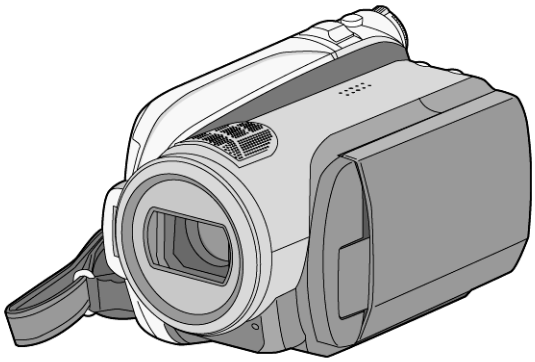
ORDER NO. VM0802007CE
B27

# Service Manual

## High Definition Video Camera



Model No. **HDC-HS9P**
**HDC-HS9PC**
**HDC-HS9PL**
**HDC-HS9E**
**HDC-HS9EB**
**HDC-HS9EE**
**HDC-HS9EG**
**HDC-HS9EP**
**HDC-HS9GC**
**HDC-HS9GK**
**HDC-HS9GN**
**HDC-HS9SG**

Vol. 1
Colour
(S).....Silver Type

**⚠ WARNING**

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

Panasonic

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# TABLE OF CONTENTS



PAGE

# 1 Safety Precaution

## 1.1. General Guidelines

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by

   ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## 1.2. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 MΩ and 5.2 MΩ. 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 kΩ, 10 W resistor, in parallel with a 0.15 μF 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 kΩ/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

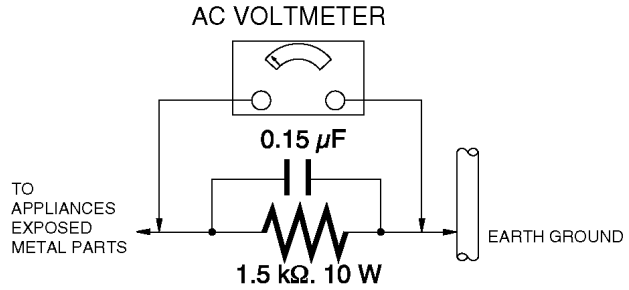



Figure. 1

## 1.4. How to Discharge the Capacitor on Flash PCB

**CAUTION:**

1. **Be sure to discharge the capacitor on FLASH PCB.**
2. **Be careful of the high voltage circuit on FLASH PCB when servicing.**

**[Discharging Procedure]**

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

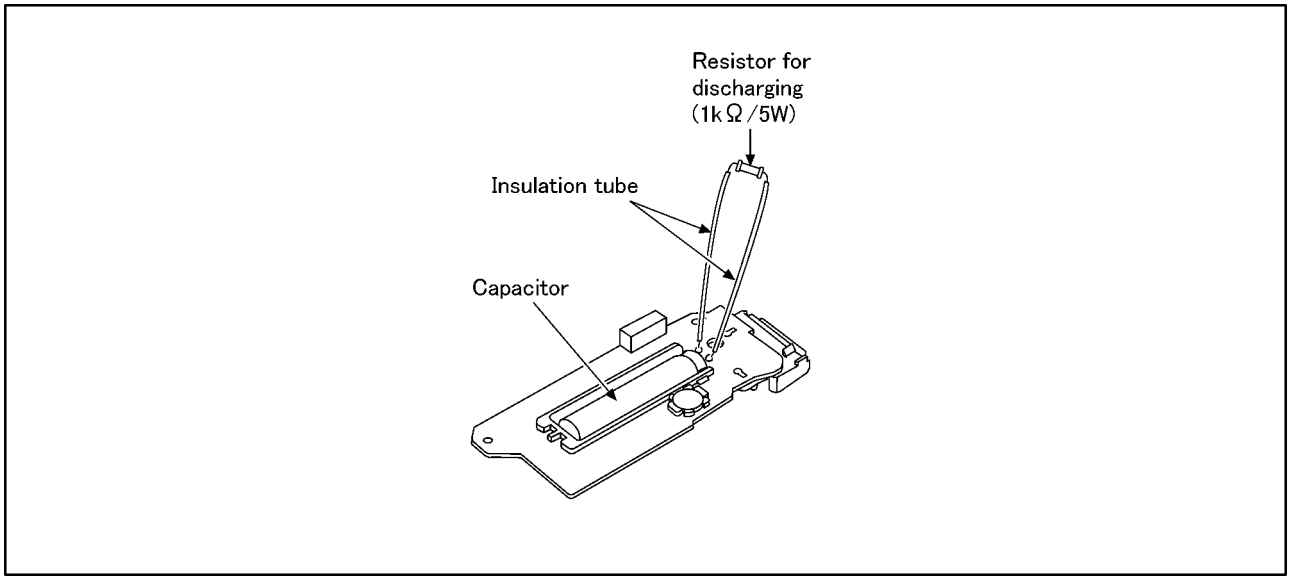



Fig. F1

# 2 Warning

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

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

| ASTA mark | BSI mark |
|---|---|

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 safety.
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.

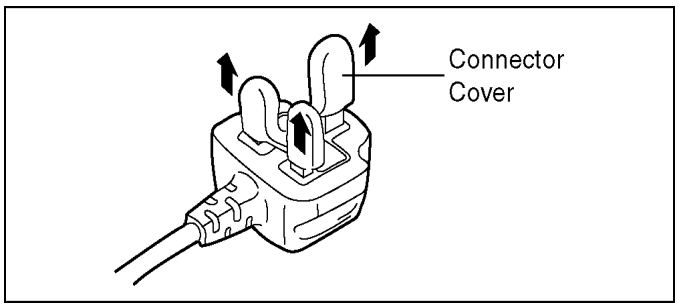
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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.

| Earth Symbol | ⏚ |
|---|---|

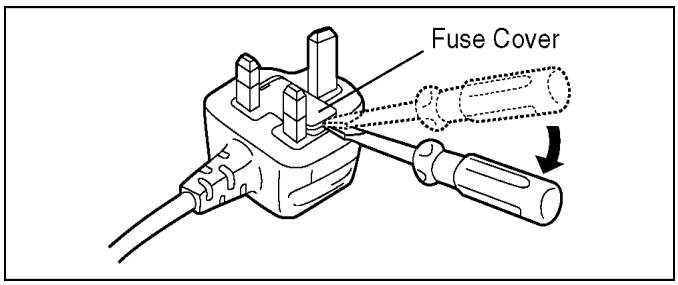
### 2.3.2.2. Before Use

Remove the Connector Cover as follows.

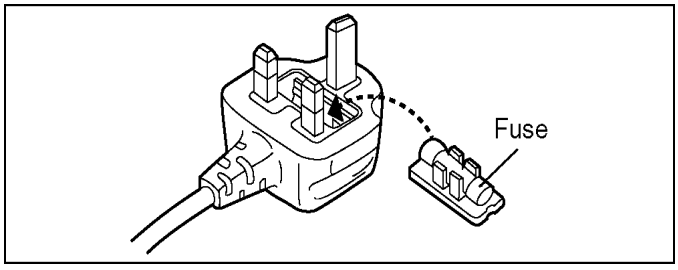



### 2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



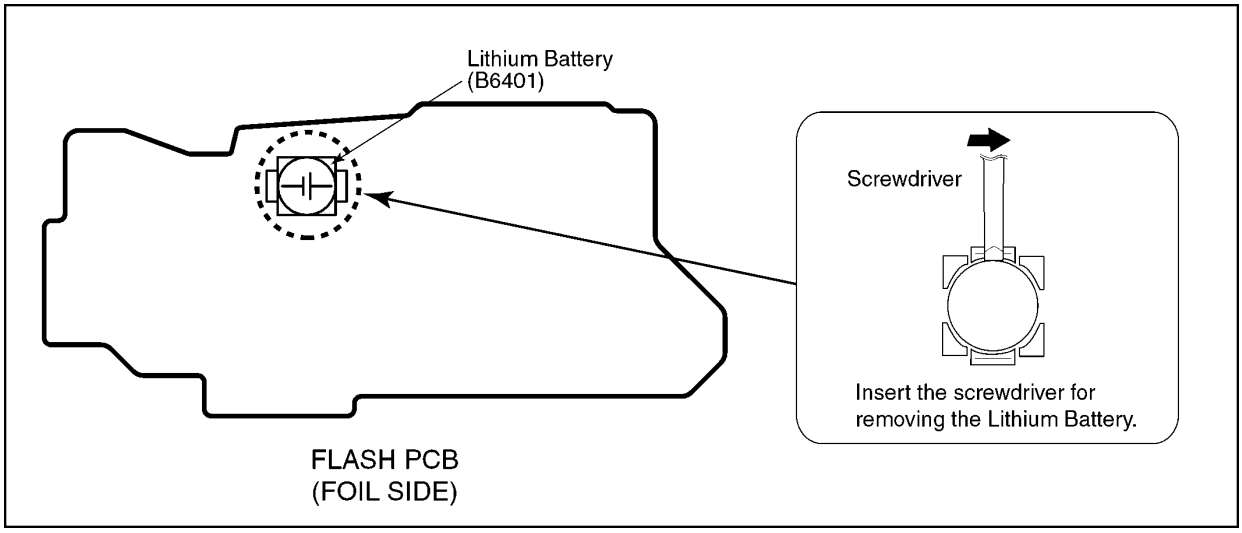

2. Replace the fuse and attach the Fuse cover.



## 2.4. How to Replace the Lithium Battery

### 2.4.1. Replacement Procedure

1. Remove the FLASH PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. “B6401” at component side of FLASH PCB) and then replace it into new one.




**NOTE:**

This Lithium battery is a critical component.
(Type No.: ML-614S/ZT **Manufactured by Matsushita Battery Industrial Co.,Ltd.**)
It must never be subjected to excessive heat or discharge.
It must therefore only be fitted in requirement designed specifically for its use.
Replacement batteries must be of same type and manufacture.
They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.
Do not attempt to re-charge the old battery or re-use it for any other purpose.
It should be disposed of in waste products destined for burial rather than incineration.

**(For English)**

**CAUTION**

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer’s instructions.

**(For German)**

**ACHTUNG**

Explosionsgefahr bei falschem Anbringen der Batterie. Ersetzen Sie nur mit einem äquivalentem vom Hersteller empfohlenem Typ.
Behandeln Sie gebrauchte Batterien nach den Anweisungen des Herstellers.

**(For French)**

**MISE EN GARDE**

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

**NOTE:**

Above caution is applicable for a battery pack which is for HDC-HS9 series, as well.

1. Battery Pack for this model.
2. Button-type battery for Remote controller (CR2025: Being supplied from MBI)

   **NOTE:**

   “MBI” stans for Matsushita Battery Industrial Co., Ltd.

# 3 Service Navigation

## 3.1. Introduction

This service manual contains technical information, which allow service personnel's to understand and service this model.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, the information will be followed by service manual to be controlled with original service manual.

## 3.2. General Description About Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.
The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30°C (86°F) more than that of the normal solder.

**Distinction of PCB Lead Free Solder being used**

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

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

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

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

- The following 3 types of lead free solder are available through the service parts route.
  RFKZ03D01K----------(0.3mm 100g Reel)
  RFKZ06D01K----------(0.6mm 100g Reel)
  RFKZ10D01K----------(1.0mm 100g Reel)

**Note**

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

## 3.3. Important Notice 1:(Other than U.S.A. and Canadian Market)

1. The service manual does not contain the following information, because of the impossibility of servicing at component level without concerned equipment/facilites.
   a. Schematic diagram, Block Diagram and PCB layout of MAIN PCB.
   b. Parts list for individual parts for MAIN PCB.
   When a part replacement is required for repairing MAIN PCB, replace as an assembled parts. (Main PCB)
2. The following category is /are recycle module part. Please send it/them to Central Repair Center.
   - MAIN PCB (VEP03H43B : HDC-HS9P/PC/PL)
   - MAIN PCB (VEP03H43C : HDC-HS9E/EG)
   - MAIN PCB (VEP03H43N : HDC-HS9EB)
   - MAIN PCB (VEP03H43E : HDC-HS9EE)
   - MAIN PCB (VEP03H43P : HDC-HS9EP)
   - MAIN PCB (VEP03H43D : HDC-HS9GC/SG)
   - MAIN PCB (VEP03H43R : HDC-HS9GN)
   - MAIN PCB (VEP03H43F : HDC-HS9GK)

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

There are six kinds of HDC-HS9.

- a) HDC-HS9S
- b) HDC-HS9P
- c) HDC-HS9PC
- d) HDC-HS9E/EB/EG/EP/GC/GN/SG
- e) HDC-HS9EE
- c) HDC-HS9PL/GK

(HDC-HS9S is exclusively Japan domestic model.)

What is the difference is that the “INITIAL SETTING” 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 rating label which is putted on the bottom side of the Unit.

**a) HDC-HS9S**

HDC-HS9S is exclusively Japan domestic model.

**b) HDC-HS9P**

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


**c) HDC-HS9PC**

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


**d) HDC-HS9E/EB/EG/EP/GC/GN/SG**

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

**e) HDC-HS9EE**

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

**f) HDC-HS9PL/GK**

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

**NOTE:**

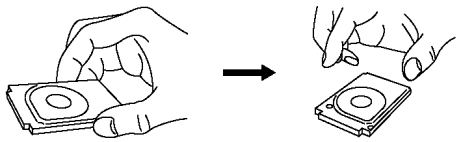
After replacing the MAIN PCB, be sure to achieve adjustment.

