Repair Information

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Repair Information

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.

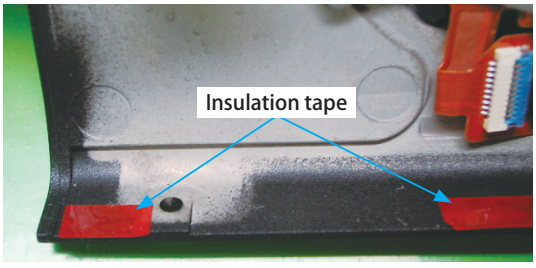


Fig. 001

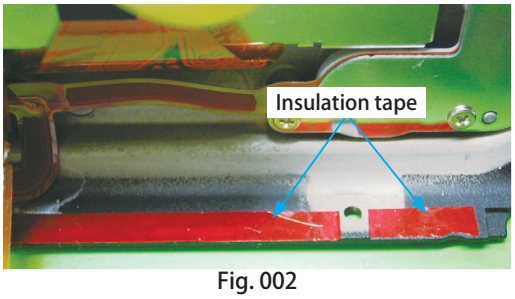


Fig. 002

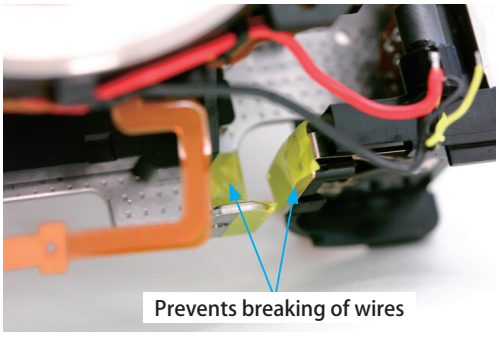


Fig. 003

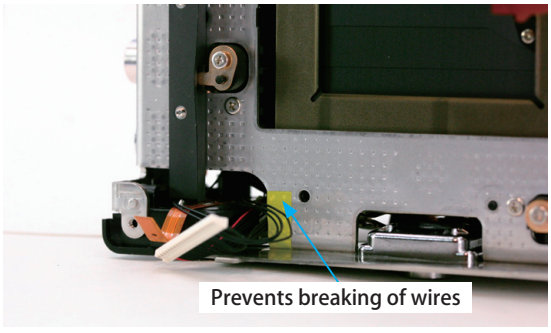


Fig. 004

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".

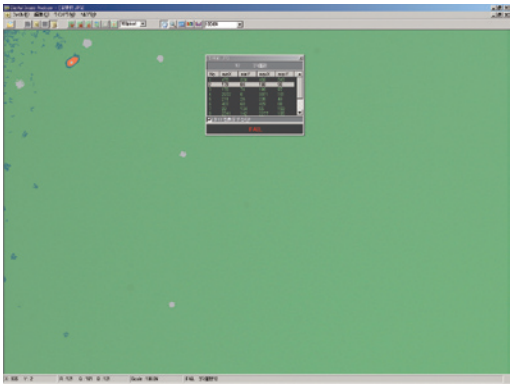


Fig. 005

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

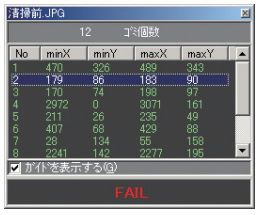


Fig. 007

(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.

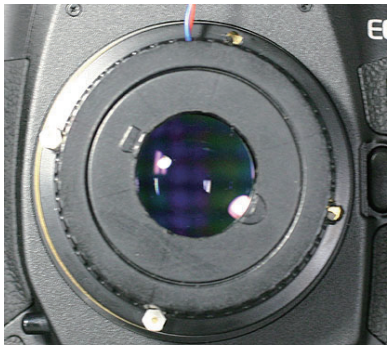


Fig. 008

5) Viewfinder Cleaning Holes

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

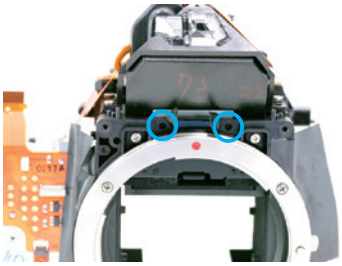


Fig. 009

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.

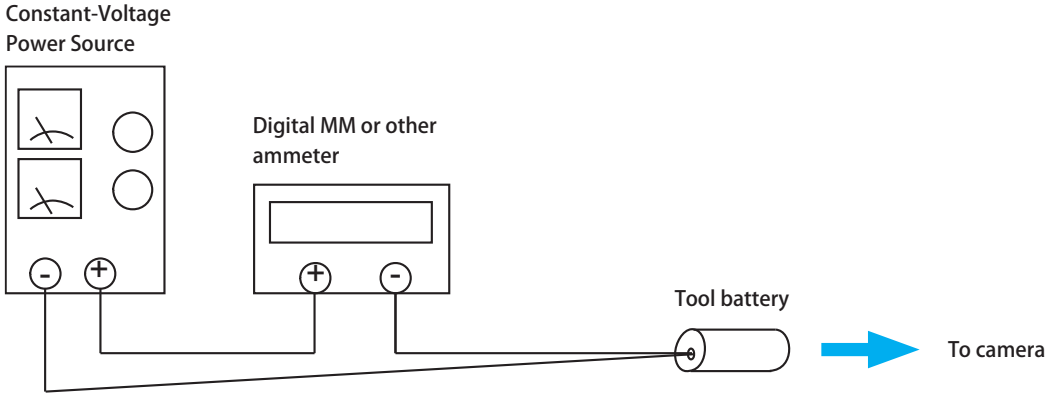


Fig. 010

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.

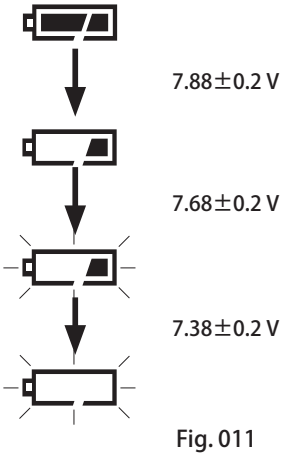


Fig. 011

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

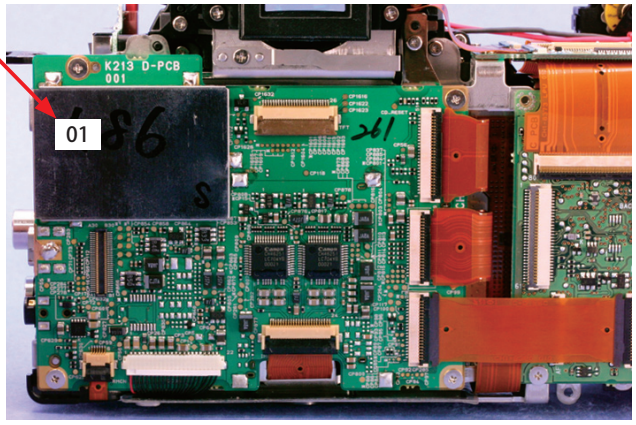


Fig. 013

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

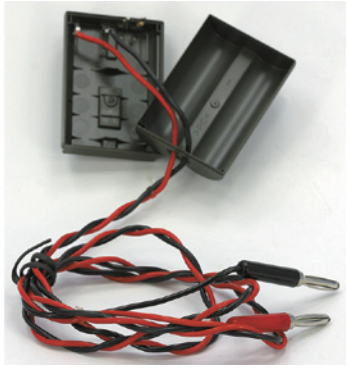
(1) CY9-1101-000 Tool Battery Probe Kit (2)
(2) DY9-1374-000 Charge Adjustment Tool (1)

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

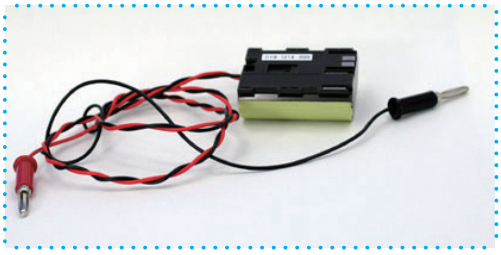


Fig. 014

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.

