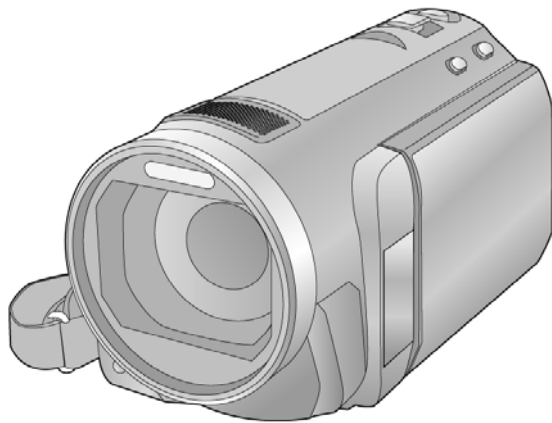


# Service Manual

High Definition Video Camera



Model No. **HDC-SD600P**  
**HDC-SD600EB**  
**HDC-SD600EC**  
**HDC-SD600EE**  
**HDC-SD600EF**  
**HDC-SD600EG**  
**HDC-SD600EP**  
**HDC-SD600GN**



Vol. 1

Colour

(K).....Black Type

(H).....Glax Type (only EB)

## **⚠ WARNING**

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

# Panasonic®

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# 1 Safety Precautions

## 1.1. General Guidelines

### 1. IMPORTANT SAFETY NOTICE

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

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

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

## 1.2. Leakage Current Cold Check

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

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

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a  $1.5\text{ k}\Omega$ ,  $10\text{ W}$  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  $0.75\text{ V RMS}$ . 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

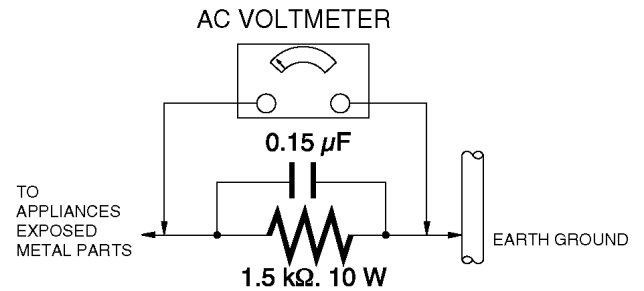


Figure. 1

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

### CAUTION:

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

### [Discharging Procedure]

1. Refer to the disassemble procedure and Remove the necessary parts/unit.
2. Put the insulation tube onto the lead part of Resistor (ERG5SJ102:1k $\Omega$  /5W).  
(an equivalent type of resistor may be used.)
3. Put the resistor between both terminals of capacitor on Flash P.C.B. for approx. 5 seconds.
4. After discharging confirm that the capacitor voltage is lower than 10V using a voltmeter.

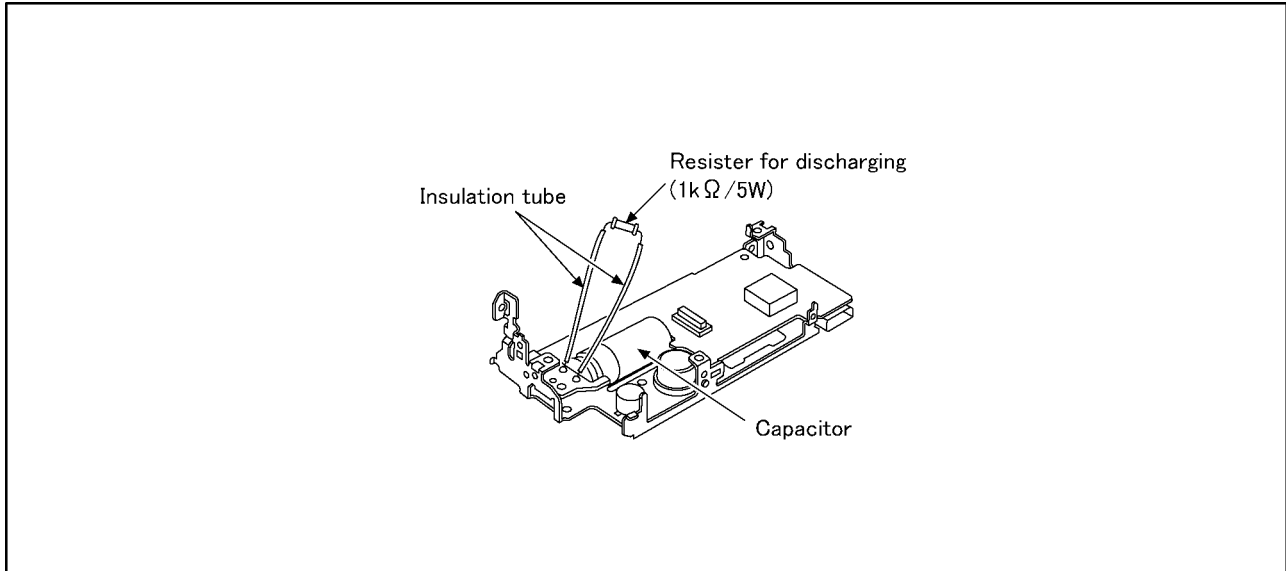


Fig. F1

## 2 Warning

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

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are 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/lithium-polymère. Pour des renseignements sur le recyclage de la batterie, veuillez composer le 1-800-8-BATTERY.

## 2.3. Caution for AC Cord (For EB)

### 2.3.1. Information for Your Safety

#### IMPORTANT

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

#### WARNING

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

#### CAUTION

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

#### FOR YOUR SAFETY

##### DO NOT REMOVE THE OUTER COVER

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

### 2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

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

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



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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

### 2.3.2.1. Important

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

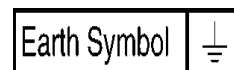
Blue	Neutral
Brown	Live

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

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

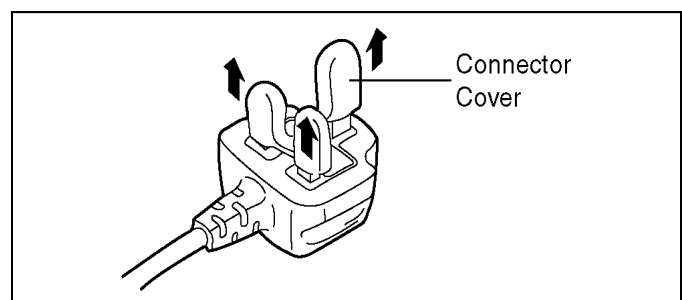
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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



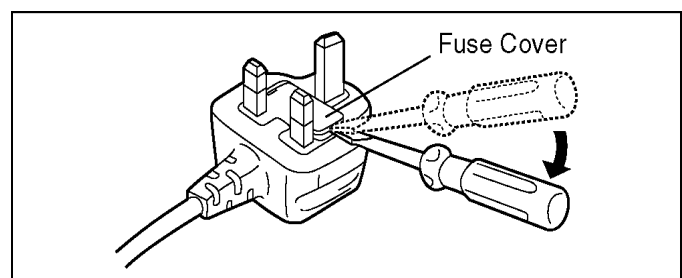
### 2.3.2.2. Before Use

Remove the Connector Cover as follows.

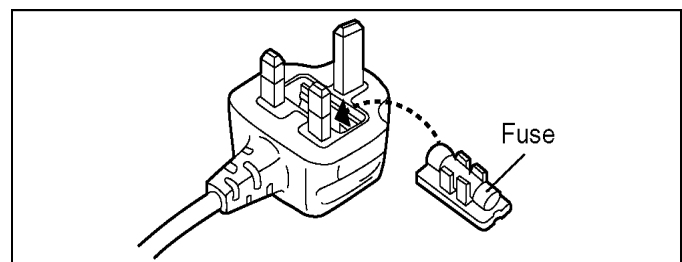


### 2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



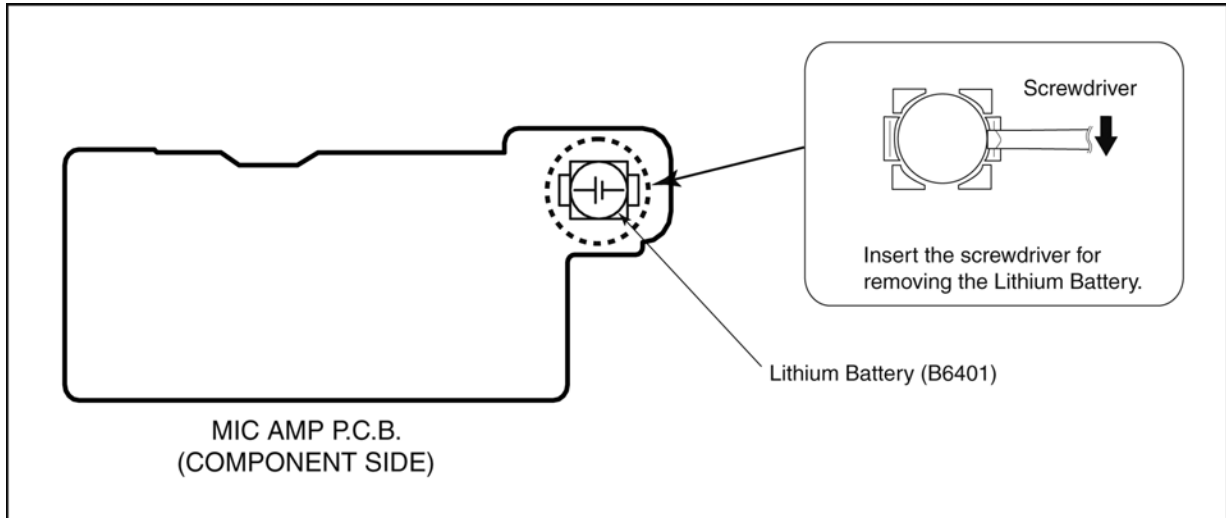
2. Replace the fuse and attach the Fuse cover.



## 2.4. How to Replace the Lithium Battery

### 2.4.1. Replacement Procedure

1. Remove the MIC AMP P.C.B.. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. "B6401" at component side of MIC AMP P.C.B.) and then replace it into new one.



#### NOTE:

This Lithium battery is a critical component.

(Type No.: ML-614S/ZTK **Manufactured by Energy Company, Panasonic Corporation**)

It must never be subjected to excessive heat or discharge.

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

Replacement batteries must be of same type and manufacture.

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

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

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

#### (For English)

### CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

#### (For German)

### ACHTUNG

Explosionsgefahr bei falschem Anbringen der Batterie. Ersetzen Sie nur mit einem äquivalentem vom Hersteller empfohlenem Typ.

Behandeln Sie gebrauchte Batterien nach den Anweisungen des Herstellers.

#### (For French)

### MISE EN GARDE

Une batterie de remplacement inappropriée peut exploser. Ne remplacez qu'avec une batterie identique ou d'un type recommandé par le fabricant. L'élimination des batteries usées doit être faite conformément aux instructions du fabricant.

#### NOTE:

Above caution is applicable for a battery pack which is for HDC-SD600 series, as well.

1. Battery Pack for this model.
2. Button-type battery for Remote controller (CR2025: Being supplied from Energy Company, Panasonic Corporation).

## 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 P.C.B. Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the P.C.B. using the lead free solder.(See right figure)
--

PbF
-----

#### Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.  
(Definition: The letter of "PbF" is printed on the P.C.B. using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the P.C.B. cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30°C (662±86°F).

#### Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.  
RFKZ03D01KS------(0.3mm 100g Reel)  
RFKZ06D01KS------(0.6mm 100g Reel)  
RFKZ10D01KS------(1.0mm 100g Reel)

#### Note

\* Ingredient: tin (Sn) 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

### 3.3. 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 P.C.B. layout of MAIN P.C.B..
  - b. Parts list for individual parts for MAIN P.C.B..

When a part replacement is required for repairing MAIN P.C.B., replace as an assembled parts. (Main P.C.B.)

2. The following category is /are recycle module part. Please send it/them to Central Repair Center.

- MAIN P.C.B. (VEP03H98EN: HDC-SD600P)
- MAIN P.C.B. (VEP03H98EP: HDC-SD600EB/EC/EF/EG/EP)
- MAIN P.C.B. (VEP03H98EQ: HDC-SD600EE/GN)

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

There are three kinds of HDC-SD600.


- a) HDC-SD600P
- b) HDC-SD600EB/EC/EF/EG/EP/GN
- c) HDC-SD600EE

What is the difference is that the "INITIAL SETTING" data which is stored in Flash ROM mounted on Main P.C.B..


#### 3.4.1. Defining methods:

To define the model suffix to be serviced, refer to the rating label which is putted on the Unit.


**a) HDC-SD600P**  
The nameplate for this model show the following Safety registration mark.



**b) HDC-SD600EB/EC/EF/EG/EP/GN**  
The nameplate for these models show the following Safety registration mark.



**c) HDC-SD600EE**  
The nameplate for this model show the following Safety registration mark.



**NOTE:**

After replacing the MAIN P.C.B., be sure to achieve model type setting and adjustment.

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

## 3.5. Formatting

### [FORMAT CARD]

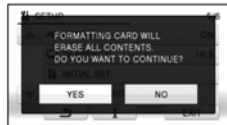
Please be aware that if a medium is formatted, then all the data recorded on the medium will be erased and cannot be restored. Back up important data on a PC, DVD disc etc.

- When formatting is complete, touch [EXIT] to exit the message screen.
  - Perform a physical formatting of the SD card when the SD card is to be disposed/ transferred.
- 
- Do not turn this unit off or remove the SD card, while formatting. Do not expose the unit to vibrations or shock.

**Use this unit to format media.  
Do not format an SD card using any other equipment such as a PC. The card may not be used on this unit.**

#### **When disposing of or giving away the SD card, note that:**

- Formatting and deletion of this unit or computer only changes the file management information and does not completely delete the data in the SD card.
- It is recommended that the SD card is physically destroyed or the SD card is physically formatted using this unit when disposing of or giving away the SD card. To physically format the SD card, connect the unit via the AC adaptor, select [FORMAT CARD] → [YES] from the menu, and then press and hold the delete button on the screen below for about 3 seconds. When the SD card data deletion screen appears, select [YES], and then follow the on-screen instructions.



- The customer is responsible for the management of the data in the SD card.

# 4 Specifications

## High Definition Video Camera

Information for your safety

<b>Power source:</b>	DC 9.3 V (When using AC adaptor) DC 7.2 V (When using battery)
<b>Power consumption:</b>	Recording: 5.8 W

<b>Signal system</b>	1080/60p, 1080/60i (NTSC areas) 1080/50p, 1080/50i (PAL areas)
<b>Recording format</b>	1080/60p: Original format (NTSC areas) 1080/50p: Original format (PAL areas) HA/HG/HX/HE: AVCHD format compliant
<b>Image sensor</b>	1/4.1" 3MOS image sensor Total: 3050 K×3 Effective pixels: Motion picture: 2530 K×3 (16:9) Still picture: 2320 K×3 (4:3), 2630 K×3 (3:2), 2530 K×3 (16:9)
<b>Lens</b>	Auto Iris, F1.5 to F2.8 Focal length: 3.45 mm to 41.4 mm Macro (Full range AF) 35 mm equivalent: Motion picture: 35 mm to 420 mm (16:9) Still picture: 38.8 mm to 466 mm (4:3) 35.7 mm to 428 mm (3:2) 35 mm to 420 mm (16:9) Minimum focus distance: Normal: Approx. 4 cm (1.6") (Wide)/Approx. 1.2 m (3.9 feet) (Tele) Tele macro: Approx. 70 cm (28") (Tele) Intelligent auto Macro: Approx. 1 cm (0.4") (Wide)/Approx. 70 cm (28") (Tele)
<b>Filter diameter</b>	46 mm
<b>Zoom</b>	12× Optical Zoom, 18× i.Zoom, 30×/700× Digital Zoom
<b>Monitor</b>	2.7" wide LCD monitor (Approx. 230 K dots)
<b>Microphone</b>	Stereo (with a zoom microphone function)
<b>Speaker</b>	1 round speaker, dynamic type

<b>White balance adjustment</b>	Auto tracking white balance system
<b>Standard illumination</b>	1,400 lx
<b>Minimum required illumination</b>	Approx. 1.6 lx (1/30 in Low light mode) (NTSC areas) Approx. 1 lx with the Color night rec function (NTSC areas) Approx. 1.6 lx (1/25 in Low light mode) (PAL areas) Approx. 1 lx with the color night view function (PAL areas)
<b>AV multi connector video output level</b>	Component video out put level: Y: 1.0 Vp-p, 75 Ω Pb: 0.7 Vp-p, 75 Ω Pr: 0.7 Vp-p, 75 Ω AV video output level: 1.0 Vp-p, 75 Ω, NTSC system (NTSC areas) 1.0 Vp-p, 75 Ω, PAL system (PAL areas)
<b>HDMI mini connector video output level</b>	HDMI™ (x.v.Color™) 1080p/1080i/480p (NTSC areas) HDMI™ (V1.3a with x.v.Colour™) 1080p/1080i/576p (PAL areas)
<b>AV multi connector audio output level (Line)</b>	316 mV, 600 Ω, 2 ch
<b>HDMI mini connector audio output level</b>	Dolby Digital/Linear PCM
<b>USB</b>	Card reader function (No copyright protection support) (EB/EC/EF/EG/EP areas) Card reader/writer function (No copyright protection support) (other areas) Hi-Speed USB (USB 2.0), USB terminal Type Mini AB USB host function (for DVD burner)
<b>Flash</b>	Available range: Approx. 1.0 m to 2.5 m (3.3 feet to 8.2 feet)

<b>Dimensions</b>	62 mm (W)×66 mm (H)×126 mm (D) [2.44" (W)×2.59" (H)×4.96" (D)] (excluding projecting parts)
<b>Mass (Weight)</b>	Approx. 325 g (Approx. 0.72 lbs.) [without battery (supplied) and an SD card (optional)]
<b>Mass (Weight) in operation</b>	Approx. 387 g (Approx. 0.85 lbs.) [with battery (supplied) and an SD card (optional)]
<b>Operating temperature</b>	0 °C to 40 °C (32 °F to 104 °F)
<b>Operating humidity</b>	10% to 80%
<b>Battery operation time</b>	Refer to "Charging and recording time"

## Motion pictures

<b>Recording media</b>	SD Memory Card (FAT12 and FAT16 system compliant) SDHC Memory Card (FAT32 system compliant) SDXC Memory Card (exFAT system compliant) Refer to "Cards that you can use with this unit"
<b>Compression</b>	MPEG-4 AVC/H.264
<b>Recording mode and transfer rate</b>	1080/60p: Approx. 28 Mbps (VBR) (NTSC areas) 1080/50p: Approx. 28 Mbps (VBR) (PAL areas) HA: Approx. 17 Mbps (VBR) HG: Approx. 13 Mbps (VBR) HX: Approx. 9 Mbps (VBR) HE: Approx. 5 Mbps (VBR) Refer to "Recording modes/approximate recording time"
<b>Picture size</b>	1080/60p: 1920×1080/60p (NTSC areas) HA/HG/HX/HE: 1920×1080/60i (NTSC areas) 1080/50p: 1920×1080/50p (PAL areas) HA/HG/HX/HE: 1920×1080/50i (PAL areas)
<b>Audio compression</b>	Dolby Digital

## Still pictures

<b>Recording media</b>	SD Memory Card (FAT12 and FAT16 system compliant) SDHC Memory Card (FAT32 system compliant) SDXC Memory Card (exFAT system compliant) Refer to "Cards that you can use with this unit"
<b>Compression</b>	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
<b>Picture size</b>	Picture aspect [4:3]: 4032×3024/3200×2400/2560×1920/640×480 Picture aspect [3:2]: 4608×3072/3600×2400/2880×1920 Picture aspect [16:9]: 4864×2736/3840×2160/3072×1728/1920×1080 Refer to "Number of recordable pictures"

## AC adaptor

Information for your safety

<b>Power source:</b>	AC 110 V to 240 V, 50/60 Hz
<b>Power consumption:</b>	19 W
<b>DC output:</b>	DC 9.3 V, 1.2 A (Unit operation) DC 8.4 V, 0.65 A (Battery charging)

<b>Dimensions</b>	92 mm (W)×33 mm (H)×61 mm (D) [3.6" (W)×1.3" (H)×2.4" (D)]
<b>Mass (Weight)</b>	Approx. 115 g (Approx. 0.25 lbs.)

Specifications may change without prior notice.

## Charging and recording time

### Charging/Recording time

- Temperature: 25 °C (77 °F)/humidity: 60%

NTSC areas				
Battery model number [Voltage/Capacity (minimum)]	Charging time	Recording mode	Maximum continuous recordable time	Actual recordable time
Supplied battery/ VW-VBG130 (optional) [7.2 V/1250 mAh]	2 h 35 min	1080/60p, HA	1 h 40 min	1 h
		HG, HX, HE	1 h 45 min	1 h 5 min
VW-VBG260 (optional) [7.2 V/2500 mAh]	4 h 40 min	1080/60p	3 h 10 min	1 h 55 min
		HA	3 h 15 min	2 h
		HG, HX	3 h 20 min	
		HE	3 h 20 min	2 h 5 min
VW-VBG6 (optional)* [7.2 V/5400 mAh]	9 h 25 min	1080/60p	7 h 50 min	4 h 50 min
		HA, HG	8 h 10 min	5 h 5 min
		HX, HE	8 h 15 min	

PAL areas				
Battery model number [Voltage/Capacity (minimum)]	Charging time	Recording mode	Maximum continuously recordable time	Actual recordable time
Supplied battery/ VW-VBG130 (optional) [7.2 V/1250 mAh]	2 h 35 min	1080/50p	1 h 40 min	1 h
		HA, HG, HX	1 h 45 min	1 h 5 min
		HE	1 h 50 min	1 h 5 min
VW-VBG260 (optional) [7.2 V/2500 mAh]	4 h 40 min	1080/50p	3 h 15 min	2 h
		HA, HG, HX	3 h 25 min	2 h 5 min
		HE	3 h 25 min	2 h 10 min
VW-VBG6 (optional)* [7.2 V/5400 mAh]	9 h 25 min	1080/50p	8 h 10 min	5 h
		HA, HG, HX	8 h 30 min	5 h 15 min
		HE	8 h 35 min	5 h 20 min

\* The battery pack holder kit VW-VH04 (optional) is necessary.

- These times are approximations.

● The indicated charging time is for when the battery has been discharged completely. Charging time and recordable time vary depending on the usage conditions such as high/low temperature.

- The actual recordable time refers to the recordable time when repeatedly starting/stopping recording, turning the unit on/off, moving the zoom lever etc.
- The batteries heat up after use or charging. This is not a malfunction.

## Cards that you can use with this unit

Use SD cards conforming to Class 4 or higher of the SD Speed Class Rating\* for motion picture recording.

Card type	Capacity	Motion picture recording	Still picture recording
SD Memory Card	8 MB/16 MB	Cannot be used.	Can be used.
	32 MB/64 MB/128 MB/256 MB	Cannot be guaranteed in operation. The recording may suddenly stop during motion picture recording depending on the SD card you use.	
	512 MB/1 GB/2 GB	Can be used.	
SDHC Memory Card	4 GB/6 GB/8 GB/12 GB/16 GB/24 GB/32 GB		
SDXC Memory Card	48 GB/64 GB		

\* The SD Speed Class Rating is the speed standard for successive writes.

## Recording modes/approximate recordable time

- SD cards are only mentioned with their main memory size.

(NTSC areas)

		1080/60p	HA	HG	HX	HE
		1920×1080	1920×1080	1920×1080	1920×1080	1920×1080
SD card	4 GB	19 min	30 min	40 min	1 h	1 h 30 min
	8 GB	40 min	1 h	1 h 20 min	2 h	3 h 20 min
	16 GB	1 h 20 min	2 h	2 h 40 min	4 h 10 min	6 h 40 min
	32 GB	2 h 40 min	4 h 10 min	5 h 30 min	8 h 20 min	13 h 40 min
	48 GB	4 h	6 h 20 min	8 h 10 min	12 h 30 min	20 h 20 min
	64 GB	5 h 20 min	8 h 30 min	11 h	16 h 50 min	27 h 30 min

(PAL areas)

		1080/50p	HA	HG	HX	HE
		1920×1080	1920×1080	1920×1080	1920×1080	1920×1080
SD card	4 GB	19 min	30 min	40 min	1 h	1 h 30 min
	8 GB	40 min	1 h	1 h 20 min	2 h	3 h 20 min
	16 GB	1 h 20 min	2 h	2 h 40 min	4 h 10 min	6 h 40 min
	32 GB	2 h 40 min	4 h 10 min	5 h 30 min	8 h 20 min	13 h 40 min
	48 GB	4 h	6 h 20 min	8 h 10 min	12 h 30 min	20 h 20 min
	64 GB	5 h 20 min	8 h 30 min	11 h	16 h 50 min	27 h 30 min

- Ⓐ Image quality prioritised
- Ⓑ Recording time prioritised

- The default setting is HG Mode.
- Maximum continuously recordable time for one scene: 12 hours
- The recording is paused once when the recording time for one scene exceeds 12 hours, and the recording will automatically resume after a few seconds.
- If a recording with a lot of action is recorded, the recording time is reduced.
- The recordable time may be reduced if recording of short scene is repeated.
- Use time in the row of 4 GB in above table as a guideline for the time that can be copied onto one DVD disc (4.7 GB).

## Number of recordable pictures

- SD cards are only mentioned with their main memory size.  
(In Still Picture Recording Mode)

Aspect ratio		4:3							
Picture size		4032×3024		3200×2400		2560×1920		640×480	
Picture quality		■■■		■■■		■■■		■■■	
SD card	512 MB	70	110	110	180	180	290	3600	6100
	1 GB	140	220	220	360	360	580	7400	12000
	2 GB	300	450	450	740	740	1200	15000	25000
	4 GB	610	940	940	1500	1500	2400	30000	50000
	8 GB	1200	1900	1900	3000	3000	4800	60500	102000
	16 GB	2500	3900	3900	6200	6200	9700	122000	205000
	24 GB	3600	5800	5800	9100	9100	14000	179000	301000
	32 GB	5000	7900	7900	12500	12500	19500	246000	414000
	48 GB	7200	11000	11000	18000	18000	28000	364000	613000
	64 GB	10000	15800	15800	25000	25000	39000	492000	829000

Aspect ratio		16:9					
Picture size		4864×2736		3840×2160		3072×1728	
Picture quality		■■■		■■■		■■■	
SD card	512 MB	65	100	100	160	160	270
	1 GB	130	200	200	320	320	540
	2 GB	270	400	400	700	700	1100
	4 GB	550	850	850	1420	1420	2200
	8 GB	1100	1700	1700	2800	2800	4500
	16 GB	2200	3400	3400	5600	5600	9000
	24 GB	3300	5100	5100	8400	8400	13000
	32 GB	4500	7000	7000	11500	11500	18200
	48 GB	6600	10000	10000	17000	17000	26000
	64 GB	9000	14000	14000	23000	23000	36400

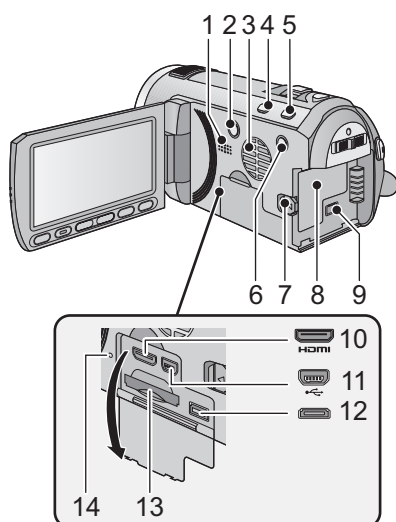
Aspect ratio		3:2					
Picture size		4608×3072		3600×2400		2880×1920	
Picture quality		■■■		■■■		■■■	
SD card	512 MB	60	90	100	160	160	250
	1 GB	120	180	200	320	320	500
	2 GB	240	390	400	650	650	1000
	4 GB	500	800	850	1300	1300	2000
	8 GB	1000	1600	1700	2700	2700	4200
	16 GB	2100	3300	3400	5500	5500	8500
	24 GB	3100	4900	5100	8100	8100	12700
	32 GB	4200	6700	7000	11000	11000	17500
	48 GB	6200	9800	10000	16000	16000	25000
	64 GB	8400	13400	14000	22000	22000	35000

(In Motion Picture Recording Mode)

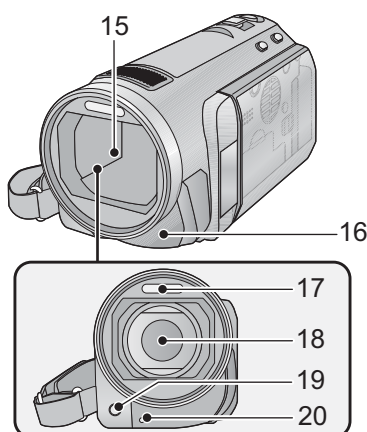
Aspect ratio		16:9					
Picture size		4864×2736		3840×2160		1920×1080	
Picture quality		■■■		■■■		■■■	
SD card	512 MB	65	100	100	160	440	690
	1 GB	130	200	200	320	900	1400
	2 GB	270	400	400	700	1800	2800
	4 GB	550	850	850	1420	3600	5600
	8 GB	1100	1700	1700	2800	7300	11000
	16 GB	2200	3400	3400	5600	14000	23000
	24 GB	3300	5100	5100	8400	21000	34000
	32 GB	4500	7000	7000	11500	29000	46000
	48 GB	6600	10000	10000	17000	44000	69000
	64 GB	9000	14000	14000	23000	59000	93000

- The numbers shown in the table are approximations.
- The number of recordable pictures depends on whether ■■■ and ■■■ are used together and on the subject being recorded.
- Maximum number of recordable pictures that can be displayed is 99999.  
If the number of recordable pictures exceeds 99999, the number will not change when the picture is taken until the number of recordable pictures gets less than 99999.
- The memory capacity indicated on the label of an SD card is the total of the capacity for copyright protection and management and the capacity which can be used on the unit, a PC etc.

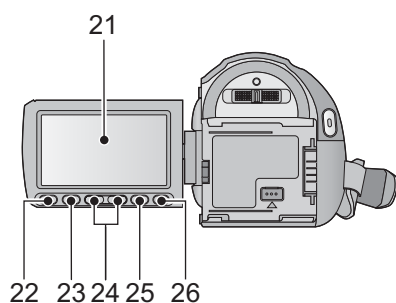
## 5 Location of Controls and Components



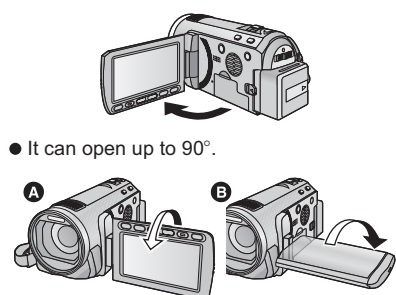
- 1 Speaker
- 2 Power button [⏻/⏺]
- 3 Inlet (cooling fan)
- 4 Intelligent auto/Manual button [iA/MANUAL]
- 5 Optical image stabilizer button [O.I.S.]
- 6 1080/60p button [1080/60p] (NTSC areas)  
1080/50p button [1080/50p] (PAL areas)
- 7 Battery release lever [BATT]
- 8 Battery holder
- 9 DC input terminal [DC IN]
- Always use the supplied AC adaptor or a genuine Panasonic AC adaptor.
- 10 HDMI mini connector [HDMI]
- 11 USB terminal [⚡]
- 12 AV multi connector
- Use the AV multi cable (only the supplied cable).
- 13 Card slot
- 14 Access lamp [ACCESS]



- 15 Lens cover
- The lens cover opens in Motion Picture Recording Mode or Still Picture Recording Mode.
- 16 Remote control sensor
- 17 Built-in flash
- 18 Lens (LEICA DICOMAR)
- 19 AF assist lamp
- 20 Recording lamp



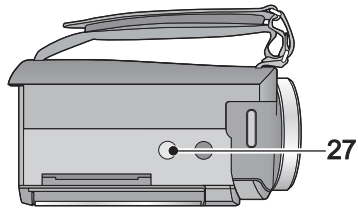
### 21 LCD monitor (Touch screen)



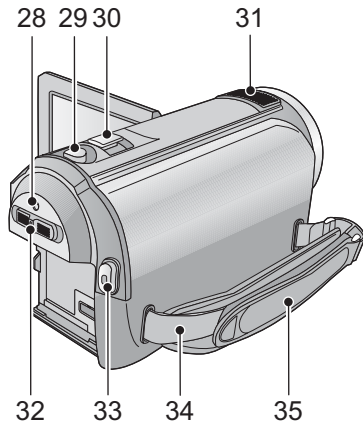
- It can open up to 90°.
- It can rotate up to 180° **A** towards the lens or 90° **B** towards the opposite direction.




Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD monitor screen. However, this is not a malfunction and does not affect the recorded picture.

- 22 Quick menu button [Q.MENU]
- 23 Sub recording start/stop button
- This button functions in the same manner as the recording start/stop button.
- 24 Adjust zoom buttons
- 25 Menu button [MENU]
- 26 Delete button [⏮]

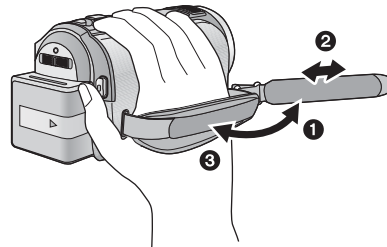


27 Tripod receptacle



- 28 Status indicator
- 29 Photoshot button [  ]
- 30 Zoom lever [W/T] (In Motion Picture Recording Mode or Still Picture Recording Mode)
- Thumbnail display switch [  /  ]
- Volume lever [-VOL+] (In Playback Mode)
- 31 Internal microphones
- 32 Mode switch
- 33 Recording start/stop button
- 34 Shoulder strap fixture
- 35 Grip belt




Adjust the length of the grip belt so that it fits your hand.

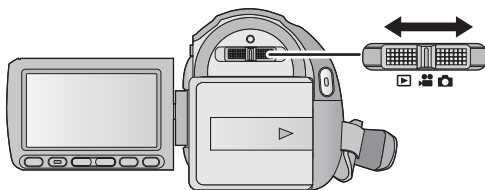





- ① Flip the belt.
- ② Adjust the length.
- ③ Replace the belt.

## Selecting a mode

Change the mode to recording or playback.

Operate the mode switch to change the mode to ,  or .



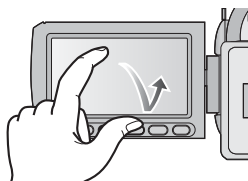
	Motion Picture Recording Mode
	Still Picture Recording Mode
	Playback Mode

## How to use the touch screen

You can operate by directly touching the LCD monitor (touch screen) with your finger. It is easier to use the stylus pen (supplied) for detailed operation or if it is hard to operate with your fingers.

### ■ Touch

Touch and release the touch screen to select icon or picture.



- Touch the center of the icon.
- Touching the touch screen will not operate while you are touching another part of the touch screen.

### ■ About the operation icons

 /  /  /  :

These icons are used to switch the menu and thumbnail display page, for item selection and setting etc.

 :

Touch to return to the previous screen such as when setting menus.

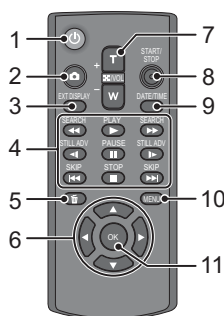


- Do not touch on the LCD monitor with hard pointed tips, such as ball point pens.
- Perform the touch screen calibration when the touch is not recognized or wrong location is recognized.

## Using with the remote control

Select the menu.

 : [SETUP] →  
[REMOTE CONTROL] → [ON]



### 1 Power on/off button [ ]

Unit can be turned on/off when the LCD monitor is opened.

- Unit cannot be turned on by the power on/off button when 36 hours have passed after the unit is turned off. Press the power button on the unit and turn the unit back on.
- Unit cannot be turned off when it is connected to the PC or the DVD burner.

### 2 Photoshot button [ ]\*

### 3 On-screen display button [EXT DISPLAY]

### 4 Playback operation buttons

These buttons function in the same manner as the corresponding playback operation icon being displayed on screen.

[Excluding skip playback]

### 5 Delete button [ ]\*

### 6 Direction buttons [ , , , ]

### 7 Zoom/volume/thumbnail display switch buttons [T, W, /VOL]\*

### 8 Recording start/stop button [START/STOP]\*

### 9 Date/time button [DATE/TIME]

### 10 Menu button [MENU]\*

### 11 OK button [OK]

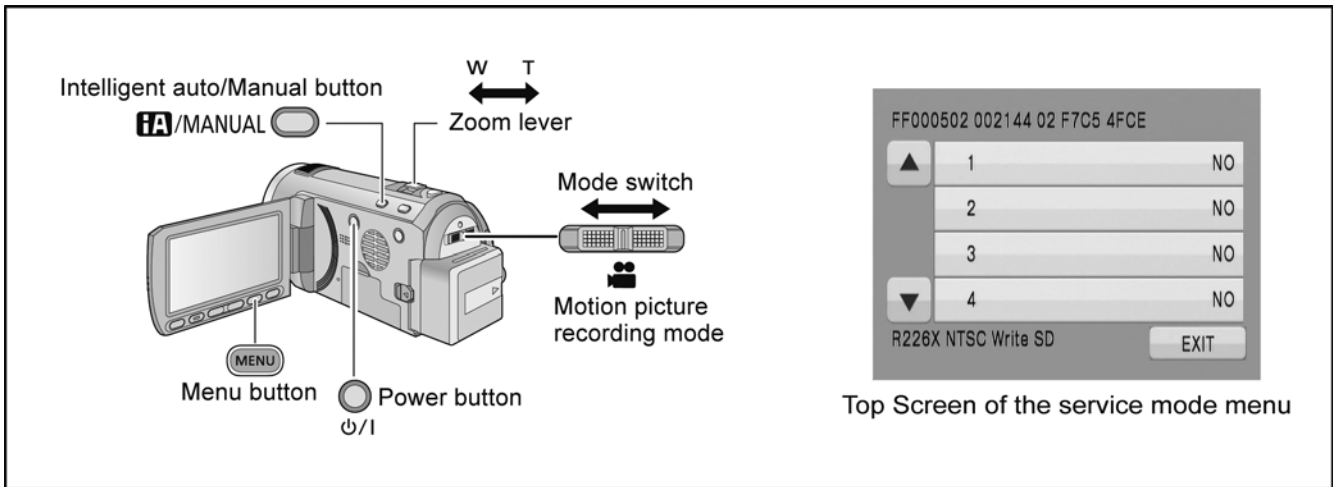
\* means that these buttons function in the same manner as the corresponding buttons on the unit.

# 6 Service Mode

## 1. Indication method of the service menu

Set the mode switch "Motion Picture Recording" mode.

- Turn the power on, and then while keep pressing the "Zoom lever" to W side, "Intelligent auto/Manual" button and "Menu" button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



## Service mode menu

Screen display	Contents	Function
1	Factory settings	Function to throw a product up in a factory shipment state (When recorded data in Built-in memory, "error display" is done)
4	Lock search history indication	Display the camera system error code for three histories saved in EEPROM
5	Power ON self check result display	Power ON self check (function to diagnose correct function of the device and interface between devices) result display

### NOTE:

Do not using service mode except above table of Service mode menu.

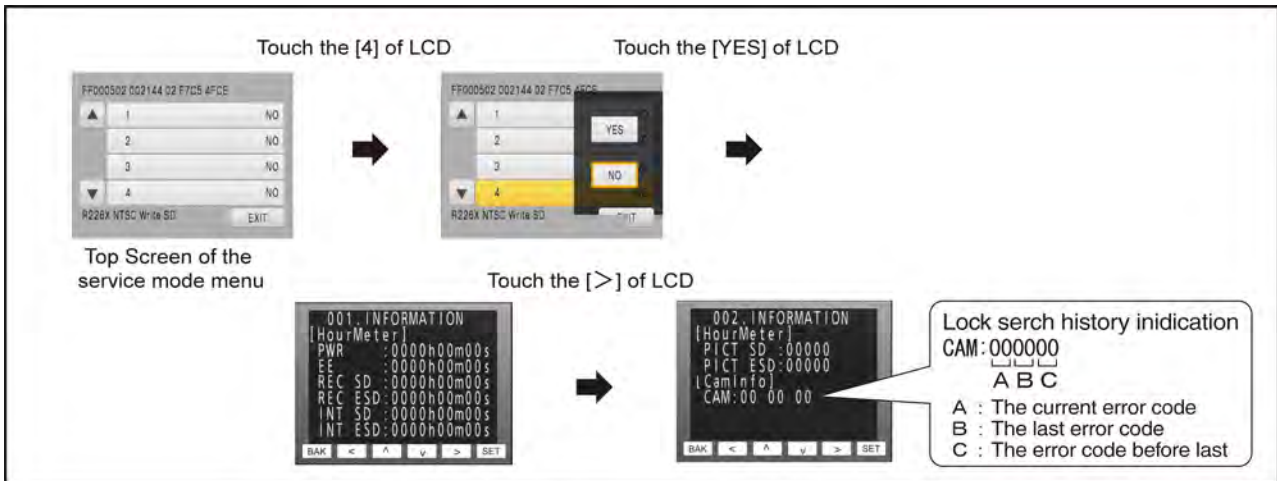
- End method of the top screen of the service mode menu

Push the "Menu" button to end the service mode, and then POWER OFF.

## 6.1. Lock Search History Indication

Touch the [ 4 ] of LCD, select Lock search history indication.

### Operation specifications



### Indication contents

- Lock search history indication  
Display the camera system error cord for three histories saved in EEPROM.
- The error cord contents which are displayed

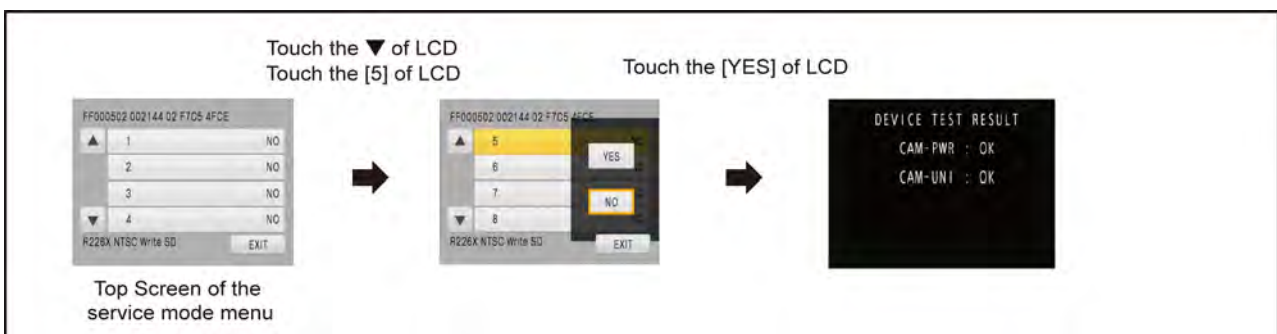
Error code	Function
51	Focus control is abnormal
52	Zoom control is abnormal
53	OIS lens control is abnormal
71	Lens cover open/close is abnormal
72	Cooling fan is abnormal
73	High temperature is abnormal
33	Communication between camera to ARM is abnormal

Push the “Menu” button to end the service mode, and then POWER OFF.

## 6.2. Power ON Self Check Result Display

Touch the [ 5 ] of LCD, select Power ON self check result display.

### Operation specifications



### Indication contents

- Power ON self check result display  
Function to diagnose correct function of the device and interface between devices result display.

Display the following commnucation test result.

- CAM-PWR : Commnucation test between IC2006 to IC301
- CAM-UNI : Commnucation test between IC3401 to IC301

Display other than “OK” are abnormalities of each lines.

Cutting of battery connection or AC power supply connection to end the service mode.

# 7 Service Fixture & Tools

## 7.1. When Replacing the Main P.C.B.

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

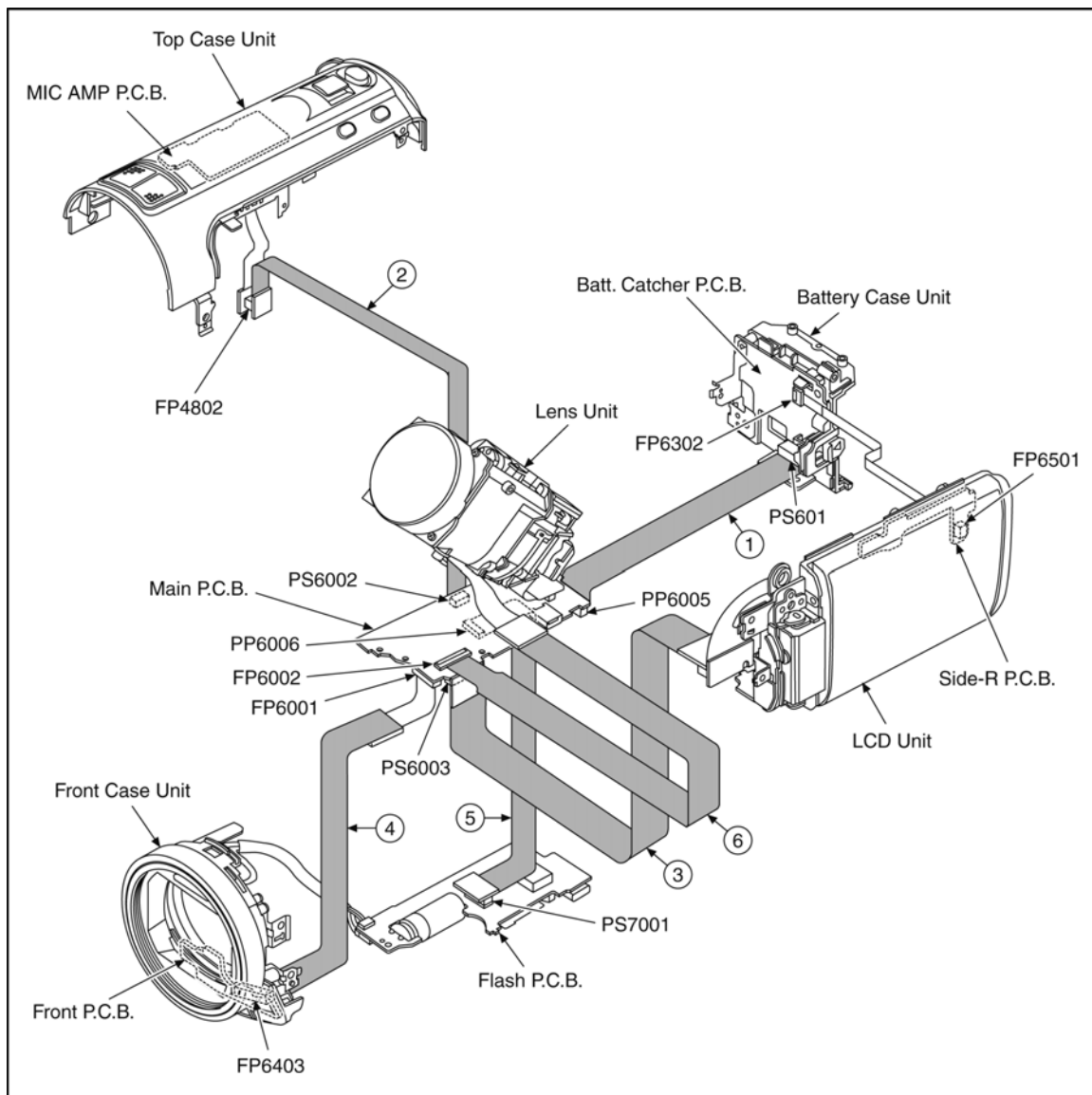
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN system", together with Maintenance software.

## 7.2. 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	RFKZ0444	PP6005( Main ) - PS601( Batt. Catcher )	50PIN 0.5 B to B
2	VFK2020	PS6002( Main ) - FP4802( MIC AMP )	20PIN 0.5 B to B
3	VFK1933	PS6003( Main ) - Monitor FPC	34PIN 0.5 B to B
4	VFK1950	FP6001( Main ) - FP6403( Front )	33PIN 0.3 FPC
5	VFK1870	PP6006( Main ) - PS7001( Flash )	30PIN 0.5 B to B
6	RFKZ0416	FP6002( Main ) - Lens Unit	41PIN 0.3 FPC



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

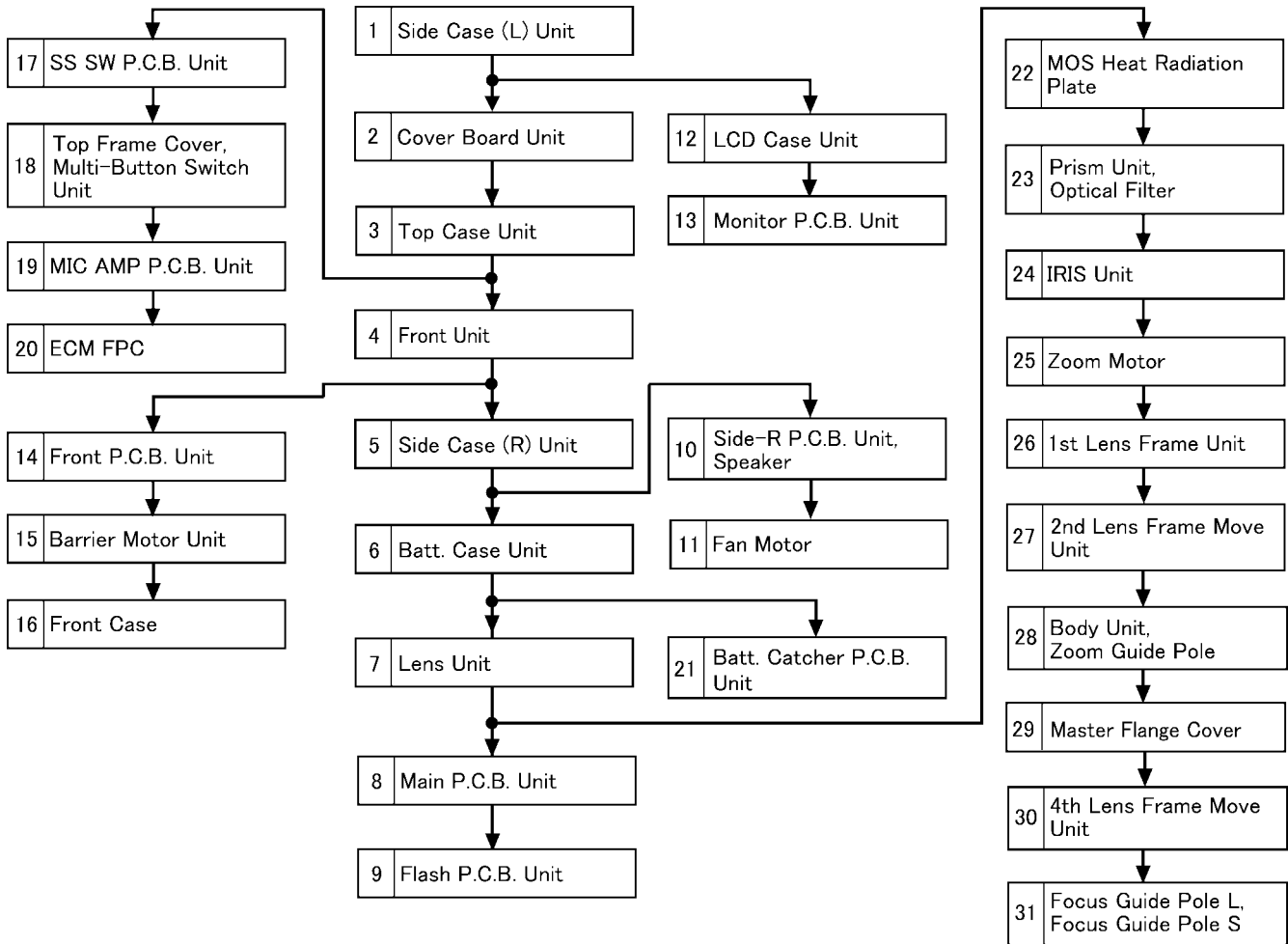
1. Be sure to discharge the capacitor on Flash P.C.B..  
Refer to "How to Discharge the Capacitor on Flash P.C.B.."  
The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on Flash P.C.B..
3. DO NOT allow other parts to touch the high voltage circuit on Flash P.C.B..

# 8 Disassembly and Assembly Instructions

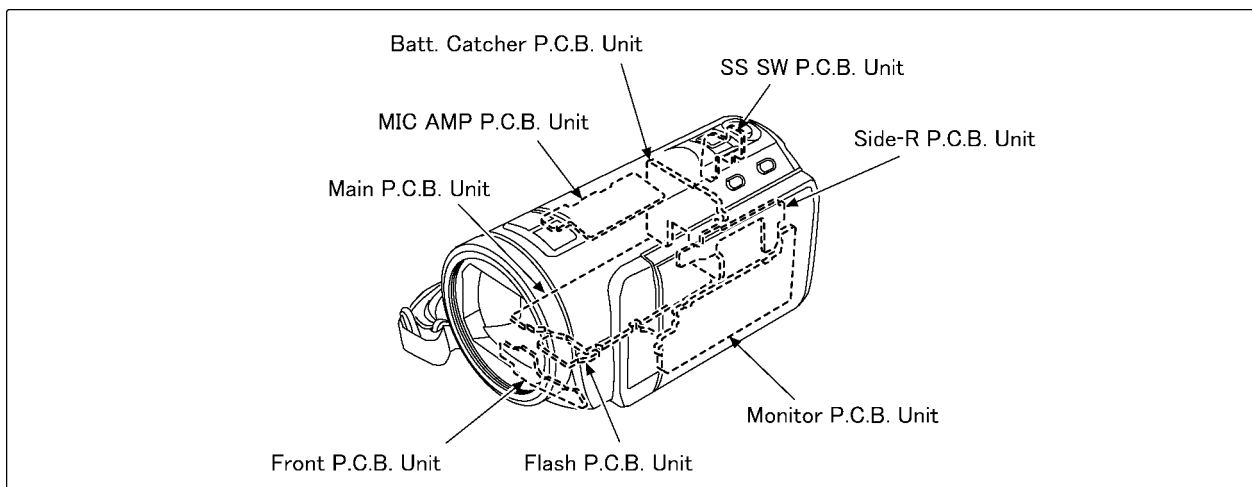
## 8.1. Disassembly Flow Chart

This is a disassembling chart.

When assembling, perform this chart conversely.



## 8.2. PCB Location

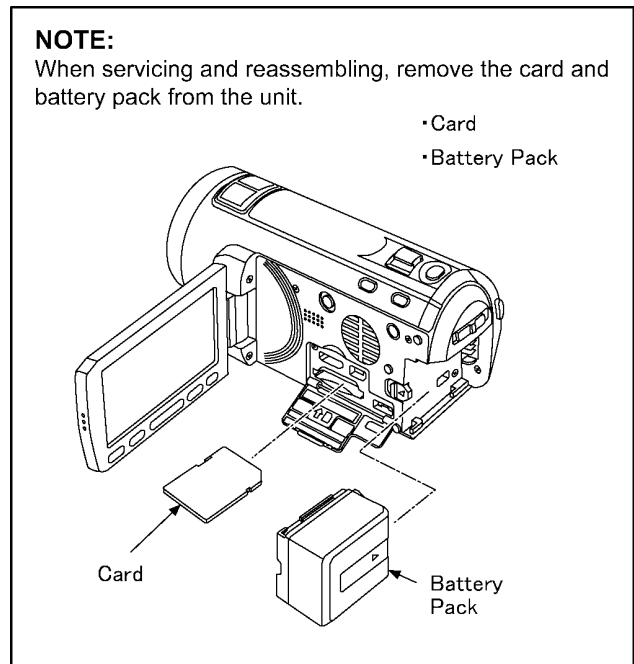


### 8.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Side Case (L) Unit	Fig.D1	2 Screws (A)
			4 Screws (B)
			2 Locking tabs
			Sensor Cover Unit
		Fig.D2	3 Screws (C)
			2 Locking tabs
			Side Case (L) Unit
2	Cover Board Unit	Fig.D3	1 Screw (D)
			2 Screws (E)
			1 Screw (F)
			1 Rib
			Cover Board Unit
3	Top Case Unit	Fig.D4	3 Screws (G)
			1 Screw (H)
			2 Screws (I)
			2 Locking tabs
			1 Rib
			SR Cover
		Fig.D5	PS6002 (Connector)
			1 Rib
	Top Case Unit		
4	Front Unit	Fig.D6	P7001 (Connector)
			P7002 (Connector)
		Fig.D7	1 Screw (J)
			1 Rib
			1 Locking tab
	FP6403 (Flex)		
	Front Unit		
5	Side Case (R) Unit	Fig.D8	4 Screws (K)
			PS6003 (Connector)
			FP6501 (Flex)
			Side Case (R) Unit
6	Batt. Case Unit	Fig.D9	1 Screw (L)
			1 Screw (M)
			2 Ribs
			PP6005 (Connector)
			Batt. Case Unit
7	Lens Unit	Fig.D10	2 Screws (N)
			1 Rib
			2 Projection parts
		Fig.D11	PP6004 (Connector)
			PP6007 (Connector)
			FP6002 (Flex)
			1 Screw (O)
			Lens Frame Unit
	Lens Unit		
8	Main P.C.B. Unit	Fig.D12	3 Screws (P)
			2 Ribs
			Main Heat Radiation Plate
		Fig.D13	PP6006 (Connector)
	1 Projection part		
	Main P.C.B. Unit		
9	Flash P.C.B. Unit	Fig.D14	2 Screws (Q)
			1 Projection part
10	Side-R P.C.B. Unit Speaker	Fig.D15	2 Screws (R)
			SP Angle
			PS6502 (Connector)
			P6501 (Connector)
			Speaker
		Side-R P.C.B. Unit	
Fig.D16	NOTE: (When Installing)		
11	Fan Motor	Fig.D17	3 Convexes
			Fan Damper
			Fan Motor

No.	Item	Fig	Removal
12	LCD Case Unit	Fig.D18	2 Screws (S)
			Holder
			Switch Unit
			3 Locking tabs
			Earth Plate
			Sheet
			Light Guide Plate
			3 Ribs
			LCD Case Unit
13	Monitor P.C.B. Unit	Fig.D19	FP904 (Flex)
			FP905 (Flex)
			2 Ribs
			2 Convexes
			LCD Frame
		Fig.D20	FP903 (Flex)
			4 Locking tabs
			Monitor P.C.B. Unit
		Fig.D21	1 Locking tab
			Reflection Sheet
	Light Guide Plate		
	Diffusion Sheet		
	Prism Sheet B		
	Prism Sheet A		
	Lens Holder		
	Monitor P.C.B. Unit		
14	Front P.C.B. Unit	Fig.D22	1 Screw (T)
			1 Screw (U)
			FP6400 (Flex)
			Front P.C.B. Unit
15	Barrier Motor Unit	Fig.D23	1 Screw (V)
			Barrier Motor Unit
		Fig.D24	NOTE: (When Installing)
16	Front Case	Fig.D25	Lens Ornament Sheet
		Fig.D26	4 Screws (W)
			Front Case
17	SS SW P.C.B. Unit	Fig.D27	2 Screws (X)
			P6551 (Connector)
			SS SW P.C.B. Unit
18	Top Frame Cover Multi-Button Switch Unit	Fig.D28	6 Screws (Y)
			1 Locking tab
			1 Rib
			IA/OIS Button
			Top Frame Cover
	Multi-Button Switch Unit		
19	MIC AMP P.C.B. Unit	Fig.D29	FP4802 (Flex)
			P4801 (Connector)
			FP4801 (Flex)
			Flex
			Connector
	MIC AMP P.C.B. Unit		
20	ECM FPC	Fig.D30	1 Screw (Z)
		Fig.D31	MIC Damper
			MIC Case
			ECM FPC
21	Batt. Catcher P.C.B. Unit	Fig.D32	1 Screw (a)
			1 Locking tab
			Rear Frame
			3 Locking tabs
			Batt. Catcher P.C.B. Unit
22	MOS Heat Radiation Plate	Fig.D33	1 Screw (b)
			MOS Heat Radiation Plate
23	Prism Unit Optical Filter	Fig.D34	2 Screws (c)
			Prism Unit
			Optical Filter

No.	Item	Fig	Removal
24	IRIS Unit	Fig.D35	18 Solders
			3 Screws (d)
			3 Ribs
			IRIS Unit
25	Zoom Motor	Fig.D36	2 Screws (e) Zoom Motor
26	1st Lens Frame Unit	Fig.D37	3 Screws (f) 1st Lens Frame Unit
27	2nd Lens Frame Move Unit	Fig.D38	2nd Lens Frame Move Unit
			Spring
			2nd Lens Frame Move Unit
28	Body Unit Zoom Guide Pole	Fig.D39	3 Screws (g) Body Unit
			2 Zoom Guide Poles
29	Master Flange Cover	Fig.D40	2 Screws (h) Master Flange Cover
30	4th Lens Frame Move Unit	Fig.D41	2 Side Yorks
		Fig.D42	3 Ribs
			4th Lens Frame Move Unit
31	Focus Guide Pole L	Fig.D43	Focus Guide Pole L
	Focus Guide Pole S		Focus Guide Pole S