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

## 3.5. Precautions for Handling HDD

1. Handle HDD very carefully to prevent the static electricity and shock.
2. Set the HDD quickly after taking it out from the package. Make sure to put the HDD on buffer materials, etc.

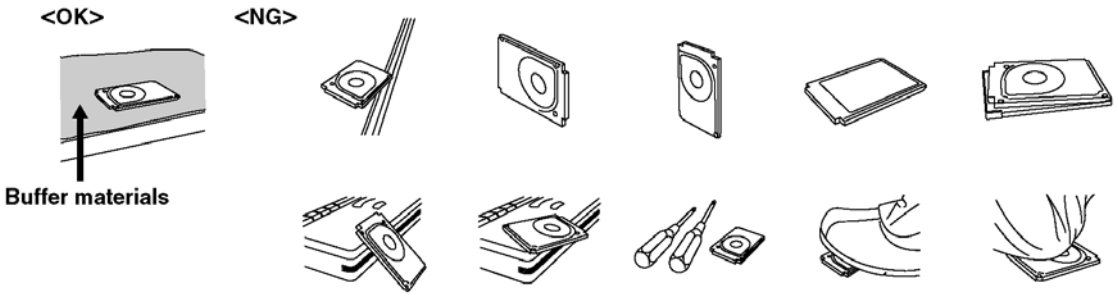
### 3.5.1. Precautions at incoming process and for opening packages

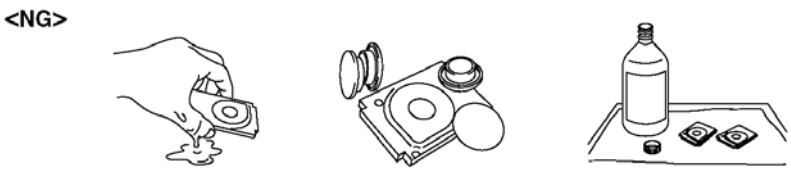
| | |
|---|---|
| Preventing shock | ▪ Do not throw down HDD from luggage carrier or avoid dropping accidentally when unloading. The HDD may not be reliable when impacts of dropping, throwing or rolling occur.<br>▪ Avoid HDD hitting other equipment or other HDD. Hold HDD firmly but do not apply excessive force when taking out from the package because it is particulars slippery.<br>▪ When taking out HDD from the package, make sure to put buffer materials such as conductive urethane materials on a work table. Also, a stable place is recommended to avoid impacts or vibration. |
| Preventing condensation | ▪ To prevent dew condensation on HDD due to sharp temperature change, keep it indoors without unpacking, and adjust the package of HDD to room temperature completely before unpacking.<br>▪ Avoid entrance or window areas where temperature changes easily for storage. |
| Holding example | ▪ Take out HDD holding both sides, not to press the top cover and the center of the device label.<br><OK><br>  <br>Don't drop!<br><NG><br>  |
| Preventing static electricity | ▪ After opening package, HDD must be handled only by a specified worker in E.S.D.* free environment on a conductive mat.<br>It may cause damage on HDD components due to overvoltage such as electrostatic discharge, etc. |

*E.S.D. = Electrostatically Sensitive Devices

## 3.5.2. Precautions for installing HDD

<table>
<tr><td>Preventing static electricity</td><td>
• HDD may be destroyed by static electricity charged to clothes or human body. Place a conductive mat with removed earthing and use the wrist strap to prevent static charge.<br>

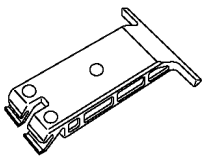

</td></tr>
<tr><td>Preventing shock</td><td>
• Place HDD with its face upward (the device label upward) on the flat and stable surface using buffer materials, etc.<br>
• Do not stand HDD. If it falls down, the excessive impacts may damage HDD.<br>
• Do not store or carry HDD close to other HDD or other components. The components may be distorted due to impacts or weight, which may result in the performance deterioration of the HDD.<br>
• Do not put HDD in the working area. Do not put HDD close to industrial tools in particular or temporarily put it on the floor.<br>
• Be extremely careful not to drop HDD when working on it because even dropping HDD down on the work table with a mat on it may cause damage to HDD.<br>


</td></tr>
<tr><td>No water / solvent</td><td>
• Do not hold HDD with a wet hand or put magnets, solvent, tea, coffee, etc, close to HDD.<br>
This affects internal components and outside of HDD<br>


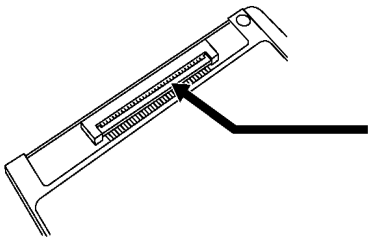
</td></tr>
<tr><td>Connector</td><td>
• The interface connector pin is easily damaged. Push it lightly and firmly to the end along the connector guide.<br>
• For further details, refer to "Precautions for inserting and removing HDD FPC".
</td></tr>
</table>

## 3.5.3. Precautions for inserting and removing HDD FPC

**Make sure to use the tool (LSVQ0112) when locking and unlocking the lock lever of HDD FPC connector.**
**Do not lock the lock lever without inserting HDD FPC. Otherwise, the connector may be damaged.**



(LSVQ0112)

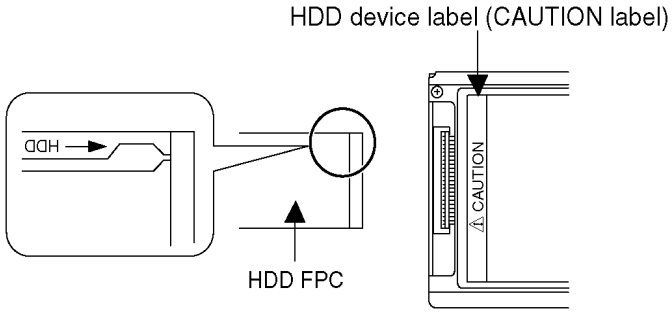



*The lock lever is open on initial condition.

### Insert HDD FPC

① Place HDD so that HDD device label (CAUTION label) faces up.
**Caution:** Do not set the HDD cushion when installing HDD FPC.

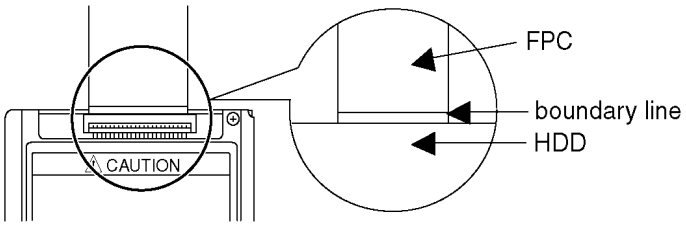
② Insert HDD FPC straight to the connector, and make sure if HDD FPC has been inserted to the end.
**Caution:** The connector surface of HDD FPC must face down and the letter "HDD" and the arrow must be seen as shown.



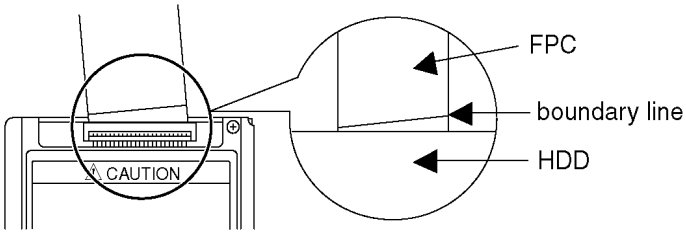

### Check HDD FPC

**Make sure if HDD FPC has been correctly inserted by confirming the FPC pattern boundary line.**

**<OK>**

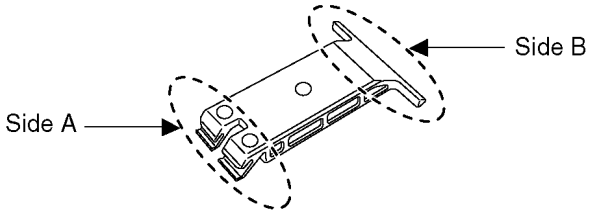



**<NG>**



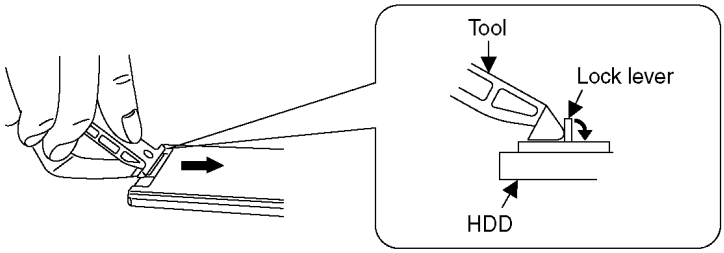
**Tool operation**

Lock using the tool after inserting HDD FPC.



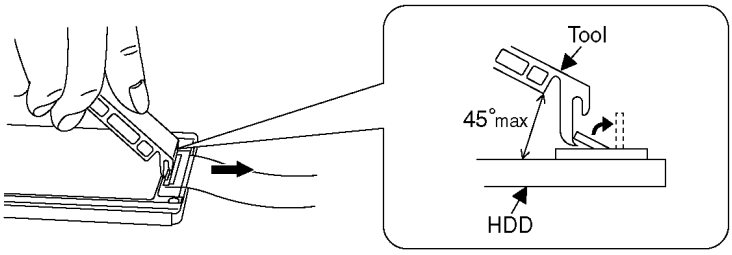

**<How to lock>**

After inserting HDD FPC, put the tool (Side B) on the connector and slide it slightly to the direction as shown to lock the lock lever.




**<How to unlock>**

Hook up the tip of the tool (Side A) and unlock the lock lever.
The angle of the tool must be less than 45 degree.




Make sure to use the tool (LSVQ0112) when opening and closing the lock lever.
When install the HDD to main unit, necessary install the HDD FPC and HDD cushion.

## 3.6. Formatting HDD

When HDD is exchanged, format HDD as the procedure below

**Formatting**

**Please be aware that if a HDD is formatted, then all the data recorded on the HDD will be erased. Back up important data on a PC, DVD disc etc.**

**■ Formatting HDD**

**◇Select [ ⛁ ] tab while the mode dial is set to ▶ .**

***1*** **Select the menu.**

**[SETUP] → [FORMAT HDD] → [YES]**

- When the confirmation message appears, select [YES], then press the cursor button.
- When formatting is complete, press the MENU button to exit the message screen.

# 4 Specifications

**High Definition Video Camera**
Information for your safety

| | |
|---|---|
| **Power source:** | DC 9.3 V (When using AC adaptor)<br>DC 7.2 V (When using battery) |
| **Power consumption:** | Recording: 6.8 W |

| | |
|---|---|
| **Signal system** | 1080/60i (P/PC/PL areas), 1080/50i (other areas) |
| **Recording format** | AVCHD format compliant |
| **Image sensor** | 1/6" 3CCD image sensor<br>Total: 560 K ×3<br>Effective pixels:<br>Motion picture: 520 K ×3<br>Still picture: 520 K ×3 |
| **Lens** | Auto Iris, F1.8 to F2.8<br>Focal length:<br>3.0 mm to 30.0 mm<br>Macro (Full range AF) |
| **Filter diameter** | 37 mm |
| **Zoom** | 10 × optical zoom, 25 ×/700 × digital zoom |
| **Monitor** | 2.7" wide LCD monitor (approx. 300 K pixels) |
| **Microphone** | 5.1 channel surround microphone (with a zoom microphone/focus microphone function) |
| **Speaker** | 1 round speaker ϕ 20 mm |
| **White balance adjustment** | Auto tracking white balance system |
| **Standard illumination** | 1,400 lx |
| **Minimum required illumination** | Approx. 5 lx (1/30 in Low light mode) (P/PC/PL areas)<br>Approx. 1 lx with the MagicPix function (P/PC/PL areas)<br>Approx. 5 lx (1/25 in Low light mode) (other areas)<br>Approx. 1 lx with the colour night view function (other areas) |
| **A/V terminal video output level** | 1.0 Vp-p, 75Ω , NTSC system (P/PC/PL areas)<br>1.0 Vp-p, 75Ω , PAL system (other areas) |
| **Component terminal video output level** | Y: 1.0 Vp-p, 75 Ω<br>Pb: 0.7 Vp-p, 75 Ω<br>Pr: 0.7 Vp-p, 75 Ω |
| **HDMI mini connector video output level** | HDMI™ (x.v.Color™) 1125i (1080i)/525p (480p) (P/PC/PL areas)<br>HDMI™ (x.v.Color™) 1125i (1080i)/625p (576p) (other areas) |
| **A/V terminal audio output level (Line)** | 316 mV, 600Ω , 2 ch |
| **HDMI mini connector audio output level** | 5.1 ch (AC3)/2 ch (Linear PCM) |
| **USB** | Reader/writer function:<br>SD card: Read/Write (No copyright protection support)<br>HDD: Read only<br>Hi-Speed USB (USB 2.0), USB terminal Type Mini AB<br>PictBridge-compliant |
| **Flash** | Available range: Approx. 1.0 m to 2.5 m (3.3 feet to 8.2 feet) |
| **Dimensions** | 75 mm (W)× 74 mm (H)× 126 mm (D)<br>[2.953" (W)× 2.913" (H)× 4.96" (D)]<br>(excluding projecting parts) |
| **Mass (Weight)** | Approx. 390 g (Approx. 0.86 lbs.)<br>[without battery (supplied) and an SD card (optional)] |
| **Mass (Weight) in operation** | Approx. 452 g (Approx. 0.997 lbs.)<br>[with battery (supplied) and an SD card (optional)] |
| **Operating temperature** | 0 °C to 40 °C (32 °F to 104 °F) |
| **Operating humidity** | 10% to 80% |
| **Battery operation time** | Refer to "Recording time". |

