

Service Manual

Digital Camera

LUMIX



Model No. **DMC-FH6P**

DMC-FH6PC

DMC-FH6PU

DMC-FH6GA

DMC-FH6GC

DMC-FH6GD

DMC-FH6GF

DMC-FH6GK

DMC-FH6GN

DMC-FH6GT

DMC-FS40EB

DMC-FS40EE

DMC-FS40EF

DMC-FS40EG

DMC-FS40EP

DMC-FS41EB

DMC-FS41EE

DMC-FS41EG

DMC-FS41EP

Panasonic[®]

Colour

[DMC-FH6]

- (S).....Silver Type (except PC/GD)
- (K).....Black Type
- (P).....Pink Type (except P/PC)
- (A).....Blue Type (except PC/GD/GT)
- (Y).....Yellow Type (only GA/GC/GF)

[DMC-FS40]

- (S).....Silver Type (except EB/EF)
- (K).....Black Type
- (P).....Pink Type
- (A).....Blue Type
- (Y).....Yellow Type (except EE/EP)

[DMC-FS41]

- (K).....Black Type
- (P).....Pink Type (only EB)

⚠ WARNING

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

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1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

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

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

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

1.2. Leakage Current Cold Check

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

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

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

Hot-Check Circuit

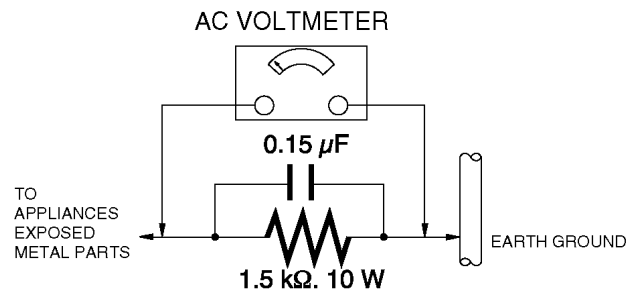


Figure. 1

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

CAUTION:

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

[Discharging Procedure]

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

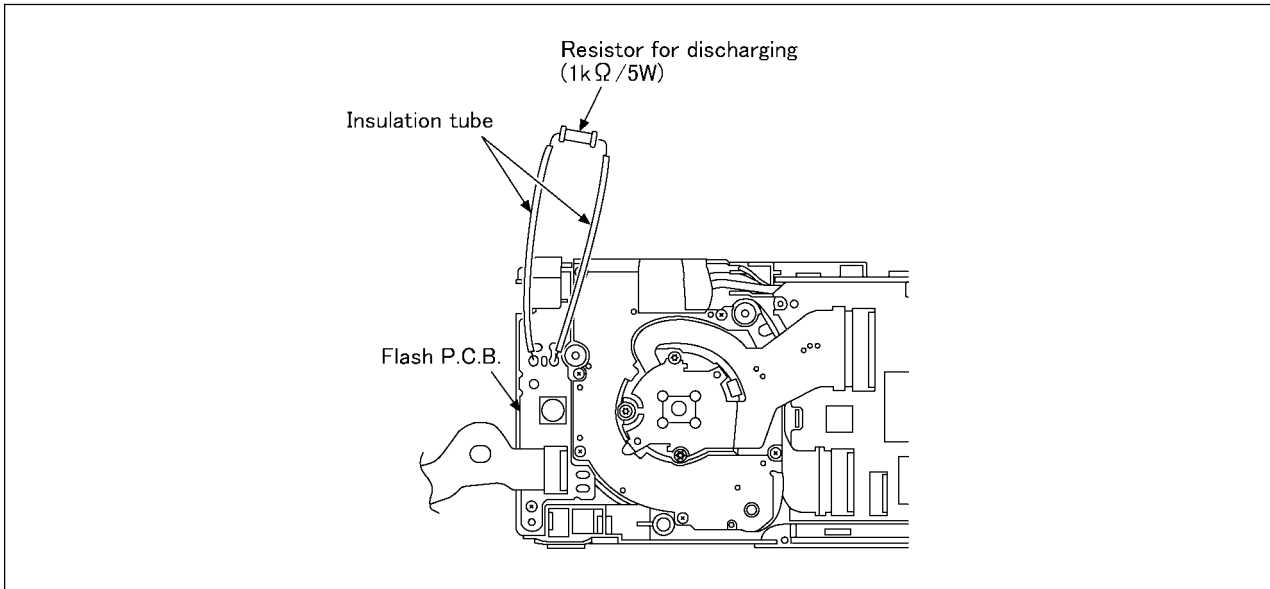


Fig. F1

2 Warning

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

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

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

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

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

CAUTION :

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

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

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

ENGLISH



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

FRANÇAIS



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

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

2.3.1. Information for Your Safety

IMPORTANT

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

WARNING

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

CAUTION

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

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

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

2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

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

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



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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

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

Blue	Neutral
Brown	Live

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

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

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

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



2.3.2.2. Before Use

Remove the Connector Cover as follows.



2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



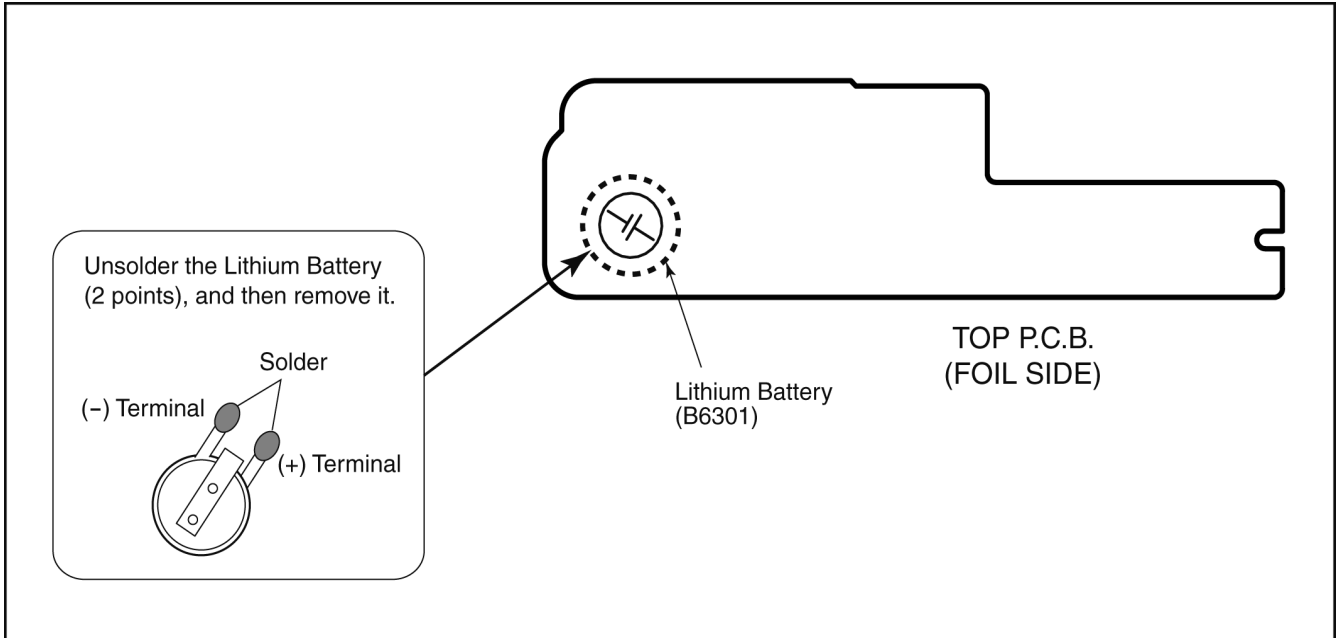
2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the TOP P.C.B.. (Refer to Disassembly Procedures.)
2. Unsolder the each soldering point of electric lead terminal for Lithium battery (Ref. No. "B6301" at foil side of TOP P.C.B.) and remove the Lithium battery together with electric lead terminal. Then replace it into new one.

NOTE:

The Type No. ML421 includes electric lead terminals.



NOTE:

This Lithium battery is a critical component.

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

It must never be subjected to excessive heat or discharge.

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

Replacement batteries must be of same type and manufacture.

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

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

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

(For English)

CAUTION

- Danger of explosion if battery is incorrectly replaced. Replace only with the type recommended by the manufacturer.
- When disposing the batteries, please contact your local authorities or dealer and ask for the correct method of disposal.

(For German)

ACHTUNG

- Explosionsgefahr bei falschem Anbringen der Batterie. Ersetzen Sie die Batterie nur durch den vom Hersteller empfohlenen Typ.
- Wenden Sie sich zur Entsorgung der Batterien an die lokalen Behörden oder erfragen Sie die richtige Vorgehensweise zur Entsorgung.

(For French)

MISE EN GARDE

- Il y a un danger d'explosion si la batterie n'est pas correctement remplacée. Remplacez-la uniquement par le type recommandé par le fabricant.
- Pour vous débarrasser des batteries, veuillez contacter les autorités locales ou votre revendeur afin de connaître la procédure d'élimination à suivre.

NOTE:

Above caution is applicable for a battery pack which is for DMC-FH6/FS40/FS41 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

3.2.1. CCD UNIT:

- The image sensor (CCD) unit which are connected to the lens unit with 3 screws. These screws are locked with the screw locking glue, after performing the Optical tilt adjustment.

During servicing, if one of CCD fixing screws are loosened, the Optical tilt adjustment must be performed.

About the Optical tilt adjustment, refer to the "9.3.2 Adjustment Specifications" for details.

3.2.2. MAIN P.C.B.:

1. The MAIN P.C.B. is handled as the smallest replacement part for this unit.

Therefore if any component on the MAIN P.C.B. is/are defective, replace whole MAIN P.C.B. as a unit.

WHICH P.C.B. IS DEFECTIVE? (MAIN P.C.B. or TOP P.C.B.):

The MAIN P.C.B. and TOP P.C.B. are directly connected with solder, without connector.

The TOP P.C.B. consists of the following component part(s). (All of the signal lines are analogue.)

- *.Power button
- *.Shutter button
- *.Microphone
- *.Self-timer indicator /AF assist lamp
- *.Back-up battery
- *.Zoom lever

When inspecting which PCB is defective, use the "Check terminals" and confirm the each signal.

(From RL6301 to RL6311)

Top P.C.B. side

Check Terminals(From RL6301 to RL6311).

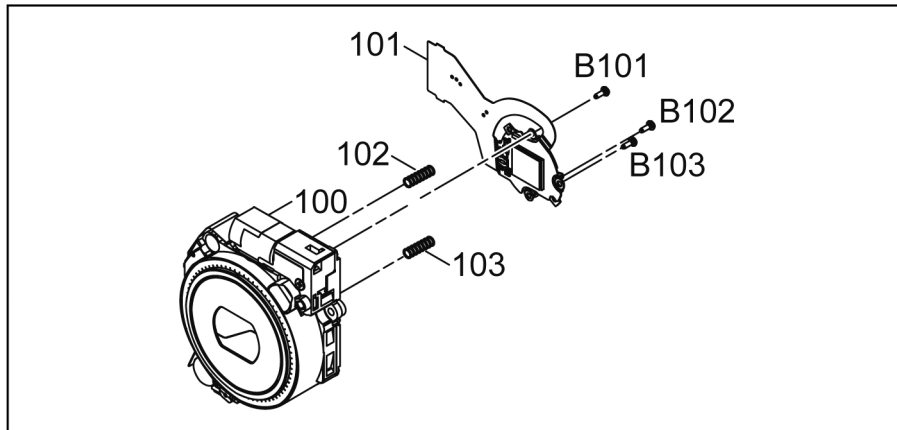


TOP P.C.B.

Terminal No.	Terminal Name	Description
RL6301	D GND	GND
RL6302	SHUTTER 1	Shutter release (ON :Low)
RL6303	SHUTTER 0	Half-shutter (ON :Low)
RL6304	CATHODE	Cathode for Self-timer LED.
RL6305	AF3R4V	Anode for Self-timer LED.
RL6306	TELE WIDE	Zoom lever (TELE:Low)
RL6307	CLOCK	Back-up battery
RL6308	MIC IN	Microphone (+)
RL6309	MIC GND	Microphone (-)
RL6310	POWER ON L	Power button (ON :Low)
RL6311	D GND	GND

3.2.3. LENS UNIT:

1. The minimum replacement part size of the Lens part is as shown below.
When servicing, replace the following numbered replacement part size as the smallest size.



3.2.4. 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.

3.3. 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 nine kinds of DMC-FH6, DMC-FS40 and DMC-FS41, regardless of the colours.

- a) DMC-FH6 (Japan domestic model)
- b) DMC-FH6P/PC
- c) DMC-FS40EB/EF/EG/EP, FS41EB/EG/EP
- d) DMC-FS40EE, FS41EE
- e) DMC-FH6GK
- f) DMC-FH6GT
- g) DMC-FH6GD
- h) DMC-FH6GN
- i) DMC-FH6PU/GA/GC/GF

What is the difference is that the "INITIAL SETTINGS" data which is stored in Flash-ROM 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.

<p>a) DMC-FH6 (Japan domestic model) The nameplate for this model shows the following Safety registration mark.</p> 
<p>b) DMC-FH6P/PC The nameplate for these models show the following Safety registration mark.</p> 
<p>c) DMC-FS40EB/EF/EG/EP, FS41EB/EG/EP The nameplate for these models show the following Safety registration mark.</p> 
<p>d) DMC-FS40EE, FS41EE The nameplate for these models show the following Safety registration mark.</p> 
<p>e) DMC-FH6GK The nameplate for this model shows the following Safety registration mark.</p> 
<p>f) DMC-FH6GT The nameplate for this model shows the following Safety registration mark.</p> 
<p>g) DMC-FH6GD The nameplate for this model shows the following Safety registration mark.</p> 
<p>h) DMC-FH6GN The nameplate for this model shows the following Safety registration mark.</p> 
<p>i) DMC-FH6PU/GA/GC/GF The nameplate for these models do not show any above Safety registration mark.</p>

NOTE:

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

The service software is available at "TSN Website". To download, click on "Support Information from NWBG/VDBG-AVC".

3.4.2. INITIAL SETTINGS:

After replacing the MAIN P.C.B., make 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, make 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.**
- *.Once one of the model suffix has been chosen, the model suffix lists will not be displayed, thus, it can not be changed.

CAUTION 2:(Stored picture image data in the unit)

This unit employs "Built-in Memory" for picture image data recording.

(DMC-FH6/FS40/FS41: Approx.70MB)

After proceeding "INITIAL SETTINGS", the picture image data stored in the unit is erased.

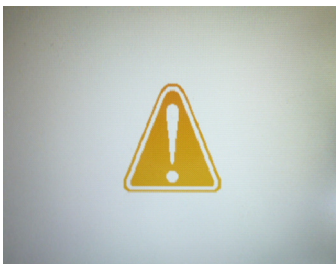
2. PROCEDURES:

- Precautions: Read the above "CAUTION 1" and "CAUTION 2", carefully.
- Preparation:
 - Attach the Battery or AC Adaptor with a DC coupler to the unit.
(Since this unit has built-in memory, it can be performed without inserting SD memory card.)
 - 1. Turn the Power on.
 - 2. Press the [MODE] button, and select the [NORMAL PICTURE] mode by Cursor buttons, then press the [MENU/SET] button.
 - 3. Turn the Power off.
(If the unit is other than [NORMAL PICTURE] mode, it does not display the initial settings menu.)
- **Step 1. The temporary cancellation of "INITIAL SETTINGS":**
While pressing "[W] side of Zoom lever" and "[UP] of Cursor button" simultaneously, turn the Power on.
- **Step 2. The cancellation of "INITIAL SETTINGS":**
Press the [PLAYBACK] button.

While pressing the "[UP] of Cursor button", press and hold the "[W] side of the Zoom lever". Release only the "[UP] of Cursor button" once then press the "[UP] of Cursor button" again.

Release the "[W]" and "[UP]" buttons, then turn the Power off.

The LCD displays the " ! " mark before the unit powers down.



- **Step 3. Turn the Power on:**
Turn the Power on.
- **Step 4. Display the INITIAL SETTING:**
While pressing [MENU/SET] button and "[RIGHT] of Cursor button" simultaneously, turn the Power off.
The "INITIAL SETTINGS" menu is displayed.
There are two kinds of "INITIAL SETTINGS" menu form as follows:

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

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

The figure shows five screenshots of the 'INITIAL SETTINGS' menu, each with a different model suffix selected and highlighted in yellow. The options are as follows:

- Screen 1:** NONE(JAPAN) FH6. Options: P, EG, PU, GD. Models: DMC-FH6 (Japan domestic model), DMC-FH6P, DMC-FS40EG,FS41EG, DMC-FH6PU, DMC-FH6GD.
- Screen 2:** SG FH6. Options: LB, EC, GH, EP. Models: (No "SG" model), (No "LB" model), (No "EC" model), (No "GH" model), DMC-FS40EP,FS41EP.
- Screen 3:** GC FH6. Options: GT, GK, EF, EB. Models: DMC-FH6GC, DMC-FH6GT, DMC-FH6GK, DMC-FS40EF, DMC-FS40EB,FS41EB.
- Screen 4:** EN FH6. Options: GF, GM, GA, PB. Models: (No "EN" model), DMC-FH6GF, (No "GM" model), DMC-FH6GA, (No "PB" model).
- Screen 5:** EE FS40. Options: GN, PC, PR, GJ. Models: DMC-FS40EE,FS41EE, DMC-FH6GN, DMC-FH6PC, (No "PR" model), (No "GJ" model).

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

The figure shows three screenshots of the 'INITIAL SETTINGS' menu for different model categories:

- Left:** <Other than "EG/EF/EB/EP" models>. Selected: GC FH6.
- Top Right:** <Only "EG/EF/EB/EP" models>. Selected: EG FS40. Options: EF, EB, EC, EP.
- Bottom Right:** Selected: EN FH6.

• **Step 5. Choose the model suffix in "INITIAL SETTINGS": (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 not be changed.

Therefore, select the area carefully.

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

• **Step 6. Choose the model number in "INITIAL SETTINGS": (Only for "EB/EE/EG/EP" models.)**

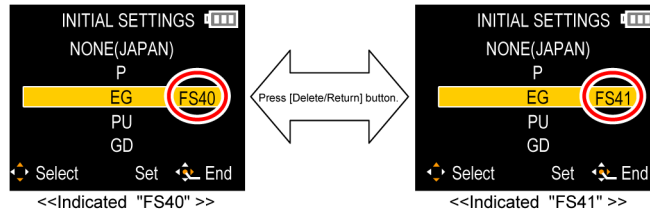
This step is necessary only for "EB/EE/EG/EP".

Only for model suffix with "EB/EE/EG/EP", there are two kind of model; (DMC-FS40 and DMC-FS41) ,due to difference of sales channel. Therefore, not only model suffix, but also model number (FS40 or FS41) has to be set up in the "INITIAL SETTINGS". (The "FS40" is displayed as default status.)

When the model number is one of the "DMC-FS41EB/EE/EG/EP", change the model number with the following procedure:

Press the [Delete/Return] button in order to change the indication from "FS40" into "FS41".