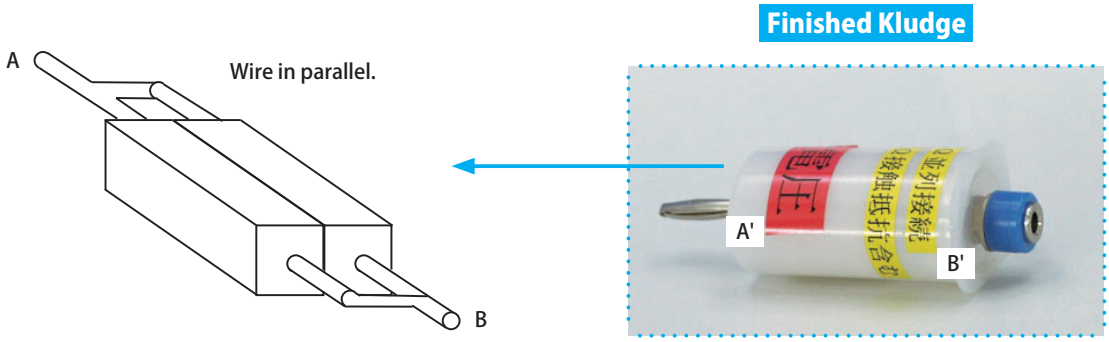


Fig. 015

2. DISASSEMBLY AND ASSEMBLY

2.1 External Covers and Battery Case Removal

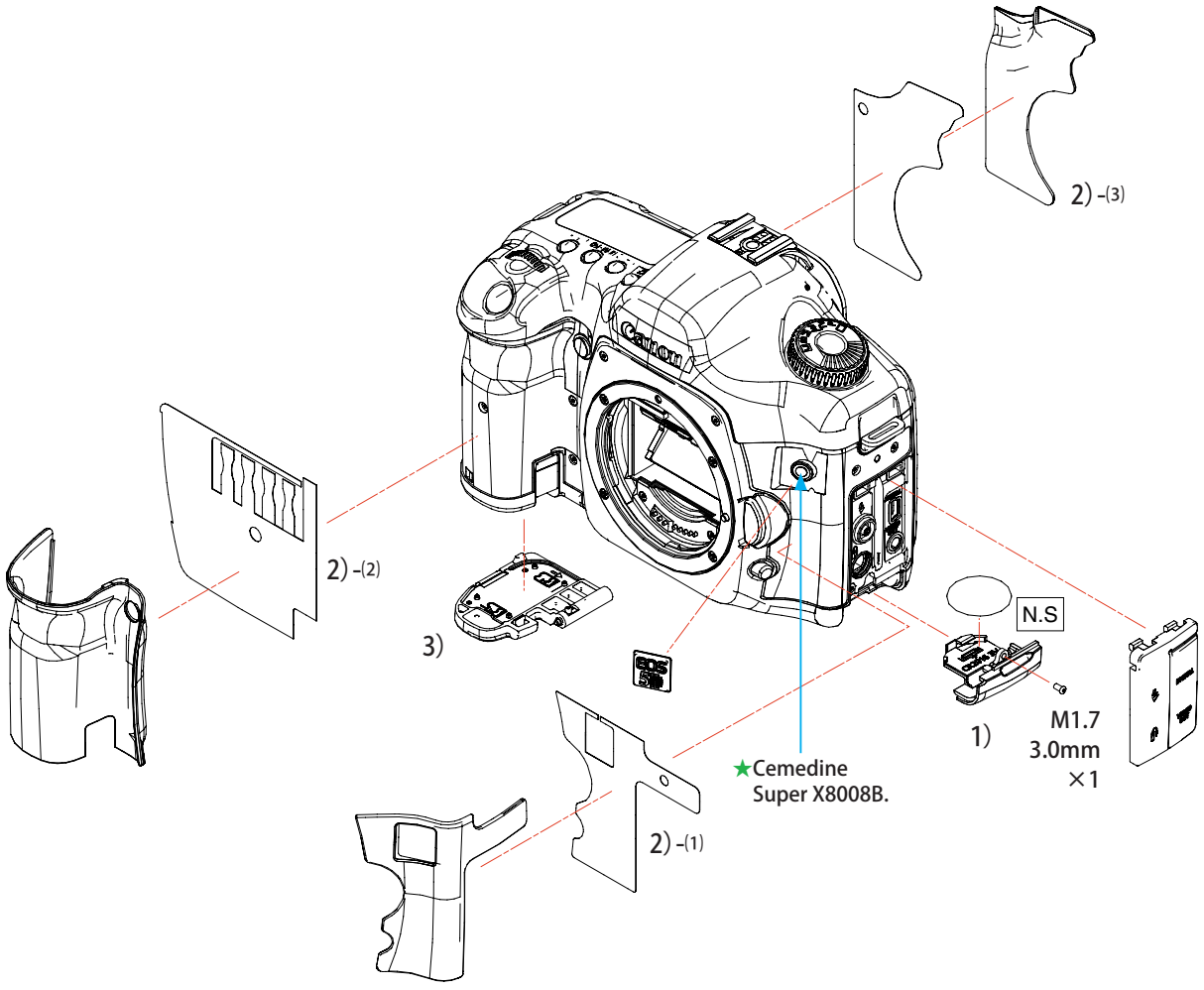


Fig. 016 External Covers and Battery Case Removal

<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

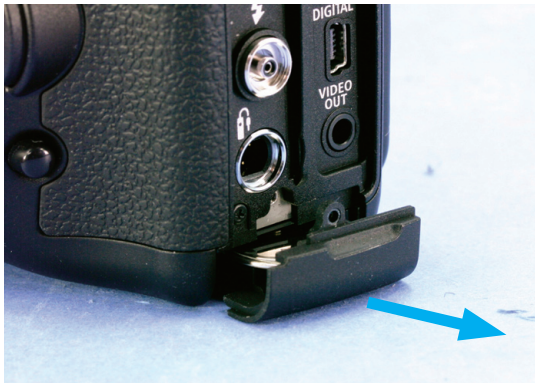


Fig. 018 Date Battery Case Removal 2

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.

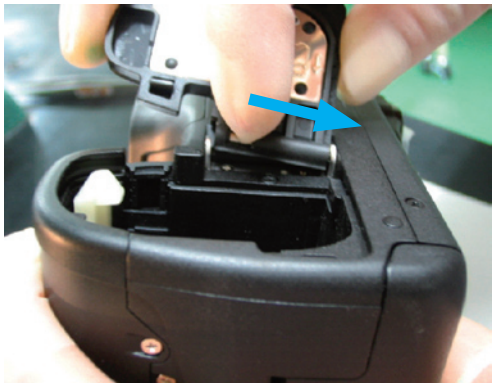


Fig. 021 Battery Cover Ass'y Removal

2.2 Front & Back Cover Removal

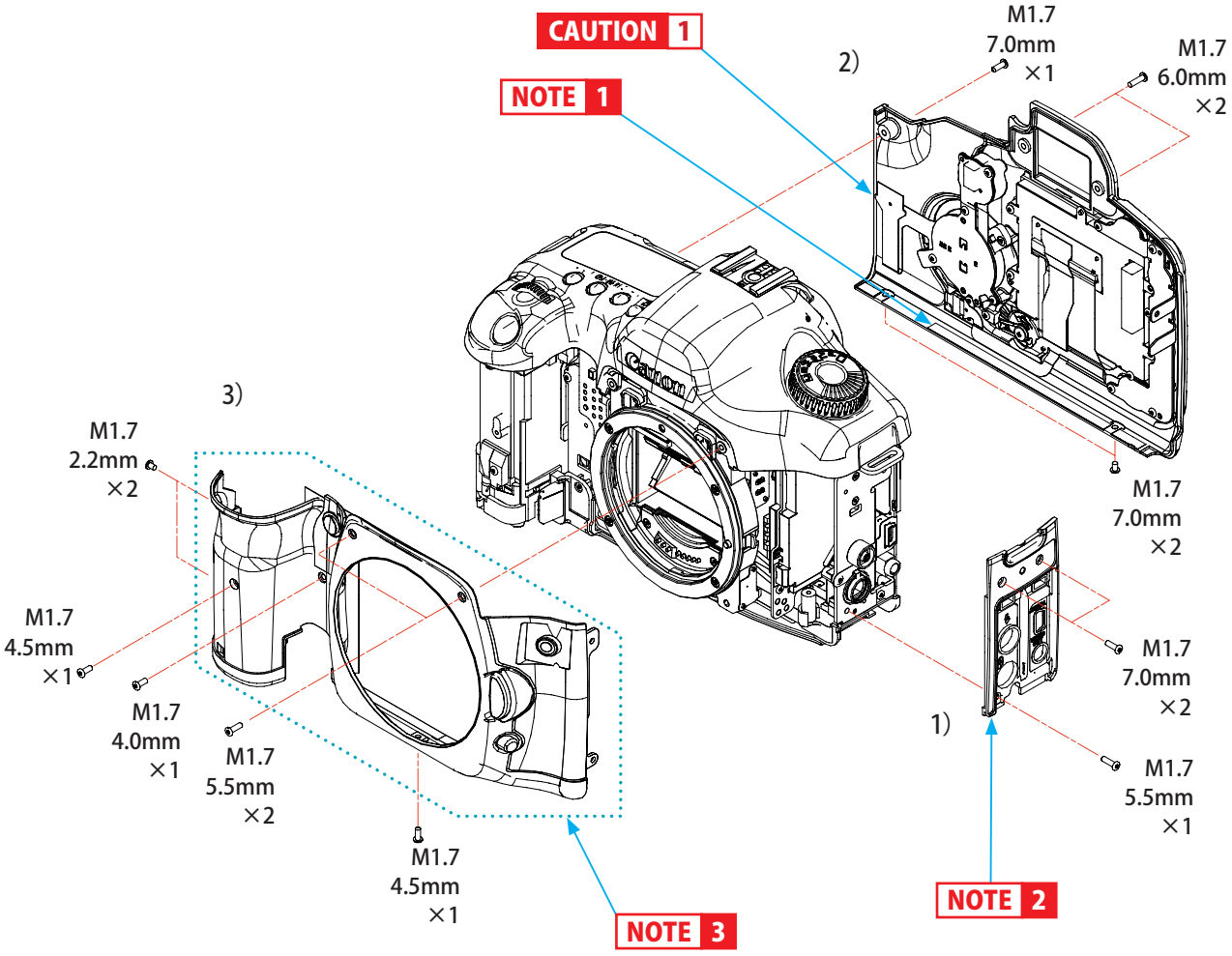


Fig. 022 Front & Back Cover Removal

<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

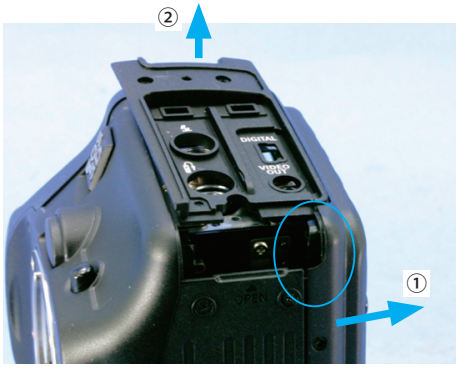


Fig. 024 Interface Cover Removal 2

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

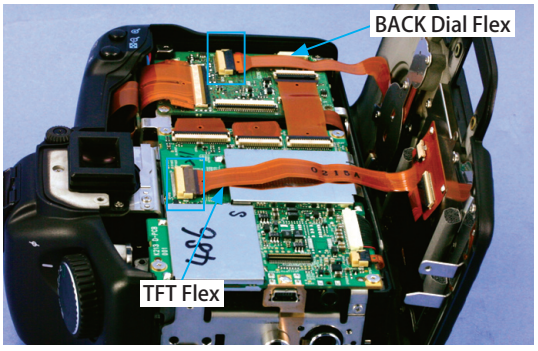


Fig. 026 Back Cover Removal 2

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).

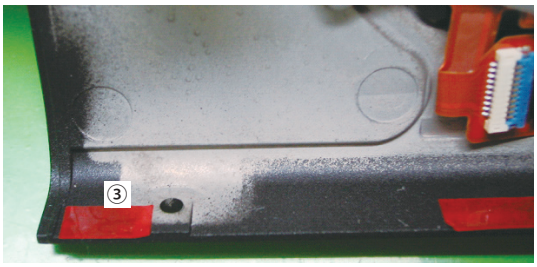


Fig. 028 Insulating Tape 1

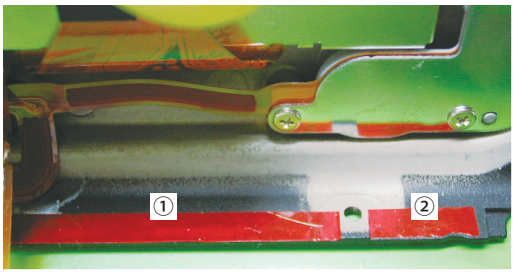


Fig. 029 Insulating Tape 2

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.