**Motion pictures**

| | |
|---|---|
| **Recording media** | **SD Memory Card:**<br>1 GB, 2 GB (FAT12 and FAT16 system compliant)<br>**SDHC Memory Card:**<br>4 GB, 8 GB, 16 GB (FAT32 system compliant)<br>**HDD:**<br>60 GB |
| **Compression** | MPEG-4 AVC/H.264 |
| **Recording mode and transfer rate** | HA: Approx. 17 Mbps (VBR)<br>HG: Approx. 13 Mbps (VBR)<br>HX: Approx. 9 Mbps (VBR)<br>HE: Approx. 6 Mbps (VBR)<br>Refer to "Recording modes/approximate recordable time". |
| **Picture size** | (P/PC/PL areas)<br>HA/HG: 1920 ×1080/60i, 1920 ×1080/24p<br>HX: 1920 ×1080/60i<br>HE: 1440 ×1080/60i<br>(other areas)<br>HA/HG: 1920 ×1080/50i, 1920 ×1080/25p<br>HX: 1920 ×1080/50i<br>HE: 1440 ×1080/50i |
| **Audio compression** | Dolby Digital (Dolby AC3)/5.1 ch |

**Still pictures**

| | |
|---|---|
| **Recording media** | **SD Memory Card:**<br>8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB (FAT12 and FAT16 system corresponding)<br>**SDHC Memory Card:**<br>4 GB, 8 GB, 16 GB (FAT32 system corresponding)<br>**HDD:**<br>60 GB |
| **Compression** | JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding |
| **Picture size** | 1920 ×1080<br>Refer to "Number of recordable pictures". |

**AC adaptor**
Information for your safety

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

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

Specifications may change without prior notice.

## ■ Recording time

| Battery model number | Voltage/ capacity | Recording destination | Maximum continuously recordable time | Actual recordable time |
|---|---|---|---|---|
| Supplied battery/ VW-VBG130 (optional) | 7.2 V/ 1320 mAh | SD | 1 h 45 min | 1 h 5 min |
| | | HDD | 1 h 35 min | 1 h |
| VW-VBG260 (optional) | 7.2 V/ 2640 mAh | SD | 3 h 10 min | 2 h |
| | | HDD | 3 h | 1 h 50 min |
| VW-VBG6 (optional)* | 7.2 V/ 5800 mAh | SD | 8 h | 4 h 55 min |
| | | HDD | 7 h 30 min (HE mode: 7 h 35 min) | 4 h 35 min (HE mode: 4 h 40 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. The charging time may vary depending on how the battery has been used. The charging time for the battery in hot/ cold environments or a battery that has not been used for long time may be longer than normal.

## ■ Recording modes/approximate recordable time

| | Capacity | HA*1 | HG*2 | HX*3 | HE*4 |
|---|---|---|---|---|---|
| SD card | 1 GB | 7 min | 9 min | 14 min | 21 min |
| | 2 GB | 15 min | 20 min | 30 min | 45 min |
| | 4 GB | 30 min | 40 min | 1 h | 1 h 30 min |
| | 8 GB | 1 h | 1 h 20 min | 2 h | 3 h |
| | 16 GB | 2 h | 2 h 40 min | 4 h | 6 h |
| HDD | 60 GB | 7 h 40 min | 10 h 10 min | 15 h 20 min | 23 h |

*1 HA (1920×1080): Motion pictures can be recorded with the highest picture quality.*
*2 HG (1920×1080): Motion pictures can be recorded with high picture quality.
*3 HX (1920×1080): Motion pictures can be recorded with normal picture quality.
*4 HE (1440×1080): Motion pictures can be recorded for a longer time.
* This means the highest quality for this unit.

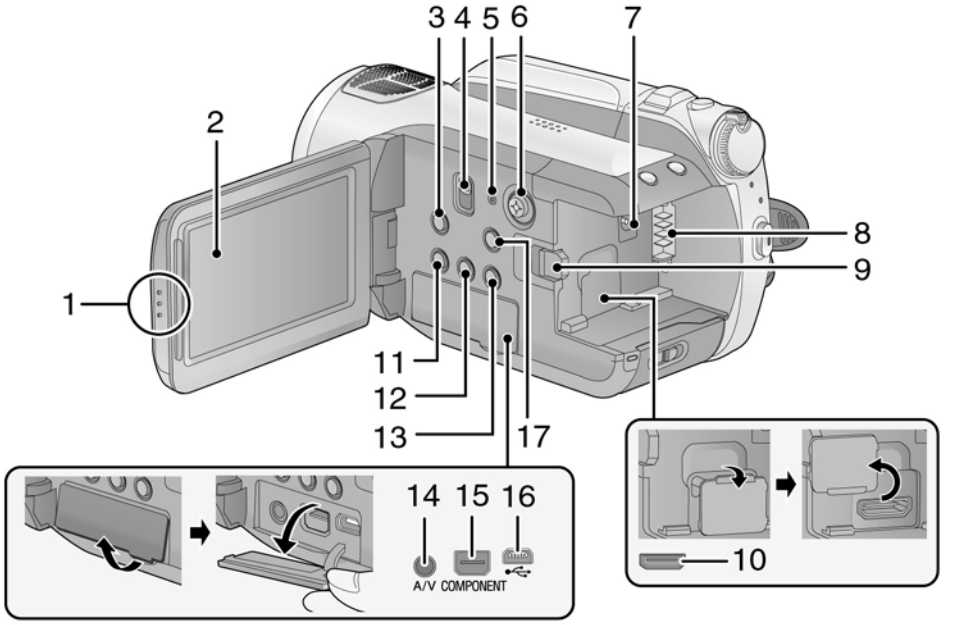
## ■ Number of recordable pictures

| | Picture size | 2.1M (1920×1080) | |
|---|---|---|---|
| | Picture quality | | |
| SD card | 8 MB | 4 | 6 |
| | 16 MB | 10 | 17 |
| | 32 MB | 20 | 32 |
| | 64 MB | 47 | 74 |
| | 128 MB | 94 | 150 |
| | 256 MB | 200 | 320 |
| | 512 MB | 410 | 640 |
| | 1 GB | 820 | 1290 |
| | 2 GB | 1670 | 2630 |
| | 4 GB | 3290 | 5160 |
| | 8 GB | 6690 | 10520 |
| | 16 GB | 13470 | 21170 |
| HDD | 60 GB | 55470 | 87170 |

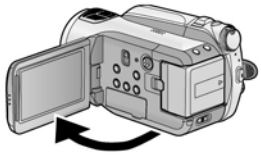
- **The number of recordable pictures depends on whether [ ] and [ ] are used together and on the subject being recorded.**
- The numbers shown in the table are approximations.

# 5 Location of Controls and Components

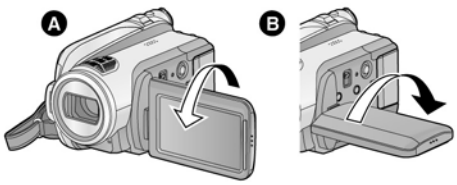
## Parts identification and handling




**1 LCD monitor open part**
**2 LCD monitor**
Pull the LCD monitor out in the direction of the arrow with your fingers.



- It can open up to 90°.




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

**3 Optical image stabilizer button [, O.I.S.]**
**4 Mode select switch [AUTO/MANUAL/ FOCUS]**
**5 Reset button [RESET]**
**6 Cursor button**
Use the cursor button to select the recording functions and playback operations, and to operate the menu screen.

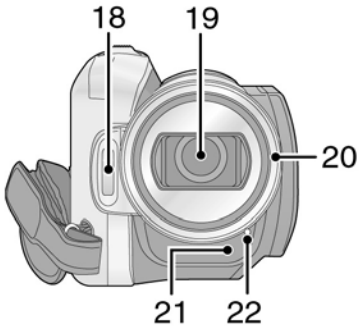

❶ Select by moving up, down, left, right.
❷ Set by pressing the center.
- Menu screen operations

- To select the recording functions
- To adjust manually
- Playback operations

**7 DC input terminal [DC IN 9.3V]**
**8 Battery holder**
**9 Battery release lever [BATTERY]**
**10 HDMI mini connector [HDMI]**
**11 Disc copy button [DISC COPY]**
**12 Power LCD Extra button [POWER LCD EXTRA]**
**13 Delete button [ 🗑 ]**
**14 Audio-video output terminal [A/V]**

- Use the supplied AV cable only.

**15 Component terminal [COMPONENT]**
**16 USB terminal [⇐]**
**17 Menu button [MENU]**

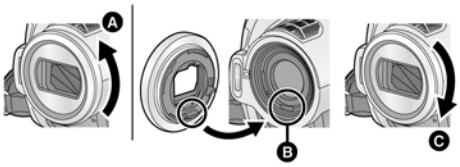



**18 Built-in flash**
**19 Lens (LEICA DICOMAR)**

### Lens cover Ⓐ


- The lens cover opens in HDD or SD card recording mode.

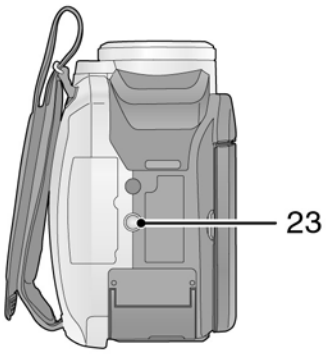
**20 Lens hood**
Rotate the lens hood counter-clockwise Ⓐ to remove it. In order to attach it, place into slot Ⓑ, and then rotate it clockwise Ⓒ.



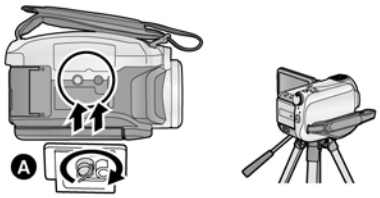

- When fitting the tele conversion lens (VW-T3714H; optional) or the wide conversion lens (VW-W3707H; optional), first remove the lens hood.

**Be careful about the following.**
When 2 lens accessories, such as the ND filter and tele conversion lens, are fitted and the zoom lever is pressed toward the W side, the 4 corners of an image will be darkened. (Vignetting)
(When fitting 2 lens accessories, first remove the lens hood and then fit them.)

**21 Remote control sensor**
**22 Recording lamp**

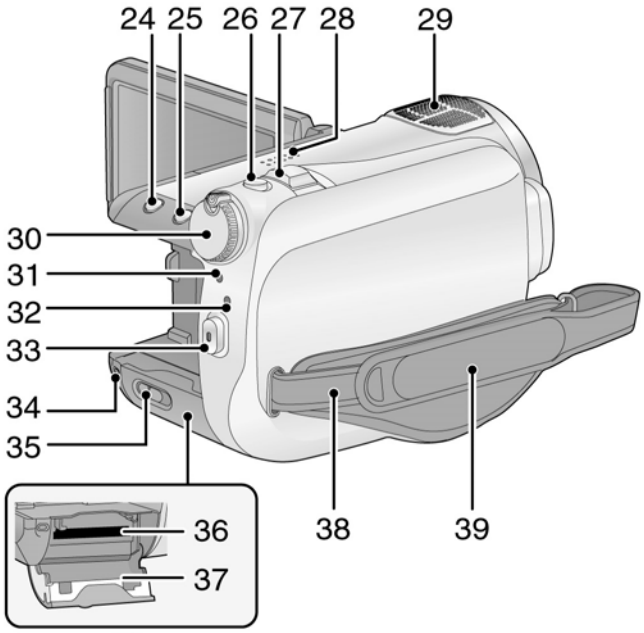



**23 Tripod receptacle**
This is a hole for attaching the unit to the optional tripod. (For details on mounting the tripod, refer to the operating instructions for the tripod.)



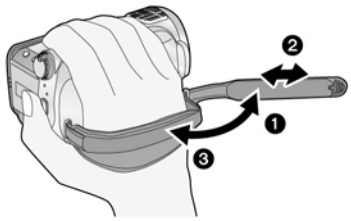

Ⓐ Camera base

- The SD card cover cannot be opened when the tripod is used.



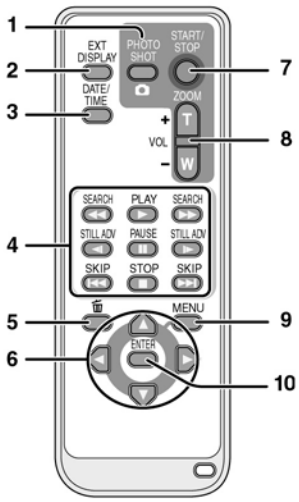

**24 Face detection button [ ]**
**25 PRE-REC button [PRE-REC]**
**26 Photoshot button [ ]**
**27 Zoom lever [W/T] (In recording mode)**
**Volume lever [−VOL+] (In playback mode)**
**28 Speaker**
**29 Internal microphones (5.1 channel support)**
**30 Mode dial**
**31 Status indicator**
**32 HDD access lamp [ACCESS HDD]**
**33 Recording start/stop button**
**34 Card access lamp [ACCESS]**
**35 SD card open lever [SD CARD OPEN]**
**36 Card slot**
**37 SD card cover**
**38 Shoulder strap fixture**

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




❶ Flip the belt.
❷ Adjust the length.
❸ Replace the belt.

