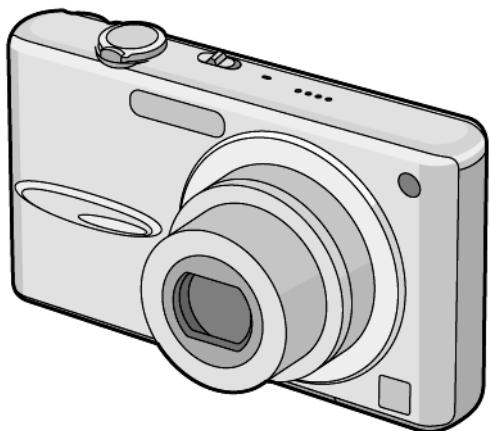


Service Manual

Digital Camera

LUMIX

LEICA
DC VARIO-ELMARIT



DMC-FX30P
DMC-FX30PC
DMC-FX30PL
DMC-FX30EB
DMC-FX30EE
DMC-FX30EF
DMC-FX30EG
DMC-FX30EGM
DMC-FX30GC
DMC-FX30GD
DMC-FX30GK
DMC-FX30GN
DMC-FX30GT
DMC-FX30SG

Vol. 1

Colour

(S).....Silver Type (except PC)
 (K).....Black Type
 (T).....Brown Type (except PL/GD/GN)
 (A).....Blue Type (except PL/GD/GN)

⚠ 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 Precaution

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

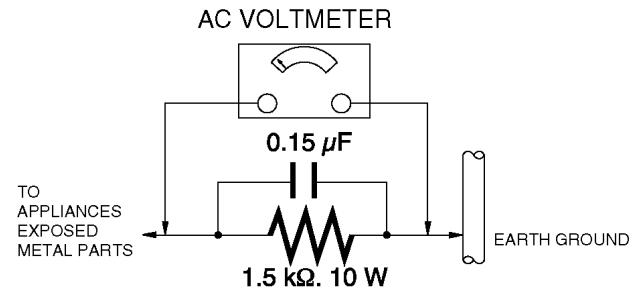


Figure. 1

1.4. How to Discharge the Capacitor on Flash Top PCB

CAUTION:

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

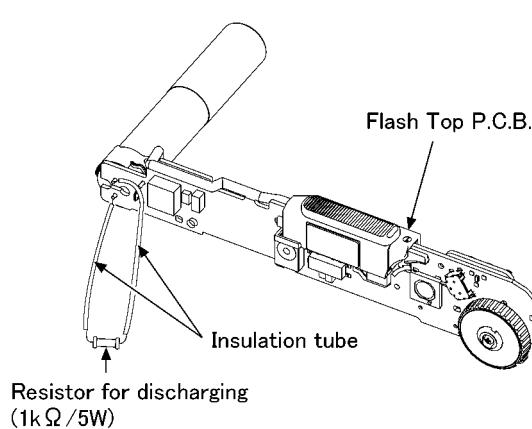


Fig. F1

2 Warning

2.1. Prevention of Electro Static 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 electro static 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/polymer 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/polymère 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/SG)

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.

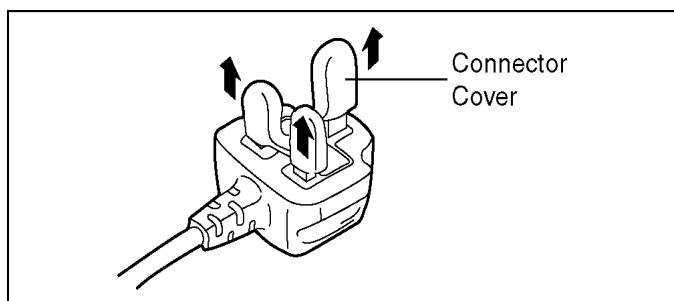
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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.



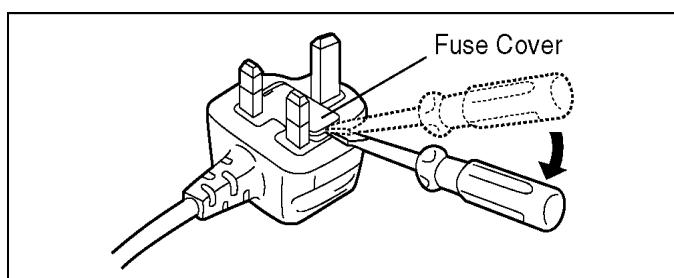
2.3.2.2. Before Use

Remove the Connector Cover as follows.

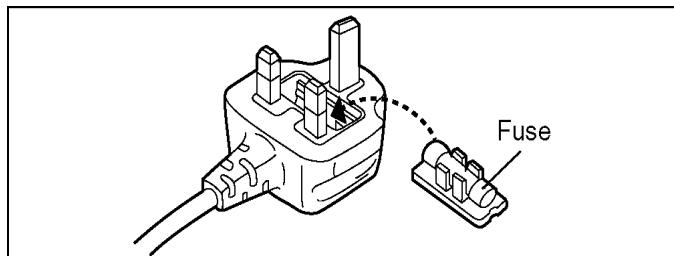


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



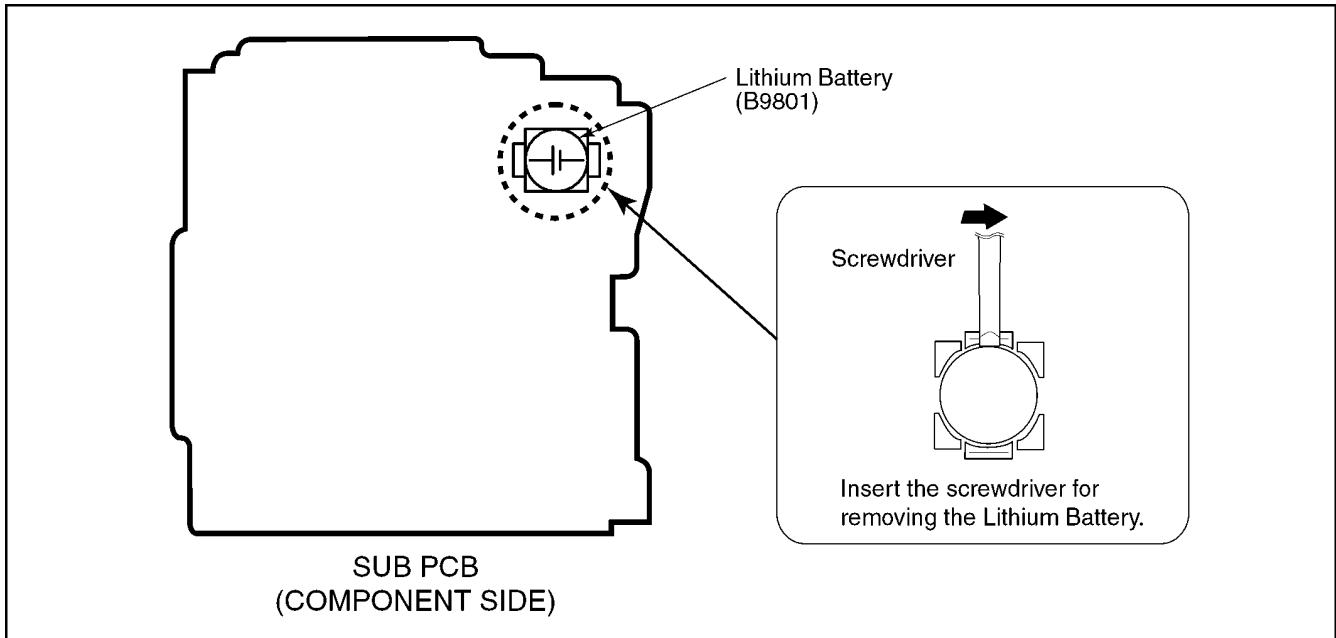
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the SUB PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. "B9801" at component side of SUB 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-FX30 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. 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%

3.3. 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 and SUB PCB.
 - b. Parts list for individual parts for MAIN PCB and SUB PCB.

When a part replacement is required for repairing MAIN PCB and/or SUB PCB, replace as an assembled parts. (Main PCB/ SUB PCB)
2. The following category is/are recycle module part. please send it/them to Central Repair Center.
 - MAIN PCB (VEP56046A)
 - SUB PCB (VEP51012A) : Excluding replacement of Lithium Battery

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

There are seven kinds of DMC-FX30, regardless of the colours.

- a) DMC-FX30S
- b) DMC-FX30P/PC
- c) DMC-FX30EB/EF/EG/EGM/GN
- d) DMC-FX30EE
- e) DMC-FX30GD
- f) DMC-FX30GT
- g) DMC-FX30PL/GC/GK/SG

(DMC-FX30S is exclusively Japan domestic model.)

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

3.4.1. Defining methods:

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

a) DMC-FX30S

DMC-FX30S is exclusively Japan domestic model.

b) DMC-FX30P/PC

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



c) DMC-FX30EB/EF/EG/EGM/GN

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



d) DMC-FX30EE

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



e) DMC-FX30GD

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



f) DMC-FX30GT

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



g) DMC-FX30PL/GC/GK/SG

The nameplate for these models do not show any above Safty registration mark.

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.

3.4.2. 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)

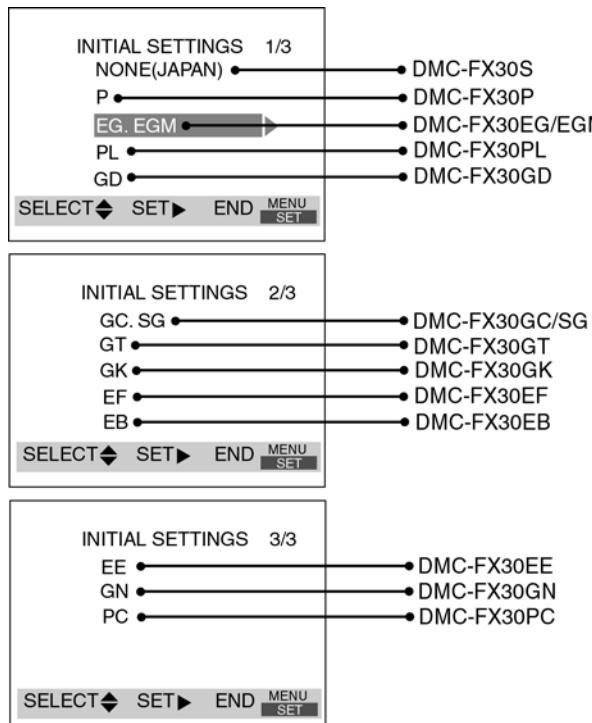
DO NOT select "NONE(JAPAN)" or "P"(North America) if need to select "EG/EGM/PL/GD/GC/S/GT/GK/EF/EB/EE/GN and PC".
Otherwise, once "NONE(JAPAN)" or "P"(North America) are selected, "EG/EGM/PL/GD/GC/S/GT/GK/EF/EB/EE/GN and PC" will not displayed, thus, RE-Settings (changing area) can not be made.

CAUTION 2 (Picture back up from "Built-in Memory")

This unit employs "Built-in Memory" for picture image data recording.(Approx.27MB)
Be sure to make picture data back up (i.e., Copying to SD memory card), before proceeding "INITIAL SETTINGS".
Once "INITIAL SETTINGS" has been carried out, all image data stored at "Built-in Memory" is erased.

2. PROCEDURES:

- Preparation. Proceed the picture back up from the unit (Refer to above "CAUTION 2")
- Step 1. The temporary cancellation of initial setting:**
Set the mode dial to "[Normal picture mode]" (Red camera mark).
While keep pressing [DISPLAY] and "[UP] of Cross key" simultaneously, turn the Power on.
- Step 2. The cancellation of initial setting:**
Set the mode dial to "[Playback]".
Press [DISPLAY] and "[UP] of Cross key" simultaneously, then turn the Power off.
- Step 3. Turn the Power on:**
Set the mode dial to "[Normal picture mode]" (Red camera mark), and then turn the Power on.
- Step 4. Display the INITIAL SETTING:**
While keep pressing [MENU] and "[RIGHT] of Cross key" simultaneously, turn the Power off.



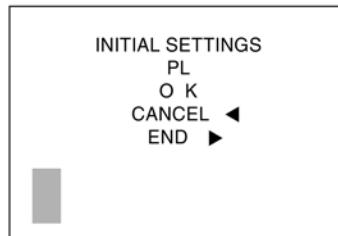
• **Step 5. Set the INITIAL SETTING: (Refer to “CAUTION 1”)**

[Caution for before settings]

Once "NONE(JAPAN)" (Area for Japan) or "P" (Area for North America) is selected with "INITIAL SETTINGS", other areas will not be displayed even if "INITIAL SETTINGS" menu is displayed again, thus, the area can not be changed.

Select the area carefully.

Select the area with pressing “[UP] / [DOWN] of Cross key”, and then press the “[RIGHT] of Cross key”.



The only set area is displayed, and then press the “[RIGHT] of Cross key” 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.

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

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

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

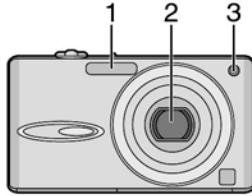
	MODEL	VIDEO OUTPUT	LANGUAGE	DATE	REMARKS
a)	DMC-FX30S	NTSC	Japanese	Year/Month/Date	
b)	DMC-FX30P/PC/PL	NTSC	English	Month/Date/Year	
c)	DMC-FX30EB/EG/EGM/GC/GN/SG	PAL	English	Date/Month/Year	
d)	DMC-FX30EF	PAL	French	Date/Month/Year	
e)	DMC-FX30EE	PAL	Russian	Date/Month/Year	
f)	DMC-FX30GK	PAL	Chinese (simplified)	Year/Month/Date	
g)	DMC-FX30GT	NTSC	Chinese (traditional)	Year/Month/Date	
h)	DMC-FX30GD	NTSC	Korean	Year/Month/Date	

4 Specifications

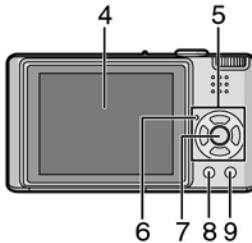
Digital Camera:	Information for your safety
Power Source:	DC 5.1 V
Power Consumption:	1.6 W (When recording) 0.8 W (When playing back)
Camera effective pixels:	7,200,000 pixels
Image sensor:	1/2.5" CCD, total pixel number 7,380,000 pixels, Primary color filter
Lens:	Optical 3.6× zoom, f=4.6 mm to 16.4 mm (35 mm film camera equivalent: 28 mm to 100 mm)/F2.8 to F5.6
Digital zoom:	Max. 4×
Extended optical zoom:	Max. 5.3×
Focus:	Normal/Macro, 5-area-focusing/3-area-focusing (High speed)/1-area-focusing (High speed)/1-area-focusing/Spot-focusing
Focus range:	Normal: 50 cm to ∞ Macro/Simple/Motion picture/Intelligent ISO sensitivity mode: 5 cm (Wide)/30 cm (Tele) to ∞ Scene mode: There may be differences in the above settings.
Shutter system:	Electronic shutter+Mechanical shutter
Motion picture recording:	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] 848×480 pixels (Only when using a Card) 30 or 10 frames/second with audio.
Burst recording	
Burst speed:	3 pictures/second (High speed), 2 pictures/second (Low speed), Approx. 2 pictures/second (Unlimited)
Number of recordable pictures:	Max. 7 pictures (Standard), max. 5 pictures (Fine), 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.)
ISO sensitivity:	AUTO/ 100/200/400/800/1250 [HIGH SENS.] mode: 3200
Shutter speed:	8 seconds to 1/2000th of a second [STARRY SKY] mode: 15 seconds, 30 seconds, 60 seconds
White balance:	Motion picture mode: 1/30th of a second to 1/6400th of a second
Exposure (AE):	Auto white balance/Daylight/Cloudy/Shade/Halogen/White set Program AE
Metering mode:	Exposure compensation (1/3 EV Step, -2 EV to +2 EV)
LCD monitor:	Multiple 2.5" low-temperature polycrystalline TFT LCD (Approx. 207,000 pixels) (field of view ratio about 100%)
Flash:	Flash range: [ISO AUTO] Approx. 60 cm to 5 m (Wide) AUTO, AUTO/Red-eye reduction, Forced ON (Forced ON/Red-eye reduction), Slow sync./Red-eye reduction, Forced OFF
Microphone:	Monaural
Speaker:	Monaural
Recording media:	Built-in Memory (Approx. 27 MB)/SD Memory Card/SDHC Memory Card/MultiMediaCard (Still pictures only)
Picture size	
Still picture:	When the aspect ratio setting is [4:3] 3072×2304 pixels, 2560×1920 pixels, 2048×1536 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels When the aspect ratio setting is [3:2] 3072×2048 pixels, 2048×1360 pixels When the aspect ratio setting is [16:9] 3072×1728 pixels, 1920×1080 pixels When the aspect ratio setting is [1:1] 640×480 pixels (Only when using a Card), 320×240 pixels When the aspect ratio setting is [16:9] 848×480 pixels (Only when using a Card) Fine/Standard
Motion pictures:	
Quality:	
Recording file format	JPEG (based on "Design rule for Camera File system", based on "Exif 2.21" standard)/DPOF corresponding
Still Picture:	JPEG (based on "Design rule for Camera File system", based on "Exif 2.21" standard)+"QuickTime" (picture with audio) "QuickTime Motion JPEG" (motion pictures with audio)
Picture with audio:	
Motion pictures:	
Interface	
Digital:	"USB 2.0" (Full Speed)
Analog	
video/audio:	NTSC/PAL Composite (Switched by menu), Audio line output (monaural)
Terminal	
[AV OUT/DIGITAL]:	Dedicated jack (8 pin)
[DC IN]:	Dedicated jack
Dimensions:	Approx. 94.9 mm (W)×51.9 mm (H)×22.0 mm (D) [3 3/4" (W)×2 1/16" (H)×7/8" (D)] (excluding the projecting parts)
Mass:	Approx. 132 g/4.66 oz (excluding card and battery), Approx. 154 g/5.43 oz (with card and battery)
Operating temperature:	0 °C to 40 °C
Operating humidity:	10% to 80%
Battery Charger (Panasonic):	Information for your safety
Input:	110 V to 240 V~50/60 Hz, 0.2 A
Output:	CHARGE 4.2 V==0.8 A
Battery Pack (lithium-ion)	
Voltage/capacity:	3.6 V, 1000 mAh

5 Location of Controls and Components

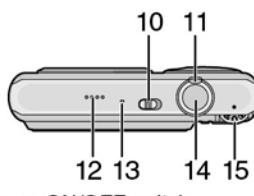
Names of the Components



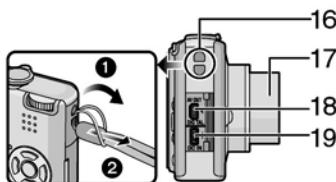
- 1 Flash
- 2 Lens
- 3 Self-timer indicator
AF assist lamp



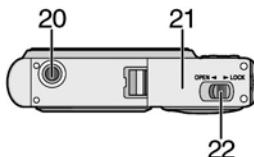
- 4 LCD monitor
- 5 Cursor buttons
 - ◀/Self-timer button
 - ▼/[REV] button
 - ▶/Flash setting button
 - ▲/Exposure compensation/
Auto bracket/
White balance fine adjustment/
Backlight compensation in simple mode
button
- 6 Status indicator
- 7 [MENU/SET] button
- 8 [DISPLAY/LCD MODE] button
- 9 [FUNC]/Delete button



- 10 Camera ON/OFF switch
- 11 Zoom lever
- 12 Speaker
- 13 Microphone
- 14 Shutter button
- 15 Mode dial



- 16 Strap eyelet
- 17 Lens barrel
- 18 [AV OUT/DIGITAL] socket
- 19 [DC IN] socket
 - Always use a genuine Panasonic AC adaptor (DMW-AC5PP; optional).
 - This camera cannot charge the battery even though the AC adaptor (DMW-AC5PP; optional) is connected to it.