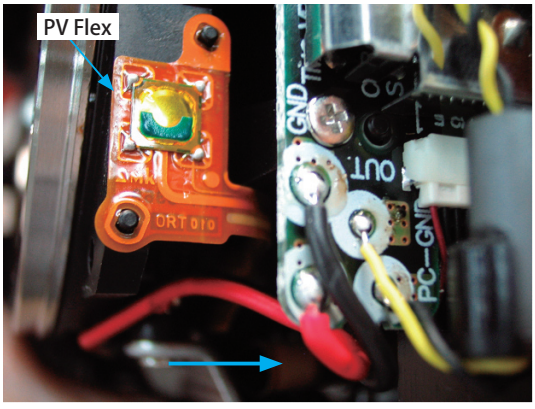


Fig. 031 Lead Dress

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

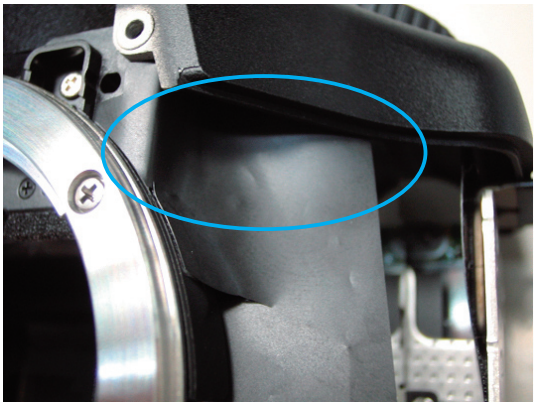


Fig. 032 Light Shield Tape 1

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

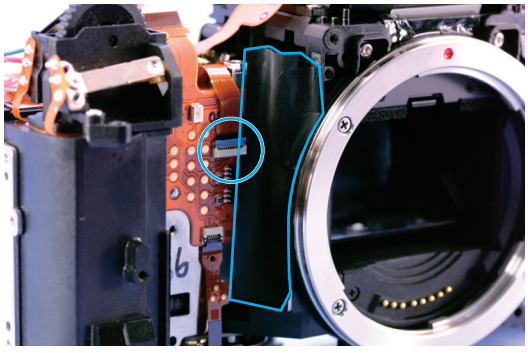


Fig. 033 Light Shield Tape 2

2.3 Top & Bottom Cover Removal

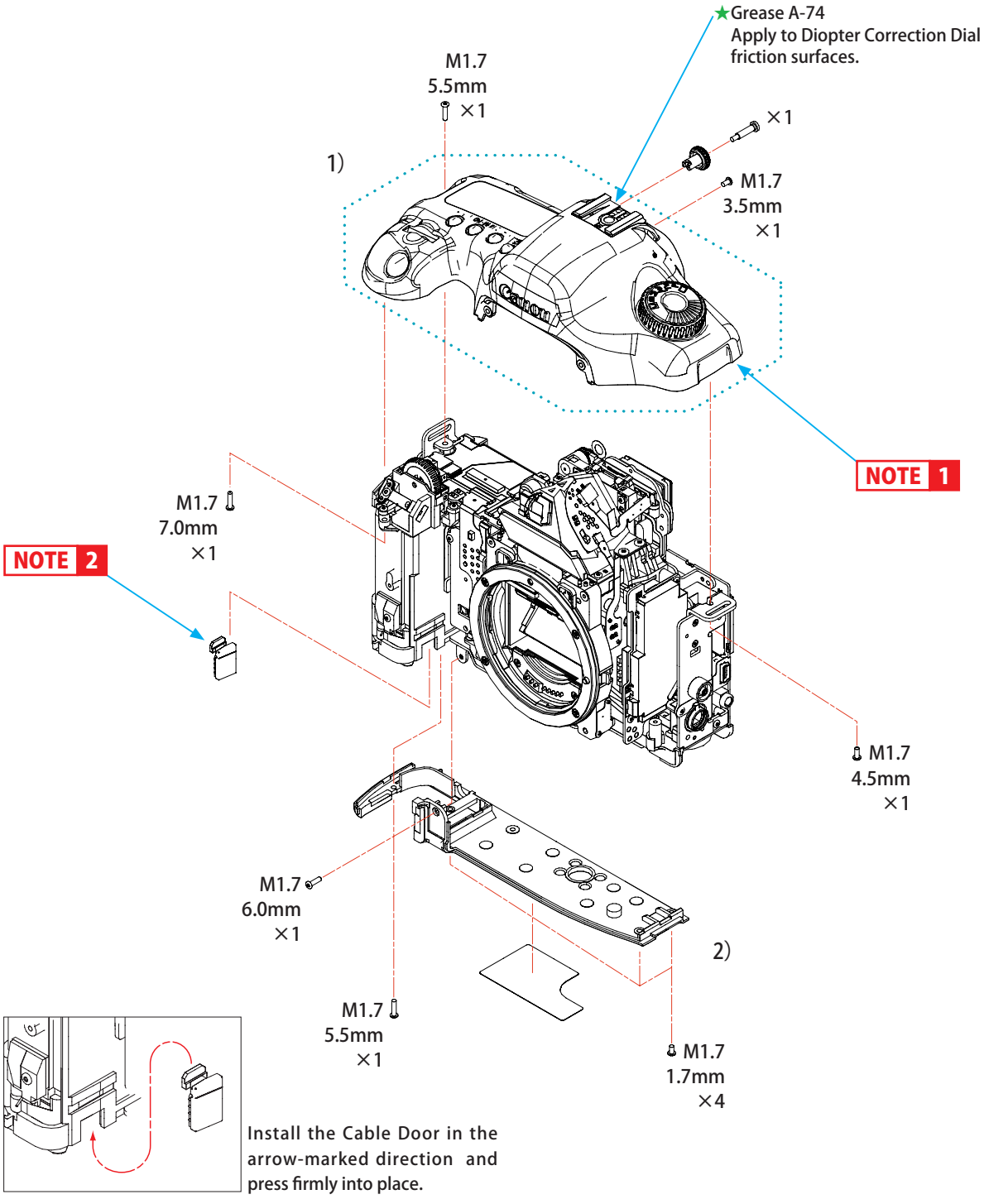


Fig. 034 Top & Bottom Cover Removal

<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.

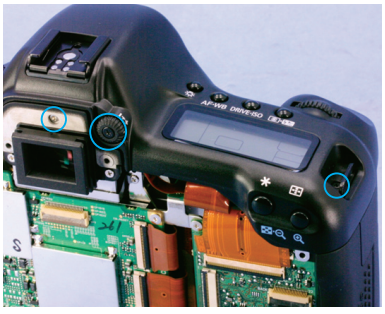


Fig. 035 Top Cover Removal 1

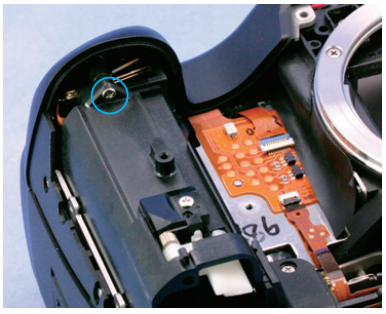


Fig. 036 Top Cover Removal 2

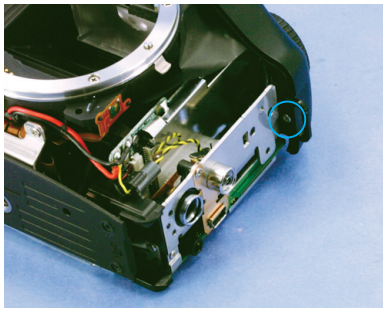


Fig. 037 Top Cover Removal 3

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.

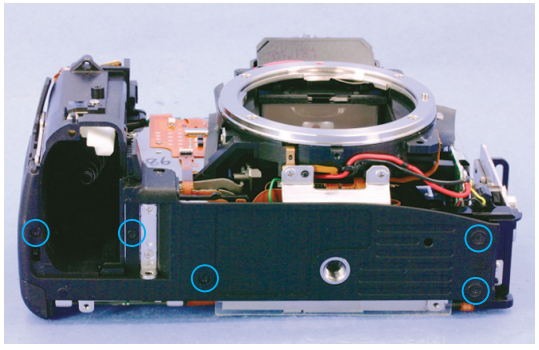


Fig. 038 Bottom Cover Removal 1

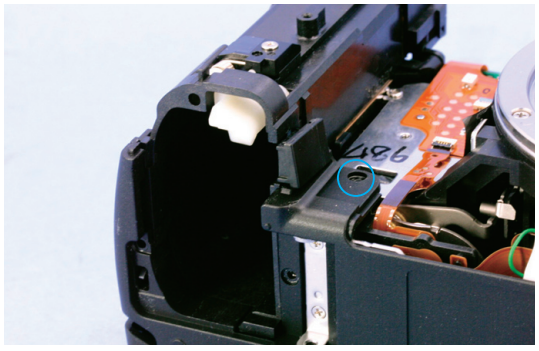


Fig. 039 Bottom Cover Removal 2

<Reassembly Notes>

NOTE 1

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

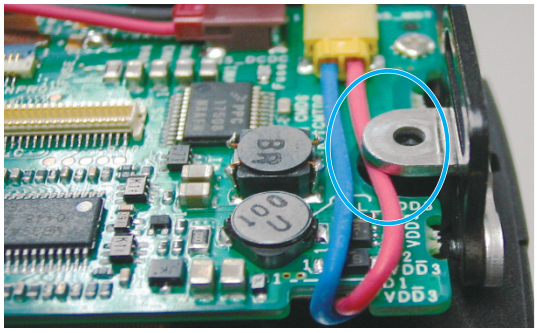


Fig. 040 Top Cover Installation Caution 1

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

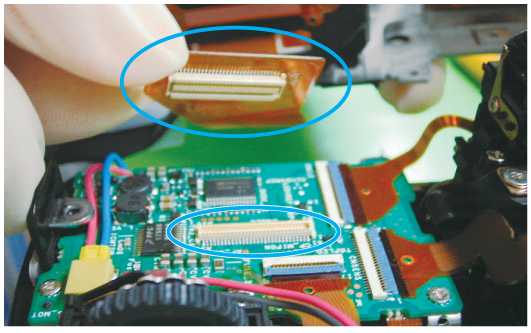


Fig. 041 Top Cover Installation Caution 2

(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.