## Remote control

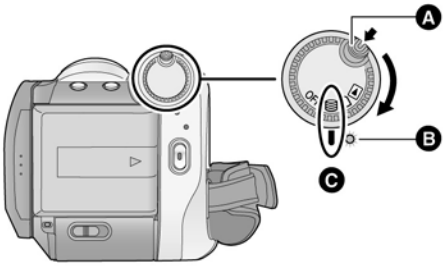



**1 Photoshot button [ ]***
**2 On-screen display button [EXT DISPLAY]**
**3 Date/time button [DATE/TIME]**
**4 Playback operation buttons**
**5 Delete button [ ]***
**6 Direction buttons [▲,▼,◄,►]**
These buttons operate similar to how the cursor button moves up/down/right/left on the unit.
**7 Recording start/stop button [START/ STOP]***
**8 Zoom/volume buttons [ZOOM, VOL]***
**9 Menu button [MENU]***
**10 Enter button [ENTER]**
This button operates similar to pressing the cursor button on the unit.
* means that these buttons function in the same manner as the corresponding buttons on the unit.

# Selecting a mode (Turning the unit on/off)

Rotate the mode dial to switch to HDD recording, card recording, playback or power OFF.

**Turn on the power by turning the mode dial to , or while pressing the lock release button Ⓐ.**




- Rotate the mode dial while at the same time pressing in the lock release button if changing from OFF to another mode.
- Status indicator Ⓑ
- Align with the mark Ⓒ.

The status indicator lights and the power turns on.
- When the unit is turned on for the first time, a message asking you to set the date and time will appear. Select [YES] and set the date and time.

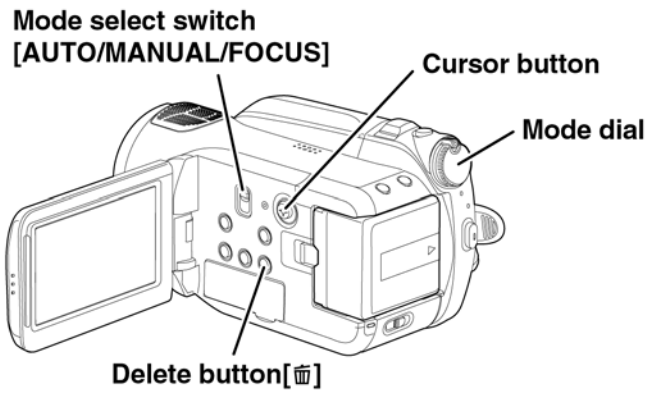
***To turn off the power***

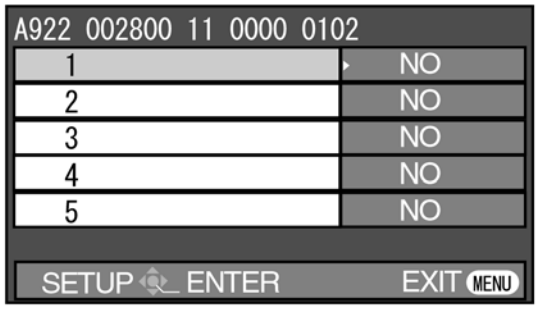
Set the mode dial to OFF.
The status indicator goes off and the power turns off.

| | |
|---|---|
| | **HDD Recording mode** |
| | **Card Recording mode** |
| | **Playback mode** |
| **OFF** | |

# 6 Service Mode

1. **Indication method of the service menu**
   Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.




Top screen of the service menu

**Service mode menu**

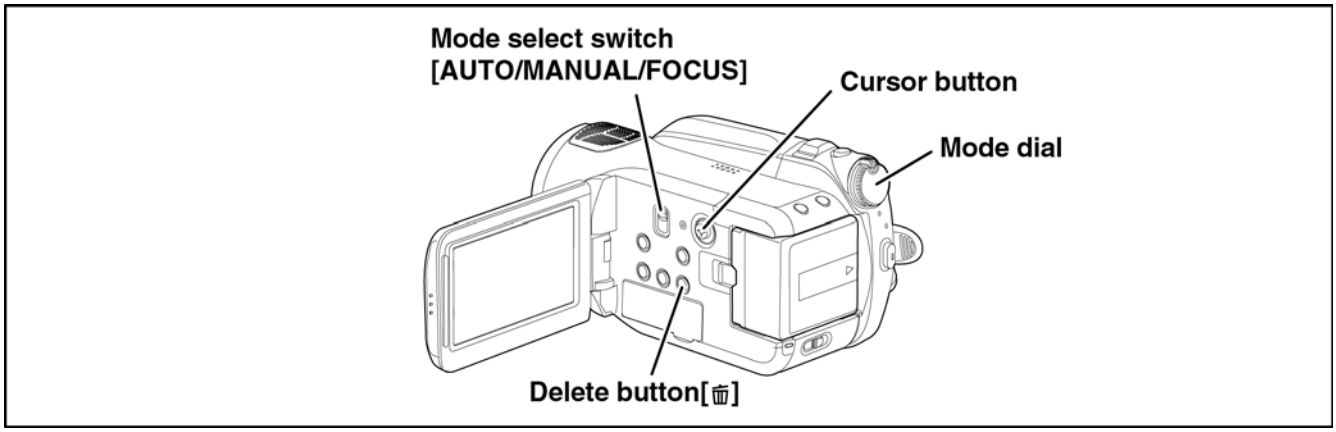
| Screen display | Contents | Function |
|---|---|---|
| 1 | Factory settings | Function to throw a product up in a factory shipment state |
| 2 | Drive information display | Fall detection frequency of HDD, Frequency that exceeds highest/lowest operation guarantee temperature and serial number display |
| 4 | Lock search history indication | Display an error cord for three histories saved in EEPROM |
| 10 | Self check execution | Function to check self as for the state of HDD |
| 14 | HDD hardware test | Function to confirm state of HDD hardware |

**NOTE:**
Do not using service mode except above table of Service Menu.

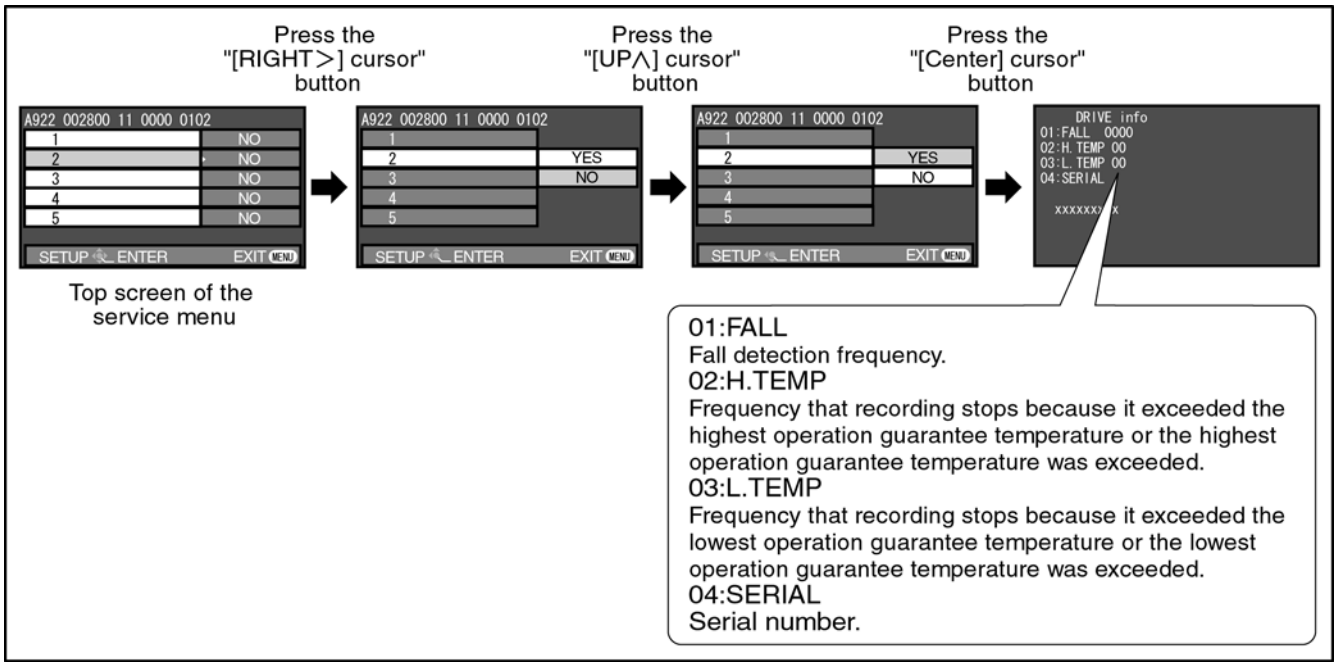
3. End method of the top screen of the service menu
   Push the menu button to end the service mode, and then POWER OFF.

# 6.1. Drive Information Display

1. Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.
3. Select [ 2 ] Drive Information display.




**Operation specifications**




**Indication contents**

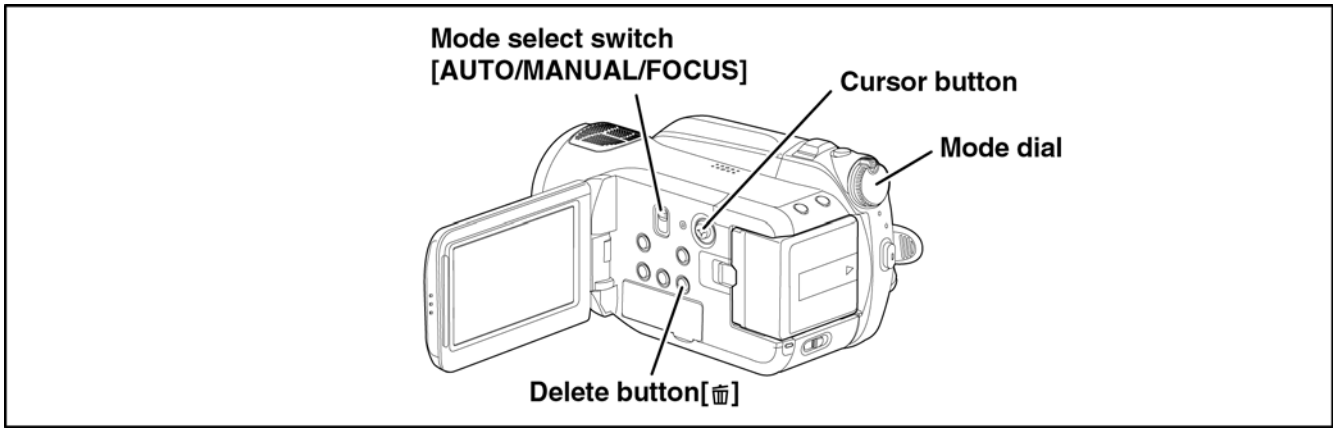
- Drive Information display

  Display the fall detection frequency of HDD, Frequency that exceeds highest/lowest operation guarantee temperature and serial number.

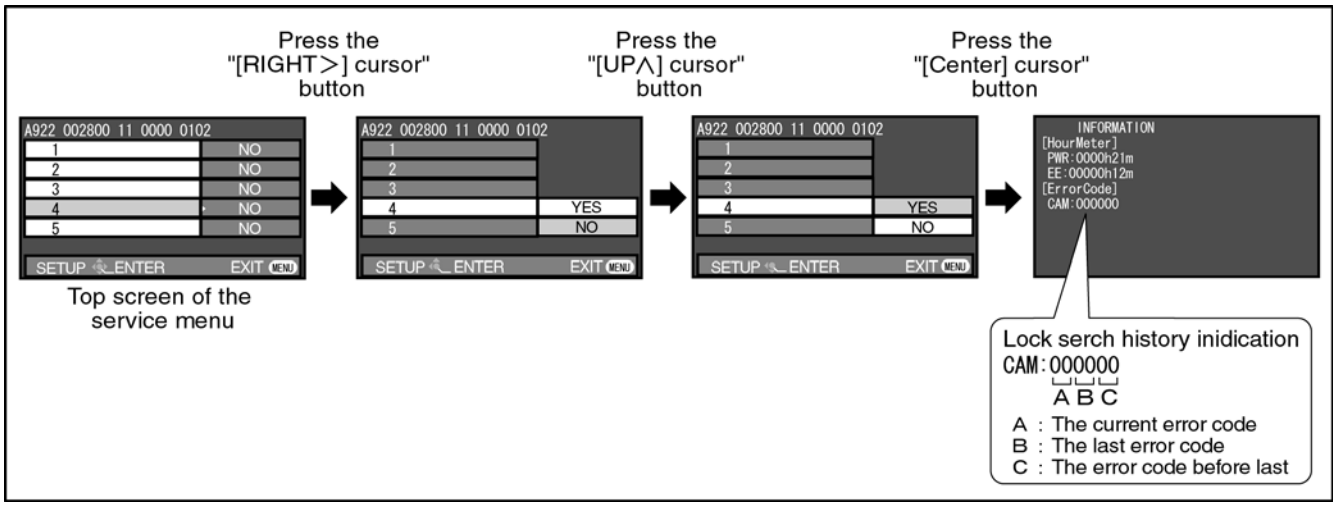
  Push the menu button to end the service mode, and then POWER OFF.

