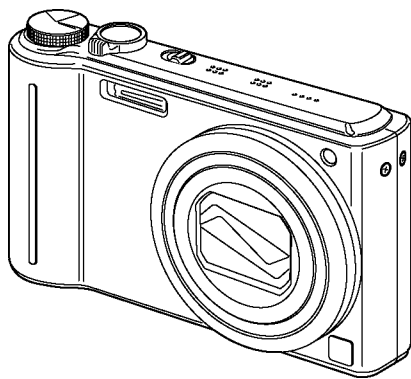


Service Manual

Digital Camera



Model No. **DMC-TZ7EB**
DMC-TZ7EE
DMC-TZ7EF
DMC-TZ7EG
DMC-TZ7EP
DMC-TZ7GC
DMC-TZ7GJ
DMC-TZ7GN
DMC-TZ7SG
DMC-ZS3GD
DMC-ZS3GH
DMC-ZS3GK
DMC-ZS3GT
DMC-ZS3P
DMC-ZS3PC
DMC-ZS3PU

VOL.1

Colours

- (S).....Silver Type (except DMC-TZ7EF/GJ, ZS3GD)
- (K).....Black Type
- (A).....Blue Type (only DMC-TZ7EE/EG/EP, ZS3P/PC/PU)
- (R).....Red Type (only DMC-TZ7EB/EF/EG/EP, ZS3P)
- (T).....Brown Type (only DMC-TZ7EB/EF/EG/EP/GC/SG, ZS3GH/GK)

WARNING

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

TABLE OF CONTENTS

	PAGE	PAGE
1 Safety Precautions -----	3	
1.1. General Guidelines -----	3	
1.2. Leakage Current Cold Check -----	3	
1.3. Leakage Current Hot Check (See Figure 1)-----	3	
1.4. How to Discharge the Capacitor on Flash Top PCB-----	4	
2 Warning -----	5	
2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices-----	5	
2.2. How to Recycle the Lithium Ion Battery (U.S. Only)-----	5	
2.3. Caution for AC Cord (For EB/GC/SG) -----	6	
2.4. How to Replace the Lithium Battery-----	7	
3 Service Navigation -----	8	
3.1. Introduction -----	8	
3.2. General Description About Lead Free Solder (PbF) -----	8	
3.3. Important Notice 1:(Other than U.S.A. and Canadian Market) -----	8	
3.4. How to Define the Model Suffix (NTSC or PAL model)-----	9	
4 Specifications -----	13	
5 Location of Controls and Components -----	15	
6 Service Mode -----	17	
6.1. Error Code Memory Function -----	17	
6.2. ICS (Indication of additional Camera Settings when picture was taken) function -----	21	
7 Service Fixture & Tools -----	23	
7.1. Service Fixture and Tools -----	23	
7.2. When Replacing the Main PCB -----	23	
7.3. Service Position -----	24	
8 Disassembly and Assembly Instructions -----	25	
8.1. Disassembly Flow Chart-----	25	
8.2. PCB Location-----	25	
8.3. Disassembly Procedure -----	26	
8.4. Disassembly Procedure for the Lens -----	32	
8.5. Assembly Procedure for Lens -----	36	
8.6. Removal of the CCD Unit -----	39	
8.7. Removal of the Zoom Motor Unit -----	40	
8.8. Removal of the Focus Motor Unit -----	40	
8.9. The Applment of Grease Method-----	41	
9 Measurements and Adjustments -----	42	
9.1. Matrix Chart for Replaced Part and Necessary Adjustment-----	42	
10 Maintenance -----	43	
10.1. Cleaning Lens, Viewfinder and LCD Panel-----	43	

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 \triangle 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 $1M\Omega$ and $5.2M\Omega$. 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 $1.5k\Omega$, 10 W resistor, in parallel with a $0.15\mu F$ 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 $1 k\Omega/V$ or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed $1/2$ mA. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

Hot-Check Circuit

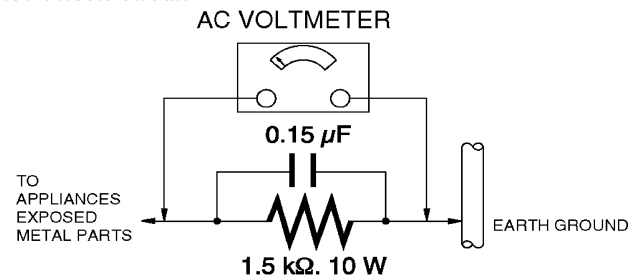


Figure 1

1.4. How to Discharge the 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 (ERG5SJ102:1k Ω /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.

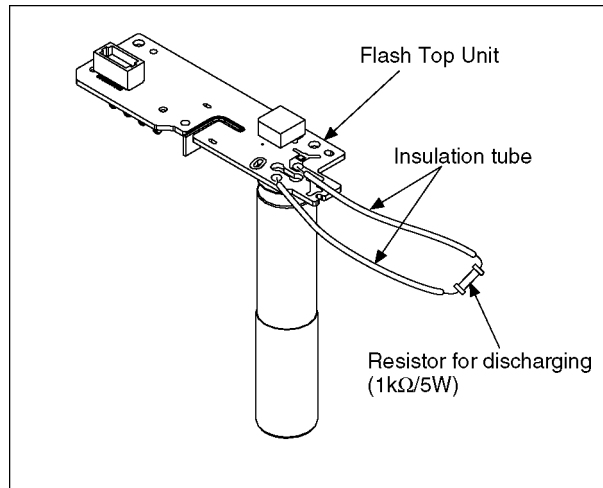


Fig. F1

2 Warning

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

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

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

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

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

CAUTION:

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

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

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

ENGLISH



A lithium ion/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:

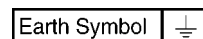
Blue	Neutral
Brown	Live

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.

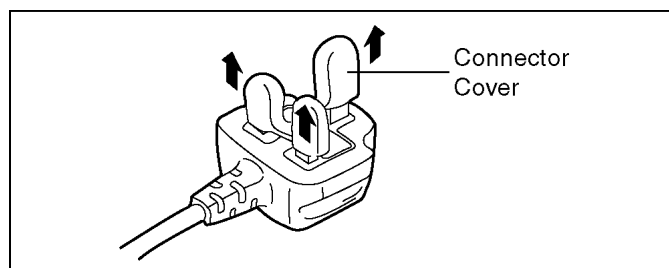
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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.



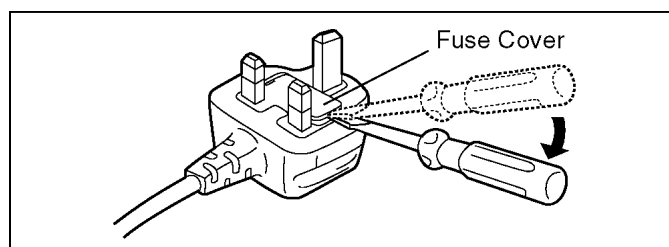
2.3.2.2. Before Use

remove the Connector Cover as follows.

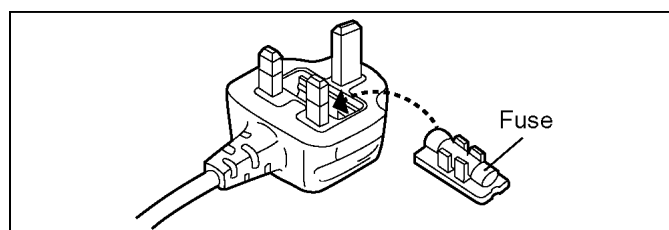


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



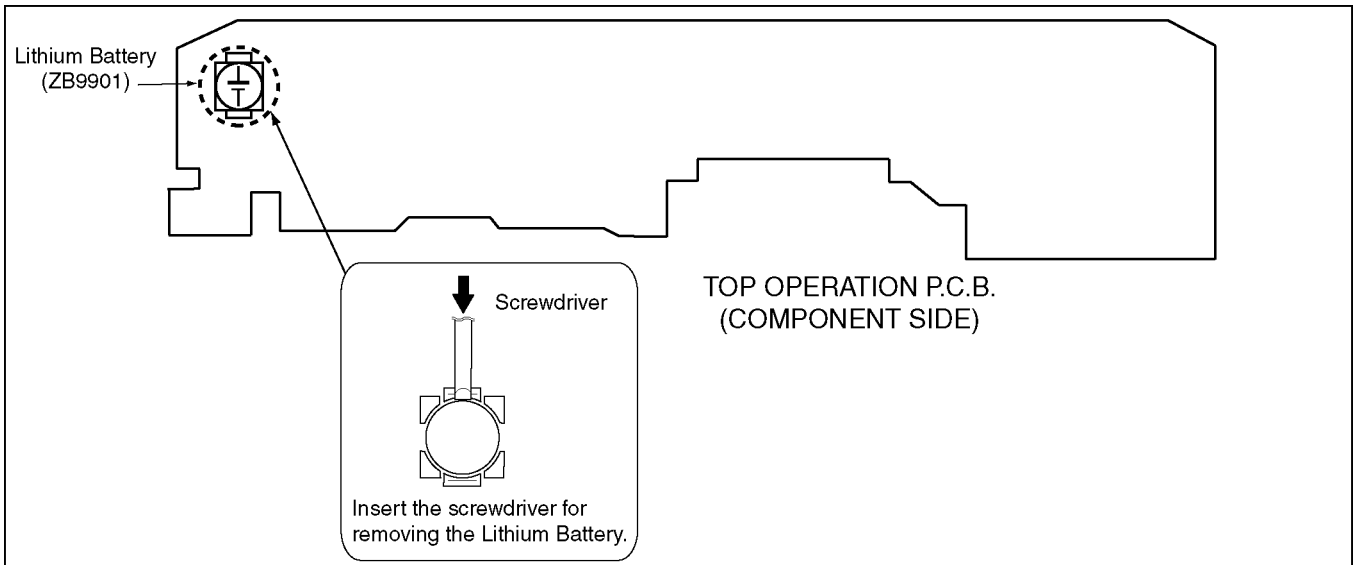
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the Top Operation PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. **ZB9901** at component side of Top Operation PCB) and then replace it into new one.



CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

CAUTION

The battery used in this device may present a risk of fire or chemical burn if mistreated.
Do not recharge, disassemble, heat above 100 C (212 F), or incinerate.
Replace battery with Panasonic part number ML-421S/ZTE only.
Use of another battery may present a risk of fire or explosion.
Dispose of used battery promptly.
Keep away from children.
Do not disassemble and do not dispose of in fire.

Note:

The lithium battery is a critical component.

(Type No.: ML-421S/ZTK **Manufactured by Panasonic**)

It must never be subjected to excessive heat or discharge.

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

Replacement batteries must be of the 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 fabricant.

NOTE:

Above caution is applicable for a battery pack which is for DMC-TZ7/ZS3 series, as well.

3 Service Navigation

3.1. Introduction

This service manual contains technical information, which will 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.

Definition 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 degrees 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%

3.3. 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 : VEP56081A---(Except : DMC-TZ7EG/EP/EF/EB)
VEP56081C---(Only for : DMC-TZ7EG/EP/EF/EB)
- SUB PCB : VEP51024A

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










There are eight kinds of DMC-TZ7/ZS3, regardless of the colours.

- a) DMC-TZ7 (Japan domestic model.) /SG
- b) DMC-ZS3P/PC
- c) DMC-TZ7EB/EF/EG/EP
- d) DMC-TZ7EE
- e) DMC-ZS3GD
- f) DMC-ZS3GT
- g) DMC-TZ7GN
- h) DMC-ZS3GK
- i) DMC-TZ7GC/GJ, ZS3GH/PU

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.

<p>a) DMC-TZ7 (Japan domestic model) /SG The nameplate for this model shows the following Safety registration mark.</p>	 <p style="text-align: center;">Safety registration mark</p>
	
<p>b) DMC-ZS3P/PC The nameplate for these models show the following Safety registration mark.</p>	
	
<p>c) DMC-TZ7EB/EF/EG/EP The nameplate for these models show the following Safety registration mark.</p>	
	
<p>d) DMC-TZ7EE The nameplate for this model show the following Safety registration mark.</p>	
	
<p>e) DMC-ZS3GD The nameplate for this model show the following Safety registration mark.</p>	
	
<p>f) DMC-ZS3GT The nameplate for this model show the following Safety registration mark.</p>	
	
<p>g) DMC-TZ7GN The nameplate for these models show the following Safety registration mark.</p>	
	
<p>h) DMC-ZS3GK The nameplate for these models show the following Safety registration mark.</p>	
	
<p>i) DMC-TZ7GC/GJ, DMC-ZS3GH/PU The nameplate for these models do not show any above safety registration mark.</p>	

NOTE:

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

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

3.4.2. INITIAL SETTINGS:

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

1. IMPORTANT NOTICE:

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

CAUTION 1:(INITIAL SETTINGS)

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

[Other than "EG, EP, EF and EB" models : (VEP56081A is used as a Main P.C.B.)]

*.The model suffix can be chosen **JUST ONE TIME**.
(Effective model suffix: DMC-TZ7 "EE/GC/GJ/GN/SG and NONE(JAPAN)"
DMC-ZS3 "GD/GH/GK/GT/P/PC and PU")

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

[Only for "EG, EP, EF and EB" models : (VEP56081C is used as a Main P.C.B.)]

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

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

This unit employs "Built-in Memory" for picture image data recording.(Approx.40MB)
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:

1. Attach the Battery or AC Adaptor with a DC coupler to the unit.
2. Set the mode dial to the NORMAL PICTURE mode.

NOTE: If the mode dial position is other than NORMAL PICTURE mode, it does not display the initial settings menu.

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

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

While keep pressing "UP of Cursor button" and DISPLAY button simultaneously, turn the Power on.

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

Set the REC/PLAYBACK selector switch to "PLAYBACK".

Press "UP of Cursor button" and [DISPLAY button simultaneously, then turn the Power off.

• **Step 3. Turn the Power on:**

Set the REC/PLAYBACK selector switch to "REC (Camera mark)", and then turn the Power on.

• **Step 4. Display the "INITIAL SETTINGS" menu:**

NOTE: If the unit is other than NORMAL PICTURE mode, it does not display the initial settings menu.

While keep pressing MENU/SET 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:

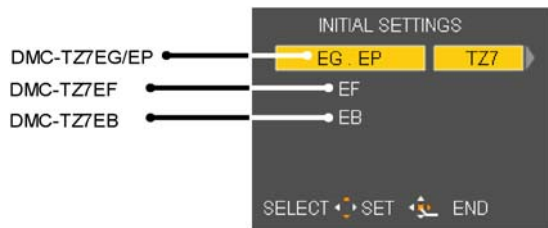
[CASE 1. After replacing MAIN P.C.B.]

[Other than "EG, EP, EF and EB" models : (VEP56081A is used as a Main P.C.B.)]

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



[Only for "EG, EP, EF and EB" models : (VEP56081C is used as a Main P.C.B.)]
 When MAIN P.C.B. has just been replaced, only 4 model suffix are displayed as follows.



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



• **Step 5. Chose the model suffix in "INITIAL SETTINGS": (Refer to "CAUTION 1")**

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

(Especially, other than "EG, EP, EF and EB" models : (VEP56081A is used as a Main P.C.B.).

The model suffix can be chosen, JUST ONE TIME.

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

Therefore, select the area carefully.

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

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

Press the "RIGHT" of Cursor buttons".

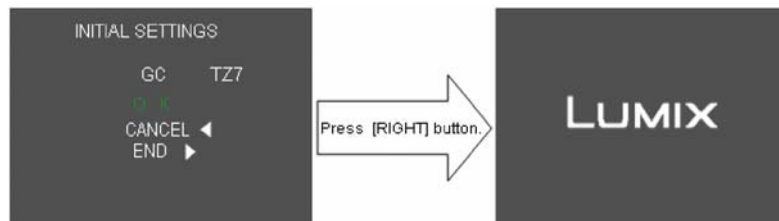
The only set area is displayed. Press the "RIGHT" of Cursor buttons" after confirmation.

(The unit is powered off automatically.)

• **Step 7. CONFIRMATION:**

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

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



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-TZ7 (Japan domestic model)	NTSC	Japanese	Year/Month/Date	
b)	DMC-TZ7EB	PAL	English	Date/Month/Year	
c)	DMC-TZ7EE	PAL	Russian	Date/Month/Year	
d)	DMC-TZ7EF	PAL	French	Date/Month/Year	
e)	DMC-TZ7EG	PAL	English	Date/Month/Year	
f)	DMC-TZ7EP	PAL	English	Date/Month/Year	
g)	DMC-TZ7GC	PAL	English	Date/Month/Year	
h)	DMC-TZ7GJ	PAL	Thai	Date/Month/Year	
i)	DMC-TZ7GN	PAL	English	Date/Month/Year	
j)	DMC-TZ7SG	PAL	English	Date/Month/Year	
k)	DMC-ZS3GD	NTSC	Korean	Year/Month/Date	
l)	DMC-ZS3GH	PAL	English	Date/Month/Year	
m)	DMC-ZS3GK	PAL	Chinese (simplified)	Year/Month/Date	No Underwater mode.
n)	DMC-ZS3GT	NTSC	Chinese (Traditional)	Year/Month/Date	
o)	DMC-ZS3P	NTSC	English	Month/Date/Year	
p)	DMC-ZS3PC	NTSC	English	Month/Date/Year	
q)	DMC-ZS3PU	NTSC	Spanish	Month/Date/Year	

4 Specifications

Digital Camera: Information for your safety

Power Source	DC 5.1 V
Power Consumption	When recording: 1.3 W When playing back: 0.6 W
Camera effective pixels	10,100,000 pixels
Image sensor	1/2.33" CCD, total pixel number 12,700,000 pixels Primary colour filter
Lens	Optical 12 x zoom f=4.1 mm to 49.2 mm (35 mm film camera equivalent: 25 mm to 300 mm)/ F3.3 to F4.9
Digital zoom	Max. 4 x
Extra optical zoom	Max. 21.4 x
Focus	Normal/AF Macro/Macro zoom Face detection/AF tracking/11-area-focusing/ 1-area-focusing (High speed)/1-area-focusing/Spot-focusing
Focus range	
Normal/Motion picture	50 cm (1.64 feet) (Wide)/2 m (6.57 feet) (Tele) to ∞
Macro/Intelligent Auto/Clipboard	3 cm (0.1 feet) (Wide)/1 m (3.28 feet) (Tele) to ∞ (2 m (6.57 feet) unless max.T)
Scene mode	There may be difference in above settings.
Shutter system	Electronic shutter + Mechanical shutter
Motion picture recording	<ul style="list-style-type: none"> ● AVCHD Lite 1280 x 720 pixels 50p recordings* (Only when using an SD Memory Card) * CCD output is at 25fps Approx. 17 Mbps/Approx. 13 Mbps/Approx. 9 Mbps (VBR), with stereo audio ● Motion JPEG 1280 x 720 pixels* / 848 x 480 pixels* / 640 x 480 pixels* / 320 x 240 pixels (* Only when using an SD Memory Card) 30 frames/second with stereo audio
Burst recording	
Burst speed	2.3 pictures/second (Burst), Approx. 1.8 pictures/second (Unlimited)
Number of recordable pictures	Max. 5 pictures (Standard), max. 3 pictures (Fine), Depends on the remaining capacity of the built-in memory or the card (Unlimited).
Hi-speed burst	
Burst speed	Approx. 10 pictures/second (Speed priority) Approx. 6 pictures/second (Image priority)
Number of recordable pictures	Approx. 15 pictures (When using the built-in memory, immediately after formatting) Max. 100 pictures (When using a card, it may differ depending on the type of card and the recording conditions)
ISO sensitivity	AUTO/80/100/200/400/800/1600 [HIGH SENS.] mode: 1600 - 6400
Shutter speed	8 to 1/2000 th [STARRY SKY] mode: 15 seconds, 30 seconds, 60 seconds
White balance	AUTO/Daylight/Cloudy/Shade/Halogen/White set
Exposure (AE)	AUTO (Programme AE) Exposure compensation (1/3 EV Step, -2 EV to +2 EV)
Metering mode	Multiple/Centre weighted/Spot

LCD monitor	3.0" low-temperature polycrystalline TFT LCD (Approx. 460,800 dots) (field of view ratio about 100 %)
Flash	Flash range: (ISO AUTO) Approx. 60 cm (1.97 feet) to 5.3 m (17.4 feet) (Wide) AUTO, AUTO/Red-eye reduction, Forced flash ON (Forced flash ON/ Red-eye reduction), Slow sync./Red-eye reduction, Forced flash OFF
Microphone	Stereo
Speaker	Monaural
Recording media	Built-in Memory (Approx. 40 MB)/SD Memory Card/SDHC Memory Card/ MultiMediaCard (Still pictures only)
Picture size	
Still picture	When the aspect ratio setting is [4:3] 3648 x 2736 pixels / 3072 x 2304 pixels / 2560 x 1920 pixels / 2048 x 1536 pixels / 1600 x 1200 pixels / 640 x 480 pixels
	When the aspect ratio setting is [3:2] 3776 x 2520 pixels / 3168 x 2112 pixels / 2656 x 1768 pixels / 2112 x 1408 pixels / 2048 x 1360 pixels
Motion pictures	When the aspect ratio setting is [16:9] 3968 x 2232 pixels / 3328 x 1872 pixels / 2784 x 1568 pixels / 2208 x 1248 pixels / 1920 x 1080 pixels 1280 x 720 pixels* / 848 x 480 pixels* / 640 x 480 pixels* / 320 x 240 pixels (* Only when using an SD Memory Card)
Quality	Fine/Standard
Recording file format	
Still Picture	JPEG (based on Design rule for Camera File system, based on Exif 2.21 standard)/DPOF corresponding
Still pictures with audio	JPEG (based on Design rule for Camera File system, based on Exif 2.21 standard) + QuickTime
Motion pictures	AVCHD Lite/QuickTime Motion JPEG
Interface	Digital: USB 2.0 (High Speed) Data from the PC can not be written to the camera using the USB connection cable. Analogue video/audio: NTSC/PAL Composit (Switched by menu), Audio line output (stereo)
Terminal	HDMI: HDMI mini cable (type C) AV/DIGITAL/MULTI: Dedicated jack (14 pin)
Dimensions (excluding the projection part)	Approx. 103.3 mm (W) x 59.6 mm (H) x 32.8 mm (D) [4.07" (W) x 2.35" (H) x 1.29" (D)]
Mass	Excluding card and battery: Approx. 206 g (7.3 oz)/ With card and battery: Approx. 229 g (8.1 oz)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating humidity	10 % to 80 %

Battery charger
(Panasonic DE-A66A): Information for your safety

Output	CHARGE 4.2 V --- 0.65 A
Input	110 V to 240 V 50/60Hz, 0.2 A

Battery Pack (lithium-ion)
(Panasonic DMW-BCG10E): Information for your safety

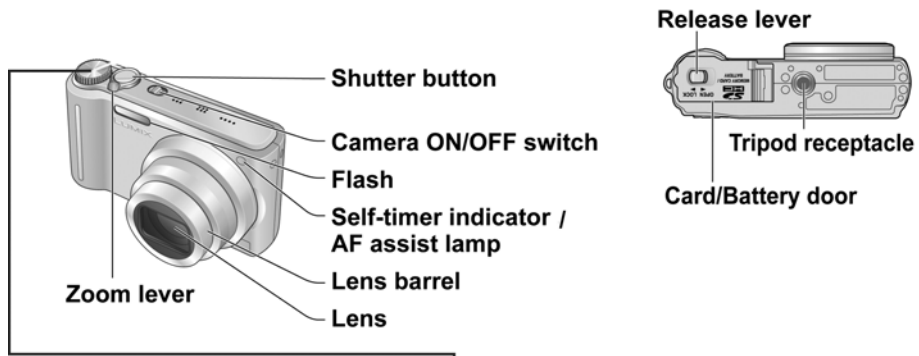
Voltage/capacity (Minimum)	3.6 V / 895 mAh
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NOTE:

(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 15minutes.
The maximum continuous recording time (up to 15minutes) is displayed on the screen.

