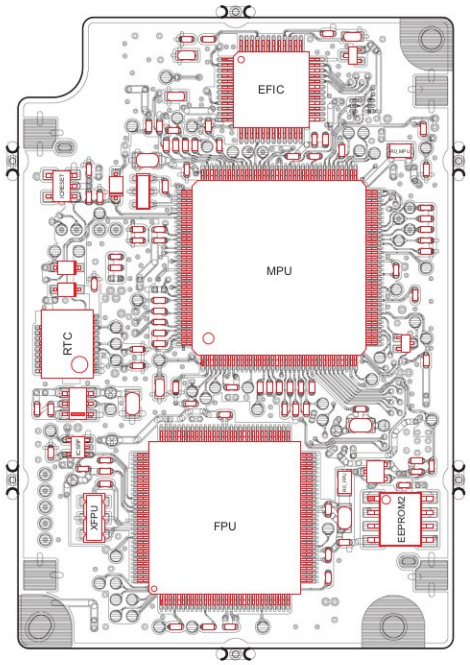

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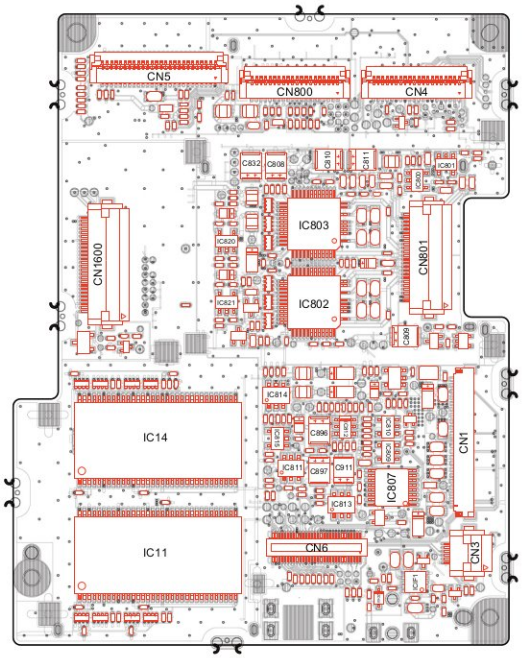

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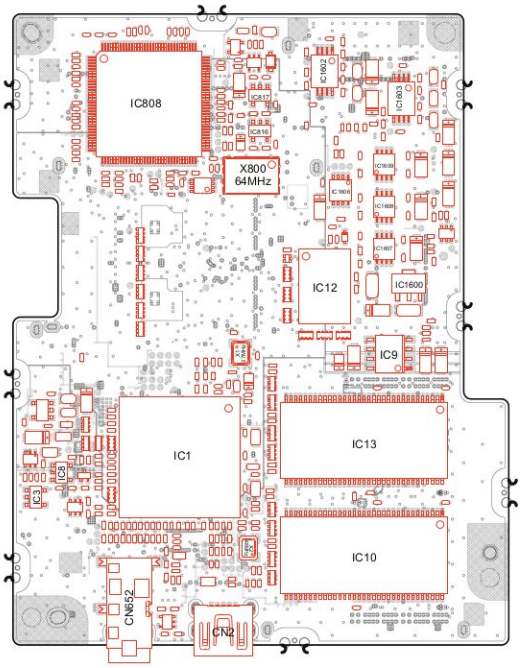

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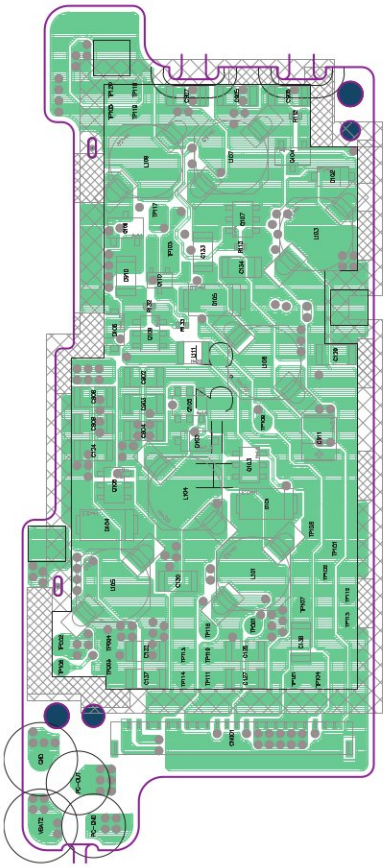

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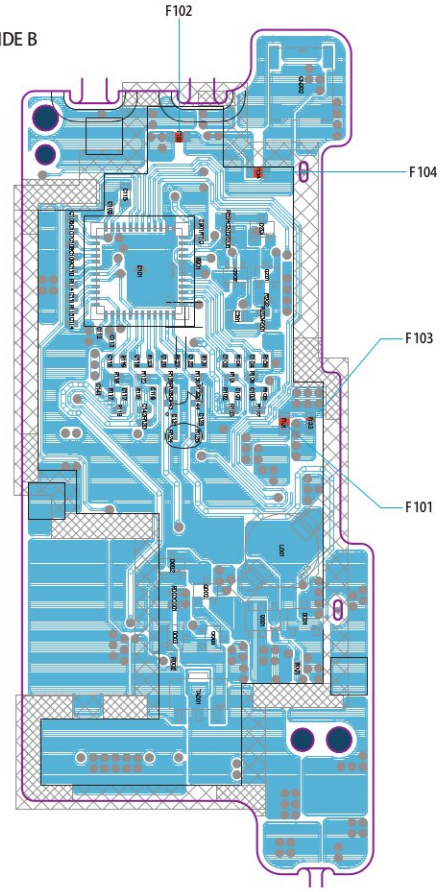

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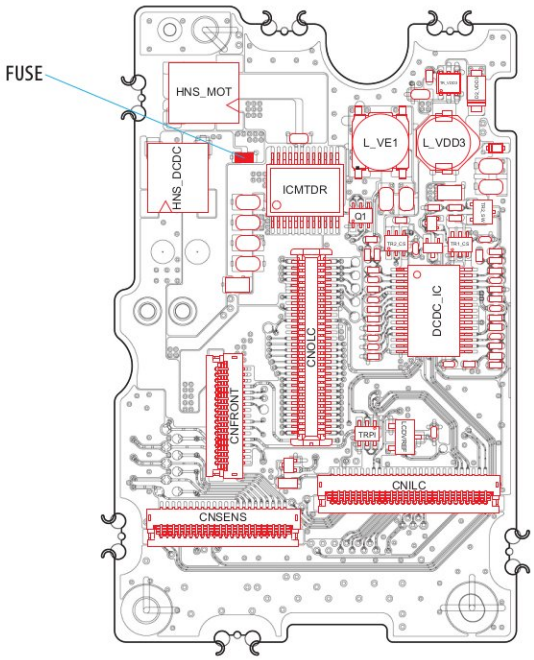

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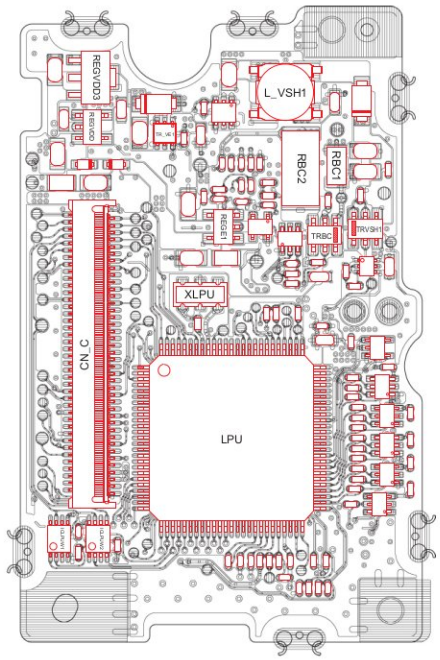

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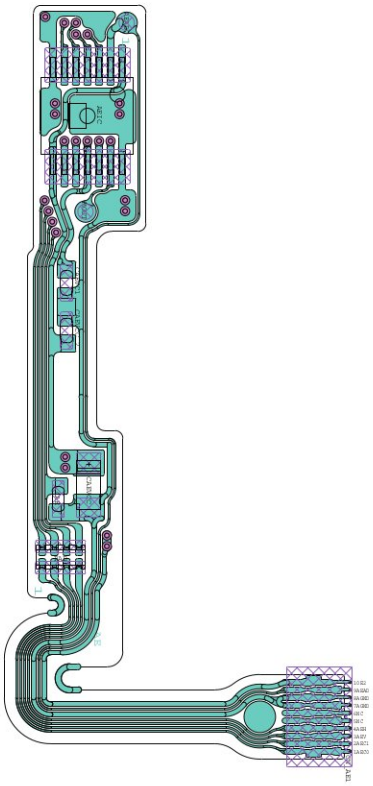

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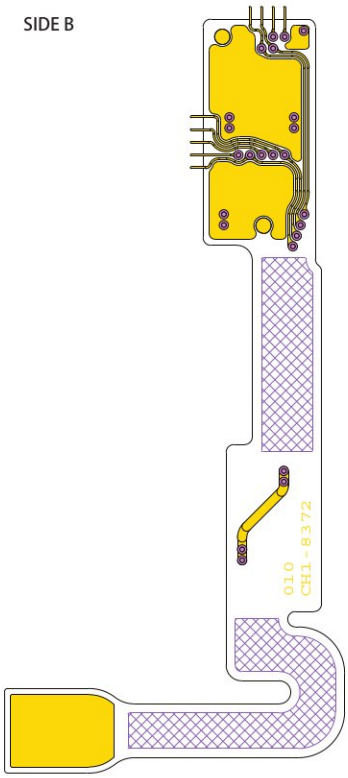

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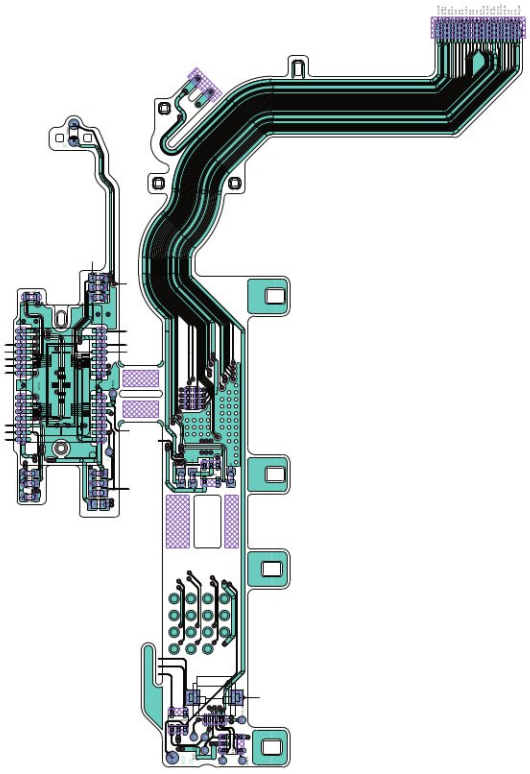

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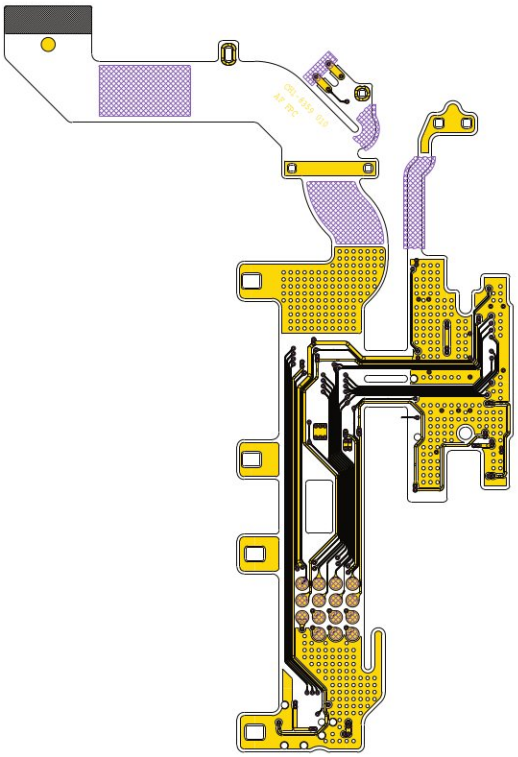

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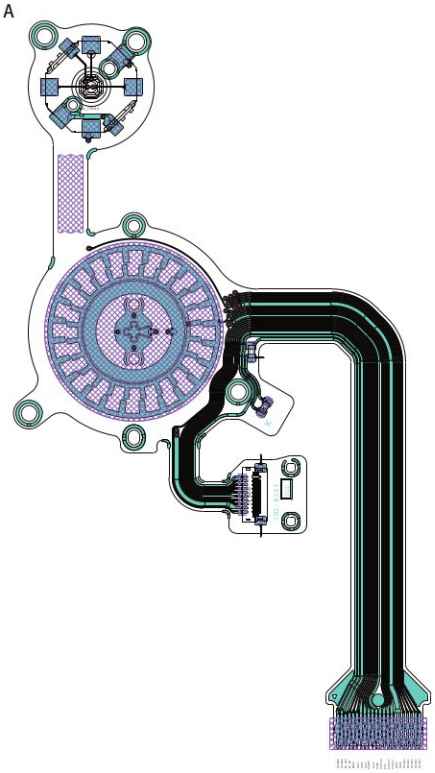

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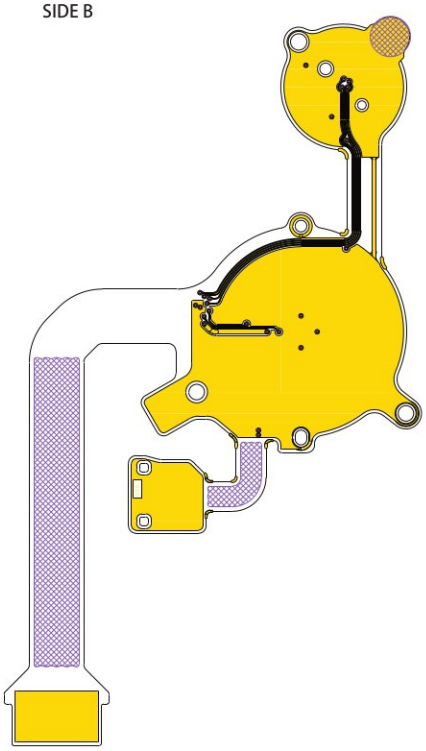

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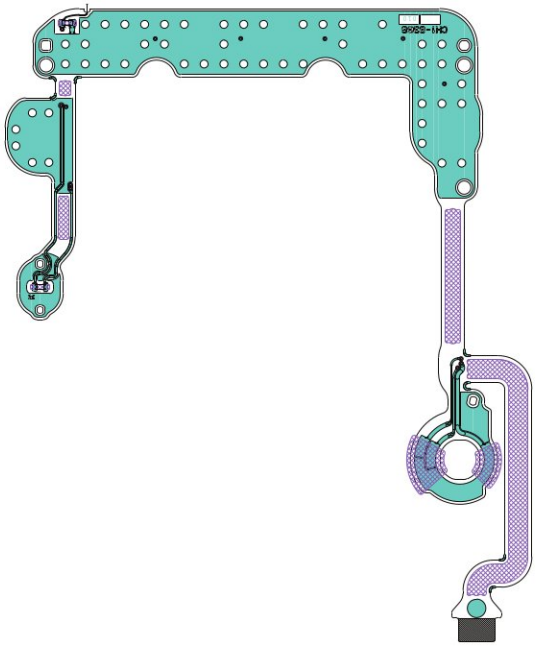

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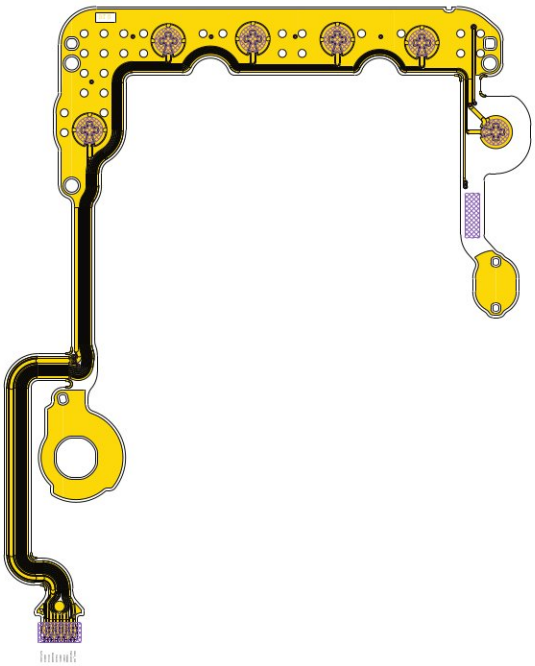

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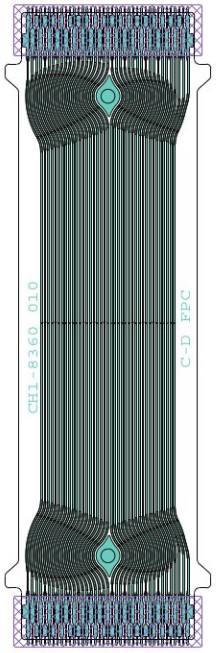

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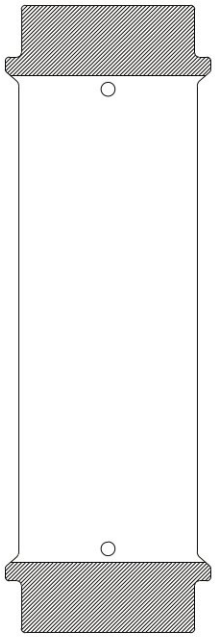

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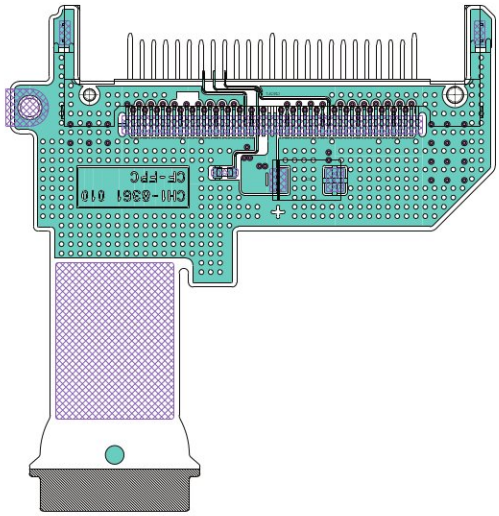

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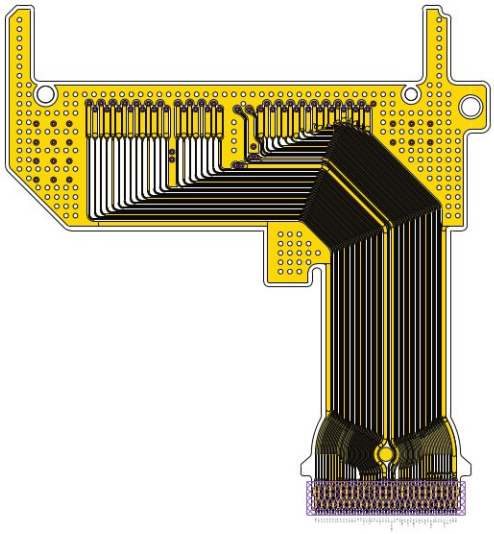

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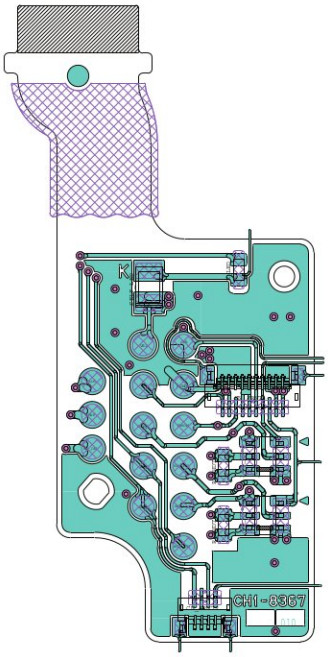

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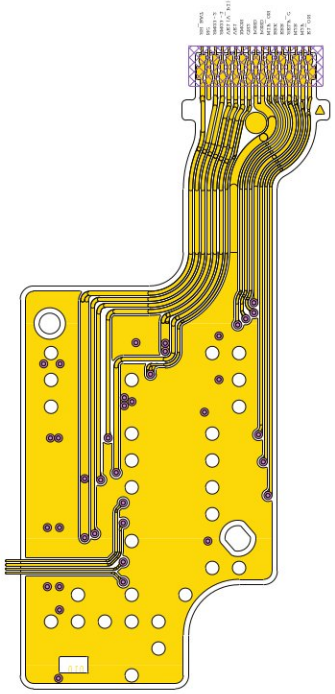

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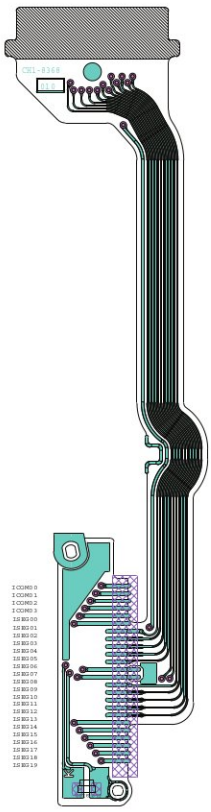

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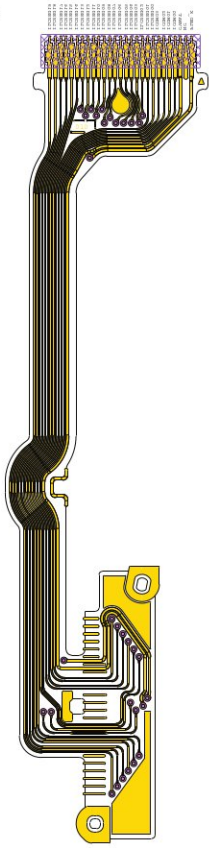

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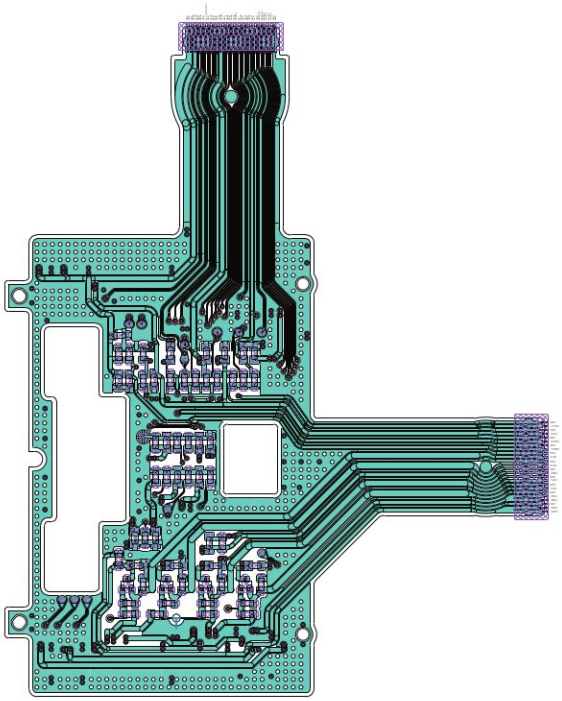