(Each time one presses the [Delete/Return] button, model indication is changed from "FS40" to "FS41" (Toggle switch))

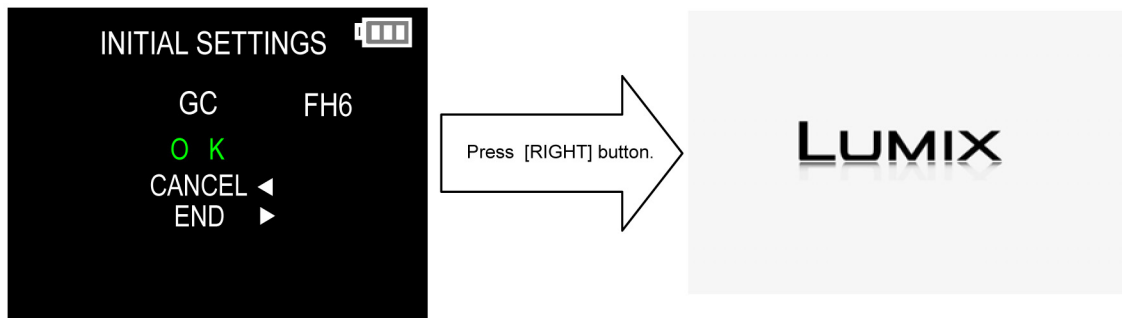


• **Step 7. Set the model suffix in "INITIAL SETTINGS":**

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 8. 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-FH6(Japan domestic model)	NTSC	Japanese	Year/Month/Date	
b)	DMC-FH6P	NTSC	English	Month/Date/Year	
c)	DMC-FH6PC	NTSC	English	Month/Date/Year	
d)	DMC-FH6PU	NTSC	Spanish	Month/Date/Year	
e)	DMC-FS40EG/FS41EG	PAL	English	Date/Month/Year	
f)	DMC-FH40EP/FS41EP	PAL	English	Date/Month/Year	
g)	DMC-FH40EF	PAL	French	Date/Month/Year	
h)	DMC-FH40EB/FS41EB	PAL	English	Date/Month/Year	
i)	DMC-FH40EE/FS41EE	PAL	Russian	Date/Month/Year	
j)	DMC-FH6GC	PAL	English	Date/Month/Year	
k)	DMC-FH6GF	PAL	English	Date/Month/Year	
l)	DMC-FH6GA	PAL	English	Date/Month/Year	
m)	DMC-FH6GT	NTSC	Chinese (traditional)	Year/Month/Date	
n)	DMC-FH6GK	PAL	Chinese (simplified)	Year/Month/Date	
o)	DMC-FH6GN	PAL	English	Date/Month/Year	
p)	DMC-FH6GD	NTSC	Korean	Year/Month/Date	

4 Specifications

Digital Camera: Information for your safety

Power Source	DC 5.1 V
Power Consumption	When recording: 1.0 W When playing back: 0.6 W
Camera effective pixels	14,100,000 pixels
Image sensor	1/2.33" CCD, total pixel number 14,500,000 pixels Primary color filter
Lens	Optical 5 x zoom f=4.3 mm to 21.5 mm (35 mm film camera equivalent: 24 mm to 120 mm) / F2.5 (Max. W) to F6.4 (Max. T)
Image stabilizer	Optical method
Focus range	
Intelligent Auto / Normal / Motion Picture	5 cm (0.16 feet) (Wide) / 1 m (3.3 feet) (Tele) to ∞
Scene Mode	There may be difference in above settings.
Shutter system	Electronic shutter + Mechanical shutter
Shutter speed	8 seconds to 1/1600 th of a second
Exposure (AE)	AUTO (Program AE)
Metering Mode	Multi metering
LCD monitor	2.7" TFT LCD (4:3) (Approx. 230,400 dots) (field of view ratio about 100%)
Microphone / Speaker	Monaural
Recording media	Built-in Memory (Approx. 70 MB) / SD Memory Card / SDHC Memory Card / SDXC Memory Card
Recording file format	
Still picture	JPEG (based on Design rule for Camera File system, based on Exif 2.3 standard)
Motion pictures	QuickTime Motion JPEG (motion pictures with audio)

Interface	
Digital	USB 2.0 (High Speed)
Analog video	[NTSC areas] NTSC Composite [PAL areas] NTSC / PAL Composite (Switched by menu)
Audio	Audio line output (Monaural)
Terminal	AV OUT / DIGITAL: Dedicated jack (8 pin)
Dimensions	Approx. 96.4 mm (W) x 55.5 mm (H) x 19.9 mm (D) [3.8" (W) x 2.2" (H) x 0.78" (D)] (excluding the projection part)
Mass (weight)	With card and battery: Approx. 119 g (0.26 lb) Excluding card and battery: Approx. 103 g (0.23 lb)
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	AC ~ 110 V to 240 V, 50/60 Hz, 0.2 A
Output	DC --- 4.2 V, 0.43 A

Equipment mobility: Movable

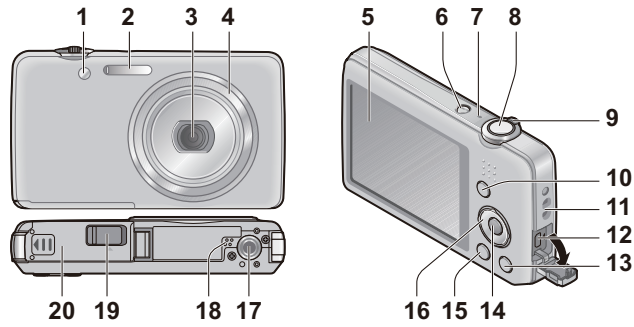
Battery pack (lithium-ion): Information for your safety

Voltage / capacity	3.6 V / 680 mAh
---------------------------	-----------------

NOTE:(Only for "EB/EF/EG/EP" models)

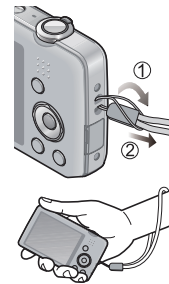
- Data from the PC can not be written to the camera using the USB connection cable.
- Motion pictures can be recorded continuously for up to 15 minutes.

5 Location of Controls and Components

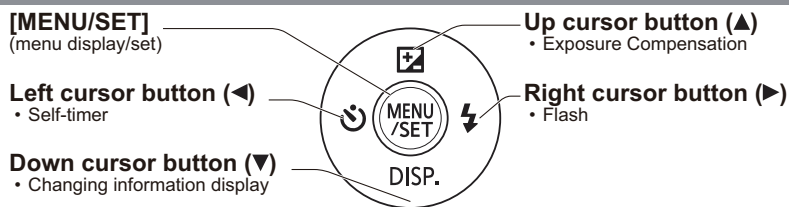


- 1 Self-timer indicator/AF Assist Lamp
- 2 Flash
- 3 Lens
- 4 Lens barrel
- 5 LCD monitor
- 6 Power button
- 7 Microphone
- 8 Shutter button
- 9 Zoom lever
- 10 [MODE] button
- 11 Hand strap eyelet
- 12 [AV OUT/DIGITAL] socket
- 13 [🗑️ / ↩️] (Delete/Return) button
- 14 [MENU/SET] button
- 15 Playback button
- 16 Cursor button
- 17 Tripod receptacle
- 18 Speaker
- 19 DC coupler cover
- 20 Card/Battery door

We recommend using the supplied hand strap to avoid dropping the camera.

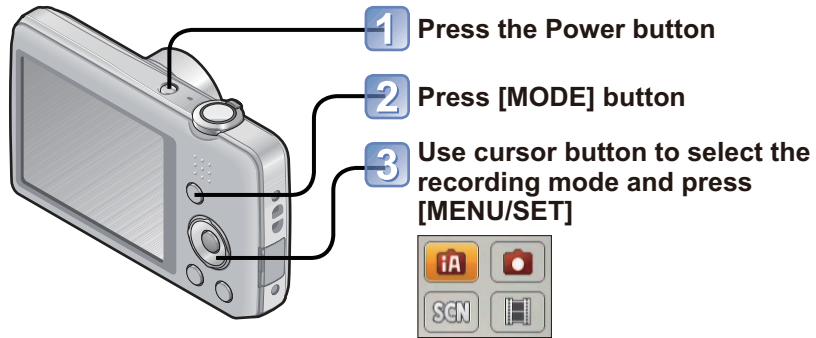


Cursor button






● In this manual, the button that is used is shaded or indicated by ▲ ▼ ▶ ▶.

Selecting the Recording Mode



■Recording mode

	[Intelligent Auto] Mode Take pictures with automatic settings.
	[Normal Picture] Mode Take pictures with your own settings.
SCN	[Scene Mode] Take pictures according to scene.
	[Motion Picture] Mode Take motion pictures.

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 FLASH-ROM 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 Battery or AC Adaptor with a DC coupler to the unit.

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

1. Turn the Power on.

2. Press the [MODE] button, and select the [NORMAL PICTURE] mode by Cursor buttons, then press the [MENU/SET] button.

3. Turn the Power off.

(If the unit is other than [NORMAL PICTURE] mode, it does not display the initial settings menu.)

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

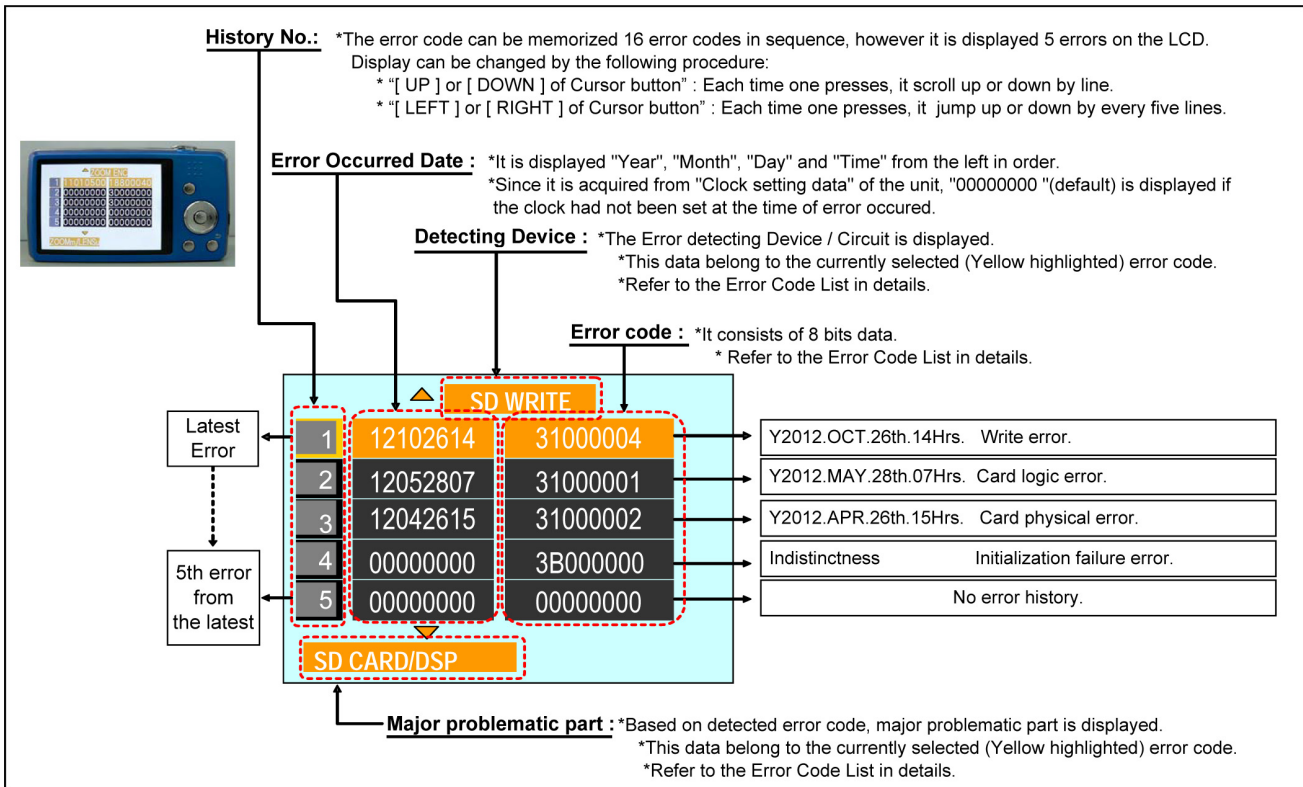
While pressing "[W] side of Zoom lever" and "[UP] of Cursor button" simultaneously, turn the power on.

• Step 2. Execute the error code display mode:

While pressing the "[W] side of the Zoom lever", press the "[LEFT] of Cursor button" and the "[MENU/SET] button" simultaneously.

Every time when performing above operation, the display is changed as shown below.

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



Example of Error Code Display

• 3. Error Code List

The error code consists of 8 bits 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	Problematic Part & Check point (Lower line)	Detecting device	Problematic Part/Circuit					
LENS	Lens drive	OIS	18*0	1000	PSD (X) error. Hall element (X axis) position detect error in OIS unit. Lens Unit.	OIS X	LENSu NG					
				2000	PSD (Y) error. Hall element (Y axis) position detect error in OIS unit. Lens Unit.	OIS Y						
			3000	GYRO (X) error. Main P.C.B..	GYRO X	GYRO NG						
				4000	GYRO (Y) error. Main P.C.B..		GYRO Y					
			6000	Drive voltage (X) error. LENS Unit, LENS flex breaks, etc.	OISX REF	LENSu/LENS FPC						
				7000	Drive voltage (Y) error. LENS Unit, LENS flex breaks, etc.		OISY REF					
			8000	OIS GYRO-Digital communication error Main P.C.B..	(No indication)	(No indication)						
			Zoom	0710	Collapsible barrel Low detect error (Collapsible barrel encoder always detects Low.) Lens Unit, Main P.C.B..	ZOOM L	ZOOMm/LENSu					
		0720			Collapsible barrel High detect error (Collapsible barrel encoder always detects High.) Lens Unit, Main P.C.B..	ZOOM H						
		0730 0750		Zoom motor sensor error. Lens Unit, Main P.C.B..	ZOOM ENC							
		0760		Detection of zoom misregistration by impact such as fails. Lens Unit	(No indication)	(No indication)						
		Focus	0701	HP Low detect error (Focus encoder always detects High, and not becomes Low) Lens Unit, Main P.C.B..	FOCUS L	LENS FPC/DSP						
				0702	HP High detect error (Focus encoder always detects Low, and not becomes High) Lens Unit, Main P.C.B..		FOCUS H					
		Lens	18*1	0000	Power ON time out error. Lens Unit, Main P.C.B..	LENS DRV	LENSu					
				0000	Power OFF time out error. Lens Unit, Main P.C.B..							
		Adj. History	OIS	19*0	2000	OIS adj. Yaw direction amplitude error (small)	OIS ADJ	OIS ADJ				
					3000	OIS adj. Pitch direction amplitude error (small)						
					4000	OIS adj. Yaw direction amplitude error (large)						
	5000				OIS adj. Pitch direction amplitude error (large)							
	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											
HARD	VENUS A/D				Flash	28*0			0000	Flash charging error. Flash charging circuit	STRB CHG	STRB PCB/FPC
	FLASH ROM (EEPROM Area)				FLASH ROM (EEPROM Area)	2B*0			0001	EEPROM read error Main P.C.B..	FROM RE	FROM
									0002	EEPROM write error Main P.C.B..	FROM WR	FROM
0005									Firmware version up error Replace the firmware file in the SD memory card.	(No indication)	(No indication)	
SYSTEM	RTC				2C*0	0001			SYSTEM IC initialize failure error Main P.C.B..	SYS INIT	MAIN PCB	
SOFT	CPU	Reset	30*0	0001 0007	NMI reset Non Mask-able Interrupt (30000001-30000007 are caused by factors)	NMI RST	MAIN PCB					
				CPU, ASIC hard	Stop	38*0	0001	Camera task finish process time out. Lens Unit, Main P.C.B..	LENS COM	LENSu/DSP		
	0002	Camera task invalid code error. Main P.C.B..	DSP				DSP					
	0100	File time out error in recording motion image Main P.C.B..										
	0200	File data cue send error in recording motion image Main P.C.B..										
	Memory area	3A*0		0008	Single or burst recording brake time out. USB work area partitioning failure USB cable, Main P.C.B..	(No indication)		(No indication)				
			Operation Zoom	Power on Zoom	3B*0	0000	FLASHROM processing early period of camera during movement.	INIT	(No indication)			
	Zoom	Zoom	3C*0	0000	Inperfect zoom lens processing Lens Unit.	ZOOM	ZOOMm/LENSu					
				35*0	0000 FFFF	Software error (0-7bit : command, 8-15bit : status)	DSP	DSP				
					35*1	0000	Though record preprocessing is necessary, it is not called.	(No indication)	(No indication)			
				35*2	0000	Though record preprocessing is necessary, it is not completed.						

Important notice about "Error Code List"

1) About "*" indication:

The third digit from the left is different as follows.

- In case of 0 (example: 18001000)

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: 18801000)

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?60"):

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

• 4. 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.)

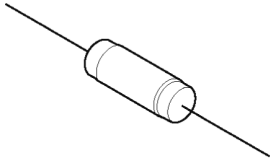
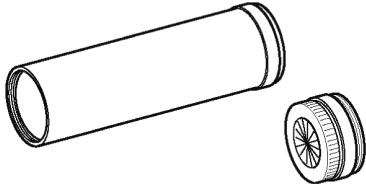
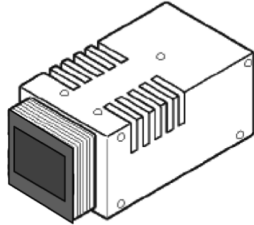
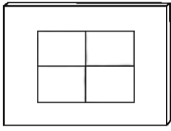

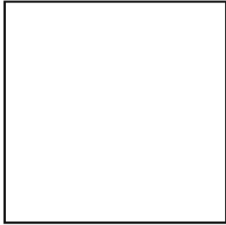
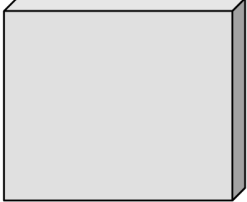
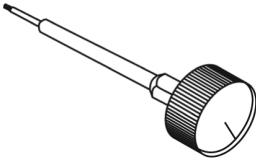
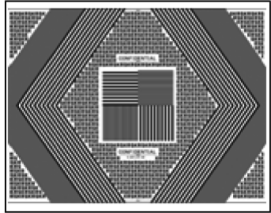
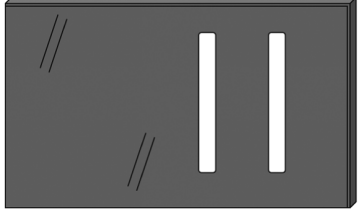
NOTE:

The error code can not be initialized.

7 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 (1kΩ/5W) ERG5SJ102	Collimator (with Focus Chart) VFK1164TCM02	LIGHT BOX (with DC Cable) RFKZ0523
 An equivalent type of Resistor may be used.	 *VFK1164TCM03 can be used. *RFKZ0422 can be used.	 *VFK1164TDVLB can be used.
TR Chart RFKZ0443	Lens Cleaning Kit (BK) VFK1900BK	ND Filter (ND0.3) RFKZ0513
	 *Only supplied 10 set/box.	
Diffuser RFKZ0591	Driver (for optical axis adjustment) RFKZ0569	Optical axis adjustment chart RFKZ0570
		
Camera stand RFKZ0333J		
		

7.2. When Replacing the Main P.C.B.

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

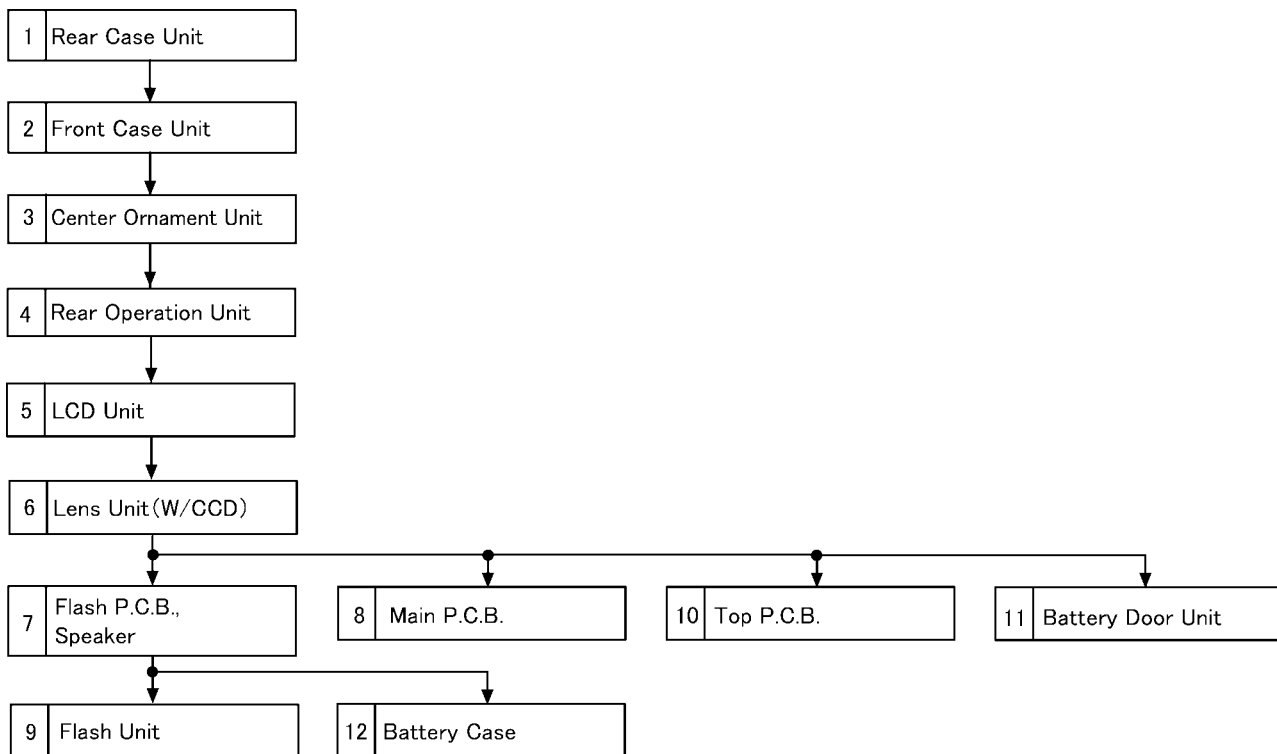
The service software is available at "TSN Website". To download, click on "Support Information from NWBG/VDBG-AVC".

8 Disassembly and Assembly Instructions

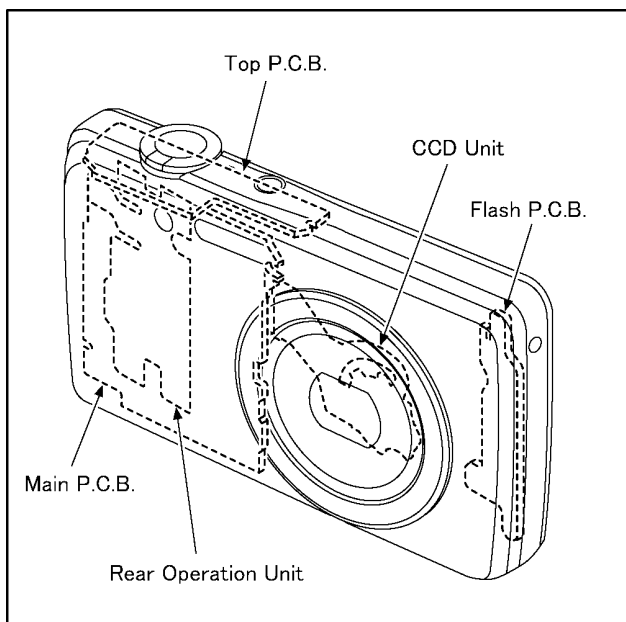
8.1. Disassembly Flow Chart

This is a disassembling chart.