5 Location of Controls and Components

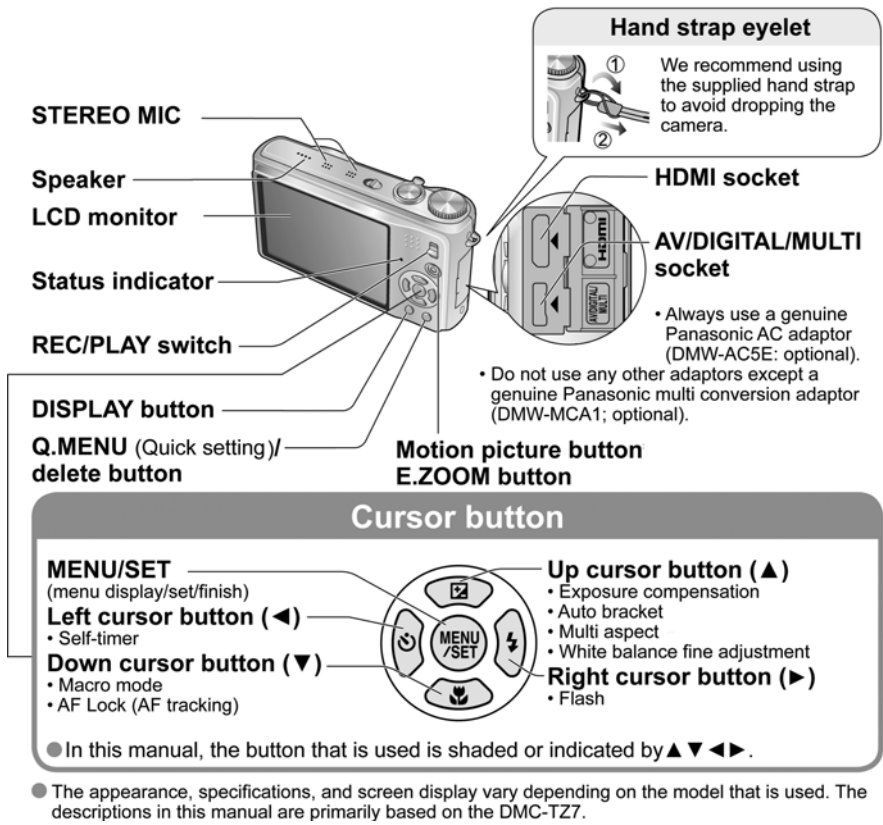


Mode dial

Align to
correct mode

The current mode will be displayed on the LCD monitor when the mode dial is turned.

	INTELLIGENT AUTO Mode	Take pictures with automatic settings.
	NORMAL PICTURE Mode	Take pictures with customized settings.
MS	MY SCENE MODE	Taking pictures in frequently-used scene modes.
SCN	SCENE MODE	Take pictures according to scene.
	MOTION PICTURE Mode	Take motion pictures.
	CLIPBOARD Mode	Take pictures as memos.



About the Battery

• This unit has a function that can distinguish useable batteries. Exclusive batteries are supported by this function. (Conventional batteries not supported by this function cannot be used.)

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

6 Service Mode

6.1. Error Code Memory Function

1. General description

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

The error code is not memorized when the power supply is shut down forcibly (i.e., when the unit is powered on by the battery, the battery is pulled out) The error code is memorized to 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:

1. Attach the Battery or AC Adaptor with a DC coupler to the unit.

NOTE:

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

*Set the mode dial other than "CLIPBOARD (memo)" mode (such as normal picture/ iA / MS1/MS2/SCN) to display the error code.

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

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

While keep pressing "UP of Cursor button" and DISPLAY button simultaneously, turn the Power on.

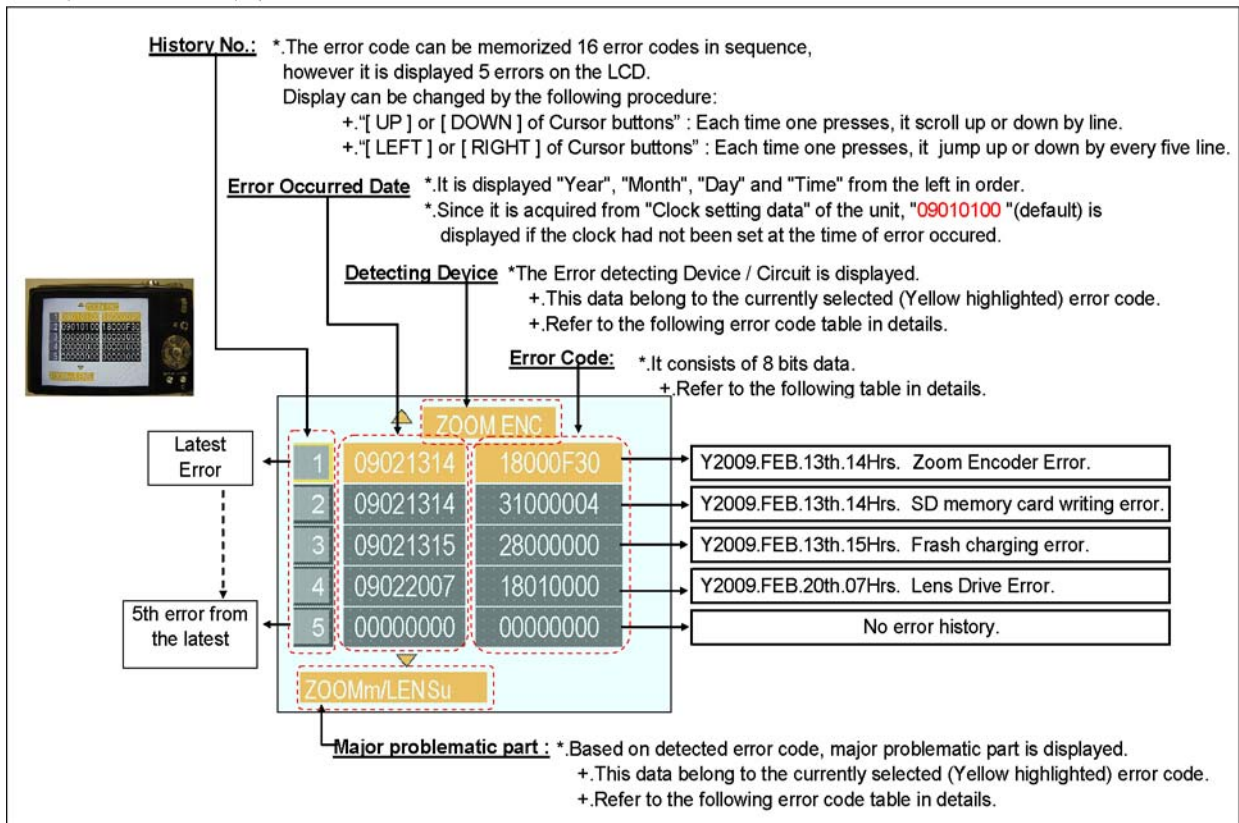
• Step 2. Execute the error code display mode:

Press the "LEFT of Cursor button", MENU/SET button and DISPLAY button simultaneously.

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

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)	Error Indication			
			High 4bits	Low 4 bits	Check point (Lower)	Detecting device	Part/Circuit		
LENS	Lens drive	OIS	18*0	1000	PSD (X) error. Hall element (X axis) position detect error in OIS unit. OIS Unit	OIS X	LENSu NG		
				2000	PSD (Y) error. Hall element (Y axis) position detect error in OIS unit. OIS Unit	OIS Y			
			3000	GYRO (X) error. Gyro (IC7101) detect error on Main P.C.B.. IC7101 (Gyro element) or IC6001 (VENUS HD)	JYRO X	JYRO NG			
				4000	GYRO (Y) error. Gyro (IC7101) detect error on Main P.C.B.. IC7101 (Gyro element) or IC6001 (VENUS HD)		JYRO Y		
			5000	MREF error (Reference voltage error). IC9101 (LENS drive) or IC6001 (VENUS HD)	OIS REF	LENSSd/DSP NG			
				6000	Drive voltage (X) error. LENS Unit, LENS flex breaks, IC6001(VENUS HD) AD value error, etc.		OISX REF	LENSu/LENS FPC	
			7000		Drive voltage (Y) error. LENS Unit, LENS flex breaks, IC6001(VENUS HD) AD value error, etc.	OISY REF			
			Zoom (C.B.)			0?10	Collapsible barrel Low detect error (Collapsible barrel encoder always detects Low.) Mechanical lock, FP9005-(26) signal line or IC6001 (VENUS HD)	ZOOM L	ZOOMm/ LENSu
							0?20	Collapsible barrel High detect error (Collapsible barrel encoder always detects High.) Mechanical lock, FP9005-(26) signal line or IC6001 (VENUS HD)	
						0?30	Zoom motor sensor error. Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS HD)	ZOOM ENC	
							0?40		Zoom motor sensor error. (During monitor mode.) Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS HD)
						0?50	Zoom motor sensor error. (During monitor mode with slow speed.) Mechanical lock, FP9005-(37), (40) signal line or IC6001 (VENUS HD)		
							0?01	HP High detect error (Focus encoder always detects High, and not becomes Low) Mechanical lock, FP9005-(26) signal line or IC6001 (VENUS HD)	FOCUS L
						0?02		HP Low detect error (Focus encoder always detects Low, and not becomes High) Mechanical lock, FP9005-(26) signal line or IC6001 (VENUS HD)	FOCUS H
		Lens			18*1	0000	Power ON time out error. Lens drive system	LENS DRV	LENSu
						18*2	0000		
		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)			
					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			

Attribute	Main item	Sub item	Error code		Contents (Upper)	Error Indication	
			High 4bits	Low 4 bits	Check point (Lower)	Detecting device	Part/Circuit
HARD	VENUS A/D	Flash	28*0	C000	OIS adj. Yaw direction position sensor error	STRB CHG	STRB PCB/FPC
				D000	OIS adj. Pitch direction position sensor error		
				E000	OIS adj. other error		
	FLASH ROM (EEPROM Area)	FLASH ROM (EEPROM Area)	2B*0	0001	EEPROM read error	FROM RE	FROM
				0003	IC6002 (FLASH ROM)		
				0004		FROM WR	FROM
				0002	EEPROM write error		
				0005	Firmware version up error	(No indication)	(No indication)
				0008	SDRAM error		
	0009	SDRAM Mounting defective					
SYSTEM	RTC	2C*0	0001	SYSTEM IC initialize failure error	SYS INIT	MAIN PCB	
SOFT	CPU	Reset	30*0	0001	NMI reset	NMI RST	MAIN PCB
				0007	Non Mask-able Interrupt (30000001-30000007 are caused by factors)		
	Card	Card	31*0	0001	Card logic error	SD CARD	SD CARD/DSP
				0002	Card physical error		
				0004	Write error	SD WRITE	
					SD memory card data line or IC6001 (VENUS HD)		
		39*0	0005	Format error	INMEMORY	FROM	
	CPU, ASIC hard	Stop	38*0	0001	Camera task finish process time out.	LENS COM	LENSu/DSP
					Communication between Lens system and IC6001 (VENUS HD)		
				0002	Camera task invalid code error.	DSP	DSP
				0100	File time out error in recording motion image		
				0200	File data cue send error in recording motion image		
				0300	Single or burst recording brake time out.		
	Memory area	Memory area	3A*0	0008	work area partitioning failure	(No indication)	(No indication)
					USB dynamic memory securing failure when connecting		
	Operation	Power on	3B*0	0000	FLASHROM processing early period of camera during movement.	INIT	(No indication)
	Zoom	Zoom	3C*0	0000	Imperfect zoom lens processing	ZOOM	ZOOMm/LENSu
					Zoom lens		
			35*0	0000	Software error (0-7bit : command, 8-15bit : status)	DSP	DSP
			35*1	0000	Though record preprocessing is necessary, it is not called.		
	35*2	0000	Though record preprocessing is necessary, it is not completed.	(No indication)	(No indication)		

Important notice about "Error Code List"

1) About "*" indication:

The third digit from the left is different as follows.

+In case of 0 (example: 18 **0** 01000)

When the third digit from the left shows "0", this error occurred under the condition of INITIAL SETTINGS has been completed.
It means that this error is occurred basically at user side.

+In case of 8 (example: 18 **8** 01000)

When the third digit from the left shows "8", this error occurred under the condition of INITIAL SETTINGS has been released.
(Example; Factory assembling-line before unit shipment, Service mode etc.)
It means that this error is occurred at service side.

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

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

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.

6.2. ICS (Indication of additional Camera Settings when picture was taken) function

1. General description

This unit is equipped with ICS (ICS : Indication of additional Camera Settings when picture was taken) function by playing back the concerned picture on the LCD display.

(This function is achieved by utilizing "maker note" data stored in Exif data area of recorded picture file.)

To proceed failure diagnosis, use this ICS function together with "displaying the recorded picture with picture information" function.

NOTE:

- *.The ICS function operates with a picture which is only taken with the same model. (It may not be displayed when the picture was taken with other model.)
- *.Since Exif data is not available after the picture is edited by PC, the ICS function may not be activated.

2. How to display

The ICS data is displayed by ordering the following procedure:

• Preparation:

- 1.Attach the Battery or AC Adaptor with a DC coupler to the unit.

NOTE:

- *Set the mode dial other than "CLIPBOARD (memo)" mode (such as normal picture/ iA / MS1/MS2/SCN) to display the ICS data.

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

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

While keep pressing "UP of Cursor button" and DISPLAY button simultaneously, turn the Power on.

• Step 2. Execute the ICS display mode:

Set the REC/PLAYBACK selector switch to PLAYBACK.

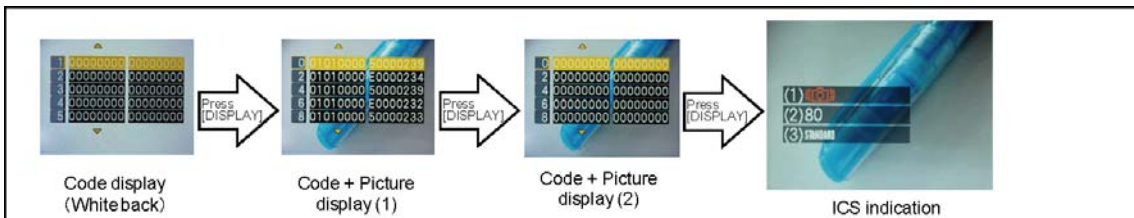
Select the concerned picture by pressing the "LEFT and RIGHT of Cursor button".

Press the "LEFT of Cursor button", MENU/SET button and DISPLAY button simultaneously.

Press the DISPLAY button, 3 times.

The display condition is changed as shown below when the DISPLAY button is pressed.

Code display → Code + Picture display (1) → Code + Picture display (2) → ICS display →



3. How to read

(1). Jitter alert was displayed or not:
 This part shows that the "Jitter alert" mark was displayed or not when the picture has just before been taken.
 + With "Jitter alert" mark : The "Jitter alert" mark was displayed.
 + Without "Jitter alert" mark: The "Jitter alert" mark was not displayed.
 [About "Jitter alert" mark]
 Due to lacking the enough light amount etc, shooting condition prone to make a "hand jitter", the "Jitter alert" mark is displayed.
 [Reference Guide]
 (Applicable settings : Normal picture mode, ISO100, WIDE edge, Flash OFF)
 + The "Jitter alert" mark is displayed when the shutter speed is 1/15th and below.

(2). ISO Sensitivity Setting condition:
 This part shows that the "ISO Sensitivity" setting condition when the picture had been taken.
 (Note: The [i ISO] is displayed when the "Intelligent ISO" was selected.)
 For instance, when the recorded picture information shows [ISO80], it can be confirmed the ISO setting condition : [AUTO], [INTELLIGENT ISO] or [ISO 80](Fixed: set by user).
 [Point for Confirmation]
 *The symptom is "Picture with "hand jitter". Subject is not clearly stopped." in darker scene, does the picture was taken with lower ISO setting mode?
 *The symptom is "Noisy picture. Rough picture image" in brighter scene, does the picture was taken with higher ISO setting mode?

(3). Color mode Setting condition:
 This part shows that the "Color mode" setting condition when the picture had been taken.
 [Point for Confirmation]
 *The symptom is "Color is strange. The picture is bluish (Yellowish) ", does the picture was taken with [SEPIA]/[COOL]/ [WARM] settings?
 NOTE: As for the symptom related with the color, confirm the picture information which is displayed in normal playback screen as well.
 (In normal playback screen, the setting condition of "White balance" and "WB Adjustment "can be confirmed.)

[Reference Guide : Settings "When taking picture"]


<ISO SENSITIVITY>
 *This allows the sensitivity to light (ISO sensitivity) to be set. Setting to a higher figure enables pictures to be taken even in dark places without the resulting pictures coming out dark.
 *In this unit, it can be set one of the [AUTO], [80], [100], [200], [400], [800] and [1600] in "Normal shooting" mode.
 (The ISO sensitivity setting is not available when the [INTELLIGENT ISO] is being used.)
 *When setting to [AUTO], the ISO sensitivity is automatically adjusted to a maximum of [ISO400] according to the brightness.
 (It can be adjusted to a maximum of [ISO1000] when using the flash.)
 *To avoid picture noise, we recommend that you either reduce the ISO sensitivity level or set [COLOR MODE] to [NATURAL], and then take pictures.

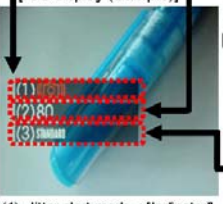
ISO sensitivity	80	1600
Recording location (recommended)	When it is light (outdoors)	When it is dark
Shutter speed	Slow	Fast
Noise	Less	Increased

<COLOR MODE>
 *Using these modes, the pictures can be made sharper or softer, the colors of the pictures can be turned into sepia colors or other color effects can be achieved.
 *In this unit, it can be set one of the following effects in "Normal shooting" mode.

[STANDARD] : This is the standard setting.	[BW] : The picture becomes black and white.
[NATURAL] : The picture becomes softer.	[SEPIA] : The picture becomes sepia.
[VIVID] : The picture becomes sharper.	[COOL] : The picture becomes bluish.
	[WARM] : The picture becomes reddish.

NOTE: You cannot set [NATURAL], [VIVID], [COOL] or [WARM] in Intelligent auto mode.
 *When you take pictures in dark places, noise may become visible. To avoid noise, we recommend setting to [NATURAL].

Normal playback screen (Recorded picture with information)

 *In playback mode, the picture information is displayed when pressing the [DISPLAY] button. (It can be confirmed at user as well.)
 *Use this indication together with ICS function.

[ICS display (Sample)]

 (1). Jitter alert mark : [Indicated]
 (2). ISO sens. setting : ISO80 (Fixed)
 (3). Color mode setting: Standard

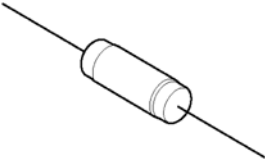
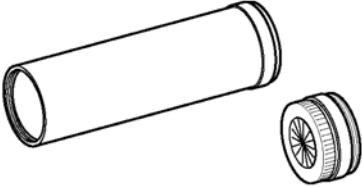
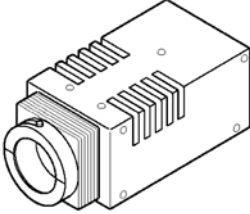
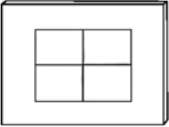


4. How to exit :

Simply, turn the power off. (Since ICS function is executed under the condition of temporary cancellation of "INITIAL SETTINGS", it wake up with normal condition when turn off the power.)

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 (Built-in Focus Chart) VFK1164TCM02	LIGHT BOX VFK1164TDVLB
 <p>An equivalent type of Resistor may be used.</p>	 <p>※ RFKZ0422 can be used.</p>	 <p>※ with DC Cable</p>
TR Chart RFKZ0443	Lens Cleaning Kit (BK) VFK1900BK	Grease (for Lens) (for focus motor) RFKZ0472
	 <p>* Only supplied as 10 set/box.</p>	

7.2. When Replacing the Main PCB

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

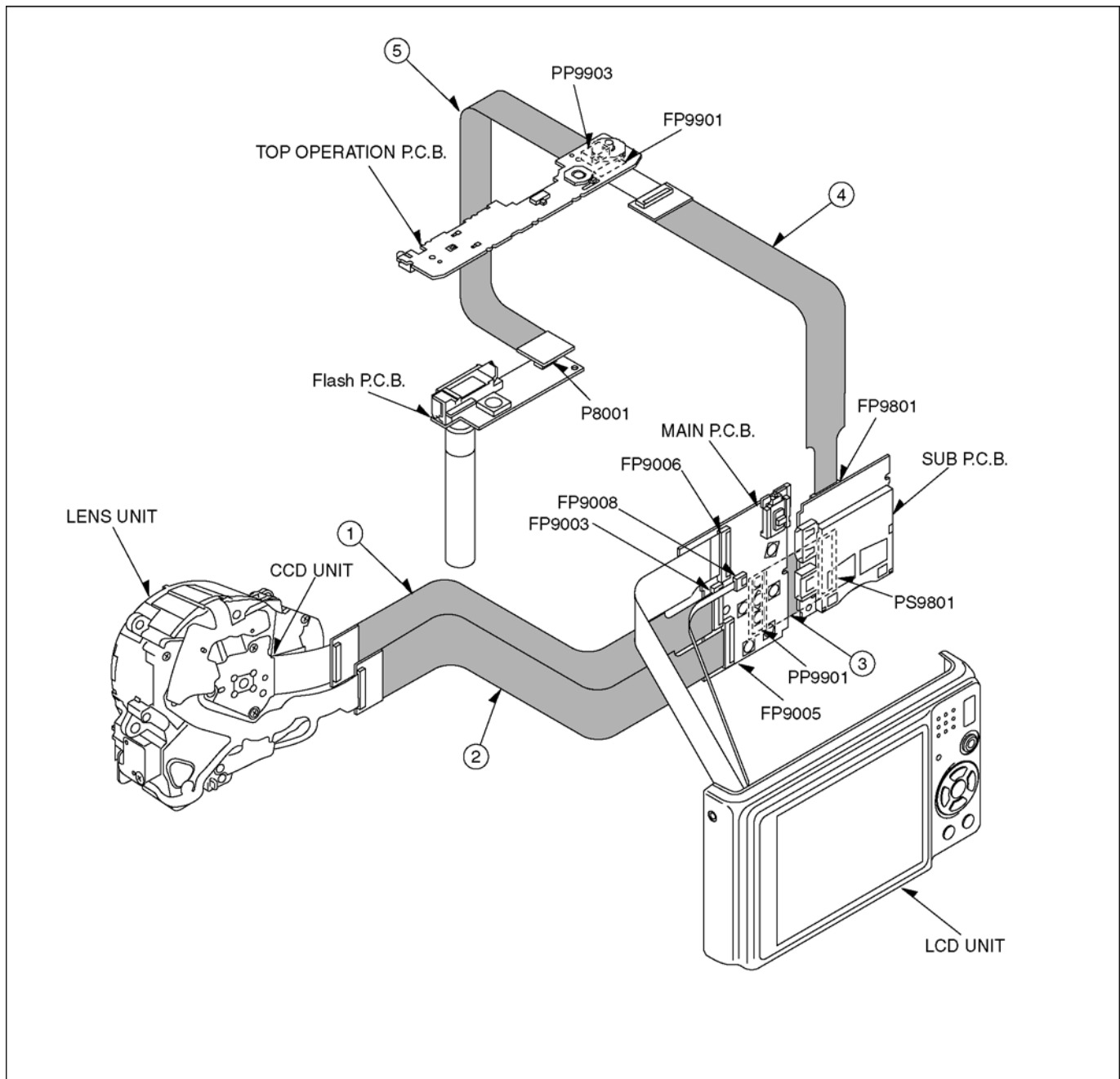
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with Maintenance software.