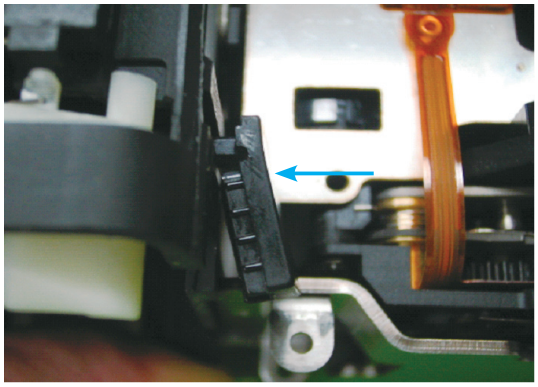


Fig. 043 Cable Door Installation

2.4 Digital PCB / Camera PCB / Imaging Unit Removal

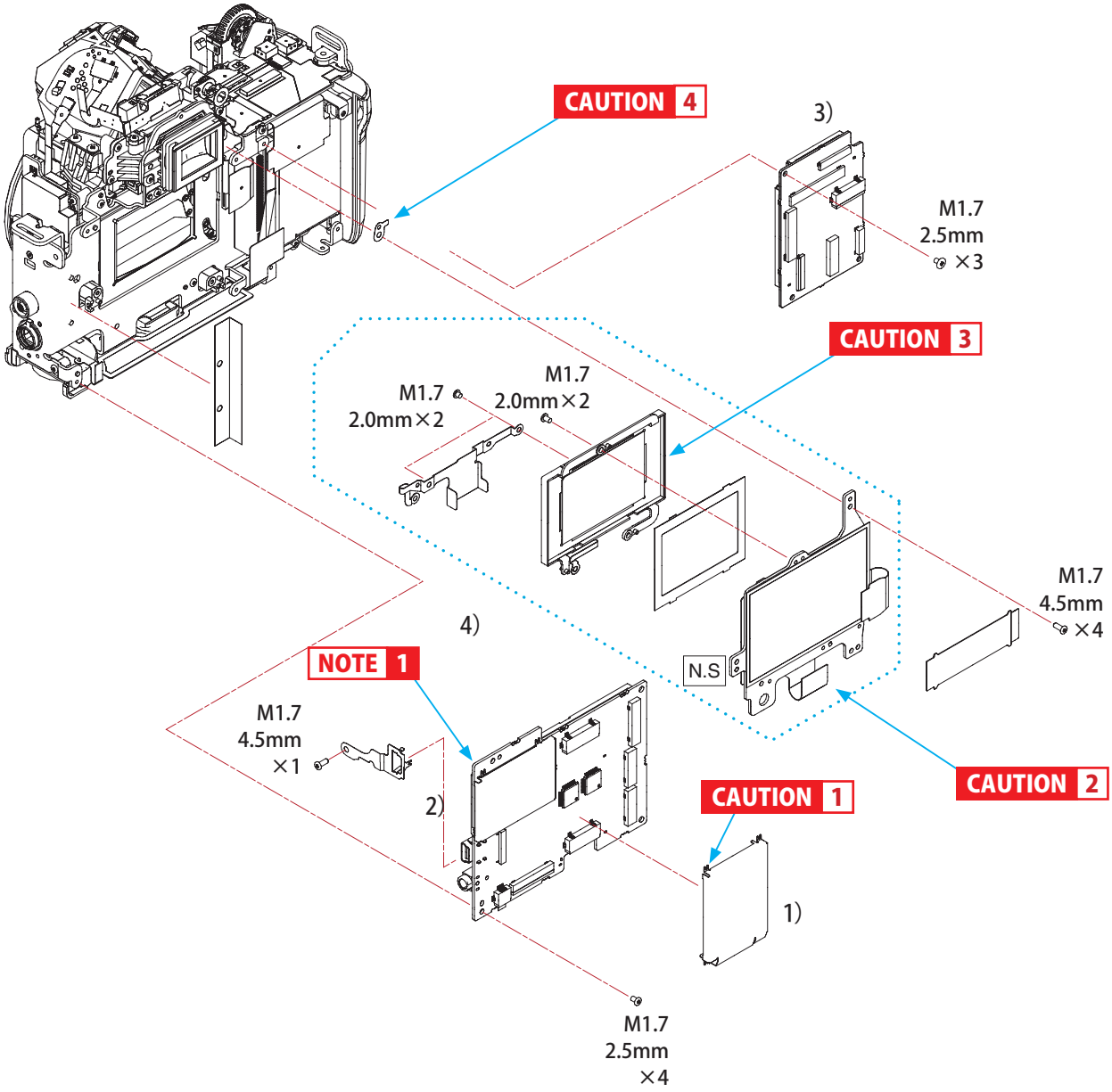


Fig. 044 Digital PCB / Camera PCB / Imaging Unit Removal

<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.

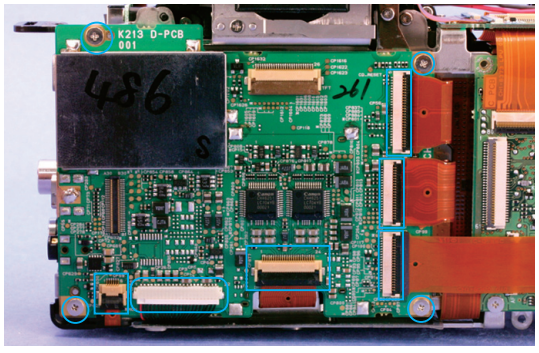


Fig. 046 Digital PCB Ass'y Removal 1

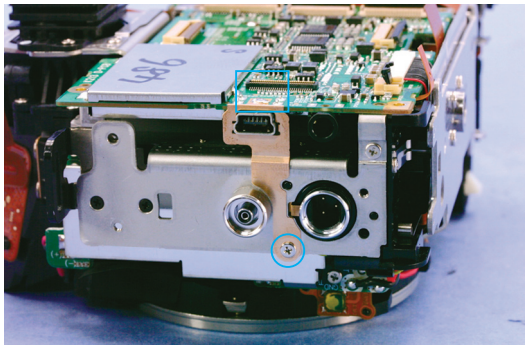


Fig. 047 Digital PCB Ass'y Removal 2

3) Camera PCB Ass'y Removal

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

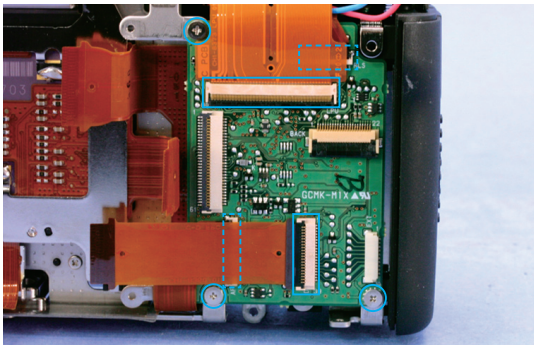


Fig. 048 Camera PCB Ass'y Removal

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.

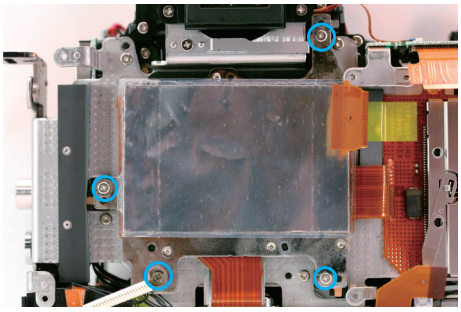


Fig. 049 Imaging Unit Removal 1

(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.

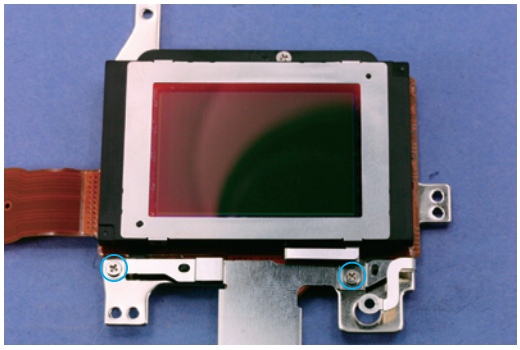


Fig. 050 Imaging Unit Removal 2

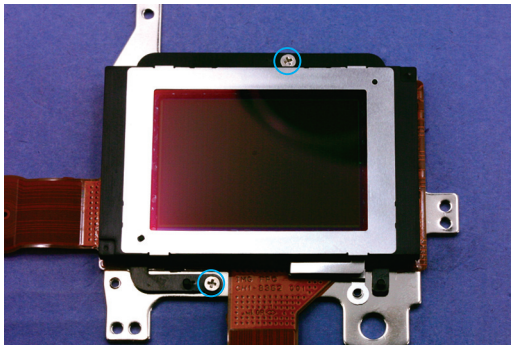


Fig. 051 Imaging Unit Removal 3

<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.

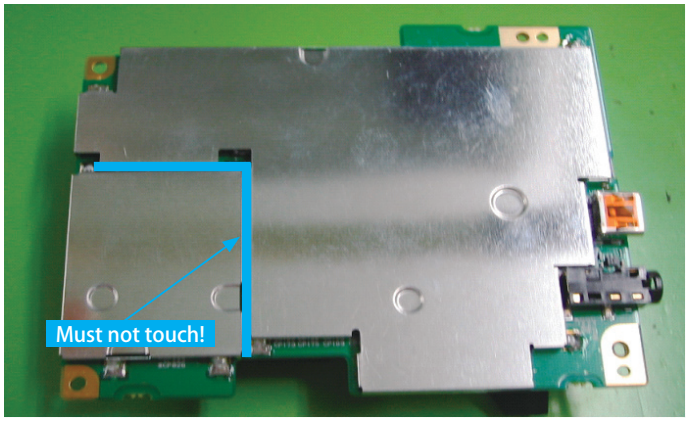


Fig. 052 Imaging Unit Reassembly 1

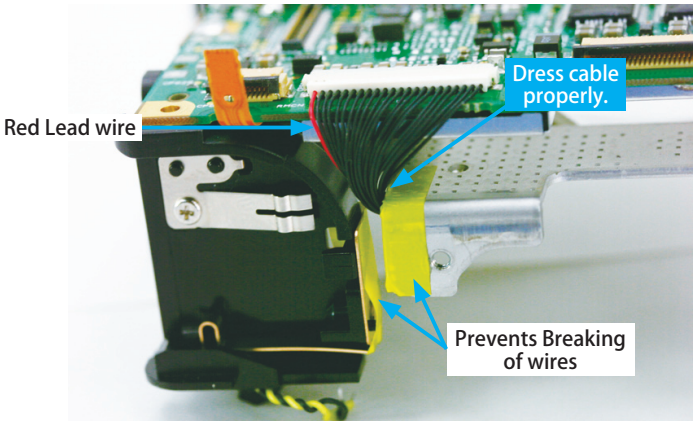


Fig. 053 Imaging Unit Reassembly 2

2.5 Baseplate / AF Sensor Unit / Eyepiece Cover Removal

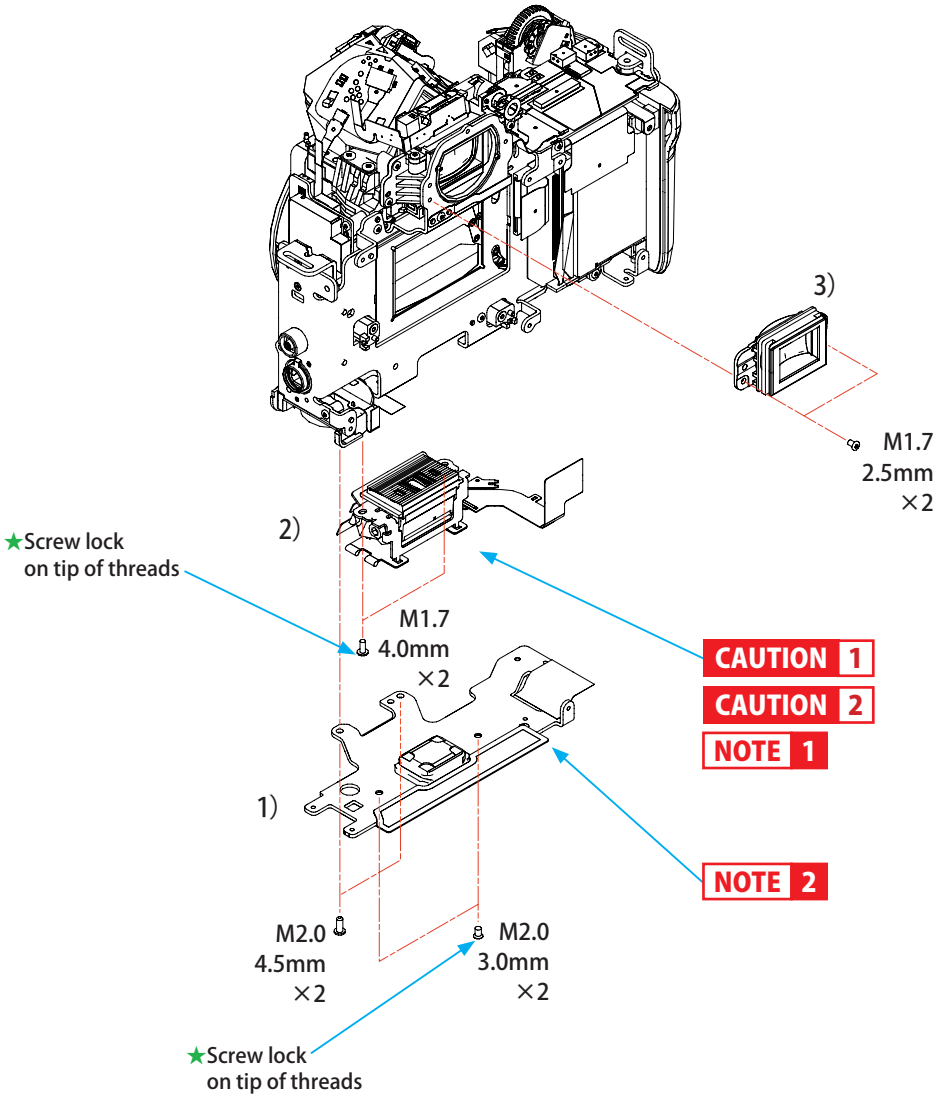


Fig. 054 Baseplate / AF Sensor Unit / Eyepiece Cover Removal

<Disassembly Procedures>

1) Baseplate Removal

(1) Remove four screws and remove the Baseplate.