When assembling, perform this chart conversely.



8.2. P.C.B. Location



8.3. Disassembly Procedure

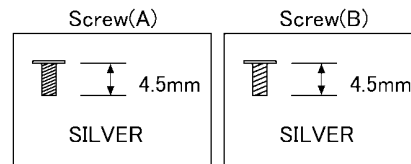
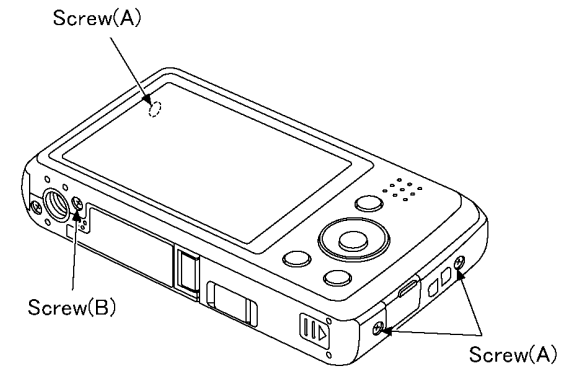
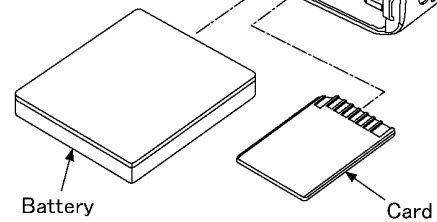
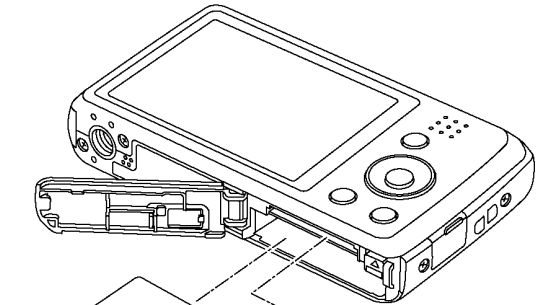
No.	Item	Fig	Removal
1	Rear Case Unit	(Fig. D1)	Card
			Battery
			3 Screws (A)
		1 Screw (B)	
		(Fig. D2)	6 Locking tabs
	Rear Case Unit		
2	Front Case Unit	(Fig. D3)	1 Screw (C)
		(Fig. D4)	1 Locking tab
			Front Case Unit
3	Center Ornament Unit	(Fig. D5)	1 Convex
			Center Ornament Unit
4	Rear Operation Unit	(Fig. D6)	1 Screw (D)
			1 Convex
			Connector(A)
			Rear Operation Unit
5	LCD Unit	(Fig. D7)	2 Locking tabs
			Connector(B)
			LCD Unit
6	Lens Unit (W/CCD)	(Fig. D8)	1 Screw (E)
			1 Locking tab
			Frame Plate
			Connector(C)
			DPR Sheet A
		(Fig. D9)	Connector(D)
			Connector(E)
			Lens Unit (W/CCD)
		7	Flash P.C.B. Speaker
1 Screw (F)			
1 Rib			
Solder (5 points)			
Flash P.C.B.			
(Fig. D11)	Speaker		
8	Main P.C.B.	(Fig. D12)	Terminal Cover
			1 Screw (G)
			Solder (14 points)
			1 Convex
			Main P.C.B.
9	Flash Unit	(Fig. D13)	2 Locking tabs
			Flash Unit
10	Top P.C.B.	(Fig. D14)	1 Screw (H)
			1 Convex
			1 Hooking part
			Top P.C.B.
11	Battery Door Unit	(Fig. D15)	Battery Door Shaft
			Battery Door Unit
12	Battery Case	(Fig. D16)	3 Locking tabs
			Battery Spring
			Battery Lock Knob
			Battery Lock Spring
			Battery Case

8.3.1. Removal of the Rear Case Unit

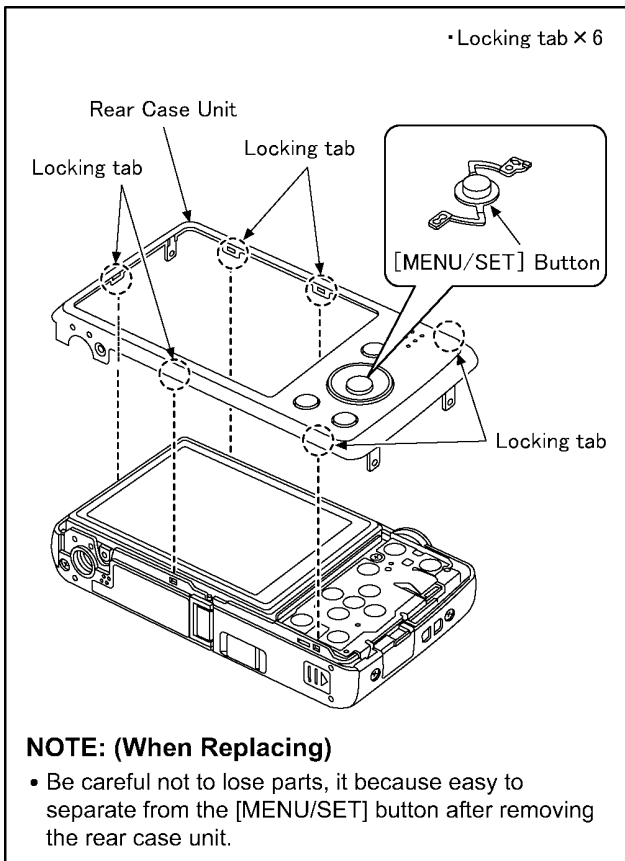
NOTE:

When servicing and reassembling, remove the card and battery from the unit.

- Card
- Screw(A) × 3
- Battery
- Screw(B) × 1

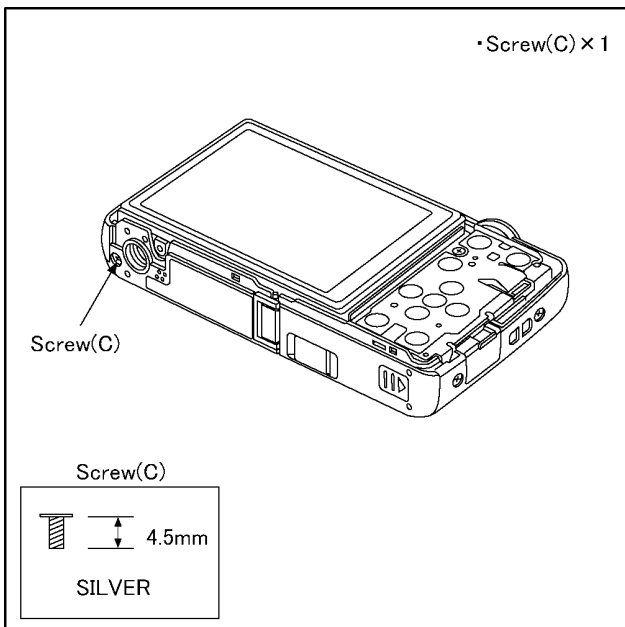


(Fig. D1)

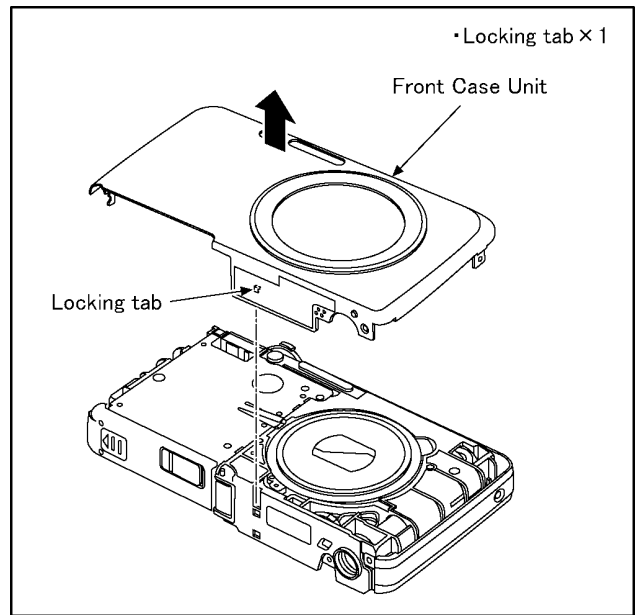


(Fig. D2)

8.3.2. Removal of the Front Case Unit



(Fig. D3)

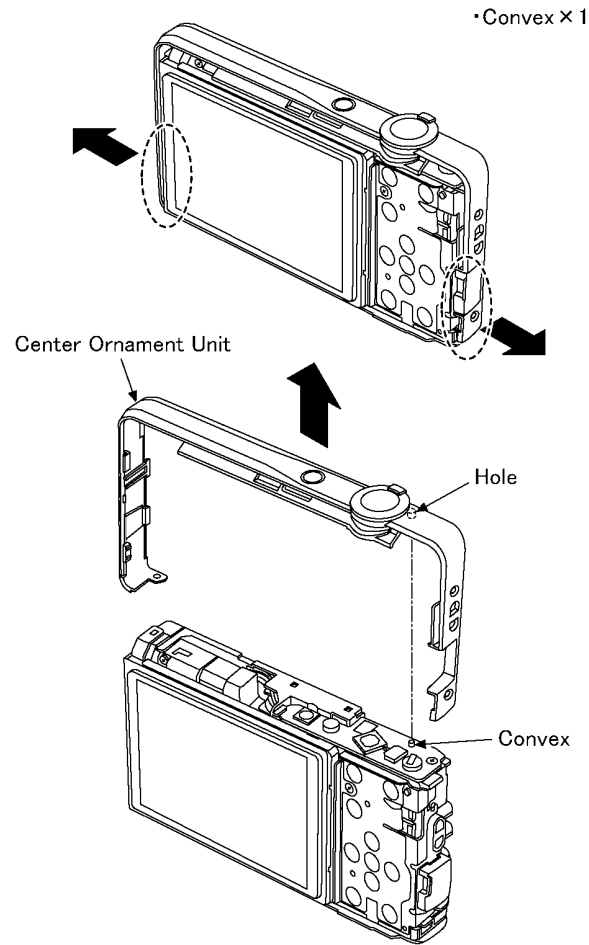


(Fig. D4)

8.3.3. Removal of the Center Ornament Unit

NOTE: (When Replacing)

- While spreads on both sides of the bottom of the center ornament unit and remove upwards.



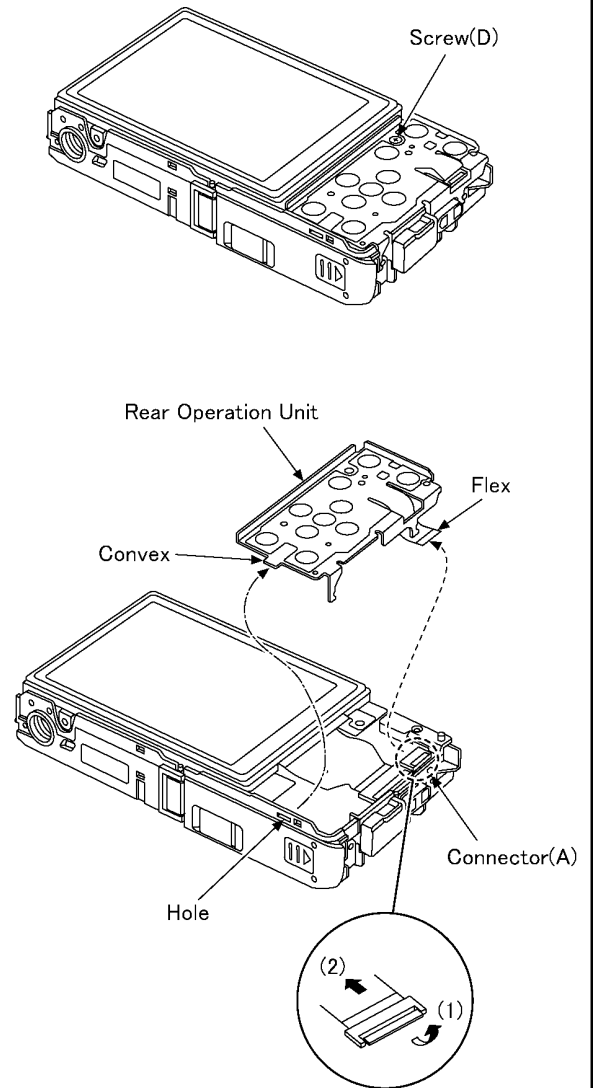
NOTE: (When Installing)

- When install the center ornament unit, align the convex and the hole of center ornament unit.

(Fig. D5)

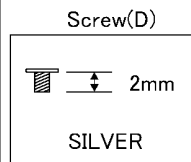
8.3.4. Removal of the Rear Operation Unit

- Screw(D) x 1
- Convex x 1
- Connector(A)



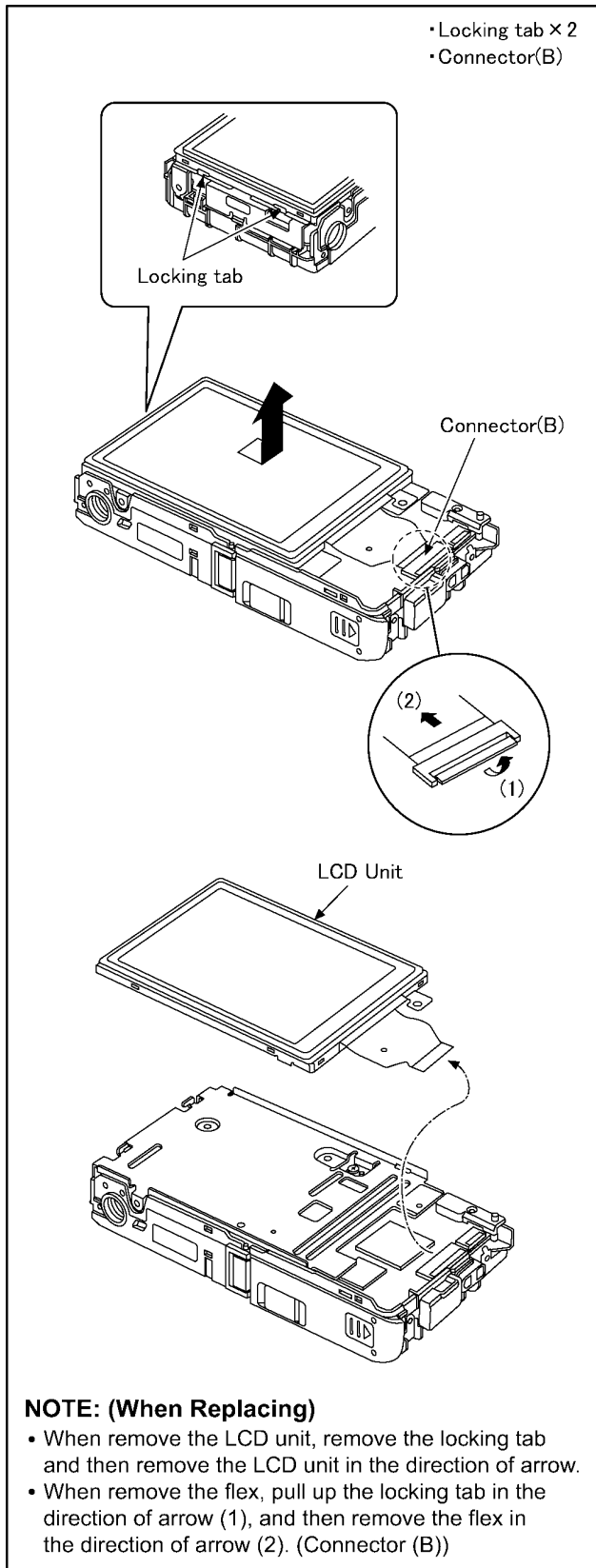
NOTE: (When Replacing)

- Remove the convex of the rear operation unit from the hole.
- 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). (Connector (A))



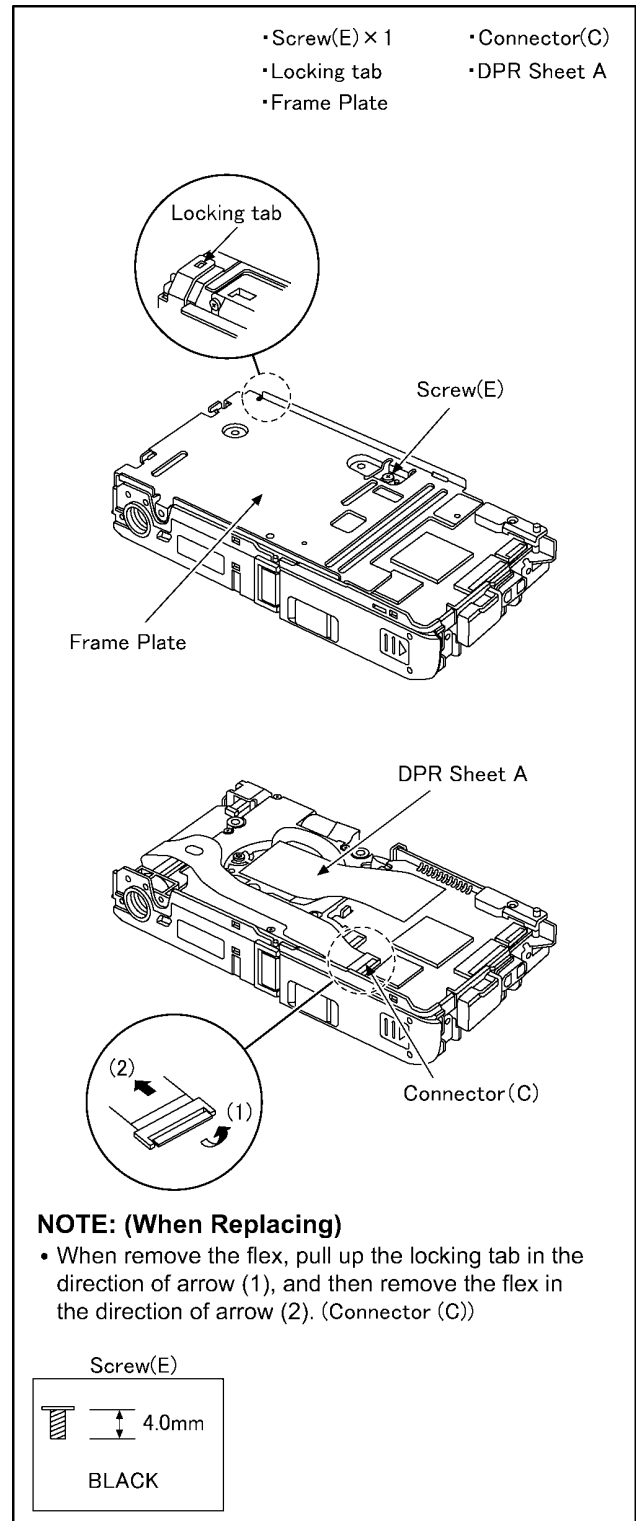
(Fig. D6)

8.3.5. Removal of the LCD Unit

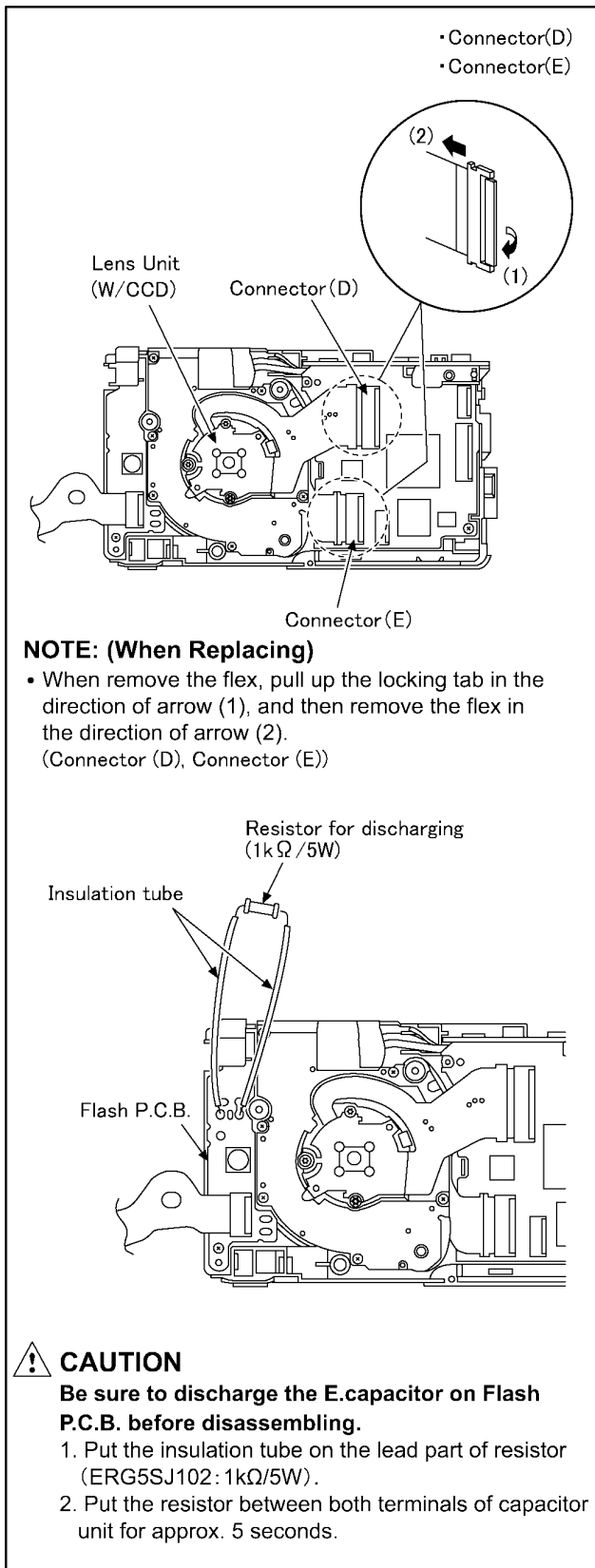


(Fig. D7)