7.3. Service Position

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

No.	Parts No.	Connection	Form
1	RFKZ0416	FP9003 (MAIN) - CCD UNIT	41PIN 0.3 FFC
2	RFKZ0477	FP9005 (MAIN) - LENS UNIT	45PIN 0.4 FFC
3	RFKZ0445	PP9901 (MAIN) - PS9801(SUB)	100PIN B to B
4	RFKZ0416	FP9801 (SUB) - FP9901 (TOP OPERATION P.C.B.)	41PIN 0.3 FFC
5	VFK1906	P8001 (FLASH PCB) - PP9903 (TOP OPERATION P.C.B.)	20PIN B to B

7.3.1. Extension Cable Connections

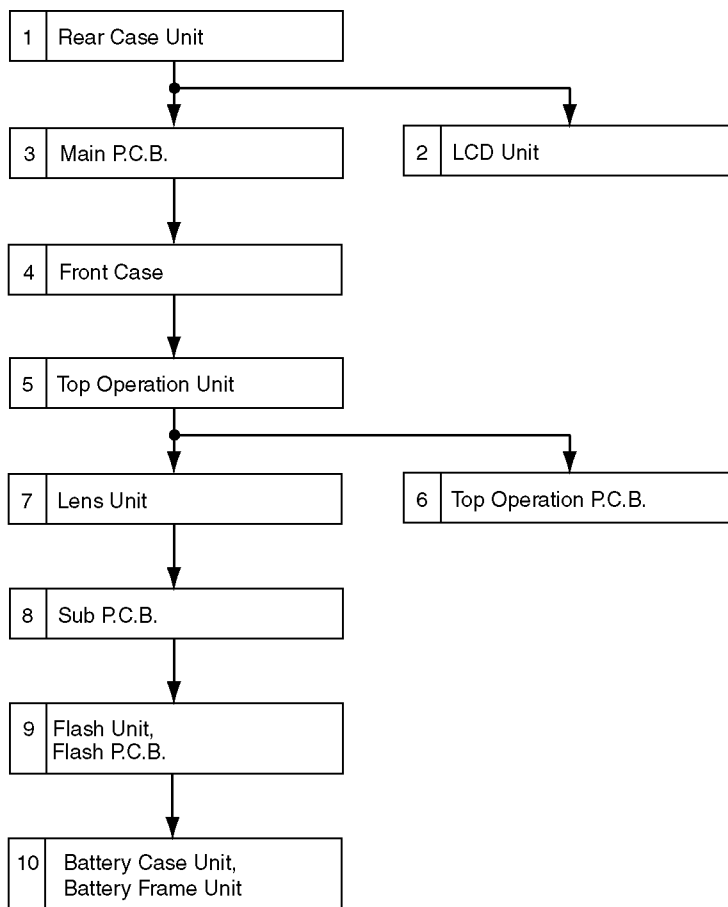


CAUTION-1. (When servicing FLASH PCB)

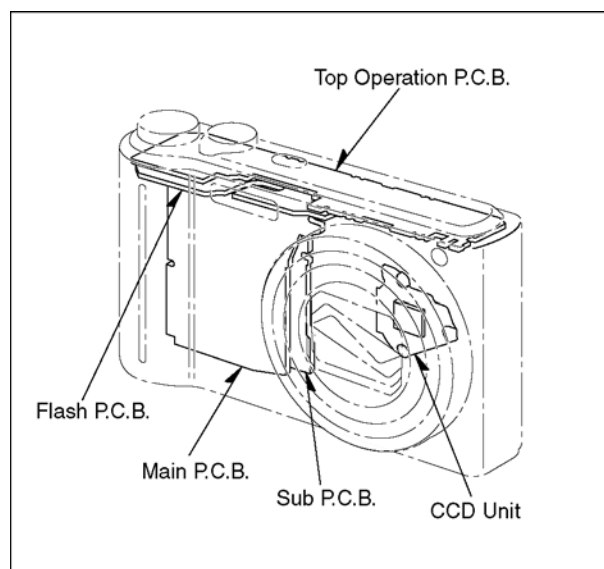
1. Be sure to discharge the capacitor on FLASH PCB.
Refer to "HOW TO DISCHARGE THE CAPACITOR ON FLASH PCB".
The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on FLASH PCB.
3. DO NOT allow other parts to touch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

8 Disassembly and Assembly Instructions

8.1. Disassembly Flow Chart



8.2. PCB Location



8.3. Disassembly Procedure

No.	Item	Fig.	Removal
1	Rear Case Unit	Fig.D1	SD Card Battery 6 Screws (A)
		Fig.D2	FP9006 (Flex) FP9008 (Flex) Rear Case Unit
2	LCD Unit	Fig.D3	5 Locking tabs LCD Unit LCD Panel LCD (1)
		Fig.D4	NOTE: (When Replacing)
3	Main P.C.B.	Fig.D5	FP9003 (Flex) FP9005 (Flex) PP9901 (Connector) DPR Sheet (A) Main P.C.B.
4	Front Case	Fig.D6	5 Screws (B) Front Case
5	Top Operation Unit	Fig.D7	FP9801 (Flex) PP9903 (Connector) 2 Locking tabs Top Operation Unit
6	Top Operation P.C.B.	Fig.D8	AF Panel Light 2 Locking tabs Top FPC FP9901 (Flex) FP9902 (Flex) 2 Screws (C) 3 Locking tabs Top Operation P.C.B.
7	Lens Unit	Fig.D9	TRIPOD 2 Locking tabs 3 Screws (D) Lens Unit
8	Sub P.C.B.	Fig.D10	1 Screw (E) 2 Locking tabs DPR Sheet (B) 2 Locking tabs PCB Spacer Sub P.C.B.
9	Flash Unit, Flash P.C.B.	Fig.D11	2 Screws (F) Flash Unit Flash P.C.B.
10	Battery Frame Unit, Battery Case Unit	Fig.D12	Earth Plate EMC Plate 5 Locking tabs
		Fig.D13	6 Locking tabs Battery Frame Unit Battery Case Unit