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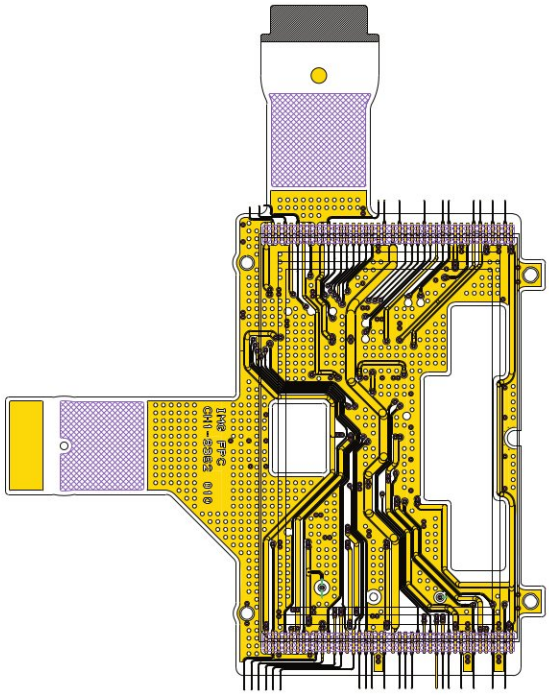

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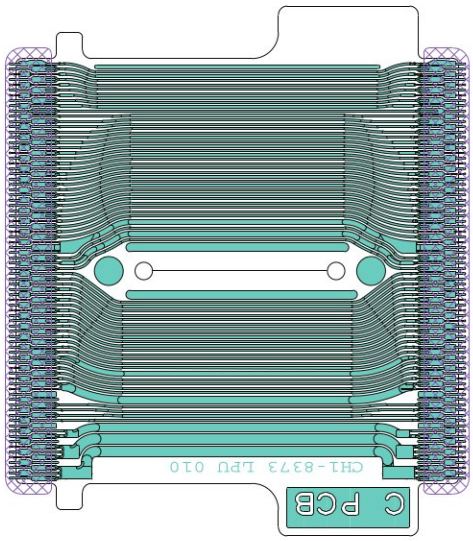

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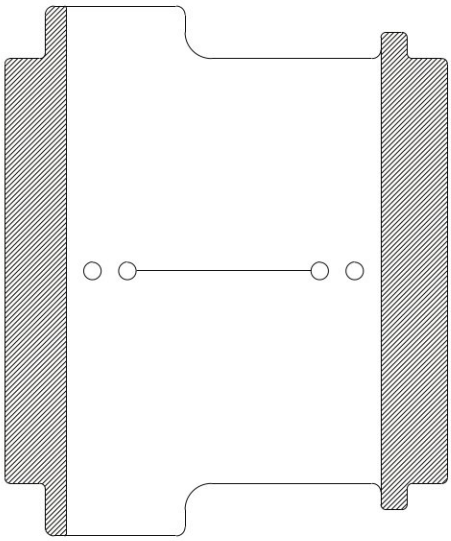

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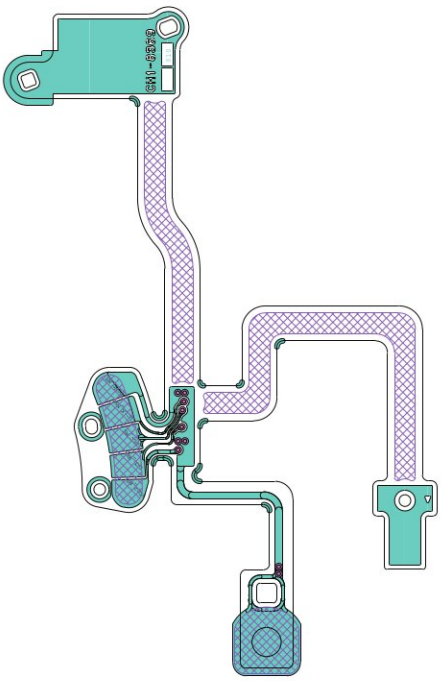

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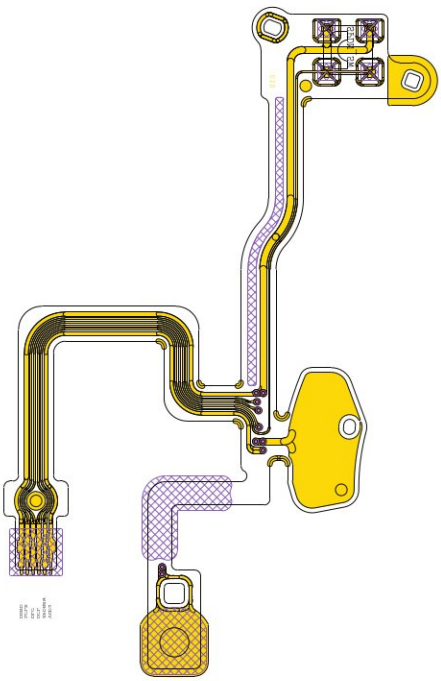

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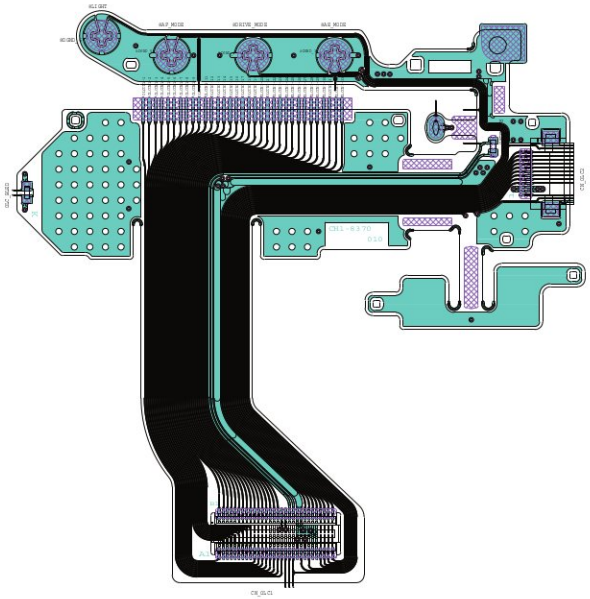

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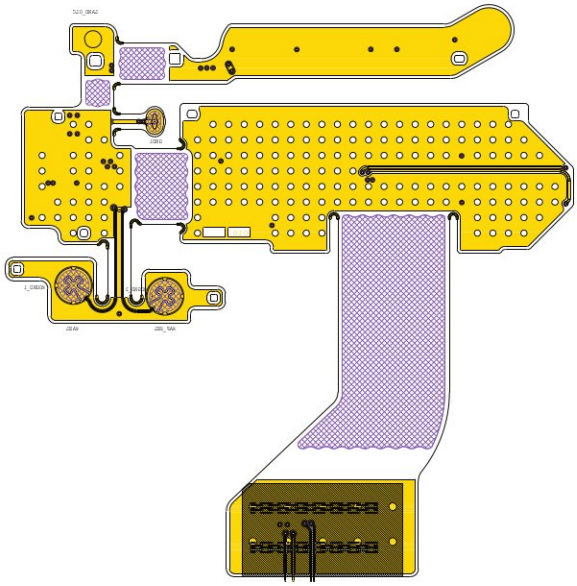

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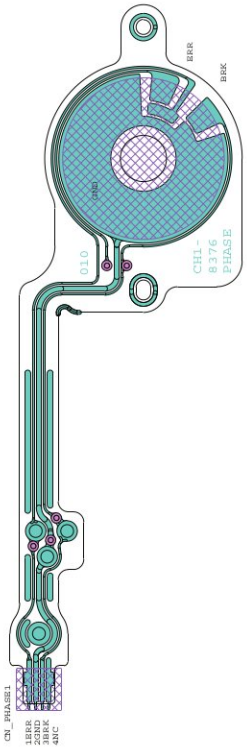

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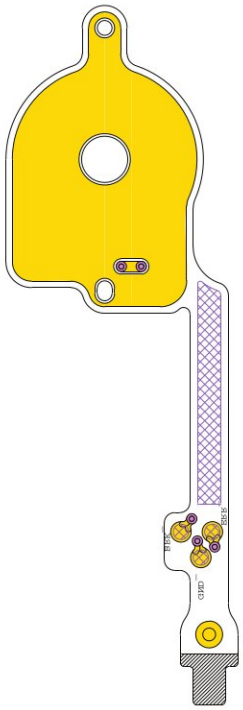

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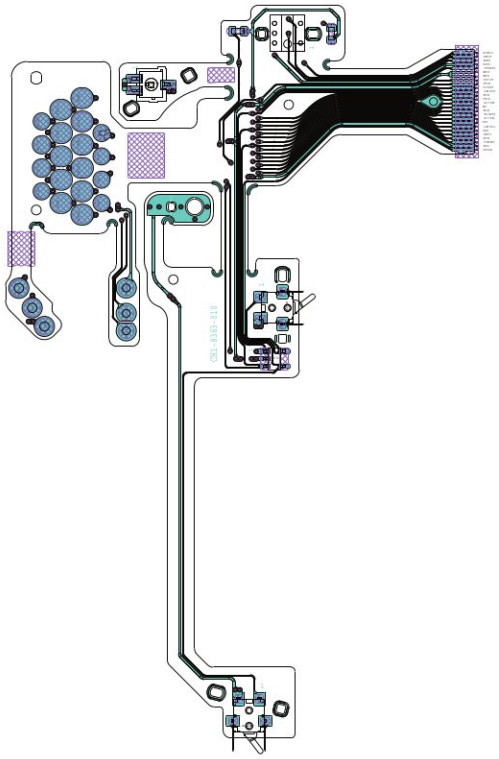

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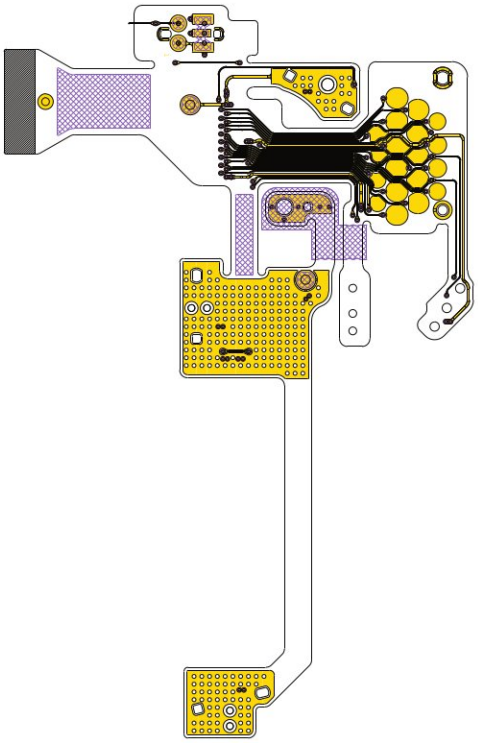

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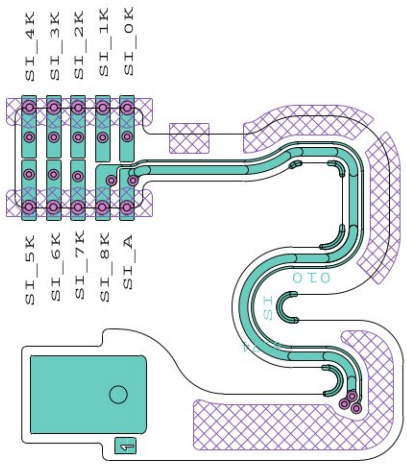

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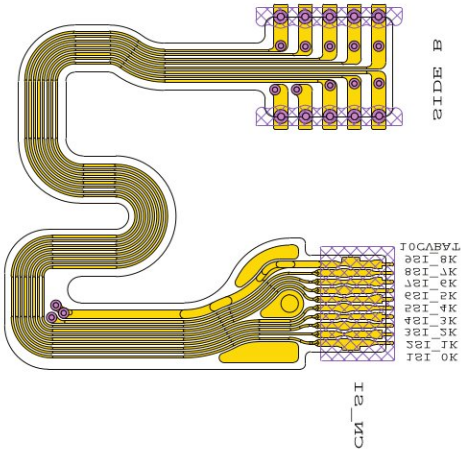

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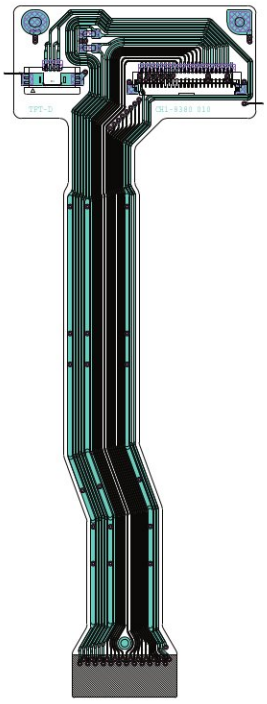

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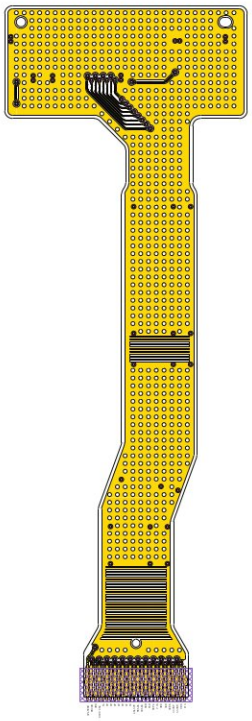

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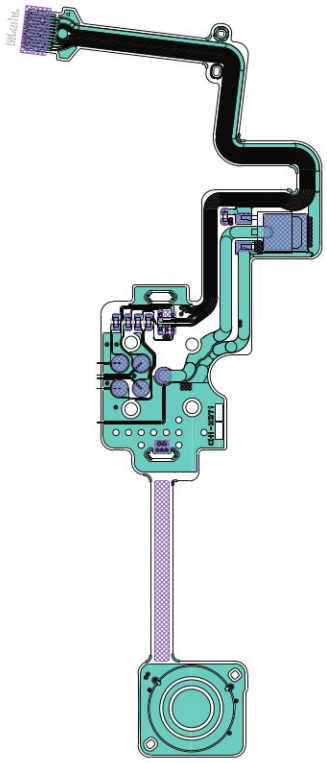

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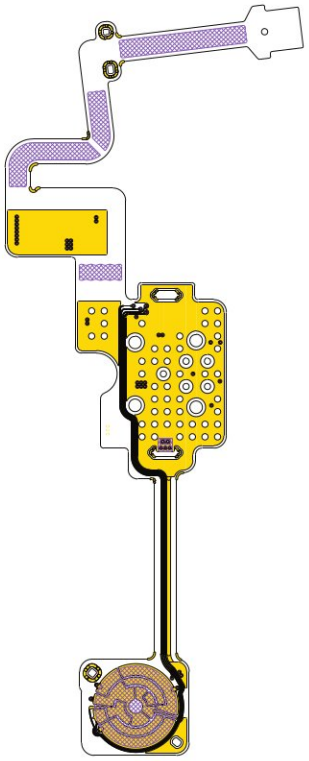

Software Information

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CONTENTS

1. EOS DIGITAL SOLUTION DISK Ver. 11

1.1 Overview

Starting with the EOS DIGITAL Solution Disk Ver.10 bundled with the EOS DIGITAL REBEL XT/350D DIGITAL to be released in Spring 2005, the core software has been changed to ZoomBrowser EX/ImageBrowser to cater to a broader range of users. The software configuration has also been changed to include Digital Photo Professional, which was provided on a separate CD through to 2004.

The EOS DIGITAL Solution Disk Ver.11 CD bundled with the EOS 5D and EOS-1D MarkII N continues along this path, providing software applications that are upgraded in line with user requirements.

1.2 CD Configuration

In addition to the EOS DIGITAL Solution Disk Ver.11 CD containing the EOS DIGITAL software applications, a CD containing the Software Instruction Manuals in PDF format is also bundled with the EOS 5D and EOS-1D MarkII N (Table 001).

The current plan is not to bundle a CD containing third-party image editing software.

Table 001 CD configuration

CD Types and Content	EOS 5D	EOS-1D MarkII N
EOS DIGITAL Solution Disk Ver. 11 • Contains the software applications for the EOS 5D and EOS-1D MarkII N. • Win/Mac hybrid version	○	○
Software Instruction Manual CD (PDF) • Contains the EOS DIGITAL Software Instruction Manual and Digital Photo Professional Instruction Manual as electronic manuals in PDF format. • Win/Mac hybrid version	○	○

1.3 Solution Disk Software Configuration

As shown in Table 002, in the software configuration for Solution Disk, images are viewed and edited using ZoomBrowser EX/ImageBrowser, which is the core software application. In addition, software functions required for use with digital cameras, such as image downloading, specifying camera settings, remote shooting, image layout and printing, RAW image processing and image merging, can all be used by linking with or activating the corresponding software application from ZoomBrowser EX/ImageBrowser (Fig. 001).

While Digital Photo Professional was originally intended as a standalone application, it can be linked with EOS Capture to cater to the needs of professional users.

Table 002 Software configuration

Software		Version	Windows OS	Mac OS
ZoomBrowser EX		5.5	Yes	
ImageBrowser		5.5		Yes
CameraWindow		5.3	Yes	Yes
PhotoRecord		2.2	Yes	
RAW Image Task		2.2	Yes	Yes
EOS Capture		1.5	Yes	Yes
PhotoStitch		3.1	Yes	Yes
Digital Photo Professional		2.0	Yes	Yes
WIA Driver	TWAIN Driver		Yes＊	
PTP WIA Driver	PTP TWAIN Drive		Yes＊	

＊Drivers for the EOS 5D and EOS-1D MarkII N are planned to be included.

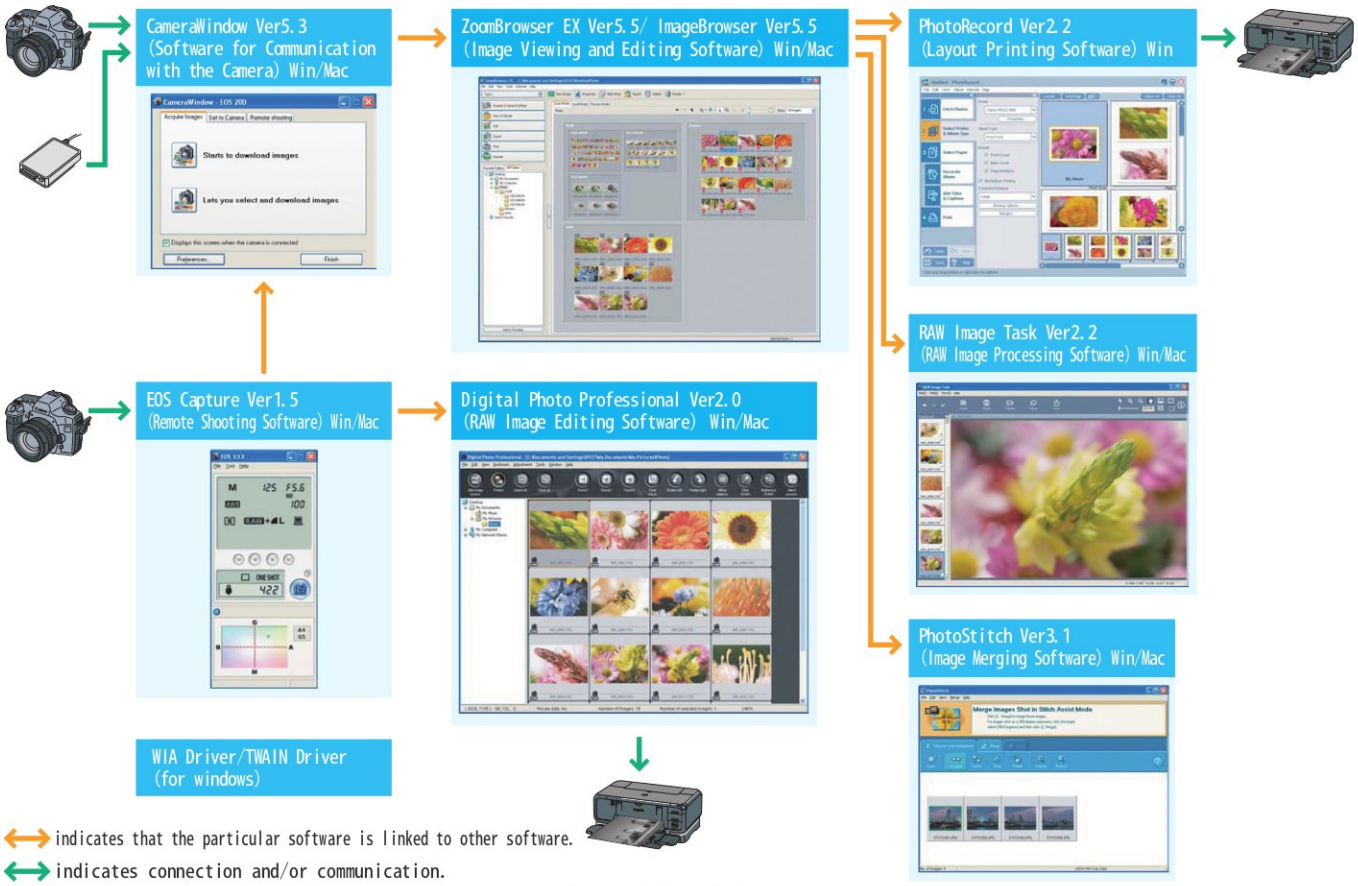


Fig. 001 Software linkages

1.4 Overview and Main Functions of the Software Applications

1） ZoomBrowser EX Ver 5.5 (Windows) / ImageBrowser Ver 5.5 (Macintosh)

(1)Overview and Main Changes

Built around version 5.1, this image viewing and editing software incorporates the major function additions and modifications described below to expand its range of supported cameras and better reflect the demands of the market (Fig. 002).

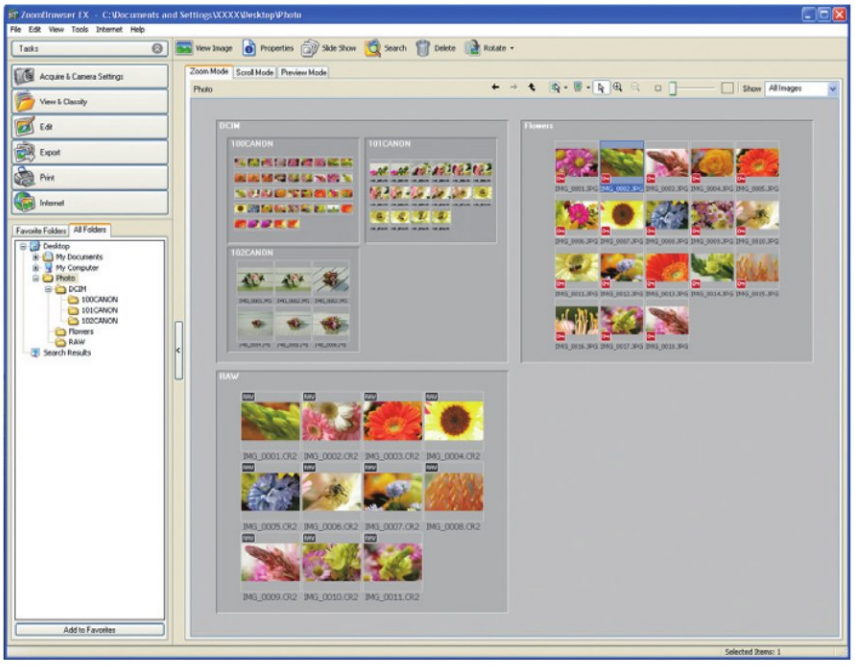


Fig. 002 ZoomBrowser EX Ver 5.5 main window (zoom mode)

- ●Supported RAW image types expanded to include EOS 5D and EOS-1D MarkII N RAW images.
- ●Added or revised printing functions
  - A new "Print 1 copy" button has been added to the print tasks to provide ZoomBrowser EX with its own printing function (Fig. 003, 004).