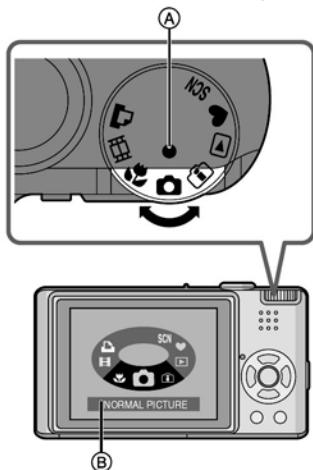
- 20 Tripod receptacle
 - When you use a tripod, make sure the tripod is stable when the camera is attached to it.
- 21 Card/Battery door
- 22 Release lever

About The Mode Dial

If you turn on this unit and then rotate the mode dial, you can not only switch between recording and playback but also switch to macro mode to take a close-up picture of a subject or to a scene mode that matches your recording purpose.

■ Selecting the mode

Align a desired mode with the part A. Rotate the mode dial slowly and surely to adjust to each mode. (Do not adjust it to parts where there is no mode.)



- The above screen B appears on the LCD monitor if the mode dial is rotated. The mode currently selected appears on the LCD monitor when the camera is turned on.

■ Basic

: **Normal picture mode**
Use this mode for normal recording.

: **Simple mode**

This mode is recommended for beginners.

: **Playback mode**

This mode allows you to play back recorded pictures.

■ Advanced

: **Intelligent ISO sensitivity mode**
This mode automatically sets the optimal ISO sensitivity and shutter speed according to the movement and the brightness of the subject.

: **Macro mode**

This allows you to take close-up pictures of a subject.

: **Scene mode**

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

: **Motion picture mode**

This mode allows you to record motion pictures.

: **Print mode**

Use this to print 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 (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.)

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

Set the mode dial to “[Normal picture mode] (Red camera mark)”.

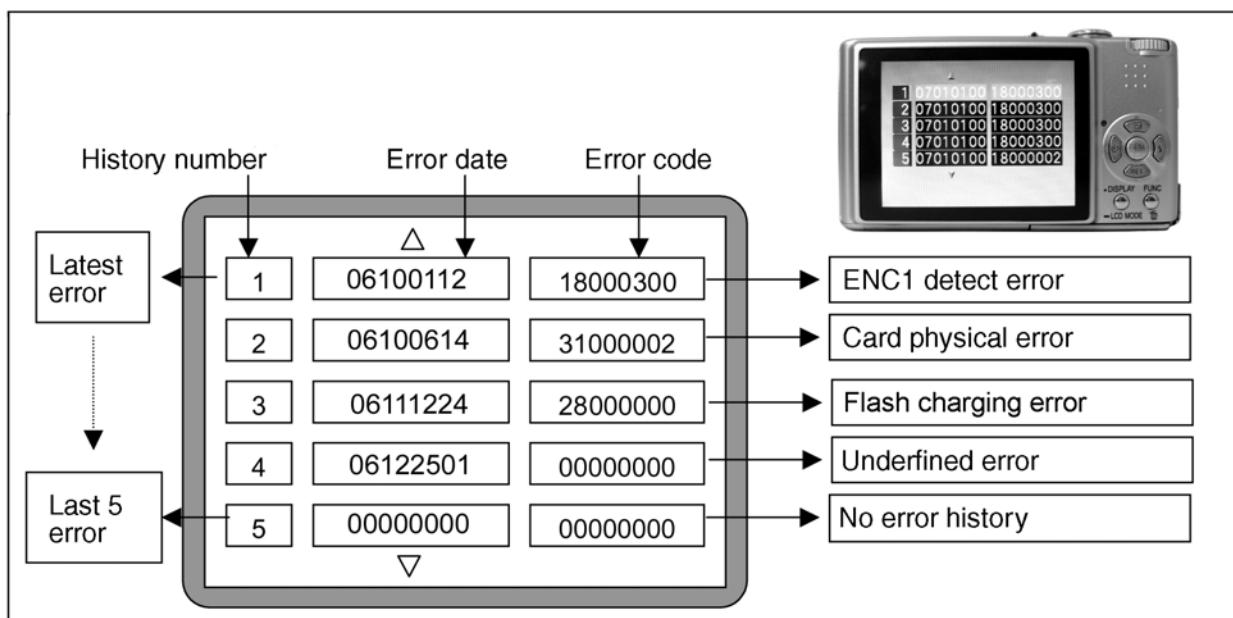
While keep pressing [DISPLAY] and “[UP] of Cross key” simultaneously, turn the Power on.

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

Press [DISPLAY], [MENU] and “[LEFT] of Cross key” 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 Cross key” : It can be scroll up or down one.

“[LEFT] or [RIGHT] of Cross key” : It can be display last 5 error or another 5 error.

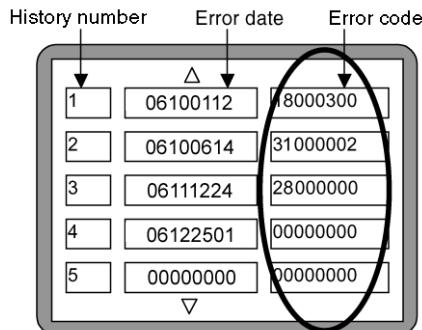
- **4. How to read the error date:**

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.



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 3)
				4000	GYRO (Y) error. Gyro (IC7101: Y axis) detect error on Main P.C.B.. IC7101 (Gyro element) or IC6001 (VENUS 3)
				5000	MREF error (Reference voltage error). IC7001 (LENS drive) or IC6001 (VENUS 3)
				6000	Drive voltage (X) error. VENUS 3 AD value error, LENS Unit, LENS flex breaks etc.
				7000	Drive voltage (Y) error. VENUS 3 AD value error, LENS Unit, LENS flex breaks etc.
				0100	HP Low detect error (C.B. encoder (full retract) always Low detect). FP9802-(31,33) signal line or IC6001 (VENUS 3)
				0200	HP High detect error (C.B. encoder (full retract) always High detect). FP9802-(32,34) signal line or IC6001 (VENUS 3)
				0300	ENC1 detect error (C.B. motor encoder detect error). FP9802-(31) signal line or IC6001 (VENUS 3)
				0400	ENC2 detect error (C.B. motor encoder detect error). FP9802-(33) signal line or IC6001 (VENUS 3)
		Focus	18*1	0001	HP Low detect error (Focus encoder always Low detect error). FP9802-(3) signal line or IC6001 (VENUS 3)
				0002	HP High detect error (Focus encoder always High detect error). FP9802-(2) signal line or IC6001 (VENUS 3)
		Lens	18*1	0000	Power ON time out error. Lens drive system
				18*2	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-(247) 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)
SOFT	SYSTEM	RTC	2C*0	0001	SYSTEM IC initialize failure error Communication between IC6001 (VENUS 3) and IC9101 (SYSTEM)
	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 3)
				0002	Card physical error SD memory card data line or IC6001 (VENUS 3)
				0004	Write error SD memory card data line or IC6001 (VENUS 3)
				0005	Format error
	CPU, ASIC hard	Stop	38*0	0001	Camera task finish process time out. Communication between Lens system and IC6001 (VENUS 3)
				0002	Camera task invalid code error. IC6001 (VENUS 3)
				0100	File time out error in recording motion image IC6001 (VENUS 3)
				0200	File data send error in recording motion image IC6001 (VENUS 3)
				0300	Single or burst recording brake time out.
	Operation	Power on	3B*0	0000	FLASHROM processing early period of camera during movement.
	Zoom	Zoom	3C*0	0000	Imperfect zoom lens processing Zoom lens
				0001 0007	Software error (0-7bit : command, 8-15bit : status)
			35*0	0000	Though record preprocessing is necessary, it is not called.
			35*1	0000	Though record preprocessing is necessary, it is not completed.

About "*" indication in the above table:

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.

• 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.

6.2. Confirmation of Firmware Version

The Firmware version can be confirmed by ordering the following steps:.

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

Set the mode dial to “[Normal picture mode] (Red camera mark)”.

Insert the SD memory card which has a few photo data.

While keep pressing [DISPLAY] and “[UP] of Cross key” simultaneously, then turn the power on.

- **Step 2. Confirm the version:**

Set the mode dial to “[Playback]” and then press [DISPLAY] to switch to LCD with indication. (Fig. A)

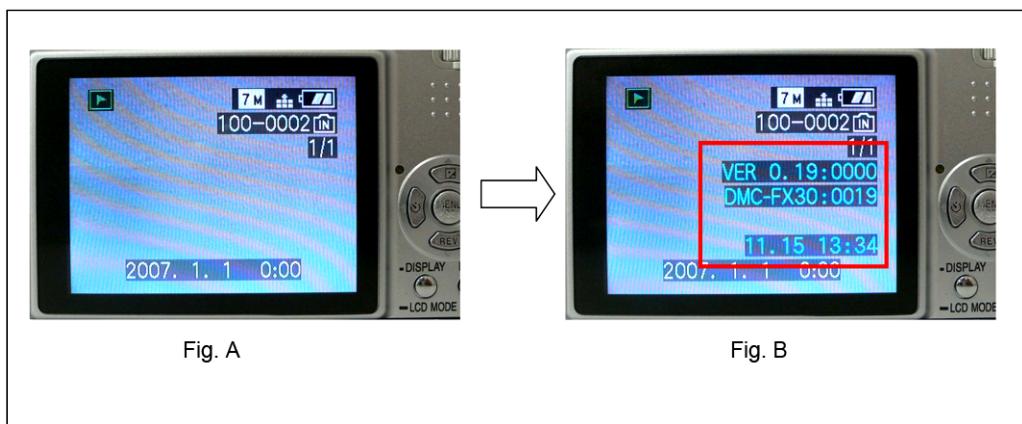
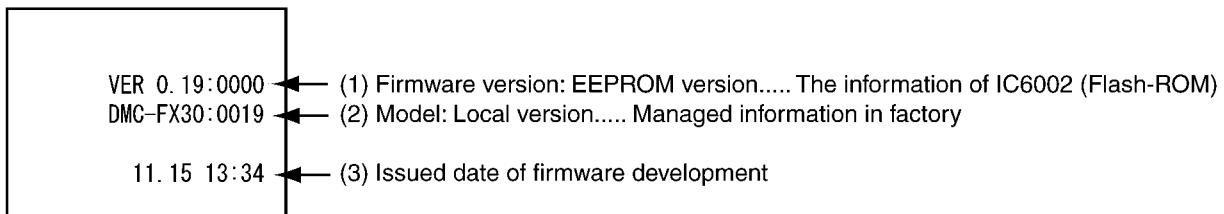
Press [DISPLAY] and “[DOWN] of Cross key” simultaneously. (No need to keep pressing.)

(The version information is displayed on the LCD with light blue colour letters.) (Fig. B)

CAUTION:

The version information does not display if the LCD has switched to LCD with indication already.

In this case, press [DISPLAY] to switch to LCD with indication.



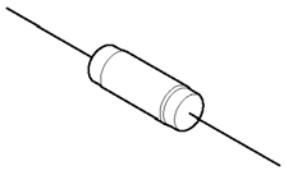
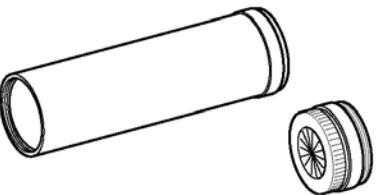
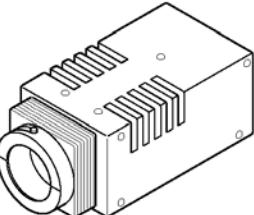
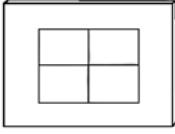
<Point>

- The firmware version and EEPROM version can be confirmed with the information (1).
- The information (2), (3) are just reference.

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
 An equivalent type of Resistor may be used.		 ※ with DC Cable
TR Chart RFKZ0434	Lens Cleaning Kit (BK) VFK1900BK	Grease (for lens) VFK1829
	 * Only supplied as 10 set/box.	
Furoyl grease (for focus motor) VFK1850	Driver (for mode dial installation screw) VFK1390	
		

7.2. When Replacing the Main PCB

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

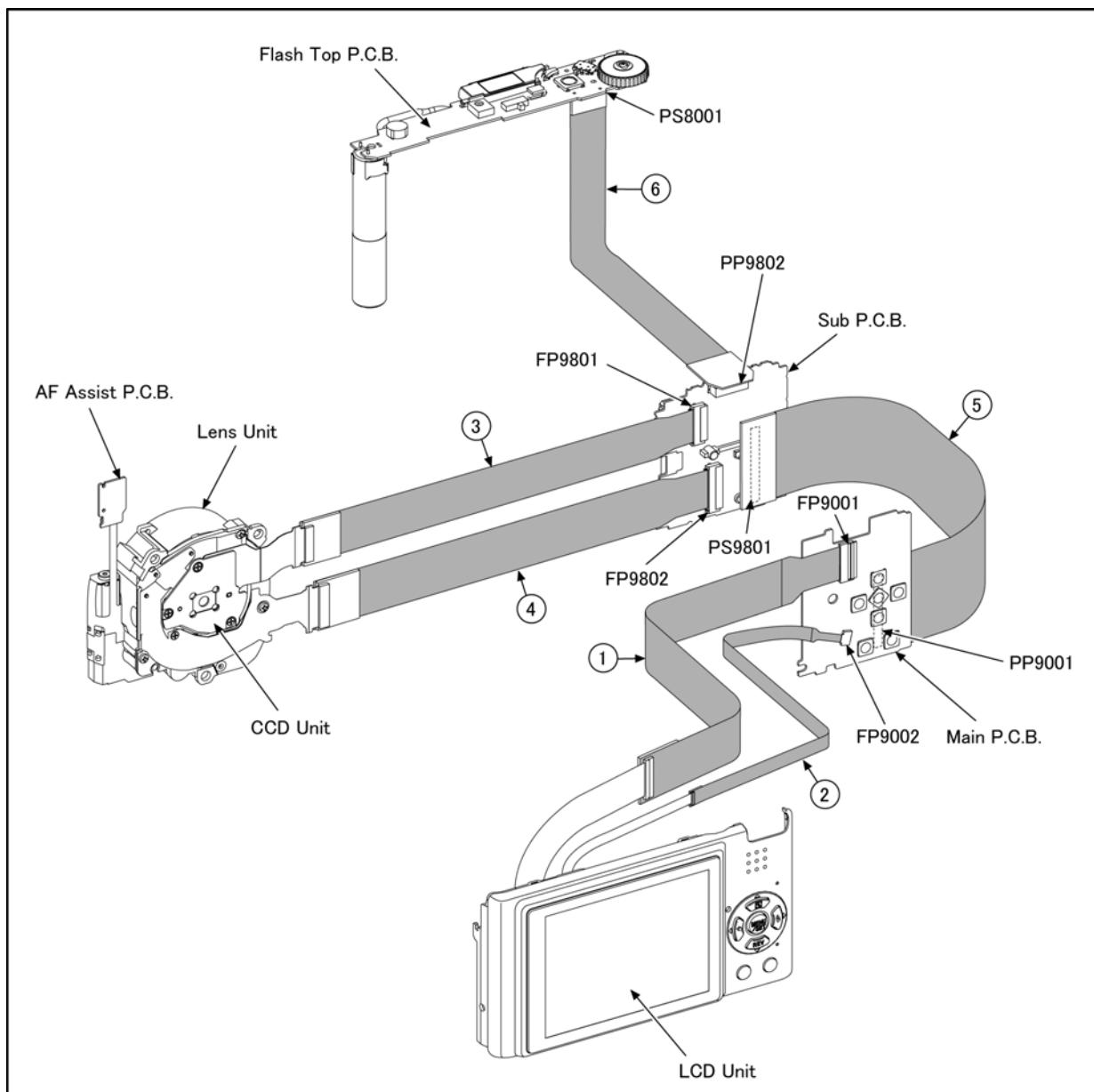
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with Maintenance software.

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	RFKZ0363	FP9001 (MAIN) - LCD UNIT	19PIN 0.5 FFC
2	VFK1974	FP9002 (MAIN) - LCD UNIT	4PIN 0.5 FFC
3	VFK1950	FP9801 (SUB) - CCD UNIT	33PIN 0.3 FFC
4	RFKZ0416	FP9802 (SUB) - LENS UNIT	41PIN 0.3 FFC
5	RFKZ0417	PP9001 (MAIN) - PS9801 (SUB)	100PIN B to B
6	RFKZ0418	PP9802 (SUB) - PS8001 (FLASH TOP)	30PIN B to B



CAUTION-1. (When servicing FLASH TOP PCB)

1. Be sure to discharge the capacitor on FLASH TOP PCB.

Refer to "HOW TO DISCHARGE THE CAPACITOR ON FLASH TOP PCB".