8.3.1. Removal of the Rear Case Unit

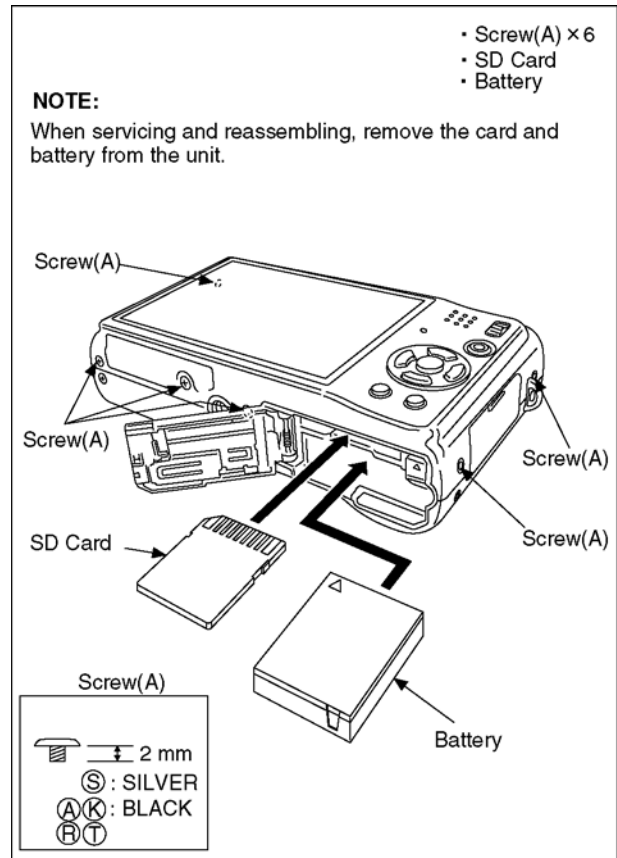


Fig. D1

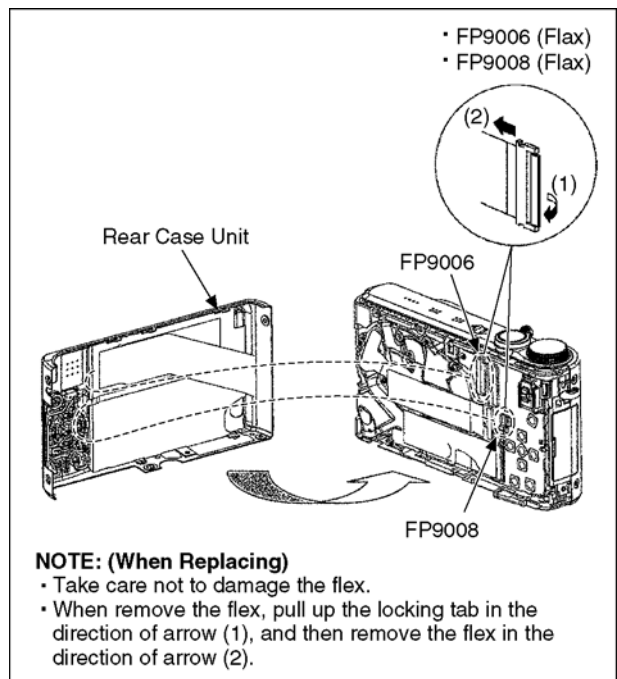


Fig. D2

8.3.2. Removal of the LCD Unit

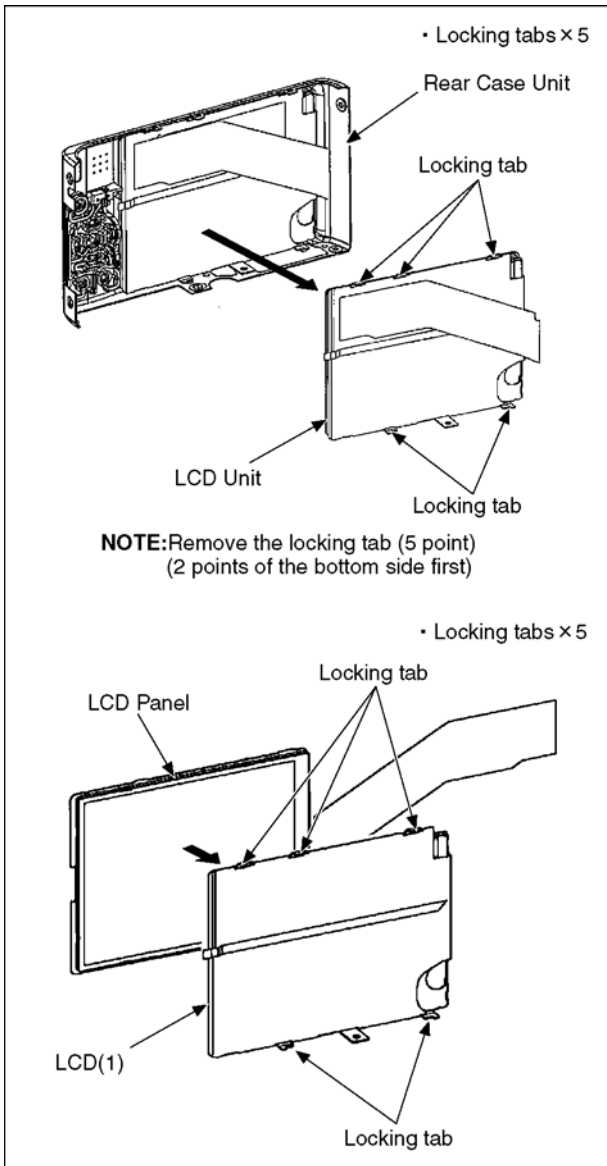


Fig. D3

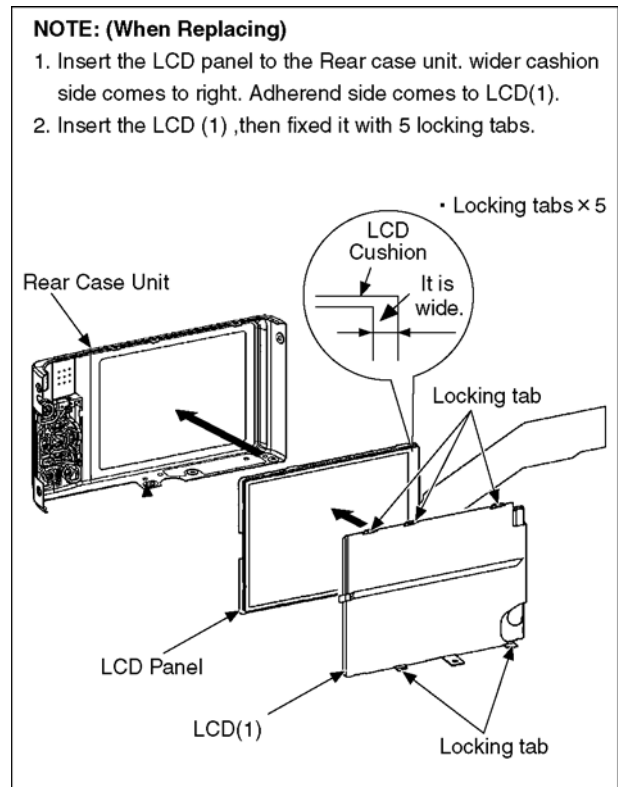


Fig. D4

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

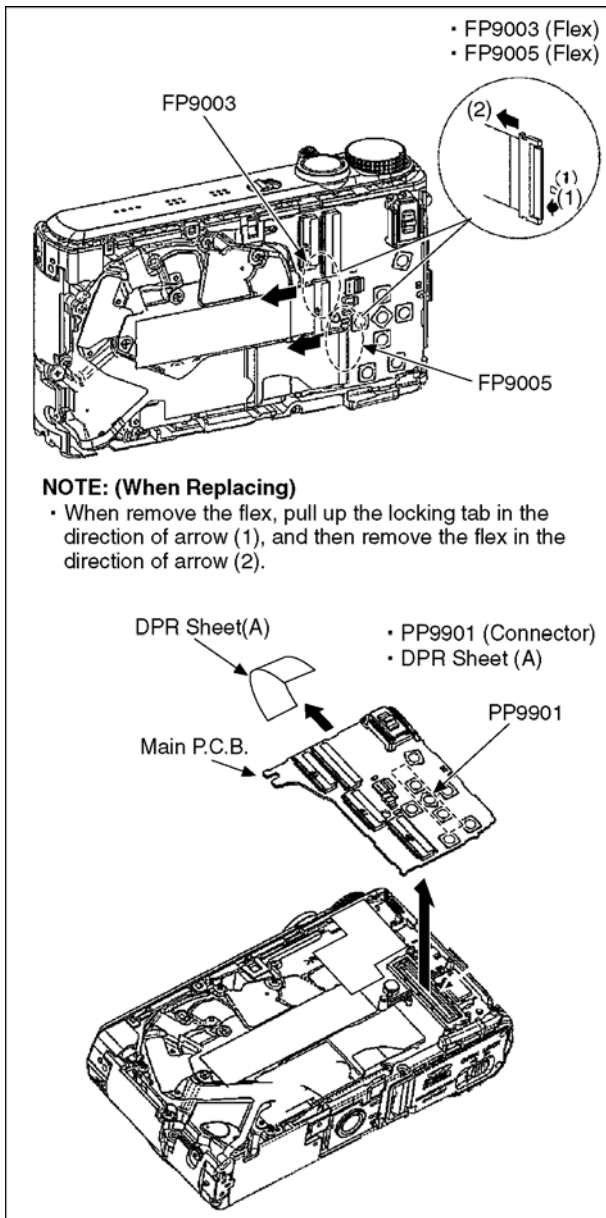


Fig. D5

8.3.4. Removal of the Front Case

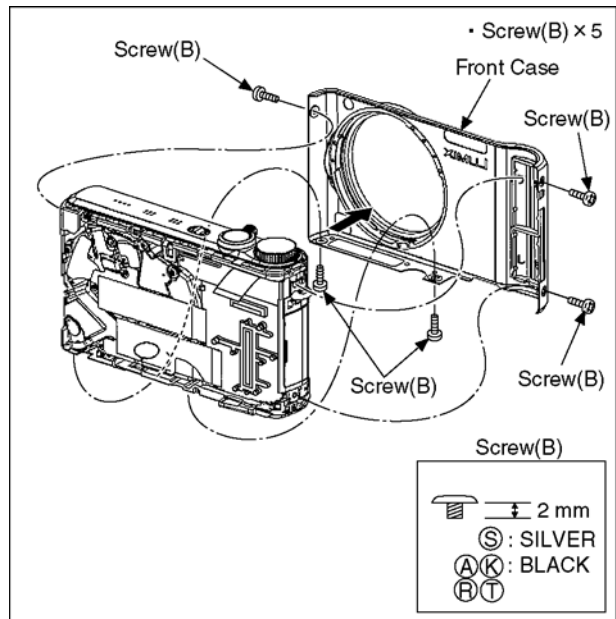


Fig. D6

8.3.5. Removal of the Top Operation Unit

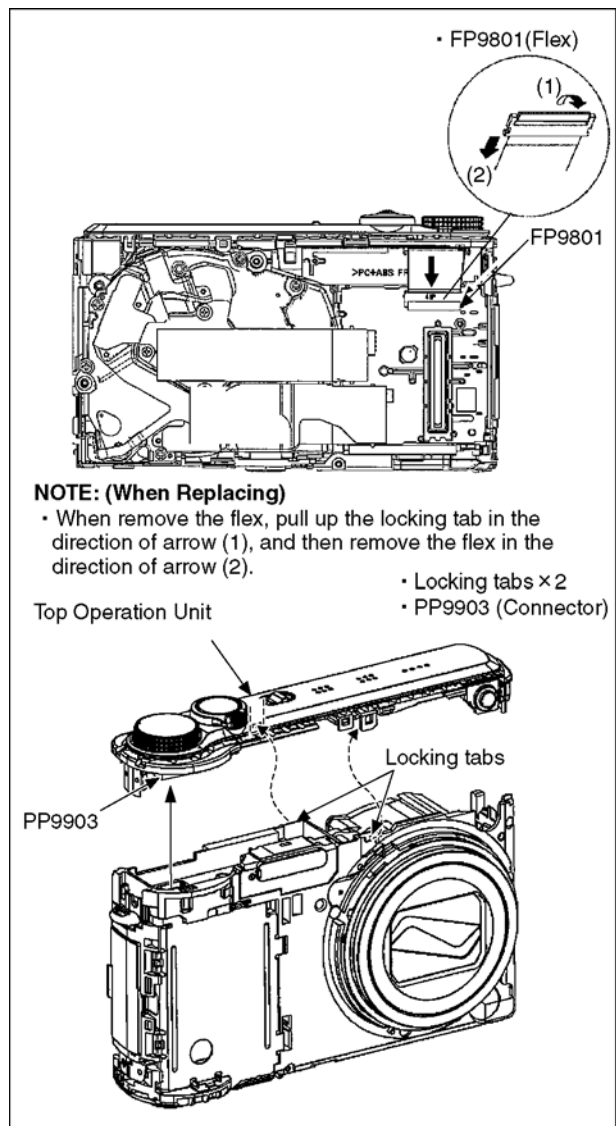


Fig. D7

8.3.6. Removal of the Top Operation P.C.B.

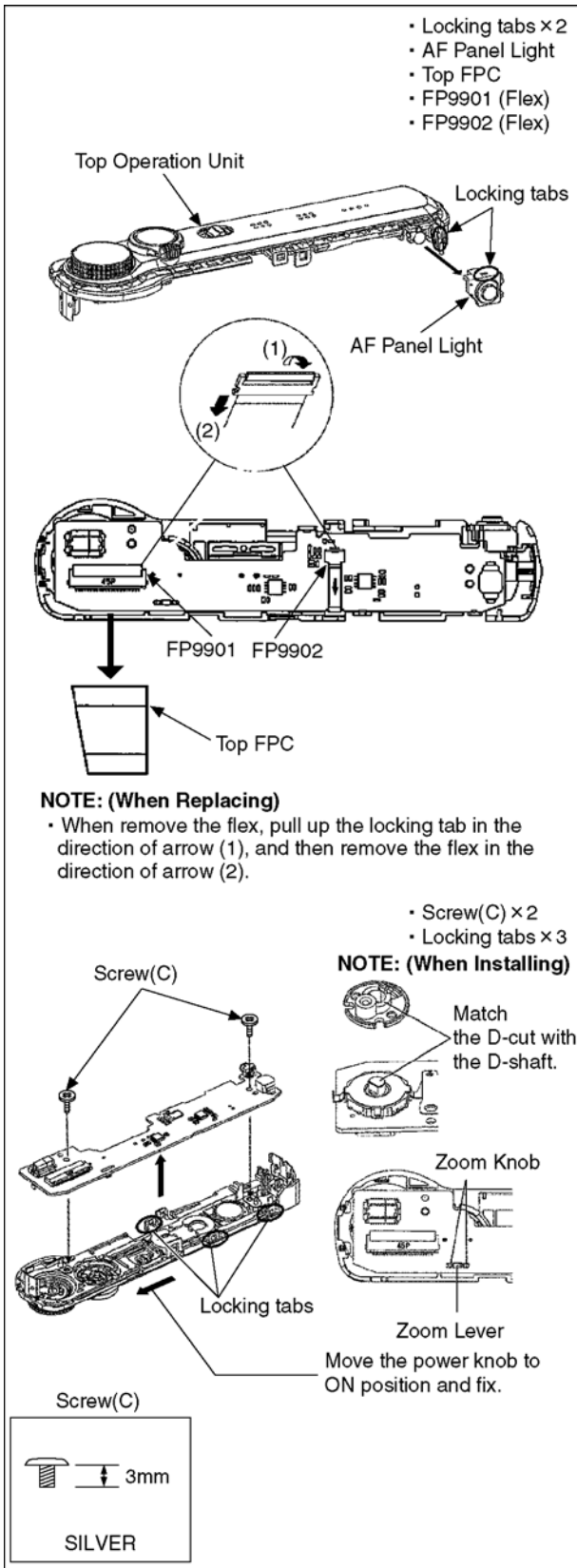


Fig. D8

8.3.7. Removal of the Lens Unit

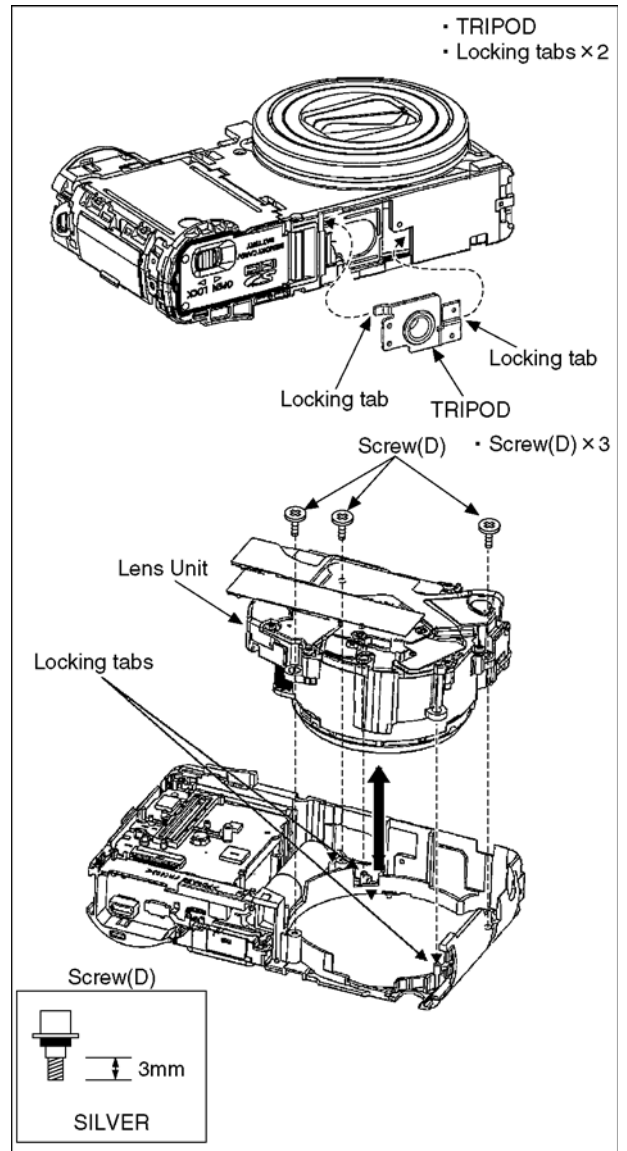


Fig. D9

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

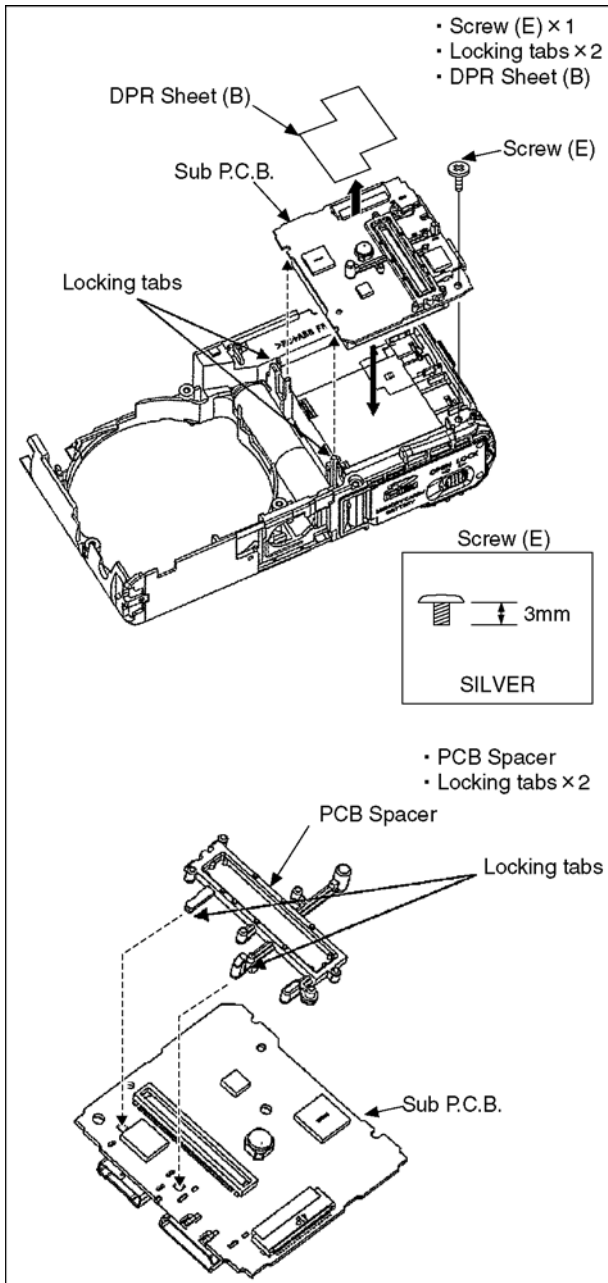


Fig. D10

8.3.9. Removal of the Flash Unit, Flash P.C.B.

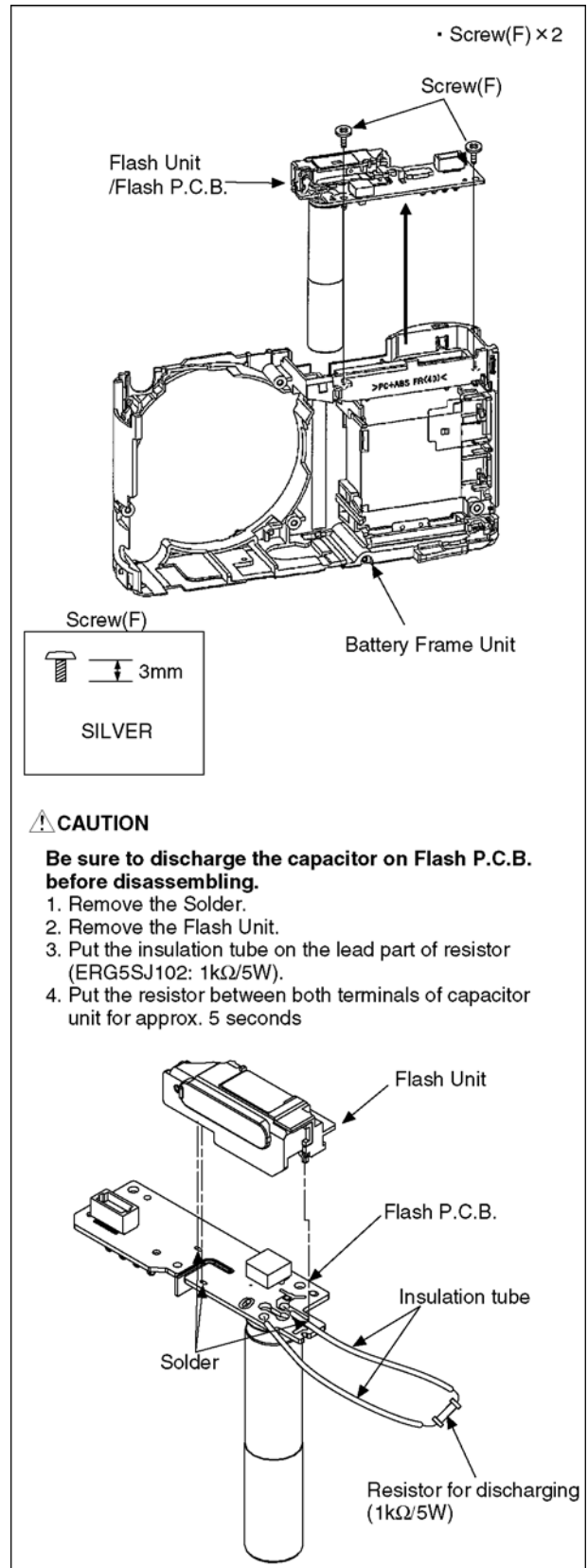


Fig. D11

8.3.10. Removal of the Battery Frame Unit, Battery Case Unit

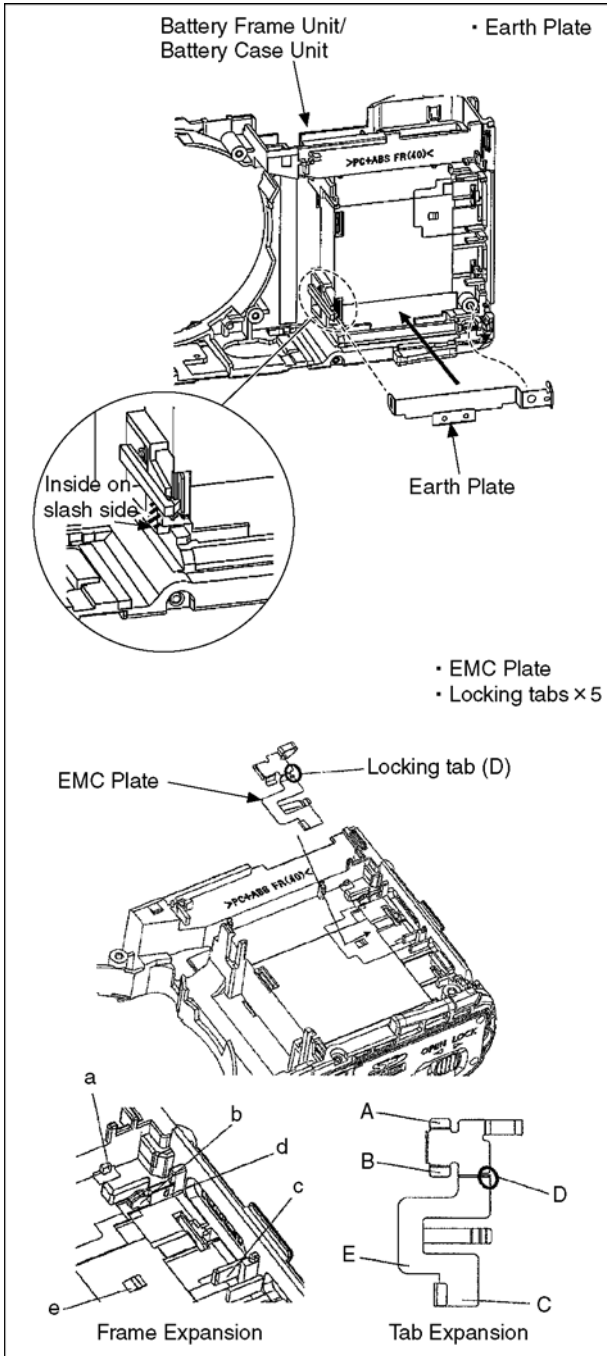


Fig. D12

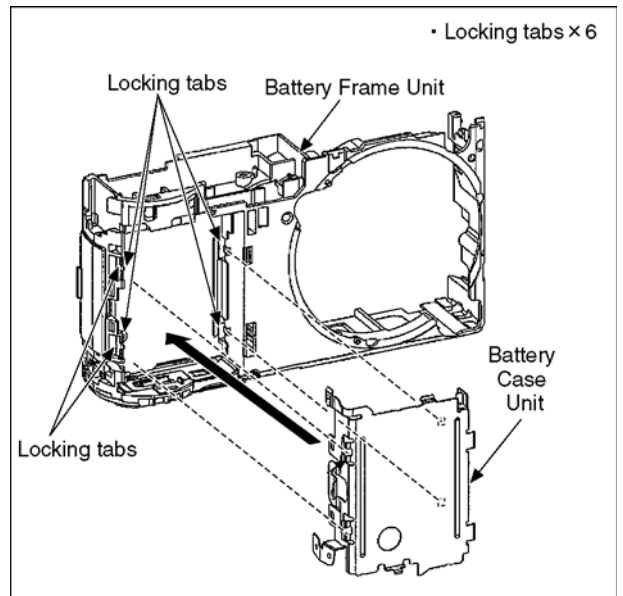


Fig. D13

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.)

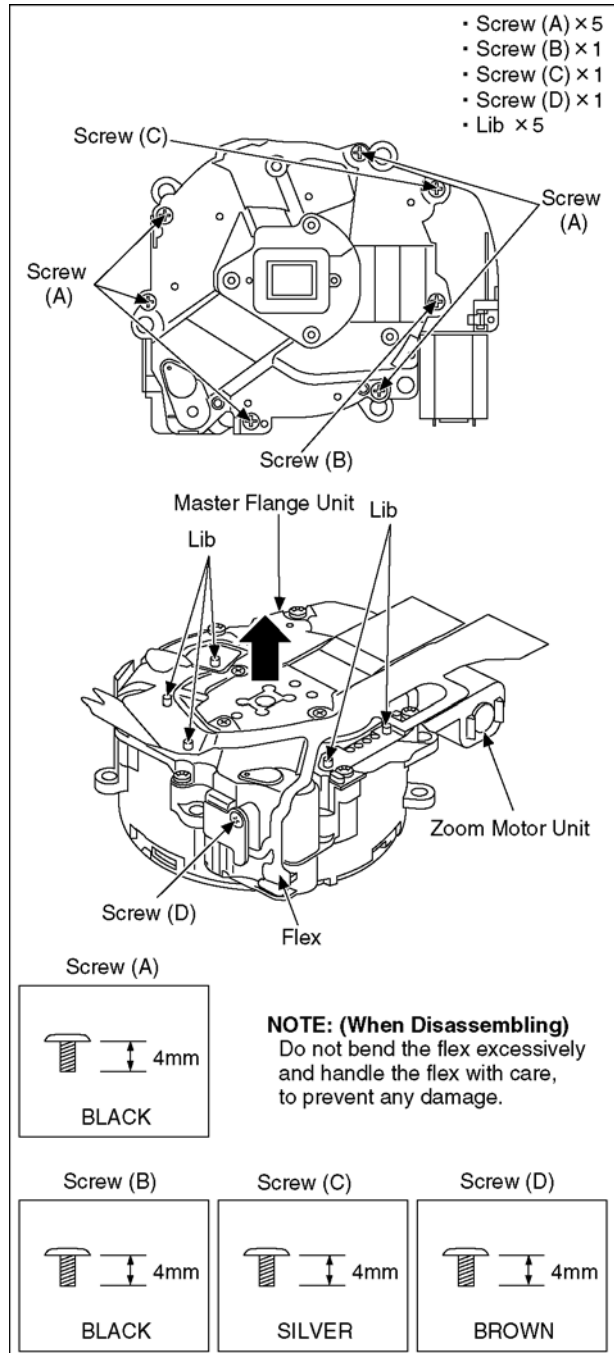
8.4. Disassembly Procedure for the Lens

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 to the point where is shown to "Grease apply" in the figure.

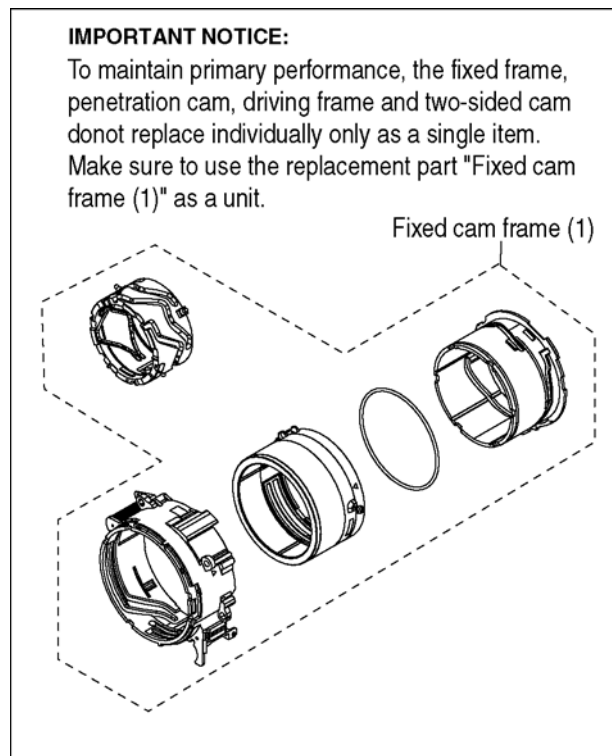
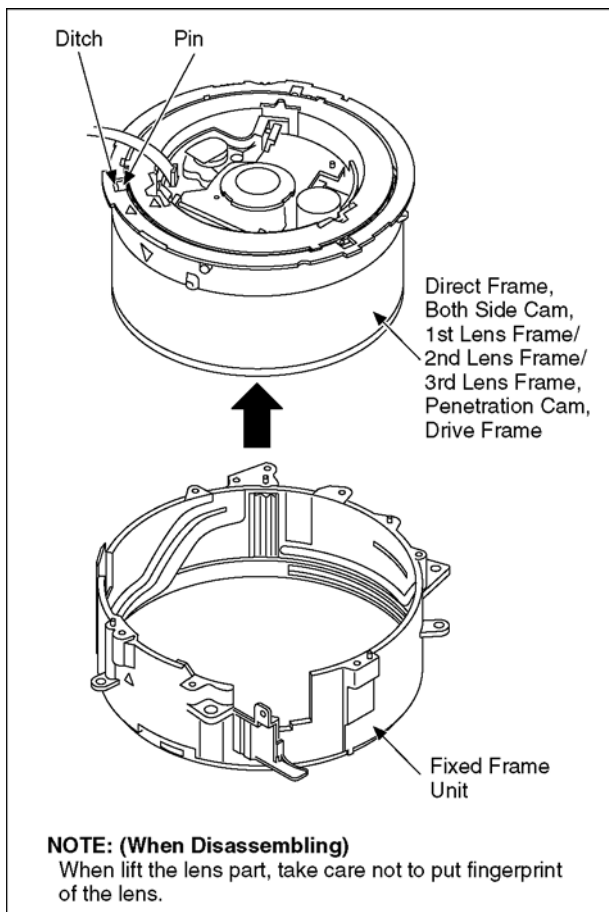
8.4.1. Removal of the Zoom Motor Unit and Master Flange Unit

1. Remove the libs (5 points).
2. Unscrew the 5 screws (A).
3. Unscrew the 1 screw (B).
4. Unscrew the 1 screw (C).
5. Unscrew the 1 screw (D).
6. Remove the zoom motor unit.
7. Remove the master flange unit.



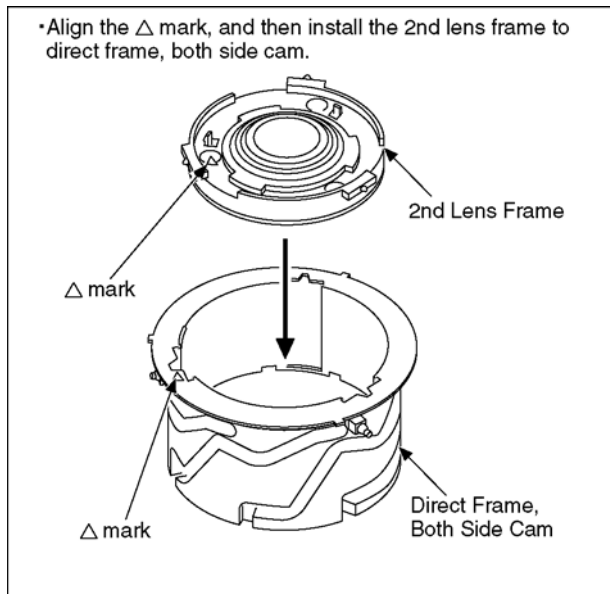
8.4.2. Removal of the Direct Frame, Both Side Cam, 1st Lens Frame/2nd Lens Frame/3rd Lens Frame, Penetration Cam and Drive Frame

- Push the penetration cam to the indicated by arrow from lens side, and then remove the unit of direct frame, both side cam, 1st lens frame/2nd lens frame/3rd lens frame, penetration cam and drive frame from the fixed frame unit.

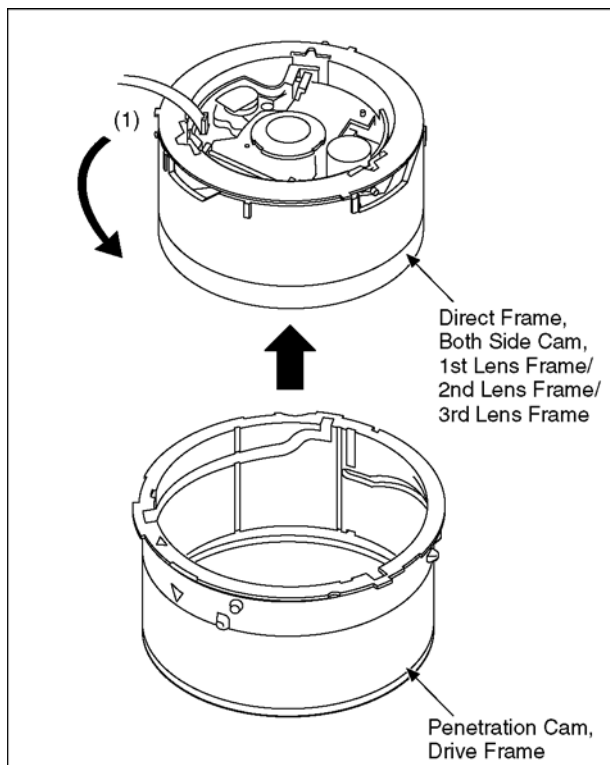


8.4.3. Removal of the Direct Frame, Both Side Cam and 1st Lens Frame/2nd Lens Frame/3rd Lens Frame

1. Turn the drive frame, and then Align the groove of drive frame and pin of 1st lens frame.

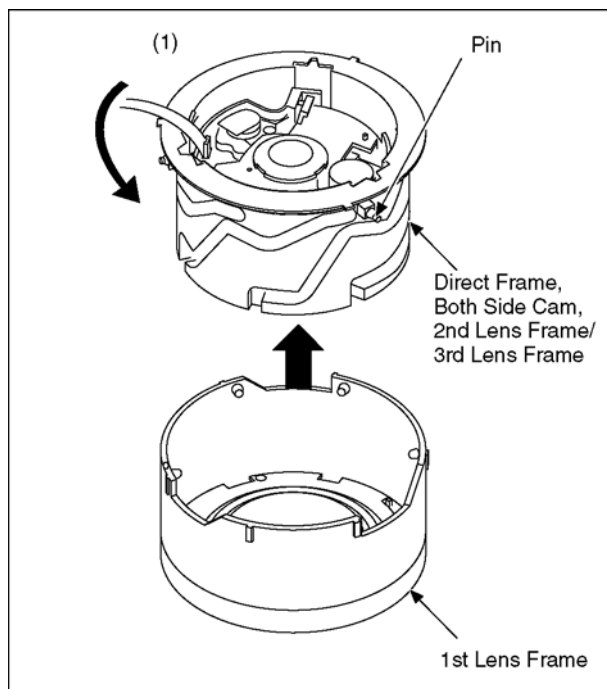


2. Push the 1st lens frame to the indicated by arrow from lens side, and then remove the unit of direct frame, both side cam and 1st lens frame/2nd lens frame/3rd lens frame from the penetration cam and drive frame.



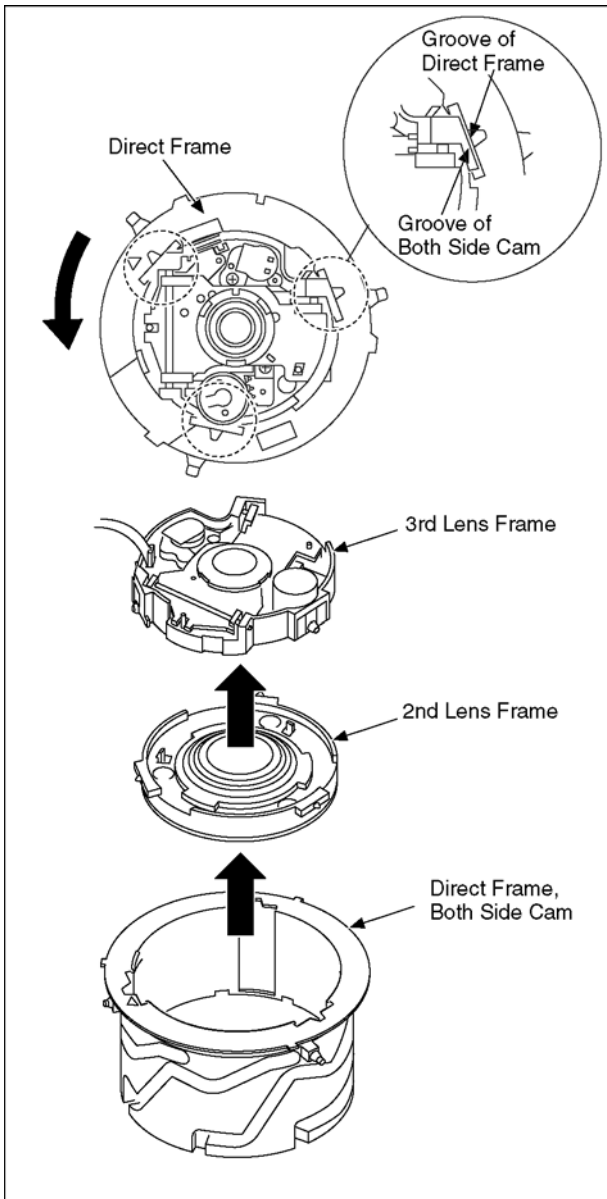
8.4.4. Removal of the Direct Frame, Both Side Cam and 2nd Lens Frame/3rd Lens Frame

- Turn to the indicated by arrow(1) while picking the pin, and then remove the unit of direct frame, both side cam and 2nd lens frame/3rd lens frame from the 1st lens frame.



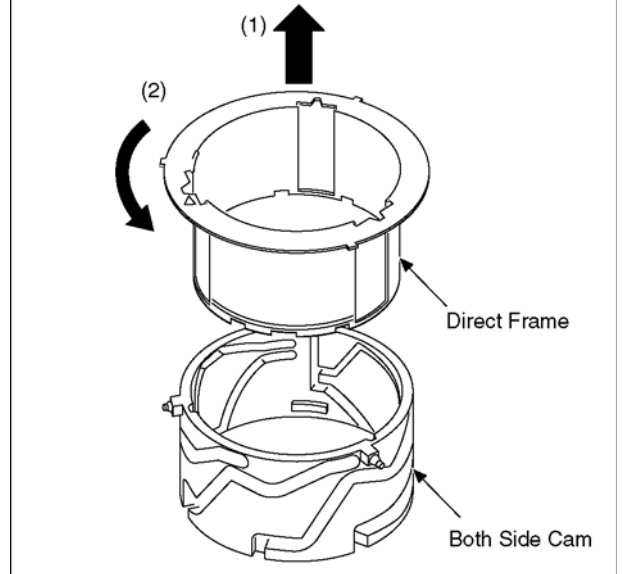
8.4.5. Removal of the 3rd Lens Frame and 2nd Lens Frame

1. Turn the direct frame, and then Align the groove of direct frame and groove of both side cam.
2. Remove the 3rd lens frame and 2nd lens frame from the direct frame, both side cam.



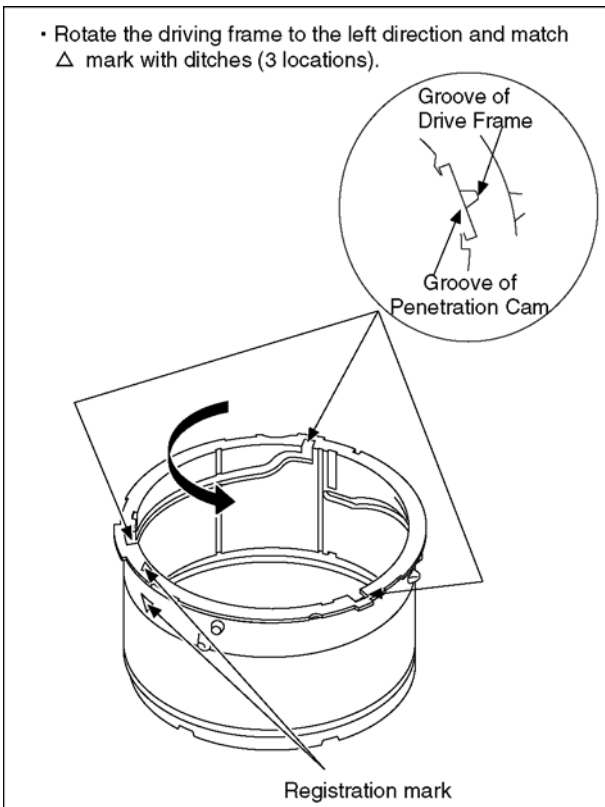
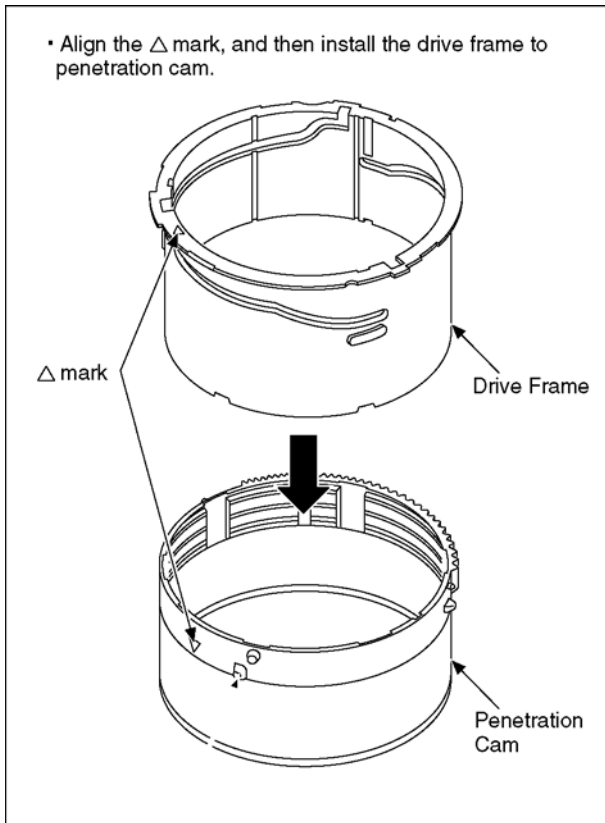
8.4.6. Removal of the Direct Frame

Pull the direct frame to the indicated by arrow (1), and then turn the direct frame in the indicated by arrow (2).

