

Service Manual

Digital Camera/Lens Kit/Double Lens Kit/Body

LUMIX



Model No. **DMC-GF2KPP**

DMC-GF2KEB

DMC-GF2KEC

DMC-GF2KEE

DMC-GF2KEG

DMC-GF2KGC

DMC-GF2KGD

DMC-GF2KGH

DMC-GF2KGK

DMC-GF2KGN

DMC-GF2KGT

DMC-GF2PP

DMC-GF2GC

DMC-GF2GH

DMC-GF2CPP

DMC-GF2CEB

DMC-GF2CEC

DMC-GF2CEE

DMC-GF2CEG

DMC-GF2CGC

DMC-GF2CGD

DMC-GF2CGH

DMC-GF2CGK

DMC-GF2CGN

DMC-GF2CGT

Panasonic®

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DMC-GF2WEB DMC-GF2WEG DMC-GF2WGC DMC-GF2WGD DMC-GF2WGH

DMC-GF2WGK DMC-GF2WGN DMC-GF2WGT Vol.1

Colour

[DMC-GF2C]	[DMC-GF2W]
(K).....Black Type	(K).....Black Type
(S).....Silver Type (except EE/GK/GN/GT)	(S).....Silver Type (only EB/EG/GC)
(W).....White Type (except EB/EE)	(W).....White Type (except EB)
(R).....Red Type (except GC/GD/GN/GT)	(R).....Red Type (only EB/EG/GH)
(P).....Pink Type (only GC/GH/GK/GT)	(P).....Pink Type (only GC)
[DMC-GF2K]	[DMC-GF2]
(K).....Black Type	(K).....Black Type
(S).....Silver Type (only PP/EB/EC/EG/GC)	
(W).....White Type (except EB/EE/GH)	
(R).....Red Type (except GC/GD/GH/GN/GT)	
(P).....Pink Type (only GC/GK)	

DMC-GF2C series: Interchangeable Lens (H-H014) is bundled.

DMC-GF2K series: Interchangeable Lens (H-FS014042) is bundled.

DMC-GF2W series: Interchangeable Lens (H-H014/H-FS014042) are bundled.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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11.3. General description (Lens cleaning:
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1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by

⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1\text{ M}\Omega$ and $5.2\text{ M}\Omega$. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.3. Leakage Current Hot Check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a $1.5\text{ k}\Omega$, 10 W resistor, in parallel with a $0.15\text{ }\mu\text{F}$ capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with $1\text{ k}\Omega/\text{V}$ or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS . A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed $1/2\text{ mA}$. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

Hot-Check Circuit

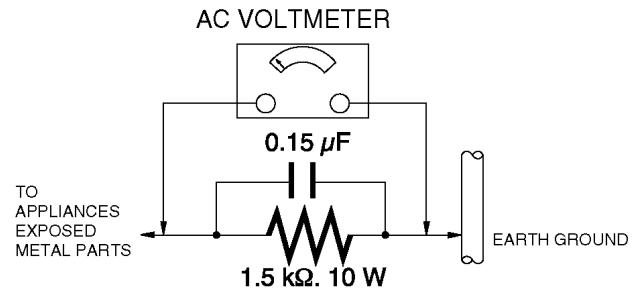


Figure. 1

1.4. How to Discharge the E. Capacitor on Flash P.C.B.

CAUTION:

1. Be sure to discharge the E. Capacitor on FLASH P.C.B..
2. Be careful of the high voltage circuit on FLASH P.C.B. when servicing.

[Discharging Procedure]

1. Refer to the disassemble procedure and remove the necessary parts/unit.
2. Put the insulation tube onto the lead part of Resistor (ERG5SJ102:1kΩ /5W).
(An equivalent type of resistor may be used.)
3. Put the resistor between both terminals of E. Capacitor on FLASH P.C.B. for approx. 5 seconds.
4. After discharging, confirm that the E. Capacitor voltage is lower than 10V by using a voltmeter.

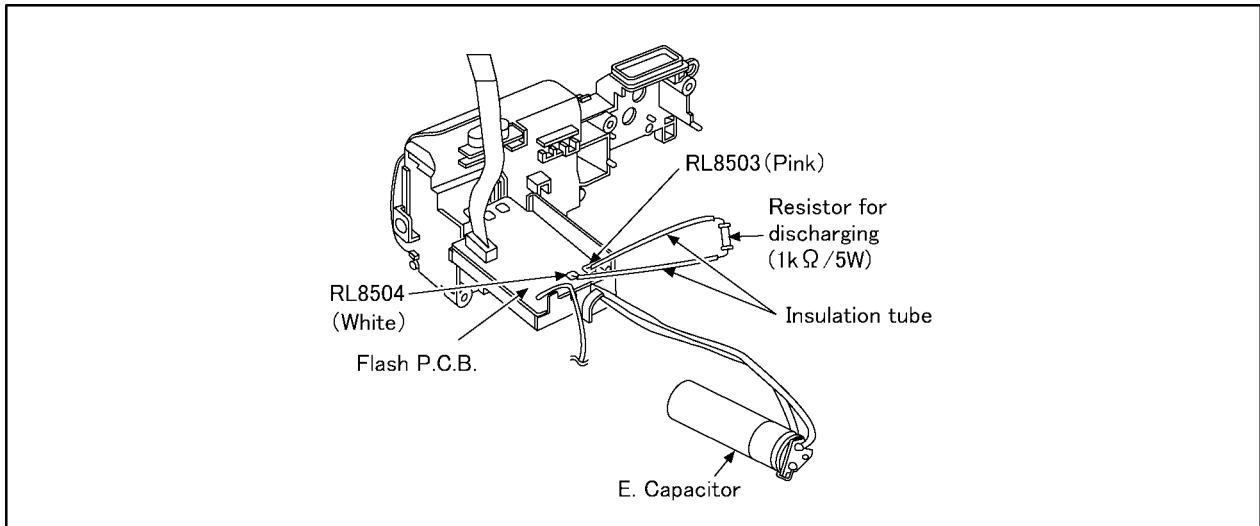


Fig. F1

2 Warning

2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices.

Examples of typical ES devices are IC (integrated circuits) and some field-effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION :

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

2.2. How to Recycle the Lithium Ion Battery (U.S. Only)

ENGLISH



A lithium ion battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

FRANÇAIS



L'appareil que vous vous êtes procuré est alimenté par une batterie au lithium-ion recyclable. Pour des renseignements sur le recyclage de la batterie, veuillez composer le 1-800-8-BATTERY.

2.3. Caution for AC Cord (For EB/GC/GH)

2.3.1. Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

CAUTION

To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362

Check for the ASTA mark or the BSI mark on the body of the fuse.



If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safely.

There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

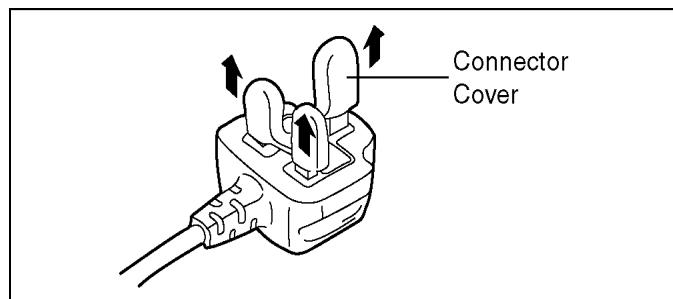
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol.



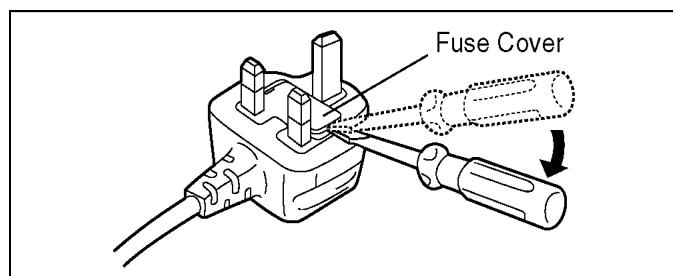
2.3.2.2. Before Use

Remove the Connector Cover as follows.

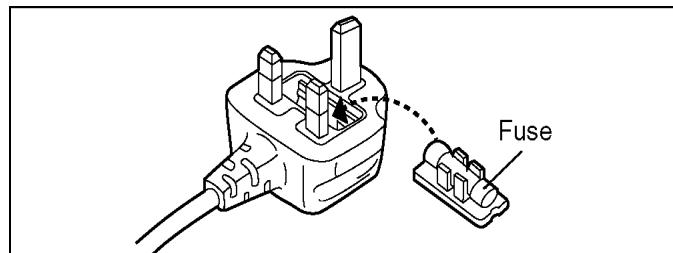


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



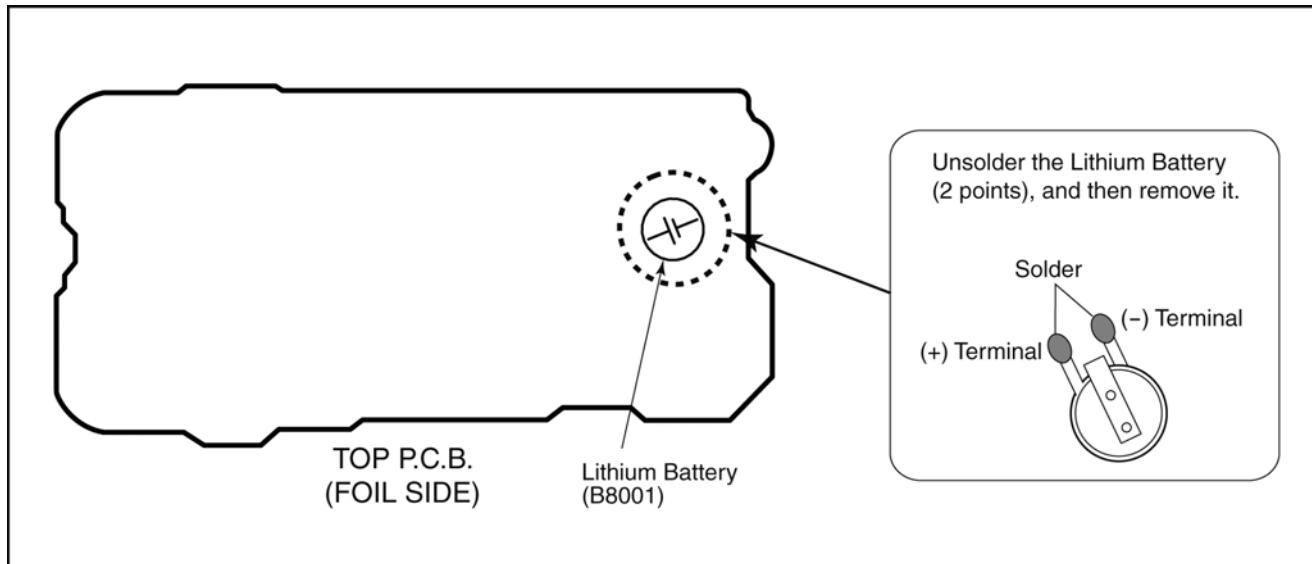
2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the TOP P.C.B.. (Refer to Disassembly Procedures.)
2. Unsolder the each soldering point of electric lead terminal for Lithium battery (Ref. No. "B8001" at foil side of TOP P.C.B.) and remove the Lithium battery together with electric lead terminal. Then replace it into new one.

NOTE:

The Type No. ML421 includes electric lead terminals.



NOTE:

This Lithium battery is a critical component.

(Type No.: ML421 **Manufactured by Energy Company, Panasonic Corporation.**)

It must never be subjected to excessive heat or discharge.

It must therefore only be fitted in requirement designed specifically for its use.

Replacement batteries must be of same type and manufacture.

They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.

Do not attempt to re-charge the old battery or re-use it for any other purpose.

It should be disposed of in waste products destined for burial rather than incineration.

(For English)

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

(For German)

ACHTUNG

Explosionsgefahr bei falschem Anbringen der Batterie. Ersetzen Sie nur mit einem äquivalentem vom Hersteller empfohlenem Typ.

Behandeln Sie gebrauchte Batterien nach den Anweisungen des Herstellers.

(For French)

MISE EN GARDE

Une batterie de remplacement inappropriée peut exploser. Ne remplacez qu'avec une batterie identique ou d'un type recommandé par le fabricant. L'élimination des batteries usées doit être faite conformément aux instructions du manufacturier.

NOTE:

Above caution is applicable for a battery pack which is for DMC-GF2C/GF2K/GF2W/GF2 series, as well.

3 Service Navigation

3.1. Introduction

This service manual contains technical information, which allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference numbers. If the circuit is changed or modified, the information will be followed by service manual to be controlled with original service manual.

3.2. Important Notice

*When servicing, it is recommended dealing with Clean box. (Refer to "8.2. Clean Box" section of this service manual for details.)

3.2.1. Camera Body Unit

3.2.1.1. About VENUS FHD(IC6001) [Located on the Main P.C.B.]:

- The VENUS FHD (IC6001) mounted on the Main P.C.B. consists of FLASH-ROM chip and VENUS chip, both chips are integrated as one-piece with soldered directly.
- When replacing, always replace in pairs. (Units of service parts: integrated (one pair) state.)

NOTE:

- During servicing, do not press down hard on the surface of IC6001.

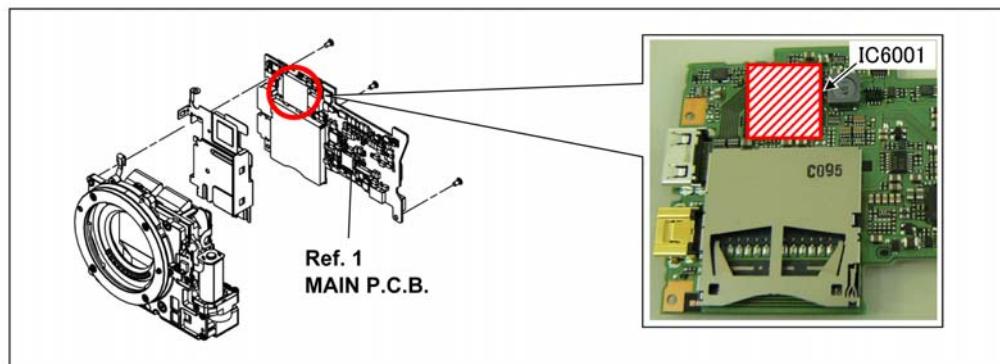


Fig. S1

3.2.1.2. About Mount Box Unit (Ref. 3)

1. This Service Manual does not contain the following repair service information for "MOUNT BOX UNIT"(Ref.3), because it requires special facilities and equipment.
 - a. Schematic diagram, Block diagram and P.C.B. layout.
 - b. Parts list for individual parts.
2. If the "MOUNT BOX UNIT" is confirmed as defective, exchange the "MOUNT BOX UNIT" as a unit (supplied as service parts size).
3. Before exchanging the "MOUNT BOX UNIT", the performances must be carefully checked, by following the "7.Troubleshooting Guide" section of this service manual.

Important:

1. After replacing the MOUNT BOX UNIT, the mount box data has to be stored to the unit.

When the serial number of the mount box unit which is put on the shield plate of mount box unit is entered to the adjustment unit, the applicable data is stored into the MAIN P.C.B..

Refer to the adjustment instruction in the adjustment software for details.

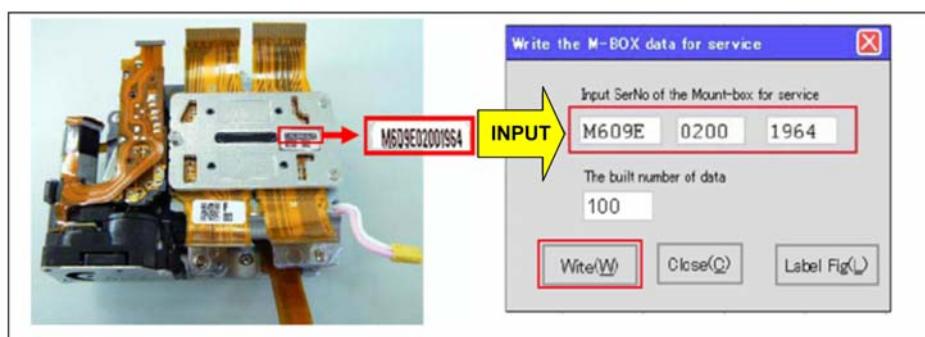


Fig. S2

2. The full adjustment must be performed after replacing the "MOUNT BOX UNIT", otherwise picture quality can not be meet with specification.

3.2.1.3. About Flexible Cable and Connector

Do not touch carelessly so that the foreign body should not adhere to the terminal part of flexible cable and connector.

Wipe off with a clean cloth and the cotton bud, etc. when the terminal part is dirty.

3.2.1.4. About Main P.C.B. (Ref. 1)

1. This Service Manual does not contain the following repair service information for "MAIN P.C.B."(Ref.1), because it requires special facilities and equipment.
 - a. Schematic diagram, Block diagram and P.C.B. layout.
 - b. Parts list for individual parts.
2. When a part replacement is required for repairing "MAIN P.C.B.", replace as an assembled P.C.B. parts.

As for handling the defected P.C.B.s, contact the sales company service depart.

*MAIN P.C.B. (VEP56122A: PP/EE/GC/GD/GH/GK/GN/GT)

*MAIN P.C.B. (VEP56122B: EB/EC/EG)

Important (About Main P.C.B.):

1. Before exchanging the "MAIN P.C.B.", the performances must be carefully checked, by following the "7.Troubleshooting Guide" section of this service manual.
2. Before replacing the "MAIN P.C.B.", proceed the EEPROM data backup from the unit. After replacing the MAIN P.C.B., over-write the EEPROM data with backup data from the unit first, then proceed the adjustment /inspection.
If it is impossible to make a data backup due to the unit does not turns on the power and so on, additional adjustment (using the light box) is required.
Refer to the adjustment instruction in the adjustment software for details.
3. The full adjustment must be performed after replacing the "MAIN P.C.B.", otherwise Picture quality can not be meet with specification.

3.2.2. Lens Unit (Interchangeable Lens: H-H014)

3.2.2.1. About Lens MAIN Block unit (Ref. 302)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.302), because it requires special facilities and equipment.
2. "LENS MAIN BLOCK UNIT"(Ref.302) performance must be confirmed.
3. In case of the "LENS MAIN BLOCK UNIT"(Ref.302) defect, contact to the service department of sales company.

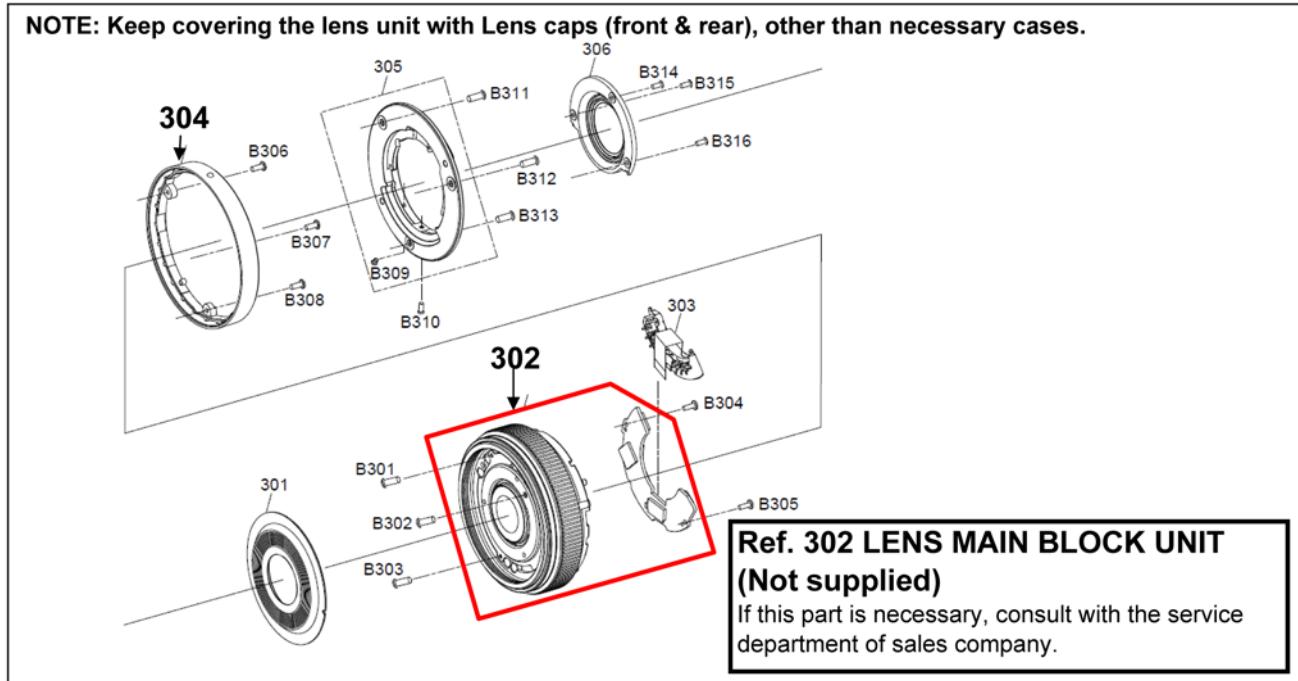


Fig. S3

3.2.3. Lens Unit (Interchangeable Lens: H-FS014042)

3.2.3.1. About Lens Main Block Unit (Ref. 408)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.408), because it requires special facilities and equipment.
2. The "LENS MAIN BLOCK UNIT"(Ref.408) performance must be confirmed.
3. In case of the "LENS MAIN BLOCK UNIT"(Ref.408) defect, contact to the service department of sales company.

NOTE: Keep covering the lens unit with Lens caps (front & rear), other than necessary cases.

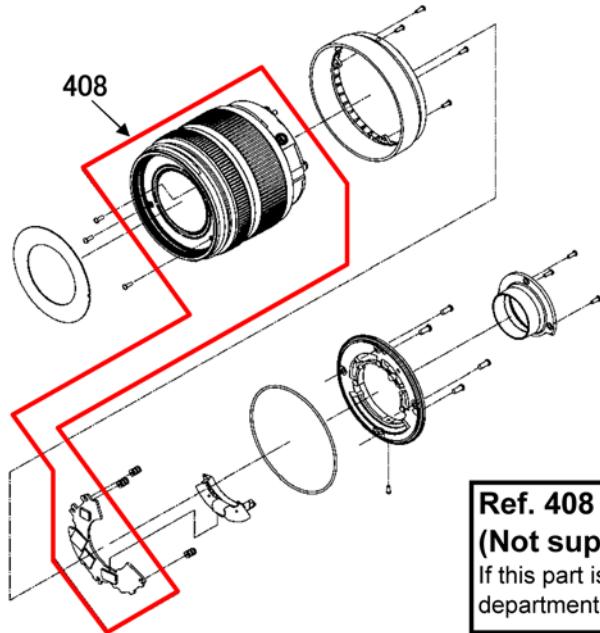


Fig. S4

3.3. General Description About Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30°C (86°F) more than that of the normal solder.

Distinction of P.C.B. Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the P.C.B. using the lead free solder.(See right figure)

PbF

Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.
(Definition: The letter of "PbF" is printed on the P.C.B. using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the P.C.B. cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30°C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.

RFKZ03D01KS-----(0.3mm 100g Reel)

RFKZ06D01KS-----(0.6mm 100g Reel)

RFKZ10D01KS-----(1.0mm 100g Reel)

Note

* Ingredient: tin (Sn) 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

3.4. How to Define the Model Suffix (NTSC or PAL model)

There are seven kinds of DMC-GF2 (Camera body unit), regardless of the colours.

- a) DMC-GF2 (Japan domestic model)
- b) DMC-GF2PP
- c) DMC-GF2EB/EC/EG/GH/GN
- d) DMC-GF2EE/GC
- e) DMC-GF2GK
- f) DMC-GF2GT
- g) DMC-GF2GD

What is the difference is that the "INITIAL SETTINGS" data which is stored in VENUS FHD mounted on MAIN P.C.B..

3.4.1. Defining methods:

To define the model suffix to be serviced, refer to the nameplate which is putted on the bottom side of the Unit.

a) DMC-GF2 (Japan domestic model)

The nameplate for this model show the following Safety registration mark.



b) DMC-GF2PP

The nameplate for this model show the following Safety registration mark.



c) DMC-GF2EB/EC/EG/GH/GN

The nameplate for these models show the following Safety registration mark.



d) DMC-GF2EE/GC

The nameplate for these models show the following Safety registration mark.



e) DMC-GF2GK

The nameplate for this model show the following Safety registration mark.



f) DMC-GF2GT

The nameplate for this model show the following Safety registration mark.



g) DMC-GF2GD

The nameplate for this model show the following Safety registration mark.



NOTE:

After replacing the MAIN P.C.B., be sure to achieve adjustment.

Refer to the adjustment instruction in the adjustment software for details.

3.4.2. INITIAL SETTINGS:

After replacing the MAIN P.C.B., be sure to perform the initial settings after achieving the adjustment by ordering the following procedure in accordance with model suffix of the unit.

1. IMPORTANT NOTICE:

Before proceeding Initial settings, be sure to read the following CAUTION.

CAUTION:(INITIAL SETTINGS)

---AFTER REPLACING THE MAIN P.C.B. ---

[Except "EG, EB and EC" models : (VEP56122A is used as a Main P.C.B.)]

*.The model suffix can be chosen **JUST ONE TIME**.

(Effective model suffix : " PP/EE/GC/GD/GH/GK/GN/GT and NONE(JAPAN)")

*.Once one of the model suffix has been chosen, the model suffix lists will not be displayed, thus, it can not be changed.

[Only for "EG, EB and EC" models : (VEP56122B is used as a Main P.C.B.)]

*.From the beginning, only "EG, EB and EC" are displayed as model suffix lists, and these are displayed from the second times as well.

2. PROCEDURES:

• Precautions: Read the above "CAUTION" carefully.

• Preparation:

Attach the fully charged Battery, and insert the SD memory card.

Press the [MENU/SET] button, touch the [P] of menu display then select "Program AE Mode".

(If the unit is other than [P] (Program AE Mode), it does not display the initial setting menu.)

• Step 1. The temporary cancellation of "INITIAL SETTINGS":

While keep pressing [PLAYBACK], [Q.MENU/Fn] and "[RIGHT] of Cursor buttons" simultaneously, turn the Power on.

• Step 2. The cancellation of "INITIAL SETTINGS":

Press the [PLAYBACK] button, then playback the picture.

Press [Q.MENU/Fn] and "[UP] of Cursor buttons" simultaneously, then turn the Power off.

• Step 3. Turn the Power on:

Turn the Power on.

• Step 4. Display the INITIAL SETTING:

While keep pressing [MENU/SET] and "[RIGHT] of Cursor buttons" simultaneously, turn the Power off.

The "INITIAL SETTINGS" menu is displayed.

There are two kinds of "INITIAL SETTINGS" menu form as follows:

[CASE 1. After replacing MAIN P.C.B.]

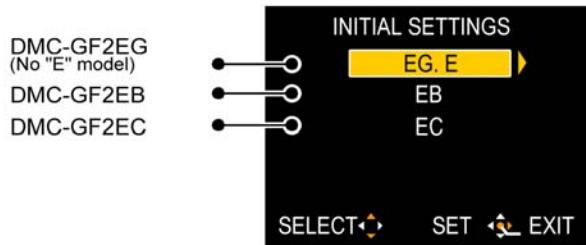
[Except "EG, EB and EC" models : (VEP56122A is used as a Main P.C.B.)]

When MAIN P.C.B. has just been replaced, all of the model suffix are displayed as follows. (two pages in total)



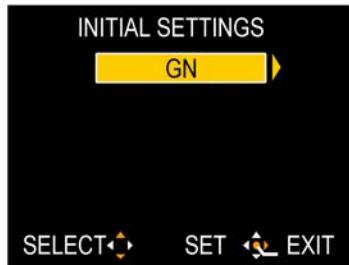
[Only for "EG, EB and EC" models : (VEP56122B is used as a Main P.C.B.)]

When MAIN P.C.B. has just been replaced, only 4 model suffix are displayed as follows.

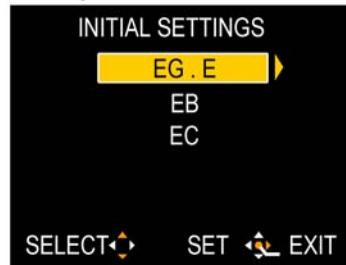


[CASE 2. Other than "After replacing MAIN P.C.B."]

<Other than "EG/EB/EC" models>



<Only "EG/EB/EC" models>



• Step 5. Choose the model suffix in "INITIAL SETTINGS": (Refer to "CAUTION")

[Caution: After replacing MAIN P.C.B.]

The model suffix can be chosen, **JUST ONE TIME**.

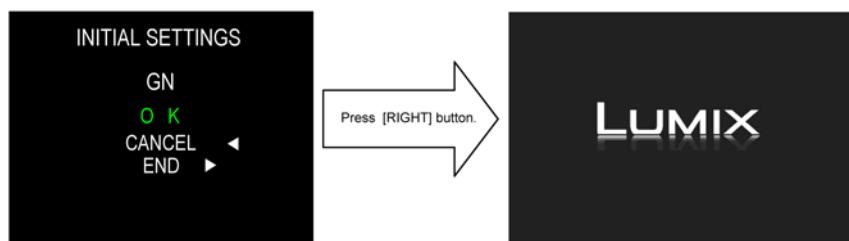
Once one of the model suffix have been chosen, the model suffix lists will not be displayed, thus, it can be changed.

Therefore, select the area carefully.

Select the area with pressing "[UP] / [DOWN] of Cursor buttons".

• Step 6. Set the model suffix in "INITIAL SETTINGS":

- Press the "[RIGHT] of Cursor buttons".
- The only set area is displayed, and then press the "[RIGHT] of Cursor buttons" after confirmation.
(The unit is powered off automatically.)



• Step 7. CONFIRMATION:

Confirm the display of "PLEASE SET THE CLOCK" in concerned language when the unit is turned on again.

When the unit is connected to PC with USB cable, it is detected as removable media.

(When the "GT" or "GK" model suffix is selected, the display shows "PLEASE SET THE CLOCK" in Chinese.)

1) As for your reference, major default setting condition is as shown in the following table.

• Default setting (After "INITIAL SETTINGS")

	MODEL	VIDEO OUTPUT	LANGUAGE	DATE	REMARKS
a)	DMC-GF2 (Japan domestic model)	NTSC	Japanese	Year/Month/Date	
b)	DMC-GF2PP	NTSC	English	Month/Date/Year	
c)	DMC-GF2EG	PAL	English	Date/Month/Year	
d)	DMC-GF2GC	PAL	English	Date/Month/Year	
e)	DMC-GF2GK	PAL	Chinese (simplified)	Year/Month/Date	
f)	DMC-GF2EB	PAL	English	Date/Month/Year	
g)	DMC-GF2GN	PAL	English	Date/Month/Year	
h)	DMC-GF2EC	PAL	English	Date/Month/Year	
i)	DMC-GF2GH	PAL	English	Date/Month/Year	
j)	DMC-GF2GD	NTSC	Korean	Year/Month/Date	
k)	DMC-GF2GT	NTSC	Chinese (traditional)	Year/Month/Date	
l)	DMC-GF2EE	PAL	Russian	Date/Month/Year	