### 8.3.1. Removal of the Side Case (L) Unit

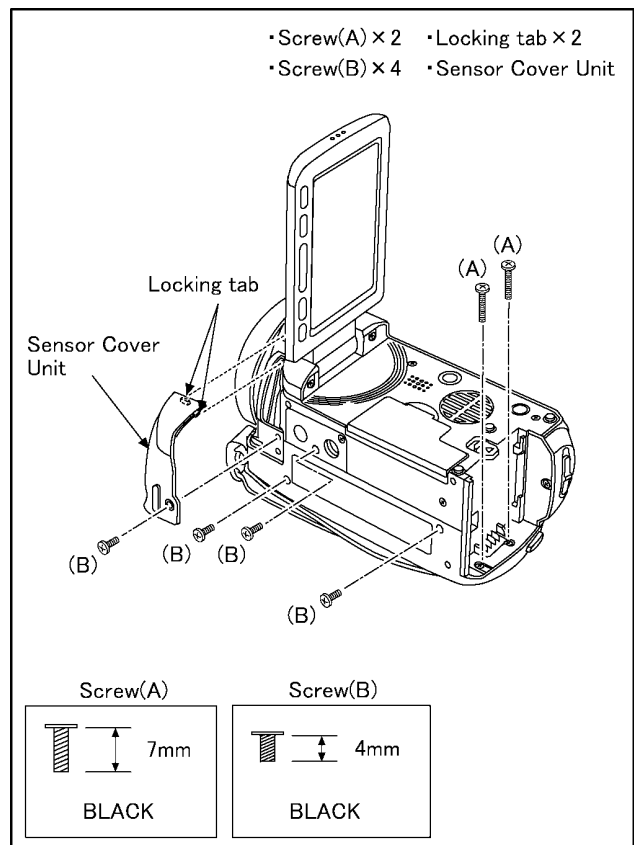


Fig.D1

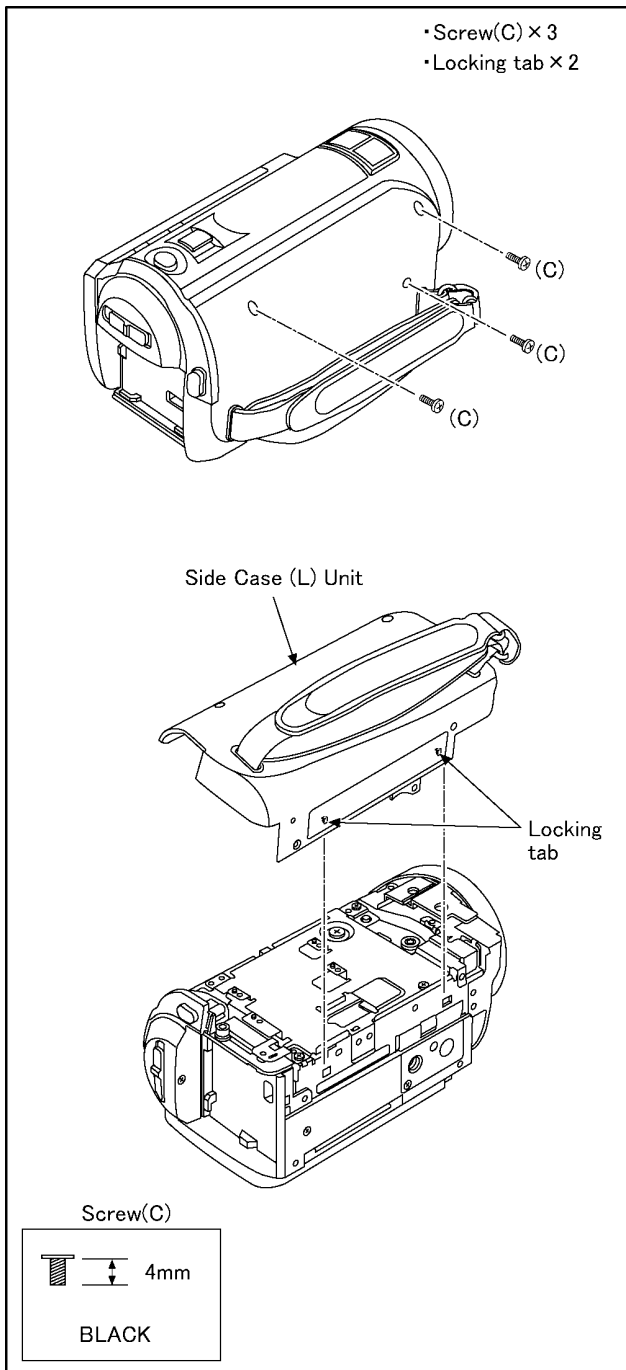


Fig.D2

### 8.3.2. Removal of the Cover Board Unit

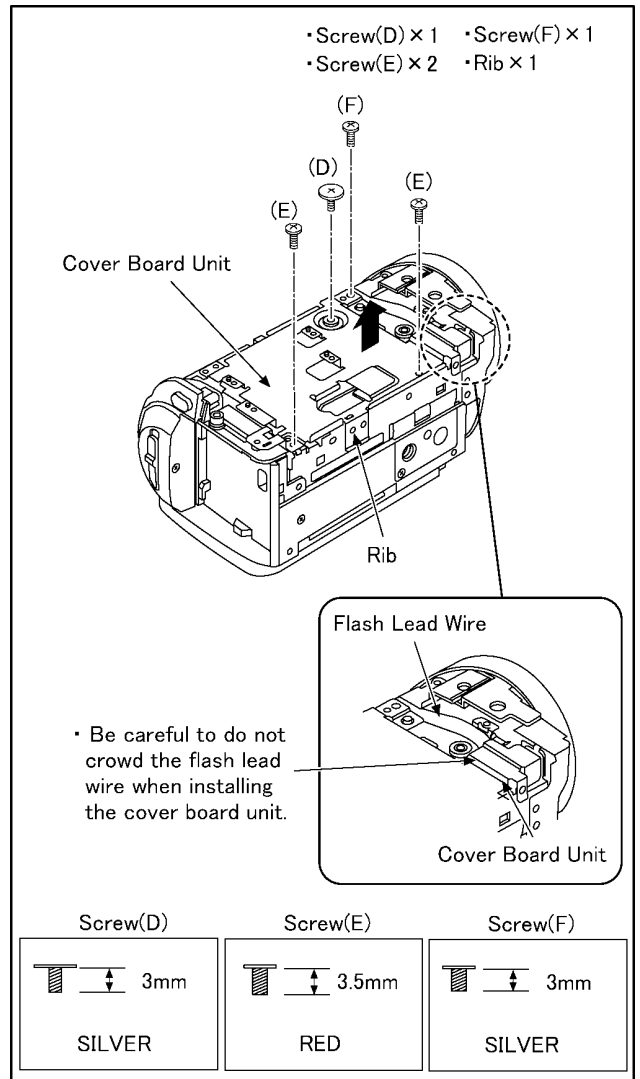


Fig.D3

### 8.3.3. Removal of the Top Case Unit

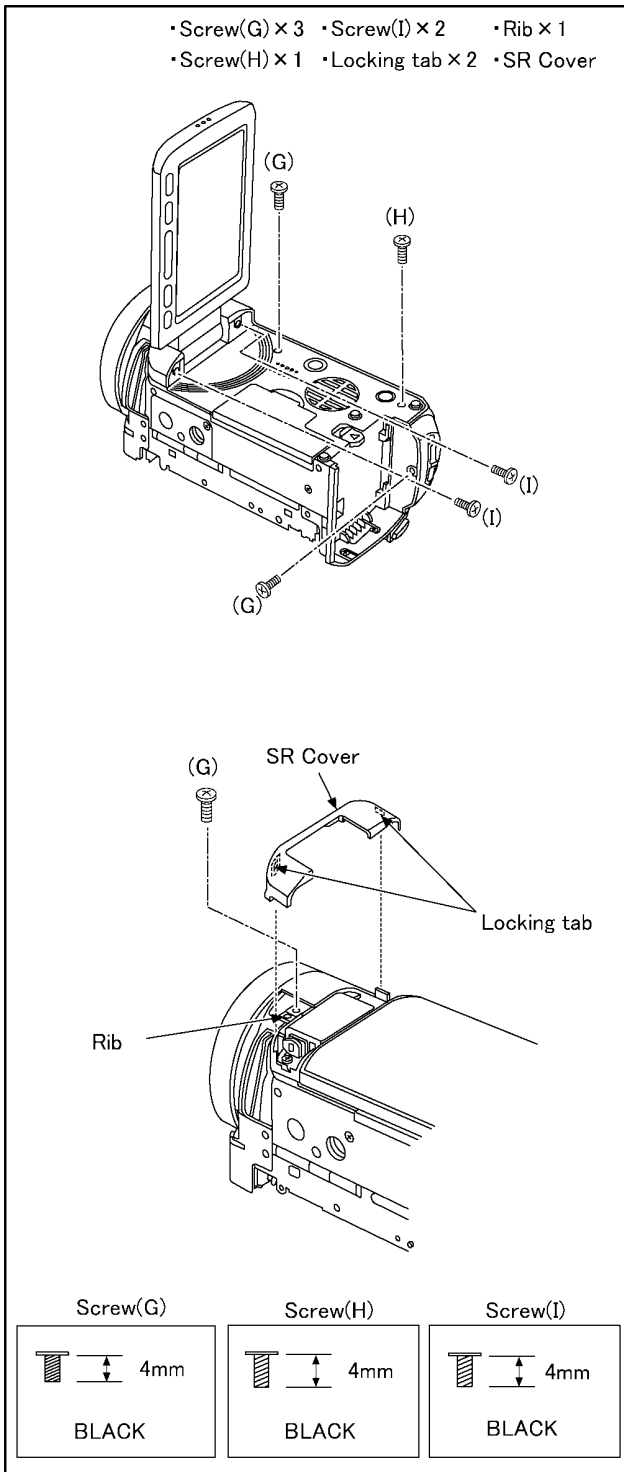


Fig.D4

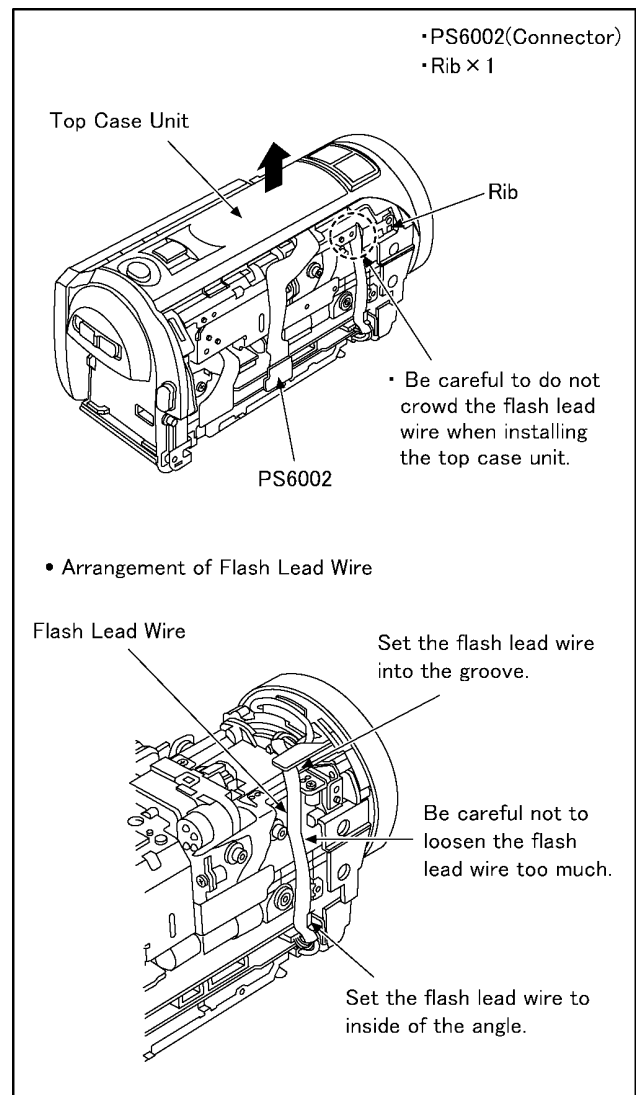


Fig.D5

### 8.3.4. Removal of the Front Unit

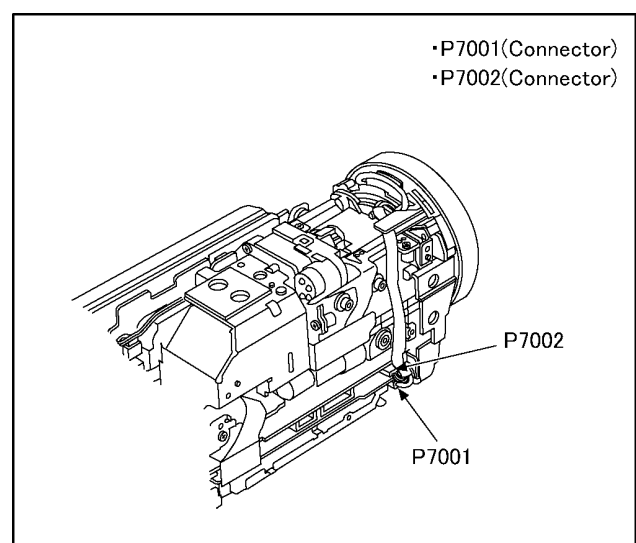


Fig.D6

### 8.3.5. Removal of the Side Case (R) Unit

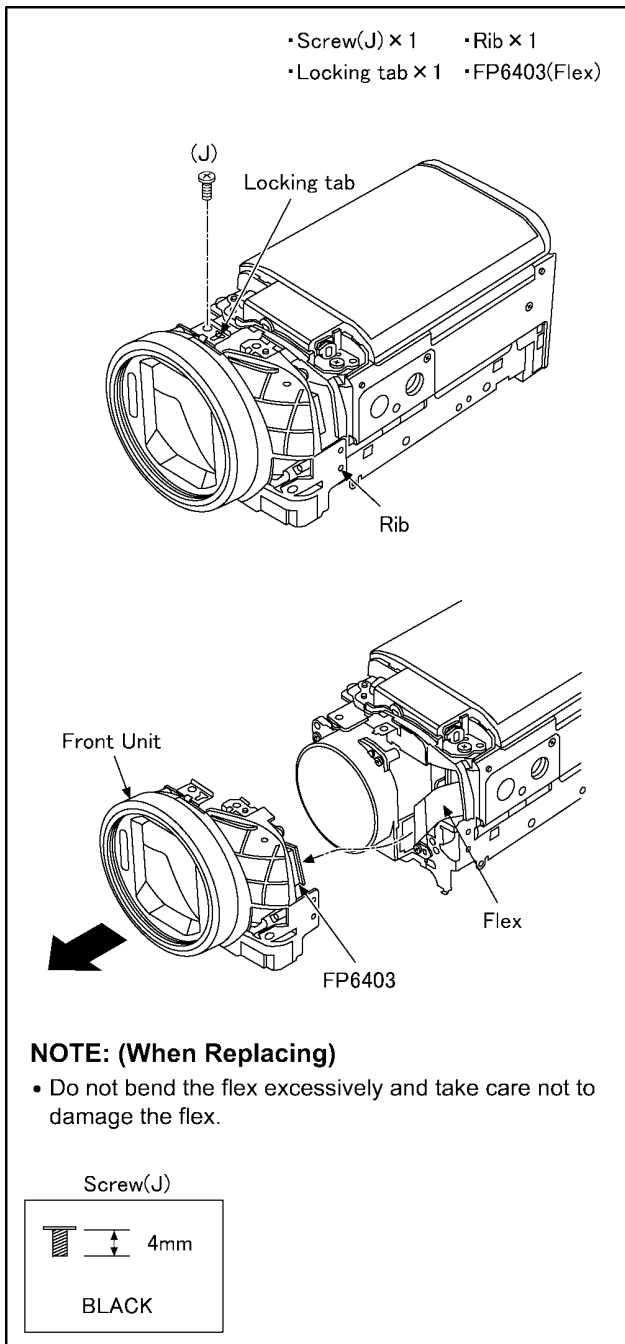


Fig.D7

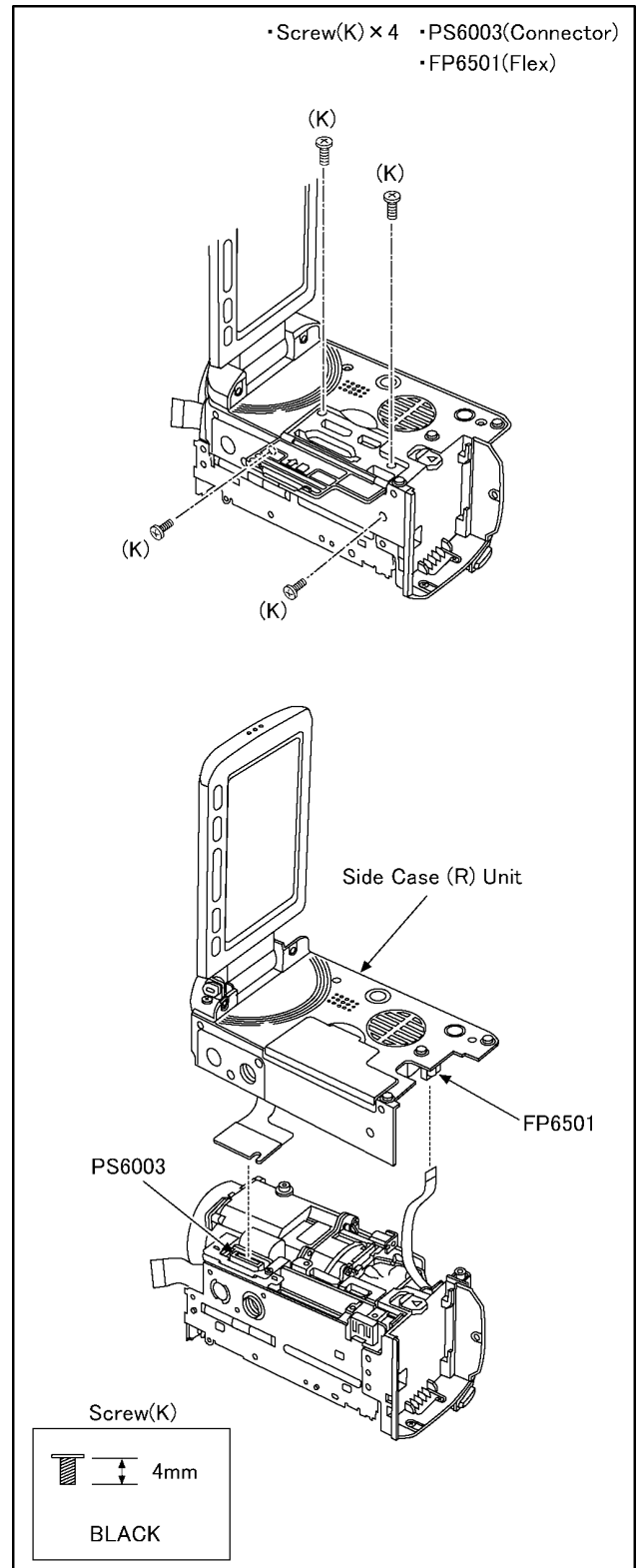


Fig.D8

### 8.3.6. Removal of the Batt. Case Unit

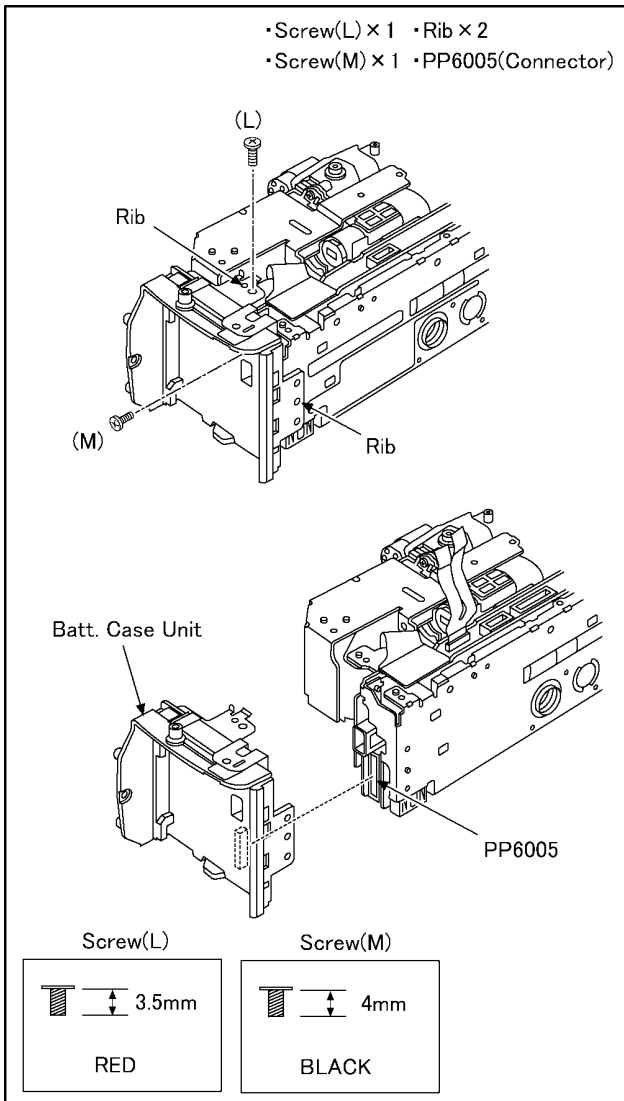


Fig.D9

### 8.3.7. Removal of the Lens Unit

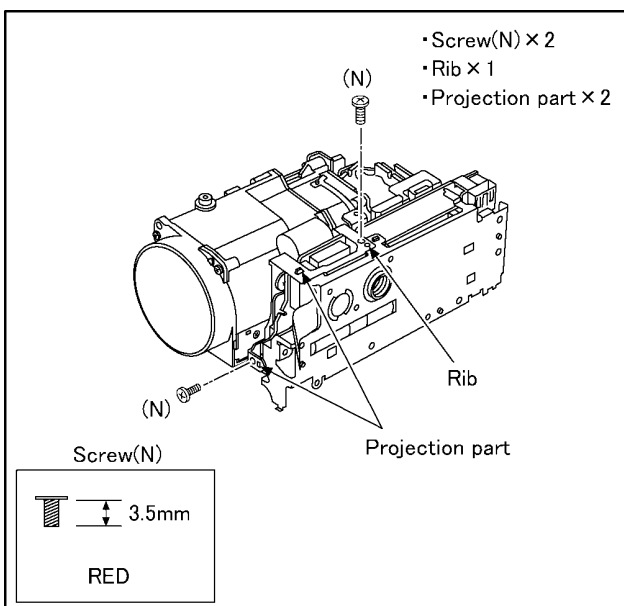


Fig.D10

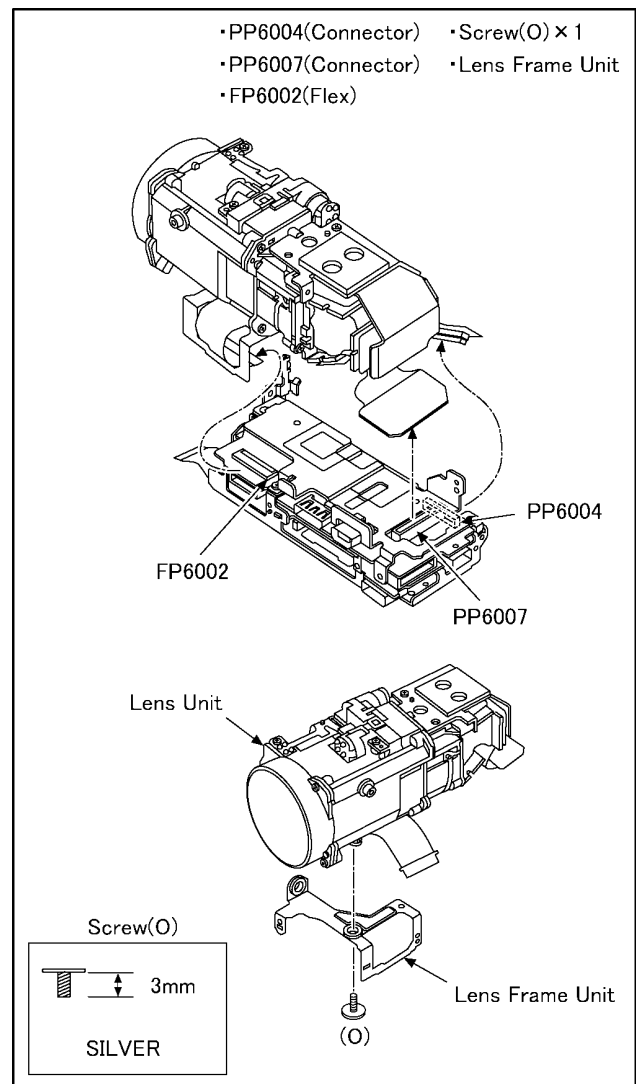


Fig.D11

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

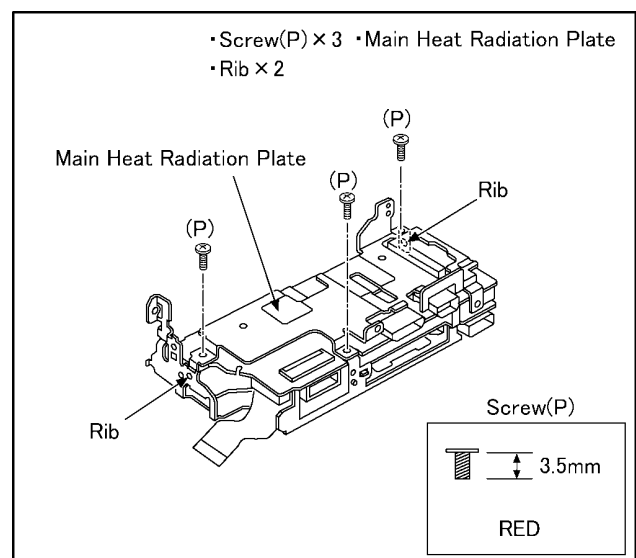


Fig.D12

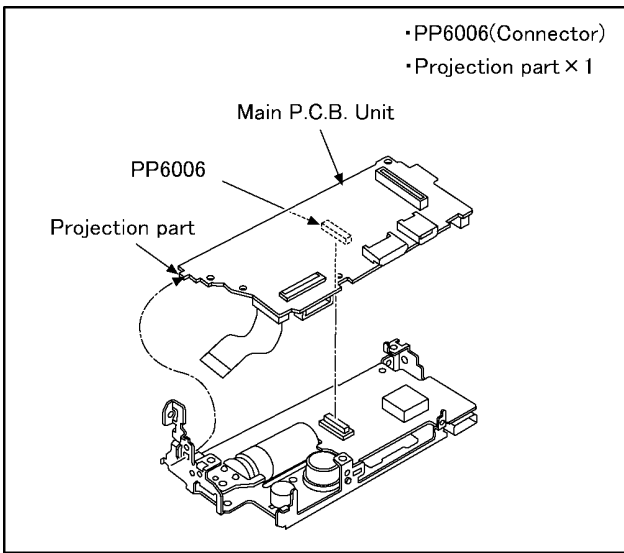


Fig.D13

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

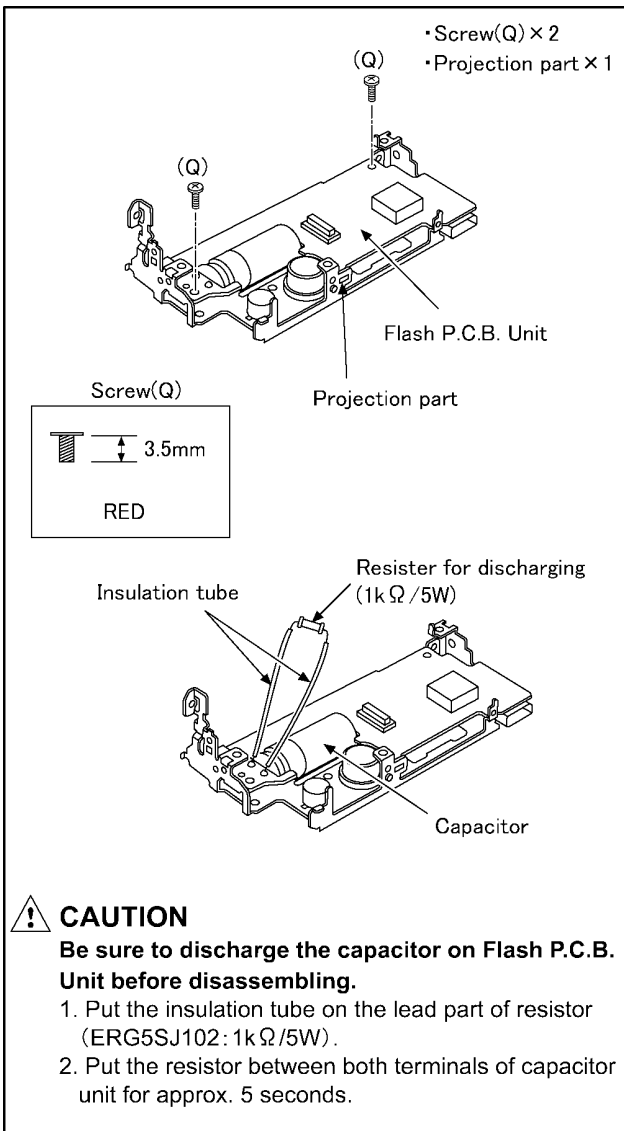


Fig.D14

### 8.3.10. Removal of the Side-R P.C.B. Unit and Speaker

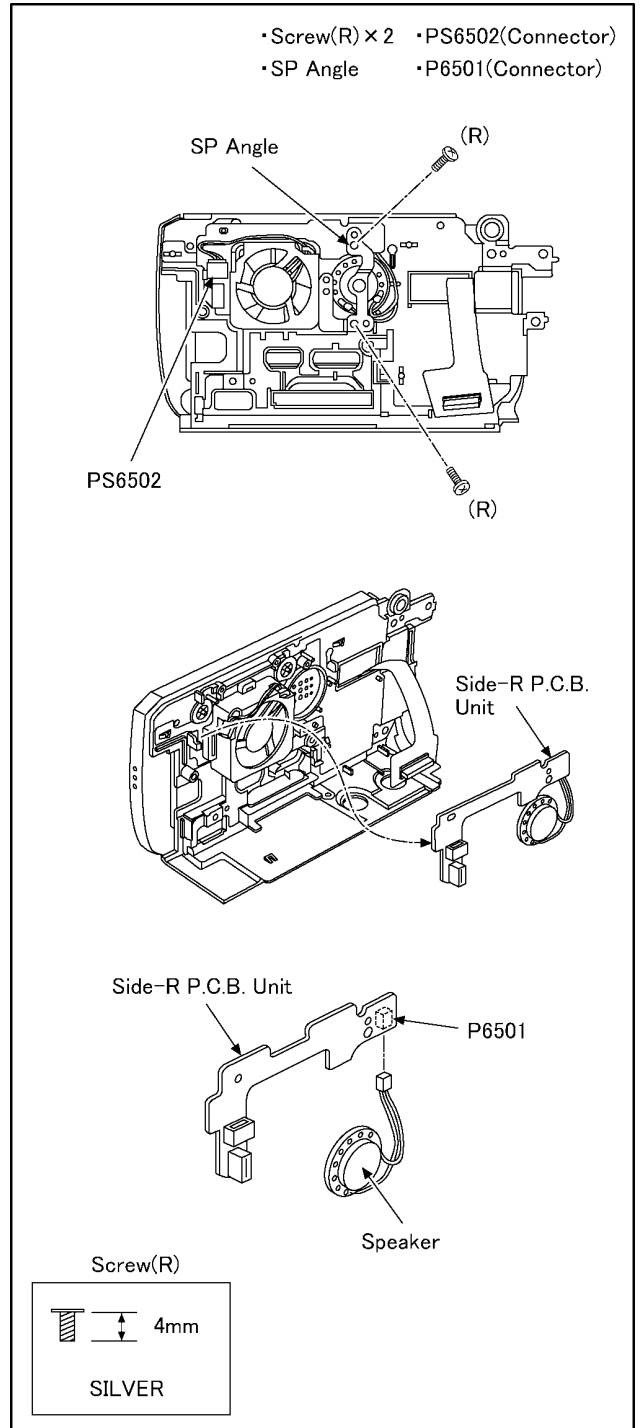


Fig.D15

**NOTE: (When Installing)**

1. Install the speaker lead wire to between convexes.
2. Be careful to that the solder part of speaker don't touch the SP Angle.