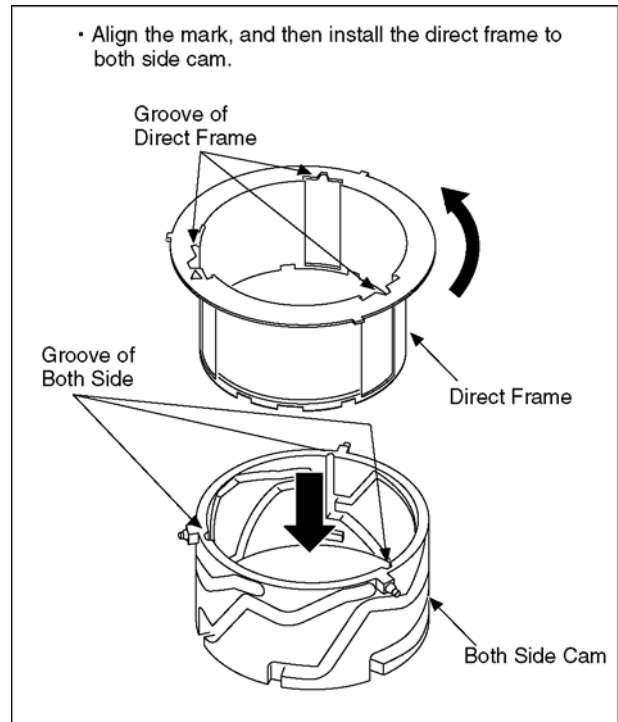


8.5. Assembly Procedure for Lens

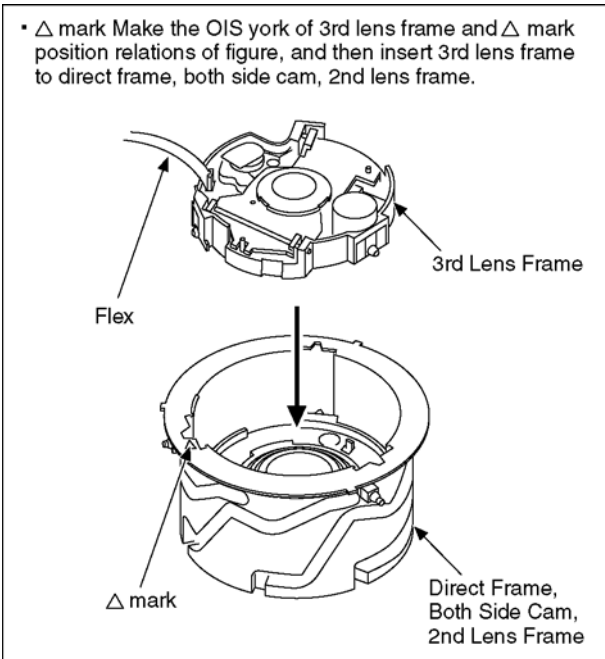
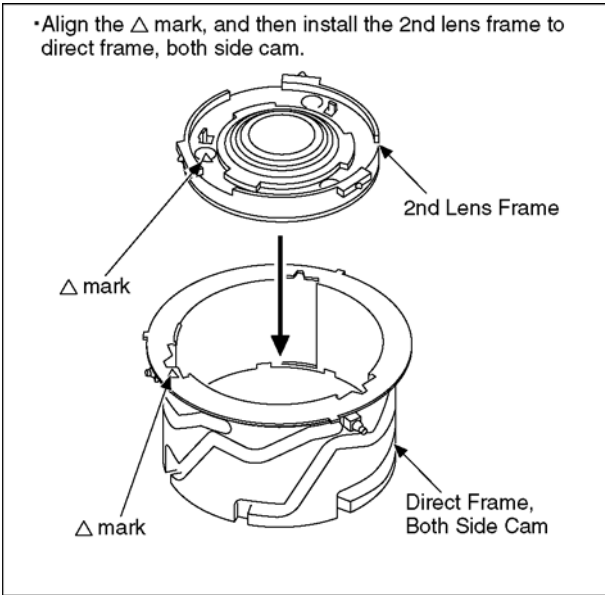
8.5.1. Phase alignment of the Penetration Cam and Drive Frame



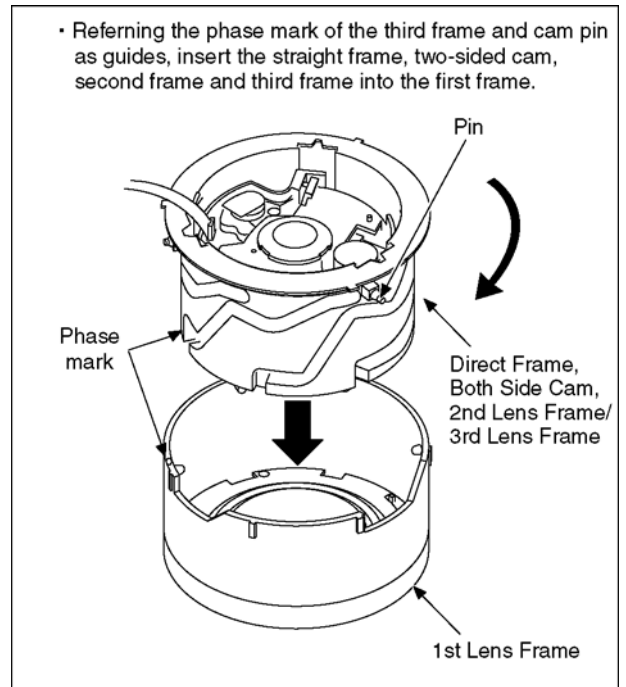
8.5.2. Phase alignment of the Direct Frame and Both Side Cam



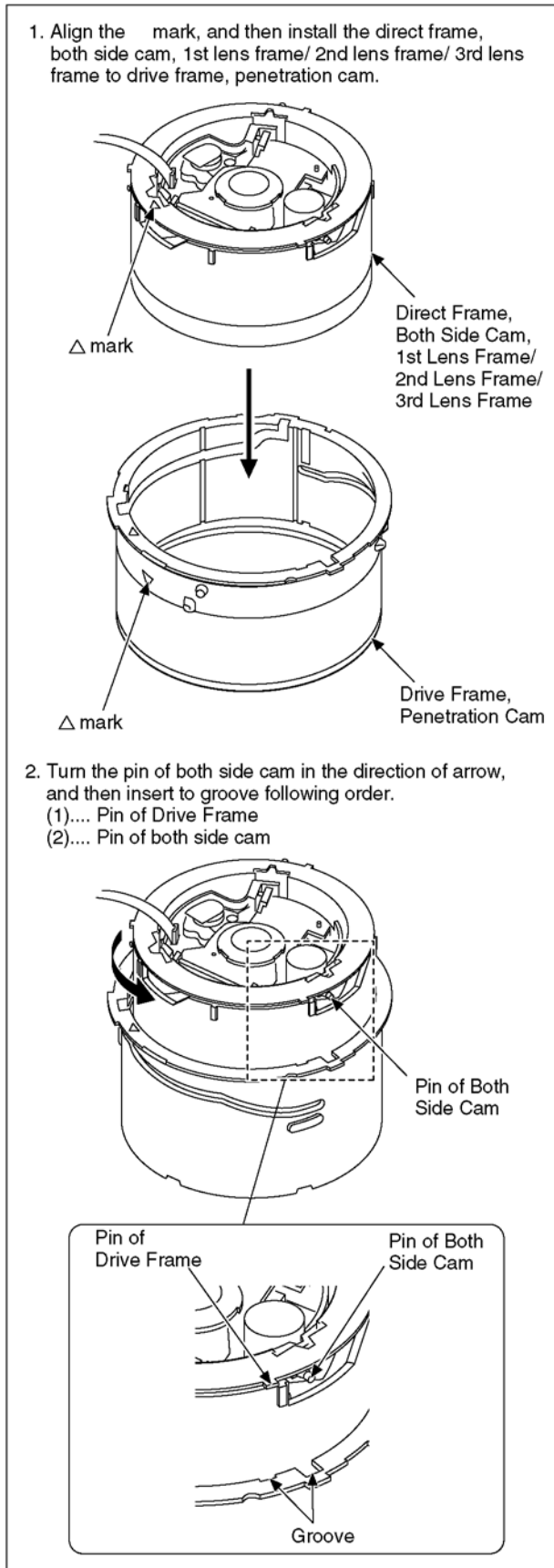
8.5.3. Assembly for the 2nd Lens Frame and 3rd Lens Frame



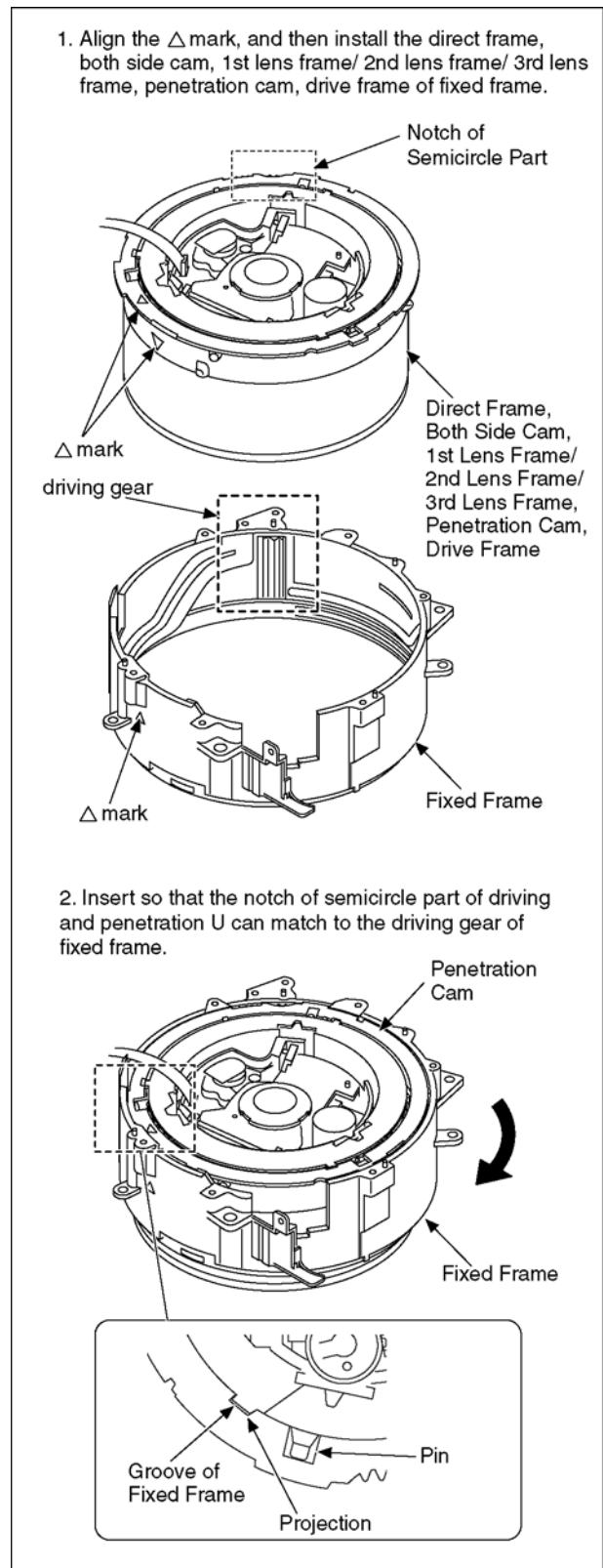
8.5.4. Assembly for the Direct Frame, Both Side Cam and 2nd Lens Frame/3rd Lens Frame



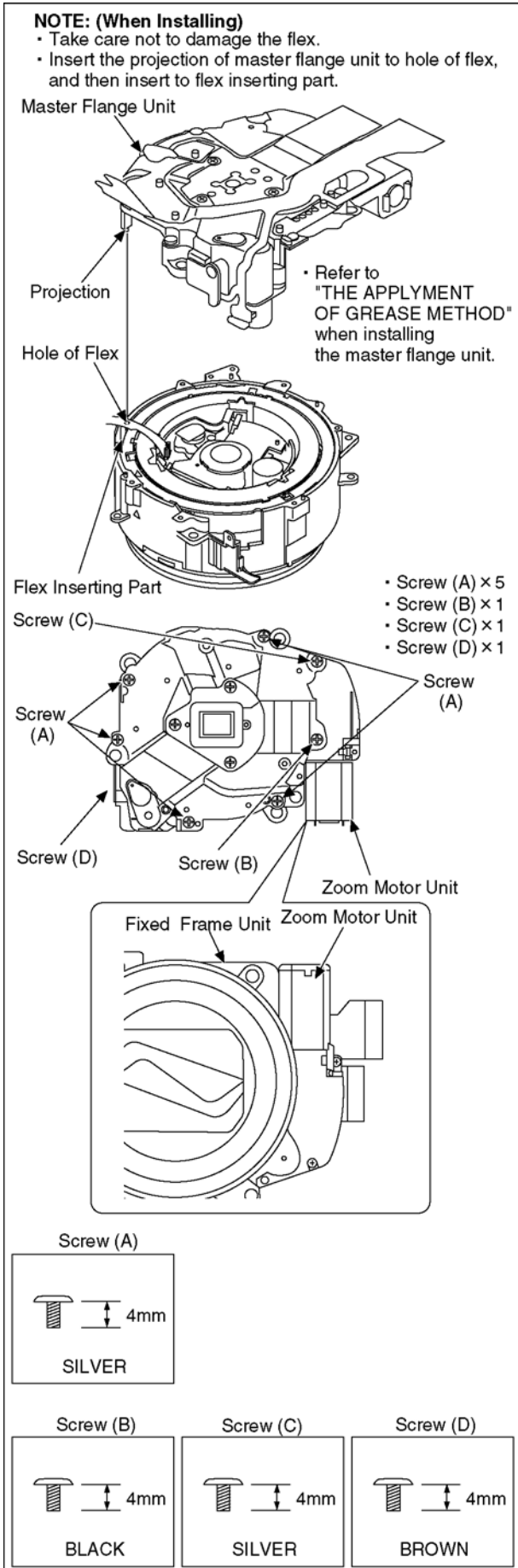
8.5.5. Assembly for the Direct Frame, Both Side Cam and 1st Lens Frame/ 2nd Lens Frame/ 3rd Lens Frame



8.5.6. Assembly for the Direct Frame, Both Side Cam and 1st Lens Frame/ 2nd Lens Frame/ 3rd Lens Frame, Penetration Cam and Drive Frame

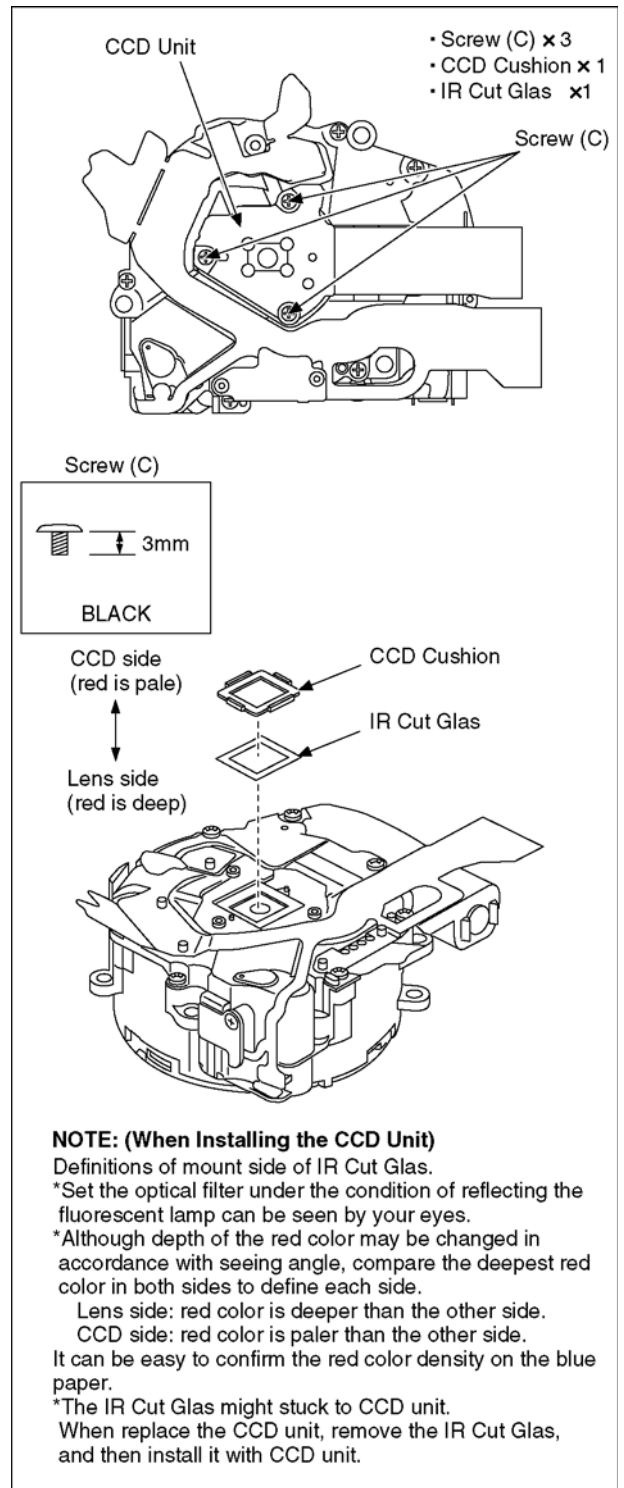


8.5.7. Assembly for the Zoom Motor Unit and Master Flange Unit

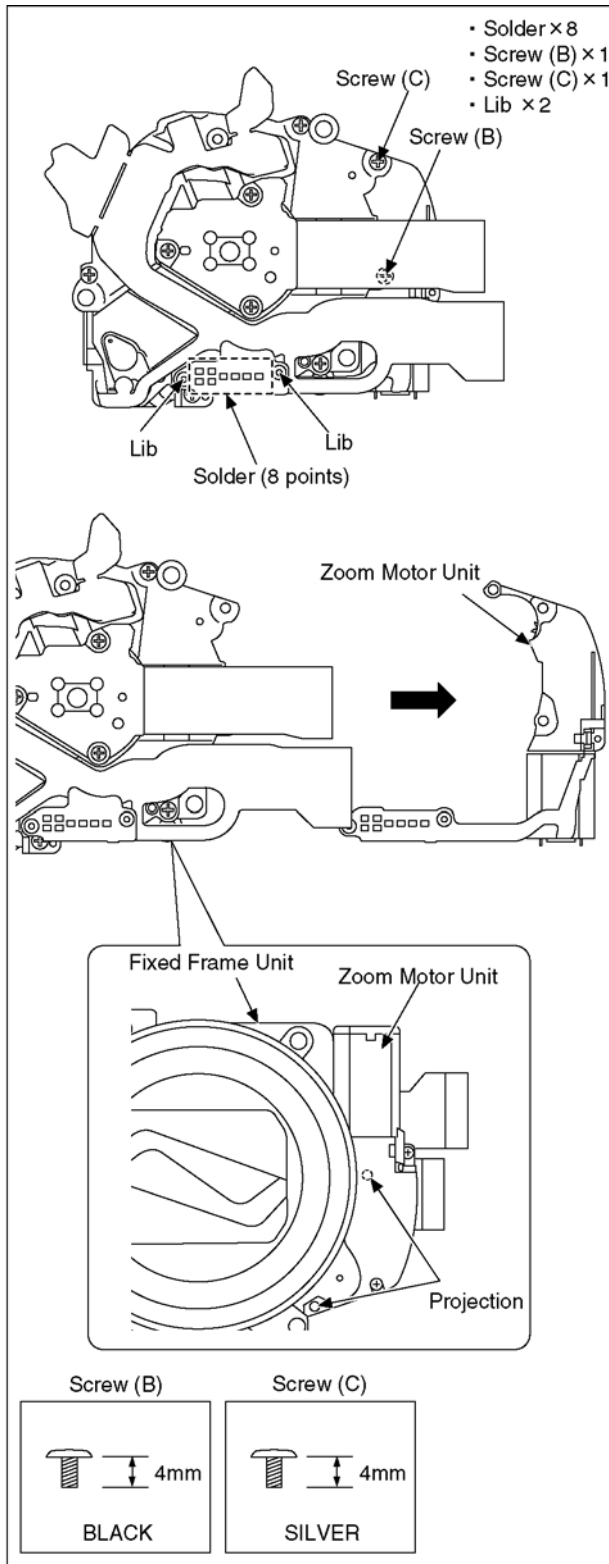


8.6. Removal of the CCD Unit

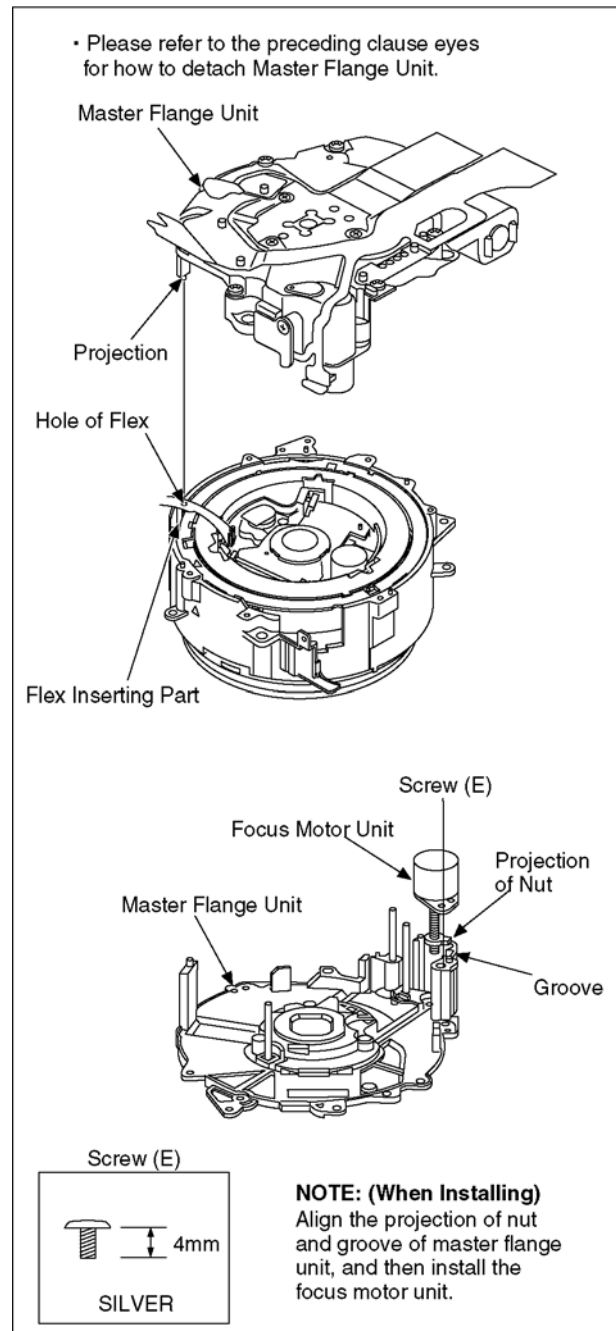
To prevent the CCD unit from catching the dust and dirt, do not remove the CCD unit except for replacing.



8.7. Removal of the Zoom Motor Unit



8.8. Removal of the Focus Motor Unit



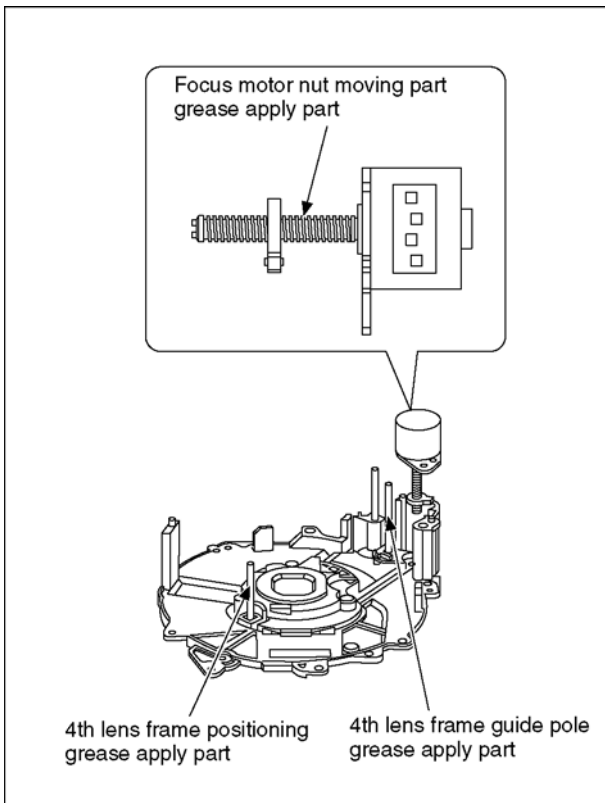
8.9. The Applyment of Grease Method

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.

