ORDER NO. DSC1011058CE
B26

Service Manual

Digital Camera/Lens Kit/Body

LUMIX

Model No. DMC-GH2HPP
DMC-GH2HEB
DMC-GH2HEC
DMC-GH2HEE
DMC-GH2HEG
DMC-GH2HGC
DMC-GH2HGD
DMC-GH2HGH
DMC-GH2HGK
DMC-GH2KPP
DMC-GH2KEB
DMC-GH2KEC
DMC-GH2KEE
DMC-GH2KEG
DMC-GH2KGC
DMC-GH2KGD
DMC-GH2KGH
DMC-GH2KGK
DMC-GH2KGN
DMC-GH2KGT

DMC-GH2PP
DMC-GH2EB
DMC-GH2EG

Panasonic

DMC-GH2GC
DMC-GH2GH

Vol.1
Colour
[DMC-GH2H]

(K).....Black Type
(S).....Silver Type (only PP/EB/EC/EG)
[DMC-GH2K]
(K).....Black Type (except EC)
(S).....Silver Type (except EE/GD/GH/GK/GT)
[DMC-GH2]
(K).....Black Type

DMC-GH2H series: Interchangeable Lens (H-VS014140) is bundled.
DMC-GH2K series: Interchangeable Lens (H-FS014042) is 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.

TABLE OF CONTENTS

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 MΩ and 5.2 MΩ. 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 kΩ, 10 W resistor, in parallel with a 0.15 μF 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 kΩ/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 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

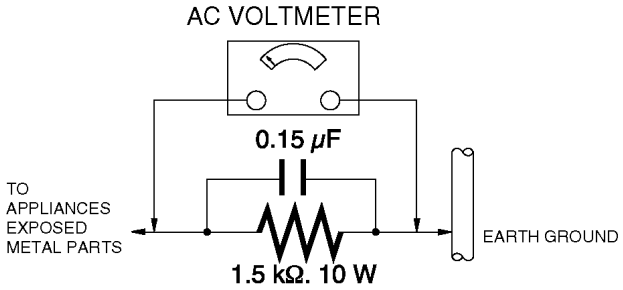


Figure. 1

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 using a voltmeter.

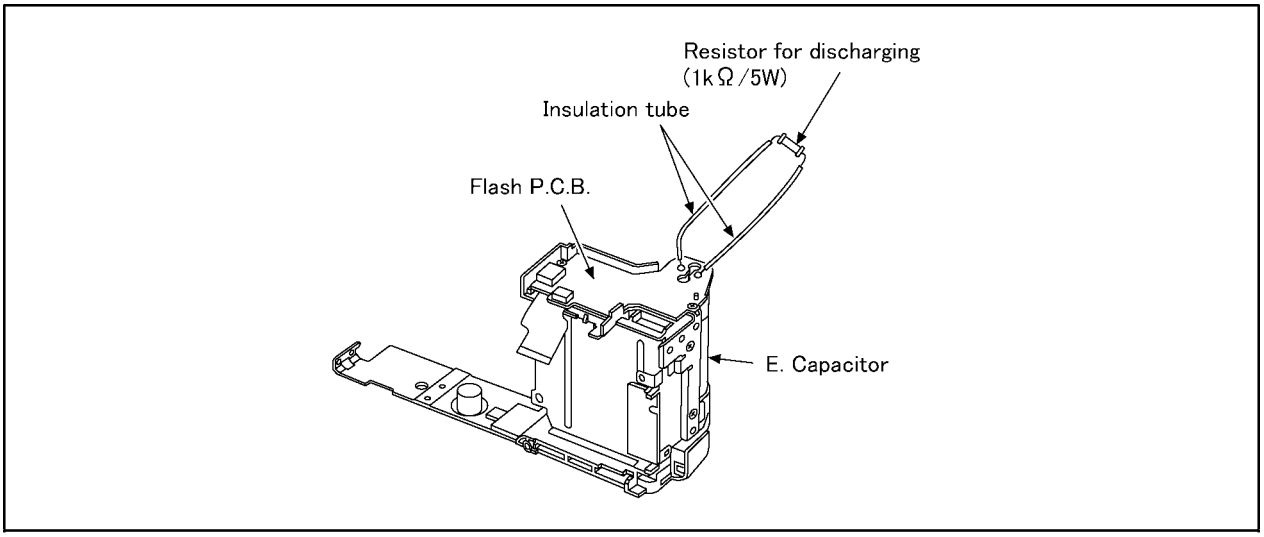


Fig. F1

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.

ASTA mark	BSI mark

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 safety.
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.

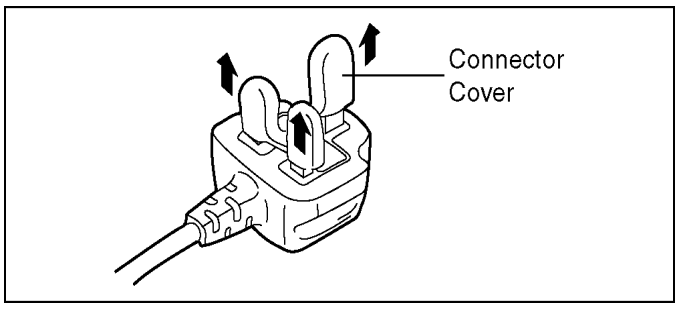
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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.

Earth Symbol	⏚

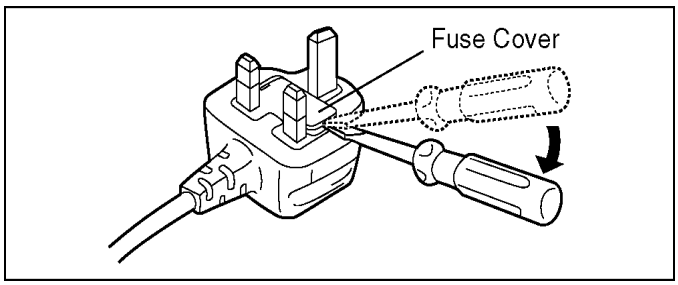
2.3.2.2. Before Use

Remove the Connector Cover as follows.

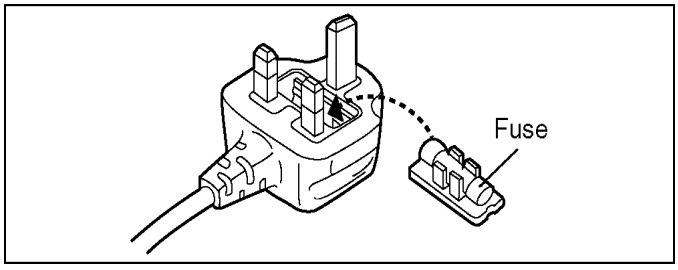


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



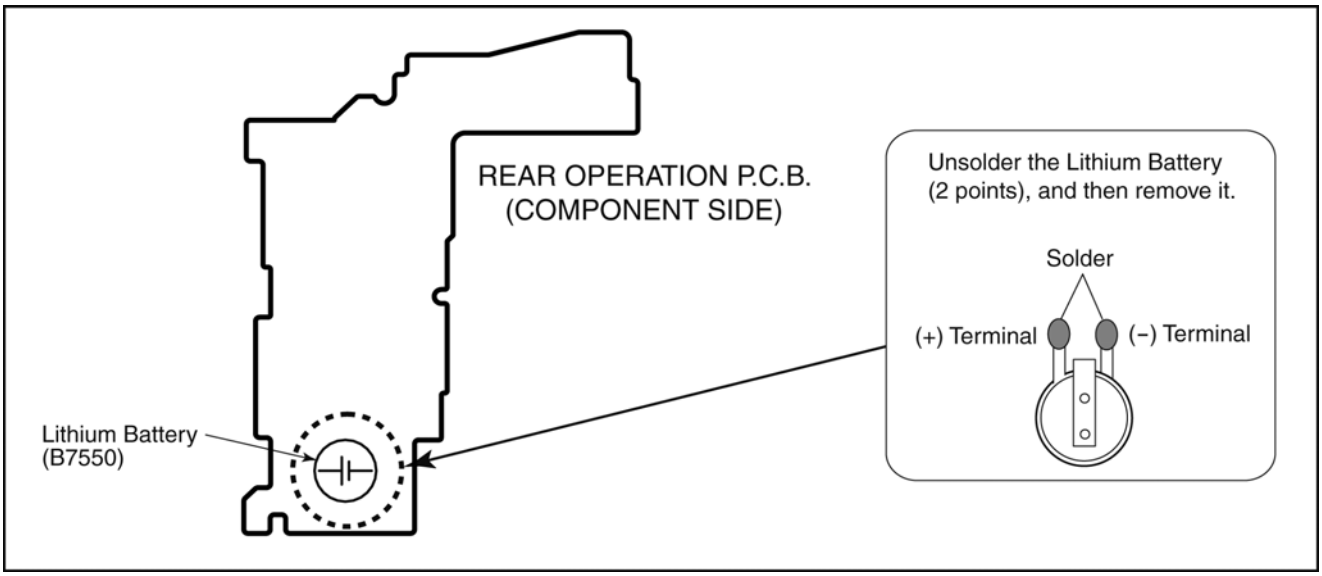
2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the REAR OPERATION P.C.B.. (Refer to Disassembly Procedures.)
2. Unsolder the each soldering point of electric lead terminal for Lithium battery (Ref. No. “B7550” at component side of REAR OPERATION 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-GH2H/GH2K/GH2 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.

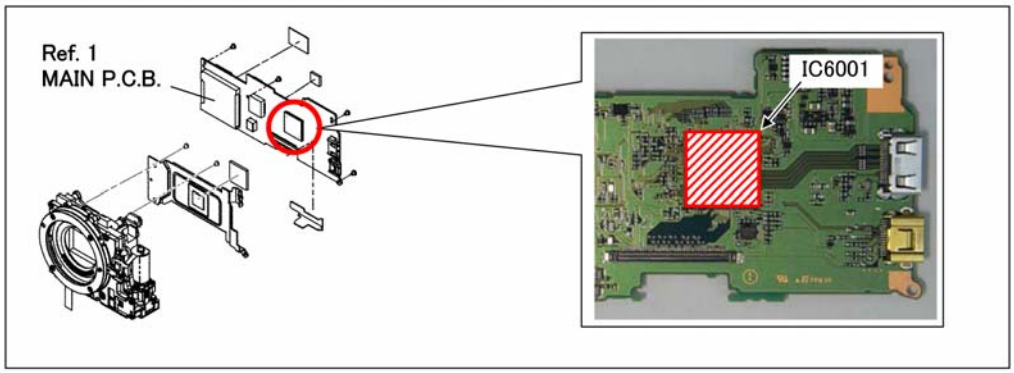


Fig. S1

3.2.1.2. About Mount Box Unit (Ref. 7)

1. This Service Manual does not contain the following repair service information for "MOUNT BOX UNIT"(Ref.7), 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 exchange 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.

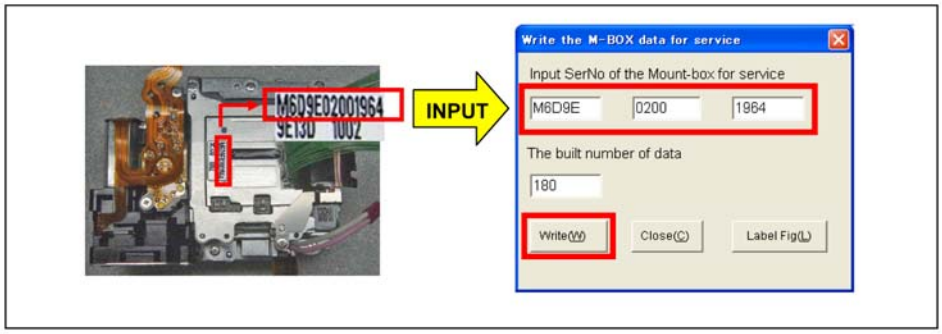


Fig. S2

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) / LCD IF P.C.B. (Ref. 50)

1. This Service Manual does not contain the following repair service information for “MAIN P.C.B.”(Ref.1) and “LCD IF P.C.B.”(Ref.50), 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.” and “LCD IF 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. (VEP56117A: PP/EE/GC/GD/GH/GK/GN/GT)
   *MAIN P.C.B. (VEP56117B: EB/EC/EG)
   *LCD IF P.C.B. (VEP59079A)

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

1. Before exchange 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-VS014140)

3.2.2.1. About Lens MAIN Block unit (Ref. 315)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.315), because it requires special facilities and equipment.
2. "LENS MAIN BLOCK UNIT" performance must be confirmed with the "7.Troubleshooting Guide" section of this service manual.
3. In case of the "LENS MAIN BLOCK UNIT" defect, contact to the service department of sales company.

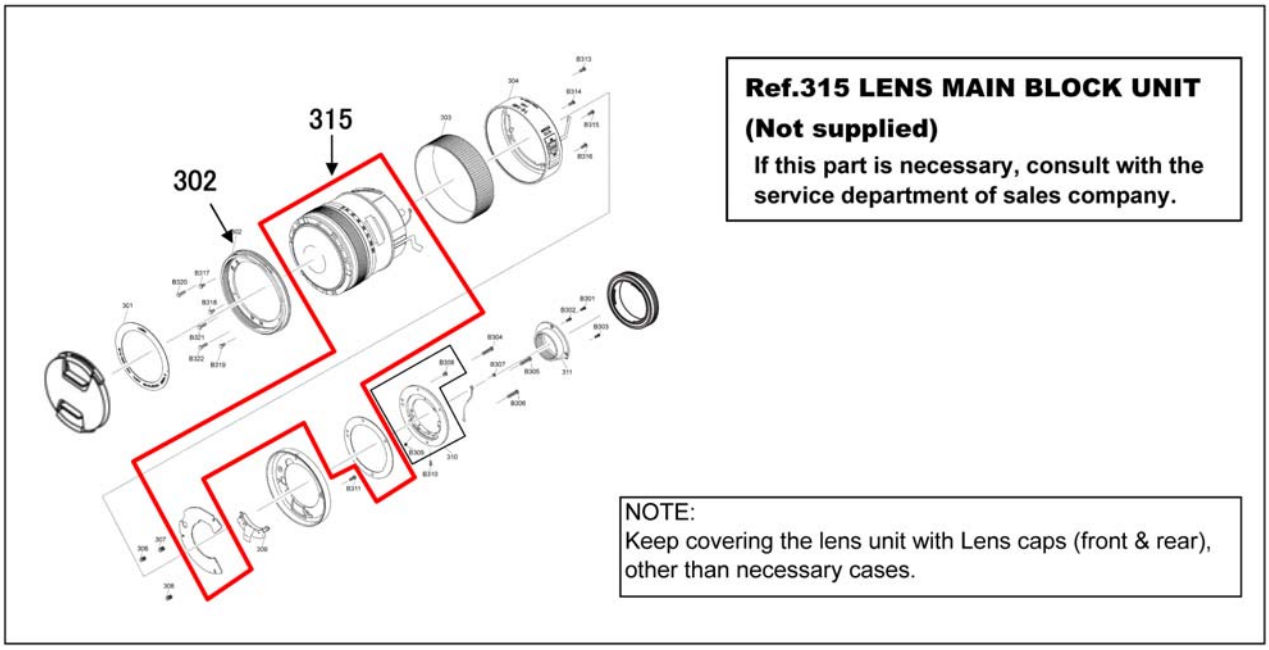


Fig. S3

3.2.2.2. About Lens Cleaning (Inside of the Lens Unit)

1. When there is a dust/dirt inside surface of the 1st lens frame unit and/or subject side of the 2nd lens frame unit, it can be cleaned up by removing the "Hood Adaptor" (Ref.302) and 1st lens frame unit.
   Refer to the "11.Maintenance" Section of this service Manual, for details.

IMPORTANT:

IT MUST BE PERFORMED INSIDE OF SATISFIED CLEAN LEVEL
(Satisfied clean level: Less than class 10,000 Federal Standard 209D).
As for clean box, refer to the "8.2. Clean box" in details.

CAUTION

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

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

3.2.3.1. About Lens Main Block Unit (Ref. 208)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.208), because it requires special facilities and equipment.
2. The "LENS MAIN BLOCK UNIT"(Ref.208) performance must be confirmed.
3. In case of the "LENS MAIN BLOCK UNIT"(Ref.208) defect, contact to the service department of sales company.

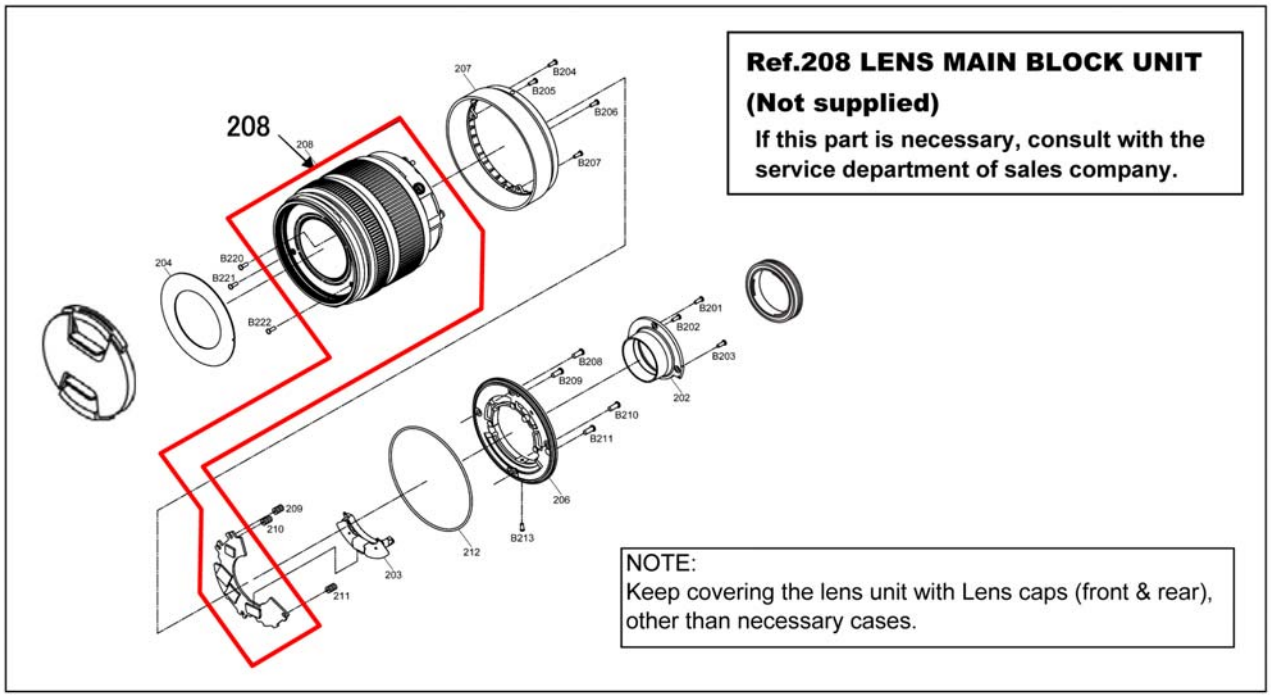


Fig. S4

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-GH2 (Camera body unit), regardless of the colours.

- a) DMC-GH2 (Japan domestic model)
- b) DMC-GH2PP
- c) DMC-GH2EB/EC/EG/GH/GN
- d) DMC-GH2EE/GC
- e) DMC-GH2GK
- f) DMC-GH2GT
- g) DMC-GH2GD

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-GH2 (Japan domestic model)

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

b) DMC-GH2PP

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

c) DMC-GH2EB/EC/EG/GH/GN

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

d) DMC-GH2EE/GC

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

e) DMC-GH2GK

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

f) DMC-GH2GT

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

g) DMC-GH2GD

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 : (VEP56117A 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 : (VEP56117B 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.

  Confirmed that it is not my color mode.

  NOTE:

  If the unit is my color mode, it does not display the initial settings menu.
- **Step 1. The temporary cancellation of "INITIAL SETTINGS":**

  Set the Drive mode lever to [SINGLE].

  While keep pressing [DISPLAY] and [AF/AE LOCK] buttons simultaneously, turn the Power on.
- **Step 2. The cancellation of "INITIAL SETTINGS":**

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

  Press [AF/AE LOCK] and "[UP] of Cursor buttons" simultaneously, then turn the Power off.
- **Step 3. Turn the Power on:**

  Set the mode dial to [P], and then 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.

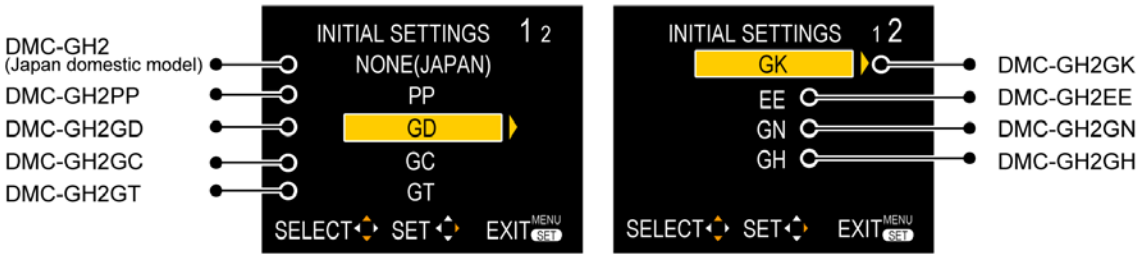
  The "INTIAL SETTINGS" menu is displayed.

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

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

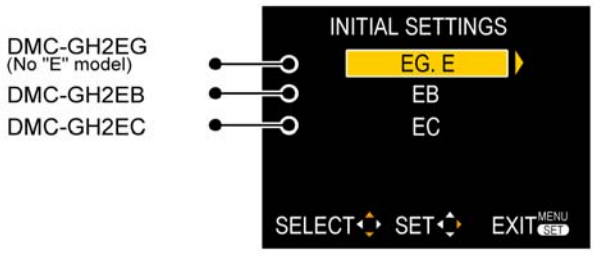
  [Except "EG, EB and EC" models : (VEP56117A is used as a Main P.C.B.)]

  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 : (VEP56117B 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."]

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

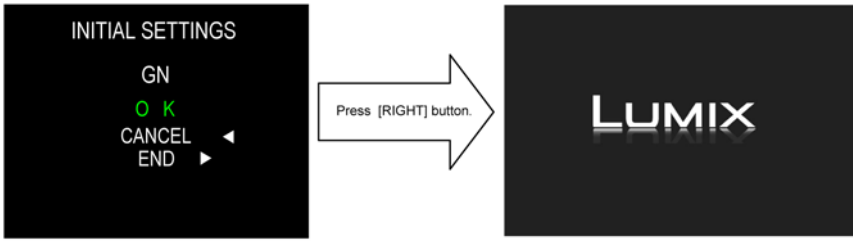
  [Caution: After replacing MAIN P.C.B.]

  The model suffix can been 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-GH2 (Japan domestic model)	NTSC	Japanese	Year/Month/Date	
b)	DMC-GH2PP	NTSC	English	Month/Date/Year	
c)	DMC-GH2EG	PAL	English	Date/Month/Year	
d)	DMC-GH2GC	PAL	English	Date/Month/Year	
e)	DMC-GH2GK	PAL	Chinese (simplified)	Year/Month/Date	
f)	DMC-GH2EB	PAL	English	Date/Month/Year	
g)	DMC-GH2GN	PAL	English	Date/Month/Year	
h)	DMC-GH2EC	PAL	English	Date/Month/Year	
i)	DMC-GH2GH	PAL	English	Date/Month/Year	
j)	DMC-GH2GD	NTSC	Korean	Year/Month/Date	
k)	DMC-GH2GT	NTSC	Chinese (traditional)	Year/Month/Date	
l)	DMC-GH2EE	PAL	Russian	Date/Month/Year	

4 Specifications

Digital Camera Body (DMC-GH2): Information for your safety

Power Source:	DC 8.4 V
Power Consumption:	3.4 W (When recording with LCD Monitor) (When the 14–140 mm/F4.0–5.8 lens supplied in DMC-GH2H is used) 3.2 W (When recording with LCD Monitor) (When the 14–42 mm/F3.5–5.6 lens supplied in DMC-GH2K is used) 2.6 W (When playing back with LCD Monitor) (When the 14–140 mm/F4.0–5.8 lens supplied in DMC-GH2H is used) 2.5 W (When playing back with LCD Monitor) (When the 14–42 mm/F3.5–5.6 lens supplied in DMC-GH2K is used)

Camera effective pixels:	16,050,000 pixels
Image sensor:	4/3" Live MOS sensor, total pixel number 18,310,000 pixels, Primary color filter
Digital Zoom:	Max. 4×
Extended 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)
Shutter system:	Focal-plane shutter
Burst recording	
Burst speed:	40 pictures/second (Super high speed), 5 pictures/second (High speed), 3 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/[i]so/160/200/250/320/400/500/640/800/1000/1250/1600/2000/2500/3200/4000/5000/6400/8000/10000/12800
Minimum Illumination:	Approx. 6 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]), Approx. 1 lx (when Creative Motion Picture Mode is used, [ISO3200] is set, the shutter speed is 1/2 of a second) (When the 14–140 mm/F4.0–5.8 lens supplied in DMC-GH2H is used) 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]), Approx. 1 lx (when Creative Motion Picture Mode is used, [ISO3200] is set, the shutter speed is 1/2 of a second) (When the 14–42 mm/F3.5–5.6 lens supplied in DMC-GH2K is used)
Shutter speed:	B (Bulb) (Max. approx. 120 seconds), 60 seconds to 1/4000th of a second Taking still pictures during motion picture recording Motion picture priorities: 1/30th of a second to 1/16000th of a second [for NTSC areas] 1/25th of a second to 1/16000th of a second [for PAL areas] Still picture priorities: B (Bulb) (Max. approx. 120 seconds), 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 set3/White set4/White Balance K set
Exposure (AE):	Program AE (P)/Aperture-priority AE (A)/Shutter-priority AE (S)/Manual exposure (M)/AUTO Exposure Compensation (1/3 EV Step, −5 EV to +5 EV)
Metering Mode:	Multiple/Center weighted/Spot
LCD monitor:	3.0" TFT LCD (3:2) (Approx. 460,000 dots) (field of view ratio about 100%) Touch panel
Viewfinder:	Color LCD Viewfinder (Approx. 1,530,000 dots) (field of view ratio about 100%) (with diopter adjustment −4 to +4 diopter)
Flash:	Built-in pop up flash GN 13.9 equivalent (ISO160·m) Flash range: Approx. 1.0 m (3.28 feet) to 4.8 m (15.7 feet) (When the 14–140 mm/F4.0–5.8 lens supplied in DMC-GH2H is mounted, focal length is 22 mm, [ISO AUTO] is set, and the aspect ratio is set to [4:3]) Flash range: Approx. 45 cm (1.48 feet) to 6.2 m (20.3 feet) (When the 14–42 mm/F3.5–5.6 lens supplied in DMC-GH2K 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] 4608×3456 pixels, 3264×2448 pixels, 2336×1752 pixels When the aspect ratio setting is [3:2] 4752×3168 pixels, 3360×2240 pixels, 2400×1600 pixels When the aspect ratio setting is [16:9] 4976×2800 pixels, 3520×1984 pixels, 1920×1080 pixels When the aspect ratio setting is [1:1] 3456×3456 pixels, 2448×2448 pixels, 1744×1744 pixels
Recording quality	
Motion pictures:	[AVCHD] (With audio) When set to [24H]: 1920×1080 pixels (24p recording/Approx. 24 Mbps)/ When set to [24L]: 1920×1080 pixels (24p recording/Approx. 17 Mbps)/ [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) [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) [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.)
Quality:	RAW/RAW+Fine/RAW+Standard/Fine/Standard/MPO+Fine/MPO+Standard
Recording file format	
Still Picture:	RAW/JPEG (based on "Design rule for Camera File system", based on "Exif 2.3" standard, DPOF corresponding)/MPO
Motion pictures with audio:	AVCHD/QuickTime Motion JPEG
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	
[MIC/REMOTE]:	φ 2.5 mm jack
[AV OUT/DIGITAL]:	Dedicated jack (14 pin)
[HDMI]:	MiniHDMI TypeC
Dimensions:	Approx. 124 mm (W)×89.6 mm (H)×75.8 mm (D) [4.88" (W)×3.53"(H)×2.98" (D)] (excluding the projecting parts)
Mass (weight):	Approx. 904 g/1.99 lb (with the 14–140 mm/F4.0–5.8 lens supplied in DMC-GH2H, card and battery) Approx. 609 g/1.34 lb (with the 14–42 mm/F3.5–5.6 lens supplied in DMC-GH2K, card and battery) Approx. 392 g/0.86 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/1200 mAh

Interchangeable Lens (H-VS014140)
"LUMIX G VARIO HD 14–140 mm/F4.0–5.8 ASPH./MEGA O.I.S."

Focal length:	f=14 mm to 140 mm (35 mm film camera equivalent: 28 mm to 280 mm)
Aperture type:	7 diaphragm blades/circular aperture diaphragm
Aperture range:	F4.0 (Wide) to F5.8 (Tele)
Minimum aperture value:	F22
Lens construction:	17 elements in 13 groups (4 aspherical lenses/2 ED lenses)
In focus distance:	0.5 m (1.64 feet) to ∞ (from the focus distance reference line)
Maximum image magnification:	0.2× (35 mm film camera equivalent: 0.4×)
Optical Image Stabilizer:	Available
[O.I.S.] switch:	Available (Switching ON/OFF)
Mount:	"Micro Four Thirds Mount"
Angle of view:	75° (Wide) to 8.8° (Tele)
Filter diameter:	62 mm (2.44 inch)
Max. diameter:	Approx. 70 mm (2.76 inch)
Overall length:	Approx. 84 mm (3.31 inch) (from the tip of the lens to the base side of the lens mount)
Mass (weight):	Approx. 460 g/1.01 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

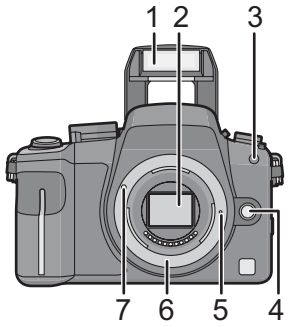
NOTE:(Only for "EB/EC/EG" models)

- 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.

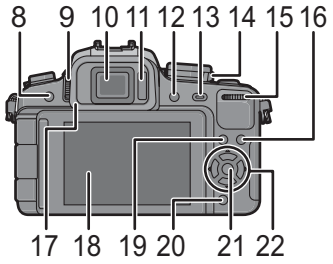
5 Location of Controls and Components

■Camera body

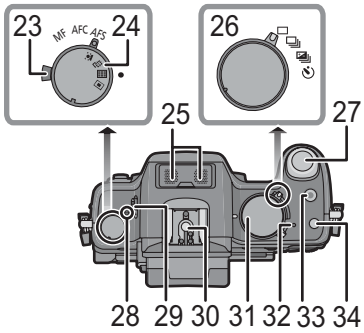
1 Flash
2 Sensor
3 Self-timer indicator / AF Assist Lamp
4 Lens release button
5 Lens lock pin
6 Mount
7 Lens fitting mark



8 [LVF/LCD] button
9 Diopter adjustment dial
10 Viewfinder
11 Eye sensor
12 Playback button
13 [AF/AE LOCK] button
14 Camera ON/OFF switch
15 Rear dial
16 [DISPLAY] button
17 Eye Cup
18 Touch panel/LCD monitor
19 [Q.MENU] button
20 Delete button / Preview button
21 [MENU/SET] button
22 Cursor buttons
▲/ISO
►/WB (White Balance)
◄/Function 2 button
▼/Function 3 button

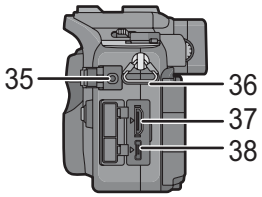


23 Focus mode lever
24 Auto focus mode dial
Face Detection ([ ]):
AF Tracking ([ ]):
23-area-focusing ([ ]):
1-area-focusing ([ ]):
25 Stereo microphone
26 Drive mode lever
Single:
Burst:
Auto Bracket:
Self-timer:
27 Shutter button
28 Focus distance reference mark
29 Flash open lever
30 Hot shoe
31 Mode dial
32 Status indicator
33 Motion picture button
34 Function 1 button

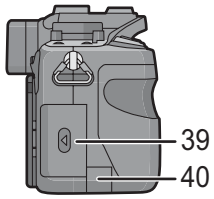


35 [MIC/REMOTE] socket
36 Shoulder strap eyelet
- Be sure to attach the shoulder strap when using the camera to ensure that you will not drop it.

