

Service Manual

Digital Camera

LUMIX



Model No. **DMC-LX3P**
DMC-LX3PC
DMC-LX3PL
DMC-LX3E
DMC-LX3EB
DMC-LX3EE
DMC-LX3EF
DMC-LX3EG
DMC-LX3GC
DMC-LX3GD
DMC-LX3GK
DMC-LX3GN
DMC-LX3GT
DMC-LX3GJ
DMC-LX3SG

Vol. 1

Colour

(S).....Silver Type (except PC/PL/GD/GN/GT/GJ)

(K).....Black Type

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.

Panasonic[®]

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1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

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

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

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

1.2. Leakage Current Cold Check

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

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

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

Hot-Check Circuit

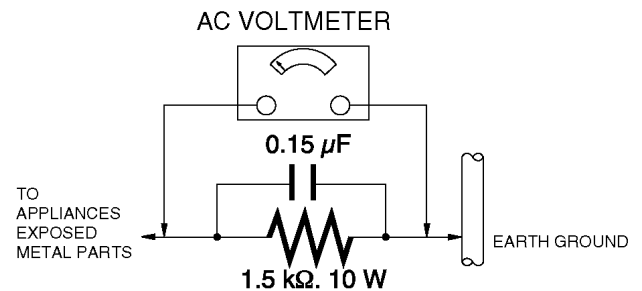


Figure. 1

1.4. How to Discharge the Capacitor on Flash PCB

CAUTION:

1. Be sure to discharge the capacitor on FLASH PCB.
2. Be careful of the high voltage circuit on FLASH PCB 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 (ERG5SJ102:1k Ω /5W).
(an equivalent type of resistor may be used.)
3. Put the resistor between both terminals of capacitor on FLASH PCB for approx. 5 seconds.
4. After discharging confirm that the capacitor voltage is lower than 10V using a voltmeter.

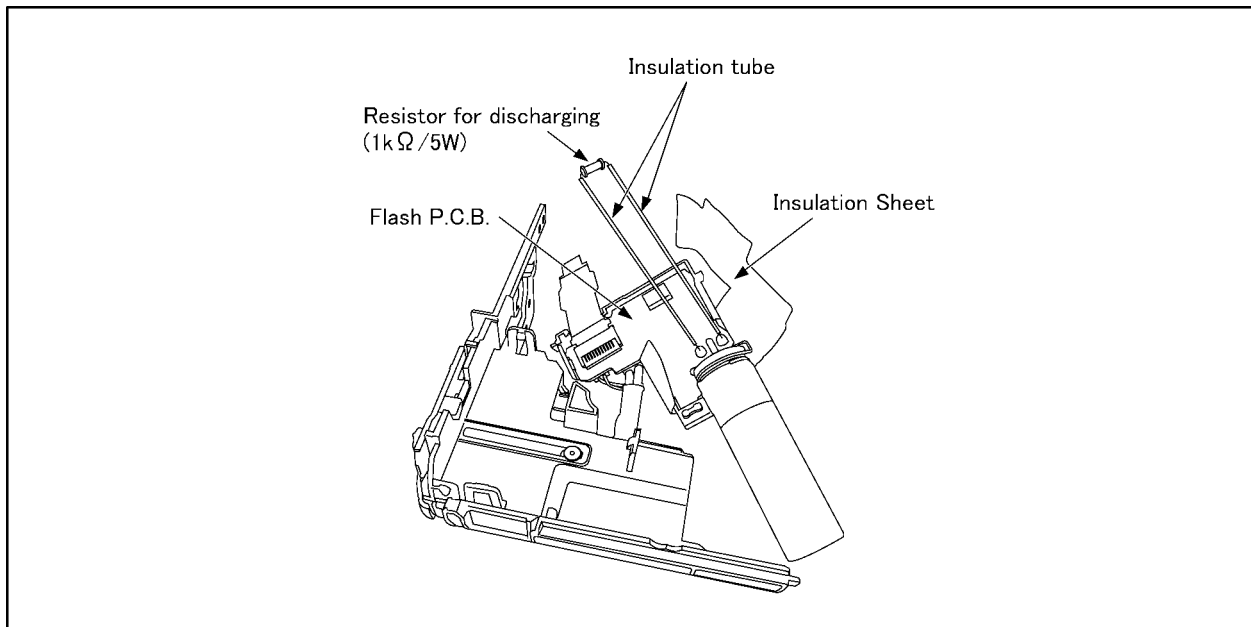


Fig. F1

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 CCD image sensor, 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)

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 ASRA mark or the BSI mark on the body of the fuse.



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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

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

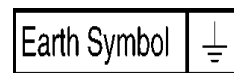
Blue	Neutral
Brown	Live

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

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

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

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



2.3.2.2. Before Use

Remove the Connector Cover as follows.



2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



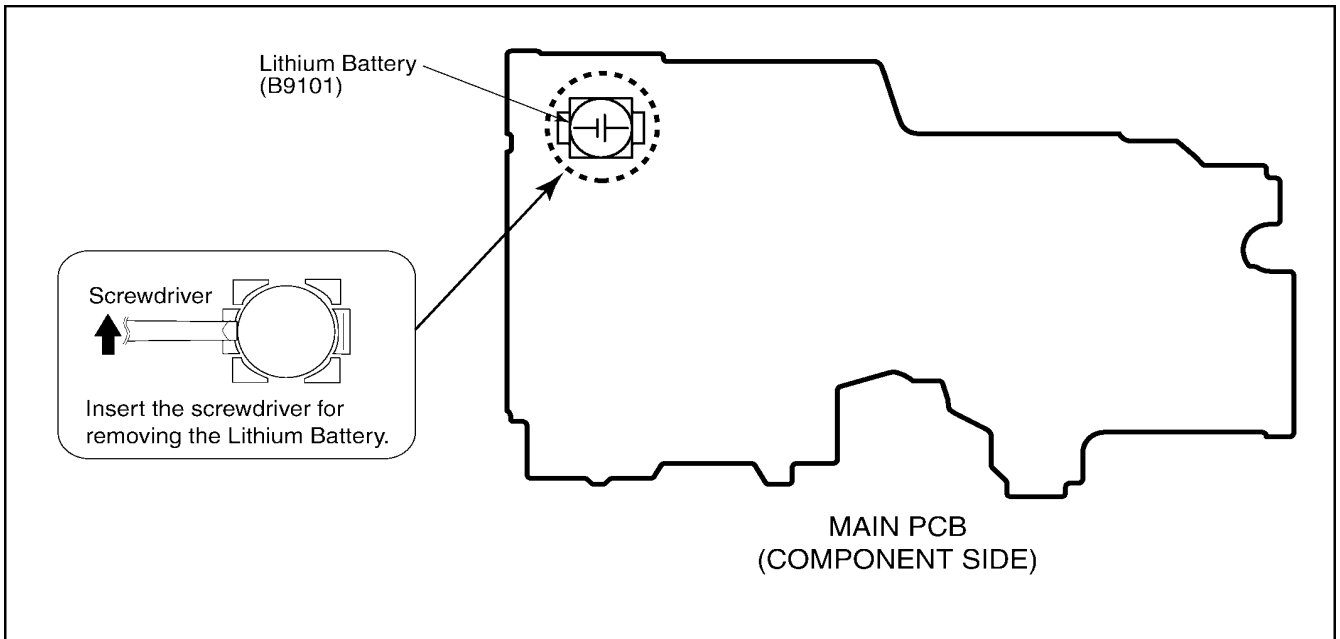
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the MAIN PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. "B9101" at component side of MAIN PCB) and then replace it into new one.



NOTE:

This Lithium battery is a critical component.

(Type No.: ML421S/ZT **Manufactured by Matsushita Battery Industrial Co.,Ltd.**)

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-LX3 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.

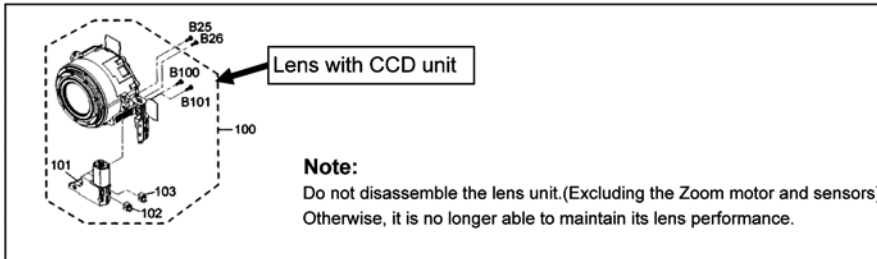
If the circuit is changed or modified, the information will be followed by service manual to be controlled with original service manual.

3.2. Lens Unit

Since the lens unit for this model is assembled with high accuracy manufacturing technologies, it is not allowed to disassemble/assemble the lens unit, in terms of performance retention.

When servicing, it has to be handled the "Lens with CCD unit" as the smallest part size.

Refer to each section, disassembly/assembly procedure, exploded views and replacement parts list replacement parts list for lens part, in details.



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 PCB Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the PCB 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 PCB 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 PCB 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.
RFKZ03D01K------(0.3mm 100g Reel)
RFKZ06D01K------(0.6mm 100g Reel)
RFKZ10D01K------(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. Important Notice 1:(Other than U.S.A. and Canadian Market)

1. The service manual does not contain the following information, because of the impossibility of servicing at component level without concerned equipment/facilities.
 - a. Schematic diagram, Block Diagram and PCB layout of MAIN PCB.
 - b. Parts list for individual parts for MAIN PCB.When a part replacement is required for repairing MAIN PCB, replace as an assembled parts. (MAIN PCB)
2. The following category is/are recycle module part. please send it/them to Central Repair Center.
 - MAIN PCB (VEP56067A): Excluding replacement of Lithium Battery.

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









There are eight kinds of DMC-LX3, regardless of the colours.

- a) DMC-LX3 (Japan domestic model), DMC-LX3SG
- b) DMC-LX3P/PC
- c) DMC-LX3E/EB/EF/EG
- d) DMC-LX3GN
- e) DMC-LX3EE
- f) DMC-LX3GD
- g) DMC-LX3GT/GK
- h) DMC-LX3PL/GC/GJ

What is the difference is that the "INITIAL SETTINGS" data which is stored in Flash ROM mounted on MAIN PCB.

3.5.1. Defining methods:

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

<p>a) DMC-LX3 (Japan domestic model), DMC-LX3SG The nameplate for these models show the following Safety registration mark.</p> 
<p>b) DMC-LX3P/PC The nameplate for these models show the following Safety registration mark.</p> 
<p>c) DMC-LX3E/EB/EF/EG The nameplate for these models show the following Safety registration mark.</p> 
<p>d) DMC-LX3GN The nameplate for this model show the following Safety registration mark.</p> 
<p>e) DMC-LX3EE The nameplate for this model show the following Safety registration mark.</p> 
<p>f) DMC-LX3GD The nameplate for this model show the following Safety registration mark.</p> 
<p>g) DMC-LX3GT The nameplate for this model show the following Safety registration mark.</p> 
<p>h) DMC-LX3GK The nameplate for this model show the following Safety registration mark.</p> 
<p>i) DMC-LX3PL/GC/GJ The nameplate for these models do not show any above Safety registration mark.</p>

NOTE:

After replacing the MAIN PCB, be sure to achieve adjustment.

The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with Maintenance software.

3.5.2. INITIAL SETTINGS:

When you replace the MAIN PCB, 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 CAUTIONS.

CAUTION 1 : (INITIAL SETTINGS)

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

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

(Model suffix : "E/EB/EE/EF/EG/GC/GD/GJ/GK/GN/GT/P/PC/PL/SG and NONE(JAPAN)")

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

[NOTE: Only for "EG.E/EF/EB/EE" models]

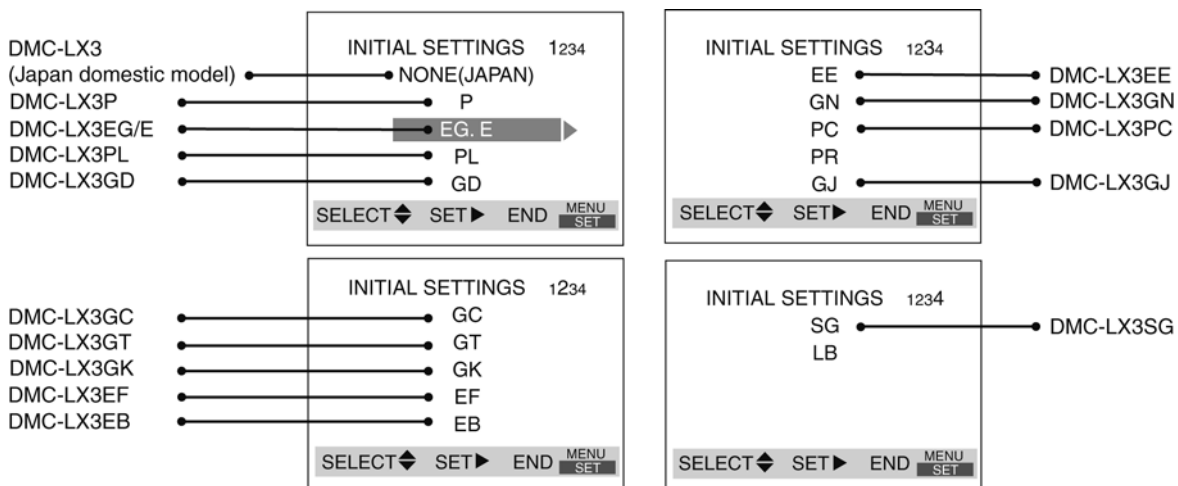
*When one of the "EG.E, EF, EB, and EE" are chosen, "EG.E, EF, EB, and EE" are displayed from second times.

CAUTION 2 (Stored picture image data in the unit)

This unit employs "Built-in Memory" for picture image data recording.(Approx. 50MB)
After proceeding "INITIAL SETTINGS", the picture image data stored in the unit is erased.

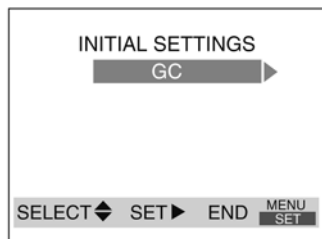
2. PROCEDURES:

- Precautions: Proceed the picture back up from the unit. (Refer to above "CAUTION 2")
- Preparation. Set the Mode dial to "P" (Program AE mode).
- **Step 1. The temporary cancellation of initial setting:**
Set the [REC]/[PLAYBACK] selector switch to "[REC] (Camera mark)".
While keep pressing [FOCUS] and "[UP] of Cursor buttons" simultaneously, turn the Power on.
- **Step 2. The cancellation of initial setting:**
Set the [REC]/[PLAYBACK] selector switch to "[PLAYBACK]".
Press [FOCUS] and "[UP] of Cursor buttons" simultaneously, then turn the Power off.
- **Step 3. Turn the Power on:**
Set the [REC]/[PLAYBACK] selector switch to "[REC] (Camera mark)", 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.
When MAIN P.C.B. is replaced, all of the model suffix is displayed as follows.
There are two kinds of "INITIAL SETTINGS" menu format.
[1. After replacing MAIN P.C.B.]

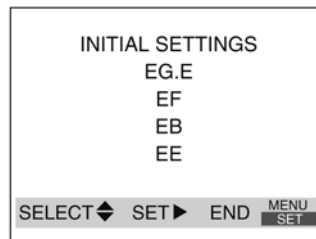


[2. Other than “After replacing MAIN P.C.B.”]

<Other than “EG.E/EF/EB/EE” models>



<Only “EG.E/EF/EB/EE” models>



• **Step 5. Set the INITIAL SETTING: (Refer to “CAUTION 1”)**

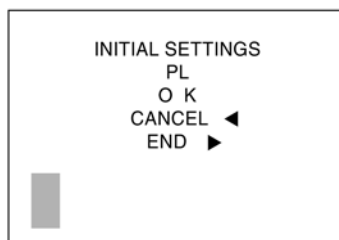
[Caution: After replacing MAIN P.C.B.]

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

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

Select the area carefully.

Select the area with pressing “[UP] / [DOWN] of Cursor buttons”, and then 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.)

Confirm the display of “PLEASE SET THE CLOCK” in English when the unit is turned on again.

• **Step 6. CONFIRMATION:**

The display shows “PLEASE SET THE CLOCK” when turn the Power on again.

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

1) As for your reference Default setting condition is given in the following table.