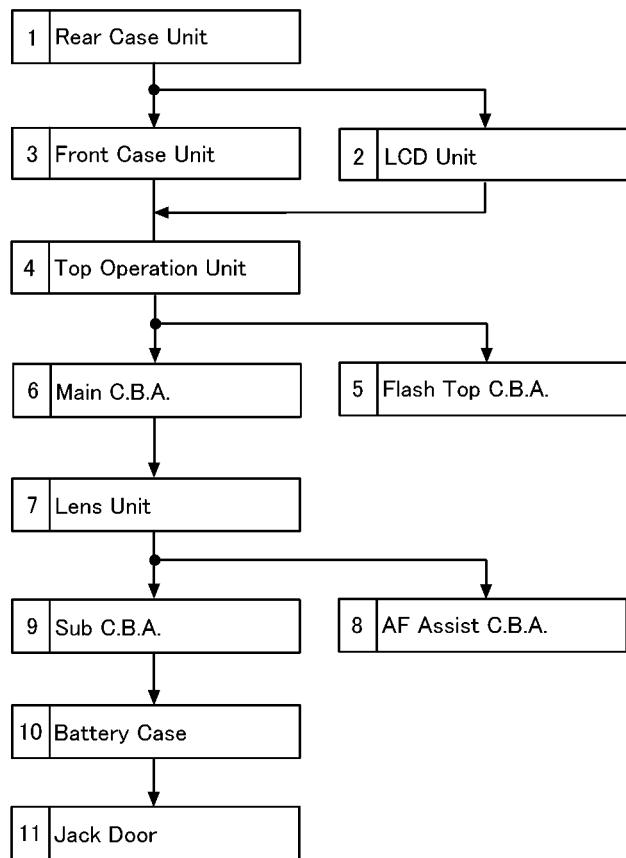
The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.

2. Be careful of the high voltage circuit on FLASH TOP PCB.

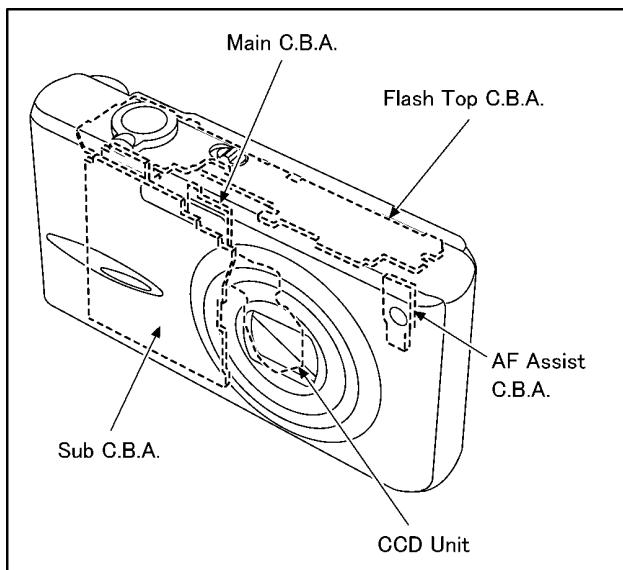
3. DO NOT allow other parts to touch the high voltage circuit on FLASH TOP PCB.

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
			5 Screws (A)
			1 Screw (B)
			Side Ornament (R)
			Side Ornament (L)
		Fig. D2	FP9001(Flex)
			FP9002(Flex)
			Rear Case Unit
2	LCD Unit	Fig. D3	4 Locking tabs
			LCD Unit
3	Front Case Unit	Fig. D4	1 Locking tab
			Front Case Unit
4	Top Operation Unit	Fig. D5	PS8001(Connector)
			Top Operation Unit
5	Flash Top P.C.B.	Fig. D6	2 Screws (C)
			1 Locking tab
			Top Operation Unit
		Fig. D7	5 Locking tabs
			Flash Cover
			Speaker
			Flash Top P.C.B.
		Fig. D8	NOTE (When Installing)
6	Main P.C.B.	Fig. D9	PP9001(Connector)
			Main P.C.B.
7	Lens Unit	Fig. D10	3 Screws (D)
			1 Screw (E)
			Frame Plate
			Tripod Fixing Plate
			FP9801(Flex)
			FP9802(Flex)
			1 Locking tab
			Lens Unit
8	AF Assist P.C.B.	Fig. D11	FP9901(Flex)
			AF Assist P.C.B.
9	Sub P.C.B.	Fig. D12	1 Screw (F)
			PCB Spacer
			Sub P.C.B.
10	Battery Case	Fig. D13	Battery Case
		Fig. D14	
11	Jack Door	Fig. D15	Jack Door Shaft
			Jack Door

8.3.1. Removal of the Rear Case Unit

NOTE:

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

- Card
- Screw (B) × 1
- Battery
- Side Ornament (R)
- Screw (A) × 5
- Side Ornament (L)

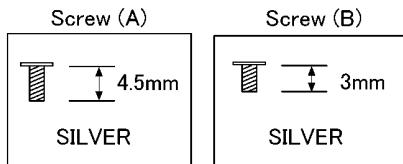
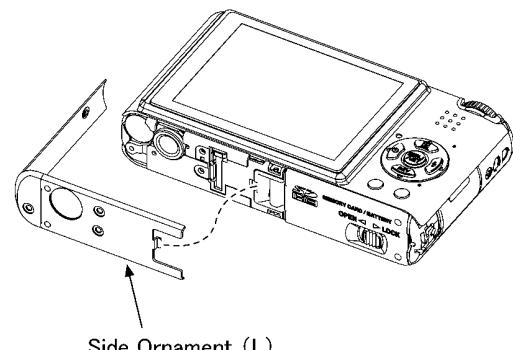
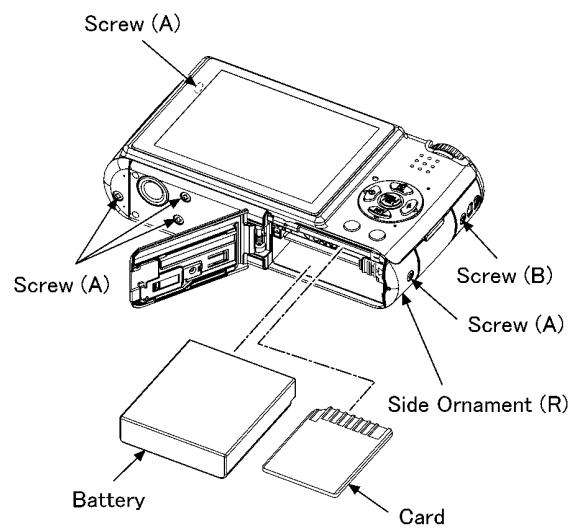
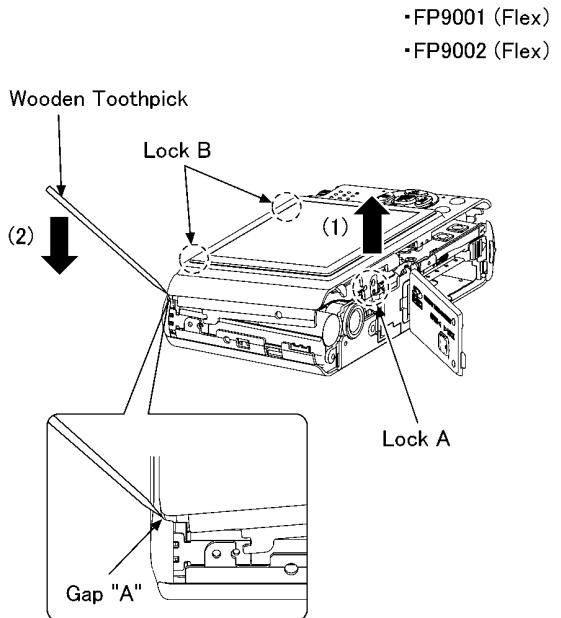


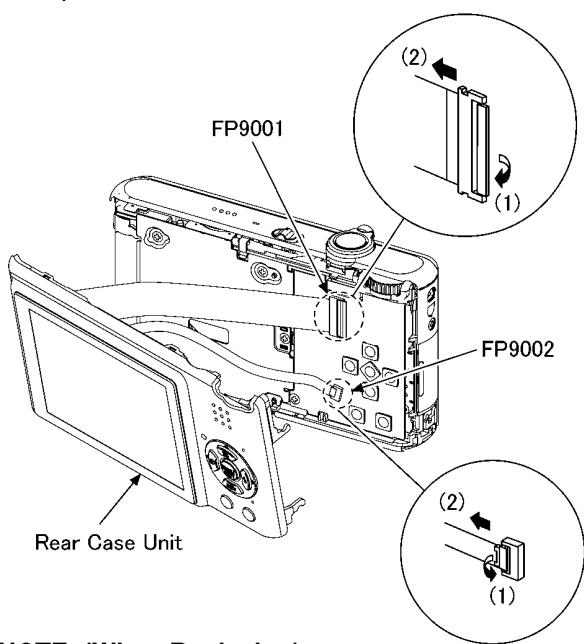
Fig. D1

8.3.2. Removal of the LCD Unit



IMPORTANT NOTICE

- *Since "Lock B" are hardly locked, be sure to order the following procedure.
- Otherwise, Top operation unit and/or Front case unit may be damaged.
- 1. Remove the "Lock A".
- 1. While lifting up the bottom side of Rear case unit (See arrow (1)), insert the wooden toothpick to the Gap "A".
- 2. Press down the edge of toothpick (See arrow (2)), to lift up the Rear case unit.



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).

Fig. D2

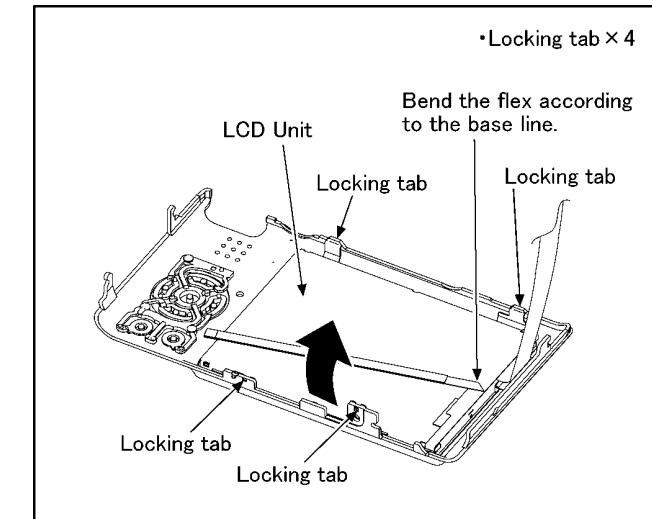


Fig. D3

8.3.3. Removal of the Front Case Unit

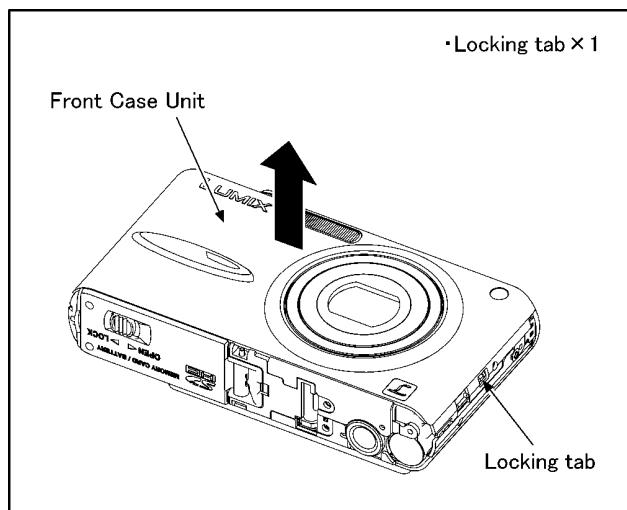


Fig. D4

8.3.4. Removal of the Top Operation Unit

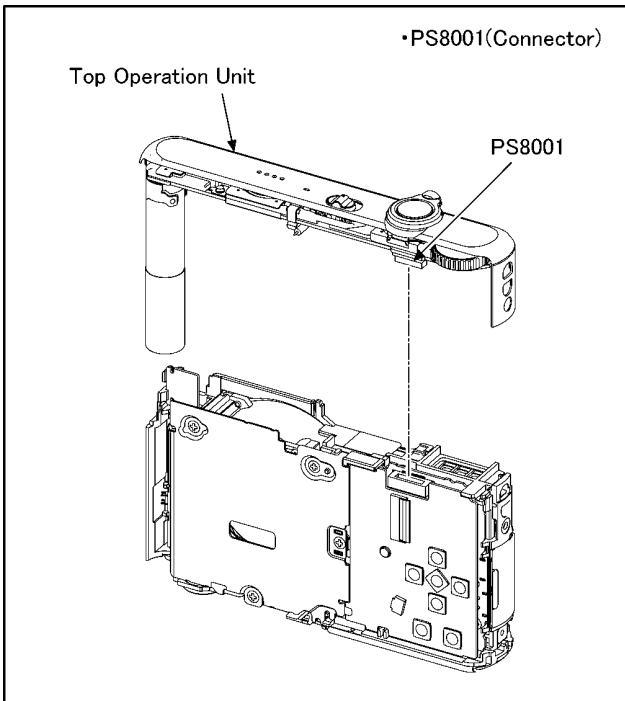


Fig. D5

8.3.5. Removal of the Flash Top P.C.B.

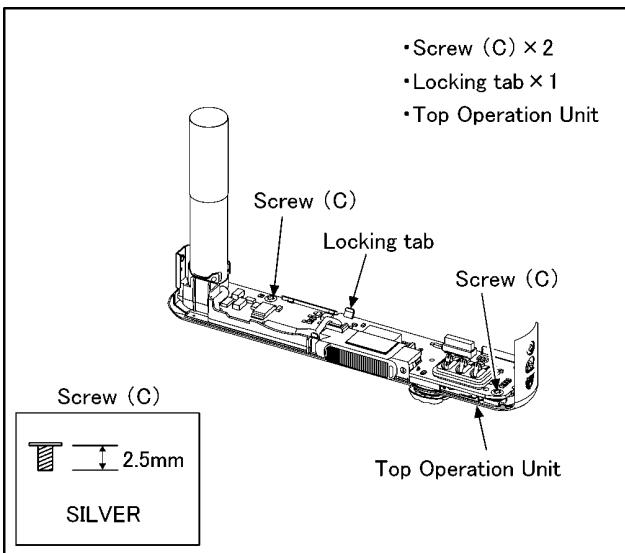


Fig. D6

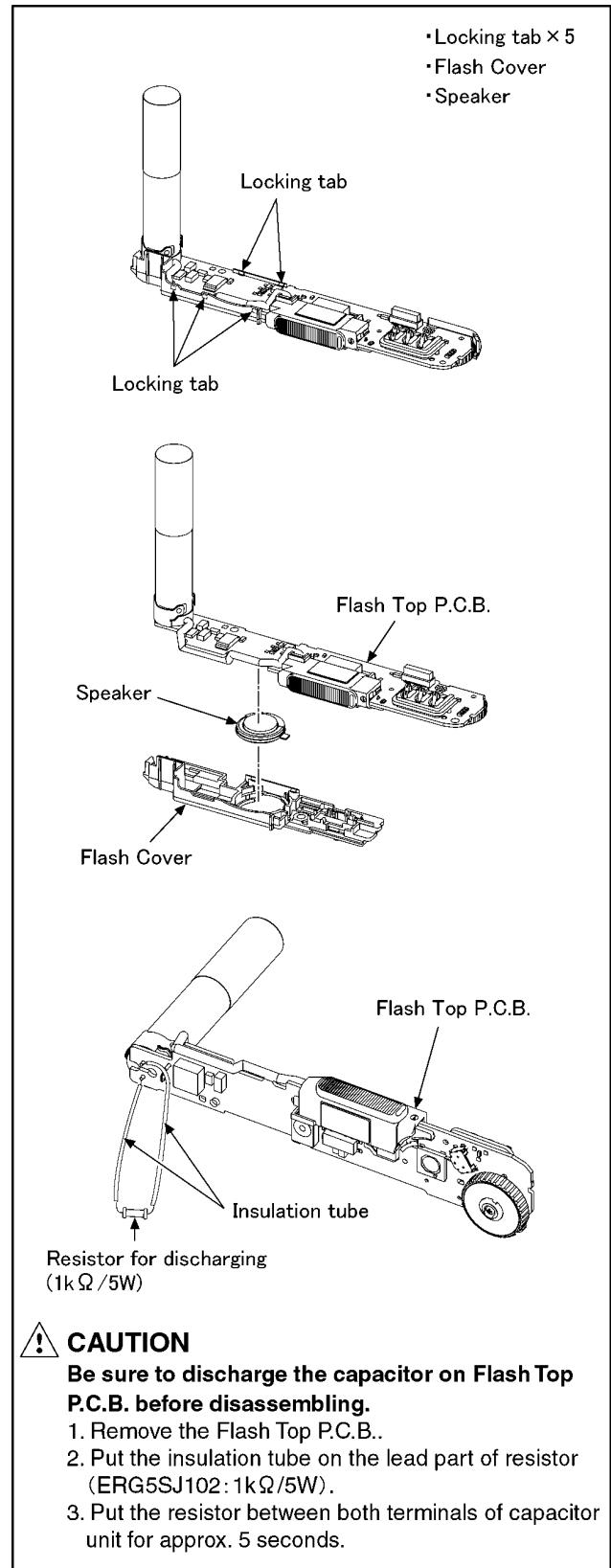


Fig. D7

CAUTION

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

1. Remove the Flash Top P.C.B..
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.

8.3.7. Removal of the Lens Unit

NOTE: (When Installing)

Align the convex of power switch and groove of power knob.