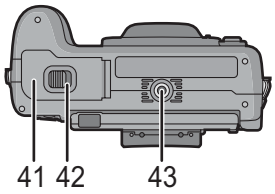
37 [HDMI] socket
38 [AV OUT/DIGITAL] socket



39 Card door
40 DC coupler cover



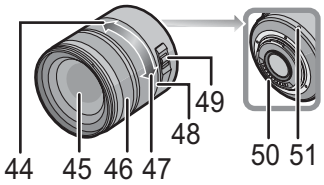
41 Battery door
42 Release lever
43 Tripod receptacle
- When you use a tripod, make sure the tripod is stable when the camera is attached to it.



■Lens

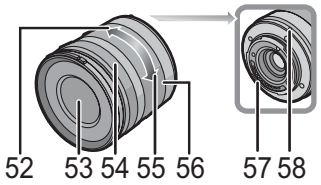
H-VS014140 (LUMIX G VARIO HD 14–140 mm/F4.0–5.8 ASPH./MEGA O.I.S.)

44 Tele
45 Lens surface
46 Focus ring
47 Wide
48 Zoom ring
49 [O.I.S.] switch
50 Contact point
51 Lens fitting mark



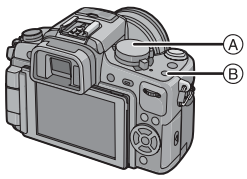
H-FS014042 (LUMIX G VARIO 14–42 mm/F3.5–5.6 ASPH./MEGA O.I.S.)

52 Tele
53 Lens surface
54 Focus ring
55 Wide
56 Zoom ring
57 Contact point
58 Lens fitting mark



Selecting the [REC] Mode

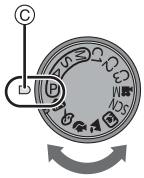
Ⓐ Mode dial
Ⓑ [Fn1] button



Switching the mode by rotating the mode dial.

Align a desired mode with part Ⓒ.

- **Rotate the mode dial slowly and surely to adjust to each mode.**
- [INTELLIGENT AUTO] is initially assigned to the [Fn1] button. It will switch to Intelligent Auto Mode when the [Fn1] button is pressed, disabling the Recording Mode selected by the mode dial. It is possible to change the function assigned to the buttons with [Fn BUTTON SET] in [CUSTOM] menu.



■Basic

Program AE Mode
The subjects are recorded using your own settings.

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

■Advanced

Aperture-Priority AE Mode
The shutter speed is automatically determined by the aperture value you set.

Shutter-Priority AE Mode
The aperture value is automatically determined by the shutter speed you set.

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

Custom Mode
Use this mode to take pictures with previously registered settings.

Creative Motion Picture Mode
Use this mode to record motion pictures in the selected mode.
∗ You cannot take still pictures.

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

My Color Mode
Use this mode to check coloring effects, select a color mode from among eight color modes, and then take pictures.

■Advanced Scene Mode

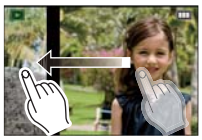
Portrait Mode
Use this mode to take pictures of people.

Scenery Mode
Use this mode to take pictures of scenery.

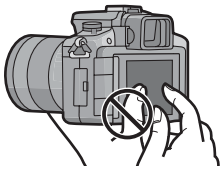
Close-up Mode
Use this mode to take pictures of a close-by subject.

Touch Panel

This touch panel is a type that detects pressure.

Touch the screen To touch and release the touch panel.	**Drag** 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.
- Avoid having the hand holding the camera accidently 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.
   Confirmed that it is not my color mode.

   NOTE:

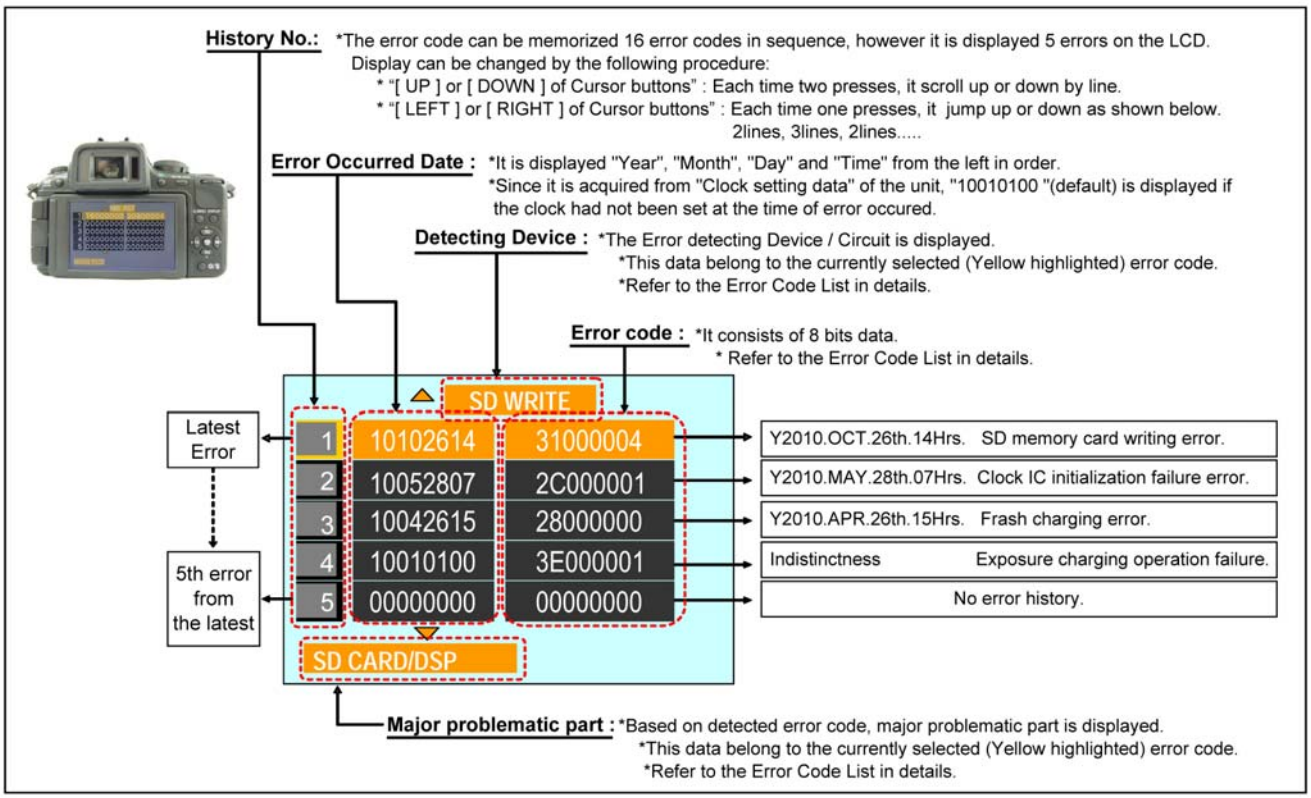
   If the unit is my color mode, it does not display the error code display.

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

   Set the Drive mode lever to [SINGLE].
   While keep pressing [DISPLAY] and [AF/AE LOCK] buttons simultaneously, turn the Power on.

   • **Step 2. Execute the error code display mode:**

   Press [AF/AE LOCK], [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
		Program Area		0005	Firmware update error.	(No indication)	(No indication)
	SYSTEM IC	Initialization	2C*0	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)
			3E*0	0001	Exposure charging operation failure. (Mount Box Unit)	(No indication)	(No indication)
				0002	Failure of the returning operation to the home position. (Mount Box Unit)		
	Recording	Motion Image Recording	3F*0	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: 2B**0**01000)
  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: 2B**8**01000)
  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-VS014140, 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-VS014140 (Included in DMC-GH2H):

[1].ZOOM RING ..... When the Zoom ring is rotated, Zoom condition is changing accordingly.
(The 1st lens frame moves.)
[Focal length : 14mm to 140mm [35mm film camera equivalent: 28mm to 280mm]]

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

H-FS014042 (Included in DMC-GH2K):

[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 changed although Focus ring is rotated. (Free rotation.)

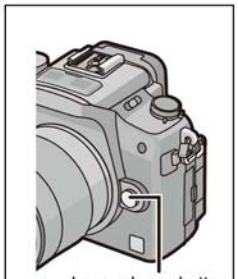
2.INITIAL INSPECTION TIPS (BEFORE DETERMINE THE UNIT BEING FAULTY/DEFECTIVE) :

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.

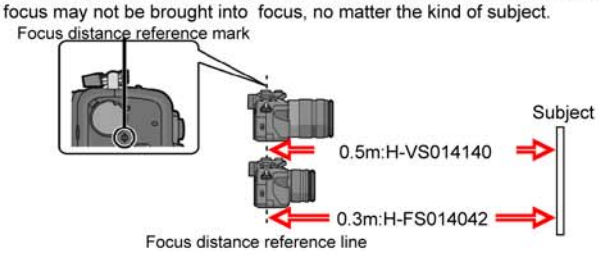
NOTE: Refer to the Operating Instructions carefully.
Also, useful hint/tips for this unit is available at following URL, and is updated frequently.
http://panasonic.jp/support/global/cs/dsc/

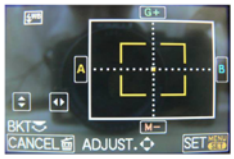
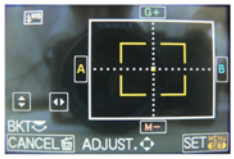
If it is hard to determine whether the resolution is out of specification or not, proceed the **"RESOLUTION INSPECTION"**, before replacing the LENS MAIN BLOCK UNIT and/or MOUNT BOX UNIT. (The unit might be mishandling, dropping or others.)

[1]. [LENS RELATIVES]

TITLE	ITEMS	DESCRIPTION
LENS	Aperture size does not changed. (Although aperture value is changed, the physical size of aperture is never changed.)	*Although aperture value is changed, the physical size of aperture is never changed (It keeps the maximum aerture 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.) ⇒ [CUSTOM MENU] (4/7) ----- [PREVIEW HOLD] (ON/OFF)
	The Aperture condition does not changed. (Aperture value shows "F0.0") 	*The Lens & Body are communicating (serial communication) through mount contacts (11pins)]. *Confirm that lens & body mount contacts are not dirty. *While keep pressing the [Lens release] button, it makes same situation that Lens does not attached. *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.  Aperture value is fixed at [F0.0]  Firmware version shows [LENS FIRMWARE : -.-]  Lens release button
	Although the Focus ring is rotating, it does not change the Focus condition.	*The Focus condition is never changed although focus ring is rotated when the Focus mode dial 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.) ⇒ [CUSTOM MENU] (3/7) ----- [AF + MF] (ON/OFF)
	No released without lens attachment.	*It is able to release the shutter button without attaching the lens unit. ⇒ [CUSTOM MENU] (7/7) ----- [SHOOT W/O LENS] (ON/OFF)
	The Dusty and/or dirty of the Lens	*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. 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). *Refer to the "11 Maintenance" of this manual. **[Wiping up the lens surface]**  Like drawing the circle, wipe up the lens surface centre towards to outside slowly.
	It does not become the Shutter speed [B] (Bulb) mode.	*It is only able to select the shutter speed to [B](Bulb) when mode dial is set to [M] (Manual) and drive mode lever is [SINGLE] position. ([B] mode: the shutter stays open while the shutter button is pressed fully (up to about 4 minutes). The shutter closes if you release the shutter button.)

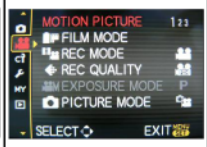
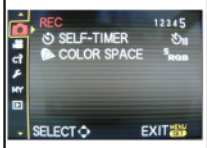
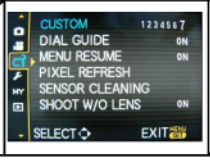
[2]. [BODY RELATIVES]

TITLE	ITEMS	DESCRIPTION
FOCUS	The picture is out of focus although the focus is adjusted in MF mode at once.	*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.	*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. 
	MF(Manual Focus)ASSIST does not work.	*The MF assist function is that the certain area image is able to enrage 5 times to make easier to focus. (It is enraged from 5times to 10 times when the front 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] (3/7) ----- [MF ASSIST] (ON/OFF) (To display the MF assist, press Left cursor button then press [MENU/SET].
	Face detection does not work.	*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 dial set to MF.
	The subject is not focused properly.	*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.	*Focus & Exposure condition is locked when the [AF / AE LOCK] button is pressed under the condition of [AF/AE LOCK HOLD] is "On". ⇒ [CUSTOM MENU] (2/7) ----- [AF/AE LOCK HOLD] (ON/OFF) *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.	*Focus does not hold even if [AF/AE LOCK] button is pressed if the [AF/AE LOCK] is selected [AE]. ⇒ [CUSTOM MENU] (2/7) ----- [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.)	*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)	*By referring the specification of the built-in flash is GN11 (equivalent) *There is a formula : F value X Flash reachable distance = GN [ISO100] (In case of: H-FS045200) ISO100 / Wide edge Aperture is F4.0 / Flash reachable distance is 2.7m [4.0 X Approx 2.7 = 10.8 ----- "GN11"] ISO100 / Tele edge Aperture is F5.6 / Flash reachable distance is 1.9m [5.6 X Approx 1.9 = 10.64 ----- "GN11"]
	Some of the Flash setting(s) are not able to select.	*In accordance with the [REC] mode and [FLASH SYNCHRO] mode, selectable flash settings may be differ.
	[AUTO BRACKET] does not work.	*Only one picture can be taken when the Flash is fired.
	The subject is too bright / too dark with Flash.	*Confirm that the picture is taken within Flash range or not. *Confirm that flash output settings. ⇒ [REC] (3/5) ----- [FLASH ADJUST.] (1/3 EV Step, -2EV to +2EV)
	The Flash adjustment does not effect.	*Confirm that the picture is taken within Flash range or not.
	White round spots appear on the recording picture	*If you take a picture with flash in a dark place or indoors, white round spots may be 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.	*The colour of the subject which is other than Flash reachable distance is not coverage of white balance. *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. *It also effects to the Flash recording mode as well. 
	The appearance of the light source is strange. (The light source appears ahead the subject.)	*Normally, the light source appears ahead the subject. (This is the effect of the 1st curtain synchro.) *The Flash synchro mode can be selected. ⇒ [REC] (2/5) ----- [FLASH SYNCHRO] (1ST / 2ND)   <1st Curtain Sync><2nd Curtain Sync>
EXPOSURE	The Exposure condition can not be changed	*Focus & Exposure condition is locked when the [AF/AE LOCK] button is pressed under the condition of [AF / AE LOCK HOLD] is "On". ⇒ [CUSTOM MENU] (2/7) ----- [AF / AE LOCK HOLD] (ON/OFF) *It can be reset when [AF/AE LOCK] button is pressed again.
	Although [AF/AE LOCK] button is pressed, only focus is locked. (AE is not locked)	*Focus does not hold even if [AF/AE LOCK] button is pressed if the [AF/AE LOCK] is set to [AF]. ⇒ [CUSTOM MENU] (2/7) ----- [AF/AE LOCK] (AE, AF, AF/AE) *In the Manual Focus condition, It is only worked as [AE lock] function, regardless any settings.
	The pictures recorded with [AUTO BRACKET] function are too dark/bright.	*The [AUTO BRACKET] is selected after setting the [EXPOSURE COMPENSATION], the compensated value is effected for its reference value.
	The Exposure condition is changed extremely.	*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, -5EV to +5EV)
CAPTURING	Although shutter is released, no picture is captured.	*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. *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] (2/7) ----- [FOCUS PRIORITY] (ON/OFF)
	[AUTO BRACKET] does not work.	*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.
COLOUR REPRODUCTION	Colour is strange.	*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.) *It is resumed/memorized although power turns off/on. *Confirm that Film mode, especially, [MY FILM1 & 2] settings. 
	Colour is strange. (With Flash)	*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.
	The colour is strange (On PC monitor/ Printout image.)	*There is a possibility that the picture is captured with [AdobeRGB] setting. ⇒ [REC] (5/5) ----- [COLOR SPACE] (sRGB/AdobeRGB) *To proceed proper colour reproduction for AdobeRGB, the AdobeRGB capable PC and Printer are necessary. *In accordance with PC environment, it may not be displayed properly when the picture is re-sized with business software.
POWER	The Power is turned off.	*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.) ⇒ [SETUP] (2/5) ----- [ECONOMY] [SLEEP] (OFF/1MIN./2 MIN./5 MIN./10 MIN.)
DISPLAY	Abnormal Picture Effect. Certain part of the picture is flashing in Black & White.	*Confirm that the setting condition of [HIGHLIGHT]. ⇒ [CUSTOM MENU] (1/7) ----- [HIGH LIGHT] (ON/OFF) The white saturated areas appear blinking in Black and White.
	Firmware version	*Confirm that the firmware versions of the body and lens to be checked. ⇒ [SETUP] (4/5) ----- [VERSION DISP.]

MENU LIST
(Quick Reference)

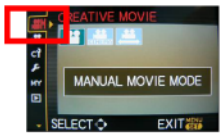
The following menu items are displayed on the LCD monitor.

	[REC]	[MOTION PICTURE]	[CUSTOM MENU]	[SETUP]	[MY MENU]	[PLAYBACK]
1st Page						
2nd Page						
3rd Page						
4th Page						
5th Page						
6th Page						
7th Page						

REMARKS:

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

*When the mode dial is set to [Creative Movie], extra-menu group is displayed.



*When the mode dial is set to [Scene mode(SCN)], extra-menu groups are displayed.

*When the mode dial is set to [Advanced Scene Mode)], extra-menu groups are displayed.

[Portrait Mode] [Scenery Mode] [Close-up Mode]

*When the mode dial is set to [My Color Mode], [My Color Mode] alone is not displayed.

NOTE:

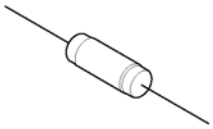
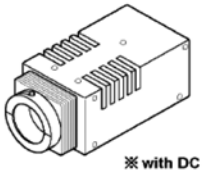
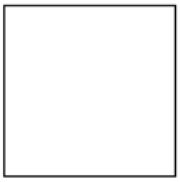
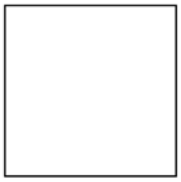
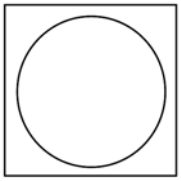
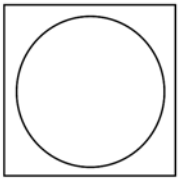
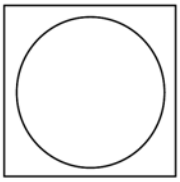
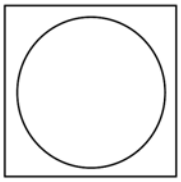
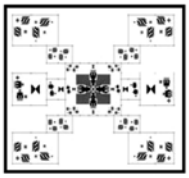
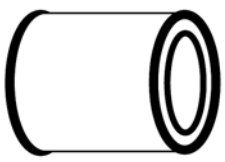
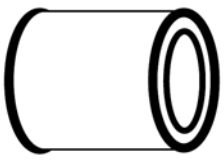
*When set [MENU RESUME] in the [CUSTOM MENU] menu to [ON], the screen shows the last selected menu item when the camera is turned off.

⇒ [CUSTOM MENU] (7/7) ----- [MENU RESUME] (ON/OFF)

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	GLAY CARD RFKZ0506
		
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	STYLUS PEN VGQ0C14
*Correspond by the marketed commodity. (It does not supply as service fixture and tools.) 	 * Only supplied as 10 set/box.	 VYQ4370 can be used.
NAME RING FIXTURE RFKZ0423	NAME RING FIXTURE RFKZ0507	
		

About Name Ring Fixture:

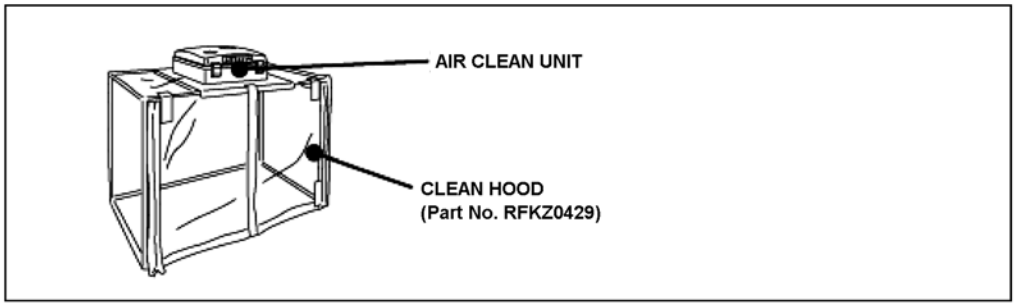
- RFKZ0423 for H-VS014140
- RFKZ0507 for H-FS014042

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-VS014140)", "11.3. General description (Lens cleaning: Interchangable Lens/H-FS014042)" section of this service manual for details.

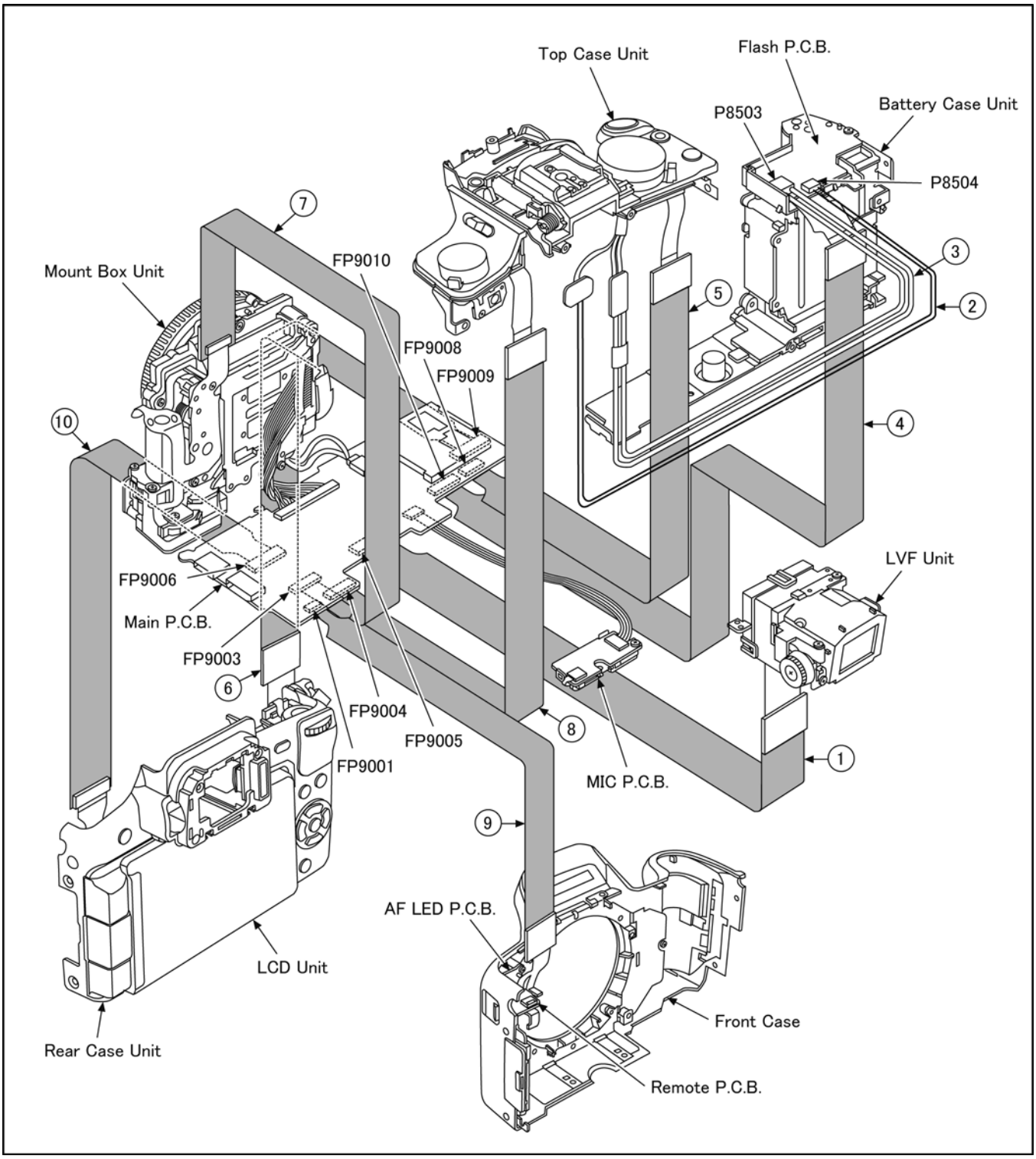


8.3. Service Position

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	RFKZ0477	FP9005(MAIN) - LVF UNIT	45PIN 0.3 FFC
2	VFK1576DC202	P8504(FLASH) - FLASH UNIT	2PIN CONNECTOR
3	RFKZ0359	P8503(FLASH) - FLASH UNIT	2PIN CONNECTOR
4	RFKZ0399	FP9010(MAIN) - FPC←→FP8501(FLASH)	20PIN 0.5 FFC
5	VFK1175	FP9008(MAIN) - TOP CASE UNIT	16PIN 0.5 FFC
6	VFK1443	FP9009(MAIN) - REAR OPERATION UNIT	18PIN 0.5 FFC
7	VFK1364	FP9004(MAIN) - MOUNT BOX UNIT	14PIN 0.5 FFC
8	VFK1175	FP9003(MAIN) - TOP CASE UNIT	16PIN 0.5 FFC
9	VFK1440	FP9001(MAIN) - FPC←→AF LED/REMOTE	10PIN 0.5 FFC
10	VFK1951	FP9006(MAIN) - LCD UNIT	39PIN 0.3 FFC



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

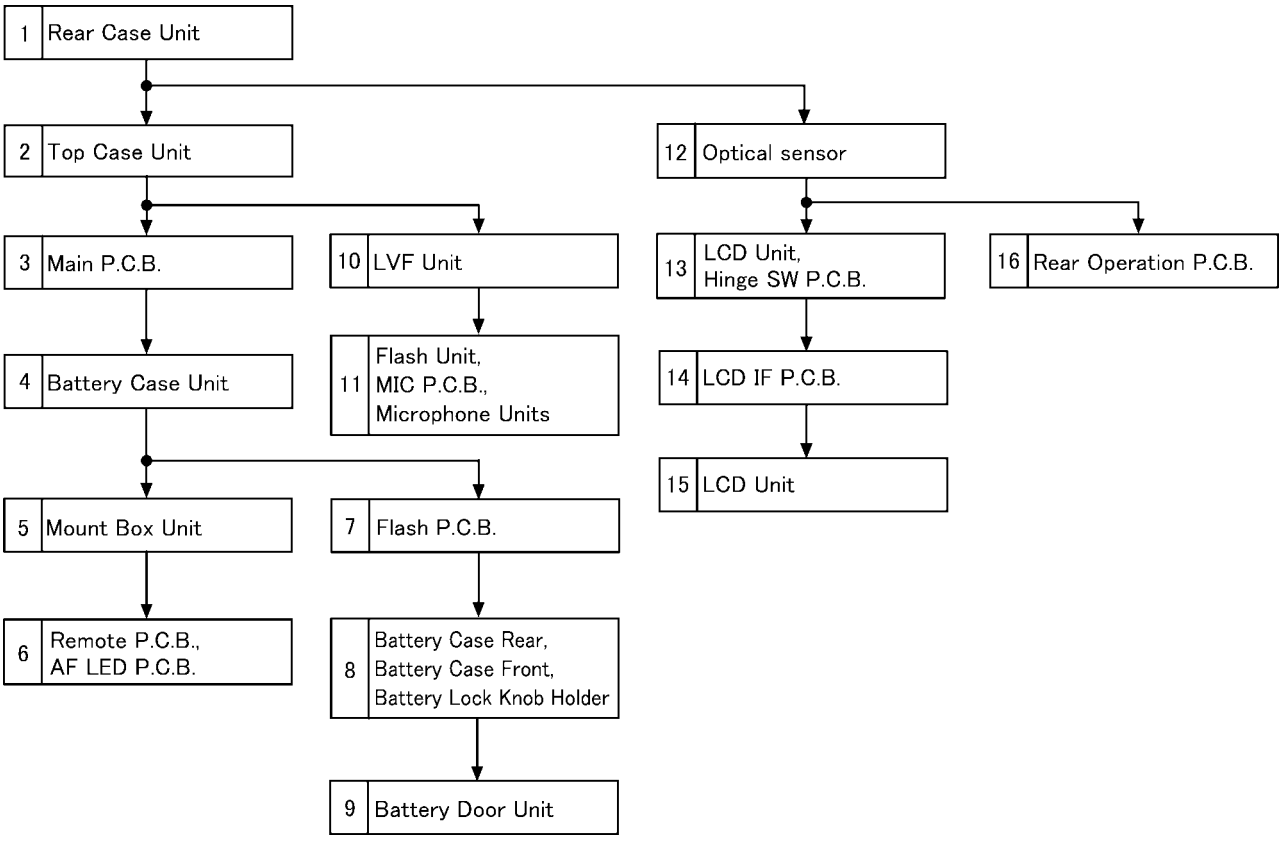
1. Be sure to discharge the capacitor on FLASH P.C.B..
   Refer to “HOW TO DISCHARGE THE CAPACITOR ON FLASH P.C.B.”.
   The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on FLASH P.C.B..
3. DO NOT allow other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

9 Disassembly and Assembly Instructions

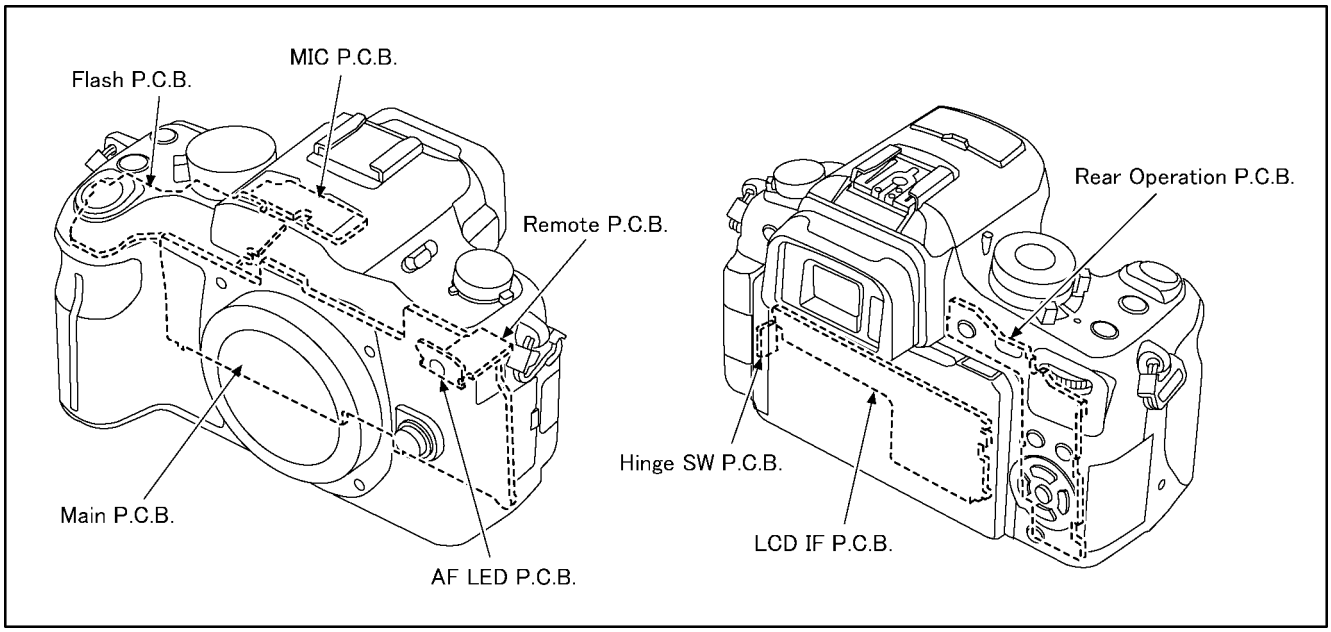
9.1. Camera Body Part

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

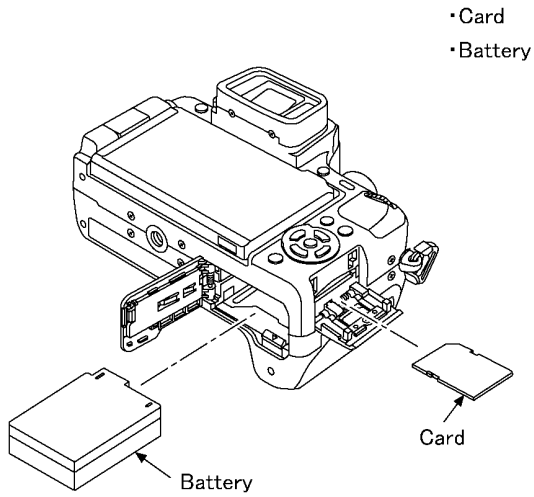
No.	Item	Fig	Removal
1	Rear Case Unit	(Fig. D1)	7 Screws (A)
			3 Screws (B)
		(Fig. D2)	2 Locking tabs
			Eye Cup Unit
			2 Screws (C)
		(Fig. D3)	FP9006(Flex)
			FP9009(Flex)
			Rear Case Unit
2	Top Case Unit	(Fig. D4)	2 Screws (D)
		(Fig. D5)	1 Screw (E)
			FP9003(Flex)
			FP9005(Flex)
			FP9008(Flex)
			P8503(Connector)
			P8504(Connector)
			P9003(Connector)
			Top Case Unit
3	Main P.C.B.	(Fig. D6)	3 Screws (F)
			FP9001(Flex)
			FP9004(Flex)
			FP9007(Flex)
			FP9010(Flex)
			Wire Protect Sheet
			1 Locking tab
			FP9002(Connector)
			P9002(Connector)
			Main P.C.B.
4	Battery Case Unit	(Fig. D7)	2 Screws (G)
			Heat Radiation Pad
			Heat Radiation Plate
			3 Screws (H)
			2 Screws (I)
			Battery Case Unit
5	Mount Box Unit	(Fig. D8)	4 Screws (J)
			Mount Box Unit
6	Remote P.C.B. AF LED P.C.B.	(Fig. D9)	3 Screws (K)
			Jack Cover
			Remote Cover
			AF Light Case
			2 Screws (L)
			1 Locking tab
			Side Frame R
			Jack Holder
			1 Locking tab
			FP7301(Flex)
			FP7350(Flex)
			Remote P.C.B.
			AF LED P.C.B.
7	Flash P.C.B.	(Fig. D10)	4 Locking tabs
			Condensor Cover
		(Fig. D11)	1 Screw (M)
			1 Screw (N)
			Flash P.C.B.