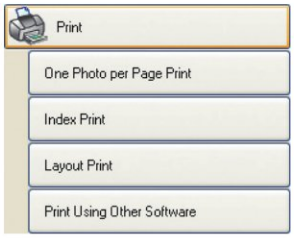


Fig. 003 Print task buttons

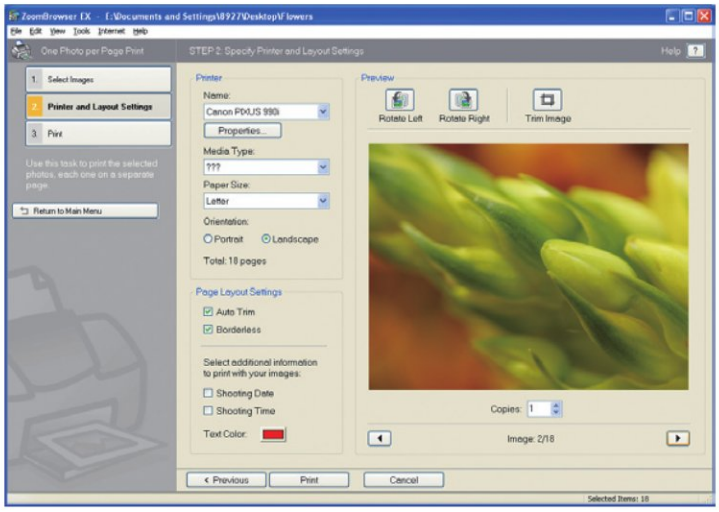


Fig. 004 Print 1 copy window

- A new "Print index" function has been provided in ZoomBrowser EX to enable standalone printing from ZoomBrowser EX (Fig. 005).
  - ＊In the "Print 1 copy" and "Print index" functions, images are printed directly from ZoomBrowser EX and not by linking with PhotoRecord.
  - ＊The "Print 1 copy" function can also be linked with Easy-PhotoPrint for printing.
  - ＊As previously, "Layout printing" is performed by linking up with PhotoRecord.

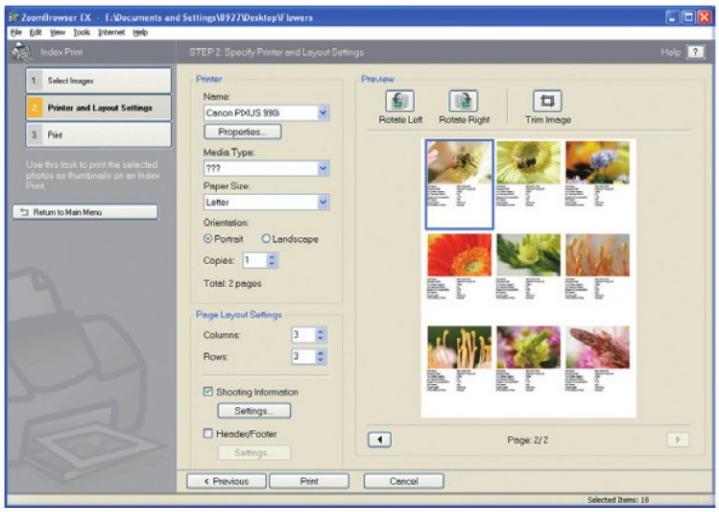


Fig. 005 Print index window

●Added or modified operability functions

- Marking of image folders for images downloaded from the camera (Fig. 006/highlighted in red frame).
- "Copy file" and "Move file" added to the contextual (right-click) menu.
- "Next" and "Back" buttons and explanatory text and illustrations added to the Task window (Fig. 007).
- Modified scroll mode folder bar.
- Tool tips shown in the toolbar.

Fig. 006 Folder marking

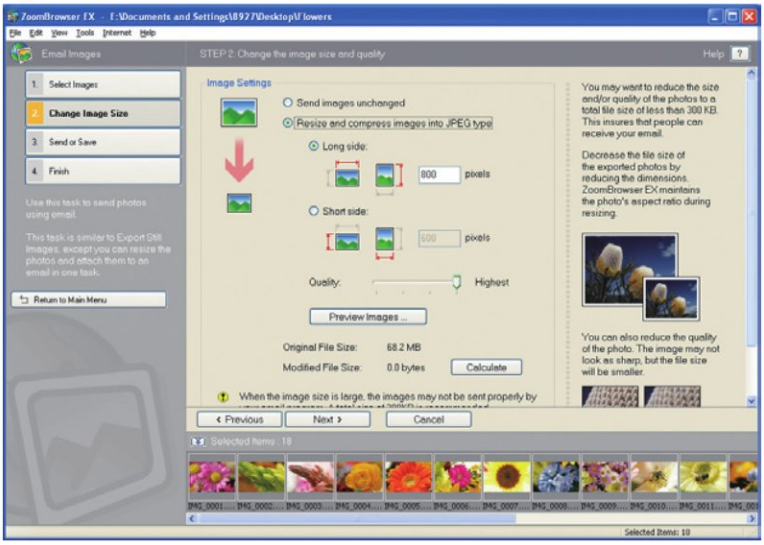


Fig. 007 Task window

●Additional Viewer window functions
- Image editing using levels adjustment, tone curve adjustment, sharpness and automatic image adjustment functions.
- Text entry
- Shooting information displayed on images (Fig. 008/highlighted in red frame).
- Printing using a Print (Print 1 copy) button

Except for these enhancements, the main functions are unchanged from version 5.1.

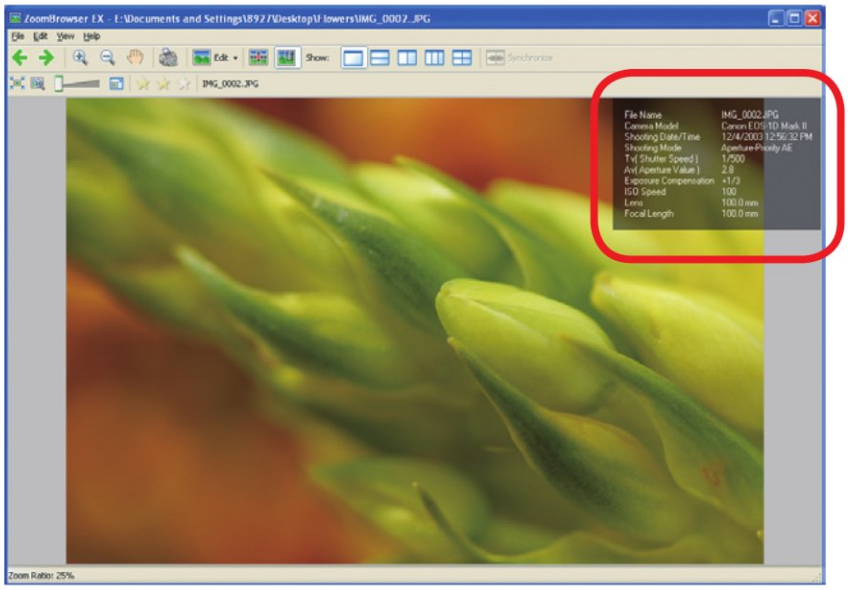


Fig. 008 Shooting information display in Viewer window

(2)Main functions in version 5.5 (functions added or modified in version 5.5 shown in blue)

●Basic functions and ease of operation aimed squarely at novice to high-end amateur users who primarily shoot JPEG images.

●A simple and straightforward interface built around task buttons and wizards with novice users in mind.
Note: Operations in ImageBrowser are menu-based.

●Links up with other applications to provide a continuous workflow from image downloading and viewing right through to editing and printing.

●Image display modes to suit a range of applications, including 3 types of image list display (Zoom, Scroll and Preview modes), slideshows and individual image display or multiple-image comparison display using the Viewer window.

●Image classification by the shooting date/time, batch file renaming and image organization by assigning "keywords" or a "Rating".

●Image search by shooting or modification date, by assigned a "Rating", by comment or by keyword.

●Extensive range of JPEG image editing functions (image correction, trimming, red-eye reduction, levels adjustment, tone curve adjustment, sharpness and automatic image adjustment), image rotation (left or right in 90° increments or 180° rotation) and image transfer to third-party image editing software.

●Printing functions for a range of applications, including Print 1 copy, Print index and Layout printing.

●Full suite of image writing options, including converting and saving JPEG images in BMP or TIFF type, writing shooting information, writing images as screen savers or wallpaper and writing images to CD-R/CD-RW.
●Linkage with e-mail software to send images as e-mail attachments and connection to Canon iMAGE GATEWAY.
●Support for color management systems.
●Support for 2 work color spaces (sRGB and Adobe RGB).

2） CameraWindow Ver 5.3 (Windows / Macintosh)

(1)Overview and Main Changes

Built around version 5.1, this camera communication software incorporates the major function additions and modifications described below to expand its range of supported cameras and better reflect the demands of the market (Fig. 009).

●Addition of the EOS 5D and EOS-1D MarkII N to the list of supported cameras.
●Support for PTP connection to the EOS 5D.

＊CameraWindow version 5.3 supports the PTP function on the EOS 5D or EOS DIGITAL REBEL XT/350D DIGITAL, enabling images to be downloaded and the camera settings to be specified regardless of whether the camera's communication setting is "Print/PTP" or "PC connection".

Fig. 009 CameraWindow Ver5.3

＊Because EOS Capture does not support the PTP function, it cannot be used when the camera's communication setting is "Print/PTP", even with an EOS DIGITAL REBEL XT/350D DIGITAL or EOS 5D equipped with the PTP function supported by CameraWindow version 5.3. Consequently, the camera's communication setting should be set to "PC connection" when using EOS Capture.

＊Because CameraWindow version 5.3 does not support the PTP function on the EOS 20D or EOS DIGITAL REBEL/300D DIGITAL, communication with the camera is not possible using the "PTP" camera communication setting. Consequently, to communicate with the camera for tasks such as image downloading, specifying camera settings or remote shooting using EOS Capture, select "Normal" as the communication setting on the camera.

●Addition of a camera settings function for EOS-1D series cameras (including the EOS-1D MarkII N) in the Camera settings window, accessed by pressing the "Check/modify camera settings" button (Fig. 010).

Except for these enhancements, the main functions are unchanged from version 5.1.

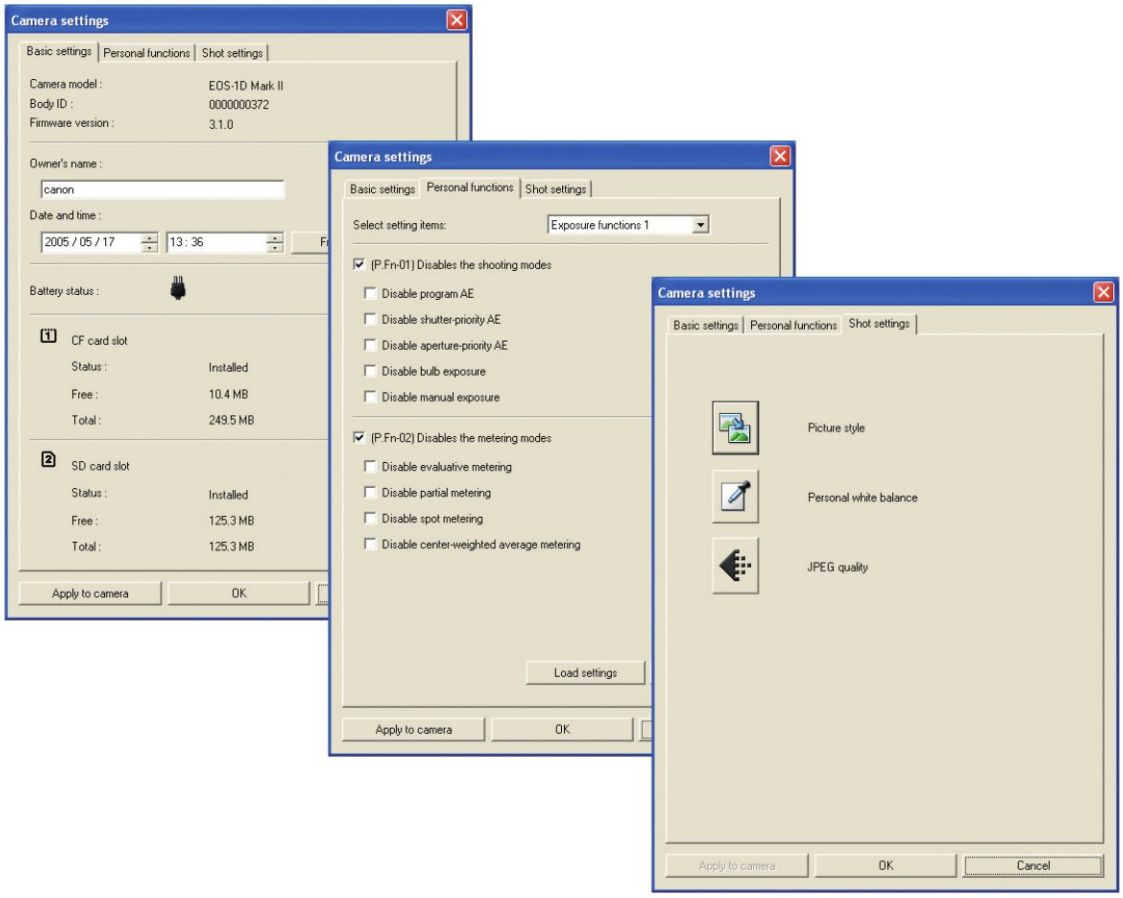


Fig. 010 EOS-1D MarkII N Camera setting windows

(2)Main functions in version 5.3 (functions added or modified in version 5.3 shown in blue)

●Automatically started/displayed when the camera is connected to the computer and allows the user to transfer images saved on a memory card in the camera to ZoomBrowser EX/ImageBrowser and specify the settings on the camera.

●Allows images saved on a memory card in the camera to be downloaded in a single operation and also allows images to be displayed as a list and downloaded selectively using the "Camera Browser window".

●Also supports image downloading from a card reader.

●Camera setting function with access to a range of camera settings.

●Viewing of images saved on CF cards in the camera.

●Links up with EOS Capture to enable remote shooting.

＊Due to the camera specifications, DPOF settings cannot be specified and images cannot be recorded back onto a CF card in the camera on the EOS 5D, EOS-1D MarkII N, EOS DIGITAL REBEL XT/350D DIGITAL, EOS 20D or EOS-1D series cameras.

＊DPOF settings can be specified and images can be recorded back onto a CF card in the camera on the EOS DIGITAL REBEL/300D DIGITAL, EOS 10D, EOS D60 and EOS D30.

3） PhotoRecord Ver 2.2 (Windows)

This software links up with ZoomBrowser EX to provide image layout and printing functions and is the same version as that bundled with the Canon digital cameras released in Spring 2005 (Fig. 011).

ZoomBrowser EX version 5.5 now features "Print 1 copy" and "Print index" functions so that ZoomBrowser EX only links with PhotoRecord for "Layout printing".

- When the user chooses an image in ZoomBrowser EX and selects "Layout printing", PhotoRecord is started/displayed and the image can then be printed on a printer connected to the computer.
- Uses a straightforward task button and wizards with the same design as the ZoomBrowser EX interface to cater to novice users.
- Provides simple procedures for printing and setup tasks such as image layout, image size adjustment, frame selection and text entry.

＊Because ImageBrowser provides basically the same printing functions as PhotoRecord, PhotoRecord is not available for the Macintosh.

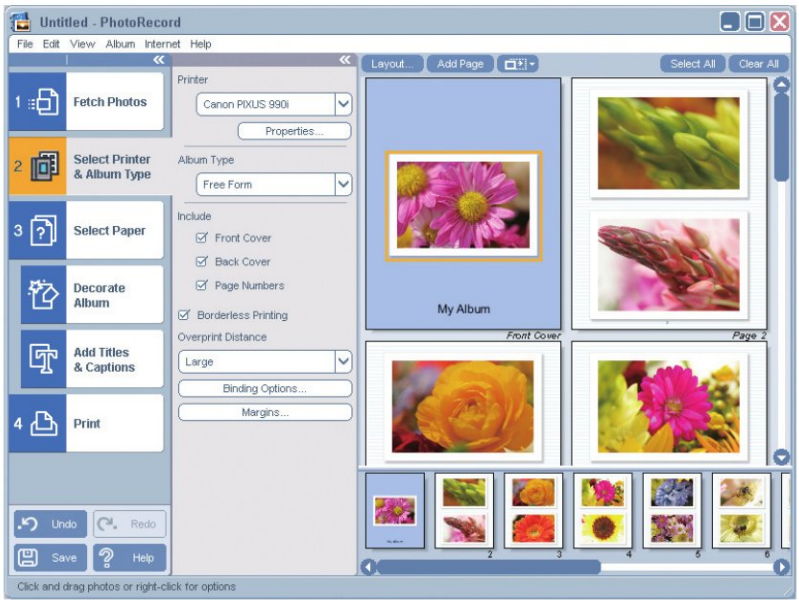


Fig. 011 PhotoRecord Ver 2.2 Main window

4） RAW Image Task Ver 2.2 (Windows / Macintosh)

(1)Overview and Main Changes

Built around version 2.0, this RAW image processing software incorporates the major function additions and modifications described below to expand its range of supported RAW images and better reflect the demands of the market (Fig. 012).

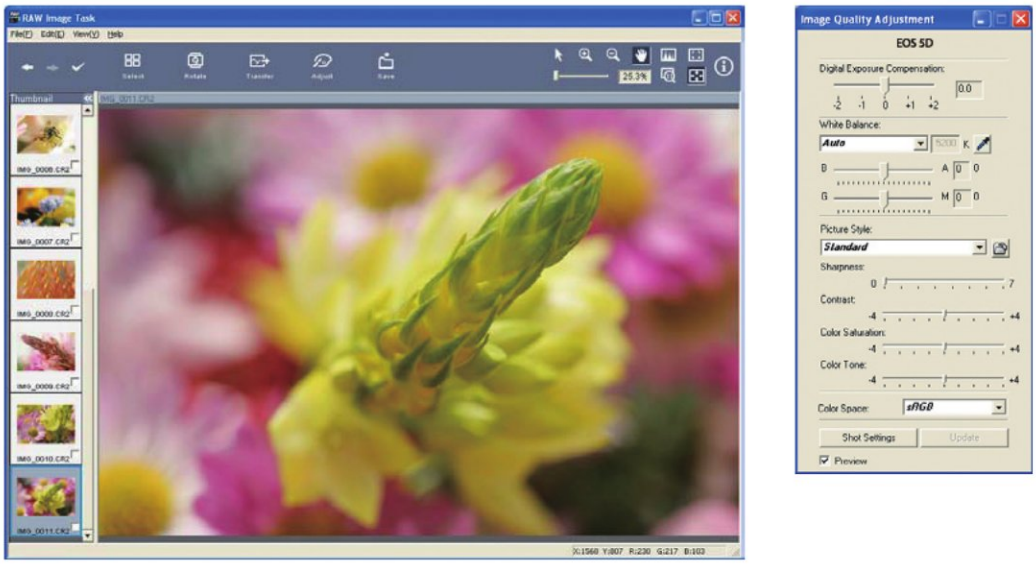


Fig. 012 RAW Image Task Ver 2.2 Main window

- ●Supported RAW images expanded to include EOS 5D and EOS-1D MarkII N RAW images.
- ●Addition of RAW image processing/setting functions that support the EOS 5D and EOS-1D MarkII N picture styles.
- ●Main window design modified (operation-step tab format removed, etc.) for improved operability (Fig. 012).
- ●Shooting information (focal length, shutter speed, aperture value, shooting mode, ISO speed) displayed on images (Fig. 013).
- ●Additional shortcut keys.

Except for these enhancements, the main functions are unchanged from version 2.0.

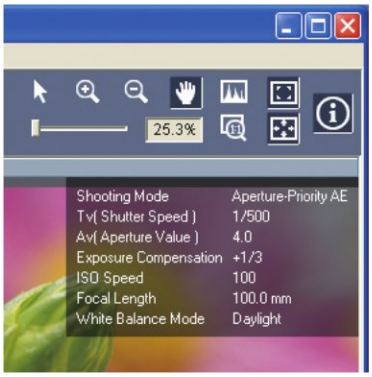


Fig. 013 Shooting information display

(2)Main functions in version 2.2 (functions added or modified in version 2.2 shown in blue)

- ●When the user selects a RAW image in ZoomBrowser EX and then selects image processing, RAW Image Task starts up and allows the RAW image to be processed and displayed. Selecting a RAW image allows the user to make image adjustments (using processing parameter settings) with no loss of image quality.
- ●Uses the high-quality image processing typical of genuine Canon software together with algorithms tailored to the camera to provide image processing with the same color tones as the camera itself.
- ●Settings changed to give the same processing parameters as on the camera.
- ●Support for all EOS DIGITAL RAW images from the EOS D30 onwards.
  ＊EOS D6000, EOS D2000, EOS DCS1 and EOS DCS3 RAW images not supported.
- ●Functions for converting and saving images as TIFF and JPEG images and for adding ICC profiles to images.
- ●Support for color management systems.
- ●Support for 2 work color spaces (sRGB and Adobe RGB).

5） EOS Capture Ver 1.5 (Windows / Macintosh)

Built around version 1.3, this upgraded remote shooting software incorporates an expanded range of supported cameras (Fig. 014). Except for the addition of the EOS 5D and EOS-1D MarkII N to the list of supported cameras, the main functions are unchanged from version 1.3.

- ●Allows the camera to be controlled and camera settings to be specified from the computer and saves shot images directly to the computer.
- ●Also allows the user to take shots by pressing the shutter button on the camera.
- ●Compatible with the EOS 5D, EOS-1D MarkII N, EOS DIGITAL REBEL XT/350D DIGITAL, EOS 20D and EOS-1D series cameras.

＊Because EOS capture does not support the PTP function, it cannot be used when the camera's communication setting is "Print/PTP", even with an EOS DIGITAL REBEL XT/350D DIGITAL or EOS 5D equipped with the PTP function supported by CameraWindow version 5.3. Consequently, the camera's communication setting should be set to "PC connection" when using EOS Capture.

＊Because EOS Capture does not support the PTP function on the EOS 20D, communication with the camera is not possible using the "PTP" camera communication setting. Consequently, when using EOS Capture, "Normal" must be selected as the communication setting on the camera.

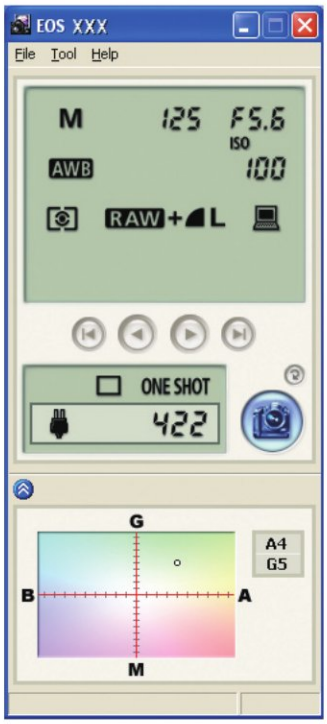


Fig. 014 EOS Capture Ver 1.5 Main window

6） PhotoStitch Ver 3.1 (Windows / Macintosh)

This software links up with ZoomBrowser EX/ImageBrowser to provide JPEG image merging functions and is the same version as that bundled with the Canon digital cameras released in Spring 2005 (Fig. 015).

- ●Uses a simple procedure to merge together multiple JPEG images to create composite images such as panorama shots.
- ●Uses a wizard-type interface tailored to novice users.