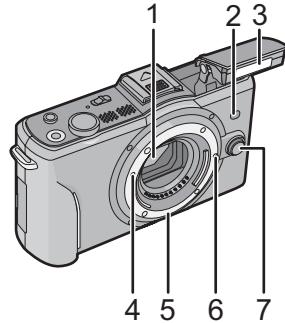
4 Specifications

Digital Camera Body (DMC-GF2):	Information for your safety	
Power Source:	DC 8.4 V	[MOTION JPEG] (With audio) When set to [HD]: 1280×720 pixels (30 frames/sec.)/ When set to [WVGA]: 848×480 pixels (30 frames/sec.)/ When set to [VGA]: 640×480 pixels (30 frames/sec.)/ When set to [QVGA]: 320×240 pixels (30 frames/sec.)
Power Consumption:	2.6 W (When recording with LCD Monitor) [When the Interchangeable lens (H-H014) is used] 2.7 W (When recording with LCD Monitor) [When the Interchangeable lens (H-FS014042) is used] 1.7 W (When playing back with LCD Monitor) [When the Interchangeable lens (H-H014) is used] 1.8 W (When playing back with LCD Monitor) [When the Interchangeable lens (H-FS014042) is used]	RAW/RAW+Fine/RAW+Standard/Fine/Standard/MPO+Fine/ MPO+Standard
Camera effective pixels:	12,100,000 pixels	
Image sensor:	4/3" Live MOS sensor, total pixel number 13,060,000 pixels, Primary color filter	RAW/JPEG (based on "Design rule for Camera File system", based on "Exif 2.3" standard, DPOF corresponding)/MPO
Digital Zoom:	Max. 4×	AVCHD/QuickTime Motion JPEG
Extra Tele Conversion: (Except for the maximum picture size for each aspect ratio)	ON/OFF simple enlargement (compatible with lenses from other manufacturers)	
Focus:	Auto Focus/Manual Focus, Face Detection/AF Tracking/23-area-focusing/1-area-focusing (Touch focus area selection possible)	"USB 2.0" (High Speed)
Shutter system:	Focal-plane shutter	[for NTSC areas]: NTSC [for PAL areas]: NTSC/PAL Composite (Switched by menu) Audio line output (stereo)
Burst recording		
Burst speed:	3.2 pictures/second (High speed), 2.5 pictures/second (Middle speed), 2 pictures/second (Low speed)	
Number of recordable pictures:	Max. 7 pictures (when there are RAW files) Depends on the capacity of the card (when there are no RAW files)	
ISO sensitivity (Standard Output Sensitivity):	AUTO/[ISO]/100/200/400/800/1600/3200/6400 (1/3 EV step change possible)	Approx. 365 g/0.80 lb [with the Interchangeable lens (H-H014), card and battery] Approx. 475 g/1.05 lb [with the Interchangeable lens (H-FS014042), card and battery] Approx. 265 g/0.58 lb (camera body)
Minimum illumination:	Approx. 5 lx (when i-Low light is used, the shutter speed is 1/30th of a second [for NTSC areas]/ 1/25th of a second [for PAL areas]) [When the Interchangeable lens (H-H014) is used] Approx. 9 lx (when i-Low light is used, the shutter speed is 1/30th of a second [for NTSC areas]/ 1/25th of a second [for PAL areas]) [When the Interchangeable lens (H-FS014042) is used]	0 °C to 40 °C (32 °F to 104 °F) 10%RH to 80%RH
Shutter speed:	60 seconds to 1/4000th of a second	
Metering range:	EV 0 to EV 18	
White Balance:	Auto White Balance/Daylight/Cloudy/Shade/Incandescent lights/Flash/White set1/White set2/White Balance K set	
Exposure (AE):	Program AE (P)/Aperture-priority AE (A)/Shutter-priority AE (S)/ Manual exposure (M)/AUTO	
Metering Mode:	Exposure Compensation (1/3 EV Step, -3 EV to +3 EV)	
LCD monitor:	Multiple/Center weighted/Spot 3.0" TFT LCD (3:2) (Approx. 460,000 dots) (field of view ratio about 100%) Touch panel	
Flash:	Built-in pop up flash GN 6 equivalent (ISO100·m) Flash range: Approx. 50 cm (1.64 feet) to 4.8 m (15.7 feet) [When the Interchangeable lens (H-H014) is mounted, [ISO AUTO] is set] Flash range: Approx. 1.0 m (3.28 feet) to 3.4 m (11.2 feet) [When the Interchangeable lens (H-FS014042) is mounted, WIDE, [ISO AUTO] is set] AUTO, AUTO/Red-Eye Reduction, Forced ON, Forced ON/ Red-eye reduction, Slow Sync., Slow Sync./Red-Eye Reduction, Forced OFF	
Flash synchronization speed:	Equal to or smaller than 1/160th of a second	
Microphone:	Stereo	
Speaker:	Monaural	
Recording media:	SD Memory Card/SDHC Memory Card/SDXC Memory Card	
Picture size		
Still picture:	When the aspect ratio setting is [4:3] 4000×3000 pixels, 2816×2112 pixels, 2048×1536 pixels When the aspect ratio setting is [3:2] 4000×2672 pixels, 2816×1880 pixels, 2048×1360 pixels When the aspect ratio setting is [16:9] 4000×2248 pixels, 2816×1584 pixels, 1920×1080 pixels When the aspect ratio setting is [1:1] 2992×2992 pixels, 2112×2112 pixels, 1504×1504 pixels	
Recording quality		
Motion pictures:	[AVCHD] (With audio) [for NTSC areas] When set to [FSH]: 1920×1080 pixels (60i)* recording/ Approx. 17 Mbps/ When set to [FH]: 1920×1080 pixels (60i)* recording/ Approx. 13 Mbps/ When set to [SH]: 1280×720 pixels (60p)* recording/ Approx. 17 Mbps/ When set to [H]: 1280×720 pixels (60p)* recording/ Approx. 13 Mbps/ (*Sensor output is 30 frames/sec.) [for PAL areas] When set to [FSH]: 1920×1080 pixels (50i)* recording/ Approx. 17 Mbps/ When set to [FH]: 1920×1080 pixels (50i)* recording/ Approx. 13 Mbps/ When set to [SH]: 1280×720 pixels (50p)* recording/ Approx. 17 Mbps/ When set to [H]: 1280×720 pixels (50p)* recording/ Approx. 13 Mbps/ (*Sensor output is 25 frames/sec.)	
Quality:		
Recording file format		
Still Picture:		
Motion pictures with audio:		
Interface		
Digital:	"USB 2.0" (High Speed)	
Analog video/ audio:	[for NTSC areas]: NTSC [for PAL areas]: NTSC/PAL Composite (Switched by menu) Audio line output (stereo)	
Terminal		
[AV OUT/DIGITAL]:	Dedicated jack (14 pin)	
[HDMI]:	MiniHDMI TypeC	
[Live Viewfinder]:	Dedicated connector	
Dimensions:	Approx. 112.8 mm (W)×67.8 mm (H)×32.8 mm (D) [4.44" (W)×2.67" (H)×1.29" (D)] (excluding the projecting parts)	
Mass (weight):	Approx. 365 g/0.80 lb [with the Interchangeable lens (H-H014), card and battery] Approx. 475 g/1.05 lb [with the Interchangeable lens (H-FS014042), card and battery] Approx. 265 g/0.58 lb (camera body)	
Operating temperature:	0 °C to 40 °C (32 °F to 104 °F)	
Operating humidity:	10%RH to 80%RH	
Battery Charger:	Information for your safety	
Input:	~110 V to 240 V, 50/60 Hz, 0.2 A	
Output:	==8.4 V, 0.65 A	
Battery Pack (lithium-ion):	Information for your safety	
Voltage/capacity:	7.2 V/1010 mAh	
Interchangeable Lens (H-H014) "LUMIX G 14 mm/F2.5 ASPH."		
Focal length:	f=14 mm (35 mm film camera equivalent: 28 mm)	
Aperture type:	7 diaphragm blades/circular aperture diaphragm	
Aperture range:	F2.5	
Minimum aperture value:	F22	
Lens construction:	6 elements in 5 groups (3 aspherical lenses)	
In focus distance:	0.18 m (0.59 feet) to ∞ (from the focus distance reference line)	
Maximum image magnification:	0.1× (35 mm film camera equivalent: 0.2×)	
Optical Image Stabilizer:	None	
[O.I.S.] switch:	None	
Mount:	"Micro Four Thirds Mount"	
Angle of view:	75°	
Filter diameter:	46 mm (1.81 inch)	
Max. diameter:	Approx. 55.5 mm (2.19 inch)	
Overall length:	Approx. 20.5 mm (0.81 inch) (from the tip of the lens to the base side of the lens mount)	
Mass (weight):	Approx. 55 g/0.12 lb	
Interchangeable Lens (H-FS014042) "LUMIX G VARIO 14–42 mm/F3.5–5.6 ASPH./MEGA O.I.S."		
Focal length:	f=14 mm to 42 mm (35 mm film camera equivalent: 28 mm to 84 mm)	
Aperture type:	7 diaphragm blades/circular aperture diaphragm	
Aperture range:	F3.5 (Wide) to F5.6 (Tele)	
Minimum aperture value:	F22	
Lens construction:	12 elements in 9 groups (1 aspherical lens)	
In focus distance:	0.3 m (0.99 feet) to ∞ (from the focus distance reference line)	
Maximum image magnification:	0.16× (35 mm film camera equivalent: 0.32×)	
Optical Image Stabilizer:	Available	
[O.I.S.] switch:	None (Setting of the [STABILIZER] is done in [REC] Mode menu.)	
Mount:	"Micro Four Thirds Mount"	
Angle of view:	75° (Wide) to 29° (Tele)	
Filter diameter:	52 mm (2.05 inch)	
Max. diameter:	Approx. 60.6 mm (2.39 inch)	
Overall length:	Approx. 63.6 mm (2.50 inch) (from the tip of the lens to the base side of the lens mount)	
Mass (weight):	Approx. 165 g/0.22 lb	
NOTE:(Only for "EB/EC/EG" models)		
	• Data from the PC can not be written to the camera using the USB connection cable. • Motion pictures can be recorded continuously for up to 29 minutes 59 seconds.	

5 Location of Controls and Components

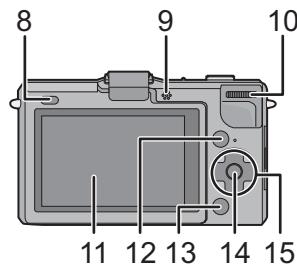
■ Camera body

- 1 Sensor
- 2 Self-timer indicator/
AF Assist Lamp
- 3 Flash
- 4 Lens fitting mark
- 5 Mount
- 6 Lens lock pin
- 7 Lens release button

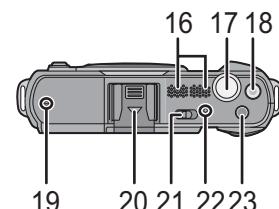


- 8 Flash open button
- 9 Speaker
- 10 Rear dial
- 11 Touch panel/LCD monitor
- 12 Playback button
- 13 [Q.MENU/Fn] button/
Delete/Return button
- 14 [MENU/SET] button
- 15 Cursor buttons

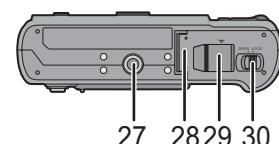
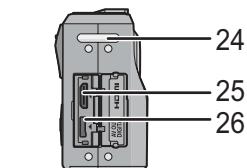
▲/ISO
►/[WB (White Balance)
◀/[AF Mode button
▼/[DRIVE MODE] button
This button in picture record mode will allow
the user to select between the following options.
Single/Burst/Auto bracket/Self-timer



- 16 Stereo microphone
- 17 Shutter button
- 18 Motion picture button
- 19 Focus distance reference mark
- 20 Hot shoe cover
 - Keep the Hot Shoe Cover out of reach of
children to prevent swallowing.
- 21 Camera ON/OFF switch
- 22 Status indicator
- 23 Intelligent Auto button



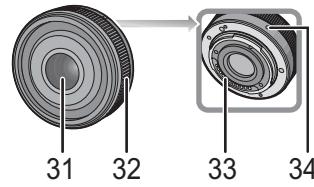
- 24 Shoulder strap eyelet
 - Be sure to attach the shoulder strap when
using the camera to ensure that you will not
drop it.
- 25 [HDMI] socket
- 26 [AV OUT/DIGITAL] socket
- 27 Tripod receptacle
 - When you use a tripod, make sure the tripod
is stable when the camera is attached to it.
If the attached lens contacts the base of the
tripod, use the tripod adaptor (DMW-TA1;
optional).
- 28 Card/Battery door
- 29 DC coupler cover
 - When using an AC adaptor, ensure that the
Panasonic DC coupler (DMW-DCC9;
optional) and AC adaptor (DMW-AC8PP; optional) are used.
 - Always use a genuine Panasonic AC adaptor (DMW-AC8PP; optional).
 - It is recommended to use a fully charged battery or AC adaptor when recording motion
pictures.
 - If while recording motion pictures using the AC adaptor and the power supply is cut off
due to a power outage or if the AC adaptor is disconnected etc., the motion picture being
recorded will not be recorded.
- 30 Release lever



■ Lens

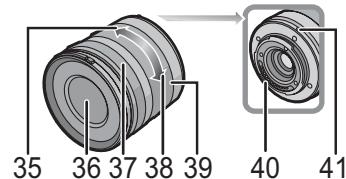
H-H014 (LUMIX G 14 mm/F2.5 ASPH.)

- 31 Lens surface
- 32 Focus ring
- 33 Contact point
- 34 Lens fitting mark



H-FS014042 (LUMIX G VARIO 14–42 mm/F3.5–5.6 ASPH./MEGA O.I.S.)

- 35 Tele
- 36 Lens surface
- 37 Focus ring
- 38 Wide
- 39 Zoom ring
- 40 Contact point
- 41 Lens fitting mark



Selecting the [REC] Mode

1 Press [MENU/SET].

2 Touch [REC MODE].

- A screen listing the [REC] Mode is displayed.



3 Touch the [REC] Mode to select.



■ List of [REC] Modes

P Program AE Mode

The subjects are recorded using your own settings.

A Aperture-Priority AE Mode

The shutter speed is automatically determined by the aperture value you set.

S Shutter-Priority AE Mode

The aperture value is automatically determined by the shutter speed you set.

M Manual Exposure Mode

The exposure is adjusted by the aperture value and the shutter speed which are manually adjusted.

iA Intelligent Auto Mode

The subjects are recorded using settings automatically selected by the camera.

My Color Mode

Use this mode to check coloring effects, select a color mode from among nine color modes, and then take pictures.

SCN Scene Mode

This allows you to take pictures that match the scene being recorded.

C Custom Mode

Use this mode to take pictures with previously registered settings.

Touch Panel

This touch panel is a type that detects pressure.

Touch the screen	Drag
To touch and release the touch panel. 	A movement without releasing the touch panel. 

Use this to perform tasks such as selecting icons or images displayed on the touch panel.

- When selecting features using the touch panel, be sure to touch the center of the desired icon.

This is used when performing tasks such as moving to the next image by dragging horizontally, or changing the range of the displayed image.
This can also be used to perform tasks such as switching the screen by operating the slide bar.

Note

- If you use a commercially available liquid crystal protection sheet, please follow the instructions that accompany the sheet. (Some liquid crystal protection sheets may impair visibility or operability.)
- If a commercially available protection sheet is used, **a little extra pressure** may be required if you notice that the touch panel is not responsive.
- Do not let the hand holding the camera accidentally apply pressure to the touch panel. Doing so may affect the touch panel operation.
- Do not press on the LCD monitor with hard pointed tips, such as ball point pens.
- Do not operate with your fingernails.
- Wipe the LCD monitor with dry soft cloth when it gets dirty with finger prints and others.
- Do not scratch or press the LCD monitor too hard.



■About the Stylus pen

It is easier to use the stylus pen (supplied) for detailed operation or if it is hard to operate with your fingers.

- Only use the supplied stylus pen.
- Do not place it where small children can reach.

About the Battery

- The camera has a function for distinguishing batteries which can be used safely. The dedicated battery supports this function. The only batteries suitable for use with this unit are genuine Panasonic products and batteries manufactured by other companies and certified by Panasonic. (Batteries which do not support this function cannot be used.) Panasonic cannot in any way guarantee the quality, performance or safety of batteries which have been manufactured by other companies and are not genuine Panasonic products.

It has been found that counterfeit battery packs which look very similar to the genuine product are made available to purchase in some markets. Some of these battery packs are not adequately protected with internal protection to meet the requirements of appropriate safety standards. There is a possibility that these battery packs may lead to fire or explosion. Please be advised that we are not liable for any accident or failure occurring as a result of use of a counterfeit battery pack. To ensure that safe products are used we would recommend that a genuine Panasonic battery pack is used.

6 Service Mode

6.1. Error Code Memory Function

1. General description

This unit is equipped with history of error code memory function, and can be memorized 16 error codes in sequence from the latest. When the error is occurred more than 16, the oldest error is overwritten in sequence.

The error code is not memorized when the power supply is shut down forcibly.

(i.e., when the unit is powered on by the battery, the battery is pulled out)

The error code is memorized to VENUS FHD when the unit has just before powered off.

2. How to display

The error code can be displayed by ordering the following procedure:

• Preparation

Attach the fully charged Battery, and insert the SD memory card.

• Step 1. The temporary cancellation of “INITIAL SETTINGS”:

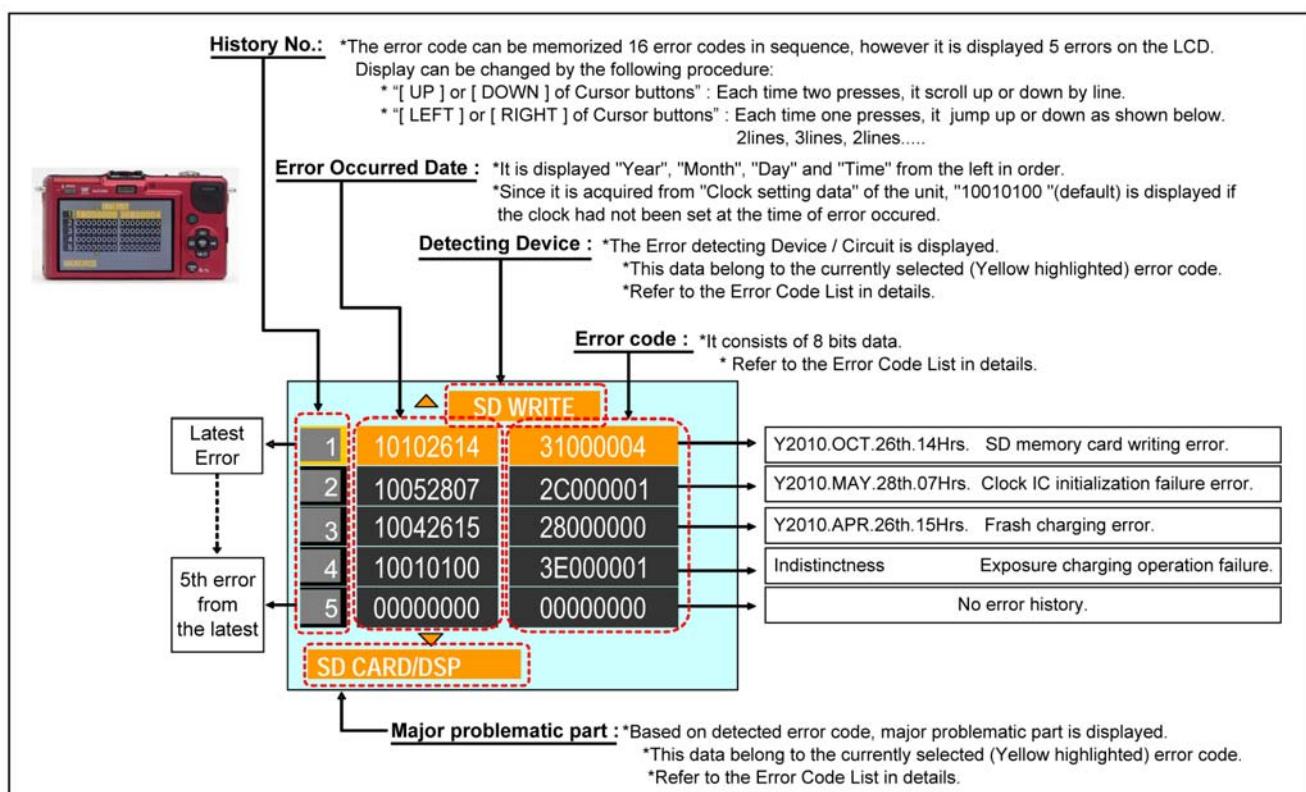
While keep pressing [PLAYBACK], [Q.MENU/Fn] and “[RIGHT] of Cursor buttons” simultaneously, turn the Power on.

• Step 2. Execute the error code display mode:

Press [Q.MENU/Fn], [MENU/SET] and “[LEFT] of Cursor buttons” simultaneously with the step 1 condition.

The display is changed as shown below when the above buttons are pressed simultaneously.

Normal display → Error code display → Camera information display → Normal display →



Example of Error Code Display

• **Error Code List:**

The error code consists of 8 bit data and it shows the following information.

Attribute	Main item	Sub item	Error code		Contents (Upper line)	Error Indication	
			High 4 bits	Low 4 bits		Detecting device	Problematic Part/Circuit
HARD	VENUS A/D	Flash	28*0	0000	Flash charging capacitor did not been fully charged within 20 seconds.	STRB CHG	STRB PCB/FPC
	FLASH ROM	Data Area	2B*0	0001	Flash ROM data reading error is detected when the unit turns ON.	FROM RE	FROM
				0002	Flash ROM data writing error is detected when the unit turns OFF.	FROM WR	FROM
	SYSTEM IC	Program Area	2C*0	0005	Firmware update error.	(No indication)	(No indication)
				0001	Clock IC initialization failure error.	SYS INIT	MAIN PCB
SOFT	CPU	Reset	30*0	0001 0007	System error (NMI reset).	NMI RST	MAIN PCB
	Recording Media	SD Memory Card	31*0	0001	SD memory card logic error. SD memory card format error. When it is detected, [MEMORY CARD ERROR FORMAT THIS CARD?] is displayed on the screen.	SD CARD	SD CARD/DSP
				0002	SD memory card physical error. During formatting the SD memory card, there is no response from the card. If the mini-SD memory card is used, check the SD memory card adaptor.		SD CARD/DSP
				0004	SD memory card writing error. Check the SD memory card. It might be damage one.	SD WRITE	SD CARD/DSP
	Lens	Communication	3C*0	0001 000E	Lens communication error.	(No indication)	(No indication)
	Camera	System	3B*0	0000	Initialization failure error.	INIT	(No indication)
				0001	Exposure charging operation failure. (Mount Box Unit)	(No indication)	(No indication)
	Recording	Motion Image Recording	3F*0	0002	Failure of the returning operation to the home position. (Mount Box Unit)		
				0001	File time out error in recording motion image.		
				0002	File data cue send error in recording motion image.		

Important notice about “Error Code List”

About “*” indication:

The third digit from the left is different as follows.

- In case of 0 (example: 2B001000)

When the third digit from the left shows “0”, this error occurred under the condition of INITIAL SETTINGS has been completed.

It means that this error is occurred basically at user side.

- In case of 8 (example: 2B801000)

When the third digit from the left shows “8”, this error occurred under the condition of INITIAL SETTINGS has been released.

(Example; Factory assembling-line before unit shipment, Service mode etc.)

It means that this error is occurred at service side.

• **Step 3. How to exit from Error Code display mode:**

Simply, turn the power off. (Since Error Code display mode is executed under the condition of temporary cancellation of “INITIAL SETTINGS”, it wake up with normal condition when turn off the power.)

NOTE:

The error code can not be initialized.

7 Troubleshooting Guide

7.1. Checking Method of Body and Interchangeable Lens

1. INITIAL (DEFAULT) STATUS OF THE LENS UNIT

The Lens unit which is supplied as a standard accessory for this camera unit (H-H014, H-FS014042) shows the following status when the Lens is detached from the Camera unit.

NOTE: Although the lens unit is attached it shows the same condition when the Camera turns off.
H-H014 (Included in DMC-GF2C, DMC-GF2W):

[1].ZOOM RING As H-H014 is a single focal length lens, there is no zoom ring.

[Focal length : 14mm [35mm film camera equivalent: 28mm]]

[2].FOCUS RING The Focus condition does not change although Focus ring is rotated. (Free rotation.)

H-FS014042 (Included in DMC-GF2W):

[1].ZOOM RING When the Zoom ring is rotated, Zoom condition is changing accordingly.

(The 1st lens frame moves.)

[Focal length : 14mm to 42mm [35mm film camera equivalent: 28mm to 84mm]]

[2].FOCUS RING The Focus condition does not change although Focus ring is rotated. (Free rotation.)

2. INITIAL INSPECTION TIPS (BEFORE DETERMINE THE UNIT BEING FAULTY/DEFECTIVE):

Since this unit is equipped with various functions/settings, some phenomenon/effect might be caused by miss usage of function and/or settings.
It might be made a miss-judgement caused by miss usage of function & settings although the unit is working properly without fault.

Therefore, check/confirm the followings before concluding/determine the unit being faulty/defective.

NOTE: Refer to the Operating Instructions carefully.

Also, useful hint/tips for this unit is available at following URL, and is updated frequently.

<http://panasonic.jp/support/global/cs/dsc/>

If it is hard to determine whether the resolution is out of specification or not, proceed the "RESOLUTION INSPECTION", before replacing the LENS MAIN BLOCK UNIT and/or MOUNT BOX UNIT. (The unit might be mishandling, dropping or others.)

[1]. [LENS RELATIVES]

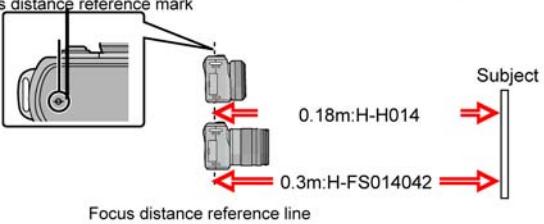
TITLE	ITEMS	DESCRIPTION
LENS	Aperture size does not change. (Although aperture value is changed, the physical size of aperture is never changed.)	<p>*Although aperture value is changed, the physical size of aperture is never changed (It keeps the maximum aperture condition) until the shutter release button is fully released. (There is no "aperture stopping down" button and/or function. But instead, there is a shutter speed preview mode.)</p> <p>⇒ [CUSTOM MENU] (1/6) ----- [Q.MENU/Fn] , [Fn BUTTON SET]</p>
	The Aperture condition does not change. (Aperture value shows "0.0")	<p>*The Lens & Body are communicating (serial communication) through mount contacts (11pins).</p> <p>*Confirm that lens & body mount contacts are not dirty.</p> <p>*While keep pressing the [Lens release] button, it makes same situation that Lens does not attach.</p> <p>*Although lens is attached to the body, the Aperture value shows "F0.0" when the communication error is occurred. Also, when the firmware version confirmation mode is executed, the [- -] is displayed as Lens firmware version.</p>    <p>Lens release button</p>
	Although the Focus ring is rotating, it does not change the Focus condition.	<p>*The Focus condition is never changed although focus ring is rotated when the Focus mode is positioned at AFS or AFC. (When the [AF + MF] is set to [ON], it is able to fine adjust the focus manually by rotating the focus ring while AF lock.)</p> <p>⇒ [CUSTOM MENU] (3/6) ----- [AF + MF] (ON/OFF)</p>
	No released without lens attachment.	<p>*It is able to release the shutter button without attaching the lens unit.</p> <p>⇒ [CUSTOM MENU] (6/6) ----- [SHOOT W/O LENS] (ON/OFF)</p>
	The Dusty and/or dirty of the Lens	<p>*Define the location of the dirt / dust of the lens first, whether it is outside surface of the lens or not. If it is outside surface of the lens, order the following procedure in steps.</p> <p>STEP-1. Blow off the dust certainly with Hand Blower. STEP-2. Clean and wipe up the Lens surface by using the Lens cleaning Kit (VFK1900BK).</p> <p>*Refer to the "11 Maintenance" of this manual.</p>
	It does not become the Shutter speed [B] (Bulb) mode.	This unit has no [B](Bulb) mode in selectable shutter speed.

[Wiping up the lens surface]



Like drawing the circle, wipe up the lens surface centre towards to outside slowly.

[2]. [BODY RELATIVES]

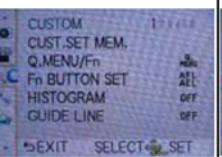
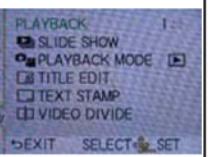
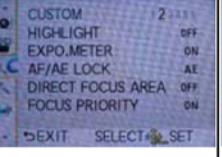
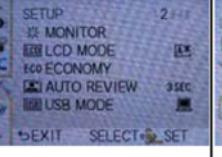
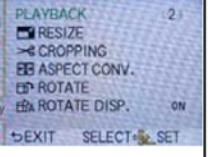
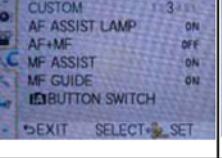
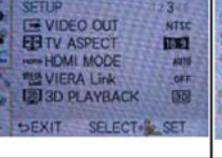
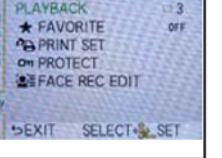
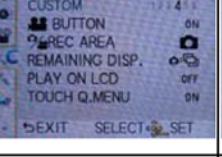
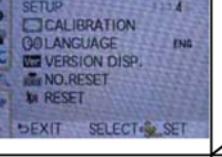
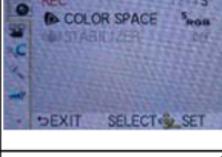
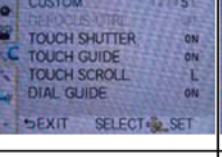
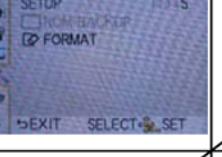
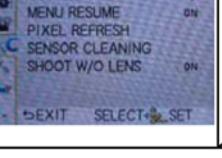
TITLE	ITEMS	DESCRIPTION
FOCUS	The picture is out of focus although the focus is adjusted in MF mode at once.	<ul style="list-style-type: none"> *In the following conditions, the focus may be out of focus, no matter the kind of subject. Therefore, adjust the focus again by rotating the Focus ring. *After "in-focus" condition, Zoom condition has been changed. *Power switch is turned OFF and ON again. *After releasing the Power save.
	Focus does not become in focus condition.	<ul style="list-style-type: none"> *If the shooting distance is less than the Minimum requirement distance for focus, the focus may not be brought into focus, no matter the kind of subject. <p style="text-align: center;">  </p>
	MF(Manual Focus)ASSIST does not work.	<ul style="list-style-type: none"> *The MF assist function is that the certain area image is able to enlarge 5 times to make easier to focus. (It is enlarged from 5times to 10 times when the rear dial is rotated clockwise.) *It does not activated if the [Focus Mode Dial] is positioned other than [MF] position. *It does not activated when using the Digital Zoom. *It does not activated if [MF ASSIST] is set to OFF. ⇒ [CUSTOM MENU] (3/6) ---- [MF ASSIST] (ON/OFF) (To display the MF assist, press Left cursor button then press [MENU/SET].)
	Face detection does not work.	<ul style="list-style-type: none"> *Select AF mode to face detection. (In [IA]mode, it is automatically assigned according with scene.) (Press the left side cursor button to display the AF mode menu.) *It does not activated when using the Digital Zoom. *It does not activated if the focus mode set to MF.
	The subject is not focused properly.	<ul style="list-style-type: none"> *When get a fingerprint, dirt on the lens surface, resulting in the subject being out of focus. *The subject is beyond the focus range of the camera. *There is camera shake (jitter) or the subject is moving slightly. *The focus indication green mark is lights at the top right hand corner on the LCD when the subject is focused. *The shutter speed will become slower and the optical image stabilizer function may not work properly when taking pictures especially in dark places.
	Focus does not change.	<ul style="list-style-type: none"> *Focus & Exposure condition is locked when the [AF / AE LOCK] button. *It can be reset when [AF / AE LOCK] button is pressed again.
	Although [AF/AE LOCK] button is pressed, it does not hold the Focus, only Exposure is locked.	<ul style="list-style-type: none"> *Focus does not hold even if [AF/AE LOCK] button is pressed if the [AF/AE LOCK] is selected [AE]. ⇒ [CUSTOM MENU] (2/6) ---- [AF/AE LOCK] (AE, AF, AF/AE) *In the Manual Focus condition, It is only worked as [AE lock] function.
	It does not turn to the "AFC" mode. (Motion prediction does not work.)	<ul style="list-style-type: none"> *Confirm the setting position of the focus mode dial (AFS / AFC / MF). *Although AFC is effective with burst mode, the focus is fixed on the first picture when subject is dark.
Flash	GN (Guide Number) of the Built in Flash (Specification GN6.0)	<ul style="list-style-type: none"> *By referring the specification of the built-in flash is GN6 (equivalent) *There is a formula : $F\text{ value} \times \text{Flash reachable distance} = \text{GN}$ [ISO100] (In case of: H-FS014042) ISO100 / Wide edge Aperture is F3.5 / Flash reachable distance is 1.7m [3.5 X Approx 1.7 = 5.95 ---- "GN6"] ISO100 / Tele edge Aperture is F5.6 / Flash reachable distance is 1.0m [5.6 X Approx 1.0 = 5.6 ---- "GN6"]
	Some of the Flash setting(s) are not able to select.	<ul style="list-style-type: none"> *In accordance with the [REC] mode and [FLASH SYNCHRO] mode, selectable flash settings may be differ.
	[AUTO BRACKET] does not work.	<ul style="list-style-type: none"> *Only one picture can be taken when the Flash is fired.
	The subject is too bright / too dark with Flash.	<ul style="list-style-type: none"> *Confirm that the picture is taken within Flash range or not.
	White round spots appear on the recording picture	<ul style="list-style-type: none"> *If you take a picture with flash in a dark place or indoors, white round spots may appear on the picture caused by the flash reflecting of particles of dust in air. This is not a malfunction. *A characteristic of this is that the number of round spots and their position differ in every picture.



TITLE	ITEMS	DESCRIPTION
Flash	Colour is strange when the Flash is fired.	<p>*The colour of the subject which is other than Flash reachable distance is not coverage of white balance.</p> <p>*Confirm that [WB Adjustment] setting condition. (Press the cursor [RIGHT] (WB) button, then press the cursor [DOWN] button, in order to execute the [WB ADJUST.] screen.)</p> <p>*It also effects to the Flash recording mode as well.</p>
	The appearance of the light source is strange. (The light source appears ahead the subject.)	<p>*Normally, the light source appears ahead the subject. (This is the effect of the 1st curtain synchro.)</p>
EXPOSURE	The Exposure condition can not be changed	<p>*Focus & Exposure condition is locked when the [AF/AE LOCK] button. *It can be reset when [AF/AE LOCK] button is pressed again.</p>
	Although [AF/AE LOCK] button is pressed, only focus is locked. (AE is not locked)	<p>*Focus does not hold even if [AF/AE LOCK] button is pressed if the [AF/AE LOCK] is set to [AF]. ⇒ [CUSTOM MENU] (2/6) ----- [AF/AE LOCK] (AE, AF, AF/AE)</p> <p>*In the Manual Focus condition, It is only worked as [AE lock] function, regardless any settings.</p>
	The pictures recorded with [AUTO BRACKET] function are too dark/bright.	<p>*The [AUTO BRACKET] is selected after setting the [EXPOSURE COMPENSATION], the compensated value is effected for its reference value.</p>
	The Exposure condition is changed extremely.	<p>*Spot metering mode is measuring only the limited narrow area on the centre of the screen. *Confirm the setting condition of [EXPOSURE COMPENSATION] (1/3 EV Step, -3EV to +3EV)</p>
CAPTURING	Although shutter is released, no picture is captured.	<p>*Although the shutter button is fully pressed, it can not take a picture until the subject is not focused. (It is able to take a picture when the Focus Priority turns [OFF] although focus condition does not perfect.) OFF is gives priority to the best time to take a picture.</p> <p>*A picture is not taken until the subject is brought into focus, because [FOCUS PRIORITY] is fixed to [ON] in Intelligent Auto Mode. ⇒ [CUSTOM MENU] (2/6) ----- [FOCUS PRIORITY] (ON/OFF)</p>
	[AUTO BRACKET] does not work.	<p>*Only single picture is able to captured when flash is fired. *It can not be used in My colour mode. *The exposure may not be compensated with auto bracket depending on the brightness of the subject.</p>
COLOUR REPRODUCTION	Colour is strange.	<p>*There is a possibility that [Finely adjusting the white balance] is selected/shifted. *Confirm that [WB Adjustment] setting condition. (Press the cursor [RIGHT] (WB) button, then after choosing the WB mode press the cursor [DOWN] button, in order to execute the [WB ADJUST.] screen.)</p> <p>*It is resumed/memorized although power turns off/on.</p>
	Colour is strange. (With Flash)	<p>*The flash light does not reach enough to the subject due to the over than flash reachable distance. In this case, white balance may be other than its coverage.</p>
	The colour is strange (On PC monitor/ Printout image.)	<p>*There is a possibility that the picture is captured with [AdobeRGB] setting. ⇒ [REC] (5/5) ----- [COLOR SPACE] (sRGB/AdobeRGB)</p> <p>*To proceed proper colour reproduction for AdobeRGB, the AdobeRGB capable PC and Printer are necessary.</p> <p>*In accordance with PC environment, it may not be displayed properly when the picture is re-sized with business software.</p>
POWER	The Power is turned off.	<p>*Confirm that the setting condition of [SLEEP]. (If the camera has not been used for the time selected on the setting, the power turns off automatically.)</p> <p>⇒ [SETUP] (2/4) ----- [ECONOMY] [SLEEP] (OFF/1MIN./2 MIN./5 MIN./10 MIN.)</p>
DISPLAY	Abnormal Picture Effect. Certain part of the picture is flashing in Black & White.	<p>*Confirm that the setting condition of [HIGHLIGHT]. ⇒ [CUSTOM MENU] (2/6) ----- [HIGH LIGHT] (ON/OFF)</p> <p>The white saturated areas appear blinking in Black and White.</p>
	Firmware version	<p>*Confirm that the firmware versions of the body and lens to be checked. ⇒ [SETUP] (4/4) ----- [VERSION DISP.]</p>

MENU LIST (Quick Reference)

The following menu items are displayed on the LCD monitor.

	[REC]	[MOTION PICTURE]	[CUSTOM MENU]	[SETUP]	[PLAYBACK]
1st Page					
2nd Page					
3rd Page					
4th Page					
5th Page					
6th Page					

REMARKS:

*When the [Intelligent Auto Mode], as for [REC], [MOTION PICTURE], [CUSTOM MENU] and [SETUP], only the basic item is displayed.



NOTE:

*When set [MENU RESUME] in the [CUSTOM MENU] menu to [ON], the screen shows the last selected menu item when the camera is turned off.