No.	Item	Fig	Removal
8	Battery Case Rear Battery Case Front Battery Lock Knob Holder	(Fig. D12)	2 Screws (O)
			Battery Side Plate
			1 Locking tab
			1 Hanging Part
			Battery Case Rear
		(Fig. D13)	3 Locking tabs
			Battery Lock Knob Holder
			Battery Lock Spring
			Battery Lock Knob
			DC Cover
			1 Locking tab
			Battery Case Front
			Battery Out Spring
9	Battery Door Unit	(Fig. D14)	Battery Door Shaft
			Battery Door Spring
			Battery Door Unit
10	LVF Unit	(Fig. D15)	2 Screws (P)
			LVF Unit
11	Flash Unit MIC P.C.B. Microphone Units	(Fig. D16)	2 Screws (Q)
			Flash Top Case Unit
			MIC/Flash Unit
		(Fig. D17)	1 Screw (R)
			MIC Unit
			Flash Unit
			MIC Dumper
			MIC Plate
			MIC Harness
			FP4202(Flex)
			1 Screw (S)
			MIC P.C.B.
			Microphone Units
12	Optical Sensor	(Fig. D18)	2 Screws (T)
			Eye Plate
			Flex
			Optical Sensor
13	LCD Unit Hinge SW P.C.B.	(Fig. D19)	1 Screw (U)
			Strap R Unit
			2 Screws (V)
			P7550(Connector)
		(Fig. D20)	Hinge Arm Cover (Top)
			Hinge Arm Cover (Bottom)
			2 Screws (W)
			Hinge Plate
			2 Ribs
			1 Screw (X)
			LCD Unit
			Hinge SW P.C.B.
14	LCD IF P.C.B.	(Fig. D21)	2 Screws (Y)
			2 Screws (Z)
			6 Locking tabs
			LCD Case Bottom
			LCD Hinge Unit
			FP7202(Flex)
			FP7203(Flex)
			FP7204(Flex)
			FP7205(Flex)
			3 Locking tabs
			LCD IF P.C.B.
15	LCD Unit		BL Bezel Sheet
			LCD Case Top Unit
			LCD Unit

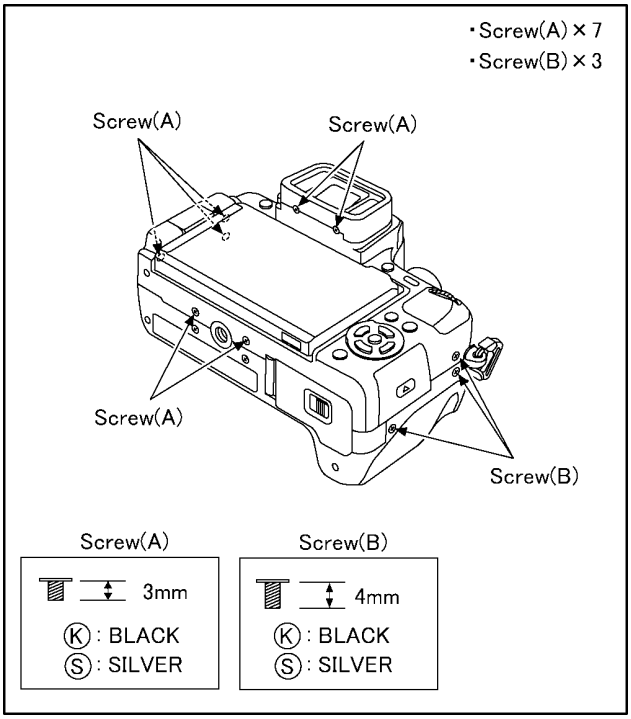
No.	Item	Fig	Removal
16	Rear Operation P.C.B.	(Fig. D23)	6 Screws (a)
			FP7550(Flex)
			Rear Operation Unit
			FP7551(Flex)
			Eye FFC
			FP7552(Flex)
			Rear Operation FFC
			LVF/LCD Button
			Rear Earth Plate
			LCD Lock Piece
			Strap L Unit
			Rear Operation P.C.B.

NOTE:

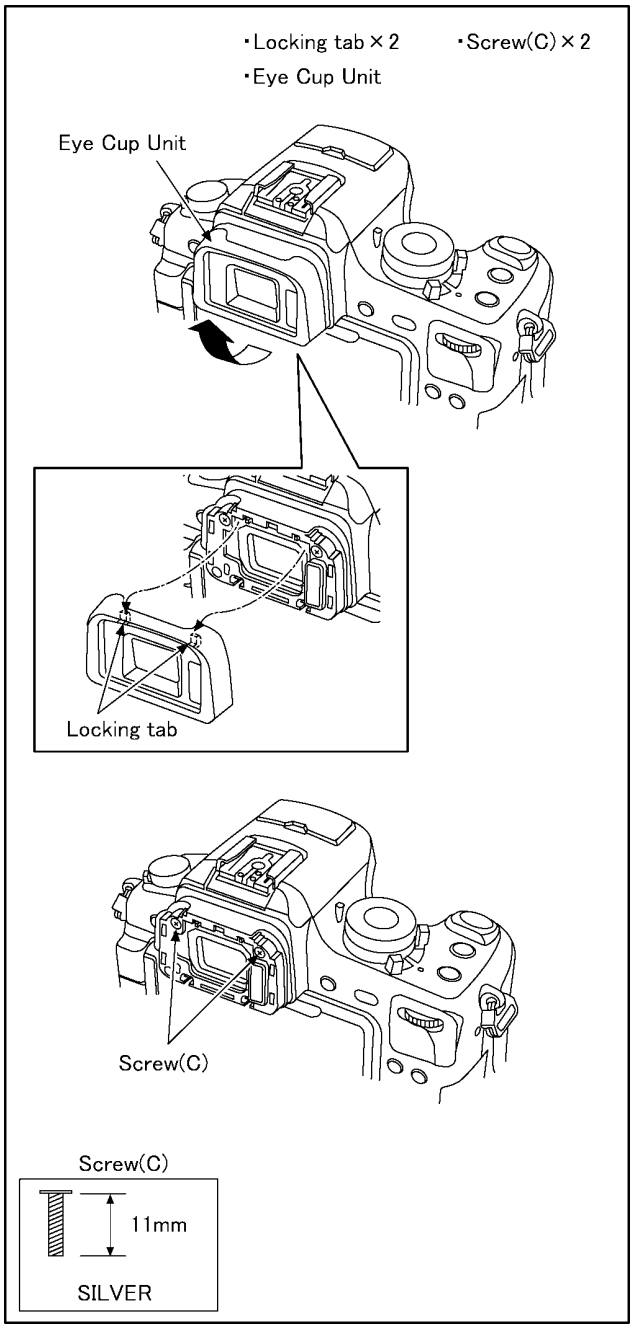
- When servicing and reassembling, remove the card and battery from the unit.
- Install the body cap, except when it is necessary to prevent garbage and dust.



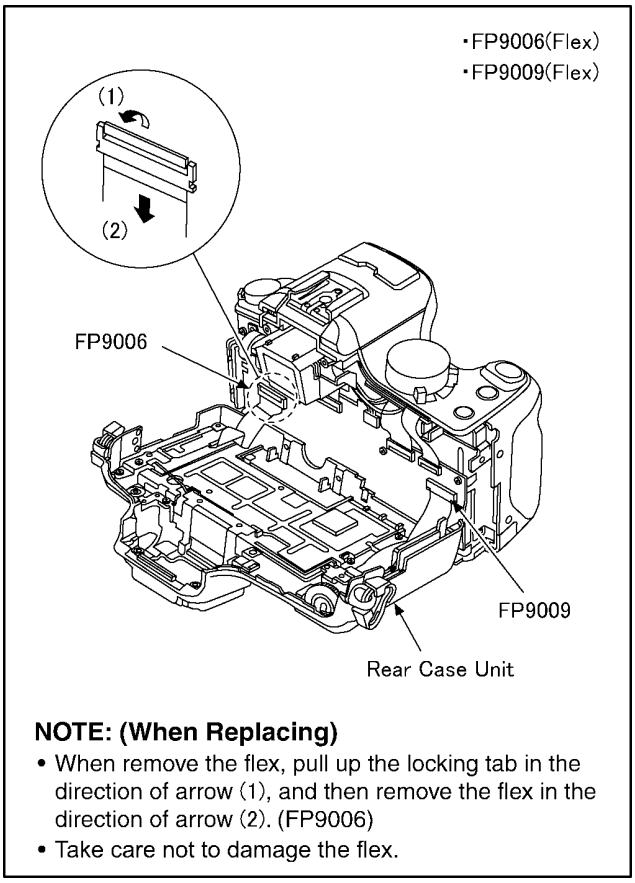
9.1.3.1. Removal of the Rear Case Unit



(Fig. D1)

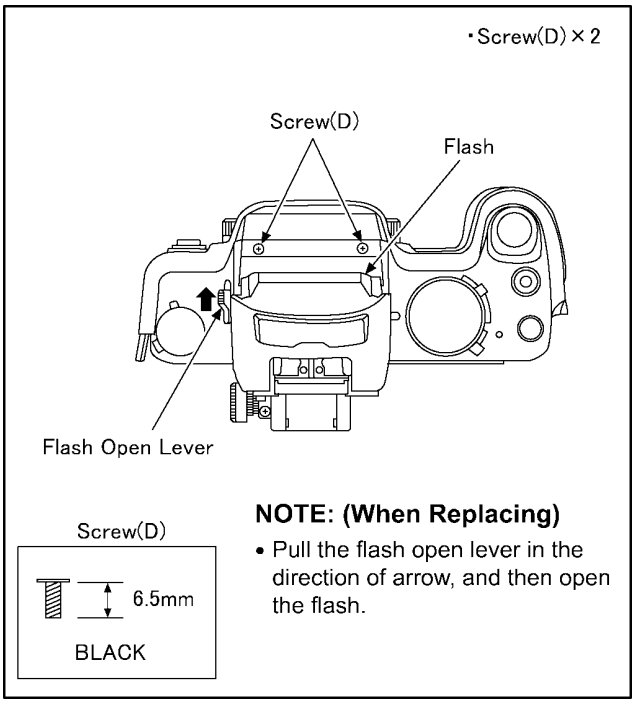


(Fig. D2)



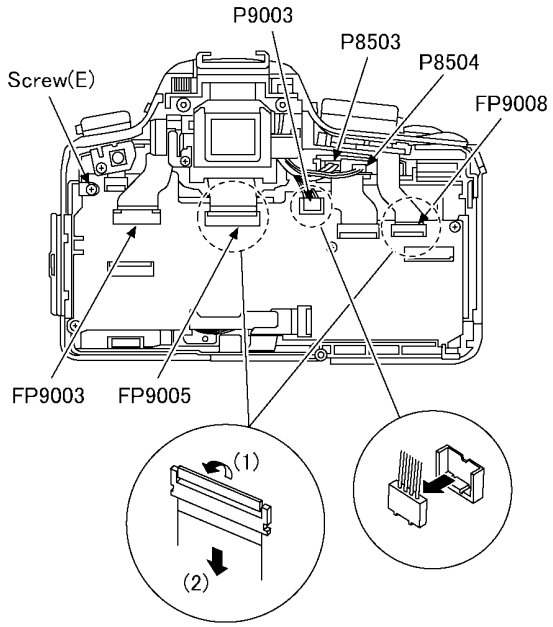
(Fig. D3)

9.1.3.2. Removal of the Top Case Unit

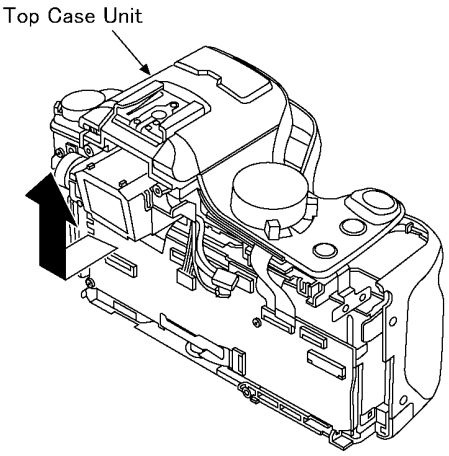


(Fig. D4)

・Screw(E) × 1
・FP9003(Flex)
・FP9005(Flex)
・FP9008(Flex)
・P8503(Connector)
・P8504(Connector)
・P9003(Connector)



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). (FP9005,FP9008)



Screw(E)

3mm

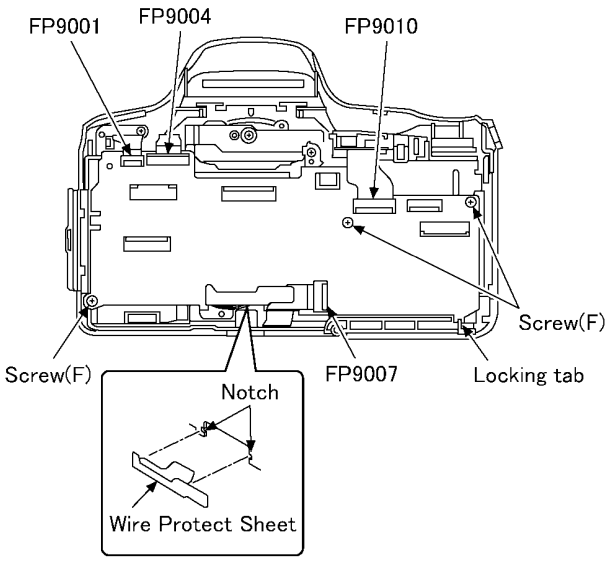
SILVER

NOTE: (When Replacing)
- Take care not to damage the flex.

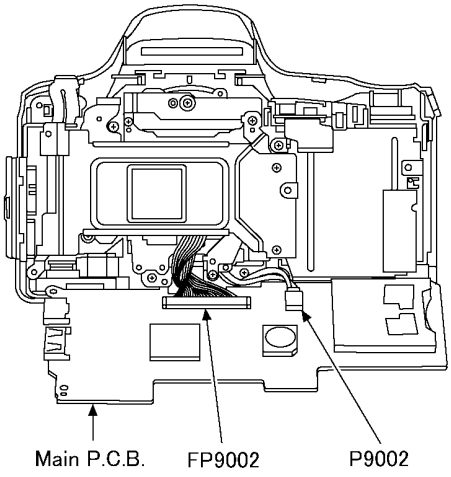
(Fig. D5)

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

・Screw(F) × 3
・FP9001(Flex)
・FP9004(Flex)
・FP9007(Flex)
・FP9010(Flex)
・Wire Protect Sheet
・Locking tab × 1
・FP9002(Connector)
・P9002(Connector)



NOTE: (When Replacing)
- Take care not to damage the flex.



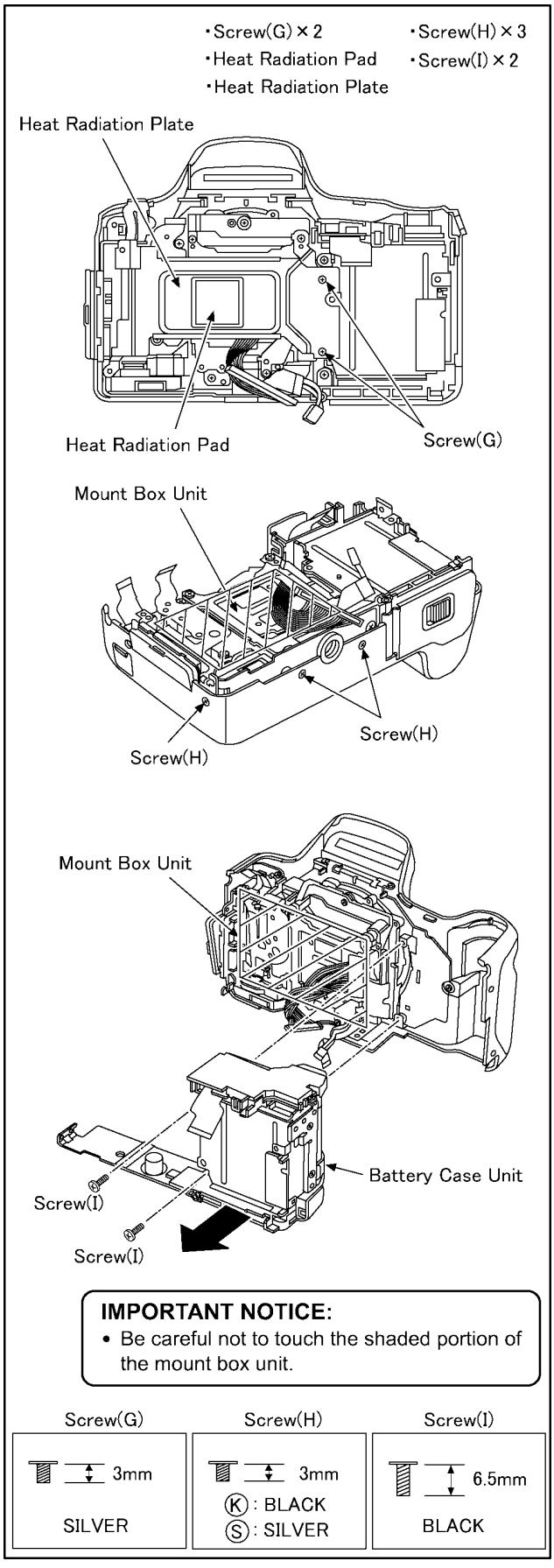
Screw(F)

3mm

SILVER

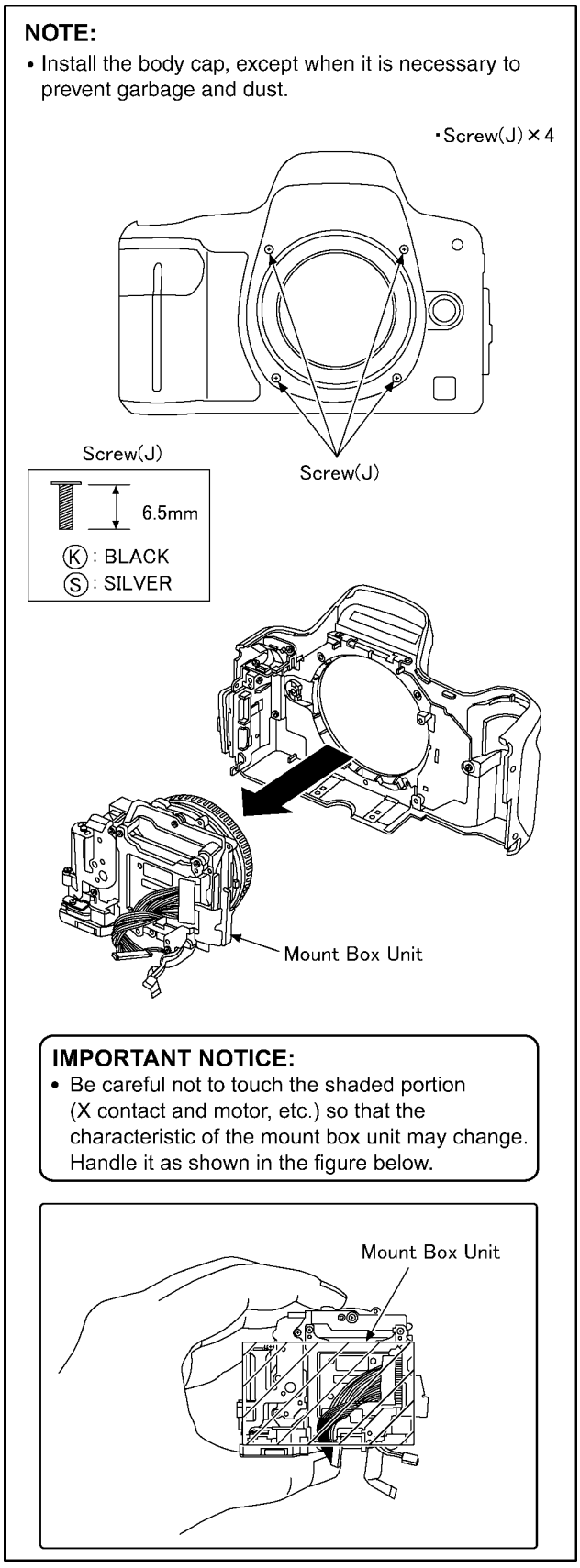
(Fig. D6)

9.1.3.4. Removal of the Battery Case Unit



(Fig. D7)

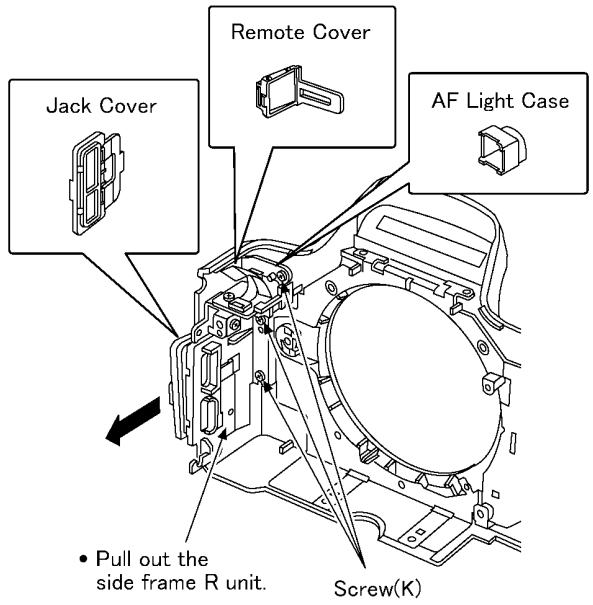
9.1.3.5. Removal of the Mount Box Unit



(Fig. D8)

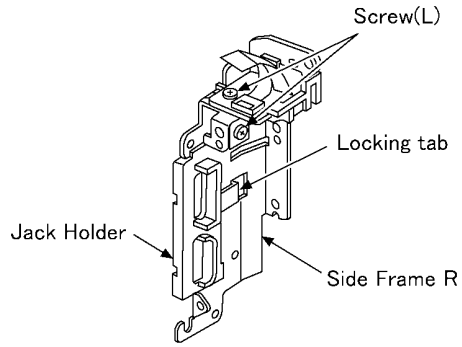
9.1.3.6. Removal of the Remote P.C.B. and AF LED P.C.B.

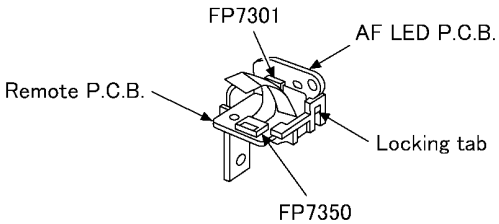
- Screw(K) × 3
- Jack Cover
- Remote Cover
- AF Light Case
- Screw(L) × 2
- Locking tab × 1
- Side Frame R
- Jack Holder
- Locking tab × 1
- FP7301(Flex)
- FP7350(Flex)

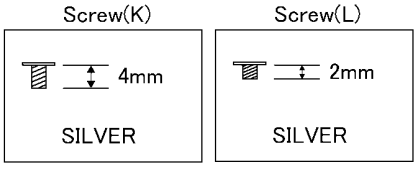


NOTE: (When Replacing)

- Be careful not to lose parts, it becomes easy to separate from the jack cover, remote cover and AF light case when removing the side frame R unit.



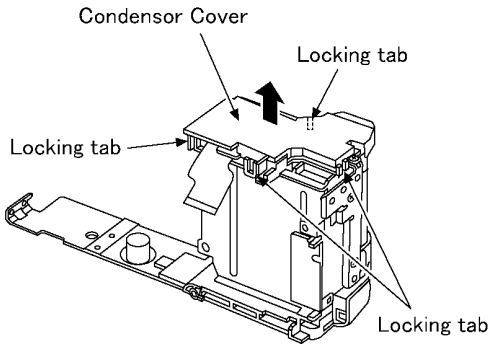




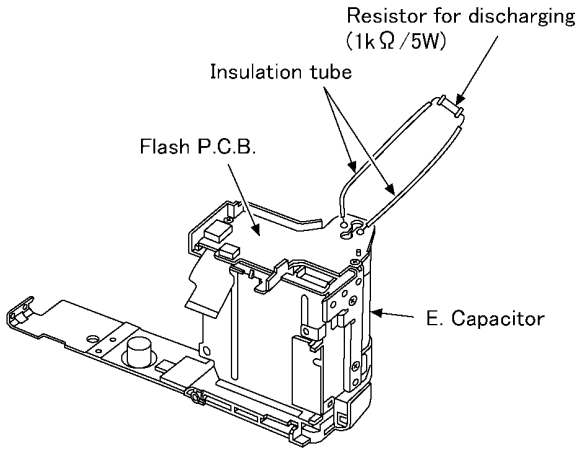
(Fig. D9)

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

- Locking tab × 4
- Condensor Cover



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 P.C.B..



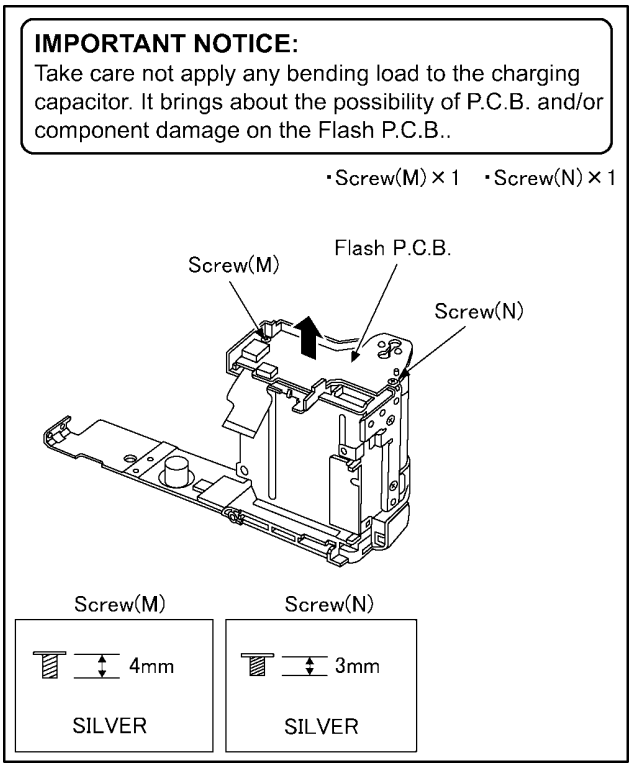
⚠ CAUTION

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

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

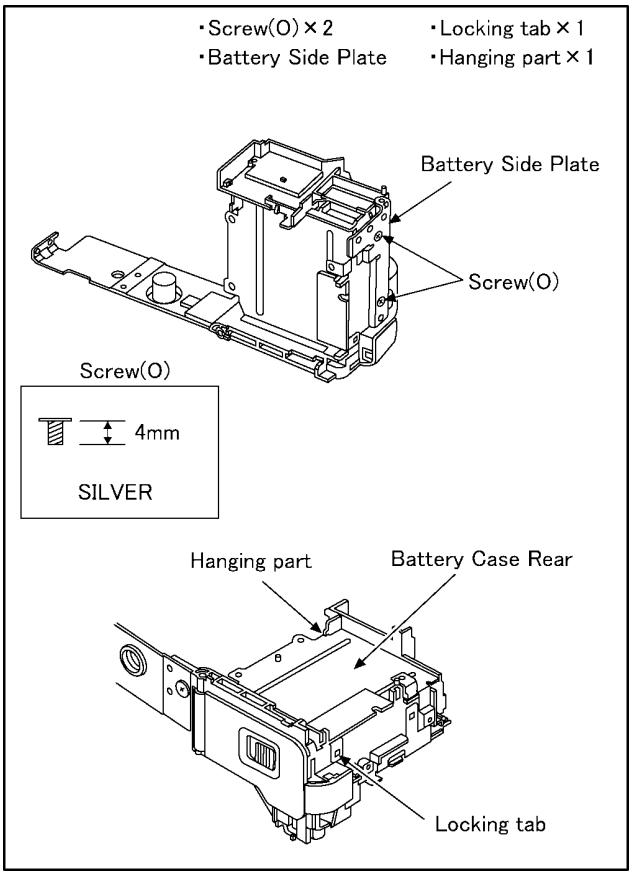
(Fig. D10)

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 P.C.B..