## 6.2. Lock Search History Indication

1. Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.
3. Select [ 4 ] Lock search history indication.




**Operation specifications**




**Indication contents**

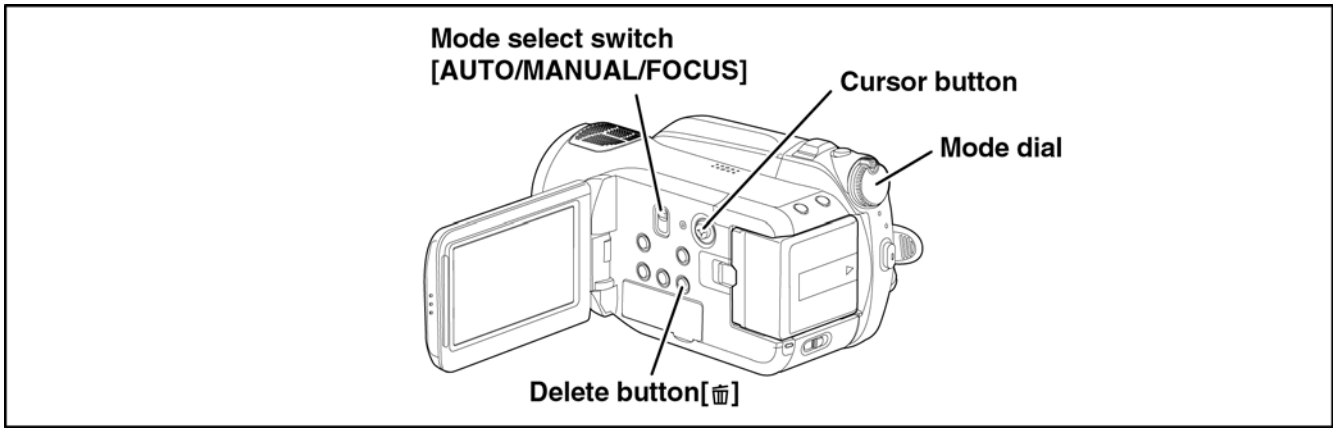
- Lock search history indication
  Display the camera system error cord for three histories saved in EEPROM.
- The error cord contents which are displayed

| 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 |

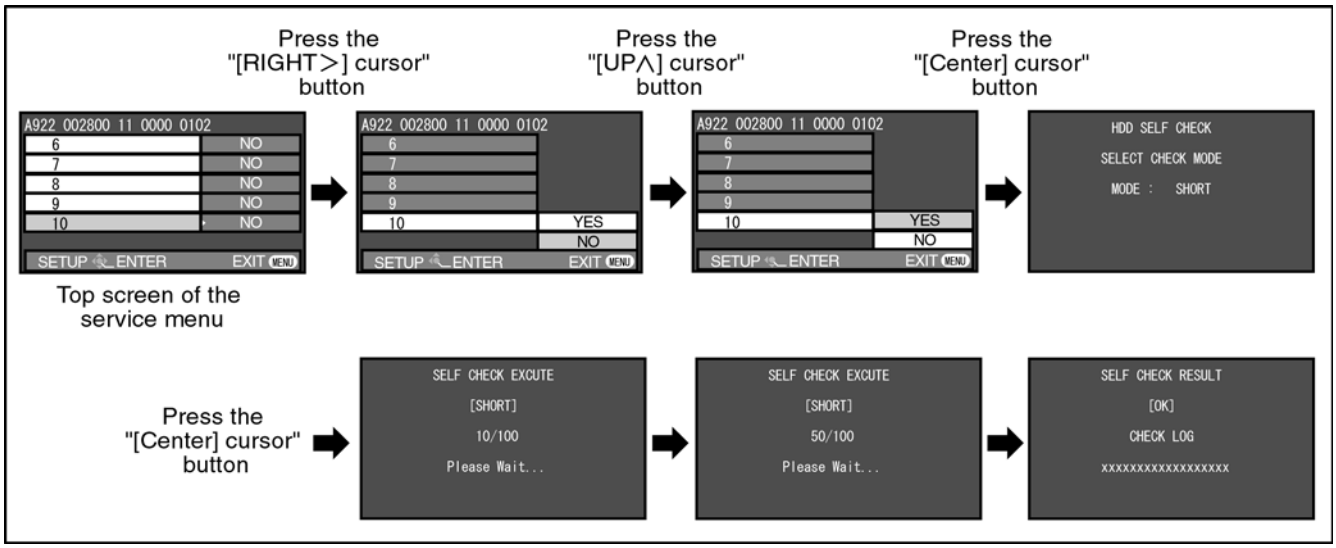
Lock search history indication is finished by POWER OFF.

## 6.3. HDD Self Check

1. Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.
3. Select [ 10 ] HDD self check.




**Operation specifications**




**Indication contents**

- HDD self check result display

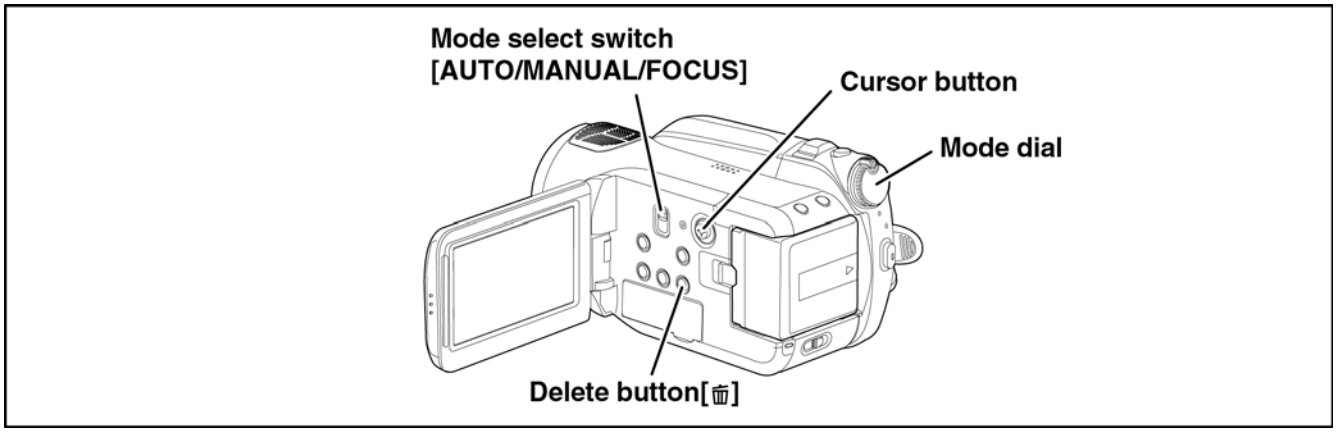
Display the HDD self check result information.

Displays other than “OK” are abnormalities of HDD.

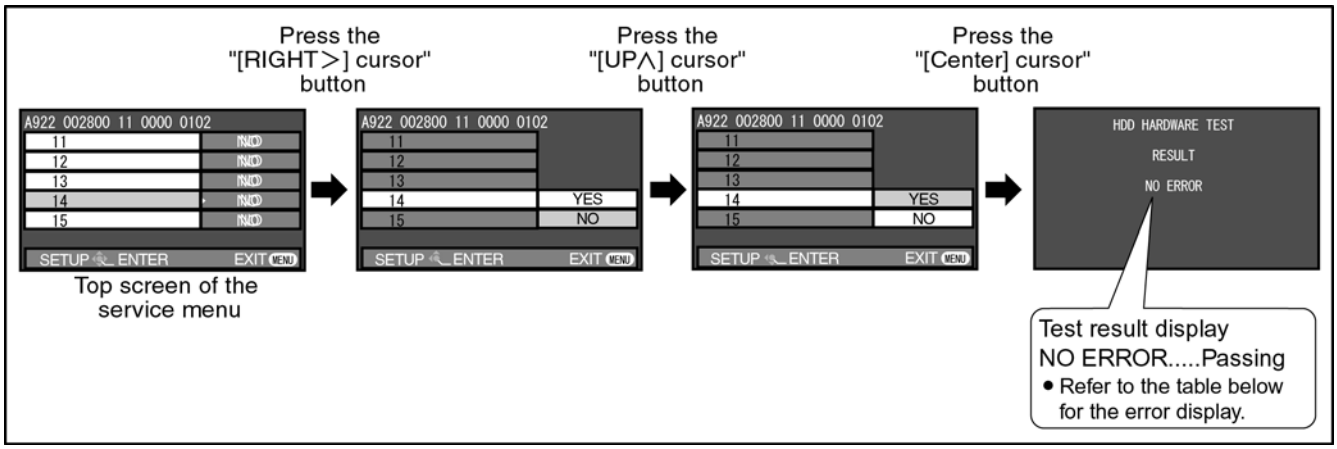
Push the menu button to end the service mode, and then POWER OFF.

# 6.4. HDD Hardware Test

1. Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.
3. Select [ 14 ] HDD hardware test.




**Operation specifications**




**Indication contents**

- HDD hardware test display
  Display the HDD hardware test result information.
- The error cord contents which are displayed

| Error code | Function |
|---|---|
| NO ERROR | It is normal without the error |
| CTR ERROR | Controller Resistor Error |
| BUFF RAM ERROR | Buffer RAM Error |
| ECC DEV ERROR | ECC device Error |
| CPU ERROR | CPU RAM/ROM Error |
| COMMAND | Reserved |

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

# 7 Service Fixture & Tools

## 7.1. When Replacing the Main PCB

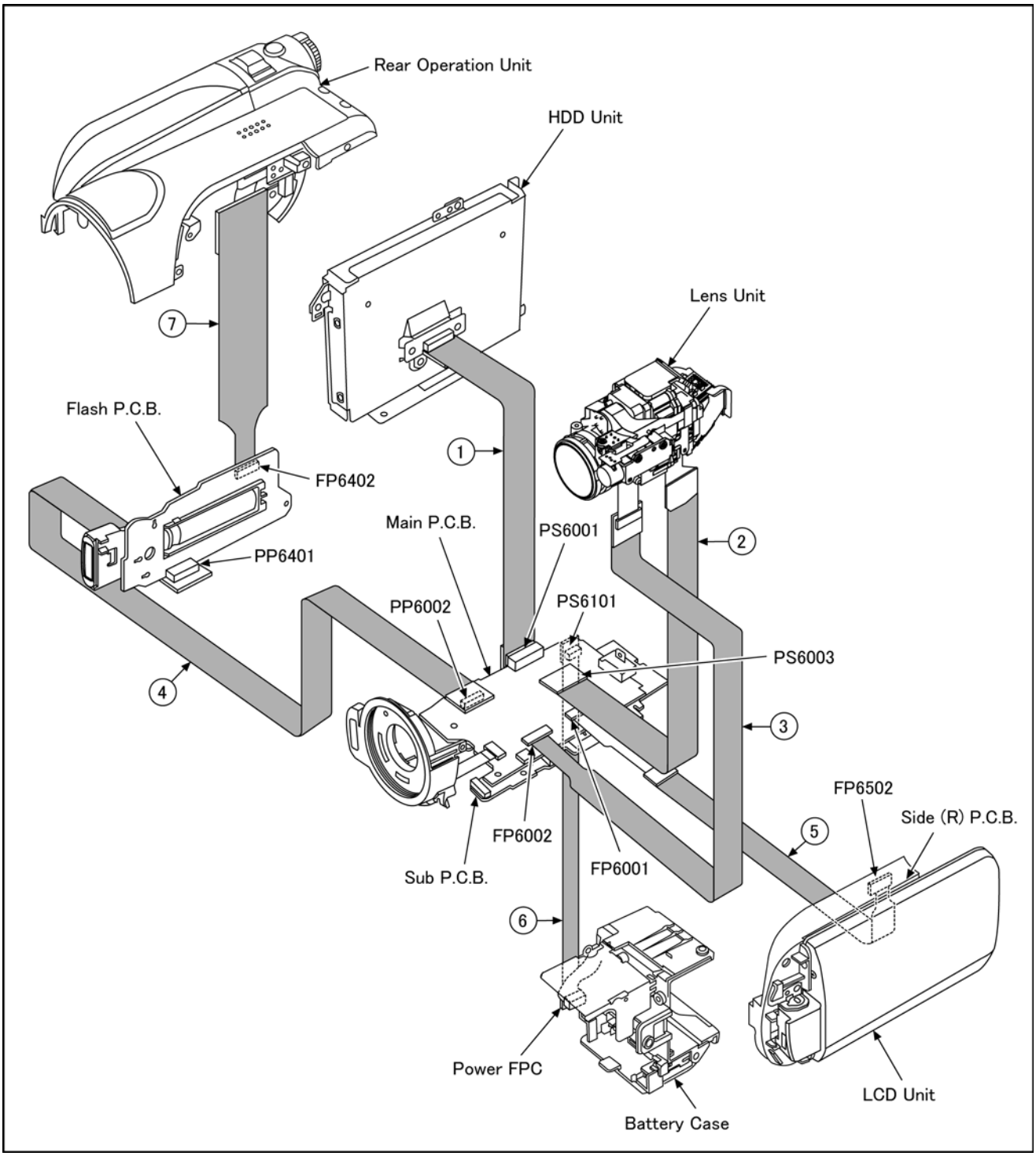
After replacing the MAIN PCB, be sure to achieve adjustment.
The adjustment instruction is available at “software download” on the “Support Information from NWBG/VDBG-PAVC” web-site in “TSN system”, together with Maintenance software.