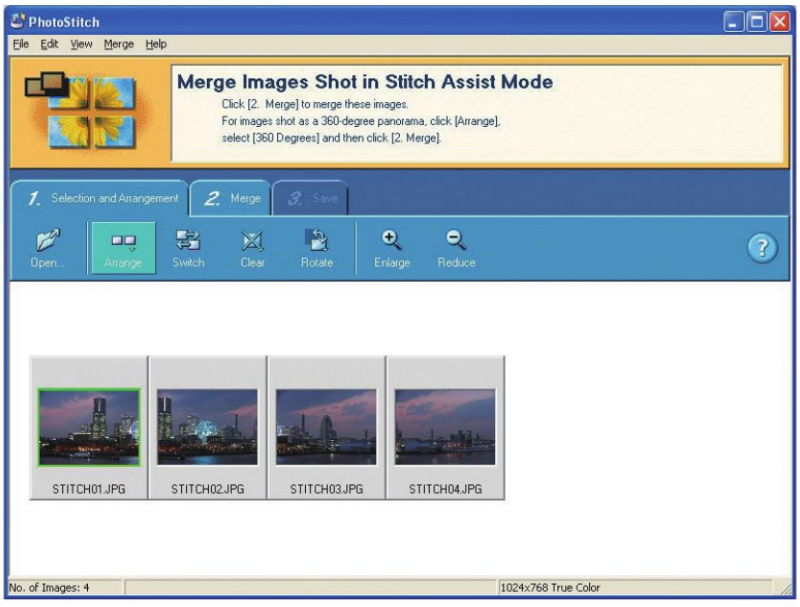


Fig. 015 PhotoStitch Ver 3.1 Main window

7） Digital Photo Professional Ver 2.0 (Windows / Macintosh)

(1)Overview and Main Changes

Built around version 1.6, this RAW image editing software incorporates the major function additions and modifications described below to expand its range of supported RAW images and better reflect the demands of the market (Fig. 016).

Fig. 016 Digital Photo Professional Ver 2.0 Main window

●Additional RAW image support

- Support has been added for RAW images shot using the EOS 5D, EOS-1D MarkII N and EOS D30. RAW images from all EOS DIGITAL cameras from the EOS D30 onwards are now supported.

  ＊EOS D6000, EOS D2000, EOS DCS1 and EOS DCS3 RAW images not supported.

●Support for Picture Styles

- The "RAW image adjustment" tool palette now includes a Picture Styles function for the a new processing parameter available on the EOS 5D and EOS-1D MarkII N (Fig. 017). This function can be used with all of the RAW images supported by Digital Photo Professional and can even be used to process RAW images from older models not equipped with the Picture Styles function, using the latest algorithm to achieve superb image quality.

  ＊Only RAW images shot on cameras equipped with the Picture Styles function (EOS 5D and EOS-1D MarkII N) are compatible with RAW Image Task.

  ＊Because RAW images shot on a PowerShot Pro 1 cannot be edited in Digital Photo Professional, they also are incompatible with Picture Styles.

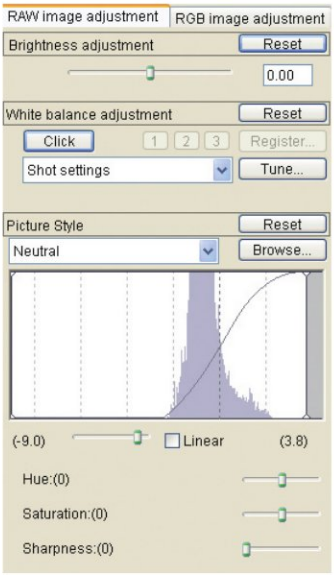


Fig. 017 RAW image adjustment tool palette

●Additional functions aimed at improving workflow efficiency for professionals

- A Quick check window has been added that shows images reduced to half size (Fig. 018). This window, because it displays images more quickly than the Edit or Edit Image windows, which process and display images at full size (100%), provides a quick and convenient way to check the focus, etc.

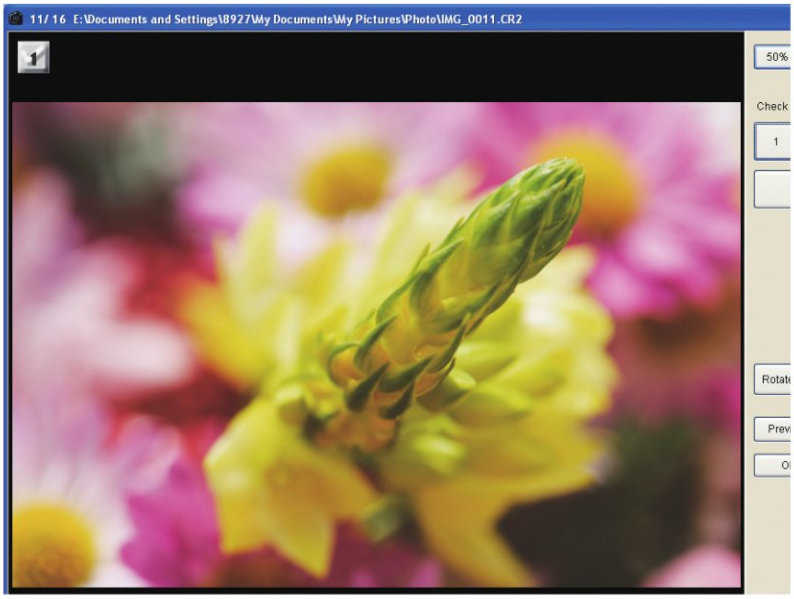


Fig. 018 Quick check window

- Quick and easy selection using 3 types of image checkmarks.
- New folder creation function for creating folders in Digital Photo Professional.

●Sharpness function enhanced

- A sharpness function has been added that allows images to be checked and adjusted on screen in realtime (Fig. 019/highlighted in red frame). The resulting adjustments can be saved together with other adjustments as recipe data. The Sharpness setting used during image conversion and saving that was provided up until version 1.6 has been discontinued.

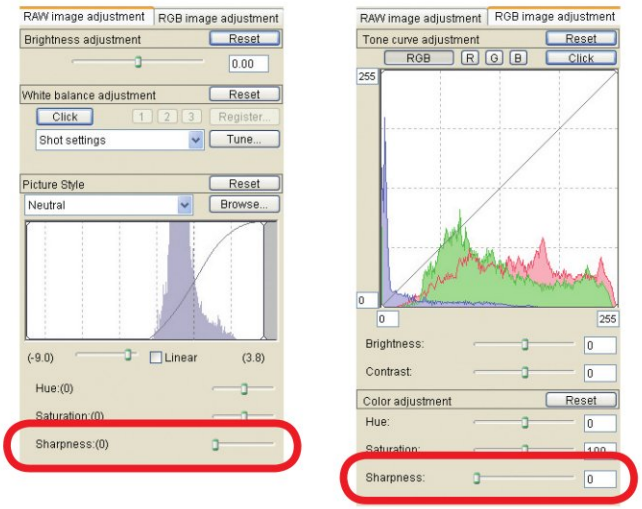


Fig. 019 Sharpness settings window (Raw image adjustment / RGB image adjustment)

●Enhanced image correction functions

- In addition to the Copy Stamp function provided in version 1.6, the Repair function that is a semi-automated image cleanup function has been added that uses the FARE technology developed for Canon's flatbed scanners (Fig. 020/highlighted in red frame). This is a fast and effective cleanup tool that allows the user to have sections of scanned images that contain stains or dust flecks instantly corrected simply by specifying the affected areas.

  ＊The software identifies and corrects stains and dust by isolating pixels in the selected area of the image that are lower (darker) or higher (brighter) than the average brightness for that area.

  ＊Depending on the color of the stains or dust, the user can select either the White stain correction button or the Black stain correction button.

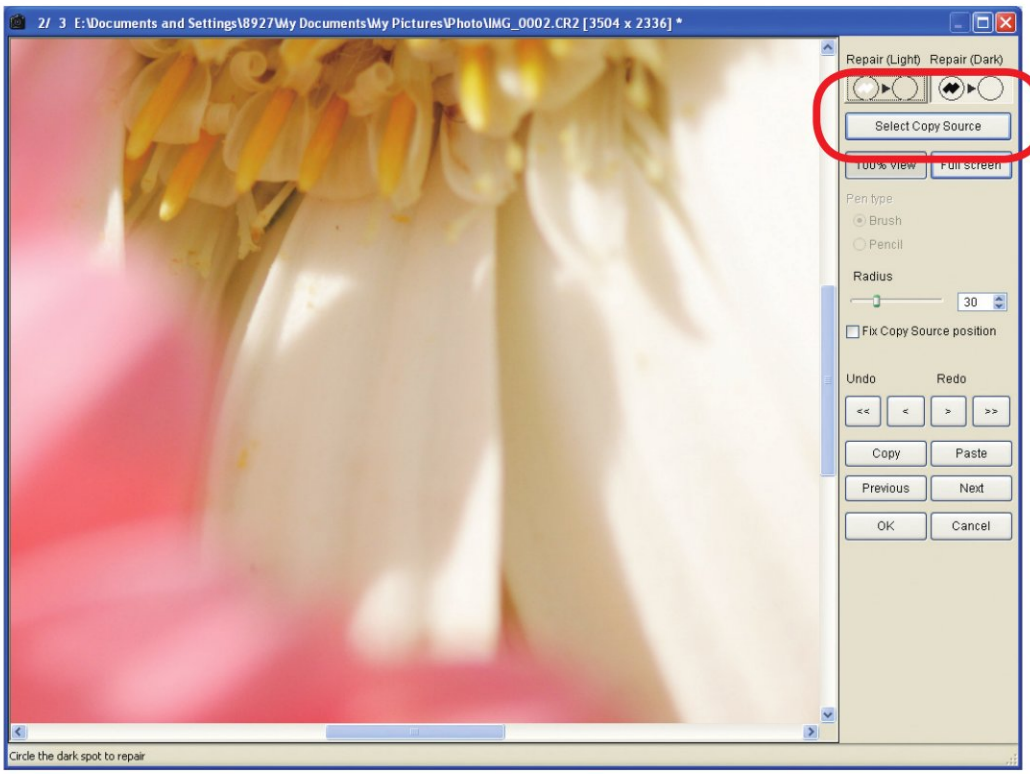


Fig. 020 Copy Stamp window

●Enhanced image transfer function

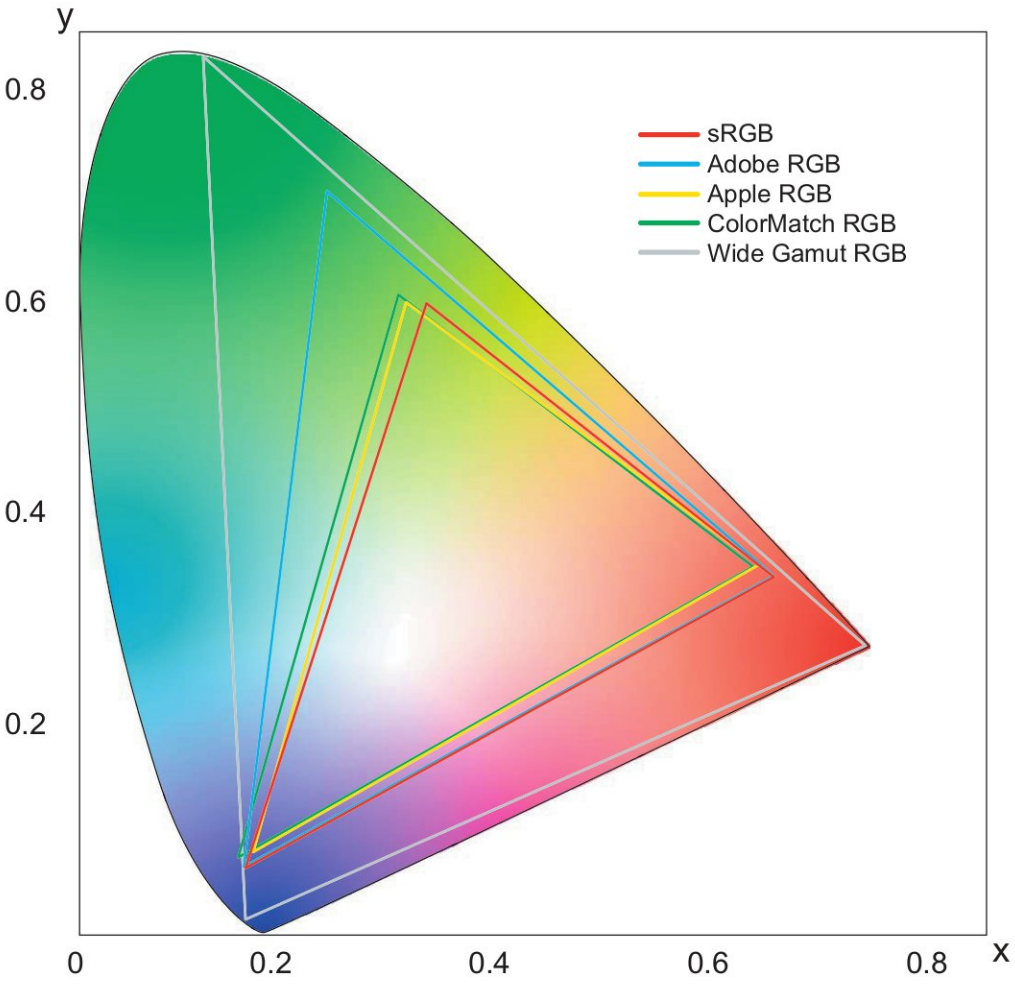
- By reviving the "Transfer to Photoshop" function provided in the "Tools" menu in version 1.1. we have restored the function for transferring single images to Photoshop. By combining this with the function available from version 1.5 onwards for transferring multiple images to other retouching software, image transfer options are now available for a range of situations.

●Expanded color space support

・Support has been added for the Apple RGB and ColorMatch RGB color spaces. Together with the previously supported color spaces (sRGB, Adobe RGB and Wide Gamut RGB), this brings the total number of supported color spaces to 5. (Fig. 021)

＊Apple RGB: A color space that covers a slightly wider range of color tones than sRGB. This is the standard color space for Macintosh computers and is widely used by the Macintosh users that make up the majority of the DTP industry. (Fig. 021)

＊ColorMatch RGB: A color space that covers a slightly wider range of color tones than sRGB. This color space provides optimal color matching with the PressView series monitors from Radius, which are widely used in the pre-press industry. (Fig. 021)



		gamma value	white point (color temperature)
———	sRGB	2.2	6500K (D65)
———	Adobe RGB	2.2	6500K (D65)
———	Apple RGB	1.8	6500K (D65)
———	ColorMatch RGB	1.8	5000K (D50)
———	Wide Gamut RGB	2.2	5000K (D50)

Fig. 021 Chromaticity diagram of supported color space

●Enhanced CMYK simulation function

・ The color matching method up to version 1.6 was fixed at "Perceptual", but the "Colorimetric" option has been added to cater to a wider range of users. The range of supported color spaces has also been expanded from Adobe RGB only in version 1.6 and earlier to 5 color spaces in version 2.0 (sRGB, Adobe RGB, Wide Gamut RGB, Apple RGB and ColorMatch RGB) (Fig. 022).

＊Perceptual: A matching method that converts to other colors based on the way the eye saw the original image, so that the viewer experiences no perceptual change. However, because colors are converted to other colors, colors in some images differ between the original image and the converted image.

＊Colorimetric: A matching method that compares the white points in the converted image with the white points in the original image and then uses that difference as a reference for converting all the colors. This method allows more precise color conversion than perceptual color matching.

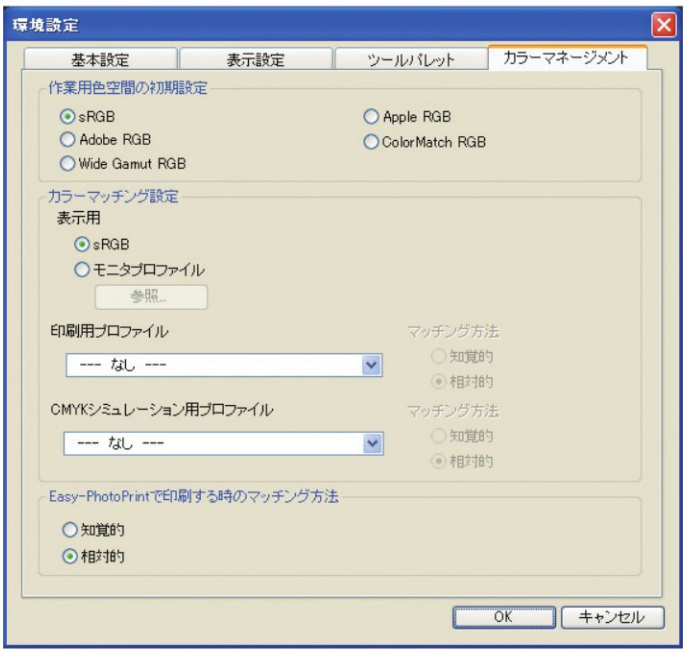


Fig. 022 Preferences window / Color Management tab

・ In version 1.6, using the CMYK Simulation function required the user to specify the setting in the Preferences window. A shortcut key has now been added to make selecting this function quicker and easier.

Except for these enhancements, the main functions are unchanged from version 1.6.

(2)Main functions in version 2.0 (functions added or modified in version 2.0 shown in blue)

●RAW image editing software aimed squarely at users from high-end amateurs to professionals who primarily shoot RAW images.

●High-speed RAW image display and processing using Canon's own powerful algorithms.

●Easier operation and control with basic functions tailored to professional work flows.

●Image processing with excellent image quality from the latest algorithms used by Canon's own software.

●Support for all EOS DIGITAL RAW images.

＊EOS D6000, EOS D2000, EOS DCS1 and EOS DCS3 RAW images not supported.

- ●A wide range of image display options tailored to different uses are available from the Main window, including thumbnail list display, independent Edit window that allow an image to be edited while being compared with other images, a Edit Image window that filters out images to make work more efficient, and the Quick check window that displays individual images quickly and is useful for checking the focus, etc.
- ●Before/After comparison display that allows the user to make adjustments while comparing the original and adjusted images in the same window.
- ●Image selection using 3 types of checkmarks.
- ●Realtime image adjustments.
  - ・ RAW image editing
    Brightness adjustment, white balance adjustment, Picture Styles, dynamic range adjustment
  - ・ RAW image and RGB (JPEG and TIFF) image editing
    Tone curve adjustment, color adjustment, trimming, image correction (Copy Stamp), sharpness adjustment, image rotation (left or right in 90º increments).
- ●Recipe data (the edit data from multiple functions) saving, loading and application to other images.
- ●Single image transfer to Photoshop and batch image transfer to any retouching software application.
- ●Single-copy printing of compatible images, including RAW images.
- ●Link-up between Easy-PhotoPrint and Canon BJ printers to give high-quality image printing using the Adobe RGB color space.
- ●Image conversion and saving as TIFF or JPEG images and the addition of ICC profiles.
- ●Batch conversion/save for multiple RAW images (batch processing).
- ●Batch file renaming.
- ●Support for remote shooting by linking with EOS Capture.
- ●Support for color management systems.
- ●Support for 5 color spaces (sRGB, Adobe RGB, Wide Gamut RGB, Apple RGB and ColorMatch RGB).
- ●CMYK simulation function.

8） WIA Driver (Windows XP, Me)

- ●A driver for Windows XP and Me that conforms to the Microsoft WIA (Windows Image Acquisition) standard.
- ●Functions as software for downloading JPEG images to your computer if you use the WIA Driver alone, or use it with a TWAIN-compatible software.
- ●Inclusion of the EOS 5D and EOS-1D MarkII N planned.

9） TWAIN Driver (Windows 2000, 98SE)

- ●A driver for Windows 2000 and 98SE that conforms to the TWAIN standard.
- ●Functions as software for downloading JPEG images to your computer if you use the TWAIN Driver with a TWAIN-compatible software.
- ●Drivers for the EOS 5D and EOS-1D MarkII N are planned to be included.

1.5 System Requirements

The system requirements for the software applications, unchanged from Solution Disk version 10, are shown below (Table 003, 004).

Table 003 System requirements for Windows

Software	ZoomBrowser EX, CameraWindow, PhotoRecord, RAW Image Task, EOS Capture, PhotoStitch, WIA Driver/TWAIN Driver		Digital Photo Professional
OS	Windows XP (Home Edition/Professional), Windows Me, Windows 2000, Windows 98SE		Windows XP、Windows 2000
Computer	PC with one of the above operating systems pre-installed and a USB connection as standard or an OHCI-compliant IEEE1394 connection. ＊Upgraded machines not supported.		PC with one of the above OS preinstalled ＊Upgraded machines not supported.
CPU	500 MHz Pentium or better		750 MHz Pentium III or better
RAM	Windows XP, 2000	Minimum 256 MB	Minimum 512 MB
	Windows Me, 98SE	Minimum 128 MB	
Interface	USB 1.1 to 2.0 Hi-Speed, IEEE 1394		
Hard disk space	ZoomBrowser EX, CameraWindow, PhotoRecord, RAW Image Task	250 MB or more	256 MB or more
	EOS Capture	300 MB or more	
	PhotoStitch	40 MB or more	
	WIA Driver/TWAIN Driver	50 MB or more	
Display	Screen resolution: 1024 by 768 pixels or more, Color quality: Medium (16 bit) or more		

Table 004 System requirements for Macintosh

Software	ImageBrowser, CameraWindow, RAW Image Task, EOS Capture, PhotoStitch		Digital Photo Professional
OS	Mac OS X 10.2 to 10.4		
Computer	Macintosh with one of the above operating systems installed and a USB or FireWire (IEEE1394) connection as standard.		Macintosh with one of the above OS installed
CPU	Power PC G3, G4, G5		G3, Minimum 400 MB
RAM	Minimum 256 MB		Minimum 512 MB
Interface	USB 1.1 to 2.0 Hi-Speed, IEEE1394		
Hard disk space	ImageBrowser, CameraWindow, RAW Image Task	250 MB or more	256 MB or more
	EOS Capture	550 MB or more	
	PhotoStitch	40 MB or more	
Display	Resolution :1024 × 768 or more, Colors : Thousands or more		

＊EOS 5D, EOS DIGITAL REBEL XT/350D DIGITAL and EOS 20D support USB 2.0 Hi-Speed.