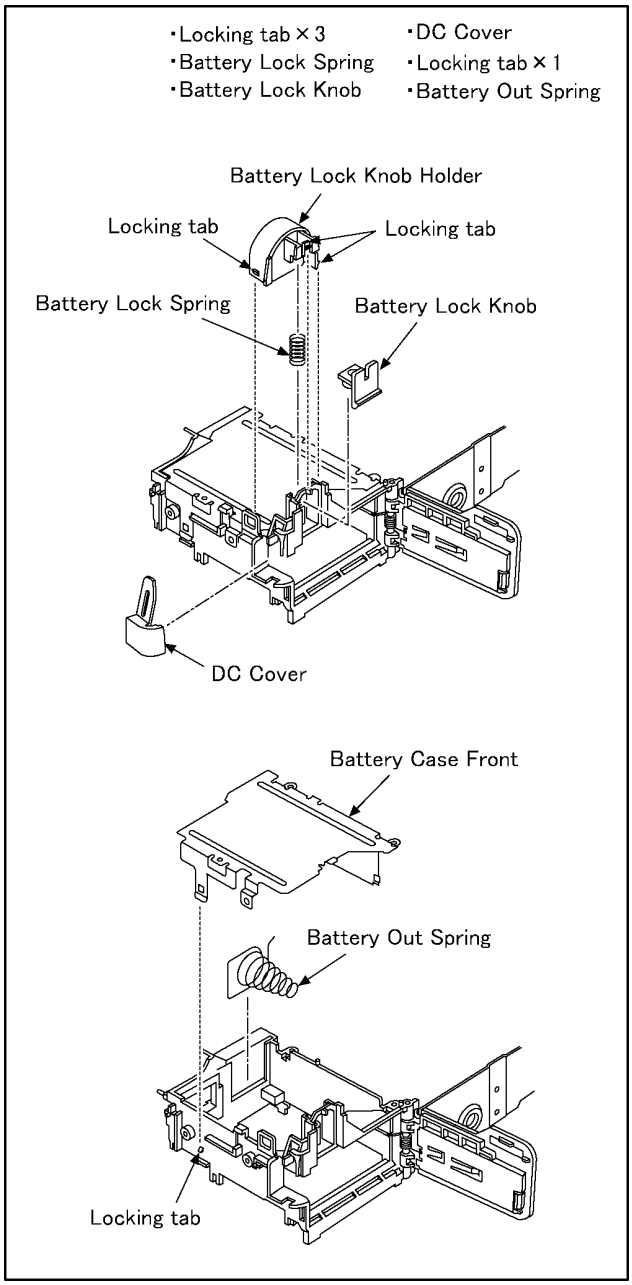


(Fig. D11)

9.1.3.8. Removal of the Battery Case Rear, Battery Case Front and Battery Lock Knob Holder

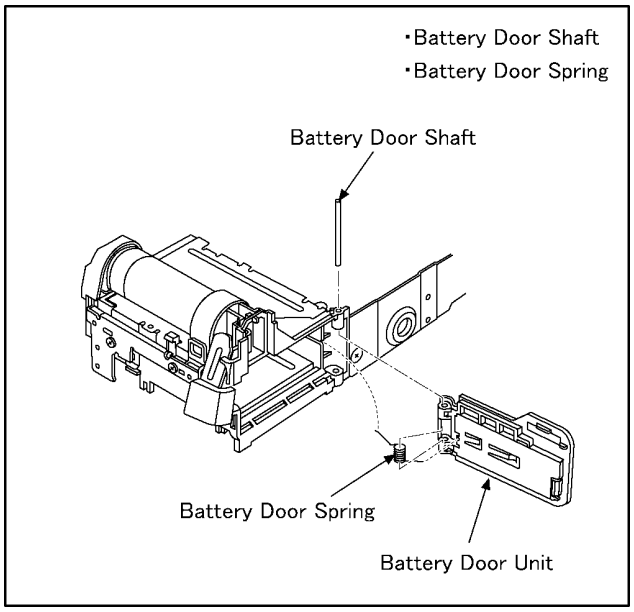


(Fig. D12)



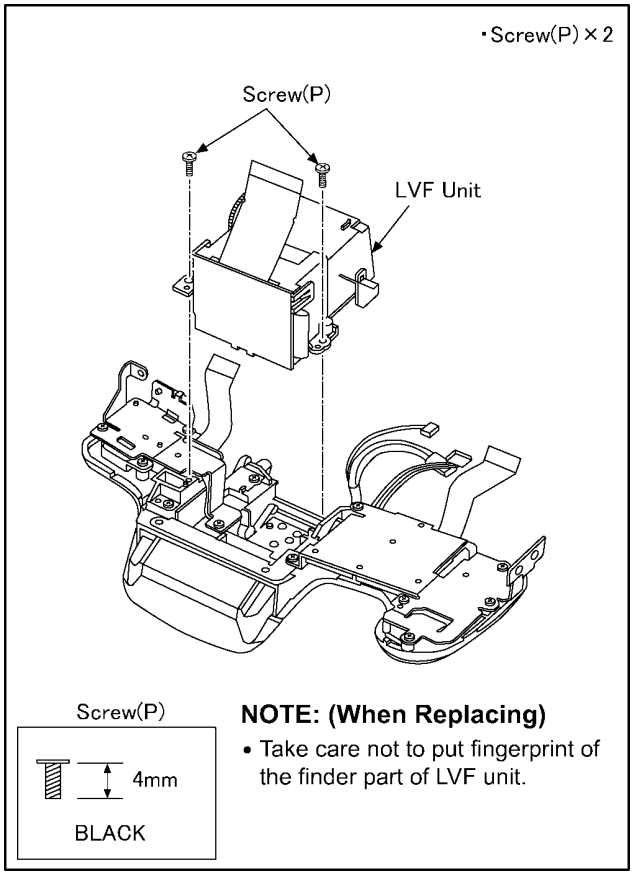
(Fig. D13)

9.1.3.9. Removal of the Battery Door Unit



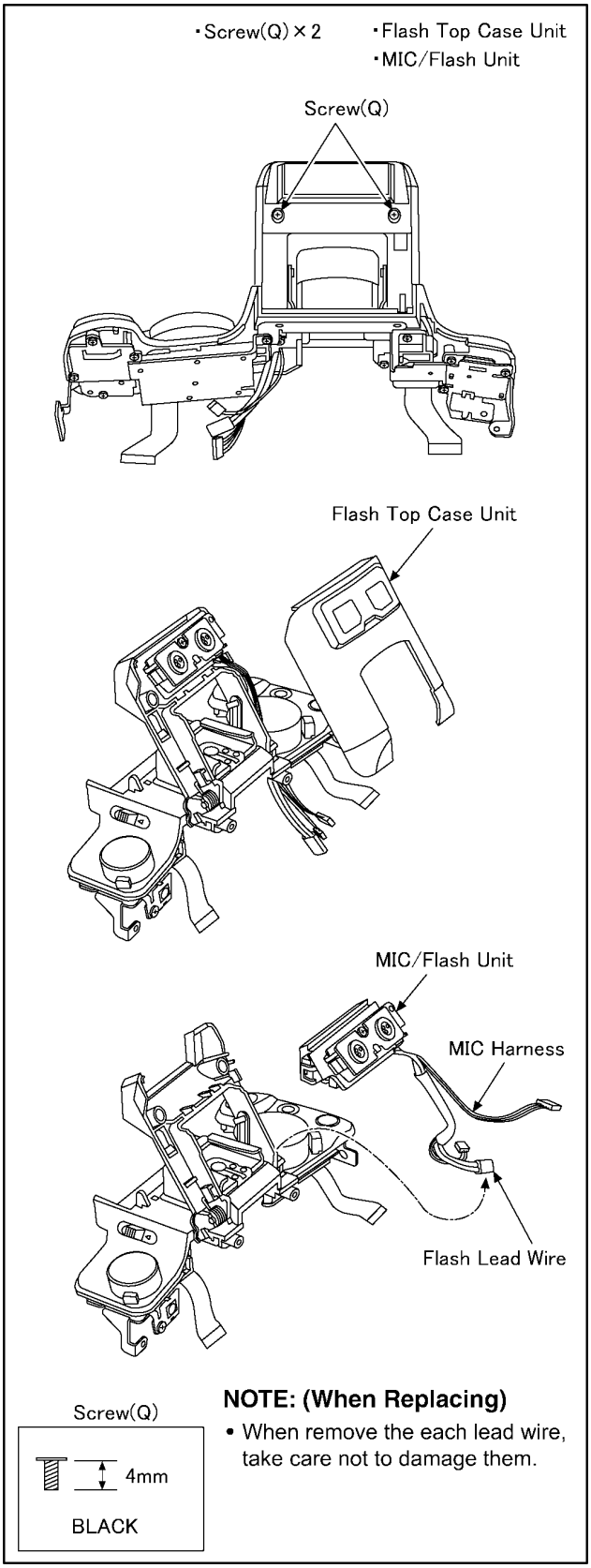
(Fig. D14)

9.1.3.10. Removal of the LVF Unit

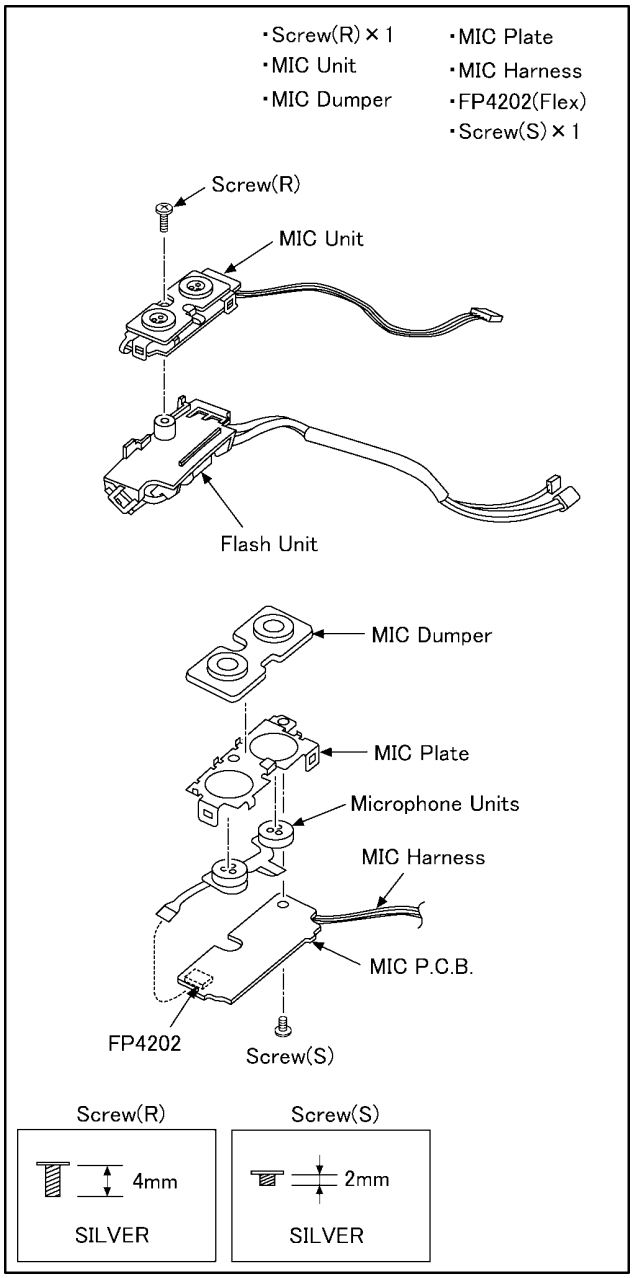


(Fig. D15)

9.1.3.11. Removal of the Flash Unit, MIC P.C.B. and Microphone Units

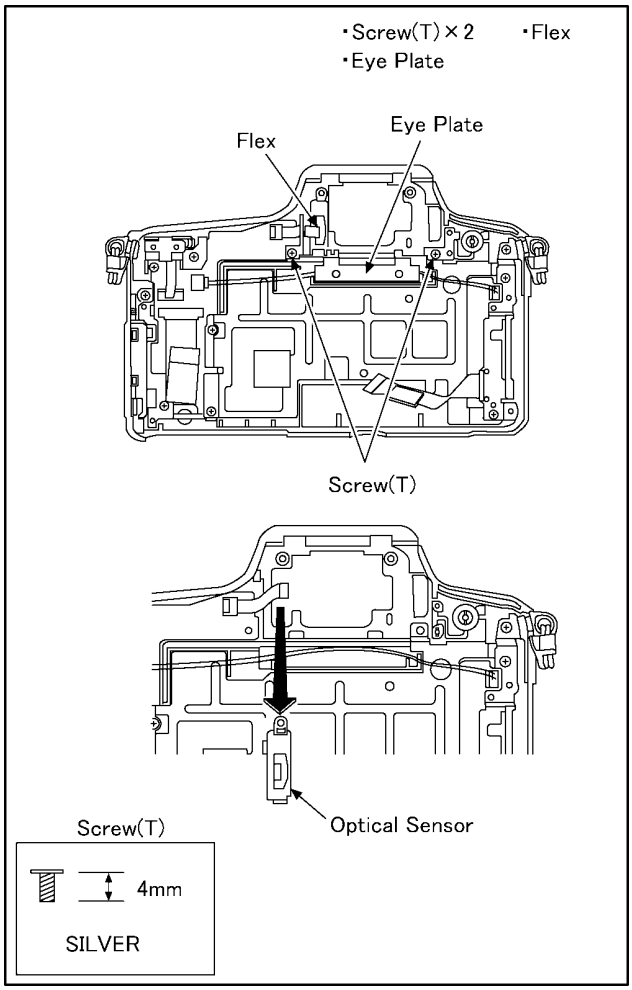


(Fig. D16)



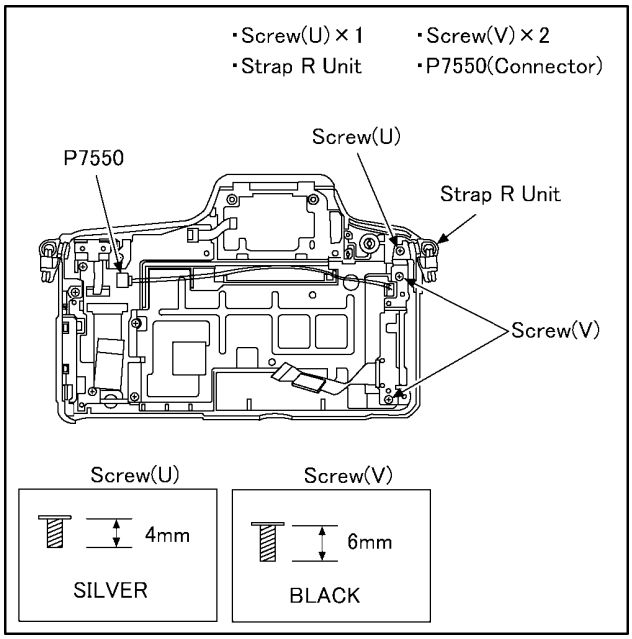
(Fig. D17)

9.1.3.12. Removal of the Optical Sensor

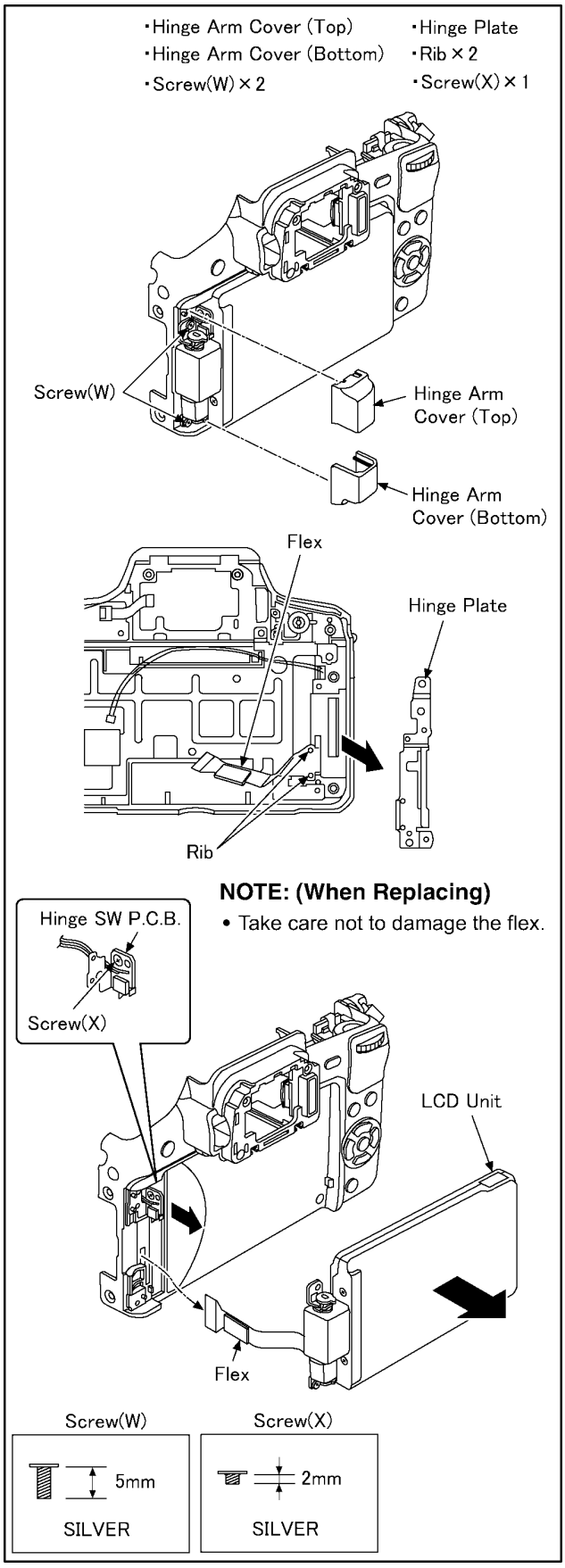


(Fig. D18)

9.1.3.13. Removal of the LCD Unit and Hinge SW P.C.B.

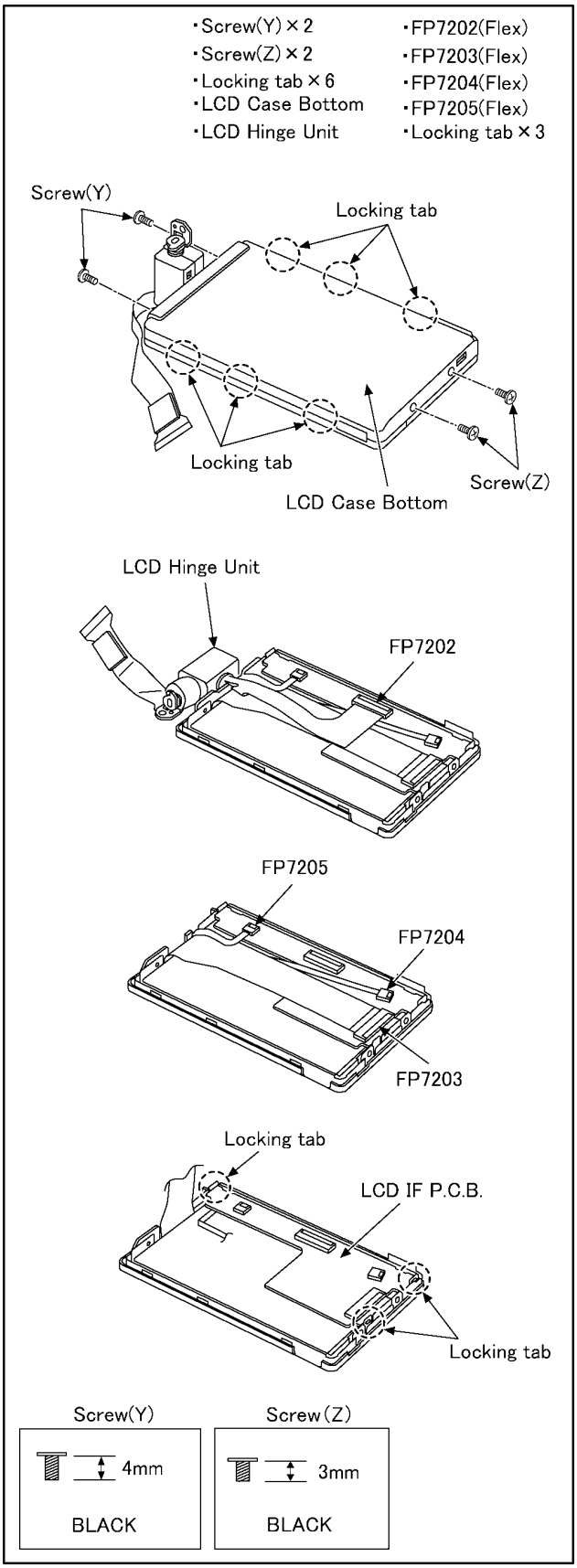


(Fig. D19)



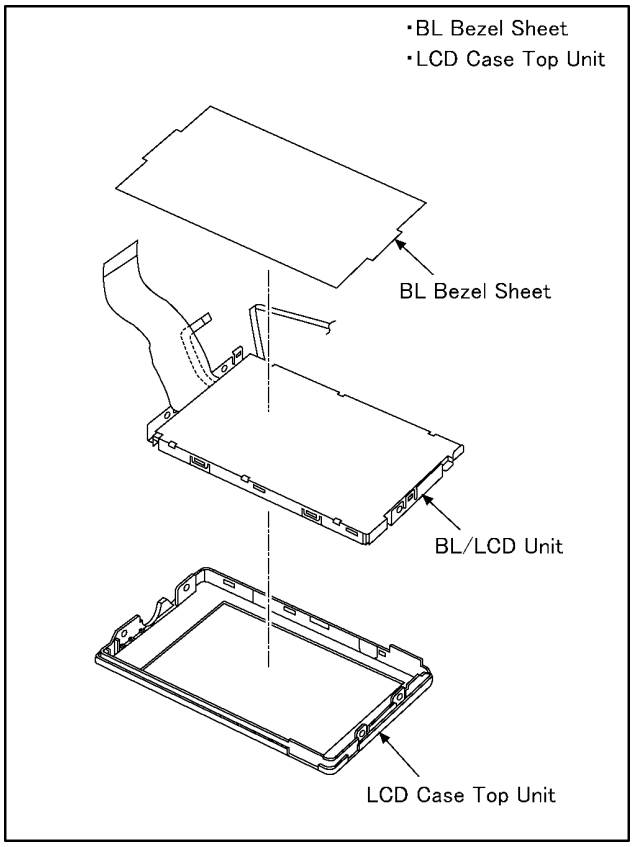
(Fig. D20)

9.1.3.14. Removal of the LCD IF P.C.B.



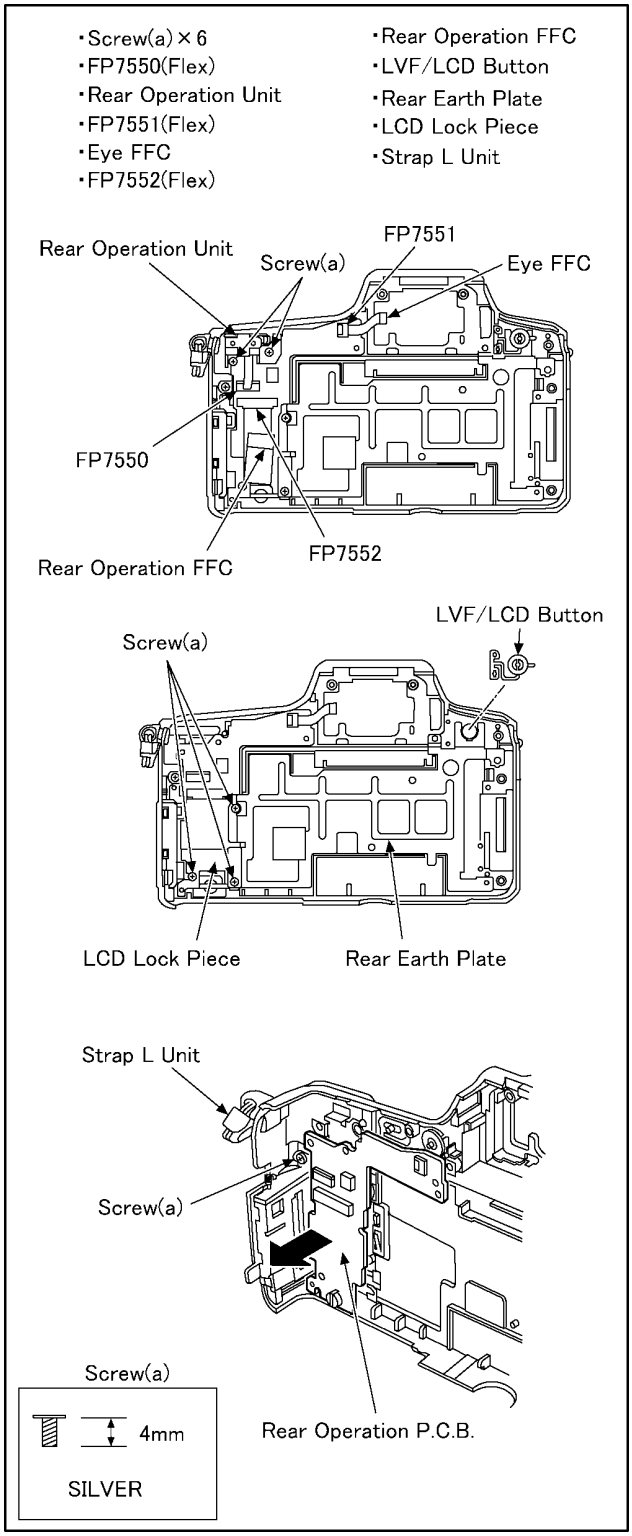
(Fig. D21)

9.1.3.15. Removal of the LCD Unit



(Fig. D22)

9.1.3.16. Removal of the Rear Operation P.C.B.



(Fig. D23)

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-VS014140)

Refer to the following table and the illustration for disassembly and assembly.

NOTE:

1. To keep maintaining the dustproof environment, it is recommended dealing with Clean box.
   (Refer to " 8.2. Clean Box " which is found in section "8.Service Fixture & Tools" of this manual.)
2. Do not allow dirt and dust to get into the inside part/component of the unit.
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).

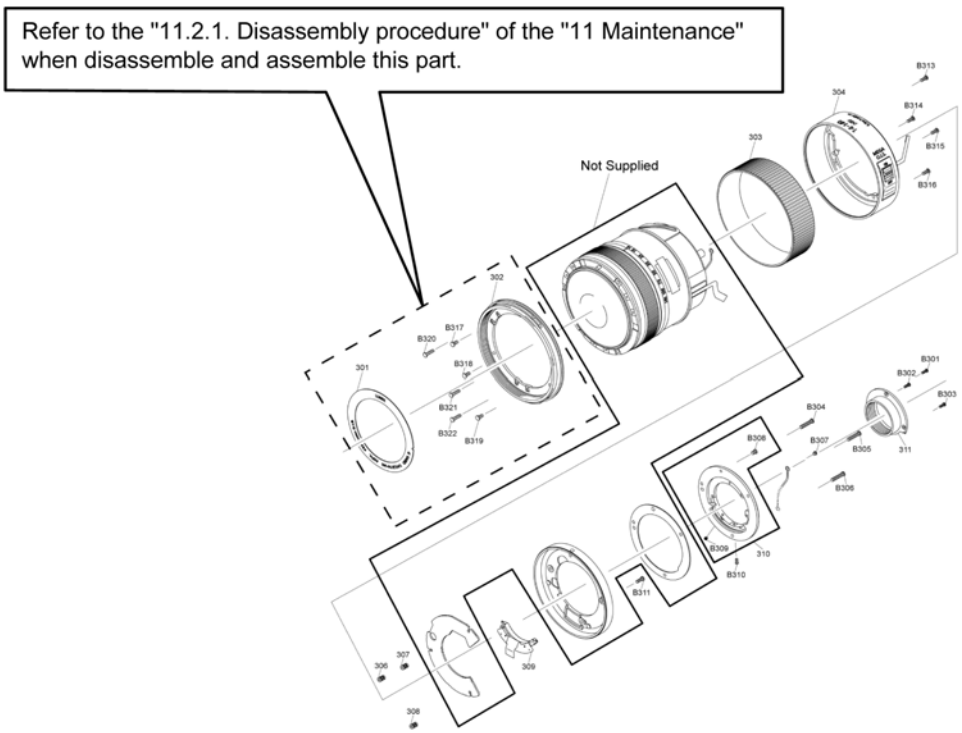
Interchangeable Lens (H-VS014140)

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

Concerned parts		screws			Torque value
Part name	Ref. No.	Ref. No.	Color	Length (mm)	
Shading frame	311	B301	Black	2.5 mm	9.8±1.0 N･cm
		B302	Black	2.5 mm	9.8±1.0 N･cm
		B303	Black	2.5 mm	9.8±1.0 N･cm
L mount unit	310	B304	Silver	10 mm	27.4±1.0 N･cm
		B305	Silver	10 mm	27.4±1.0 N･cm
		B306	Silver	10 mm	27.4±1.0 N･cm
		B307	Silver	2.5 mm	9.8±1.0 N･cm
Mount contact unit	309	B310	Silver	3.5 mm	9.8±1.0 N･cm
Cover ring unit	304	B313	Silver	5.0 mm	14.7±1.0 N･cm
		B314	Silver	5.0 mm	14.7±1.0 N･cm
		B315	Silver	5.0 mm	14.7±1.0 N･cm
		B316	Silver	5.0 mm	14.7±1.0 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.
   Use VFK1390 (small driver) when the installation is necessary because the screw was lost.



(Fig. H1)

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 detailes.
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:

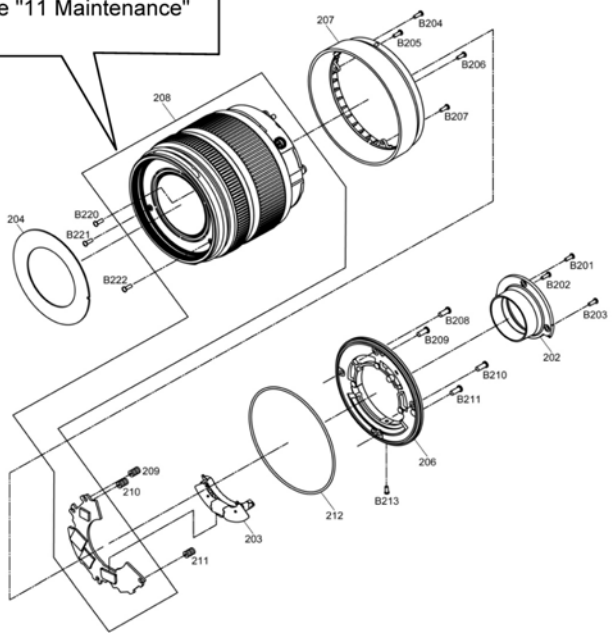
1. When installing the screws, be sure to use the torque driver (RFKZ0456) and tighten the screws with specified torque, mentioned on the above table.
2. The Ref.B213 is no need to remove/install for disassembly and assembly.
   If necessary, use VFK1390 (small driver) when screwing it.

Interchangeable Lens (H-FS014042)

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

Concerned parts		screws					Remarks
Part name	Ref. No.	Ref. No.	Color	Length (mm)	Order	Torque value	
Shading frame	202	B201	Black	4mm	1	7±0.5	
		B202	Black	4mm	2	7±0.5	
		B203	Black	4mm	3	7±0.5	
L mount unit	206	B208	Black	5mm	2	15±1.2	
		B209	Black	5mm	4	15±1.2	
		B210	Black	5mm	3	15±1.2	
		B211	Black	5mm	1	15±1.2	
		B213	Black	3mm	----	-----	Use Small Driver (VFK1390)
Rear frame 2 unit	207	B204	Black	4mm	1	7±0.5	
		B205	Black	4mm	4	7±0.5	
		B206	Black	4mm	3	7±0.5	
		B207	Black	4mm	2	7±0.5	

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 ・Power P.C.B.	Eye sensor	LCDu	LVFu (EVFu)	・Lens u ・L-Mount ・Rear Frame etc	T. Panel Driver (IC7201)
Section	Body Camera	VENUS-ZOOM Inspection (PZM)	—	○	○	—	—	—	—	—	—
		ISO sensitivity adjustment (ISO)	○	○	○	—	—	—	—	—	—
		High brightness coloration inspection (SEN)	○	○	○	—	—	—	—	—	—
		Offset gain adjustment (SAT)	○	○	○	—	—	—	—	—	—
		AWB adjustment (WBL/WBM)	○	○	○	—	—	—	—	—	—
		IMAGE SENSOR white scratch compensation (WKI)	○	○	○	—	—	—	—	—	—
		IMAGE SENSOR black scratch compensation (BKI)	○	○	○	—	—	—	—	—	—
		Low illumination image quality correction (VSJ)	○	○	○	—	—	—	—	—	—
		Eye sensor sensitivity (EYE)	—	○	○	—	○	—	—	—	—
		Mount Box Adjustment data writing	○	—	—	—	—	—	—	—	—
		Mount box u readjustment	—	○	○	—	—	—	—	—	—
		AVCHD function inspection	—	○ (*4)	○ (*4)	—	—	—	—	—	—
	Display	Touch panel adjustment (TPC)	—	○	○	—	—	○	—	—	○
Defect Part Division/ Inspection		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.

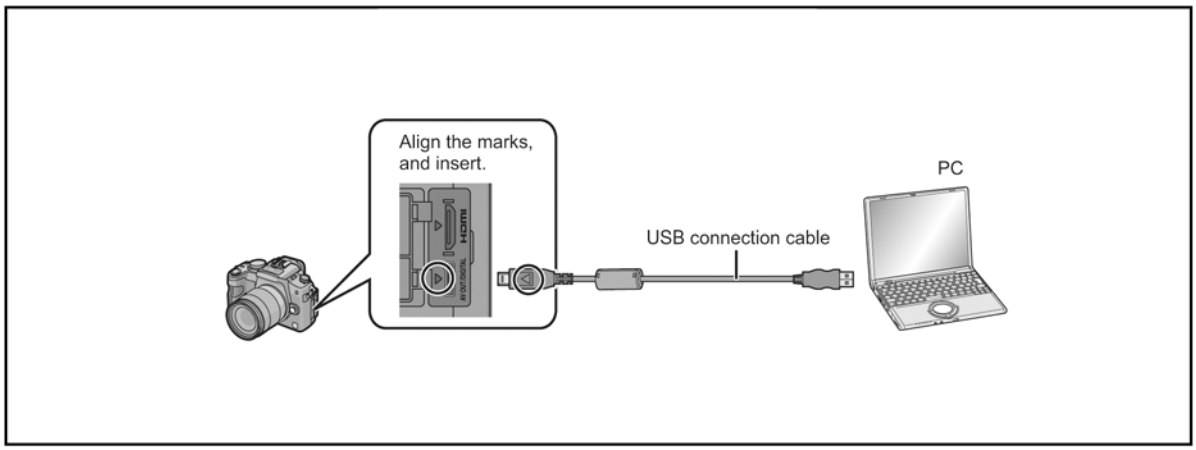
***3 NOTE: (After exchange the mount box unit)**

- 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.