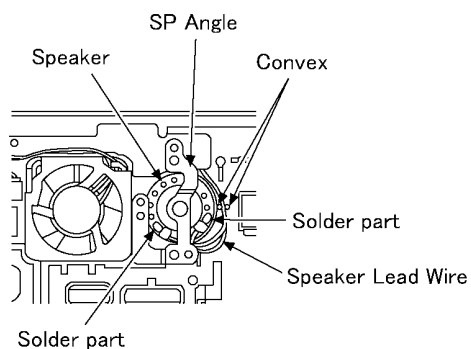


Fig.D16

**8.3.11. Removal of the Fan Motor**

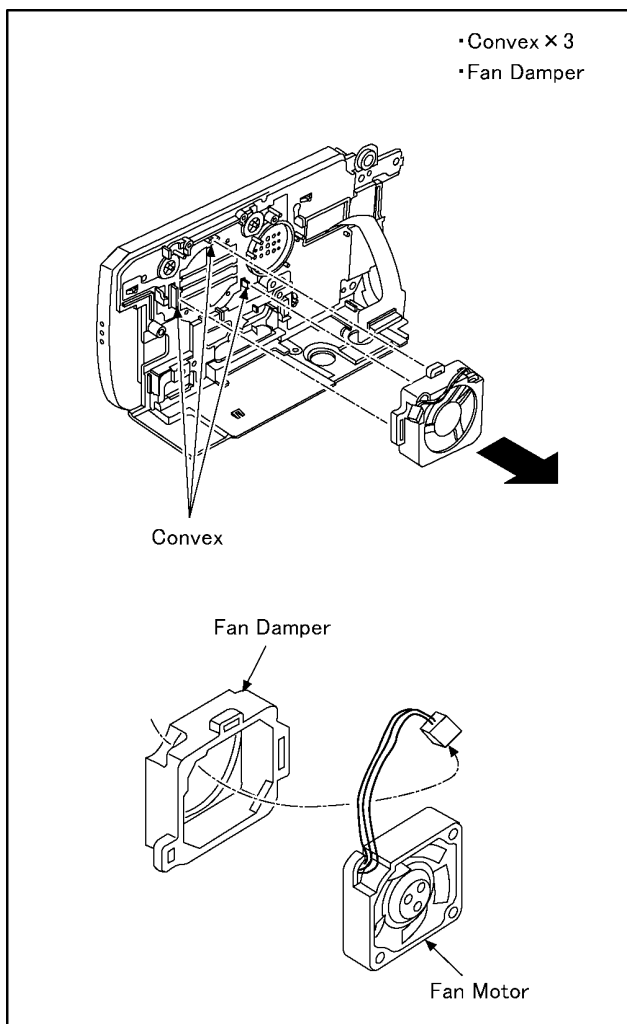
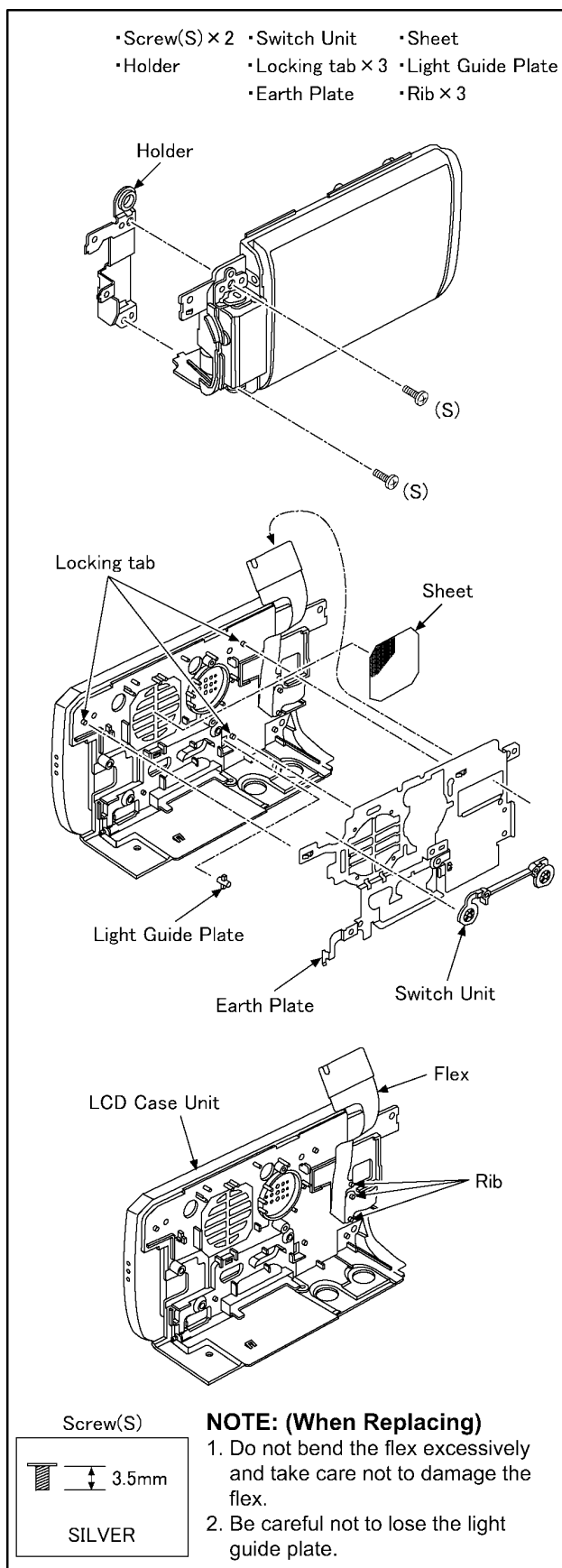


Fig.D17

**8.3.12. Removal of the LCD Case Unit**



**NOTE: (When Replacing)**

1. Do not bend the flex excessively and take care not to damage the flex.
2. Be careful not to lose the light guide plate.

Fig.D18

### 8.3.13. Removal of the Monitor P.C.B. Unit

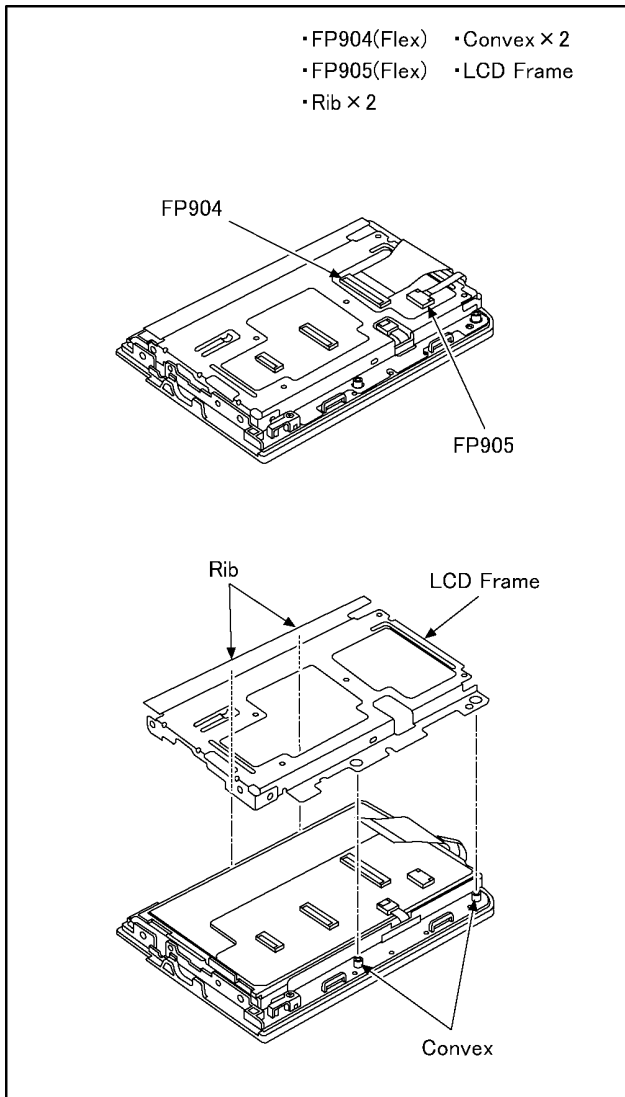


Fig.D19

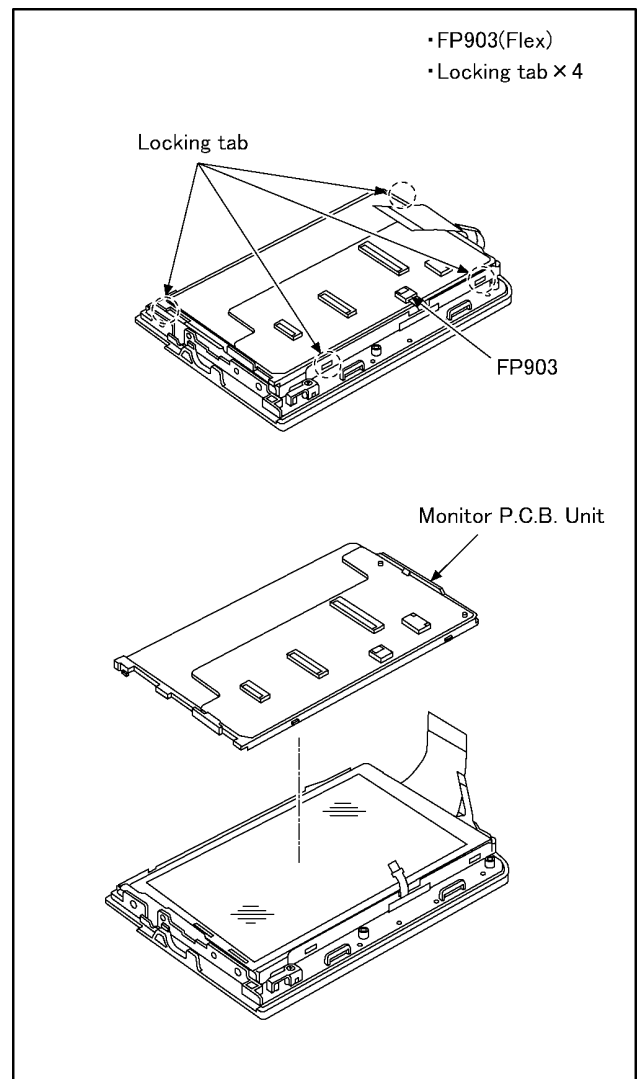


Fig.D20

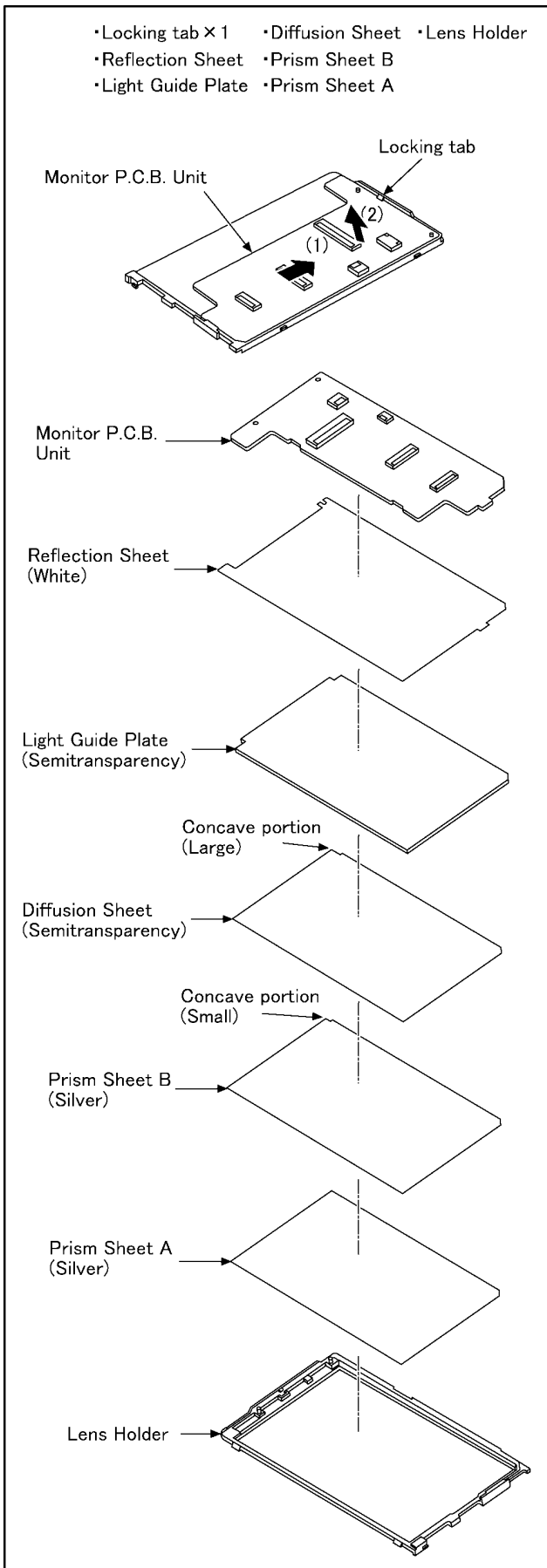


Fig.D21

### 8.3.14. Removal of the Front P.C.B. Unit

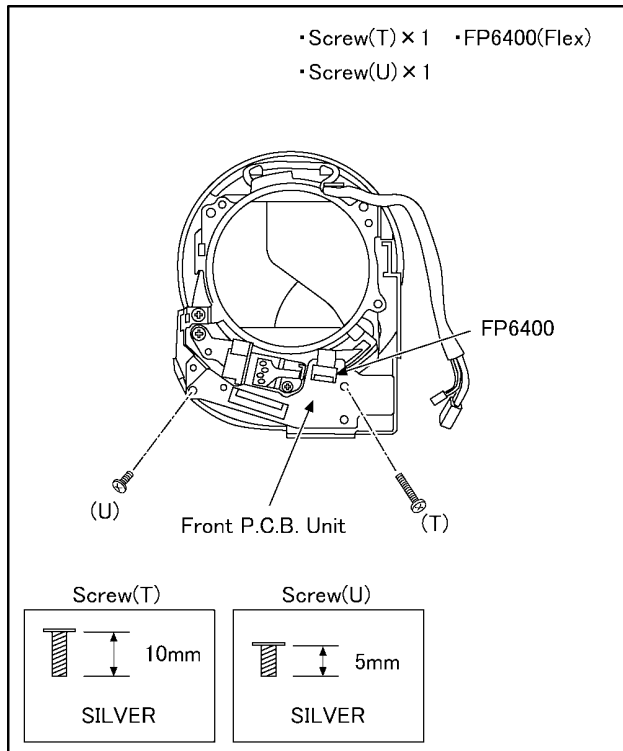


Fig.D22

### 8.3.15. Removal of the Barrier Motor Unit

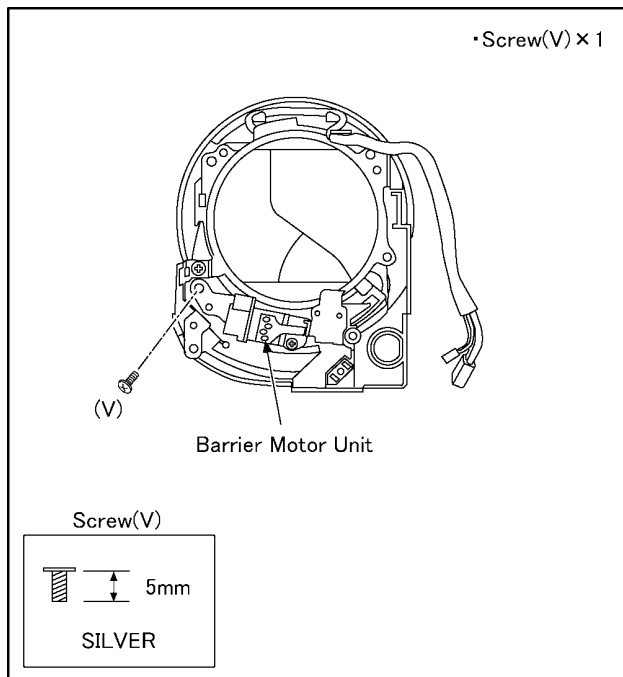


Fig.D23

**NOTE: (When Installing)**

- When install the barrier motor unit, align the projection part of the barrier motor unit between ribs of the barrier change lever.

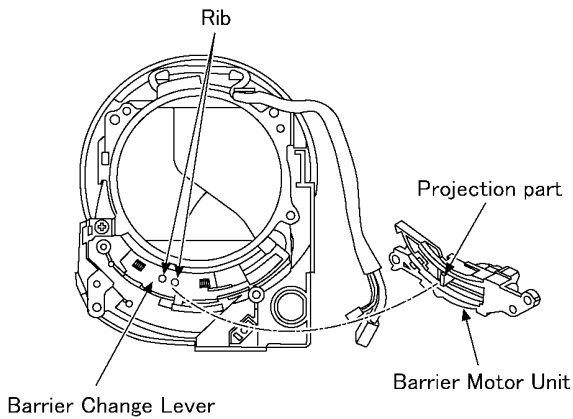


Fig.D24

**8.3.16. Removal of the Front Case**

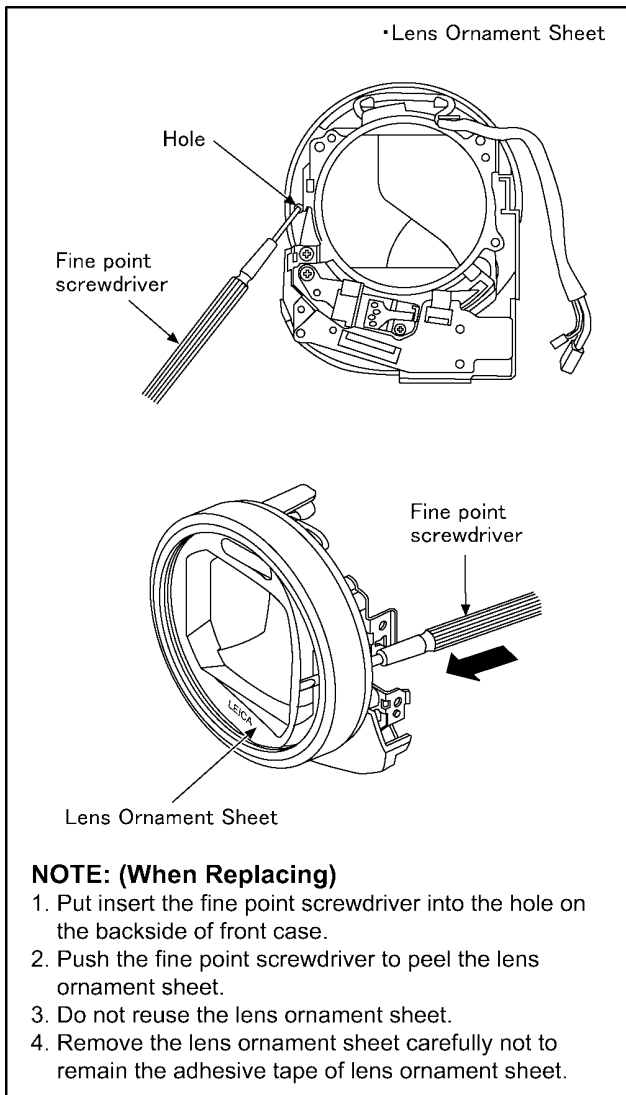


Fig.D25

**NOTE: (When Replacing)**

1. Put insert the fine point screwdriver into the hole on the backside of front case.
2. Push the fine point screwdriver to peel the lens ornament sheet.
3. Do not reuse the lens ornament sheet.
4. Remove the lens ornament sheet carefully not to remain the adhesive tape of lens ornament sheet.