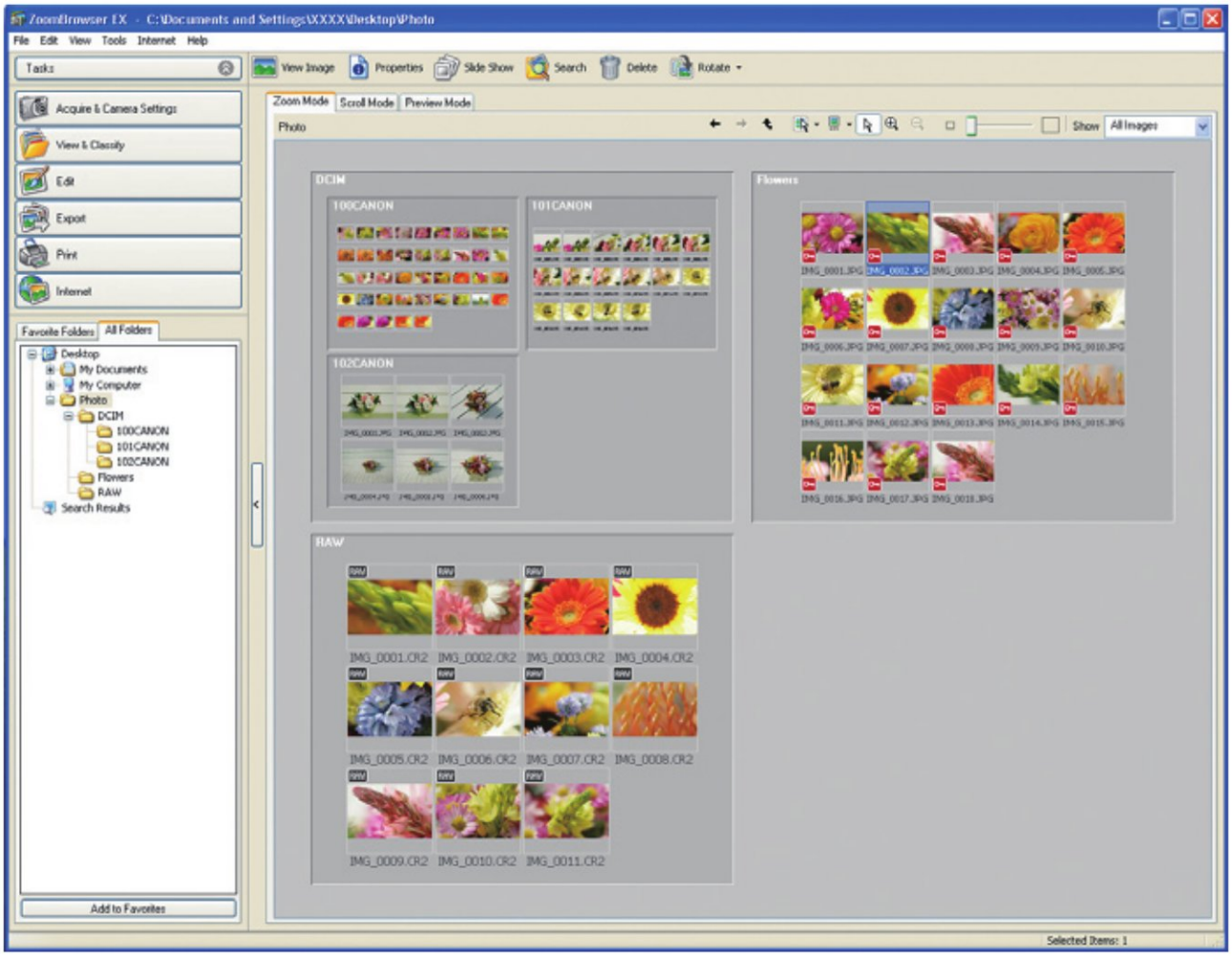
＊The Macintosh UFS (UNIX File System) format is not supported.

1.6 Supported Languages

Each of the software applications is available in 7 languages (English, Japanese, French, German, Italian, Spanish and Chinese (simplified)). Three versions of the Solution Disk are provided according to the intended region. This is unchanged from Solution Disk version 10 (Table 005).

Table 005 Region-specific versions of Solution Disk and supported languages

Solution Disk region-specific version	Japanese	English	Chinese	French	Spanish	German	Italian
For Japan/China	Yes	Yes	Yes	No	No	No	No
For North/South America and Europe	No	Yes	No	Yes	Yes	No	No
For Europe	No	Yes	No	No	No	Yes	Yes



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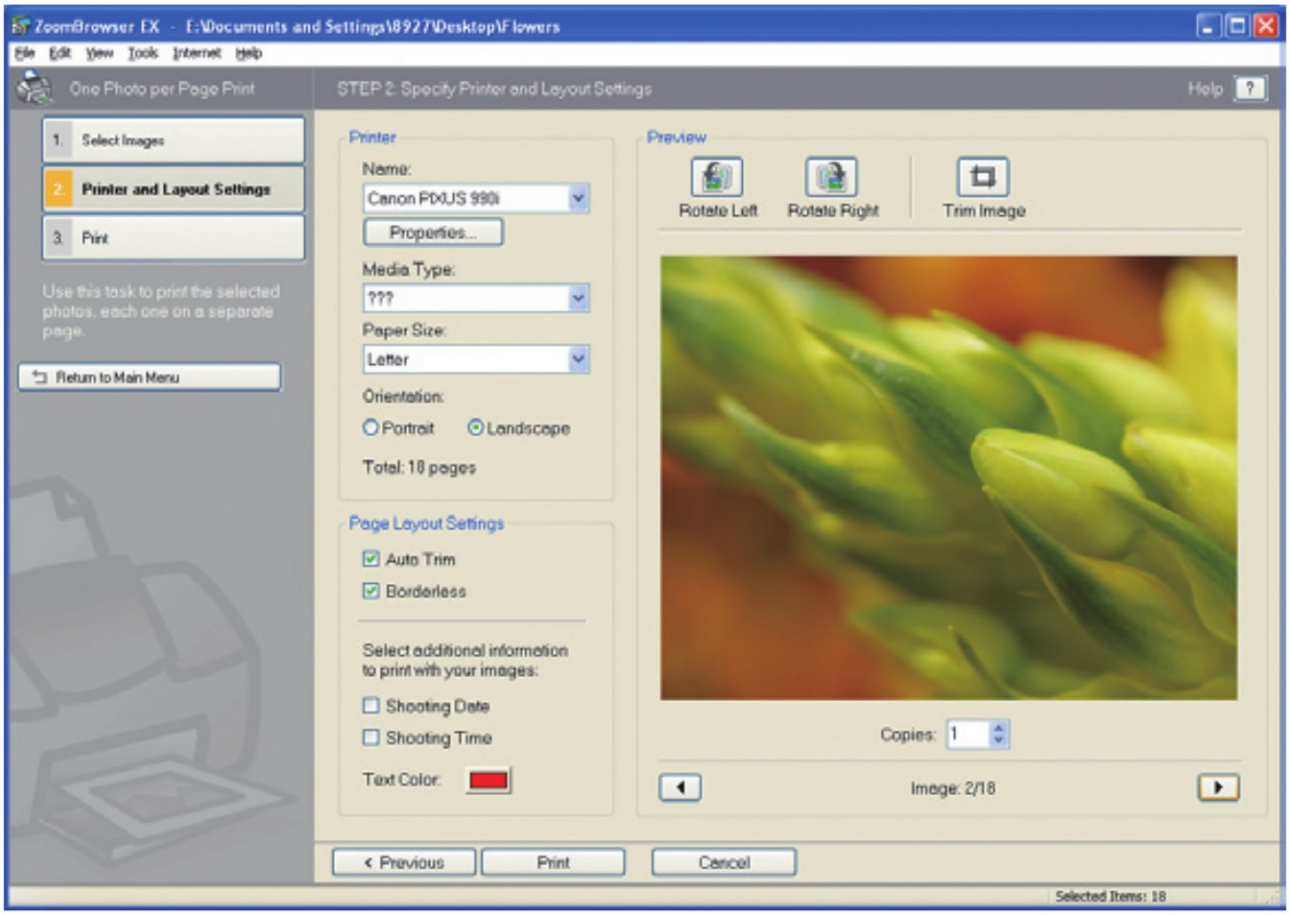

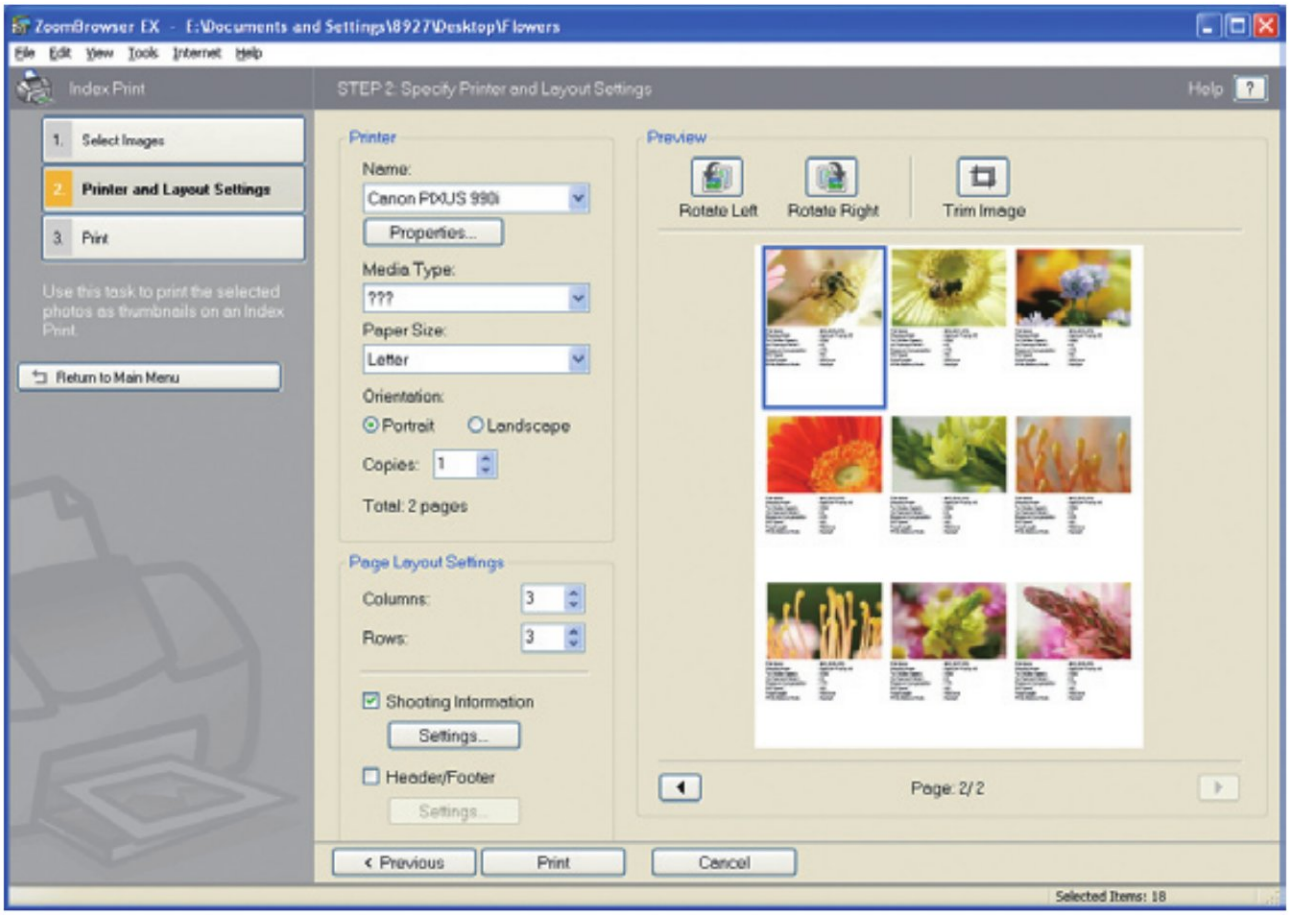

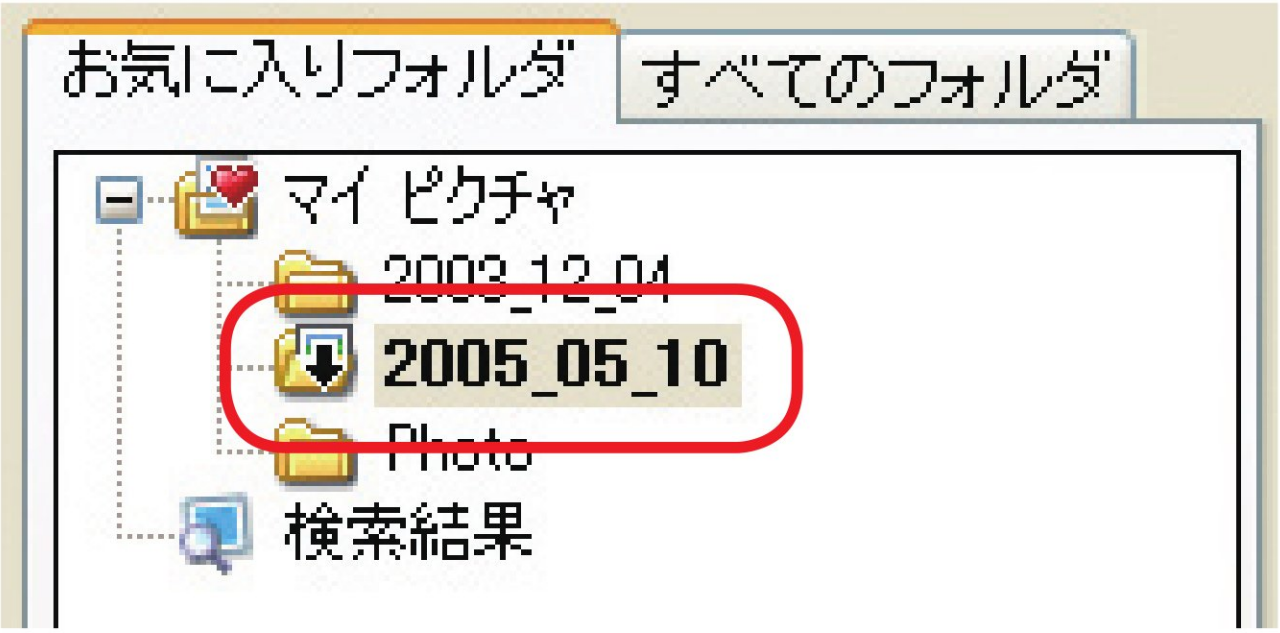

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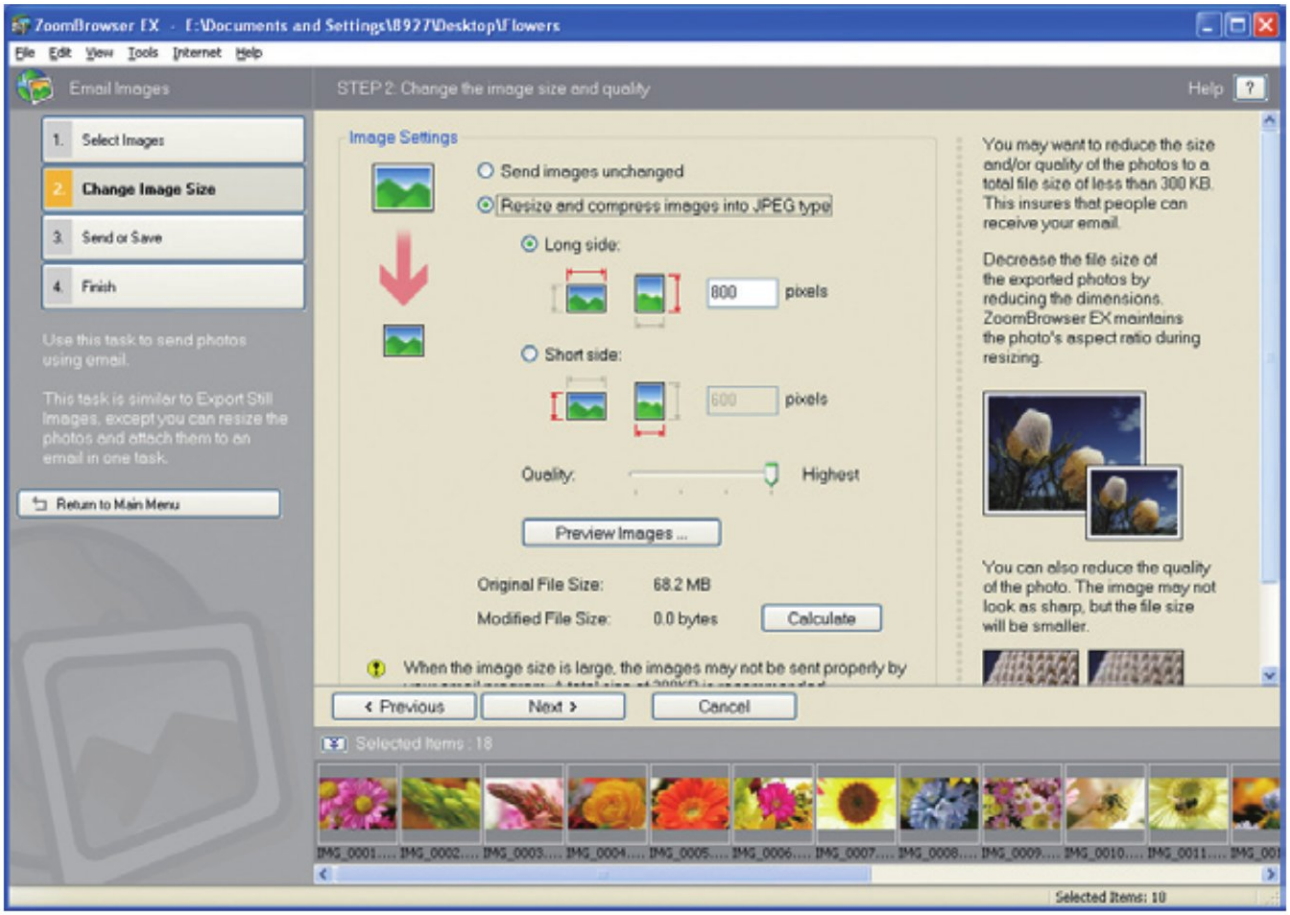