- Focus motor nut moving part
 - Grease: RFKZ0472
 - Amount of apply: 3 - 5 mg
- 4th lens frame positioning pole, guide pole
 - Grease: RFKZ0472
 - Amount of apply: 0.15 - 0.35 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:

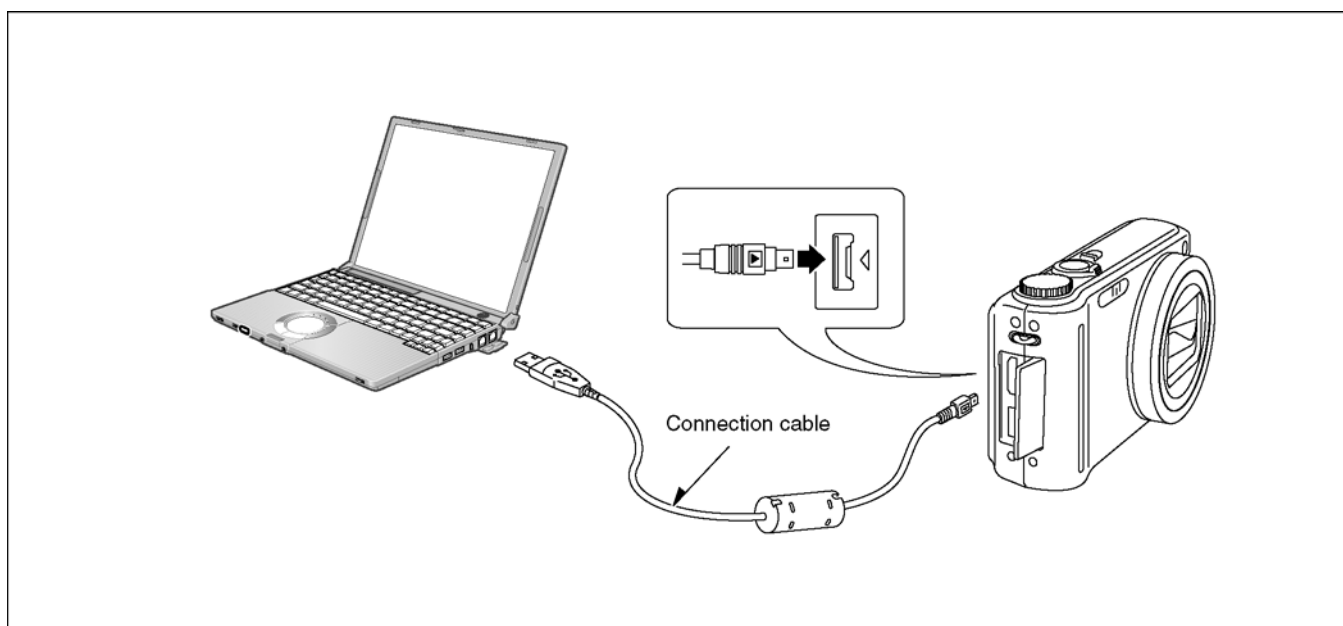
After adjustments have been terminated, make sure to achieve "INITIAL SETTINGS".

Adjustment Item		Replaced Part				
		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)	○	○	○	○	○*1
	Shutter adjustment (SHT)	○	○	○	○	○
	ISO sensitivity adjustment (ISO)	○	○	○	○	○
	AWB adjustment High brightness coloration inspection (WBL)	○	○	○	○	○
	CCD white scratch compensation (WKI)	○	○	○	-	○*1
	CCD black scratch compensation (BKI)	○	○	○	-	○*1
	Venus zoom inspection (PZM)	○	○	○	-	-
	Monitor linearity inspection (MLN)	○	○	○	○	○
	Color reproduction inspection /mic inspection (COL)	○	○	○	○	○

*1 This adjustment is necessary, not only replacing CCD unit but also removing it from the lens unit.

NOTE:

*There is no LCD adjustment in this model.



10 Maintenance

10.1. Cleaning Lens, Viewfinder and LCD Panel

Do not touch the surface of lens, Viewfinder 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-TZ7EB	DMC-TZ7SG
DMC-TZ7EE	DMC-ZS3GD
DMC-TZ7EF	DMC-ZS3GH
DMC-TZ7EG	DMC-ZS3GK
DMC-TZ7EP	DMC-ZS3GT
DMC-TZ7GC	DMC-ZS3P
DMC-TZ7GJ	DMC-ZS3PC
DMC-TZ7GN	DMC-ZS3PU

Vol. 1

Colour

- (S).....Silver Type (except EF/GJ/GD)
- (K).....Black Type
- (A).....Blue Type (only EE/EG/EP/P/PC/PU)
- (T).....Brown Type (only EB/EF/EG/EP/GC/SG/GH/GK)
- (R).....Red Type (only EB/EF/EG/EP/P)

Table of contents

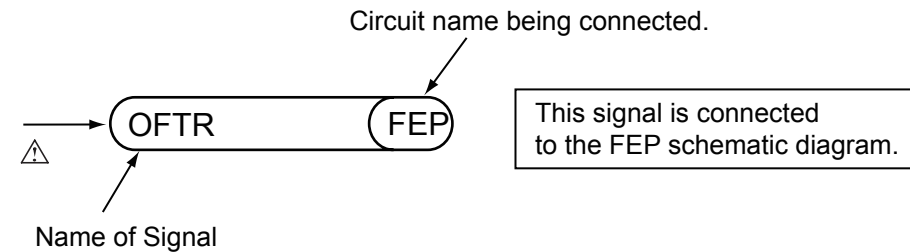
S1. About Indication of The Schematic Diagram.....	S-1	S5. Print Circuit Board.....	S-10
S1.1. Important Safety Notice.....	S-1	S5.1. Top Operation P.C.B.....	S-10
S2. Voltage Chart.....	S-2	S5.2. Flash P.C.B.	S-11
S2.1. Top Operation P.C.B.....	S-2	S5.3. CCD Flex P.C.B.....	S-12
S2.2. Flash P.C.B.	S-2	S5.4. Lens Flex P.C.B.....	S-13
S3. Block Diagram.....	S-3	S6. Replacement Parts List.....	S-15
S3.1. Overall Block Diagram.....	S-3	S7. Exploded View.....	S-19
S4. Schematic Diagram.....	S-4	S7.1. Frame and Casing Section.....	S-19
S4.1. Interconnection Diagram.....	S-4	S7.2. Packing Parts and Accessories Section.....	S-20
S4.2. Top Operation Schematic Diagram.....	S-5		
S4.3. Top MIC Schematic Diagram.....	S-6		
S4.4. Flash Schematic Diagram.....	S-7		
S4.5. CCD Flex Schematic Diagram.....	S-8		
S4.6. Lens Flex Schematic Diagram.....	S-9		

S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

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

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



S2. Voltage Chart

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

S2.1. Top Operation P.C.B.

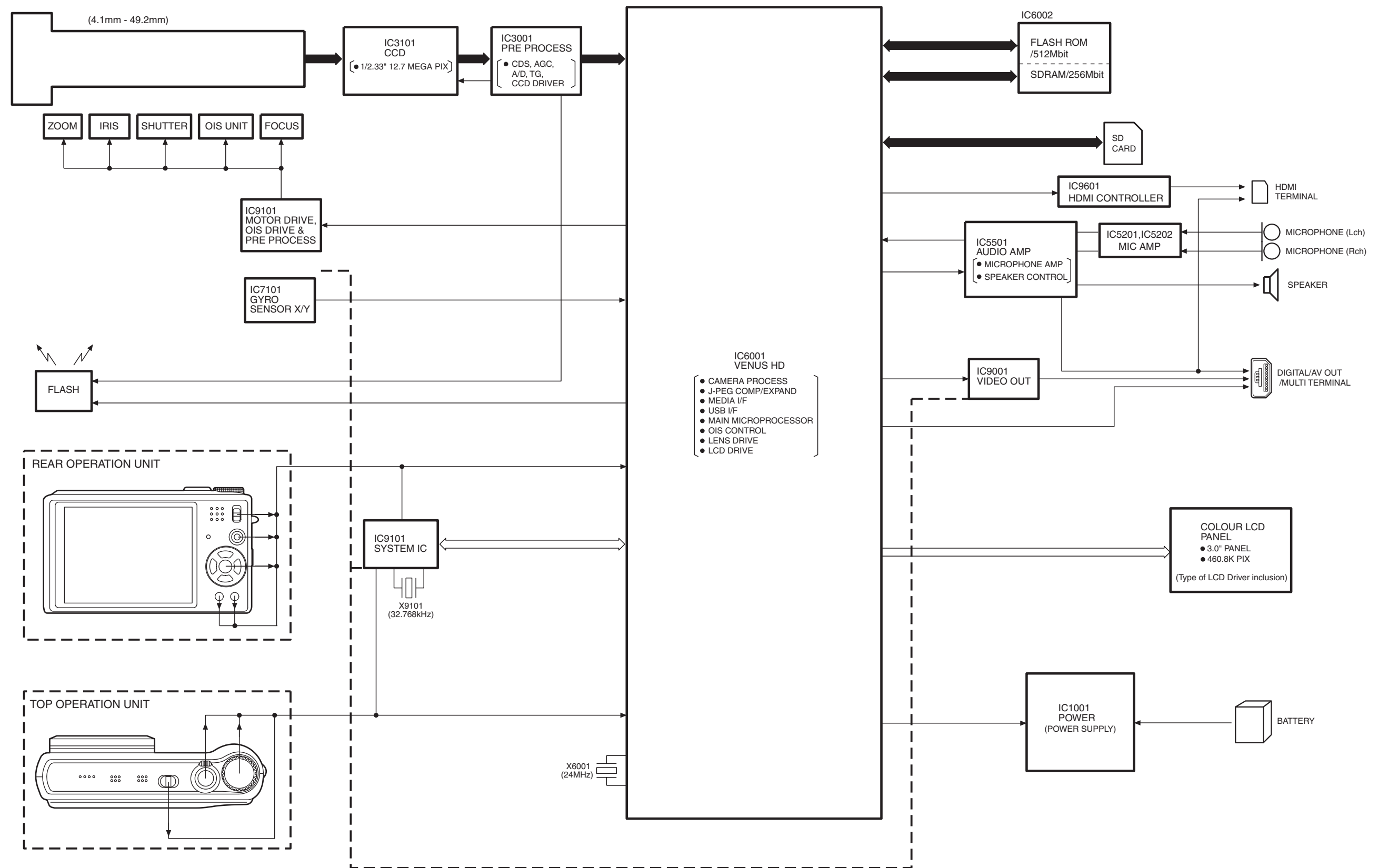
REF No.	PIN No.	POWER ON
IC5201	1	0
IC5201	2	0
IC5201	3	0
IC5201	4	0
IC5201	5	0
IC5201	6	0
IC5201	7	0
IC5201	8	0
IC5202	1	0
IC5202	2	0
IC5202	3	0
IC5202	4	0
IC5202	5	0
IC5202	6	0
IC5202	7	0
IC5202	8	0
Q5201	E	0
Q5201	C	0
Q5201	B	0
Q5202	E	0
Q5202	C	0
Q5202	B	0
Q5203	E	4.9
Q5203	C	5
Q5203	B	4.3
QR5204	1	0
QR5204	2	0
QR5204	3	0
QR5204	4	4.9
QR5204	5	4.9
QR5204	6	4.9

S2.2. Flash P.C.B.

REF No.	PIN No.	POWER ON
IC8001	1	3
IC8001	2	0
IC8001	3	0
IC8001	4	0
IC8001	5	3
Q8009	1	5.1
Q8009	2	5.1
Q8009	3	0
Q8009	4	0
Q8009	5	5.1
Q8009	6	5.1