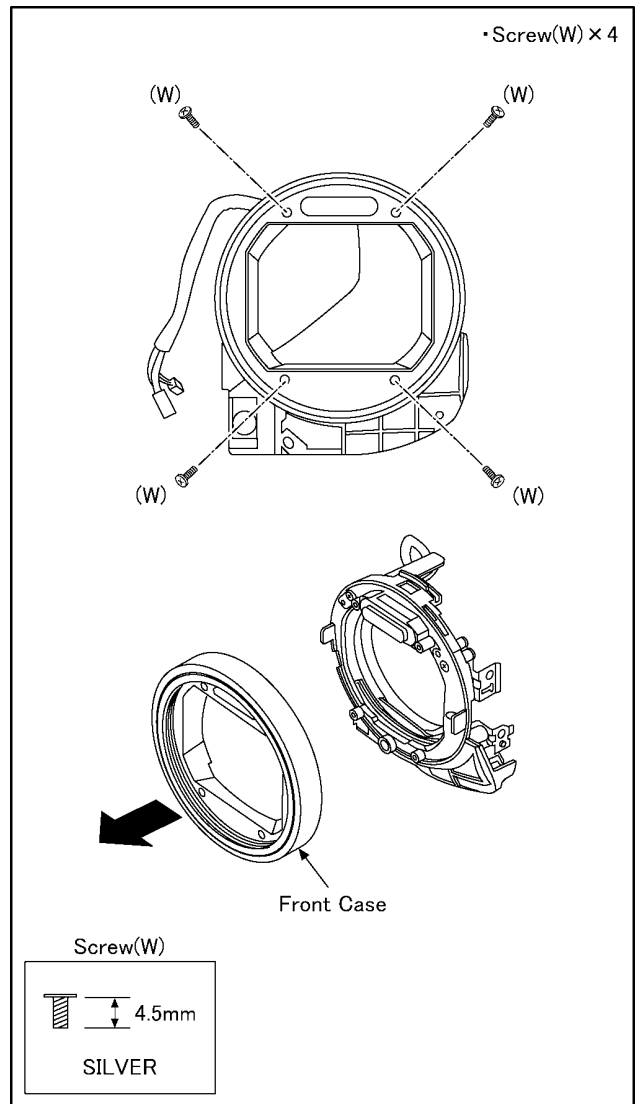


Fig.D26

**8.3.17. Removal of the SS SW P.C.B. Unit**

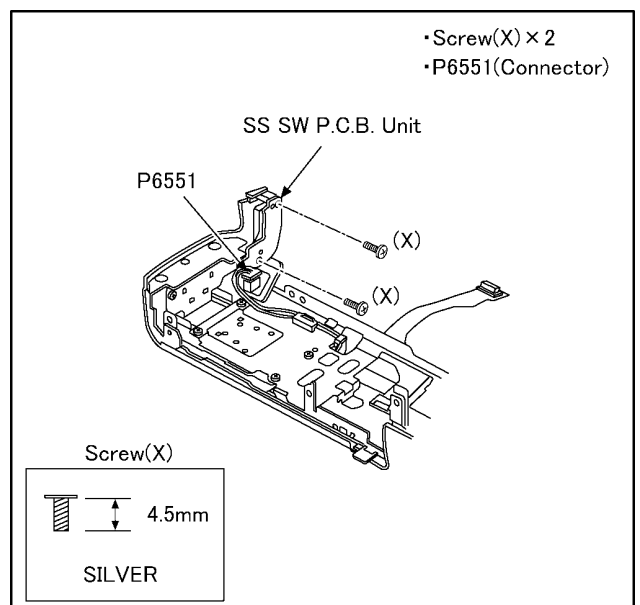


Fig.D27

### 8.3.18. Removal of the Top Frame Cover and Multi-Button Switch Unit

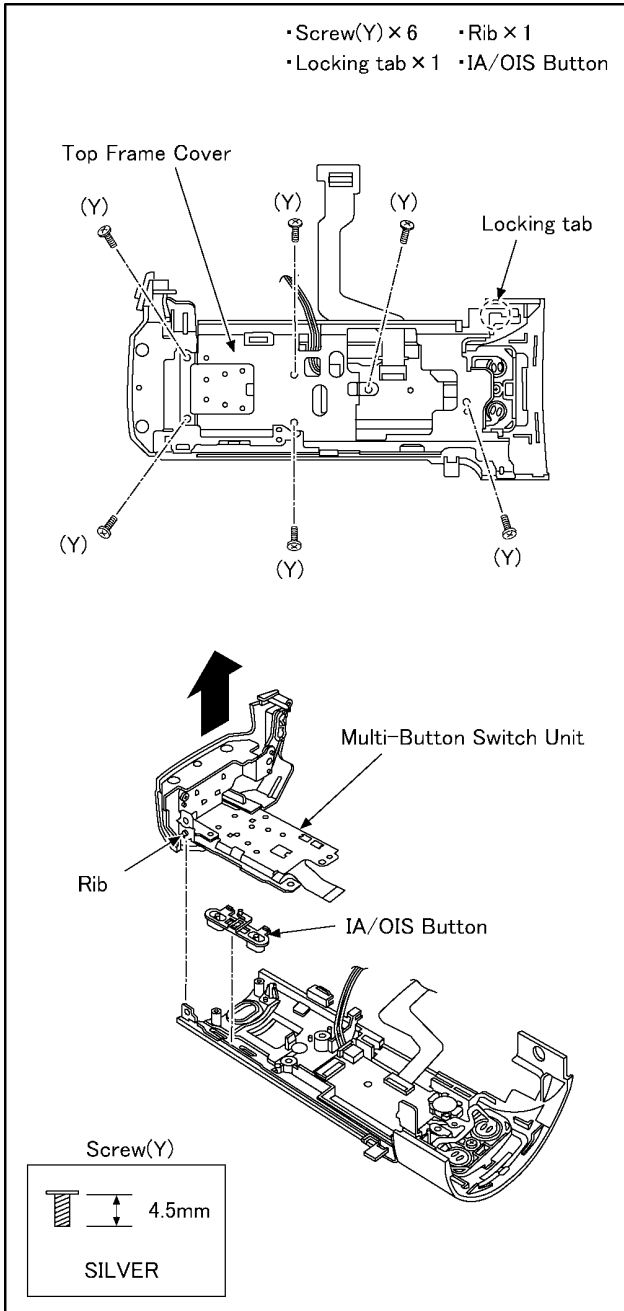


Fig.D28

### 8.3.19. Removal of the MIC AMP P.C.B. Unit

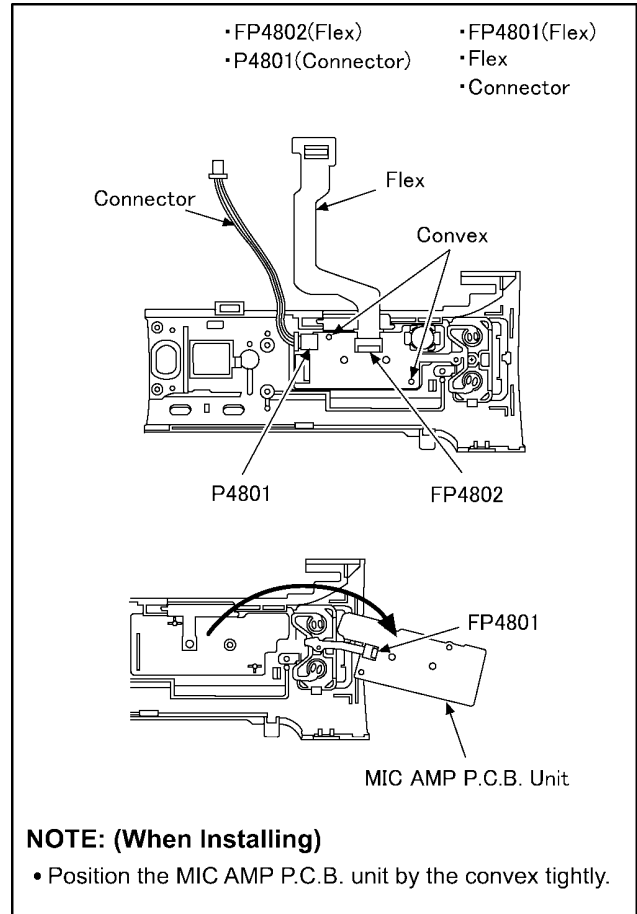


Fig.D29

### 8.3.20. Removal of the ECM FPC

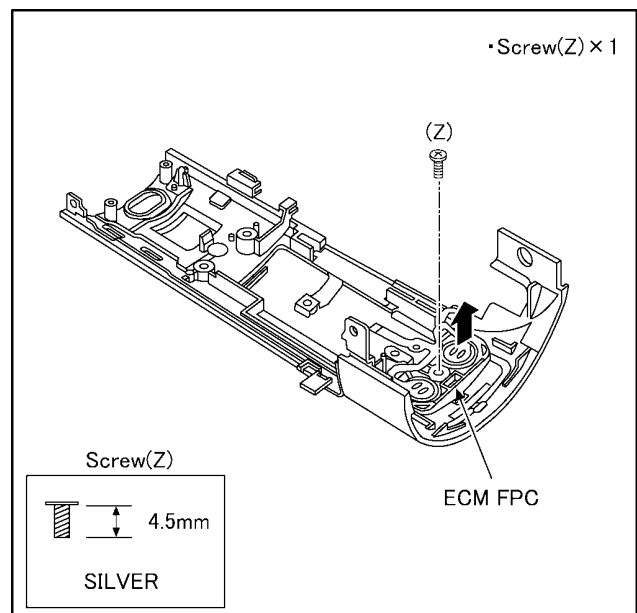


Fig.D30

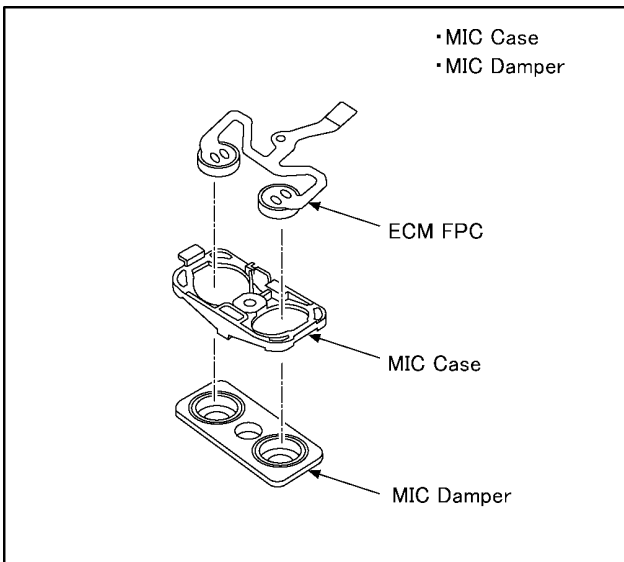


Fig.D31

### 8.3.21. Removal of the Batt. Catcher P.C.B. Unit

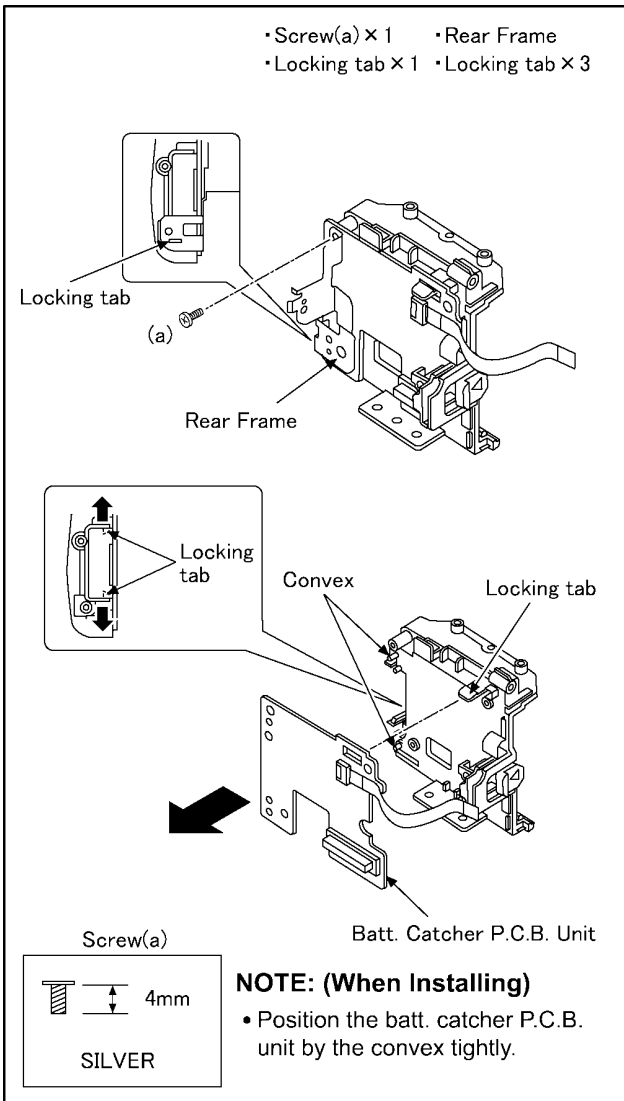


Fig.D32

### 8.3.22. Removal of the MOS Heat Radiation Plate

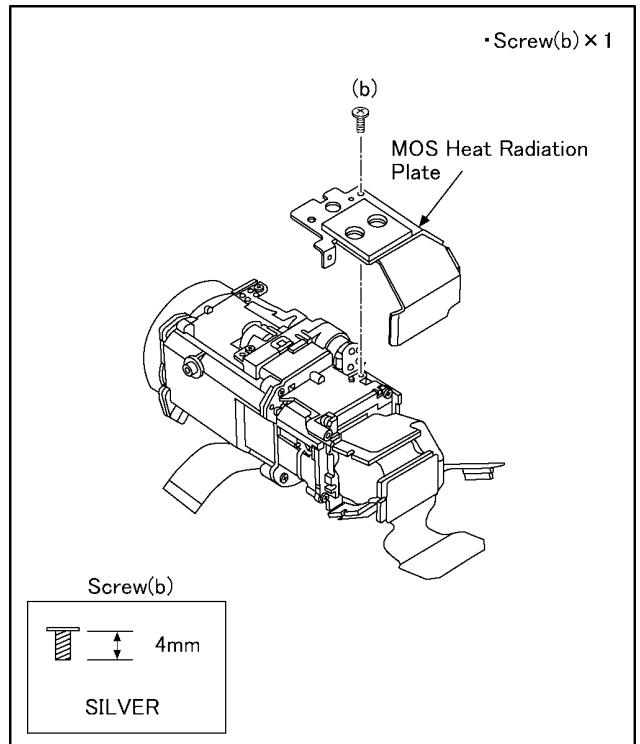


Fig.D33

### 8.3.23. Removal of the Prism Unit and Optical Filter

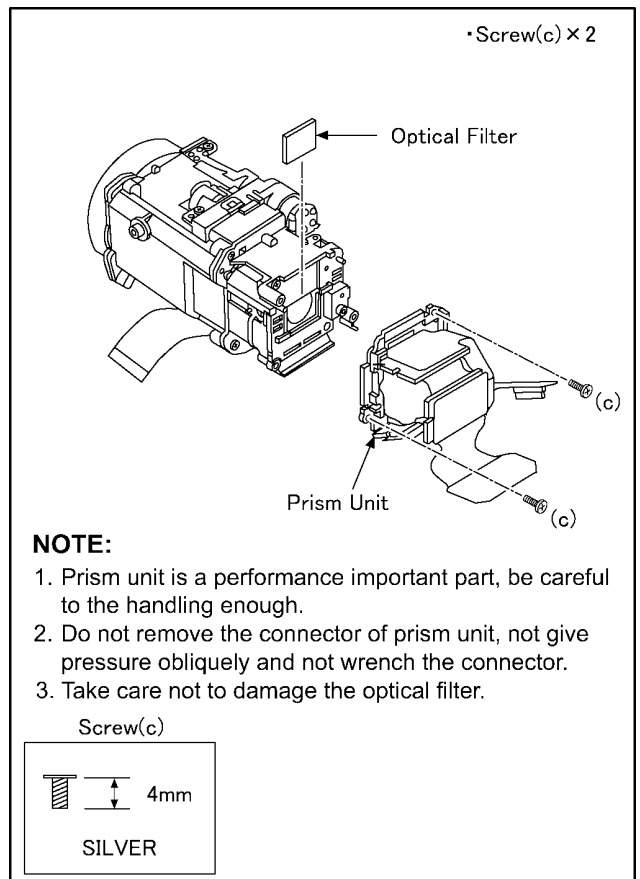


Fig.D34

### 8.3.24. Removal of the IRIS Unit

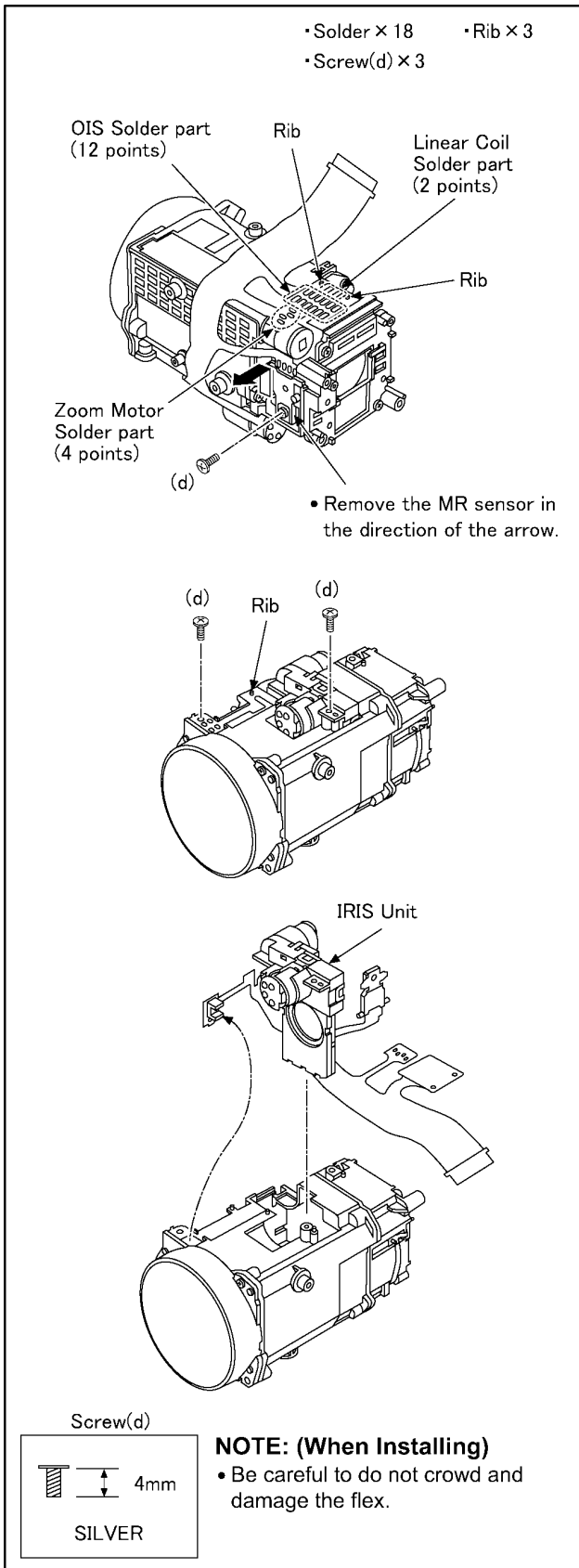


Fig.D35

### 8.3.25. Removal of the Zoom Motor

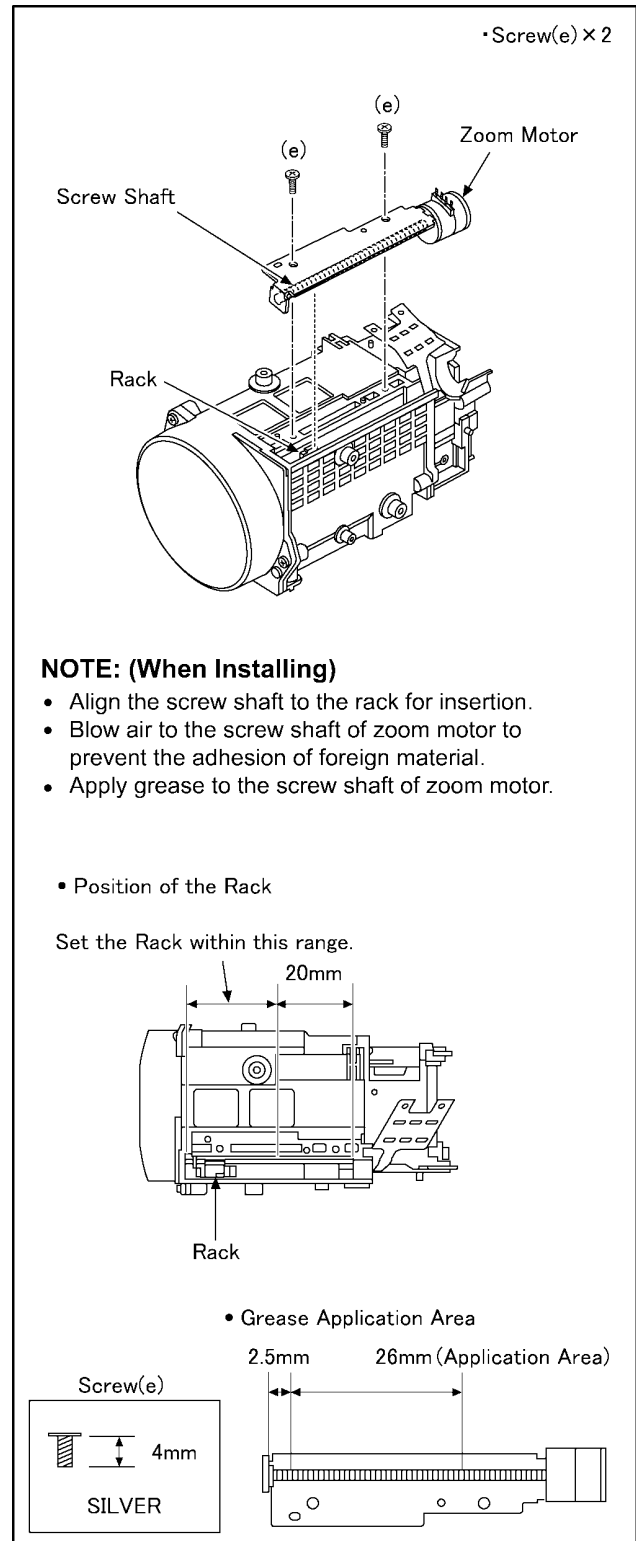


Fig.D36

### 8.3.26. Removal of the 1st Lens Frame Unit

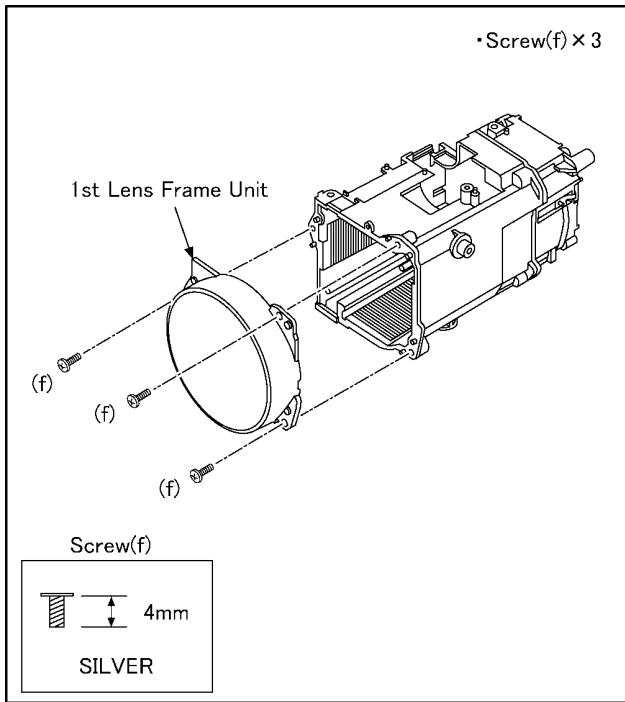


Fig.D37

### 8.3.27. Removal of the 2nd Lens Frame Move Unit

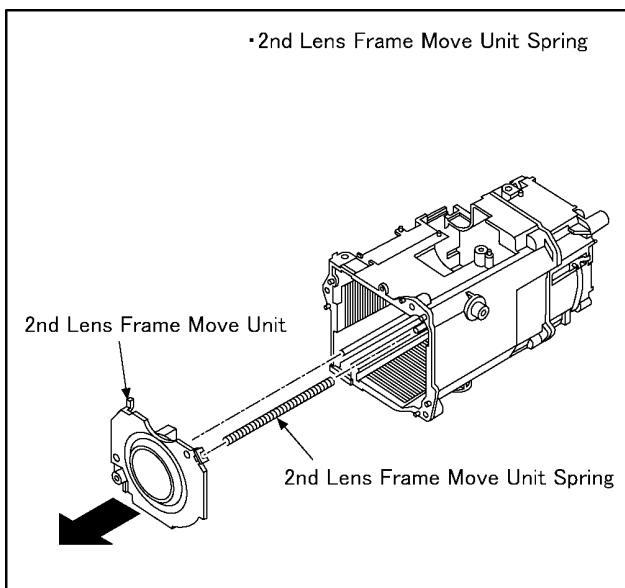


Fig.D38

### 8.3.28. Removal of the Body Unit and the Zoom Guide Pole

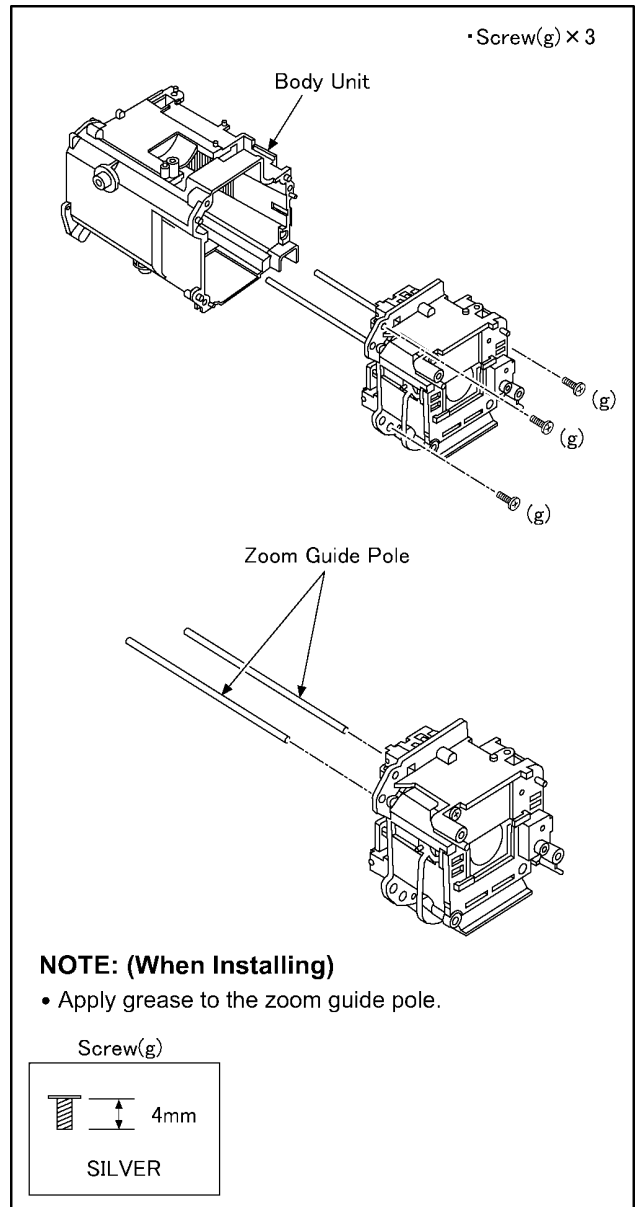


Fig.D39

### 8.3.29. Removal of the Master Flange Cover

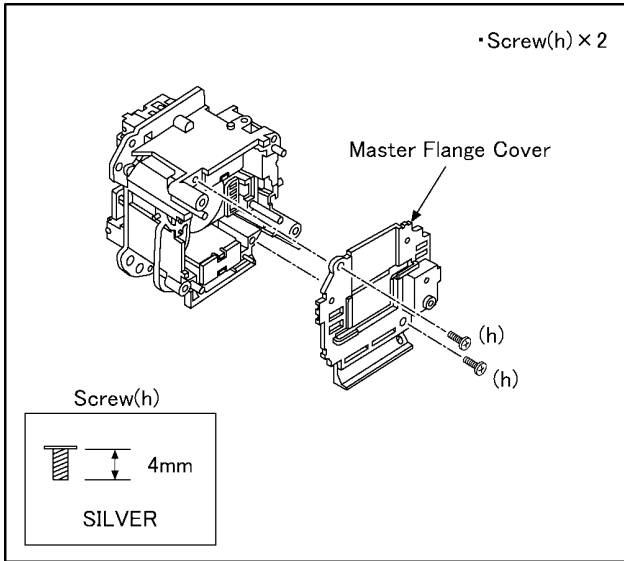


Fig.D40

### 8.3.30. Removal of the 4th Lens Frame Move Unit

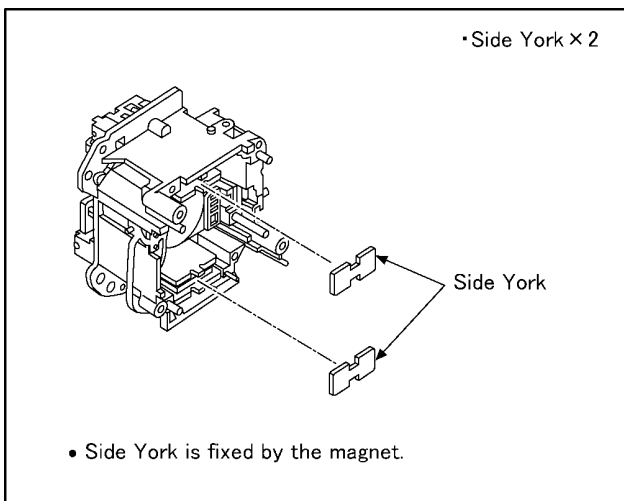


Fig.D41

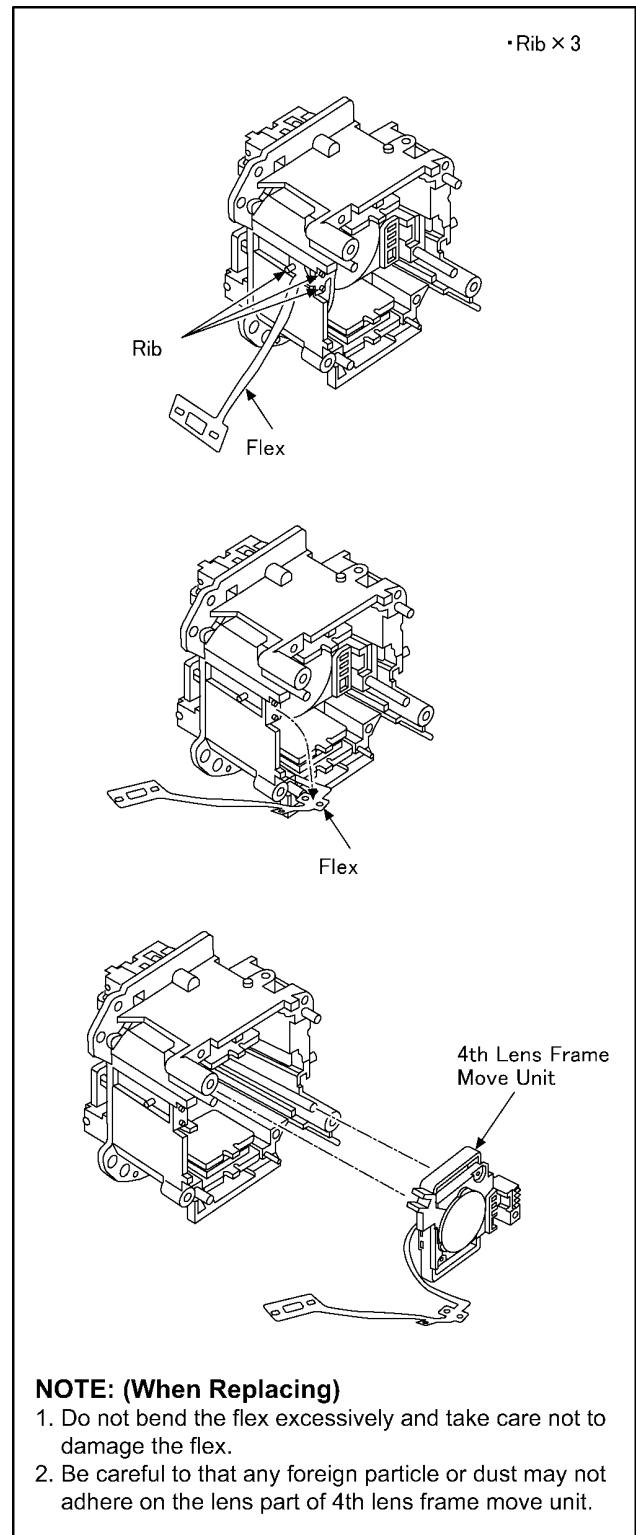


Fig.D42

### 8.3.31. Removal of the Focus Guide Pole L and Focus Guide Pole S

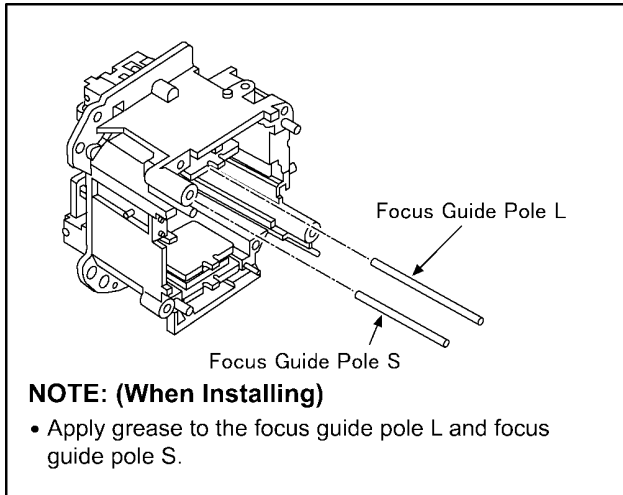


Fig.D43

# 9 Measurements and Adjustments

## 9.1. Electric Adjustment

- Adjustment method is different from a conventional High definition video camera.
- An exclusive jig and PC (including software for adjustment "Tatsujin") are necessary for electric adjustment.
- A USB driver for service is necessary to communication with PC.
- Connection method of the main unit and an exclusive adjustment jig as follows

### 9.1.1. Adjustment Procedure

- Connect the main unit to PC with USB.  
The adjustment instruction is available at "Software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN System".

Figure of connection

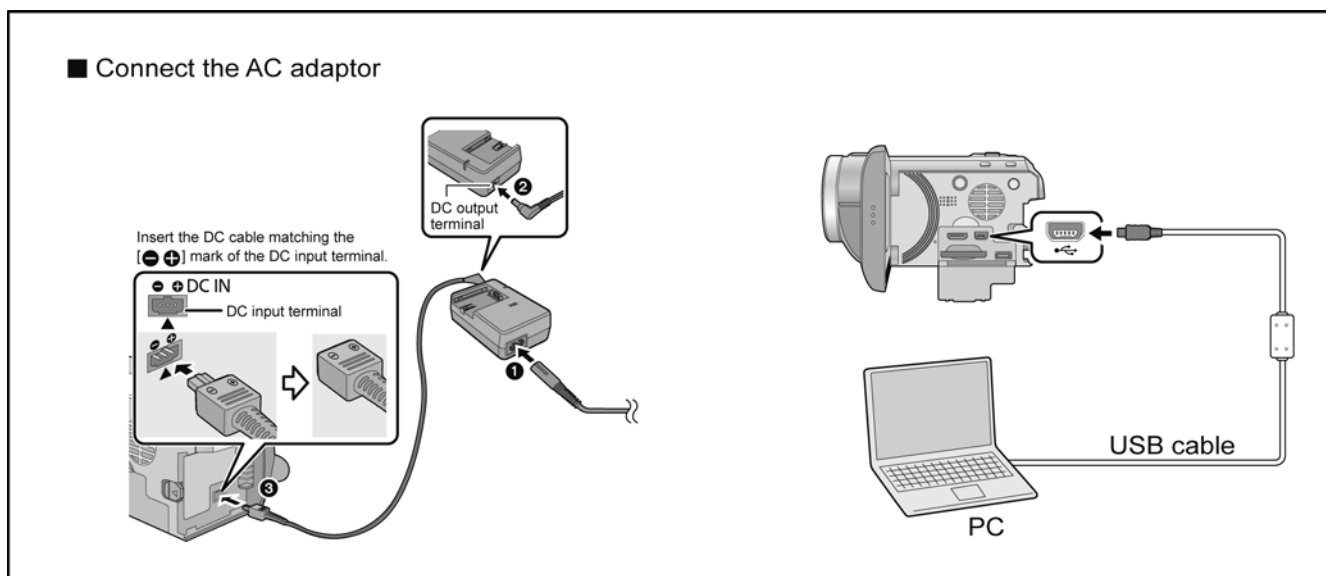
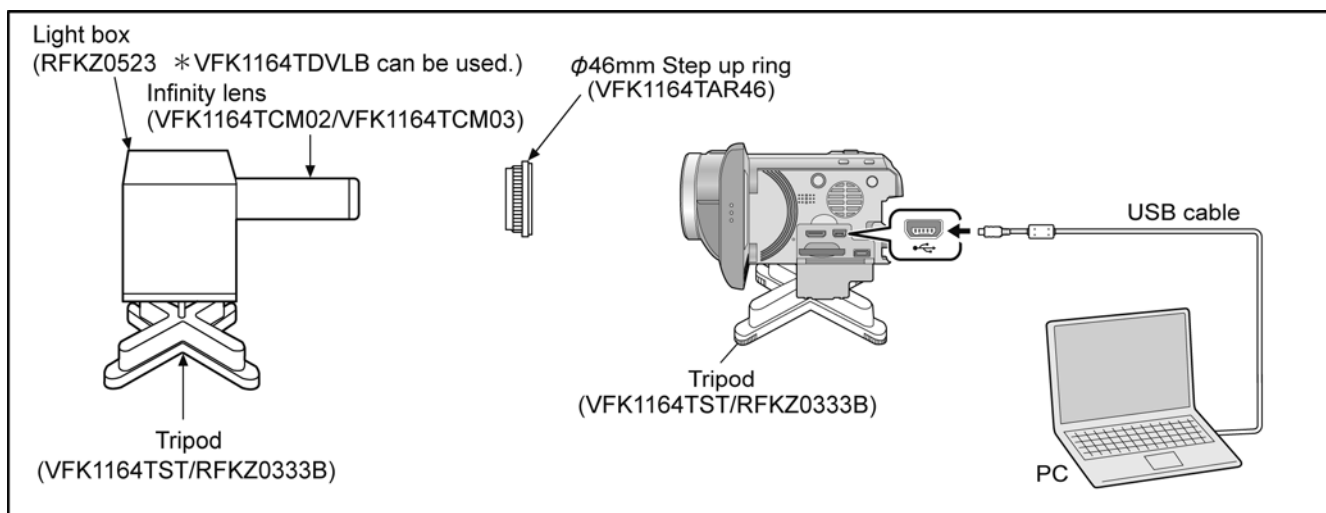


Figure of image when adjustment



### Part Number of jig

- Only a necessary jig mentions it in setup of electric adjustment.

No.	Part Name	Part Number	Remarks
1	PC	-----	
2	AC Adaptor	-----	
3	USB Cable	-----	
4	46mm Step Up Ring	VFK1164TAR46	
5	Adjustment Software (Tatsujin)	-----	

**Adjustment Items**

- Adjustment item as follows.

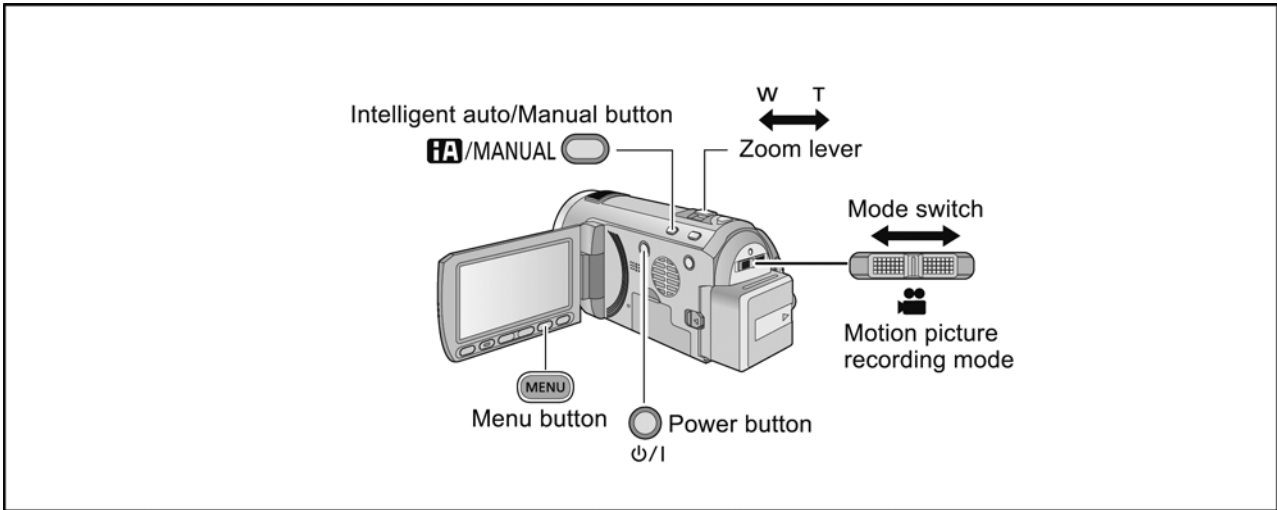
The adjustment instruction is available at "Software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN System".

	Replacement part		Main P.C.B.	IC2002(EEPROM)	Lens Unit	Prism Unit	IC3701	IC3401, IC3402	IC701	OIS sensor
	Adjustment item									
Camera Part	● Hall amplifire/PWM bias/ OIS Hall amplifire adjustment (automatic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>
	● OIS Sensor Offset adjustment (automatic)	<input type="radio"/>	<input type="radio"/>							<input type="radio"/>
	● Zoom tracking adjustment (automatic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>	
	● Address wound revision (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
	● White balance adjustment (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
	● Gain adjustment between channels (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
Video Part	● Brightness level adjustment (automatic)	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>			
	● UniPhier DDR revision (automatic)	<input type="radio"/>	<input type="radio"/>					<input type="radio"/>		

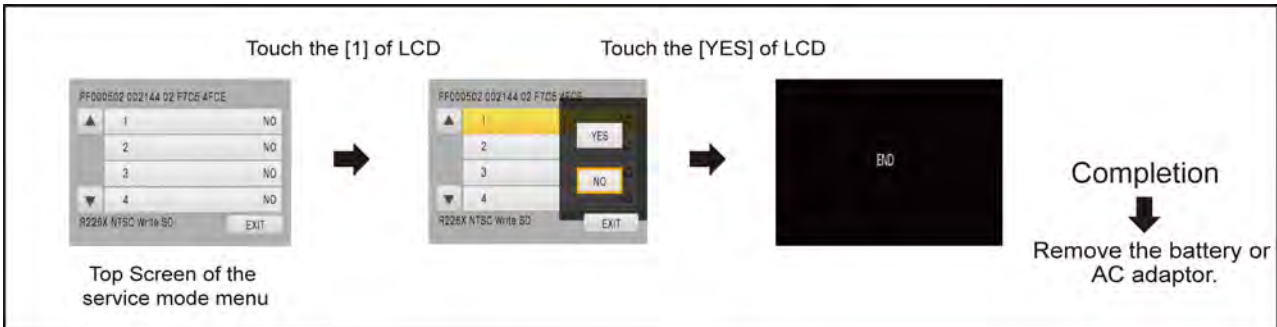
# 10 Factory Setting

## 10.1. How To Turn On The Factory Settings?

1. Set the mode dial "Motion Picture Recording" mode.
2. Turn the power on, and then while keep pressing the "Zoom lever" to W side, "Intelligent auto/Manual" button and "Menu" button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



3. Touch the [ 1 ] of LCD.
4. Touch the [ YES ] of LCD.
5. After few seconds "END" is displayed on LCD monitor. Cutting of battery connection or AC power supply connection as a completion of the "FACTORY SETTINGS".



## 10.2. What Is The Factory Settings?

The factory settings clean up and/or refresh the following settings.

1. MENU, MODE, ADJUSTMENT VALUE.
2. SD card format.
3. Reset the folder number and file number of still pictures.  
(Setting the folder number is 100, and file number is 0.)
4. Clear the mechanism lock information.
5. Clear the service mode information contents.
6. Close the lens cover
7. Initialize the VIERA Link Physical Address.

**The setting position of factory settings:**

Name	Setting position
Mode switch	Motion picture recording mode

# Service Manual

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## Diagrams and Replacement Parts List

### High Definition Video Camera

Model No.