8.3.6. Removal of the Lens Unit (W/CCD)

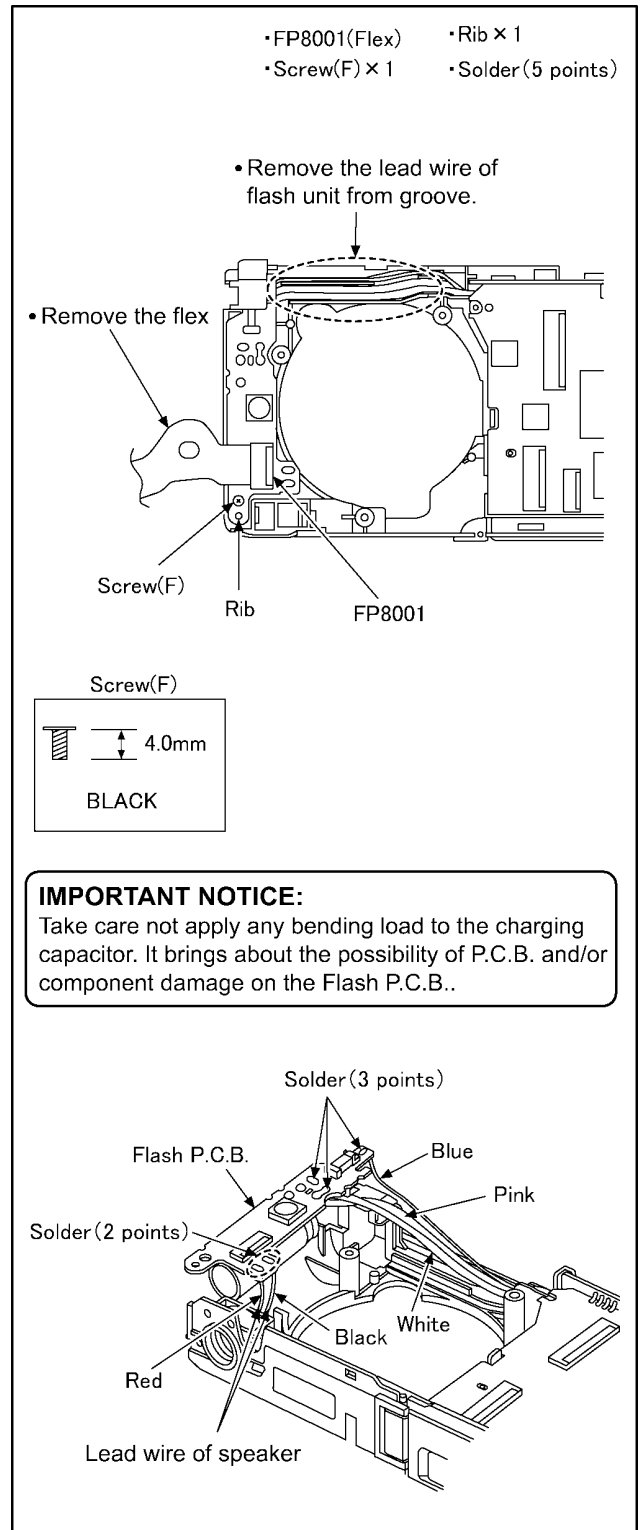


(Fig. D8)

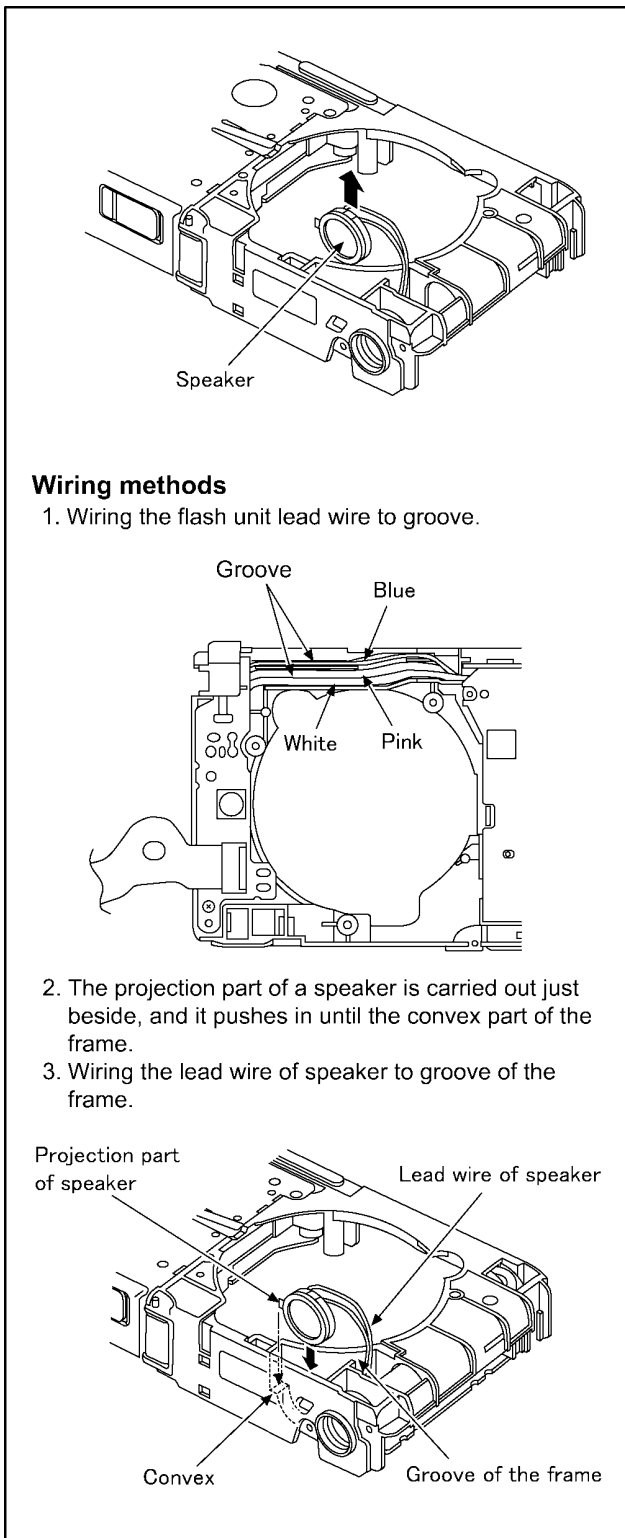


(Fig. D9)

8.3.7. Removal of the Flash P.C.B. and Speaker

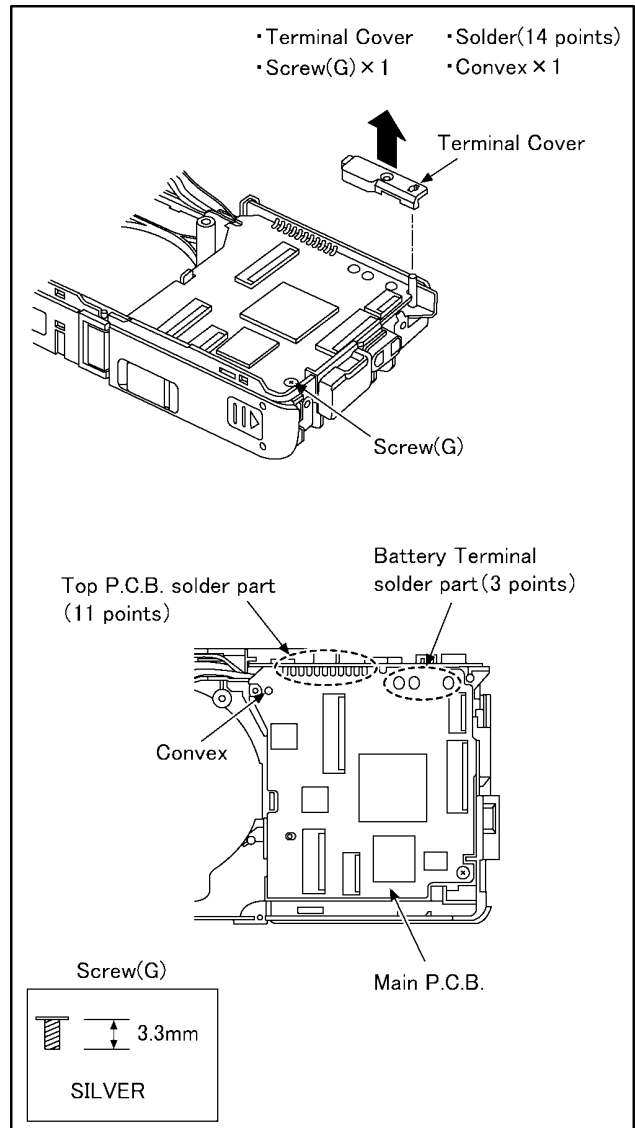


(Fig. D10)



(Fig. D11)

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



(Fig. D12)

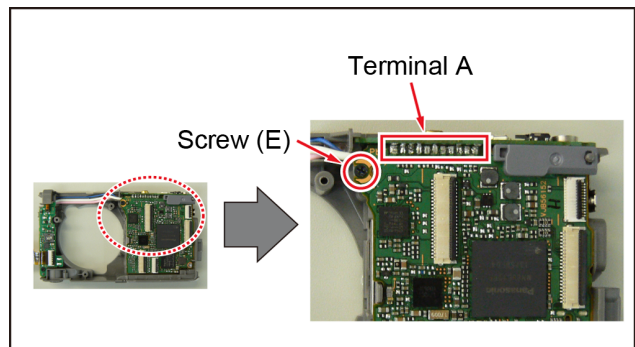
[WHEN ASSEMBLING]

CAUTION: Before soldering the Terminal A (Connecting part of Main P.C.B. and Top P.C.B.)

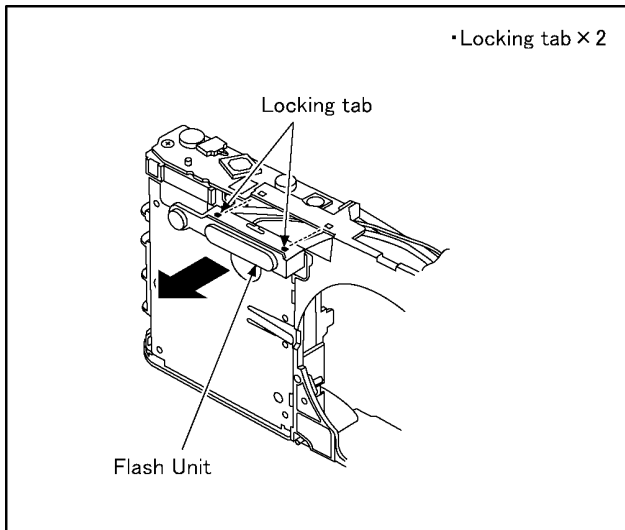
Before soldering the Terminal A, make sure to tighten the "Screw (E)" first in order to eliminate the gap between Main P.C.B. and Battery Case Unit. Otherwise, soldered terminal A part may be damaged after assembling.

NOTE:

Since the screw (E) is for fixing the frame plate, the screw (E) has to be removed once, after soldering.

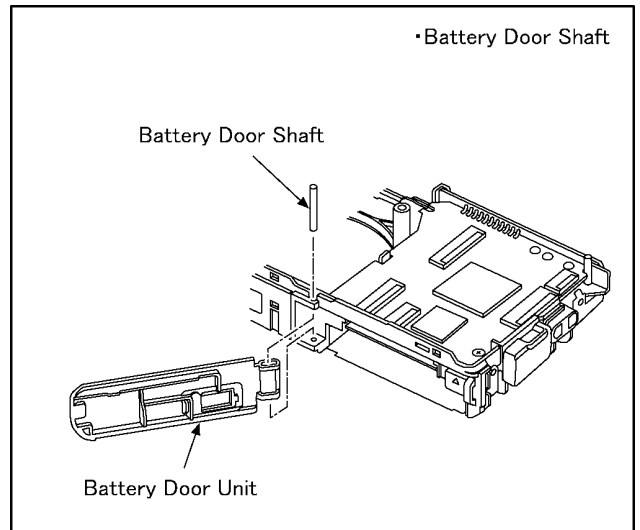


8.3.9. Removal of the Flash Unit



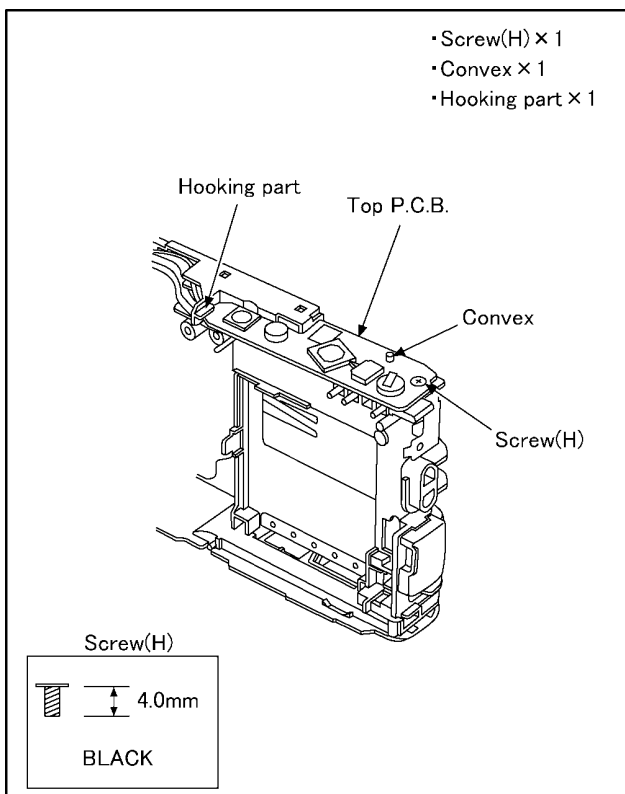
(Fig. D13)

8.3.11. Removal of the Battery Door Unit



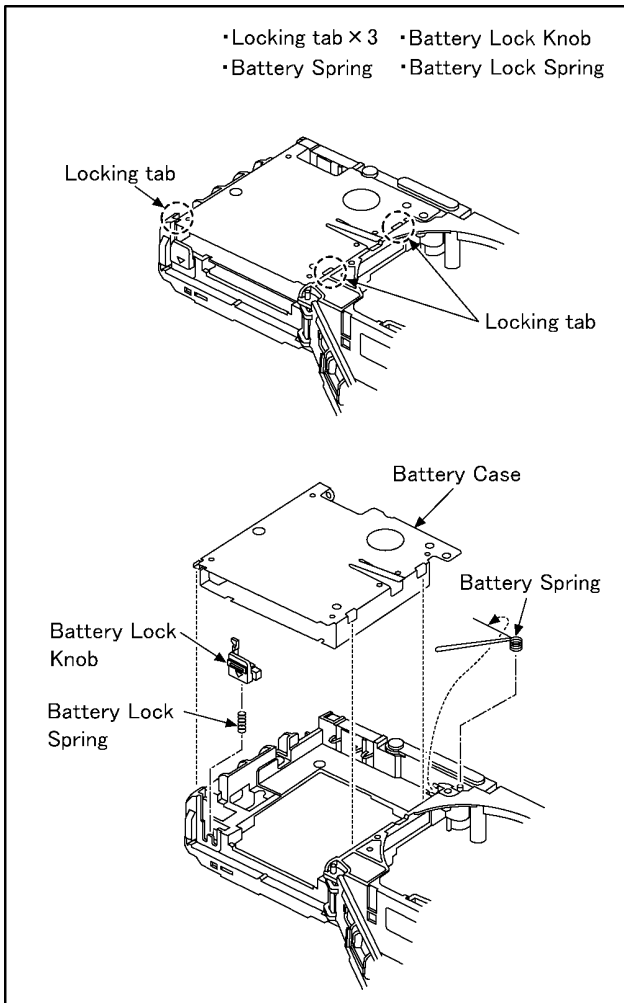
(Fig. D15)

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



(Fig. D14)

8.3.12. Removal of the Battery Case



(Fig. D16)

NOTE: (When Installing)

Make sure to confirm the following points when installing:

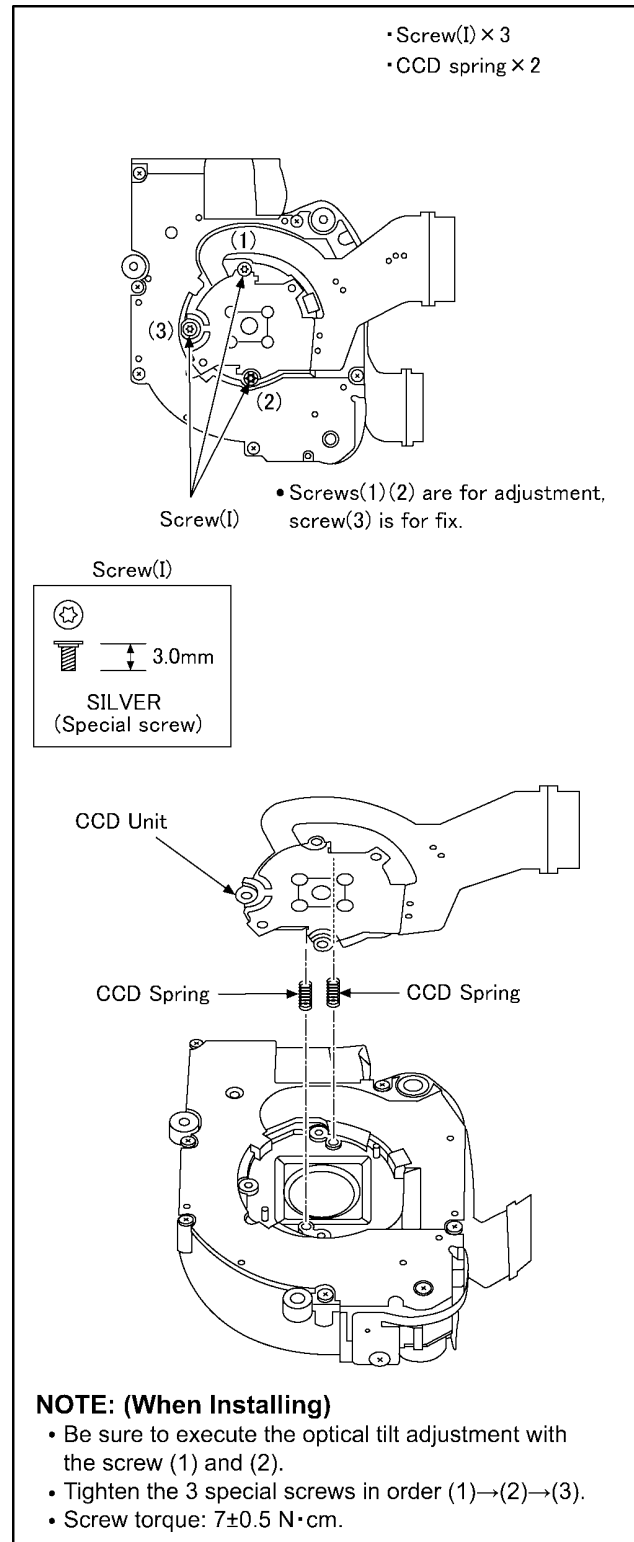
- The Screw is tightened enough.
- Installing conditions are fine. (No distortion, no abnormal-space.)
- No dust and/or dirt on Lens surfaces.
- LCD image is fine. (No dust and dirt on it, and no gradient images.)

8.4. Removal of the CCD Unit

When remove the CCD unit once (the screw(1) is loosened even a little), the optical tilt adjustment is required.

When loosen the screw(1), necessary the optical tilt adjustment at the end of assembling. (Refer to item "9.3.2.")

To prevent the CCD unit from catching the dust and dirt, do not remove the CCD unit except for replacing.



NOTE: (When Installing)

- Be sure to execute the optical tilt adjustment with the screw (1) and (2).
- Tighten the 3 special screws in order (1)→(2)→(3).
- Screw torque: $7 \pm 0.5 \text{ N} \cdot \text{cm}$.

(Fig. D17)

9 Measurements and Adjustments

9.1. Introduction

When servicing this unit, make sure to perform the adjustments necessary based on the part(s) replaced. Before disassembling the unit, it is recommended to back up the camera data stored in flash-rom as a data file.

IMPORTANT NOTICE (After replacing the MAIN P.C.B.)

After replacing the MAIN P.C.B., it is necessary to use the "DIAS" software to allow the release of adjustment flag(s). The Adjustment software "DIAS" is available at "TSN Website". To download, click on "Support Information from NWBG/VDBG-AVC".

*DIAS (DSC Integrated Assist Software)

NOTE: (When replacing the Lens unit, Master flange unit and CCD unit)

- When the CCD unit is unavoidably removed for Lens unit, Master flange unit and CCD unit replaced, an optical tilt adjustment is necessary after parts are exchanged.
- The adjustment software (DSC_Tilt) is necessary to execute an optical tilt adjustment.
- The adjustment software "DSC_Tilt" is available at "TSN Website", therefore, access to "TSN Website" at "Support Information from NWBG/VDBG-AVC".