• **Default setting (After “INITIAL SETTINGS”)**

	MODEL	VIDEO OUTPUT	LANGUAGE	DATE	REMARKS
a)	DMC-LX3 (Japan domestic model)	NTSC	Japanese	Year/Month/Date	
b)	DMC-LX3P/PC/PL	NTSC	English	Month/Date/Year	
c)	DMC-LX3E/EB/EG/GC/GN/SG	PAL	English	Date/Month/Year	
d)	DMC-LX3EF	PAL	French	Date/Month/Year	
e)	DMC-LX3EE	PAL	Russian	Date/Month/Year	
f)	DMC-LX3GK	PAL	Chinese (simplified)	Year/Month/Date	
g)	DMC-LX3GT	NTSC	Chinese (traditional)	Year/Month/Date	
h)	DMC-LX3GD	NTSC	Korean	Year/Month/Date	
i)	DMC-LX3GJ	PAL	Thai	Date/Month/Year	

4 Specifications

Digital Camera: Information for your safety

Power Source:	DC 5.1 V
Power Consumption:	1.4 W (When recording) 0.7 W (When playing back)

Camera effective pixels: 10,100,000 pixels
Image sensor: 1/1.63" CCD, total pixel number 11,300,000 pixels, Primary color filter
Lens: Optical 2.5×zoom, f=5.1 mm to 12.8 mm (35 mm film camera equivalent: 24 mm to 60 mm)/F2.0 to F2.8
Digital zoom: Max. 4×
Extended optical zoom: Max. 4.5×
Focus: Normal/AF Macro/Manual focus
Face detection/Multi-area-focusing/
1-area-focusing (High speed)/1-area-focusing/Spot-focusing/
AF Tracking
Focus range: Normal: 50 cm (1.64 feet) to ∞
AF Macro/Intelligent auto:
1 cm (0.04 feet) (Wide)/30 cm (0.99 feet) (Tele) to ∞
Scene mode: There may be differences in the above settings.
Electronic shutter+Mechanical shutter
Shutter system:
Motion picture recording: When the aspect ratio setting is [4:3]
640×480 pixels (30 frames/second, only when using a Card)
320×240 pixels (30 frames/second, 10 frame/second)
When the aspect ratio setting is [16:9]
1280×720 pixels (24 frames/second, only when using a Card)
848×480 pixels (30 frames/second, only when using a Card)
With audio
Burst recording
Burst speed: 2.5 pictures/second (Normal), Approx. 2 pictures/second (Unlimited)
Number of recordable pictures: Max. 8 pictures (Standard), max. 4 pictures (Fine), max. 3 pictures (RAW, RAW+Fine, RAW+Standard), Depends on the remaining capacity of the built-in memory or the card (Unlimited).
(Performance in burst recording is only with SD Memory Card/SDHC Memory Card. MultiMediaCard performance will be less.)
Hi-speed burst
Burst speed: Approx. 6 pictures/second
(3M (4:3), 2.5M (3:2) or 2M (16:9) is selected as the picture size.)
Number of recordable pictures: When using the built-in memory:
Approx. 35 pictures (immediately after formatting)
When using a Card: Max. 100 pictures (differs depending on the type of Card and the recording conditions)
ISO sensitivity: AUTO/80/100/200/400/800/1600/3200
[HIGH SENS.] mode: 1600 to 6400
Shutter speed: 60 seconds to 1/2000th of a second
[STARRY SKY] mode: 15 seconds, 30 seconds, 60 seconds
Auto white balance/Daylight/Cloudy/Shade/Flash/Incandescent lights/White set1/White set2/White balance K set
White balance: Program AE (P)/Aperture-priority AE (A)/Shutter-priority AE (S)/Manual exposure (M)
Exposure (AE): Exposure compensation (1/3 EV Step, -2 EV to +2 EV)
Metering mode: Multiple/Center weighted/Spot
LCD monitor: 3.0" low-temperature polycrystalline TFT LCD
(Approx. 460,000 dots) (field of view ratio about 100%)

Flash: Built-in pop up flash
Flash range: [ISO AUTO]
Approx. 80 cm (2.62 feet) to 8.3 m (27.2 feet) (Wide)
AUTO, AUTO/Red-eye reduction, Forced flash ON (Forced ON/Red-eye reduction), Slow sync./Red-eye reduction, Forced flash OFF
Microphone: Monaural
Speaker: Monaural
Recording media: Built-in Memory (Approx. 50 MB)/SD Memory Card/SDHC Memory Card/MultiMediaCard (Still pictures only)
Picture size
Still picture: When the aspect ratio setting is [4:3]
3648×2736 pixels, 3072×2304 pixels, 2560×1920 pixels, 2048×1536 pixels, 1600×1200 pixels, 640×480 pixels
When the aspect ratio setting is [3:2]
3776×2520 pixels, 3168×2112 pixels, 2656×1768 pixels, 2112×1408 pixels, 2048×1360 pixels
When the aspect ratio setting is [16:9]
3968×2232 pixels, 3328×1872 pixels, 2784×1568 pixels, 2208×1248 pixels, 1920×1080 pixels
Motion pictures: When the aspect ratio setting is [4:3]
640×480 pixels (Only when using a Card), 320×240 pixels
When the aspect ratio setting is [16:9]
1280×720 pixels (Only when using a Card)
848×480 pixels (Only when using a Card)
Fine/Standard/RAW/RAW+Fine/RAW+Standard
Quality:
Recording file format
Still Picture: JPEG (based on "Design rule for Camera File system", based on "Exif 2.21" standard)/RAW, DPOF corresponding
Pictures with audio: JPEG (based on "Design rule for Camera File system", based on "Exif 2.21" standard)+ "QuickTime" (pictures with audio)
Motion pictures: "QuickTime Motion JPEG" (motion pictures with audio)
Interface
Digital: "USB 2.0" (High Speed)
Analog video/audio: NTSC Composite (P area)
NTSC/PAL Composite (Switched by menu) (Other areas)
Component
Audio line output (monaural)
Terminal
[COMPONENT OUT]: Dedicated jack (10 pin)
[AV OUT/DIGITAL]: Dedicated jack (8 pin)
[DC IN]: Dedicated jack (2 pin)
Dimensions: Approx. 108.7 mm (W)×59.5 mm (H)×27.1 mm (D)
[4 1/4" (W)×2 3/8" (H)×1 1/8" (D)] (excluding the projecting parts)
Mass (weight): Approx. 229 g/8.08 oz (excluding card, battery and lens cap)
Approx. 265.4 g/9.36 oz (with card, battery and lens cap)
Operating temperature: 0 °C to 40 °C (32 °F to 104 °F)
Operating humidity: 10% to 80%
Battery Charger (Panasonic DE-A41B):

Input:	110 V to 240 V ~ 50/60 Hz, 0.2 A
Output:	CHARGE 4.2 V = 0.8 A

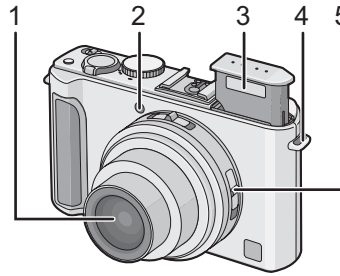
Equipment mobility: Movable
Battery Pack (lithium-ion) (Panasonic CGA-S005A):

Voltage:	3.7 V
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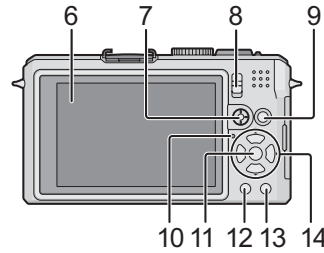
5 Location of Controls and Components

Names of the Components

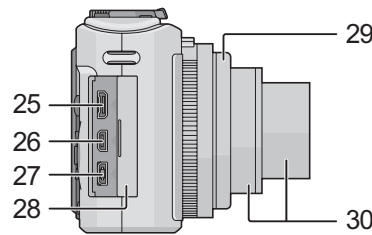
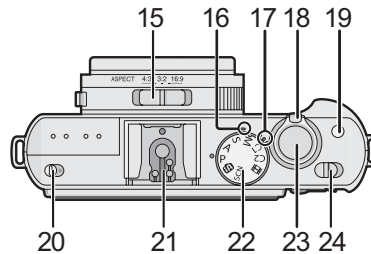
- 1 Lens
- 2 Self-timer indicator
- 3 AF assist lamp
- 4 Flash
- 4 Strap eyelet
 - Be sure to attach the strap when using the camera to ensure that you will not drop it.
- 5 Focus selector switch



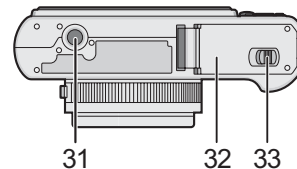
- 6 LCD monitor
- 7 Joystick
- 8 [REC]/[PLAYBACK] selector switch
- 9 [AF/AE LOCK] button
- 10 Status indicator
- 11 [MENU/SET] button
- 12 [DISPLAY] button
- 13 Delete button / Single or burst mode button
- 14 Cursor buttons
 - ◀/Self-timer button
 - ▼Function button
 - Assign [REC] Mode Menu to ▼ button. It is convenient to register [REC] Mode Menu that is used often.
 - [REVIEW]/[FILM MODE]/[SENSITIVITY]/[WHITE BALANCE]/[METERING MODE]/[AF MODE]/[I.EXPOSURE]
 - ▶/Flash setting button
 - ▲/Exposure compensation / Auto bracket /Multi aspect /Flash output adjustment



- 15 Aspect ratio selector switch
- 16 Microphone
- 17 Speaker
- 18 Zoom lever
- 19 [FOCUS] button
- 20 Flash open button
- 21 Hot Shoe
- 22 Mode dial
- 23 Shutter button
- 24 Camera ON/OFF switch
- 25 [COMPONENT OUT] socket
- 26 [AV OUT/DIGITAL] socket
- 27 [DC IN] socket
 - Always use a genuine Panasonic AC adaptor (DMW-AC5PP; optional).
 - This camera cannot charge the battery even when the AC adaptor (DMW-AC5PP; optional) is connected to it.
- 28 Terminal door
- 29 Lens ring front
- 30 Lens barrel




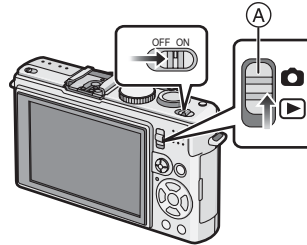
- 31 Tripod receptacle
 - When you use a tripod, make sure the tripod is stable when the camera is attached to it.
- 32 Card/Battery door
- 33 Release lever



Selecting the [REC] Mode

When the [REC] mode is selected, the camera can be set to the Intelligent auto mode in which the optimal settings are established in line with the subject to be recorded and the recording conditions, or to the scene mode which enables you to take pictures that match the scene being recorded.

- 1** Turn the camera on.
 (A) [REC]/[PLAYBACK] selector switch
- 2** Slide the [REC]/[PLAYBACK] selector switch to .

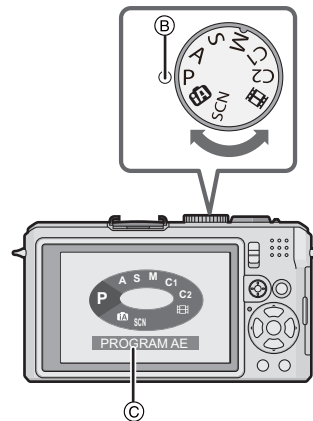


- 3** Switch the mode by rotating the mode dial.

Align a desired mode with part (B).

- Rotate the mode dial slowly and surely to adjust to each mode. (The mode dial rotates 360°)

The screen (C) is displayed on the LCD monitor when the mode dial is turned.



■ 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.

C1 C2 Custom mode

Use this mode to take pictures with previously registered settings.

Motion picture mode

This mode allows you to record motion pictures.

SCN Scene mode

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

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 (when the unit is powered on by the battery, the battery is pulled out) because the error code is memorized to FLASH ROM when the unit is powered off.

2. How to display

The error code can be displayed by the following procedure:

Before perform the error code memory function, connect the AC adaptor or insert the battery.

(Since this unit has built-in memory, this error code memory function can be performed without inserting SD memory card.)

- Preparation. Set the Mode dial to "P" (Program AE mode).

Set the [REC]/[PLAYBACK] selector switch to "[REC] (Camera mark)".

- **1. The temporary cancellation of initial setting:**

Set the [REC]/[PLAYBACK] selector switch to "[REC] (Camera mark)".

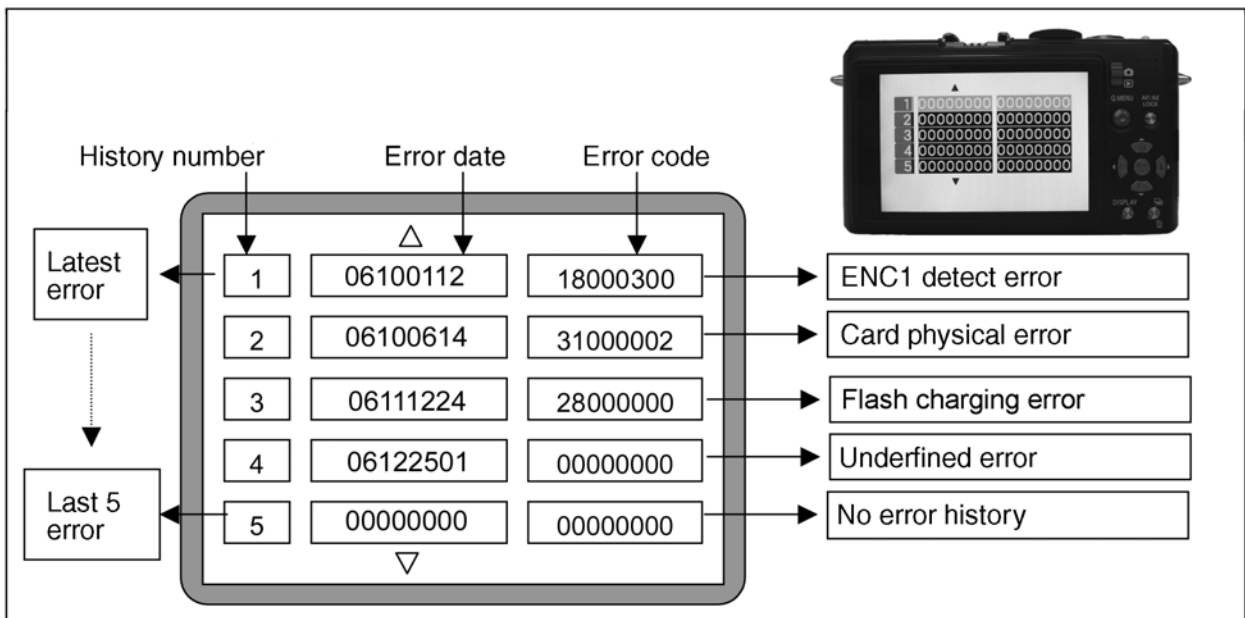
While keep pressing [FOCUS] and "[UP] of Cursor buttons" simultaneously, turn the Power on.

- **2. The display of error code:**

Press [FOCUS], [MENU/SET] and "[LEFT] of Cursor buttons" simultaneously with the step 1 condition.

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

Normal display → Error code display → Operation history display → Normal display →



Example of Error Code Display

- **3. The change of display:**

The error code can be memorized 16 error codes in sequence, however it is displayed 5 errors on the LCD.

Display can be changed by the following procedure:

"[UP] or [DOWN] of Cursor buttons" : It can be scroll up or down one.

"[LEFT] or [RIGHT] of Cursor buttons" : It can be display last 5 error or another 5 error.

- **4. How to read the error date:**

The error date code is displayed from the left in order at the year, month, day, time.

Error date information is acquired from "Clock setting" information when the error occurs. When the clock is not setting, it is displayed as "00000000".

• 5. How to read the error code:

One error code is displayed for 8 bit, the contents of error codes is indicated the table as shown below.

History number	Error date	Error code
1	06100112	8000300
2	06100614	31000002
3	06111224	28000000
4	06122501	00000000
5	00000000	00000000

Attribute	Main item	Sub item	Error code		Contents (Upper)	
			High 4 bits	Low 4 bits	Check point (Lower)	
LENS	Lens drive	OIS	18*0	1000	PSD (X) error. Hall element (X axis) position detect error in OIS unit. OIS Unit	
				2000	PSD (Y) error. Hall element (Y axis) position detect error in OIS unit. OIS Unit	
				3000	GYRO (X) error. Gyro (IC7101: X axis) detect error on Main P.C.B.. IC7101 (Gyro element) or IC6001 (VENUS 4)	
				4000	GYRO (Y) error. Gyro (IC7101: Y axis) detect error on Main P.C.B.. IC7101 (Gyro element) or IC6001 (VENUS 4)	
				5000	MREF error (Reference voltage error). IC9101 (LENS drive) or IC6001 (VENUS 4)	
				6000	Drive voltage (X) error. VENUS 4 AD value error, LENS Unit, LENS flex breaks etc.	
				7000	Drive voltage (Y) error. VENUS 4 AD value error, LENS Unit, LENS flex breaks etc.	
			Zoom (C.B.)	0?10	Collapsible barrel Low detect error (Collapsible barrel encoder always detects Low.) Mechanical lock, FP9005-(35) signal line or IC6001 (VENUS 4)	
				0?20	Collapsible barrel High detect error (Collapsible barrel encoder always detects High.) Mechanical lock, FP9005-(35) signal line or IC6001 (VENUS 4)	
				0?30	Zoom motor sensor error. Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS 4)	
				0?40	Zoom motor sensor error. (During monitor mode.) Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS 4)	
				0?50	Zoom motor sensor error. (During monitor mode with slow speed.) Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS 4)	
				Focus	0?01	HP High detect error (Focus encoder always detects High.) Mechanical lock, FP9005-(35) signal line or IC6001 (VENUS 4)
					0?02	HP Low detect error (Focus encoder always detects Low.) Mechanical lock, FP9005-(35) signal line or IC6001 (VENUS 4)
		Lens	10*3	0000	Lens cap error. Zoom motor, Zoom pulse encoder2	
				18*1	0000	Power ON time out error. Lens drive system
			18*2	0000	Power OFF time out error. Lens drive system	
		Adj.History	OIS	19*0	2000	OIS adj. Yaw direction amplitude error (small)
					3000	OIS adj. Pitch direction amplitude error (small)
					4000	OIS adj. Yaw direction amplitude error (large)
					5000	OIS adj. Pitch direction amplitude error (large)
					6000	OIS adj. MREF error
					7000	OIS adj. time out error
					8000	OIS adj. Yaw direction off set error
					9000	OIS adj. Pitch direction off set error
					A000	OIS adj. Yaw direction gain error
					B000	OIS adj. Pitch direction gain error
					C000	OIS adj. Yaw direction position sensor error
	D000				OIS adj. Pitch direction position sensor error	
	E000				OIS adj. other error	

Attribute	Main item	Sub item	Error code		Contents (Upper)	
			High 4 bits	Low 4 bits	Check point (Lower)	
HARD	VENUS A/D	Flash	28*0	0000	Flash charging error. IC6001-(AC17) signal line or Flash charging circuit	
	FLASH ROM (EEPROM Area)	FLASH ROM (EEPROM Area)	2B*0	0001	EEPROM read error IC6002 (FLASH ROM)	
				0002	EEPROM write error IC6002 (FLASH ROM)	
				0008	SDRAM error SDRAM Mounting defective	
	SYSTEM	RTC	2C*0	0001	SYSTEM IC initialize failure error Communication between IC6001 (VENUS 4) and IC9101 (SYSTEM)	
SOFT	CPU	Reset	30*0	0001 0007	NMI reset Non Mask-able Interrupt (30000001-30000007 are caused by factors)	
	Card	Card	31*0	0001	Card logic error SD memory card data line or IC6001 (VENUS 4)	
				0002	Card physical error SD memory card data line or IC6001 (VENUS 4)	
				0004	Write error SD memory card data line or IC6001 (VENUS 4)	
					Format error	
				39*0	0005	Format error
	CPU, ASIC hard	Stop	38*0	0001	Camera task finish process time out. Communication between Lens system and IC6001 (VENUS 4)	
				0002	Camera task invalid code error. IC6001 (VENUS 4)	
				0100	File time out error in recording motion image IC6001 (VENUS 4)	
				0200	File data cue send error in recording motion image IC6001 (VENUS 4)	
				0300	Single or burst recording brake time out.	
		Memory area	3A*0	0008	USB work area partitioning failure USB dynamic memory securing failure when connecting	
		Operation	Power on	3B*0	0000	FLASHROM processing early period of camera during movement.
		Zoom	Zoom	3C*0	0000	Inperfect zoom lens processing Zoom lens
	0000 FFFF				Software error (0-7bit : command, 8-15bit : status)	
	35*1			0000	Though record preprocessing is necessary, it is not called.	
	35*2			0000	Though record preprocessing is necessary, it is not completed.	