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:

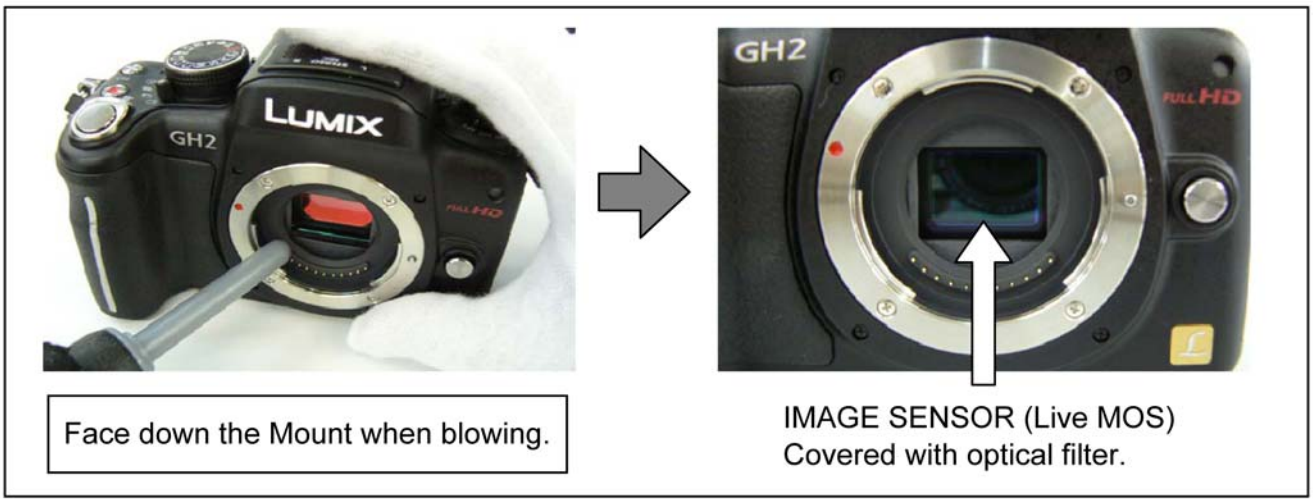
Before cleaning the camera, remove the battery and/or disconnect power plug from the outlet.
Also, remove the SD Memory card and lens unit.

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

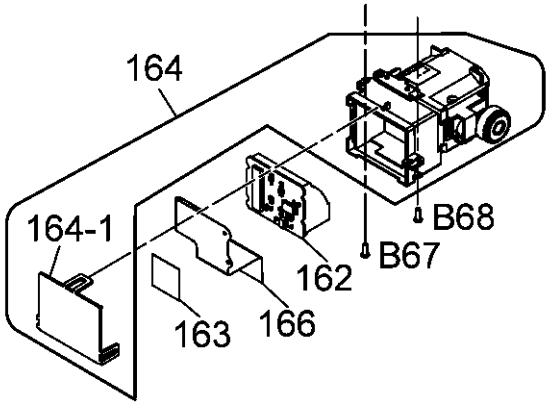
1. Blow off the dust on the surface of the Image sensor with the Blower. (Refer to the following Figure.)
   - Keep the Mount Facing down condition towards to floor when cleaning.
   - Do not put the Blower further inside than the lens mount.
   - Be careful not to blow too strongly.
2. Wipe off the dirt on the image sensor surface with Lens cleaning KIT(BK)(VFK1900BK).



11.1.1.3. ABOUT THE LVF UNIT

[PROCEDURES]

1. By referring the Disassembly & Assembly procedures and remove the LVF unit.
2. Disassemble the LVF unit as follows, then blow off the dust with blower.
3. Wipe off the dirt on the surface of glasses with Lens Cleaning KIT (VFK1900BK), if necessary.



11.1.2. ABOUT THE LENS

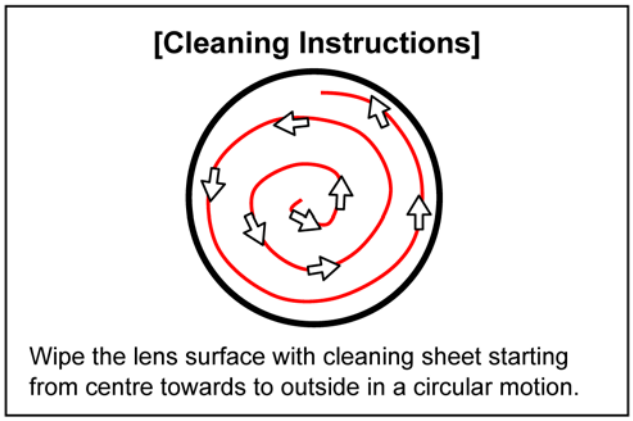
11.1.2.1. DUST/DIRT ON THE OUTER CASING PART(S)

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

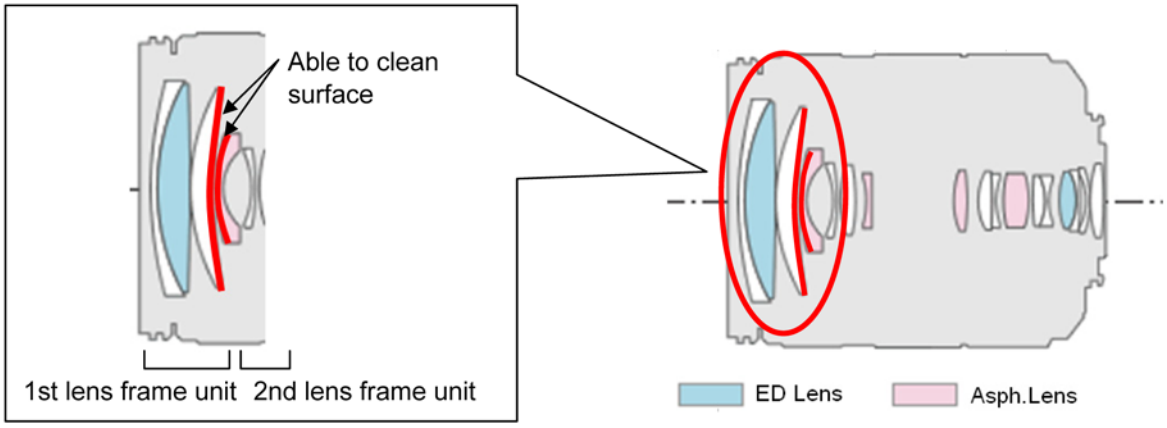
• Define the location of the dust/dirt first, whether it is outside lens surface or not.

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-VS014140)”, “11.3. General description (Lens cleaning: Interchangeable Lens/H-FS014042)” section of this service manual.



11.2. General description (Lens cleaning: Interchangeable Lens/H-VS014140)

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.

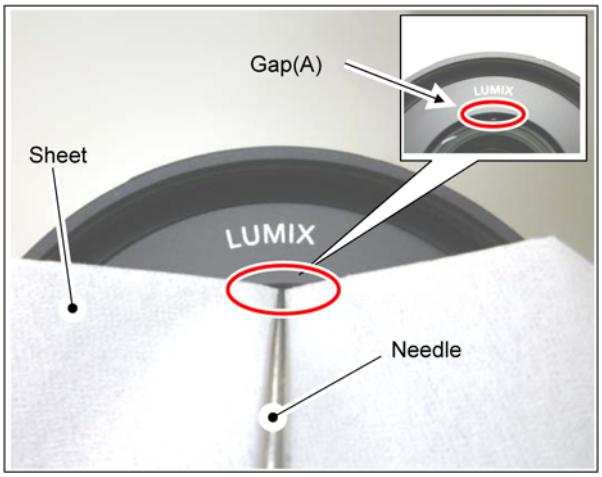
11.2.1. Disassembly procedure

Important:

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

11.2.1.1. Removal of the Decoration Ring

1. Decoration ring is sticked 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.

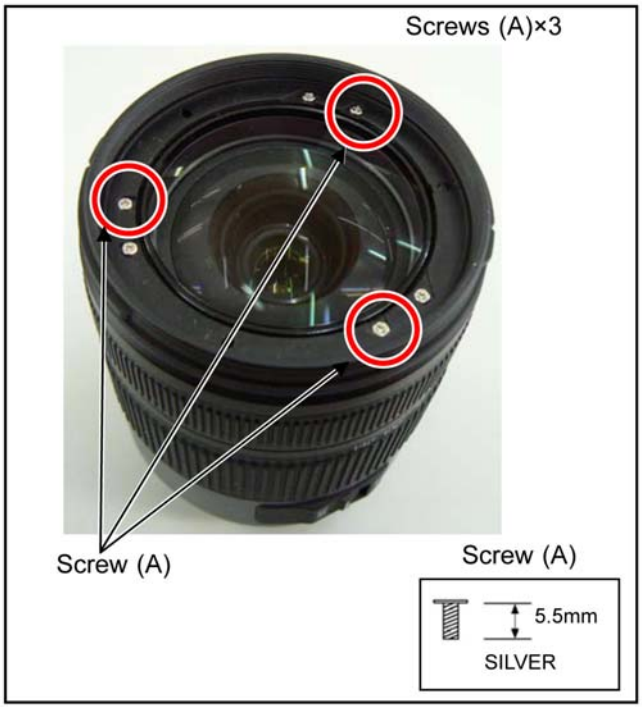


11.2.1.2. Removal of the 1st Lens Frame Unit

Important:

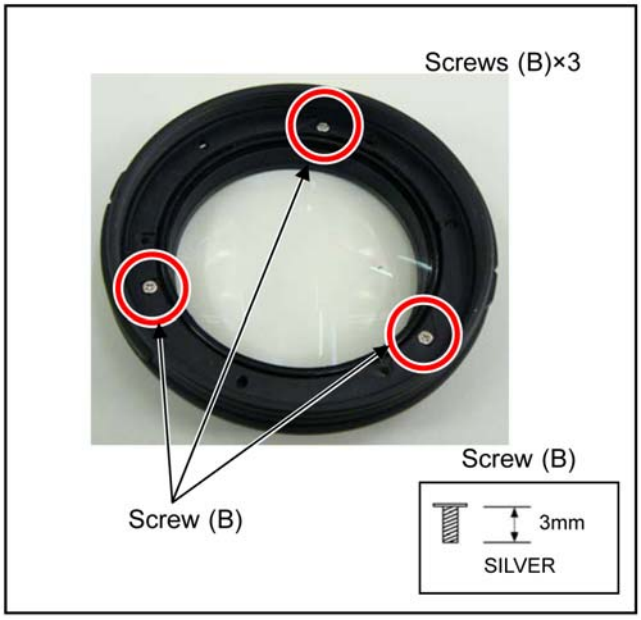
When removing the 1st lens frame unit, it has to be proceed inside of satisfied clean level.(Less than class 10,000 Federal Standard 209D)

1. Remove the 3 screws (A) and then remove the 1st lens frame unit.



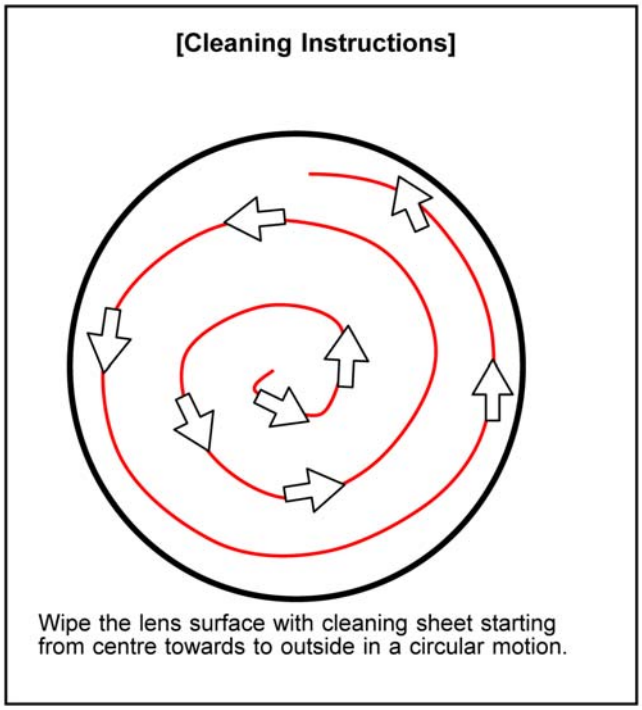
11.2.1.3. Removal of the hood adaptor

1. Removal the 3 screws (B) and then remove the hood adaptor.



11.2.1.4. Removal of a dust /dirt

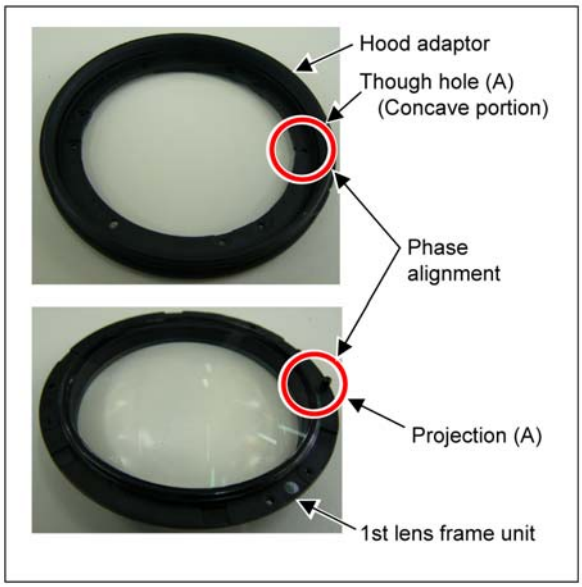
1. Blow off the dust on the Lens glass surface with the Blower, gently.
   (Do not Blow too strongly.)
2. Although after blowing, the dust/dirt does not blow off, wipe out the dirt on the lens glass surface with Lens cleaning KIT (VFK1900BK)
   (Consult the Instruction sheet which is included in the Lens cleaning KIT in details.)



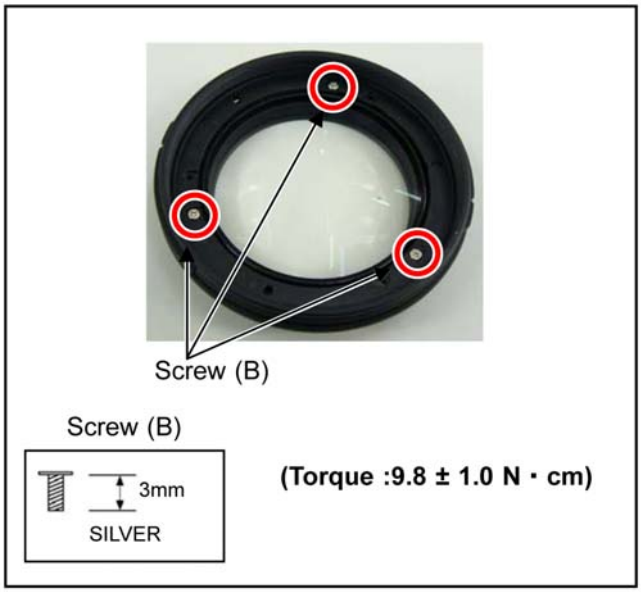
11.2.2. Assembly procedure

11.2.2.1. Installation of the hood adaptor

1. Install the hood adaptor to meet the through hole (A) with projection (A).



2. Tighten the 3 screws (B) by using torque driver with specified torque.
   (Torque driver : RFKZ0456)
   (Torque : 9.8 ± 1.0N-cm)



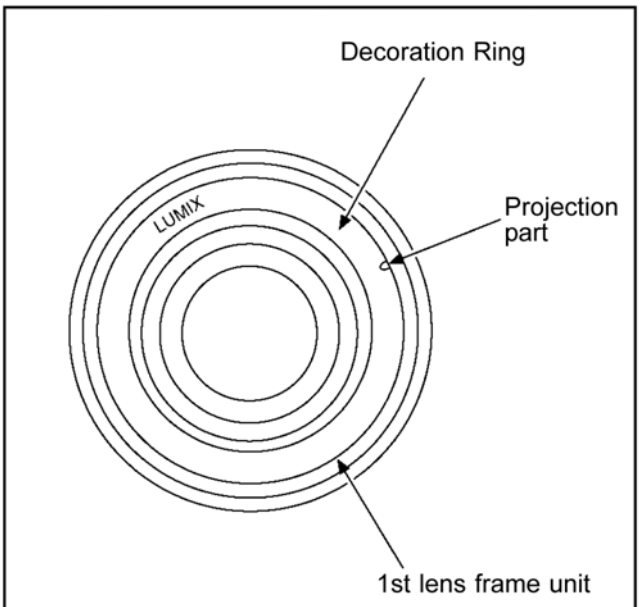
11.2.2.2. Installation of the 1st lens frame unit

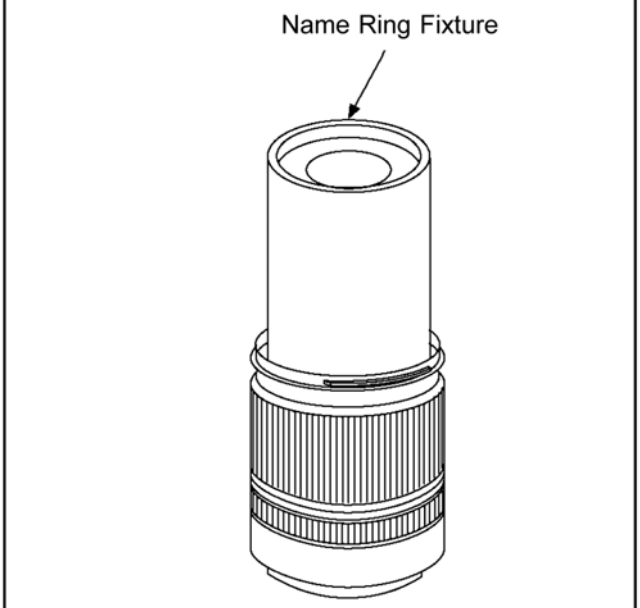
1. Install the 1st lens frame unit onto the lens unit to meet the through hole (B) with projection (B).

2. Tighten the 3 screws (A) by using torque driver with specified torque.
   (Torque :11.8 ± 1.0 N-cm)

11.2.2.3. Installation of the Decoration Ring

1. Use the Name Ring fixture (RFKZ0423)
2. Use new Decoration ring. (Do not use the one which is removed.)



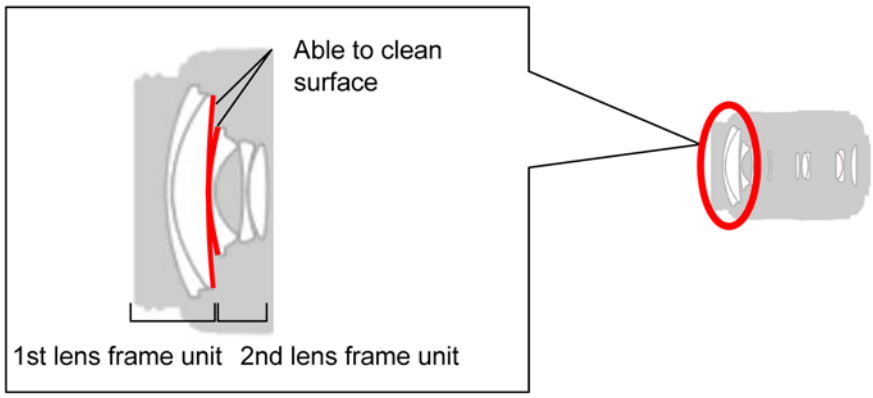


NOTE: (When Assembling)

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

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.

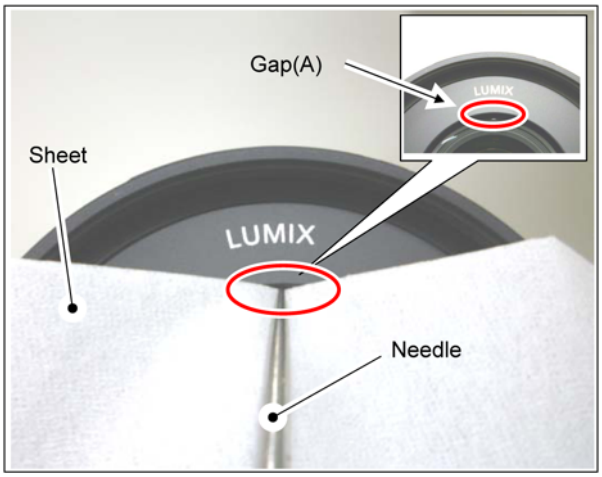
11.3.1. Disassembly procedure

Important:

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

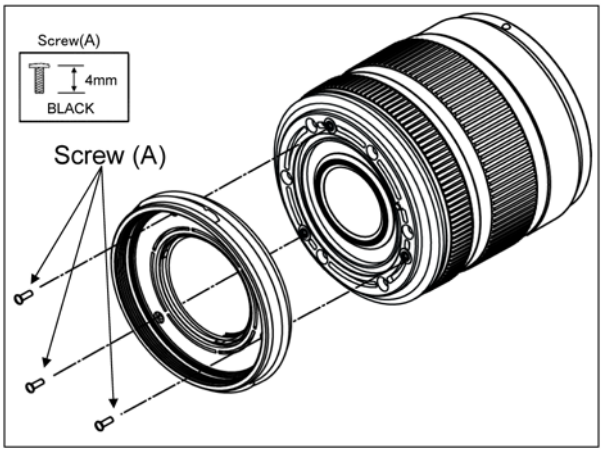
11.3.1.1. Removal of the Decoration Ring

1. Decoration ring is sticked 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.



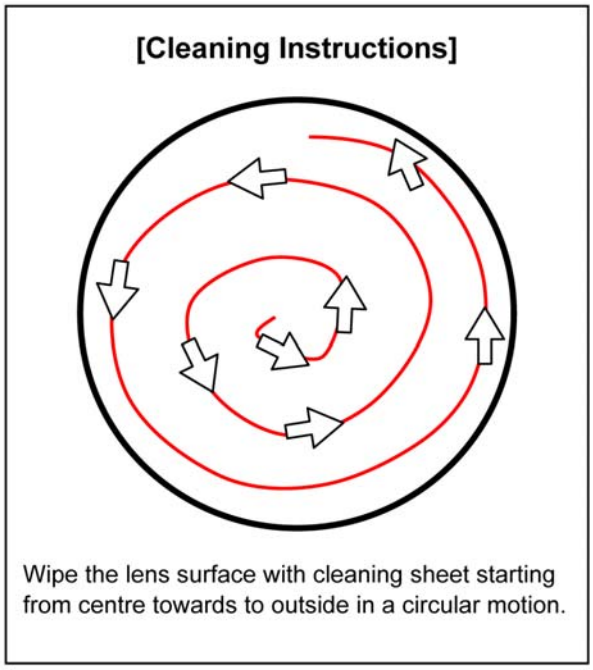
11.3.1.2. Removal of the 1st Lens Frame Unit

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.



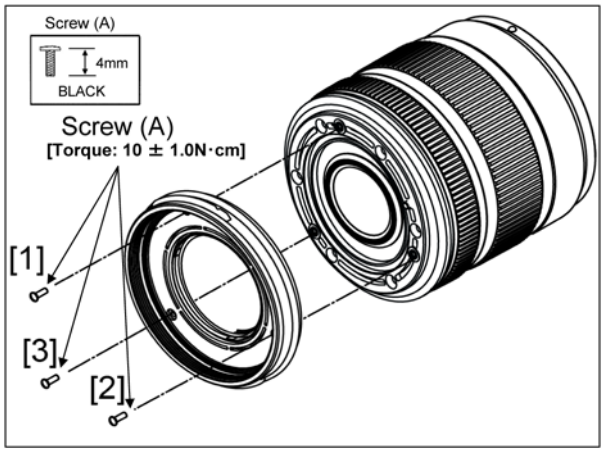
11.3.2. Assembly procedure

Important:

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

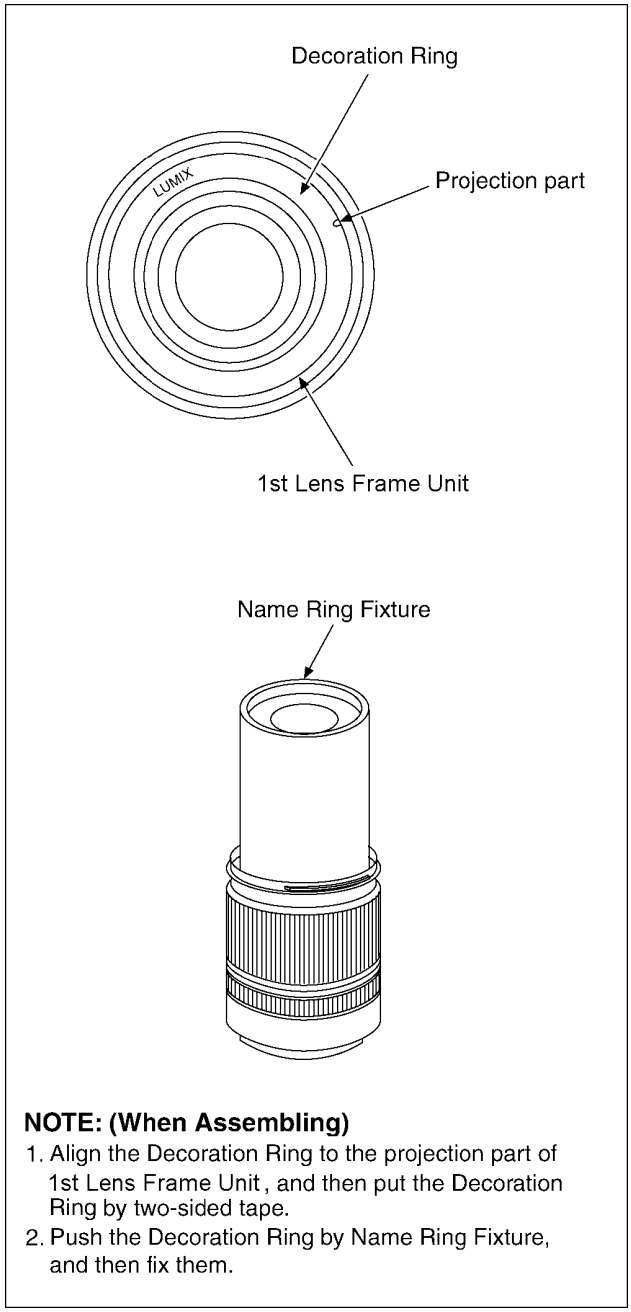
11.3.2.1. Installation of the 1st lens frame unit

1. Tighten the 3 screws (A) with specified torque in numerical order.
   (Torque Driver: RFKZ0456)
   (Torque: 10 ± 1.0 N-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.

DSC1011058CE

Service Manual

Diagrams and Replacement Parts List

Digital Camera/Lens Kit/Body

Model No.

DMC-GH2HPP	DMC-GH2KPP	DMC-GH2KGN
DMC-GH2HEB	DMC-GH2KEB	DMC-GH2KGT
DMC-GH2HEC	DMC-GH2KEC	DMC-GH2PP
DMC-GH2HEE	DMC-GH2KEE	DMC-GH2EB
DMC-GH2HEG	DMC-GH2KEG	DMC-GH2EG
DMC-GH2HGC	DMC-GH2KGC	DMC-GH2GC
DMC-GH2HGD	DMC-GH2KGD	DMC-GH2GH
DMC-GH2HGH	DMC-GH2KGH	
DMC-GH2HGK	DMC-GH2KGK	

Vol. 1
Colour

[DMC-GH2H]
(K).....Black Type
(S).....Silver Type (only PP/EB/EC/EG)
[DMC-GH2K]
(K).....Black Type (except EC)
(S).....Silver Type (except EE/GD/GH/GK/GT)

[DMC-GH2]
(K).....Black Type
(S).....Silver Type (only PP/EG)
DMC-GH2H series:
Interchangeable Lens (H-VS014140) is bundled.
DMC-GH2K series:
Interchangeable Lens (H-FS014042) is bundled.

Table of contents

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.

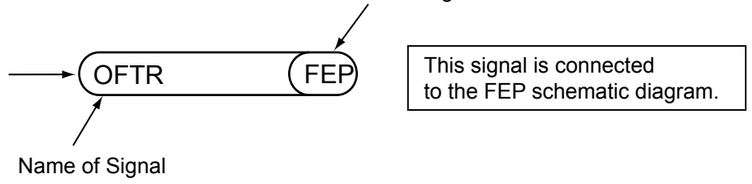
3.The voltage being indicated on the schematic diagram is measured in "Standard-Playback" mode when there is no specify mode is mentioned.

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. Voltage Chart

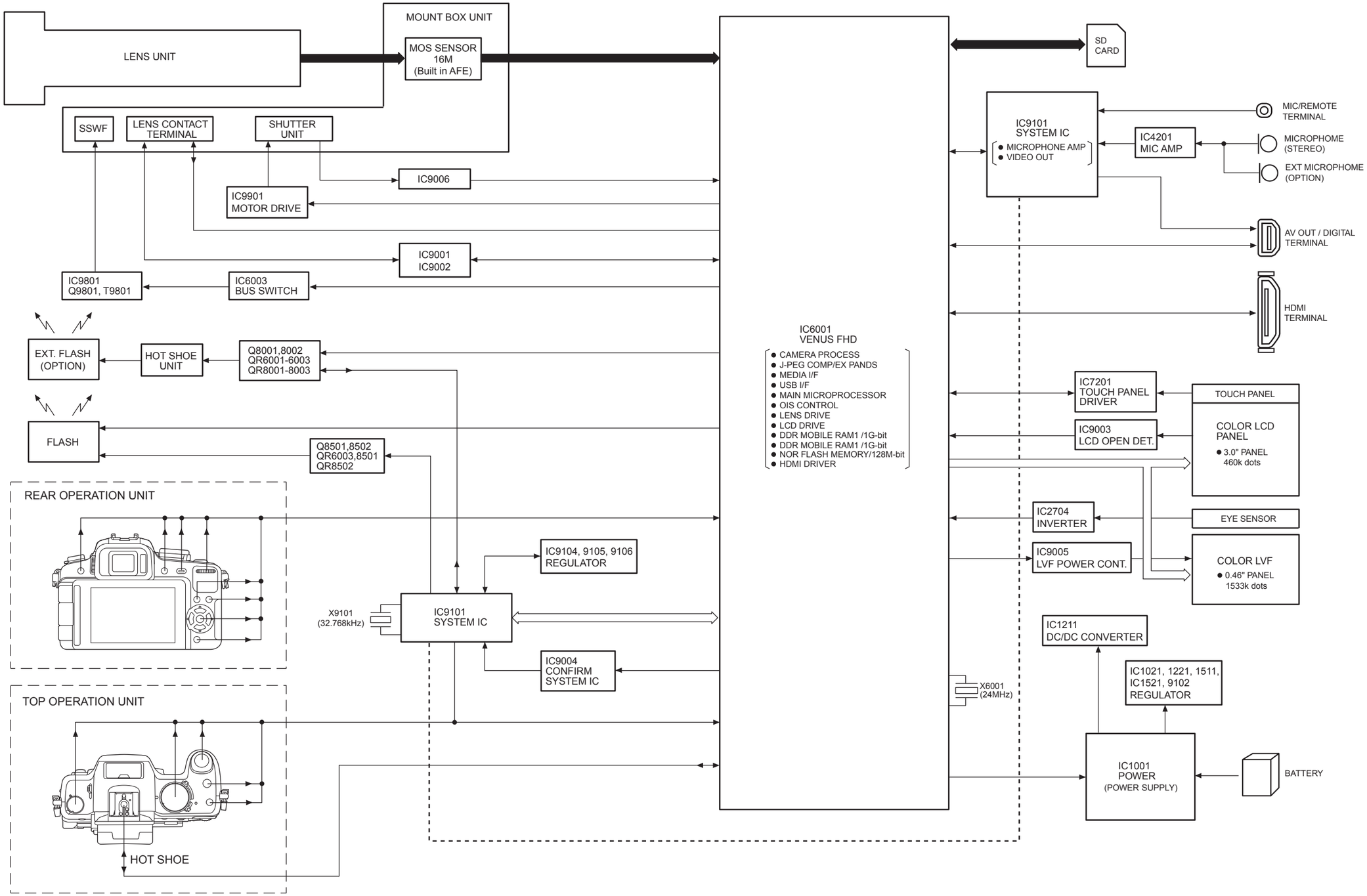
Note) Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

S2.1. Mic P.C.B.