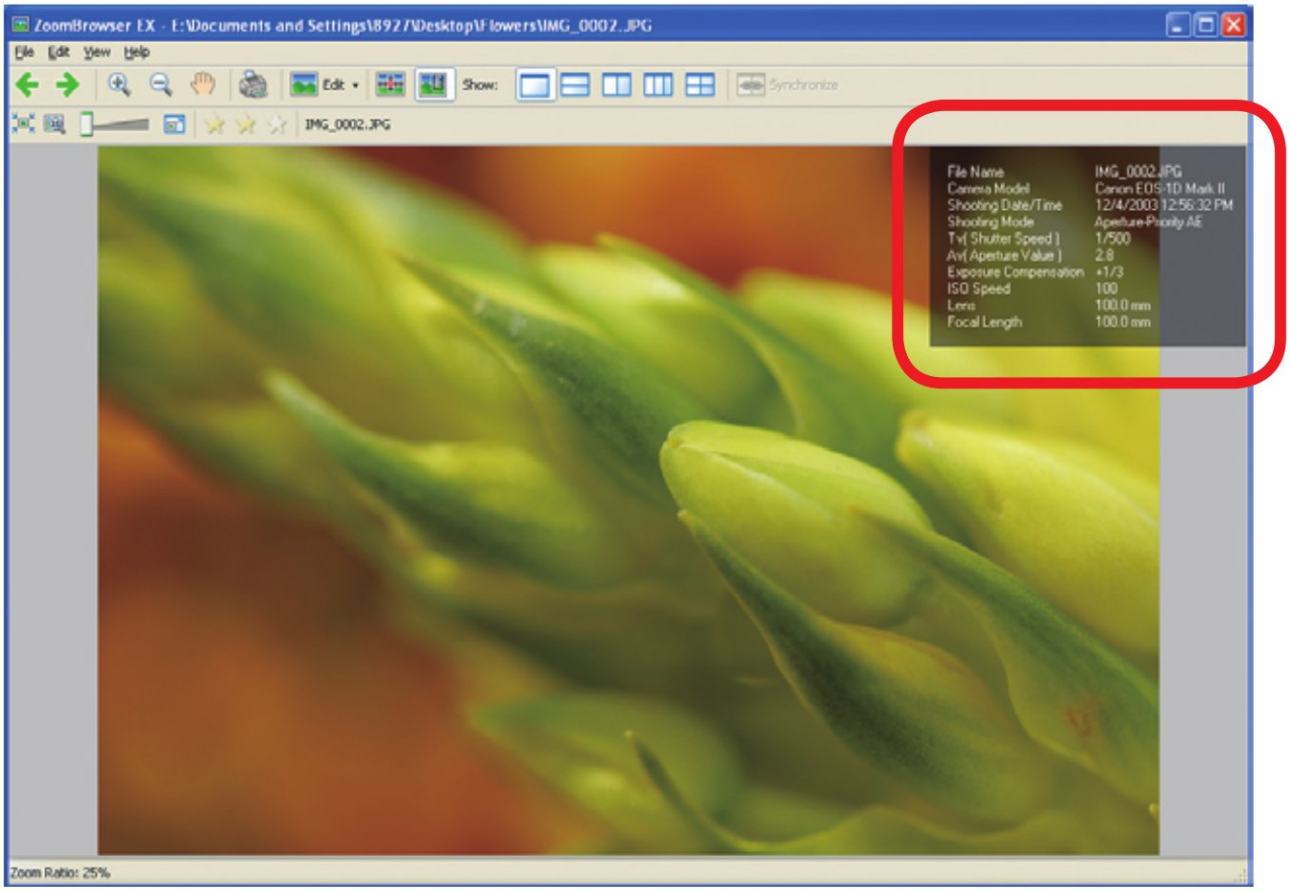

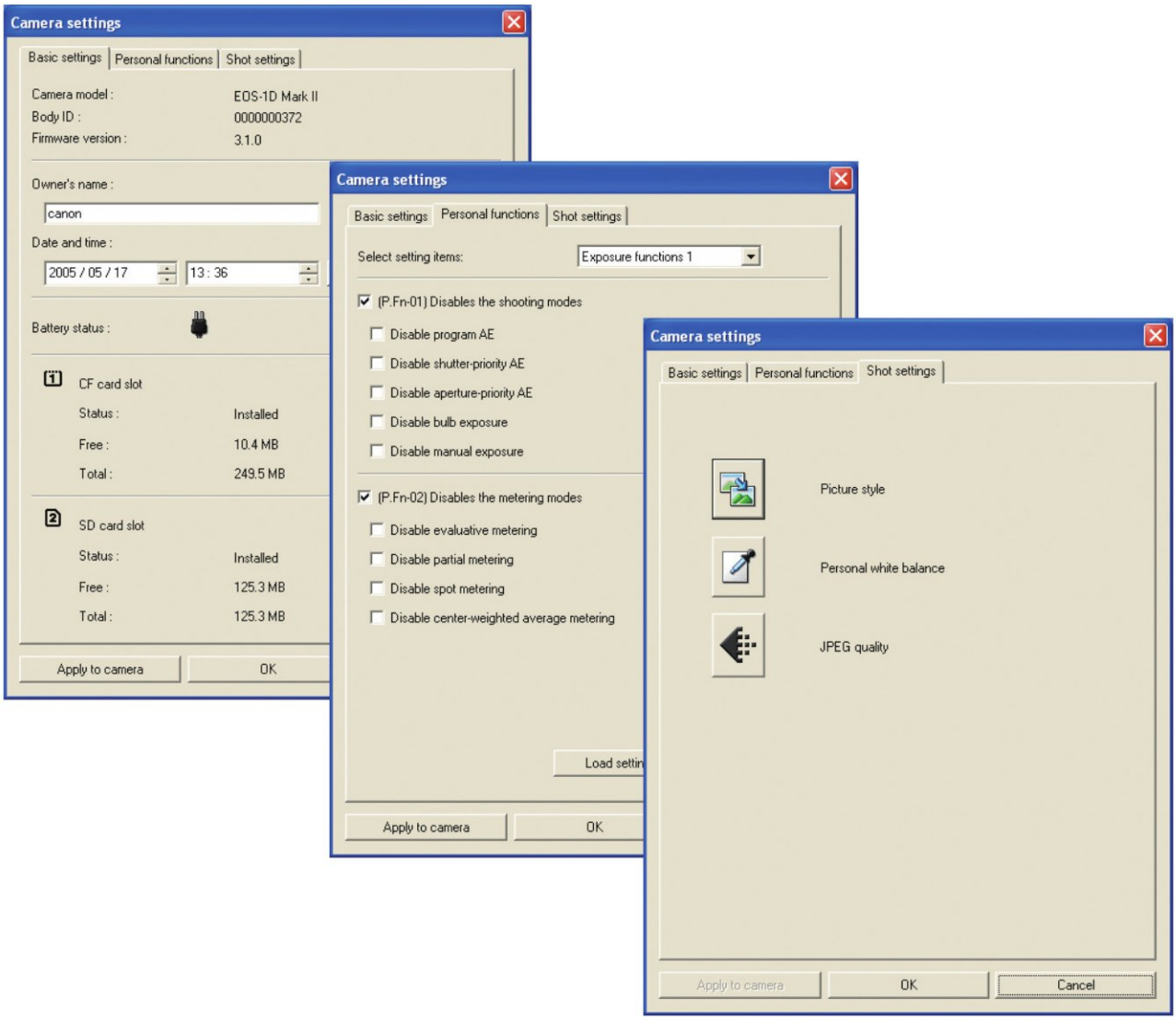

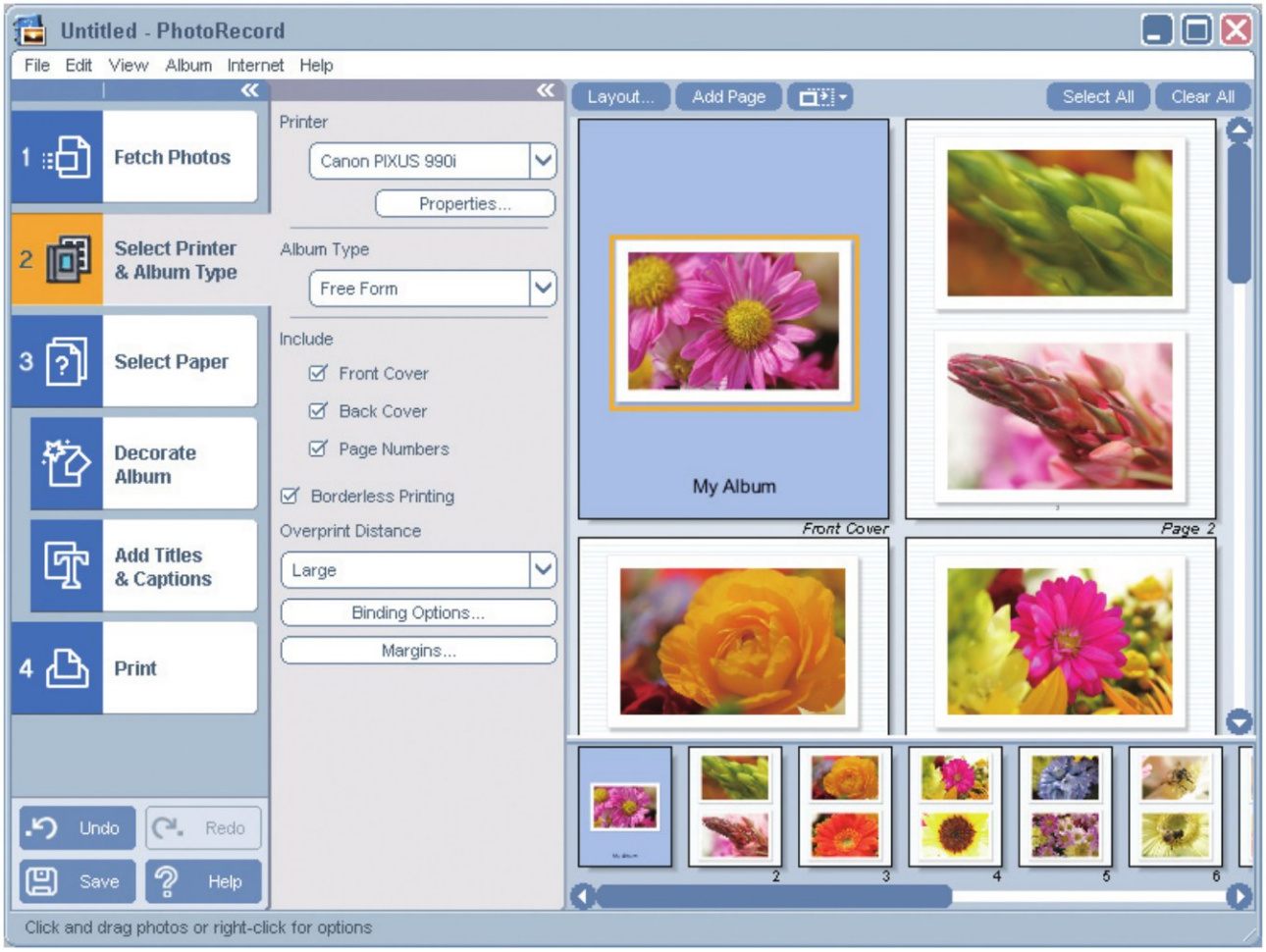

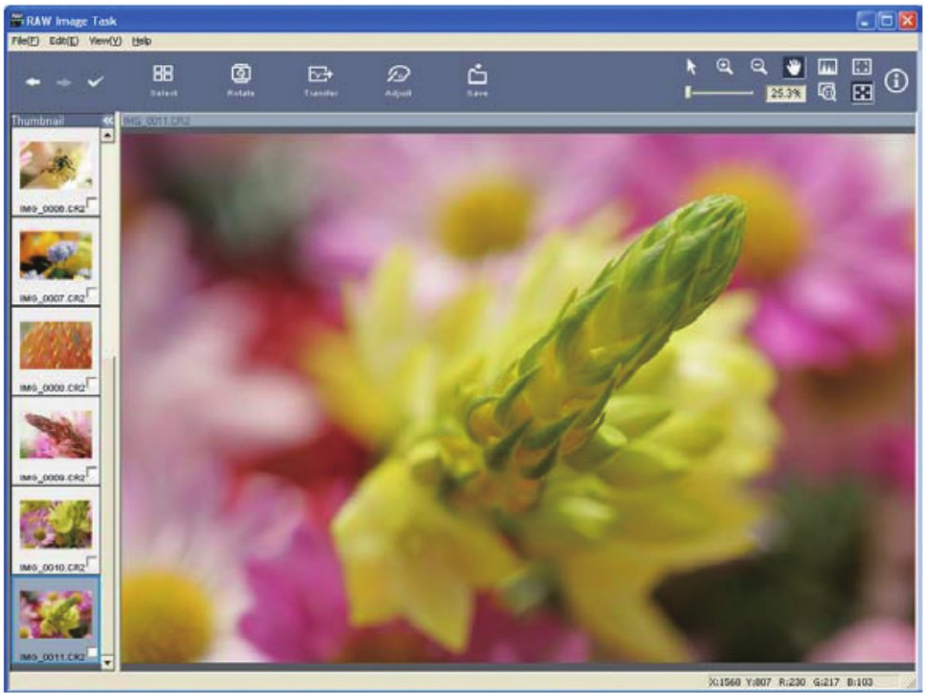

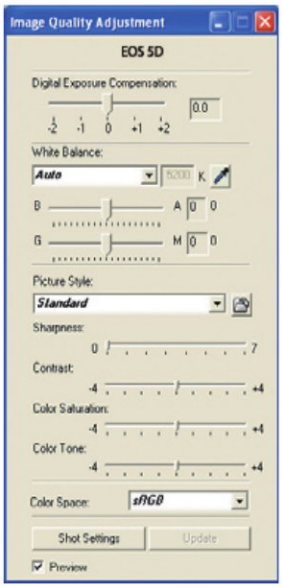

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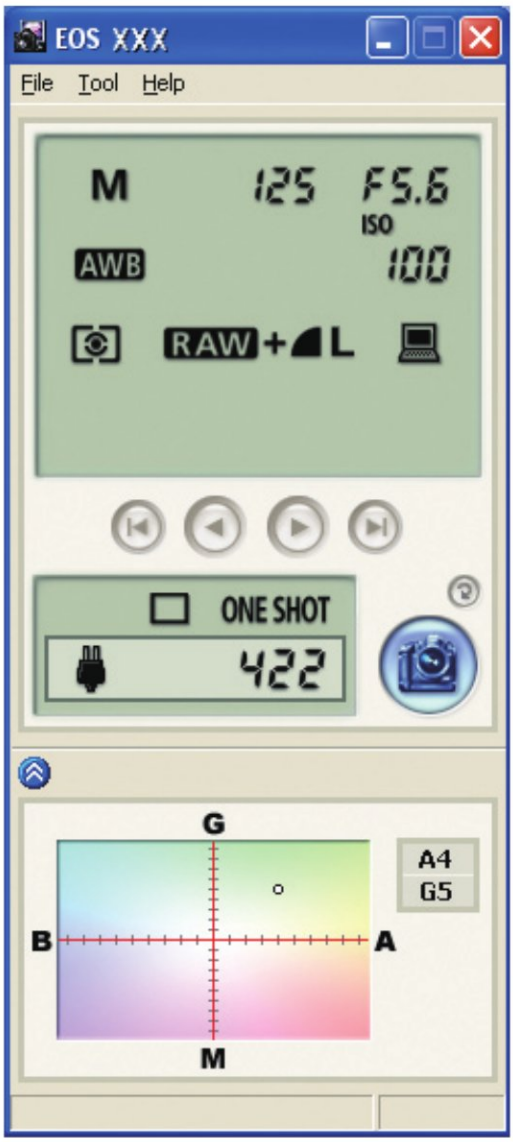

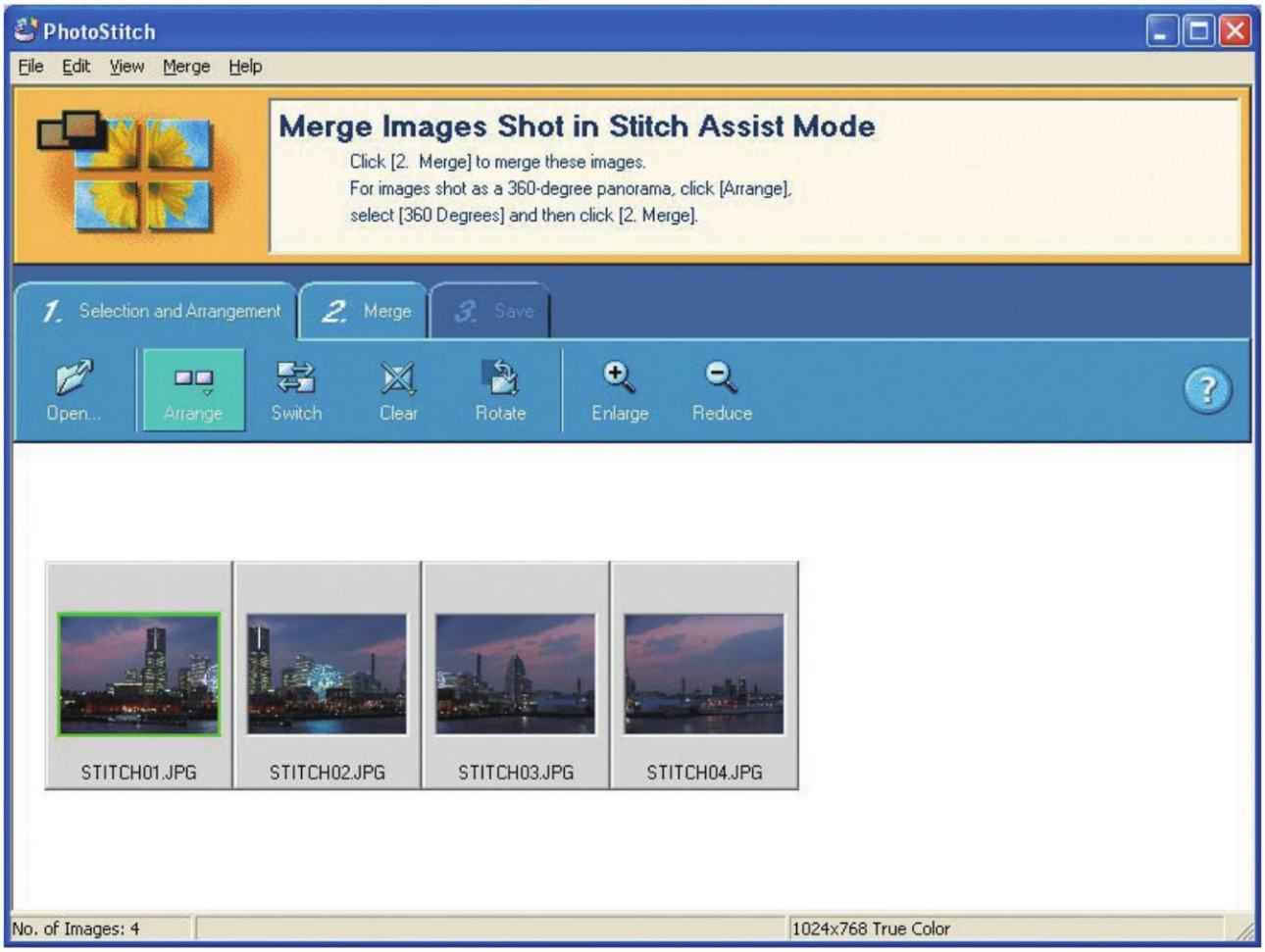

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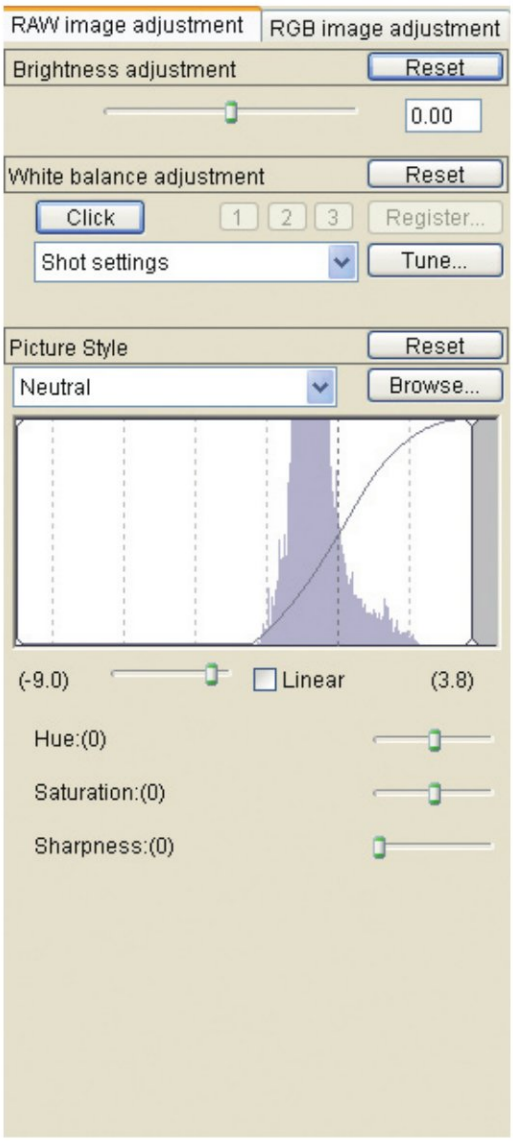
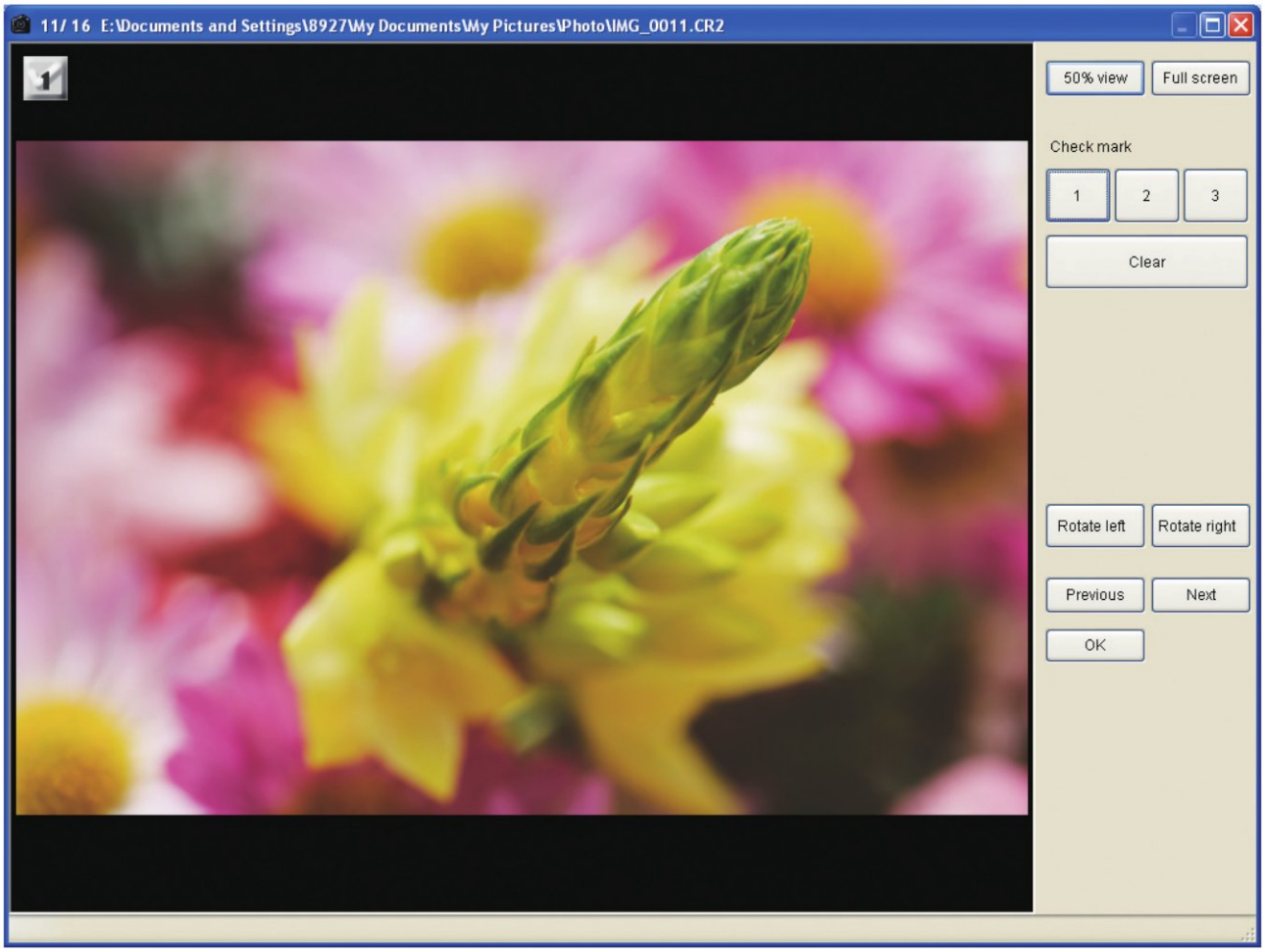
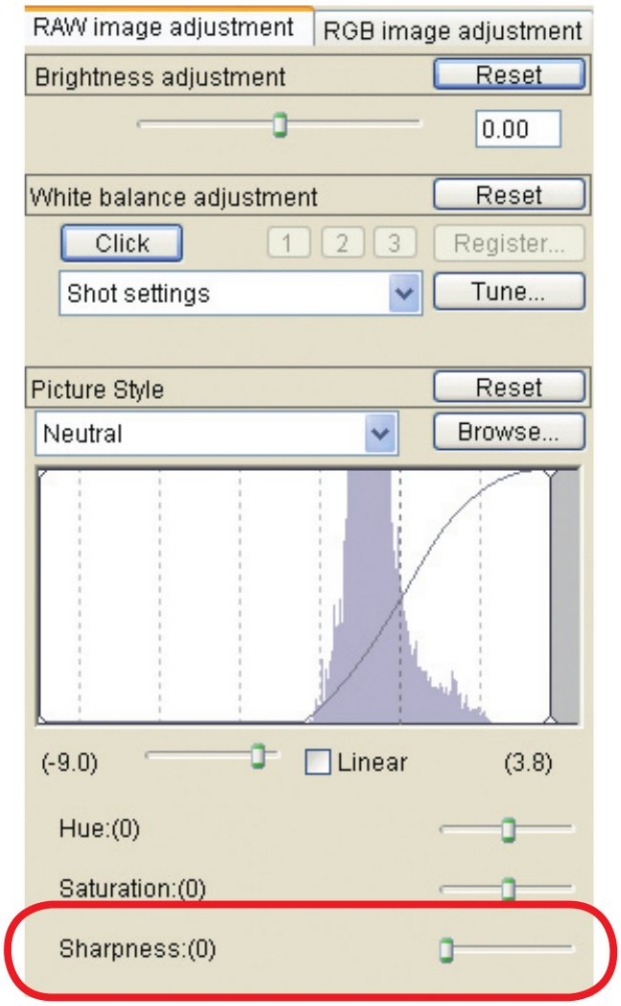
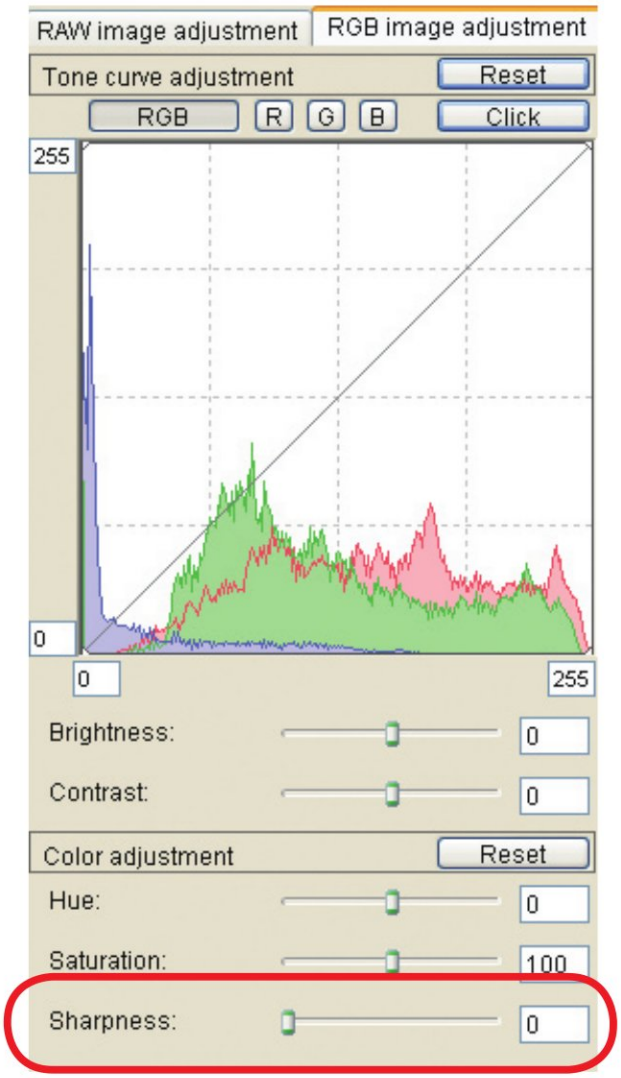
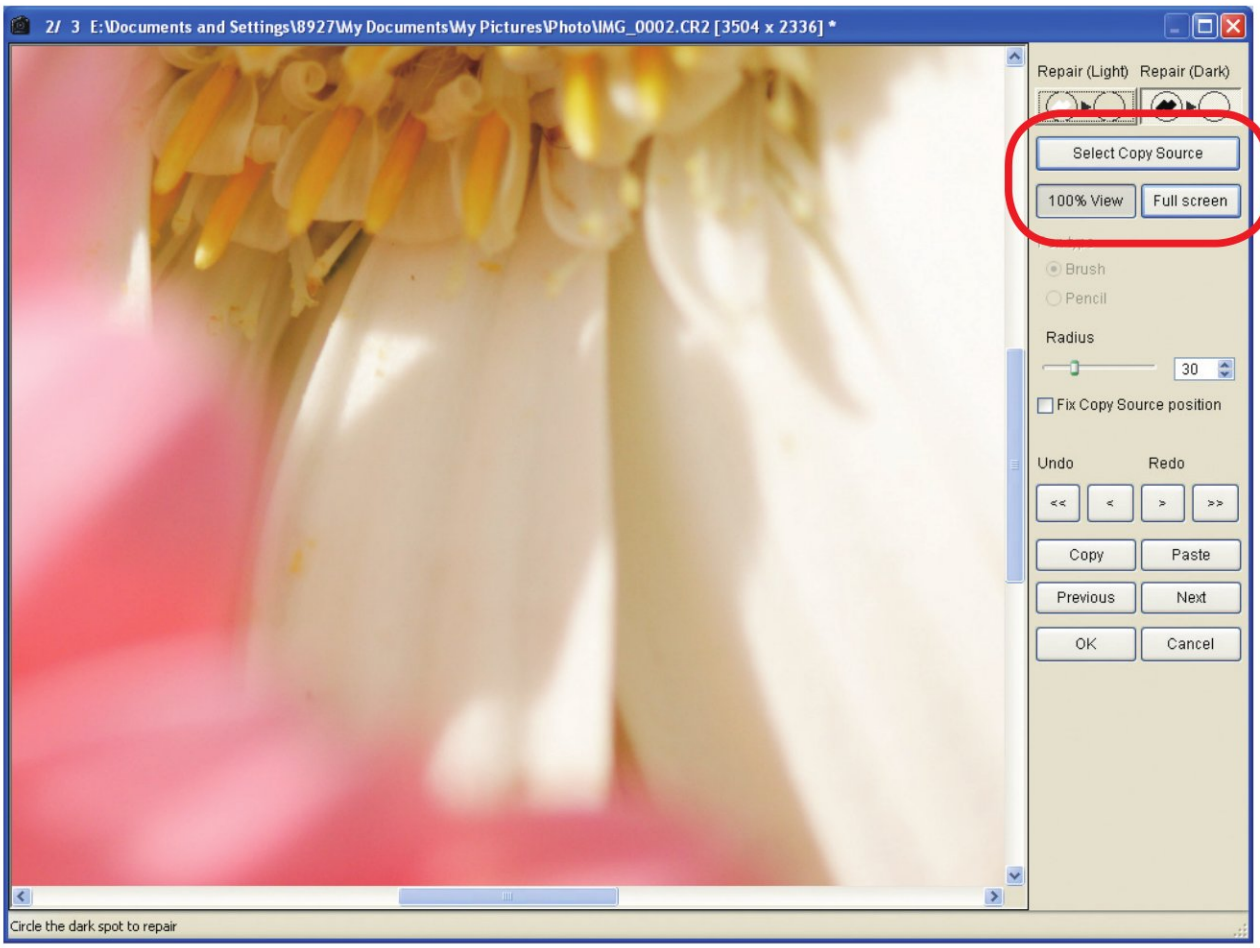
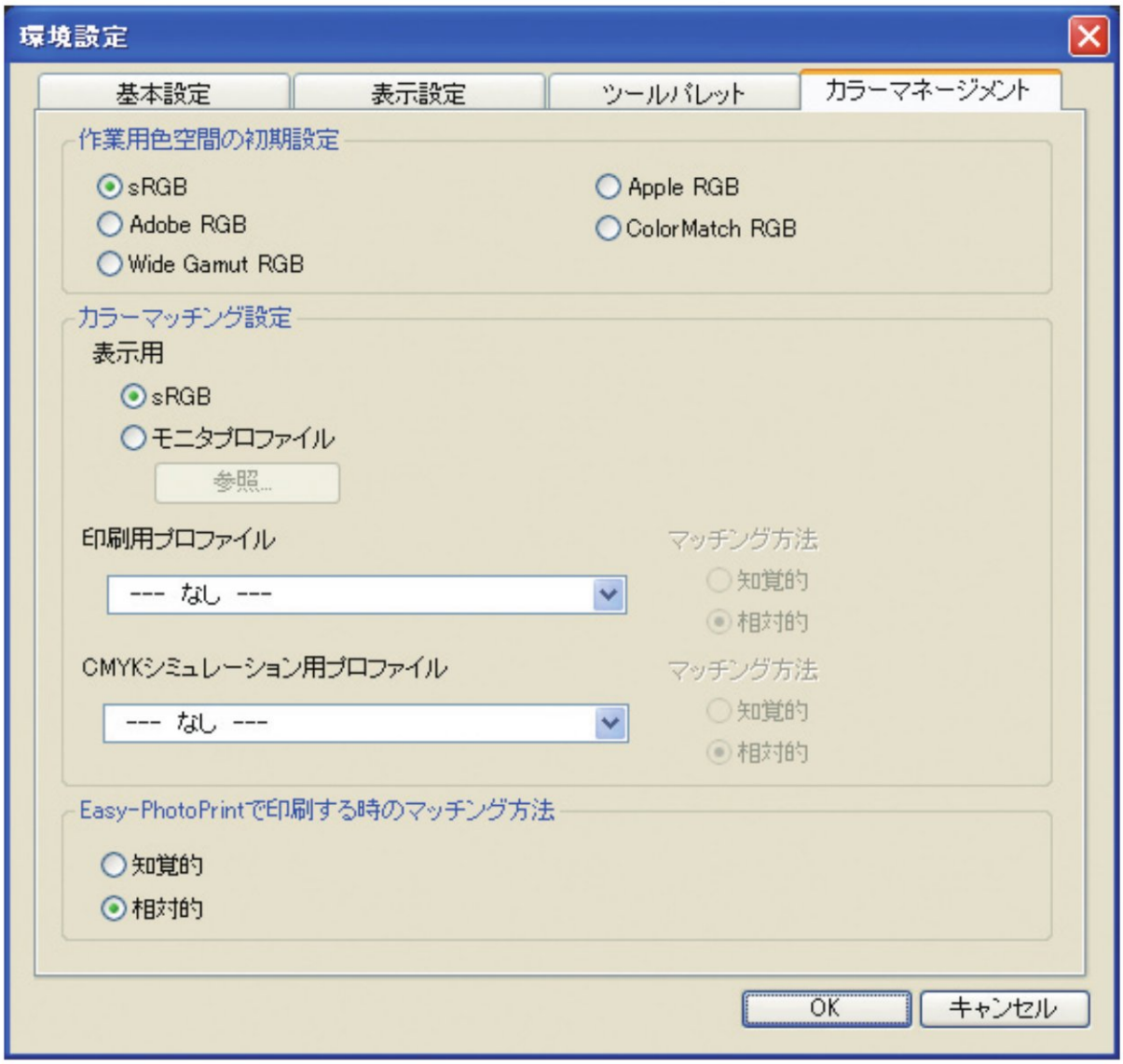