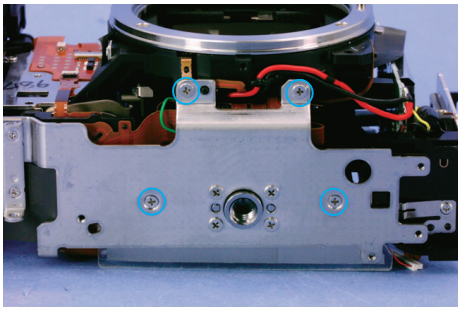


Fig. 055 Baseplate Removal

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.

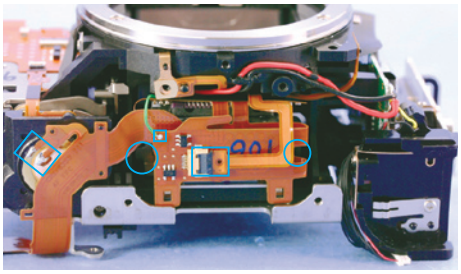
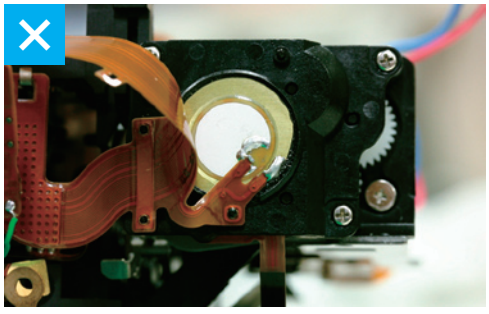
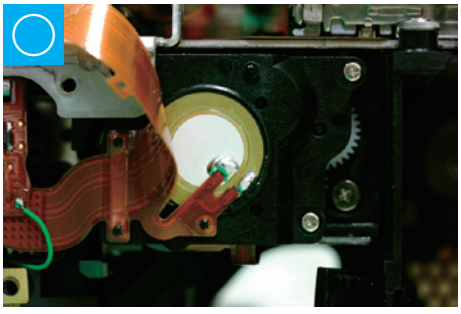


Fig. 056 Auto Focus FPC Ass'y Removal 1

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.

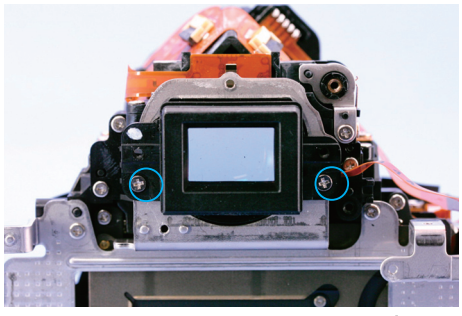


Fig. 057 Eyepiece Cover Removal

<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.

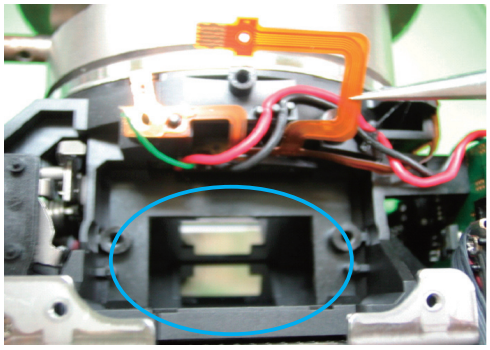


Fig. 058 Auto Focus FPC Ass'y Assembly 1

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

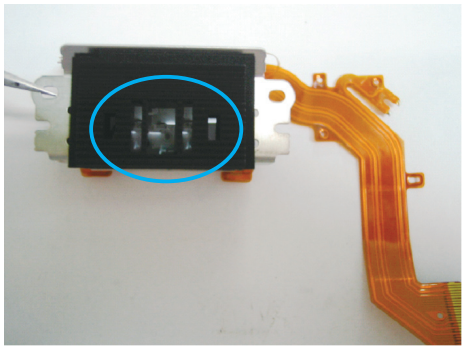


Fig. 059 Auto Focus FPC Ass'y Assembly 2

(3) Attach the AF Flex to three clips.

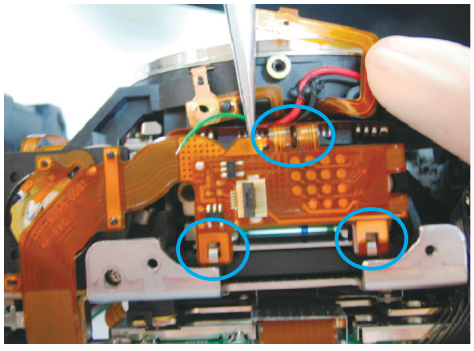


Fig. 060 Auto Focus FPC Ass'y Assembly 3

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

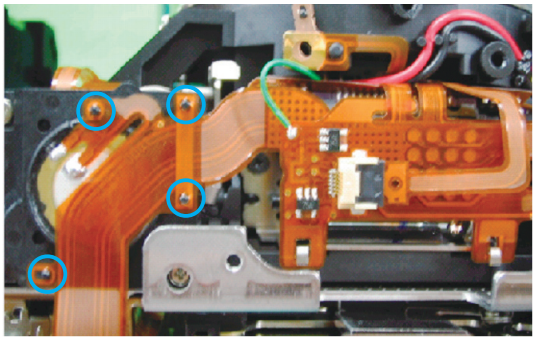


Fig. 061 Auto Focus FPC Ass'y Assembly 4

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.

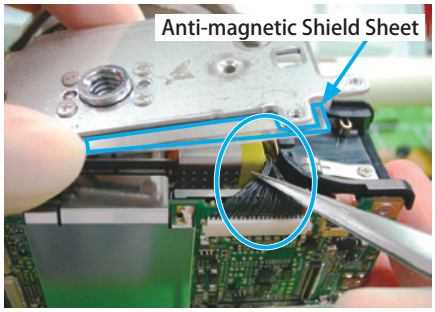


Fig. 062 Auto Focus FPC Ass'y Assembly 5

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

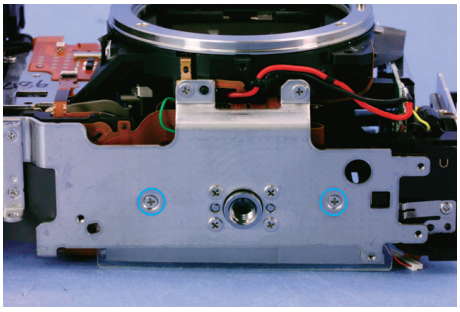


Fig. 064 Auto Focus FPC Ass'y Assembly 7

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

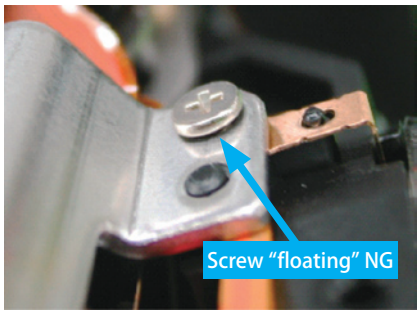


Fig. 063 Auto Focus FPC Ass'y Assembly 6

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

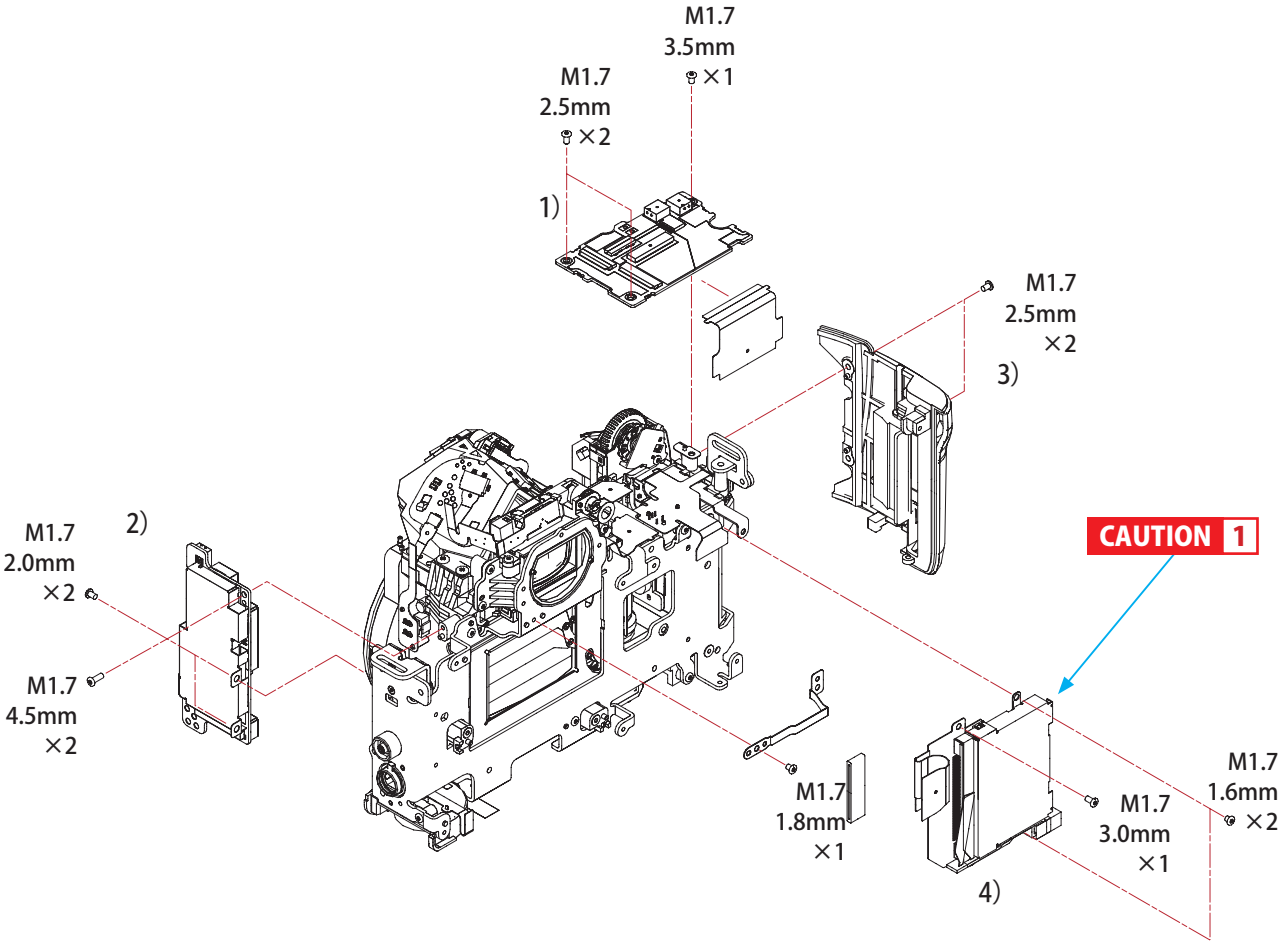


Fig. 065 LPU PCB / DC/DC PCB / CF Slot Cover / CF Slot Ass'y Removal

<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.