The above table

1) About "*" indication:

The third digit from the left is different as follows.

- In case of 0 (example: 1801000)

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: 1881000)

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.

2) About "?" indication: ("18*0 0?01" to "18*0 0?50"):

The third digit from the right shows one of the hexadecimal ("0" to "F") character.

• 6. How to returned to Normal Display:

Turn the power off and on, to exit from Error code display mode.

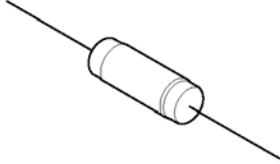
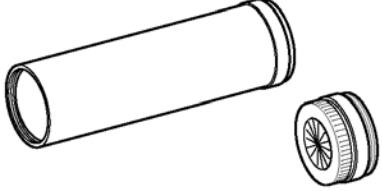
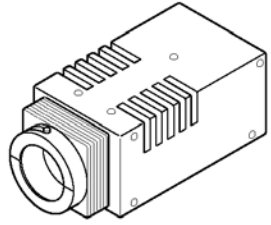
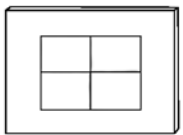

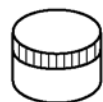
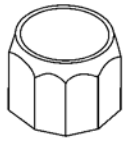
NOTE:

The error code can not be initialized.

7 Service Fixture & Tools

7.1. Service Fixture and Tools

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

Resistor for Discharging ERG5SJ102	Infinity Lens (with Focus Chart) VFK1164TCM02	LIGHT BOX VFK1164TDVLB
 <p>An equivalent type of Resistor may be used.</p>	 <p>* RFKZ0422 can be used.</p>	 <p>※ with DC Cable</p>
TR Chart RFKZ0443	Lens Cleaning Kit (BK) VFK1900BK	Grease (for lens) RFKZ0472
	 <p>* Only supplied as 10 set/box.</p>	
Dome type magnifying glass VFK1835		
		

7.2. When Replacing the Main PCB

After replacing the MAIN PCB, be sure to achieve adjustment.

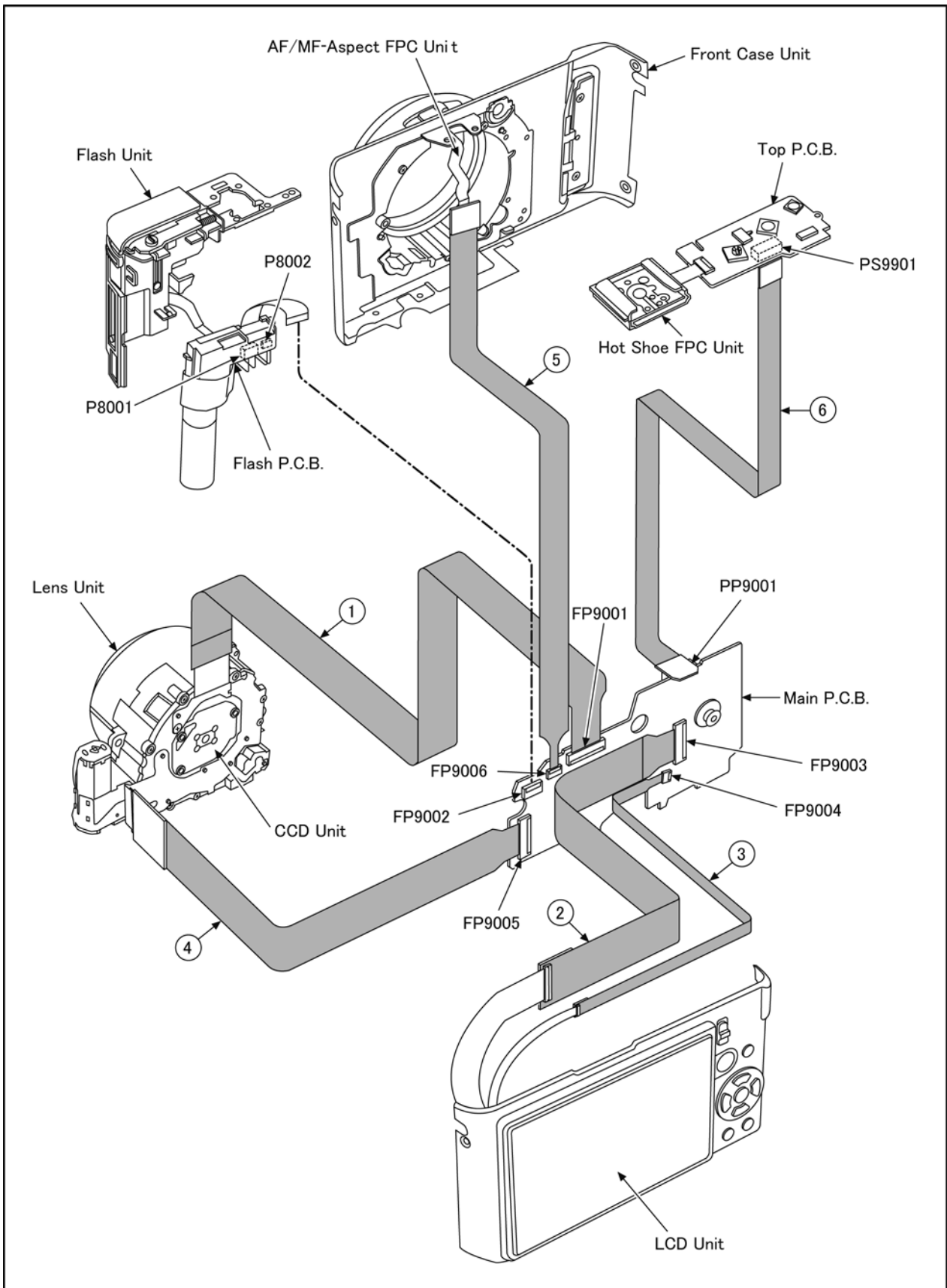
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with Maintenance software.

7.3. 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	Form
1	VFK1951	FP9001 (MAIN) - CCD UNIT	39PIN 0.3 FFC
2	RFKZ0477	FP9003 (MAIN) - LCD UNIT	45PIN 0.3 FFC
3	RFKZ1974	FP9004 (MAIN) - LCD UNIT	4PIN 0.5 FFC
4	RFKZ0477	FP9005 (MAIN) - LENS UNIT	45PIN 0.3 FFC
5	VFK1480	FP9006 (MAIN) - AF/MF ASPECT FPC UNIT	6PIN 0.5 FFC
6	VFK1870	PP9001 (MAIN) - PS9901 (TOP)	30PIN B to B

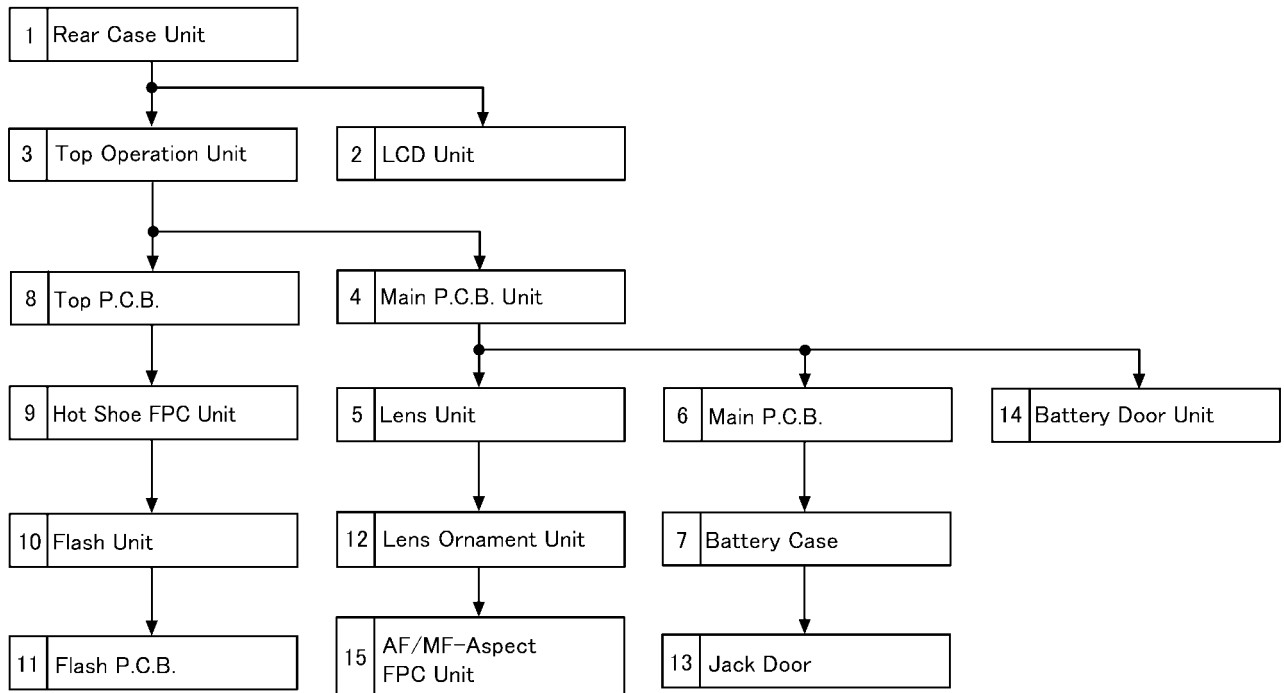


CAUTION-1. (When servicing FLASH PCB)

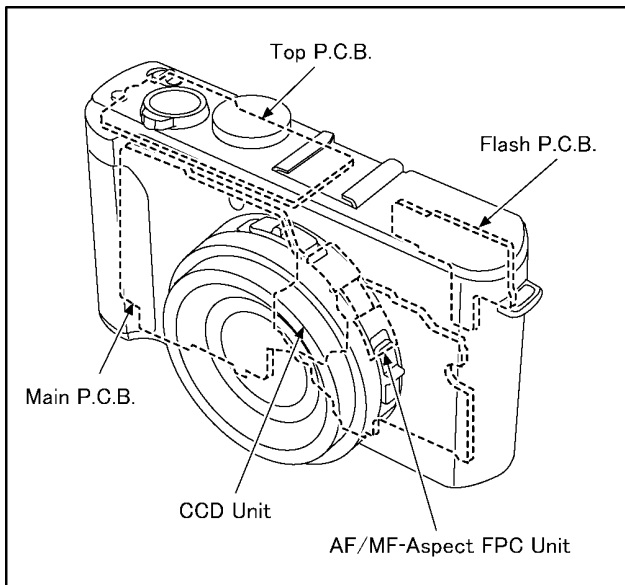
1. Be sure to discharge the capacitor on FLASH PCB.
Refer to "HOW TO DISCHARGE THE CAPACITOR ON FLASH PCB".
The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on FLASH PCB.
3. DO NOT allow other parts to touch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

8 Disassembly and Assembly Instructions

8.1. Disassembly Flow Chart



8.2. PCB Location



8.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Rear Case Unit	Fig. D1	Card
			Battery
			3 Screws (A)
			1 Screw (B)
			Shoe Spring
			2 Screws (C)
		Fig. D2	FP9003(Flex)
			FP9004(Flex)
			Rear Case Unit
2	LCD Unit	Fig. D3	4 Locking tabs LCD Unit
3	Top Operation Unit	Fig. D4	2 Screws (D)
			1 Screw (E)
			2 Screws (F)
			FP9002(Flex)
			2 Screws (G)
			PS9901(Connector)
			Strap Holder L
			Top Operation Unit
4	Main P.C.B. Unit	Fig. D5	FP9006(Flex)
			FP9001(Flex)
			FP9005(Flex)
			Strap Holder R
			Main P.C.B. Unit
5	Lens Unit	Fig. D6	2 Screws (H)
			Tripod Fixing Plate
			3 Screws (I)
			Lens Unit
6	Main P.C.B.	Fig. D7	1 Locking tab
			Main P.C.B.
7	Battery Case	Fig. D8	1 Screw (J)
			2 Locking tabs
			Jack Door Unit
			1 Locking tab
			Battery Case
8	Top P.C.B.	Fig. D9	1 Screw (K)
			Plate
			1 Screw (L)
			PP9921(Flex)
			Coupling Plate
9	Hot Shoe FPC Unit	Fig. D10	1 Locking tab
			Hot Shoe FPC Unit
10	Flash Unit	Fig. D11	2 Locking tabs
			Flash Unit
11	Flash P.C.B.	Fig. D12	3 Locking tabs
			P8001(Connector)
			P8002(Connector)
			Flash P.C.B.
12	Lens Ornament Unit	Fig. D13	3 Screws (M)
			Front Plate
			AF Panel Light
			Lens Ornament Unit
13	Jack Door	Fig. D14	Jack Door Shaft
			Jack Door
14	Battery Door Unit	Fig. D15	Battery Door Shaft
			Battery Door Spring
			Battery Door Unit

No.	Item	Fig	Removal
15	AF/MF-Aspect FPC Unit	Fig. D16	2 Screws (N)
			AS Click Spring
			AF Click Spring
			2 Focus Knobs
		Fig. D17	1 Screw (O)
			Lens Ornament
			2 Screws (P)
			AF/MF-Aspect FPC Unit