⇒ [CUSTOM MENU] (6/6) ---- [MENU RESUME] (ON/OFF)

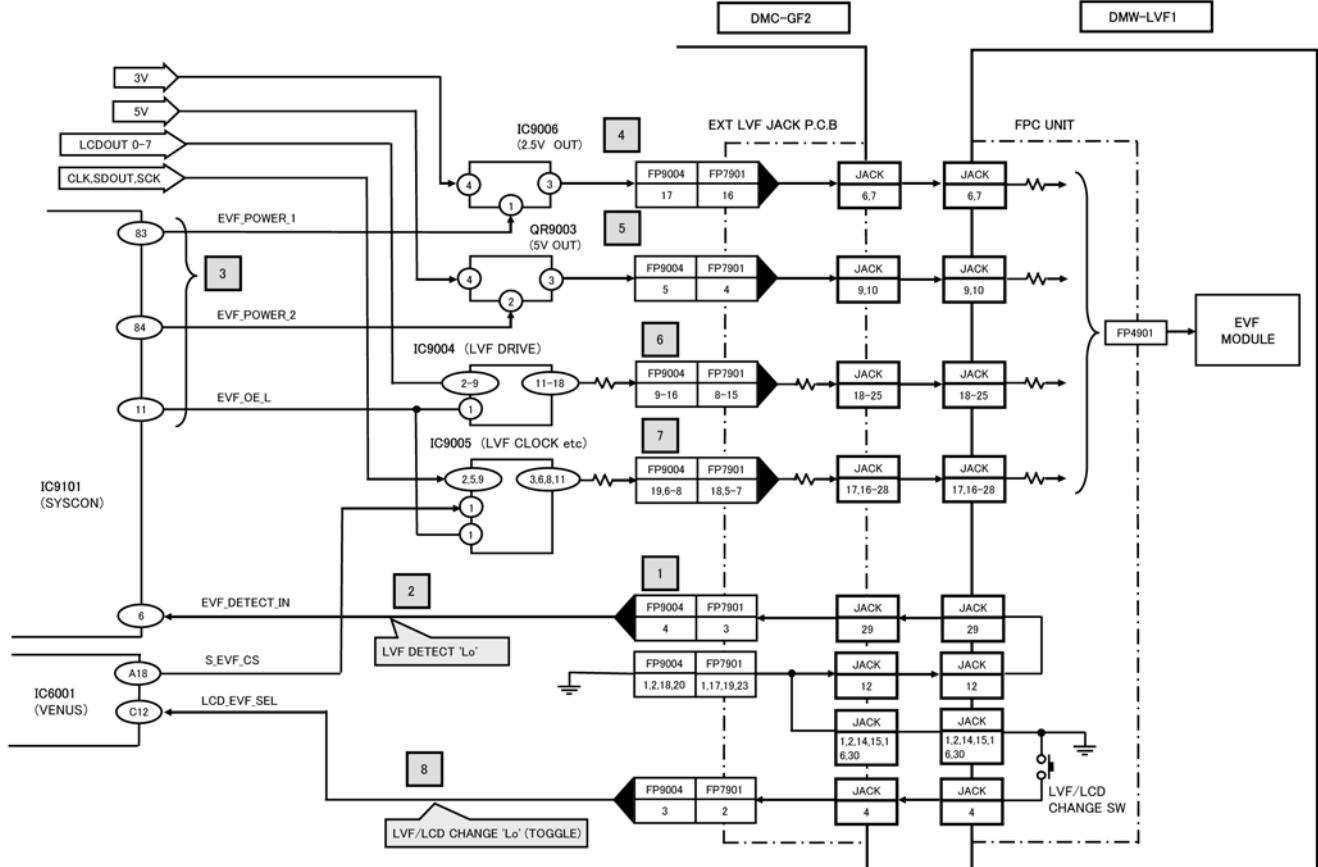
7.2. Checking Method of Drive Circuit

- It is a circuit operation and a check method when optional external live viewfinder (DMW-LVF1) is attached.

[Circuit Operation]

- When DMW-LVF1 is attached, DMC-GF2 supplies the power supply, the drive signal, and clock signals, etc. to DMW-LVF1.
- 1. When DMW-LVF1 is attached, 17pin of FP9005 becomes 'Lo' (GND). ----- [1]
- 2. IC6001(VENUS) detects the installation by IC6011(BUS BUFF). ----- [2]
- 3. 2, 5, 19, and 6pin of IC6004 are 'Hi' according to signal from IC6001 at DMW-LVF1 display mode. ----- [3]
- 4. 2.5V is outputted from 5pin of IC9003. ----- [4]
- 5. 5V is outputted from 3pin of QR9002. ----- [5]
- 6. The drive signal is outputted from 11-18pin of IC9001. ----- [6]
- 7. Clock signals etc. are outputted from 3, 6, 8, and 11pin of IC9009. ----- [7]
- 8. The display changes whenever the [LVF/LCD] switch button of DMW-LVF1 is pressed. ----- [8]

* As for the switch with the [LVF/LCD] button, the power supply of DMC-GF2 of turning off is maintained.

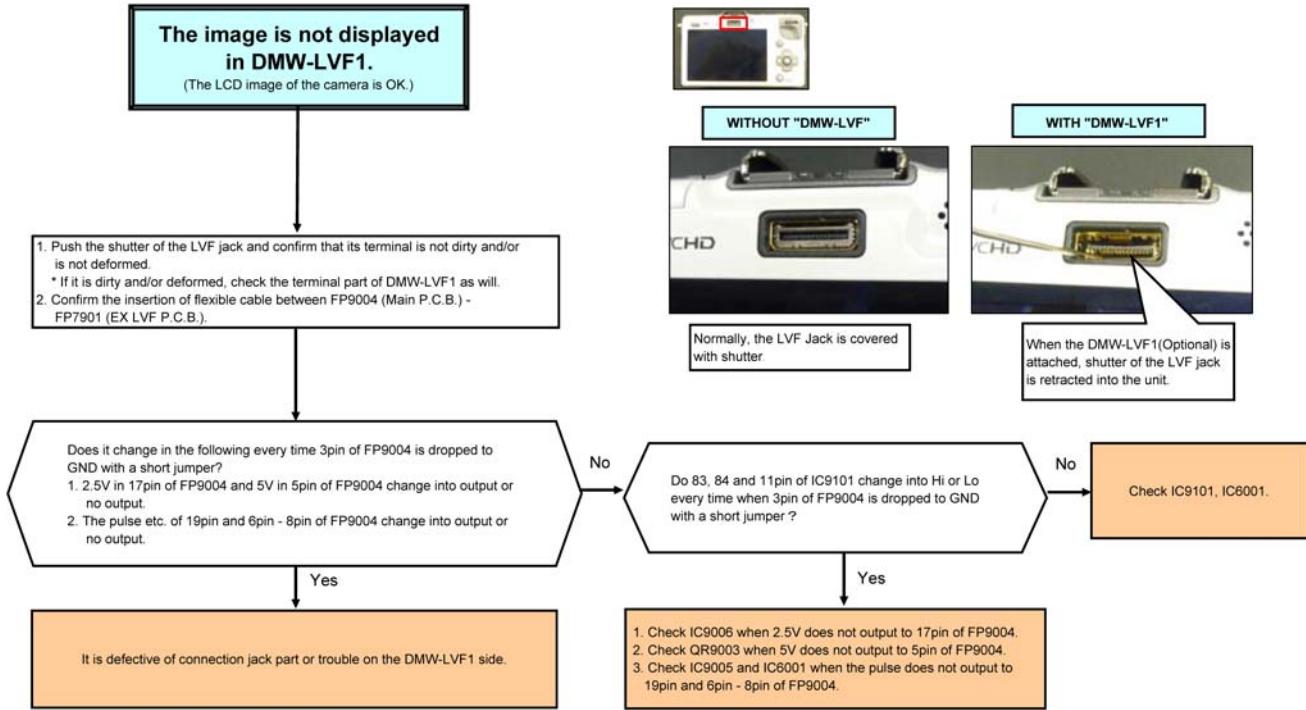


[Check Flow]

• Preparation:

Make it to the circuit operation when 4pin of FP9004 is dropped to GND with a short jumper, and DMW-LVF1 is attached when there is no DMW-LVF1.

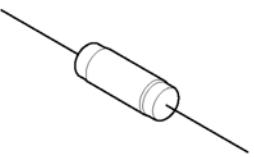
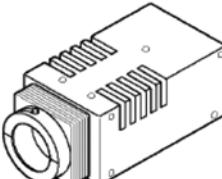
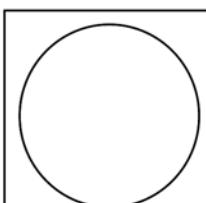
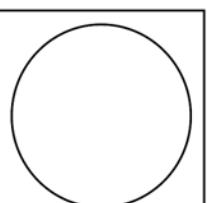
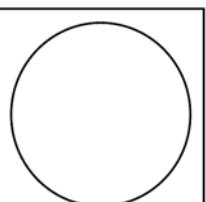
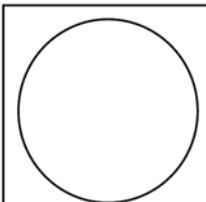
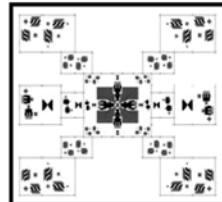
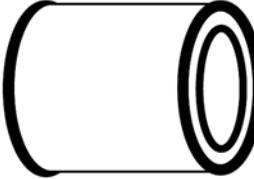
Check it while attached when there is DMW-LVF1.



8 Service Fixture & Tools

8.1. Service Fixture and Tools

The following Service Fixture and tools are used for checking and servicing this unit.

Resistor for Discharging ERG5SJ102	LIGHT BOX VFK1164TDVLB	ND FILTER 1 VFK1164ND09
 An equivalent type of Resistor may be used.	 ※ with DC Cable RFKZ0523 can be used.	
ND FILTER 2 RFKZ0513	CC FILTER 1 RFKZ0511	CC FILTER 2 RFKZ0512
		
LB FILTER 1 RFKZ0520	LB FILTER 2 RFKZ0521	STYLUS PEN VGQ0C14
		 VYQ4370 can be used.
RESOLUTION CHART RFKZ0510	DRIVER VFK1390	TORQUE DRIVER RFKZ0456
 ※ Supplied as divided chart parts. (Assemble it before use.)		 Spec.: 2-30cN · m (Equiv. 0.2-3kgf/cm)
DMC-G1K Standard model	Lens Cleaning Kit (BK) VFK1900BK	NAME RING FIXTURE RFKZ0507
*Correspond by the marketed commodity. (It does not supply as service fixture and tools.) 	 * Only supplied as 10 set/box.	

About Name Ring Fixture:

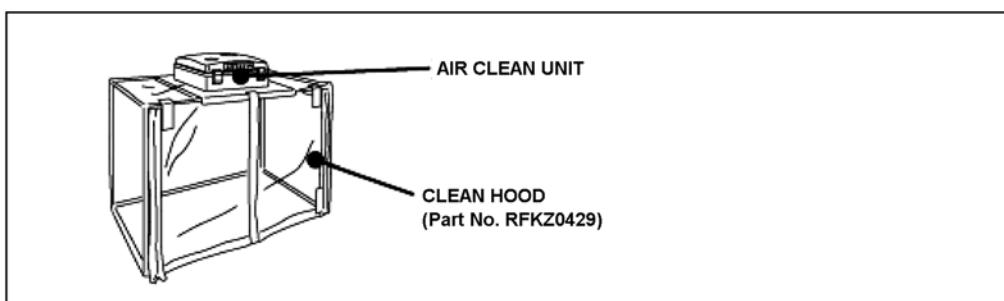
- RFKZ0507 for H-FS014042

8.2. Clean Box

- The repair quality is considered, and it is recommended working in the environment of satisfied clean level less than class 10,000 (Federal Standard 209D).
(When remove the hood adaptor and 1st lens frame, it is indispensable.)

[NOTE]

- Work in the environment of satisfied clean level less than class 10,000 (Federal Standard 209D) when remove the hood adaptor and 1st lens frame for cleaning.
*Refer to "11.2. General description (Lens cleaning: Interchangable Lens/H-H014)", "11.3. General description (Lens cleaning: Interchangable Lens/H-FS014042)" section of this service manual for details.

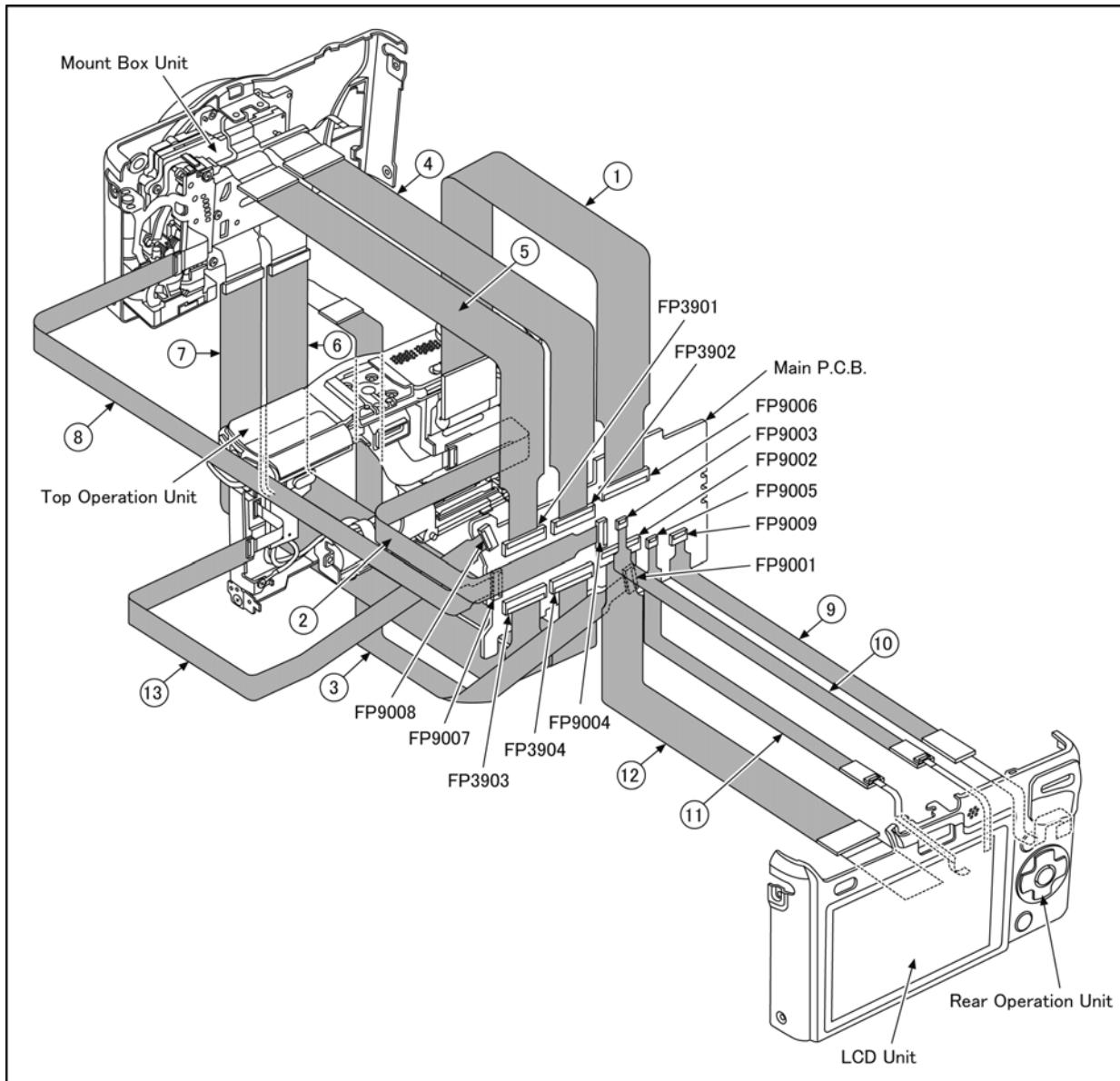


8.3. Service Position

This Service Position is used for checking and replacing parts. Use the following Extension cables for servicing.

Table S1 Extension Cable List

No.	Parts No.	Connection	From
1	VFK2024	FP9006(MAIN) - TOP OPERATION UNIT	51PIN 0.3 FFC
2	RFKZ0564	FP9004(MAIN) - TOP OPERATION UNIT	23PIN 0.3 FFC
3	RFKZ0564	FP9001(MAIN) - MOUNT BOX UNIT	23PIN 0.3 FFC
4	RFKZ0477	FP3902(MAIN) - MOUNT BOX UNIT	45PIN 0.3 FFC
5	RFKZ0477	FP3901(MAIN) - MOUNT BOX UNIT	45PIN 0.3 FFC
6	RFKZ0477	FP3904(MAIN) - MOUNT BOX UNIT	45PIN 0.3 FFC
7	RFKZ0477	FP3903(MAIN) - MOUNT BOX UNIT	45PIN 0.3 FFC
8	RFKZ0564	FP9007(MAIN) - MOUNT BOX UNIT	23PIN 0.3 FFC
9	VFK1441	FP9009(MAIN) - REAR OPERATION UNIT	8PIN 0.5 FFC
10	VFK1974	FP9003(MAIN) - LCD UNIT	4PIN 0.5 FFC
11	VFK1974	FP9005(MAIN) - LCD UNIT	4PIN 0.5 FFC
12	RFKZ0477	FP9002(MAIN) - LCD UNIT	45PIN 0.3 FFC
13	VFK1452	FP9008(MAIN) - FLASH UNIT	17PIN 0.5 FFC



CAUTION-1. (When servicing FLASH P.C.B.)

1. Be sure to discharge the capacitor on FLASH P.C.B..
Refer to "HOW TO DISCHARGE THE CAPACITOR ON FLASH P.C.B.".
2. The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
3. Be careful of the high voltage circuit on FLASH P.C.B..
4. DO NOT allow other parts to touch the high voltage circuit on FLASH P.C.B..

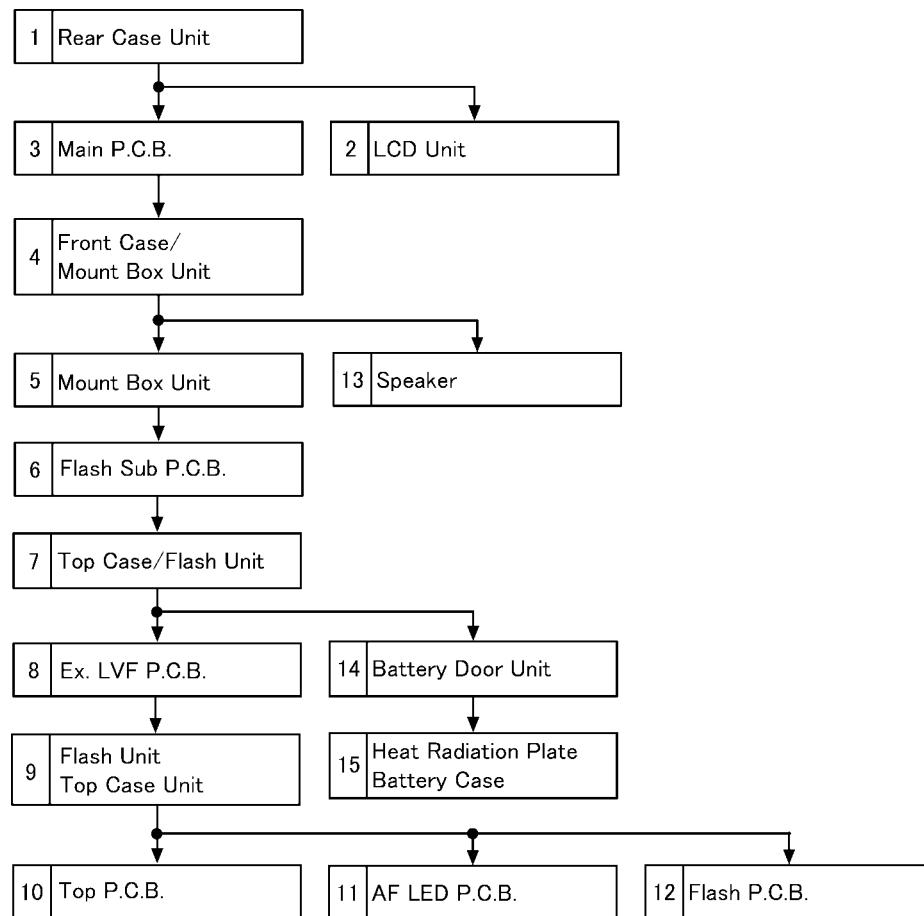
9 Disassembly and Assembly Instructions

9.1. Camera Body Part

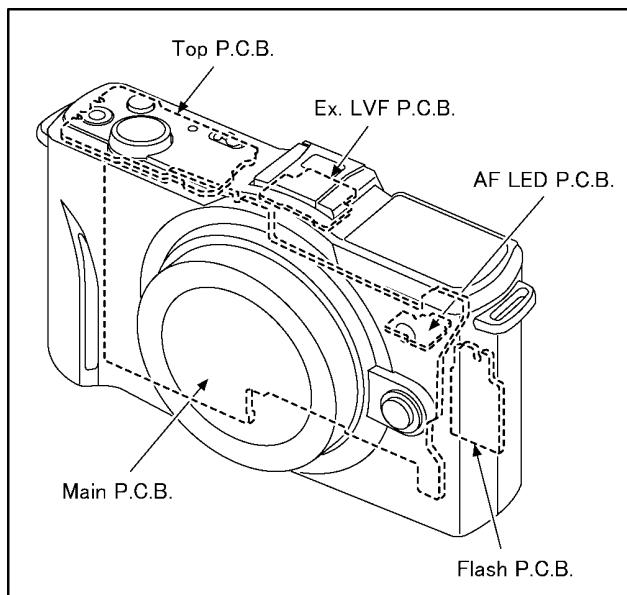
9.1.1. Disassembly Flow Chart

This is a disassembling chart.

When assembling, perform this chart conversely.



9.1.2. P.C.B. Location



9.1.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Rear Case Unit	(Fig. D1)	2 Screws (A)
			2 Screws (B)
			2 Screws (C)
			2 Screws (D)
		(Fig. D2)	FP9002(Flex)
			FP9003(Flex)
			FP9005(Flex)
			FP9009(Flex)
			Rear Case Unit
2	LCD Unit	(Fig. D3)	1 Screw (E)
			Grip Piece Rear
			1 Screw (F)
			3 Locking tabs
			Rear Plate Unit
		(Fig. D4)	3 Locking tabs
			Rear Plate Unit
			LCD Unit
3	Main P.C.B.	(Fig. D5)	FP3901(Flex)
			FP3902(Flex)
			FP3903(Flex)
			FP3904(Flex)
			FP9001(Flex)
			FP9004(Flex)
			FP9006(Flex)
			FP9007(Flex)
			FP9008(Flex)
			3 Screws (G)
4	Front Case / Mount Box Unit	(Fig. D6)	1 Hanging part
			FP9010(Flex)
			Main P.C.B.
		(Fig. D7)	2 Screws (H)
			2 Screws (I)
			2 Screws (J)
5	Mount Box Unit	(Fig. D8)	2 Screws (K)
			Jack Door
			Front Case / Mount Box Unit
6	Flash Sub P.C.B.	(Fig. D10)	4 Screws (L)
			Mount Box Unit
			1 Screw (M)
			1 Screw (N)
			Tripod
7	Top Case / Flash Unit	(Fig. D12)	Capacitor Tape
			Flash Sub P.C.B.
			Method of wrapping the capacitor tape
8	Ex. LVF P.C.B.	(Fig. D13)	2 Screws (O)
			1 Screw (P)
			Side Plate (R)
			P8002(Connector)
9	Flash Unit Top Case Unit	(Fig. D14)	Top Case / Flash Unit
			2 Screws (Q)
			FP7902(Flex)
			Ex. LVF P.C.B.

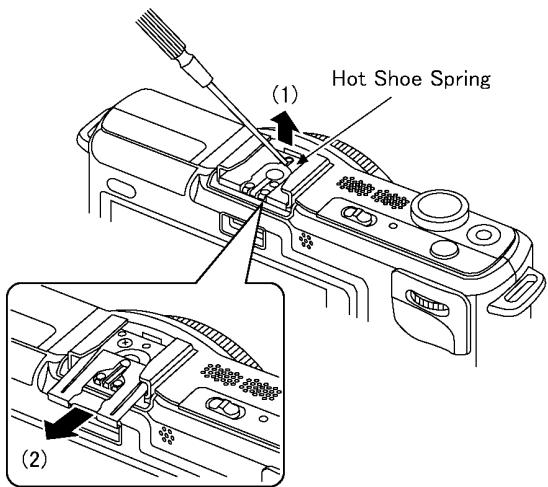
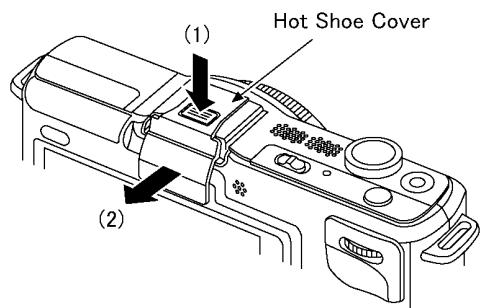
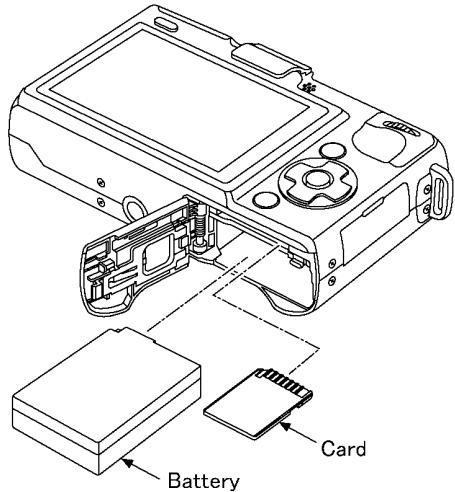
No.	Item	Fig	Removal	
10	Top P.C.B.	(Fig. D15)	2 Screws (S)	
			FP8004(Flex)	
			Rear Dial SW Unit	
			FP8002(Flex)	
			FP8003(Flex)	
			MIC Cushion (C)	
			MIC Unit	
			MIC Cushion (B)	
			MIC Cushion (A)	
			Power Knob	
			Power LED Panel	
			iA Button	
			REC Button	
			Top Earth Plate	
			Top Plate (L)	
			Top P.C.B.	
11	AF LED P.C.B.	(Fig. D16)	Note: (When installing)	
12	Flash P.C.B.	(Fig. D17)	1 Screw (T)	
			Rear OP Tape	
			2 Locking tabs	
13	Speaker	(Fig. D18)	Flash Holder Piece	
			AF LED P.C.B.	
			P8502(Connector)	
			1 Screw (U)	
			1 Locking tab	
14	Battery Door Unit	(Fig. D19)	Flash P.C.B. Cover	
			2 Solder	
			Flash P.C.B.	
15	Heat Radiation Plate Battery Case	(Fig. D20)	3 Locking tabs	
			Speaker FIX Plate	
		(Fig. D21)	Speaker	
			Battery Door Shaft	
			Battery Door Spring	
			Battery Door Unit	
			1 Screw (V)	
			Strap Holder (L)	
		(Fig. D22)	7 Locking tabs	
			Heat Radiation Plate	
			Battery Lock Knob	
			Battery Lock Spring	
			Sheet	
			Battery out Spring	
			Battery Case	

9.1.3.1. Removal of the Rear Case Unit

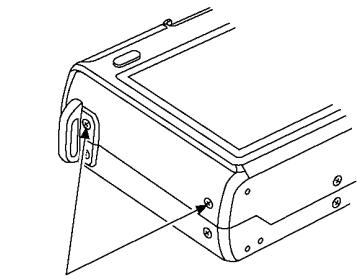
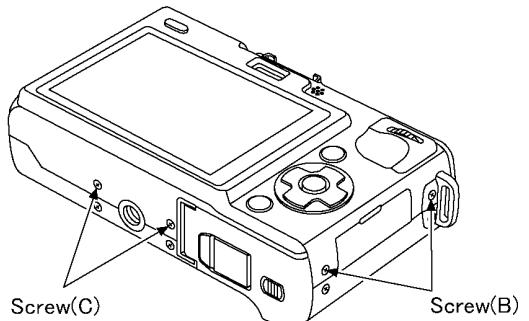
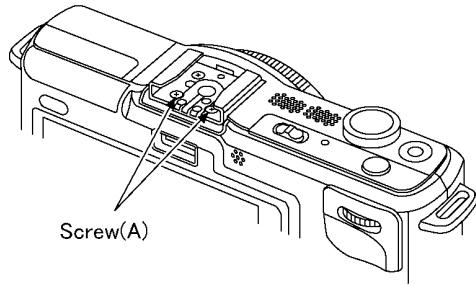
NOTE:

- When servicing and reassembling, remove the card and battery from the unit.
- Before disassembling, remove the hot shoe cover and hot shoe spring.
- Install the body cap, except when it is necessary to prevent garbage and dust.

• Card • Hot Shoe Cover
 • Battery • Hot Shoe Spring



• Screw(A) × 2 • Screw(C) × 2
 • Screw(B) × 2 • Screw(D) × 2



Screw(D)

2.5mm
 (K)(R) : BLACK
 (S)(W)(P) : SILVER

Screw(A)

5mm
 SILVER

Screw(B)

2mm
 (K)(R) : BLACK
 (S)(W)(P) : SILVER

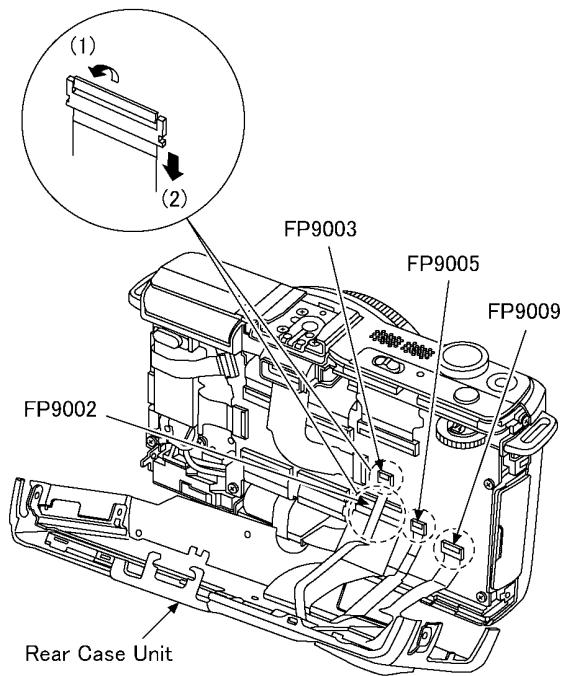
Screw(C)

2.5mm
 (K)(R) : BLACK
 (S)(W)(P) : SILVER

(Fig. D1)

9.1.3.2. Removal of the LCD Unit

- FP9002(Flex)
- FP9003(Flex)
- FP9005(Flex)
- FP9009(Flex)

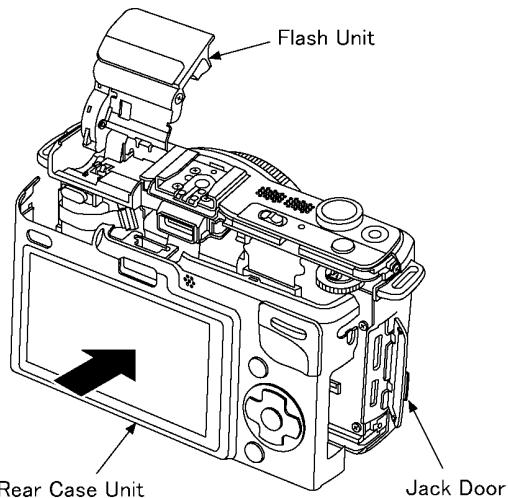


NOTE: (When Replacing)

- When remove the flex, pull up the locking tab in the direction of arrow (1), and then remove the flex in the direction of arrow (2).
(FP9002, FP9003, FP9005, FP9009)

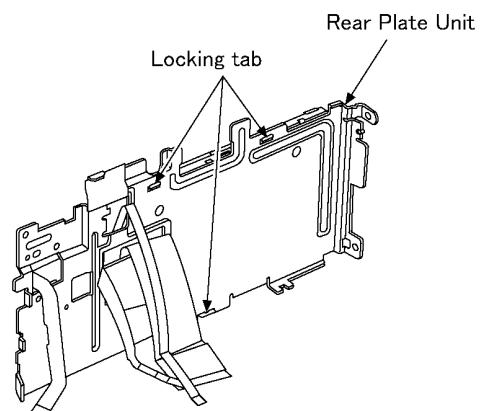
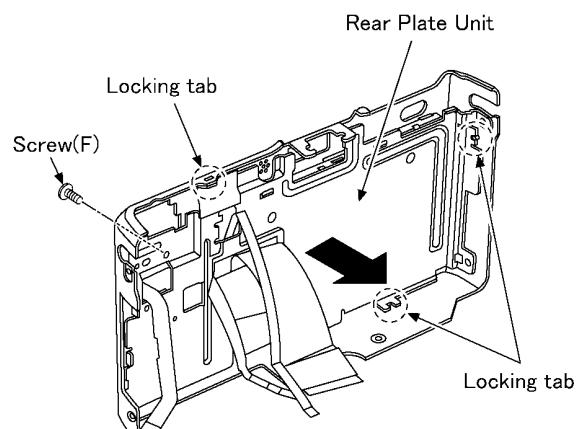
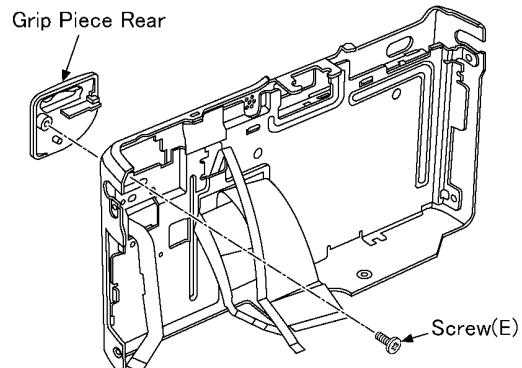
NOTE: (When Installing)

- When install the rear case unit, opened the jack door and flash unit.



(Fig. D2)

- Screw(E) × 1
- Grip Piece Rear
- Screw(F) × 1
- Locking tab × 3
- Rear Plate Unit
- Locking tab × 3



NOTE: (When Replacing)

- Take care not to damage the flex.

Screw(E)

3mm

SILVER

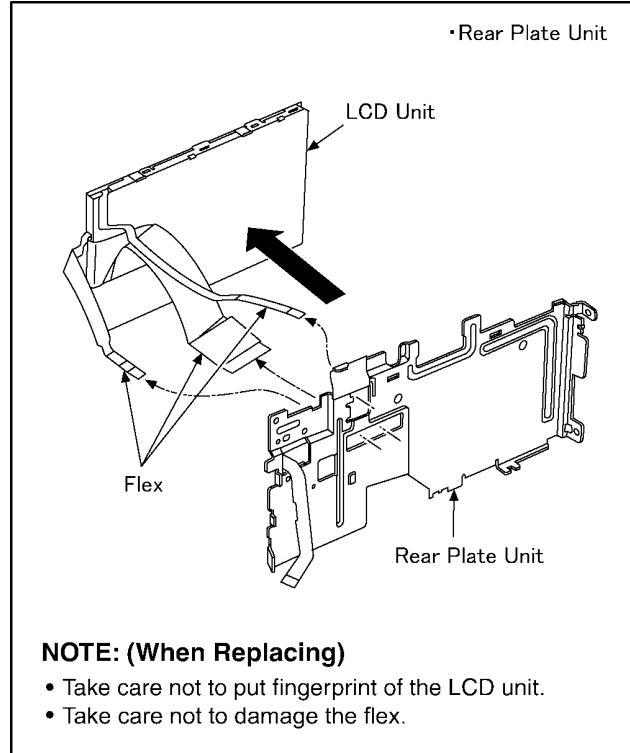
Screw(F)

2mm

SILVER

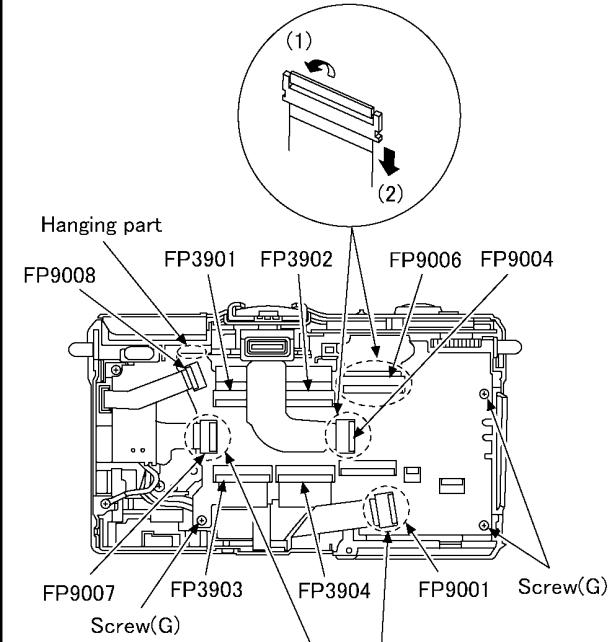
(Fig. D3)

9.1.3.3. Removal of the Main P.C.B.



(Fig. D4)

- FP3901(Flex)
- FP3902(Flex)
- FP3903(Flex)
- FP3904(Flex)
- FP9001(Flex)
- FP9004(Flex)
- FP9006(Flex)
- FP9007(Flex)
- FP9008(Flex)
- Screw(G) × 3
- Hanging part × 1



NOTE: (When Replacing)

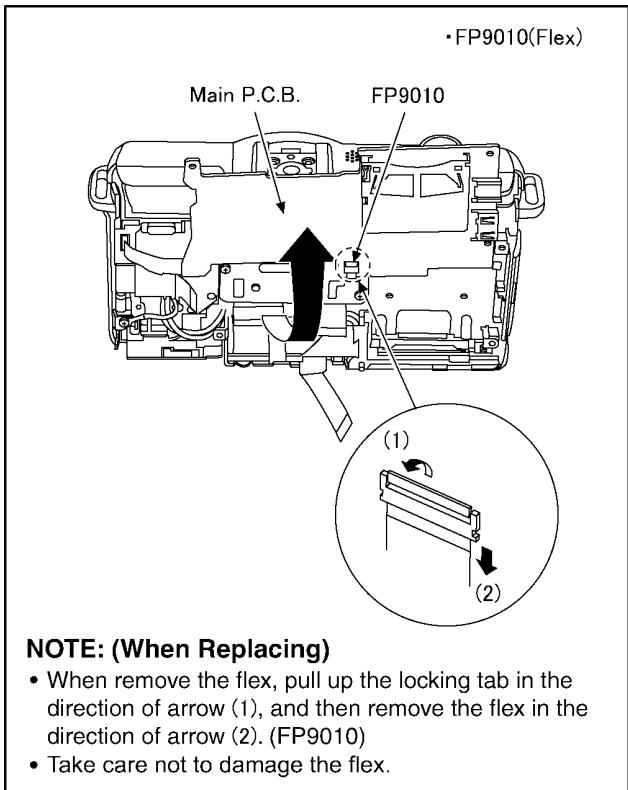
- When remove the flex, pull up the locking tab in the direction of arrow (1), and then remove the flex in the direction of arrow (2). (FP9001, FP9004, FP9006, FP9007)
- Take care not to damage the flex.