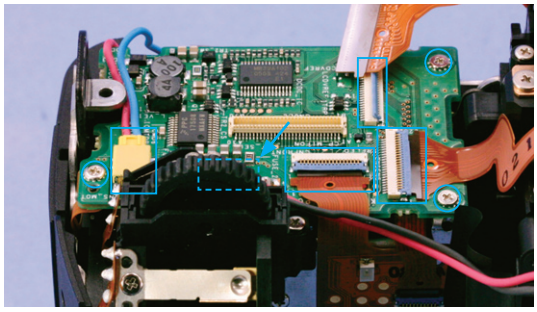


Fig. 066 LPU PCB Removal 1

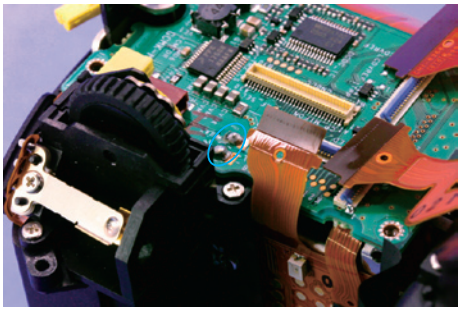


Fig. 067 LPU PCB Removal 2

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.

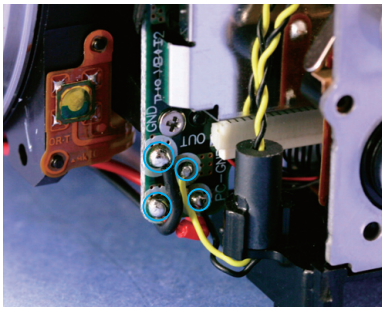


Fig. 068 DC/DC PCB Removal 1

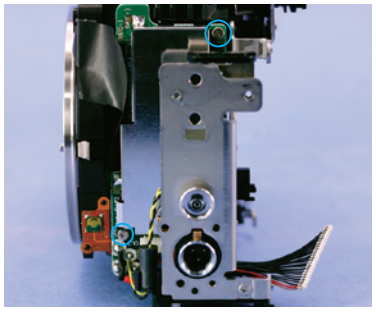


Fig. 069 DC/DC PCB Removal 2

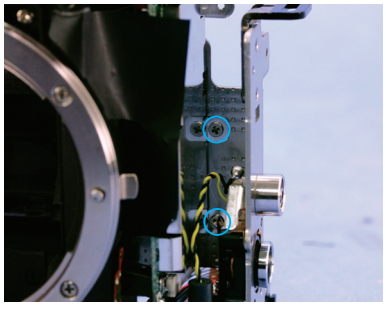


Fig. 070 DC/DC PCB Removal 3

3) CF Slot Cover Removal

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

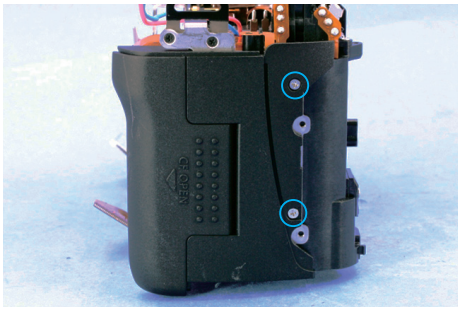


Fig. 071 CF Slot Cover Removal

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.

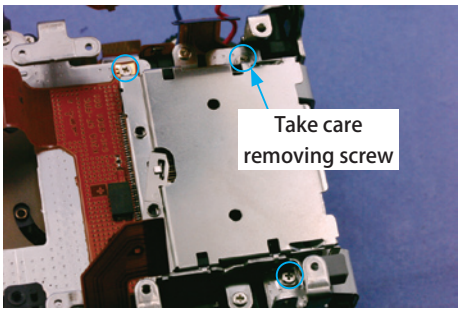


Fig. 072 CF Slot Ass'y Installation

5) Second Ground Plate Removal

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

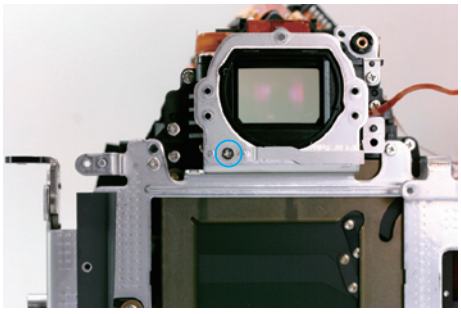


Fig. 073 Second Ground Plate Removal

<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.

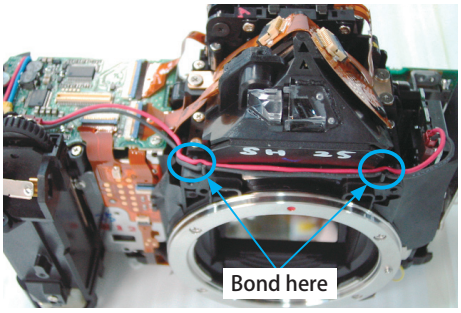


Fig. 074 LPU PCB Installation

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.

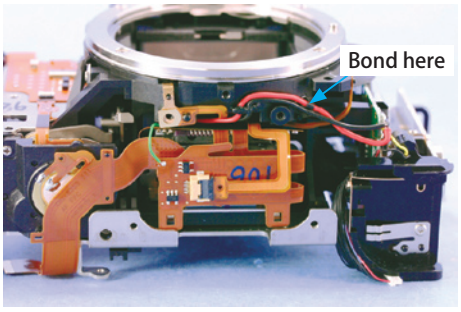


Fig. 075 DC/DC PCB Installation

3) CF Slot Pin Ass'y Installation

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

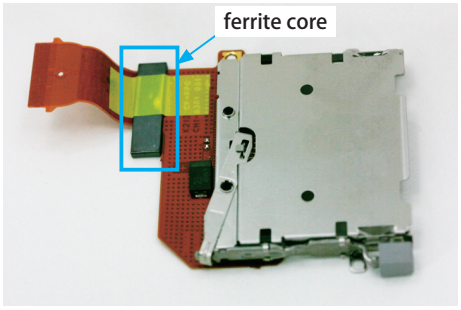


Fig. 076 CF Slot Pin Ass'y Installation

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

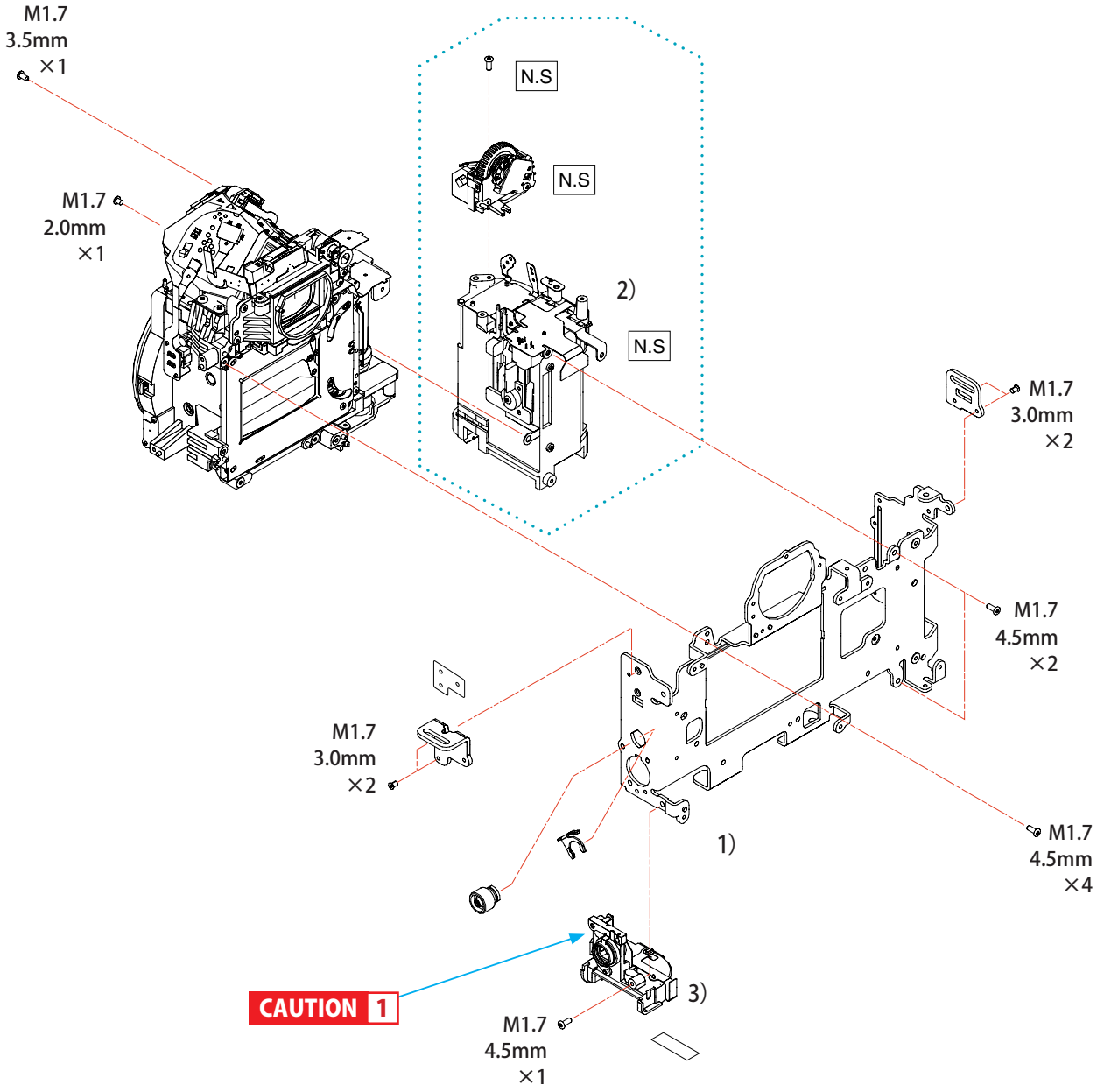


Fig. 077 Mirror Box Ass'y, Battery Box Ass'y, Interface FPC Ass'y Removal

<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.