8.3.1. Removal of the Rear Case Unit

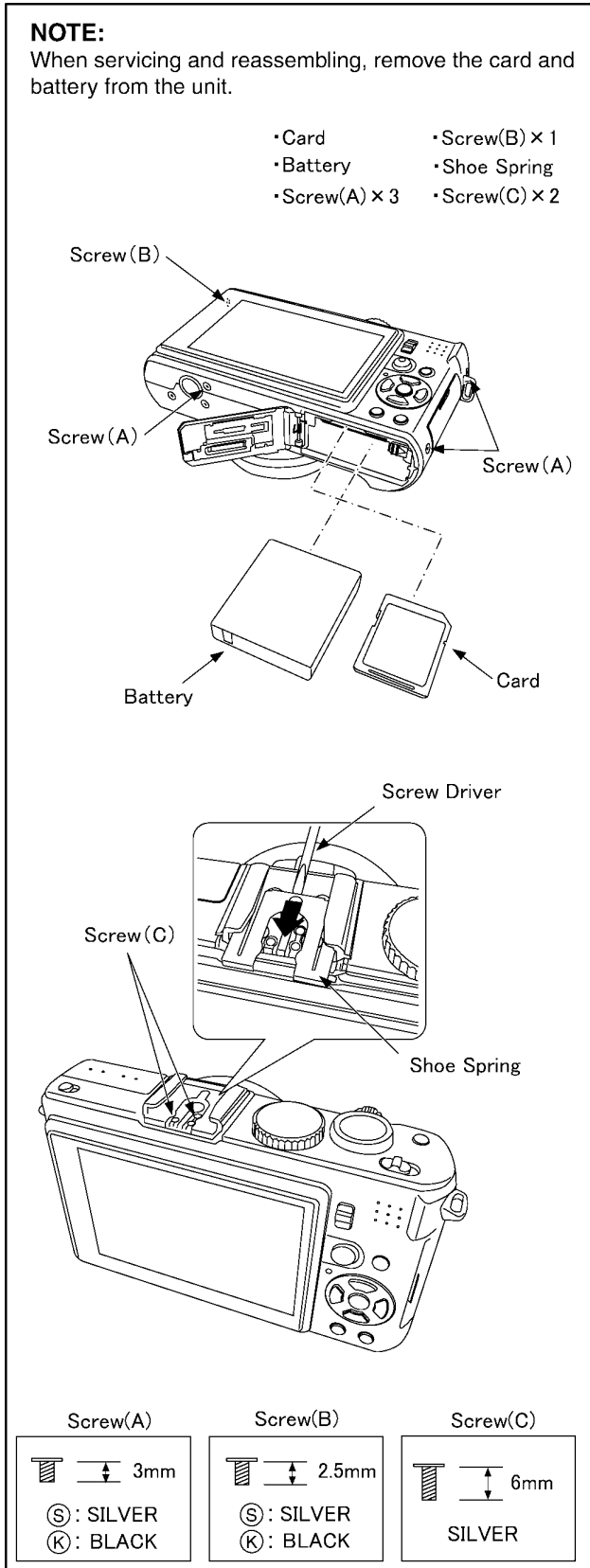


Fig. D1

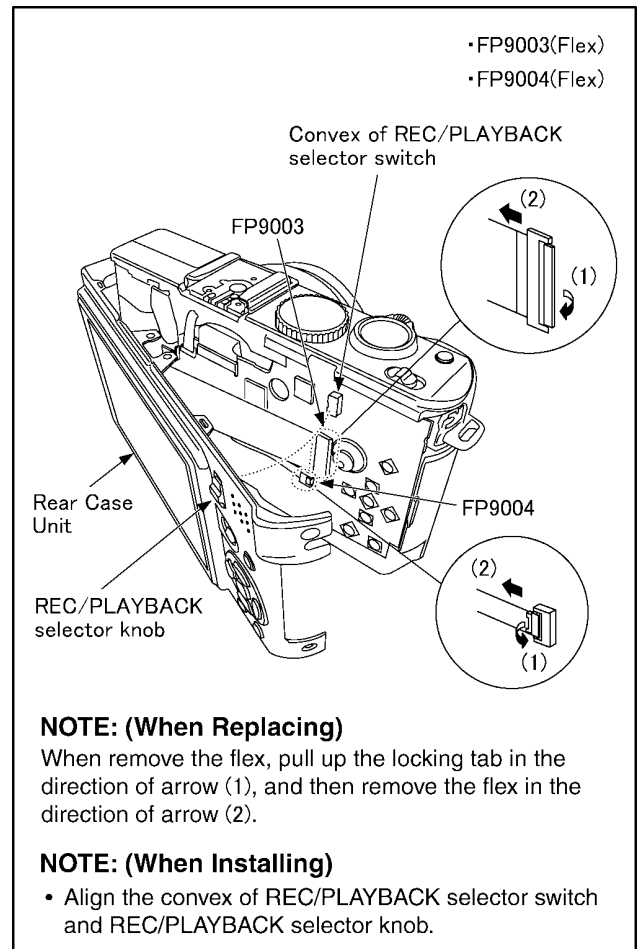


Fig. D2

8.3.2. Removal of the LCD Unit

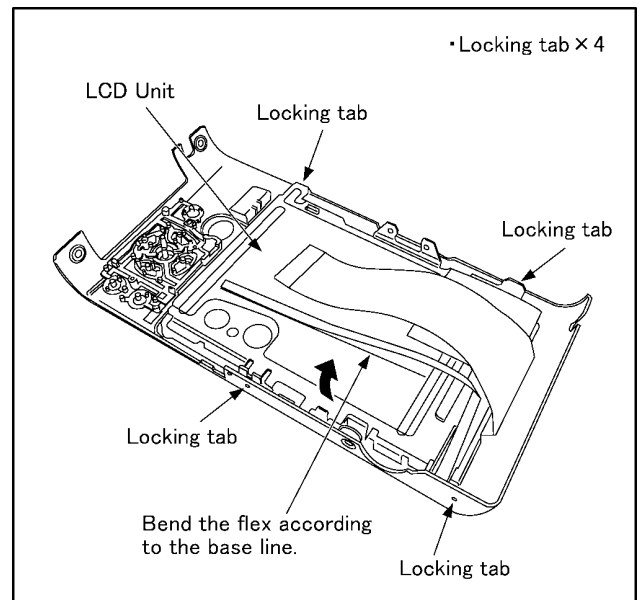


Fig. D3

8.3.3. Removal of the Top Operation Unit

8.3.4. Removal of the Main P.C.B. Unit

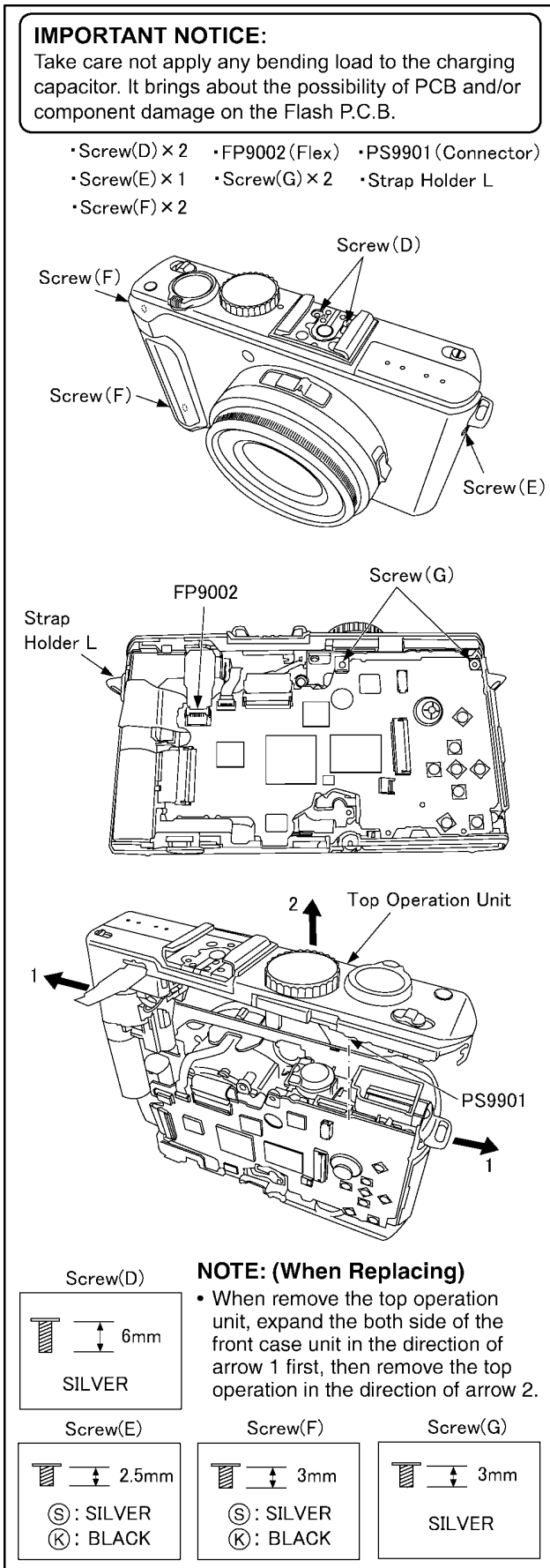


Fig. D4

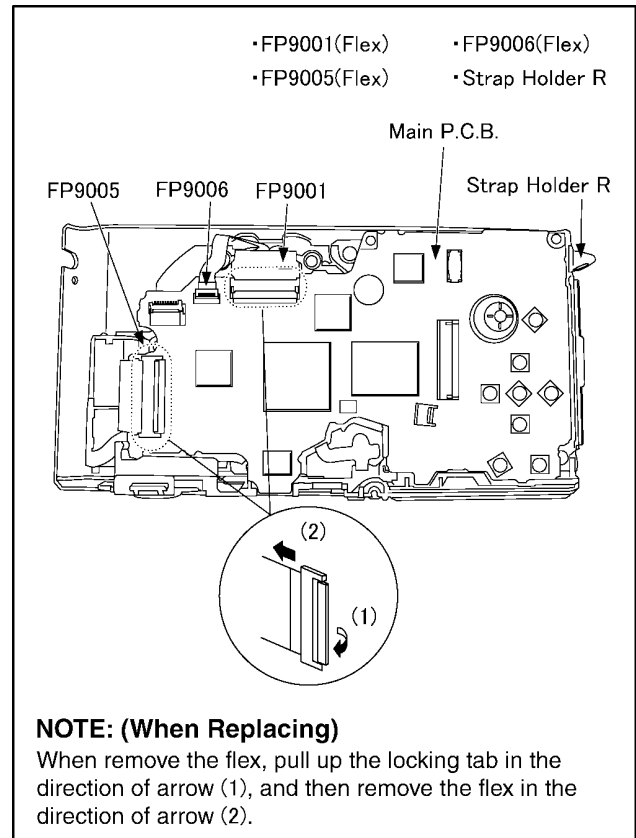


Fig. D5

8.3.5. Removal of the Lens Unit

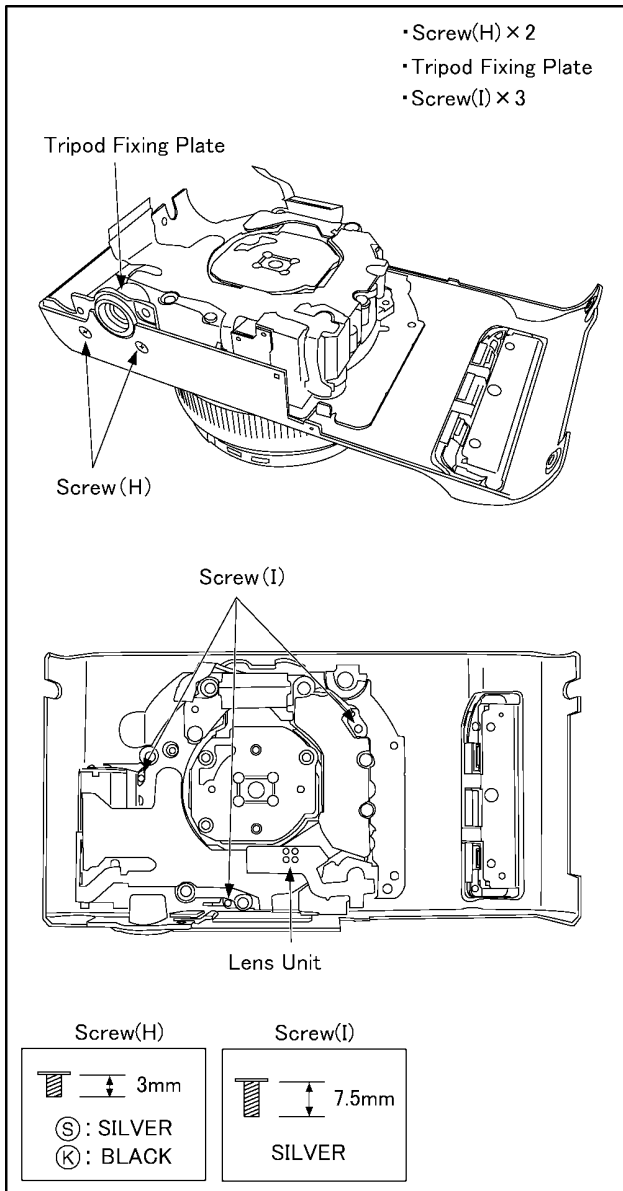


Fig. D6

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

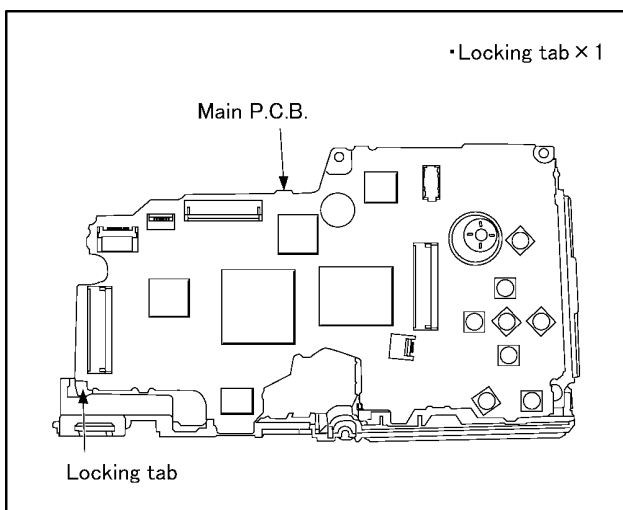


Fig. D7

8.3.7. Removal of the Battery Case

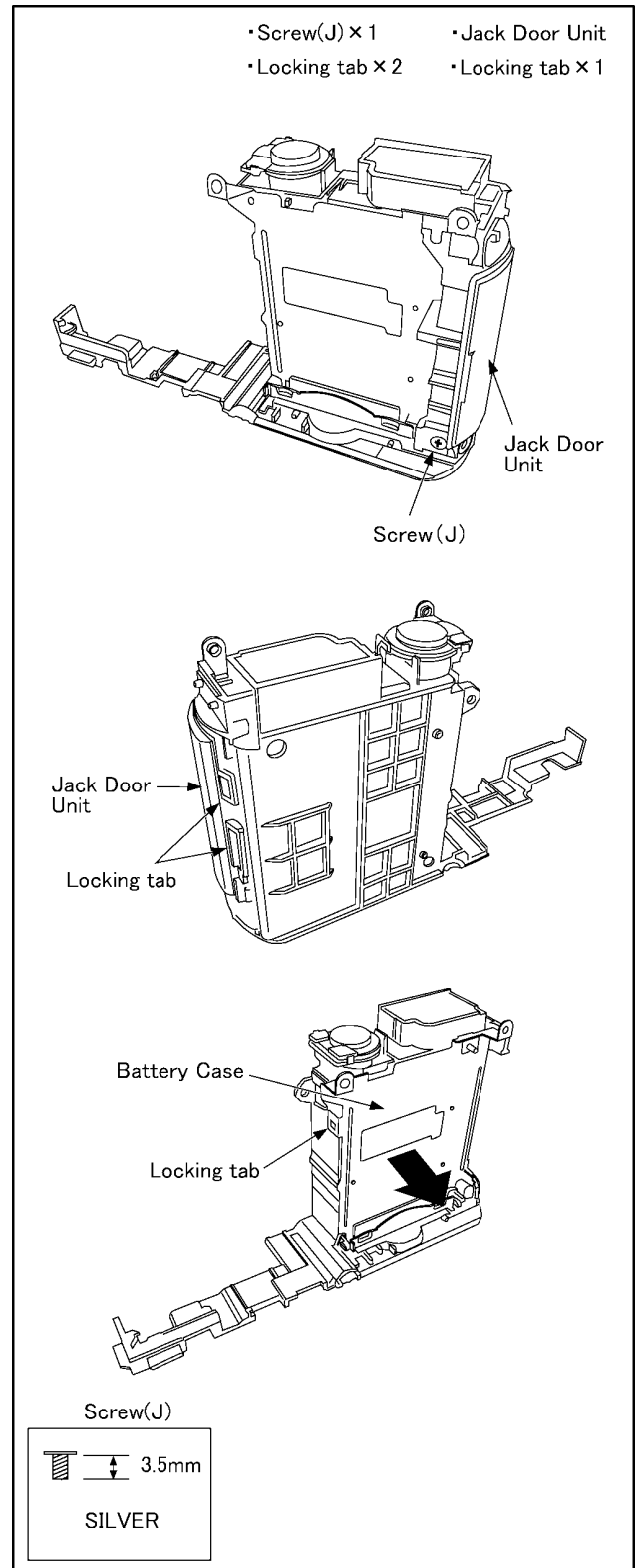
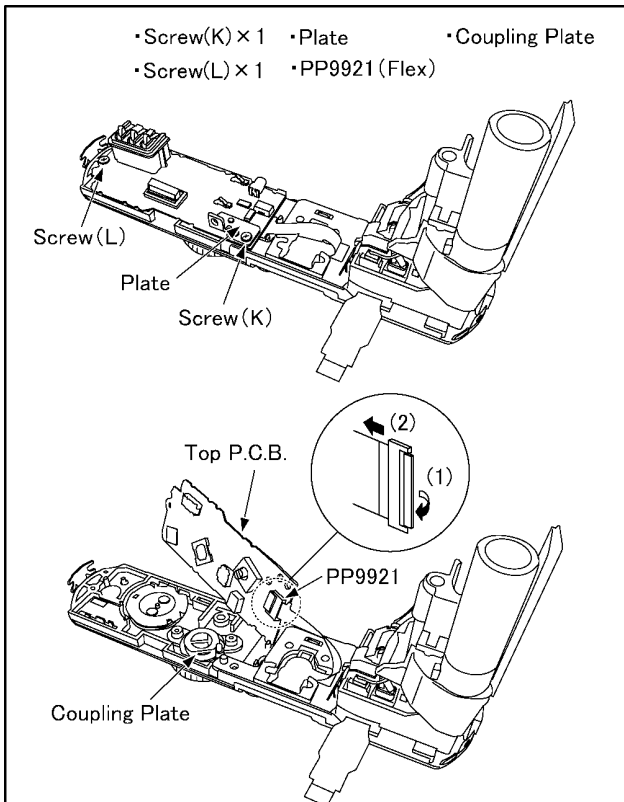


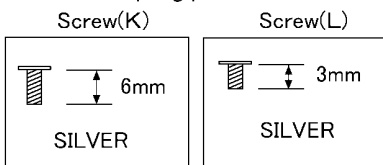
Fig. D8

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



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).
- Be careful not to lose parts, it becomes easy to separate from a coupling plate after removing a Top PCB.