REF No.	PIN No.	POWER ON
IC4201	1	0
IC4201	2	-
IC4201	3	0
IC4201	4	0
IC4201	5	0
IC4201	6	0
IC4201	7	0
IC4201	8	0
IC4201	9	0
IC4201	10	-0.1
IC4201	11	0
IC4201	12	-0.1
IC4201	13	0
IC4201	14	-
IC4201	15	0
IC4201	16	0
IC4201	17	0
IC4201	18	0
IC4201	19	0
IC4201	20	0
Q4201	E	0
Q4201	C	0
Q4201	B	0
Q4202	E	0
Q4202	C	0
Q4202	B	0
Q4203	E	0
Q4203	C	0
Q4203	B	0

S3. Block Diagram

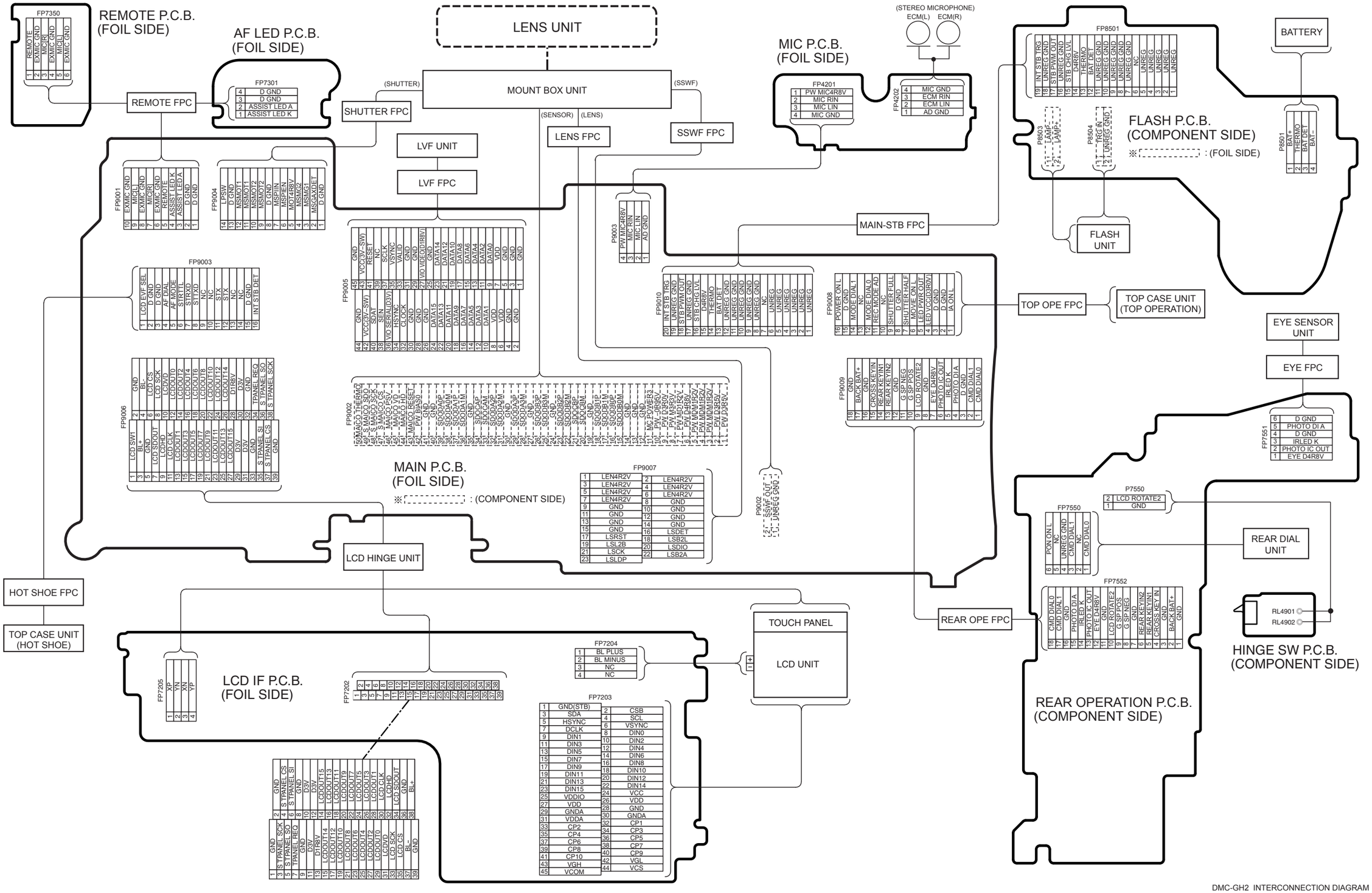
S3.1. Overall Block Diagram



DMC-GH2 OVERALL BLOCK DIAGRAM

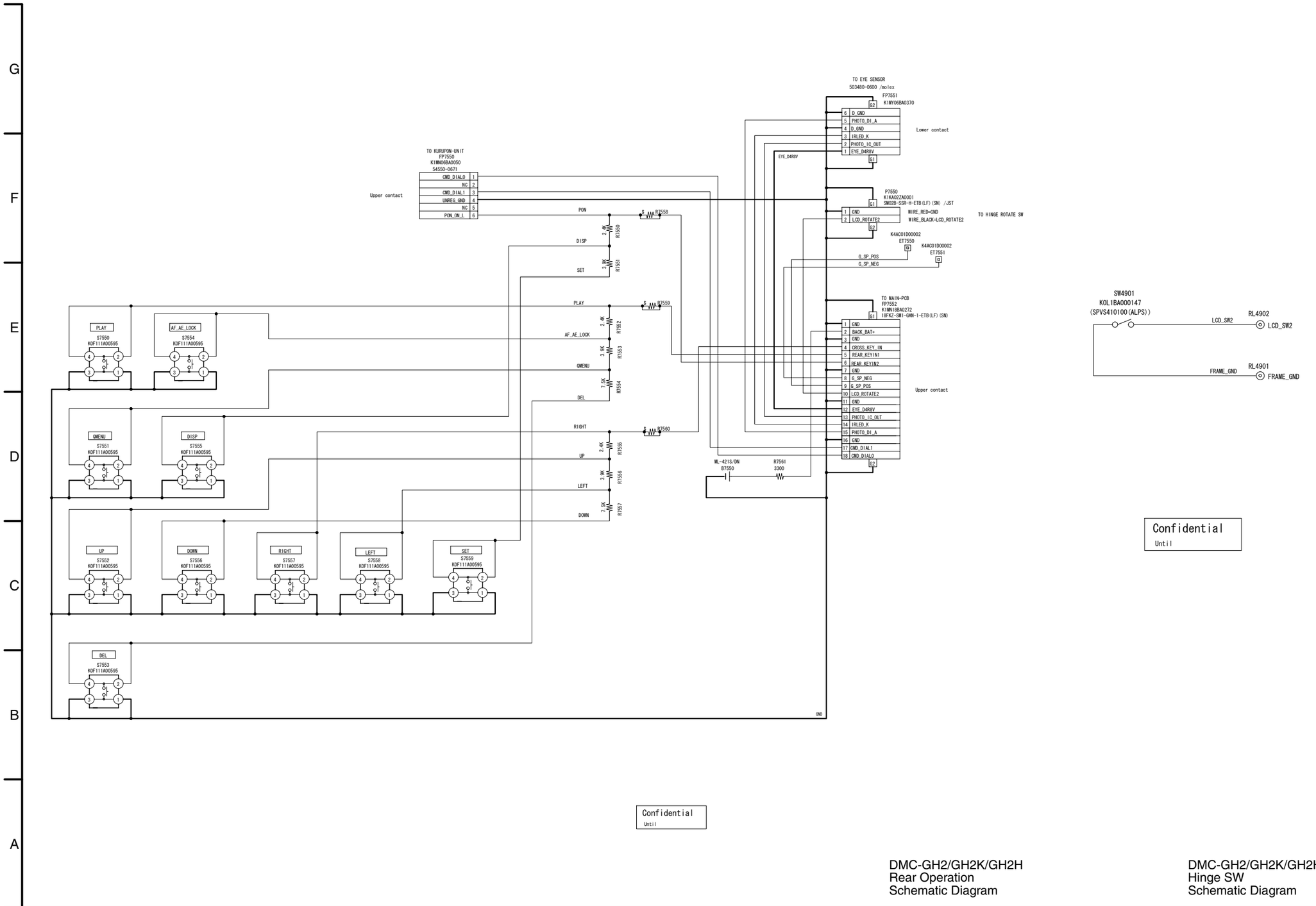
S4. Schematic Diagram

S4.1. Interconnection Diagram



DMC-GH2 INTERCONNECTION DIAGRAM

S4.2. Rear Operation Schematic Diagram / S4.3. Hinge SW Schematic Diagram

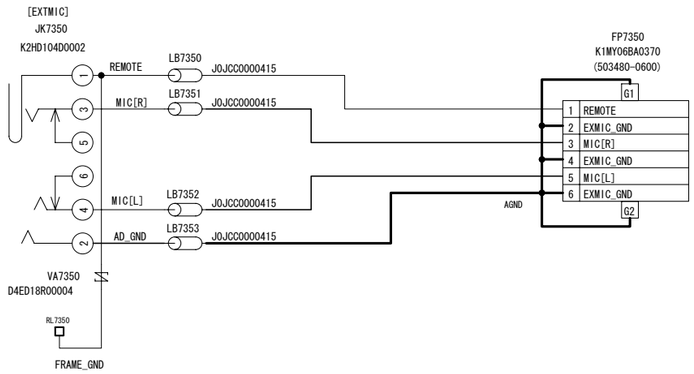


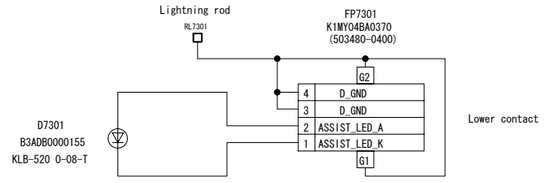
Confidential
Until

DMC-GH2/GH2K/GH2H
Rear Operation
Schematic Diagram

DMC-GH2/GH2K/GH2H
Hinge SW
Schematic Diagram

S4.4. Remote Schematic Diagram / S4.5. AF LED Schematic Diagram



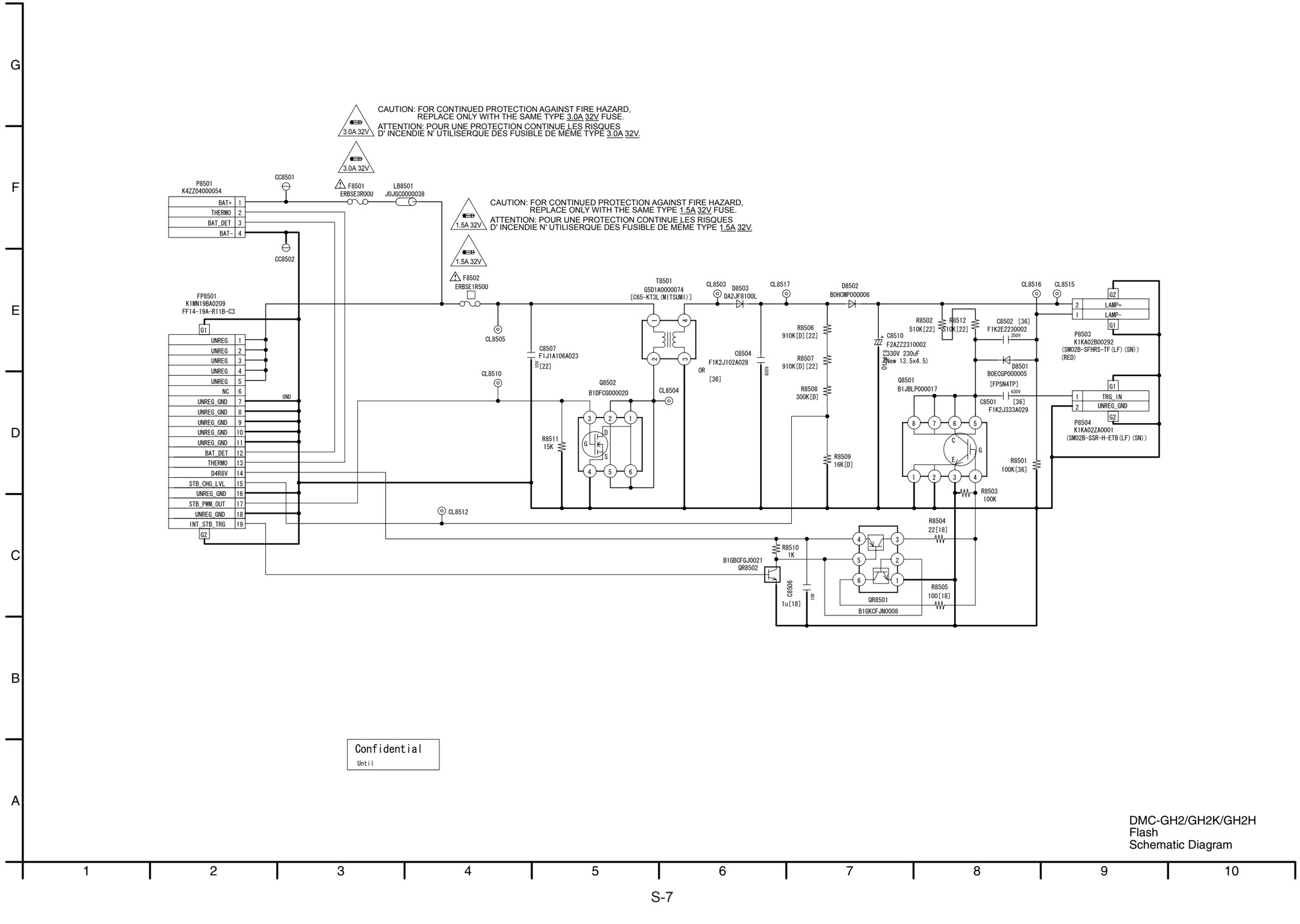


Confidential
Until

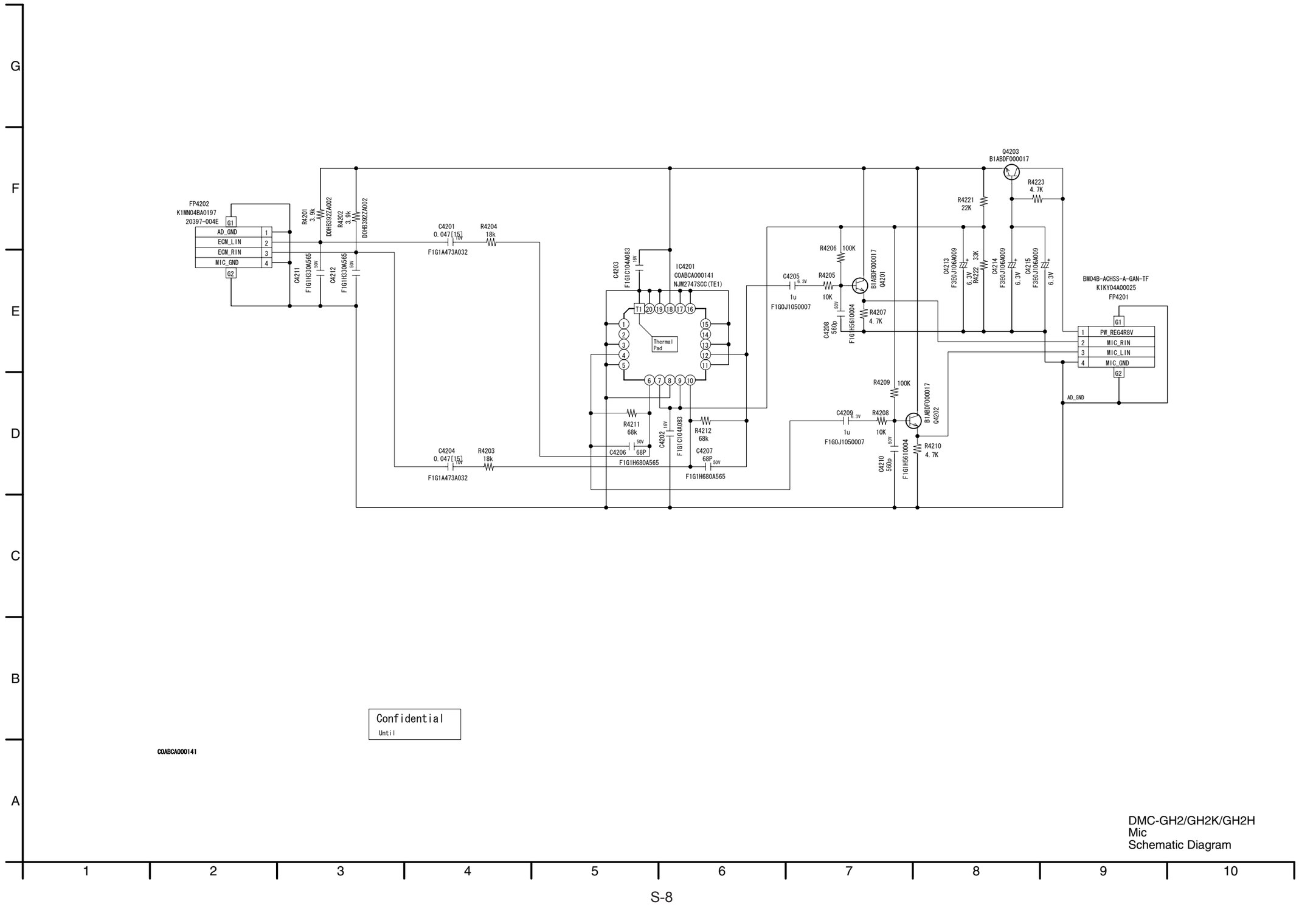
DMC-GH2/GH2K/GH2H
Remote
Schematic Diagram

DMC-GH2/GH2K/GH2H
AF LED
Schematic Diagram

S4.6. Flash Schematic Diagram

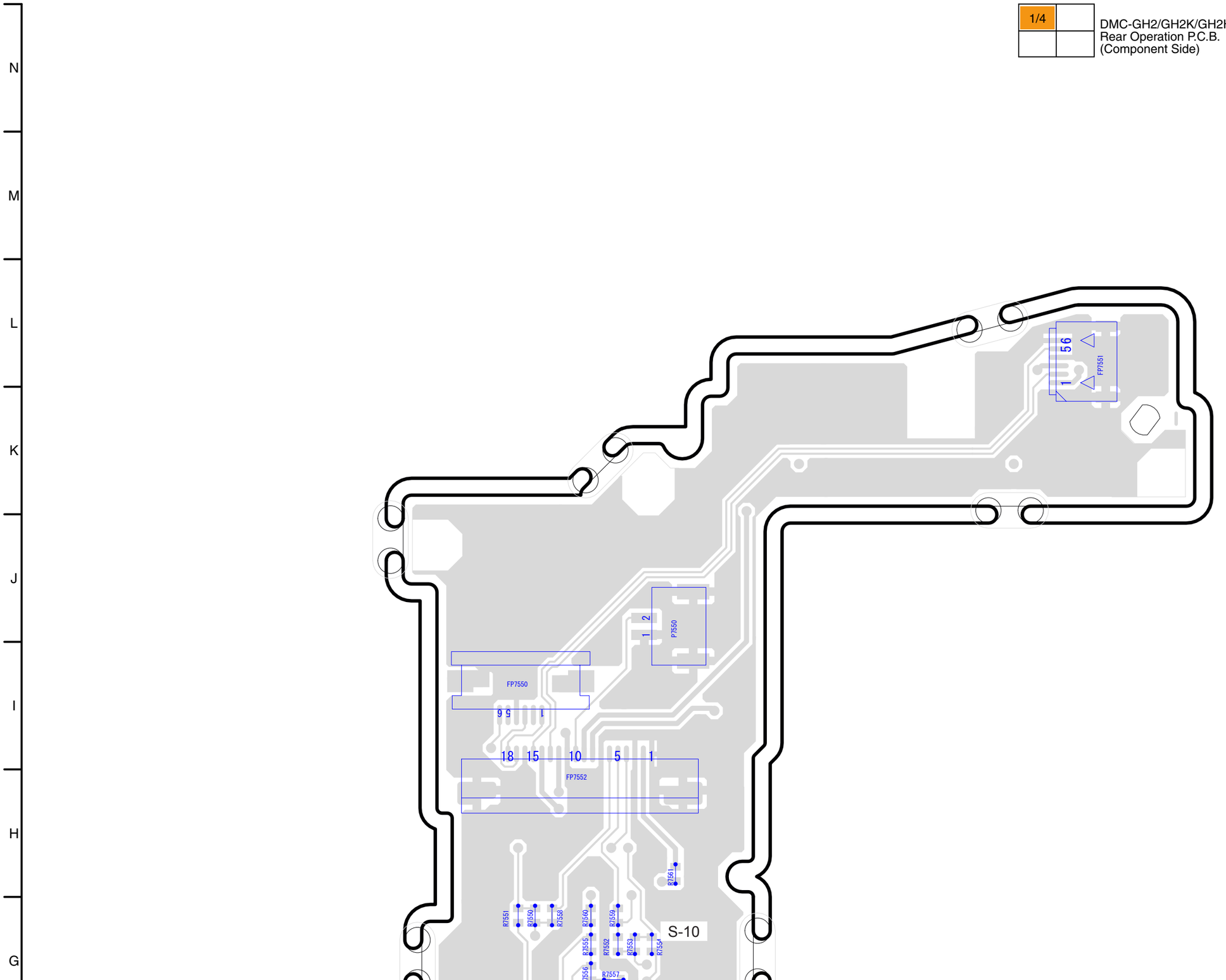


S4.7. Mic Schematic Diagram

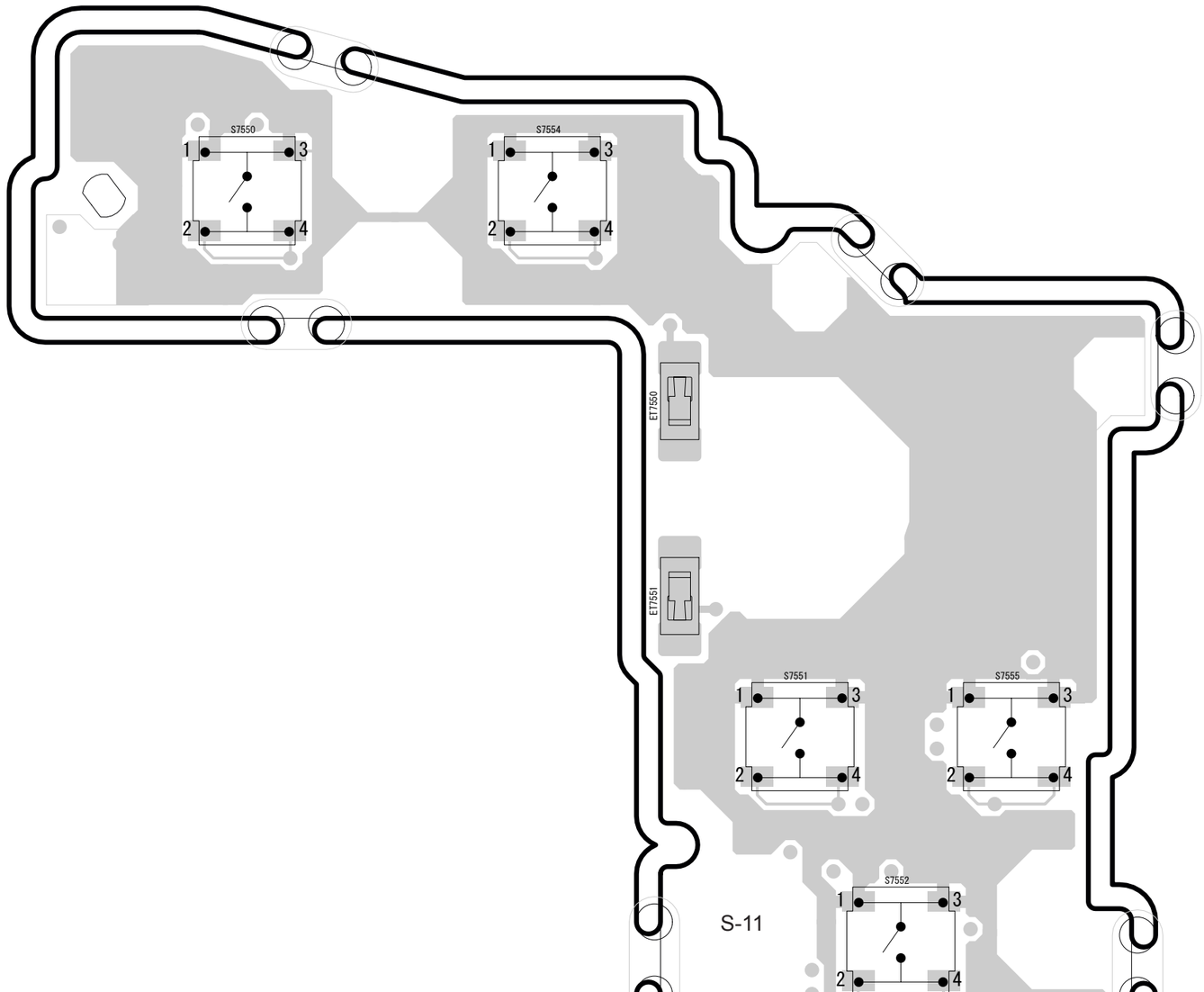


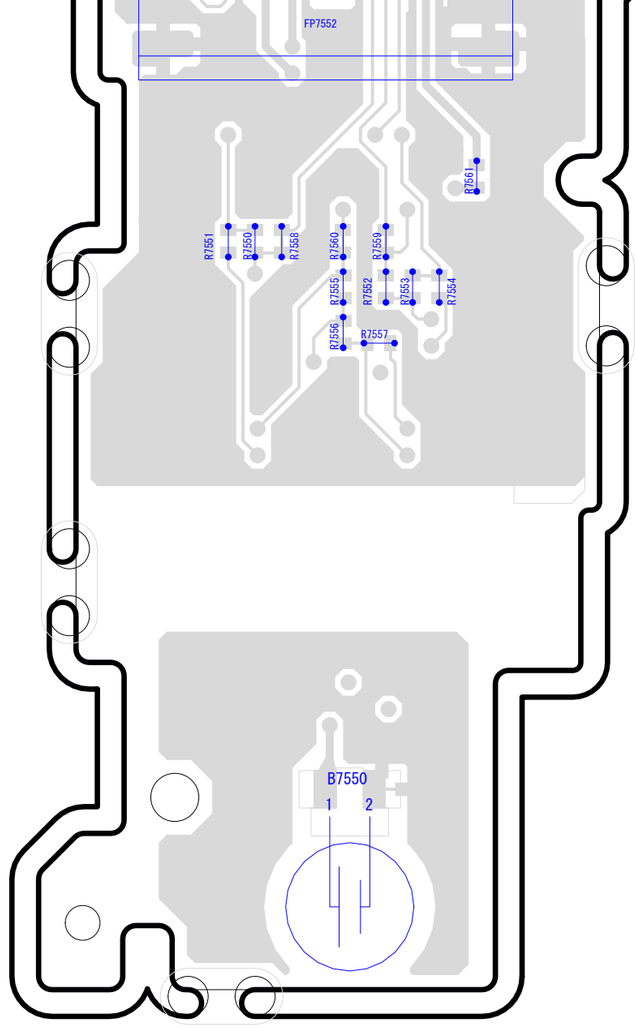
S5. Print Circuit Board

S5.1. Rear Operation P.C.B.



DMC-GH2/GH2K/GH2H
Rear Operation P.C.B.
(Foil Side)

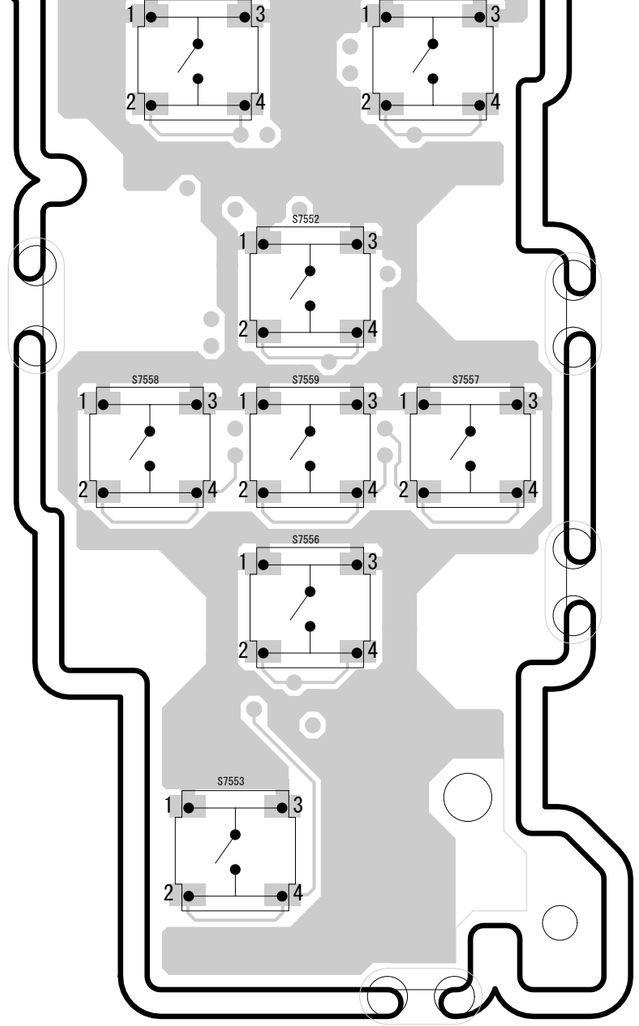




(Component Side)

3/4	

DMC-GH2/GH2K/GH2H
Rear Operation P.C.B.
(Component Side)



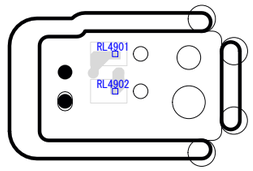
(Foil Side)

DMC-GH2/GH2K/GH2H
Rear Operation P.C.B.
(Foil Side)

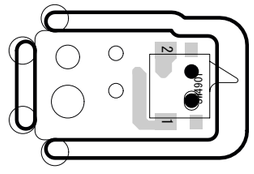
4/4

11 12 13 14 15 16 17 18 19 20 21

S5.2. Hinge SW P.C.B.



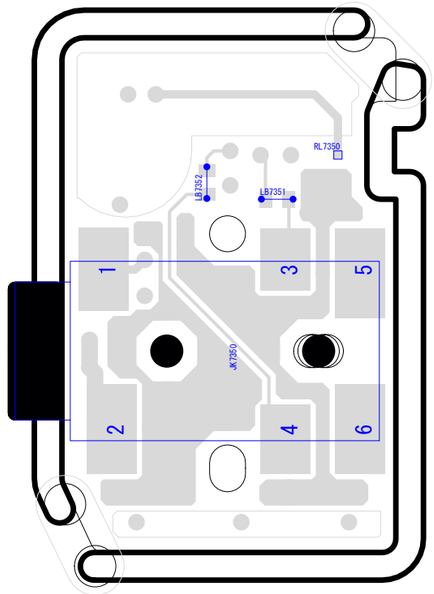
(Component Side)



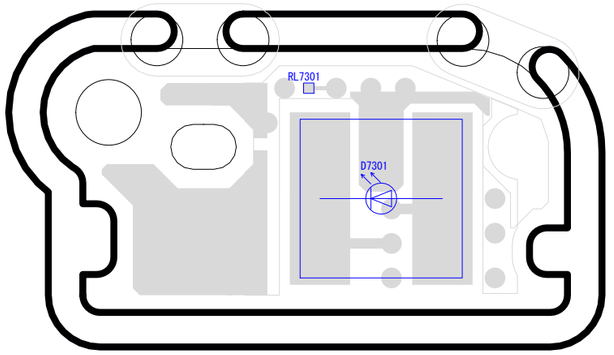
(Foil Side)

DMC-GH2/GH2K/GH2H
Hinge SW P.C.B.

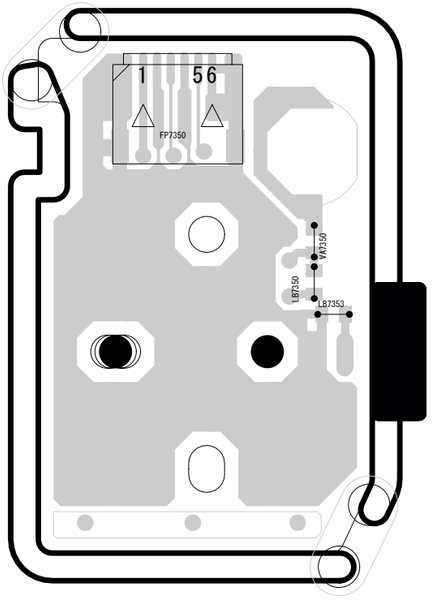
S5.3. Remote P.C.B. / S5.4. AF LED P.C.B.