- HDC-SD600P
- HDC-SD600EB
- HDC-SD600EC
- HDC-SD600EE
- HDC-SD600EF
- HDC-SD600EG
- HDC-SD600EP
- HDC-SD600GN

Vol. 1  
 Colour  
 (K).....Black Type  
 (H).....Glay Type (only EB)

### Table of contents

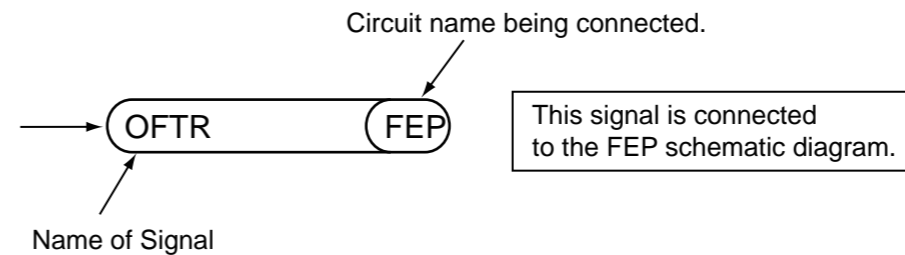
<p>S1. About Indication of The Schematic Diagram ..... S-1</p> <p>S1.1. Important Safety Notice..... S-1</p> <p>S2. Voltage Chart ..... S-2</p> <p>S2.1. Strobe P.C.B..... S-2</p> <p>S2.2. BATT_Catcher P.C.B..... S-2</p> <p>S2.3. Front P.C.B..... S-2</p> <p>S2.4. MIC AMP P.C.B. .... S-2</p> <p>S3. Block Diagram..... S-3</p> <p>S3.1. Overall Block Diagram ..... S-3</p> <p>S4. Schematic Diagram..... S-4</p> <p>S4.1. Interconnection Diagram..... S-4</p> <p>S4.2. Strobe Schematic Diagram ..... S-5</p> <p>S4.3. BATT_Catcher Schematic Diagram ..... S-6</p> <p>S4.4. Front Schematic Diagram ..... S-7</p> <p>S4.5. MIC AMP Schematic Diagram..... S-8</p> <p>S4.6. Side R Schematic Diagram..... S-9</p> <p>S4.7. SS SW Schematic Diagram ..... S-9</p>	<p>S4.8. Monitor Schematic Diagram..... S-10</p> <p>S4.9. MIC AMP FPC Schematic Diagram ..... S-11</p> <p>S5. Print Circuit Board..... S-12</p> <p>S5.1. Strobe P.C.B..... S-12</p> <p>S5.2. BATT_Catcher P.C.B..... S-13</p> <p>S5.3. Front P.C.B..... S-14</p> <p>S5.4. MIC AMP P.C.B. .... S-15</p> <p>S5.5. Side R P.C.B. .... S-16</p> <p>S5.6. SS SW P.C.B..... S-16</p> <p>S5.7. Monitor P.C.B. .... S-17</p> <p>S5.7.1. Monitor P.C.B. (Component Side)..... S-17</p> <p>S5.7.2. Monitor P.C.B. (Foil Side)..... S-18</p> <p>S5.8. MIC AMP FPC P.C.B..... S-19</p> <p>S6. Replacement Parts List..... S-21</p> <p>S7. Exploded View ..... S-29</p> <p>S7.1. Frame and Casing Section (1) ..... S-29</p> <p>S7.2. Frame and Casing Section (2) ..... S-30</p>	<p>S7.3. LCD Section ..... S-31</p> <p>S7.4. Camera Lens Section..... S-32</p> <p>S7.5. Packing Parts and Accessories Section..... S-33</p>
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## S1. About Indication of The Schematic Diagram

### S1.1. Important Safety Notice

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

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



## S2. Voltage Chart

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

### S2.1. Strobe P.C.B.

REF No.	PIN No.	POWER ON
IC7001	1	0
IC7001	2	0
IC7001	3	0
IC7001	4	0
IC7001	5	3.3
IC7001	6	0
IC7001	7	0
IC7001	8	0
IC7001	9	2.9
IC7001	10	8.3
Q3901	E	3.3
Q3901	C	3.3
Q3901	B	3.3

### S2.2. BATT\_Catcher P.C.B.

REF No.	PIN No.	POWER ON
IC6302	1	3.2
IC6302	2	0
IC6302	3	0
IC6302	4	2.9
IC6302	5	3.2

### S2.3. Front P.C.B.

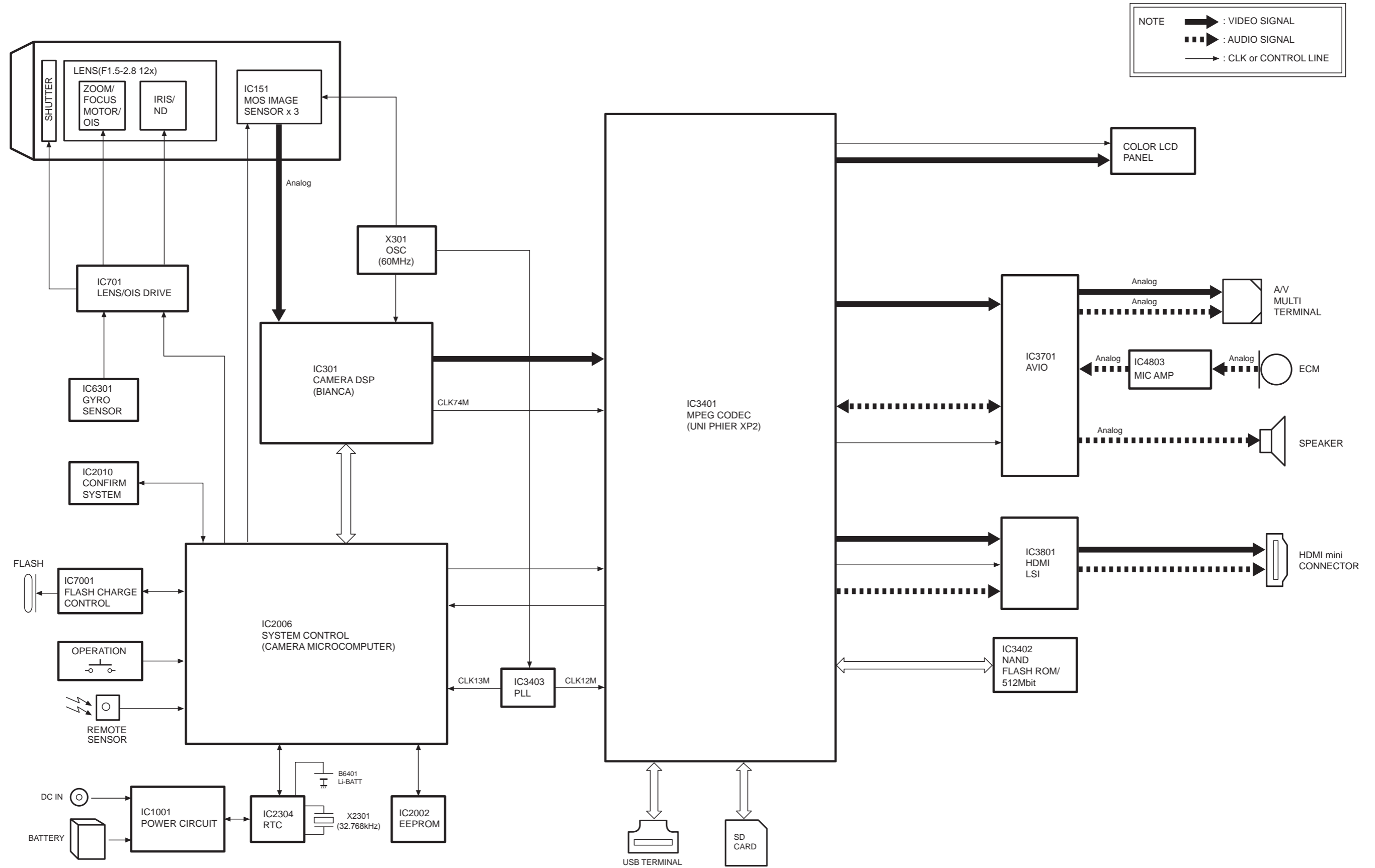
REF No.	PIN No.	POWER ON
Q6401	E	5.1
Q6401	C	-0.4
Q6401	B	5.1
QR6401	E	0
QR6401	C	4.8
QR6401	B	0

### S2.4. MIC AMP P.C.B.

REF No.	PIN No.	POWER ON
IC4803	1	2.5
IC4803	2	2.5
IC4803	3	2.5
IC4803	4	0
IC4803	5	2.5
IC4803	6	2.5
IC4803	7	2.5
IC4803	8	4.8
Q4801	E	4.1
Q4801	C	4.8
Q4801	B	4.8

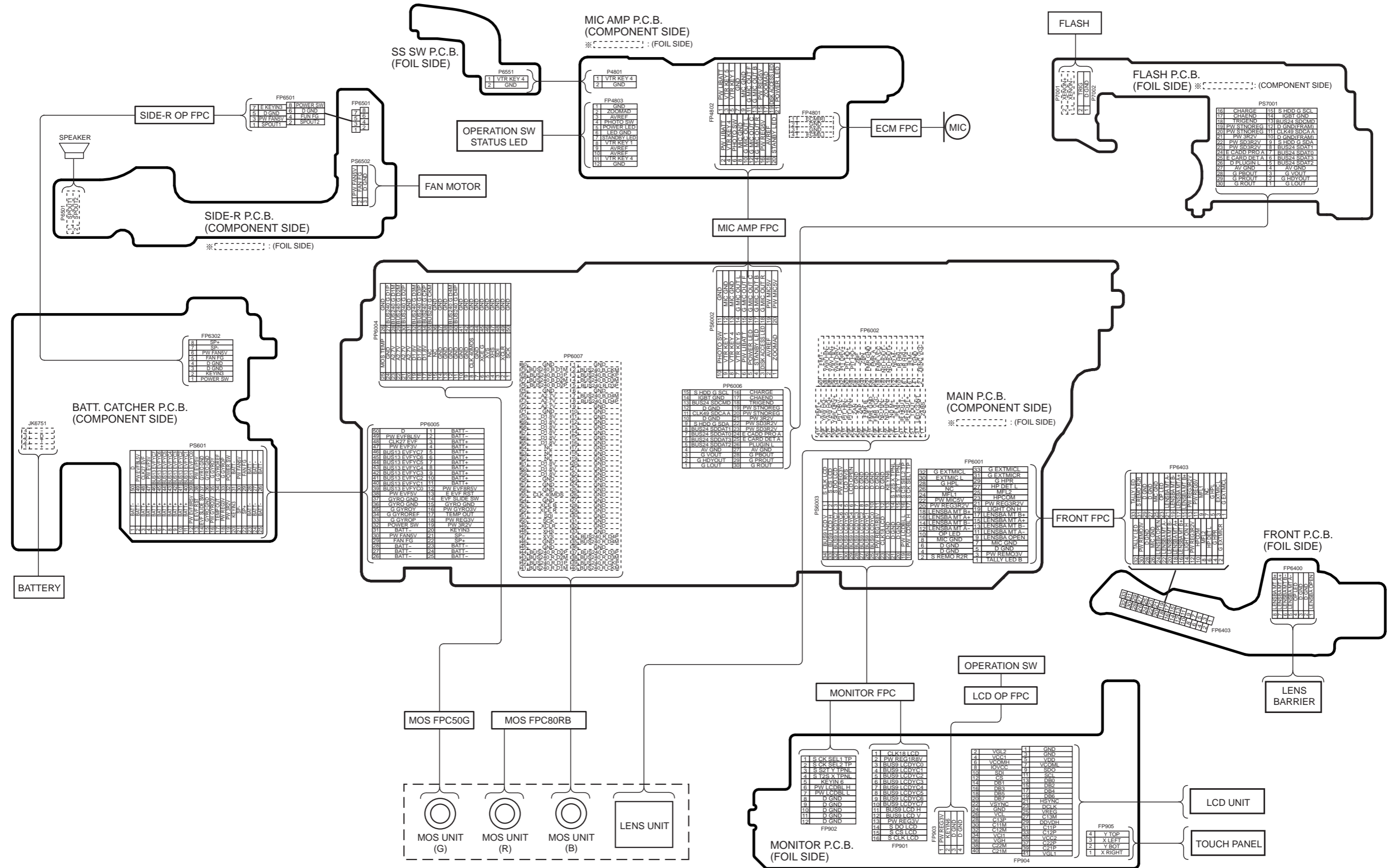
# S3. Block Diagram

## S3.1. Overall Block Diagram



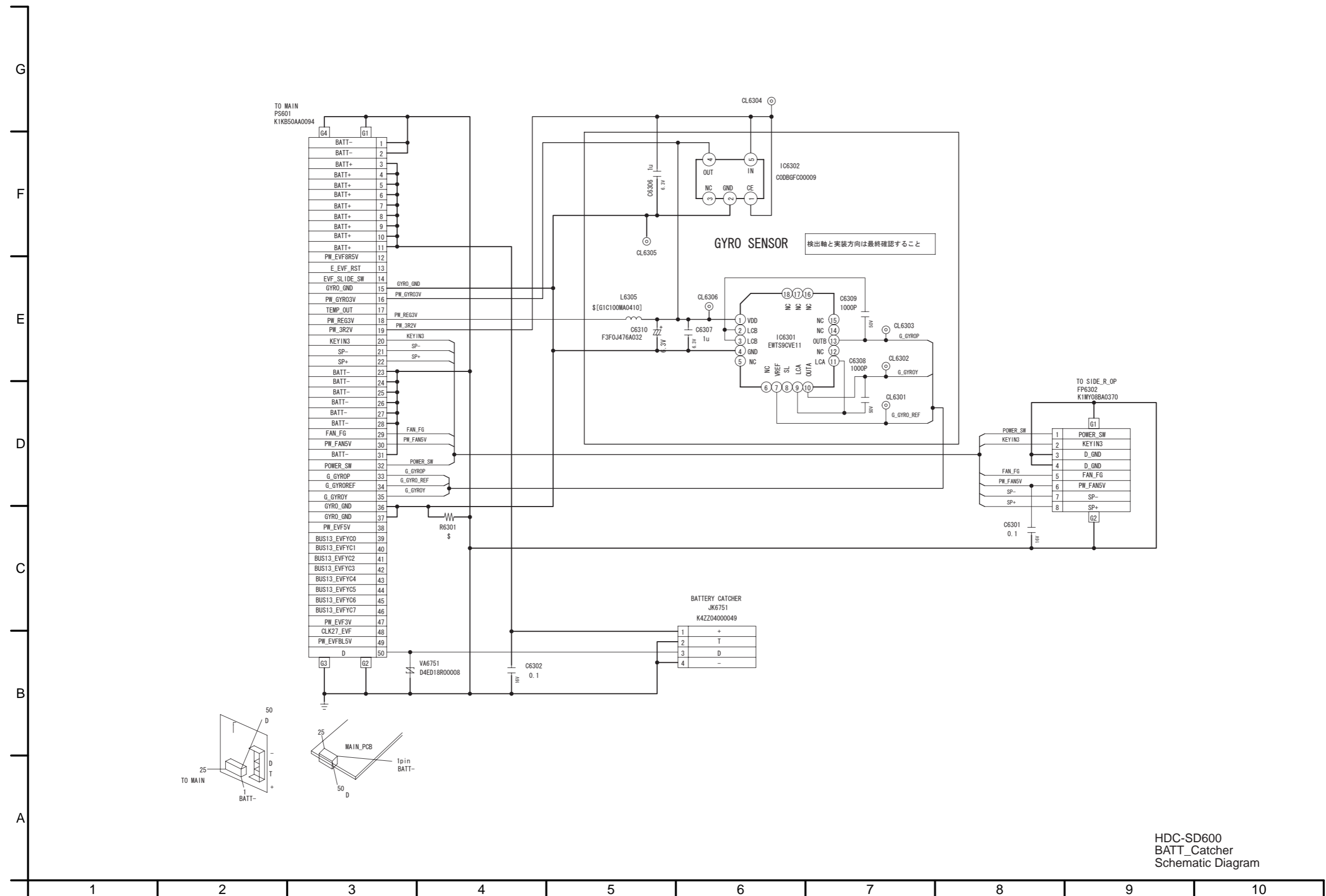
# S4. Schematic Diagram

## S4.1. Interconnection Diagram



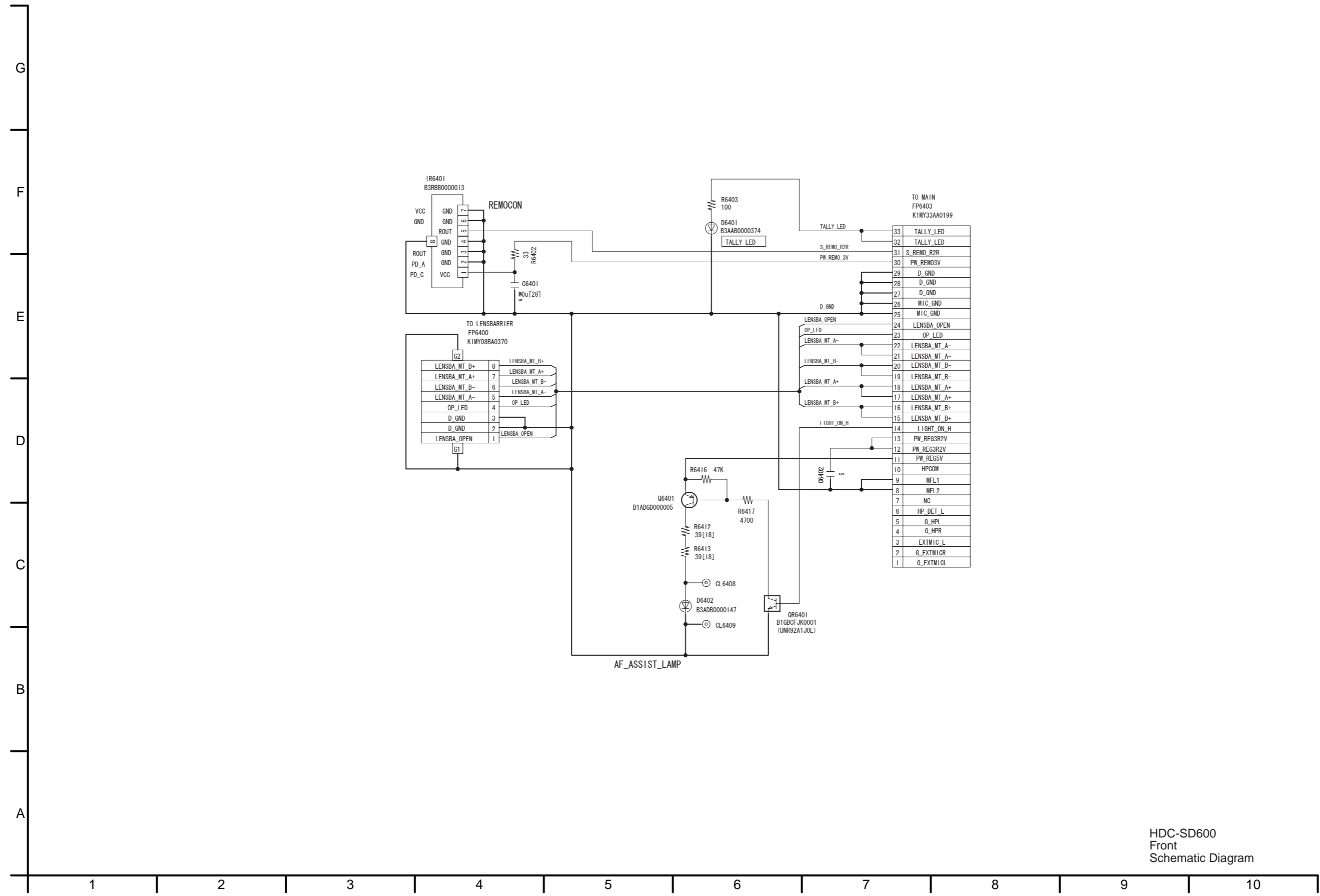


### S4.3. BATT\_Catcher Schematic Diagram



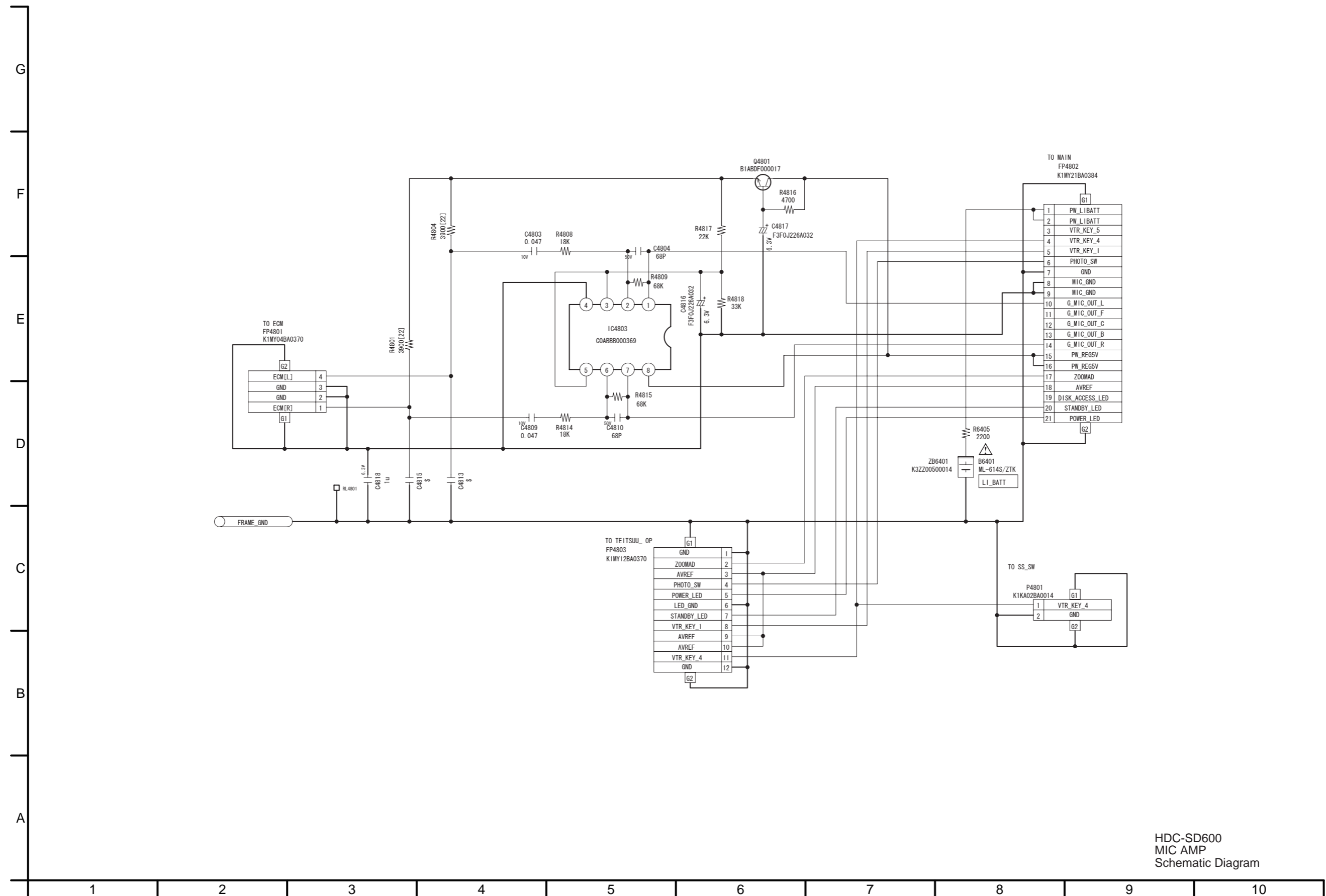
HDC-SD600  
BATT\_Catcher  
Schematic Diagram

# S4.4. Front Schematic Diagram



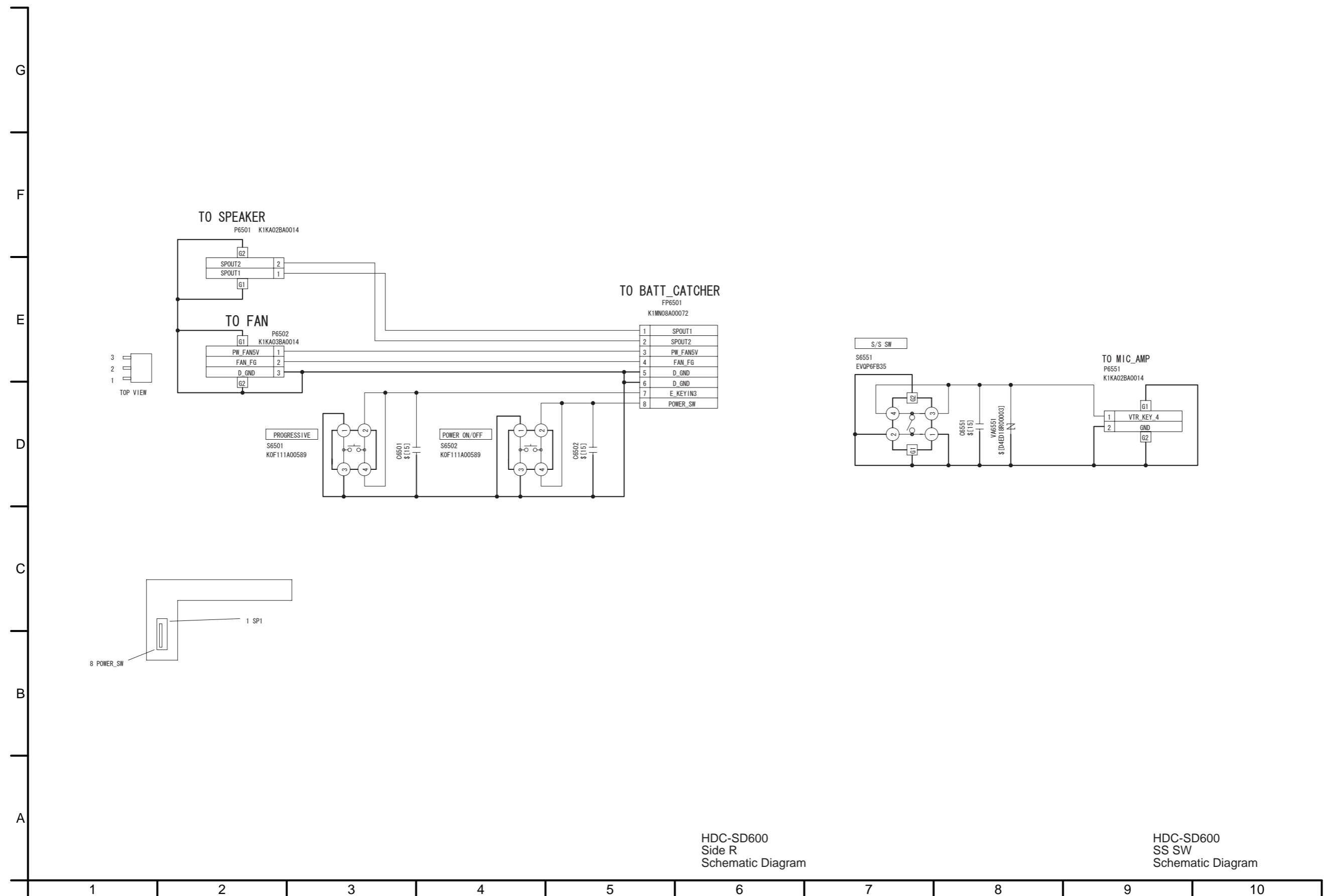
HDC-SD600  
Front  
Schematic Diagram

# S4.5. MIC AMP Schematic Diagram



HDC-SD600  
MIC AMP  
Schematic Diagram

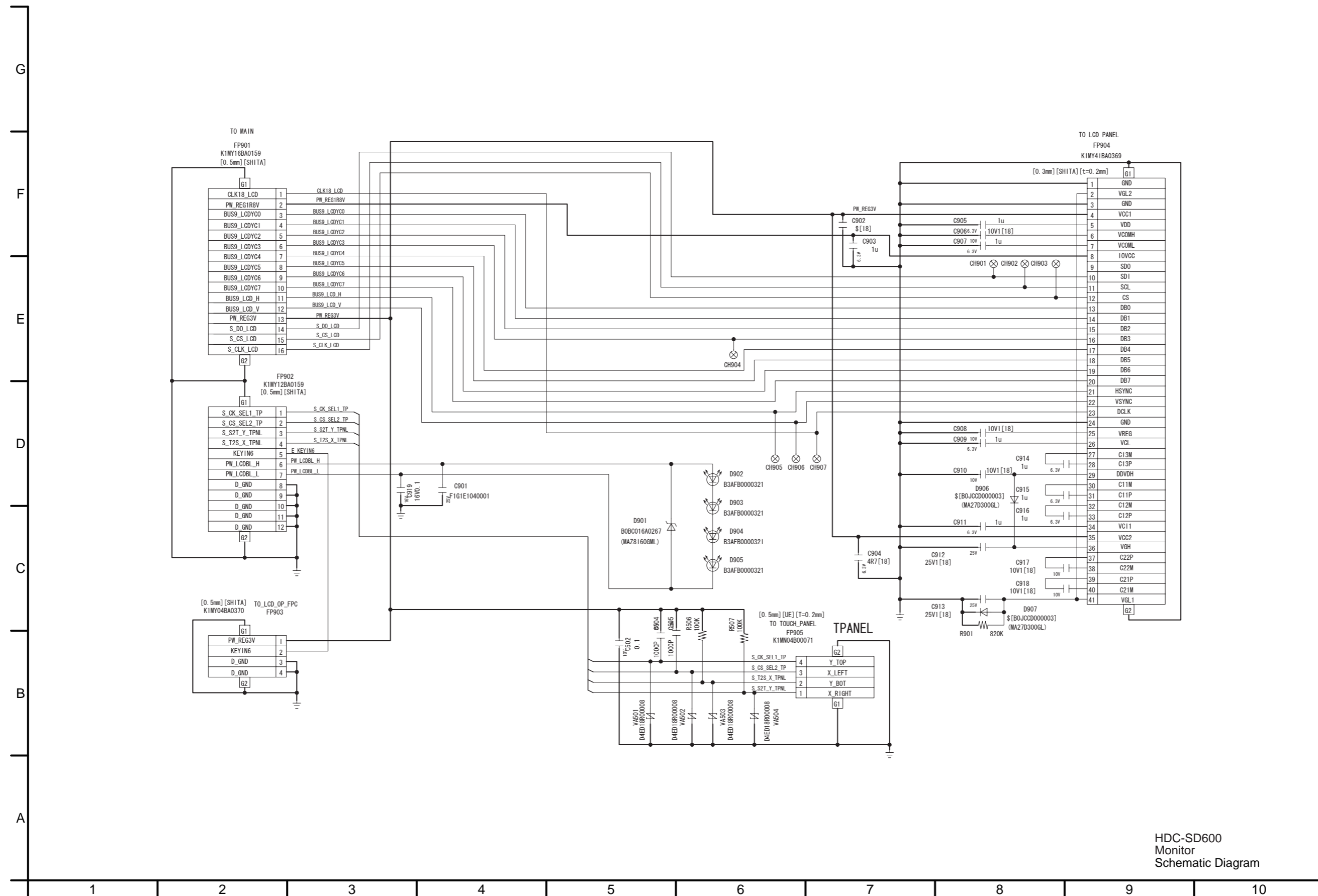
S4.6. Side R Schematic Diagram / S4.7. SS SW Schematic Diagram