Screw(G)

3mm

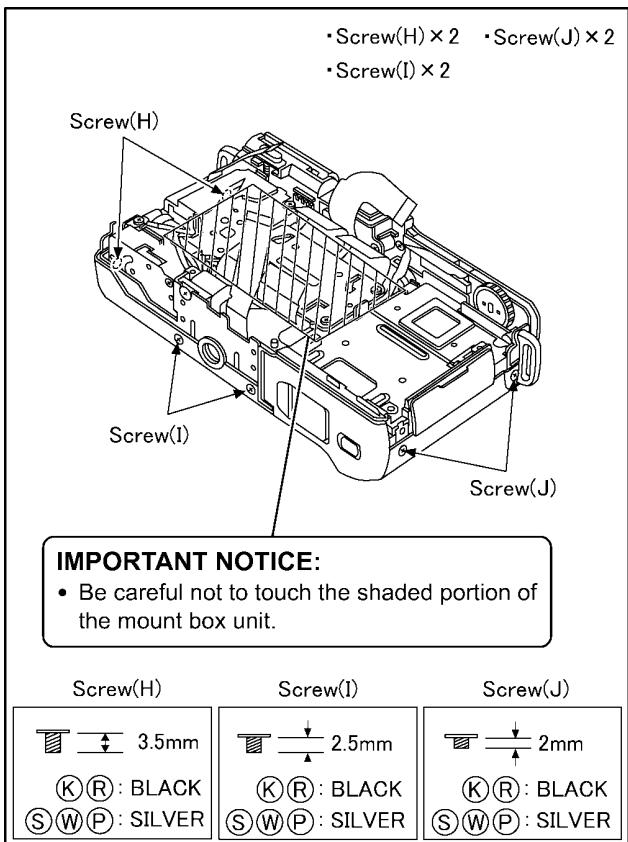
SILVER

(Fig. D5)

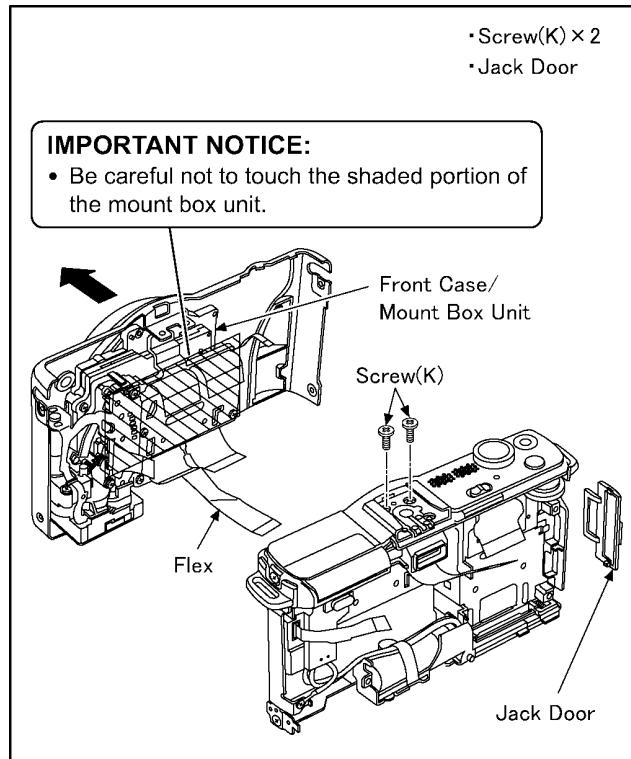


(Fig. D6)

9.1.3.4. Removal of the Front Case / Mount Box Unit

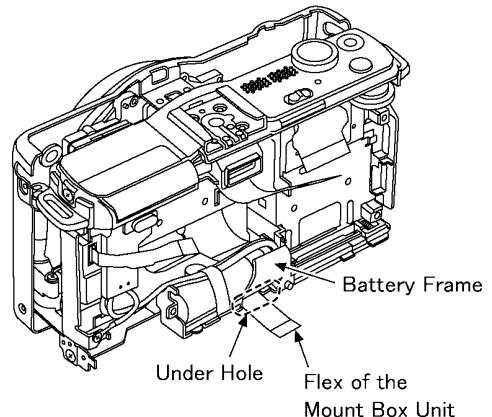


(Fig. D7)



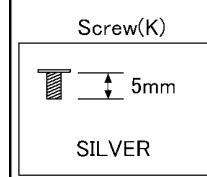
NOTE: (When Replacing)

- Take care not to damage the flex.



NOTE: (When Installing)

- Pass through the flex of the mount box unit to the under hole of the battery frame.
- Take care not to damage the flex.



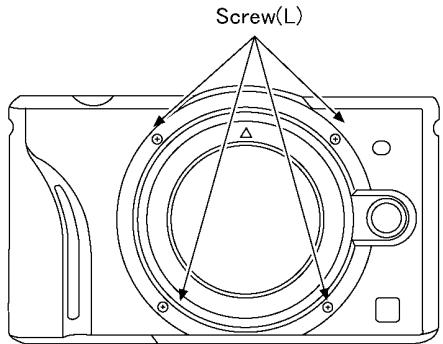
(Fig. D8)

9.1.3.5. Removal of the Mount Box Unit

NOTE:

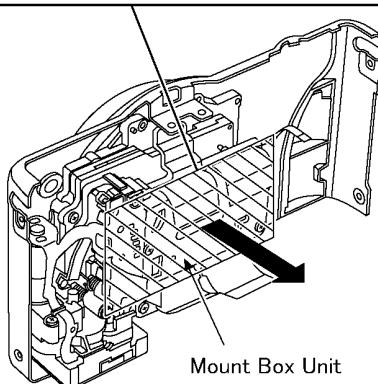
- Install the body cap, except when it is necessary to prevent garbage and dust.

•Screw(L) × 4

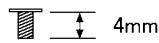


IMPORTANT NOTICE:

- Be careful not to touch the shaded portion of the mount box unit.



Screw(L)

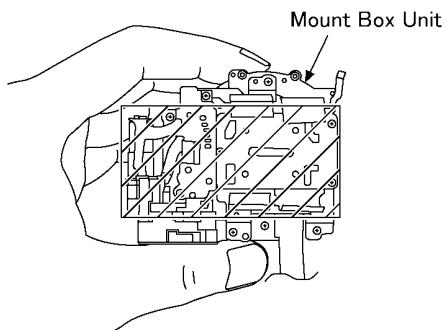


BLACK

■Attention of handling of mount box unit

IMPORTANT NOTICE:

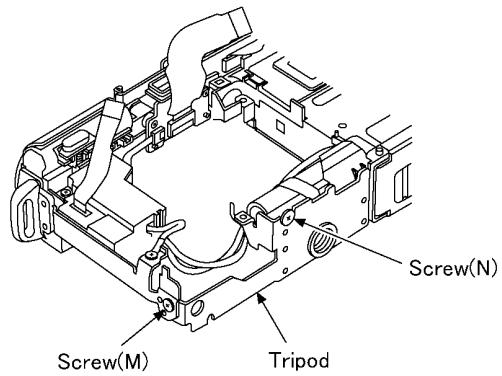
- Be careful not to touch the shaded portion (X contact and motor, etc.) so that the characteristic of the mount box unit may change. Handle it as shown in the figure below.



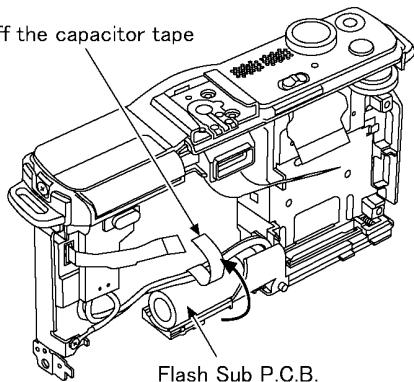
(Fig. D9)

9.1.3.6. Removal of the Flash Sub P.C.B.

- Screw(M) × 1
- Screw(N) × 1
- Tripod
- Capacitor Tape



•Peel off the capacitor tape



IMPORTANT NOTICE:

Take care not apply any bending load to the charging capacitor. It brings about the possibility of P.C.B. and/or component damage on the Flash Sub P.C.B..

Screw(M)

Screw(N)



SILVER



SILVER

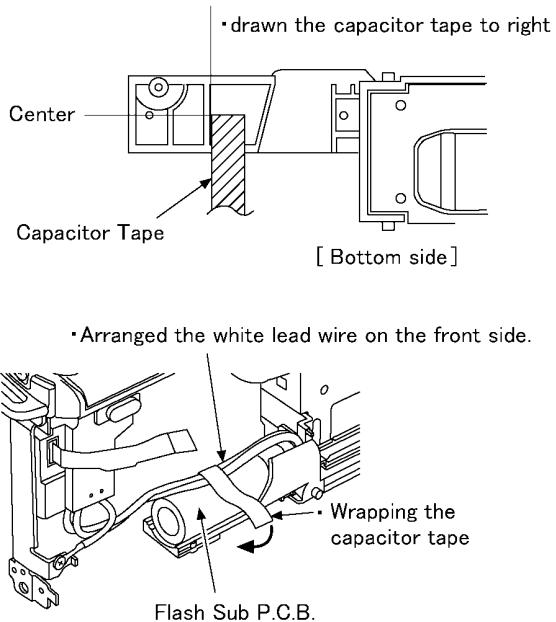
(Fig. D10)

9.1.3.7. Removal of the Top Case / Flash Unit

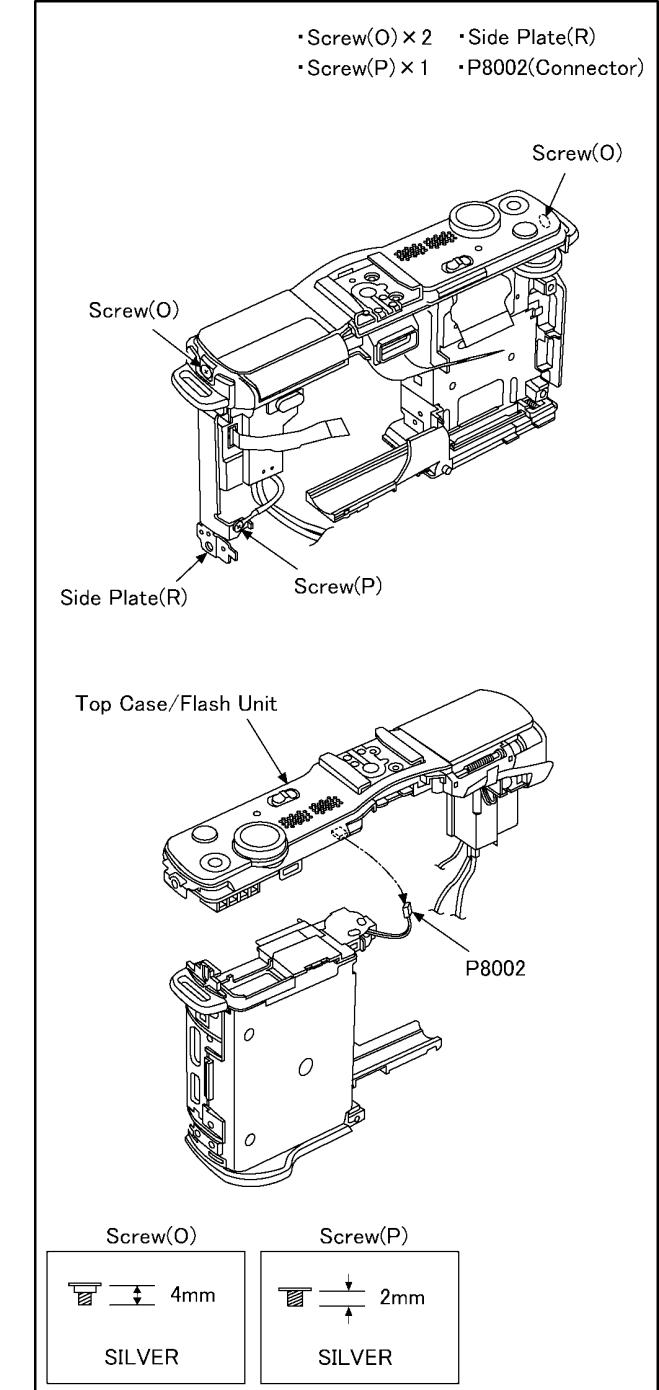
IMPORTANT NOTICE:

Take care not apply any bending load to the charging capacitor. It brings about the possibility of P.C.B. and/or component damage on the Flash Sub P.C.B..

■ Method of wrapping the capacitor tape

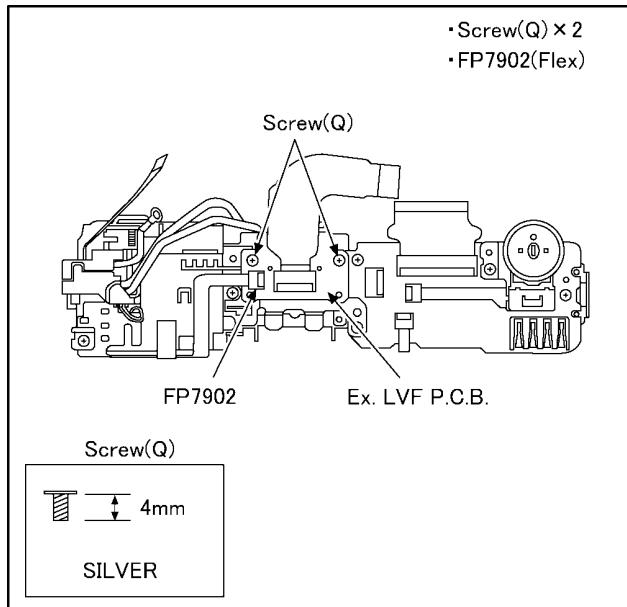


(Fig. D11)



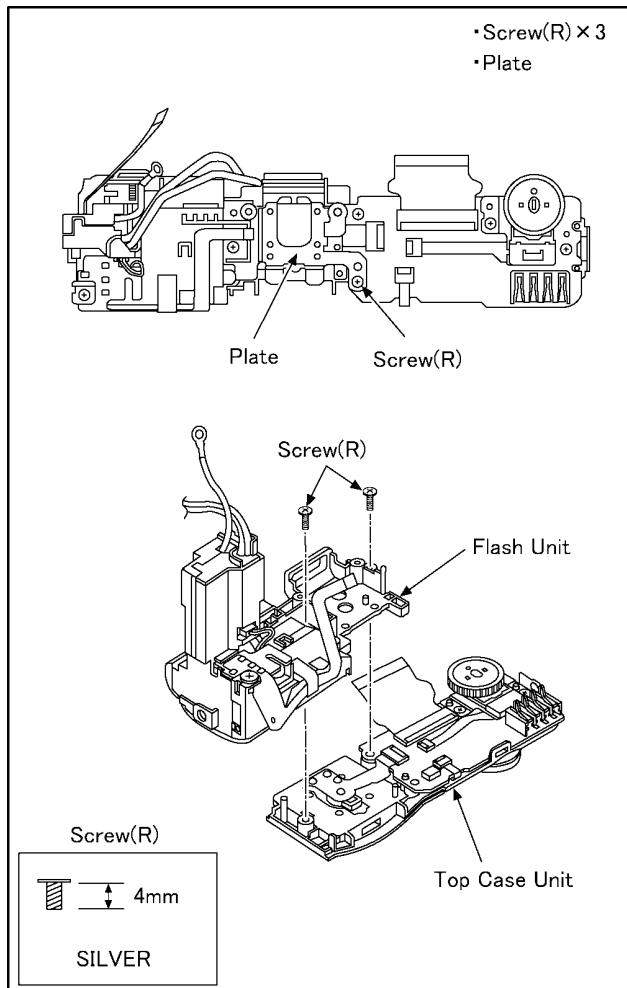
(Fig. D12)

9.1.3.8. Removal of the Ex. LVF P.C.B.



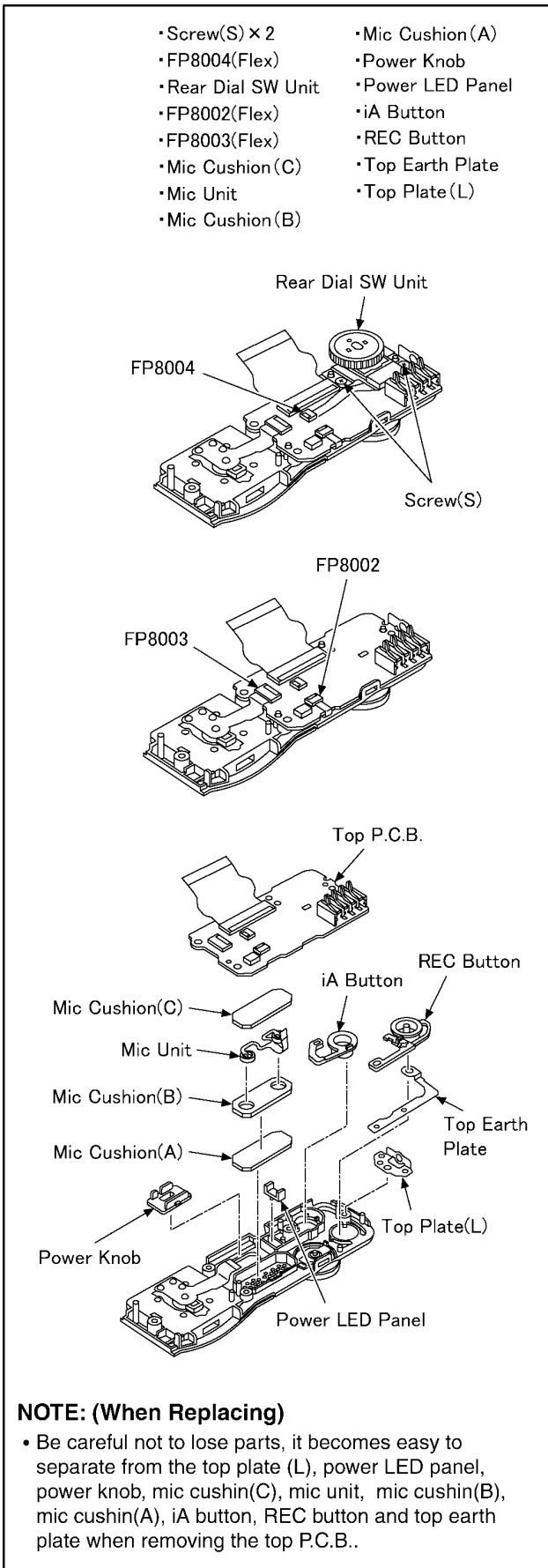
(Fig. D13)

9.1.3.9. Removal of the Flash Unit and Top Case Unit



(Fig. D14)

9.1.3.10. Removal of the Top P.C.B.



(Fig. D15)

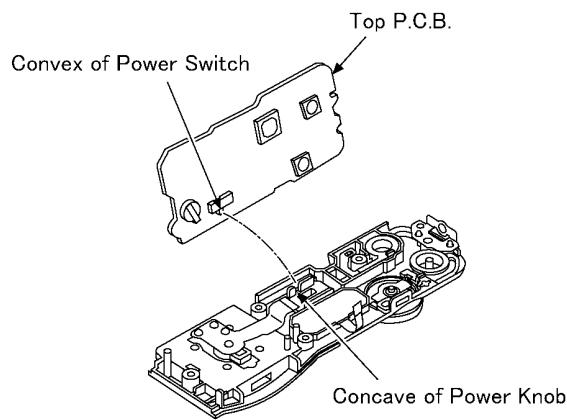
NOTE: (When Replacing)

- Be careful not to lose parts, it becomes easy to separate from the top plate (L), power LED panel, power knob, mic cushion(C), mic unit, mic cushion(B), mic cushion(A), iA button, REC button and top earth plate when removing the top P.C.B..

9.1.3.12. Removal of the Flash P.C.B.

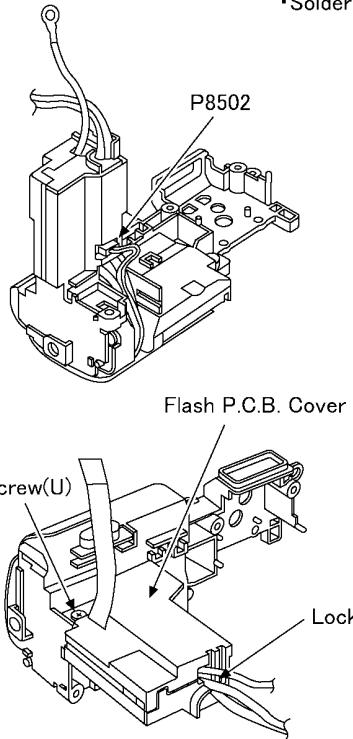
NOTE: (When Installing)

- Align the convex of power switch and concave of power knob.



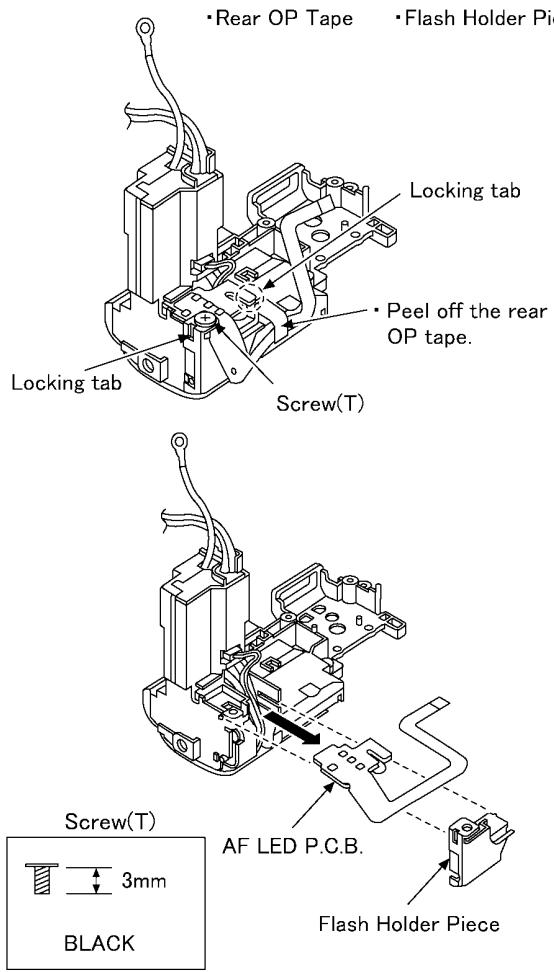
(Fig. D16)

- P8502(Connector)
- Screw(U) × 1
- Locking tab × 1
- Flash P.C.B. Cover
- Solder(2 points)



9.1.3.11. Removal of the AF LED P.C.B.

- Screw(T) × 1
- Rear OP Tape
- Locking tab × 2
- Flash Holder Piece

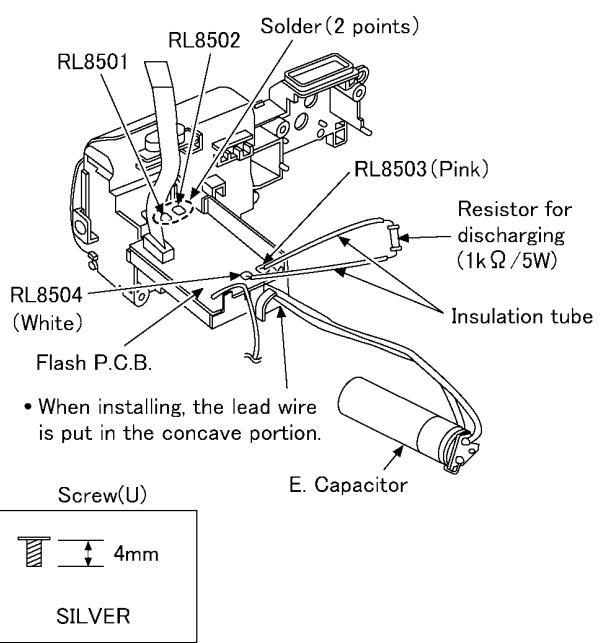


(Fig. D17)

CAUTION

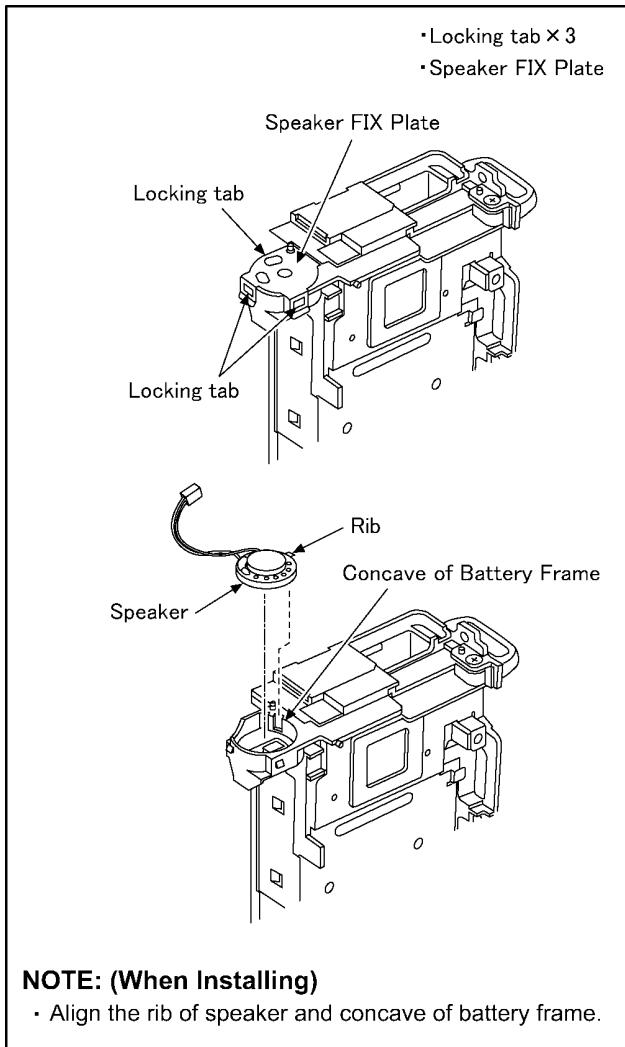
Be sure to discharge the E.Capacitor on Flash P.C.B. before disassembling.

- Put the insulation tube on the lead part of resistor (ERG5SJ102: 1kΩ/5W).
- Put the resistor between both terminals of capacitor unit for approx. 5 seconds.



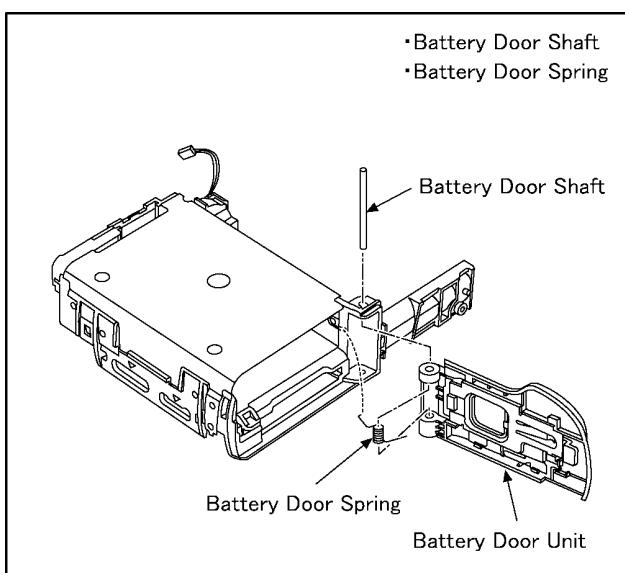
(Fig. D18)

9.1.3.13. Removal of the Speaker



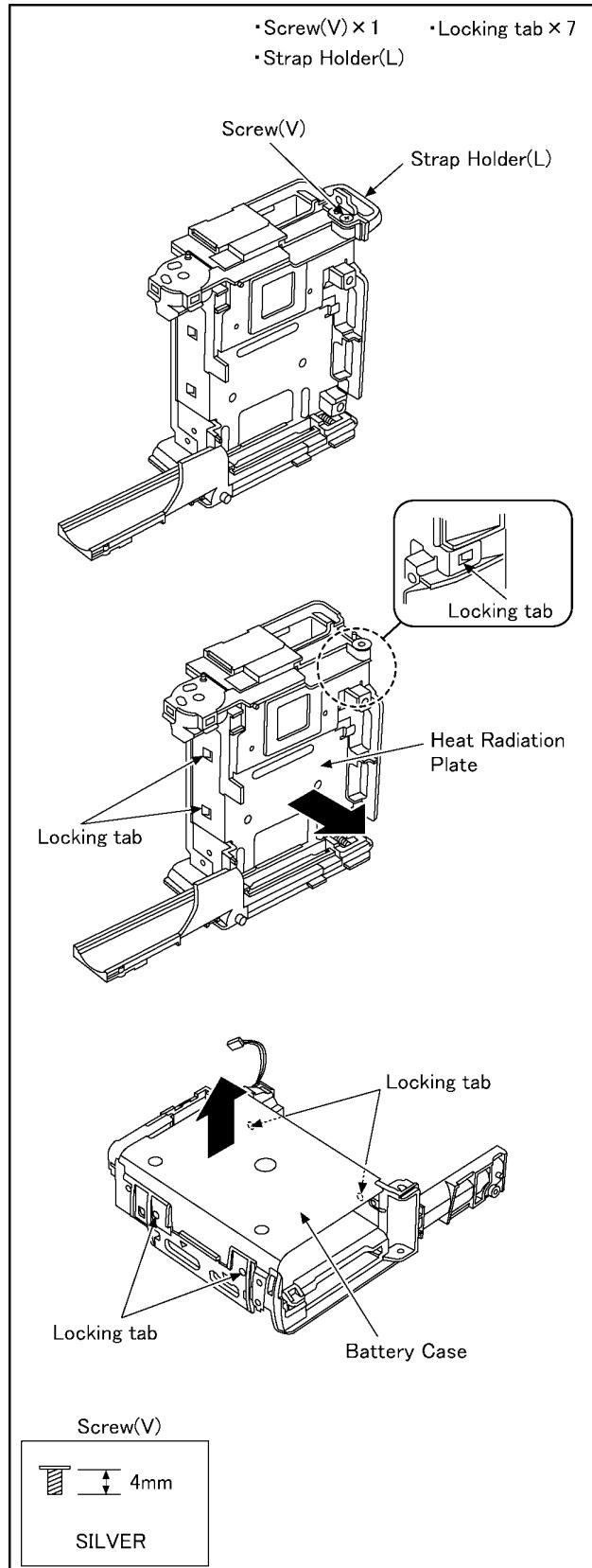
(Fig. D19)

9.1.3.14. Removal of the Battery Door Unit



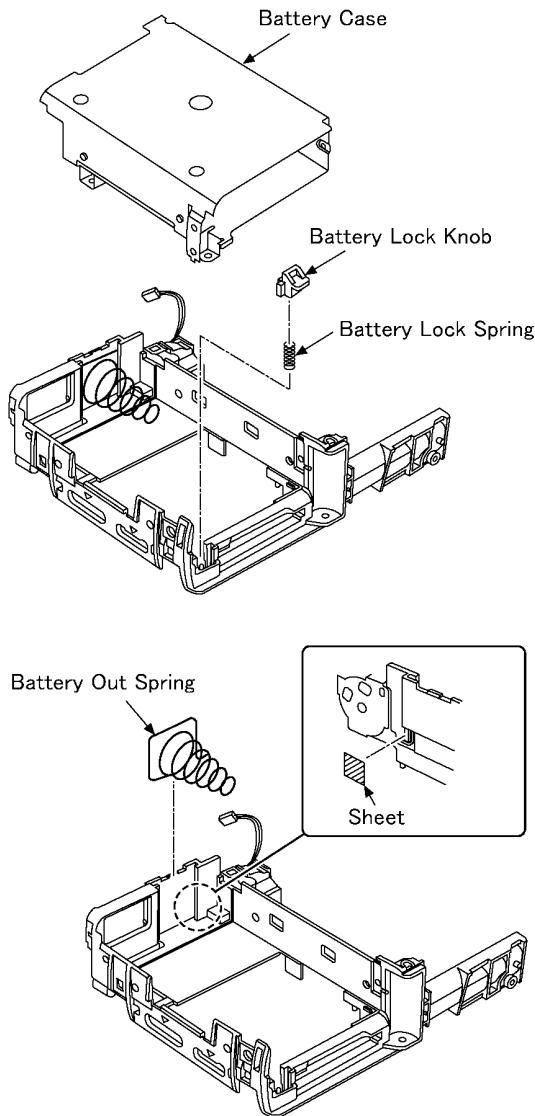
(Fig. D20)

9.1.3.15. Removal of the Heat Radiation Plate and Battery Case



(Fig. D21)

- Battery Lock Knob
- Battery Lock Spring
- Sheet
- Battery Out Spring



(Fig. D22)

NOTE: (When Installing)

Make sure to confirm the following points when installing:

- The Screw is tightened enough.
- Installing conditions are fine. (No distortion, no abnormal space.)
- No dust and/or dirt on Lens surfaces.
- LCD image is fine. (No dust and dirt on it, and no gradient images.)

9.2. Disassembly and Assemble Procedure for the Lens (H-H014)

It is recommended dealing with clean box, to keep maintaining the dustproof environment.

(Refer to "8.2. Clean Box" section of this service manual for details.)

NOTE:

1. When servicing the enclosure part (refer to Fig. C1), it must be performed inside of satisfied clean level.
(Satisfied clean level: Less than class 10,000 (Federal Standard 209D))
As for procedure, refer to the "11 Maintenance" for details.
2. To minimize the possibilities/risk of getting the dust/dirt on the lens surface, keep covering the lens unit with lens caps (front & rear), other than necessary cases.
3. Do not touch the surface of the lens glasses with your fingers.
4. Blow off the dust on the surface of the lens with a blower brush.
5. Use lens cleaning KIT (BK)(VFK1900BK).