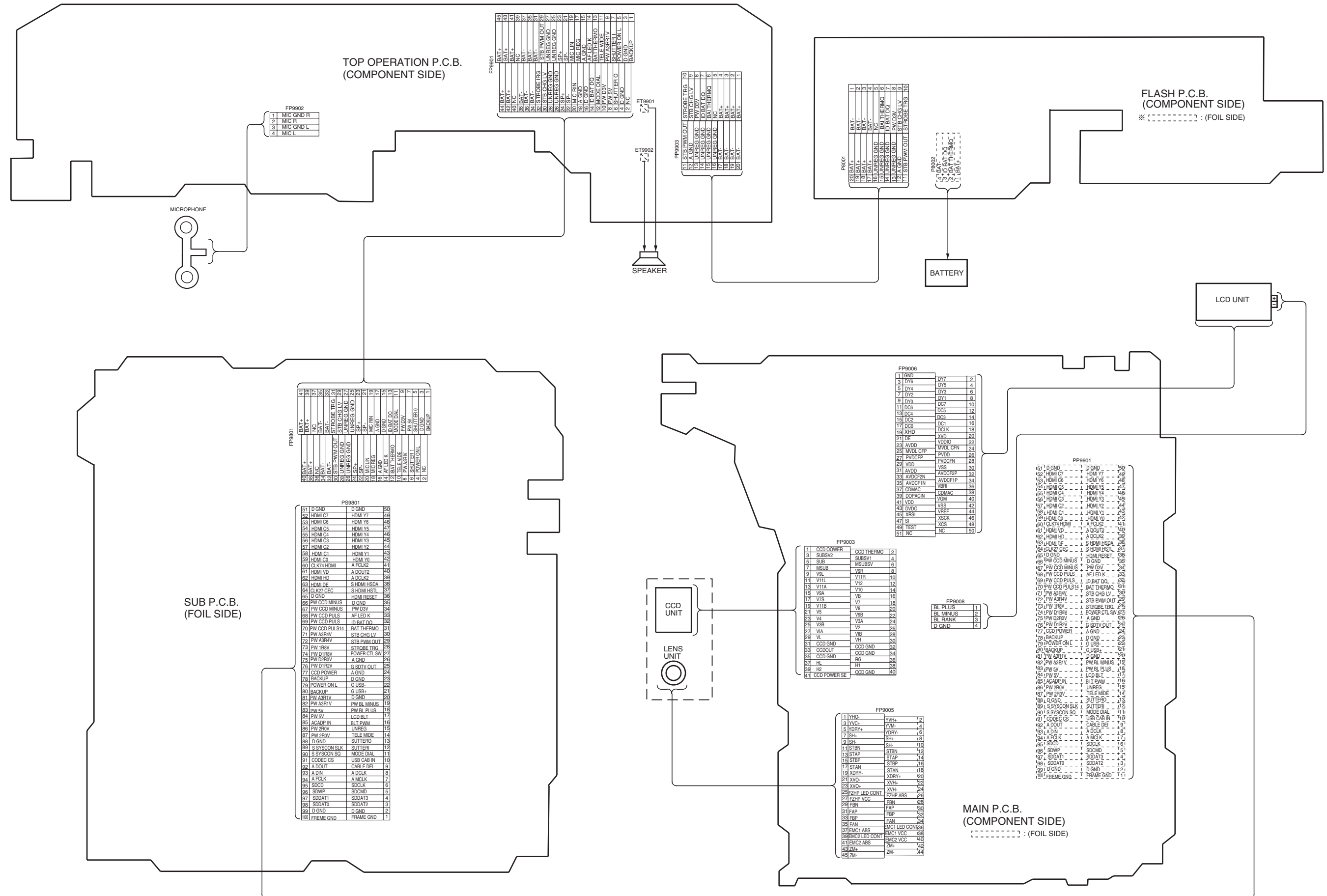
S3. Block Diagram

S3.1. Overall Block Diagram

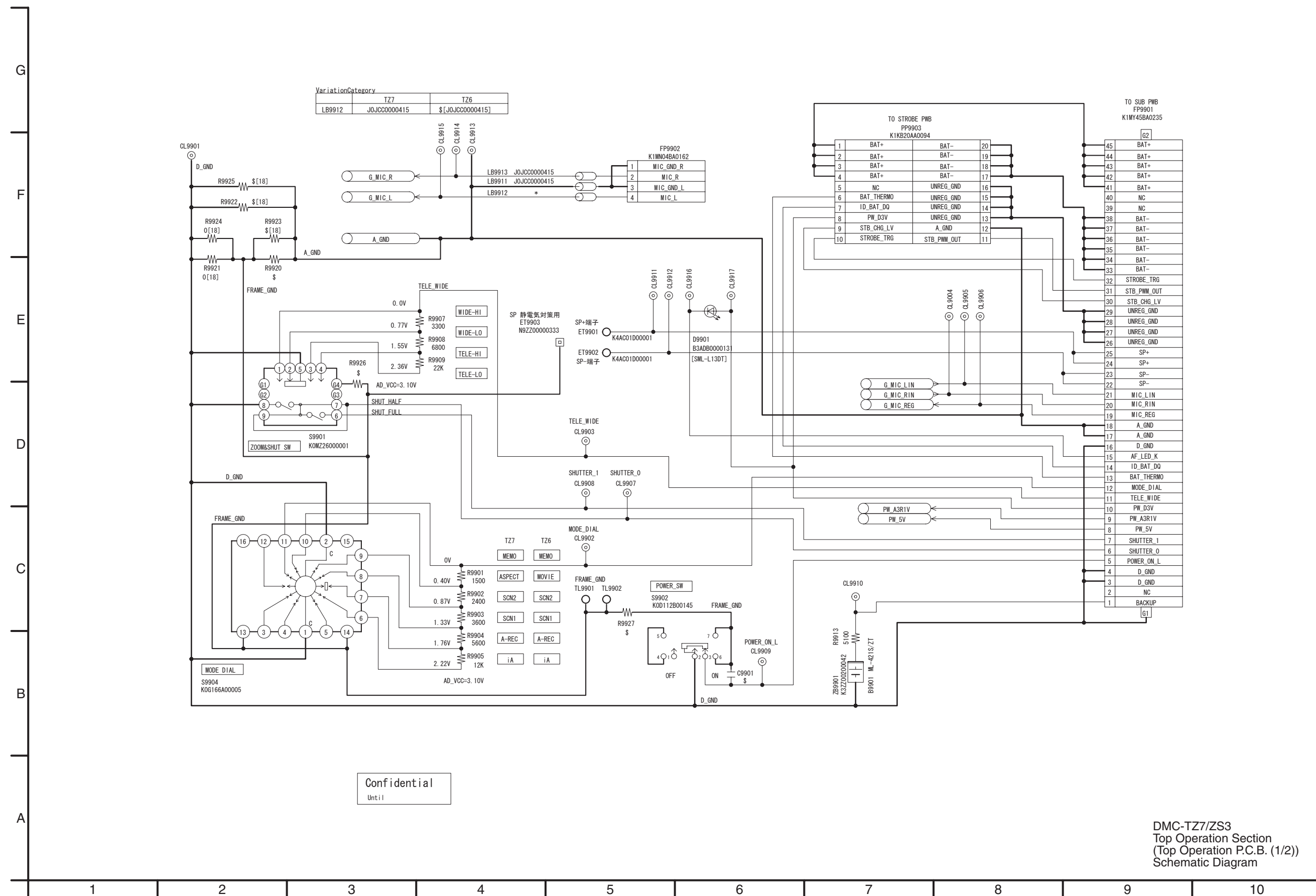


S4. Schematic Diagram

S4.1. Interconnection Diagram

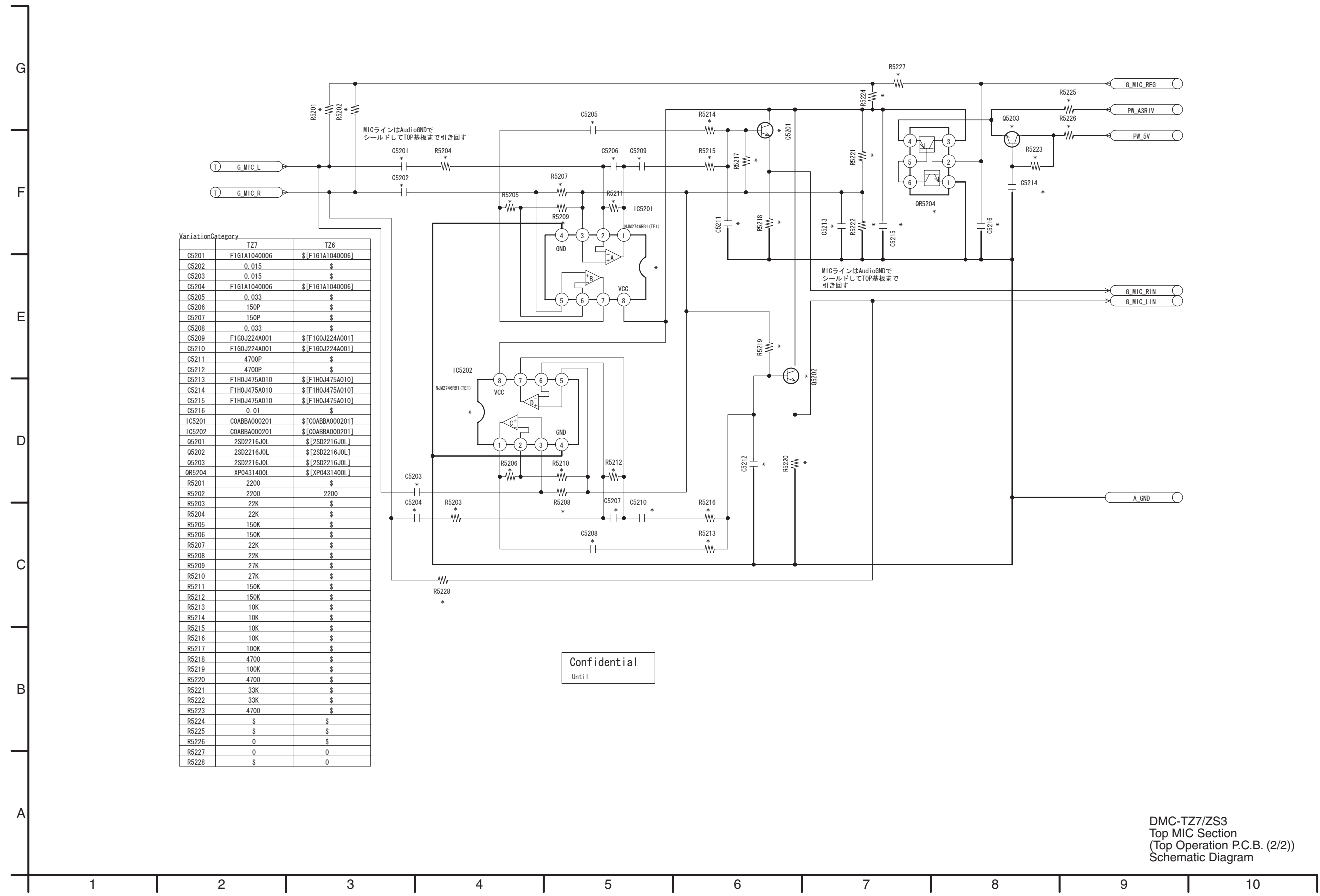


S4.2. Top Operation Schematic Diagram

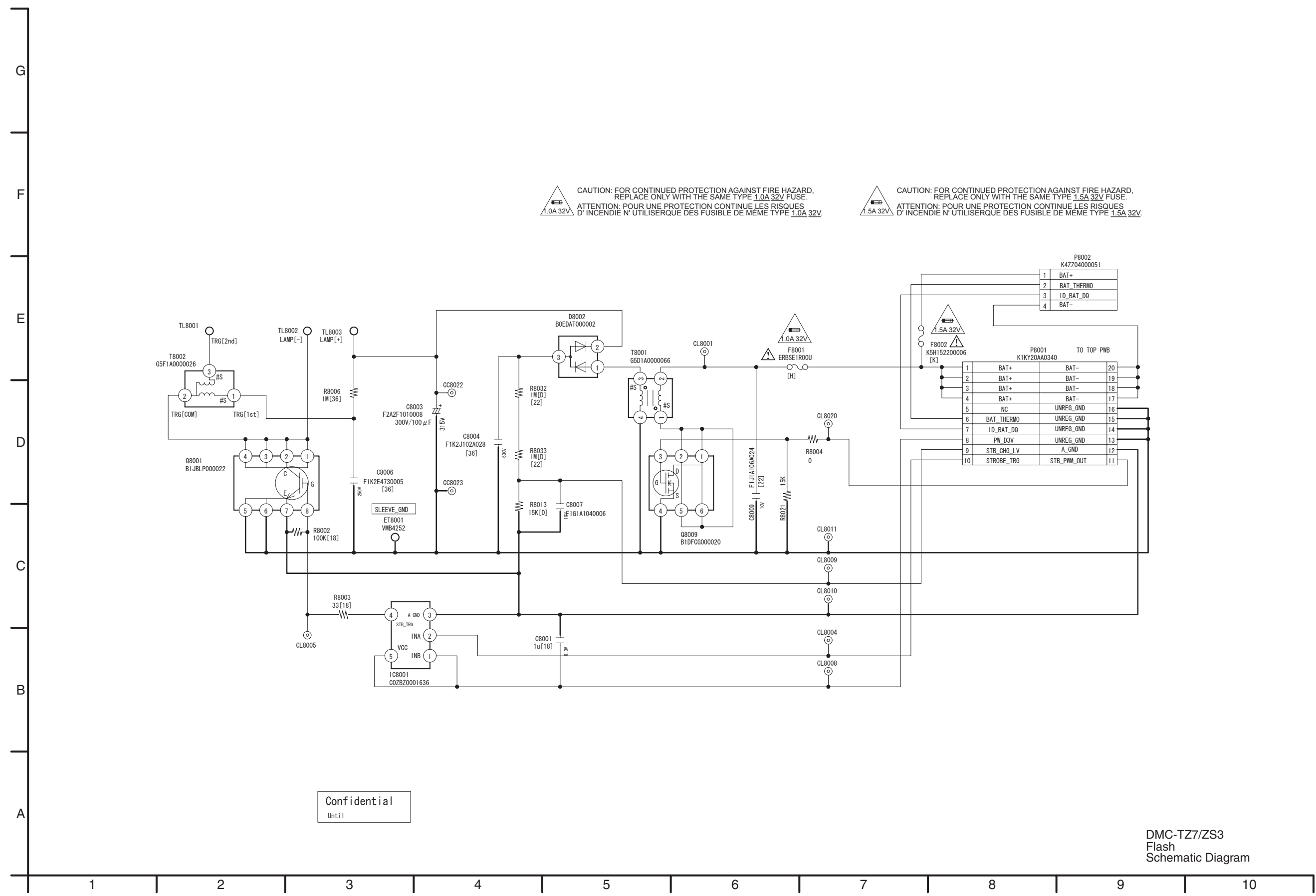


Confidential
Until

S4.3. Top MIC Schematic Diagram

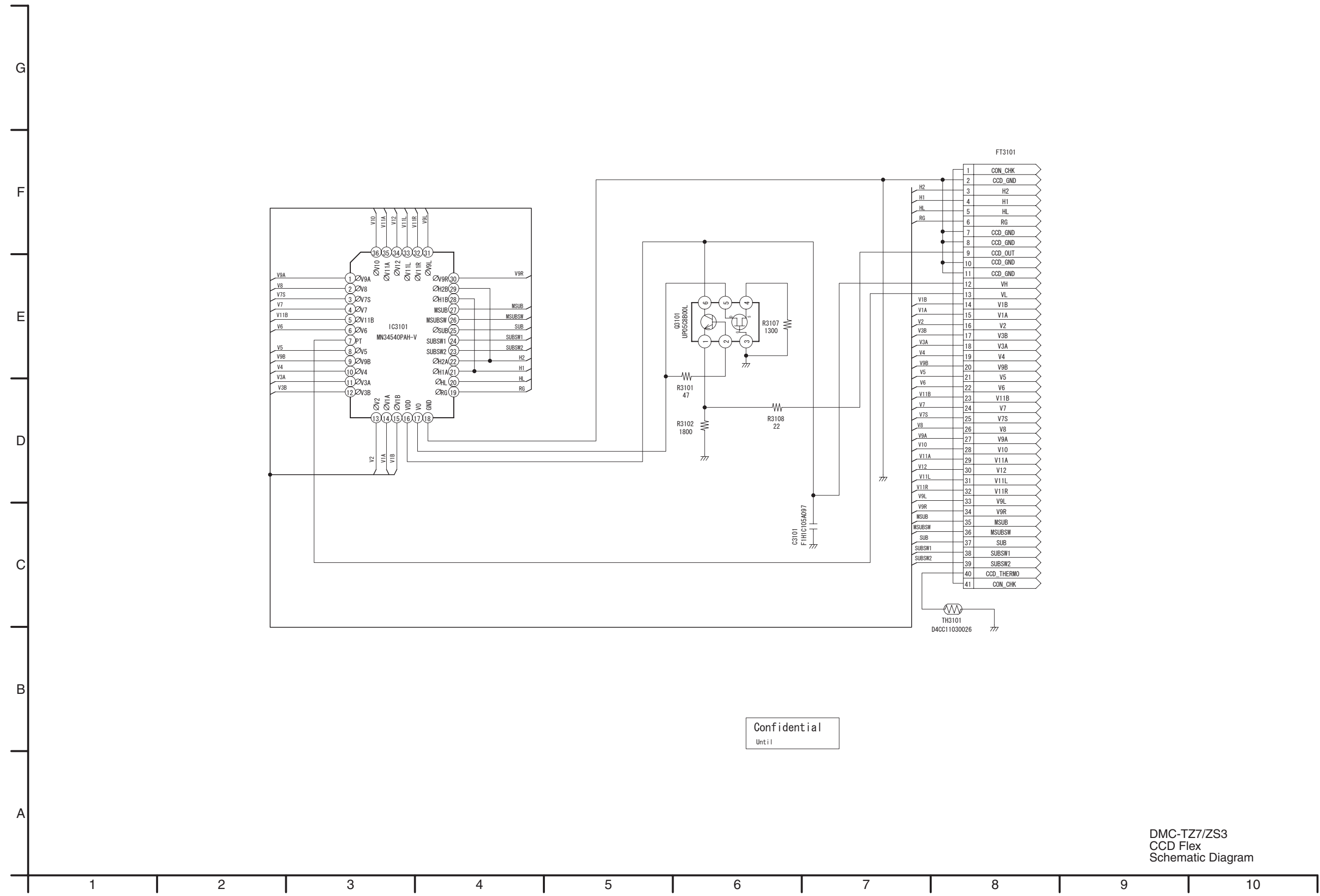


S4.4. Flash Schematic Diagram



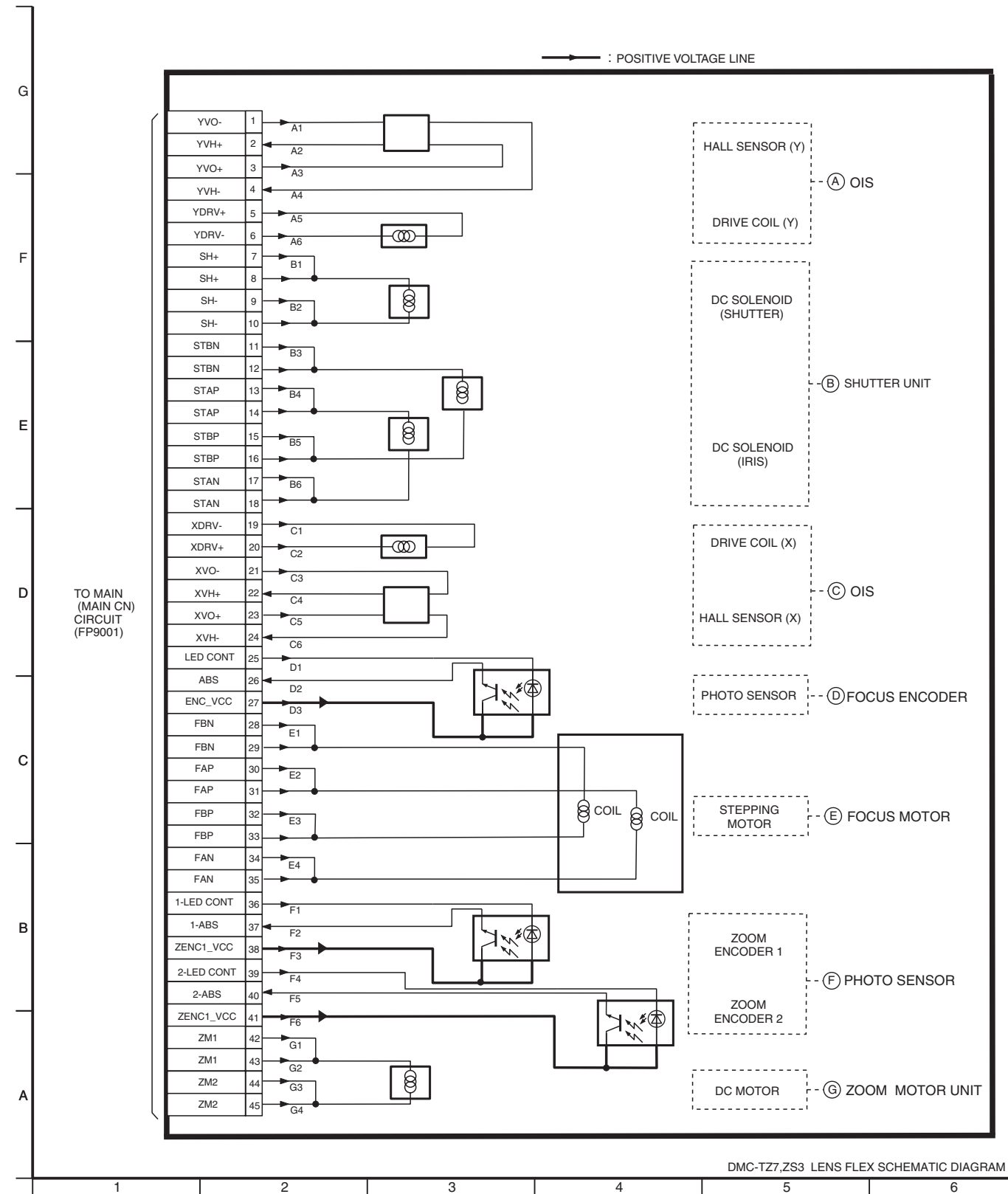
Confidential
Until

S4.5. CCD Flex Schematic Diagram



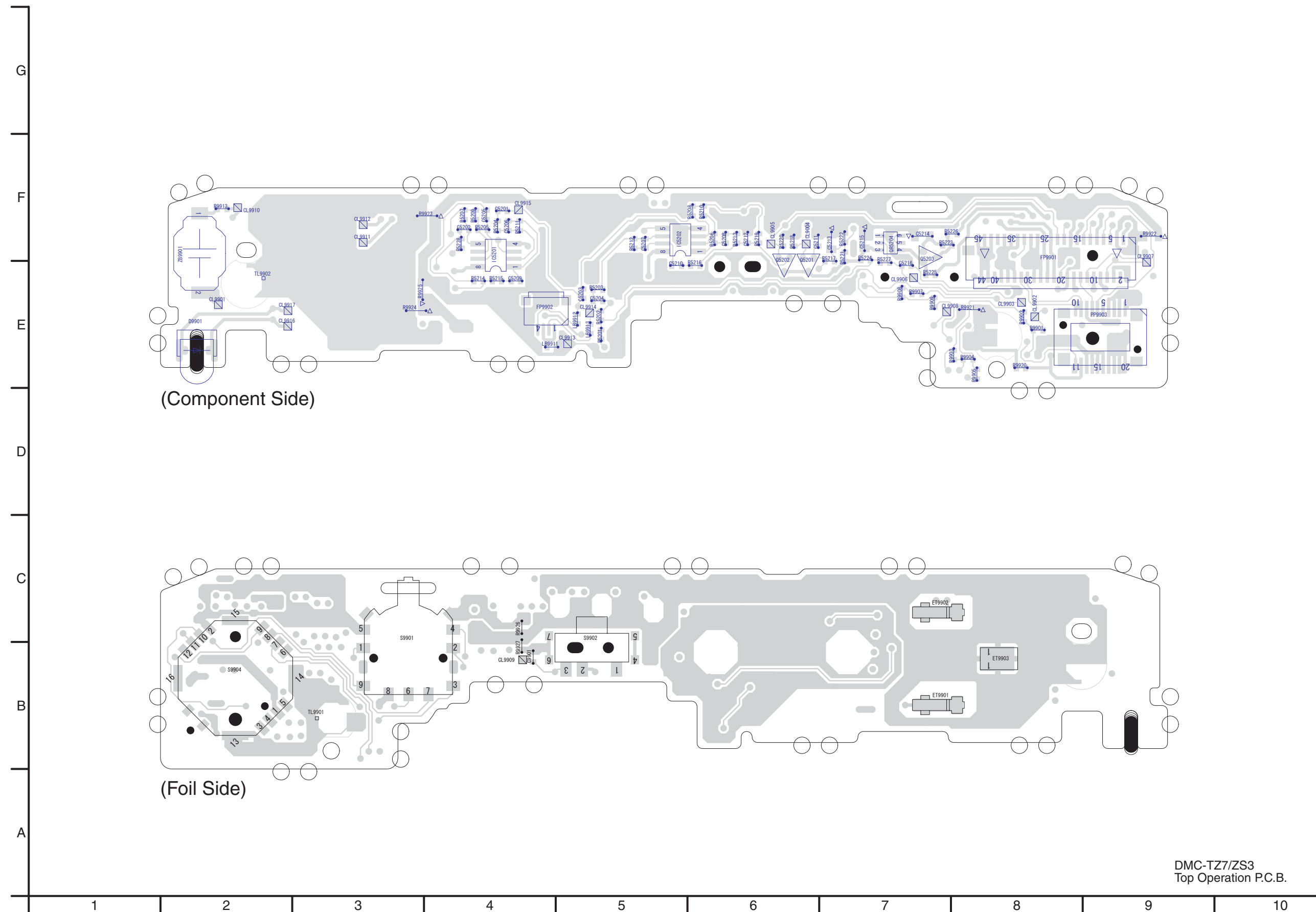
Confidential
Until

S4.6. Lens Flex Schematic Diagram

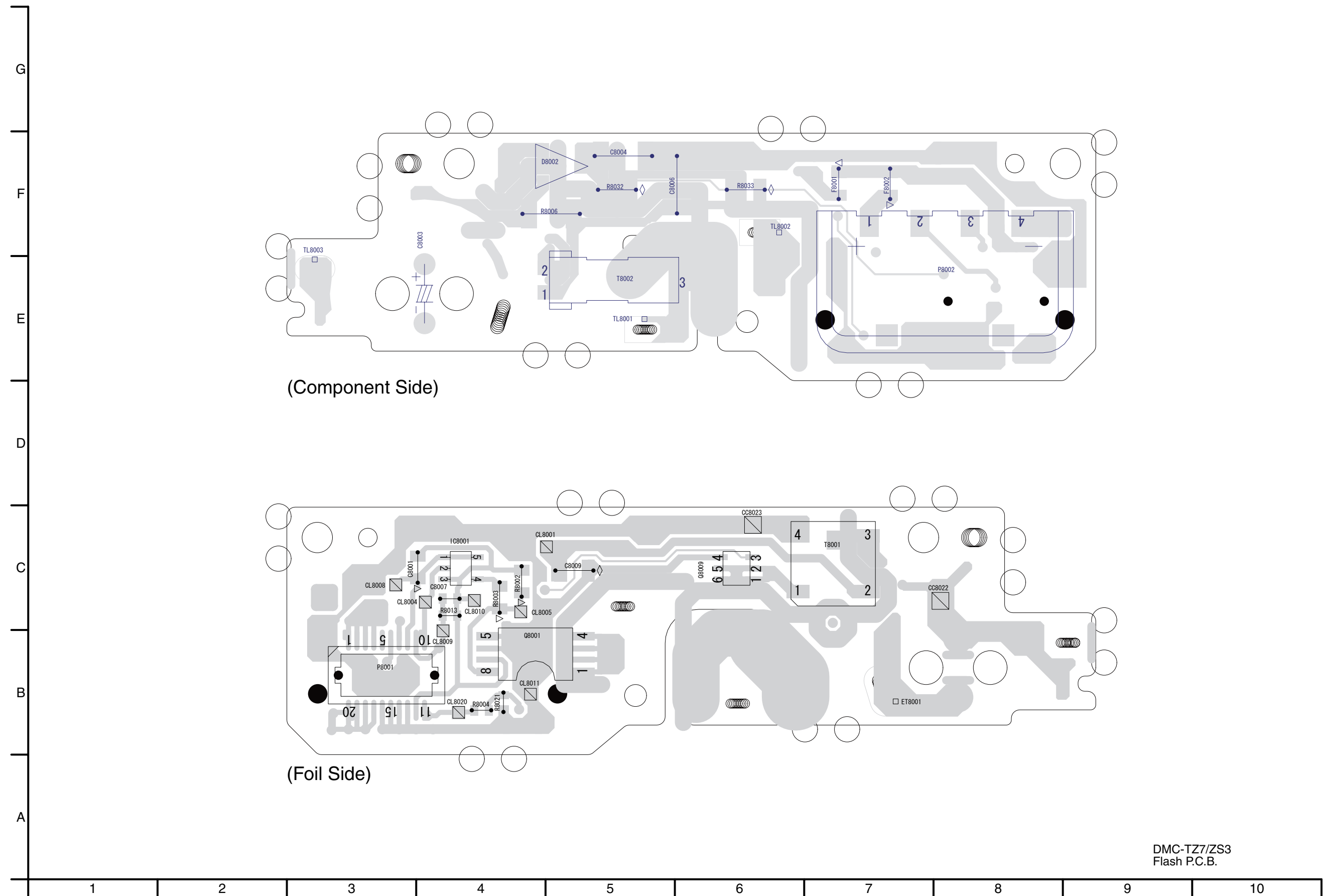


S5. Print Circuit Board

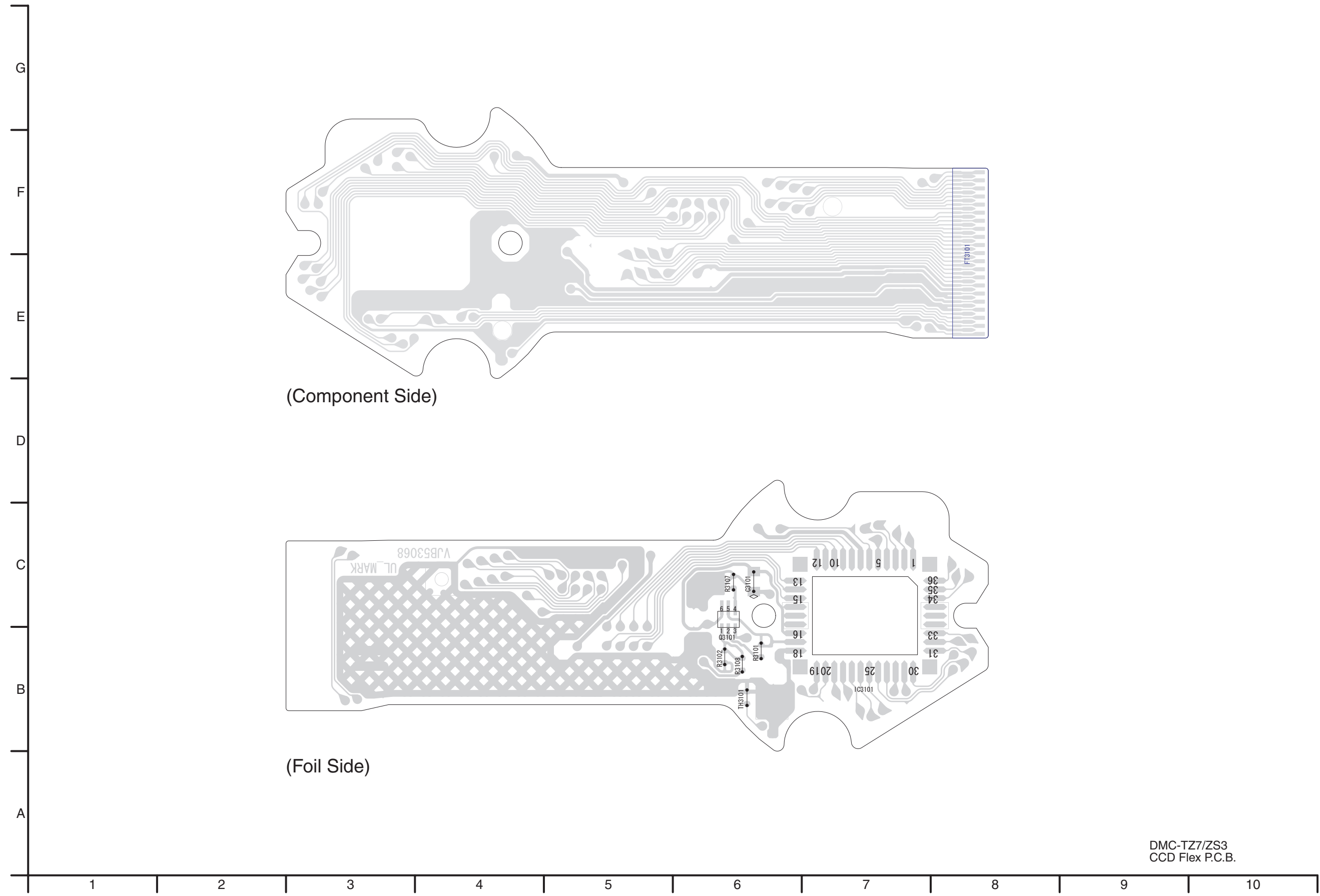
S5.1. Top Operation P.C.B.



S5.2. Flash P.C.B.

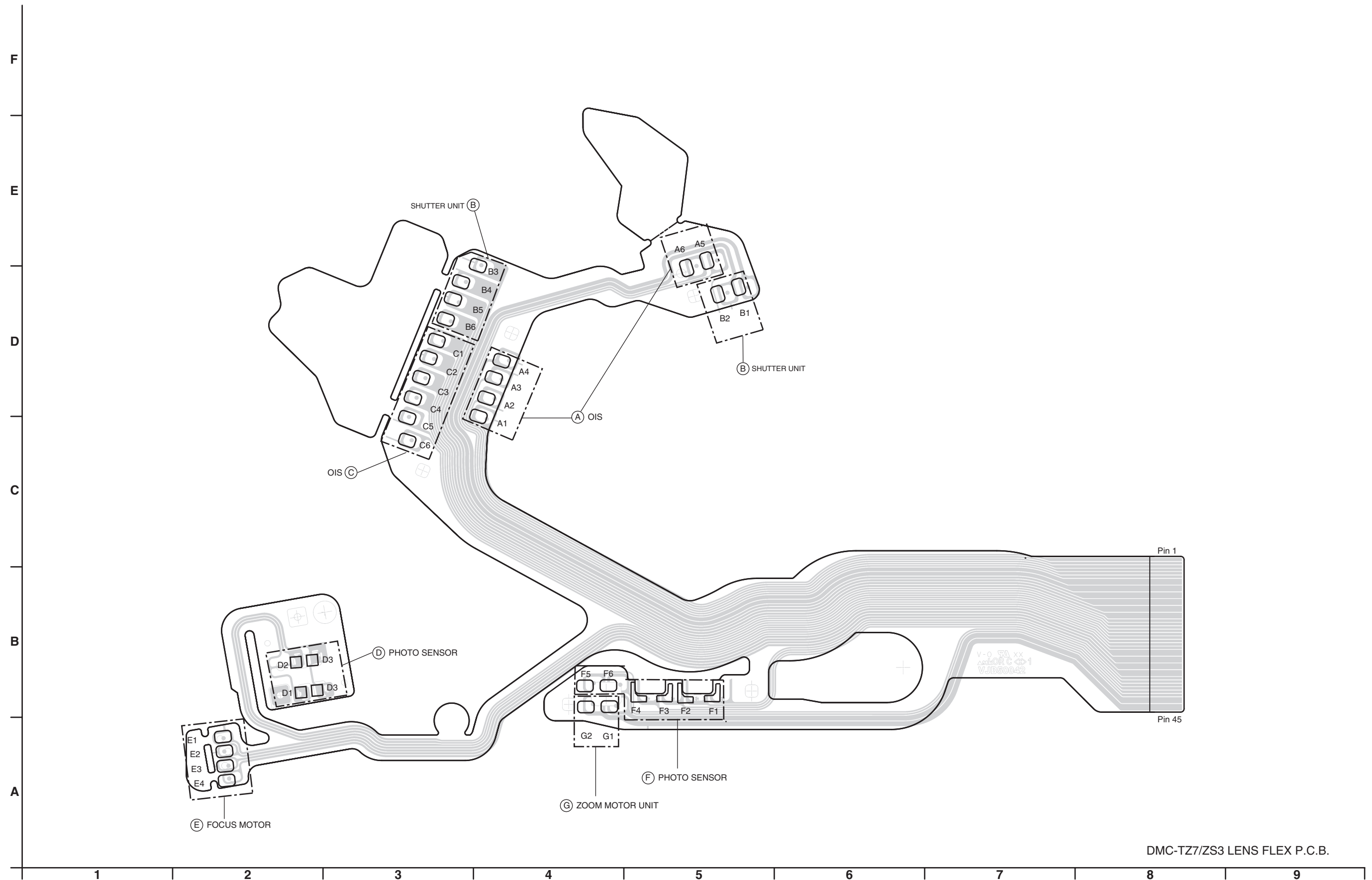


S5.3. CCD Flex P.C.B.



DMC-TZ7/ZS3
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 \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.**
Others are supplied from AVC-CSC-SPC.