HDC-SD600  
Side R  
Schematic Diagram

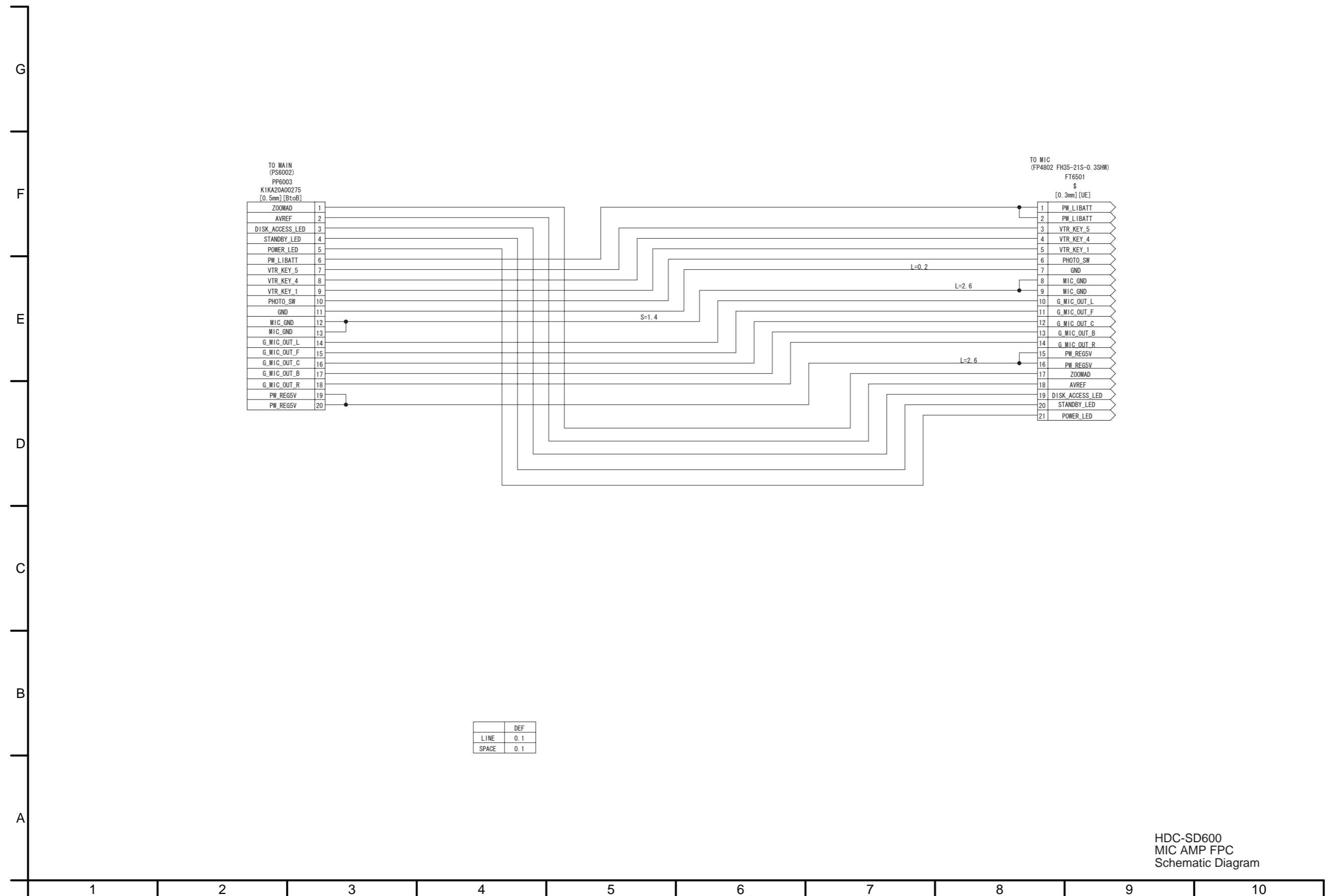
HDC-SD600  
SS SW  
Schematic Diagram

# S4.8. Monitor Schematic Diagram



HDC-SD600  
Monitor  
Schematic Diagram

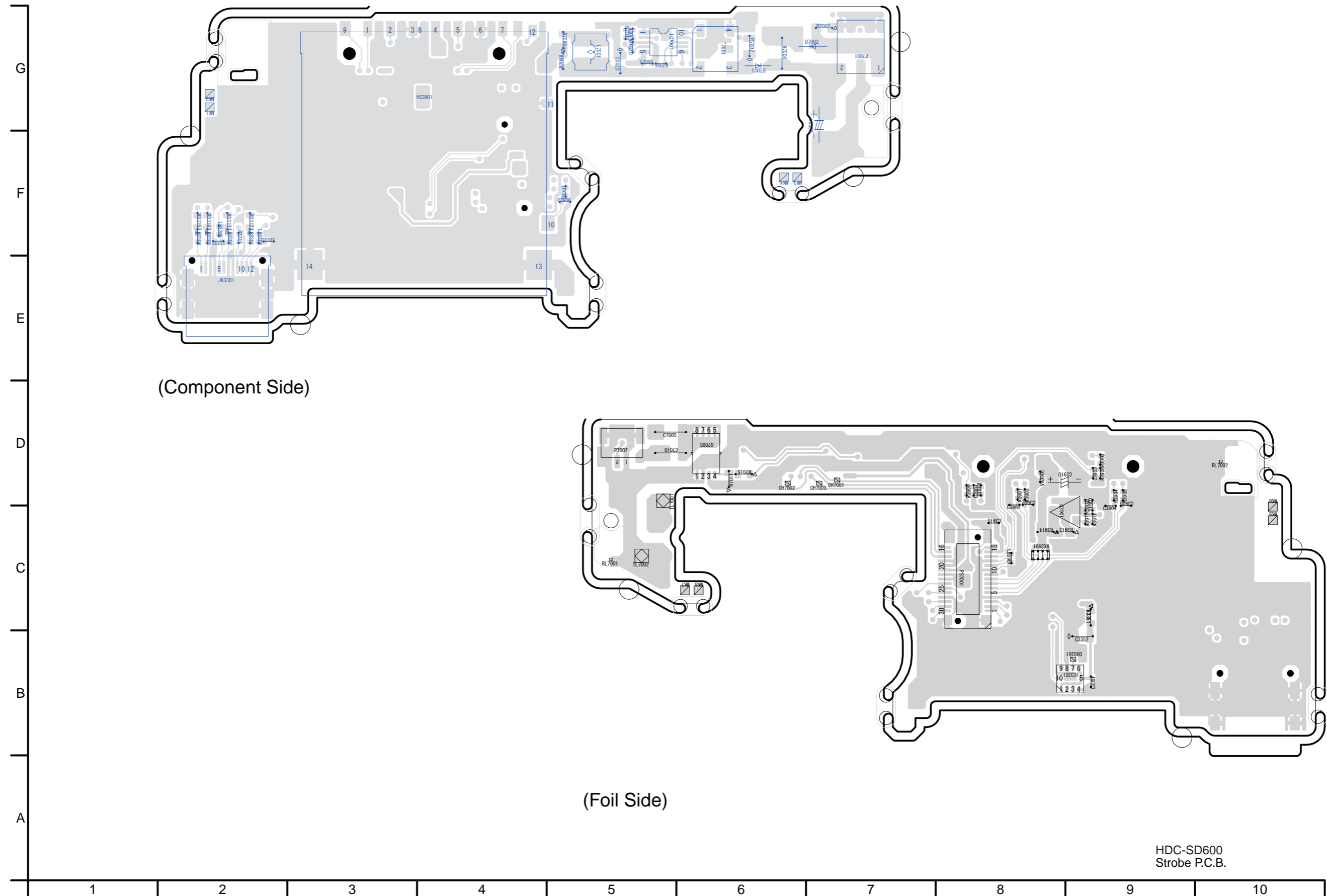
# S4.9. MIC AMP FPC Schematic Diagram



HDC-SD600  
MIC AMP FPC  
Schematic Diagram

# S5. Print Circuit Board

## S5.1. Strobe P.C.B.

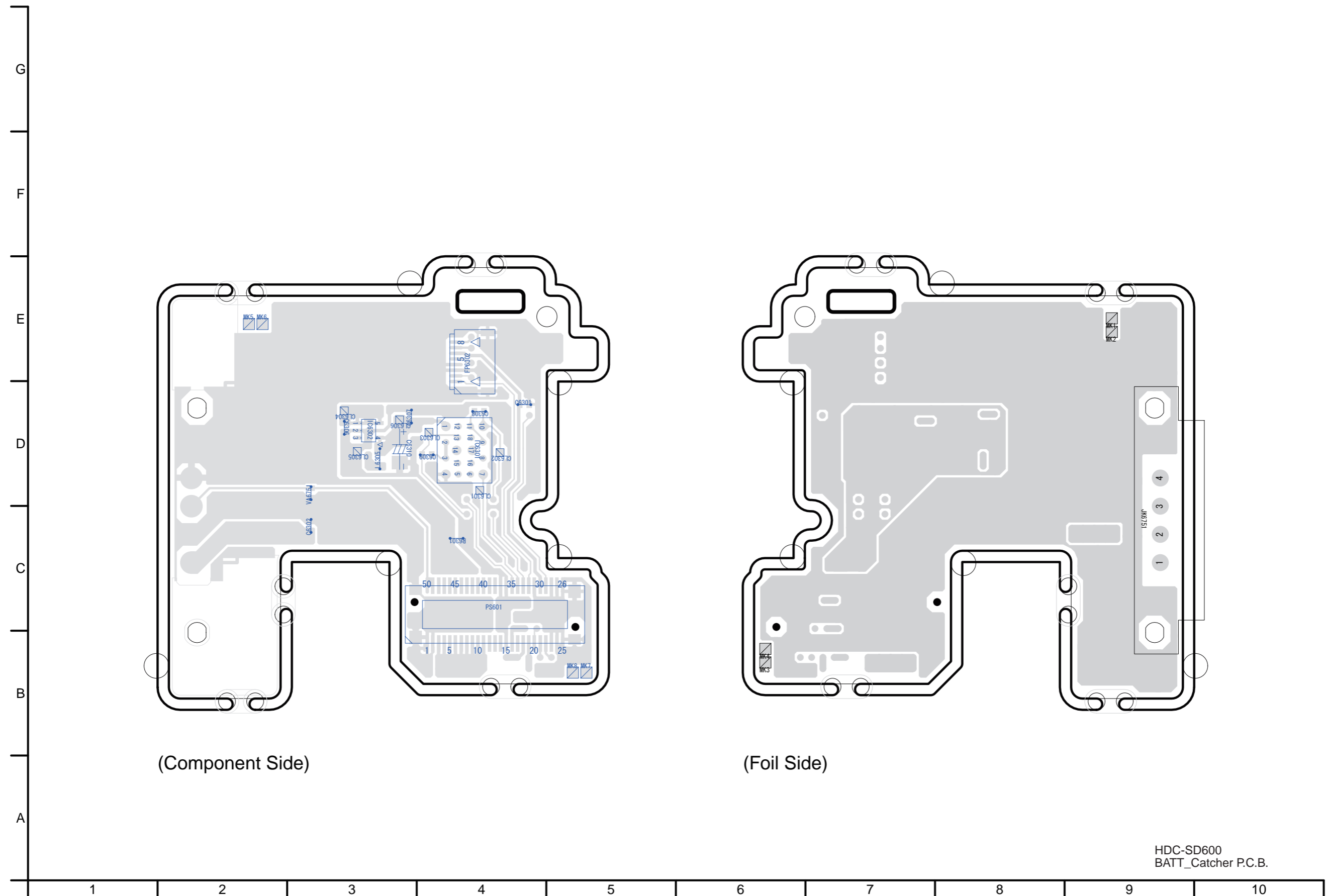


(Component Side)

(Foil Side)

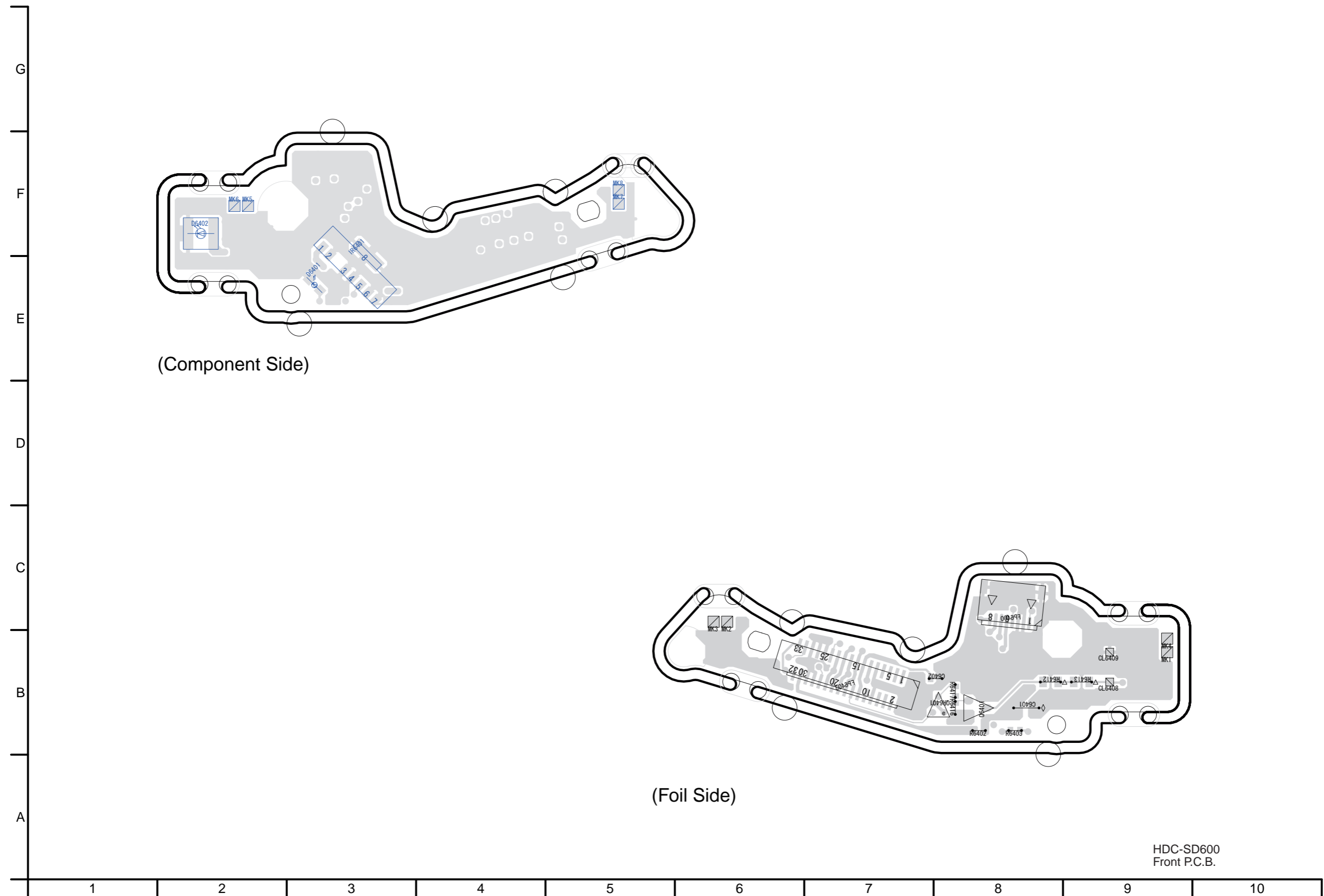
HDC-SD600  
Strobe P.C.B.

S5.2. BATT\_Catcher P.C.B.



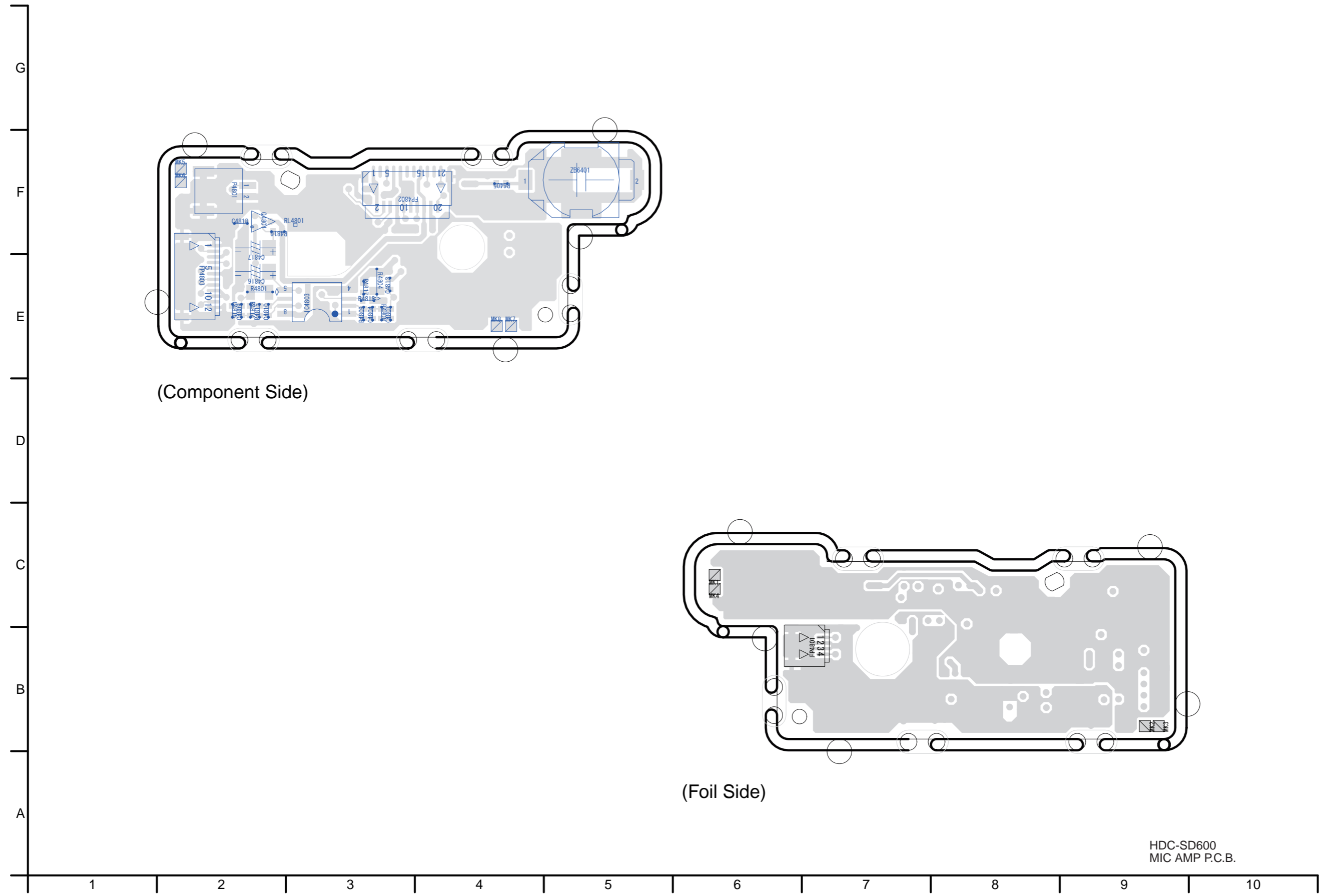
HDC-SD600  
BATT\_Catcher P.C.B.

S5.3. Front P.C.B.



HDC-SD600  
Front P.C.B.

S5.4. MIC AMP P.C.B.

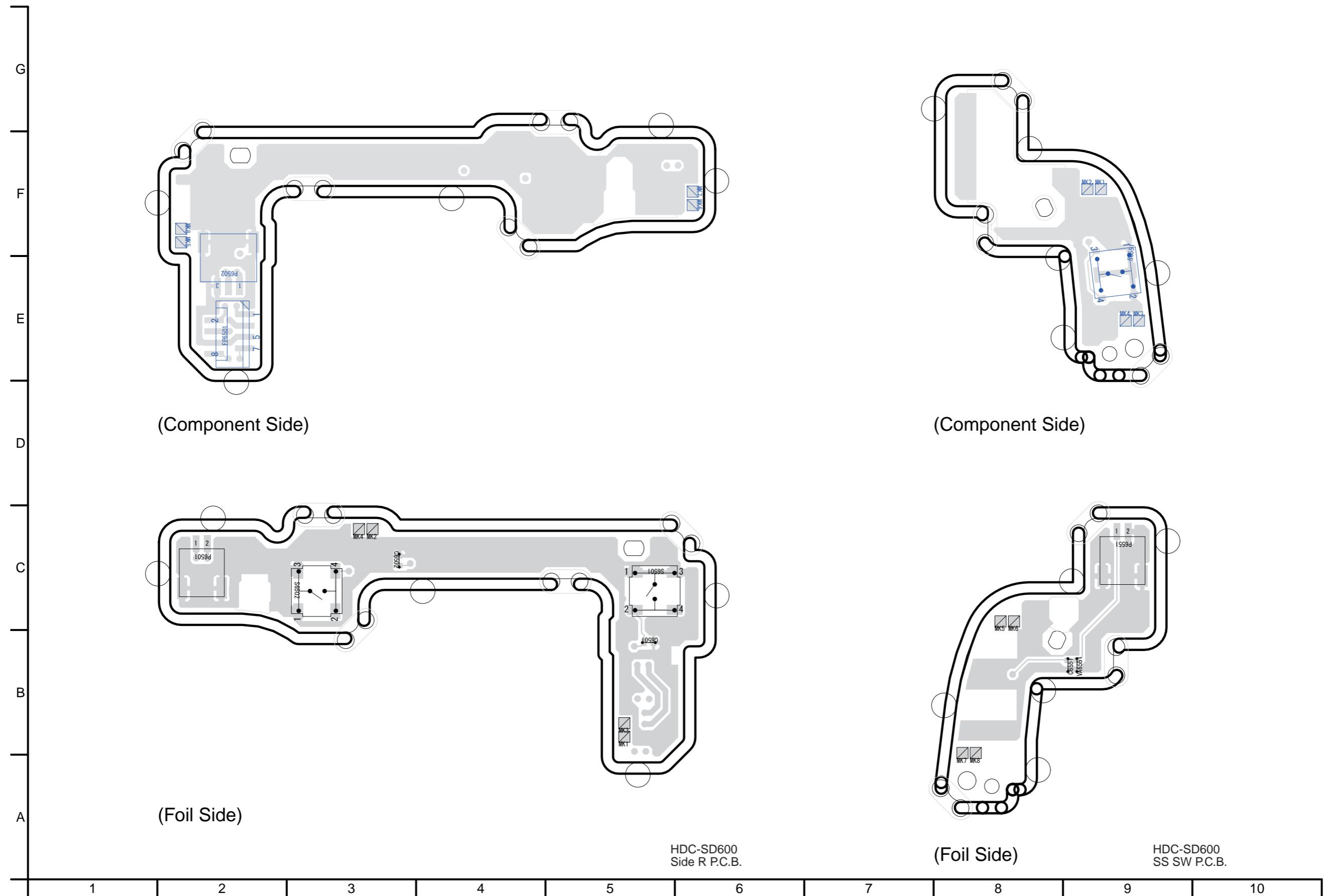


(Component Side)

(Foil Side)

HDC-SD600  
MIC AMP P.C.B.

S5.5. Side R P.C.B. / S5.6. SS SW P.C.B.



(Component Side)

(Component Side)

(Foil Side)

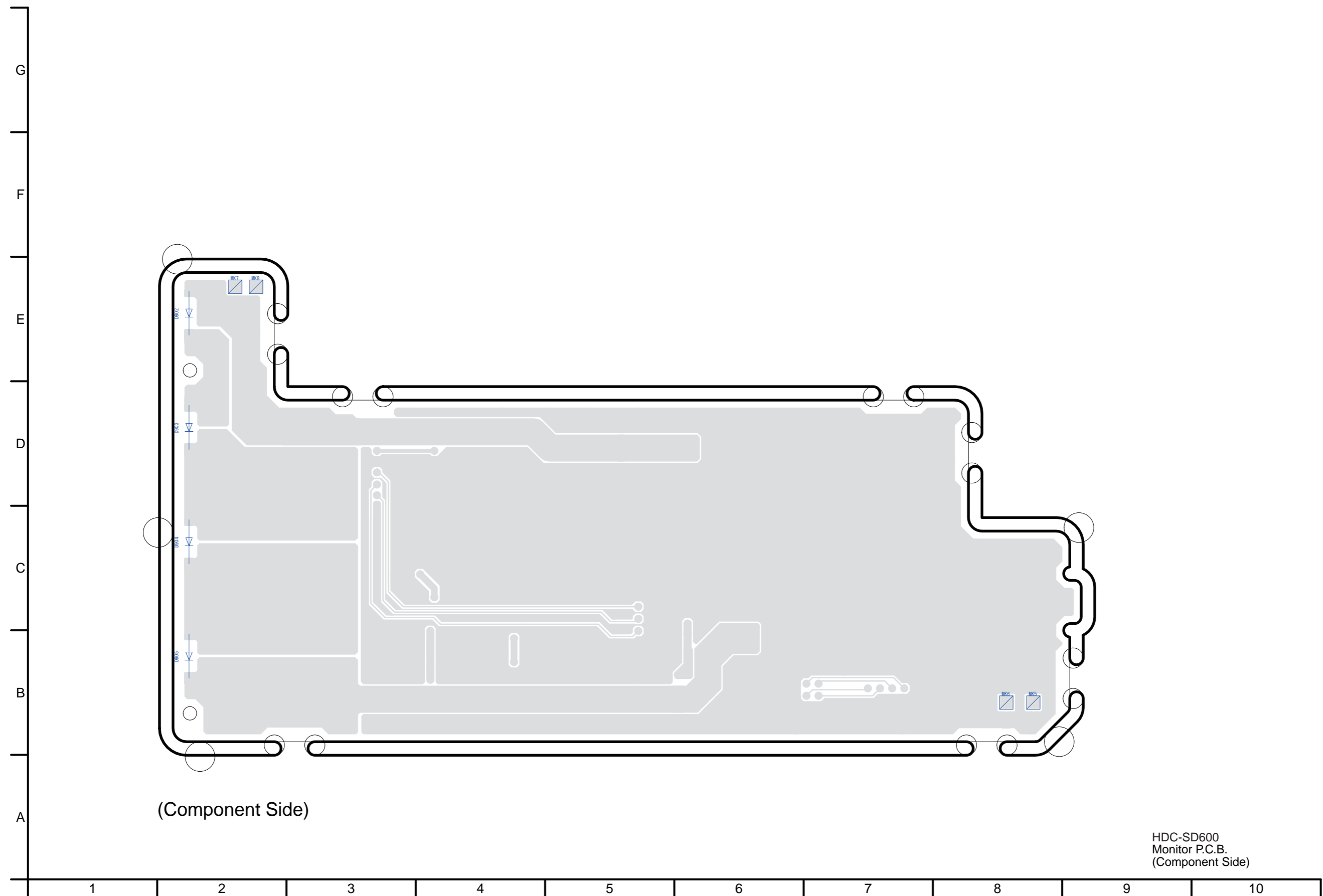
(Foil Side)

HDC-SD600  
Side R P.C.B.

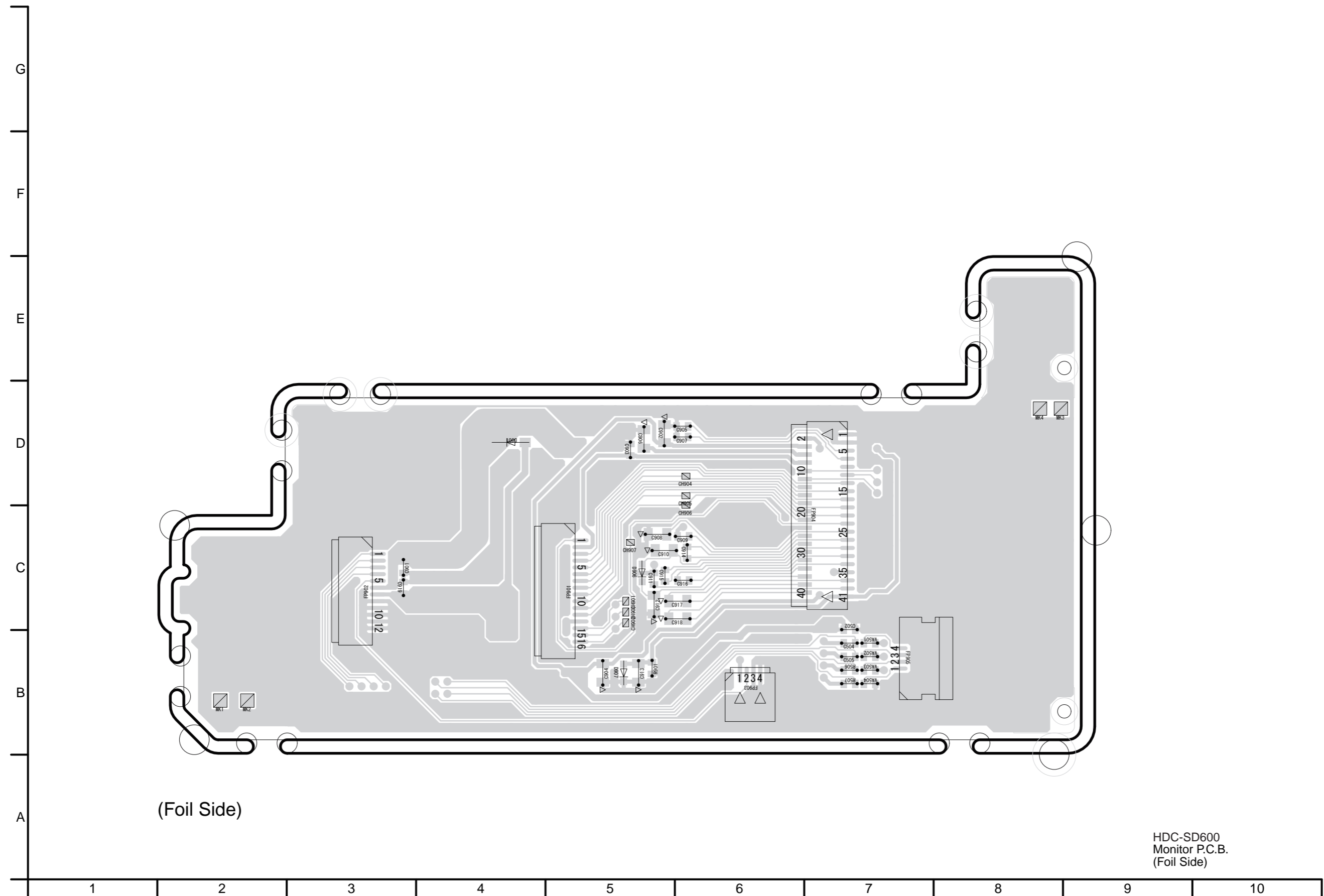
HDC-SD600  
SS SW P.C.B.

S5.7. Monitor P.C.B.