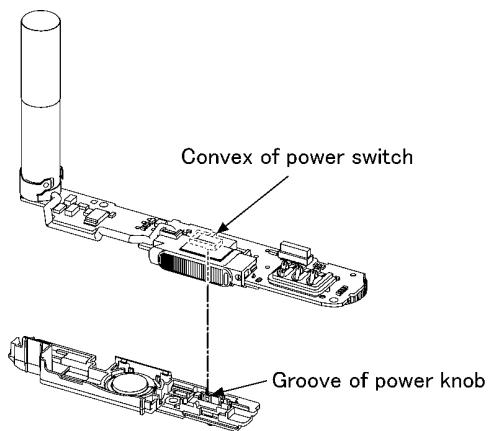
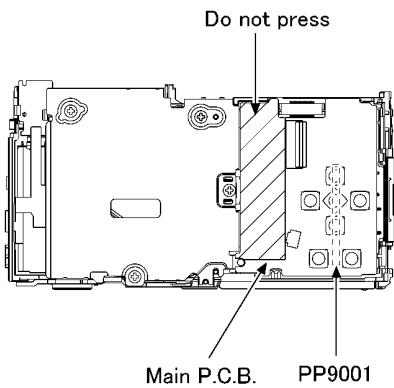


Fig. D8

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

•PP9001(Connector)

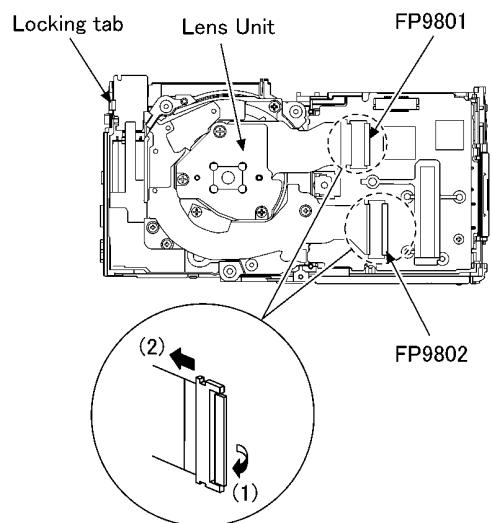
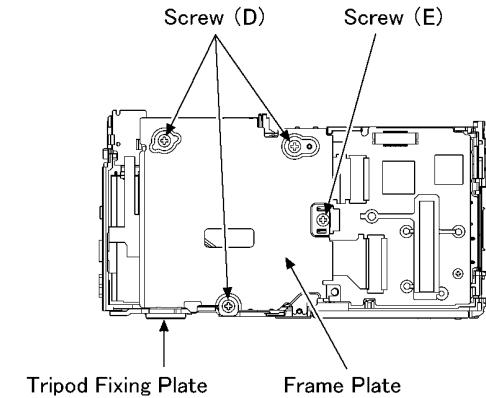


NOTE: (When Replacing)

When install the Main P.C.B., Do not press the shaded portion. (It causes damage.)

Fig. D9

- Screw (D) × 3 •FP9801(Flex)
- Screw (E) × 1 •FP9802(Flex)
- Frame Plate •Locking tab × 1
- Tripod Fixing Plate



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).

Screw (D)



Screw (E)

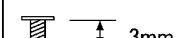


Fig. D10

8.3.8. Removal of the AF Assist P.C.B.

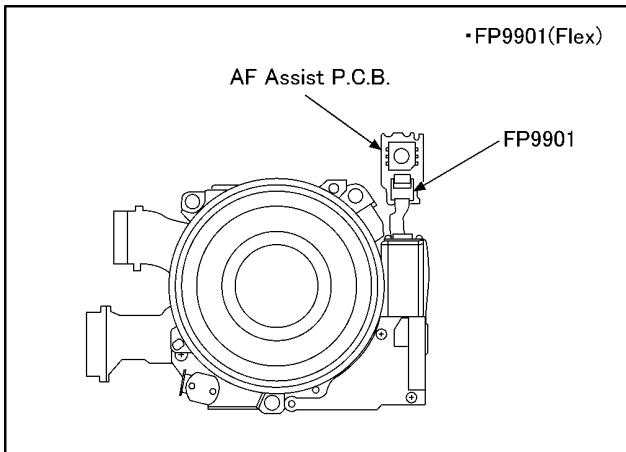


Fig. D11

8.3.9. Removal of the Sub P.C.B.

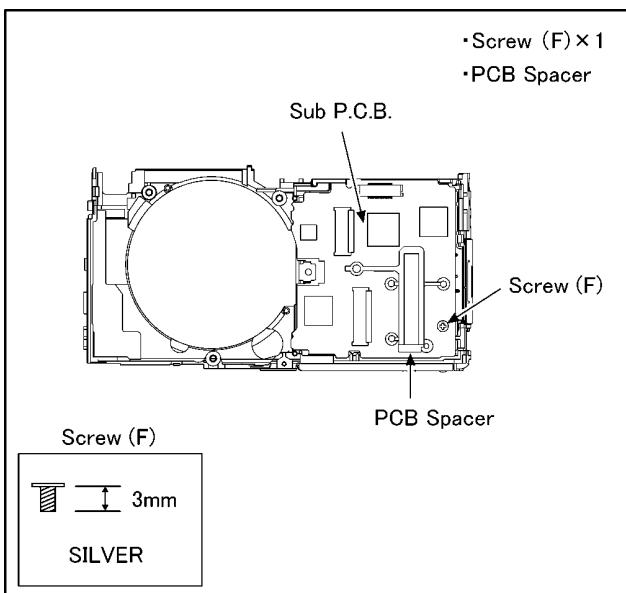


Fig. D12

8.3.10. Removal of the Battery Case.

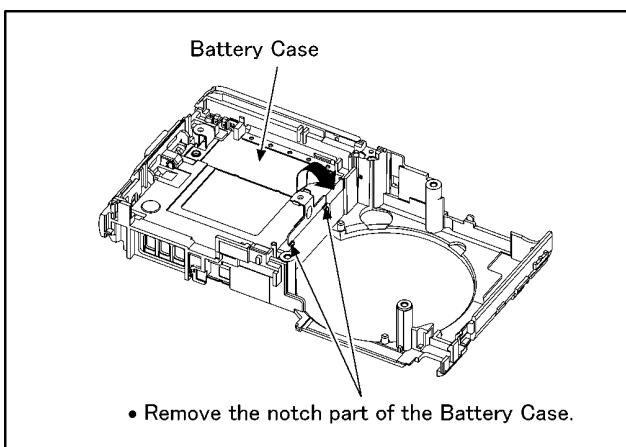


Fig. D13

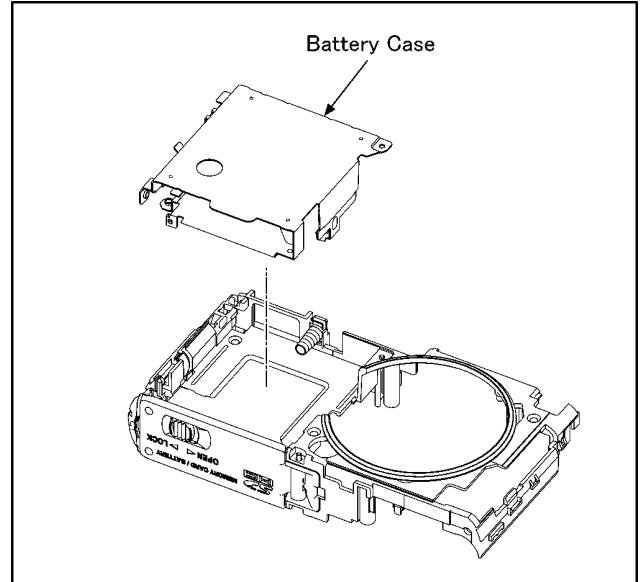


Fig. D14

8.3.11. Removal of the Jack Door

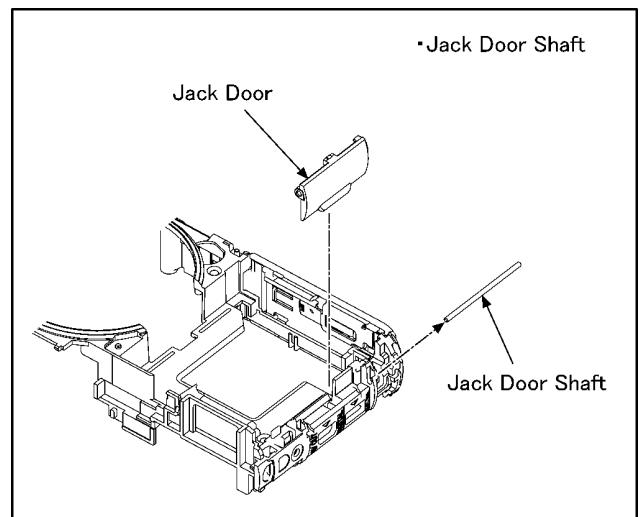


Fig. D15

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. To minimize the possibility of the CCD being dirt, perform disassemble and/or assemble under the condition of the CCD is being mounted.
Disassembling procedures for the CCD unit, refer to item 8.6.
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).
5. Apply the grease (VFK1829) to the point where is shown to "Grease apply" in the figure.
When the grease is applied, use a toothpick and apply thinly.

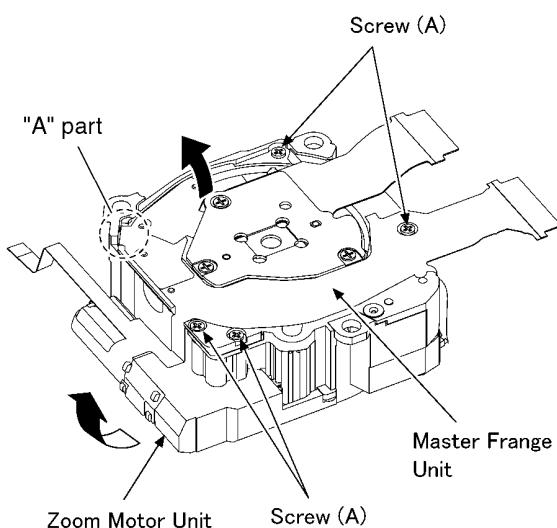
8.4.1. Zoom Motor Unit, Master Frange Unit, Direct/Drive Frame Unit and 1st Lens Frame/2nd Lens Frame Move Unit

1. Unscrew the 4 screws (A).
2. Remove the zoom motor unit to the indicated by arrow.
3. Move the master frange unit to the indicated by arrow.

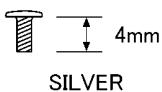
CAUTION:

2nd lens frame move unit is connected with flex ("A" part).
Take care not to damage the flex.

• Screw (A) × 4



Screw (A)



SILVER

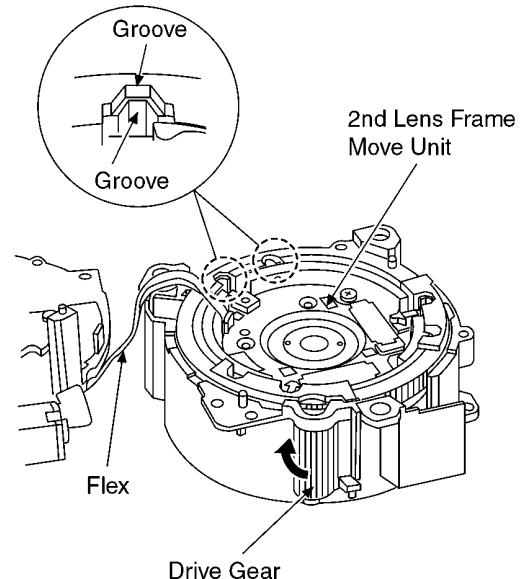
NOTE: (When Disassembling)

- When move the master frange unit to the indicated by arrow, Take care not to damage the flex.

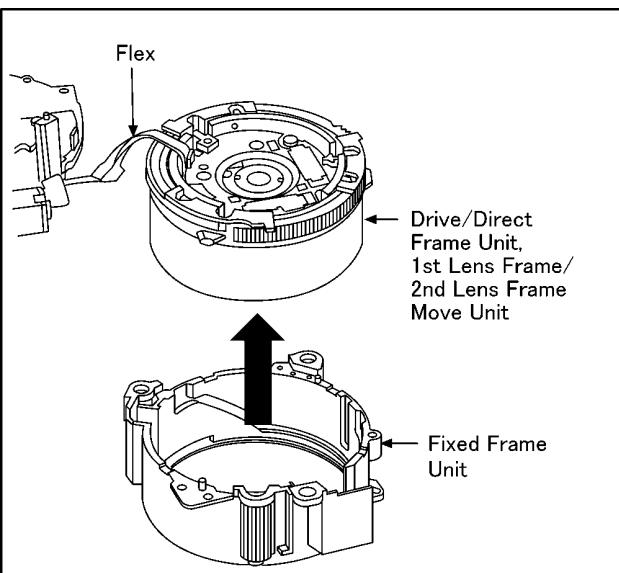
4. Turn the drive gear to the indicated by arrow fully.

NOTE: (When Disassembling)

- Take care not to damage the flex.



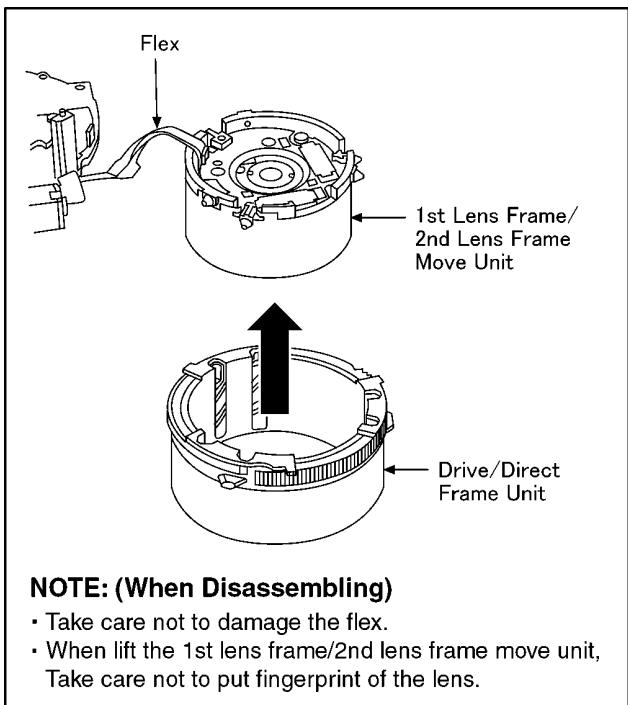
5. Push the drive unit to the indicated by arrow from lens side, and then remove the unit of drive/direct frame unit, 1st lens frame/2nd lens frame move unit from the fixed frame unit.



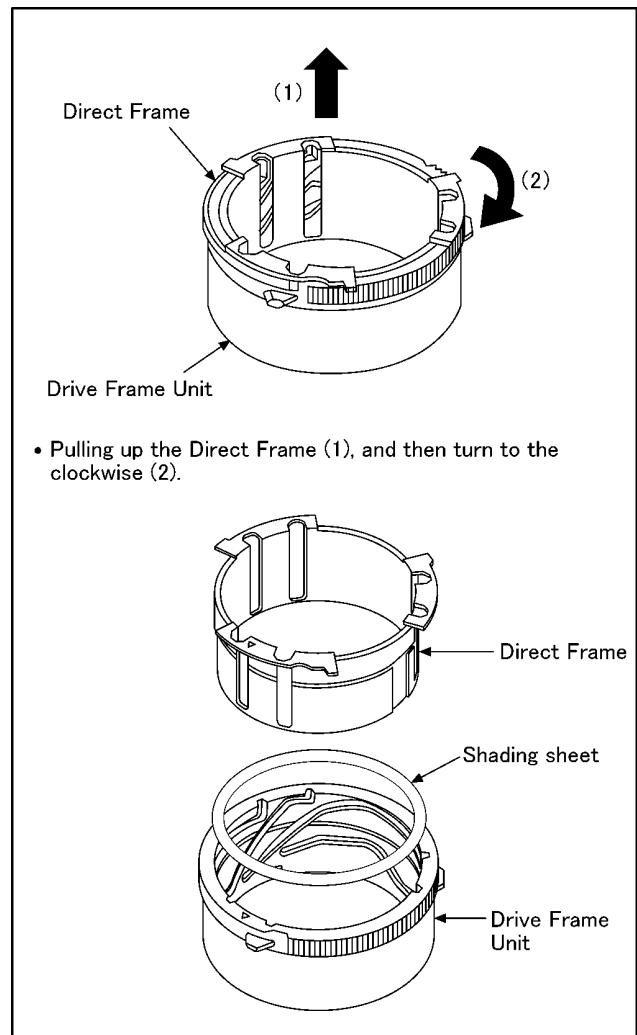
NOTE: (When Disassembling)

- Take care not to damage the flex.
- When lift the drive/direct frame unit, 1st lens frame/2nd lens frame move unit, Take care not to put fingerprint of the lens.

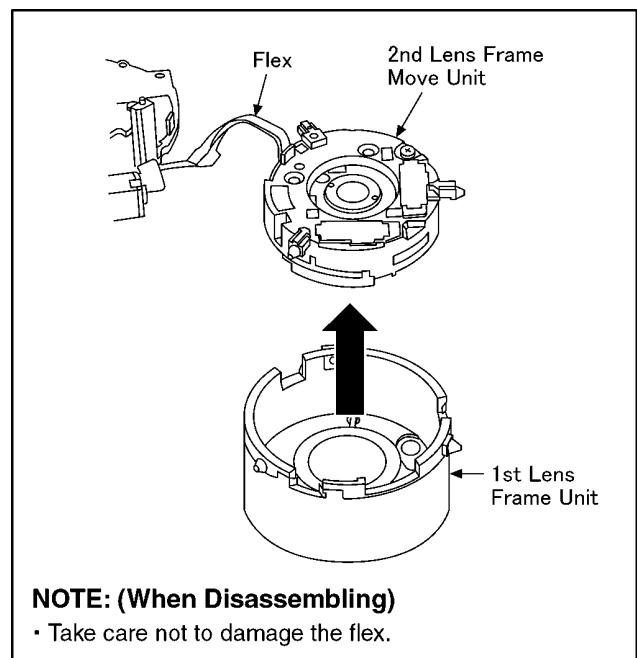
6. Push the 1st lens frame unit to the indicated by arrow from lens side, and then remove the unit of 1st lens frame/2nd lens frame move unit from the drive/direct frame unit.