Interchangeable Lens (H-H014)

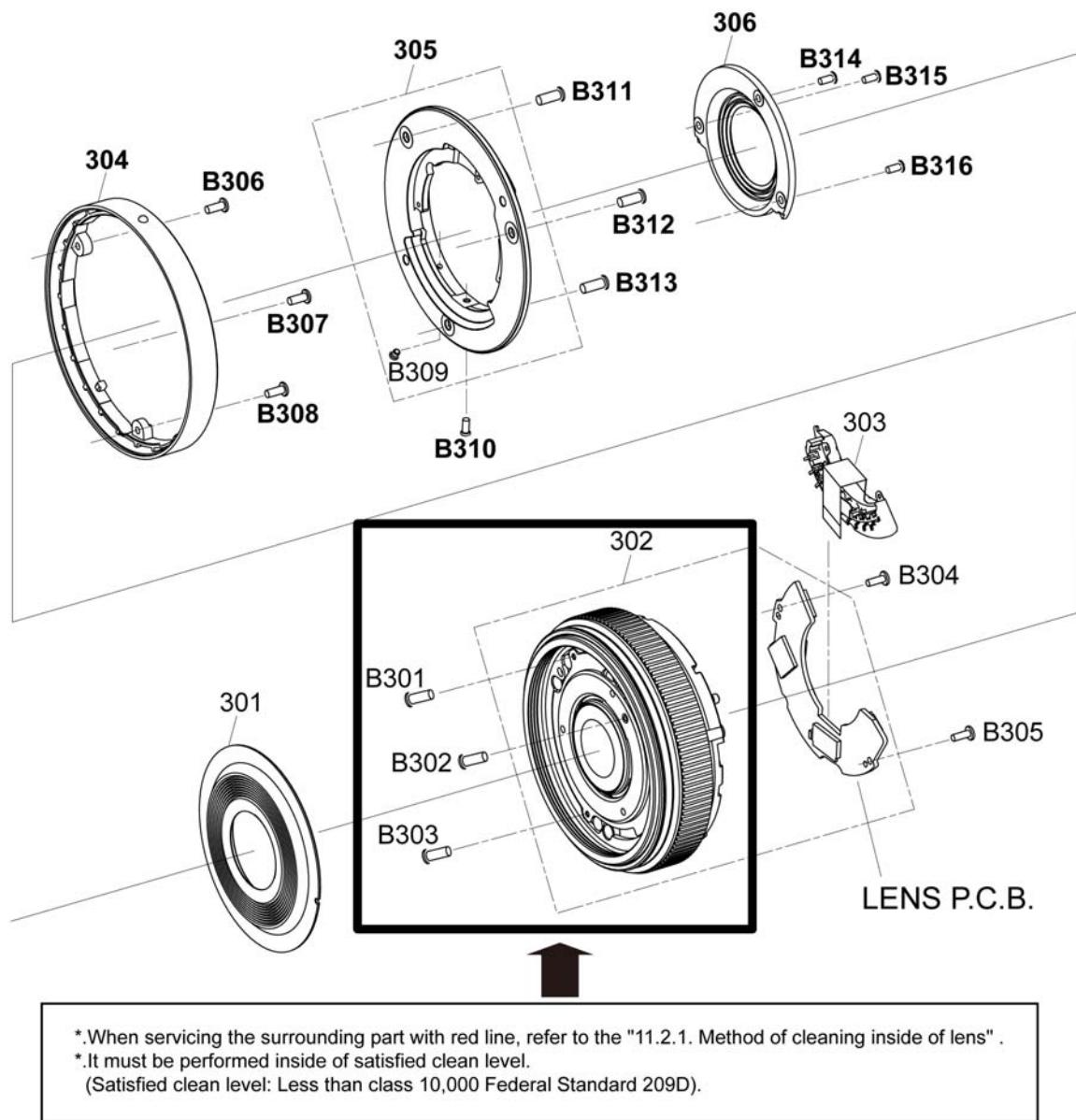
Caution:

Keep covering the lens unit with Lens caps (front & rear),
other then necwssary cases.

Concerned parts		screws					Remarks
Part name	Ref. No.	Ref. No.	Color	Length (mm)	Order	Torque value	
SHADING FRAME	306	B314	Black	3.0 mm	[2]	10±1.2 N·cm	
		B315	Black	3.0 mm	[1]	10±1.2 N·cm	
		B316	Black	3.0 mm	[3]	10±1.2 N·cm	
L MOUNT UNIT	305	B311	Silver	3.0 mm	[3]	20±1.0 N·cm	
		B312	Silver	3.0 mm	[1]	20±1.0 N·cm	
		B313	Silver	3.0 mm	[2]	20±1.0 N·cm	
		B310	Silver	3.0 mm	[1]	----	Use Small Driver (VFK1390)
REAR FRAME 2U	304	B306	Black	4.0 mm	[2]	10±1.2 N·cm	
		B307	Black	4.0 mm	[3]	10±1.2 N·cm	
		B308	Black	4.0 mm	[1]	10±1.2 N·cm	
LENS BODY U							
LENS P. C. B.	---	B304	Silver	3.0 mm	[2]	6±1.0 N·cm	
		B305	Silver	3.0 mm	[1]	6±1.0 N·cm	
1ST LENS FRAME U	---	B301	Silver	4.0 mm	[1]	10±1.2 N·cm	
		B302	Silver	4.0 mm	[3]	10±1.2 N·cm	
		B303	Silver	4.0 mm	[2]	10±1.2 N·cm	

NOTE:

1. When installing the screws, be sure to use the torque driver (RFKZ0456) and tighten the screws with specified torque, mentioned on the above table.
2. The Ref.B309 is no need to remove/install for disassembly and assembly.
If necessary, use VFK1390 (small driver) when screwing it..



(Fig. C1)

9.3. Disassembly and Assemble Procedure for the Lens (H-FS014042)

It is recommended dealing with clean box, to keep maintaining the dustproof environment.

(Refer to "8.2. Clean Box" section of this service manual for details.)

Important:

1. When servicing the enclosure part (refer to Fig. K1), it must be performed inside of satisfied clean level.
(Satisfied clean level: Less than class 10,000 (Federal Standard 209D))
As for procedure, refer to the "11 Maintenance" for details.
2. To minimize the possibilities/risk of getting the dust/dirt on the lens surface, keep covering the lens unit with lens caps (front & rear), other than necessary cases.
3. Do not touch the surface of the lens glasses with your fingers.
4. Blow off the dust on the surface of the lens with a blower brush.
5. Use lens cleaning KIT (BK)(VFK1900BK).

Proceed disassemble/assemble, by referring the following table and Fig. K1.

NOTE:

1. When installing the screws, be sure to use the torque driver (RFKZ0456) and tighten the screws with specified torque, mentioned on the above table.
2. The Ref.B413 is no need to remove/install for disassembly and assembly.
If necessary, use VFK1390 (small driver) when screwing it.

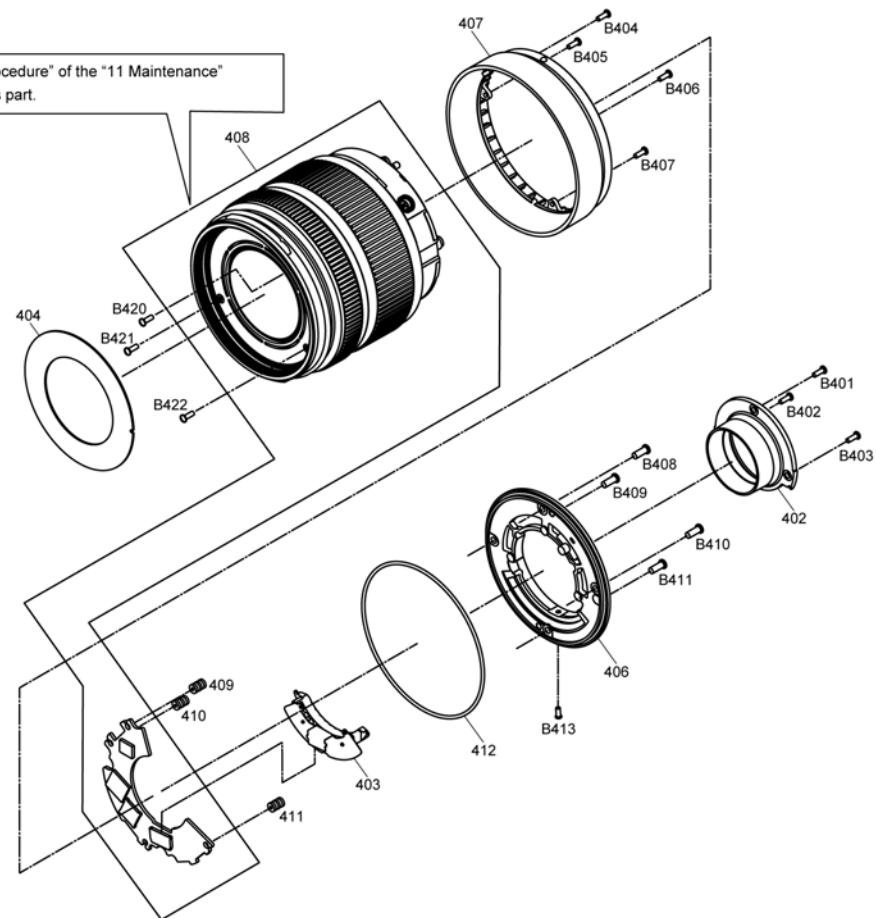
Interchangeable Lens (H-FS014042)

Caution:

Keep covering the lens unit with Lens caps (front & rear), other than necessary cases.

Concerned parts		screws					Remarks
Part name	Ref. No.	Ref. No.	Color	Length (mm)	Order	Torque value	
SHADING FRAME	402	B410	Black	4.0 mm	[1]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
		B402	Black	4.0 mm	[2]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
		B403	Black	4.0 mm	[3]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
L MOUNT UNIT	406	B408	Black	5.0 mm	[2]	$15 \pm 1.2 \text{ N} \cdot \text{cm}$	
		B409	Black	5.0 mm	[4]	$15 \pm 1.2 \text{ N} \cdot \text{cm}$	
		B410	Black	5.0 mm	[3]	$15 \pm 1.2 \text{ N} \cdot \text{cm}$	
		B411	Black	5.0 mm	[1]	$15 \pm 1.2 \text{ N} \cdot \text{cm}$	
		B413	Black	3.0 mm	---	---	Use Small Driver (VFK1390)
REAR FRAME 2 UNIT	407	B404	Black	4.0 mm	[1]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
		B405	Black	4.0 mm	[4]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
		B406	Black	4.0 mm	[3]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	
		B407	Black	4.0 mm	[2]	$7 \pm 0.5 \text{ N} \cdot \text{cm}$	

Refer to the "11.3.1. Disassembly procedure" of the "11 Maintenance" when disassemble and assemble this part.



(Fig. K1)

10 Measurements and Adjustments

10.1. Matrix Chart for Replaced Part and Necessary Adjustment

The relation between Replaced part and Necessary Adjustment is shown in the following table.

When concerned part is replaced, be sure to achieve the necessary adjustment(s).

As for Adjustment condition/procedure, consult the "Adjustment Manual" which is available in Adjustment software.

NOTE:

After adjustments have been terminated, make sure to achieve "INITIAL SETTINGS".

After updates it to the latest firmware, the adjustment is executed.

Adjustment Item		Mount Box Unit (*3)	Main P.C.B. (*2)	VENUS FHD (IC6001) (*2)	•Flash P.C.B.	LCDu	•Lens u •L-Mount •Rear Frame etc	T. Panel Driver (IC9007)
S e B c o t d i o n e r a m e r a c a m e r a n	C a m e r a n	VENUS-ZOOM Inspection (PZM)	—	○	○	—	—	—
		ISO sensitivity adjustment (ISO)	○	○	○	—	—	—
		High brightness coloration inspection (SEN)	○	○	○	—	—	—
		Offset gain adjustment (SAT)	○	○	○	—	—	—
		AWB adjustment (WBL/WBM)*5)	○	○	○	—	—	—
		IMAGE SENSOR white scratch compensation (WKI)	○	○	○	—	—	—
		IMAGE SENSOR black scratch compensation (BKI)	○	○	○	—	—	—
		Low illumination image quality correction (VSJ)	○	○	○	—	—	—
		Mount Box Adjustment data writing	○	—	—	—	—	—
		Mount box u readjustment	—	○	○	—	—	—
Defect Part Division/ Inspection	Display	AVCHD function inspection	—	○ (*4)	○ (*4)	—	—	—
		Touch panel adjustment (TPC)	—	○	○	—	○	○
Resolution inspection (*1)		○	—	—	—	—	—	—

*1

- Inspect it, not only corresponding part is replaced, but also camera body is shocked and/or dropped.
- The Panasonic camera body in accordance with the Micro Four Thirds system (DMC-G1 unit, etc. marketed commodity: operates normal) and a standard zoom lens H-FS014045 (marketed commodity: operates normal) is required as a reference machine.
- Refer to the adjustment instruction in the adjustment software for details.

*2 NOTE: (When exchange the MAIN P.C.B.)

- Correspond by either the following when exchange the MAIN P.C.B. unavoidably by destruction and damage etc. of MAIN P.C.B..

1. When it can turn on power, and the adjustment software can communicate with the camera body:

- Before replacing, proceed the VENUS FHD (IC6001) data backup from the unit. After replacing, overwrite the VENUS FHD (IC6001) data with backup data from the unit, before proceeding the main body adjustment.

2. When it cannot turn on power, or the adjustment software cannot communicate with the camera body:

- The readjustment of mount box unit etc. are necessary.
- Refer to the adjustment instruction in the adjustment software for details.

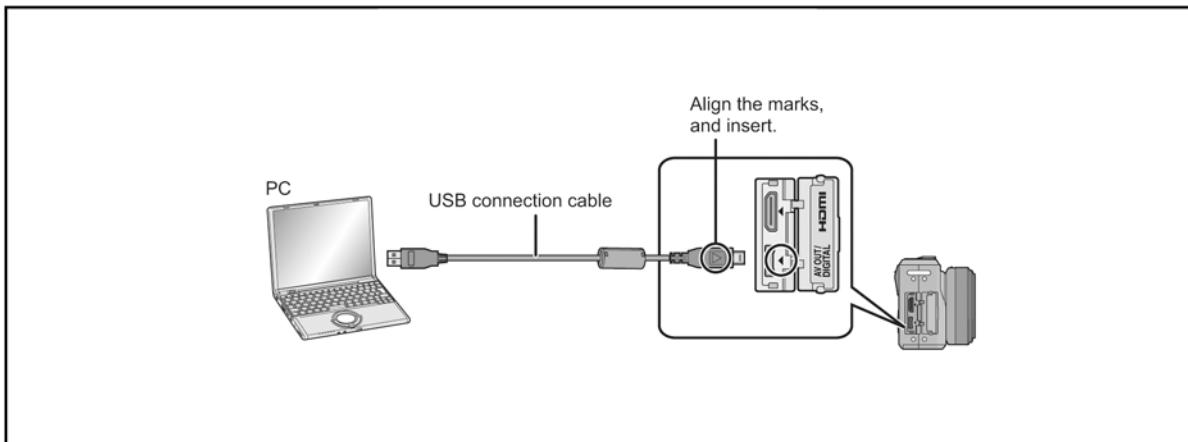
***3 NOTE: (After exchange the mount box unit)**

- Execute the resolution inspection by the comparison with the standard model (DMC-G1K etc.: operates normal).
- Refer to the adjustment instruction in the adjustment software for details.

***4**

- Confirm self recording/playback motion picture of AVCHD mode by the LCD.
- Confirm it on the TV with HDMI socket when repair HDMI relation.

* There are no LCD/LVF adjustment model.



***5 NOTE: (When AWB adjustment)**

- After change to WB adjustment mode for service with software, the adjustment is executed.
After adjusting the AWB adjustment, to cancel the WB adjustment mode for service.
- Details, refer to the instructions in the adjustment software.

About the 3D interchangeable lens (H-FT012) correspondence

This unit has no special structure (circuit or part) for the 3D interchangeable lens correspondence, only by software is processed the 3D interchangeable lens correspondence.

Therefore, if taken with other lenses as usual, the 3D interchangeable lens is no problem for operation.

11 Maintenance

11.1. Notice in external cleaning

11.1.1. ABOUT THE BODY

NOTE:

Before cleaning the camera, remove the battery and/or disconnect power plug from the outlet.
Also, remove the SD Memory card and lens unit.

11.1.1.1. DUST/DIRT ON THE OUTER CASING PART (S)

1. Blow off the dust first, then sweep out the dust from narrower spaces with soft cleaning brush.
2. Wipe up fingerprint and/or dirt on the Outer casing part with the dry fuzz-free cloth.

11.1.1.2. DUST/DIRT ON THE IMAGE SENSOR

1. Blow off the dust on the surface of the Image sensor with the Blower. (Refer to the following Figure.)

- Keep the Mount Facing down condition towards to floor when cleaning.
- Do not put the Blower further inside than the lens mount.
- Be careful not to blow too strongly.

2. Wipe off the dirt on the image sensor surface with Lens cleaning KIT(BK)(VFK1900BK).



11.1.2. ABOUT THE LENS

11.1.2.1. DUST/DIRT ON THE OUTER CASING PART(S)

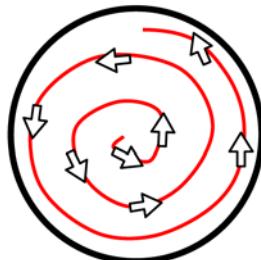
1. Blow off the dust first, then sweep out the dust from narrower spaces with soft cleaning brush.
2. Wipe up the Outer casing part with the dry fuzz-free cloth.

11.1.2.2. DUST/DIRT ON THE LENS GLASSES

- Define the location of the dust/dirt first, whether it is outside lens surface or not.

1. When it is outside surface of the lens:
 - When the dust and/or dirt gets on the outer side surface of the Lens glasses, order the following procedures.
 - a. Blow off the dust on the Lens glass surface with the Blower, gently. (Do not Blow too strongly.)
 - b. Wipe out the dirt on the lens glass surface with Lens cleaning KIT(BK) (VFK1900BK) if necessary. (Consult the Instruction sheet which is included in the Lens cleaning KIT(BK) in details.)
 - 2. When it is inside of the lens:
 - Refer to the "11.2. General description (Lens cleaning: Interchangeable Lens/H-H014)", "11.3. General description (Lens cleaning: Interchangeable Lens/H-FS014042)" section of this service manual.

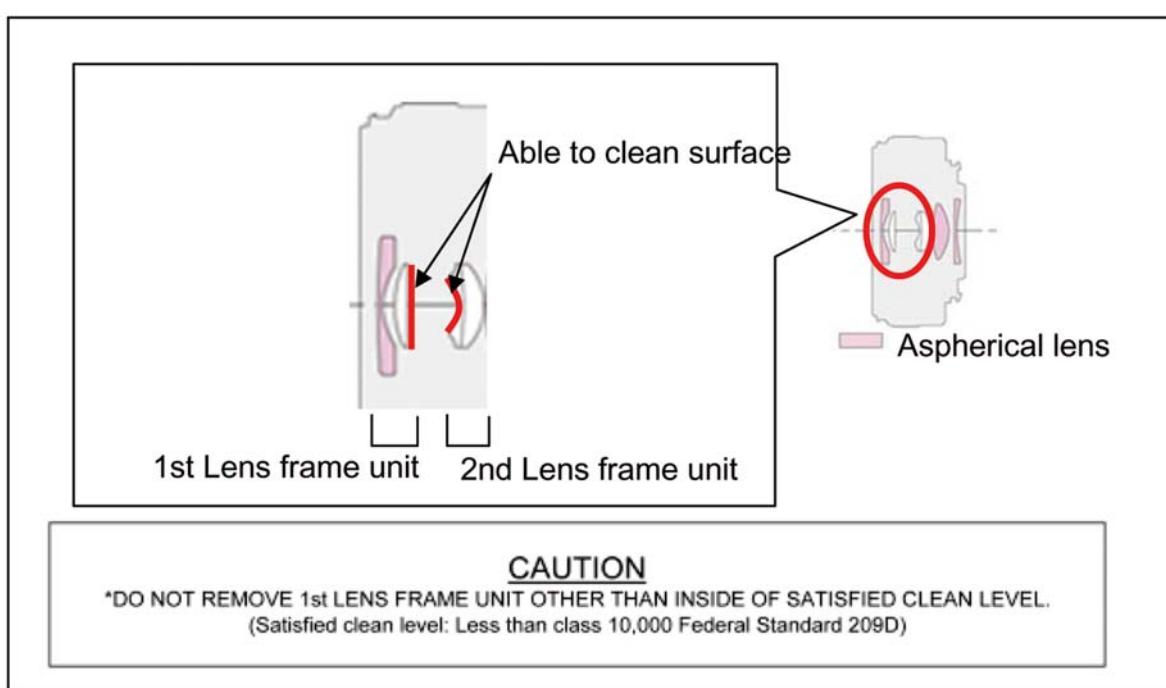
[Cleaning Instructions]



Wipe the lens surface with cleaning sheet starting from centre towards to outside in a circular motion.

11.2. General description (Lens cleaning: Interchangeable Lens/H-H014)

When there is a dust/dirt inside surface of the 1st lens frame unit and/or subject side surface of the 2nd lens frame unit, remove it by referring the following procedures.



Important:

1. When removing the 1st lens frame unit, it has to be proceed inside of satisfied clean level.
(Less than class 10,000 (Federal Standard 209D))
As for clean box, refer to the "8.2. Clean Box", in details.
2. When tighten the screws (A), use torque driver (RFKZ0456) with specified torque.
3. To keep the Lens performance, use only the 1st lens frame unit which was fitted as it was.
Therefore, the 1st lens frame unit is not supplied as spare parts.
Also do not exchange the 1st lens unit taking from others.

11.2.1. Method of cleaning inside of lens

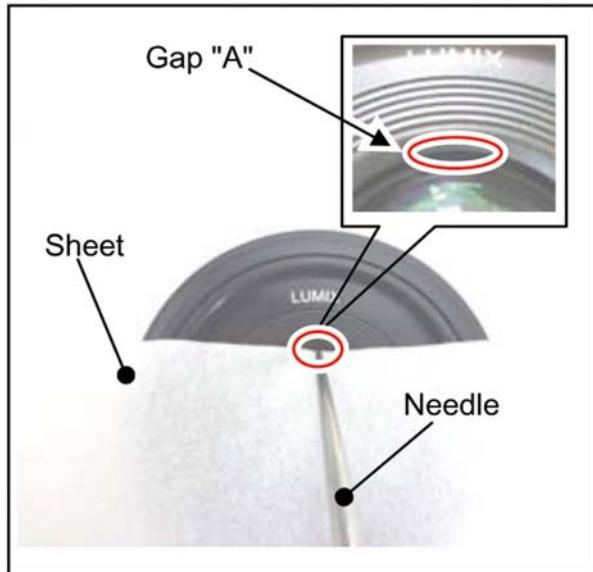
11.2.1.1. Disassembly procedure

Important:

It must be performed inside of satisfied clean level.
(Satisfied clean level: Less than class 10,000 (Federal Standard 209D))

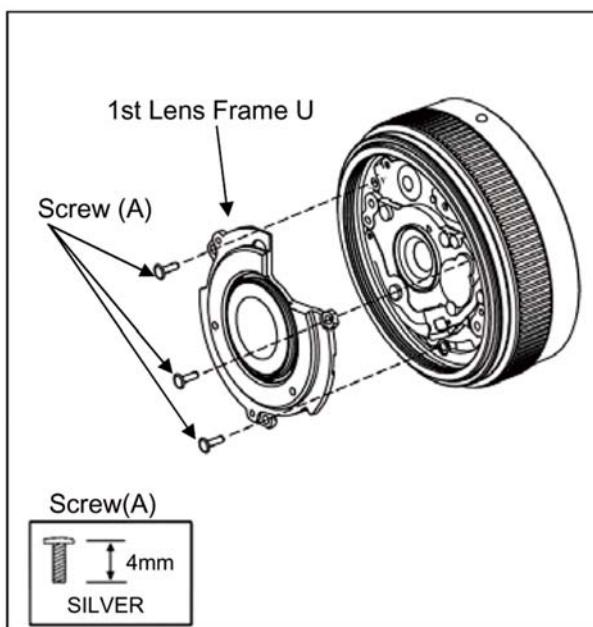
1. Removal of the Decoration ring

- * Decoration ring is stucked on the 1st lens frame unit.
- * Put the sheet so that the lens glass is fully covered.
- * Insert the needle to Gap "A" (between the Decoration ring and Lens glass), and peel off the Decoration ring gently.



2. Removal of the 1st Lens frame unit

- * Remove 3 screws (A).



- * Blow off the dust on the surface of the lens with a blower brush.
- * Use lens cleaning KIT (BK)(VFK1900BK), if necessary.

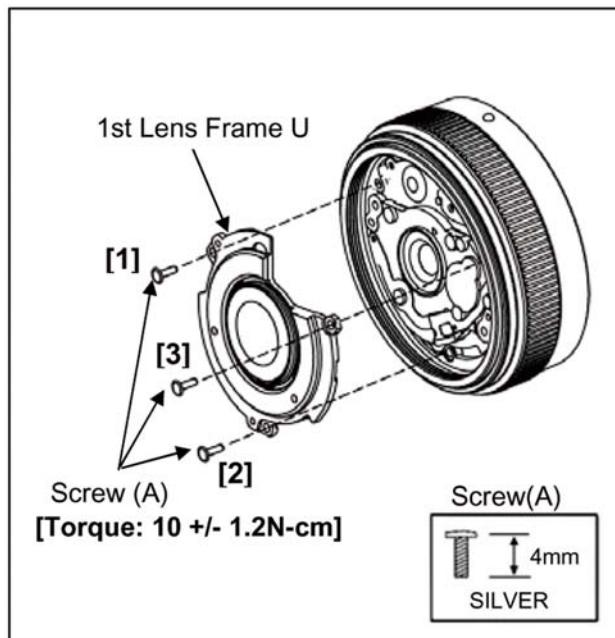
11.2.1.2. Assembly procedure

IMPORTANT NOTICE:

* When tightening the screw, use a Torque driver (RFKZ0456) by ordering the screwing order with specified torque described in each step.

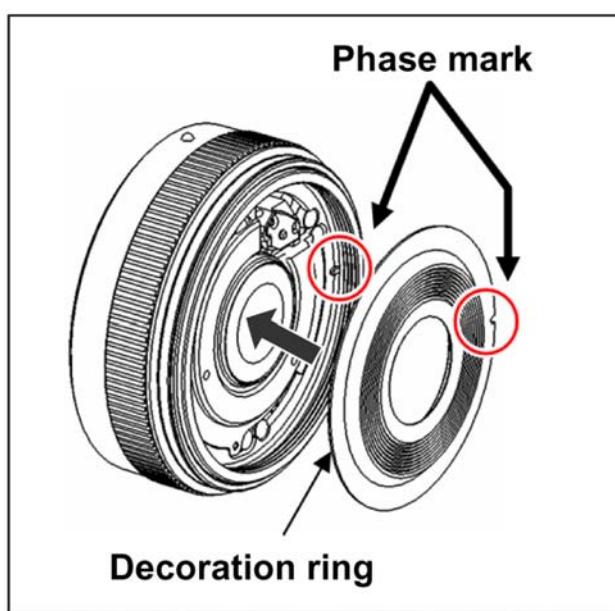
1. Installation of the 1st Lens frame unit

- * Tighten the 3 screws (A) with specified torque in numerical order.



2. Installation of the Decoration ring

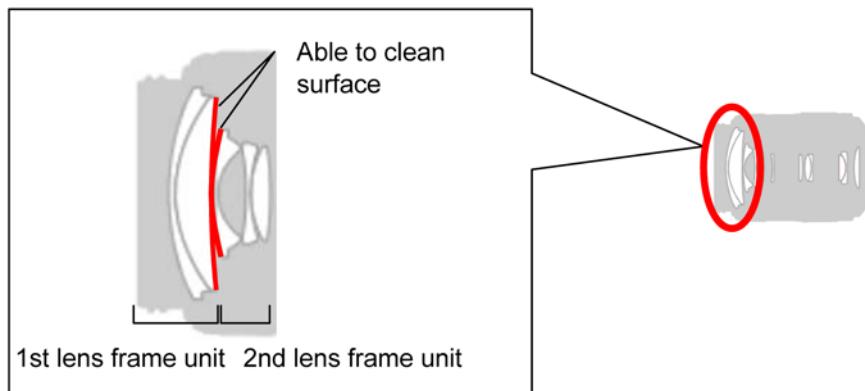
- * Install the Decoration ring by referring the phase mark.
(Use new one, Do not use the one which is removed.)



* After installing the Decoration ring, press the decoration ring with your finger.

11.3. General description (Lens cleaning: Interchangeable Lens/H-FS014042)

When there is a dust/dirt inside surface of the 1st lens frame unit and/or subject side surface of the 2nd lens frame unit, remove it by referring the following procedures.



CAUTION

*DO NOT REMOVE 1st LENS FRAME UNIT OTHER THAN INSIDE OF SPECIFIED CLEAN LEVEL.
(Specified clean level: Less than class 10,000 (Federal Standard 209D))

Important:

1. When removing the 1st lens frame unit, it has to be proceed inside of satisfied clean level.
(Less than class 10,000 (Federal Standard 209D))
As for clean box, refer to the "8.2. Clean Box", in details.
2. When tighten the screws (A), use torque driver (RFKZ0456) with specified torque.
3. To keep the Lens performance, use only the 1st lens frame unit which was fitted as it was.
Therefore, the 1st lens frame unit is not supplied as spare parts.
Also do not exchange the 1st lens unit taking from others.

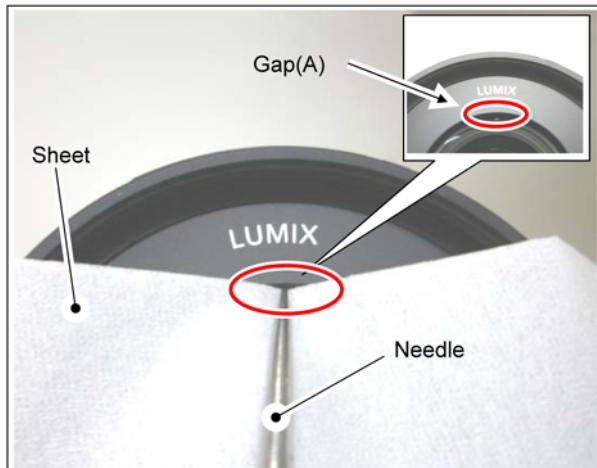
11.3.1. Disassembly procedure

Important:

It must be performed inside of satisfied clean level.
(Satisfied clean level: Less than class 10,000 (Federal Standard 209D))

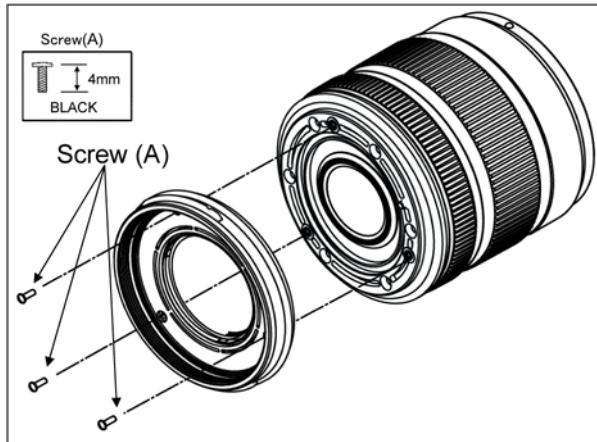
11.3.1.1. Removal of the Decoration Ring

1. Decoration ring is stucked on the 1st lens frame unit.
2. Put the sheet so that the lens glass is fully covered.
3. Insert the needle to Gap (A) (between the decoration ring and lens glass), and peel off the decoration ring gently.



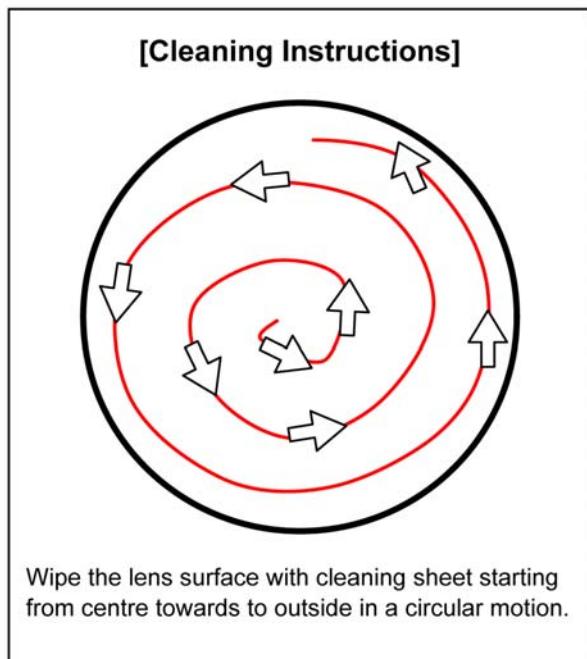
11.3.1.2. Removal of the 1st Lens Frame Unit

1. Remove the 3 screws (A).



11.3.1.3. Removal of a dust /dirt

1. Blow off the dust on the surface of the lens with a blower brush.
2. Use lens cleaning KIT(BK) (VFK1900BK), if necessary.



Wipe the lens surface with cleaning sheet starting from centre towards to outside in a circular motion.

11.3.2. Assembly procedure

Important:

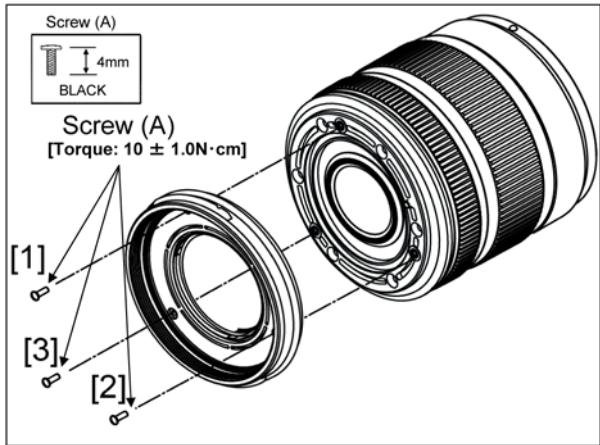
When tightening the screw, use a torque driver (RFKZ0456) by ordering the screwing order with specified torque described in each step.