S5.7.1. Monitor P.C.B. (Component Side)

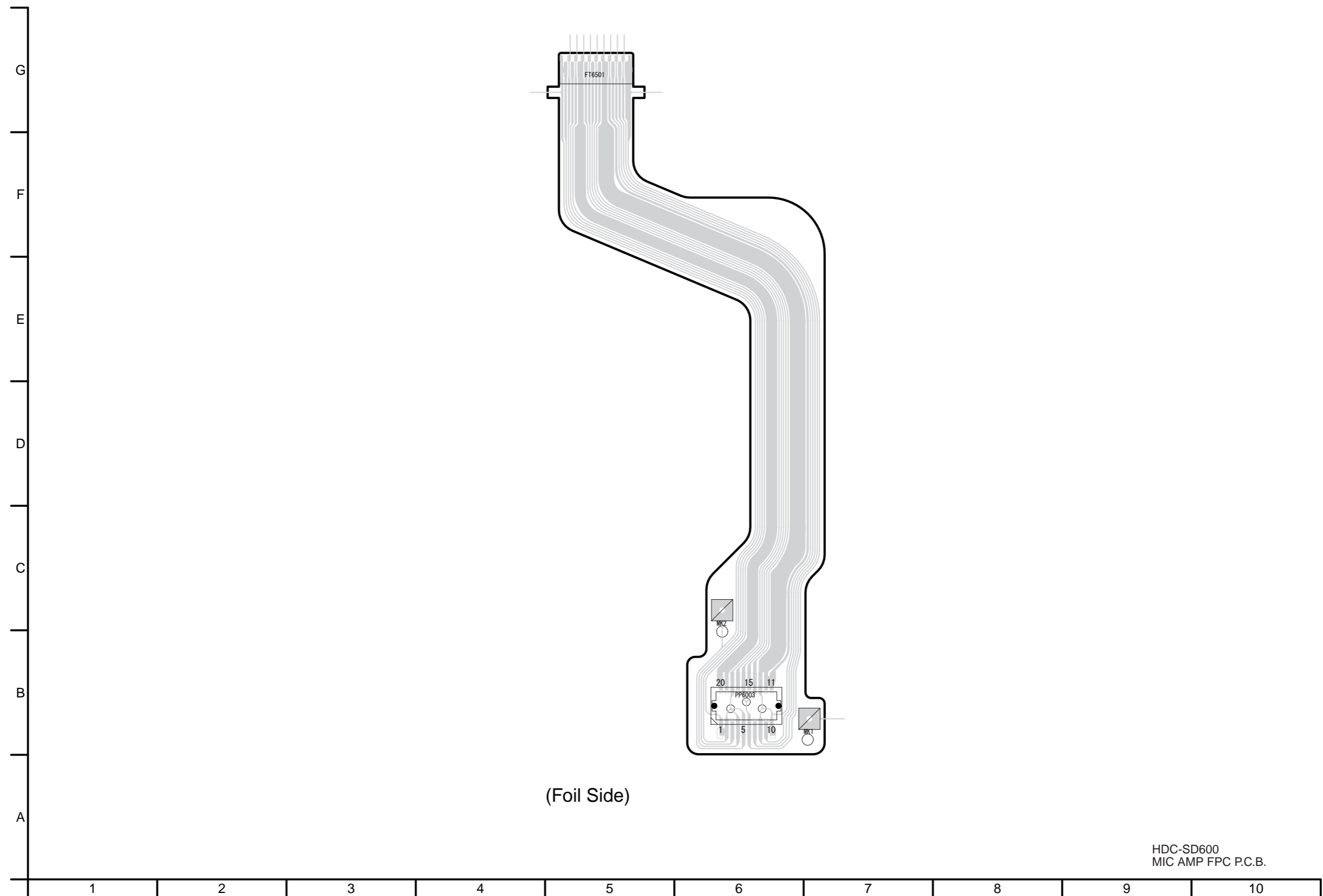


S5.7.2. Monitor P.C.B. (Foil Side)



HDC-SD600  
Monitor P.C.B.  
(Foil Side)

S5.8. MIC AMP FPC P.C.B.



(Foil Side)

HDC-SD600  
MIC AMP FPC 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.

**E.S.D. standards for Electrostatically Sensitive Devices, refer to “PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES” section.**

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	
##	VEP03H98EN	MAIN P.C.B. UNIT	1	(PK) (RTL) E.S.D.	
##	VEP03H98EQ	MAIN P.C.B. UNIT	1	(EEK,GNK) (RTL) E.S.D.	
##	VEP03H98EP	MAIN P.C.B. UNIT	1	(EBH,EBK,ECK,EFK,EGK,EPK) (RTL) E.S.D.	
##	VEP03H91A	FLASH P.C.B. UNIT	1	(RTL) E.S.D.	
##	VEP01A34A	BATT. CATCHER P.C.B. UNIT	1	(RTL) E.S.D.	
##	VEP20C91A	FRONT P.C.B. UNIT	1	(RTL) E.S.D.	
△	##	VEP04958A	MIC AMP P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP06G51A	SIDE-R P.C.B. UNIT	1	(RTL) E.S.D.	
##	VEP06G52A	SS SW P.C.B. UNIT	1	(RTL) E.S.D.	
##	VEP26329A	MONITOR P.C.B. UNIT	1	(RTL) E.S.D.	
##	VEP04968A	MIC AMP PFC UNIT	1	(RTL) E.S.D.	
##	VEP03H91A	FLASH P.C.B. UNIT		(RTL) E.S.D.	
C3302	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1		
C3303	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1		
C3901	F1G1H220A565	C.CAPACITOR CH 50V 22P	1		
C3902	F1G1H220A565	C.CAPACITOR CH 50V 22P	1		
C3903	F1G1H220A565	C.CAPACITOR CH 50V 22P	1		
C3904	F1G1H220A565	C.CAPACITOR CH 50V 22P	1		
C3905	F1G1H220A565	C.CAPACITOR CH 50V 22P	1		
C3906	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1		
C3907	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1		
C3910	F3G0J107A017	C.CAPACITOR CH 6.3V 100U	1		
C3911	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1		
C3950	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1		
C7001	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1		
C7002	F1G1H150A565	C.CAPACITOR CH 50V 15	1		
C7003	F1J1A106A043	C.CAPACITOR CH 10V 10U	1		
C7004	F2A2F6000001	ALUMINUM NON-SOLID ELECTR	1		
C7005	F1K2E4730005	C.CAPACITOR 250V 0.047U	1		
C7010	F1K2E223A004	C.CAPACITOR 250V 0.022U	1		
D7002	B0ECGP000006	DIODE	1	E.S.D.	
D7003	DA2JF8100L	DIODE	1	E.S.D.	
HS3901	K1NA09E00115	SD CARD SLOT	1		
IC7001	C0ZBZ0001710	IC	1	E.S.D.	
JK3301	K2HZ112E0001	D-TERMINAL	1		
LB3301	J0JCC0000408	FILTER	1		
LB3302	J0JCC0000408	FILTER	1		
LB3303	J0JCC0000408	FILTER	1		
LB3304	J0JCC0000276	FILTER	1		
LB3305	J0JCC0000276	FILTER	1		
LB3306	J0JCC0000276	FILTER	1		
LB3901	J0JBC0000099	FILTER	1		
P7001	K1KA02B00292	CONNECTOR 2P	1		
P7002	K1KA02BA0022	CONNECTOR 2P	1		
PS7001	K1KB30AA0116	CONNECTOR 30P	1		
Q3901	B1ADKB000015	TRANSISTOR	1	E.S.D.	
Q7005	B1JBLP000014	TRANSISTOR	1	E.S.D.	
R3311	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1		
R3312	ERJ3RED750V	RESISTOR NETWORKS	1		
R3313	ERJ3RED750V	RESISTOR NETWORKS	1		
R3314	ERJ3RED750V	RESISTOR NETWORKS	1		
R3315	ERJ3RED750V	RESISTOR NETWORKS	1		
R3901	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1		
R3902	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1		
R3903	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1		
R3904	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1		
R3905	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1		
R3907	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1		
R3908	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1		
R3909	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1		
R3910	ERJ2GEJ271	M.RESISTOR CH 1/10W 270	1		
R3911	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1		

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3912	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R3913	D0GB150JA057	M.RESISTOR CH 1/10W 15	1	
R7001	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R7002	D1BD8203A119	SURFACE MOUNTING PRECISIO	1	
R7003	ERJ2RHD222	M.RESISTOR CH 1/16W 2.2K	1	
R7004	ERJ8GEYJ105V	M.RESISTOR CH 1/4W 1M	1	
R7006	ERJ2RHD471X	M.RESISTOR CH 1/16W 470	1	
R7007	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R7011	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R7015	ERJ3GEYJ560	M.RESISTOR CH 1/10W 56	1	
△ R7098	D1JBR102A006	M.RESISTOR CH 1/16W 1K	1	
RX3901	EXB28V103JX	RESISTOR NETWORKS	1	
T7001	G5DY20000025	TRANSFORMER	1	
##	VEP01A34A	BATT. CATCHER P.C.B. UNIT		(RTL) E.S.D.
C6301	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6302	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6306	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C6307	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C6308	F1G1H1020008	C.CAPACITOR CH 50V 1000P	1	
C6309	F1G1H1020008	C.CAPACITOR CH 50V 1000P	1	
C6310	F3F0J476A032	E.CAPACITOR CH 6.3V 47U	1	
FP6302	K1MY08BA0370	CONNECTOR 8P	1	
IC6301	EWTS9CVE11	IC	1	E.S.D.
IC6302	C0DBGFC00009	IC	1	E.S.D.
JK6751	K4ZZ04000049	JACK, BATTERY CATCH	1	
PS601	K1KB50AA0094	CONNECTOR 50P	1	
VA6751	D4ED18R00008	VARISTOR	1	
##	VEP20C91A	FRONT P.C.B. UNIT		(RTL) E.S.D.
C6401	F1J0J106A049	C.CAPACITOR CH 6.3V 10U	1	
D6401	B3AAB0000343	DIODE	1	E.S.D.
D6402	B3ADB0000147	DIODE	1	E.S.D.
FP6400	K1MY08BA0370	CONNECTOR 8P	1	
FP6403	K1MY33AA0199	CONNECTOR 33P	1	
IR6401	B3RBB0000013	REMOTE SENSOR	1	
Q6401	B1ADGD000005	TRANSISTOR	1	E.S.D.
QR6401	B1GBCFJK0001	TRANSISTOR	1	E.S.D.
R6402	ERJ2RKD330	M.RESISTOR CH 1/16W 33	1	
R6403	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R6412	ERJ3GEYJ390	M.RESISTOR CH 1/10W 39	1	
R6413	ERJ3GEYJ390	M.RESISTOR CH 1/10W 39	1	
R6416	ERJ2GEJ473Y	M.RESISTOR CH 1/10W 47K	1	
R6417	ERJ2GEJ472	M.RESISTOR CH 1/10W 4.7K	1	
△ ##	VEP04958A	MIC AMP P.C.B. UNIT		(RTL) E.S.D.
△ B6401	ML-614S/ZTK	BATTERY	1	[ENERGY]
C4803	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4804	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	
C4809	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4810	F1G1H680A565	C.CAPACITOR CH 50V 68P	1	
C4816	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4817	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4818	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	



Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
4	VEP20C91A	FRONT P.C.B. UNIT	1	(RTL) E.S.D.					
△ 5	VEP04958A	MIC AMP P.C.B.UNIT	1	(RTL) E.S.D.					
7	VEP06G52A	SS SW P.C.B. UNIT	1	(RTL) E.S.D.					
9	VEP04968A	MIC AMP FPC UNIT	1	(RTL) E.S.D.					
11	VYK4D22	SENSOR COVER UNIT	1						
12	VYK3Q32	COVER BOARD UNIT	1						
18	VXK1942	TOP FRAME UNIT	1						
19	VGQ0M76	PHOTO CUSHION	1						
20	KORE00800012	MULTI-BUTTON SWITCH UNIT	1						
21	VYK4D03	REAR CASE UNIT	1						
22	VEE1J34	SS WIRE	1						
23	VYK4D24	TOP CASE UNIT	1	(-K)					
23	VYK4E10	TOP CASE UNIT	1	(-H)					
24	VGU0F91	IA/OIS BUTTON	1						
27	VEP04954A	ECM FPC	1						
28	VGQ0M71	MIC CASE	1						
29	VMT1705	MIC DUMPER	1						
31	VGQ0K50	LENS ORNAMENT SHEET	1						
32	VGL1309	AF PANEL LIGHT	1						
33	VGL1326	TARY PANEL LIGHT	1						
34	N9ZZ00000415	BARRIER MOTOR UNIT	1						
35	VGQ0M73	FRONT FRAME	1						
36	VGK3646	LENS RING	1						
37	EFN-MVBH7ZC	FLASH	1						
38	VYK4D09	BARIA CASE UNIT	1						
61	VYK4D04	SIDE CASE (L) UNIT	1						
B5	XQN16+B4FJK	SCREW	1						
B6	XQN16+B4FJK	SCREW	1						
B7	XQN16+B4FJK	SCREW	1						
B11	XQN16+B4FJK	SCREW	1						
B12	XQN16+B4FJK	SCREW	1						
B13	XQN16+B4FJK	SCREW	1						
B14	VHD2189	SCREW	1						
B15	XQN16+B3FN	SCREW	1						
B16	VHD1907	SCREW	1						
B17	VHD1907	SCREW	1						
B19	XQN16+B4FJK	SCREW	1						
B22	XQN16+B4FJK	SCREW	1						
B36	XQN14+BJ45FN	SCREW	1						
B37	XQN14+BJ45FN	SCREW	1						
B38	XQN14+BJ45FN	SCREW	1						
B39	XQN14+BJ45FN	SCREW	1						
B40	XQN14+BJ45FN	SCREW	1						
B41	XQN14+BJ45FN	SCREW	1						
B42	XQN14+BJ45FN	SCREW	1						
B43	XQN14+BJ45FN	SCREW	1						
B44	XQN14+BJ45FN	SCREW	1						
B45	XQN14+BJ45FN	SCREW	1						
B47	XQN16+BJ10FN	SCREW	1						
B48	XQN16+BJ5FN	SCREW	1						
B49	XQN16+BJ5FN	SCREW	1						
B50	VHD1814	SCREW	1						
B51	VHD1814	SCREW	1						
B52	VHD1814	SCREW	1						
B53	VHD1814	SCREW	1						

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP03H98EN	MAIN P.C.B. UNIT	1	(PK) (RTL) E.S.D.					
1	VEP03H98EP	MAIN P.C.B. UNIT	1	(EBH,EBK,ECK,EFK,EGK,EPK) (RTL) E.S.D.					
1	VEP03H98EQ	MAIN P.C.B. UNIT	1	(EEK,GNK) (RTL) E.S.D.					
2	VEP03H91A	FLASH P.C.B. UNIT	1	(RTL) E.S.D.					
3	VEP01A34A	BATT. CATCHER P.C.B. UNIT	1	(RTL) E.S.D.					
6	VEP06G51A	SIDE-R P.C.B. UNIT	1	(RTL) E.S.D.					
10	VKM8654	SR COVER	1	(-K)					
10	VKM8728	SR COVER	1	(-H)					
13	VWJ2132	SIDE R OP FFC	1						
14	VYK3R04	MOS HEAT RADIATION PLATE	1						
15	VYK3Q33	LENS FRAME UNIT	1						
16	VYK3Q35	MAIN HEAT RADIATION PLATE	1						
17	VWJ2133	FRONT FFC	1						
30	VMP9681	REAR FRAME	1						
39	LOAA01A00050	SPEAKER	1						
44	VYK4D00	BATT CASE UNIT	1						
45	VYK4D34	SIDE CASE (R) UNIT	1	(PK)					
45	VYK4E13	SIDE CASE (R) UNIT	1	(EBH)					
45	VYK4D06	SIDE CASE (R) UNIT	1	(EBK,ECK,EEK,EFK,EGK,EPK, GNK)					
47	VMP9589	SP ANGLE	1						
48	L6FAG99D0020	FAN MOTOR	1						
49	VMG1928	FAN DAMPER	1						
59	VMB4353	CAPACITOR GND SPRING	1						
60	VGQ0L69	SHEET	1						
62	VYK3Q34	BOTTOM FRAME UNIT	1						
B1	XQN16+BJ7FJK	SCREW	1						
B2	XQN16+BJ7FJK	SCREW	1						
B3	XQN16+BJ4FJK	SCREW	1						
B4	XQN16+BJ4FJK	SCREW	1						
B8	XQN16+B4FJK	SCREW	1						
B9	XQN16+B4FJK	SCREW	1						
B10	XQN16+B4FJK	SCREW	1						
B18	XQN16+B4FJK	SCREW	1						
B20	XQN16+BJ4FJK	SCREW	1						
B21	XQN16+B4FJK	SCREW	1						
B23	XQN16+B4FJK	SCREW	1						
B24	XQN16+B4FJK	SCREW	1						
B25	XQN16+B4FJK	SCREW	1						
B26	VHD1907	SCREW	1						
B27	VHD1907	SCREW	1						
B28	VHD1907	SCREW	1						
B29	XQN16+BJ4FN	SCREW	1						
B30	VHD2189	SCREW	1						
B31	VHD1907	SCREW	1						
B32	VHD1907	SCREW	1						
B33	VHD1907	SCREW	1						
B34	VHD1907	SCREW	1						
B35	VHD1907	SCREW	1						
B46	XQN16+BJ4FN	SCREW	1						
B56	XQN16+BJ4FN	SCREW	1						
B57	XQN16+BJ4FN	SCREW	1						

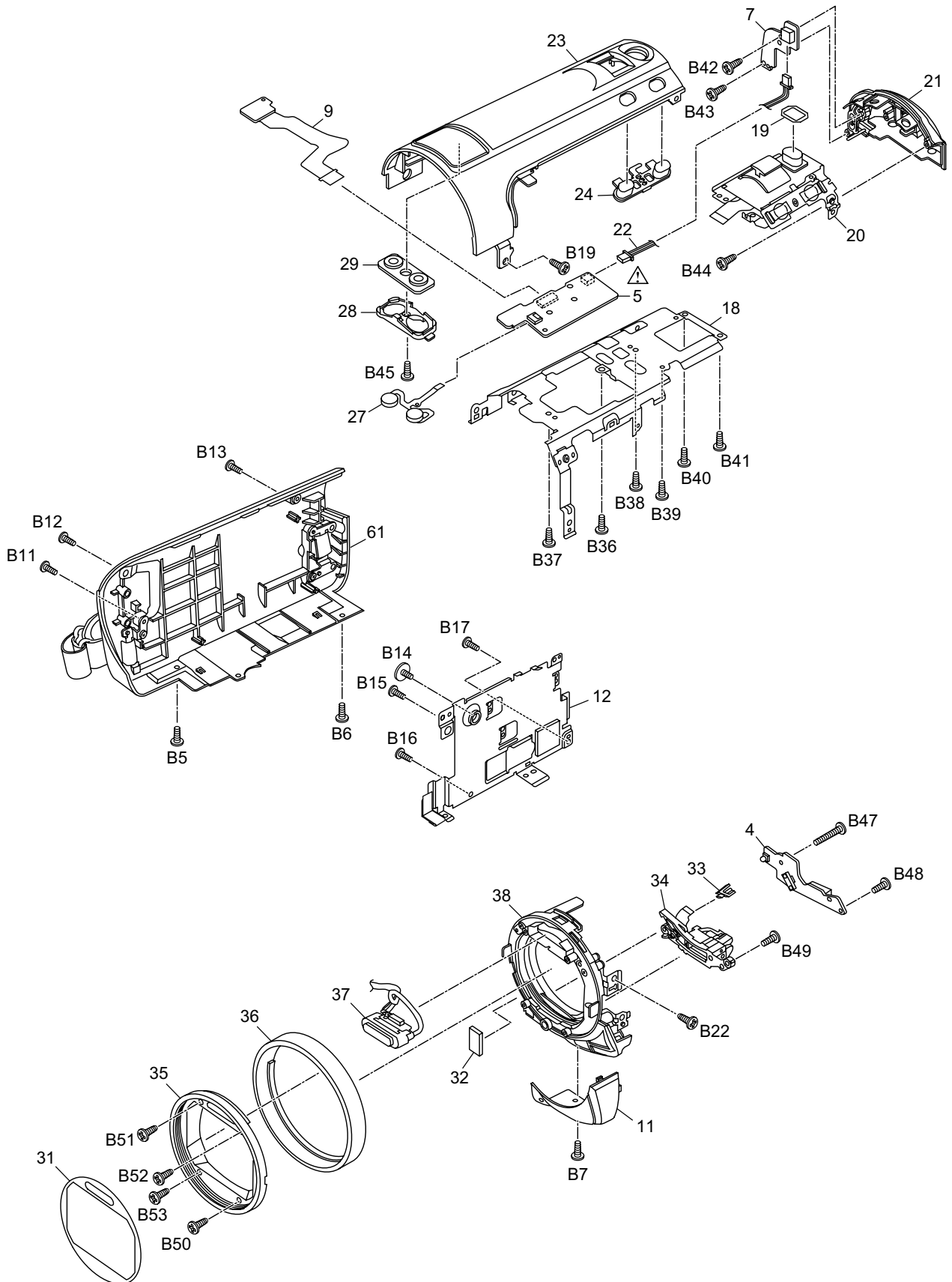




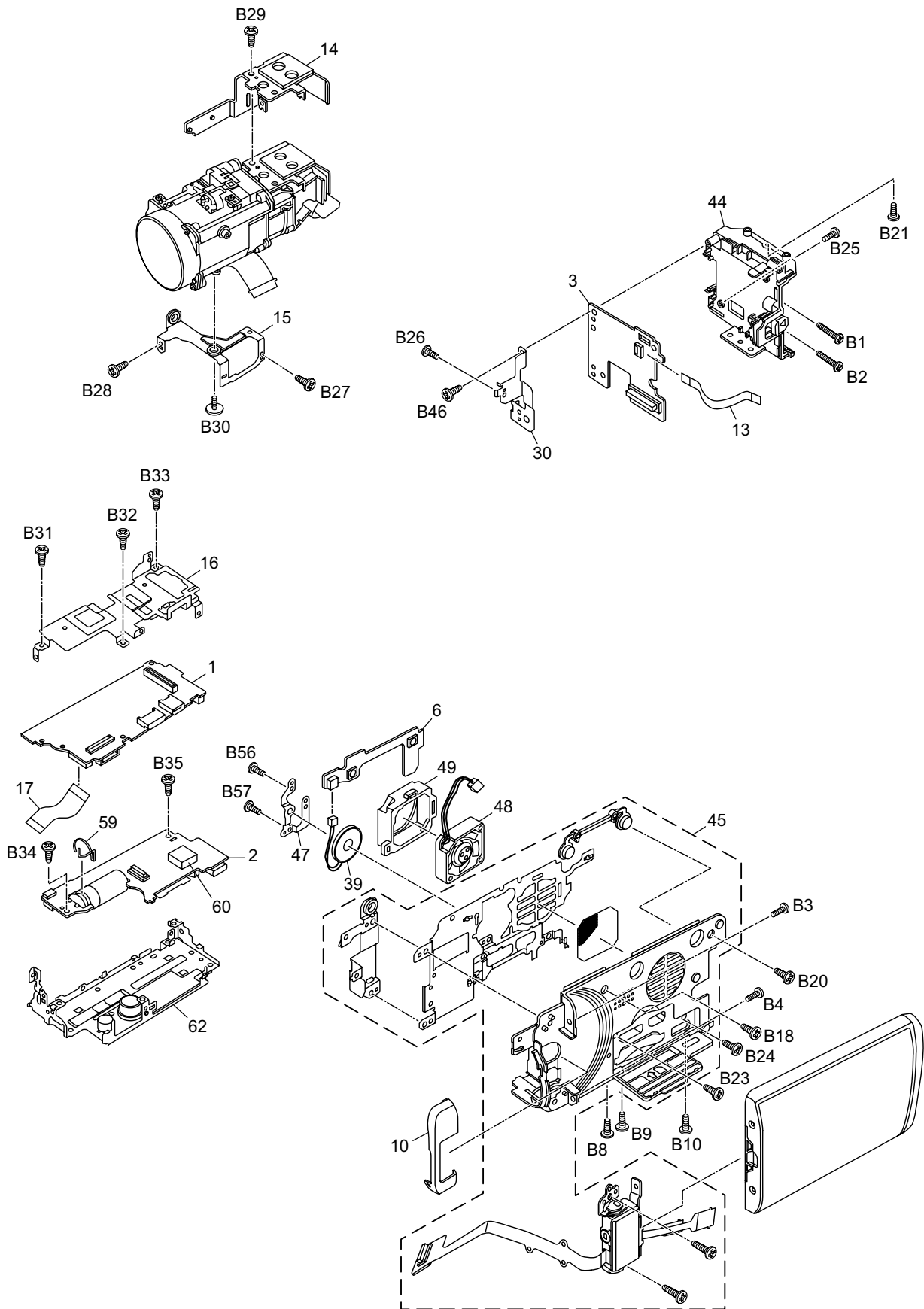


# S7. Exploded View

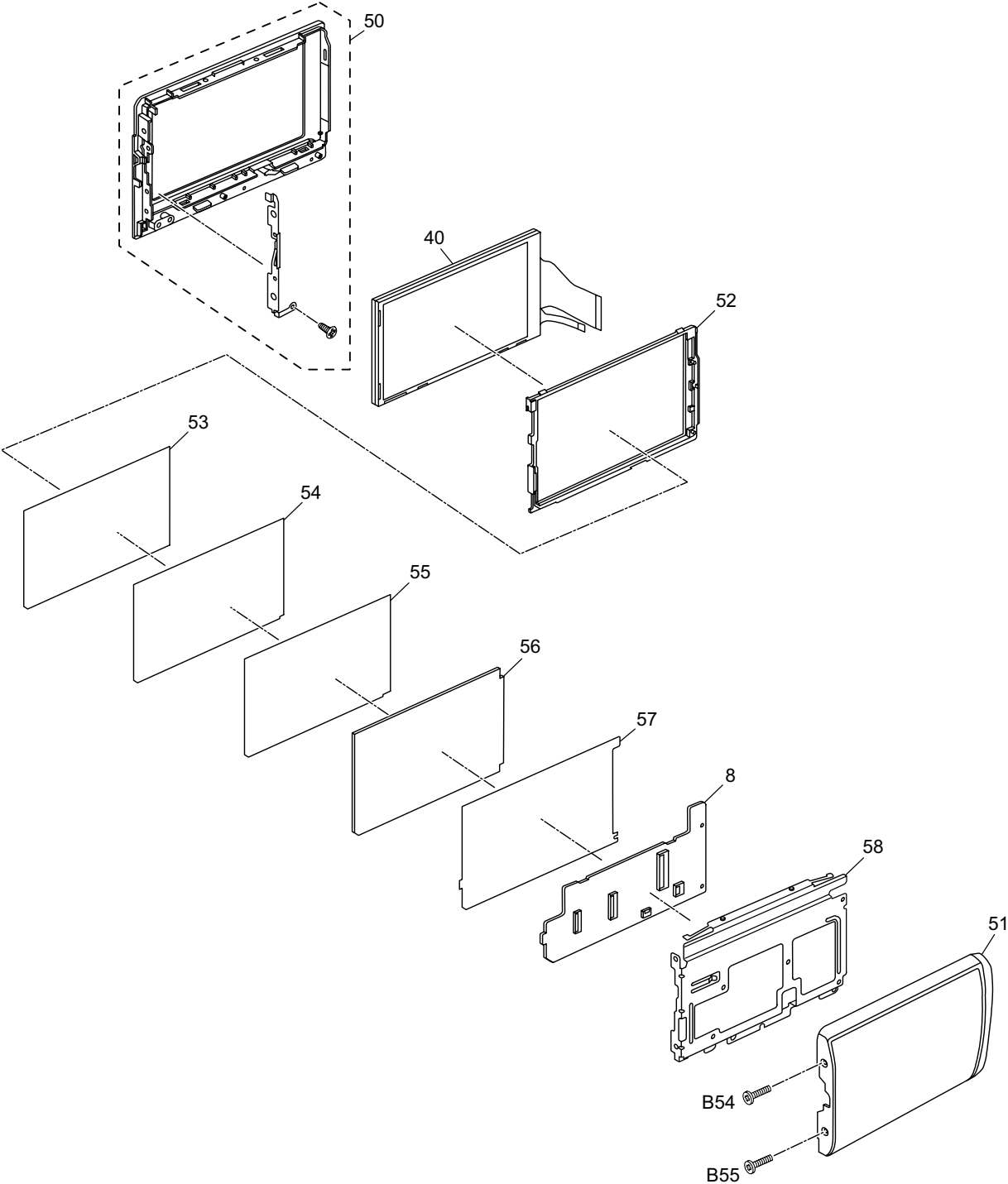
## S7.1. Frame and Casing Section (1)



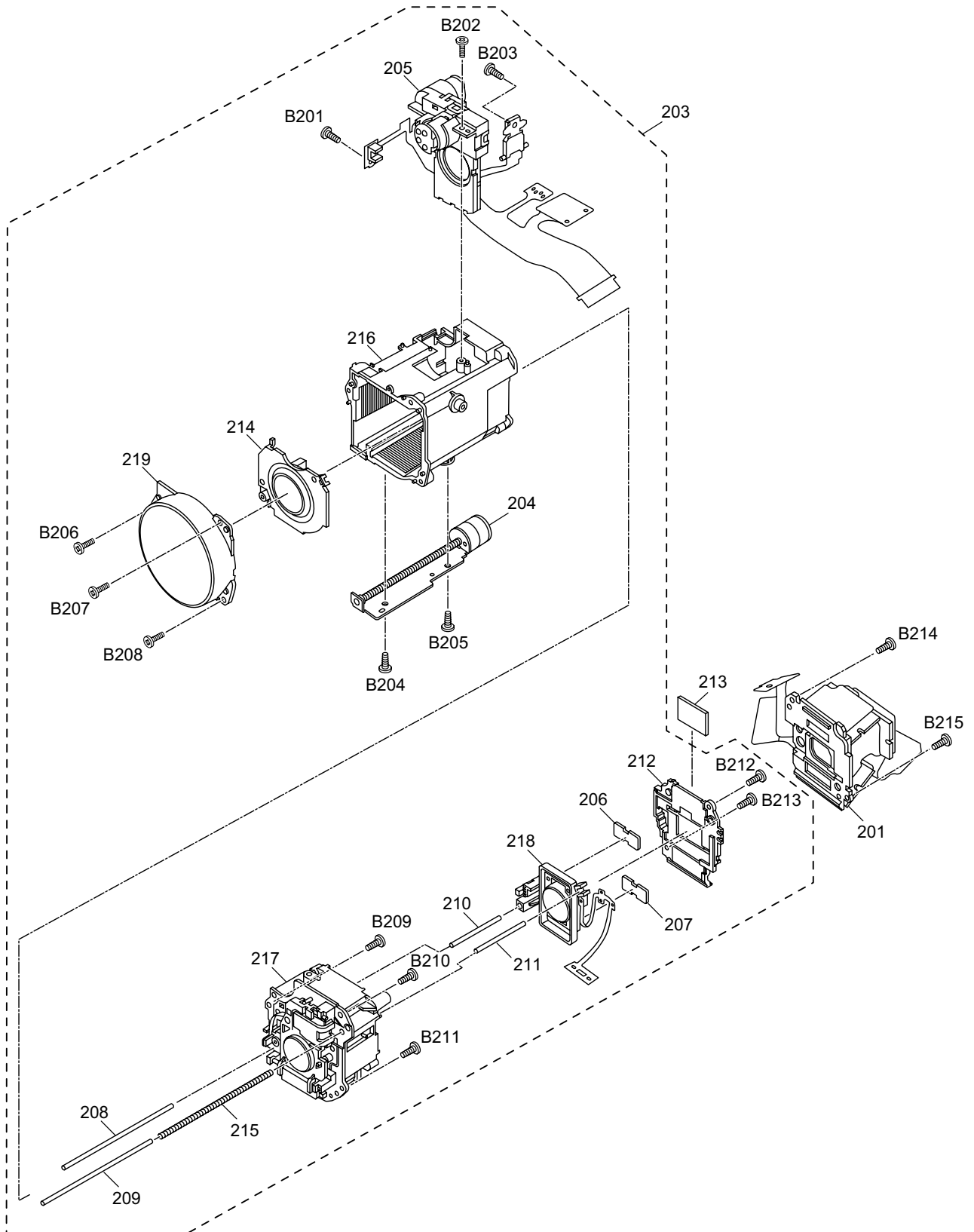
## S7.2. Frame and Casing Section (2)



### S7.3. LCD Section



## S7.4. Camera Lens Section



## S7.5. Packing Parts and Accessories Section