## 7.2. 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 | RFKZ0379 | PS6001 (MAIN) - HDD UNIT | 40PIN 0.5 B to B |
| 2 | RFKZ0446 | PS6003 (MAIN) - CCD FPC | 50PIN 0.4 B to B |
| 3 | RFKZ0448 | FP6002 (MAIN) - LENS UNIT | 33PIN 0.3 FFC |
| 4 | RFKZ0343 | PP6002 (MAIN) - PP6401 (FLASH) | 30PIN 0.5 B to B |
| 5 | RFKZ0446 | FP6001 (MAIN) - FP6502 (SIDE(R)) | 29PIN 0.3 FFC |
| 6 | VFK2020 | PS6101 (SUB) - POWER FPC | 20PIN 0.5 B to B |
| 7 | VFK1175 | FP6402 (MAIN) - REAR CASE FPC | 16PIN 0.5 FFC |

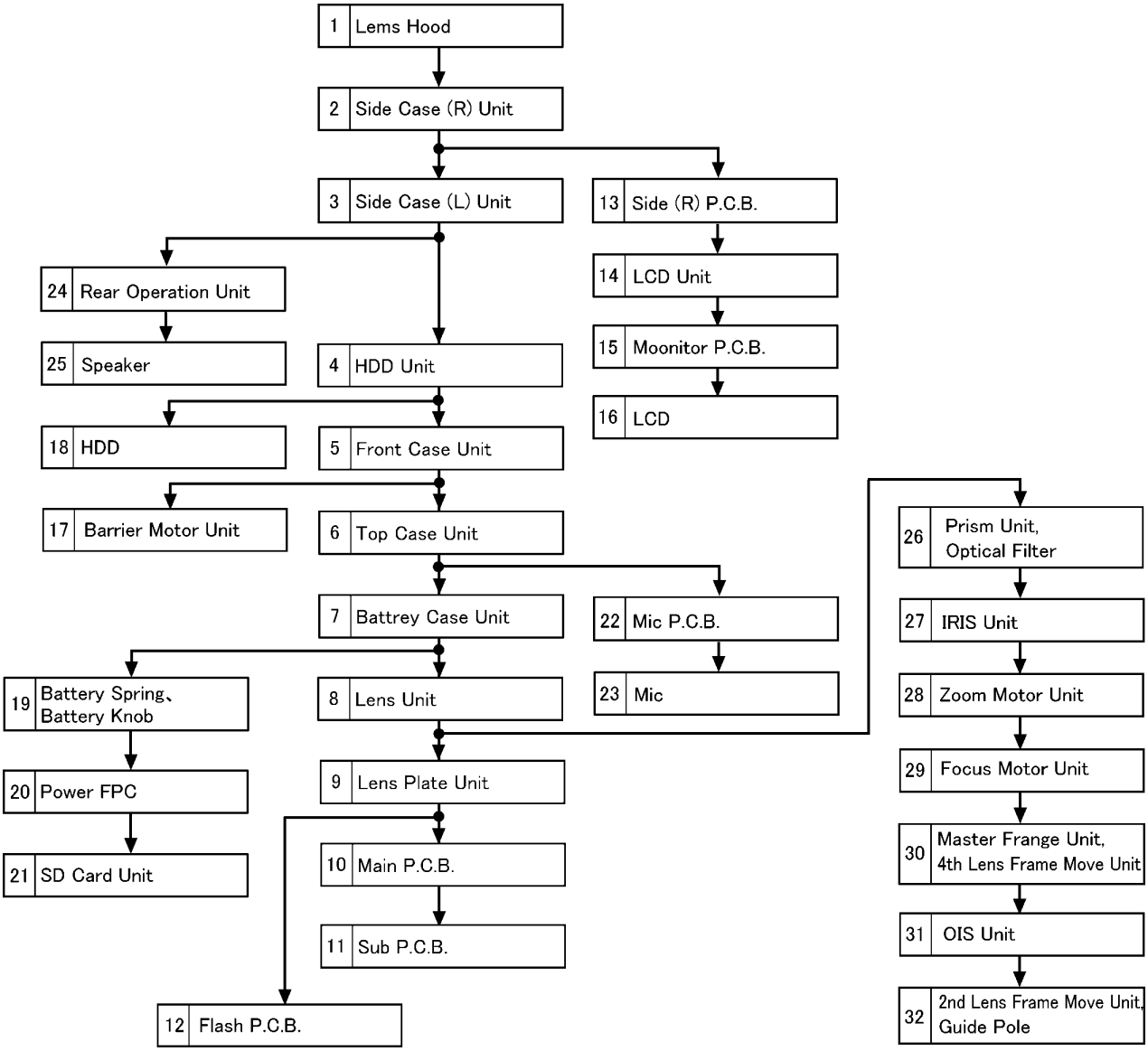



**CAUTION-1. (When servicing FLASH PCB)**

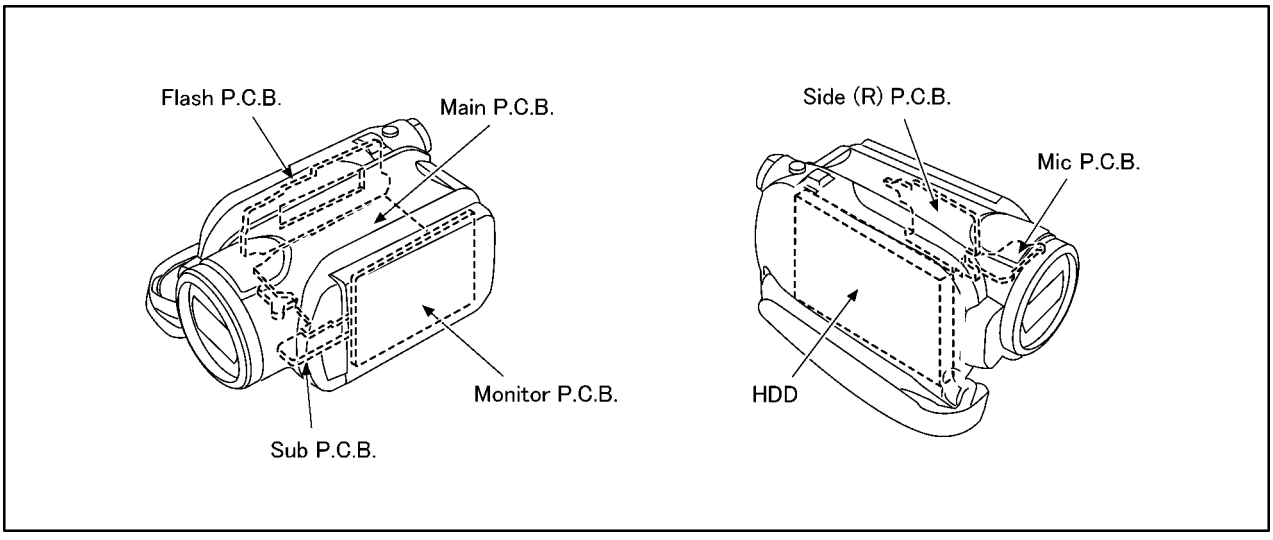
1. Be sure to discharge the capacitor on FLASH PCB.
   Refer to “HOW TO DISCHARGE THE CAPACITOR ON FLASH PCB”.
   The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on FLASH PCB.
3. DO NOT allow other parts to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

# 8 Disassembly and Assembly Instructions

## 8.1. Disassembly Flow Chart




## 8.2. PCB Location



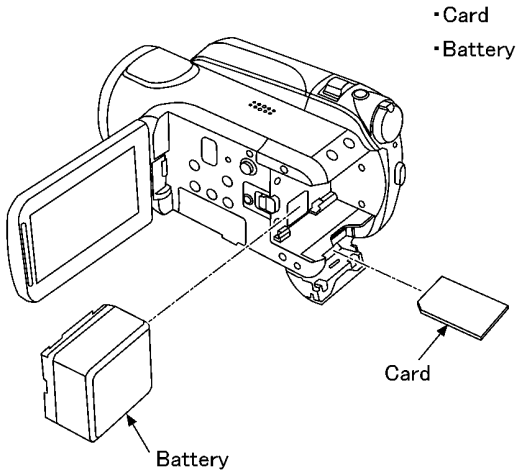
## 8.3. Disassembly Procedure

| No. | Item | Fig | Removal |
|---|---|---|---|
| 1 | Lens Hood | (Fig. D1) | Lens Hood |
| 2 | Side Case (R) Unit | (Fig. D2) | 1 Screw (A) |
| | | | 3 Screws (B) |
| | | | 4 Screws (C) |
| | | | 2 Screws (D) |
| | | | 1 Screw (E) |
| | | | R Cover |
| | | (Fig. D3) | FP6502 (Flex) |
| | | | Side Case (R) Unit |
| 3 | Side Case (L) Unit | (Fig. D4) | 2 Screws (F) |
| | | | 6 Screws (G) |
| | | | 1 Screw (H) |
| | | | Side Case (L) Unit |
| 4 | HDD Unit. | (Fig. D5) | 1 Screw (I) |
| | | | HDD Unit |
| 5 | Front Case Unit | (Fig. D6) | 3 Screws (J) |
| | | | Sensor Window Unit |
| | | (Fig. D7) | FP6003 (Flex) |
| | | | Front Case Unit |
| 6 | Top Case Unit | (Fig. D8) | FP6401 (Flex) |
| | | | P6401 (Connector) |
| | | | FP6402 (Flex) |
| | | | 2 Screws (K) |
| | | | 1 Screw (L) |
| | | | 1 Screw (M) |
| | | | 3 Locking tabs |
| | | | Top Case Unit |
| 7 | Battery Case Unit | (Fig. D9) | PS6001 (Flex) |
| | | | 1 Screw (N) |
| | | | 1 Screw (O) |
| | | | Battery Case Unit |
| 8 | Lens Unit | (Fig. D10) | PS6003 (Flex) |
| | | | PS6002 (Flex) |
| | | | 1 Screw (P) |
| | | | Lens Unit |
| 9 | Lens Plate Unit | (Fig. D11) | FP6401 (Connector) |
| | | | 1 Screw (Q) |
| | | | Lens Plate Unit |
| 10 | Main P.C.B. | (Fig. D12) | 1 Screw (R) |
| | | | 2 Locking tabs |
| | | | PS6004 (Flex) |
| | | | Main P.C.B. |
| 11 | Sub P.C.B. | (Fig. D13) | 4 Screws (S) |
| | | | Main Frame |
| | | | Bottom Frame |
| | | | Main/Sub Flex |
| | | | Sub P.C.B. |
| 12 | Flash P.C.B. | (Fig. D14) | 1 Screw (T) |
| | | | Lens Plate |
| | | (Fig. D15) | Solder (3 points) |
| | | | 2 Locking tabs |
| | | | Capacitor Cover Unit |
| | | | Flash P.C.B. |
| 13 | Side (R) P.C.B. | (Fig. D16) | 2 Screws (U) |
| | | | 5 Screws (V) |
| | | | FP601 (Flex) |
| | | | Side (R) P.C.B. |
| 14 | LCD Unit | (Fig. D17) | Hinge Plate |
| | | | 2 Ribs |
| | | | Operation knob |
| | | | SR SW knob |
| | | | Flex |
| | | | LCD Unit |

| No. | Item | Fig | Removal |
|---|---|---|---|
| 15 | Monitor P.C.B. | (Fig. D18) | 2 Screws (W) |
| | | | 6 Locking tabs |
| | | (Fig. D19) | FP901 (Flex) |
| | | | LCD Hinge Unit |
| | | | LCD Earth Plate |
| | | | FP902 (Flex) |
| | | | 3 Locking tabs |
| | | | Monitor P.C.B. |
| 16 | LCD | (Fig. D20) | Reflection Sheet |
| | | | Light Panel |
| | | | Diffusion Sheet |
| | | | Prism Sheet B |
| | | | Prism Sheet A |
| | | | Lens Holder |
| | | | LCD Shield Sheet |
| | | | LCD Bottom Case |
| | | | LCD |
| 17 | Barrier Motor Unit | (Fig. D21) | 3 Screws (X) |
| | | | Earth Plate |
| | | | Barrier Select knob |
| | | | Front Cover |
| | | | Cushion |
| | | | Barrier Motor Unit |
| 18 | HDD | (Fig. D22) | 2 Screws (Y) |
| | | | 4 Ribs |
| | | | HDD Cover A |
| | | | HDD Cover B |
| | | | Cushion A |
| | | | Cushion B |
| | | | HDD |
| 19 | Battery Spring<br>Battery knob | (Fig. D23) | 2 Screws (Z) |
| | | | CCD Shield Case |
| | | | 1 Screw (a) |
| | | | Battery Release Holder |
| | | | Battery Spring |
| | | | Battery knob |
| 20 | Power FPC | (Fig. D24) | 1 Screw (b) |
| | | | Rear Frame |
| | | | 2 Locking tabs |
| | | | Power FPC |
| 21 | SD Card Unit | (Fig. D25) | 1 Screw (c) |
| | | | Rear Earth Angle |
| | | | 1 Locking tab |
| | | (Fig. D26) | 1 Locking tab |
| | | | Battery Case |
| | | | SD Card Unit |
| 22 | Mic P.C.B. | (Fig. D27) | Mic FPC |
| | | | 1 Screw (d) |
| | | | FP4801 (Flex) |
| | | | Mic P.C.B. |
| 23 | Mic | (Fig. D28) | 2 Screws (e) |
| | | | Mic Angle |
| | | | 3 Locking tabs |
| | | | Sheet |
| | | | Mic Net |
| | | | Mic |
| 24 | Rear Operation Unit | (Fig. D29) | 1 Screw (f) |
| | | | Rear Operation Unit |
| 25 | Speaker | (Fig. D30) | 3 Screws (g) |
| | | (Fig. D31) | Tape |
| | | | Top Frame |
| | | | Top Cover |
| | | | Top Piece |
| | | | Speaker |