11.3.2.1. Installation of the 1st lens frame unit

1. Tighten the 3 screws (A) with specified torque in numerical order.

(Torque Driver: RFKZ0456)

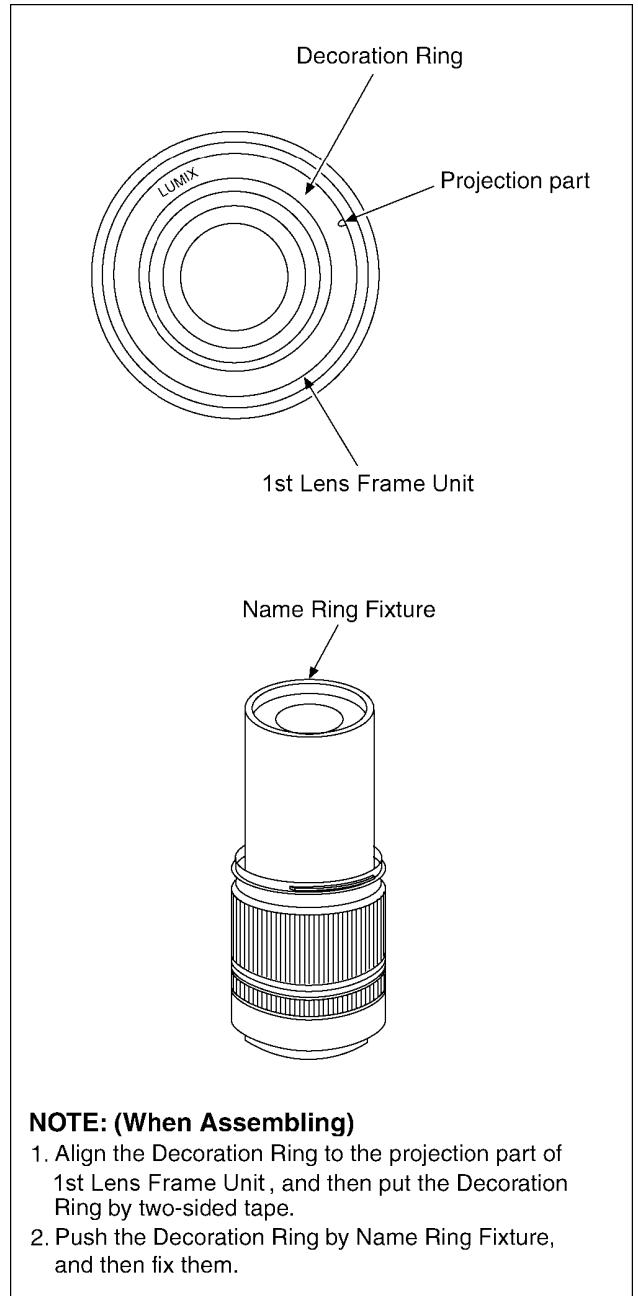
(Torque: $10 \pm 1.0 \text{ N}\cdot\text{cm}$)



11.3.2.2. Installation of the Decoration Ring

1. Use the Name Ring fixture (RFKZ0507)

2. Use new Decoration ring. (Do not use the one which is removed.)



NOTE: (When Assembling)

1. Align the Decoration Ring to the projection part of 1st Lens Frame Unit, and then put the Decoration Ring by two-sided tape.
2. Push the Decoration Ring by Name Ring Fixture, and then fix them.

Service Manual

Diagrams and Replacement Parts List

Digital Camera/Lens Kit/Double Lens Kit/Body

Model No.

DMC-GF2KPP	DMC-GF2KGK	DMC-GF2CEC	DMC-GF2CGT
DMC-GF2KEB	DMC-GF2KGN	DMC-GF2CEE	DMC-GF2WEB
DMC-GF2KEC	DMC-GF2KGT	DMC-GF2CEG	DMC-GF2WEG
DMC-GF2KEE	DMC-GF2PP	DMC-GF2CGC	DMC-GF2WGC
DMC-GF2KEG	DMC-GF2GC	DMC-GF2CGD	DMC-GF2WGD
DMC-GF2KGC	DMC-GF2GH	DMC-GF2CGH	DMC-GF2WGH
DMC-GF2KGD	DMC-GF2CPP	DMC-GF2CGK	DMC-GF2WGK
DMC-GF2KGH	DMC-GF2CEB	DMC-GF2CGN	DMC-GF2WGN
			DMC-GF2WGT

Vol. 1

Colour

[DMC-GF2C]	[DMC-GF2K]	[DMC-GF2W]
(K).....Black Type	(K).....Black Type	(K).....Black Type
(S).....Silver Type (except EE/GK/GN/GT)	(S).....Silver Type (only PP/EB/EC/EG/GC)	(S).....Silver Type (only EB/EG/GC)
(W).....White Type (except EB/EE)	(W).....White Type (except EB/EE/GH)	(W).....White Type (except EB)
(R).....Red Type (except GC/GD/GN/GT)	(R).....Red Type (except GC/GD/GH/GN/GT)	(R).....Red Type (only EB/EG/GH)
(P).....Pink Type (only GC/GH/GK/GT)	(P).....Pink Type (only GC/GK)	(P).....Pink Type (only GC)

[DMC-GF2]
(K).....Black Type

DMC-GF2C series: Interchangeable Lens (H-H014) is bundled.

DMC-GF2K series: Interchangeable Lens (H-FS014042) is bundled.

DMC-GF2W series: Interchangeable Lens (H-H014/H-FS014042) is bundled.

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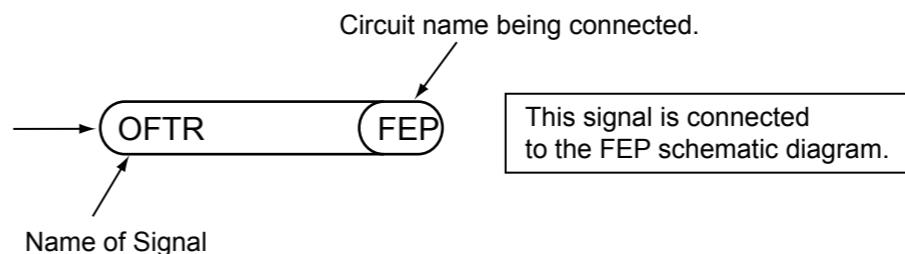
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S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

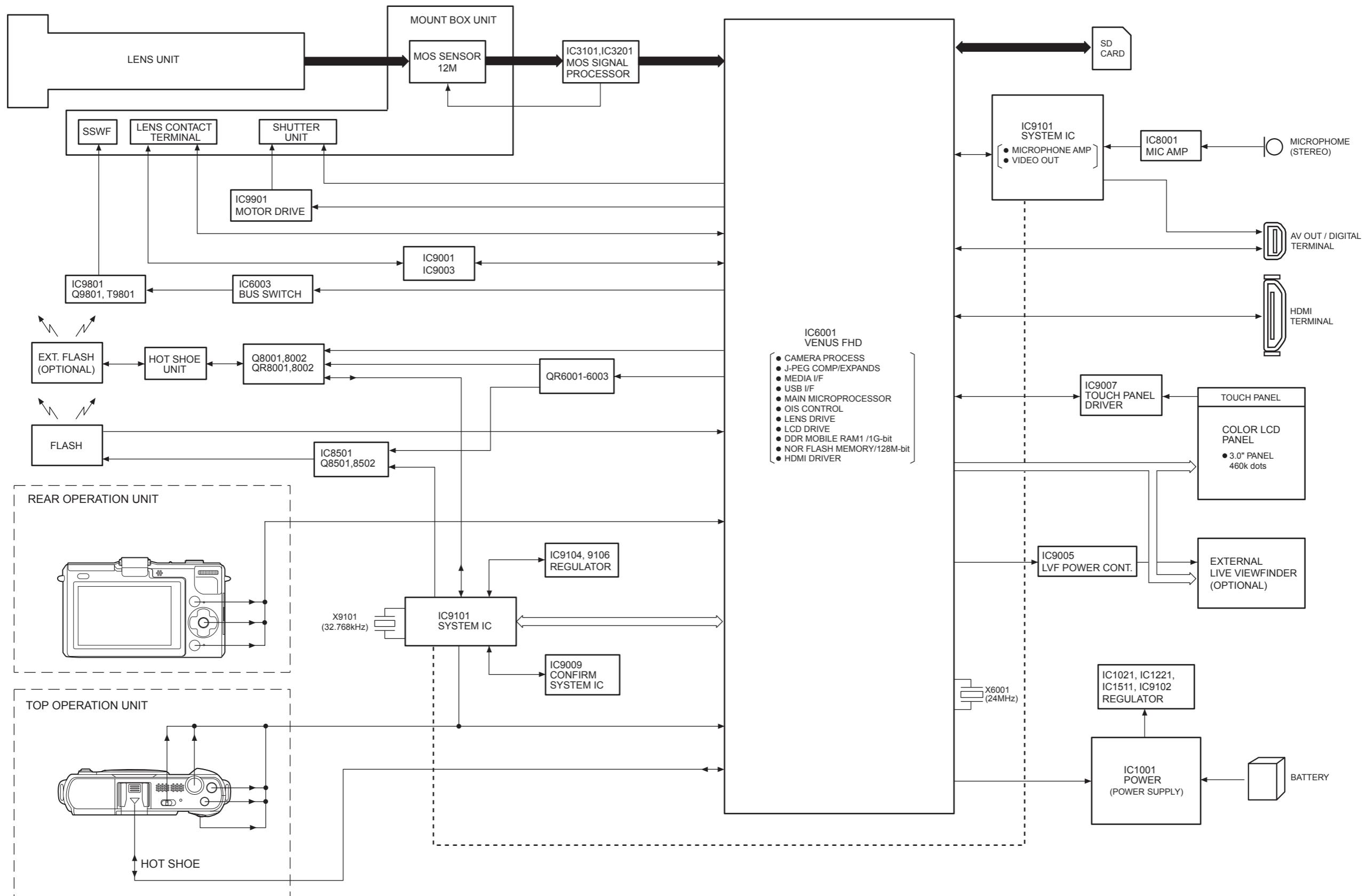
COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

- 1.Although reference number of the parts is indicated on the P.C.B. drawing and/or schematic diagrams, it is NOT mounted on the P.C.B. when it is displayed with "\$" mark.
- 2.It is only the "Test Round" and no terminal (Pin) is available on the P.C.B. when the TP (Test Point) indicated as "●" mark.
- 3.The voltage being indicated on the schematic diagram is measured in "Standard-Playback" mode when there is no specify mode is mentioned.
- 4.Although the voltage and waveform available on here is measured with standard frame, it may be differ from actual measurement due to modification of circuit and so on.
- 5.The voltage being indicated here may be include observational-error (deviation) due to internal-resistance and/or reactance of equipment. Therefore, handle the value indicated on here as reference.
- 6.Use the parts number indicated on the Replacement Parts List .
- 7.Indication on Schematic diagrams:



S2. Block Diagram

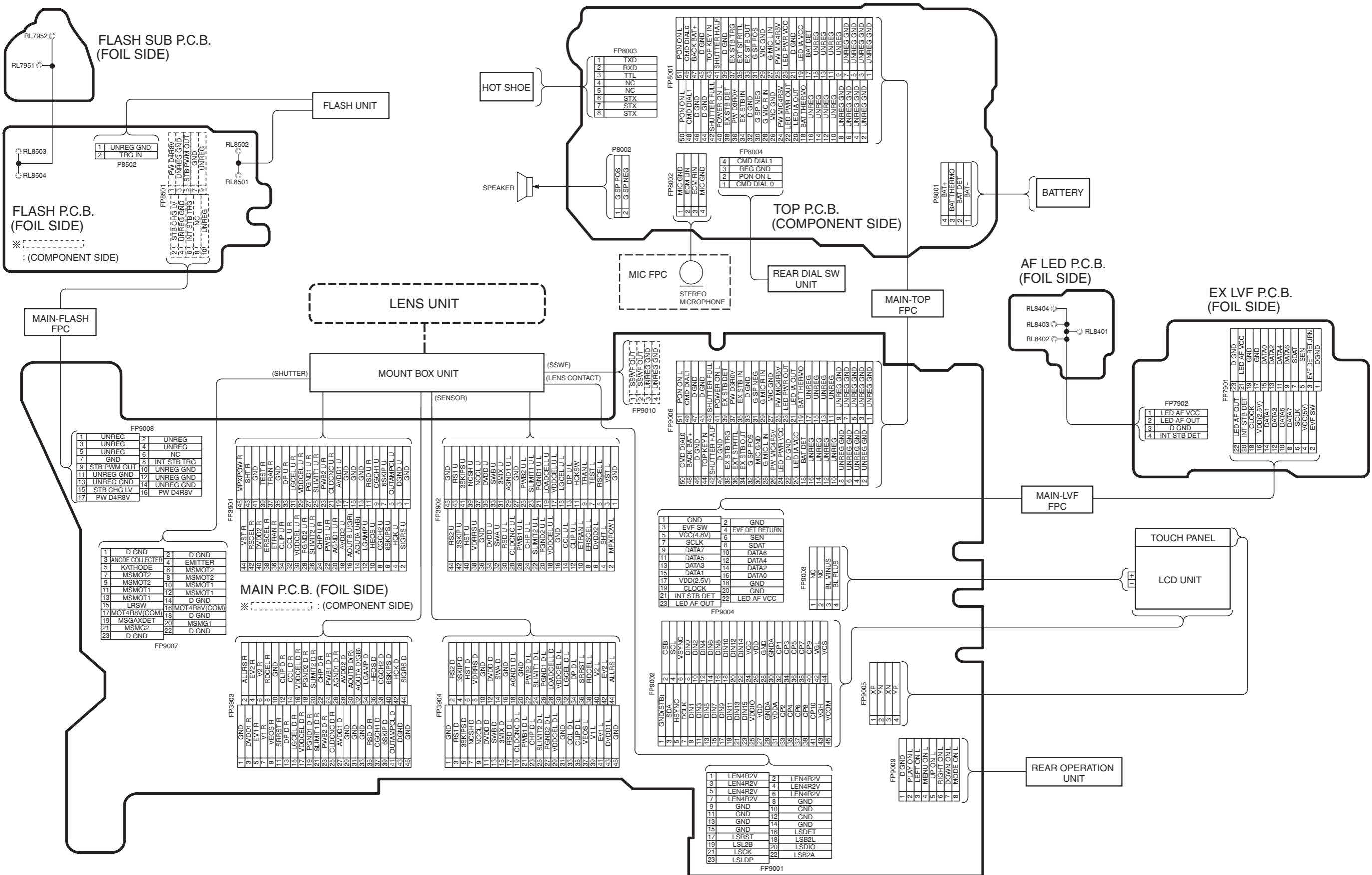
S2.1. Overall Block Diagram



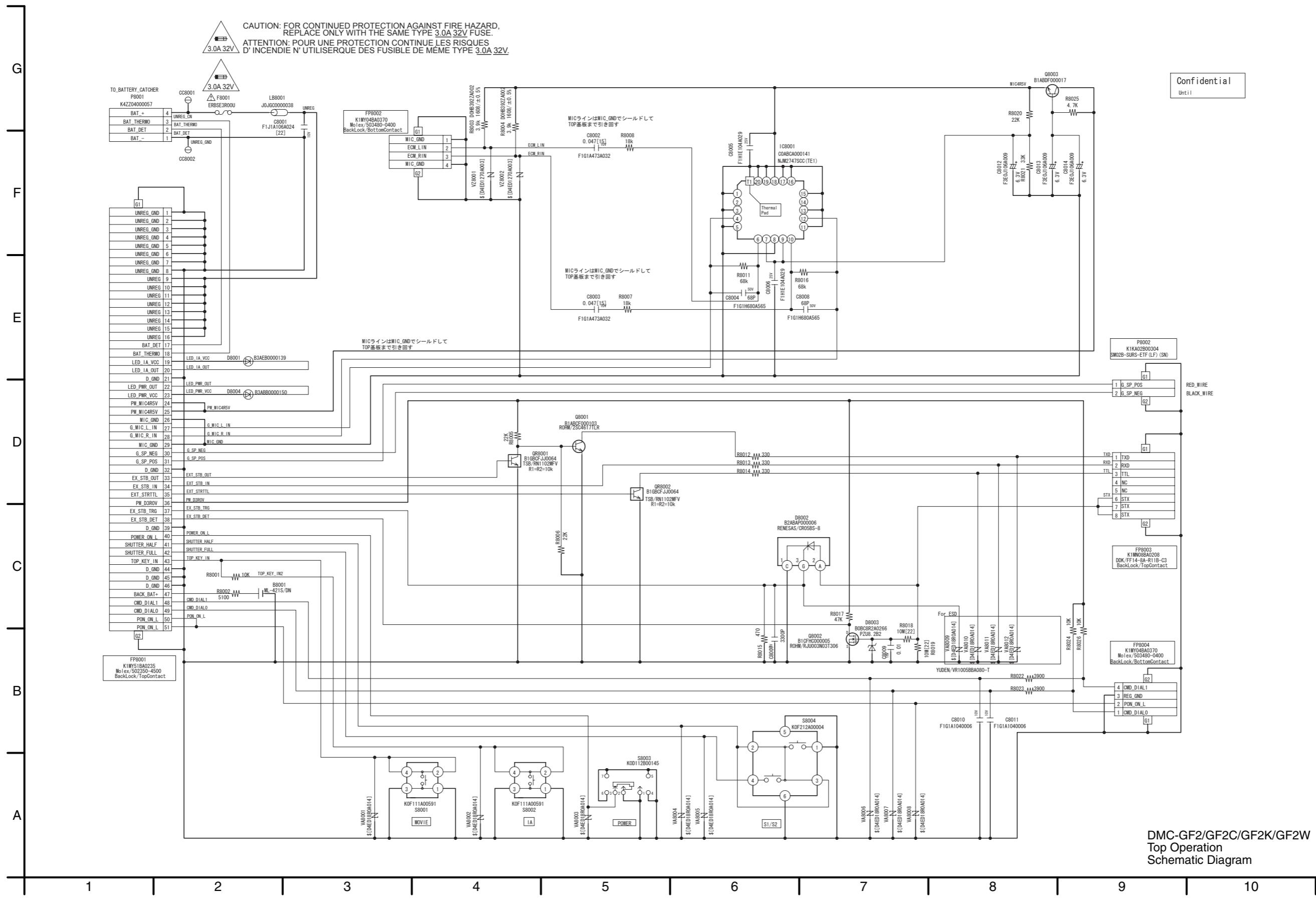
DMC-GF2 OVERALL BLOCK DIAGRAM

S3. Schematic Diagram

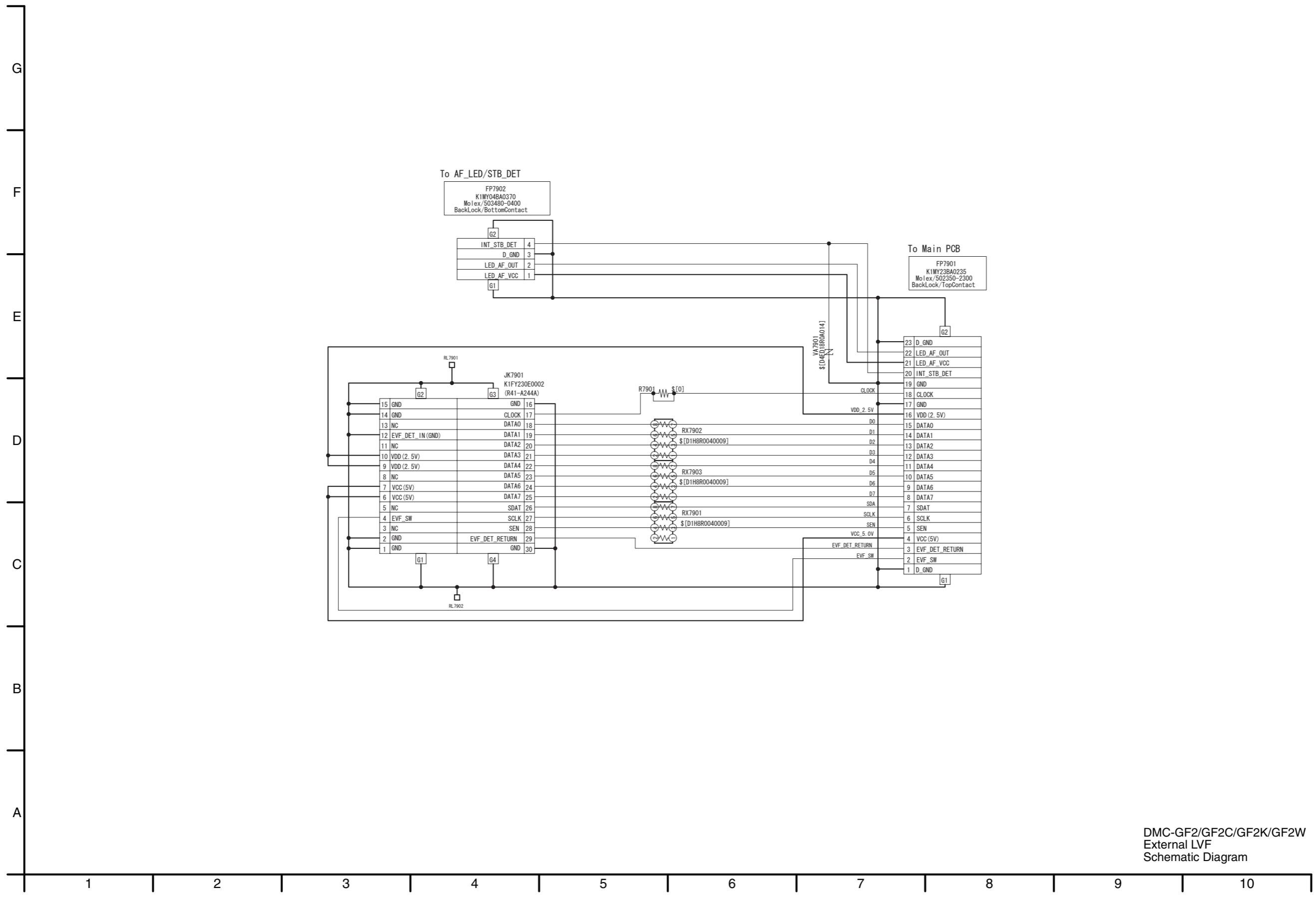
S3.1. Interconnection Diagram



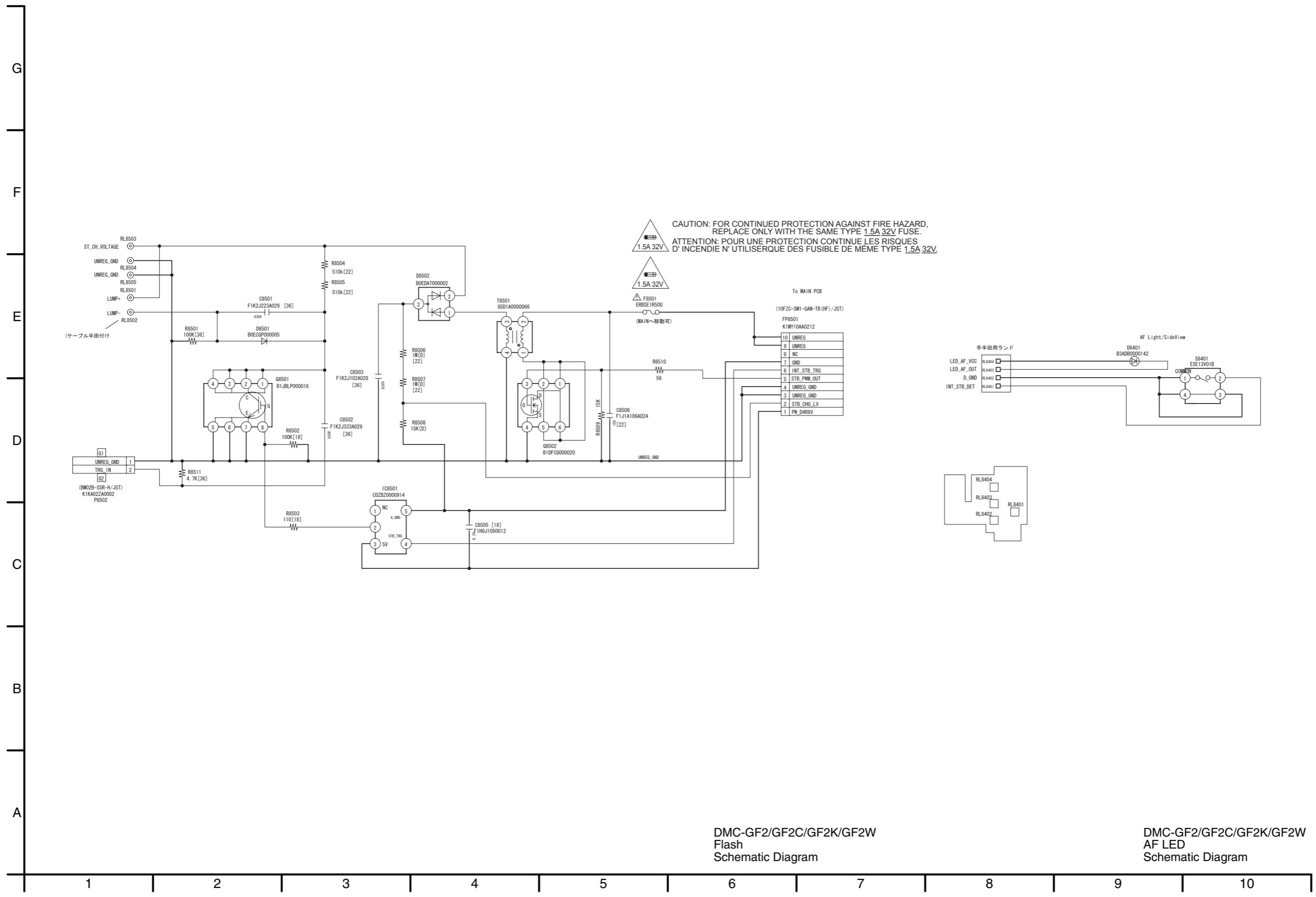
S3.2. Top Operation Schematic Diagram



S3.3. External LVF Schematic Diagram



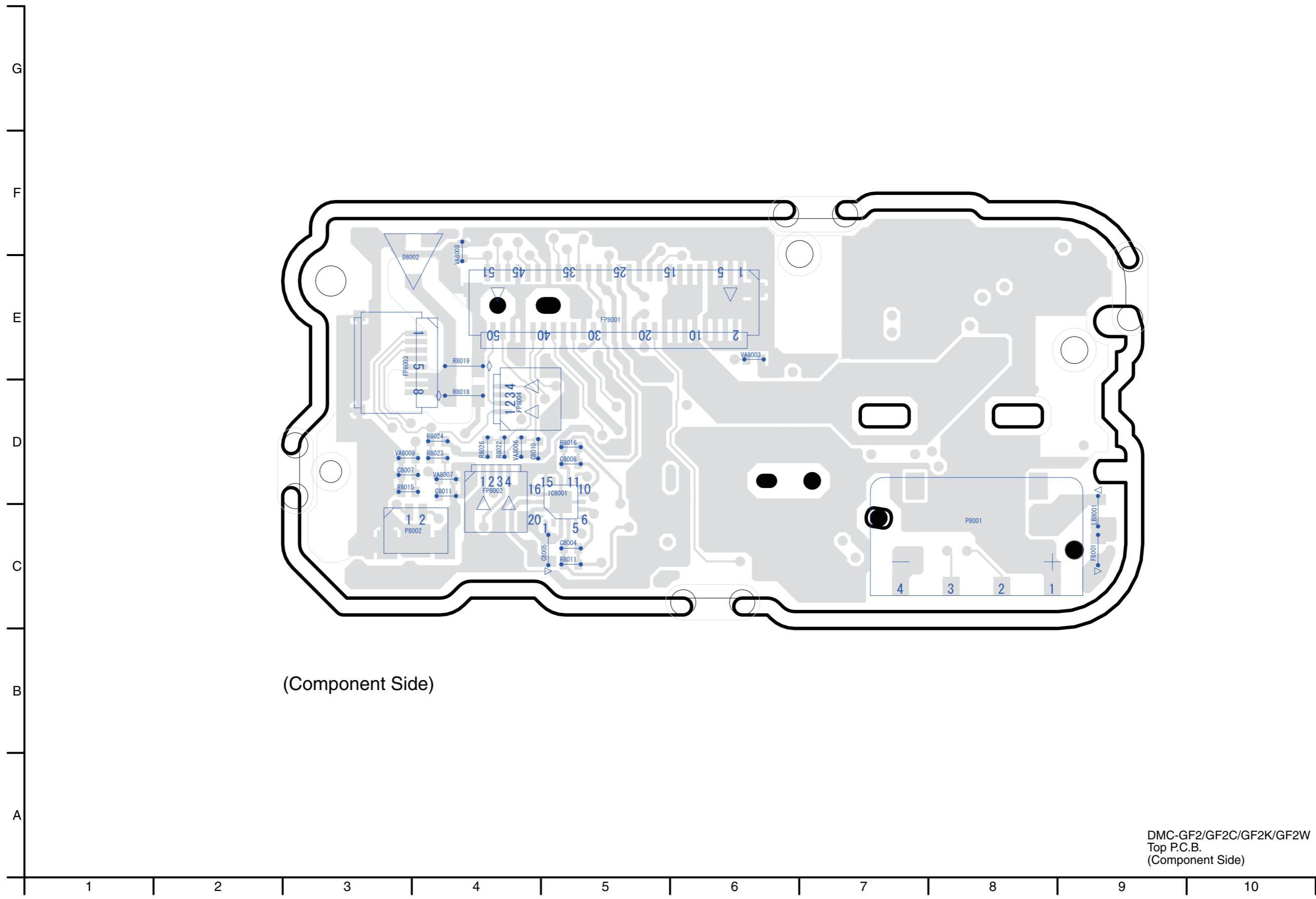
S3.4. Flash Schematic Diagram / S3.5. AF LED Schematic Diagram



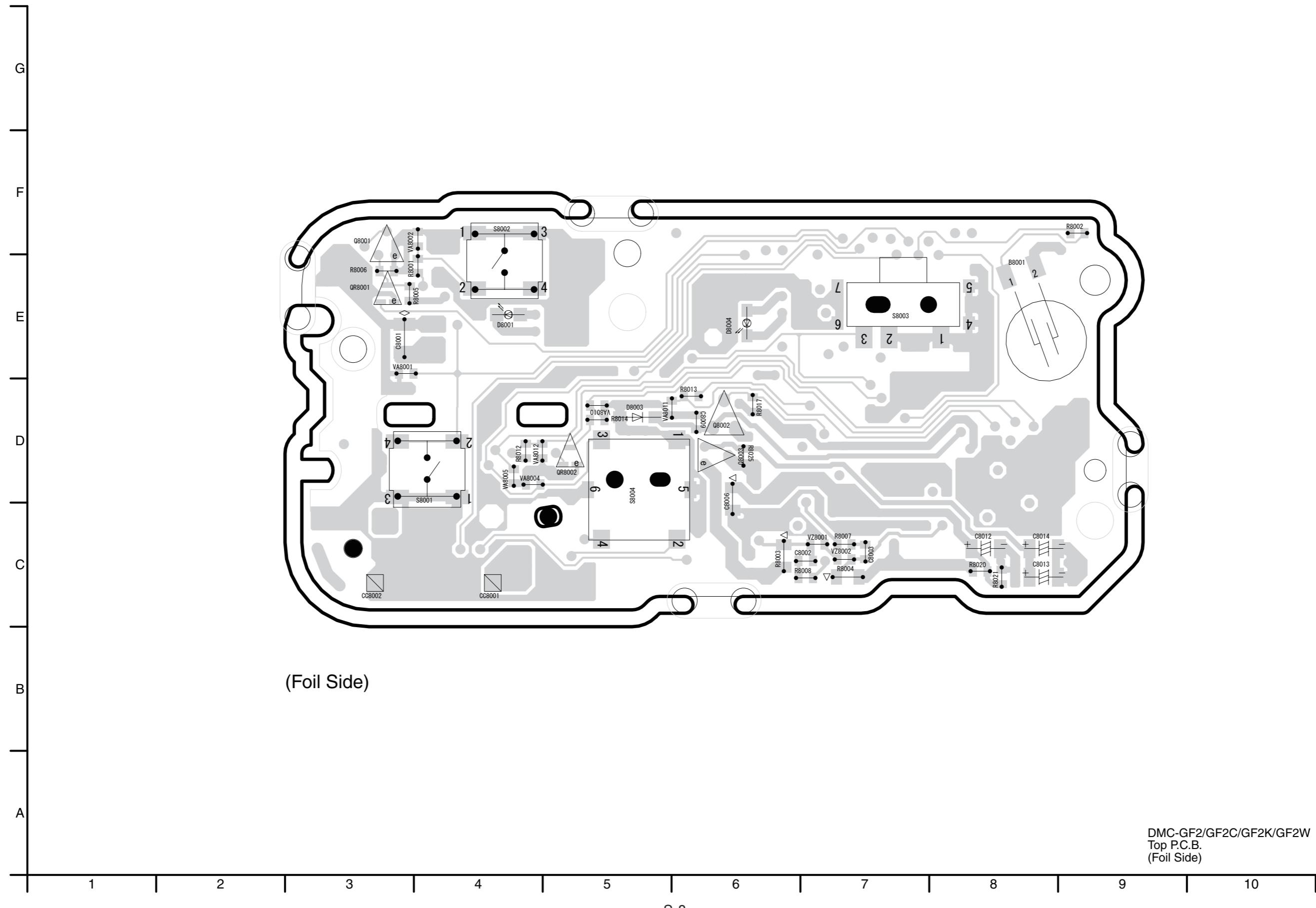
S4. Print Circuit Board

S4.1. Top P.C.B.