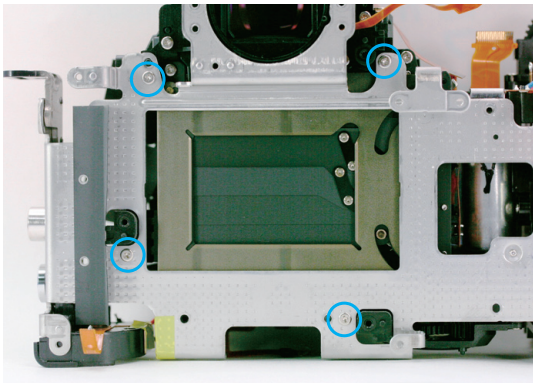


Fig. 078 Mirror Box Ass'y Removal 1

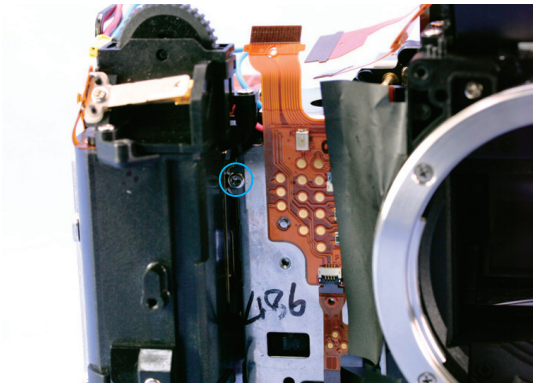


Fig. 079 Mirror Box Ass'y Removal 2

2) Battery Box Ass'y Removal

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

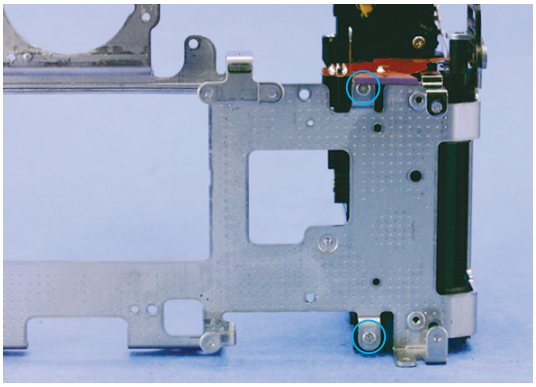


Fig. 080 Battery Box Ass'y Removal 1

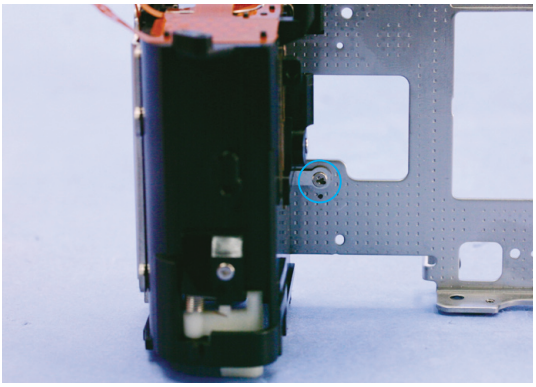


Fig. 081 Battery Box Ass'y Removal 2

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.

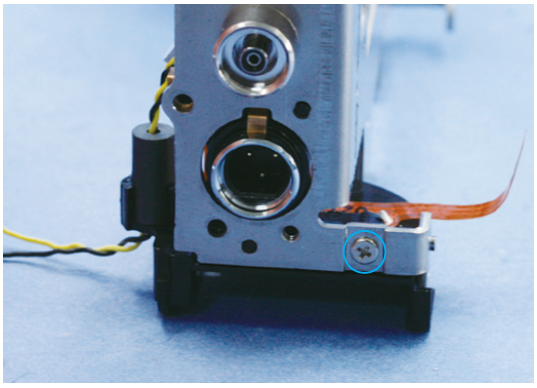


Fig. 082 Interface FPC Ass'y Removal

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

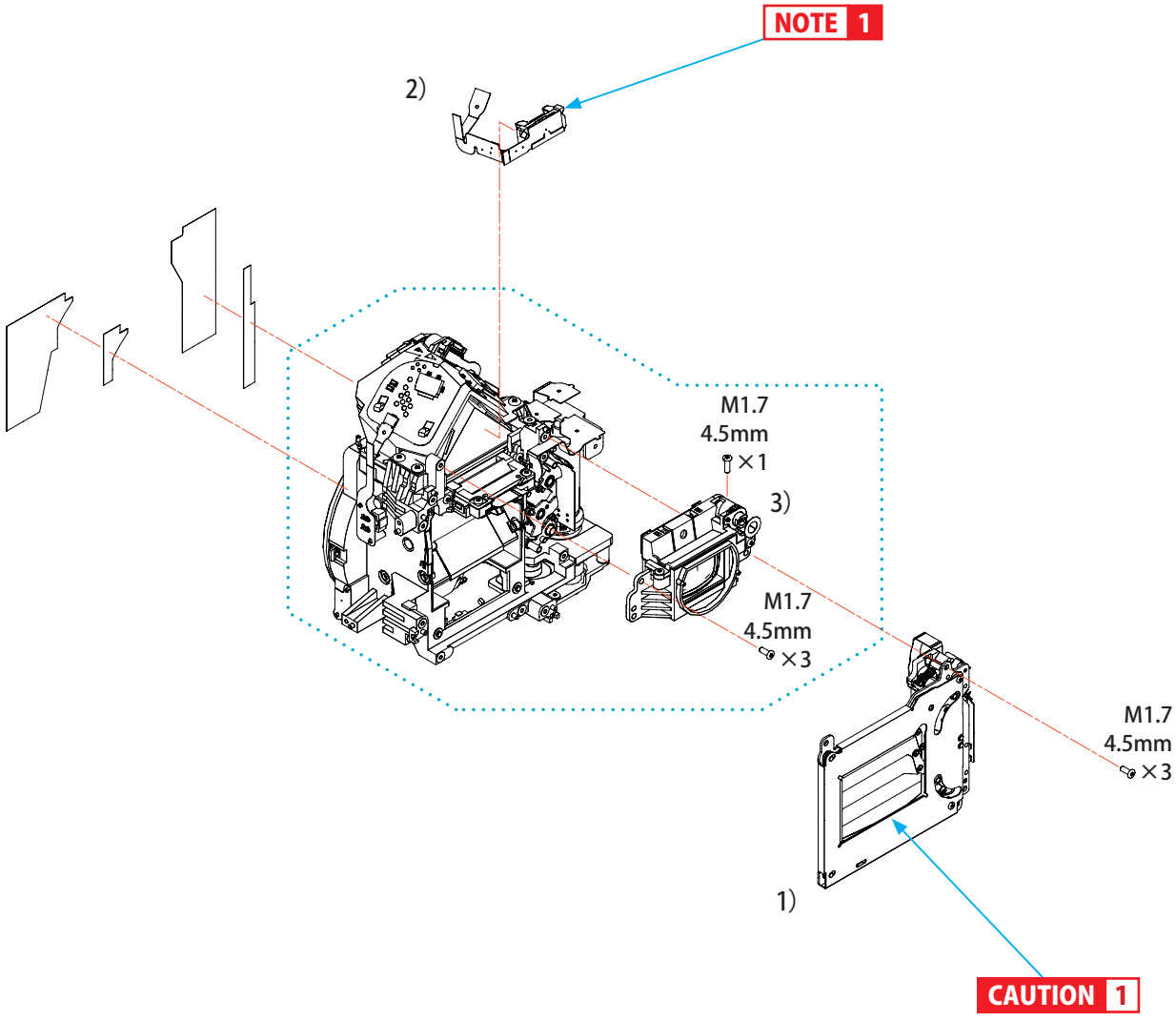


Fig. 083 Shutter Ass'y / Auto Exposure FPC Ass'y / Eyepiece Ass'y Removal

<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.

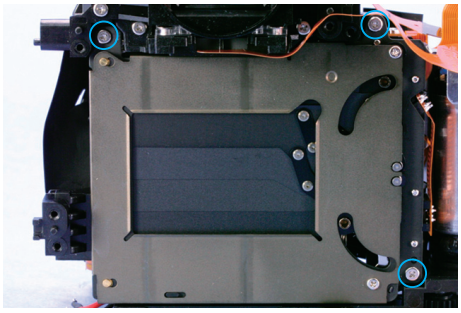


Fig. 084 Shutter Ass'y Removal

2) Auto Exposure FPC Ass'y Removal

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

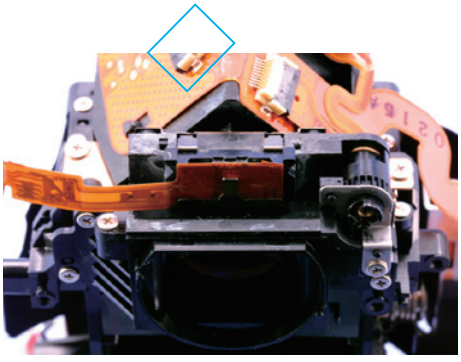


Fig. 085 Auto Exposure FPC Ass'y Removal

3) Eyepiece Ass'y Removal

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

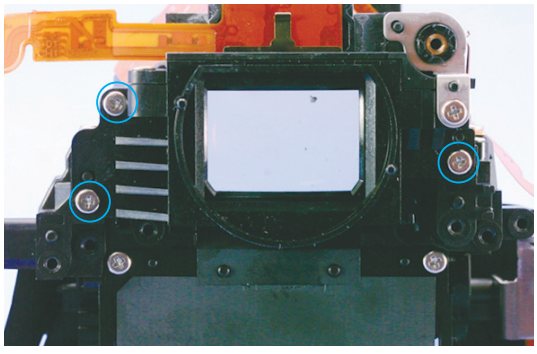


Fig. 086 Eyepiece Ass'y Removal 1

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.

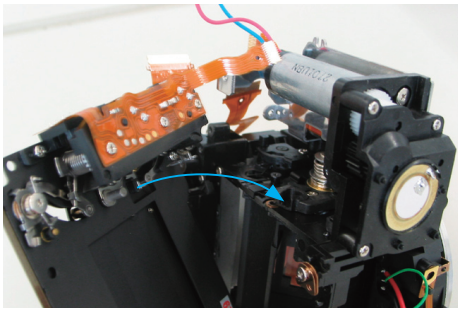


Fig. 088 Shutter Ass'y Installation

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.

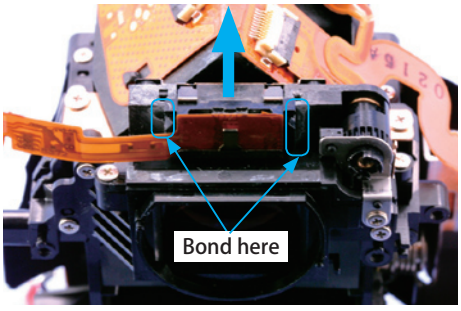


Fig. 089 Auto Exposure FPC Ass'y Installation

3) Eyepiece Ass'y Installation

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

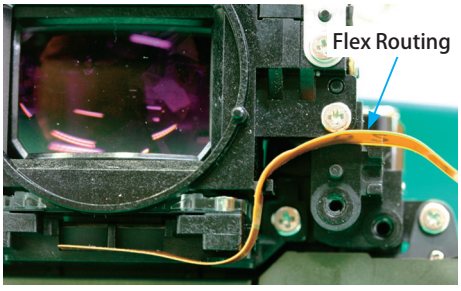


Fig. 090 Eyepiece Ass'y Installation

4) Light Shield Plate Installation

Install the Light Shield Plates as shown.