9.2. Before Disassembling the unit

9.2.1. Initial Setting Release

The cameras specification are initially set in accordance with model suffix (such as EB, EG, GK, GC, and so on.). Unless the initial setting is not released, an automatic alignment software in the camera is not able to be executed when the alignment is carried out.

Note:

The initial setting should be again done after completing the alignment. Otherwise, the camera may not work properly. Therefore as a warning, the camera display a warning symbol "!" on the LCD monitor every time the camera is turned off. Refer to the procedure described in "3.4.2 INITIAL SETTINGS" for details.

[How to Release the camera initial setting]

Preparation:

- Attach the Battery or AC Adaptor with a DC coupler to the unit.
(Since this unit has built-in memory, it can be performed without inserting SD memory card.)
1. Turn the Power on.
 2. Press the [MODE] button, and select the [NORMAL PICTURE] mode by Cursor buttons, then press the [MENU/SET] button.
 3. Turn the Power off.
(If the unit is other than [NORMAL PICTURE] mode, it does not display the initial settings menu.)

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

While pressing "[W] side of Zoom lever" and "[UP] of Cursor button" simultaneously, turn the Power on.

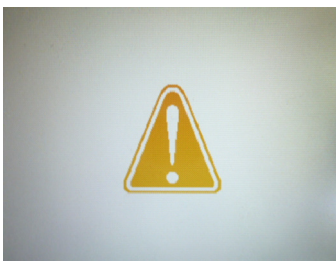
Step 2. Cancellation of "INITIAL SETTINGS":

Press the [PLAYBACK] button.

While pressing the "[UP] of Cursor button", press and hold the "[W] side of the Zoom lever". Release only the "[UP] of Cursor button" once then press the "[UP] of Cursor button" again.

Release the "[W]" and "[UP]" buttons, then turn the Power off.

The LCD displays the "!" mark before the unit powers down.



9.2.2. Flash-Rom Data Backup

When trouble occurs, it is recommended to backup the Flash-rom data before disassembling the unit.

There are two kinds of Flash-rom data backup methods:

[ROM_BACKUP (Method of Non-PC backup)]

1. Insert the SD-card into the camera.
2. Set the camera to "Temporary cancellation of the initial settings".
3. Select the "SETUP" menu.

From the "SETUP" menu, select "ROM BACKUP".

NOTE:

This item is not listed on the customer's "SETUP" menu.

4. When this "ROM_BACKUP" item is selected, the following submenus are displayed.

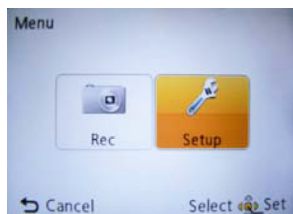


Fig.2-1

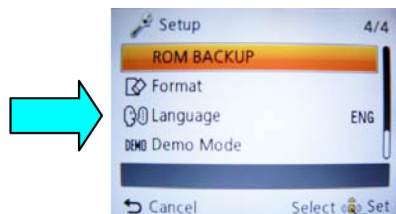


Fig.2-2

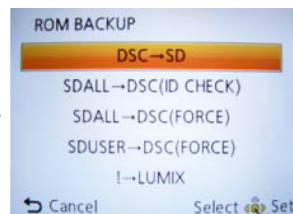


Fig.2-3

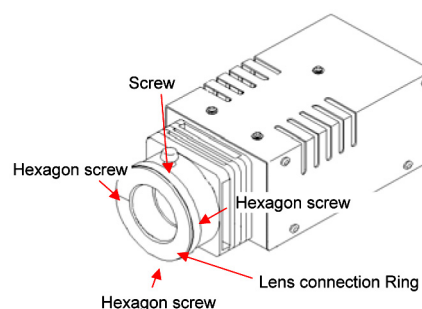
Item	Function	Details
DSC → SD	Save all the DSC's Flash-rom data to SD-CARD	*DSC's Flash-rom data is saved to the SD-CARD as a data file by the same format as the TATSUJIN software for the previous models. (DATA BACKUP) -File location: ROOT DIRECTORY in SD-CARD. -File Name: 1) User Setup Information data: <Model Number>U.txt [Example: DMC-FX66 : "FX66U.txt"] 2) Optical Adjustment data: <Model Number>F.txt [Example: DMC-FX66 : "FX66F.txt"] *If the concerned file already exists, "OVERWRITE?" message is displayed.
SDALL→ DSC (ID CHECK)	Write the all data to DSC's Flash-rom from SD-CARD	*The backup data being stored in the SD card is transferred to DSC unit. *ID CHECK: When the model ID is different, data is not transferred.
SDALL→ DSC (FORCE)	Write the all data to DSC's Flash-rom from SD-CARD	*FORCE: Even if the model ID is different, data is transferred. ※If the main PCB is replaced, select "SDALL → DSC (FORCE)".
SDUSER→DSC (FORCE)	Only "User setup information" is written from the saved file in the SD-CARD to DSC's Flash-rom.	*Only the user's "setup" setting condition is transferred to DSC unit. *FORCE: Even if the model ID is different, the data is transferred.
!→LUMIX	Shipping set without initializing "User setup information"	*Initial setting is executed without initializing the user's set up setting condition. ※ The initial setting must be perform while the Self-timer LED is blinking, ※ The picture data stored in the built-in memory of the DSC is not erased, with this operation.

[DSC Integrated Assist Software (Method of Using PC)]

Same as TATSUJIN software for previous models.

9.2.3. Light Box

If using VFK1164TDVLB Light Box, remove the lens connection ring by loosening three hexagonal screws.



9.3. Details of Electrical Adjustment

9.3.1. How to execute the Electrical Adjustment

It is not necessary to connect the camera to a PC to perform adjustments.

“Flag reset operation” and “Initial setting operation” are required when carrying out the alignment, follow the procedure below.

9.3.1.1. Startup Electrical Adjustment mode

1. Release the initial settings.
2. Insert a recordable SD card.
(Without a SD card, the automatic adjustment can not executed.)
3. Procedure to set the camera into adjustment mode:
 - a. Turn the Power on.
 - b. Press the [MODE] button, and select the [NORMAL PICTURE] mode by Cursor button, then press the [MENU/SET] button.
 - c. Turn the Power off.
 - d. Turn the Power on pressing “[W] side of Zoom lever” and [MODE] button simultaneously.
LCD monitor displays “SERVICE MODE”.(Refer to Fig. 3-1)

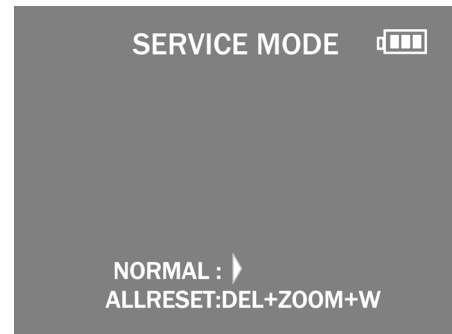


Fig.3-1

9.3.1.2. Status Adjustment Flag Setting

Reset (Not yet adjusted) the status flag condition.

1. After pressing the “[W] side of Zoom lever”, the LCD monitor displays the Flag status screen (Refer to Fig.3-2)
2. Select item by pressing the Cursor buttons. (Gray cursor is moved accordingly.)
3. Press the [Delete/Return] button.

NOTE:

The selected item's flag has been changed from “F (green)” to “0 (yellow)”.

*Flag conditions:

F (green)

means that the alignment has been completed and the status flag condition is set. In this case, the flag condition should be reset, if you try to carry out the automatic alignment.

0 (yellow)

means that the alignment has been not “completed” and the status flag condition is “reset”. In this case, automatic alignment is available.

- In case of setting the status flag into set condition again without completion of the alignment, the status flag should be SET by using PC, or UNDO by using ROM BACKUP function.

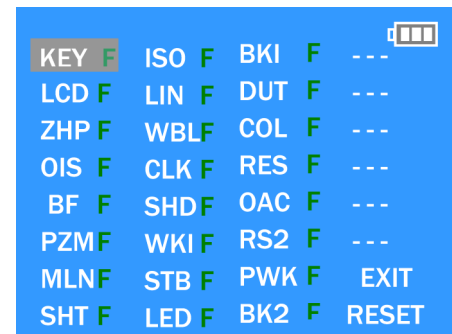


Fig.3-2

9.3.1.3. Execute Adjustment (In case of “OIS Adjustment”)

1. Perform step “9.3.1.1.” to “9.3.1.2.”, to reset the OIS flag status “F” (Set) to “0” (Reset)
2. Press “[W] side of the Zoom lever” after Flag reset. OIS Adjustment screen is displayed on the LCD panel. (Refer to Fig.3-3)
3. Press the [Shutter] button. The adjustment will start automatically.



Fig.3-3

4. When the adjustment is completed successfully, adjustment report menu appears with Green OK on the LCD monitor. (Refer to Fig.3-4)

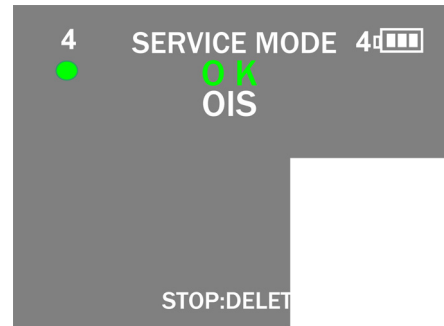


Fig.3-4

9.3.1.4. Attention point during Adjustment

1. Step “9.3.1.3.” procedure shows OIS adjustment as an example. To perform the adjustment, refer to the “9.3.2. Adjustment Specifications” table which shows key point for each adjustment.
2. Do not move the light box, the camera or the chart while adjusting. If one of these is moved accidentally, start the adjustment again.
3. Do not press any buttons/keys until the default menu (Fig.3-5) is displayed on the LCD monitor. Otherwise, adjustment data may not be stored properly.
4. If the adjustment is interrupted accidentally, the alignment data may not be properly saved in the Flash-rom.

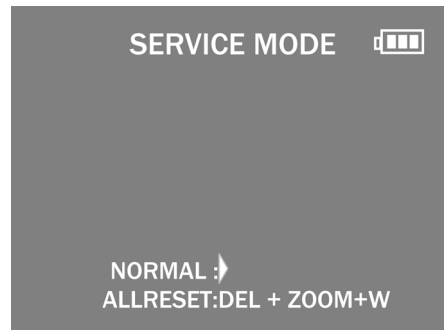


Fig.3-5

9.3.1.5. Finalizing the Adjustment

1. Several adjustment flags can be reset (“F” into “0”) at the same time. In this case, when the adjustment has been completed, the screen will change showing the adjustment for the next item until all reset items are completed. Also, when the shutter button is pressed, the screen jump to the next adjustment item.
2. To cancel the adjustment mode while in the process of performing the adjustment, follow this procedures. (1) Press “[RIGHT] of Cursor button”.

NOTE:

- If adjustment is cancelled with above procedure, adjustment is not completed. Make sure to adjust it later.
- Adjustment software “DIAS” is able to control the status of the adjustment flags.

9.3.2. Adjustment Specifications

The following matrix table shows the relation between the replaced part and the Necessary Adjustment.

When a part is replaced, make sure to perform the necessary adjustment(s) in the order indicated.

The table below shows all the information necessary to perform each adjustment.

Adjustment order	Adjustment Item	FLAG	Purpose	Replacing Parts			JIG/TOOLS	SET UP	How to Operate
				MAIN P.C.B.	Lens part (include CCD U)	MIC			
1	Optical Tilt Adjustment		Adjustment of image sensor installation angle to lens	-	○	-			Please execute the adjustment by using optical tilt adjustment software "DSC_Tilt" for DMC-FH6/FS40/FS41. The adjustment software "DSC_Tilt" is available at "TSN Website", therefore, access to "TSN Website" at "Support Information from NWBG/VDBG-AVC".
2	Zoom Home Position and Microphone check	ZHP	Zoom Home Position adjustment	○	○	○	NONE	NONE	1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) Voice is uttered for 5 seconds into the microphone, waiting 5 seconds after pushing a shutter release. (Since it will be set to NG if voice is too loud, it is careful.) 3) After completed, the "OK" message appears.
3	OIS sensor	OIS	OIS sensor output level adjustment	○	○	-	NONE	NONE	1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) After completed, the "OK" message appears.
4	Backfocus / GYRO	BF	To have the focus tracking curve be appropriate shape and GYRO sensor adjustment	○	○※1	-	-COLLIMATOR (VFK1164TCM02 or VFK1164TCM03 or RFKZ0422)		1) Set the camera in front of collimator so that the distance between collimator and camera becomes about 2 cm as shown in Fig.A. 【NOTE】 Please note that "NG" might happen while auto adjusting. - Do not put the black colored stuff at the back side of collimator near hunching chart to get some certain brightness. - Make sure the hunting chart has no dust and dirty condition. - Not connect the USB cable at this stage.
5	Venus Zoom	PZM	Venus Zoom Inspection	○	-	-	NONE	NONE	1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) After completed, the "OK" message appears.
6	Monitor Linearity	MLN	Monitor Linearity adjustment	○	○	-	-LIGHT BOX RFKZ0523 (VFK1164TDVLB)		1) Set the camera in front of LIGHT BOX so that the distance between Light box and camera becomes about 6 cm as shown in Fig.B. 【NOTE】 - Not connect the USB cable at this stage.
7	Shutter	SHT	Shutter speed adjustment	○	○	-			1) Set the camera in front of LIGHT BOX so that the distance between Light box and camera becomes about 12 cm as shown in Fig.B. 【NOTE】 - Not connect the USB cable at this stage.
8	ISO	ISO	ISO sensitivity adjustment	○	○	-	-LIGHT BOX RFKZ0523 (VFK1164TDVLB) -ND FILTER (RFKZ0513(ND0.3))		1) Set the ND FILTER (RFKZ0513) to the LIGHT BOX. (The LIGHT BOX "VFK1164TDVLB" can be used if the front hood of VFK1164TDVLB is removed.) 2) Set the camera in front of LIGHT BOX so that the distance between ND FILTER and camera becomes about 12 cm as shown in Fig.C. 【NOTE】 - Not connect the USB cable at this stage.
9	High brightness coloration	LIN	High brightness coloration adjustment	○	○	-			1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) After completed, the "OK" message appears.
10	White Balance	WBL	White balance adjustment under various color temperature	○	○	-	-LIGHT BOX RFKZ0523 (VFK1164TDVLB) -TR CHART (RFKZ0443)		1) Insert the TR chart into the slot of light box as shown in Fig.E. 2) Set the camera in front of LIGHT BOX so that the distance between Light box and camera becomes about 15 cm as shown in Fig.B. 【NOTE】 - Not connect the USB cable at this stage.
11	CCD Missing Pixels (White)※2	WKI	Compensation of CCD Missing Pixels (White)	○	○※1	-	NONE	NONE	1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) After completed, the "OK" message appears.

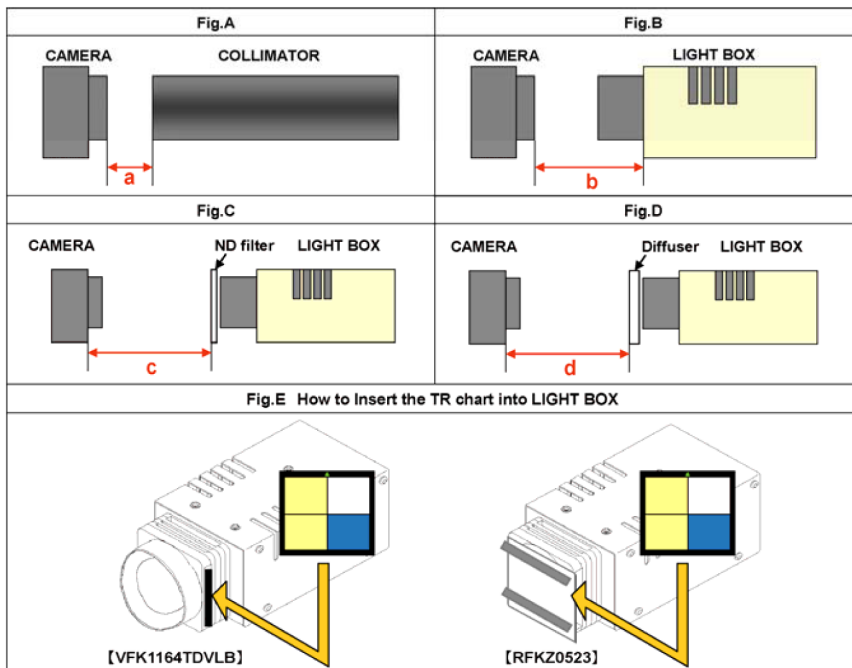
Adjustment order	Adjustment Item	FLAG	Purpose	Replacing Parts			JIG/TOOLS	SET UP	How to Operate
				MAIN P.C.B.	Lens part (include CCD U)	MIC			
12	Color reproduction inspection and Microphone check	COL	Color reproduction inspection and Microphone check	○	○	—	NONE	NONE	1) Press Shutter Button (Do not apply any shock and vibration for the camera while adjusting) 2) After completed, the "OK" message appears.
		BK1	Do not use "BK1" adjustment flag for this unit. Use "BK2" adjustment flag, instead. (In case of most DSC models, the adjustment flag for CCD Missing Pixels is "BK1". But, in this model, "BK2" the adjustment flag for CCD Missing Pixels.)						
13	CCD Missing Pixels (Black)※3	BK2	Compensation of CCD Missing Pixels (Black)	○	○※1	—	- LIGHT BOX RFKZ0523 (VFK1164TDVLB) - DIFFUSER (RFKZ0591)	1) Prepare the LIGHT BOX (RFKZ0523). (The LIGHT BOX "VFK1164TDVLB" can be used if the front hood of VFK1164TDVLB is removed.) 2) Set the Diffuser (RFKZ0591) to the LIGHT BOX. 3) Set the camera in front of LIGHT BOX so that the distance between Diffuser and camera becomes about 3 cm as shown in Fig.D. 【NOTE】 - Do not use "BK1" adjustment flag for this unit. Use "BK2" adjustment flag, instead.	1) Press Shutter Button after SET UP. (Green● mark is displayed on LCD). 2) Press Shutter Button. (The 1st adjustment is executed, and then green ● mark is displayed on LCD). 3) Press Shutter Button. (Green● mark is displayed on LCD). 4) Press Shutter Button. (The 2nd adjustment is executed, and then green ● mark is displayed on LCD). 5) Press Shutter Button. (Green● mark is displayed on LCD). 6) Press Shutter Button. (The 3rd adjustment is executed, and then "OK" mark is displayed on LCD when the adjustment has been completed successfully).

※1: This adjustment must be performed not only replacing the CCD unit, but also simply removing the CCD unit.

※2: The pixel that always lights while shaded is called a white wound.

※3: The pixel that does not light while complete exposed is called a black wound.

*This unit does not have the LCD adjustment of the camera (LCD flicker adjustment etc.).



■ **IMPORTANT NOTICE** (After replacing the MAIN P.C.B.)
After replacing the MAIN P.C.B., make sure to perform the "INITIAL SETTINGS" first, then release the "INITIAL SETTINGS" in order to proceed the electrical adjustment.

NOTE:

- 1) If electrical adjustment or data re-writing is executed before "INITIAL SETTINGS", suffix code list is never displayed, and it cannot be chosen suitable suffix code.
- 2) Never remove the battery during initial setting in process.

9.4. After Adjustment

9.4.1. Initial Setting

Since the initial setting has been released to execute the built-in adjustment software, it should be set up again before shipping the camera to the customer.

Refer to the procedure described in “3.4.2. INITIAL SETTINGS” for details.

[IMPORTANT]

1. The initial setting should be done again after completing the alignment. Otherwise, the camera will not work properly.
Therefore as a warning, the camera display a warning symbol “ ! ” on the LCD monitor every time the camera is turned off.
2. Confirm that status of all adjustment flag show “F”. Even if one of the adjustment flag shows “0”, initial setting programmed is never executed.

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 its surface.