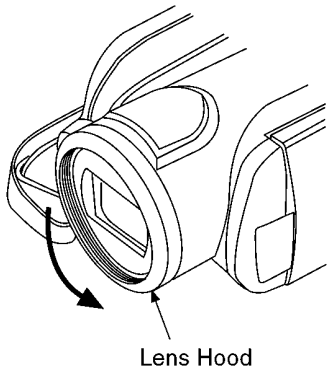
| No. | Item | Fig | Removal |
|---|---|---|---|
| 26 | Prism Unit,<br>Optical Filter | (Fig. D32) | 1 Screw (h) |
| | | | 2 Screws (i) |
| | | | CCD Heatsink Plate |
| | | | Prism Unit |
| | | | Optical Filter |
| 27 | IRIS Unit | (Fig. D33) | 4 Screws (j) |
| | | | Solder (20 points) |
| | | | 3 Ribs |
| | | (Fig. D34) | IRIS Unit |
| 28 | Zoom Motor Unit | (Fig. D35) | 2 Screws (k) |
| | | | Zoom Motor Unit |
| 29 | Focus Motor Unit | (Fig. D36) | 2 Screws (l) |
| | | | Focus Motor Unit |
| 30 | Master Frange<br>4th Lens Frame Move Unit | (Fig. D37) | 3 Screws (m) |
| | | | 4th Lens Frame Move Unit |
| | | | Master Frange |
| | | (Fig. D38) | NOTE (When Installing) |
| 31 | OIS Unit | (Fig. D39) | OIS Unit |
| 32 | 2nd Lens Frame Move Unit<br>Guide Pole | (Fig. D40) | 2nd Lens Frame Move Unit |
| | | | 2 Guide Poles |

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



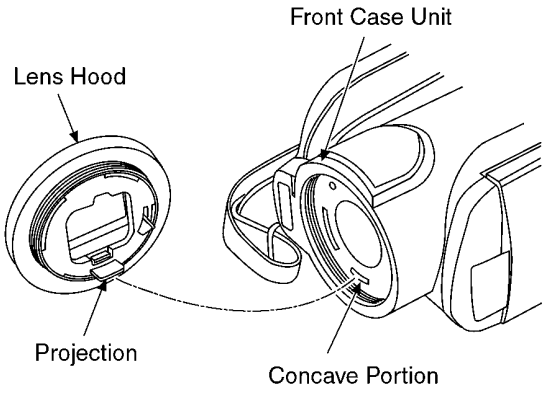

## 8.3.1. Removal of the Lens Hood

• Rotate the lens hood in the direction of arrow.



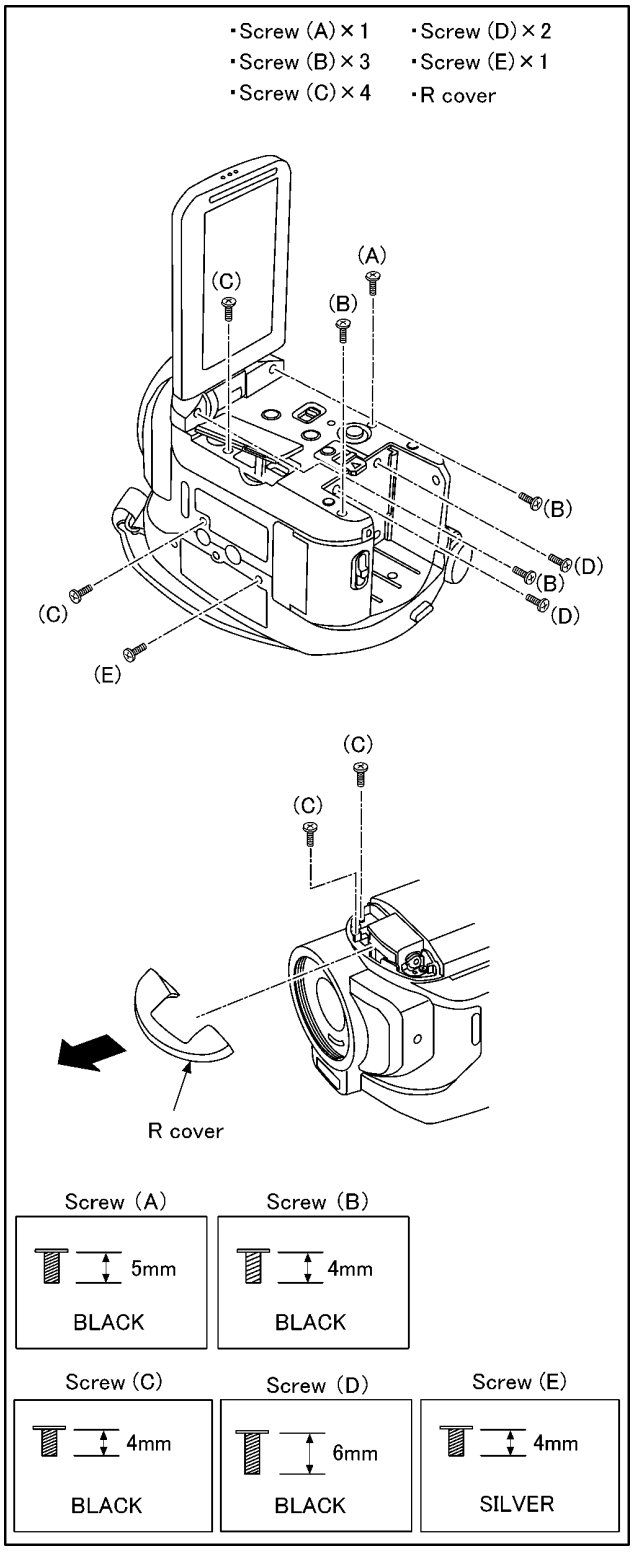

**NOTE: (When Installing)**

• Align the projection of lens hood to the concave portion of front case unit.

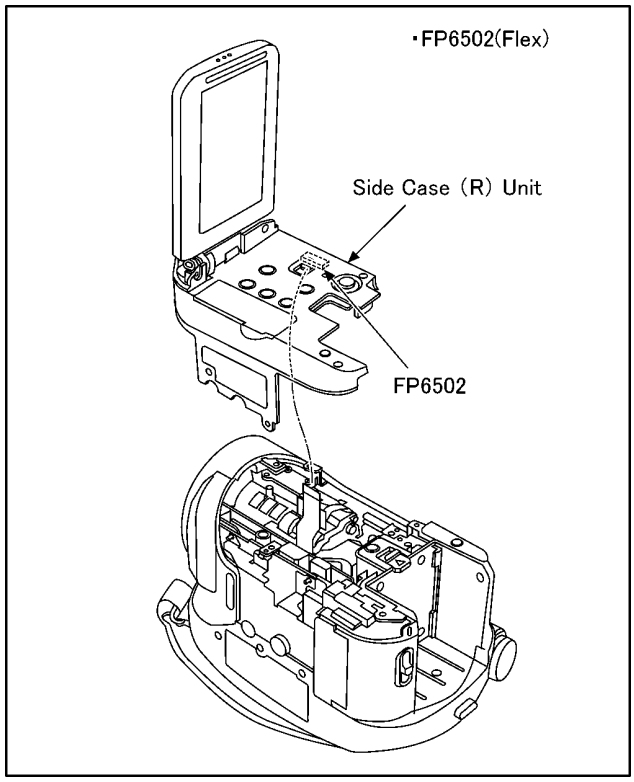



(Fig. D1)

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

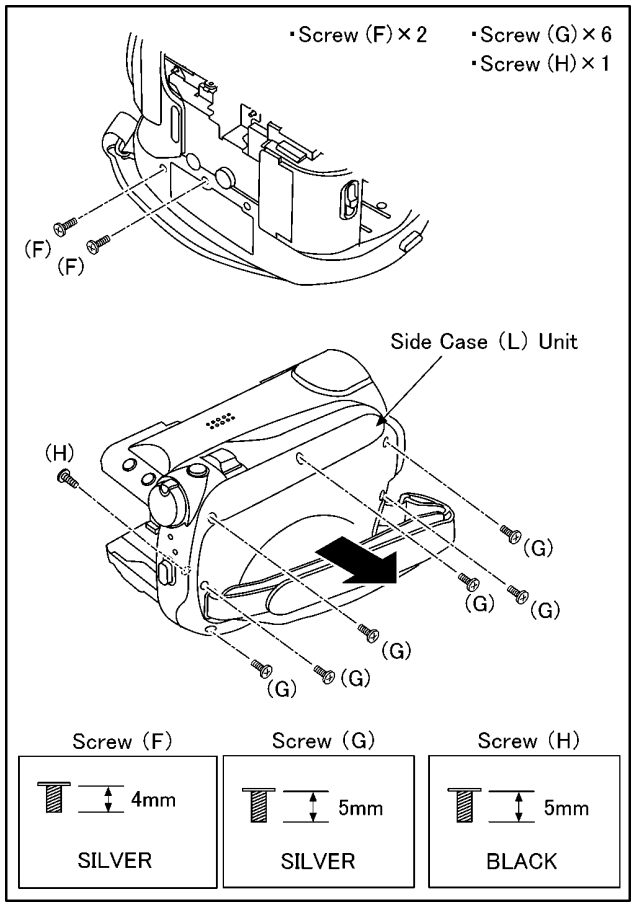



(Fig. D2)



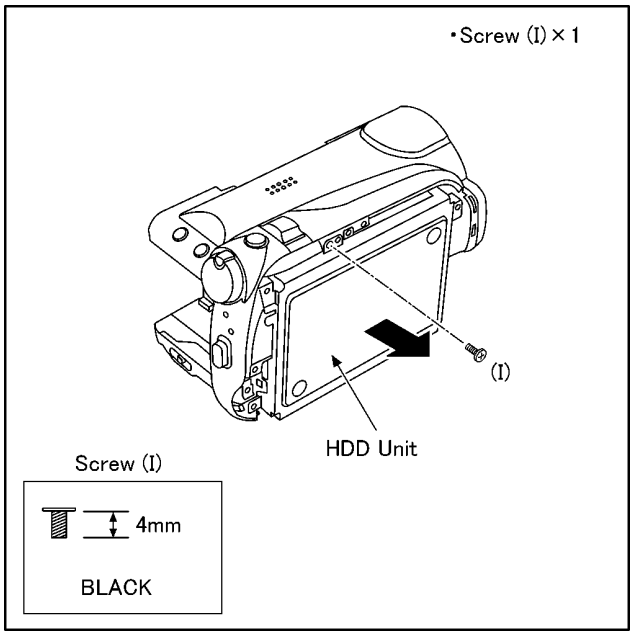

(Fig. D3)

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



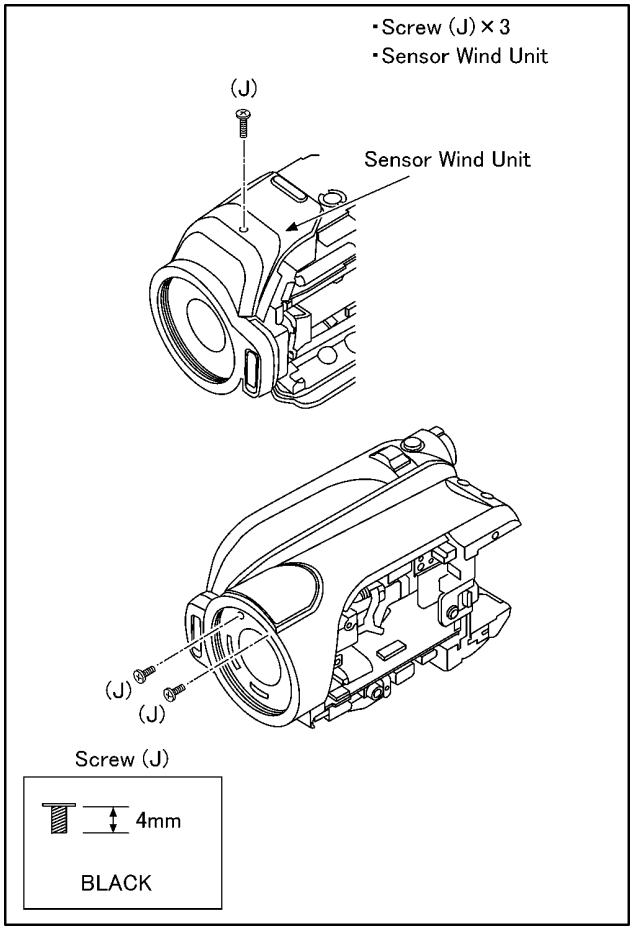

(Fig. D4)