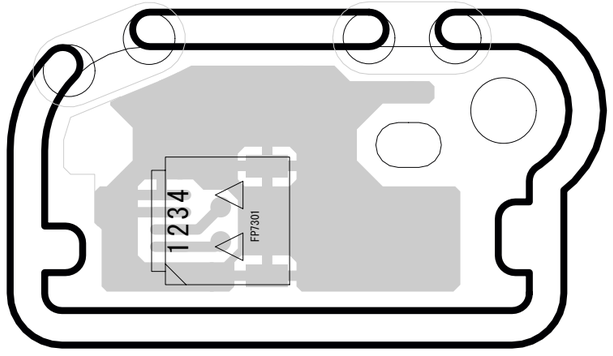
(Component Side)



(Component Side)



(Foil Side)



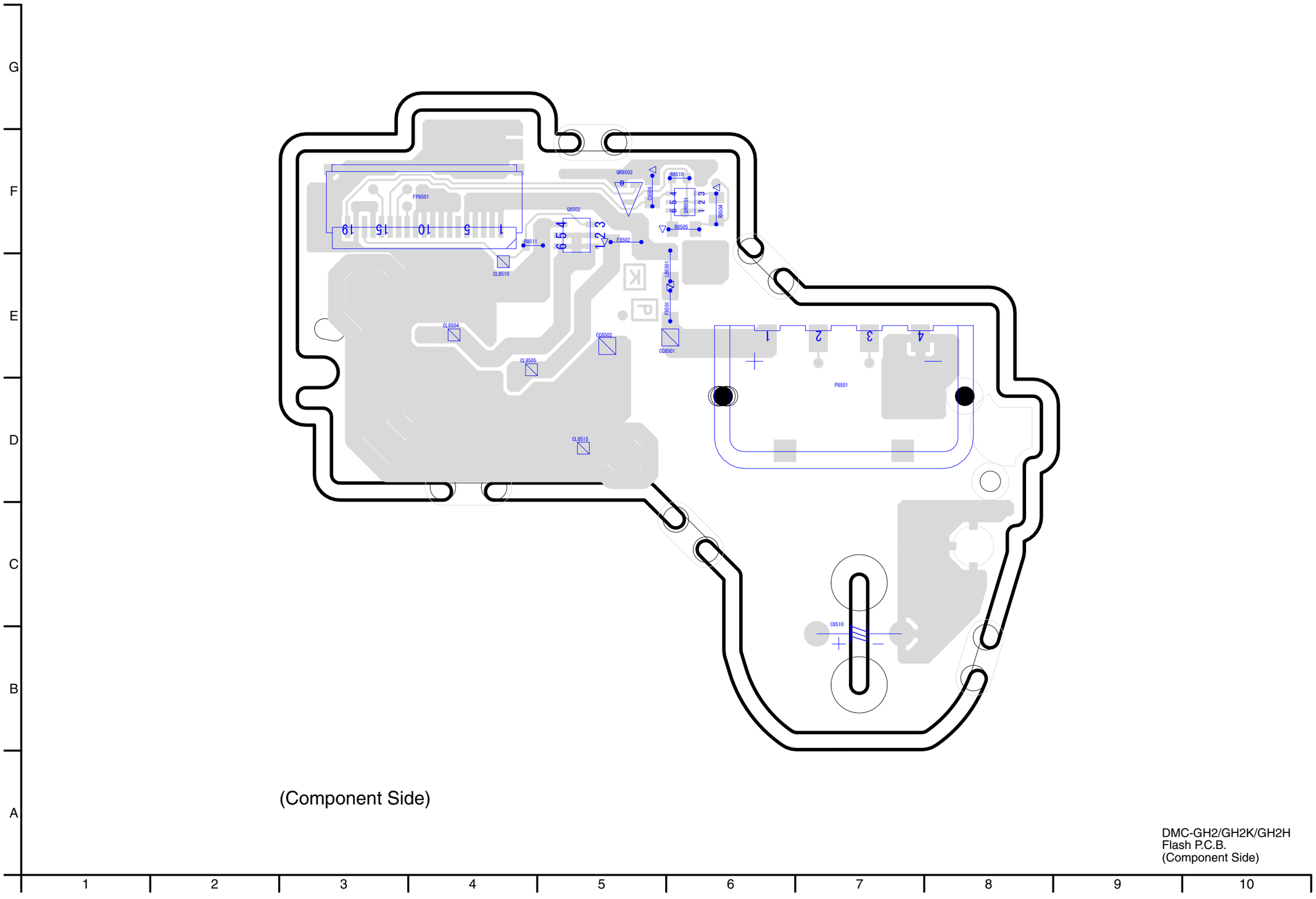
(Foil Side)

DMC-GH2/GH2K/GH2H
Remote P.C.B.

DMC-GH2/GH2K/GH2H
AF LED P.C.B.

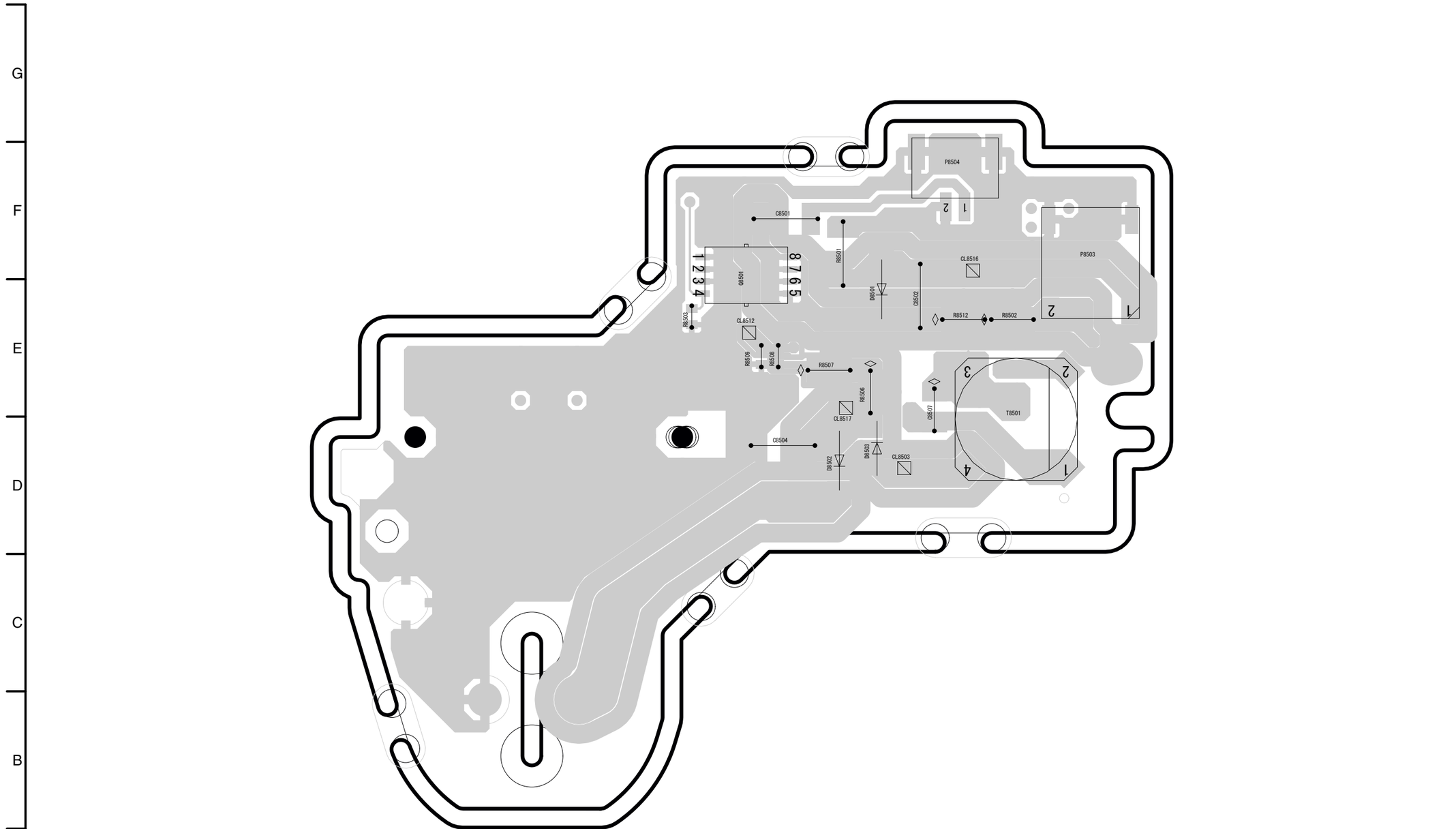
S5.5. Flash P.C.B.

S5.5.1. Flash P.C.B. (Component Side)



DMC-GH2/GH2K/GH2H
Flash P.C.B.
(Component Side)

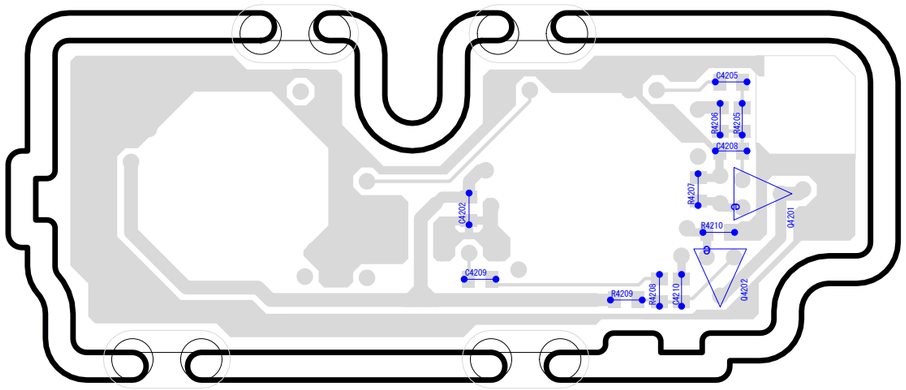
S5.5.2. Flash P.C.B. (Foil Side)



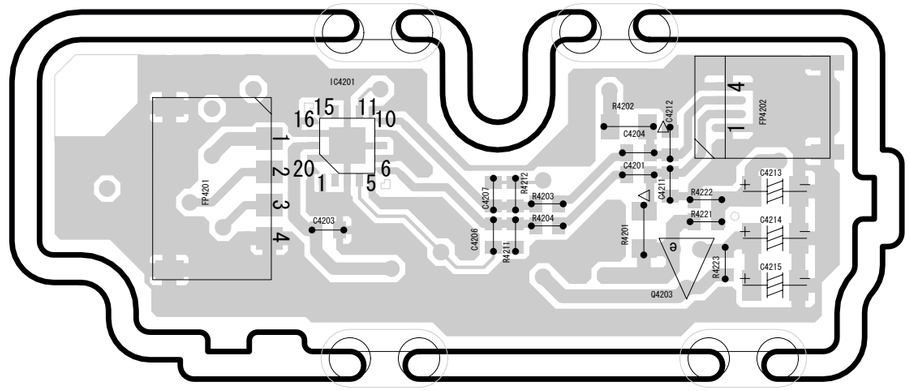
(Foil Side)

DMC-GH2/GH2K/GH2H
Flash P.C.B.
(Foil Side)

S5.6. Mic P.C.B.



(Component Side)



(Foil Side)

DMC-GH2/GH2K/GH2H
Mic P.C.B.

S6. 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.208 and Ref.315)>
1. In case of the "LENS MAIN BLOCK UNIT" (Ref.208 and Ref.315) 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 [SPC] in the remarks column are supplied from AVC-CSC-SPC.
Others are supplied from PAVCSG.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
		----------P.C.B. LIST ----------		
##	VEP56117A	MAIN P.C.B.	1	(RTL) E.S.D.[EXCEPT:EB,EG,
				HEB,HEC,HEG,KEB,KEC,KEG]
##	VEP56117B	MAIN P.C.B.	1	(RTL) E.S.D. [ONLY:EB,EG,
				HEB,HEC,HEG,KEB,KEC,KEG]
##	VEP50072A	REAR OPERATING P.C.B.	1	(RTL) E.S.D.
##	VEP58114A	HINGE SW P.C.B.	1	(RTL) E.S.D.
##	VEP59079A	LCD IF P.C.B.	1	(RTL) E.S.D.
##	VEP58133A	REMOTE P.C.B.	1	(RTL) E.S.D.
##	VEP58134A	AF LED P.C.B.	1	(RTL) E.S.D.
##	VEP58132A	FLASH P.C.B.	1	(RTL) E.S.D.
##	VEP54019A	MIC P.C.B.	1	(RTL) E.S.D.
		----------OTHER ELECTRIC PART ----------		
C8510	F2AZZ2310002	E.CAPACITOR	1	
		----------ELECTRIC COMPONENT PART (ON P.C.B.s)----------		
##	VEP50072A	REAR OPERATING P.C.B.		(RTL) E.S.D.
ET7550	K4AC01D00002	EARTH SPRING	1	
ET7551	K4AC01D00002	EARTH SPRING	1	
FP7550	K1MN06BA0050	CONNECTOR 6P	1	
FP7551	K1MY06BA0370	CONNECTOR 6P	1	
FP7552	K1MN18BA0272	CONNECTOR 18P	1	
P7550	K1KA02ZA0001	CONNECTOR 2P	1	
R7550	ERJ2GEJ242X	M.RESISTOR CH 1/16W 2.4K	1	
R7551	ERJ2GEJ392X	M.RESISTOR CH 1/16W 3.9K	1	
R7552	ERJ2GEJ242X	M.RESISTOR CH 1/16W 2.4K	1	
R7553	ERJ2GEJ392X	M.RESISTOR CH 1/16W 3.9K	1	
R7554	ERJ2GEJ752X	M.RESISTOR CH 1/10W 7.5K	1	
R7555	ERJ2GEJ242X	M.RESISTOR CH 1/16W 2.4K	1	
R7556	ERJ2GEJ392X	M.RESISTOR CH 1/16W 3.9K	1	
R7557	ERJ2GEJ752X	M.RESISTOR CH 1/10W 7.5K	1	
R7561	ERJ2GEJ332X	M.RESISTOR CH 1/16W 3.3K	1	
S7550	K0F111A00595	SWITCH	1	
S7551	K0F111A00595	SWITCH	1	
S7552	K0F111A00595	SWITCH	1	
S7553	K0F111A00595	SWITCH	1	
S7554	K0F111A00595	SWITCH	1	
S7555	K0F111A00595	SWITCH	1	
S7556	K0F111A00595	SWITCH	1	
S7557	K0F111A00595	SWITCH	1	
S7558	K0F111A00595	SWITCH	1	
S7559	K0F111A00595	SWITCH	1	
##	VEP58114A	HINGE SW P.C.B.		(RTL) E.S.D.
SW4901	K0L1BA000147	SWITCH	1	
##	VEP58133A	REMOTE P.C.B.		(RTL) E.S.D.
FP7350	K1MY06BA0370	CONNECTOR 6P	1	
JK7350	K2HD104D0002	JACK	1	
LB7350	J0JCC0000415	FILTER	1	
LB7351	J0JCC0000415	FILTER	1	
LB7352	J0JCC0000415	FILTER	1	
LB7353	J0JCC0000415	FILTER	1	
VA7350	D4ED18R00004	VARISTOR	1	
##	VEP58134A	AF LED P.C.B.		(RTL) E.S.D.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
D7301	B3ADB0000155	DIODE	1	E.S.D.
FP7301	K1MY04BA0370	CONNECTOR 4P	1	
##	VEP58132A	FLASH P.C.B.		(RTL) E.S.D.
C8501	F1K2J333A029	C.CAPACITOR 630V 0.033U	1	
C8502	F1K2E2230002	C.CAPACITOR 250V 0.022U	1	
C8504	F1K2J102A028	C.CAPACITOR 630V 1000P	1	
C8506	F1H1A105A028	C.CAPACITOR CH 10V 1U	1	
C8507	F1J1A106A023	C.CAPACITOR CH 10V 10U	1	
D8501	B0ECGP000005	DIODE	1	E.S.D.
D8502	B0HCMP000006	DIODE	1	E.S.D.
D8503	DA2JF8100L	DIODE	1	E.S.D.
⚠ F8501	ERBSE3R00U	FUSE	1	
⚠ F8502	ERBSE1R50U	FUSE	1	
FP8501	K1MN19BA0209	CONNECTOR 19P	1	
LB8501	J0JGC0000038	FILTER	1	
P8501	K4ZZ04000054	CONNECTOR 4P	1	
P8503	K1KA02B00292	CONNECTOR 2P	1	
P8504	K1KA02ZA0001	CONNECTOR 2P	1	
Q8501	B1JBLP000017	TRANSISTOR	1	E.S.D.
Q8502	B1DFCG000020	TRANSISTOR	1	E.S.D.
QR8501	B1GKCFJN0008	TRANSISTOR-RESISTOR	1	E.S.D.
QR8502	B1GBCFGJ0021	TRANSISTOR-RESISTOR	1	E.S.D.
R8501	ERJ8GEYJ104V	M.RESISTOR CH 1/4W 100K	1	
R8502	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	
R8503	ERJ2GEJ104X	M.RESISTOR CH 1/16W 100K	1	
R8504	ERJ3GEYJ220V	M.RESISTOR CH 1/10W 22	1	
R8505	ERJ3GEYJ101V	M.RESISTOR CH 1/10W 100	1	
R8506	ERJ6RED914V	CHIP RESISTOR	1	
R8507	ERJ6RED914V	CHIP RESISTOR	1	
R8508	ERJ2RKD304X	M.RESISTOR CH 1/16W 300K	1	
R8509	ERJ2RHD163X	M.RESISTOR CH 1/16W 16K	1	
R8510	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R8511	ERJ2GEJ153X	M.RESISTOR CH 1/10W 15K	1	
R8512	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	
T8501	G5D1A0000074	TRANSFORMER	1	
##	VEP54019A	MIC P.C.B.		(RTL) E.S.D.
C4201	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4202	F1G1C104A083	CHIP CAPACITOR	1	
C4203	F1G1C104A083	CHIP CAPACITOR	1	
C4204	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4205	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4206	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	
C4207	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	
C4208	F1G1H5610004	CHIP CAP	1	
C4209	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4210	F1G1H5610004	CHIP CAP	1	
C4211	F1G1H330A565	CHIP CAP	1	
C4212	F1G1H330A565	CHIP CAP	1	
C4213	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	
C4214	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	
C4215	F3E0J106A009	E.CAPACITOR CH 6.3V 22U	1	
FP4201	K1KY04A00025	CONNECTOR 4P	1	
FP4202	K1MN04BA0197	CONNECTOR 4P	1	
IC4201	C0ABCA000141	IC	1	E.S.D.
Q4201	B1ABDF000017	TRANSISTOR	1	E.S.D.
Q4202	B1ABDF000017	TRANSISTOR	1	E.S.D.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q4203	B1ABDF000017	TRANSISTOR	1	E.S.D.
R4201	D0HB392ZA002	CHIP RESISTOR	1	
R4202	D0HB392ZA002	CHIP RESISTOR	1	
R4203	ERJ2GEJ183X	M.RESISTOR CH 1/10W 18K	1	
R4204	ERJ2GEJ183X	M.RESISTOR CH 1/10W 18K	1	
R4205	ERJ2GEJ103X	M.RESISTOR CH 1/10W 10K	1	
R4206	ERJ2GEJ104X	M.RESISTOR CH 1/16W 100K	1	
R4207	ERJ2GEJ472X	M.RESISTOR CH 1/16W 4.7K	1	
R4208	ERJ2GEJ103X	M.RESISTOR CH 1/10W 10K	1	
R4209	ERJ2GEJ104X	M.RESISTOR CH 1/16W 100K	1	
R4210	ERJ2GEJ472X	M.RESISTOR CH 1/16W 4.7K	1	
R4211	ERJ2GEJ683X	M.RESISTOR CH 1/16W 68K	1	
R4212	ERJ2GEJ683X	M.RESISTOR CH 1/16W 68K	1	
R4221	ERJ2GEJ223X	M.RESISTOR CH 1/16W 22K	1	
R4222	ERJ2GEJ333X	M.RESISTOR CH 1/16W 33K	1	
R4223	ERJ2GEJ472X	M.RESISTOR CH 1/16W 4.7K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP56117A	MAIN P.C.B.	1	(RTL) E.S.D.[EXCEPT:EB,EG,
				HEB,HEC,HEG,KEB,KEC,KEG]
1	VEP56117B	MAIN P.C.B.	1	(RTL) E.S.D. [ONLY:EB,EG,
				HEB,HEC,HEG,KEB,KEC,KEG]
2	VGQ0S74-A	WIRE PROTECT SHEET	1	
3	VGQ0T64-A	BATTERY FPC SHEET	1	
4	VMP9775	HEAT RADIATION PLATE	1	
5	VMT2075	HEAT RADIATION PAD	1	
6	VMT2118	HEAT RADIATION PAD 2	1	
7	VXQ1996	MOUNT BOX UNIT	1	[SPC]
8	VGQ0N41	HINGE PLATE SHEET	1	
9	VGQ0Q78	EYE RUBBER	1	
10	VGQ0R64	LCD-FPC BUSTERAID SHEET	1	
11	VGQ0R64	LCD-FPC BUSTERAID SHEET	1	
12	VGQ0S00	EYE CUP BASE	1	
13	VKM8801	HINGE ARM COVER (TOP)	1	(-K)
13	VKM8802	HINGE ARM COVER (TOP)	1	(-S)
14	VKM8803	HINGE ARM COVER (BOTTOM)	1	(-K)
14	VKM8804	HINGE ARM COVER (BOTTOM)	1	(-S)
15	VMP9634	HINGE PLATE	1	
16	K0RC01100006	REAR OPERATION UNIT	1	
18	L2CH00000029	OPTICAL SENSOR	1	
19	VEE1J78	HINGE SW HARNESS	1	
20	VEP50072A	REAR OPERATING P.C.B.	1	(RTL) E.S.D.
21	VEP58114A	HINGE SW P.C.B.	1	(RTL) E.S.D.
27	VGQ0P67	LCD LOCK PIECE	1	
28	VGQ0P92	SD SHAFT PIECE	1	
29	VGU0G00	LCD LOCK LEVER	1	
32	VGU0G93	LVF/LCD BUTTON	1	
33	VYF3401	SD DOOR UNIT	1	(-K)
33	VYF3402	SD DOOR UNIT	1	(-S)
34	VYK4N27	REAR CASE UNIT	1	(-K)
34	VYK4N28	REAR CASE UNIT	1	(-S)
34-1	VGQ0P65	GRIP PIECE REAR	1	
36	VMB4373	LCD LOCK SPRING	1	
37	VMB4410	SD DOOR SPRING	1	
38	VMB4445	SD SHAFT EARTH SPRING	1	
39	VMP9638	HINGE EARTH PLATE	1	
40	VMP9780	REAR EARTH PLATE	1	
42	VMP9782	EYE PLATE	1	
43	VMS8115	SD DOOR SHAFT	1	
44	VWJ2216	EYE FFC	1	
45	VWJ2217	REAR OPERATION FFC	1	
⚠ 46	ML-421S/DN	BUTTON BATTERY	1	B7550 [ENERGY]
50	VEP59079A	LCD IF P.C.B.	1	(RTL) E.S.D.
52	VGQ0N91	LCD BL BEZEL SHEET	1	
53	VGQ0P40	LCD CASE CUSHION	1	
54	VKM8422	LCD CASE TOP UNIT	1	(-K)
54	VKM8805	LCD CASE TOP UNIT	1	(-S)
55	VKM8806	LCD CASE BOTTOM	1	(-K)
55	VKM8807	LCD CASE BOTTOM	1	(-S)
56	VMT1964	LCD PCB CUSION	1	
57	VYK4N20	LCD UNIT	1	
58	VYK4G57	LCD HINGE UNIT	1	(-K)
58	VYK4G58	LCD HINGE UNIT	1	(-S)
59	VYQ5594	STRAP R UNIT	1	
60	VYQ5788	STRAP L UNIT	1	
61	VEP58133A	REMOTE P.C.B.	1	(RTL) E.S.D.
62	VEP58134A	AF LED P.C.B.	1	(RTL) E.S.D.
63	VGK3629	GRIP PIECE FRONT	1	
64	VGQ0P50	GRIP FRONT	1	
65	VGQ0P51	REMOTE HOLDER	1	(-K)
65	VGQ0P56	REMOTE HOLDER	1	(-S)
66	VGQ0P52	AF LIGHT CASE	1	
67	VGQ0P55	JACK HOLDER	1	(-S)
67	VGQ0P53	JACK HOLDER	1	(-K)
69	VKF4753	REMOTE COVER	1	(-K)
69	VKF4754	REMOTE COVER	1	(-S)
70	VKF4755	JACK COVER	1	(-K)
70	VKF4756	JACK COVER	1	(-S)
71	VYK4N21	FRONT CASE UNIT	1	(-K)
71	VYK4N30	FRONT CASE UNIT	1	(-S)
71-1	VGU0G05	LENS RELEASE BUTTON	1	
71-2	VMB4417	LENS RELEASE BUTTON SPR	1	
73	VMP9773	SIDE FRAME R	1	
74	VMP9774	MOUNT EARTH PLATE	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
75	VWJ2214	REMOTE_FPC	1	
76	VEP58132A	FLASH P.C.B.	1	(RTL) E.S.D.
77	VGQ0P60	CONDENSOR COVER	1	
78	VGQ0P61	BATTERY LOCK KNOB HOLDER	1	
79	VGQ0R18	SD HOLDER SHEET	1	
80	VGU0G79	BATTERY LOCK KNOB	1	
81	VYF3403	BATTERY DOOR UNIT	1	(-K)
81	VYF3404	BATTERY DOOR UNIT	1	(-S)
83	VKF4759	DC COVER	1	(-K)
83	VKF4760	DC COVER	1	(-S)
84	VKM8797	BATTERY FRAME	1	
85	VMB4370	CON EARTH SPRING	1	
86	VMB4407	BATTERY LOCK SPRING	1	
87	VMB4408	BATTERY DOOR SPRING	1	
88	VMB4409	BATTERY OUT SPRING	1	
90	VMP9776	BATTERY CASE FRONT	1	
91	VMP9777	BATTERY CASE REAR	1	
92	VMP9778	BATTERY SIDE PLATE	1	
93	VMP9779	TRIPOD	1	
94	VMS8026	BATTERY DOOR SHAFT	1	
95	VWJ2212	MAIN_STB_FPC	1	
⚠ 96	F2AZZ2310002	E.CAPACITOR	1	(C8510)
97	VEE1J79	MIC HARNESS	1	
101	VEK0Q94	FLASH UNIT	1	
102	VEP54019A	MIC P.C.B.	1	(RTL) E.S.D.
128	VYK4Y11	TOP CASE UNIT	1	(-K)
128	VYK4Y12	TOP CASE UNIT	1	(-S)
129	VYK4N22	FLASH CASE TOP UNIT	1	(-K)
129	VYK4W18	FLASH CASE TOP UNIT	1	(-S)
142	VMC2111	SHOE SPRING	1	
155	VMP9787	MIC PLATE	1	
159	VMT1962	MIC DAMPER	1	
162	L5EDDYY00171	LVF MODULE	1	
163	VGQ0P70	EVF FPC FIX TAPE	1	
164	VYK4N23	LVF UNIT	1	
164-1	VKM8812	EVF COVER	1	
165	WM-58A601	MICROPHONE UNITS	1	
166	VWJ2213	EVF_FPC	1	
167	VGQ0S43	HINGE FPC CUSHION	1	
168	VGQ0Q00	LCD LOCK CUSHION	1	
169	L0AA01A00057	SPEAKER	1	
170	VGU0G81	REAR DOUBLE BUTTON	1	
171	VGU0G82	REAR OP BUTTON	1	
172	VMP9781	SW EARTH PLATE	1	
B1	VHD2149	SCREW	1	(-K)
B1	VHD2019	SCREW	1	(-S)
B2	VHD2149	SCREW	1	(-K)
B2	VHD2019	SCREW	1	(-S)
B3	VHD2149	SCREW	1	(-K)
B3	VHD2019	SCREW	1	(-S)
B4	VHD2149	SCREW	1	(-K)
B4	VHD2019	SCREW	1	(-S)
B5	VHD2149	SCREW	1	(-K)
B5	VHD2019	SCREW	1	(-S)
B6	VHD2149	SCREW	1	(-K)
B6	VHD2019	SCREW	1	(-S)
B7	VHD2149	SCREW	1	(-K)
B7	VHD2019	SCREW	1	(-S)
B8	VHD2149	SCREW	1	(-K)
B8	VHD2019	SCREW	1	(-S)
B9	VHD2149	SCREW	1	(-K)
B9	VHD2019	SCREW	1	(-S)
B10	VHD2149	SCREW	1	(-K)
B10	VHD2019	SCREW	1	(-S)
B11	VHD2178	SCREW	1	
B12	VHD2178	SCREW	1	
B13	VHD2178	SCREW	1	
B14	VHD2178	SCREW	1	
B15	VHD2179	SCREW	1	(-K)
B15	VHD2200	SCREW	1	(-S)
B16	VHD2179	SCREW	1	(-K)
B16	VHD2200	SCREW	1	(-S)
B17	VHD2179	SCREW	1	(-K)
B17	VHD2200	SCREW	1	(-S)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B18	VHD2261	SCREW	1	(-K)
B18	VHD2262	SCREW	1	(-S)
B19	VHD2261	SCREW	1	(-K)
B19	VHD2262	SCREW	1	(-S)
B20	VHD2261	SCREW	1	(-K)
B20	VHD2262	SCREW	1	(-S)
B21	VHD2261	SCREW	1	(-K)
B21	VHD2262	SCREW	1	(-S)
B22	VHD2091	SCREW	1	
B23	VHD2091	SCREW	1	
B25	XQN16+B2FN	SCREW	1	
B26	XQN16+BJ4FN	SCREW	1	
B27	XQN16+BJ4FN	SCREW	1	
B28	XQN16+BJ4FN	SCREW	1	
B29	XQN16+BJ4FN	SCREW	1	
B30	XQN16+BJ4FN	SCREW	1	
B31	XQN16+BJ4FN	SCREW	1	
B32	XQN16+BJ4FN	SCREW	1	
B33	VHD2149	SCREW	1	(-K)
B33	VHD2019	SCREW	1	(-S)
B34	VHD2149	SCREW	1	(-K)
B34	VHD2019	SCREW	1	(-S)
B35	VHD2179	SCREW	1	(-K)
B35	VHD2200	SCREW	1	(-S)
B36	VHD2179	SCREW	1	(-K)
B36	VHD2200	SCREW	1	(-S)
B37	XQN16+B5FN	SCREW	1	
B38	XQN16+B5FN	SCREW	1	
B39	XQN16+BJ4FN	SCREW	1	
B40	XQN16+BJ4FN	SCREW	1	
B41	XQN16+BJ4FN	SCREW	1	
B42	XQN16+BJ4FN	SCREW	1	
B43	XQN16+BJ4FN	SCREW	1	
B44	XQN16+BJ4FN	SCREW	1	
B45	XQN16+BJ4FN	SCREW	1	
B46	XQN16+BJ4FN	SCREW	1	
B47	XQN16+B2FN	SCREW	1	
B48	XQN16+B2FN	SCREW	1	
B50	XQN16+B3FN	SCREW	1	
B51	XQN16+BJ4FN	SCREW	1	
B65	XQN14+BJ4FJK	SCREW	1	
B66	XQN14+BJ4FJK	SCREW	1	
B67	XQN14+BJ4FJK	SCREW	1	
B68	XQN14+BJ4FJK	SCREW	1	
B83	XQN16+B2FN	SCREW	1	
B84	XQN14+BJ4FJK	SCREW	1	
B85	XQN16+B3FN	SCREW	1	
B86	XQN16+B3FN	SCREW	1	
B87	XQN16+B3FN	SCREW	1	
B88	XQN16+B3FN	SCREW	1	
B89	XQN16+B3FN	SCREW	1	
B90	XQN16+B3FN	SCREW	1	
B91	XQN16+BJ11FN	SCREW	1	
B92	XQN16+BJ11FN	SCREW	1	
B93	XQN16+BJ4FN	SCREW	1	
B94	XQN16+BJ4FN	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
202	VDW2023	SHADING FRAME	1	(GH2K) [SPC]
203	VEJ2295	MOUNT CONTACT UNIT	1	(GH2K) [SPC]
204	VGH5186	DECORATION RING	1	(GH2K) [SPC]
206	VDW2024	L MOUNT UNIT	1	(GH2K) [SPC]
207	-----	REAR COVER UNIT	1	(GH2K) (NOT SUPPLIED)
208	-----	LENS MAIN BLOCK UNIT	1	(GH2K) See "Notes"
209	VMG1855	FLOATING RUBBER	1	(GH2K) [SPC]
210	VMG1855	FLOATING RUBBER	1	(GH2K) [SPC]
211	VMG1855	FLOATING RUBBER	1	(GH2K) [SPC]
212	VMG1847	COVER RING UNIT	1	(GH2K) [SPC]
B201	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B202	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B203	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B204	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B205	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B206	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B207	XQN14+BJ4FNK	SCREW	1	(GH2K) [SPC]
B208	XQN2+AJ5FNK	SCREW	1	(GH2K) [SPC]
B209	XQN2+AJ5FNK	SCREW	1	(GH2K) [SPC]
B210	XQN2+AJ5FNK	SCREW	1	(GH2K) [SPC]
B211	XQN2+AJ5FNK	SCREW	1	(GH2K) [SPC]
B213	XQN14+AJ3FNK	SCREW	1	(GH2K) [SPC]
B220	XQN16+BJ5FNK	SCREW	1	(GH2K) [SPC]
B221	XQN16+BJ5FNK	SCREW	1	(GH2K) [SPC]
B222	XQN16+BJ5FNK	SCREW	1	(GH2K) [SPC]
301	P05F340	DECORATION RING	1	(GH2H) [SPC]
302	P05F020	HOOD ADAPTOR	1	(GH2H) [SPC]
303	P05C010	ZOOM RUBBER RING	1	(GH2H) [SPC]
304	P057H00	COVER RING UNIT	1	(GH2H) [SPC]
306	P04F370	FLOATING RUBBER	1	(GH2H) [SPC]
307	P04F370	FLOATING RUBBER	1	(GH2H) [SPC]
308	P04F370	FLOATING RUBBER	1	(GH2H) [SPC]
309	P0579H0	MOUNT CONTACT UNIT	1	(GH2H) [SPC]
310	P058H50	L MOUNT UNIT	1	(GH2H) [SPC]
311	9630060	SHADING FRAME	1	(GH2H) [SPC]
314	-----	REAR COVER UNIT	1	(GH2H) (NOT SUPPLIED)
315	-----	LENS MAIN BLOCK UNIT	1	(GH2H) See "Notes"
B301	0HF4025	SCREW	1	(GH2H) [SPC]
B302	0HF4025	SCREW	1	(GH2H) [SPC]
B303	0HF4025	SCREW	1	(GH2H) [SPC]
B304	0242100	SCREW	1	(GH2H) [SPC]
B305	0242100	SCREW	1	(GH2H) [SPC]
B306	0242100	SCREW	1	(GH2H) [SPC]
B307	0557025	SCREW	1	(GH2H) [SPC]
B308	0557025	SCREW	1	(GH2H) [SPC]
B309	9580270	SCREW	1	(GH2H) [SPC]
B310	0B44035	SCREW	1	(GH2H) [SPC]
B311	0257050	SCREW	1	(GH2H) [SPC]
B313	0257050	SCREW	1	(GH2H) [SPC]
B314	0257050	SCREW	1	(GH2H) [SPC]
B315	0257050	SCREW	1	(GH2H) [SPC]
B316	0257050	SCREW	1	(GH2H) [SPC]
B317	0254030	SCREW	1	(GH2H) [SPC]
B318	0254030	SCREW	1	(GH2H) [SPC]
B319	0254030	SCREW	1	(GH2H) [SPC]
B320	0554055	SCREW	1	(GH2H) [SPC]
B321	0554055	SCREW	1	(GH2H) [SPC]
B322	0554055	SCREW	1	(GH2H) [SPC]