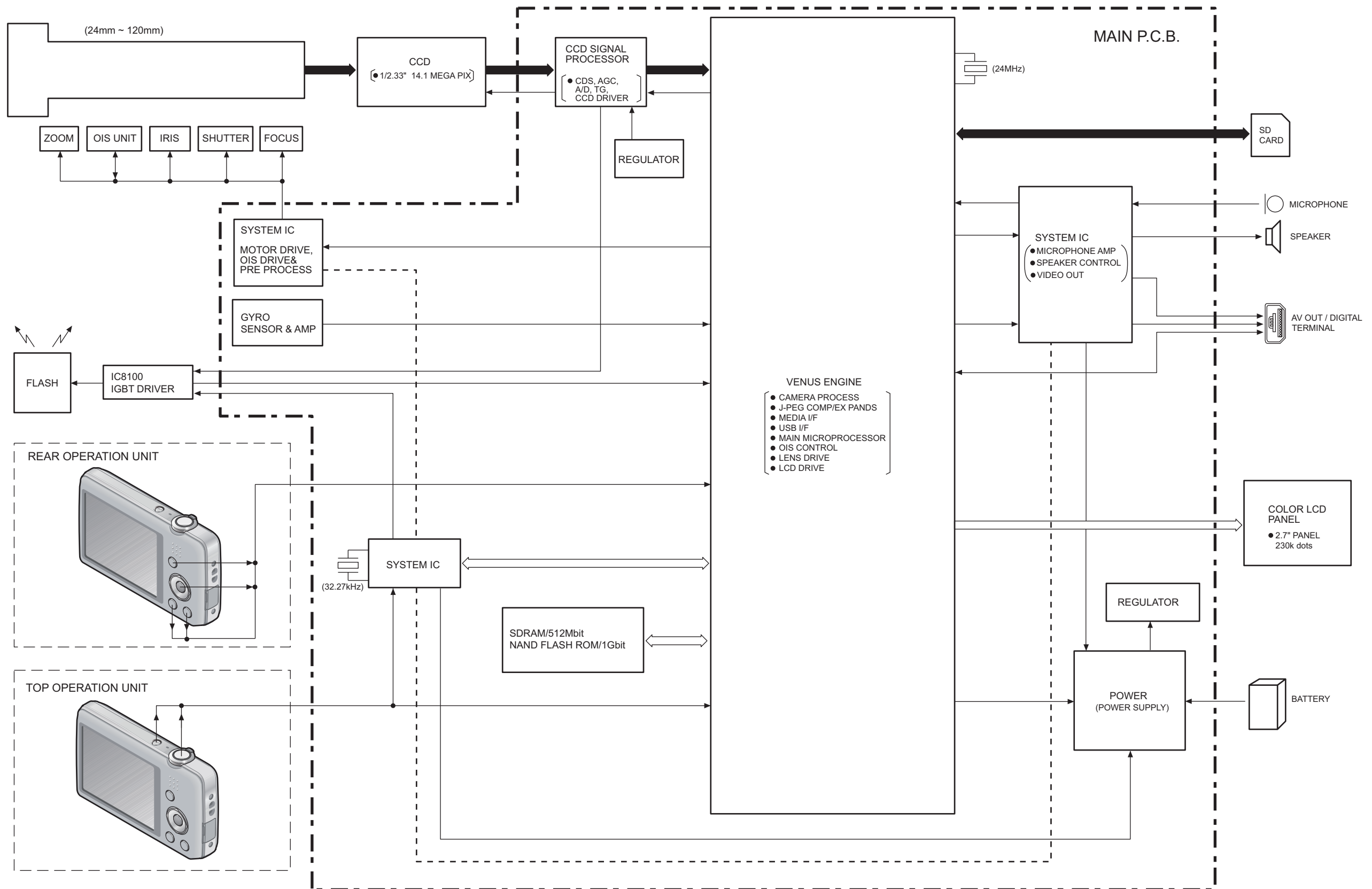
Note:

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

11 Block Diagram

11.1. Overall Block Diagram

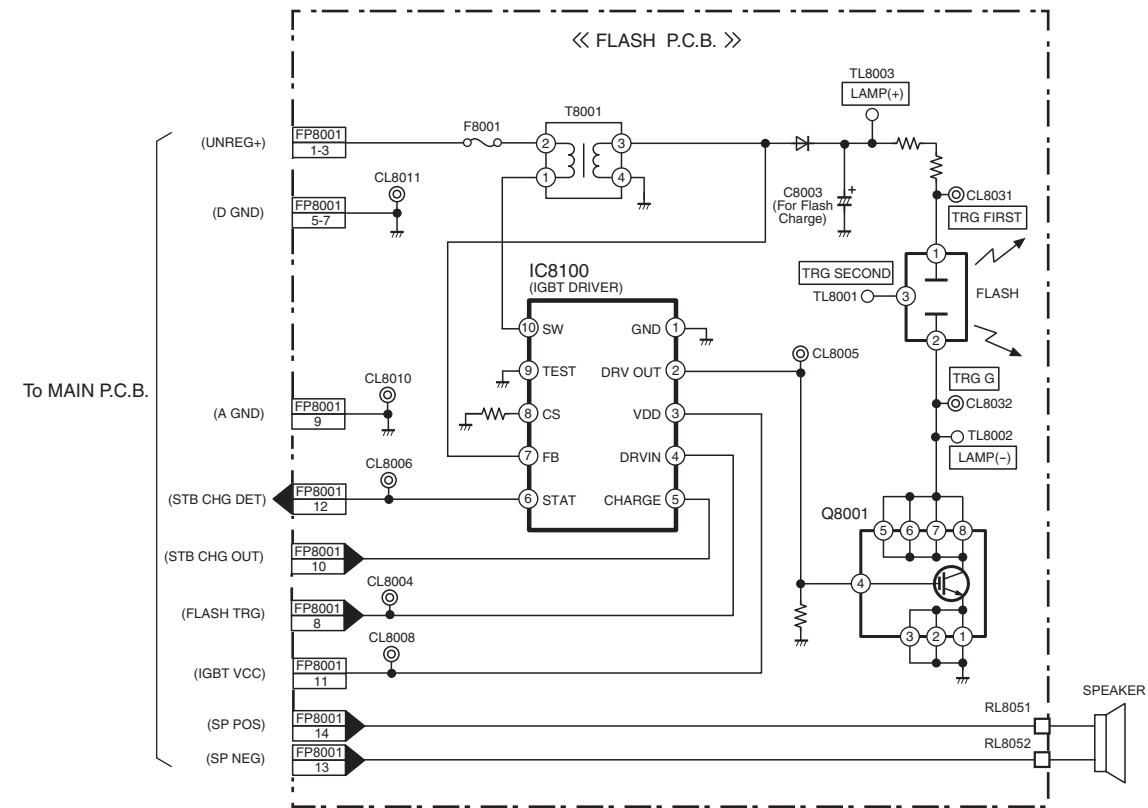
OVERALL BLOCK DIAGRAM



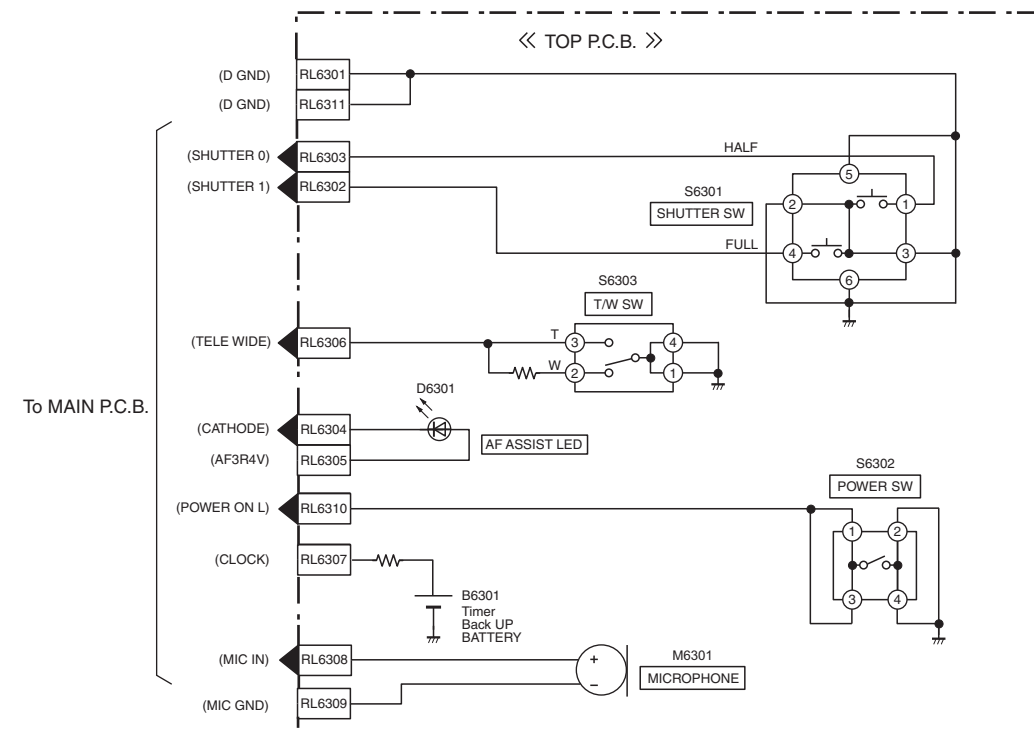
DMC-FH6/FS40/FS41 OVERALL BLOCK DIAGRAM

11.2. Flash / Top Block Diagram

◆ FLASH BLOCK DIAGRAM



◆ TOP BLOCK DIAGRAM

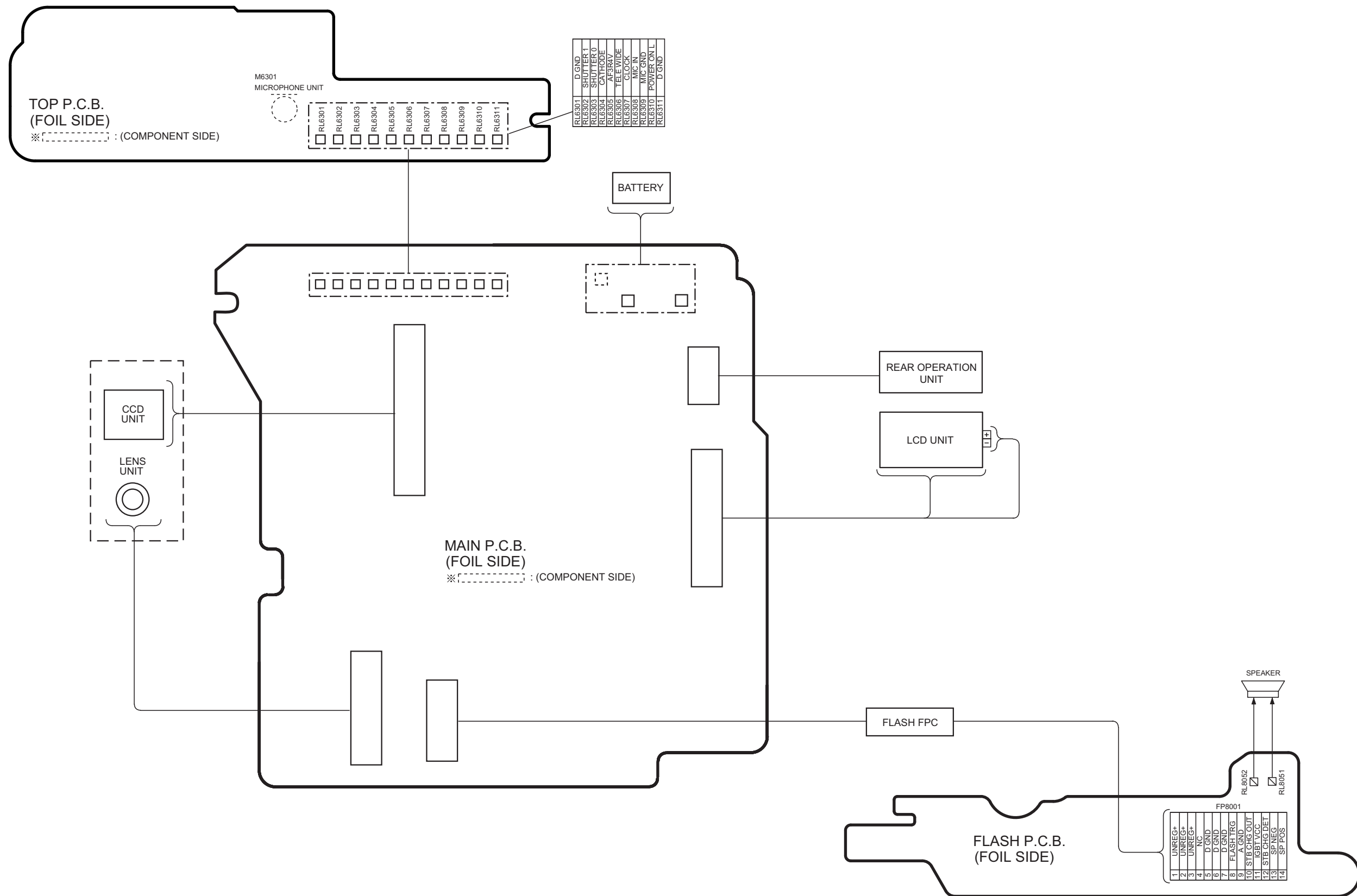


DMC-FH6/FS40/FS41 FLASH AND TOP BLOCK DIAGRAM

12 Wiring Connection Diagram

12.1. Interconnection Diagram

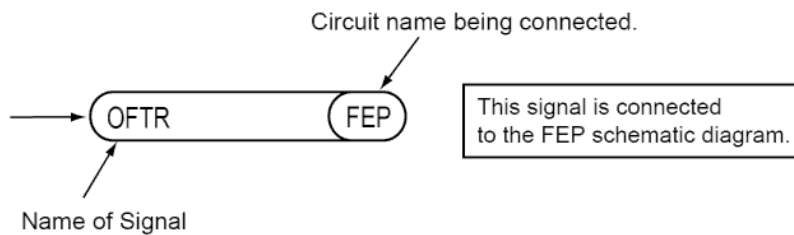
◆ INTERCONNECTION DIAGRAM



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. Use the parts number indicated on the Replacement Parts List .
4. Indication on Schematic diagrams:



5. It might be taking time for display and/or access of the Schematic Diagrams & P. C. B having the heavy data volume.

Model No. : DMC-FH6/FS40/FS41 Parts List Note

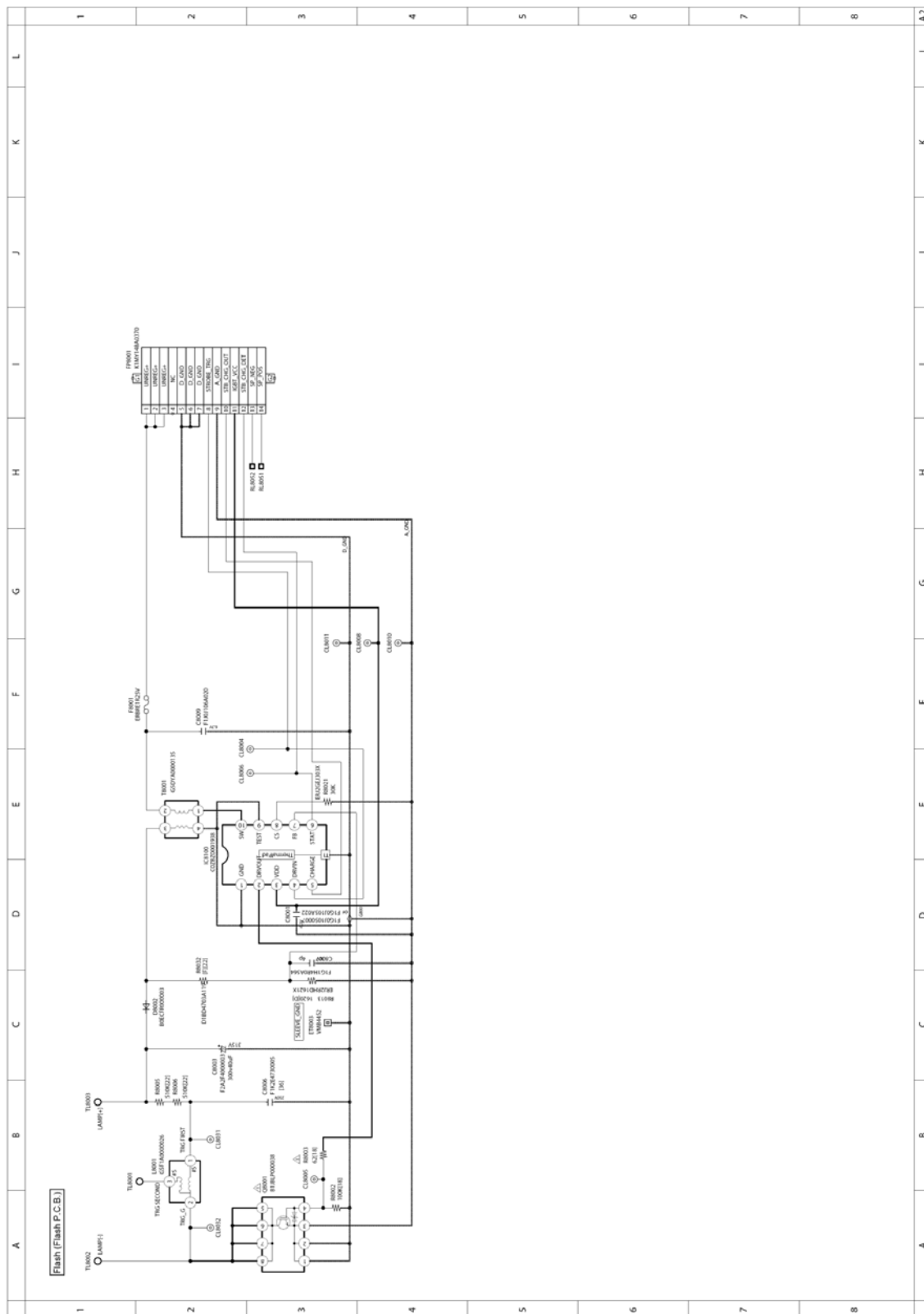
- Note:
1. * Be sure to make your orders of replacement parts according to this list.
 2. **IMPORTANT SAFETY NOTICE**
Components identified with the mark \triangle have the special characteristics for safety.
When replacing any of these components, use only the same type.
 3. Unless otherwise specified,
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.

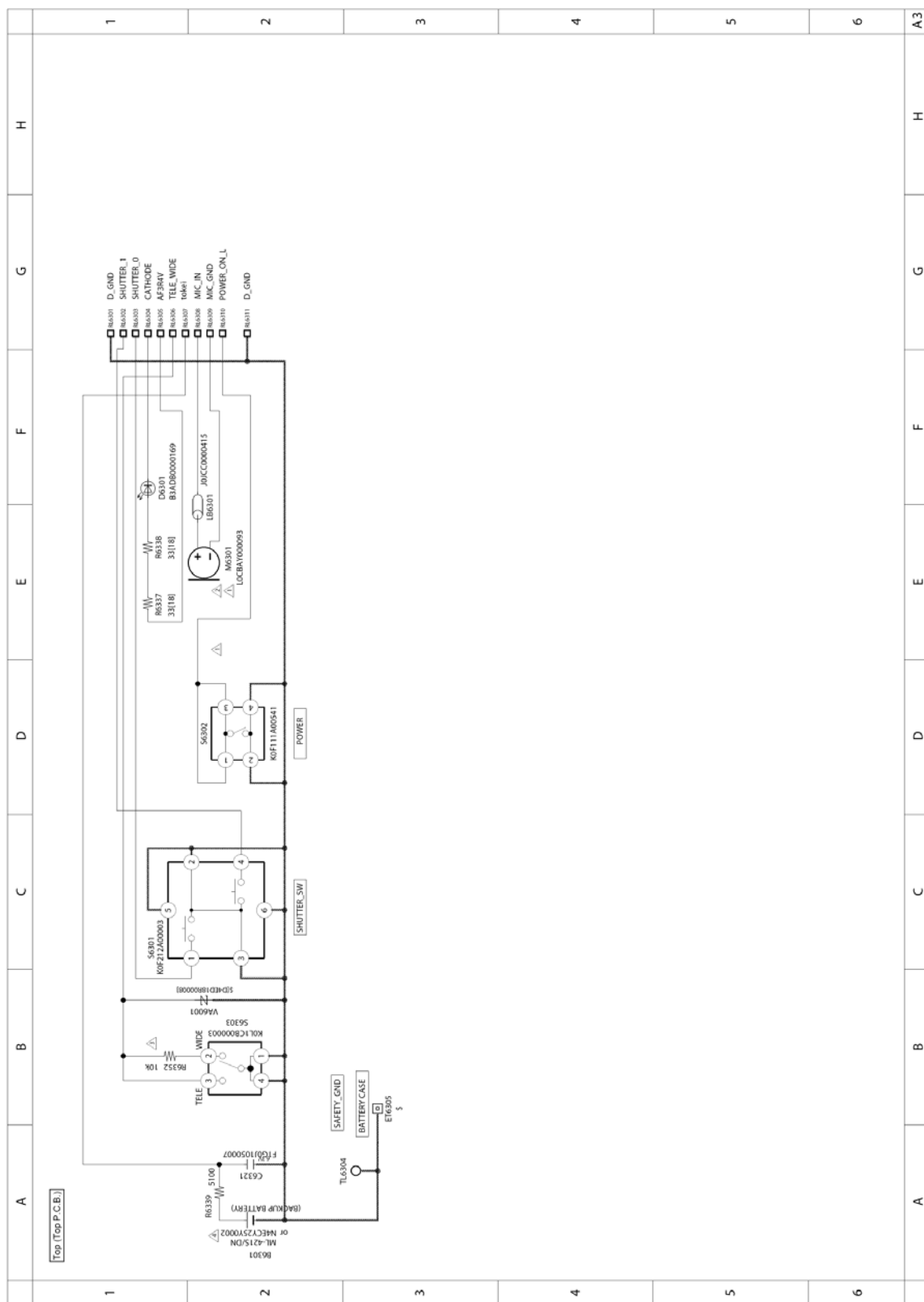
Definition of Parts supplier:

1. Parts marked with [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 PAVCX.

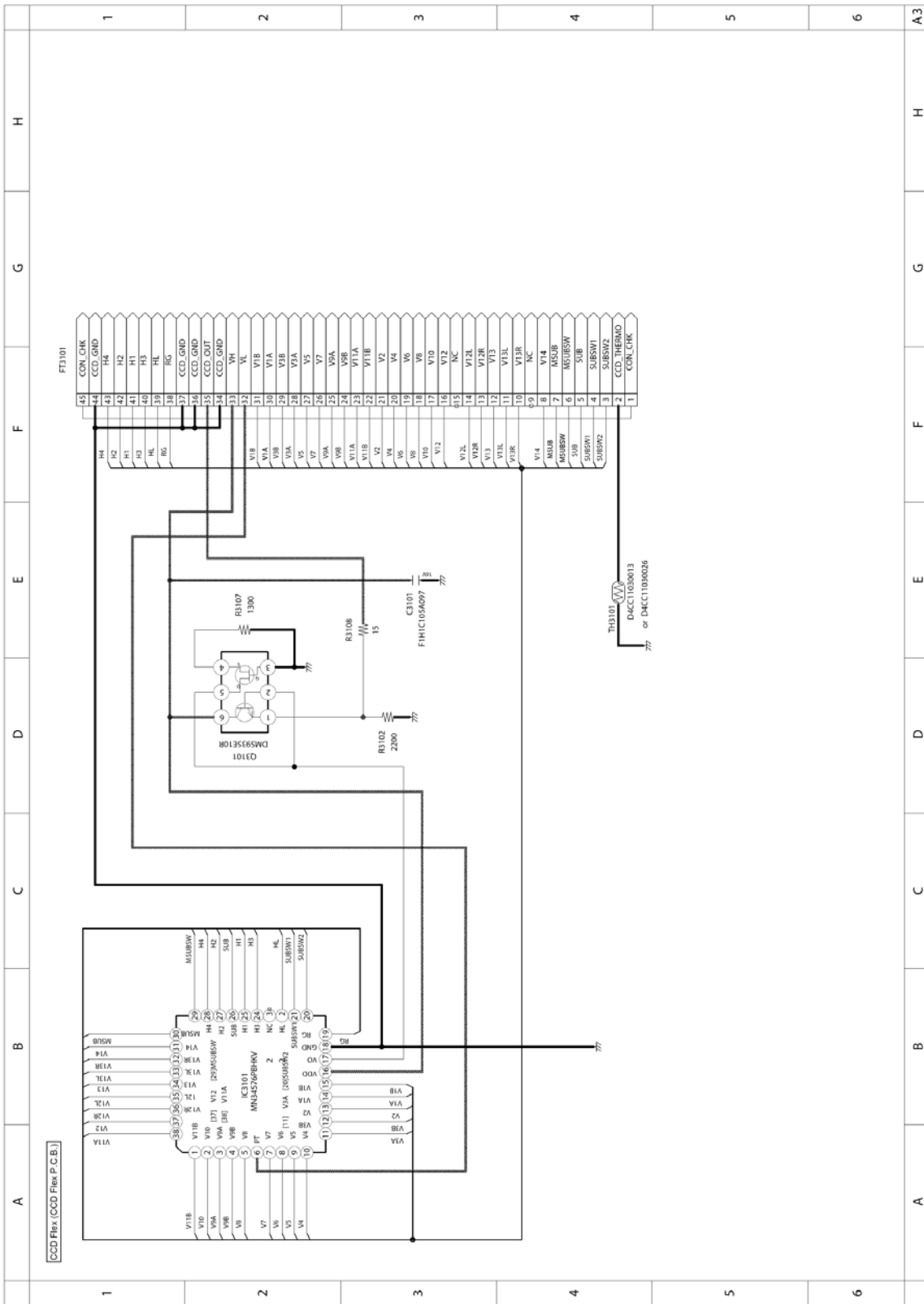
Model No. : DMC-FH6/FS40/FS41 Flash (Flash P.C.B.)