DMC-TZ7EB/EE/EF/EG/EP/GC/GJ/GN/SG, DMC-ZS3GD/GH/GK/GT/P/PC/PU

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
----- P.C.B. LIST -----				
##	VEP56081C	MAIN P.C.B.	1	(RTL) E.S.D. EB,EF,EG,EP
##	VEP56081A	MAIN P.C.B.	1	(RTL) E.S.D. EE,GC,GJ,GN,SG,GD,GH,GK,GT,P,PC,PU
##	VEP51024A	SUB P.C.B.	1	(RTL) E.S.D.
##	VEP50038A	TOP OPERATION P.C.B.	1	(RTL) E.S.D.
##	VEP58079A	FLASH P.C.B.	1	(RTL) E.S.D.
##	VEK0N77	CCD UNIT	1	E.S.D.
--- INDIVIDUAL PARTS ---				
##	VEP50038A	TOP OPERATION P.C.B.	1	(RTL) E.S.D.
C5201	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C5202	ECJ0EB1C153K	C.CAPACITOR CH 16V 0.015U	1	
C5203	ECJ0EB1C153K	C.CAPACITOR CH 16V 0.015U	1	
C5204	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C5205	ECJ0EB1A333K	C.CAPACITOR CH 10V 0.033U	1	
C5206	ECJ0EC1H151J	C.CAPACITOR CH 50V 150P	1	
C5207	ECJ0EC1H151J	C.CAPACITOR CH 50V 150P	1	
C5208	ECJ0EB1A333K	C.CAPACITOR CH 10V 0.033U	1	
C5209	F1G0J224A004	C.CAPACITOR CH 6.3V 0.22U	1	
C5210	F1G0J224A004	C.CAPACITOR CH 6.3V 0.22U	1	
C5211	ECJ0EB1E472K	C.CAPACITOR CH 25V 4700P	1	
C5212	ECJ0EB1E472K	C.CAPACITOR CH 25V 4700P	1	
C5213	F1H0J475A010	C.CAPACITOR CH 6.3V 4.7U	1	
C5214	F1H0J475A010	C.CAPACITOR CH 6.3V 4.7U	1	
C5215	F1H0J475A010	C.CAPACITOR CH 6.3V 4.7U	1	
C5216	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
D9901	B3ADB0000131	DIODE	1	E.S.D.
ET9901	K4AC01D00001	EARTH SPRING	1	
ET9902	K4AC01D00001	EARTH SPRING	1	
ET9903	N9ZZ00000333	EARTH SPRING	1	
FP9901	K1MY45BA0235	CONNECTOR 45P	1	
FP9902	K1MN04BA0162	CONNECTOR 4P	1	
IC5201	C0ABBA000201	IC	1	E.S.D.
IC5202	C0ABBA000201	IC	1	E.S.D.
LB9911	J0JCC0000415	FILTER	1	
LB9912	J0JCC0000415	FILTER	1	
LB9913	J0JCC0000415	FILTER	1	
PP9903	K1KB20AA0094	CONNECTOR 20P	1	
Q5201	2SD2216J0L	TRANSISTOR	1	E.S.D.
Q5202	2SD2216J0L	TRANSISTOR	1	E.S.D.
Q5203	2SD2216J0L	TRANSISTOR	1	E.S.D.
QR5204	XP4314	TRANSISTOR-RESISTOR	1	E.S.D.
R5201	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R5202	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R5203	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R5204	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R5205	ERJ2GEJ154	M.RESISTOR CH 1/16W 150K	1	
R5206	ERJ2GEJ154	M.RESISTOR CH 1/16W 150K	1	
R5207	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R5208	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R5209	ERJ2GED273X	M.RESISTOR CH 1/16W 27K	1	
R5210	ERJ2GED273X	M.RESISTOR CH 1/16W 27K	1	
R5211	ERJ2GEJ154	M.RESISTOR CH 1/16W 150K	1	
R5212	ERJ2GEJ154	M.RESISTOR CH 1/16W 150K	1	
R5213	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R5214	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R5215	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R5216	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R5217	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R5218	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5219	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R5220	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5221	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R5222	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R5223	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R5226	DOYAR0000007	M.RESISTOR CH 1/16W 0	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R5227	DOYAR0000007	M.RESISTOR CH 1/16W 0	1	
R9901	ERJ2GEJ152	M.RESISTOR CH 1/16W 1.5K	1	
R9902	ERJ2GEJ242	M.RESISTOR CH 1/16W 2.4K	1	
R9903	ERJ2GEJ362	M.RESISTOR CH 1/16W 3.6K	1	
R9904	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R9905	ERJ2GEJ123	M.RESISTOR CH 1/16W 12K	1	
R9907	ERJ2GEJ332	M.RESISTOR CH 1/16W 3.3K	1	
R9908	ERJ2RHD682X	M.RESISTOR CH 1/16W 6.8K	1	
R9909	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R9913	ERJ2GEJ512X	M.RESISTOR CH 1/16W 5.1K	1	
R9921	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
R9924	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
S9901	K0MZ26000001	SWITCH	1	
S9902	K0D112B00145	SWITCH	1	
S9904	K0G166A00005	SWITCH	1	
ZB9901	K3ZZ00200042	BATTERY HOLDER	1	
##	VEP58079A	FLASH P.C.B.	1	(RTL) E.S.D.
C8001	ECJ1VB0J105K	C.CAPACITOR CH 6.3V 1U	1	
C8004	F1K2J102A028	C.CAPACITOR 630V 1000P	1	
C8006	F1K2E4730005	C.CAPACITOR 250V 0.047U	1	
C8007	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C8009	F1J1A106A024	C.CAPACITOR CH 10V 10U	1	
D8002	B0EDAT000002	DIODE	1	E.S.D.
F8001	ERBSE1R00U	FUSE 32V 1.0A	1	
F8002	K5H152200006	FUSE	1	
IC8001	C0ZB20001636	IC	1	E.S.D.
P8001	K1KY20AA0340	CONNECTOR 20P	1	
P8002	K4ZZ04000051	CONNECTOR 4P	1	
Q8001	B1JBLP000022	TRANSISTOR	1	E.S.D.
Q8009	B1DFCG000020	TRANSISTOR	1	E.S.D.
R8002	ERJ3GEJY104	M.RESISTOR CH 1/10W 100K	1	
R8003	ERJ3GEJY330	M.RESISTOR CH 1/10W 33	1	
R8004	DOYAR0000007	M.RESISTOR CH 1/16W 0	1	
R8006	ERJ8GEJY105V	M.RESISTOR CH 1/8W 1M	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	
T8001	G5D1A0000066	TRANSFORMER	1	
T8002	G5F1A0000026	TRANSFORMER	1	
##	VEK0N77	CCD UNIT	1	E.S.D.
C3101	F1H1C105A097	C.CAPACITOR CH 16V 1U	1	
Q3101	UP05C8B00L	TRANSISTOR	1	E.S.D.
R3101	ERJ2GEJ470	M.RESISTOR CH 1/16W 47	1	
R3102	ERJ2GEJ222	M.RESISTOR CH 1/16W 2.2K	1	
R3107	ERJ2GEJ132	M.RESISTOR CH 1/16W 1.3K	1	
R3108	ERJ2GEJ560	M.RESISTOR CH 1/16W 56	1	
TH3101	D4CC11030026	THERMISTORS	1	

DMC-TZ7EB/EE/EF/EG/EP/GC/GJ/GN/SG, DMC-ZS3GD/GH/GK/GT/P/PC/PU

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP56081C	MAIN P.C.B.	1	(RTL) E.S.D. EB,EF,EG,EP	B1	XQN16+BJ3FN	SCREW	1	
1	VEP56081A	MAIN P.C.B.	1	(RTL) E.S.D. EE,GC,GJ,GN, SG,GD,GH,GK,GT,P,PC,PU	B2	VHD2071	SCREW	1	
2	VEP51024A	SUB P.C.B.	1	(RTL) E.S.D.	B3	VHD2071	SCREW	1	
3	VGQOC47	PCB SPACER	1		B4	VHD2071	SCREW	1	
4	L0AA01A00032	SPEAKER	1		B5	VHD2103	SCREW	1	(-A,-K,-R,-T)
5	LOCBAB000129	MICROPHONE U	1		B5	VHD2102	SCREW	1	(-S)
6	VGL1268	AF PANEL LIGHT	1		B6	VHD2103	SCREW	1	(-A,-K,-R,-T)
7	VMP9274	TOP PLATE L	1		B6	VHD2102	SCREW	1	(-S)
8	VMP9275	TOP PLATE R	1		B7	VHD2103	SCREW	1	(-A,-K,-R,-T)
9	VEP50038A	TOP OPERATION P.C.B.	1	(RTL) E.S.D.	B7	VHD2102	SCREW	1	(-S)
10	VYK3D72	TOP CASE UNIT	1	(DMC-TZ7)	B8	VHD2103	SCREW	1	(-A,-K,-R,-T)
10	VYK3D73	TOP CASE UNIT	1	(DMC-ZS3)	B8	VHD2102	SCREW	1	(-S)
11	VMP9279	FRAME	1		B9	VHD2103	SCREW	1	(-A,-K,-R,-T)
12	VKF4448	JACK DOOR	1	(-K)	B9	VHD2102	SCREW	1	(-S)
12	VKF4447	JACK DOOR	1	(-S)	B10	VHD2103	SCREW	1	(-A,-K,-R,-T)
12	VKF4450	JACK DOOR	1	(-T)	B10	VHD2102	SCREW	1	(-S)
12	VKF4449	JACK DOOR	1	(-A)	B11	VHD2103	SCREW	1	(-A,-K,-R,-T)
12	VKF4451	JACK DOOR	1	(-R)	B11	VHD2102	SCREW	1	(-S)
13	VKH0431	STRAP HOLDER	1		B12	VHD2103	SCREW	1	(-A,-K,-R,-T)
14	VMS7893	JACK DOOR SHAFT	1		B12	VHD2102	SCREW	1	(-S)
15	VMS7967	BATTERY DOOR SHAFT	1		B13	VHD2103	SCREW	1	(-A,-K,-R,-T)
16	VYK3D69	BATTERY DOOR ASSY	1	(-K)	B13	VHD2102	SCREW	1	(-S)
16	VYK3B82	BATTERY DOOR ASSY	1	(-S)	B14	VHD2103	SCREW	1	(-A,-K,-R,-T)
16	VYK3D71	BATTERY DOOR ASSY	1	(-T)	B14	VHD2102	SCREW	1	(-S)
16	VYK3D70	BATTERY DOOR ASSY	1	(-A)	B15	VHD2103	SCREW	1	(-A,-K,-R,-T)
16	VYK3G61	BATTERY DOOR ASSY	1	(-R)	B15	VHD2102	SCREW	1	(-S)
17	EFN-FSAJ5ZC	FLASH U	1		B16	VHD1924	SCREW	1	
18	VEP58079A	FLASH P.C.B.	1	(RTL) E.S.D.	B17	VHD1924	SCREW	1	
19	VGQOC56	SLIDE GUIDE	1		B18	VHD1924	SCREW	1	
20	VML3984	SLIDE KNOB	1		B19	VHD1924	SCREW	1	
21	VWJ2080	FPC	1		B20	XQN16+BJ3FN	SCREW	1	
22	VYK3D60	FRONT CASE ASSY	1	(-K)	B21	XQN16+BJ3FN	SCREW	1	
22	VYK3B81	FRONT CASE ASSY	1	(-S)	B22	XQN16+BJ3FN	SCREW	1	
22	VYK3D62	FRONT CASE ASSY	1	(-T)					
22	VYK3D61	FRONT CASE ASSY	1	(-A)					
22	VYK3G57	FRONT CASE ASSY	1	(-R)					
22-1	VGQOC44	LENS ORNAMENT	1						
24	VYK3D48	LCD ASSY	1		201	VMX3650	CCD CUSHION RUBBER	1	
25	VYK3D59	LCD PANEL ASSY	1		202	VEK0N77	CCD UNIT	1	
31	VYK3F09	REAR CASE ASSY	1	(-K)	203	VDL2318	OPTICAL FILTER	1	
31	VYK3F08	REAR CASE ASSY	1	(-S)	204	L6DA8BEC0004	ZOOM MOTOR UNIT	1	
31	VYK3F11	REAR CASE ASSY	1	(-T)	207	VDW1786	2nd/3rd DIRECT FRAME	1	
31	VYK3F10	REAR CASE ASSY	1	(-A)	208	VXP3172	1st LENS FRAME UNIT	1	
31	VYK3G59	REAR CASE ASSY	1	(-R)	210	VXP3178	2nd LENS FRAME UNIT	1	
31-1	VGL1293	REAR PANEL LIGHT	1		211	VXP3179	3rd LENS FRAME UNIT	1	
31-2	VGU0D99	CURSOR BUTTON	1		214	VXQ1710	MASTER FRANGE UNIT	1	
31-3	VGU0E16	ANIMATION BUTTON	1		214-1	L6HA86NC0001	FOCUS MOTOR UNIT	1	
32	F2A2F1010008	E.CAPACITOR CH 300V 100U	1	(C8003)	214-2	VMB4251	FOCUS SPRING	1	
▲ 33	ML-421S/ZTK	BUTTON BATTERY	1	(B9901) [ENERGY]	216	VXW1034	LENS UNIT	1	
34	VMB4252	EARTH SPRING	1		218	VEK0N75	LENS FPC	1	
35	VMB4150	BATTERY DOOR SPRING	1		220	VXP3250	FIX CAM FRAME U	1	
36	VMB4232	BATTERY SPRING	1						
37	VMP9277	BATTERY CASE	1		B201	VHD1871	SCREW	1	
38	VMP9375	EMC PLATE	1		B202	VHD1871	SCREW	1	
39	VGQOC48	TRIPOD	1		B203	VHD1871	SCREW	1	
40	VML3983	BATTERY LOCK KNOB	1		B205	XQN14+CJ4FN	SCREW	1	
41	VMB3962	BATTERY LOCK SPRING	1		B207	VHD2109	SCREW	1	
42	VMP9278	EARTH PLATE	1		B211	XQN14+BJ4FNK	SCREW	1	
43	VMP9319	SCREW PLATE	1		B212	XQN14+BJ4FNK	SCREW	1	
44	VGQOG03	DPR SHEET B	1		B213	XQN14+BJ4FNK	SCREW	1	
45	VGQOF73	DPR SHEET A	1		B214	XQN14+BJ4FNK	SCREW	1	
46	VGQOG29	LCD SPACER	1		B215	XQN14+BJ4FNK	SCREW	1	
47	VGQOG36	SPACER SHEET C	1		B216	XQN14+BJ4FNK	SCREW	1	
48	VGQOG73	CONDENCER CUSHION	1		B217	XQN14+BJ4FNK	SCREW	1	

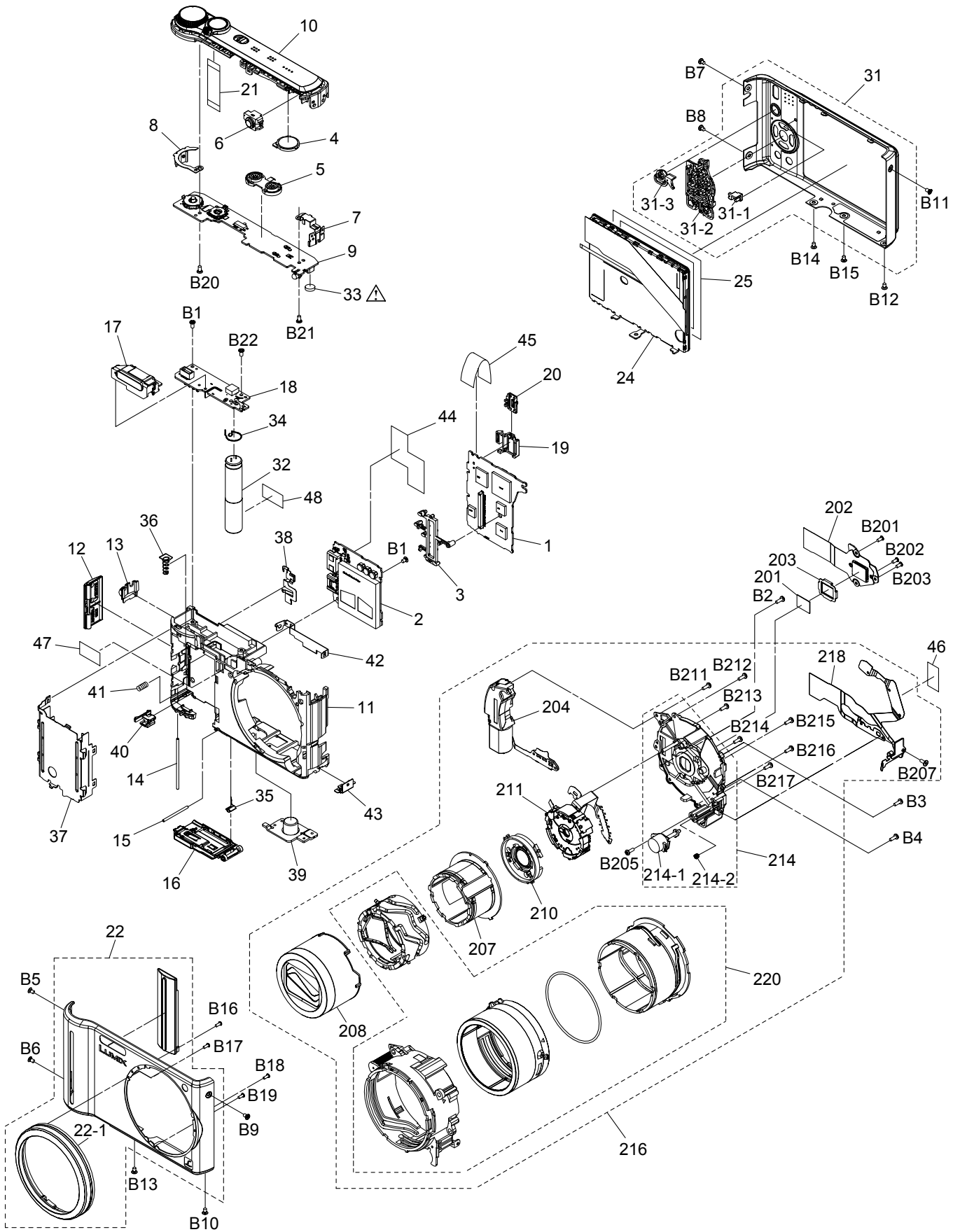
DMC-TZ7EB/EE/EF/EG/EP/GC/GJ/GN/SG, DMC-ZS3GD/GH/GK/GT/P/PC/PU

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
301	VPF1318	CAMERA BAG	1	
△ 302	DE-A66AA	BATTERY CHARGER	1	EB,EF,EG,EP,GN
△ 302	DE-A66BA	BATTERY CHARGER	1	EE,GJ,GK,GH,GK
△ 302	DE-A66EA	BATTERY CHARGER	1	SG
△ 302	DE-A66CA	BATTERY CHARGER	1	GT
△ 302	DE-A65BA	BATTERY CHARGER	1	P,PC,PU
△ 303	K2CT3CA00004	AC CORD W/PLUG	1	EB,GJ,GH
△ 303	K2CQ2CA00006	AC CORD W/PLUG	1	EE,EF,EG,EP,GJ
△ 303	K2CP2Y00001	AC CORD W/PLUG	1	GJK
△ 303	K2CJ2DA00008	AC CORD W/PLUG	1	GN
△ 303	K2CA2CA00019	AC CORD W/PLUG	1	SG
△ 303	K2CR2CA00003	AC CORD W/PLUG	1	GDK
△ 303	K2CA2CA000020	AC CORD W/PLUG	1	GK
△ 303	K2CA2CA000027	AC CORD W/PLUG	1	GT
304	----	BATTERY PACK	1	EB,EE,EF,EG,EP,GJ,GK,GN, SG,GD,GH,GT,PU
304	----	BATTERY PACK	1	GK
304	----	BATTERY PACK	1	P,PC
305	K1HA14AD0001	USB CABLE	1	
306	K1HA14CD0001	AV CABLE	1	
307	VFC4297	HAND STRAP	1	
308	VFF0448-S	CD-ROM (SOFT)	1	EB,EE,EF,EG,EP,GJ,GK,GN, SG,GD,GH,GT,P,PC,PU
308	VFF0449-S	CD-ROM (SOFT)	1	GK
△ 309	VFF0470	CD-ROM (INSTRUCTION BOOK)	1	EG,EP,SG
△ 309	VFF0471	CD-ROM (INSTRUCTION BOOK)	1	GJ,GK,GH
△ 309	VFF0473	CD-ROM (INSTRUCTION BOOK)	1	PU
310	YGQ0E45	BATTERY CARRYING CASE	1	
311	VPK3822	PACKING CASE	1	EBK,EEK,EFK,EGK,EPK,GCK, GJK,GNK,SGK
311	VPK3817	PACKING CASE	1	EBS,EES,EGS,EPS,GCS,GNS, SGS
311	VPK3829	PACKING CASE	1	EBT,EFT,EGT,EPT,GCT,SGT
311	VPK3826	PACKING CASE	1	EEA,EGA,EPA
311	VPK3876	PACKING CASE	1	EBR,EFR,EGR,EPR
311	VPK3823	PACKING CASE	1	GDK,GHK,GTK,PUK
311	VPK3818	PACKING CASE	1	GHS,GTS,PUS
311	VPK3839	PACKING CASE	1	GHT
311	VPK3824	PACKING CASE	1	GKK
311	VPK3819	PACKING CASE	1	GKS
311	VPK3830	PACKING CASE	1	GKT
311	VPK3825	PACKING CASE	1	PA,PCA
311	VPK3821	PACKING CASE	1	PK,PCK
311	VPK3816	PACKING CASE	1	PS,PCS
311	VPK3886	PACKING CASE	1	PR
311	VPK3827	PACKING CASE	1	PUA
312	VPN6666	PAD	1	EB,GJ,GH
312	VPN6664	PAD	1	EE,EF,EG,EP,GJ,GN,SG, GD,GK,GT,PU
313	VPN6809	CUSHION	1	
314	VQT1Z74	O/I SOFTWARE (ENGLISH)	1	EB,GN
314	VQT1Z75	O/I SOFTWARE (RUSSIAN/UKRAINIAN)	1	EE
314	VQT1Z73	O/I SOFTWARE (FRENCH)	1	EF
314	VQT1Z71	O/I SOFTWARE (GERMAN/ITALIAN/FRENCH/ DUTCH/SPANISH/ PORTUGUESE)	1	EG
314	VQT1Z72	O/I SOFTWARE (FINNISH/SWEDISH/DANISH/ POLISH/CZECH/HUNGARIAN)	1	EP
314	VQT1Z76	O/I SOFTWARE (ENGLISH/ CHINESE(TRADITIONAL)/ ARABIC/PERSIAN)	1	GJ,GK,SG,GH
314	VQT1Z80	O/I SOFTWARE (KOREAN)	1	GDK
314	VQT1Z79	O/I SOFTWARE (CHINESE(SIMPLIFIED))	1	GK
314	VQT1Z78	O/I SOFTWARE (CHINESE(TRADITIONAL))	1	GT
314	VQT1Z69	O/I SOFTWARE (ENGLISH/CANADIAN FRENCH)	1	P,PC
314	VQT1Z70	O/I SOFTWARE (SPANISH/PORTUGUESE)	1	PU

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 315	VQT1Z93	OPERATING INSTRUCTIONS (ENGLISH)	1	EB
△ 315	VQT1Z94	OPERATING INSTRUCTIONS (RUSSIAN)	1	EE
△ 315	VQT1Z95	OPERATING INSTRUCTIONS (UKRAINIAN)	1	EE
△ 315	VQT1Z92	OPERATING INSTRUCTIONS (FRENCH)	1	EF
△ 315	VQT2A01	OPERATING INSTRUCTIONS (ENGLISH)	1	GN
△ 315	VQT2A02	OPERATING INSTRUCTIONS (KOREAN)	1	GDK
△ 315	VQT2A00	OPERATING INSTRUCTIONS (CHINESE(SIMPLIFIED))	1	GK
△ 315	VQT1Z99	OPERATING INSTRUCTIONS (CHINESE(TRADITIONAL))	1	GT
△ 315	VQT1Z82	OPERATING INSTRUCTIONS (ENGLISH)	1	P,PC
△ 315	VQT1Z83	OPERATING INSTRUCTIONS (SPANISH)	1	P
△ 315	VQT1Z84	OPERATING INSTRUCTIONS (CANADIAN FRENCH)	1	PC
△ 316	VQT1Z86	BASIC O/I (GERMAN/FRENCH)	1	EG
△ 316	VQT1Z87	BASIC O/I (ITALIAN/DUTCH)	1	EG
△ 316	VQT1Z88	BASIC O/I (SPANISH/PORTUGUESE)	1	EG
△ 316	VQT1Z89	BASIC O/I (SWEDISH/DANISH)	1	EP
△ 316	VQT1Z90	BASIC O/I (POLISH/CZECH)	1	EP
△ 316	VQT1Z91	BASIC O/I (HUNGARIAN/FINNISH)	1	EP
△ 316	VQT1Z96	BASIC O/I (ENGLISH/CHINESE(TRADITIONAL))	1	GJ,GK,SG,GH
△ 316	VQT1Z97	BASIC O/I (ARABIC/PERSIAN)	1	GK
△ 316	VQT1Z85	BASIC O/I (SPANISH/PORTUGUESE)	1	PU
317	VQL1L48-6	OPERATING LABEL	1	PC
317	VQL1G34-6	OPERATING LABEL	1	GT
318	VPF1294	BAG, POLYETHYLENE	1	

S7. Exploded View

S7.1. Frame and Casing Section



S7.2. Packing Parts and Accessories Section