8.4.2. Removal of the Direct Frame



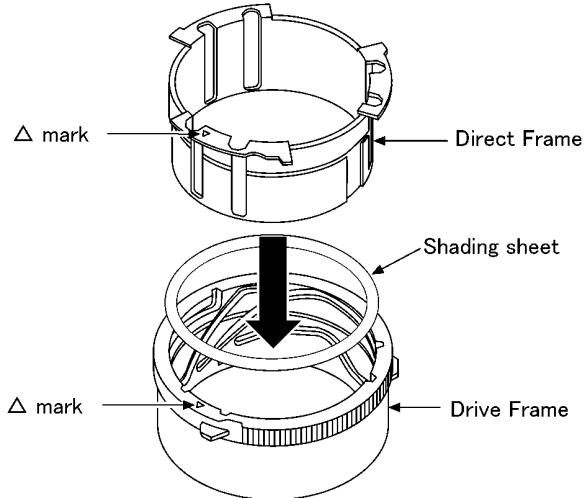
8.4.3. Removal of the 2nd Lens Frame Move Unit



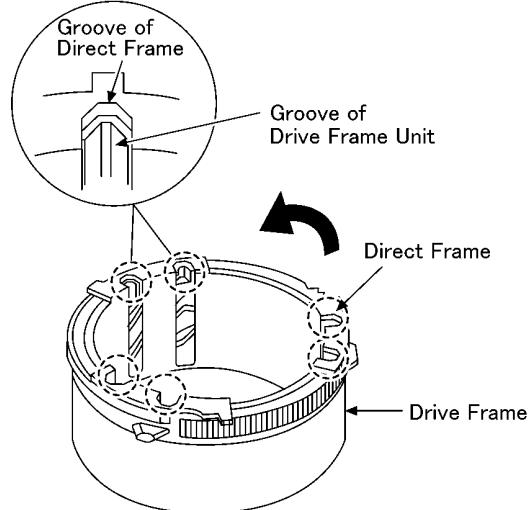
8.5. Assembly Procedure for the Lens

8.5.1. Phase alignment of the Direct Frame and Drive Frame Unit

- Insert the shading sheet to drive frame.
(When insert the shading sheet, so that the luster side facing to subject side)
- Align the Δ mark, and then install the direct frame to drive frame.

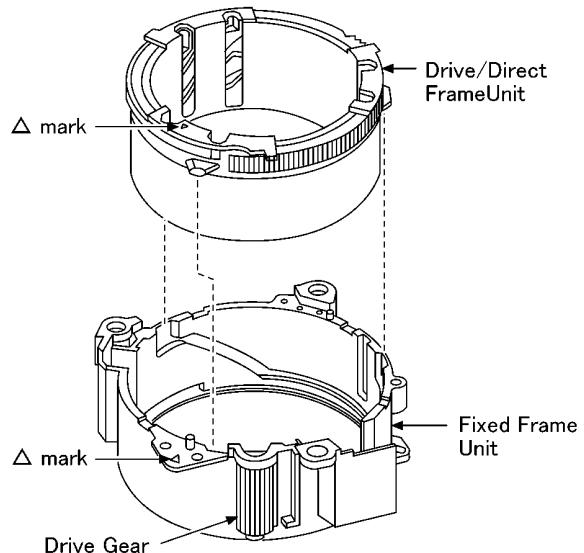


- Turn the Direct Frame in the direction of an arrow (about 1cm : 0.4 in.), and then align the phase so that six groove places to be aligned.



8.5.2. Phase alignment of the Drive/Direct Unit and Fixed Frame

- Align the Δ mark, and then install the drive/direct frame unit to fixed frame unit.

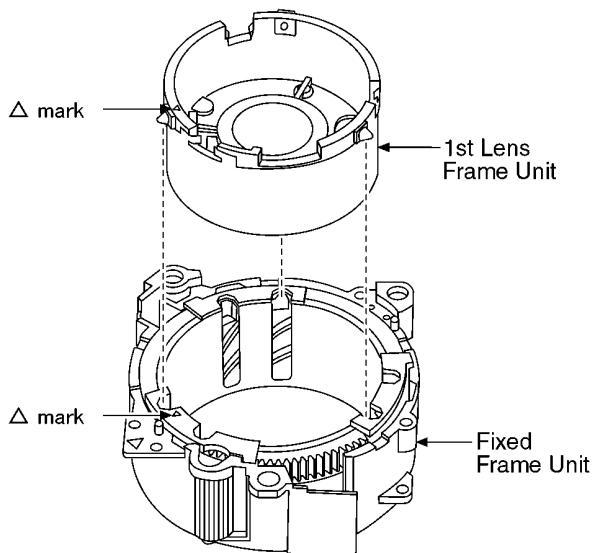


NOTE: (When Installing)

With aligning the phase of 6 grooves of the drive/direct frame unit, confirm the gear of drive/direct frame unit unit is engaged with the fixed frame unit firmly.

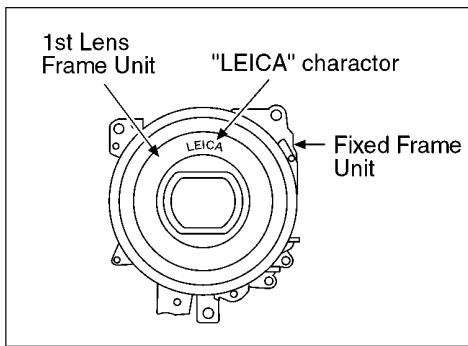
8.5.3. Assembly for the 1st Lens Frame Unit

- Align the Δ mark, and then install the 1st lens frame unit to fixed frame unit.



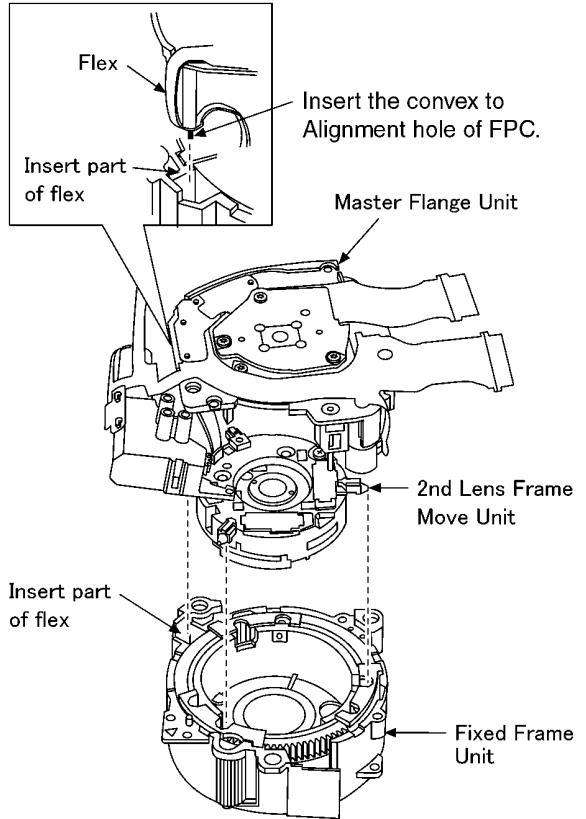
FRONT VIEW

- Install the 1st lens frame unit so that the "LEICA" character may become the position of the figure below.



8.5.4. Assembly for the Zoom Motor Unit, Master Flange Unit and 2nd Lens Frame Move Unit

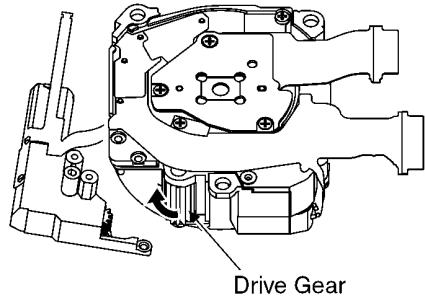
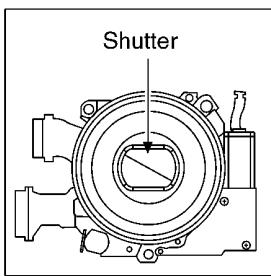
- Align the flex and insert part of flex, and then insert 2nd Lens Frame Move Unit and Master Flange Unit to Fixed Frame Unit.



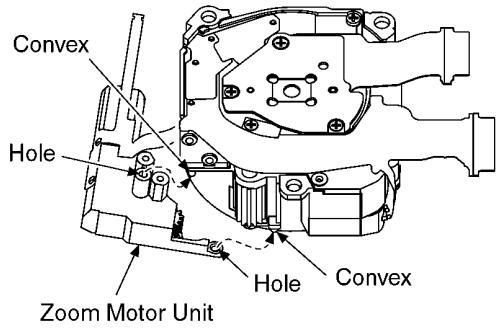
NOTE: (When Installing)

- When insert the 2nd lens frame move unit to fixed frame unit, push it until click sound is heard.
- Take care not to damage the flex.
- Refer to "THE APPLIMENT OF GREASE METHOD" when installing the master flange unit.

- Turn the Drive Gear in the direction of an arrow, and then confirm the lens shutter is closed.



Drive Gear

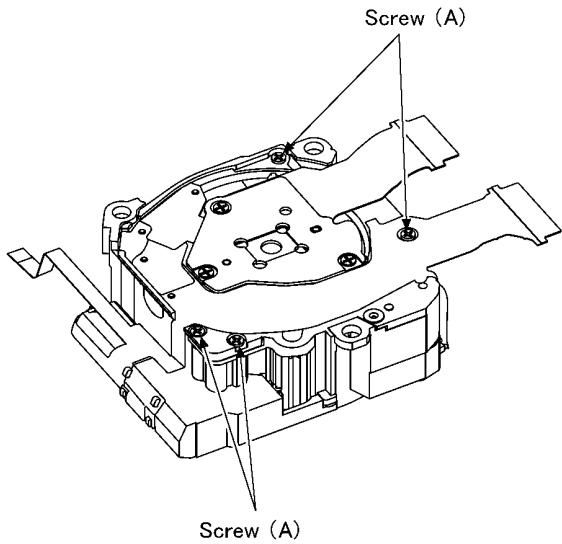


Zoom Motor Unit

NOTE: (When Installing)

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

- Screw (A) × 4

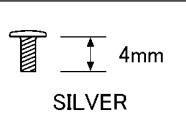


Screw (A)

NOTE: (When Installing)

Do not bend the flex excessively and handle the flex with care, to prevent any damage.

Screw (A)



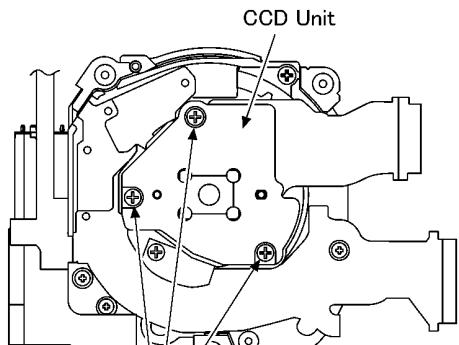
8.6. Removal of the CCD Unit

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

- Screw (C) × 3
- Optical Filter × 1
- Washer × 1 or × 0
- CCD Cushion × 1

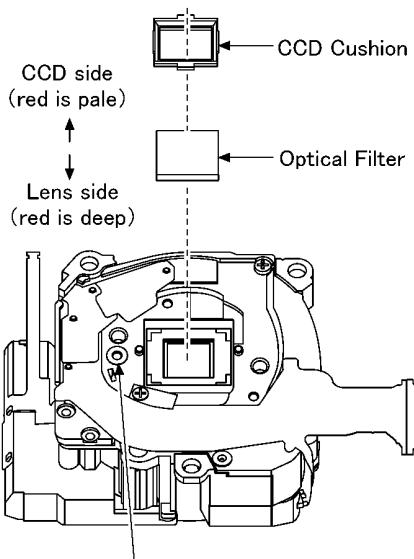
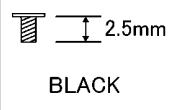
***Important notice:**

see NOTE2: (When Installing the CCD Unit)



Screw (C)

Screw (C)



***Important notice:**
see NOTE2: (When Installing the CCD Unit)

NOTE1: (When Installing the CCD Unit)

Definitions of mount side of Optical filter.

*Set the optical filter under the condition of reflecting the fluorescent lamp can be seen by your eyes.

*Although depth of the red color may be changed in accordance with seeing angle, compare the deepest red color in both sides to define each side.

Lens side: red color is deeper than the other side.

CCD side: red color is paler than the other side.

It can be easy to confirm the red color density on the blue paper.

*The optical filter might stuck to CCD unit.

When replace the CCD unit, remove the optical filter, and then install it with CCD unit.

NOTE2: (When Installing the CCD Unit)

In some early production units, the washer may be used to compensate the height of Master flange unit.

When servicing, handle the washer as follows.

[WHEN REPLACING THE LENS UNIT]

Remove the Washer.

(All lens unit being supplied as a service parts are revised version.)

[WHEN REPLACING THE CCD UNIT]

Install the washer as it was fitted between Master flange unit and CCD unit.

When the unit does not have a washer from the beginning, the washer does not need.

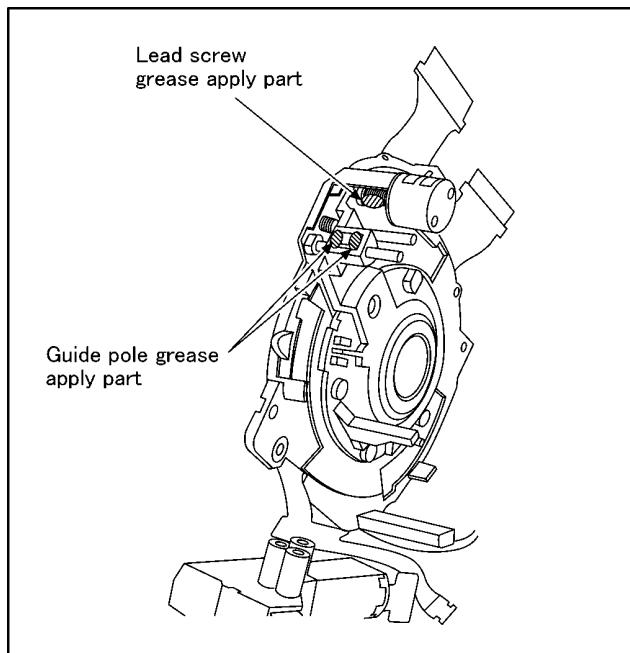
8.7. The Application of Grease Method

The grease apply point of lens unit are as follows.

Apply grease additionally in the specified position if necessary.

When the grease is applied, use a toothpick and apply thinly.

- Lead screw
 - Grease: VFK1850 (Furoyl type)
 - Amount of apply: 2 - 4 mg
- Guide pole
 - Grease: VFK1829
 - Amount of apply: 2 - 4 mg



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:

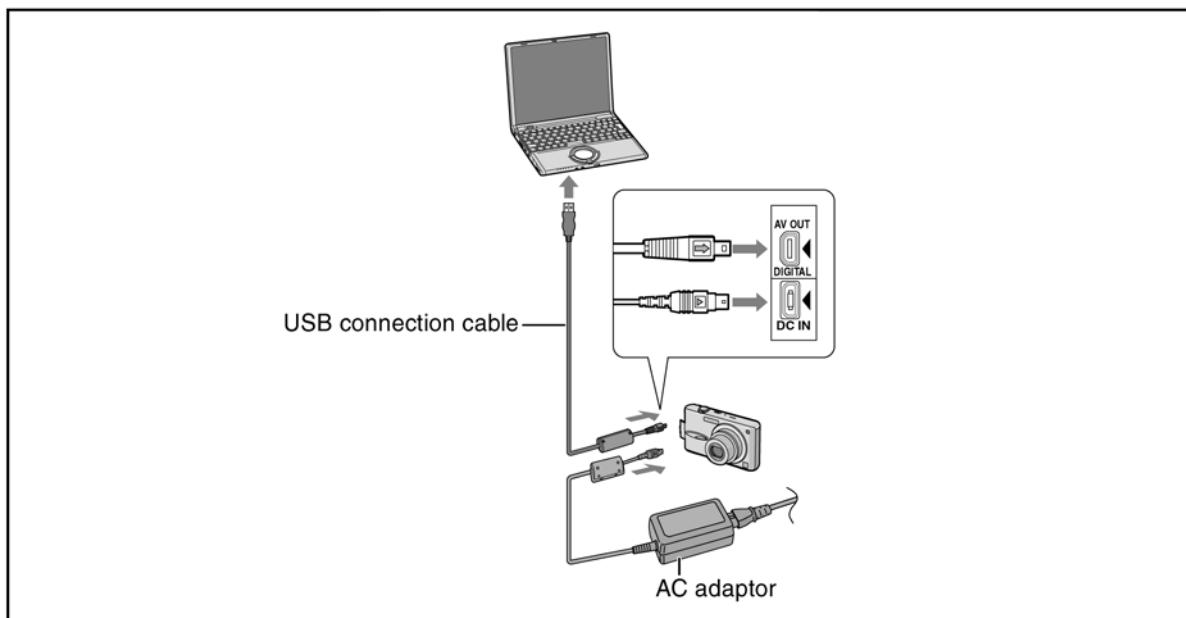
After adjustments have been terminated, make sure to achieve "INITIAL SETTINGS".

		Replaced Part				
Adjustment Item		Main P.C.B.	VENUS (IC6001)	Flash-ROM (IC6002)	Lens Part (Excluding CCD)	CCD Unit
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)	○	○	○		○

NOTE:

*There is no LCD adjustment in this model.

*There is no CCD Black scratch compensation adjustment (BKI) in this model.