NOTE: (When installing)

- Align the convex of switch to the power knob, and then install it.
- Align the <D cut> part of a mode dial to the <D cut> part of coupling plate, and then install it.

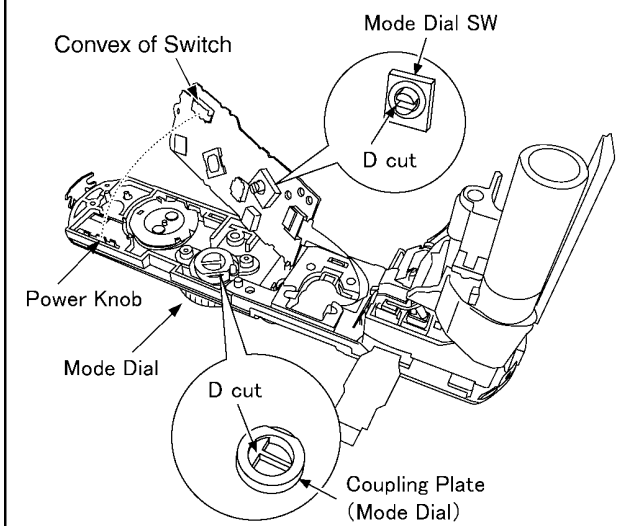


Fig. D9

8.3.9. Removal of the Hot Shoe FPC Unit

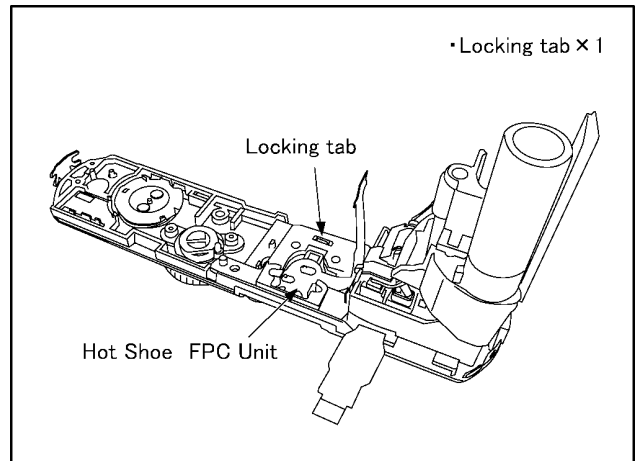


Fig. D10

8.3.10. Removal of the Flash Unit

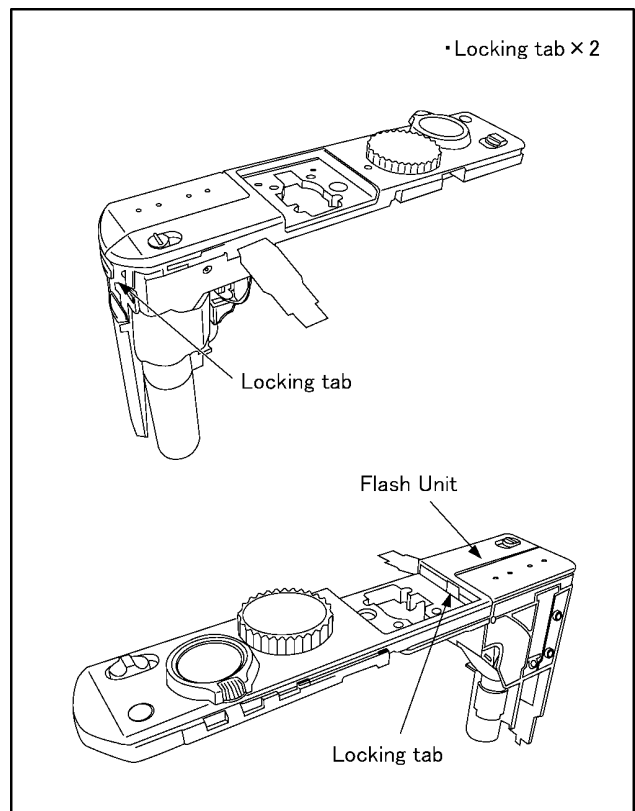
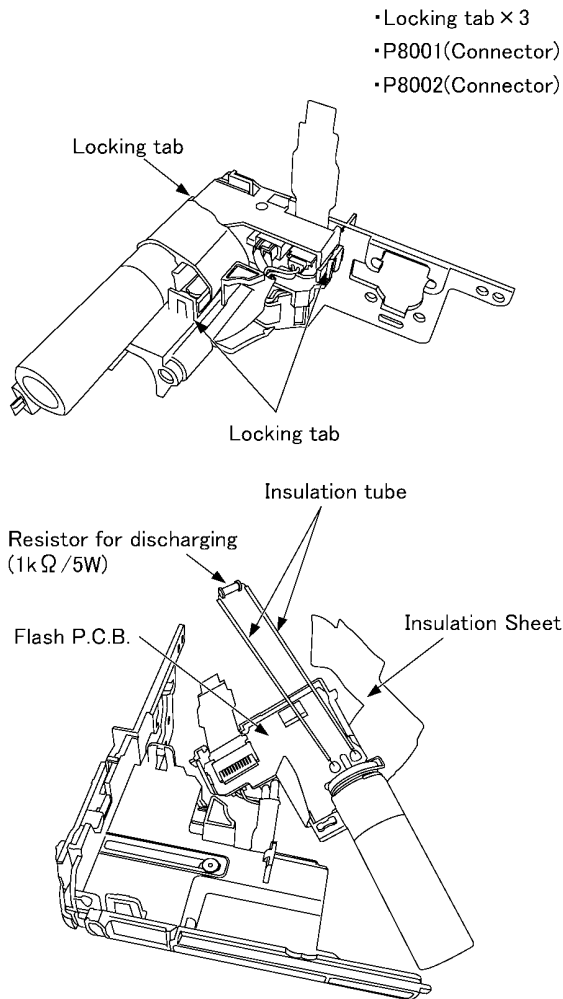


Fig. D11

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

IMPORTANT NOTICE:

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



CAUTION

Be sure to discharge the capacitor on Flash Top P.C.B. before disassembling.

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

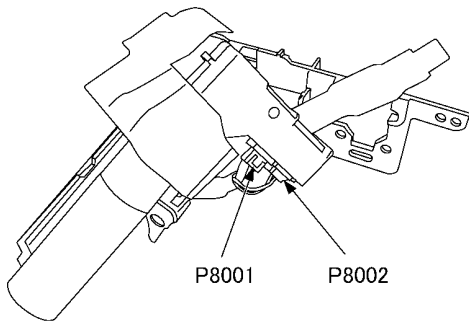


Fig. D12

8.3.12. Removal of the Lens Ornament Unit

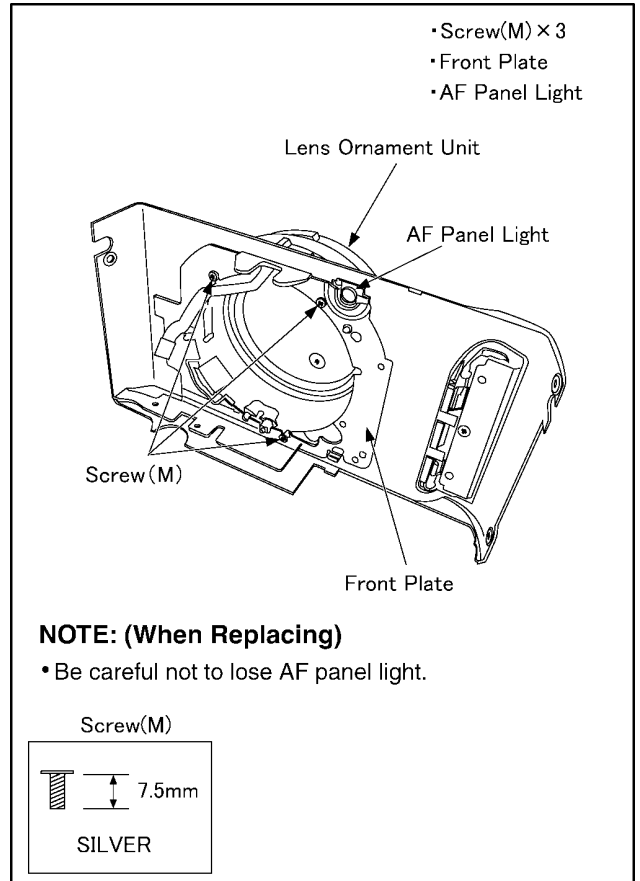


Fig. D13

8.3.13. Removal of the Jack Door

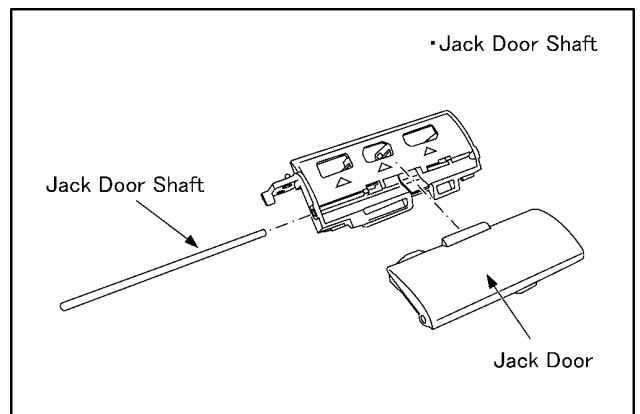


Fig. D14

8.3.14. Removal of the Battery Door Unit

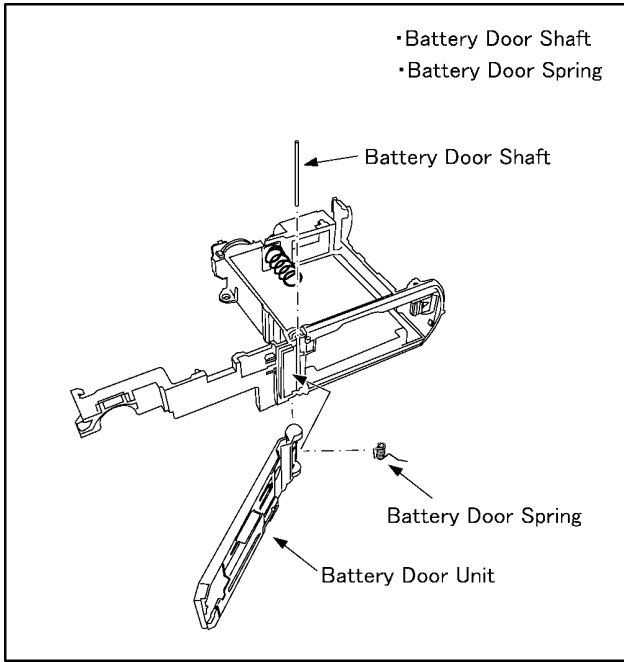


Fig. D15

8.3.15. Removal of the AF/MF-Aspect FPC Unit

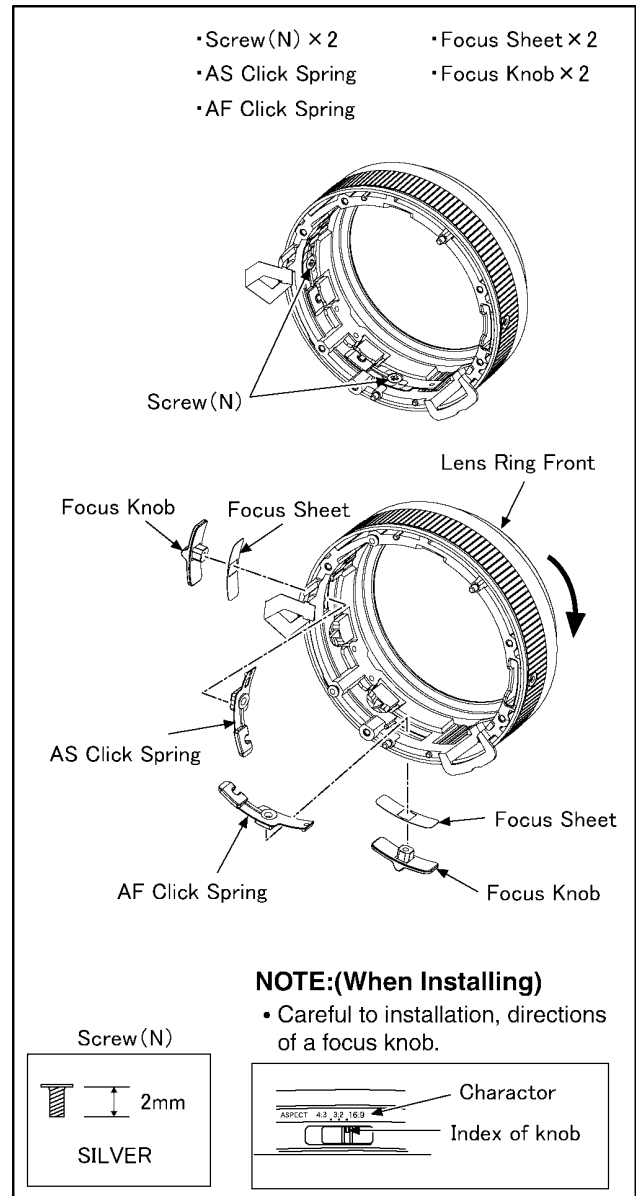


Fig. D16

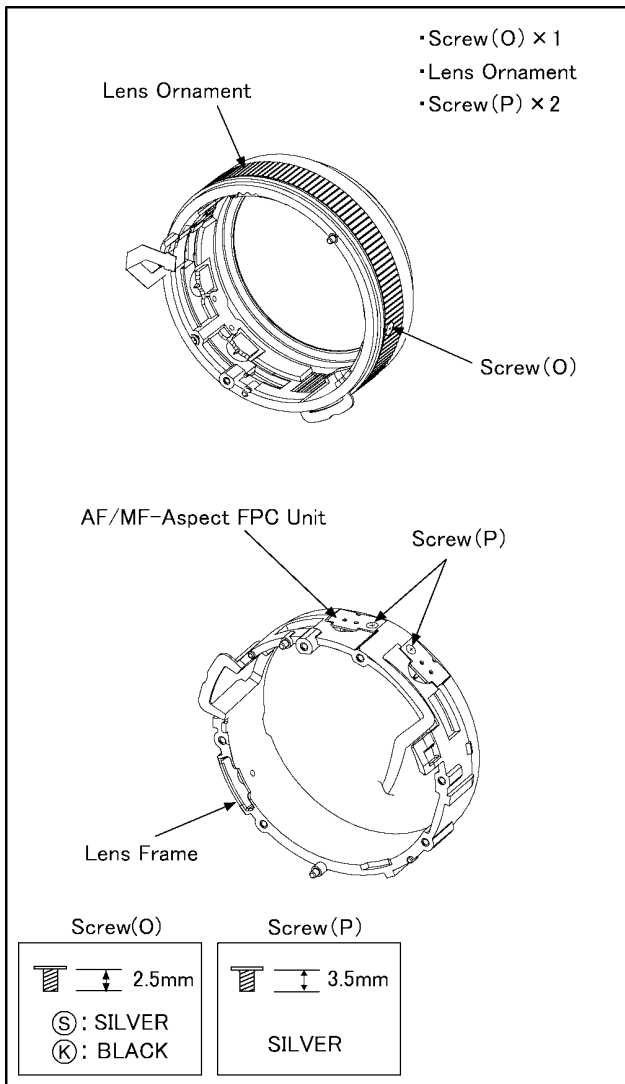


Fig. D17

NOTE: (When Assembling)

Be sure to confirm the following points when assembling.

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

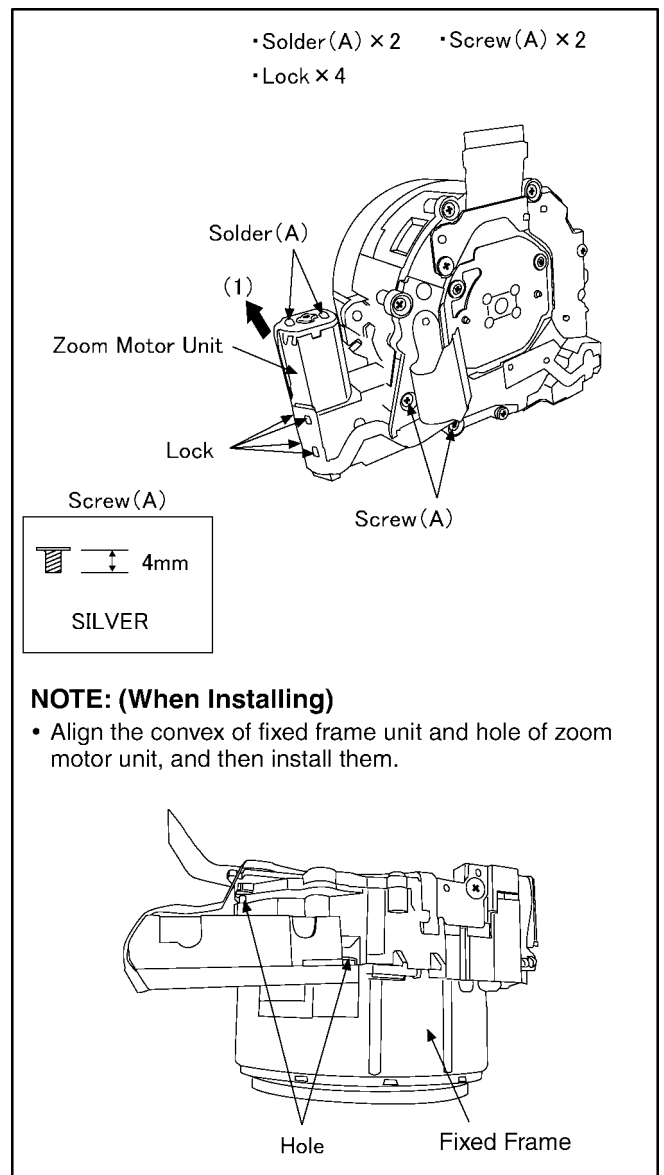
8.4. Disassembly Procedure for the Lens

NOTE: When Disassembling and Assembling for the Lens

1. Do not disassemble the lens unit. (Excluding the Zoom motor and sensors)
Otherwise, it is no longer able to maintain its lens performance.
2. Take care that the dust and dirt are not entered into the lens.
In case of the dust is putted on the lens, blow off them by airbrush.
3. Do not touch the surface of lens.
4. Use lens cleaning KIT (BK)(VFK1900BK).