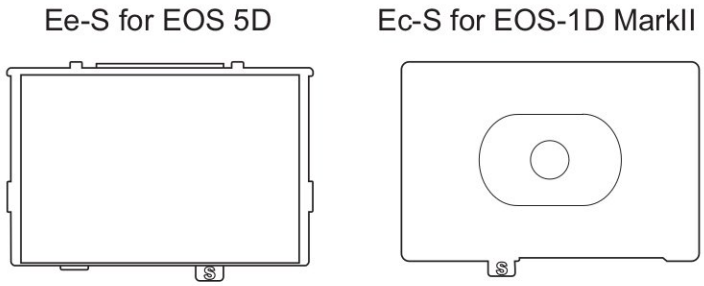


Appendix

CONTENTS

1. OVERVIEW

The Super Precision Matte Focusing Screen is our response to users' long-time desire for a focusing screen which makes it easier to catch the point of focus. Two such focusing screens have been developed: The Ee-S for the EOS 5D and the Ec-S for the EOS-1D MarkII N. (Fig. 001)



＊Since both focusing screens look the same as the standard focusing screens, an "**S**" (for "Super") has been printed on the tab to distinguish it as a Super Precision Matte focusing screen.

Fig. 001 Super Precision Matte focusing screens

The procedure to interchange the focusing screen is the same as with EOS-1D-series cameras. Note that when a Super Precision Matte focusing screen is installed, C.Fn-00-2 must be set to match the focusing screen's metering characteristics (Fig. 002).

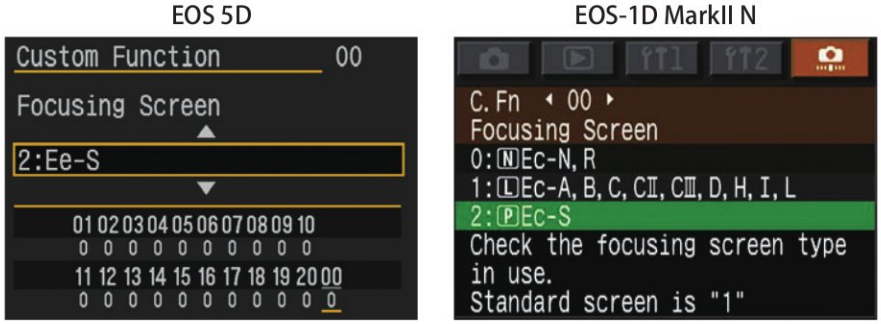


Fig. 002 Custom Function C.Fn-00-2

Although Super Precision Matte Ee-S and Ec-S are both 35mm full-size focusing screens, they are dedicated to their respective camera model only and cannot be used with a different camera. (Fig. 001, Fig. 003)

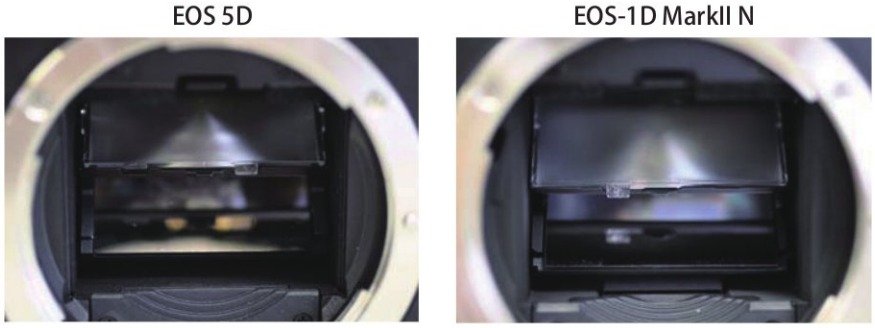


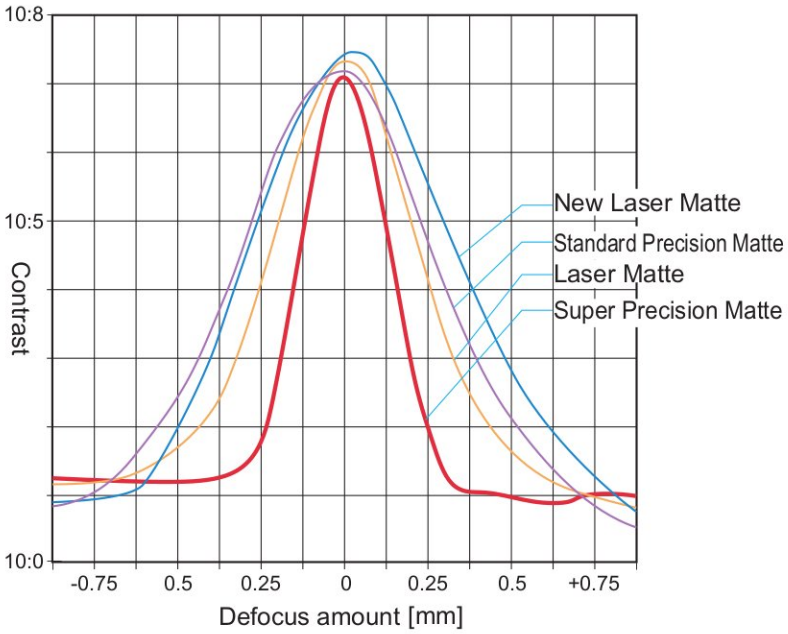
Fig. 003 Tab positions of the EOS 5D and EOS-1D MarkII N focusing screens

2. SUPER PRECISION MATTE CHARACTERISTICS

●Easier to catch the point of focus

As shown in Fig. 004, compared with other focusing screens, the Super Precision Matte features a very quick drop in contrast (blurring) when you miss (defocus) the point of focus. You see a very blurry image even when the focus is only slightly off. This makes it very easy to see the point of focus.

As shown in Fig. 005 and 006, the power of the microlenses on the matte surface is much stronger than that of the standard Precision Matte. The image formed on the matte surface is dispersed very quickly even with a slight amount of defocus.



*The horizontal axis indicates the defocus amount, with the point of focus of 0.0 mm at the center. On the vertical axis, you can see how the contrast amount (degree of blur) changes with the defocus amount.
The sharper the peak around the point of focus, the more sudden the blur occurs and at a higher amount. The flatter the peak, the more gradual and less the blur will be.

Fig. 004 Contrast characteristics for the defocus

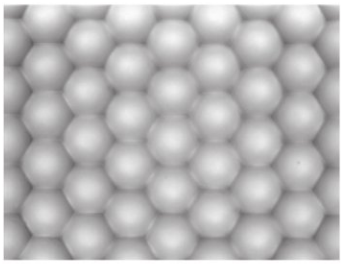


Fig. 005 Super Precision Matte

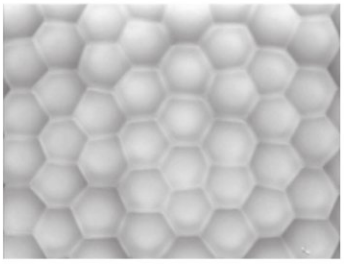


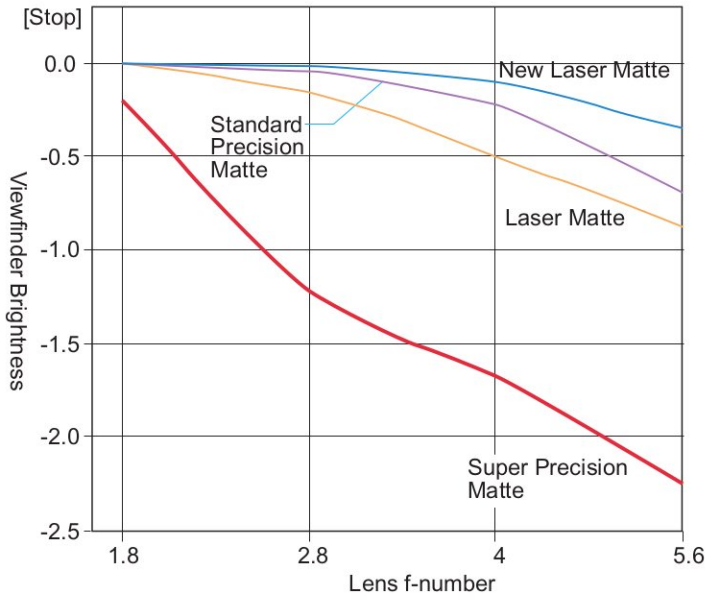
Fig. 006 Standard Precision Matte

●Viewfinder brightness

Normally, the easier it is to catch the point of focus, the darker the viewfinder brightness will become. As shown in Fig. 007, this applies even to the Super Precision Matte focusing screen. Compared to when a f/1.8 lens is used, using an f/2.8 lens results in the viewfinder brightness decreasing by 1 stop. With an f/5.6 lens, the viewfinder brightness drops by about 2 stops.

This is caused by the focusing screen's high-power microlenses. A bright light flux entering the microlenses at a sharp angle will be directed to the viewfinder's light path. However, if a dark light flux enters the microlenses at a less sharp angle, it will stray outside of the viewfinder's light path. (Fig. 008, left diagram).

On the other hand, since normal focusing screens have weaker microlenses, the opposite occurs. The dark light flux is directed to the viewfinder's light path, while the bright light flux strays away (Fig. 008, right diagram). In other words, the standard Precision Matte and other common focusing screens only take in the dark light flux regardless of the lens f-number. Therefore, the viewfinder tend not to look dark even with slow lenses attached.



＊The vertical axis indicates the viewfinder brightness, while the horizontal axis is the lens f/number. The graph shows how the viewfinder brightness changes in accordance with the lens f/number. The flatter the lower right part of the line is, the less dark the viewfinder will be when a slow lens is attached. Or the steeper the line is toward the right, the darker the viewfinder will become.

Fig. 007 Correlation of viewfinder brightness and lens f/number

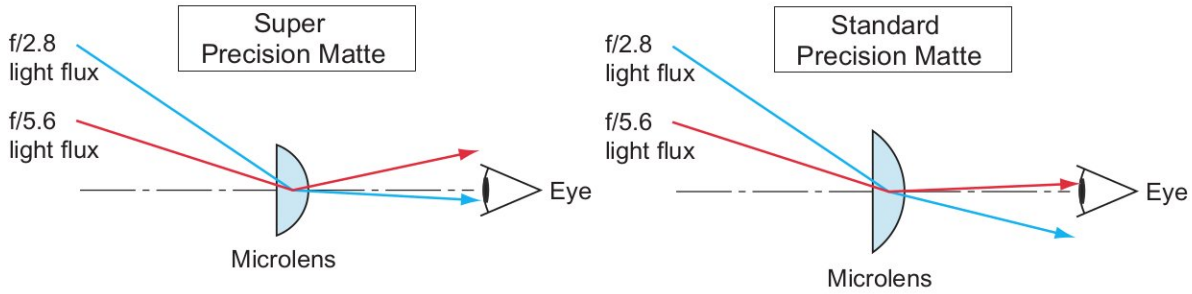


Fig. 008 Dispersion characteristics of Precision Matte

3. DESIGN SPECIFICATIONS

1. Type	Super Precision Matte focusing screen
2. Compatible Cameras	Ee-S: EOS 5D Ec-S: EOS-1D MarkII N ＊The Ee-S and Ec-S are not interchangeable between the EOS 5D and EOS-1D MarkII N. Due to the different position of the tab on the focusing screen, it cannot be installed on incorrect camera model between the EOS 5D and EOS-1D MarkII N.
3. Exposure compensation setting	Set with C.Fn-00-2.
4. Installation tool	Dedicated tool for Ec-series focusing screens
5. Dimensions (W × H × D)	37.5 × 1.5 × 24.9 mm / 1.48 × 0.06 × 0.98 in. ＊Excluding protrusions.
6. Weight	1.7 g / 0.06 oz

4. CAUTIONS

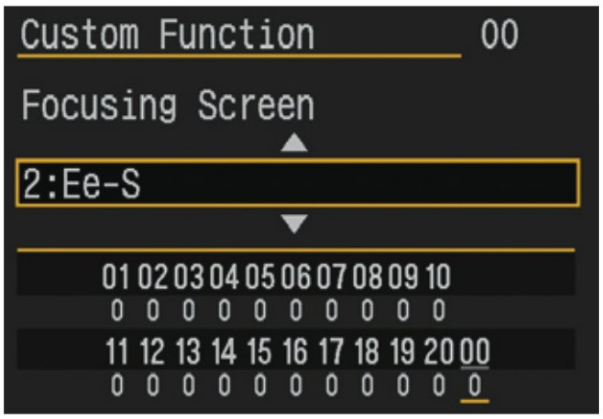
●Super Precision Matte Ee-S for EOS 5D

Caution	Reason
1. Custom Function C.Fn-00-2: Set when Ee-S is installed.	To match the focusing screen's metering characteristics.
2. Use an f/2.8 or brighter lens.	Using an f/3.5 or slower lens will make the viewfinder look very dark.

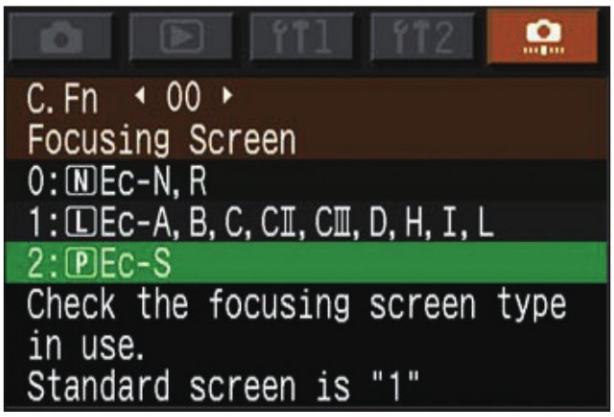
●Super Precision Matte Ec-S for EOS-1D MarkII N

Caution	Reason
3. Custom Function C.Fn-00-2: Set when [P] Ec-S is installed.	To match the focusing screen's metering characteristics.
4. It must not be installed in any EOS-1-series camera.	Custom Function C.Fn-00-2: No setting for [P] Ec-S is provided, so correct metering cannot be obtained.
5. Use an f/2.8 or brighter lens.	Using an f/3.5 or slower lens will make the viewfinder look very dark.

