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.

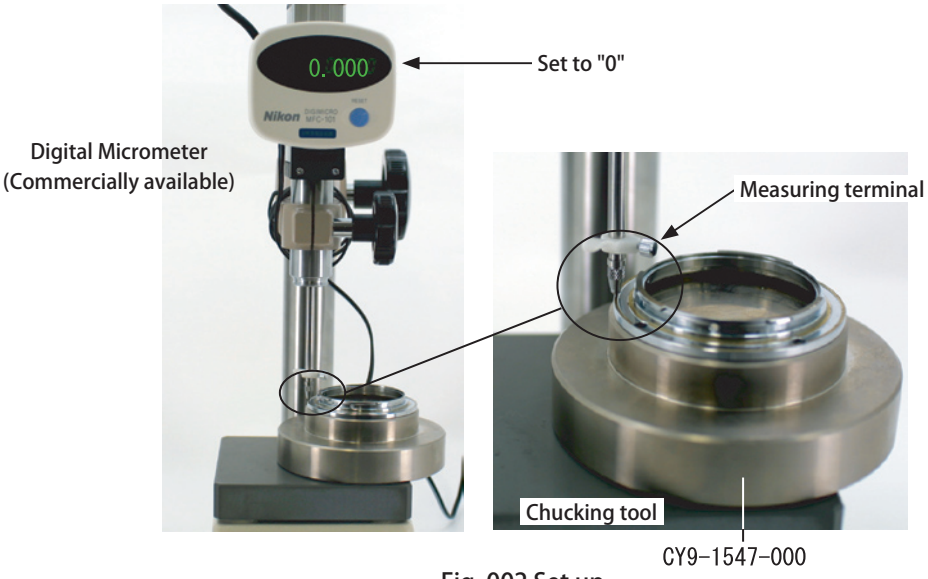

Fig. 002 Set up

<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

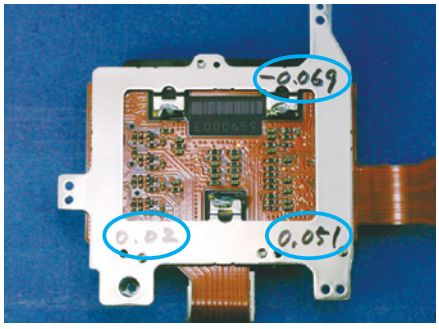

Fig. 003

(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

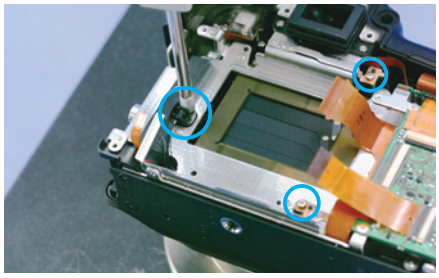
Fig. 004

(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)

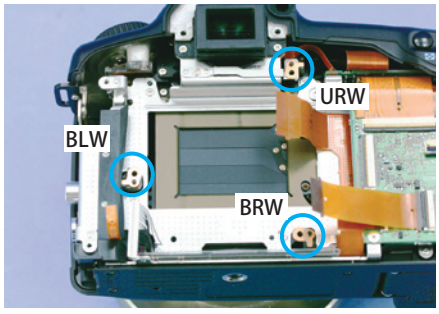

Fig. 005

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

CB32-0682-000 (XXX)

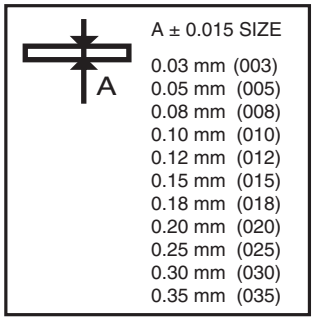

Fig. 006

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

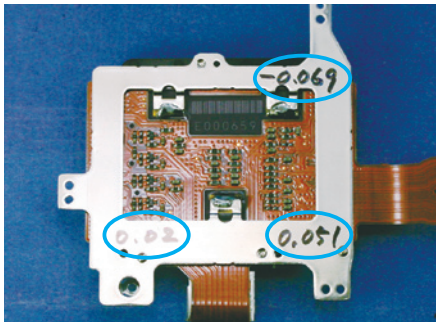

Fig. 007

(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)

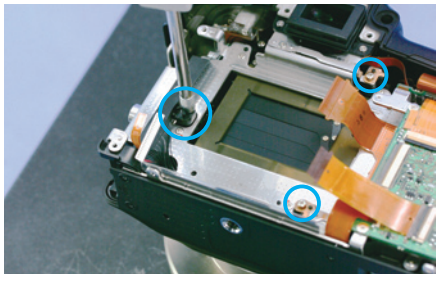
Fig. 008

(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.

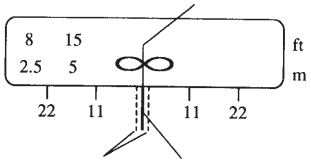

Fig. 009 Lens Focusing Scale Window

<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.