8.4.1. Removal of the Zoom Motor Unit

1. Remove the 2 solders (A).
2. Remove the 4 locks (A), and then remove the flex from the zoom motor unit.
3. Unscrew the 2 screws (A).
4. Remove the zoom motor unit to the indicated by arrow (1).



NOTE: (When Installing)

- Align the convex of fixed frame unit and hole of zoom motor unit, and then install them.

9 Measurements and Adjustments

9.1. 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.

The Adjustment software is available at "TSN Website", therefore, access to "TSN Website" at "Support Information from NWBG/VDBG-PAVC".

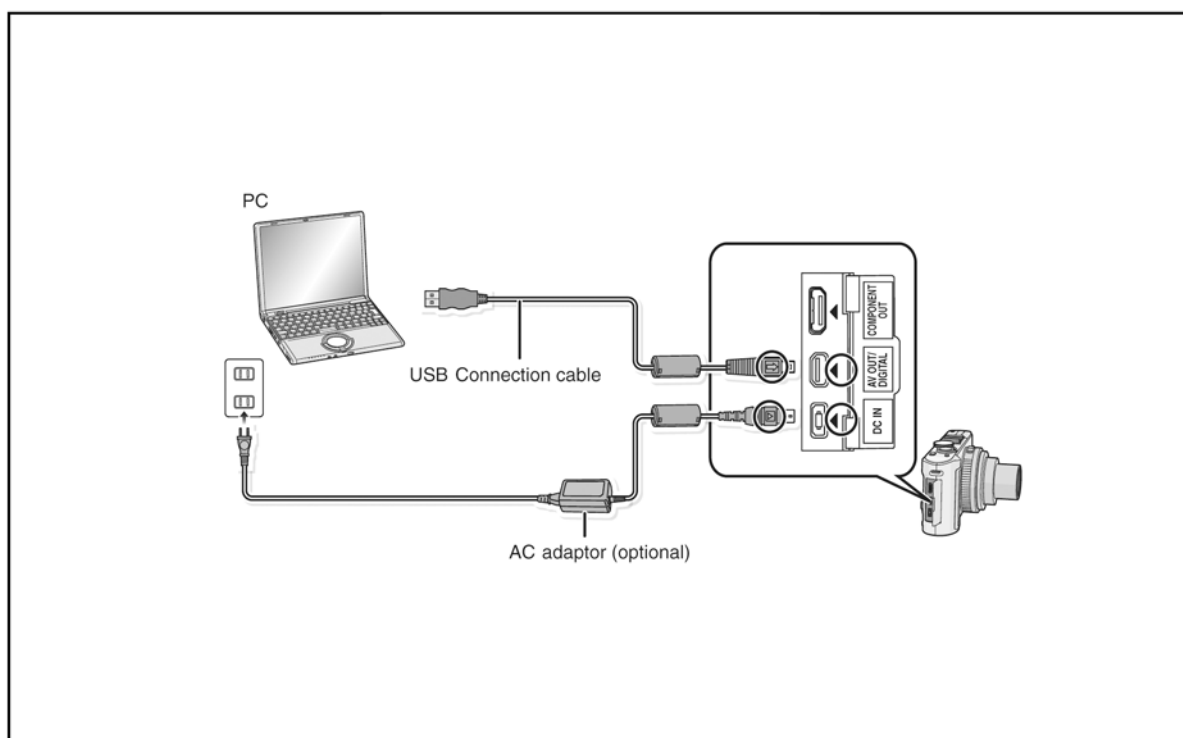
NOTE:

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

Adjustment Item		Replaced Part			
		Main P.C.B.	VENUS (IC6001)	Flash-ROM (IC6002)	Lens Part
Camera Section	OIS hall element adjustment (OIS)	○	○	○	○
	Back focus adjustment (BF)	○	○	○	○
	Shutter adjustment (SHT)	○	○	○	○
	ISO sensitivity adjustment (ISO)	○	○	○	○
	AWB adjustment	○	○	○	○
	High brightness coloration inspection (WBL)	○	○	○	○
	CCD white scratch compensation (WKI)	○	○	○	-
	CCD black scratch compensation (BKI)	○	○	○	-
	IRIS adjustment (IRS)	○	○	○	○
	Venus zoom inspection (PZM)	○	○	○	-
	Monitor linearity inspection (MLN)	○	○	○	○

NOTE:

*There is no LCD adjustment in this model.



10 Maintenance

10.1. Cleaning Lens and LCD Panel

Do not touch the surface of lens and LCD Panel with your hand.

When cleaning the lens, use air-Blower to blow off the dust.

When cleaning the LCD Panel, dampen the lens cleaning paper with lens cleaner, and the gently wipe the their surface.

Note:

The Lens Cleaning KIT ; VFK1900BK (Only supplied as 10 set/Box) is available as Service Aid.

Service Manual

Diagrams and Replacement Parts List

Digital Camera

Model No.

DMC-LX3P	DMC-LX3EF	DMC-LX3GT
DMC-LX3PC	DMC-LX3EG	DMC-LX3GJ
DMC-LX3PL	DMC-LX3GC	DMC-LX3SG
DMC-LX3E	DMC-LX3GD	
DMC-LX3EB	DMC-LX3GK	
DMC-LX3EE	DMC-LX3GN	

Vol. 1
 Colour
 (S).....Silver Type (except PC/PL/GD/GN/GT/GJ)
 (K).....Black Type

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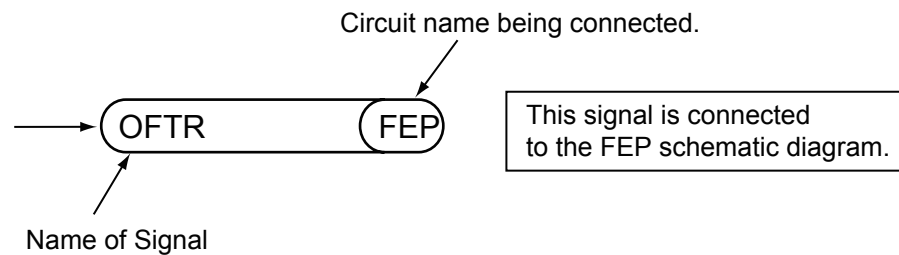
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S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

COMPONENTS IDENTIFIED WITH THE MARK \triangle 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

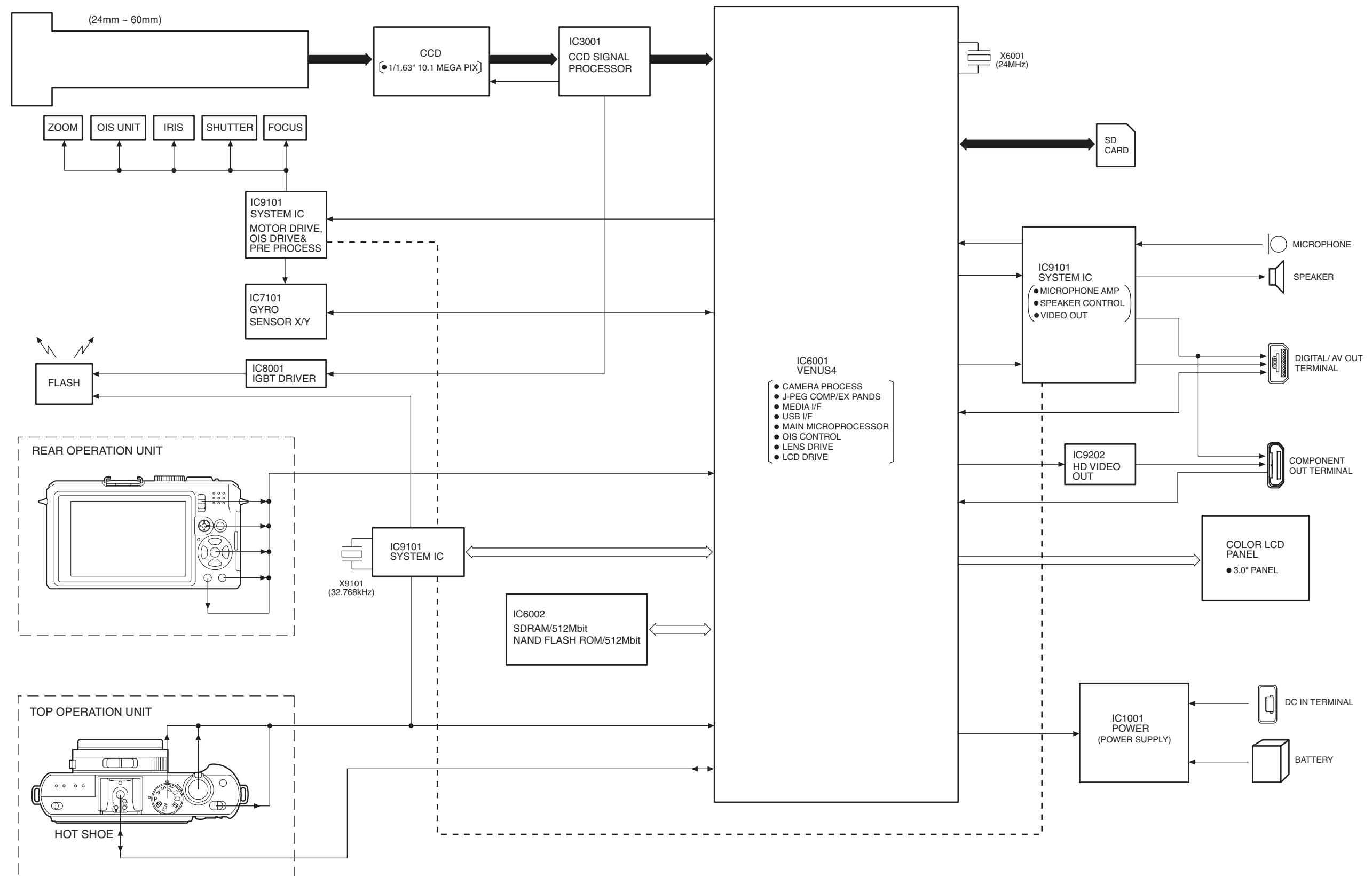
Note) Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

S2.1. Flash P.C.B.

REF No.	PIN No.	POWER ON
IC8001	1	0
IC8001	2	0
IC8001	3	5.9
IC8001	4	0
IC8001	5	0
IC8002	1	0
IC8002	2	0
IC8002	3	3.1
IC8002	4	2.8
Q8009	1	4.2
Q8009	2	4.2
Q8009	3	0
Q8009	4	0
Q8009	5	4.2
Q8009	6	4.2