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 501	DE-A80BA/SX	BATTERY CHARGER	1	GC,GH
⚠ 501	DE-A79BA/SX	BATTERY CHARGER	1	PP
⚠ 501	DE-A80AA/SX	BATTERY CHARGER	1	EB,EG
⚠ 502	-------	BATTERY PACK	1	
⚠ 507	K2CT39A00002	AC CORD W/PLUG	1	EB,GC,GH
⚠ 508	K2CQ29A00002	AC CORD W/PLUG	1	EG,GC
509	K1HA14AD0003	USB CABLE	1	
510	K1HA14CD0004	A/V CABLE	1	
511	VFF0697-S	CD-ROM	1	(GH2) [SPC] See "Notes"
513	VGQ0C14	STYLUS PEN	1	
514	VGQ0Q65	BATTERY PACKING	1	
515	VPF1100	BAG, POLYETHYLENE	1	EB,HEB
515	VPF1132	BAG, POLYETHYLENE	1	EG,GC,GH,PP
⚠ 518	VQT3A49	INSTRUCTION BOOK	1	GC,GH
		(ENGLISH)		
⚠ 518	VQT3A50	INSTRUCTION BOOK	1	GC,GH
		(CHINESE(TRADITIONAL))		
⚠ 518	VQT3A36	INSTRUCTION BOOK	1	PP
		(ENGLISH)		
⚠ 518	VQT3A52	INSTRUCTION BOOK	1	GC
		(ARABIC)		
⚠ 518	VQT3A37	INSTRUCTION BOOK	1	PP
		(CANADIAN FRENCH)		
⚠ 518	VQT3A48	INSTRUCTION BOOK	1	EB
		(ENGLISH)		
⚠ 518	VQT3A40	INSTRUCTION BOOK	1	EG
		(GERMAN)		
⚠ 518	VQT3A38	INSTRUCTION BOOK	1	PP
		(SPANISH)		
⚠ 518	VQT3A41	INSTRUCTION BOOK	1	EG
		(FRENCH)		
⚠ 518	VQT3A39	INSTRUCTION BOOK	1	PP
		(PORTUGUESE)		
⚠ 518	VQT3A42	INSTRUCTION BOOK	1	EG
		(ITALIAN)		
⚠ 518	VQT3A43	INSTRUCTION BOOK	1	EG
		(DUTCH)		
519	VPK4602	INNER CARTON	1	EB,EG,GC,GH
519	VPK4601	INNER CARTON	1	PP
520	VPN6870-A	CUSHION A	1	(GH2)
521	VPN6871-A	CUSHION B	1	(GH2)
522	VPN6926-A	CUSHION D	1	(GH2)
528	VQL2B12	COLOR LABEL	3	EG-S
528	VQL2G74	COLOR LABEL	3	PP-S
534	VFC4602	SHOULDER STRAP	1	
535	VPF1316A	CAMERA BAG	1	
546	VKF4385	BODY CAP	1	[SPC]

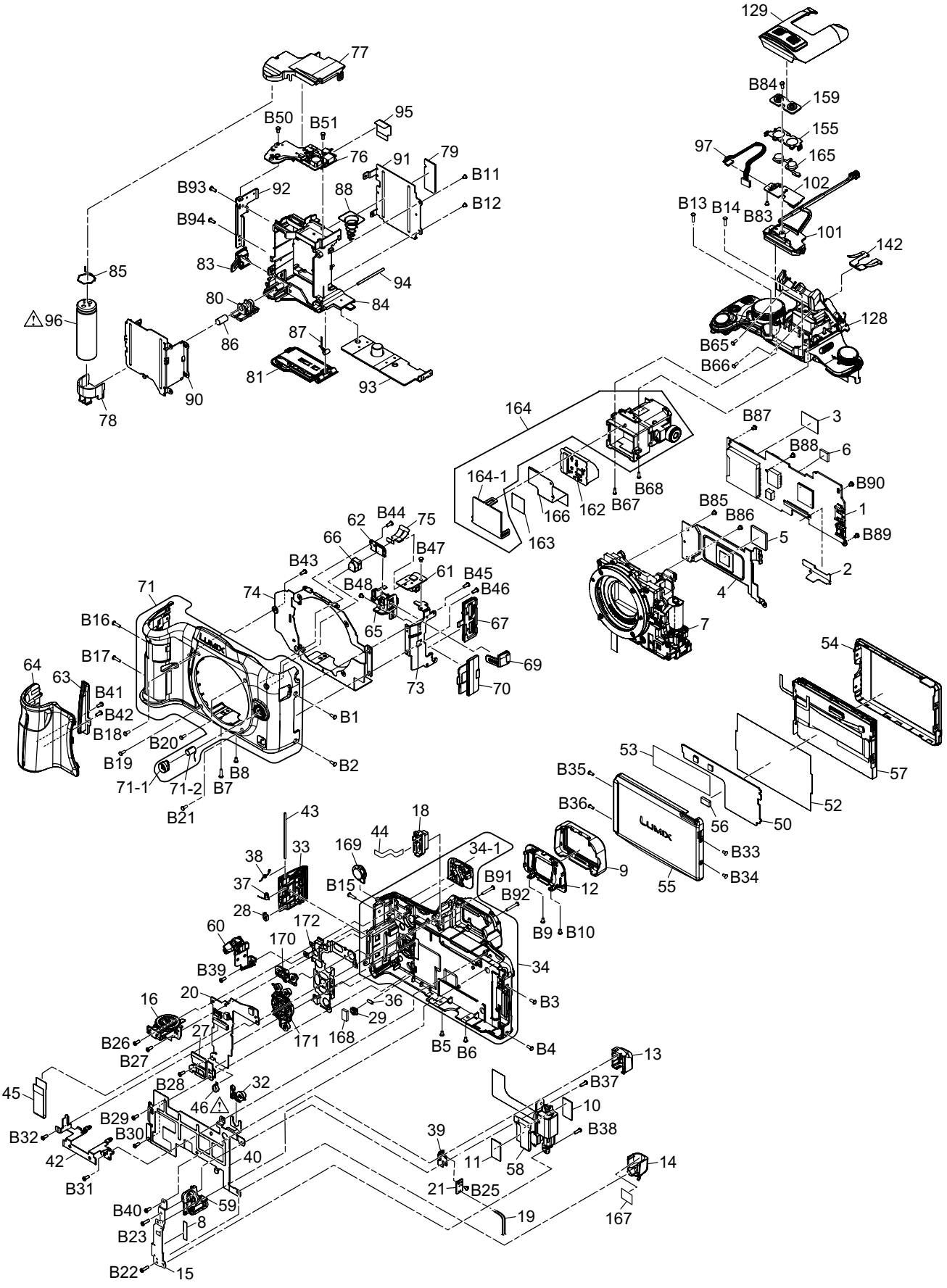
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 601	DE-A80BA/SX	BATTERY CHARGER	1	HGC,HGD,HGH,HGK,KGC,KGD,
				KGH,KGK
⚠ 601	DE-A79BA/SX	BATTERY CHARGER	1	HPP,KPP
⚠ 601	DE-A80CA/SX	BATTERY CHARGER	1	HGT,KGT
⚠ 601	DE-A80AA/SX	BATTERY CHARGER	1	HEB,HEC,HEE,HEG,HGN,KEB,
				KEC,KEE,KEG,KGN
⚠ 602	-------	BATTERY PACK	1	
⚠ 603	K2CR29A00001	AC CORD W/PLUG	1	HGD,KGD
⚠ 603	K2CQ29A00002	AC CORD W/PLUG	1	HEC,HEE,HEG,HGC,KEC,KEE,
				KEG,KGC
⚠ 604	K2CA2YY00070	AC CORD W/PLUG	1	HGK,KGK
⚠ 604	K2CA29A00021	AC CORD W/PLUG	1	HGT,KGT
⚠ 605	K2CJ29A00002	AC CORD W/PLUG	1	HGN,KGN
⚠ 607	K2CT39A00002	AC CORD W/PLUG	1	HEB,HGC,HGH,KEB,KGC,KGH
609	K1HA14AD0003	USB CABLE	1	
610	K1HA14CD0004	A/V CABLE	1	
611	VFF0697-S	CD-ROM	1	(EXCEPT:HGK,KGK)
				[SPC] See "Notes"
611	VFF0698-S	CD-ROM	1	(ONLY: HGK,KGK)
				[SPC] See "Notes"
613	VGQ0C14	STYLUS PEN	1	
614	VGQ0Q65	BATTERY PACKING	1	
615	VPF1100	BAG, POLYETHYLENE	1	HEB,HGD,HGK,HGN,HGT,HEE,
				KEB,KGD,KGK,KGN,KGT,KEE
615	VPF1132	BAG, POLYETHYLENE	1	HEC,HEG,HGC,HGH,HPP,KEC,
				KEG,KGC,KGH,KPP
⚠ 618	VQT3A49	INSTRUCTION BOOK	1	HGC,HGH,KGC,KGH
		(ENGLISH)		
⚠ 618	VQT3A56	INSTRUCTION BOOK	1	HGD,KGD
		(KOREAN)		
⚠ 618	VQT3A50	INSTRUCTION BOOK	1	HGC,HGH,KGC,KGH
		(CHINESE(TRADITIONAL))		
⚠ 618	VQT3A36	INSTRUCTION BOOK	1	HPP,KPP
		(ENGLISH)		
⚠ 618	VQT3A53	INSTRUCTION BOOK	1	HGT,KGT
		(CHINESE(TRADITIONAL))		
⚠ 618	VQT3A52	INSTRUCTION BOOK	1	HGC,KGC
		(ARABIC)		
⚠ 618	VQT3A37	INSTRUCTION BOOK	1	HPP,KPP
		(CANADIAN FRENCH)		
⚠ 618	VQT3A89	INSTRUCTION BOOK	1	HEE,KEE
		(RUSSIAN)		
⚠ 618	VQT3A54	INSTRUCTION BOOK	1	HGK,KGK
		(CHINESE(SIMPLIFIED))		
⚠ 618	VQT3A48	INSTRUCTION BOOK	1	HEB,KEB
		(ENGLISH)		
⚠ 618	VQT3A40	INSTRUCTION BOOK	1	HEG,KEG
		(GERMAN)		
⚠ 618	VQT3A38	INSTRUCTION BOOK	1	HPP,KPP
		(SPANISH)		
⚠ 618	VQT3A55	INSTRUCTION BOOK	1	HGN,KGN
		(ENGLISH)		
⚠ 618	VQT3A41	INSTRUCTION BOOK	1	HEG,KEG
		(FRENCH)		
⚠ 618	VQT3A39	INSTRUCTION BOOK	1	HPP,KPP
		(PORTUGUESE)		
⚠ 618	VQT3A44	INSTRUCTION BOOK	1	HEC,KEC
		(SPANISH)		
⚠ 618	VQT3A42	INSTRUCTION BOOK	1	HEG,KEG
		(ITALIAN)		
⚠ 618	VQT3A45	INSTRUCTION BOOK	1	HEC,KEC
		(PORTUGUESE)		
⚠ 618	VQT3A43	INSTRUCTION BOOK	1	HEG,KEG
		(DUTCH)		
⚠ 618	VQT3A46	INSTRUCTION BOOK	1	HEC,KEC
		(SWEDISH)		
⚠ 618	VQT3A47	INSTRUCTION BOOK	1	HEC,KEC
		(DANISH)		
619	VFC4430	LENS BAG	1	(GH2H) [SPC]
619	VFC4456	LENS BAG	1	(GH2K) [SPC]
620	VPN6829-A	CUSHION A	1	(GH2H)
620	VPN6870-A	CUSHION A	1	(GH2K)
621	VPN6830-A	CUSHION B	1	(GH2H)
621	VPN6871-A	CUSHION B	1	(GH2K)
622	VYC0997	LENS HOOD UNIT	1	(GH2H) [SPC]
622	VYC1009	LENS HOOD UNIT	1	(GH2K) [SPC]

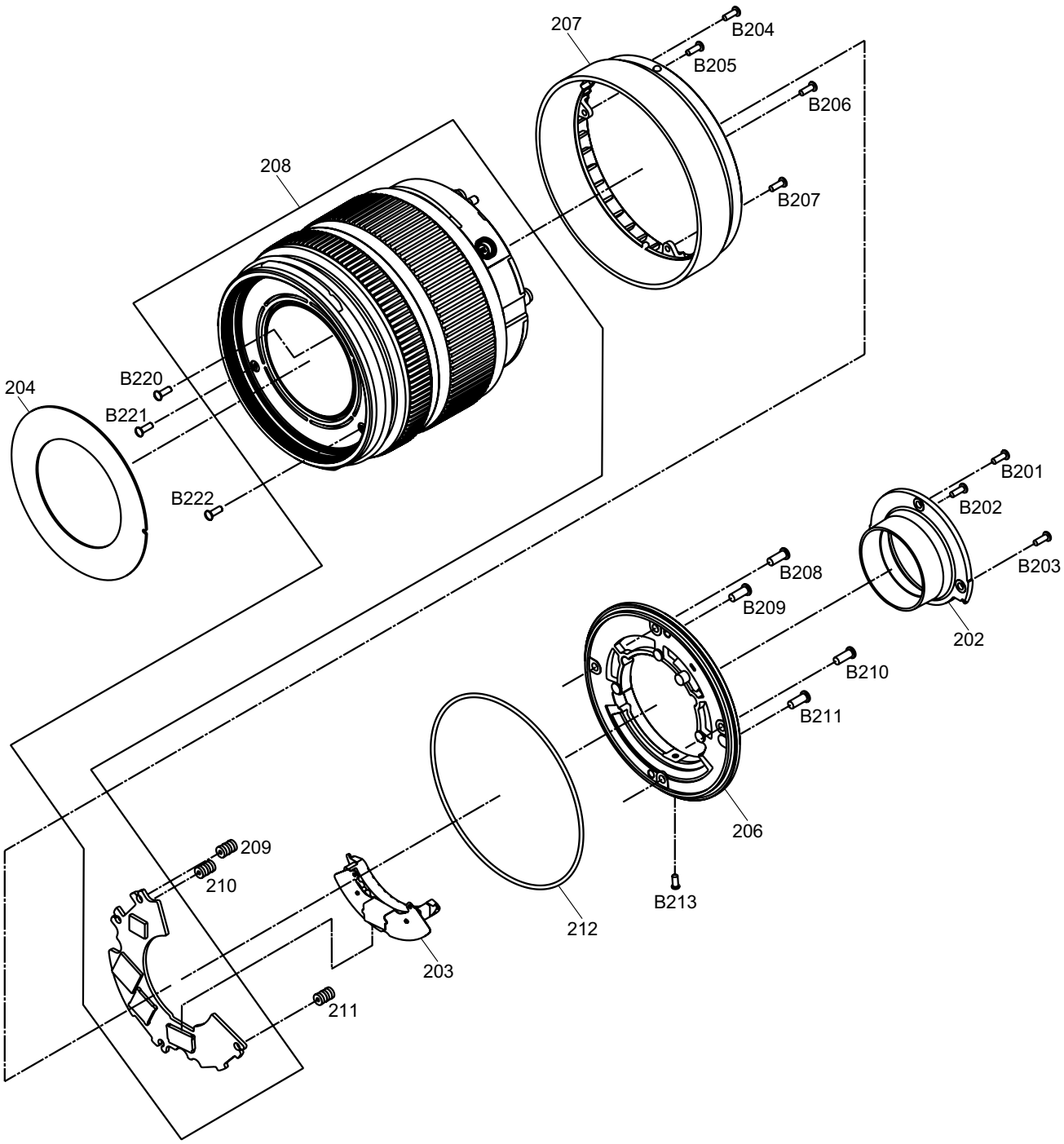
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
623	VPK4606	INNER CARTON	1	KGK
623	VPK4976	INNER CARTON	1	HGK
623	VPK4599	INNER CARTON	1	KEB,KEC,KEE,KEG,KGC,KGD,
				KGH,KGN,KGT
623	VPK4605	INNER CARTON	1	HEB,HEC,HEE,HEG,HGC,HGD,
				HGH,HGN,HGT
623	VPK4598	INNER CARTON	1	KPP
623	VPK4604	INNER CARTON	1	HPP
628	VQL2G74	COLOR LABEL	3	HPP-S,KPP-S
628	VQL2B12	COLOR LABEL	3	HEG-S,KEG-S,KGC-S,KGN-S
631	VPN6872	CUSHION C	1	(GH2K)
631	VPN6831-A	CUSHION C	1	(GH2H)
632	VPQ0276	AIR CAP SHEET	1	(GH2K)
634	VFC4602	SHOULDER STRAP	1	
635	VPF1316A	CAMERA BAG	1	
640	VFC4315	LENS REAR CAP	1	[SPC]
641	VYF3250	LENS CAP FRONT	1	(GH2H) [SPC]
641	VYF3201	LENS CAP FRONT	1	(GH2K) [SPC]
645	VPF1262	LENS BAG	1	(GH2H) [SPC]
645	VPF1321	LENS BAG	1	(GH2K) [SPC]
646	VKF4385	BODY CAP	1	[SPC]
647	VPF1328	AIR CAP BAG	1	(GH2H)

S7. Exploded View

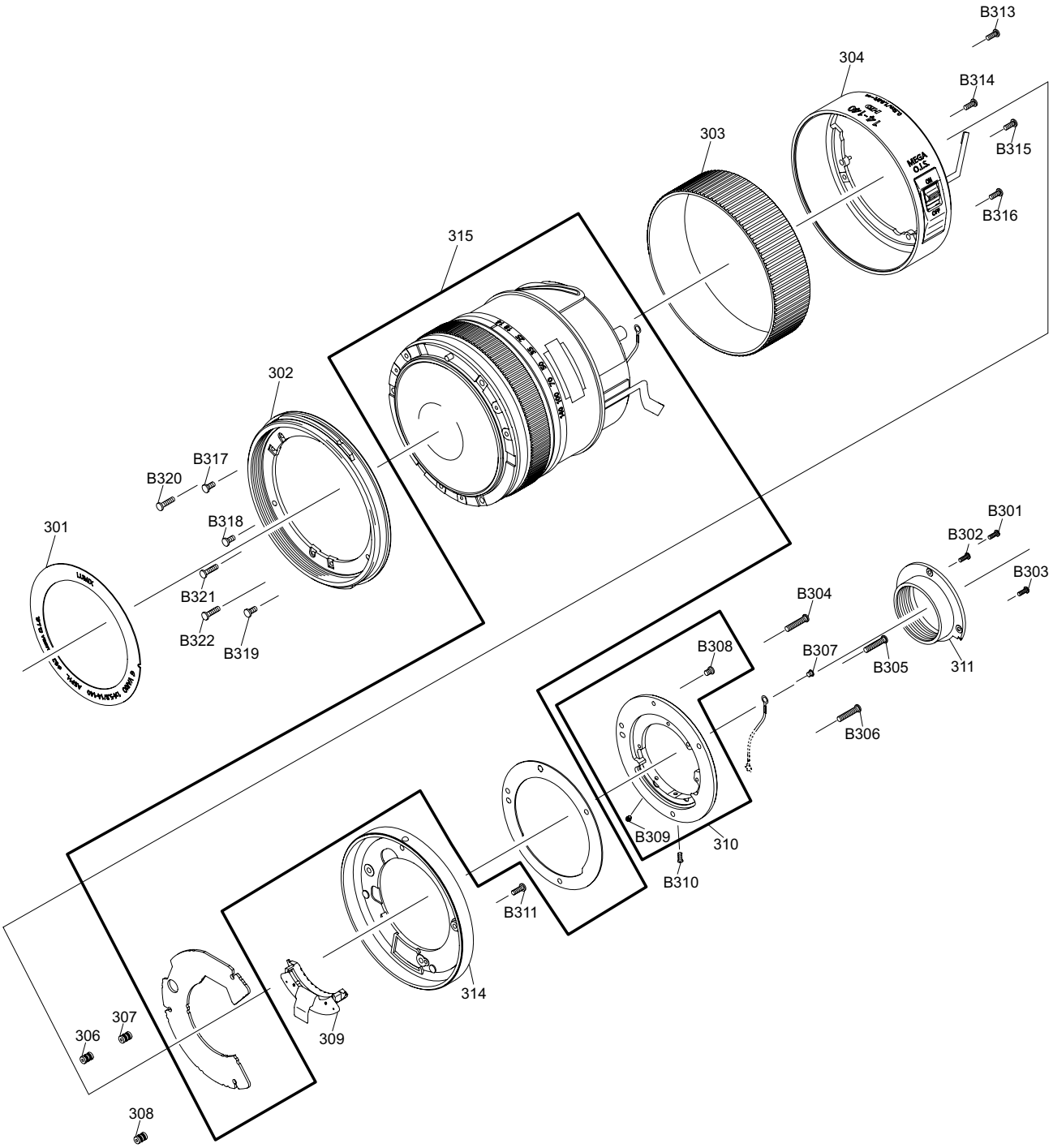
S7.1. Frame and Casing Section



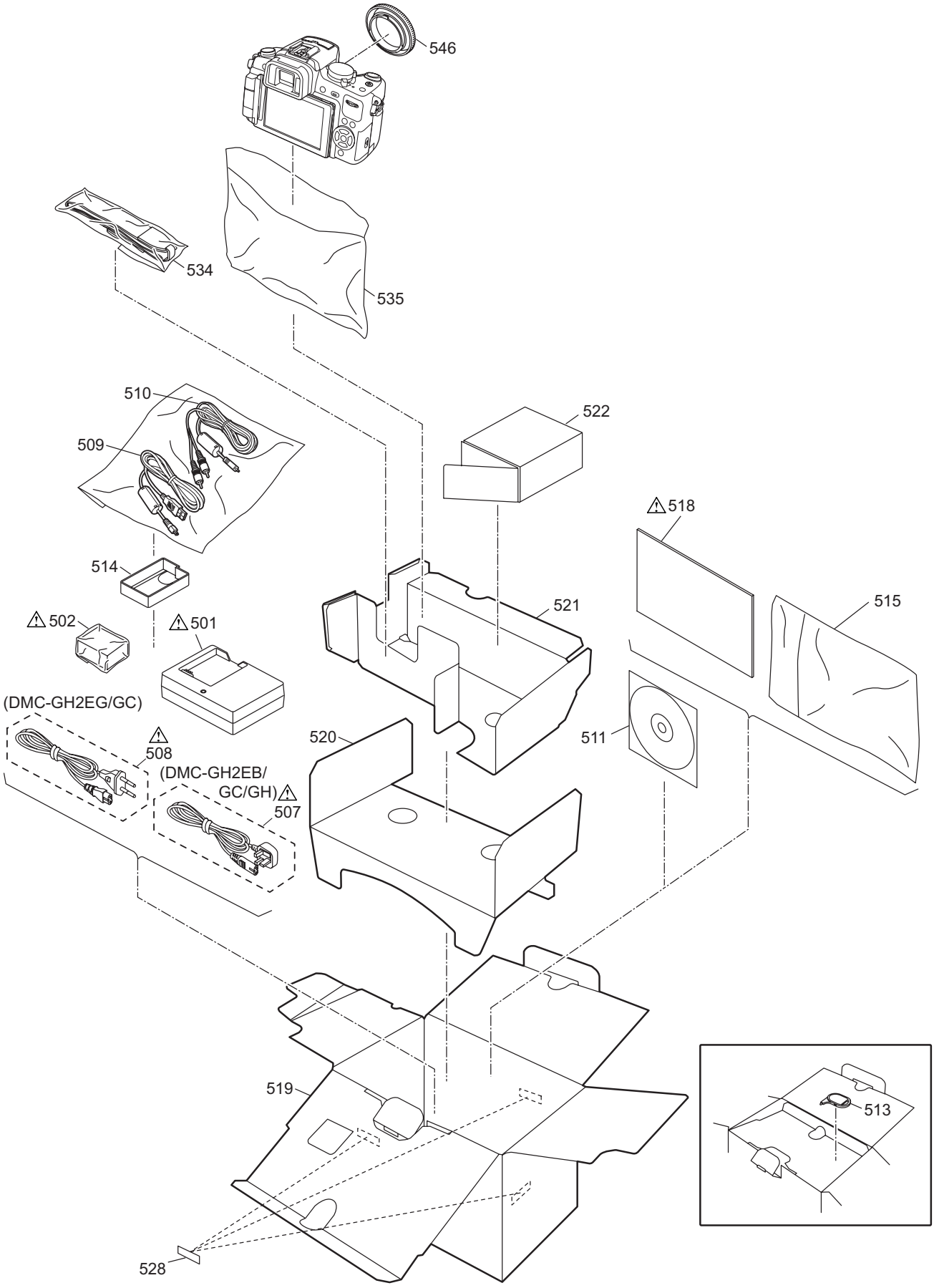
S7.2. Camera Lens Section (1)



S7.3. Camera Lens Section (2)



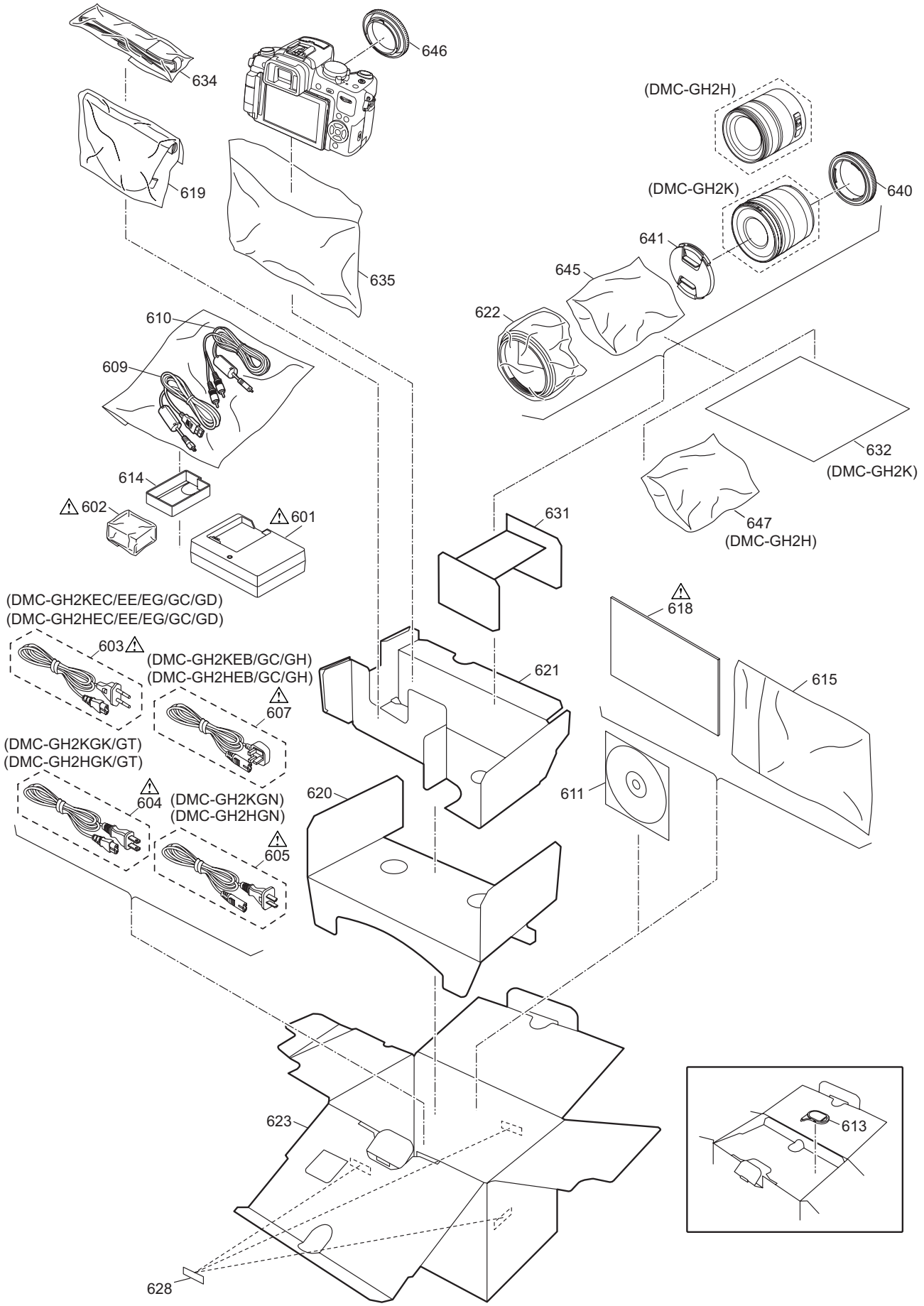
S7.4. Packing Parts and Accessories Section (1)



Directions for putting Color Labels : (”-S”:Silver model Only)

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.

S7.5. Packing Parts and Accessories Section (2)



Directions for putting Color Labels : ("-S":Silver model Only)

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.