10 Maintenace

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-FX30P	DMC-FX30EGM
DMC-FX30PC	DMC-FX30GC
DMC-FX30PL	DMC-FX30GD
DMC-FX30EB	DMC-FX30GK
DMC-FX30EE	DMC-FX30GN
DMC-FX30EF	DMC-FX30GT
DMC-FX30EG	DMC-FX30SG

Vol. 1

Colour

(S).....Silver Type (except PC)
(K).....Black Type
(T).....Brown Type (except PL/GD/GN)
(A).....Blue Type (except PL/GD/GN)

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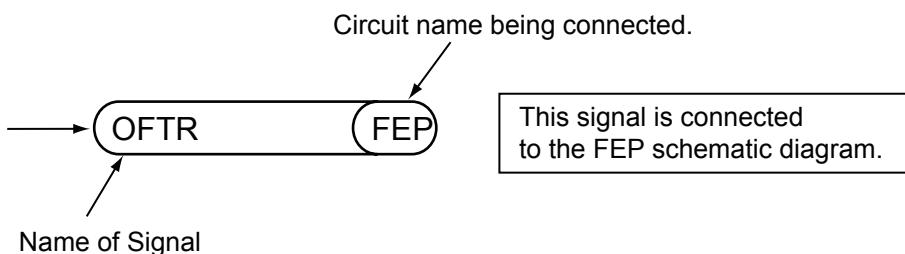
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S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

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

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



S2. Voltage Chart

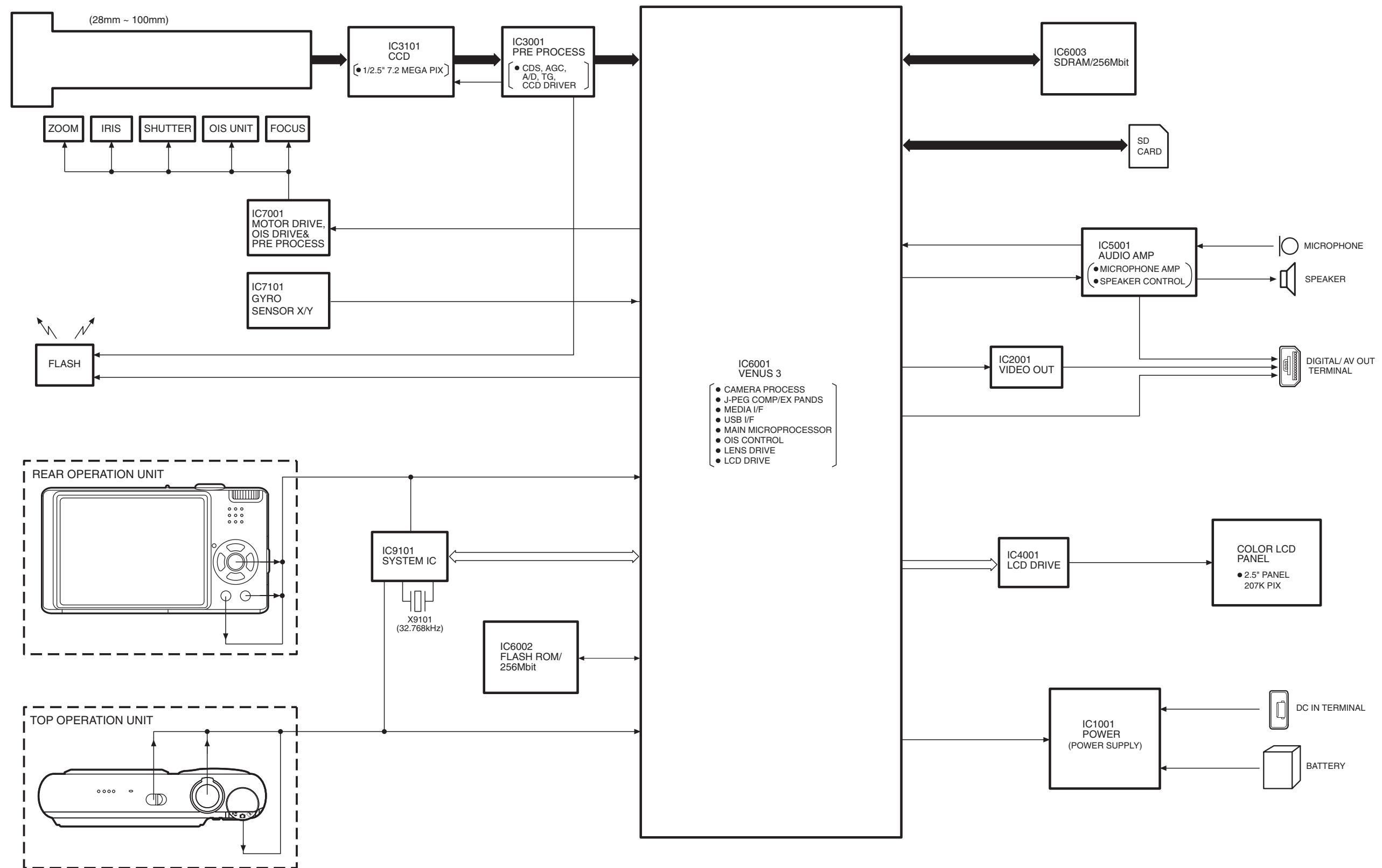
Note) Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

S2.1. Flash Top P.C.B.

REF No.	PIN No.	POWER ON
IC8001	1	0
IC8001	2	0
IC8001	3	5.6
IC8001	4	0
IC8001	5	0
Q8009	1	3.5
Q8009	2	3.5
Q8009	3	0
Q8009	4	0
Q8009	5	3.5
Q8009	6	3.5