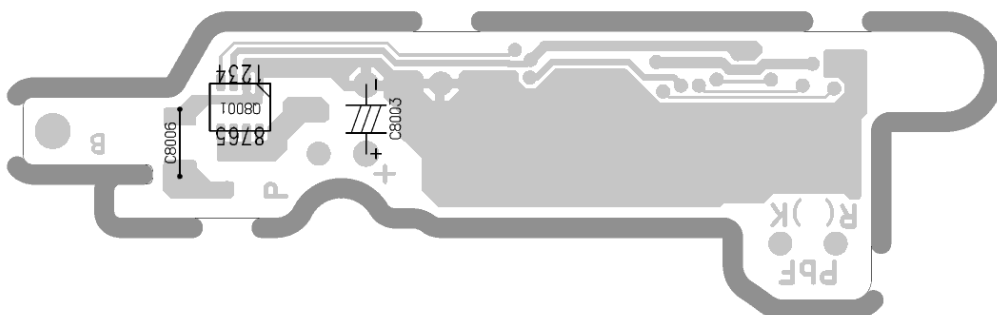
Model No. : DMC-FH6/FS40/FS41 Top (Top P.C.B.)



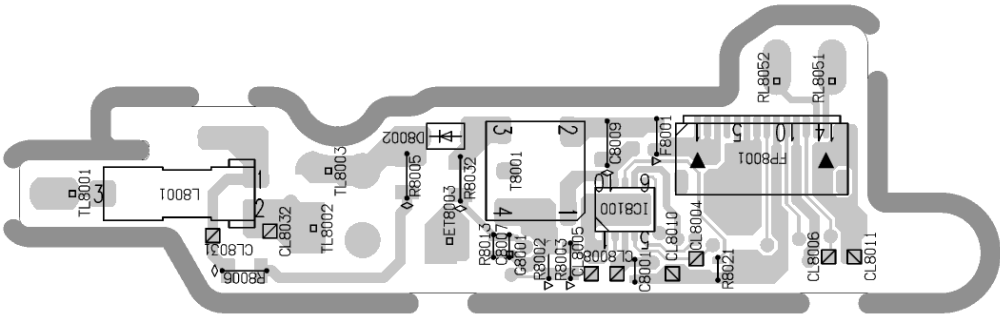
Model No. : DMC-FH6/FS40/FS41 CCD Flex (CCD Flex P.C.B.)



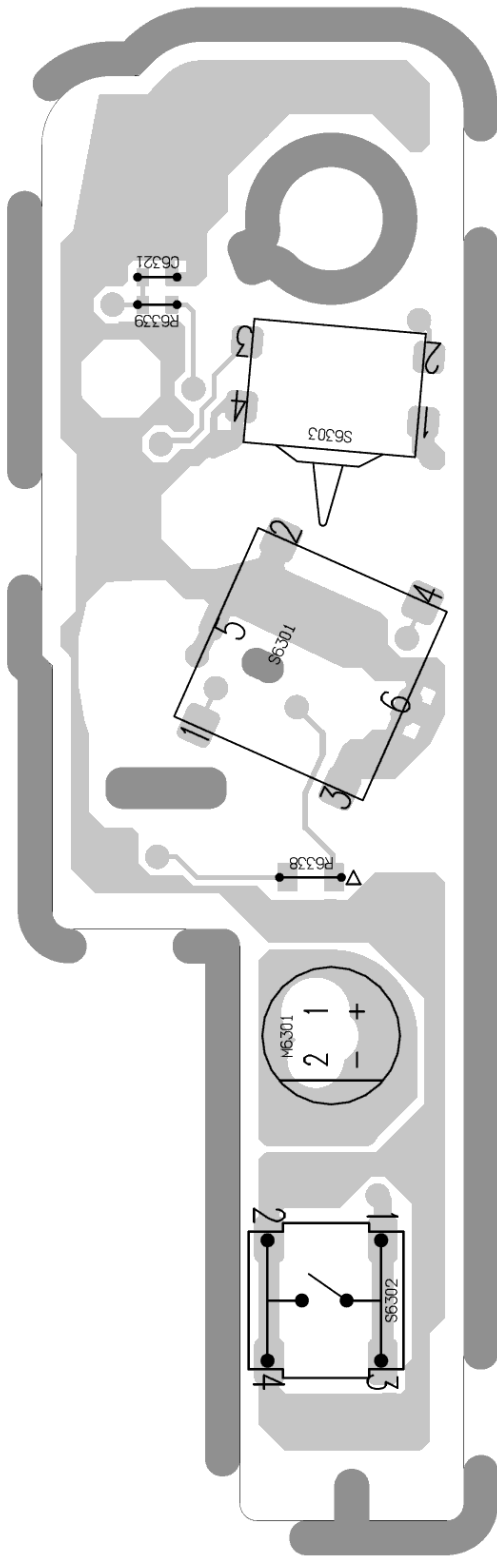
Model No. : DMC-FH6/FS40/FS41 Flash P.C.B. (Component Side)



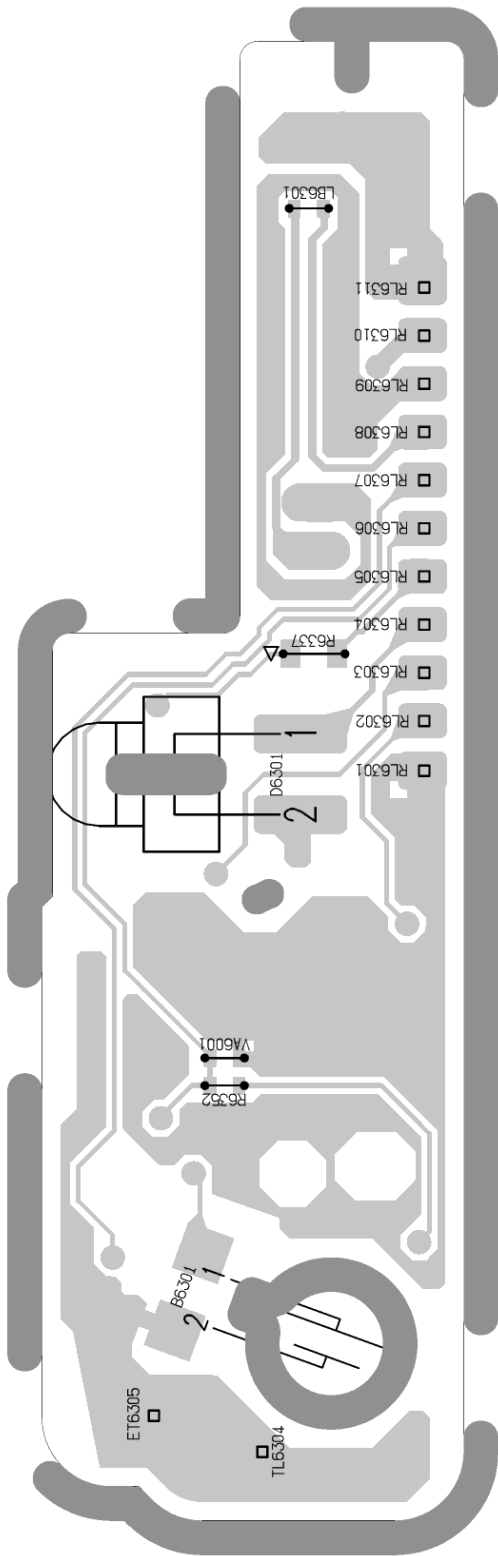
Model No. : DMC-FH6/FS40/FS41 Flash P.C.B. (Foil Side)



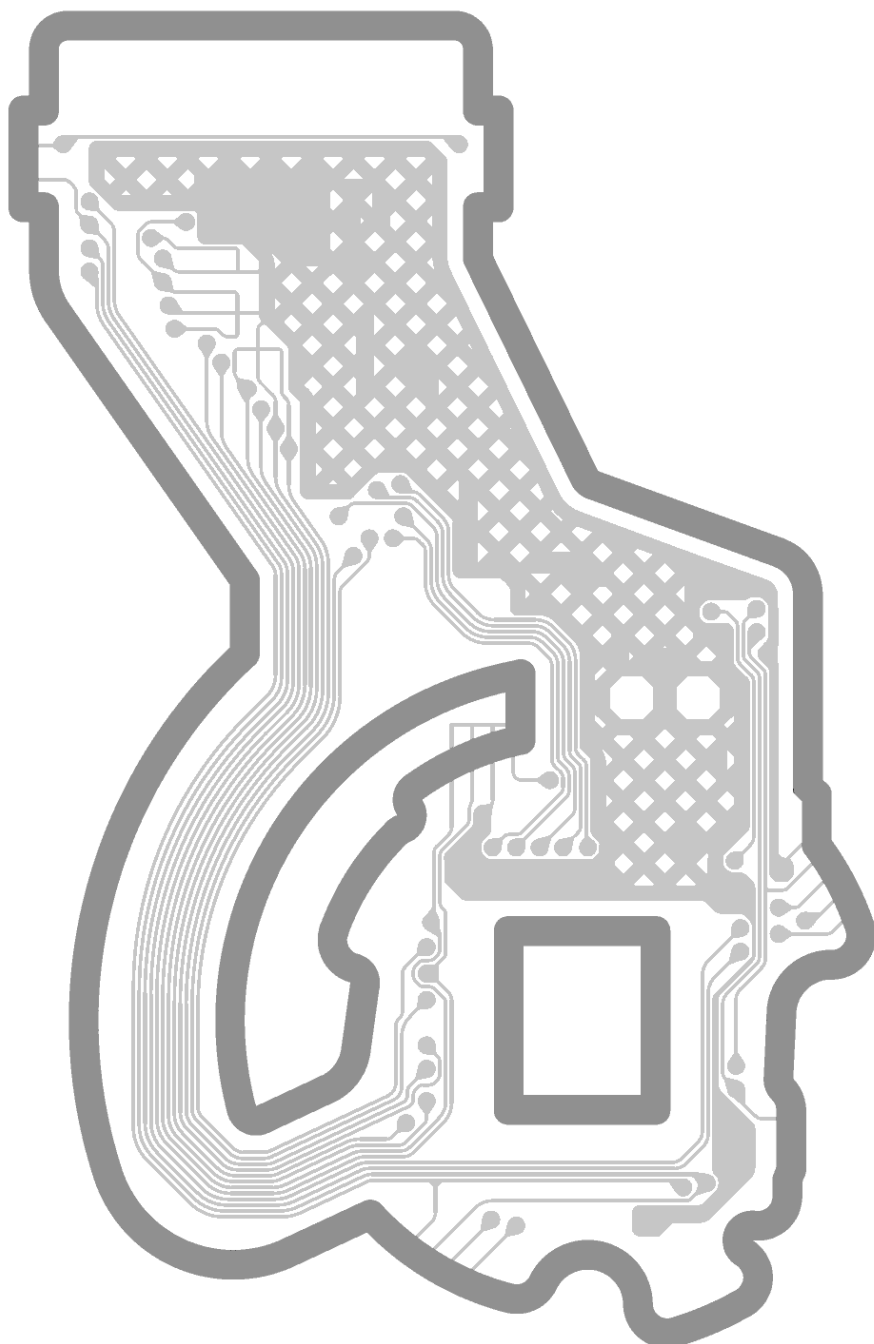
Model No. : DMC-FH6/FS40/FS41 Top P.C.B. (Component Side)



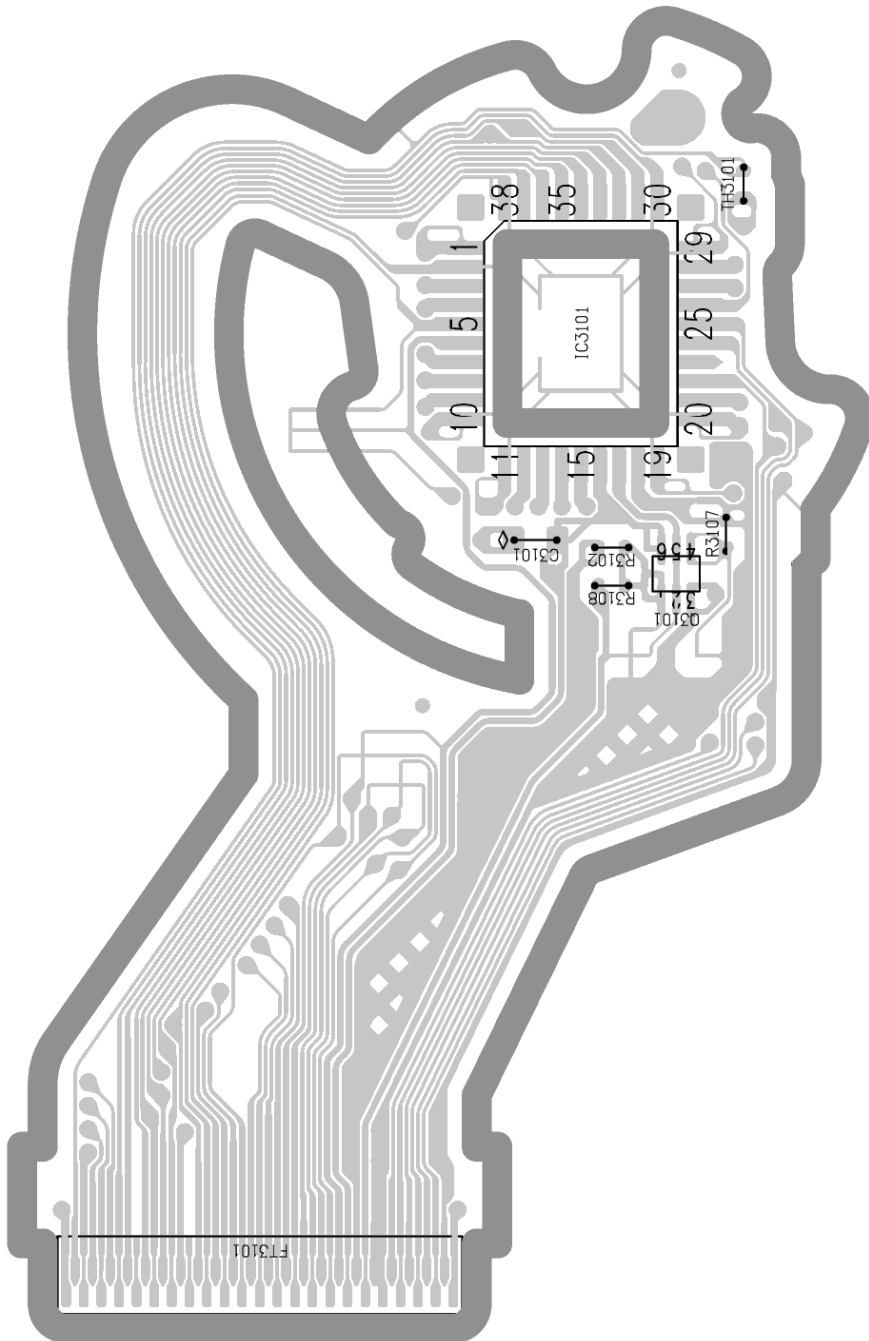
Model No. : DMC-FH6/FS40/FS41 Top P.C.B. (Foil Side)




Model No. : DMC-FH6/FS40/FS41 CCD Flex P.C.B. (Component Side)



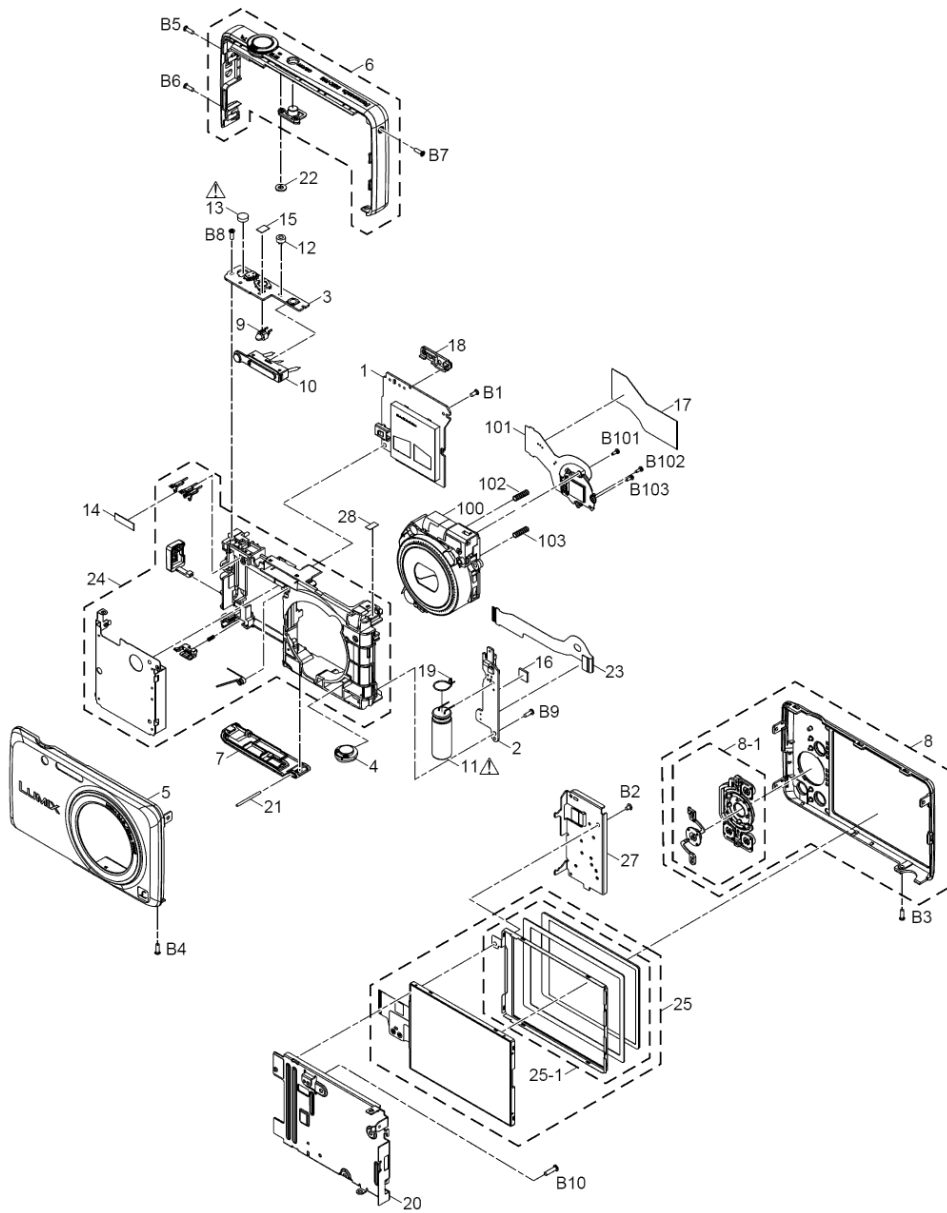
Model No. : DMC-FH6/FS40/FS41 CCD Flex P.C.B. (Foil Side)