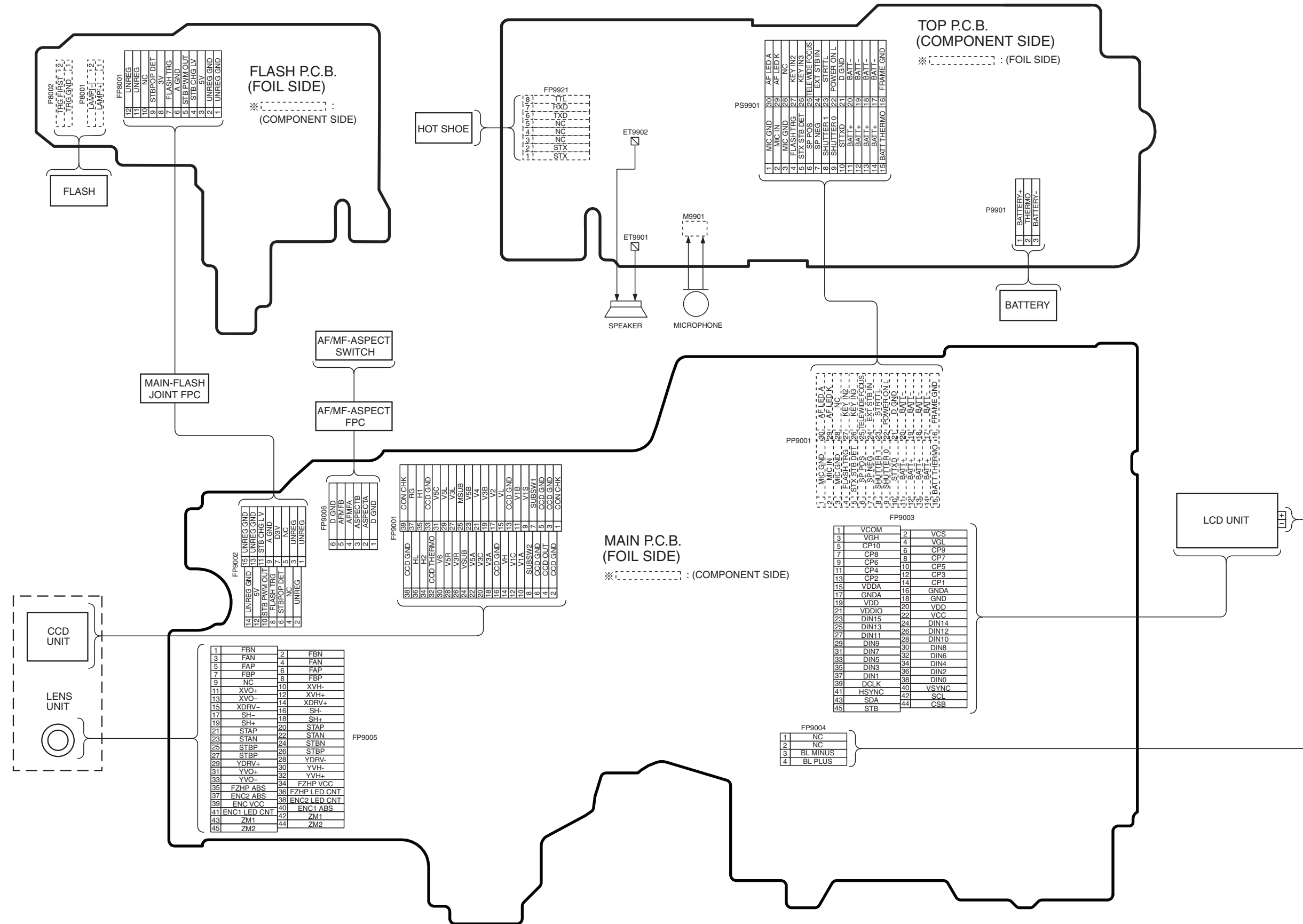
S3. Block Diagram

S3.1. Overall Block Diagram

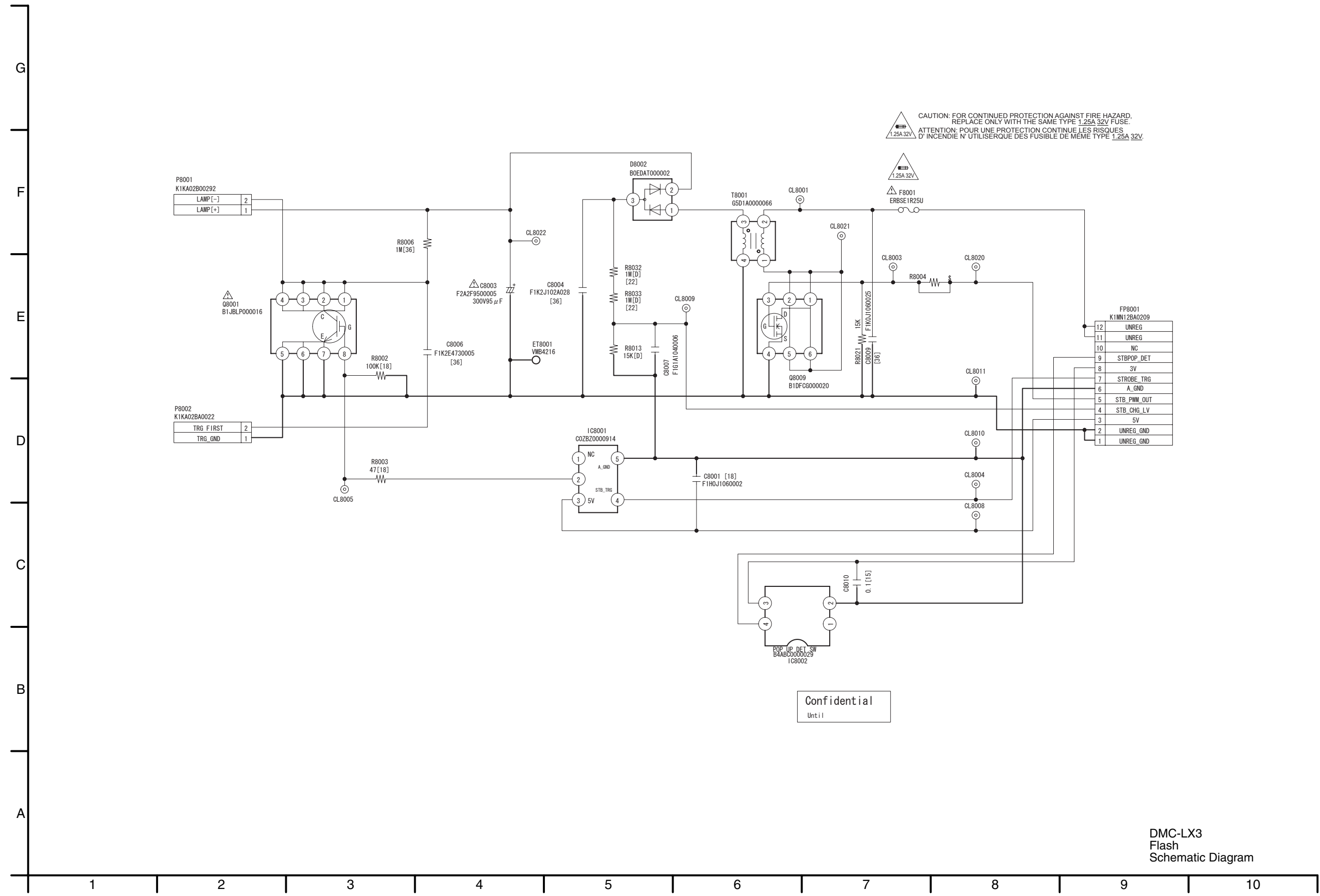


S4. Schematic Diagram

S4.1. Interconnection Diagram



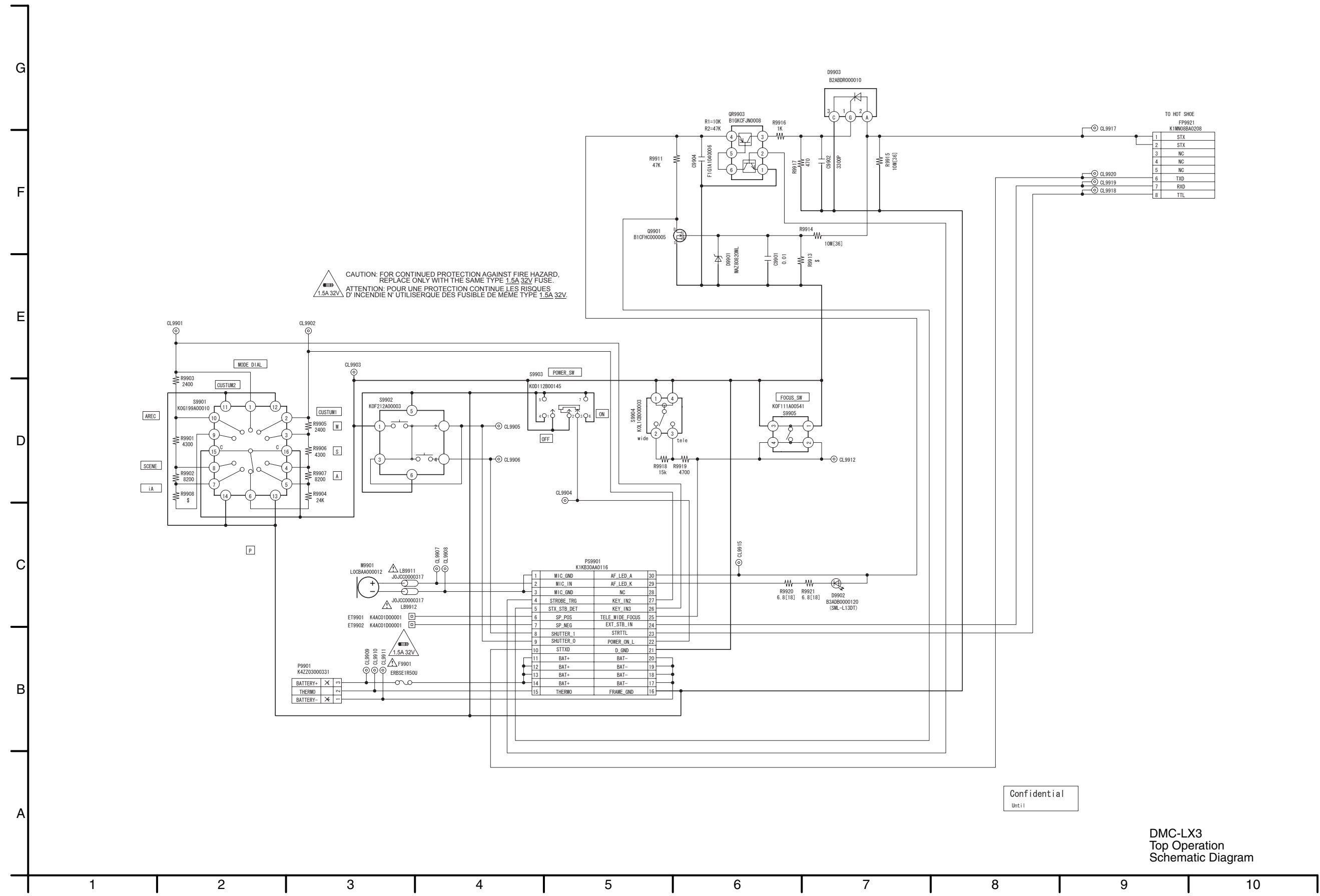
S4.2. Flash Schematic Diagram



Confidential
Until

DMC-LX3
Flash
Schematic Diagram

S4.3. Top Operation Schematic Diagram

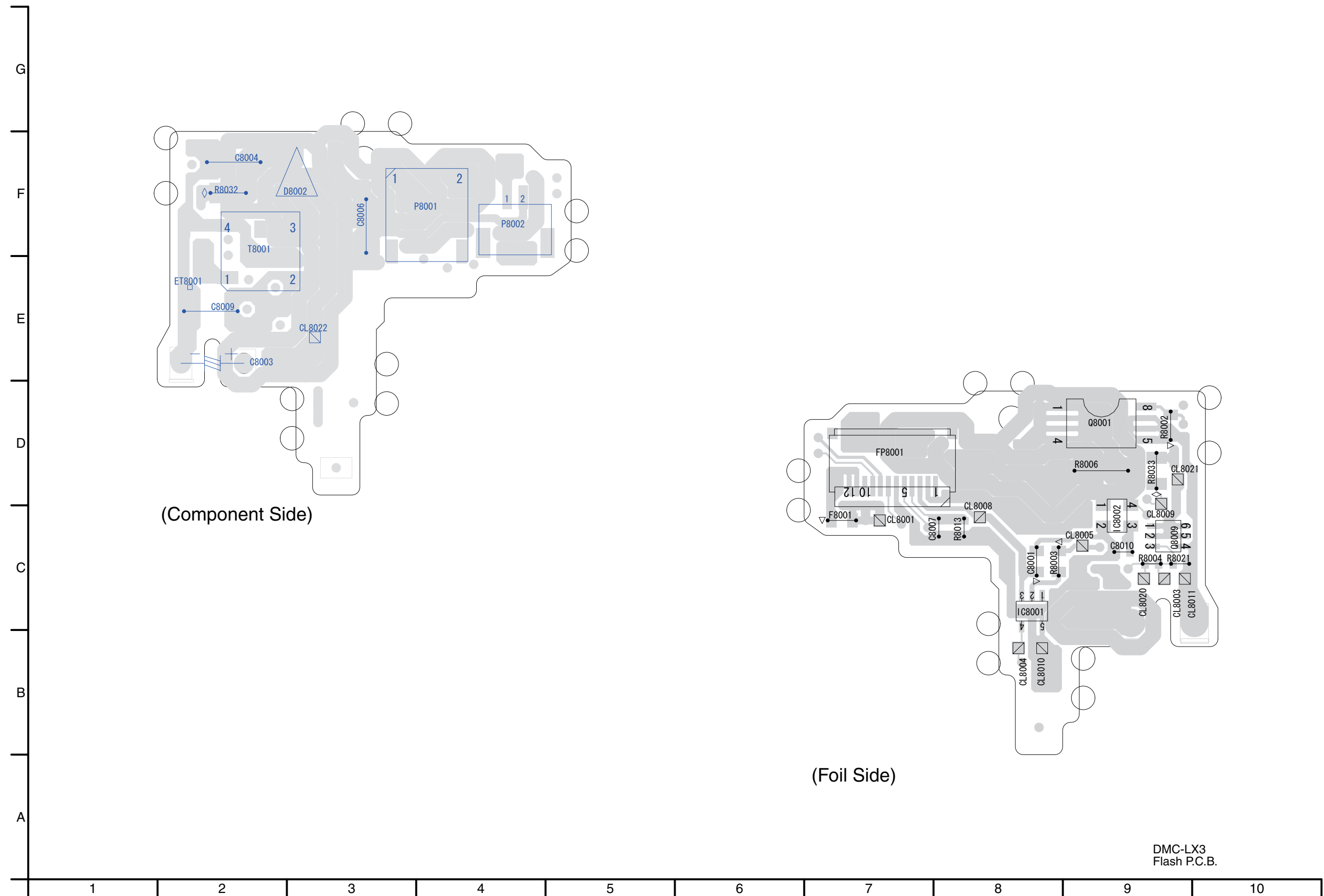


Confidential
Unit 11

DMC-LX3
Top Operation
Schematic Diagram

S5. Print Circuit Board

S5.1. Flash P.C.B.



S5.2. Top Operation 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 \triangle 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.

Definition of Parts supplier:

1. Parts marked with [MBI] in the remarks column are supplied from **Matsushita Battery Industrial Co., Ltd.**

DMC-LX3P/PC/PL/E/EB/EE/EF/EG/GC/GD/GK/GN/GT/GJ/SG

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
		----- P.C.B. LIST -----			FP8001	K1MN12BA0209	CONNECTOR 12P	1	
■	VEP58061A	FLASH P.C.B.	1	(RTL) E.S.D.	IC8001	C0ZBZ0000914	IC	1	E.S.D.
■	VEP59055A	TOP P.C.B.	1	(RTL) E.S.D.	IC8002	B4ABC0000029	IC	1	E.S.D.
		---			P8001	K1KA02B00292	CONNECTOR 2P	1	
		--- INDIVIDUAL PARTS ---			P8002	K1KA02BA0022	CONNECTOR 2P	1	
• C8003	F2A2F9500005	E.CAPACITOR	1		• O8001	B1JBLP000016	TRANSISTOR	1	E.S.D.
ET8001	VMB4216	CONDENSER EARTH SPRING	1		O8009	B1DFCG000020	TRANSISTOR	1	E.S.D.
		---			R8002	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
		--- ELEC. COMPONENTS ---			R8003	ERJ3GEYJ470	M.RESISTOR CH 1/10W 47	1	
■	VEP58061A	FLASH P.C.B.	1	(RTL) E.S.D.	R8006	ERJ8GEYJ105V	M.RESISTOR CH 1/8W 1M	1	
C9901	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1		R8013	ERJ2RHD153X	M.RESISTOR CH 1/16W 15K	1	
C9902	ECJ0EB1E332K	C.CAPACITOR CH 25V 3300P	1		R8021	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1	
C9904	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1		R8032	ERJ6RED105	M.RESISTOR CH 1/16W 1M	1	
					R8033	ERJ6RED105	M.RESISTOR CH 1/16W 1M	1	
D9901	MAZ80820ML	DIODE	1	E.S.D.	T8001	G5D1A0000066	TRANSFORMER	1	
D9902	B3ADB0000120	DIODE	1	E.S.D.					
D9903	B2ABDR000010	DIODE	1	E.S.D.					
ET9901	K4AC01D00001	EARTH SPRING	1						
ET9902	K4AC01D00001	EARTH SPRING	1						
• F9901	ERBSE1R50U	FUSE 32V 1.5A	1						
FP9921	K1MN08BA0208	CONNECTOR 8P	1						
• LB9911	JOJCC0000317	FILTER	1						
• LB9912	JOJCC0000317	FILTER	1						
M9901	LOCBAA000012	MICROPHONE UNITS	1						
PS9901	K1KB30AA0116	CONNECTOR 30P	1						
Q9901	B1CFHC000005	TRANSISTOR	1	E.S.D.					
QR9903	B1GKCFJN0008	TRANSISTOR-RESISTOR	1	E.S.D.					
R9901	ERJ2GEJ432X	M.RESISTOR CH 1/16W 4.3K	1						
R9902	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1						
R9903	ERJ2GEJ242	M.RESISTOR CH 1/16W 2.4K	1						
R9904	ERJ2GEJ243	M.RESISTOR CH 1/16W 24K	1						
R9905	ERJ2GEJ242	M.RESISTOR CH 1/16W 2.4K	1						
R9906	ERJ2GEJ432X	M.RESISTOR CH 1/16W 4.3K	1						
R9907	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1						
R9911	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1						
R9914	ERJ8GEYJ106	M.RESISTOR CH 1/8W 10M	1						
R9915	ERJ8GEYJ106	M.RESISTOR CH 1/8W 10M	1						
R9916	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1						
R9917	ERJ2GEJ471	M.RESISTOR CH 1/16W 470	1						
R9918	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1						
R9919	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1						
R9920	D0GB6R8JA057	RESISTOR	1						
R9921	D0GB6R8JA057	RESISTOR	1						
S9901	K0G199A000010	SWITCH	1						
S9902	K0F212A00003	SWITCH	1						
S9903	K0D112B00145	SWITCH	1						
S9904	K0L1CB000003	SWITCH	1						
S9905	K0F111A00541	SWITCH	1						
■	VEP59055A	TOP P.C.B.	1	(RTL) E.S.D.					
C8001	F1H0J1060002	C.CAPACITOR CH 6.3V 10U	1						
C8004	F1K2J102A028	C.CAPACITOR 630V 1000P	1						
C8006	F1K2E4730005	C.CAPACITOR 250V 0.047U	1						
C8007	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1						
C8009	ECJ3YB0J106K	C.CAPACITOR CH 6.3V 10U	1						
C8010	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1						
D8002	B0EDAT000002	DIODE	1	E.S.D.					
• F8001	ERBSE1R25U	FUSE 32V 1.25A	1						