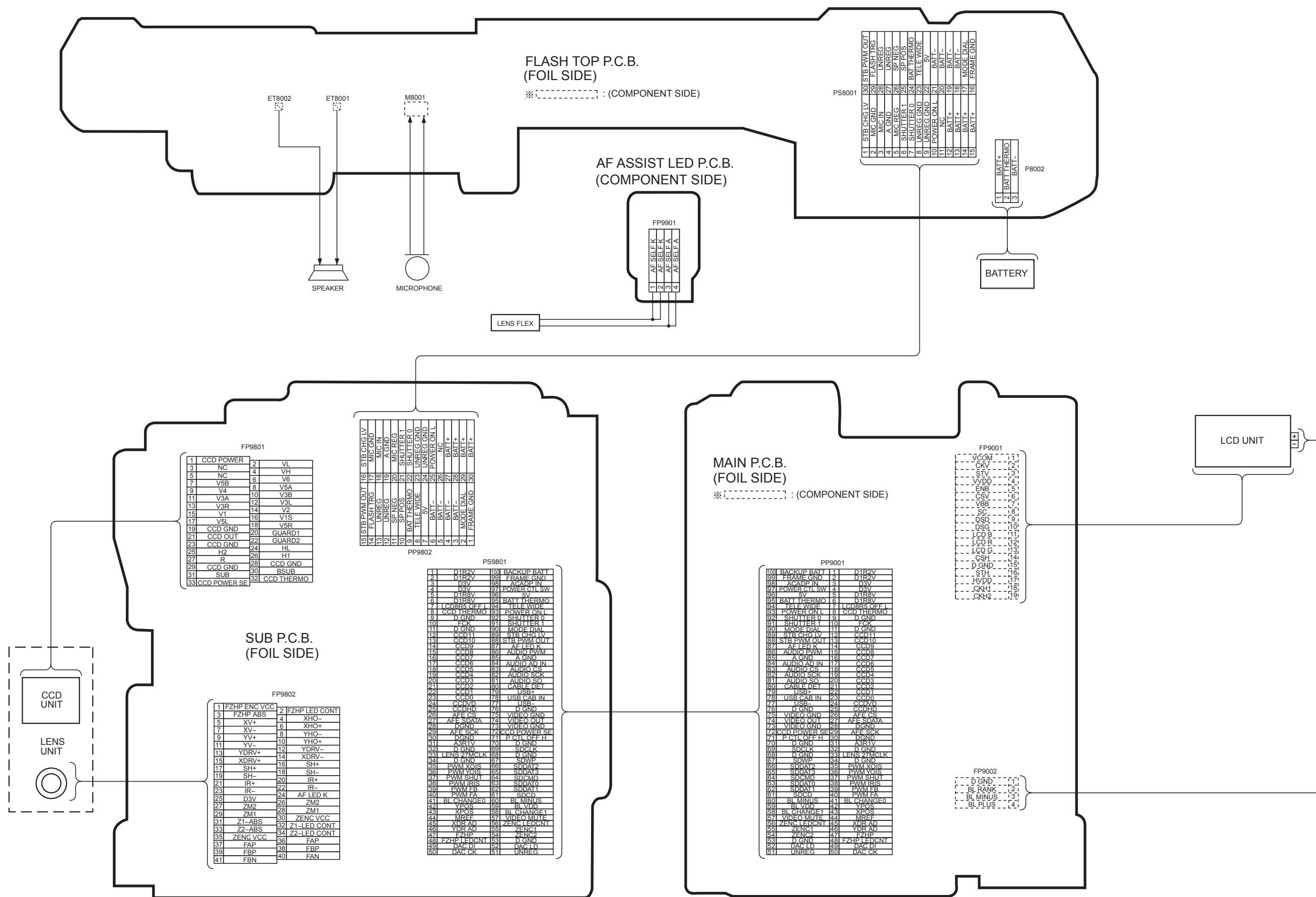
S3. Block Diagram

S3.1. Overall Block Diagram

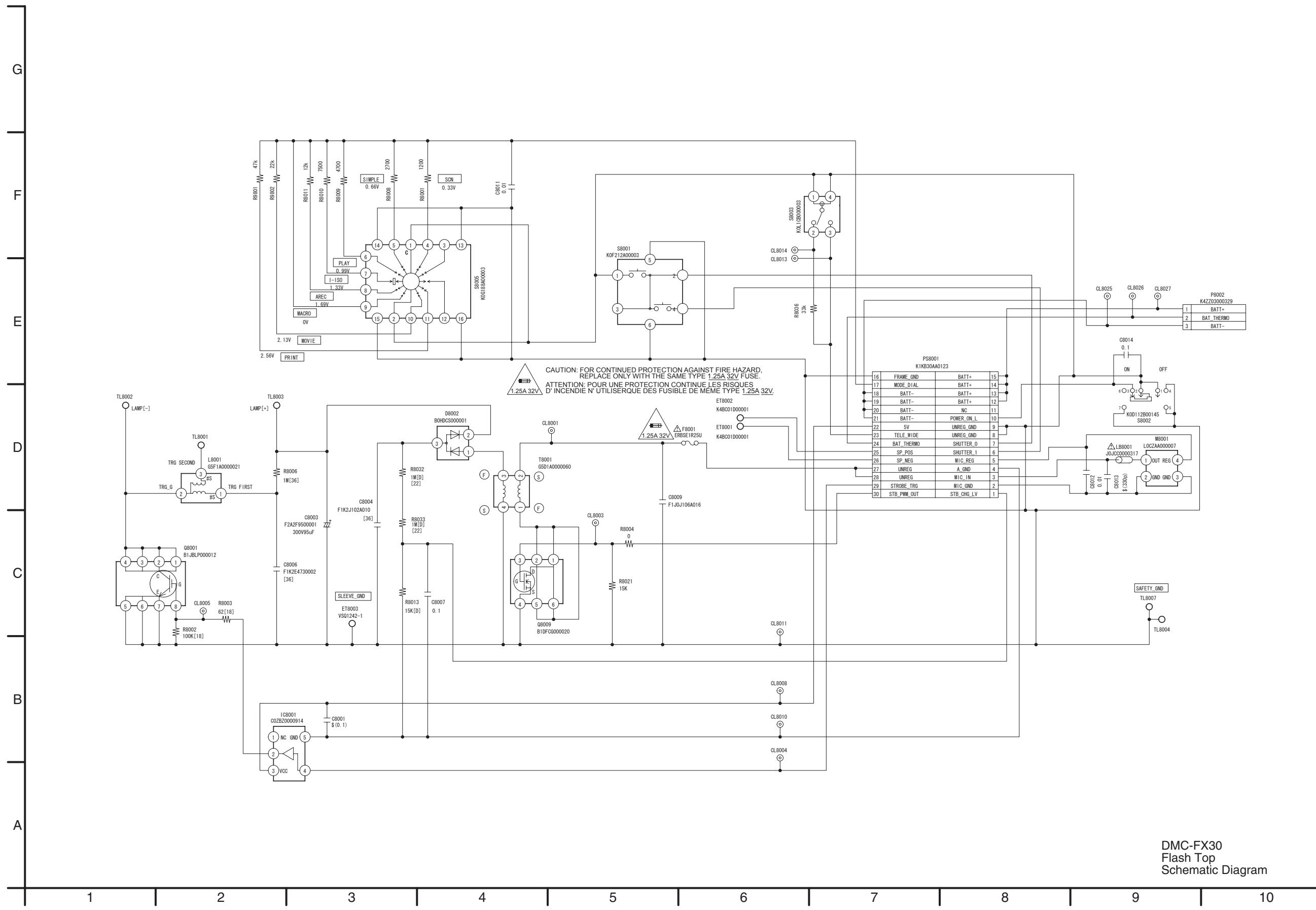


S4. Schematic Diagram

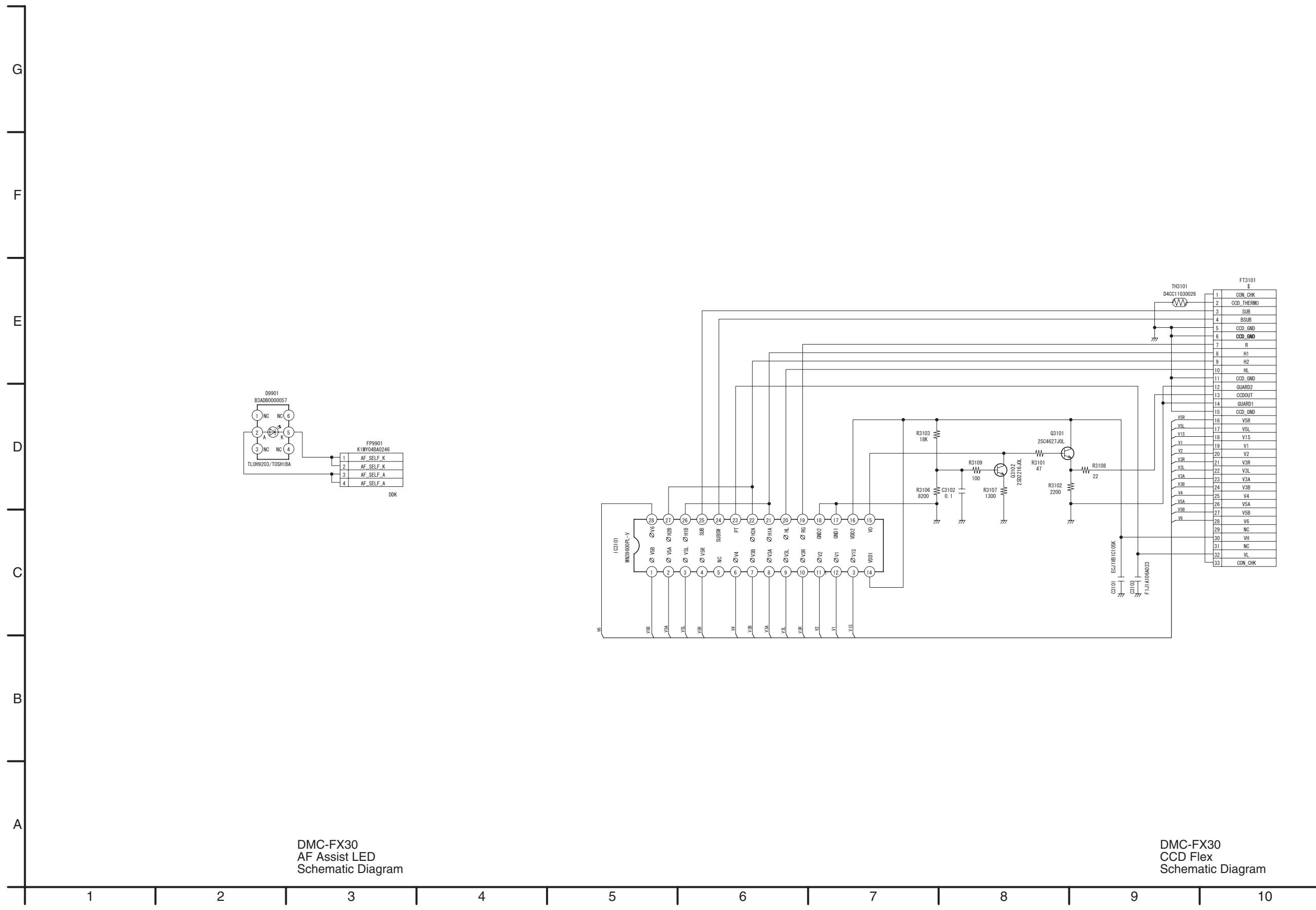
S4.1. Interconnection Diagram



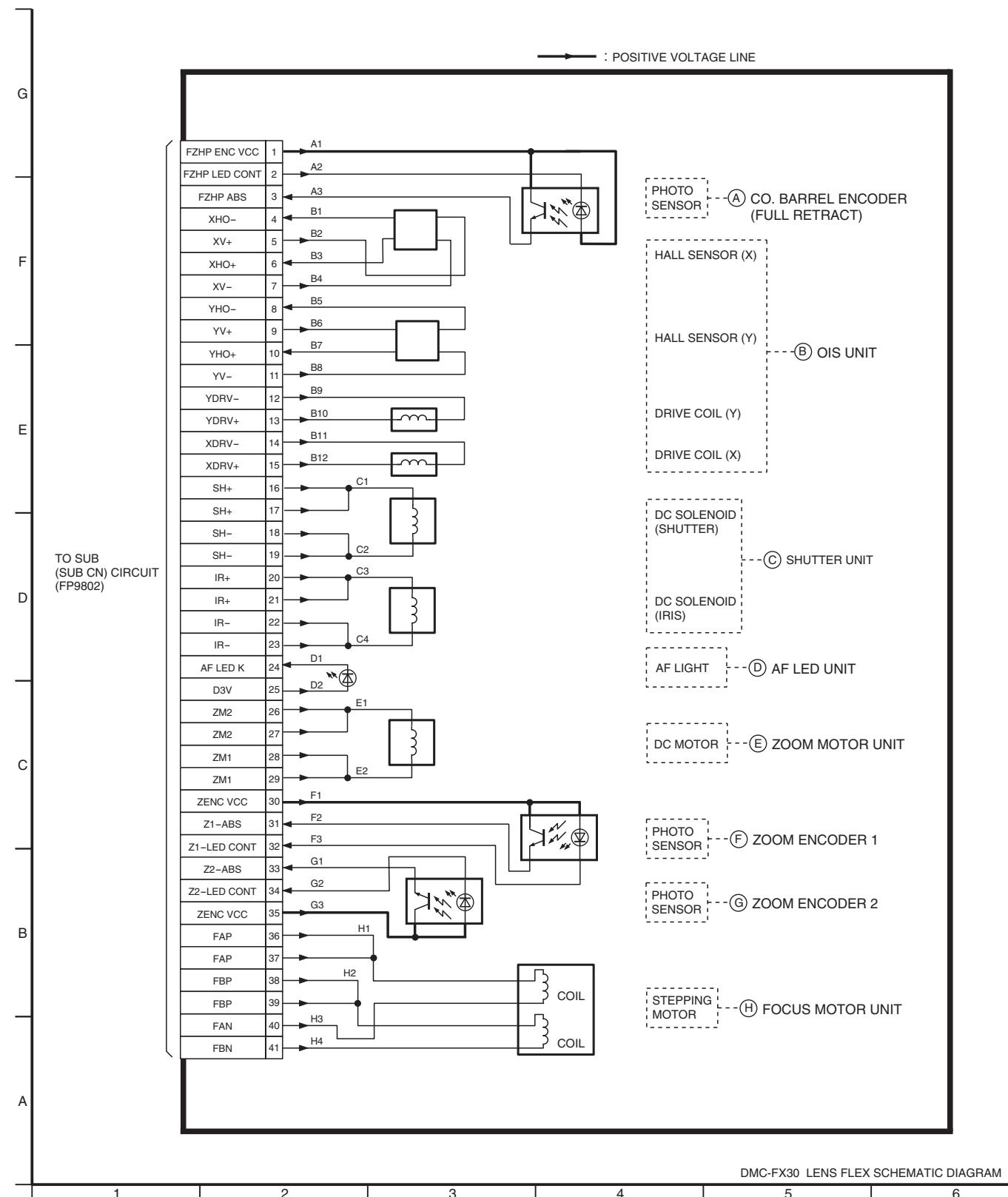
S4.2. Flash Top Schematic Diagram



S4.3. AF Assist LED Schematic Diagram / S4.4. CCD Flex Schematic Diagram

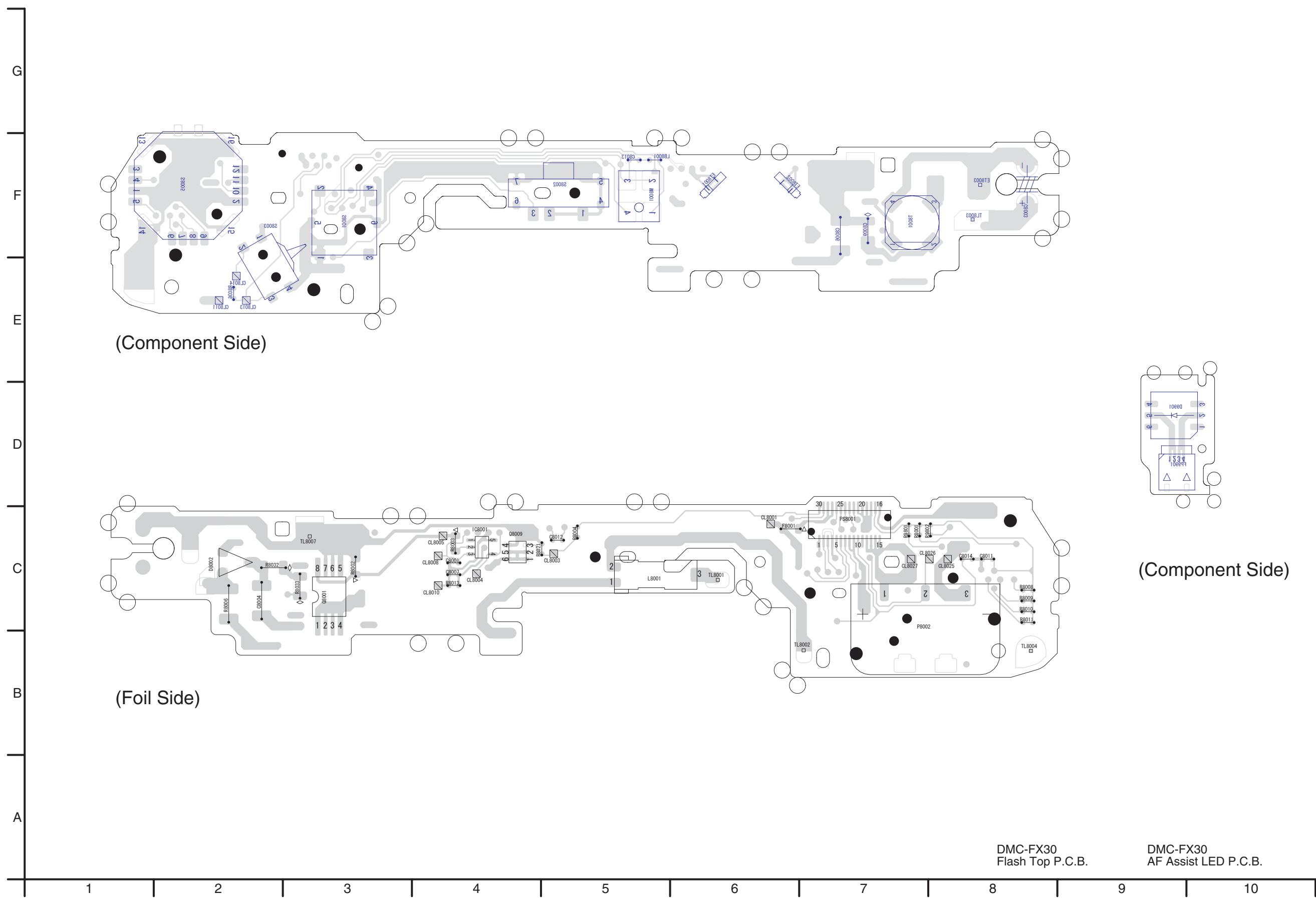


S4.5. Lens Flex Schematic Diagram

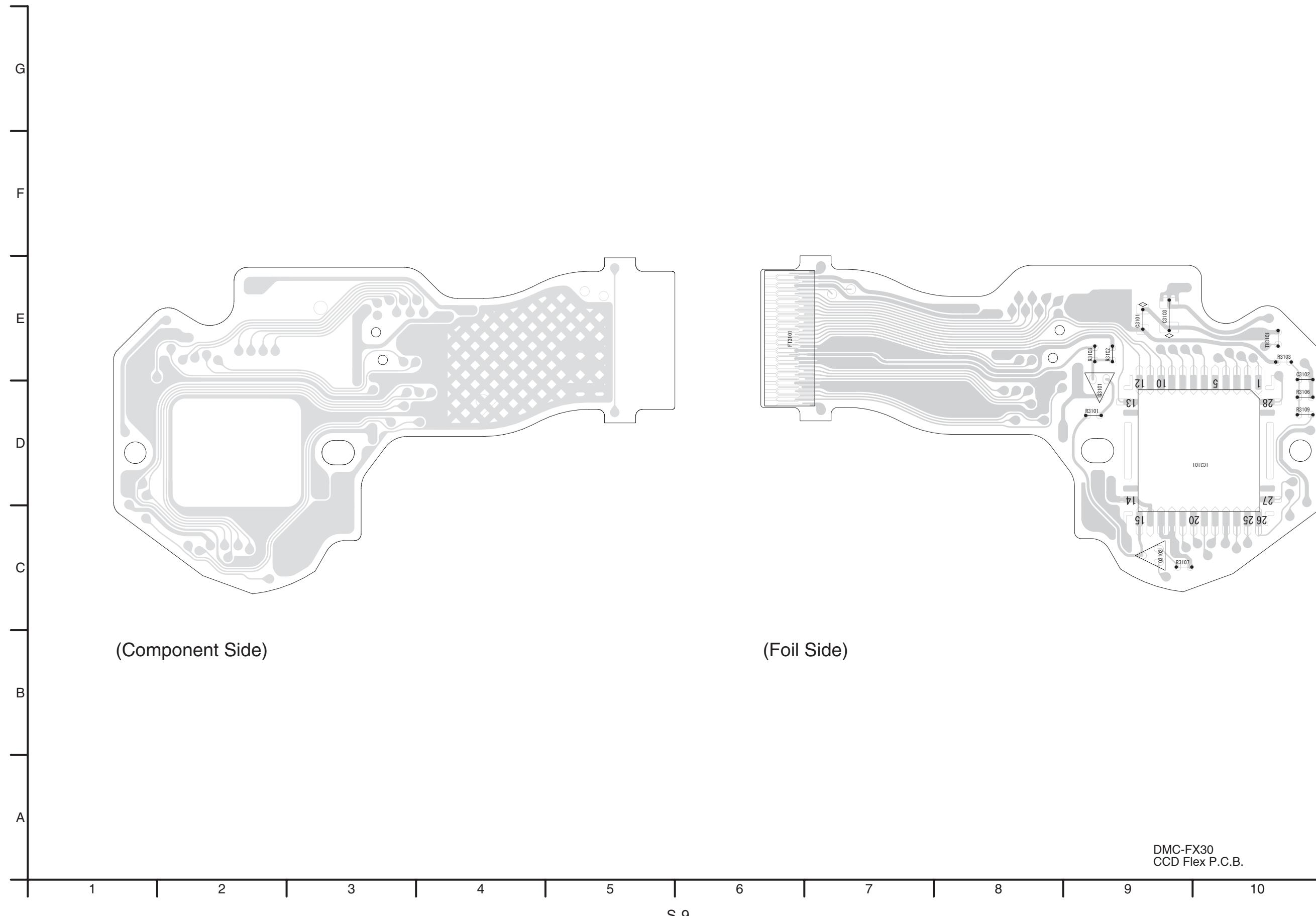


S5. Print Circuit Board

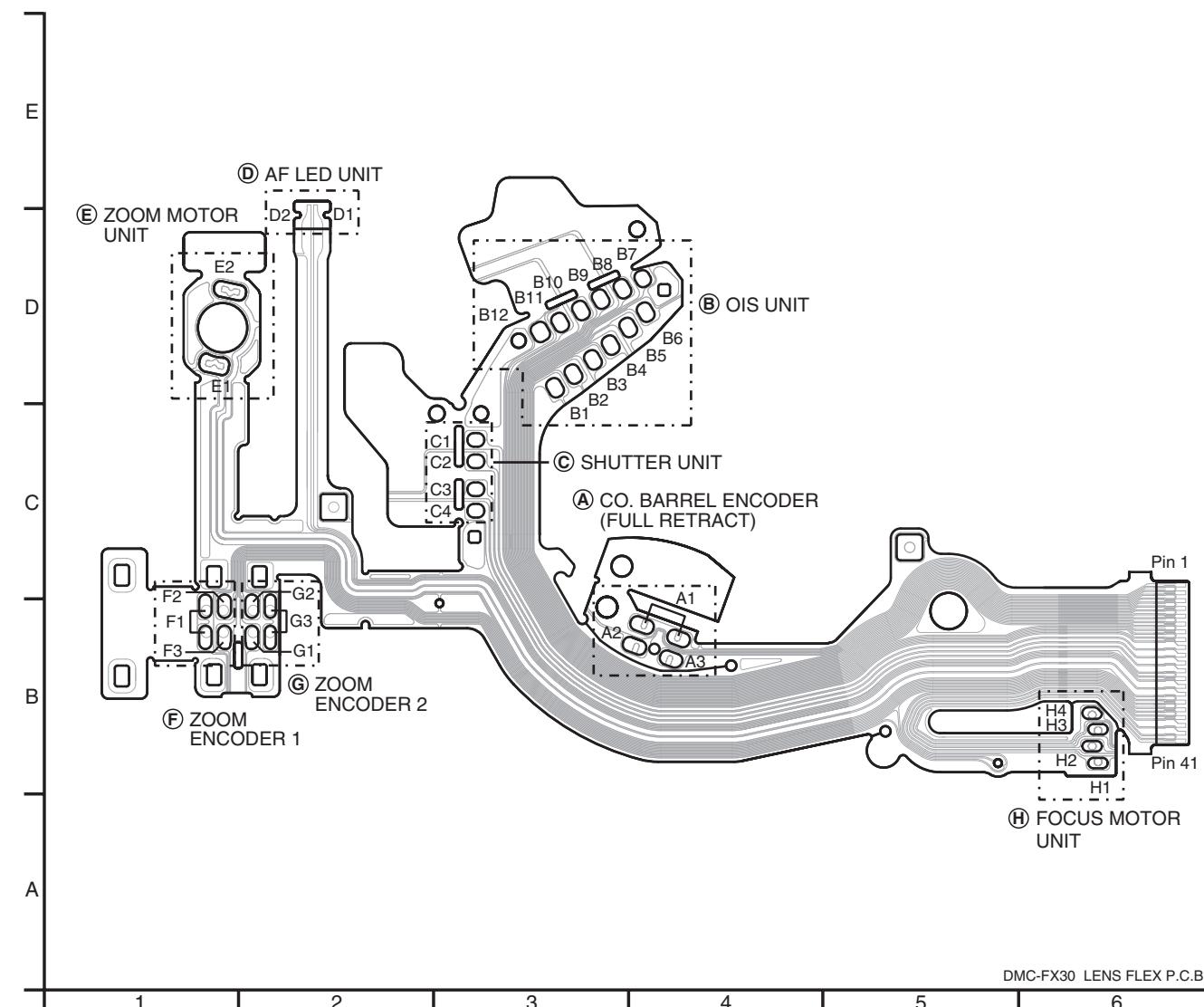
S5.1. Flash Top P.C.B. / S5.2. AF Assist LED P.C.B.



S5.3. CCD Flex P.C.B.



S5.4. Lens Flex P.C.B.



S6. Replacement Parts List

Note:

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

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-FX30P-S/K/T/A/R,PC-K/T/A,PL-S/K,EG-S/K/T/A,EGMS/K/T/A,EF-S/K/T/A,EB-S/K/T/A,EE-S/K/T/A,
GK-S/K/T/A,GC-S/K/T/A,GD-S/K,GN-S/K,GT-S/K/T/A,SG-S/K/T/A vol.1

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP56046A	MAIN P.C.B.	1	(RTL) E.S.D.	FP9901	K1MY04BA0246	CONNECTOR 4P	1	
##	VEP51012A	SUB P.C.B.	1	(RTL) E.S.D.					
##	VEP58038A	FLASH/TOP P.C.B.	1	(RTL) E.S.D.					
##	VEP59037A	AF ASSIST P.C.B.	1	(RTL) E.S.D.	##	VEK0K73	CCD UNIT	1	E.S.D.
##	VEK0K73	CCD UNIT	1	E.S.D.	C3101	ECJ1VB1C105K	C.CAPACITOR CH 16V 1U	1	
					C3102	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
					C3103	F1J1A106A023	C.CAPACITOR CH 10V 10U	1	
##	VEP58038A	FLASH/TOP P.C.B.	1	(RTL) E.S.D.	Q3101	2SC4627JCL	TRANSISTOR	1	E.S.D.
C8004	F1K2J102A010	C.CAPACITOR 630V 1000P	1		Q3102	2SD2216J0L	TRANSISTOR	1	E.S.D.
C8006	F1K2E4730002	C.CAPACITOR 250V 0.047U	1						
C8007	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1		R3101	ERJ2GEJ470	M.RESISTOR CH 1/16W 47	1	
C8009	ECJ2FB0J106M	C.CAPACITOR CH 6.3V 10U	1		R3102	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
C8011	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1		R3103	ERJ2GEJ183	M.RESISTOR CH 1/16W 18K	1	
C8012	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1		R3106	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	
C8014	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1		R3107	ERJ2GEJ132	M.RESISTOR CH 1/16W 1.3K	1	
					R3108	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
D8002	B0HDCS000001	DIODE	1	E.S.D.	R3109	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
ET8001	K4BC01D00001	EARTH TERMINAL	1		TH3101	D4CC11030026	NTC THERMISTORS	1	
ET8002	K4BC01D00001	EARTH TERMINAL	1						
▲ F8001	ERBSE1R25U	FUSE 32V 1.25A	1						
IC8001	COZBZ0000914	IC	1	E.S.D.					
L8001	G5F1A0000021	TRIGGER COIL	1						
▲ LB8001	J0JCC0000317	FILTER	1						
M8001	L0C2AA000007	MICROPHONE UNITS	1						
P8002	K4ZZ03000329	CONNECTOR 3P	1						
PS8001	K1KB30AA0123	CONNECTOR 30P	1						
Q8001	B1JBLP000012	TRANSISTOR	1	E.S.D.					
Q8009	B1DFCG000020	TRANSISTOR	1	E.S.D.					
R8001	ERJ2GEJ122	M.RESISTOR CH 1/16W 1.2K	1						
R8002	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1						
R8003	ERJ3RED620	M.RESISTOR CH 1/10W 62	1						
R8004	DOYAR0000007	M.RESISTOR CH 1/16W 0	1						
R8006	ERJ3GEYJ105V	M.RESISTOR CH 1/8W 1M	1						
R8008	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1						
R8009	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1						
R8010	ERJ2GEJ752X	M.RESISTOR CH 1/16W 7.5K	1	ERJ2RMJ752X					
R8011	ERJ2GEJ123	M.RESISTOR CH 1/16W 12K	1						
R8013	ERJ2RHD153X	M.RESISTOR CH 1/16W 15K	1						
R8021	ERJ2GEJ153	M.RESISTOR CH 1/16W 15K	1						
R8032	ERJ6RED105	M.RESISTOR CH 1/16W 1M	1						
R8033	ERJ6RED105	M.RESISTOR CH 1/16W 1M	1						
R8036	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1						
R9801	ERJ2GEJ473	M.RESISTOR CH 1/16W 47K	1						
R9802	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1						
S8001	K0F212A00003	SWITCH	1						
S8002	K0D112B00145	SWITCH	1						
S8003	K0L1CB000003	SWITCH	1						
S8005	K0G188A00003	SWITCH	1						
T8001	G5D1A0000060	TRANSFORMER	1						
##	VEP59037A	AF ASSIST P.C.B.	1	(RTL) E.S.D.					
D9901	B3ADB0000057	DIODE	1	E.S.D.					