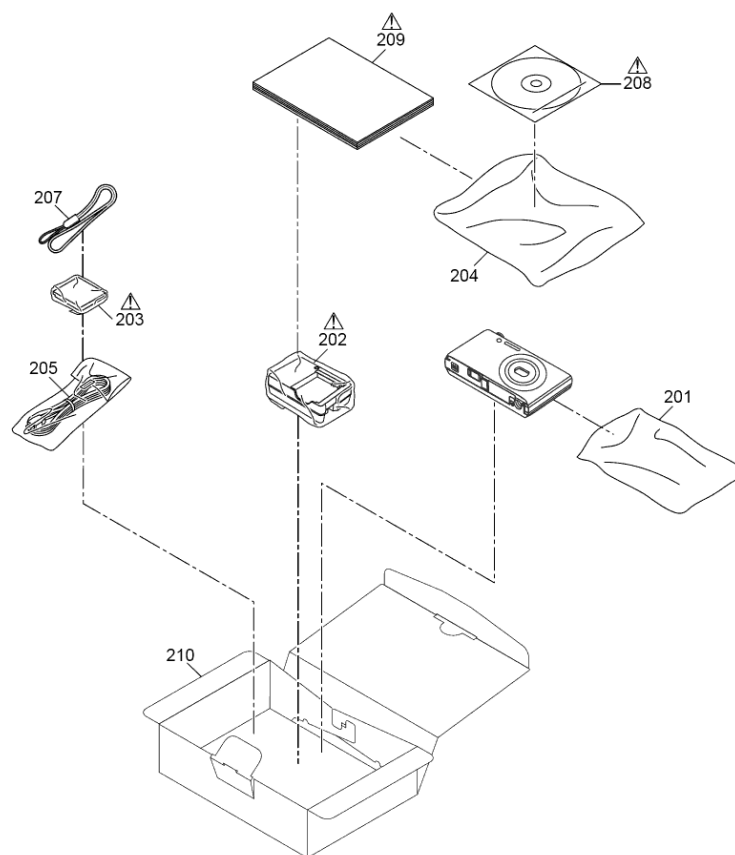
Model No. : DMC-FH6/FS40/FS41 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	C3101	F1H1C105A097	C.CAPACITOR CH 16V 1U	1	
	C6321	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
	C8001	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
	C8006	F1K2E4730005	C.CAPACITOR 250V 0.047U	1	
	C8007	F1G1H4R0A564	C.CAPACITOR CH 50V 4F	1	
	C8009	F1J0J106A020	C.CAPACITOR CH 6.3V 10U	1	
	D8002	B0ECFR000003	DIODE	1	E.S.D.
	F8001	ERBRE1R25V	FUSE 32V 1.25A	1	
	FP8001	K1MY14BA0370	CONNECTOR 14P	1	
	IC8100	COZBZ0001938	IC	1	E.S.D.
	L8001	G5F1A0000026	CHIP INDUCTOR	1	
	LB6301	J0JCC0000415	FILTER	1	
	Q3101	DMS935E10R	TRANSISTOR	1	E.S.D.
	Q8001	BJJBLP000038	TRANSISTOR	1	E.S.D.
	R3102	ERJ2GEJ222X	M.RESISTOR CH 1/16W 2.2K	1	
	R3107	ERJ2GEJ132X	M.RESISTOR CH 1/16W 1.3K	1	
	R3108	ERJ2GEJ150X	M.RESISTOR CH 1/16W 15	1	
	R6337	D0GB330JA065	CHIP RESISTOR	1	
	R6338	D0GB330JA065	CHIP RESISTOR	1	
	R6339	D0GA512JA023	CHIP RESISTOR	1	
	R6352	D0GA103JA023	CHIP RESISTOR	1	
	R8002	D0GB104JA065	CHIP RESISTOR	1	
	R8003	D0GB620JA065	CHIP RESISTOR	1	
	R8005	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	
	R8006	ERJ6GEYJ514V	M.RESISTOR CH 1/8W 510K	1	
	R8013	ERJ2RHD1621X	M.RESISTOR CH 1/16W 1620	1	
	R8021	D0GA303JA023	CHIP RESISTOR	1	
	R8032	D1BD4703A119	RESISTOR	1	
	S6301	K0F212A00003	SWITCH	1	
	S6302	K0F111A00541	SWITCH	1	
	S6303	K0L1CB000003	SWITCH	1	
	T8001	G5DYA0000135	TRANSFORMER	1	
	TH3101	D4CC11030013	NTC THERMISTORS	1	

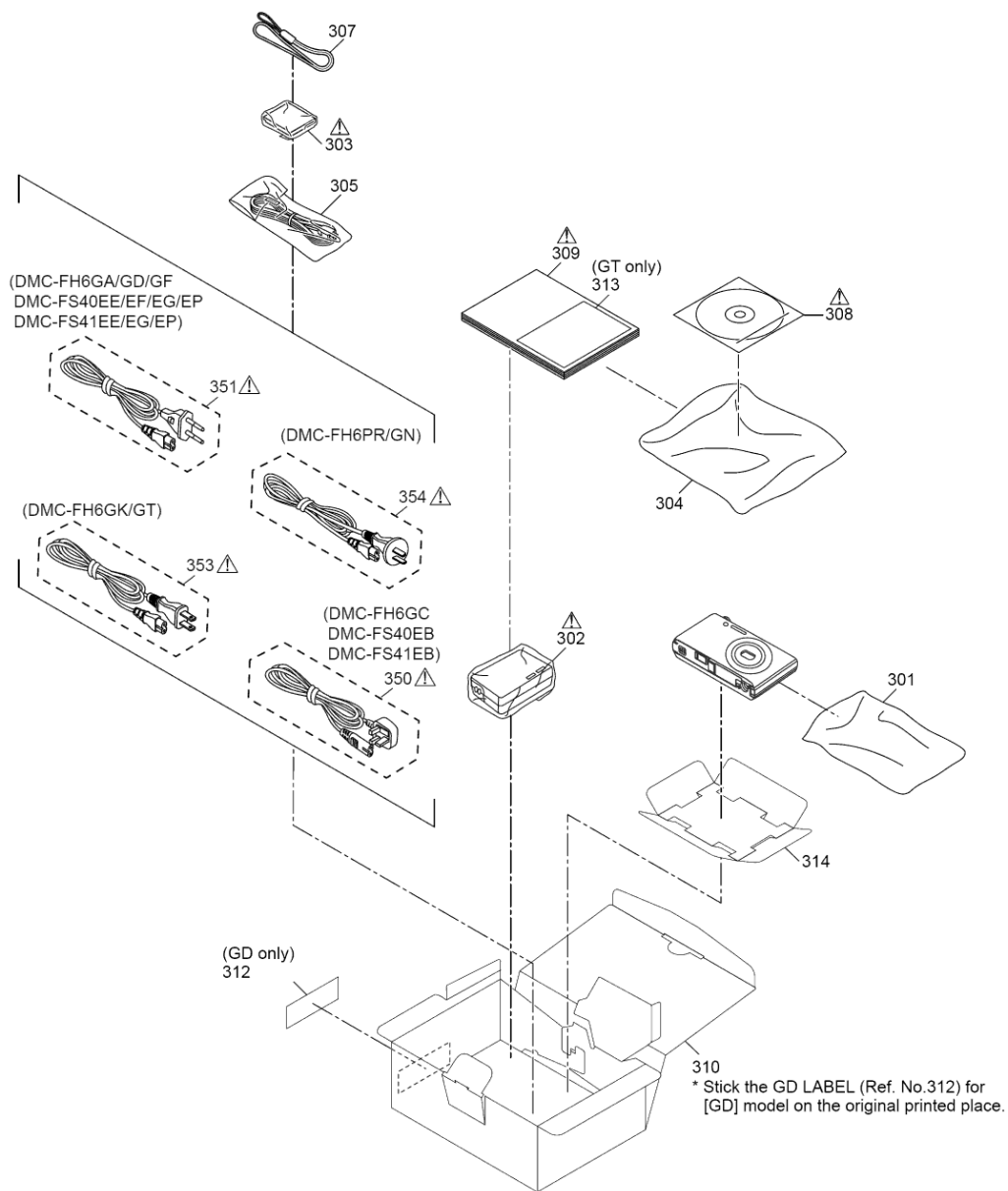
Model No. : DMC-FH6/FS40/FS41 Frame and Casing Section





Model No. : DMC-FH6/FS40/FS41 Packing Parts and Accessories Section (1)



Model No. : DMC-FH6/FS40/FS41 Packing Parts and Accessories Section (2)










Model No. : DMC-FH6/FS40/FS41 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	1	VEP56152A	MAIN P.C.B.	1	E.S.D.
	2	VEP58167A	FLASH P.C.B.	1	(RTL) E.S.D.
	3	VEP58168A	TOP P.C.B.	1	(RTL)
	4	L0AA01A00102	SPEAKER	1	FH6P, PC, PU, GF, GA, GT, GK, GN, GD, FS40EG, EP, EF, EB, EE, FS41EG, EP, EB, EE
	4	L0AA01A00101	SPEAKER	1	FH6GC
	5	VYK5M66	FRONT CASE UNIT	1	FH6P-S
	5	VYK5M67	FRONT CASE UNIT	1	FH6P-K
	5	VYK5M69	FRONT CASE UNIT	1	FH6P-A
	5	VYK5J12	FRONT CASE UNIT	1	FH6PC-K, PU-K, GC-K, GF-K, GA-K, GT-K, GK-K, GN-K, GD-K, FS40EG-K, EP-K, EF-K, EB-K, EE-K, FS41EG-K, EP-K, EB-K, EE-K
	5	VYK5J11	FRONT CASE UNIT	1	FH6PU-S, GC-S, GF-S, GA-S, GT-S, GK-S, GN-S, FS40EG-S, EP-S, EE-S
	5	VYK5J13	FRONT CASE UNIT	1	(-P)
	5	VYK5J14	FRONT CASE UNIT	1	FH6PU-A, GC-A, GF-A, GA-A, GK-A, GN-A, FS40EG-A, EP-A, EF-A, EB-A, EE-A
	5	VYK5J15	FRONT CASE UNIT	1	(-Y)
	6	VYK5J16	CENTER ORNAMENT UNIT	1	FH6
	6	VYK5J17	CENTER ORNAMENT UNIT	1	FS40
	6	VYK5M55	CENTER ORNAMENT UNIT	1	FS41
	7	VYK5J18	BATTERY DOOR UNIT	1	(-S)
	7	VYK5J19	BATTERY DOOR UNIT	1	(-K)
	7	VYK5J21	BATTERY DOOR UNIT	1	(-A)
	7	VYK5J20	BATTERY DOOR UNIT	1	(-P)
	7	VYK5J22	BATTERY DOOR UNIT	1	(-Y)
	8	VYK5M77	REAR CASE UNIT	1	(-S)
	8	VYK5M78	REAR CASE UNIT	1	(-K)
	8	VYK5M80	REAR CASE UNIT	1	(-A)
	8	VYK5M79	REAR CASE UNIT	1	(-P)
	8	VYK5M81	REAR CASE UNIT	1	(-Y)
	8-1	VYK5J23	CURSOR BUTTON UNIT	1	
	9	B3ADB0000169	AF LED	1	E.S.D., (D6301)
	10	EPN-AMDH9ZD	FLASH UNIT	1	
	11	F2A2F4000003	E. CAPACITOR	1	(C8003)
	12	L0CBAY000093	MIC UNIT	1	(M6301)
	13	ML-421S/DN	BUTTON BATTERY	1	(B6301), [ENERGY]
	14	VGQ0T93	TERMINAL SHEET	1	
	15	VGQ0V71	TOP PCB SHEET	1	
	16	VGQ0W28	COIL CUSHION	1	
	17	VGQ0X87	DPR SHEET A	1	
	18	VGQ1A37	TERMINAL COVER	1	
	19	VMB4452	EARTH SPRING	1	(ET8003)
	20	VMP0C01	FRAME PLATE	1	
	21	VMS7863-A	BATTERY DOOR SHAFT	1	
	22	VMT2136	MIC DUMPER	1	
	23	VWJ2325	FLASH FPC	1	
	24	VYK5U98	FRAME UNIT	1	
	25	VYK5M73	LCD UNIT	1	
	25-1	VYQ7889	LCD PANEL UNIT	1	
	27	VYK5M74	REAR OPERATION UNIT	1	
	28	VGQ1E49	ORNAMENT SUPPORT SHEET	1	
	100	VXW1375	LENS UNIT (w/o CCD)	1	
	101	VEK0S54	CCD UNIT	1	(RTL)、E.S.D.
	102	VMB4580	CCD SPRING	1	
	103	VMB4580	CCD SPRING	1	
	B1	VHD2205	SCREW	1	
	B2	VHD2210	SCREW	1	
	B3	VHD2290	SCREW	1	
	B4	VHD2290	SCREW	1	
	B5	VHD2383	SCREW	1	
	B6	VHD2383	SCREW	1	

Model No. : DMC-FH6/FS40/FS41 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	B7	VHD2383	SCREW	1	
	B8	XQN14+BJ4FJK	SCREW	1	
	B9	XQN14+BJ4FJK	SCREW	1	
	B10	XQN14+BJ4FJK	SCREW	1	
	B101	VHD2388	SCREW	1	
	B102	VHD2388	SCREW	1	
	B103	VHD2388	SCREW	1	
	201	VPF1458	CAMERA BAG	1	FH6P,PC,PU
⚠	202	DE-A91BA/SX	BATTERY CHARGER	1	FH6P,PC,PU
⚠	203	-----	BATTERY	1	FH6P,PC,PU
	204	VPF1378	BAG, POLYETHYLENE	1	FH6P,PC,PU
	205	K1HY08YY0015	USB CABLE W/PLUG	1	FH6P,PC,PU
	207	VFC4297-B	HAND STRAP	1	FH6P,PC,PU
⚠	208	VFF1014-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FH6P,PC,PU [SPC] See "Notes"
⚠	209	VQT4G38	BASIC O/I (ENGLISH/SPANISH)	1	FH6P
⚠	209	VQT4G39	BASIC O/I (ENGLISH/CANADIAN FRENCH)	1	FH6PC
⚠	209	VQT4G40	BASIC O/I (SPANISH/PORTUGUESE)	1	FH6PU
	210	VYQ7339	PACKING CASE	1	FH6P-S
	210	VYQ7346	PACKING CASE	1	FH6P-K,PC-K
	210	VYQ7365	PACKING CASE	1	FH6P-A
	210	VYQ7340	PACKING CASE	1	FH6PU-S
	210	VYQ7347	PACKING CASE	1	FH6PU-K
	210	VYQ7355	PACKING CASE	1	FH6PU-P
	210	VYQ7366	PACKING CASE	1	FH6PU-A
	301	VPF1372	CAMERA BAG	1	EXCEPT FH6P,PC,PU
⚠	302	DE-A92BB/SX	BATTERY CHARGER	1	FH6GF,GA,GK,GD
⚠	302	DE-A92CA/SX	BATTERY CHARGER	1	FH6GT
⚠	302	DE-A92AB/SX	BATTERY CHARGER	1	FS40, FS41
⚠	302	DE-A92BB	BATTERY CHARGER	1	FH6GC [SPC]
⚠	303	-----	BATTERY	1	EXCEPT FH6P,PC,PU
	304	VPF1378	BAG, POLYETHYLENE	1	EXCEPT FH6P,PC,PU
	305	K1HY08YY0015	USB CABLE W/PLUG	1	EXCEPT FH6P,PC,PU
	307	VFC4297-B	HAND STRAP	1	EXCEPT FH6P,PC,PU
⚠	308	VFF0911-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FH6GF,GA,GT,GN,GD [SPC] See "Notes"
⚠	308	VFF1015-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FH6GK [SPC] See "Notes"
⚠	308	VFF0909-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FS40EG,EP,EF,EB, FS41EG,EP,EB [SPC] See "Notes"
⚠	308	VFF0910-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FS40EE, FS41EE [SPC] See "Notes"
⚠	308	VFF0926-S	CD-ROM (SOFT/INSTRUCTION BOOK)	1	FH6GC [SPC] See "Notes"
⚠	309	VQT3X06	BASIC O/I (ENGLISH/CHINESE (TRADITIONAL))	1	FH6GF,GA,GC
⚠	309	VQT3X07	BASIC O/I (ARABIC/PERSIAN)	1	FH6GC,GF
⚠	309	VQT3X08	BASIC O/I (VIETNAMESE)	1	FH6GA
⚠	309	VQT3X09	BASIC O/I (CHINESE (TRADITIONAL))	1	FH6GT
⚠	309	VQT4G42	BASIC O/I (CHINESE (SIMPLIFIED))	1	FH6GK
⚠	309	VQT3X11	BASIC O/I (ENGLISH)	1	FH6GN
⚠	309	VQT3X74	BASIC O/I (KOREAN)	1	FH6GD
⚠	309	VQT3W96	BASIC O/I (GERMAN/FRENCH)	1	FS40EG, FS41EG
⚠	309	VQT3W97	BASIC O/I (ITALIAN/DUTCH)	1	FS40EG, FS41EG
⚠	309	VQT3W98	BASIC O/I (SPANISH/PORTUGUESE)	1	FS40EG, FS41EG
⚠	309	VQT3W99	BASIC O/I (TURKISH)	1	FS40EG, FS41EG
⚠	309	VQT3X00	BASIC O/I (SWEDISH/DANISH)	1	FS40EP, FS41EP
⚠	309	VQT3X01	BASIC O/I (POLISH/CZECH)	1	FS40EP, FS41EP
⚠	309	VQT3X02	BASIC O/I (HUNGARIAN/FINNISH)	1	FS40EP, FS41EP
⚠	309	VQT3X03	BASIC O/I (FRENCH)	1	FS40EF
⚠	309	VQT3X04	BASIC O/I (ENGLISH)	1	FS40EB, FS41EB
⚠	309	VQT3X05	BASIC O/I (RUSSIAN/UKRAINIAN)	1	FS40EE, FS41EE
	310	VYQ7342	PACKING CASE	1	FH6GA-S,GT-S,GN-S
	310	VYQ7349	PACKING CASE	1	FH6GA-K,GT-K,GN-K,GD-K
	310	VYQ7343	PACKING CASE	1	FH6GF-S
	310	VYQ7351	PACKING CASE	1	FH6GF-K
	310	VYQ7359	PACKING CASE	1	FH6GF-P
	310	VYQ7364	PACKING CASE	1	FH6GF-Y

Model No. : DMC-FH6/FS40/FS41 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	310	VYQ7369	PACKING CASE	1	FH6GF-A
	310	VYQ7357	PACKING CASE	1	FH6GA-P,GT-P,GN-P,GD-P
	310	VYQ7363	PACKING CASE	1	FH6GA-Y
	310	VYQ7368	PACKING CASE	1	FH6GA-A,GN-A
	310	VYQ7344	PACKING CASE	1	FH6GK-S
	310	VYQ7352	PACKING CASE	1	FH6GK-K
	310	VYQ7360	PACKING CASE	1	FH6GK-P
	310	VYQ7370	PACKING CASE	1	FH6GK-A
	310	VYQ7341	PACKING CASE	1	FS40EG-S,EP-S,EE-S
	310	VYQ7348	PACKING CASE	1	FS40EG-K,EP-K,EF-K,EB-K,EE-K
	310	VYQ7356	PACKING CASE	1	FS40EG-P,EP-P,EF-P,EB-P,EE-P
	310	VYQ7362	PACKING CASE	1	FS40EG-Y,EF-Y,EB-Y
	310	VYQ7367	PACKING CASE	1	FS40EG-A,EP-A,EF-A,EB-A,EE-A
	310	VYQ7371	PACKING CASE	1	FS41EG-K,EP-K,EB-K,EE-K
	310	VYQ7372	PACKING CASE	1	FS41EB-P
	310	VPK5309	PACKING CASE	1	FH6GC-S [SPC]
	310	VPK5310	PACKING CASE	1	FH6GC-K [SPC]
	310	VPK5311	PACKING CASE	1	FH6GC-P [SPC]
	310	VPK5312	PACKING CASE	1	FH6GC-Y [SPC]
	310	VPK5313	PACKING CASE	1	FH6GC-A [SPC]
	312	VQL2J61	GD LABEL	1	FH6GD
	313	VQL2C68-1A	OPERATING LABEL	1	FH6GT
	314	VPN6982	CUSHION	1	EXCEPT FH6P,PC,PU
	350	K2CT3YY00034	AC CORD W/PLUG	1	FS40EB, FS41EB
	350	K2CT39A00002	AC CORD W/PLUG	1	FH6GC [SPC]
	351	K2CQ2YY00082	AC CORD W/PLUG	1	FH6GF,GA, FS40EG,EP,EF,EE, FS41EG,EP,EE
	351	K2CR2YY00026	AC CORD W/PLUG	1	FH6GD
	353	K2CA2YY00129	AC CORD W/PLUG	1	FH6GT
	353	K2CA2YY00130	AC CORD W/PLUG	1	FH6GK
	354	K2CJ2YY00052	AC CORD W/PLUG	1	FH6GN