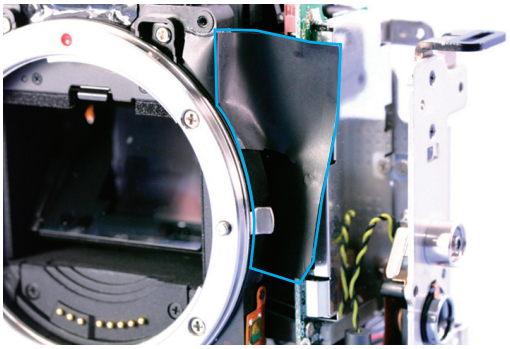


Fig. 091 Light Shield Plate Installation 1

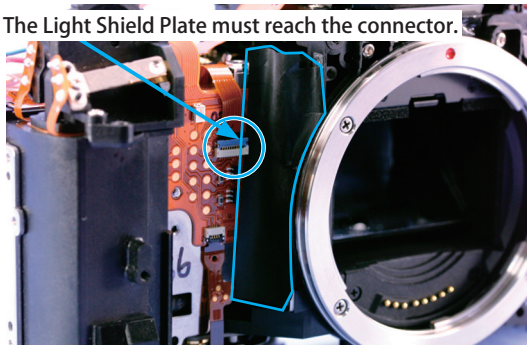


Fig. 092 Light Shield Plate Installation 2

2.9 TFT LCD Ass'y Removal

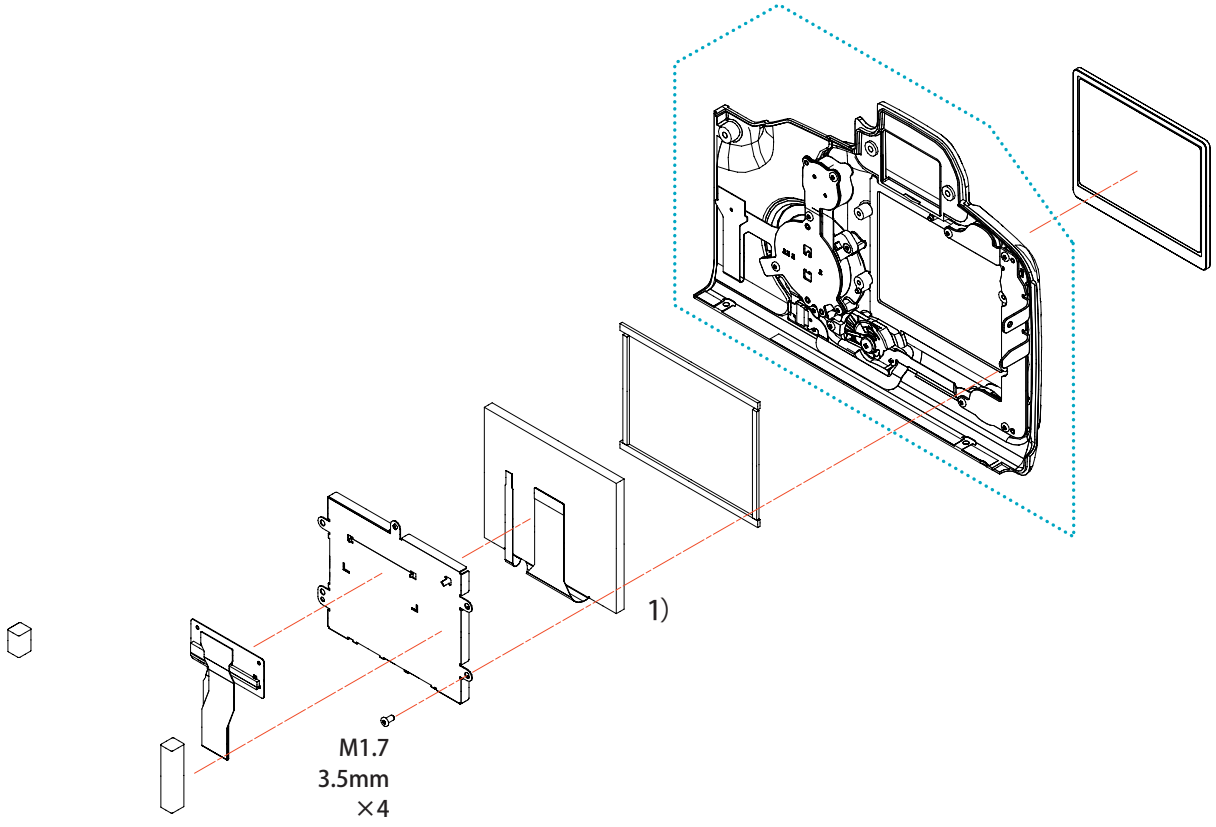


Fig. 093 TFT LCD Ass'y Removal

<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.

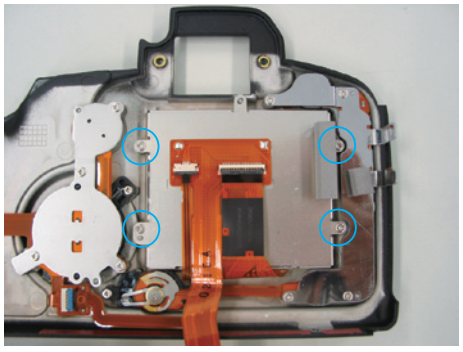


Fig. 094 TFT LCD Ass'y Removal 1

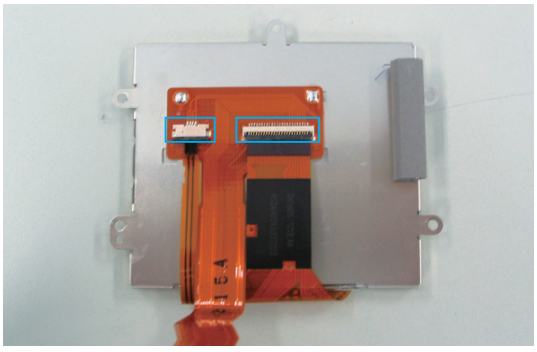


Fig. 095 TFT LCD Ass'y Removal 2

<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.

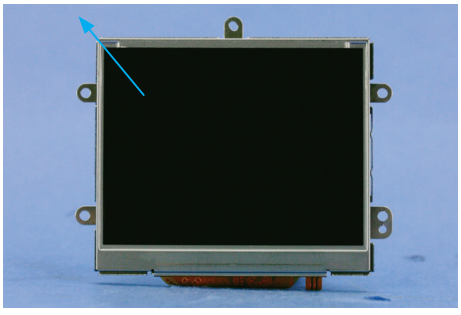


Fig. 096 TFT LCD Ass'y Installation

2.10 Outer LCD Ass'y Removal

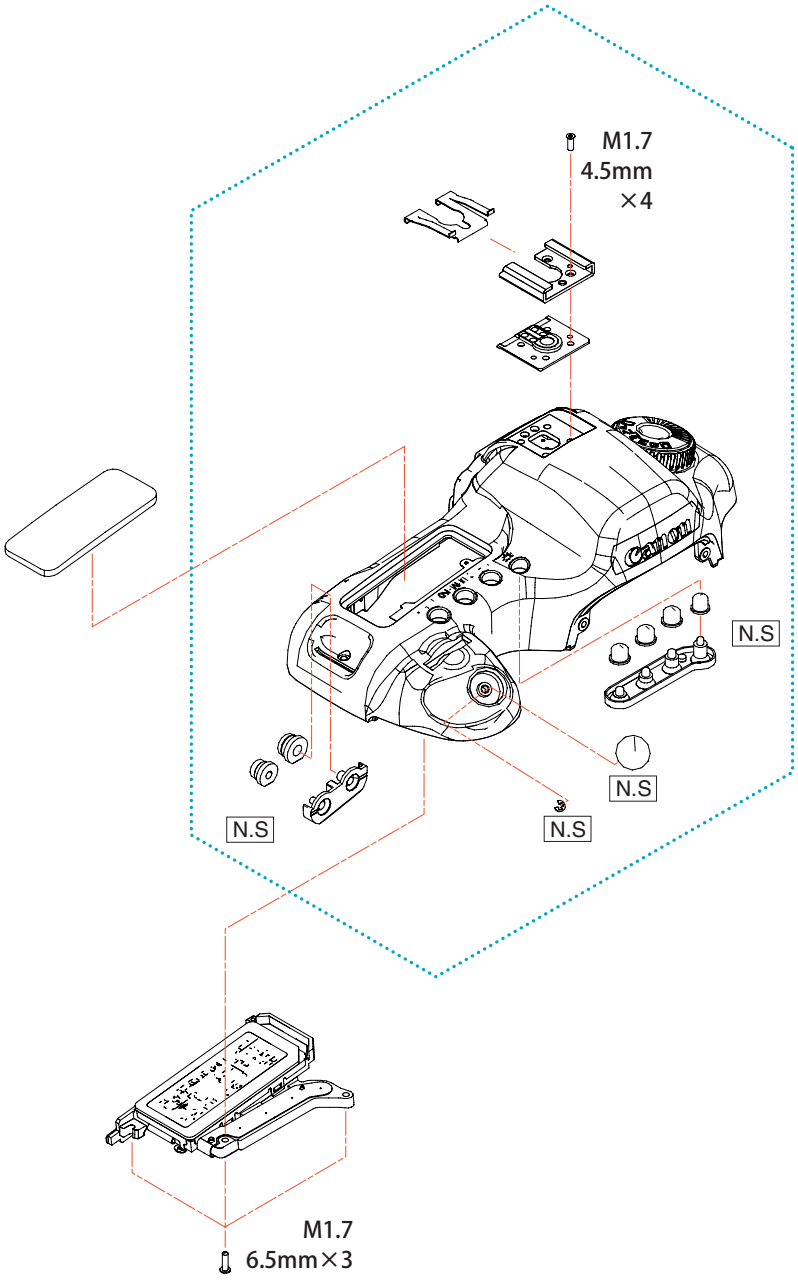


Fig. 097 Outer LCD Ass'y Removal

<Disassembly Procedure>

1) **Outer LCD Ass'y Removal**

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

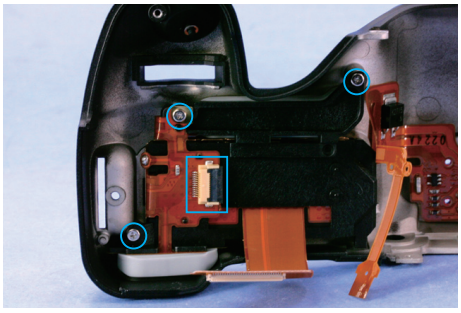


Fig. 098 Outer LCD Ass'y Removal