DMC-FX30P-S/K/T/A/R,PC-K/T/A,PL-S/K,EG-S/K/T/A,EGMS/K/T/A,EF-S/K/T/A,EB-S/K/T/A,EE-S/K/T/A,
GK-S/K/T/A,GC-S/K/T/A,GD-S/K,GN-S/K,GT-S/K/T/A,SG-S/K/T/A vol.1

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP51012A	SUB P.C.B.	1	(RTL) E.S.D.	B101	VHD1871	SCREW	1	
2	VEP56046A	MAIN P.C.B.	1	(RTL) E.S.D.	B102	VHD1871	SCREW	1	
3	VMP8772	FRAME	1		B103	VHD1871	SCREW	1	
4	VGQ8836	BATTERY LOCK KNOB	1		B104	XQN14+CJ4FJ	SCREW	1	
5	VKF4160	JACK DOOR	1		B105	XQN14+CJ4FJ	SCREW	1	
6	VMB4094	BATTERY OUT SPRING	1		B106	XQN14+CJ4FJ	SCREW	1	
7	VMB3962	BATTERY LOCK SPRING	1		B107	XQN14+CJ4FJ	SCREW	1	
8	VMB4020	BATTERY DOOR SPRING	1		B109	VHD1871	SCREW	1	
9	VMP8771	BATTERY CASE	1						
10	VMS7810	BATTERY DOOR SHAFT	1						
11	VMS7703	JACK DOOR SHAFT	1						
13	YVF3149	BATTERY COVER UNIT	1						
15	YVK2468	TOP ORNAMENT ASSY	1						
17	EFN-FSW51ZC	FLASH UNIT	1	(RTL) E.S.D.					
18	L0AA01A00026	SPEAKER	1						
20	VEP58038A	FLASH/TOP P.C.B.	1	(RTL) E.S.D.					
21	VEP59037A	AF ASSIST LED P.C.B.	1	(RTL) E.S.D.					
23	VGQ9281	FLASH COVER	1						
25	VYQ4009	MIC DAMPER	1						
26	F2A2F9500001	E.CAPACITOR 300V 95U	1	(C8003)					
27	VSQ1242	EARTH SPRING	1	(ET8003)					
30	VGQ9282	PCB SPACER	1						
31	VMP8780	TRIPOD	1						
32	VMP8777	SIDE ORNAMENT L	1						
33	YVK2463	FRONT CASE ASS'Y	1	(S)					
33	YVK2B12	FRONT CASE ASS'Y	1	(K)					
33	YVK2B16	FRONT CASE ASS'Y	1	(T)					
33	YVK2B14	FRONT CASE ASS'Y	1	(A)					
34	YVK1288	SIDE ORNAMENT U	1						
35	VGK3293	MODE COLLAR	1	(S)					
35	VGK3316	MODE COLLAR	1	(K)					
35	VGK3318	MODE COLLAR	1	(T)					
35	VGK3317	MODE COLLAR	1	(A)					
36	VGL1230	REAR PANEL LIGHT	1						
37	VGQ8914	LCD SHEET	1						
38	VGU0A80	CURSOL BUTTON	1						
41	YVK2465	LCD ASS'Y	1						
42	YVK2A64	REAR CASE ASS'Y	1	(S)					
42	YVK2B13	REAR CASE ASS'Y	1	(K)					
42	YVK2B17	REAR CASE ASS'Y	1	(T)					
42	YVK2B15	REAR CASE ASS'Y	1	(A)					
44	VYQ4056	MODE DIAL ASS'Y	1						
47	VGL1229	AF PANEL LIGHT	1						
50	VGU0A83	POWER KNOB	1						
51	VMP8773	FRAME PLATE	1						
52	ML-421S/ZT	BATTERY	1	(MBI)(B9801)					
53	VSQ1248	EMC SHEET	1						
100	VXW0849	LENS UNIT (W/O CCD)	1						
101	VDL1921	OPTICAL FILTER	1						
102	VEK0K73	CCD UNIT	1	E.S.D.					
105	VMX3587	CCD CUSHION	1						
110	VXP2704	1ST LENS FRAME UNIT	1						
112	VXP2715	DIRECT/DRIVE FRAME UNIT	1						
114	VXQ1478	FIX FRAME UNIT	1						
115	B3NAA0000128	PHOTO COUPLER	1						
116	B3NAA0000128	PHOTO COUPLER	1						
118	L6DA8BFC0001	ZOOM MOTOR	1						
119	B3NAA0000129	PHOTO COUPLER	1						
121	VMA0V55	WASHER	1						
B1	VHD1876	SCREW	1						
B2	VHD1876	SCREW	1						
B3	VHD1694	SCREW	1						
B4	VHD1564	SCREW	1						
B5	VHD1564	SCREW	1						
B6	XQN16+BJ5FN	SCREW	1						
B7	XQN16+BJ5FN	SCREW	1						
B8	XQN16+BJ5FN	SCREW	1						
B9	VHD1915	SCREW	1						
B10	VHD1928	SCREW	1						
B11	VHD1928	SCREW	1						
B12	VHD1928	SCREW	1						
B13	VHD1928	SCREW	1						
B14	VHD1928	SCREW	1						

DMC-FX30P-S/K/T/A/R,PC-K/T/A,PL-S/K,EG-S/K/T/A,EGMS/K/T/A,EF-S/K/T/A,EB-S/K/T/A,EE-S/K/T/A,
GK-S/K/T/A,GC-S/K/T/A,GD-S/K,GN-S/K,GT-S/K/T/A,SG-S/K/T/A vol.1

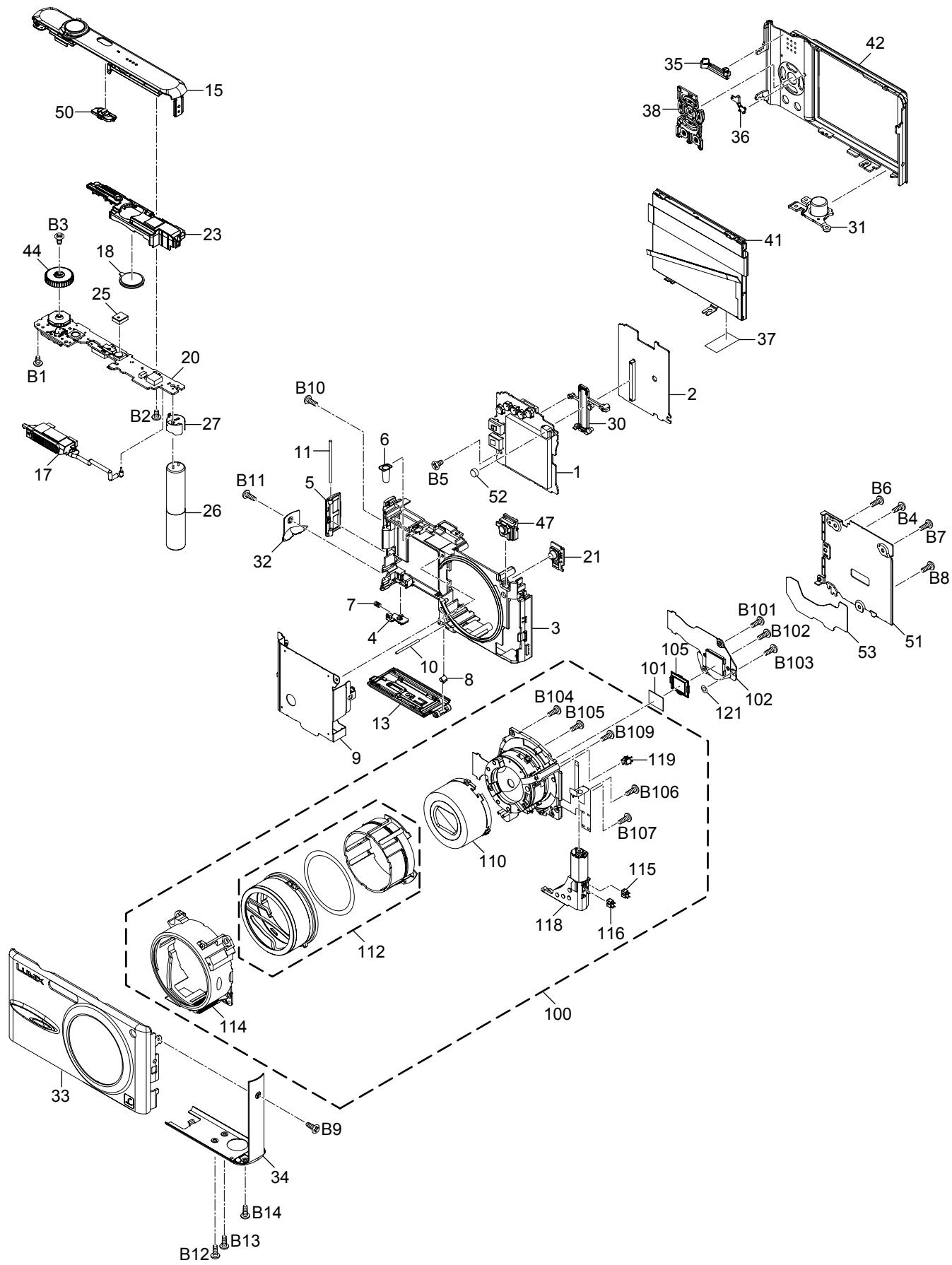
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
201	VPF1224	CAMERA BAG	1	
▲ 202	DE-A40AA	BATTERY CHARGER	1	(EB/EF/EG/EGM/GN)
▲ 202	DE-A40BA	BATTERY CHARGER	1	(EE/GC/GD/GK/SG)
▲ 202	DE-A39BA	BATTERY CHARGER	1	(PL)
▲ 202	DE-A40CA	BATTERY CHARGER	1	(GT)
▲ 203	-----	BATTERY PACK	1	
204	K1HA08CD0013	USB CABLE	1	
205	K1HA08CD0014	AV CABLE	1	
206	VFC4090	HAND STRAP	1	
207	VFF0358-S	CD-ROM	1	(EXCEPT P/PC)
208	VPK3253	INNER CARTON	1	(EBS),(EES),(EFS),(EGS), (EGMS),(GCS),(GDS),(GNS), (GTS),(PLS),(SGS)
208	VPK3298	INNER CARTON	1	(EBK),(EEK),(EFK),(EGK), (EGMK),(GCK),(GDK),(GNK), (GTK),(PLK),(SGK)
208	VPK3306	INNER CARTON	1	(EBT),(EET),(EFT),(EGT), (EGMT),(GCT),(GTT),(SGT)
208	VPK3302	INNER CARTON	1	(EBA),(EFA),(EFA),(EGA), (EGMA),(GCA),(GTA),(SGA)
208	VPK3254	INNER CARTON	1	(GKS)
208	VPK3299	INNER CARTON	1	(GKK)
208	VPK3307	INNER CARTON	1	(GKT)
208	VPK3303	INNER CARTON	1	(GKA)
209	VPN6550	CUSHION	1	(EXCEPT P/PC)
210	VPF1100	BAG, POLYETHYLENE	1	(EB/EE/EF/GD/GK/GN/GT)
210	VPF1132	BAG, POLYETHYLENE	1	(EG/EGM/GC/PL/SG)
▲ 211	VQT1B99	INSTRUCTION BOOK	1	(EB) (ENGLISH)
▲ 211	VQT1C00	INSTRUCTION BOOK	1	(EE) (RUSSIAN)
▲ 211	VQT1C01	INSTRUCTION BOOK	1	(EE) (UKRAINIAN)
▲ 211	VQT1B92	INSTRUCTION BOOK	1	(EF/EG) (FRENCH)
▲ 211	VQT1B91	INSTRUCTION BOOK	1	(EG) (GERMAN)
▲ 211	VQT1B93	INSTRUCTION BOOK	1	(EG) (ITALIAN)
▲ 211	VQT1B94	INSTRUCTION BOOK	1	(EG) (DUTCH)
▲ 211	VQT1B95	INSTRUCTION BOOK	1	(EGM) (SPANISH)
▲ 211	VQT1B96	INSTRUCTION BOOK	1	(EGM) (PORTUGUESE)
▲ 211	VQT1B97	INSTRUCTION BOOK	1	(EGM) (SWEDISH)
▲ 211	VQT1B98	INSTRUCTION BOOK	1	(EGM) (DANISH)
▲ 211	VQT1C02	INSTRUCTION BOOK	1	(GC/SG) (ENGLISH)
▲ 211	VQT1C03	INSTRUCTION BOOK	1	(GC/SG) (CHINESE(TRADITIONAL))
▲ 211	VQT1C04	INSTRUCTION BOOK	1	(GC/SG) (ARABIC)
▲ 211	VQT1C05	INSTRUCTION BOOK	1	(GC/SG) (PERSIAN)
▲ 211	VQT1C09	INSTRUCTION BOOK	1	(GD) (KOREAN)
▲ 211	VQT1C07	INSTRUCTION BOOK	1	(GK) (CHINESE(SIMPLIFIED))
▲ 211	VQT1C08	INSTRUCTION BOOK	1	(GN) (ENGLISH)
▲ 211	VQT1C06	INSTRUCTION BOOK	1	(GT) (CHINESE(TRADITIONAL))
▲ 211	VQT1B88	INSTRUCTION BOOK	1	(PL) (ENGLISH)
▲ 211	VQT1B89	INSTRUCTION BOOK	1	(PL) (SPANISH)
▲ 211	VQT1B90	INSTRUCTION BOOK	1	(PL) (PORTUGUESE)
212	VQT1D77	O/I SOFTWARE	1	(EB/GN) (ENGLISH)
212	VQT1D78	O/I SOFTWARE	1	(EE)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
212	VQT1D76	(RUSSIAN/UKRAINIAN) (FRENCH)	1	(EF)
212	VQT1D74	O/I SOFTWARE (GERMAN/ITALIAN/FRENCH/ DUTCH)	1	(EG)
212	VQT1D75	O/I SOFTWARE (SPANISH/PORTUGUESE/ SWEDISH/DANISH)	1	(EGM)
212	VQT1D79	O/I SOFTWARE (ENGLISH/ARABIC/PERSIAN/ CHINESE(TRADITIONAL))	1	(GC/SG)
212	VQT1D82	O/I SOFTWARE (KOREAN)	1	(GD)
212	VQT1D81	O/I SOFTWARE (CHINESE(SIMPLIFIED))	1	(GK)
212	VQT1D80	O/I SOFTWARE (CHINESE(TRADITIONAL))	1	(GT)
212	VQT1D73	O/I SOFTWARE (ENGLISH/SPANISH/PERSIAN)	1	(PL)
213	VQT1D49	O/I PC CONNECTION (ENGLISH)	1	(EB/GN)
213	VQT1D50	O/I PC CONNECTION (RUSSIAN/UKRAINIAN)	1	(EE)
213	VQT1D48	O/I PC CONNECTION (FRENCH)	1	(EF)
213	VQT1D46	O/I PC CONNECTION (GERMAN/ITALIAN/FRENCH/ DUTCH)	1	(EG)
213	VQT1D47	O/I PC CONNECTION (SPANISH/PORTUGUESE/ SWEDISH/DANISH)	1	(EGM)
213	VQT1D51	O/I PC CONNECTION (ENGLISH/ARABIC/PERSIAN/ CHINESE(TRADITIONAL))	1	(GC/SG)
213	VQT1D54	O/I PC CONNECTION (KOREAN)	1	(GD)
213	VQT1D53	O/I PC CONNECTION (CHINESE(SIMPLIFIED))	1	(GK)
213	VQT1D52	O/I PC CONNECTION (CHINESE(TRADITIONAL))	1	(GT)
213	VQT1D45	O/I PC CONNECTION (ENGLISH/SPANISH/PERSIAN)	1	(PL)
214	VYQ3914	BATTERY CARRYING CASE U	1	
▲ 215	K2CQ2CA00006	AC CORD W/PLUG	1	(EE/EF/EG/EGM/GC/SG)
▲ 216	RJA0078-1X	AC CORD W/PLUG	1	(GD)
▲ 217	K2CA2CA00020	AC CORD W/PLUG	1	(GK)
▲ 217	K2CA2CA00027	AC CORD W/PLUG	1	(GT)
▲ 218	K2CJ2DA00098	AC CORD W/PLUG	1	(GN)
▲ 219	K2CT3CA00004	AC CORD W/PLUG	1	(EB/GC/SG)

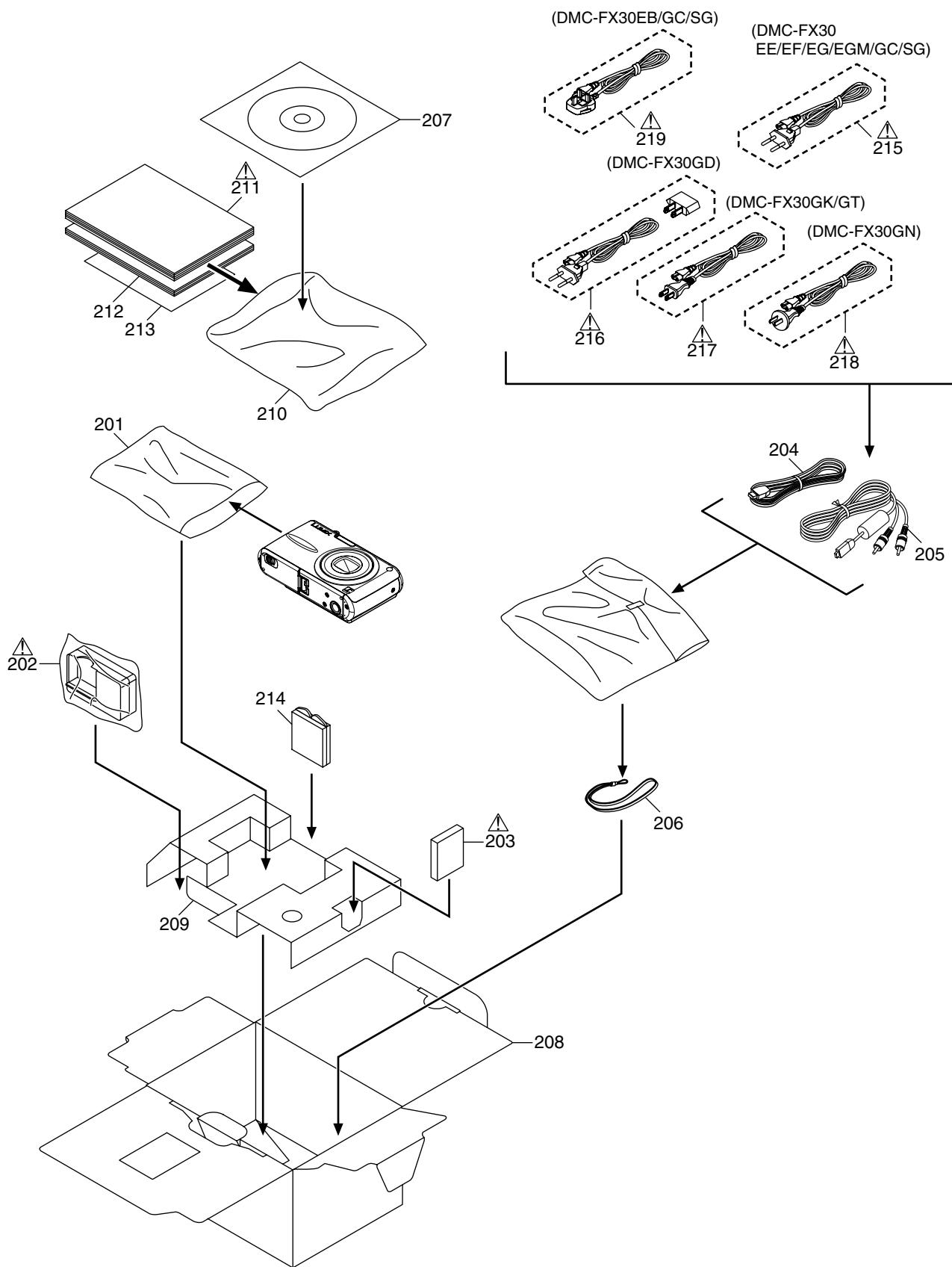
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GK-S/K/T/A,GC-S/K/T/A,GD-S/K,GN-S/K,GT-S/K/T/A,SG-S/K/T/A vol.1

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)