DMC-LX3P/PC/PL/E/EB/EE/EF/EG/GC/GD/GK/GN/GT/GJ/SG

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	ML421S/ZT	BUTTON BATTERY	1	(B9101)[MBI]	B1	VHD1759	SCREW	1	
2	VEP56067A	MAIN P.C.B.	1	(RTL) E.S.D.	B2	VHD2030	SCREW	1	
3	VGO8573	JOY STICK COVER	1		B3	XQN14+BJ6FN	SCREW	1	
4	VGU0A02	JOY STICK KNOB	1	(S)	B4	VHD1759	SCREW	1	
4	VGU0D59	JOY STICK KNOB	1	(K)	B5	VHD1803	SCREW	1	
5	L0AA01A00032	SPEAKER	1		B6	VHD1759	SCREW	1	
6	VGO9445	BATTERY LOCK KNOB	1		B7	VHD1759	SCREW	1	
7	VGO9938	BATTERY HOLDER	1		B8	VHD1803	SCREW	1	
8	VMB3962	BATTERY LOCK SPRING	1		B9	VHD1803	SCREW	1	
9	VMB4208	BATTERY OUT SPRING	1		B10	XQN14+BJ75FN	SCREW	1	
10	VMP9128	BATTERY CASE	1		B11	XQN14+BJ75FN	SCREW	1	
11	VYF3213	BATTERY DOOR UNIT	1	(S)	B12	XQN14+BJ75FN	SCREW	1	
11	VYF3212	BATTERY DOOR UNIT	1	(K)	B13	VHD1678	SCREW	1	
11-1	VMB4150	BATTERY DOOR SPRING	1		B14	VHD1678	SCREW	1	
11-2	VMS7919	BATTERY DOOR SHAFT	1		B15	VHD2018	SCREW	1	(S)
12	VGO9950	JACK BASE	1		B15	VHD2041	SCREW	1	(K)
13	VKF4361	JACK DOOR	1	(S)	B16	VHD2018	SCREW	1	(S)
13	VKF4362	JACK DOOR	1	(K)	B16	VHD2041	SCREW	1	(K)
14	VMC1969	JACK DOOR SPRING	1		B17	VHD2019	SCREW	1	(S)
15	VMS7924	JACK DOOR SHAFT	1		B17	VHD2022	SCREW	1	(K)
16	K4ZZ03000331	CONNECTOR 3P	1		B18	VHD2019	SCREW	1	(S)
17	VEP58062B	HOT SHOE FPC UNIT	1	(S)	B18	VHD2022	SCREW	1	(K)
17	VEP58062A	HOT SHOE FPC UNIT	1	(K)	B19	VHD2019	SCREW	1	(S)
18	VEP59055A	TOP P.C.B.	1	(RTL) E.S.D.	B19	VHD2022	SCREW	1	(K)
19	VGO8198	MODE TAPE	1		B20	VHD2019	SCREW	1	(S)
20	VGO8198	MODE TAPE	1		B20	VHD2022	SCREW	1	(K)
21	VGO8519	COUPLING PLATE	1		B21	VHD2019	SCREW	1	(S)
22	VGO9946	HOT SHOE COVER	1	(S)	B21	VHD2022	SCREW	1	(K)
22	VGO9952	HOT SHOE COVER	1	(K)	B22	VHD2019	SCREW	1	(S)
23	VMP9135	TOP PLATE	1		B22	VHD2022	SCREW	1	(K)
24	VYK2W80	FLASH UNIT	1	(S)	B23	VHD2019	SCREW	1	(S)
24	VYK2W79	FLASH UNIT	1	(K)	B23	VHD2022	SCREW	1	(K)
25	VGO9961	FLASH TAPE A	1		B24	XQN14+BJ75FN	SCREW	1	
30	F2A2F9500005	E.CAPACITOR	1	(C8003)	B25	XQN14+BJ75FN	SCREW	1	
31	VEP58061A	FLASH P.C.B.	1	(RTL) E.S.D.	B26	XQN14+BJ75FN	SCREW	1	
32	VGO9953	FLASH PCB COVER	1		B27	VHD1839	SCREW	1	
33	VMB4216	CONDENSER EARTH SPRING	1	(ET8001)	B28	VHD1839	SCREW	1	
34	VWJ2055	MAIN-FLASH JOINT FPC	1		B29	VHD1839	SCREW	1	
35	VYK2T24	TOP CASE (1) UNIT	1	(S)	B30	VHD1839	SCREW	1	
35	VYK2T23	TOP CASE (1) UNIT	1	(K)	B31	VHD1759	SCREW	1	
36	VYQ4113	MIC DAMPER	1						
37	VKH0434	STRAP HOLDER	1						
38	VKH0435	STRAP HOLDER	1						
39	VMC2020	HOT SHOE SPRING	1	(S)					
39	VMC2008	HOT SHOE SPRING	1	(K)					
40	VMP9151	TRIPOD	1						
42	VGO0A50	CAPTON TAPE	1						
43	VGO9941	REAR PLATE SHEET	1						
45	VMP9125	REAR PLATE	1						
46	VYK2W84	REAR CASE UNIT	1	(S)					
46	VYK2W83	REAR CASE UNIT	1	(K)					
46-1	VGL1276	REAR PANEL LIGHT	1						
46-2	VGU0C81	CURSOR BUTTON	1	(S)					
46-2	VGU0D26	CURSOR BUTTON	1	(K)					
47	VYK2T86	LCD UNIT	1						
48	VGK3439	FRONT GRIP	1	(S)					
48	VGK3443	FRONT GRIP	1	(K)					
49	VGK3440	FRONT GRIP ORNAMENT	1	(S)					
49	VGK3444	FRONT GRIP ORNAMENT	1	(K)					
50	VGL1280	AF PANEL LIGHT	1						
51	VMP9130	FRONT PLATE	1						
52	VYK2R51	LENS ORNAMENT UNIT	1	(S)					
52	VYK2R52	LENS ORNAMENT UNIT	1	(K)					
52-1	VEKOM79	AF/MF-ASPECT FPC UNIT	1						
52-2	VGK3436	LENS RING FRONT	1	(S)					
52-2	VGK3437	LENS RING FRONT	1	(K)					
53	VYK2T20	FRONT CASE UNIT	1	(S)					
53	VYK2T19	FRONT CASE UNIT	1	(K)					
54	VGO9937	SLIDE SW BASE	1						
55	VGU0C82	SLIDE KNOB	1	(S)					
55	VGU0C94	SLIDE KNOB	1	(K)					
56	VGO0B57	SLIDE KNOB SHEET	1	(S)					
56	VGO0B56	SLIDE KNOB SHEET	1	(K)					
57	VGO0B61	DPR SHEET	1						

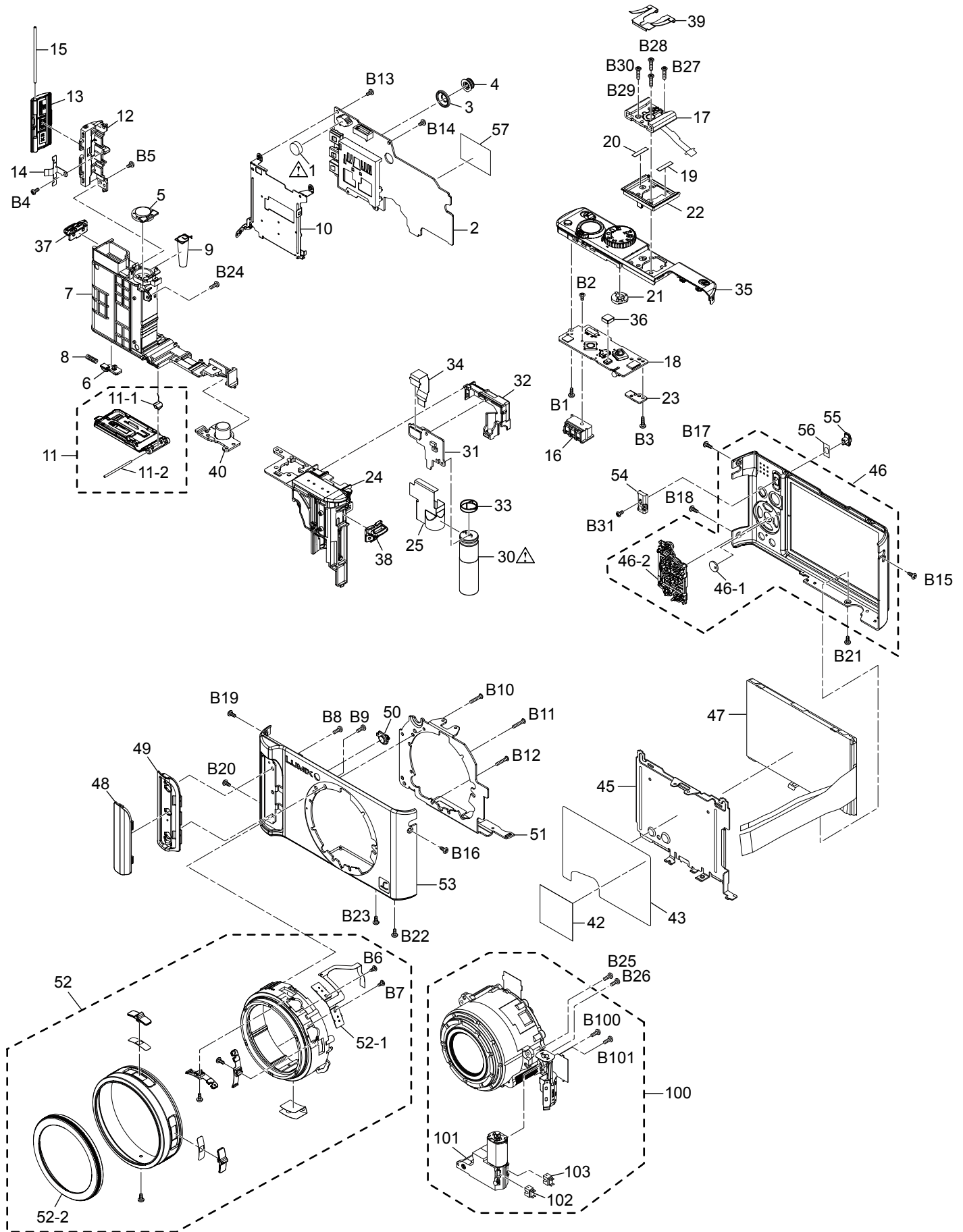
DMC-LX3P/PC/PL/E/EB/EE/EF/EG/GC/GD/GK/GN/GT/GJ/SG

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
300	VPF1137	CAMERA BAG	1	EXCEPT P PC
• 302	DE-A41BB	BATTERY CHARGER	1	PL
• 302	DE-A42AA	BATTERY CHARGER	1	E EB EF EG GN
• 302	DE-A42AB	BATTERY CHARGER	1	SG
• 302	DE-A42BA	BATTERY CHARGER	1	EE GC GD GK GJ
• 302	DE-A42CA	BATTERY CHARGER	1	GT
• 303	-----	BATTERY	1	EXCEPT P PC
304	K1HA08CD0019	USB CABLE W/PLUG	1	EXCEPT P PC
305	K1HA08CD0020	AV CABLE W/PLUG	1	EXCEPT P PC
306	VFC4324	STRAP	1	EXCEPT P PC
307	VFF0423-S	CD-ROM(OVERSEAS)	1	PL E EB EE EF EG GC GD GN GT GJ SG
				See "Notes"
307	VFF0424-S	CD-ROM(OVERSEAS)	1	GK See "Notes"
308	VPK3628	PACKING CASE	1	ES EBS EES EFS EGS GCS SGS
308	VPK3629	PACKING CASE	1	GKS
308	VPK3632	PACKING CASE	1	PLK EK EBK EEK EFK EGK GCK GDK GNK GTK GJK SGK
308	VPK3633	PACKING CASE	1	GKK
309	VPN6720	CUSHION	1	EXCEPT P PC
310	VPN6664	PAD	1	PL E EE EF EG GD GK GN GT GJ SG
310	VPN6666	PAD	1	EB GC
311	VPF1294	BAG, POLYETHYLENE	1	EXCEPT P PC
• 312	VFF0436	CD-ROM(INSTRUCTION BOOK)	1	PL E EG GC GJ SG
• 313	VQT1T30	SIMPLIFIED O/I (ENGLISH/SPANISH)	1	PL
• 313	VQT1T31	SIMPLIFIED O/I (PORTUGUESE)	1	PL
• 313	VQT1T32	SIMPLIFIED O/I (GERMAN/FRENCH)	1	EG
• 313	VQT1T33	SIMPLIFIED O/I (ITALIAN/DUTCH)	1	EG
• 313	VQT1T34	SIMPLIFIED O/I (SPANISH/PORTUGUESE)	1	EG
• 313	VQT1T35	SIMPLIFIED O/I (SWEDISH/DANISH)	1	E
• 313	VQT1T36	SIMPLIFIED O/I (POLISH/CZECH)	1	E
• 313	VQT1T37	SIMPLIFIED O/I (HUNGARIAN/FI)	1	E
• 313	VQT1T38	INSTRUCTION BOOK (FRENCH)	1	EF
• 313	VQT1T39	INSTRUCTION BOOK (ENGLISH)	1	EB
• 313	VQT1T40	INSTRUCTION BOOK (RUSSIAN)	1	EE
• 313	VQT1T41	INSTRUCTION BOOK (UKRAINIAN)	1	EE
• 313	VQT1T42	SIMPLIFIED O/I (ENGLISH/CHINESE(TRADITIONAL))	1	GC GJ SG
• 313	VQT1T43	SIMPLIFIED O/I (ARABIC/PERSIAN)	1	GC
• 313	VQT1T44	INSTRUCTION BOOK (CHINESE(TRADITIONAL))	1	GT
• 313	VQT1T45	INSTRUCTION BOOK (CHINESE(SIMPLIFIED))	1	GK
• 313	VQT1T46	INSTRUCTION BOOK (ENGLISH)	1	GN
• 313	VQT1T47	INSTRUCTION BOOK (KOREAN)	1	GD
314	VQT1S76	O/I SOFTWARE (ENGLISH/SPANISH/PORTUGUESE)	1	PL
314	VQT1S77	O/I SOFTWARE (GERMAN/FRENCH/ITALIAN /DUTCH/SPANISH/PORTUGUESE)	1	EG
314	VQT1S78	O/I SOFTWARE (FI/SWEDISH/DANISH/POLISH /CZECH/HUNGARIAN)	1	E
314	VQT1S79	O/I SOFTWARE (FRENCH)	1	EF
314	VQT1S80	O/I SOFTWARE (ENGLISH)	1	EB GN
314	VQT1S81	O/I SOFTWARE (RUSSIAN/UKRAINIAN)	1	EE

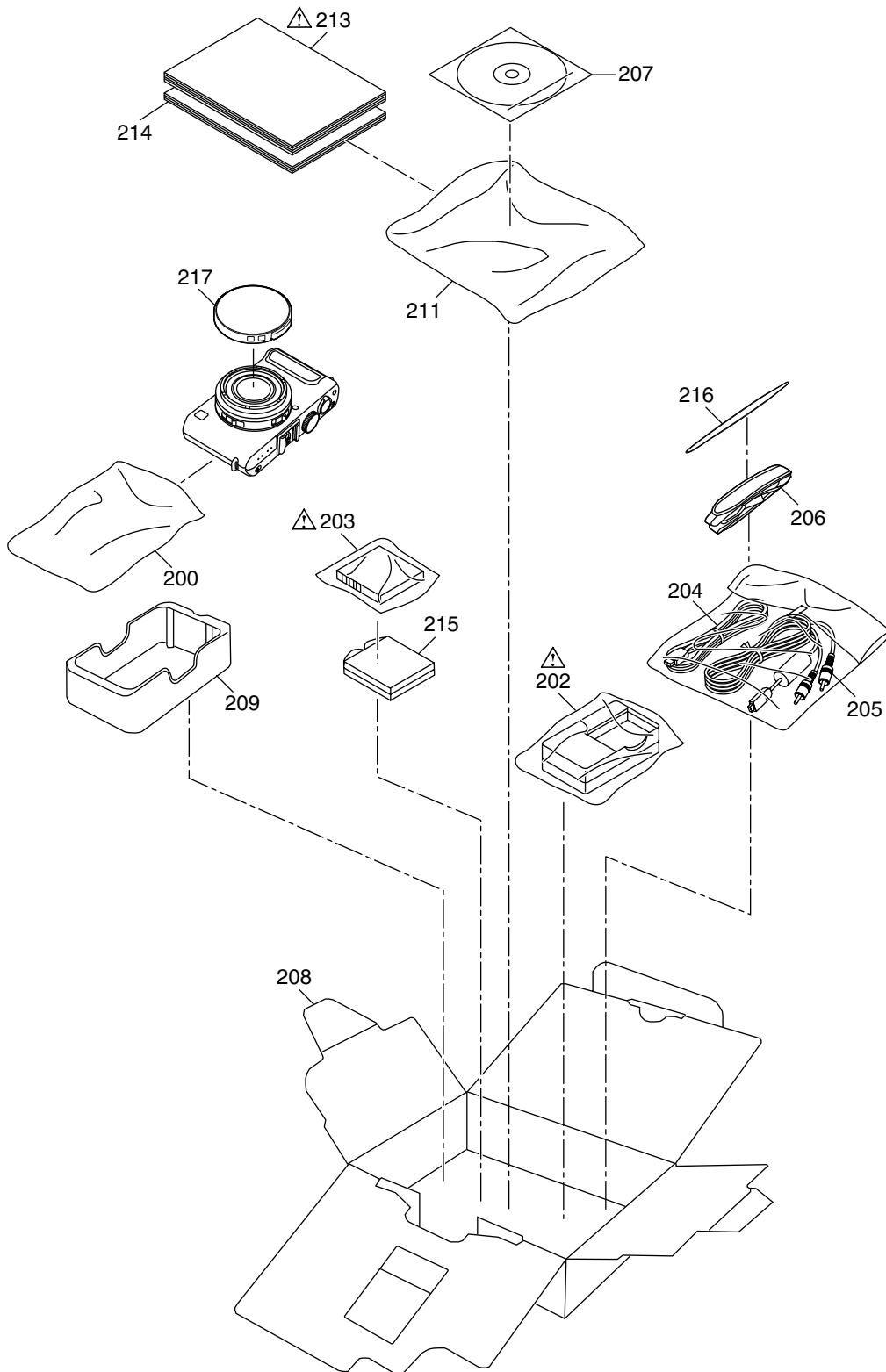
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
314	VQT1S82	O/I SOFTWARE (ENGLISH/CHINESE(TRADITIONAL) /ARABIC/PERSIAN)	1	GC GJ SG
314	VQT1S84	O/I SOFTWARE (CHINESE(TRADITIONAL))	1	GT
314	VQT1S85	O/I SOFTWARE (CHINESE(SIMPLIFIED))	1	GK
314	VQT1S86	O/I SOFTWARE (KOREAN)	1	GD
315	VYQ3509	BATTERY CARRYING CASE U	1	P PC PL E EB EE EF EG GC GD GN GT GJ SG
315	VYQ4385	BATTERY CARRYING CASE U	1	GK
316	VFC4366	LENS CAP STRING	1	EXCEPT P PC
317	VYF3198	LENS CAP UNIT	1	(K)
317	VYF3200	LENS CAP UNIT	1	(S)
318	VQL1G34	OPERATING LABEL	1	GT
• 319	K2CT3CA00004	AC CORD W/PLUG	1	EB GC
• 320	K2CP2YY00001	AC CORD W/PLUG	1	GJ
• 320	K2CQ2CA00006	AC CORD W/PLUG	1	E EE EF EG GC
• 321	K2CR2CA00003	AC CORD W/PLUG	1	GD
• 322	K2CA2CA00020	AC CORD W/PLUG	1	GK
• 322	K2CA2CA00027	AC CORD W/PLUG	1	GT
• 322	K2CA2CA00019	AC CORD W/PLUG	1	SG
• 323	K2CJ2DA00008	AC CORD W/PLUG	1	GN

S7. Exploded View

S7.1. Frame and Casing Section



S7.2. Packing Parts and Accessories Section (1)



S7.3. Packing Parts and Accessories Section (2)