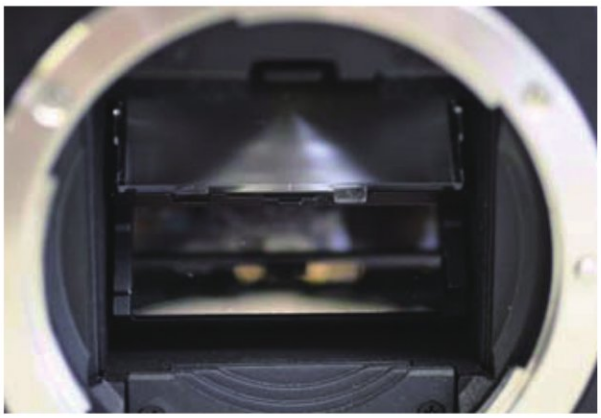
EOS 5D



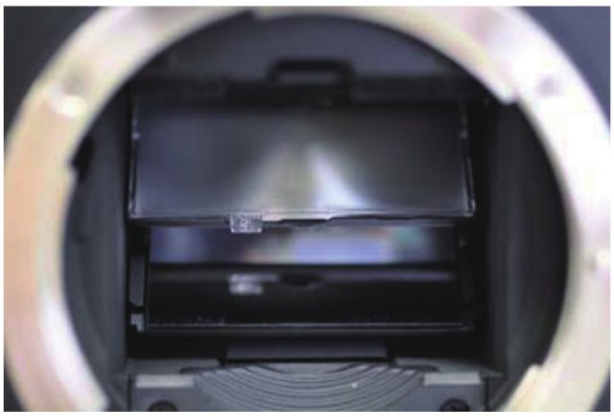
EOS-1D MarkII N



EOS 5D



EOS-1D MarkII N



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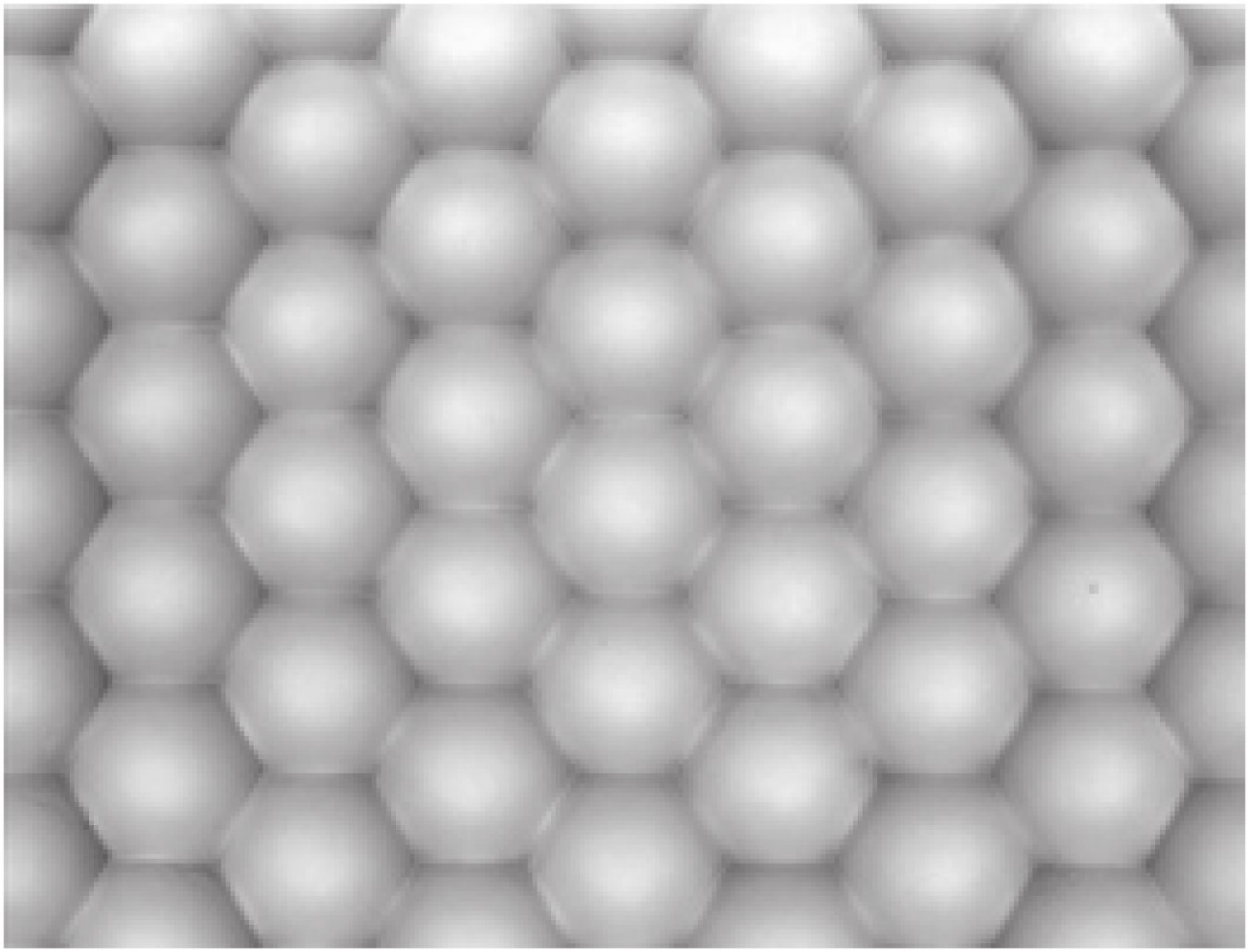

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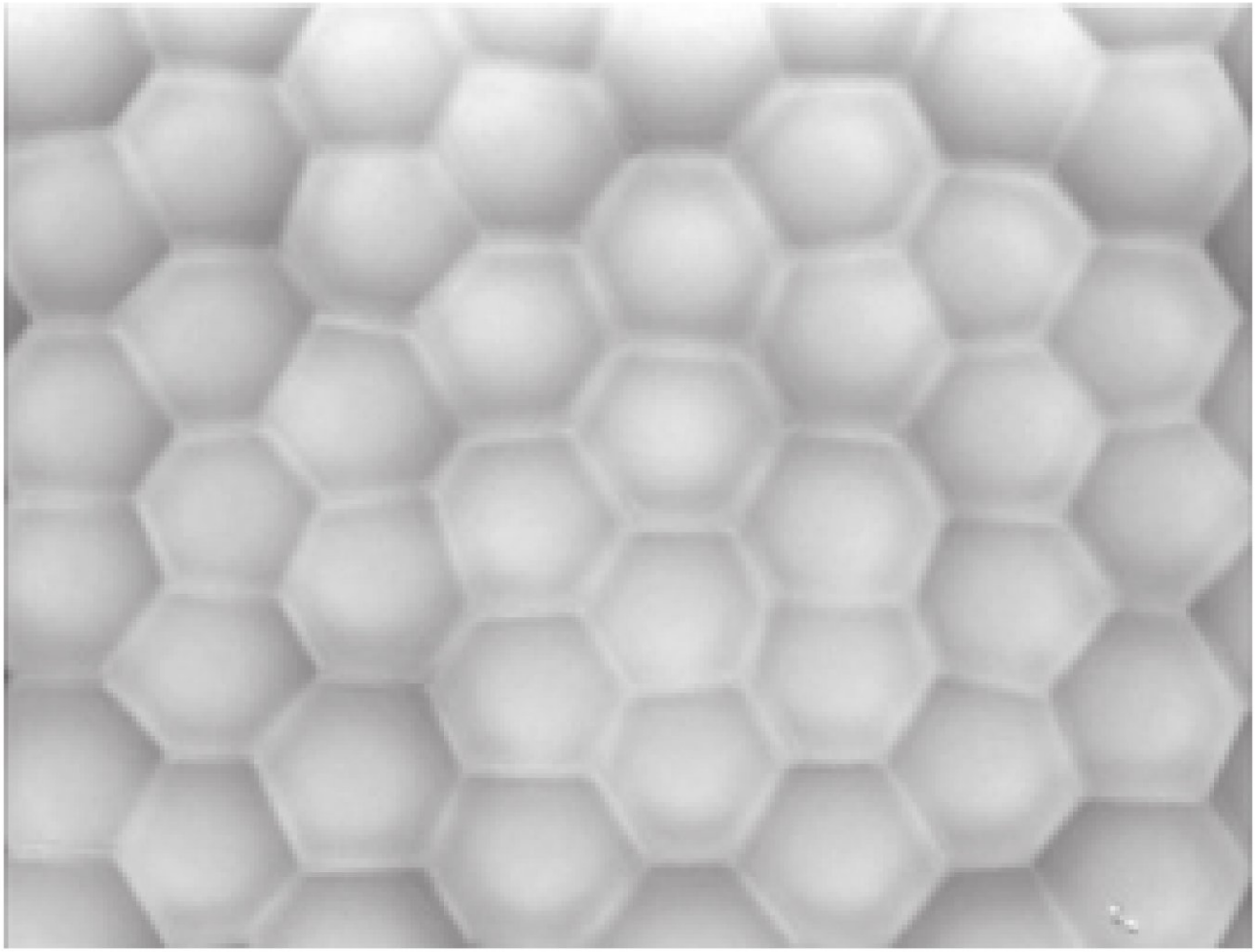

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Canon

EOS Digital Picture Style Quick Guide

What is “Picture Style”?

- **Advanced processing parameters and color matrix setting.**
- **Optimized for the picture effects and shooting objectives put forward by EOS Digital cameras.**

Incorporated in all EOS Digital cameras since EOS 5D.
Image characteristics common to all the EOS digital cameras.

Picture Styles

What is the aim of “Picture Style”?

5 Main Aims

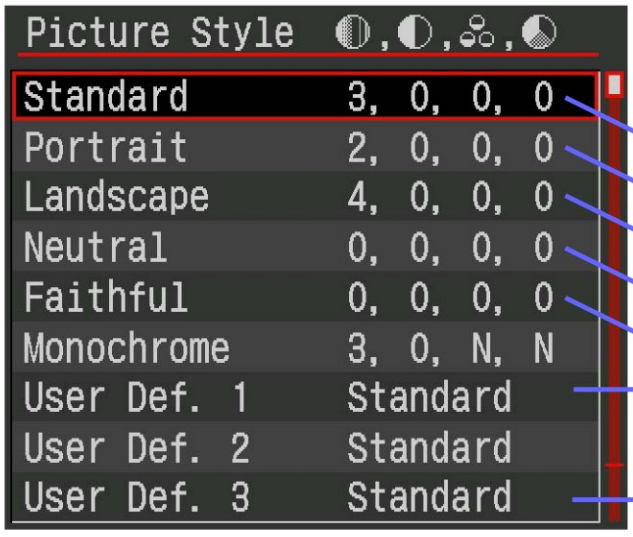
1. **Selectable style to match the shooting objectives and desired picture effects**
2. **Offers wider adjustment range**
3. **Offers common image characteristics to all EOS digital models**
4. **Unifies image characteristics at the default setting**
5. **Image characteristics consistent with the previous models**

Incorporated in all EOS Digital cameras since EOS 5D.
Image characteristics common to all the EOS digital cameras.

What is new ? (1)

Wide variety of photographic expression now becomes possible by just selecting the Picture Style.

EOS 20D's "Parameter 1" corresponds to the Picture Style. However, there was only 1 kind available, so it could not cope with the wide variety of photographic expression.



Optimized settings of color tone and saturation, relevant to film characteristics

The image looks vivid, sharp and crisp.

For nice skin tones.

For vivid blue sky and greens.

Natural color reproduction.

Faithful color reproduction.

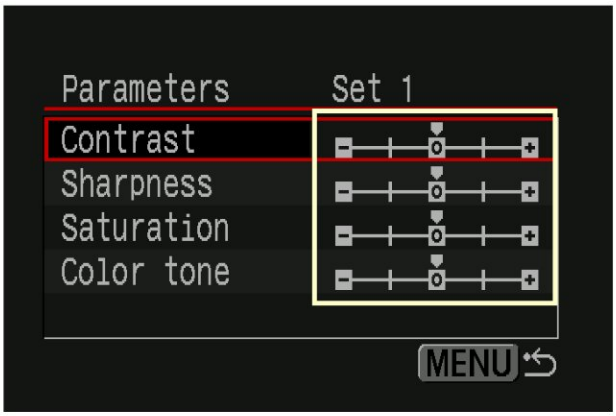
1. **Select → Adjust → Register the Picture Style**
2. **Additional picture style registration possible with Picture Style File.**

* Setting procedure differs in EOS-1D series cameras.

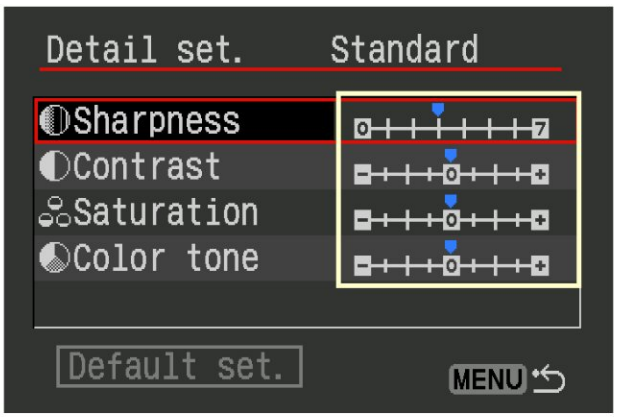
What is new ? (2)

Sharpness, contrast, color saturation and color tone can be adjusted approx. 2 times wider in range.

Previously, the adjustment range was set to be relatively modest, in order to prevent image collapse.



Processing Parameter



Picture Style

What is new ? (3)

Image processing effects become common to all the EOS cameras.

Previously, image characteristics differed depending on the camera models.

EOS-1D series cameras were equipped with color matrix and processing parameters, and its image characteristics were emphasized more on "raw material".

Other cameras were equipped with the processing parameters only, and their image characteristics were more "nice-looking at the first glance".

Also, the default settings of the processing parameters differed from model to model, and many users complained about the inconsistency of image characteristics and parameters.

From now on, all EOS digital cameras incorporating Picture Style will have the same kinds of Picture Styles and the effects of the settings of sharpness, contrast, color saturation and color tone.

What is new ? (4)

Vivid, sharp and crisp images obtained at the default settings.

Previously, images shot with EOS-1D series camera's default settings were of without sharpness applied and the colors were less saturated. Therefore the users often misunderstood that the images of EOS-1D series were soft and not in focus.

The default setting is "Standard" with vivid colors and sharpness applied.

What is new ? (5)

It is possible to obtain the same image characteristics consistent with the previous models.

Picture Styles that have the same image characteristics as color matrix of EOS-1D series or Parameter 1 of EOS20D are provided. Also, even when the color matrix or processing parameters were adjusted to user's preference in previous models, Picture Style has the compatibility to obtain the same image characteristics.

An example of the image characteristics compatibility with the EOS-1D Mark II

For the natural color images same as the EOS-1D Mark II's default images, select Neutral with its default settings.

1D Mark II
Color Matrix:3
Contrast :+2
Sharpness :4

Picture Style
Neutral
Color Saturation:+2
Contrast:+2
Sharpness:4

For the bright and vivid images (as recommended setting* of the EOS-1D Mark II), change the parameters as in the table on the right.

*In the "Camera Setting Guide to Produce Optimum Images" of EOS-1D Mark II.

Image characteristics of Picture Style (1)

Picture Style	Image Characteristics
Standard	**Vivid and sharp image for general shooting.** • **Color tone and color saturation are set for vivid color reproduction.** • **Sharpness 3 is applied for sharp and crisp images.** Same as the Parameter 1 of EOS20D
Portrait	**For nice skin tones. Slightly sharp and crisp image.** • **Color tone and color saturation are set for nice skin tone reproduction.** • **Sharpness 2 is applied so that the skin and hair appear slightly soft.**
Landscape	**For vivid blues and greens, and very sharp and crisp images.** • **Color tone and color saturation are set for vivid color reproduction of blue sky (deep blue) and greenery (deep green).** • **Sharpness 4 is applied for sharp outlines of mountains, trees or buildings.**

Image characteristics of Picture Style (2)

Picture Style	Image Characteristics
Neutral	**For natural colors and subdued images.** • **Color tone and color saturation are set for natural color reproduction.** • **No sharpness is applied so as to put more emphasis on "raw-material".** Same as the default settings of EOS-1D series
Faithful	**The colors are reproduced truthful to the subject.** •**The colors are adjusted colorimetrically to match the subject's color.** • **No sharpness is applied so as to put more emphasis on "raw-material".**
Monochrome	**For black-and-white or sepia images.** • **Sharpness 3 is applied for sharp and crisp images.** Same as the Monochrome of EOS20D
User Defined 1/2/3	**Select a Picture Style, adjust its settings and register. Also, Picture Style file is selectable.** *Registration procedure is different in EOS-1D series cameras.

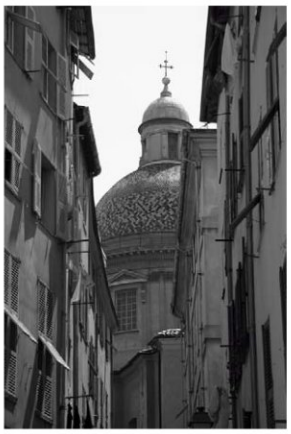
How do the pictures look like?

Sample images with default settings.

Standard

Portrait

Neutral



Mono-
chrome

Landscape

Faithful

Standard

Neutral

Portrait

Standard

Landscape

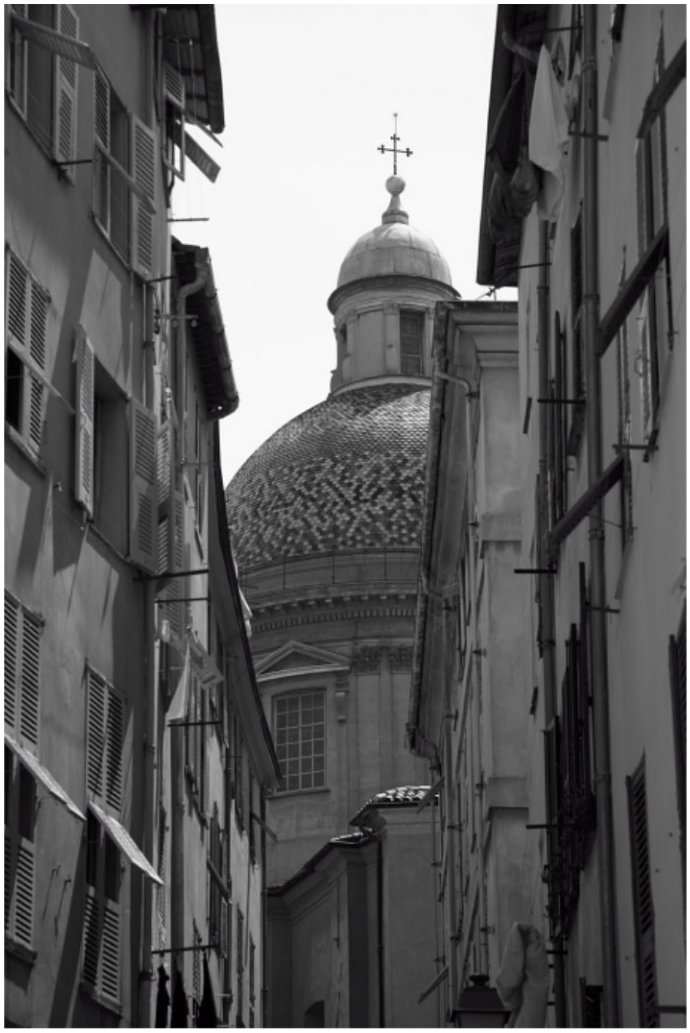
Standard

Neutral

Standard

Faithful

Standard



Monochrome

Standard

Can skin tones be adjusted in Portrait?

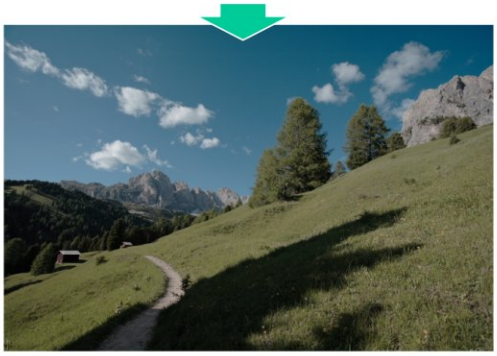
In Portrait, skin tones can be adjusted by changing Color tone.

How far the image can be adjusted?

Sharpness : 0
Contrast : -4
Saturation : -4
Color tone : -4

Portrait default

Sharpness : 7
Contrast : +4
Saturation : +4
Color tone : +4

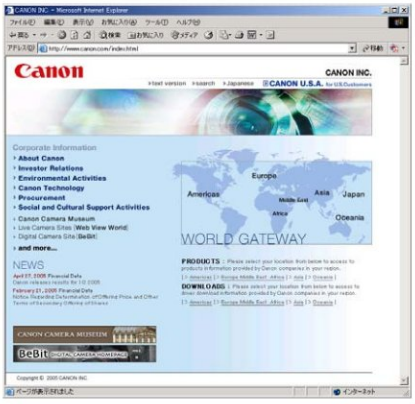


Landscape default

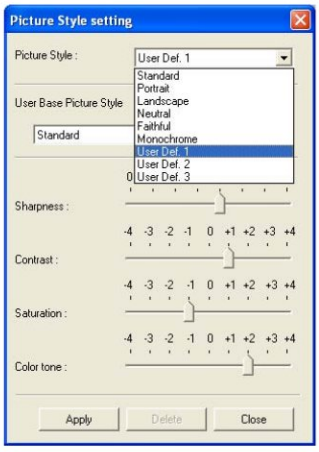
What is “Picture Style File”?

Additional Picture Style.

We are preparing for a new system to distribute the additional Picture Styles as “Picture Style file” to users, so as to cope with the demand of color tone and color saturation settings other than the preset ones.



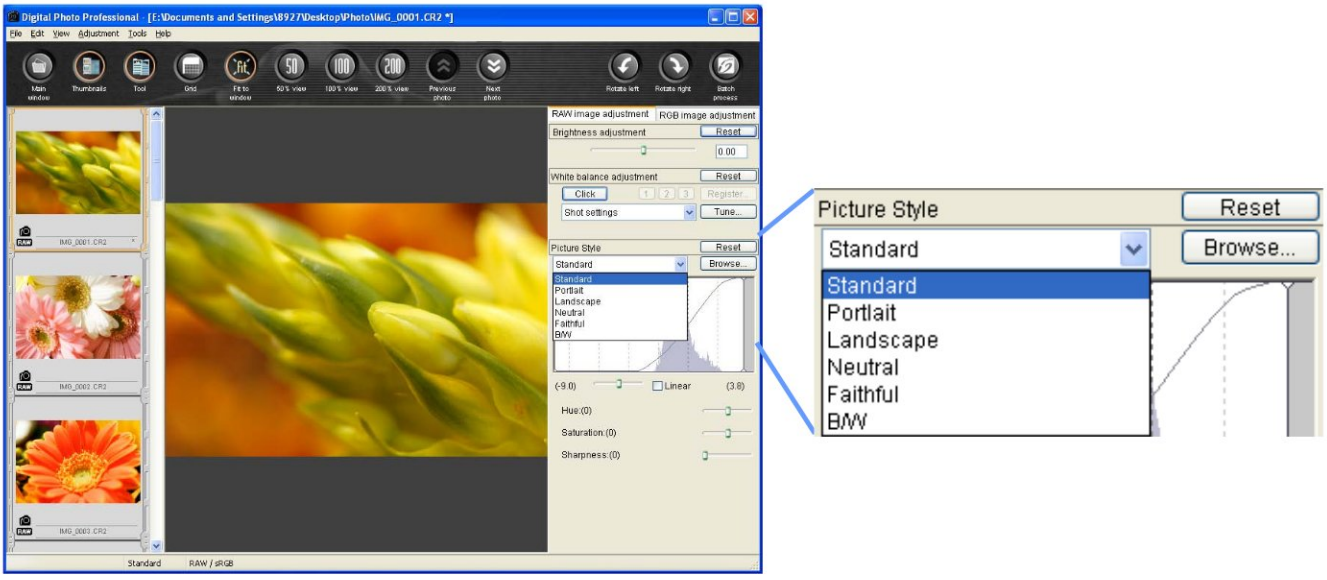
Download the Picture Style File such as “Landscape for XXX” from Canon WEB site.



Register up to 3 Picture Style Files in “User Defined” with CameraWindow.

Can DPP* develop the RAW images with the selected Picture Style?

With DPP, you can select any Picture Style and develop RAW images shot with the all EOS digital cameras since EOS D30.

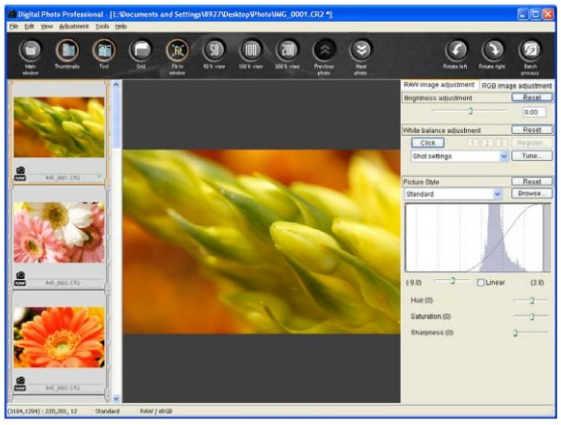


*DPP:Digital Photo Professional

How can I print the image faithful in colors and contrast as much as possible?

Select an image in DPP and print with EPP*.

When making the color print sample for preparing manuscript, there may be a case that the image adjusted with the Picture Style may not be printed as intended, when the printer's printing adjustment settings overrides the Picture Style's settings.
In DPP, you can select [Colorimetric] (makes the printer driver ineffective) for color matching method in printing with EPP. And then, you can faithfully print the color print sample in colors and contrast so as to match the adjustment set by the Picture Style.



DPP

EPP

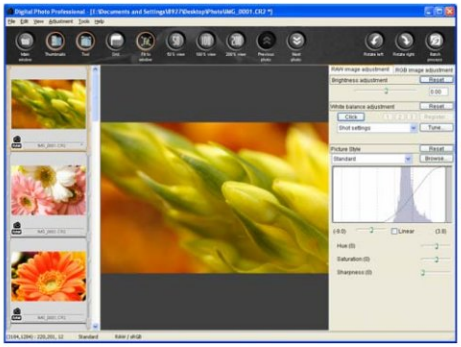
*EPP:Easy-PhotoPrint

Summary of “Picture Style”

Optimized image obtained by just selecting the preset settings to match the shooting objectives.

Adjustable to user preferences.

Picture Style Files enables more diverse photographic expressions.



DPP can develop the RAW images with desired picture style. (All EOS digital compatible.*)

With DPP and EPP, images are faithfully printed.

*EOS digital cameras since EOS D30.