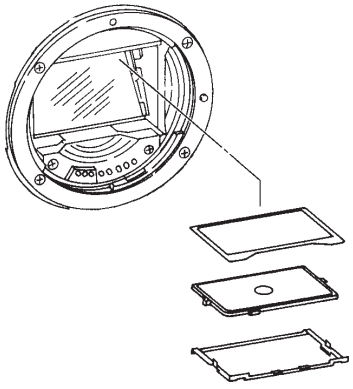

Fig. 010 Focus Washer Replacement

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.

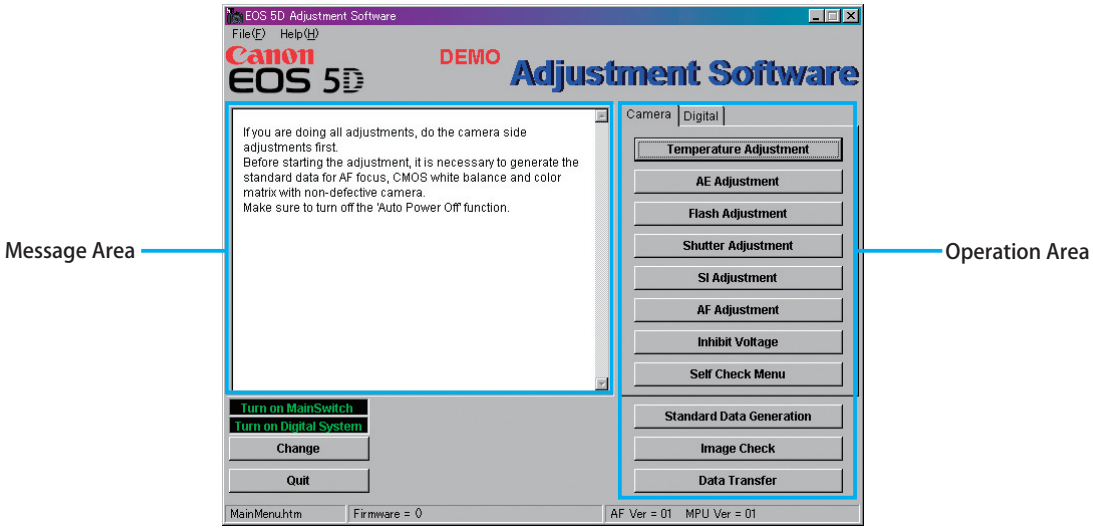

Fig. 011 Menu Window

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".

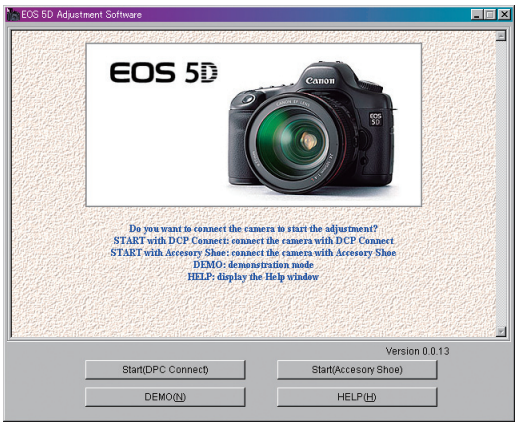

Fig. 012 Connecting the Camera

4) Log Management

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

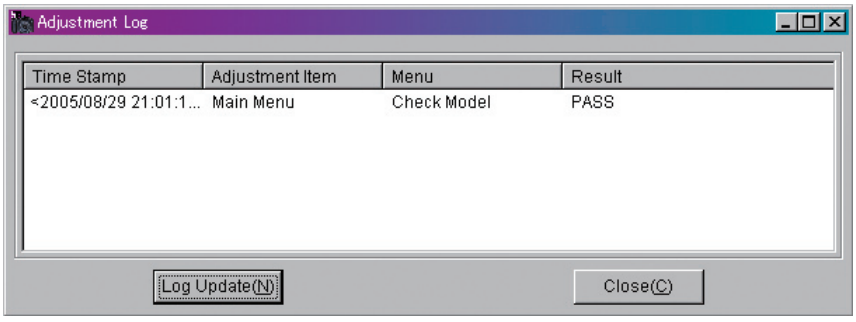

Fig. 013 Log Management

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.

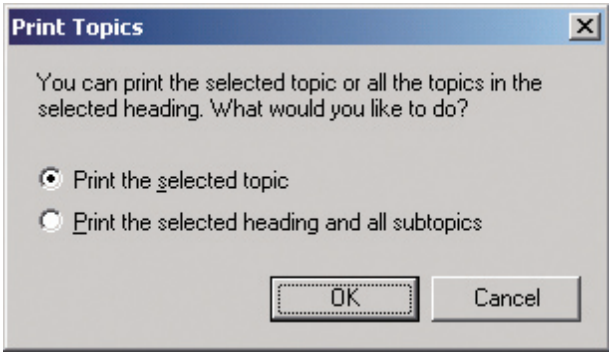

Fig. 015 Help Window2

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.