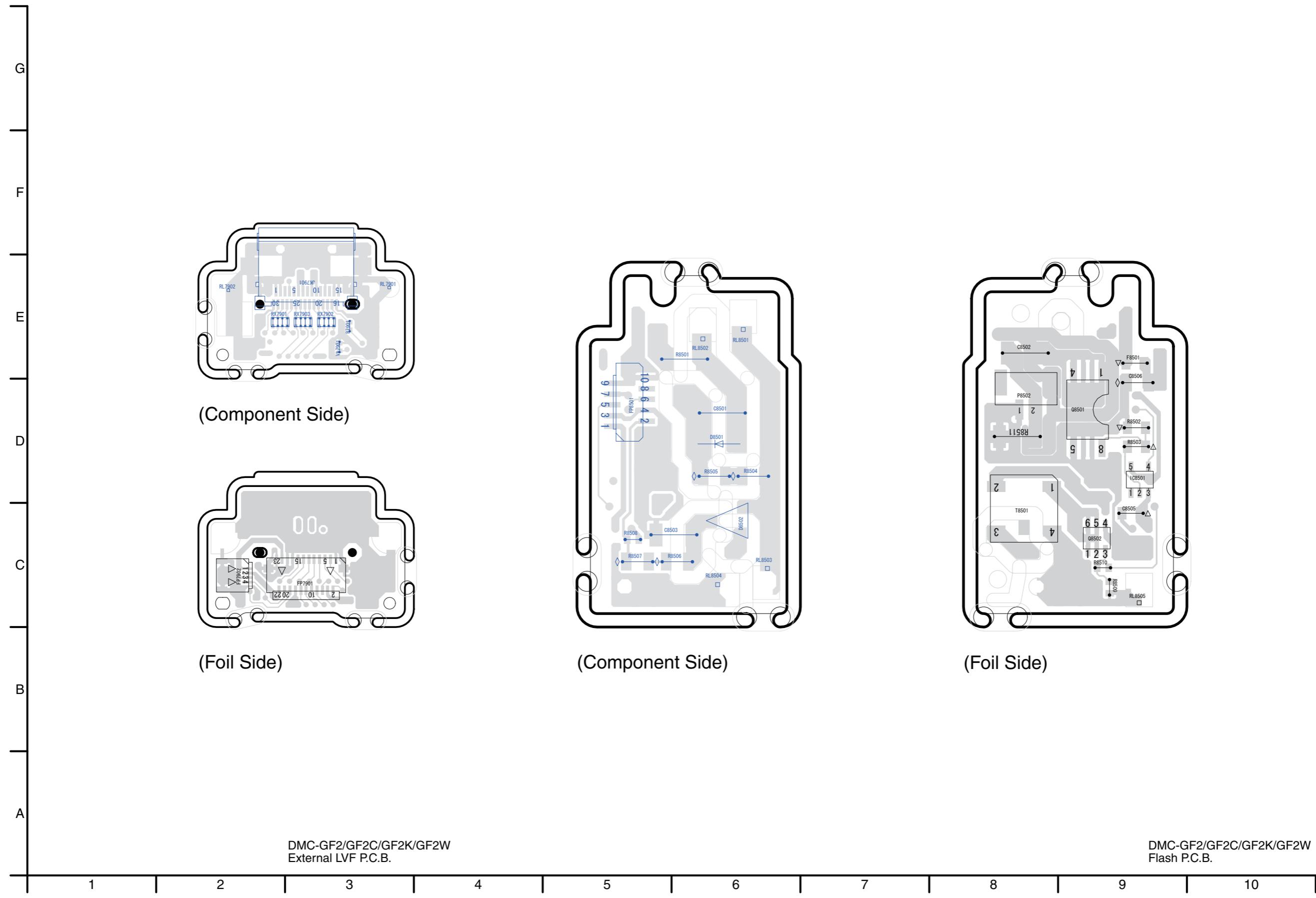
S4.1.1. Top P.C.B. (Component Side)



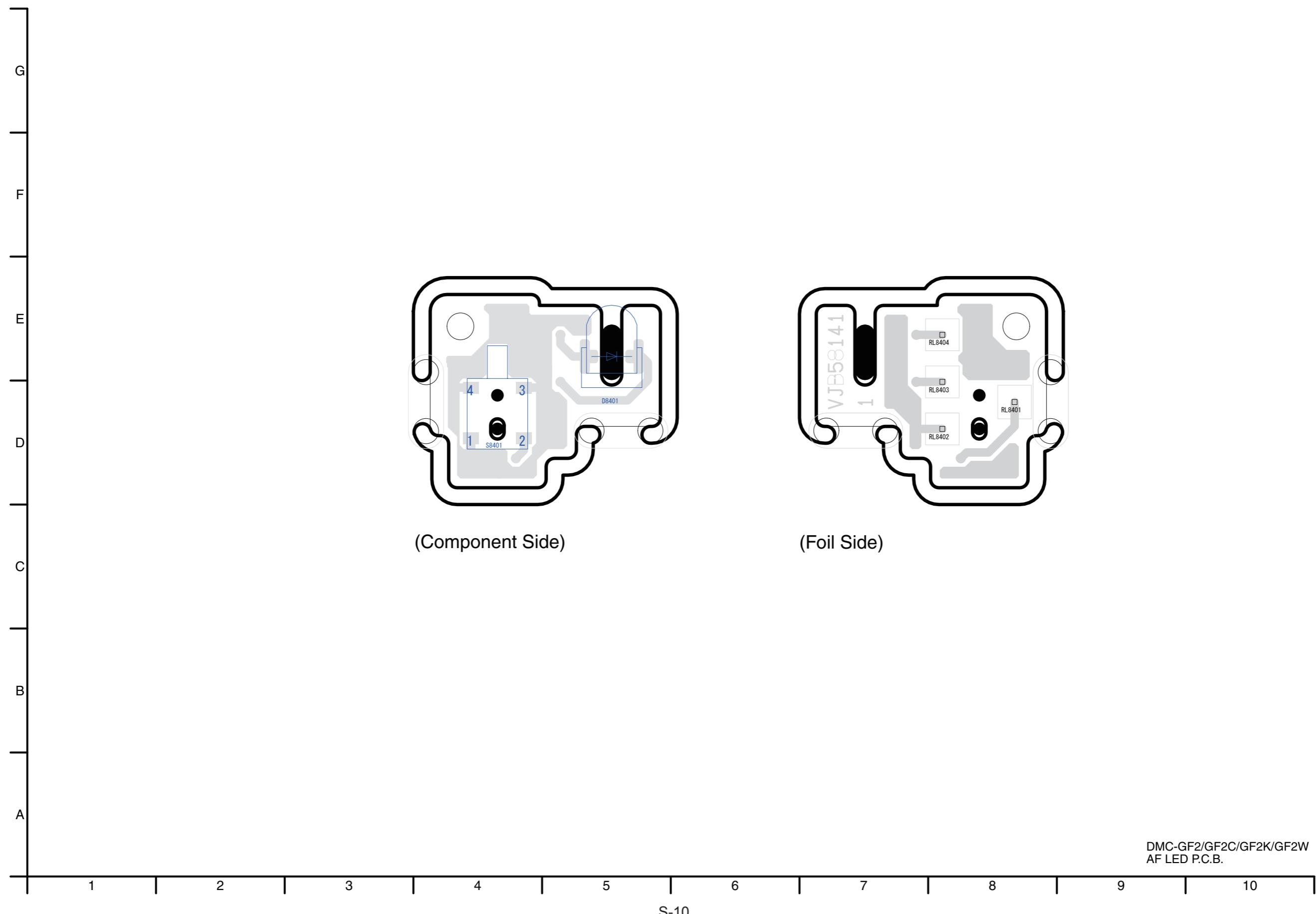
S4.1.2. Top P.C.B. (Foil Side)



S4.2. External LVF P.C.B. / S4.3. Flash P.C.B.



S4.4. AF LED P.C.B.



S5. Replacement Parts List

Note:

1. * Be sure to make your orders of replacement parts according to this list.
2. **IMPORTANT SAFETY NOTICE**
Components identified with the mark  have the special characteristics for safety.
When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS (uf), P=uuF.
4. The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.
5. Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

E.S.D. standards for Electrostatically Sensitive Devices, refer to PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES section.

About LENS MAIN BLOCK UNIT (Ref.302 and 408)

1. In case of the LENS MAIN BLOCK UNIT (Ref.302 and Ref.408) defects, contact to the service department of sales company.

Definition of Parts supplier:

1. Parts marked with [ENERGY] in the remarks column are supplied from Panasonic Corporation Energy Company.
2. Parts marked with [PAVCSG] in the remarks column are supplied from PAVCSG. Others are supplied from AVC-CSC-SPC.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP56122A	MAIN P.C.B.	1	(RTL) E.S.D. EXCEPT EB,EC,EG
##	VEP56122B	MAIN P.C.B.	1	(RTL) E.S.D. EB,EC,EG
##	VEP50077A	TOP P.C.B.	1	(RTL) E.S.D. (PAVCSG)
##	VEP59093A	EX. LVF P.C.B.	1	(RTL) (PAVCSG)
##	VEP58140A	FLASH P.C.B.	1	(RTL) E.S.D. (PAVCSG)
##	VEP58141A	AF LED P.C.B.	1	(RTL) E.S.D. (PAVCSG)
⚠ ##	VXQ2014	FLASH SUB P.C.B. UNIT	1	(PAVCSG)
##	VEP50077A	TOP P.C.B.		(RTL) E.S.D. (PAVCSG)
C8002	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	(PAVCSG)
C8003	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	(PAVCSG)
C8004	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	(PAVCSG)
C8005	F1H1E104A029	C.CAPACITOR CH 25V 0.1U	1	(PAVCSG)
C8006	F1H1E104A029	C.CAPACITOR CH 25V 0.1U	1	(PAVCSG)
C8007	F1G1C1030008	C.CAPACITOR CH 16V 0.01U	1	(PAVCSG)
C8008	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	(PAVCSG)
C8009	F1G1C1030008	C.CAPACITOR CH 16V 0.01U	1	(PAVCSG)
C8010	F1G1A1040006	C.CAPACITOR CH 10V 0.1U	1	(PAVCSG)
C8011	F1G1A1040006	C.CAPACITOR CH 10V 0.1U	1	(PAVCSG)
C8012	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	(PAVCSG)
C8013	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	(PAVCSG)
C8014	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	(PAVCSG)
D8001	B3AE80000139	DIODE	1	E.S.D. (PAVCSG)
D8002	B2ABAP000006	DIODE	1	E.S.D. (PAVCSG)
D8003	B0BC8R2A0266	DIODE	1	E.S.D. (PAVCSG)
D8004	B3ABB0000150	DIODE	1	E.S.D. (PAVCSG)
⚠ F8001	ERBSE3R00U	FUSE 32V 3.0A	1	(PAVCSG)
FP8001	K1MY51BA0235	CONNECTOR 51P	1	(PAVCSG)
FP8002	K1MY04BA0370	CONNECTOR 4P	1	(PAVCSG)
FP8003	K1MN08BA0208	CONNECTOR 8P	1	(PAVCSG)
FP8004	K1MY04BA0370	CONNECTOR 4P	1	(PAVCSG)
IC8001	C0ABCA000141	IC	1	E.S.D. (PAVCSG)
LB8001	J0JGC0000038	FILTER	1	(PAVCSG)
P8001	K4ZZ04000057	CONNECTOR 4P	1	(PAVCSG)
P8002	K1KA02B00304	CONNECTOR 2P	1	(PAVCSG)
Q8001	B1ABC000103	TRANSISTOR	1	E.S.D. (PAVCSG)
Q8002	B1CFHC000005	TRANSISTOR	1	E.S.D. (PAVCSG)
Q8003	B1ABDF000017	TRANSISTOR	1	E.S.D. (PAVCSG)
QR8001	B1GBCFJJ0064	TRANSISTOR-RESISTOR	1	E.S.D. (PAVCSG)
QR8002	B1GBCFJJ0064	TRANSISTOR-RESISTOR	1	E.S.D. (PAVCSG)
R8001	ERJ2GEJ103X	M.RESISTOR CH 1/10W 10K	1	(PAVCSG)
R8002	ERJ2GEJ512X	M.RESISTOR CH 1/16W 5.1K	1	(PAVCSG)
R8003	D0HB392ZA002	CHIP RESISTOR	1	(PAVCSG)
R8004	D0HB392ZA002	CHIP RESISTOR	1	(PAVCSG)
R8005	ERJ2GEJ223X	M.RESISTOR CH 1/16W 22K	1	(PAVCSG)
R8006	ERJ2GEJ223X	M.RESISTOR CH 1/16W 22K	1	(PAVCSG)
R8007	ERJ2GEJ183X	M.RESISTOR CH 1/10W 18K	1	(PAVCSG)
R8008	ERJ2GEJ183X	M.RESISTOR CH 1/10W 18K	1	(PAVCSG)
R8011	ERJ2GEJ683X	M.RESISTOR CH 1/16W 68K	1	(PAVCSG)
R8012	ERJ2GEJ331X	M.RESISTOR CH 1/16W 330	1	(PAVCSG)
R8013	ERJ2GEJ331X	M.RESISTOR CH 1/16W 330	1	(PAVCSG)
R8014	ERJ2GEJ331X	M.RESISTOR CH 1/16W 330	1	(PAVCSG)
R8015	ERJ2GEJ471X	M.RESISTOR CH 1/16W 470	1	(PAVCSG)
R8016	ERJ2GEJ683X	M.RESISTOR CH 1/16W 68K	1	(PAVCSG)
R8017	ERJ2GEJ473X	M.RESISTOR CH 1/16W 47K	1	(PAVCSG)
R8018	ERJ6GEYJ106V	M.RESISTOR CH 1/10W 10M	1	(PAVCSG)
R8019	ERJ6GEYJ106V	M.RESISTOR CH 1/10W 10M	1	(PAVCSG)
R8020	ERJ2GEJ223X	M.RESISTOR CH 1/16W 22K	1	(PAVCSG)
R8021	ERJ2GEJ333X	M.RESISTOR CH 1/16W 33K	1	(PAVCSG)
R8022	ERJ2GEJ392X	M.RESISTOR CH 1/16W 3.9K	1	(PAVCSG)
R8023	ERJ2GEJ392X	M.RESISTOR CH 1/16W 3.9K	1	(PAVCSG)
R8024	ERJ2GEJ103X	M.RESISTOR CH 1/10W 10K	1	(PAVCSG)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R8025	ERJ2GEJ472X	M.RESISTOR CH 1/16W 4.7K	1	(PAVCSG)
R8026	ERJ2GEJ103X	M.RESISTOR CH 1/10W 10K	1	(PAVCSG)
S8001	K0F111A00591	SWITCH	1	(PAVCSG)
S8002	K0F111A00591	SWITCH	1	(PAVCSG)
S8003	K0D112B00145	SWITCH	1	(PAVCSG)
S8004	K0F212A00006	SWITCH	1	(PAVCSG)
VA8011	D4ED18R0A014	VARISTOR	1	(PAVCSG)
##	VEP59093A	EX. LVF P.C.B.		(RTL) (PAVCSG)
FP7901	K1MY23BA0235	CONNECTOR 23P	1	(PAVCSG)
FP7902	K1MY04BA0370	CONNECTOR 4P	1	(PAVCSG)
JK7901	K1FY230E0002	JACK	1	(PAVCSG)
##	VEP58140A	FLASH P.C.B.		(RTL) E.S.D. (PAVCSG)
C8501	F1K2J223A029	C.CAPACITOR 630V 0.022U	1	(PAVCSG)
C8502	F1K2J333A029	C.CAPACITOR 630V 0.033U	1	(PAVCSG)
C8503	F1K2J102A028	C.CAPACITOR 630V 1000P	1	(PAVCSG)
C8505	F1H0J1050012	C.CAPACITOR CH 6.3V 1U	1	(PAVCSG)
C8506	F1J1A106A024	C.CAPACITOR CH 10V 10U	1	(PAVCSG)
D8501	B0ECGP000006	DIODE	1	E.S.D. (PAVCSG)
D8502	B0EDAT000002	DIODE	1	E.S.D. (PAVCSG)
⚠ F8501	ERBSE1R50U	FUSE 32V 1.5A	1	(PAVCSG)
FP8501	K1MY10AA0212	CONNECTOR 10P	1	(PAVCSG)
IC8501	C0ZBZ0000914	IC	1	E.S.D. (PAVCSG)
P8502	K1KA02ZA0002	CONNECTOR 2P	1	(PAVCSG)
Q8501	B1JBLP000016	TRANSISTOR	1	E.S.D. (PAVCSG)
Q8502	B1DFCG000020	TRANSISTOR	1	E.S.D. (PAVCSG)
R8501	ERJ8GEYJ104V	M.RESISTOR CH 1/4W 100K	1	(PAVCSG)
R8502	ERJ3GEYJ104V	M.RESISTOR CH 1/10W 100K	1	(PAVCSG)
R8503	ERJ3GEYJ111V	M.RESISTOR CH 1/10W 110	1	(PAVCSG)
R8504	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	(PAVCSG)
R8505	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	(PAVCSG)
R8506	ERJ6RED105V	M.RESISTOR CH 1/10W 1M	1	(PAVCSG)
R8507	ERJ6RED105V	M.RESISTOR CH 1/10W 1M	1	(PAVCSG)
R8508	ERJ2RHD153X	M.RESISTOR CH 1/16W 15K	1	(PAVCSG)
R8509	ERJ2GEJ153X	M.RESISTOR CH 1/10W 15K	1	(PAVCSG)
R8510	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	(PAVCSG)
R8511	ERJ8GEYJ472V	M.RESISTOR CH 1/4W 4.7K	1	(PAVCSG)
T8501	G5D1A0000066	TRANSFORMER	1	(PAVCSG)
##	VEP58141A	AF LED P.C.B.		(RTL) E.S.D. (PAVCSG)
D8401	B3ADB0000142	DIODE	1	E.S.D. (PAVCSG)
S8401	ESE13V01B	SWITCH	1	(PAVCSG)
⚠ ##	VXQ2014	FLASH SUB P.C.B. UNIT		(PAVCSG)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP56122A	MAIN P.C.B.	1	(RTL) E.S.D. EXCEPT EB,EC,EG
1	VEP56122B	MAIN P.C.B.	1	(RTL) E.S.D. EB,EC,EG
2	VMC2008	HOT SHOE SPRING	1	
3	VXQ2051	MOUNT BOX UNIT	1	
50	VK4K93	FRONT CASE UNIT	1	(-K) (PAVCSG)
50	VK4L05	FRONT CASE UNIT	1	(-S) (PAVCSG)
50	VK4L06	FRONT CASE UNIT	1	(-W) (PAVCSG)
50	VK4L07	FRONT CASE UNIT	1	(-R) (PAVCSG)
50	VK4L08	FRONT CASE UNIT	1	(-P) (PAVCSG)
51	VYQ6662	LENS RELEASE UNIT	1	(PAVCSG)
52	VMP9485	LENS RELEASE FIX PLATE	1	(PAVCSG)
54	VGK3711	GRIP PIECE REAR	1	(-K,-R) (PAVCSG)
54	VGK3728	GRIP PIECE REAR	1	(-S,-W,-P) (PAVCSG)
55	VYK4Z39	REAR CASE UNIT	1	(-K) (PAVCSG)
55	VYK4Z40	REAR CASE UNIT	1	(-S) (PAVCSG)
55	VYK4Z43	REAR CASE UNIT	1	(-W) (PAVCSG)
55	VYK4Z41	REAR CASE UNIT	1	(-R) (PAVCSG)
55	VYK4Z42	REAR CASE UNIT	1	(-P) (PAVCSG)
56	VGQ0T65	SHEET	1	(PAVCSG)
60	VGQ0T76	CUSHION	1	(PAVCSG)
61	VXQ2013	REAR PLATE UNIT	1	(PAVCSG)
62	VYK4K96	LCD UNIT	1	(PAVCSG)
62-1	VYK4Z44	TOUCH PANEL UNIT	1	(PAVCSG)
67	VEE1J95	CAPACITOR GND HARNESS	1	(PAVCSG)
68	VGQ0Q18	SP CABLE SHEET	1	(PAVCSG)
69	VGQ0R40	FLASH PCB COVER	1	(PAVCSG)
70	VGQ0T81	FLASH TAPE	1	(PAVCSG)
71	VWJ2232	MAIN-FLASH FPC	1	(PAVCSG)
72	LOAA01A00059	SPEAKER	1	(PAVCSG)
73	VGQ0J37	SHEET	1	(PAVCSG)
74	VGQ0R29	STRAP HOLDER (L)	1	(PAVCSG)
75	VGQ0R30	STRAP HOLDER (R)	1	(PAVCSG)
76	VGQ0R70	CAPACITOR TAPE	1	(PAVCSG)
77	VGQ0U67	SPEAKER SHEET	1	(PAVCSG)
78	VGU0H25	BATTERY LOCK KNOB	1	(PAVCSG)
79	VKF4778	JACK DOOR	1	(-K) (PAVCSG)
79	VKF4781	JACK DOOR	1	(-S) (PAVCSG)
79	VKF4784	JACK DOOR	1	(-W) (PAVCSG)
79	VKF4788	JACK DOOR	1	(-R) (PAVCSG)
79	VKF4782	JACK DOOR	1	(-P) (PAVCSG)
80	VKM8873	BATTERY FRAME	1	(PAVCSG)
81	VMB4304	BATTERY LOCK SPRING	1	(PAVCSG)
82	VMB4435	BATTERY OUT SPRING	1	(PAVCSG)
83	VMB4458	BATTERY DOOR SPRING	1	(PAVCSG)
84	VMP9834	BATTERY CASE	1	(PAVCSG)
85	VMP9836	TRIPOD	1	(PAVCSG)
86	VMP9837	HEAT RADIATION PLATE	1	(PAVCSG)
87	VMP9838	SIDE PLATE (R)	1	(PAVCSG)
88	VMP9839	SPEAKER FIX PLATE	1	(PAVCSG)
89	VMS8133	BATTERY DOOR SHAFT	1	(PAVCSG)
▲ 91	VXQ2014	FLASH SUB P.C.B. UNIT	1	(PAVCSG)
93	VYF3394	BATTERY DOOR UNIT	1	(-K) (PAVCSG)
93	VYF3395	BATTERY DOOR UNIT	1	(-S) (PAVCSG)
93	VYF3396	BATTERY DOOR UNIT	1	(-W) (PAVCSG)
93	VYF3397	BATTERY DOOR UNIT	1	(-R) (PAVCSG)
93	VYF3398	BATTERY DOOR UNIT	1	(-P) (PAVCSG)
94	VEP59093A	EX. LVF P.C.B.	1	(RTL) (PAVCSG)
95	VGQ0U44	SHOE SHEET	1	(PAVCSG)
96	VGQ0U45	LVF FPC SHEET	1	(PAVCSG)
97	VMP9842	PLATE	1	(PAVCSG)
98	VWJ2233	MAIN-TOP FPC	1	(PAVCSG)
99	VWJ2234	MAIN LVFFPC	1	(PAVCSG)
100	K0RC01100007	REAR DIAL SW UNIT	1	(PAVCSG)
▲ 111	ML-421S/DN	BUTTON BATTERY	1	(B8001) (PAVCSG)[ENERGY]
112	VEK0R21	MIC UNIT	1	(PAVCSG)
113	VEP50077A	TOP P.C.B.	1	(RTL) E.S.D. (PAVCSG)
114	VGL1318	POWER LED PANEL	1	(PAVCSG)
115	VGQ0R31	MIC CUSHION (A)	1	(PAVCSG)
116	VGQ0R32	MIC CUSHION (B)	1	(PAVCSG)
117	VGQ0R33	MIC CUSHION (C)	1	(PAVCSG)
118	VGQ0T74	TOP PCB SHEET	1	(PAVCSG)
119	VYK4Z45	TOP CASE UNIT	1	(-K,-R) (PAVCSG)
119	VYK4Z46	TOP CASE UNIT	1	(-S,-W,-P) (PAVCSG)
120	VGU0H33	POWER KNOB	1	(-K,-R) (PAVCSG)
120	VGU0H70	POWER KNOB	1	(-S,-W,-P) (PAVCSG)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
121	VMP9843	TOP PLATE (L)	1	(PAVCSG)
122	VYQ5980	HOT SHOE UNIT	1	(PAVCSG)
123	VYQ6657	FLASH UNIT	1	(-K) (PAVCSG)
123	VYQ6658	FLASH UNIT	1	(-S) (PAVCSG)
123	VYQ6661	FLASH UNIT	1	(-W) (PAVCSG)
123	VYQ6659	FLASH UNIT	1	(-R) (PAVCSG)
123	VYQ6660	FLASH UNIT	1	(-P) (PAVCSG)
123-1	VKM8879	FLASH CASE TOP	1	(-K,-R) (PAVCSG)
123-1	VKM8881	FLASH CASE TOP	1	(-S,-W,-P) (PAVCSG)
123-2	VKM8917	FLASH CASE TOP PIECE	1	(-K) (PAVCSG)
123-2	VKM8918	FLASH CASE TOP PIECE	1	(-S) (PAVCSG)
123-2	VKM8921	FLASH CASE TOP PIECE	1	(-W) (PAVCSG)
123-2	VKM8919	FLASH CASE TOP PIECE	1	(-R) (PAVCSG)
123-2	VKM8920	FLASH CASE TOP PIECE	1	(-P) (PAVCSG)
124	VEP58140A	FLASH P.C.B.	1	(RTL) E.S.D. (PAVCSG)
125	VEP58141A	AF LED P.C.B.	1	(RTL) E.S.D. (PAVCSG)
126	VGQ0R34	FLASH HOLDER	1	(PAVCSG)
127	VGQ0R38	FLASH LOCK HOLDER	1	(PAVCSG)
128	VGQ0S11	FLASH HOLDER PIECE	1	(PAVCSG)
129	VGQ0T77	LVF TAPE	1	(PAVCSG)
130	VGQ0T84	AF LED FPC TAPE	1	(PAVCSG)
131	VGU0H31	FLASH LOCK KNOB	1	(PAVCSG)
132	VMB4439	FLASH SPRING B	1	(PAVCSG)
133	VMB4440	FLASH LOCK SPRING	1	(PAVCSG)
134	VMS8136	FLASH STOPPER	1	(PAVCSG)
135	VMS8137	FLASH SHAFT	1	(PAVCSG)
136	VWJ2238	AF LED FPC	1	(PAVCSG)
137	VGQ0S20	REAR OP TAPE	1	(PAVCSG)
B1	VHD1877	SCREW	1	(-K,-R)
B1	VHD2198	SCREW	1	(-S,-W,-P)
B2	VHD1877	SCREW	1	(-K,-R)
B2	VHD2198	SCREW	1	(-S,-W,-P)
B3	VHD1877	SCREW	1	(-K,-R)
B3	VHD2198	SCREW	1	(-S,-W,-P)
B4	VHD1877	SCREW	1	(-K,-R)
B4	VHD2198	SCREW	1	(-S,-W,-P)
B5	VHD2082	SCREW	1	(-K,-R)
B5	VHD2081	SCREW	1	(-S,-W,-P)
B6	VHD2082	SCREW	1	(-K,-R)
B6	VHD2081	SCREW	1	(-S,-W,-P)
B7	VHD2082	SCREW	1	(-K,-R)
B7	VHD2081	SCREW	1	(-S,-W,-P)
B8	VHD2082	SCREW	1	(-K,-R)
B8	VHD2081	SCREW	1	(-S,-W,-P)
B9	VHD2103	SCREW	1	(-K,-R)
B9	VHD2102	SCREW	1	(-S,-W,-P)
B10	VHD2103	SCREW	1	(-K,-R)
B10	VHD2102	SCREW	1	(-S,-W,-P)
B11	VHD2103	SCREW	1	(-K,-R)
B11	VHD2102	SCREW	1	(-S,-W,-P)
B12	VHD2103	SCREW	1	(-K,-R)
B12	VHD2102	SCREW	1	(-S,-W,-P)
B13	VHD2166	SCREW	1	(-K,-R)
B13	VHD2183	SCREW	1	(-S,-W,-P)
B14	VHD2166	SCREW	1	(-K,-R)
B14	VHD2183	SCREW	1	(-S,-W,-P)
B15	VHD2166	SCREW	1	(-K,-R)
B15	VHD2183	SCREW	1	(-S,-W,-P)
B16	VHD2166	SCREW	1	(-K,-R)
B16	VHD2183	SCREW	1	(-S,-W,-P)
B17	XQN16+B3FN	SCREW	1	
B18	XQN16+B3FN	SCREW	1	
B19	XQN16+B3FN	SCREW	1	
B20	XQN16+B5FN	SCREW	1	
B21	XQN16+B5FN	SCREW	1	
B22	XQN16+B5FN	SCREW	1	
B23	XQN16+B5FN	SCREW	1	
B50	VHD2198	SCREW	1	(PAVCSG)
B51	XQN16+BJ3FN	SCREW	1	(PAVCSG)
B52	VHD2286	SCREW	1	(PAVCSG)
B53	VHD2286	SCREW	1	(PAVCSG)
B54	VHD2286	SCREW	1	(PAVCSG)
B55	XQN16+BJ4FN	SCREW	1	(PAVCSG)
B56	VHD2198	SCREW	1	(PAVCSG)
B57	VHD1996	SCREW	1	(PAVCSG)
B58	VHD1996	SCREW	1	(PAVCSG)

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 601	DE-A94AA	BATTERY CHARGER	1	CEG, CEC, CEB, CEE, CGN
△ 601	DE-A94CA	BATTERY CHARGER	1	CGT
△ 601	DE-A94BA	BATTERY CHARGER	1	CGC, CGH, CGK, CGD
△ 601	DE-A93BA	BATTERY CHARGER	1	CPP
△ 603	----	BATTERY	1	GF2C
604	K1HY14YY0008	USB CABLE W/PLUG	1	GF2C
605	K1HY14YY0009	AV CABLE W/PLUG	1	GF2C
606	VFC4634	SHOULDER STRAP	1	GF2C
607	VFF0709-S	CD-ROM (SOFTWARE)	1	CGK [SPC] See "Notes"
607	VFF0708-S	CD-ROM (SOFTWARE)	1	CPP, CEG, CEC, CEB, CEE, CGC, CGH, CGT, CGN, CGD [SPC] See "Notes"
609	VPF1294	BAG, POLYETHYLENE	1	CEB, CEE, CGH, CGT, CGK, CGN, CGD
609	VPF1132	BAG, POLYETHYLENE	1	CPP, CEG, CEC, CGC
610	VQC7922	O/I SOFTWARE	1	CEG (GERMAN/FRENCH/ITALIAN/ DUTCH)
610	VQC7923	O/I SOFTWARE	1	CEC (SPANISH/PORTUGUESE/ SWEDISH/DANISH/FINNISH)
610	VQC7924	O/I SOFTWARE	1	CEB, CGN (ENGLISH)
610	VQC7925	O/I SOFTWARE	1	CEE (RUSSIAN)
610	VQC7927	O/I SOFTWARE	1	CGT (CHINESE(TRADITIONAL))
610	VQC7928	O/I SOFTWARE	1	CGK (CHINESE(SIMPLIFIED))
610	VQC7929	O/I SOFTWARE	1	CGD (KOREAN)
610	VQC7926	O/I SOFTWARE	1	CGC, CGH (ENGLISH/ARABIC/ CHINESE(TRADITIONAL))
610	VQC7921	O/I SOFTWARE	1	CPP (ENGLISH/CANADIAN FRENCH/ SPANISH/PORTUGUESE)
△ 611	VQT3E98	SIMPLIFIED O/I	1	CEG (GERMAN/FRENCH)
△ 611	VQT3E99	SIMPLIFIED O/I	1	CEG (ITALIAN/DUTCH)
△ 611	VQT3G05	SIMPLIFIED O/I	1	CEC (SPANISH/PORTUGUESE)
△ 611	VQT3G06	SIMPLIFIED O/I	1	CEC (SWEDISH/DANISH)
△ 611	VQT3G07	SIMPLIFIED O/I	1	CEC (FINNISH)
△ 611	VQT3C43	SIMPLIFIED O/I	1	CEB (ENGLISH)
△ 611	VQT3C44	SIMPLIFIED O/I	1	CEE (RUSSIAN)
△ 611	VQT3C48	SIMPLIFIED O/I	1	CGT (CHINESE(TRADITIONAL))
△ 611	VQT3C49	SIMPLIFIED O/I	1	CGK (CHINESE(SIMPLIFIED))
△ 611	VQT3C50	SIMPLIFIED O/I	1	CGN (ENGLISH)
△ 611	VQT3C51	SIMPLIFIED O/I	1	CGD (KOREAN)
△ 611	VQT3F01	SIMPLIFIED O/I	1	CGC, CGH (ENGLISH/ CHINESE(TRADITIONAL))
△ 611	VQT3C47	SIMPLIFIED O/I	1	CGC (ARABIC)
△ 611	VQT3E96	SIMPLIFIED O/I	1	CPP (ENGLISH/CANADIAN FRENCH)
△ 611	VQT3E97	SIMPLIFIED O/I	1	CPP (SPANISH/PORTUGUESE)
△ 612	VFF0754	CD-ROM	1	CPP (INSTRUCTION BOOK)
△ 612	VFF0755	CD-ROM	1	CEB, CEC, CEG (INSTRUCTION BOOK)
△ 612	VFF0756	CD-ROM	1	CEE, CGC, CGH, CGN (INSTRUCTION BOOK)
△ 612	VFF0757	CD-ROM	1	CGD, CGT (INSTRUCTION BOOK)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 612	VFF0758	CD-ROM (INSTRUCTION BOOK)	1	CGK
613	VPK4638	PACKING CASE	1	CPP
613	VPK4639	PACKING CASE	1	CEG, CEC, CEB, CEE, CGC, CGH, CGT, CGN, CGD
613	VPK4640	PACKING CASE	1	CGK
614	VPN7149	PAD A	1	GF2C
617	VPF1316	CAMERA BAG	1	GF2C
622	VPF1328	AIR-CAP SHEET	1	GF2C
624	VQL2G74	COLOR LABEL	3	CPPS
624	VQL2H32	COLOR LABEL	3	CPPW
624	VOL1V19	COLOR LABEL	3	CPPR
624	VQL2B12	COLOR LABEL	3	CEGS, CECS, CEBS, CGCS, CGHS, CGDS
624	VQL2B13	COLOR LABEL	3	CEGW, CECW, CGCW, CGHW, CGTW, CGNW, CGDW
624	VQL1V21	COLOR LABEL	3	CEGR, CECR, CEBR, CEE, CGHR
624	VQL2F40	COLOR LABEL	3	CGCP, CGHP, CGTP
624	VQL2H31	COLOR LABEL	3	CGKW
624	VQL2B47	COLOR LABEL	3	CGKR
624	VOL2K01	COLOR LABEL	3	CGKP
631	VPF1371	LENS BAG	1	GF2C
632	VFC4605	LENS CAP (REAR)	1	GF2C
633	VYF3371	LENS CAP	1	GF2C
634	VKF4385	BODY CAP	1	GF2C
635	VKF4840	HOT SHOE COVER	1	GF2C (PAVCSG)
636	VGQ0C14	TOUCH PEN	1	GF2C
637	VGQ0R99	BATTERY PROTECTION CASE	1	GF2C
△ 669	K2CT39A00002	AC CORD W/PLUG	1	CEB, CGC, CGH
△ 670	K2CR29A00001	AC CORD W/PLUG	1	CGD
△ 670	K2CQ29A00002	AC CORD W/PLUG	1	CEG, CEC, CEE, CGC
△ 671	K2CJ29A00002	AC CORD W/PLUG	1	CGN
△ 672	K2CA29A00021	AC CORD W/PLUG	1	CGT
△ 672	K2CA2YY00070	AC CORD W/PLUG	1	CGK

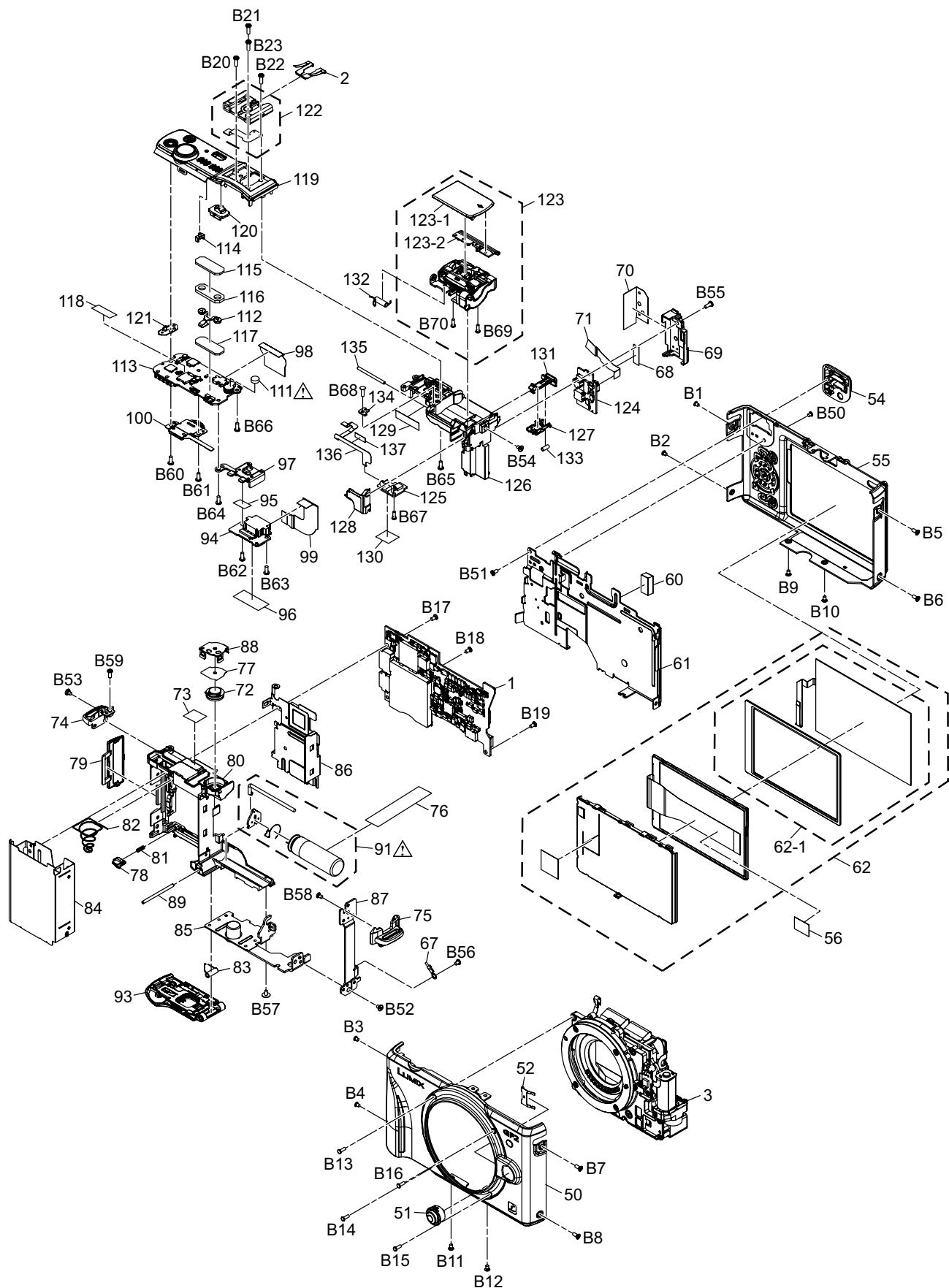
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
▲ 801	DE-A94BA	BATTERY CHARGER	1	KGC,KGH,KGK,KGDK
▲ 801	DE-A93BA	BATTERY CHARGER	1	KPP
801	DE-A94CA	BATTERY CHARGER	1	KGT
▲ 801	DE-A94AA	BATTERY CHARGER	1	KEG,KEC,KEB,KEE,KGN
▲ 803	----	BATTERY	1	GF2K
804	K1HY14YY0008	USB CABLE W/PLUG	1	GF2K
805	K1HY14YY0009	AV CABLE W/PLUG	1	GF2K
806	VFC4634	SHOULDER STRAP	1	GF2K
807	VFF0708-S	CD-ROM (SOFTWARE)	1	KPP,KEG,KEC,KEB,KEE,KGC, KGH,KGT,KGN,KGD
				[SPC] See "Notes"
807	VFF0709-S	CD-ROM (SOFTWARE)	1	KGK [SPC] See "Notes"
809	VPF1294	BAG, POLYETHYLENE	1	KEB,KEE,KGH,KGT,KGN,KGD
				KGD
809	VPF1132	BAG, POLYETHYLENE	1	KPP,KEG,KEC,KGC
810	VQC7926	O/I SOFTWARE	1	KGC,KGH
				(ENGLISH/ARABIC/
				CHINESE(TRADITIONAL))
810	VQC7921	O/I SOFTWARE	1	KPP
				(ENGLISH/CANADIAN FRENCH/
				SPANISH/PORTUGUESE)
810	VQC7927	O/I SOFTWARE	1	KGT
				(CHINESE(TRADITIONAL))
810	VQC7929	O/I SOFTWARE	1	KGD
				(KOREAN)
810	VQC7928	O/I SOFTWARE	1	KGK
				(CHINESE(SIMPLIFIED))
810	VQC7922	O/I SOFTWARE	1	KEG
				(GERMAN/FRENCH/ITALIAN/
				DUTCH)
810	VQC7923	O/I SOFTWARE	1	KEC
				(SPANISH/PORTUGUESE/
				SWEDISH/DANISH/FINNISH)
810	VQC7924	O/I SOFTWARE	1	KEB,KGN
				(ENGLISH)
810	VQC7925	O/I SOFTWARE	1	KEE
				(RUSSIAN)
▲ 811	VQT3F01	SIMPLIFIED O/I	1	KGC,KGH
				(ENGLISH/
				CHINESE(TRADITIONAL))
▲ 811	VQT3E96	SIMPLIFIED O/I	1	KPP
				(ENGLISH/CANADIAN FRENCH)
▲ 811	VQT3C47	SIMPLIFIED O/I	1	KGC
				(ARABIC)
▲ 811	VQT3E97	SIMPLIFIED O/I	1	KPP
				(SPANISH/PORTUGUESE)
▲ 811	VQT3C51	SIMPLIFIED O/I	1	KGD
				(KOREAN)
▲ 811	VQT3C48	SIMPLIFIED O/I	1	KGT
				(CHINESE(TRADITIONAL))
▲ 811	VQT3C49	SIMPLIFIED O/I	1	KGK
				(CHINESE(SIMPLIFIED))
▲ 811	VQT3C50	SIMPLIFIED O/I	1	KGN
				(ENGLISH)
▲ 811	VQT3E98	SIMPLIFIED O/I	1	KEG
				(GERMAN/FRENCH)
▲ 811	VQT3G05	SIMPLIFIED O/I	1	KEC
				(SPANISH/PORTUGUESE)
▲ 811	VQT3C43	SIMPLIFIED O/I	1	KEB
				(ENGLISH)
▲ 811	VQT3C44	SIMPLIFIED O/I	1	KEE
				(RUSSIAN)
▲ 811	VQT3E99	SIMPLIFIED O/I	1	KEG
				(ITALIAN/DUTCH)
▲ 811	VQT3G06	SIMPLIFIED O/I	1	KEC
				(SWEDISH/DANISH)
▲ 811	VQT3G07	SIMPLIFIED O/I	1	KEC
				(FINNISH)
▲ 812	VFF0754	CD-ROM	1	KPP
				(INSTRUCTION BOOK)
▲ 812	VFF0755	CD-ROM	1	KEB,KEC,KEG
				(INSTRUCTION BOOK)
▲ 812	VFF0756	CD-ROM	1	KEE,KGH,KGC,KGN
				(INSTRUCTION BOOK)
▲ 812	VFF0757	CD-ROM	1	KGD,KGT
				(INSTRUCTION BOOK)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
▲ 812	VFF0758	CD-ROM	1	KGK
		(INSTRUCTION BOOK)		
813	VPK4642	PACKING CASE	1	KPP
813	VPK4643	PACKING CASE	1	KEG,KEC,KEB,KEE,KGC,KGH, KGT,KGN,KGD
813	VPK4644	PACKING CASE	1	KGK
815	VPN7150	PAD B	1	GF2K
816	VPN7151	PAD C	1	GF2K
817	VPF1316	CAMERA BAG	1	GF2K
821	VYC1009	LENS HOOD	1	GF2K
823	VPN7162	CUSHION D	1	GF2K
824	VQL2F40	COLOR LABEL	3	KGCP
824	VQL2H31	COLOR LABEL	3	KGKW
824	VQL2B47	COLOR LABEL	3	KGKR
824	VQL2K01	COLOR LABEL	3	KGKP
824	VQL2B12	COLOR LABEL	3	KEGS,KECS,KEBS,KGCS
824	VQL2B13	COLOR LABEL	3	KEGW,KECW,KGCW,KGTW,KGNW, KGDW
824	VQL1V21	COLOR LABEL	3	KEGR,KECR,KEBR,KEER
824	VQL2G74	COLOR LABEL	3	KPPS
824	VQL2H32	COLOR LABEL	3	KPPW
824	VQL1V19	COLOR LABEL	3	KPPR
834	VKF4385	BODY CAP	1	GF2K
835	VKF4840	HOT SHOE COVER	1	GF2K (PAVCSG)
836	VGQC14	TOUCH PEN	1	GF2K
837	VGQ0R99	BATTERY PROTECTION CASE	1	GF2K
841	VFC4315	LENS CAP (REAR)	1	GF2K
842	VYF3201	LENS CAP	1	GF2K
843	VPF1321	LENS BAG	1	GF2K
▲ 869	K2CT39A0002	AC CORD W/PLUG	1	KEB,KGC,KGH
▲ 870	K2CQ29A0002	AC CORD W/PLUG	1	KEG,KEC,KEE,KGC
▲ 870	K2CR29A0001	AC CORD W/PLUG	1	KGD
▲ 871	K2CJ29A0002	AC CORD W/PLUG	1	KGN
▲ 872	K2CA29A0021	AC CORD W/PLUG	1	KGT
▲ 872	K2CA2YY00070	AC CORD W/PLUG	1	KGK

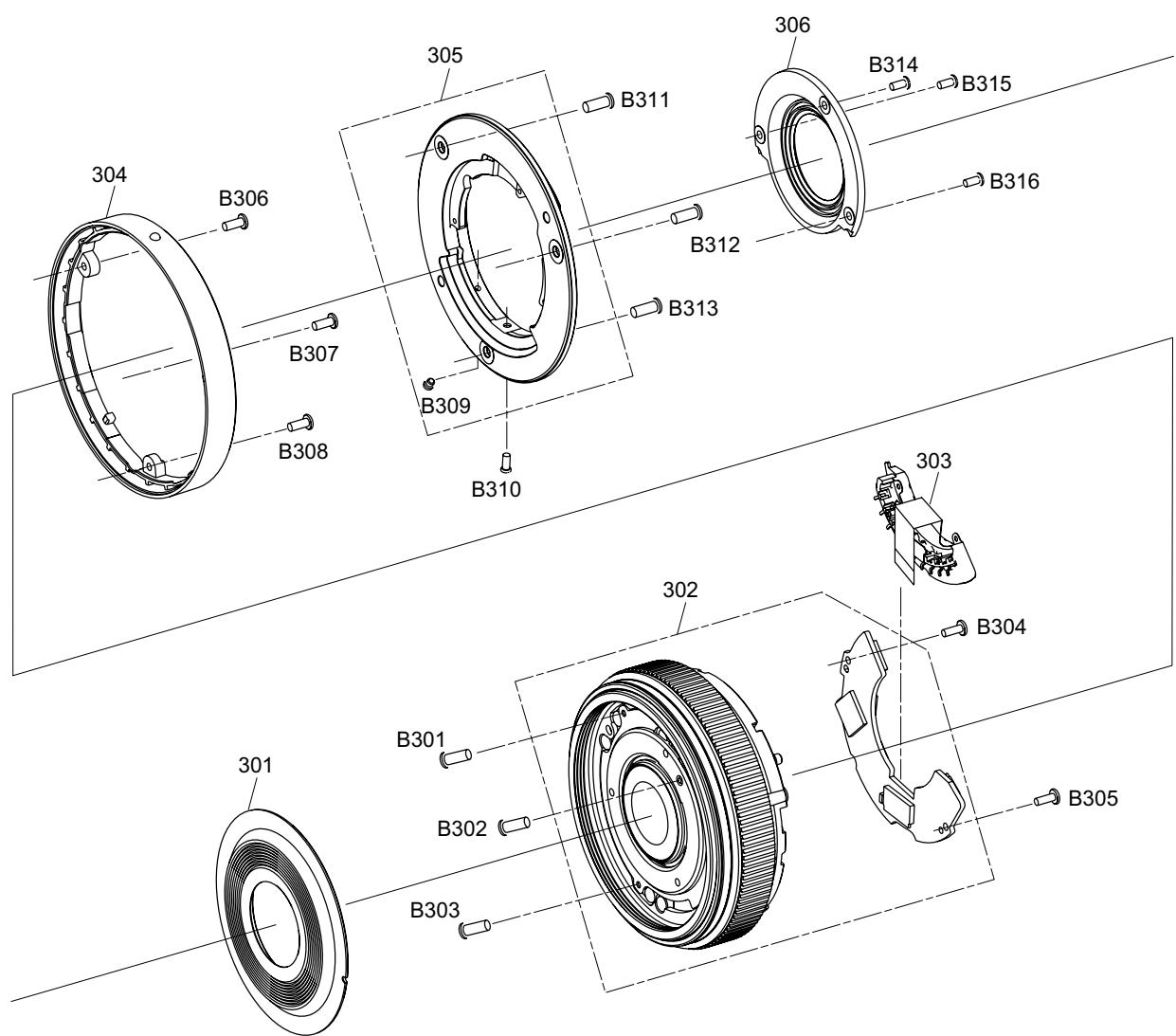
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 701	DE-A94BA	BATTERY CHARGER	1	WGC,WGH,WGK,WGD	742	VYF3201	LENS CAP	1	GF2W (H-FS014042)
701	DE-A94CA	BATTERY CHARGER	1	WGT	743	VPF1321	LENS BAG	1	GF2W (H-FS014042)
△ 701	DE-A94AA	BATTERY CHARGER	1	WEG,WEB,WGN	△ 769	K2CT39A00002	AC CORD W/PLUG	1	WEB,WGC,WGH
△ 703	----	BATTERY	1	GF2W	△ 770	K2CQ29A00002	AC CORD W/PLUG	1	WEG,WGC
704	K1HY14YY0008	USB CABLE W/PLUG	1	GF2W	△ 770	K2CR29A00001	AC CORD W/PLUG	1	WGD
705	K1HY14YY0009	AV CABLE W/PLUG	1	GF2W	△ 771	K2CJ29A00002	AC CORD W/PLUG	1	WGN
706	VFC4634	SHOULDER STRAP	1	GF2W	△ 772	K2CA29A00021	AC CORD W/PLUG	1	WGT
707	VFF0708-S	CD-ROM (SOFTWARE)	1	WEG,WEB,WGC,WGH,WGN,WGT, WGD [SPC] See "Notes"	△ 772	K2CA2YY00070	AC CORD W/PLUG	1	WGK
707	VFF0709-S	CD-ROM (SOFTWARE)	1	WGK [SPC] See "Notes"					
709	VPF1294	BAG, POLYETHYLENE	1	WEB,WGH,WGK,WGN,WGT,WGD					
709	VPF1132	BAG, POLYETHYLENE	1	WEG,WGC					
710	VQC7926	O/I SOFTWARE	1	WGC,WGH					
		(ENGLISH/ARABIC/ CHINESE(TRADITIONAL))							
710	VQC7927	O/I SOFTWARE	1	WGT					
		(CHINESE(TRADITIONAL))							
710	VQC7929	O/I SOFTWARE	1	WGD					
		(KOREAN)							
710	VQC7928	O/I SOFTWARE	1	WGK					
		(CHINESE(SIMPLIFIED))							
710	VQC7922	O/I SOFTWARE	1	WEG					
		(GERMAN/FRENCH/ITALIAN/ DUTCH)							
710	VQC7924	O/I SOFTWARE	1	WEB,WGN					
		(ENGLISH)							
△ 711	VQT3F01	SIMPLIFIED O/I	1	WGC,WGH					
		(ENGLISH/							
		CHINESE(TRADITIONAL))							
△ 711	VQT3C47	SIMPLIFIED O/I	1	WGC					
		(ARABIC)							
△ 711	VQT3C51	SIMPLIFIED O/I	1	WGD					
		(KOREAN)							
△ 711	VQT3C48	SIMPLIFIED O/I	1	WGT					
		(CHINESE(TRADITIONAL))							
△ 711	VQT3C49	SIMPLIFIED O/I	1	WGK					
		(CHINESE(SIMPLIFIED))							
△ 711	VQT3C50	SIMPLIFIED O/I	1	WGN					
		(ENGLISH)							
△ 711	VQT3E98	SIMPLIFIED O/I	1	WEG					
		(GERMAN/FRENCH)							
△ 711	VQT3C43	SIMPLIFIED O/I	1	WEB					
		(ENGLISH)							
△ 711	VQT3E99	SIMPLIFIED O/I	1	WEG					
		(ITALIAN/DUTCH)							
△ 712	VFF0755	CD-ROM	1	WEB,WEG					
		(INSTRUCTION BOOK)							
△ 712	VFF0756	CD-ROM	1	WGC,WGH,WGN					
		(INSTRUCTION BOOK)							
△ 712	VFF0757	CD-ROM	1	WGD,WGT					
		(INSTRUCTION BOOK)							
△ 712	VFF0758	CD-ROM	1	WGK					
		(INSTRUCTION BOOK)							
713	VPK4646	PACKING CASE	1	WEG,WEB,WGC,WGH,WGN,WGT, WGD					
713	VPK4873	PACKING CASE	1	WGK					
715	VPN7150	PAD B	1	GF2W					
716	VPN7151	PAD C	1	GF2W					
717	VPF1316	CAMERA BAG	1	GF2W					
721	VYC1009	LENS HOOD	1	GF2W					
722	VPF1328	AIR-CAP SHEET	1	GF2W (H-H014)					
723	VPN7162	CUSHION D	1	GF2W					
724	VQL2F40	COLOR LABEL	3	WGCP					
724	VQL2H31	COLOR LABEL	3	WGKW					
724	VQL2B12	COLOR LABEL	3	WEGS,WEBS,WGCS					
724	VQL2B13	COLOR LABEL	3	WEGW,WGCW,WGHW,WGNW,WGTW, WGDW					
724	VQL1V21	COLOR LABEL	3	WEGR,WEBR,WGHR					
731	VPF1371	LENS BAG	1	GF2W (H-H0140)					
732	VFC4605	LENS CAP (REAR)	1	GF2W (H-H0140)					
733	VYF3371	LENS CAP	1	GF2W (H-H0140)					
734	VKF4385	BODY CAP	1	GF2W					
735	VKF4840	HOT SHOE COVER	1	GF2W (PAVCSG)					
736	VGQ0C14	TOUCH PEN	1	GF2W					
737	VGQ0R99	BATTERY PROTECTION CASE	1	GF2W					
741	VFC4315	LENS CAP (REAR)	1	GF2W (H-FS014042)					

S6. Exploded View

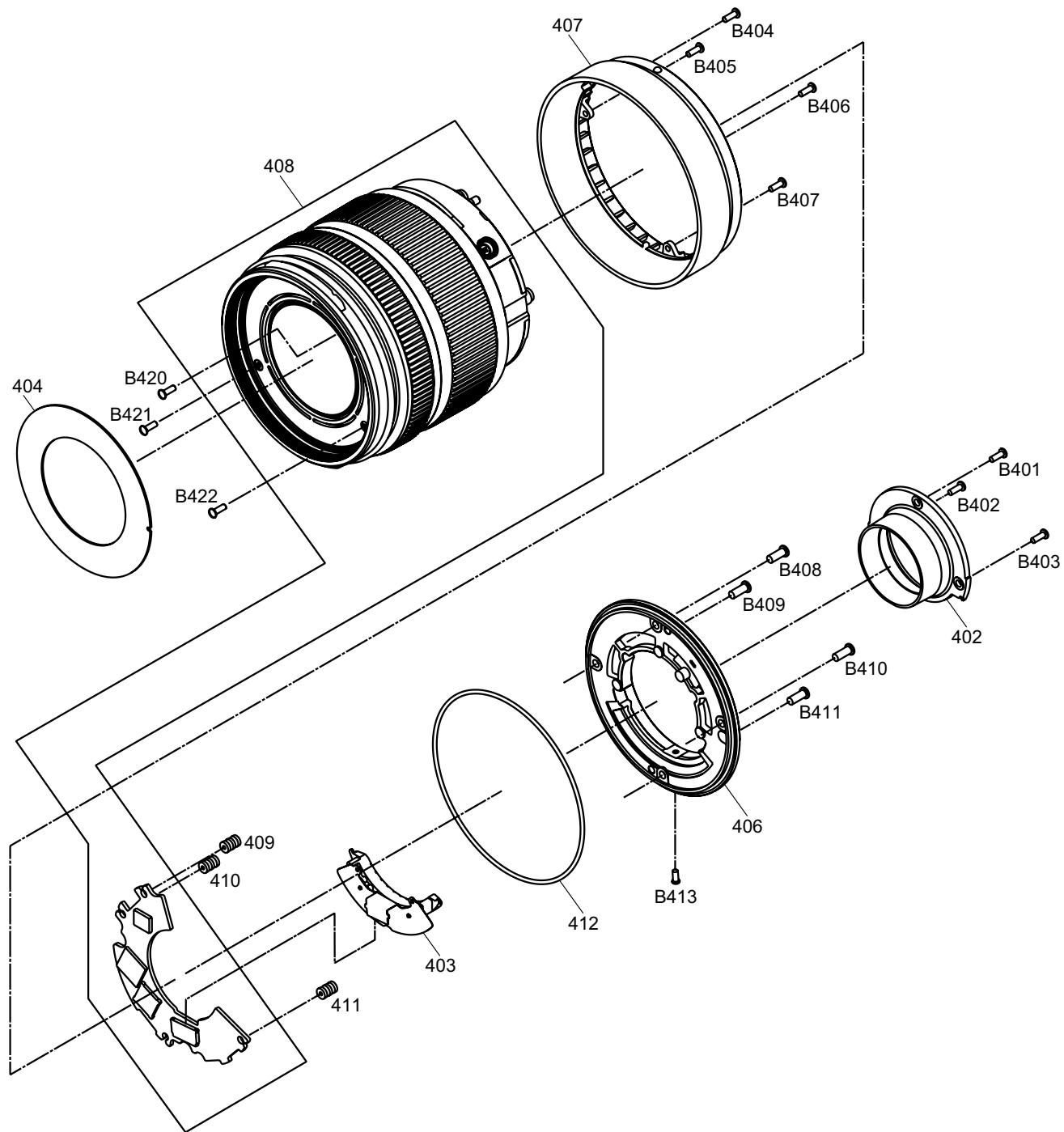
S6.1. Frame and Casing Section



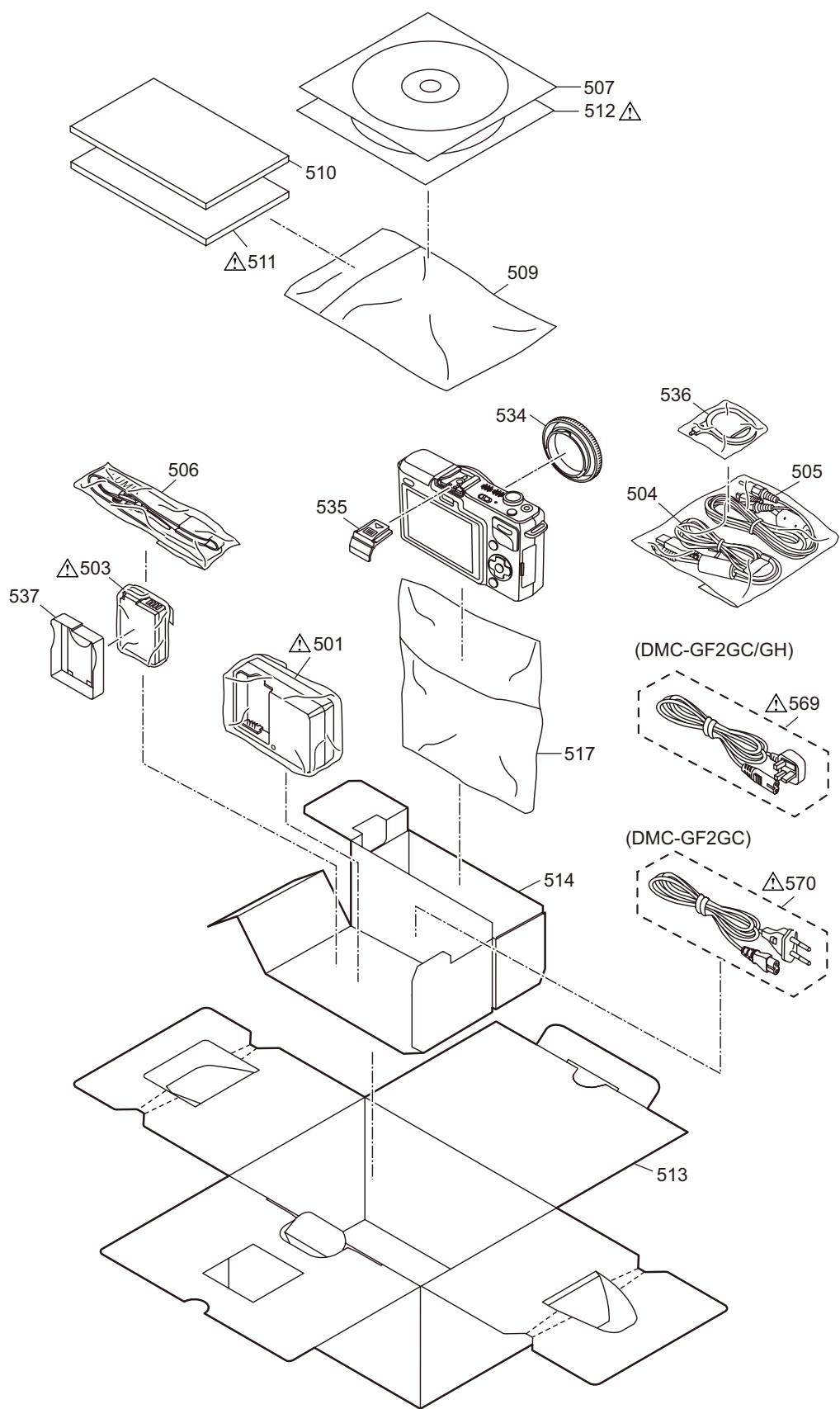
S6.2. Camera Lens Section (1)



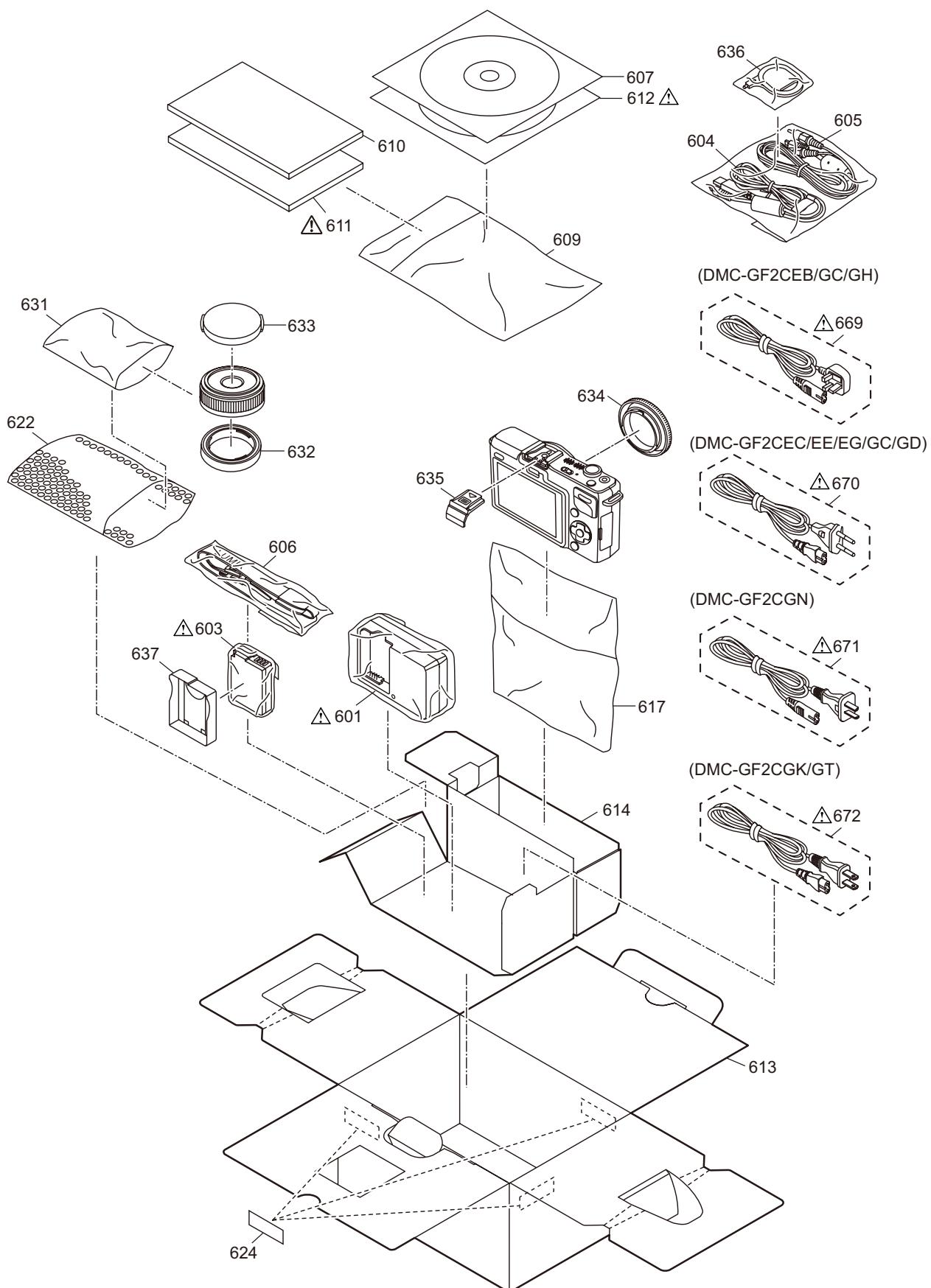
S6.3. Camera Lens Section (2)



S6.4. Packing Parts and Accessories Section (1)



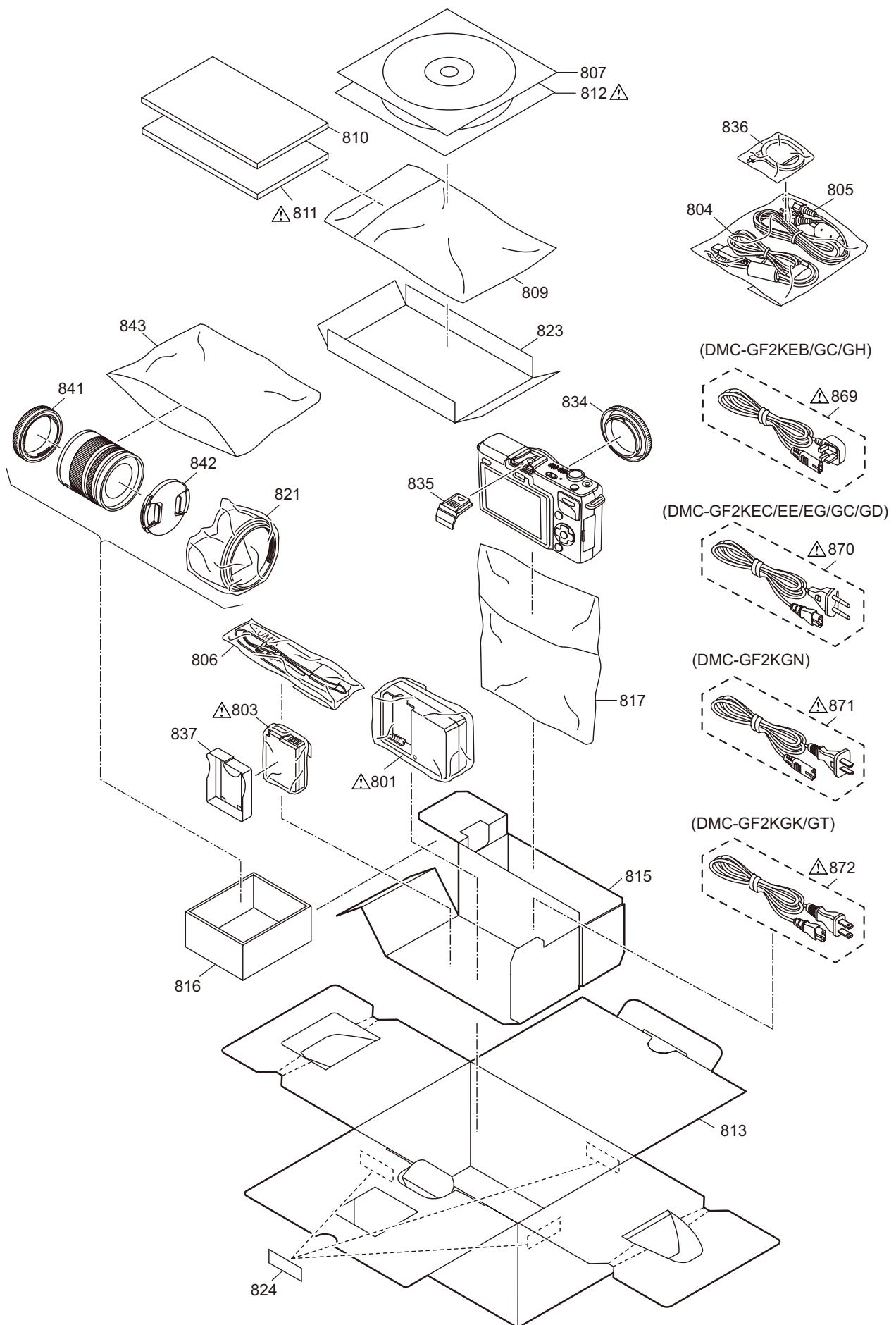
S6.5. Packing Parts and Accessories Section (2)



Directions for putting color Labels : (Except Black color model)

Place the color label inside the [color indication frame] making sure that the bottom part of the color label is even inside the color indication frame.

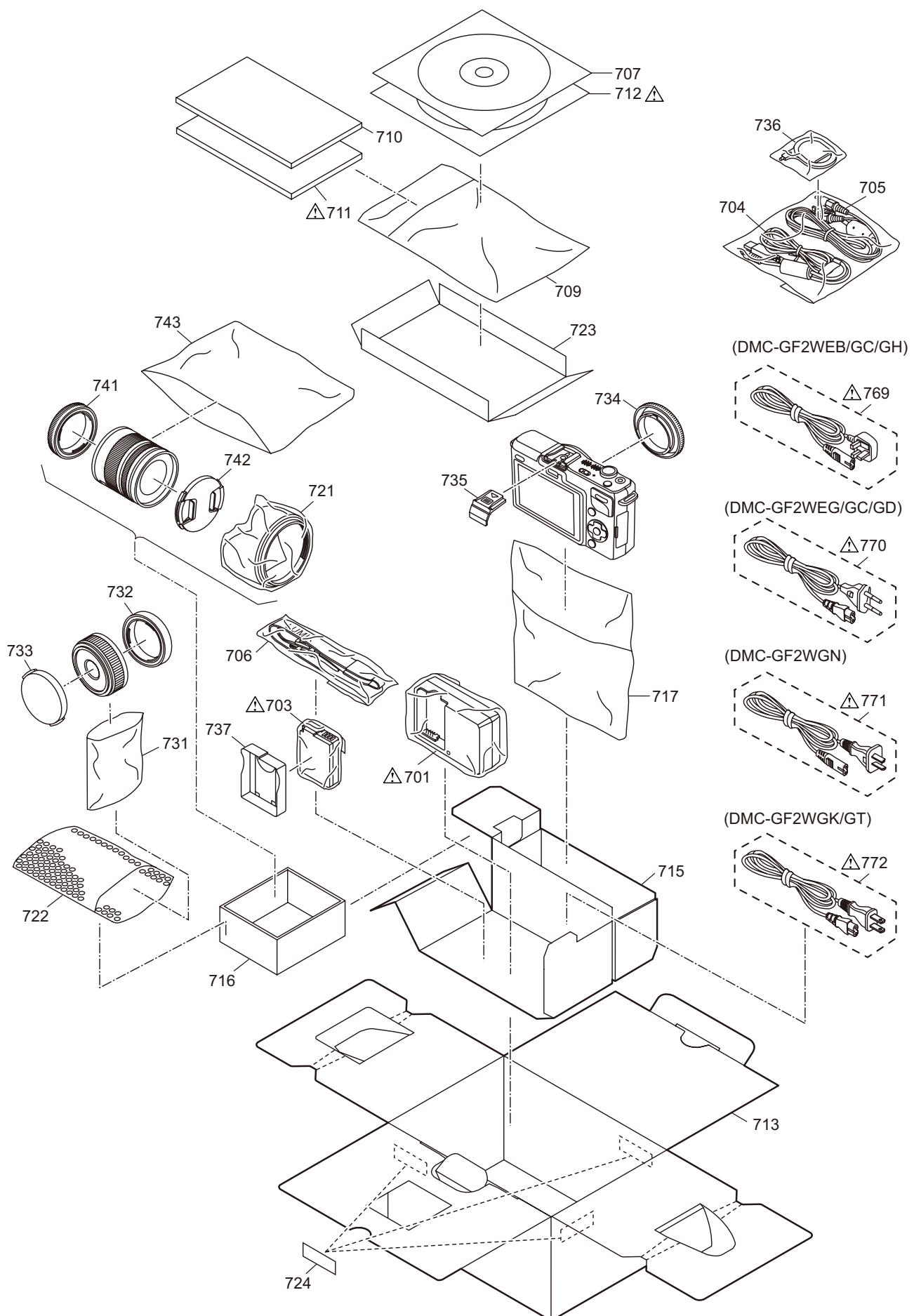
S6.6. Packing Parts and Accessories Section (3)



Directions for putting color Labels : (Except Black color model)

Place the color label inside the [color indication frame] making sure that the bottom part of the color label is even inside the color indication frame.

S6.7. Packing Parts and Accessories Section (4)



Directions for putting color Labels : (Except Black color model)

Place the color label inside the [color indication frame] making sure that the bottom part of the color label is even inside the color indication frame.