### 8.3.4. Removal of the HDD Unit

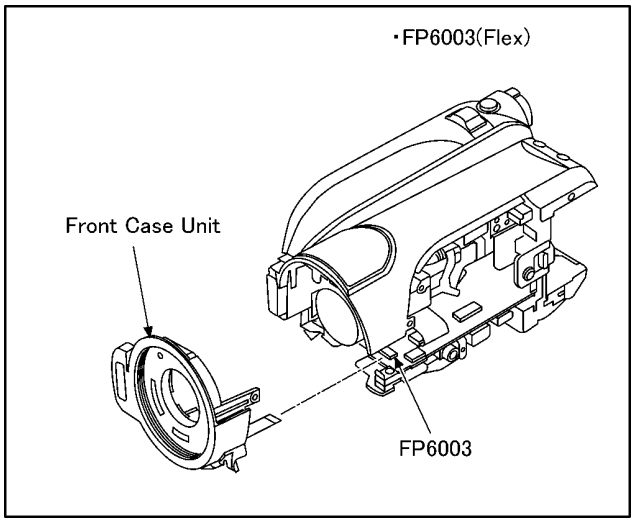



(Fig. D5)

### 8.3.5. Removal of the Front Case Unit

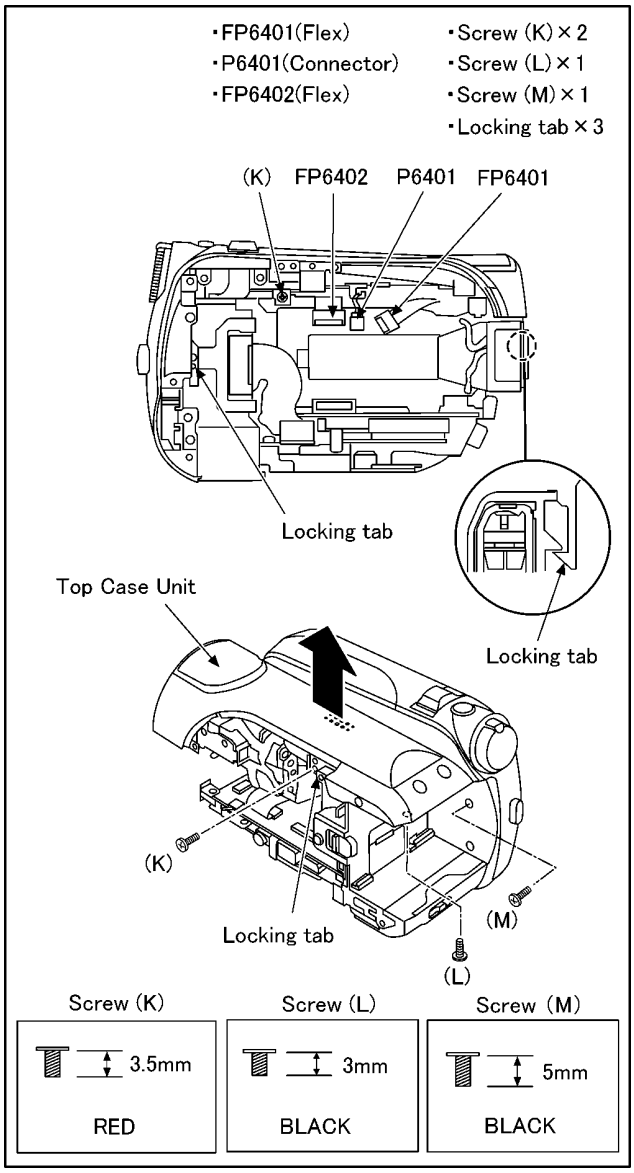



(Fig. D6)



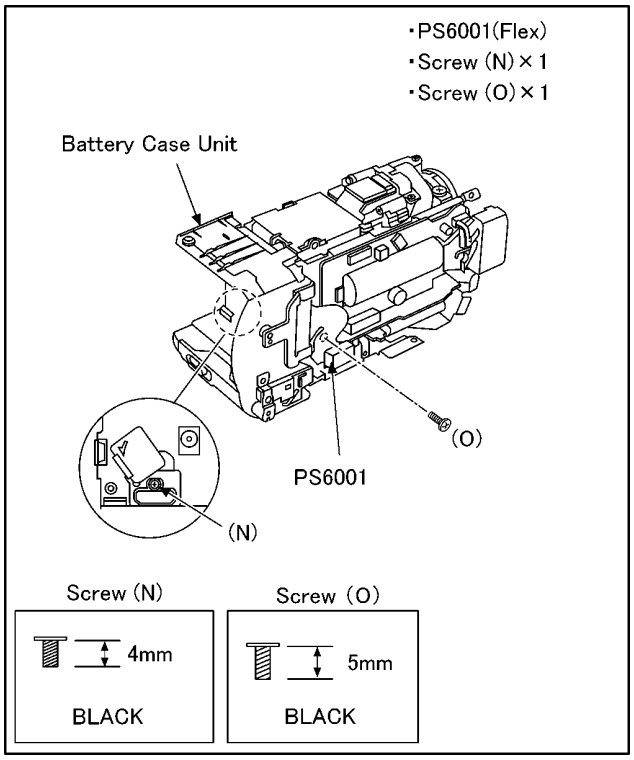

(Fig. D7)

### 8.3.6. Removal of the Top Case Unit



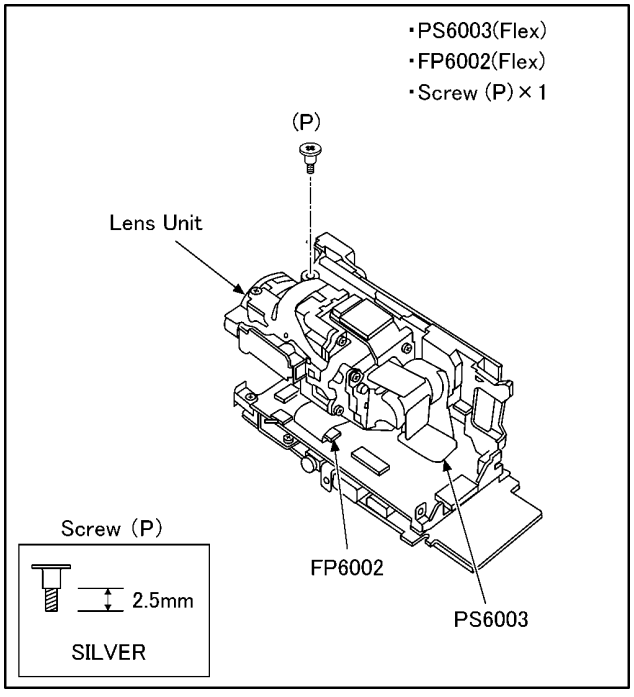

(Fig. D8)

### 8.3.7. Removal of the Battery Case Unit



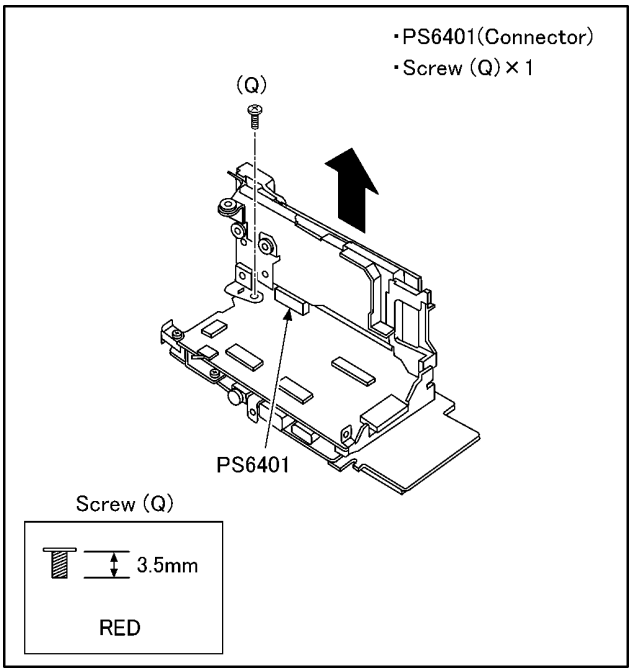

(Fig. D9)

### 8.3.8. Removal of the Lens Unit



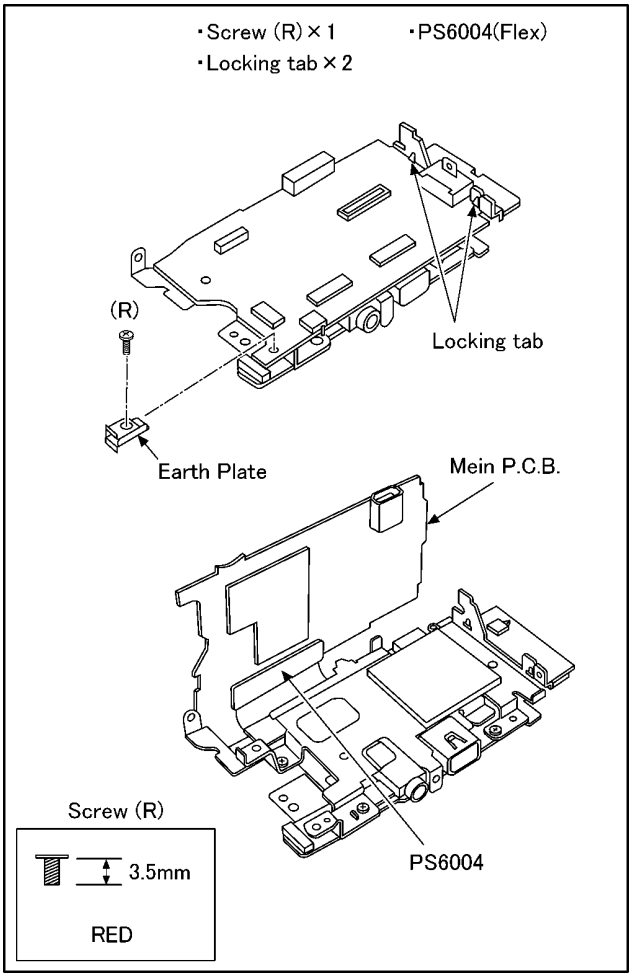

(Fig. D10)

### 8.3.9. Removal of the Lens Plate Unit



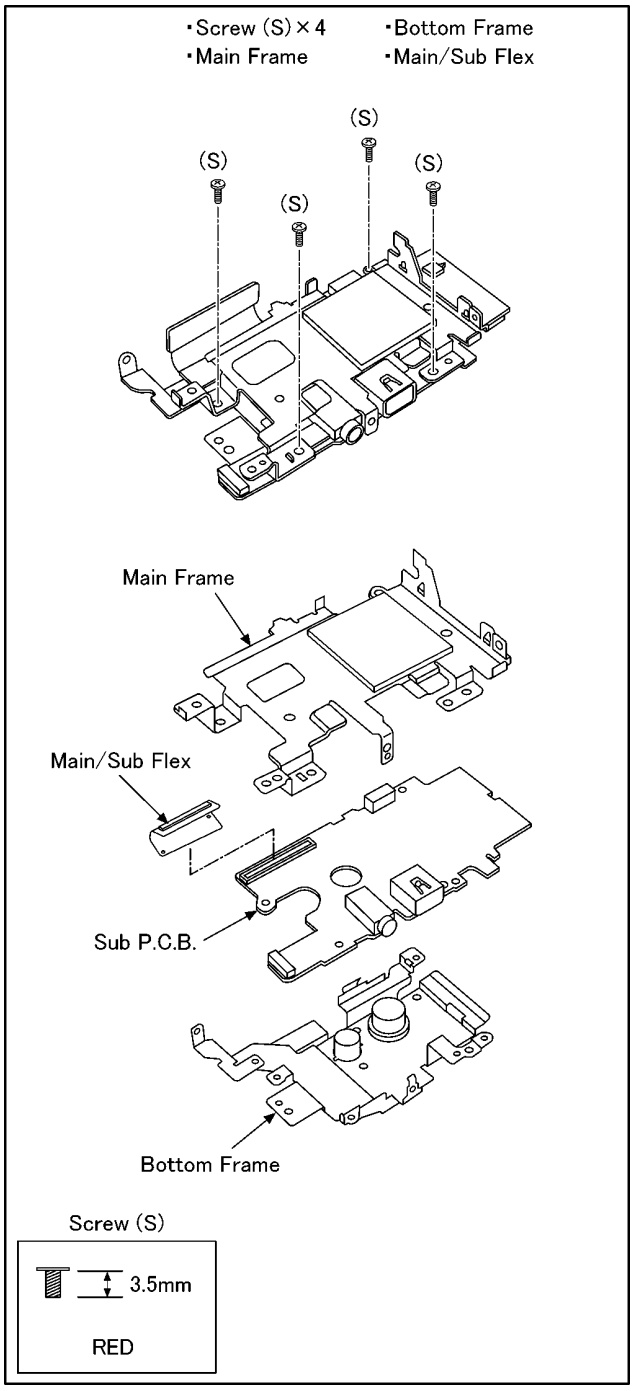

(Fig. D11)

### 8.3.10. Removal of the Main P.C.B.



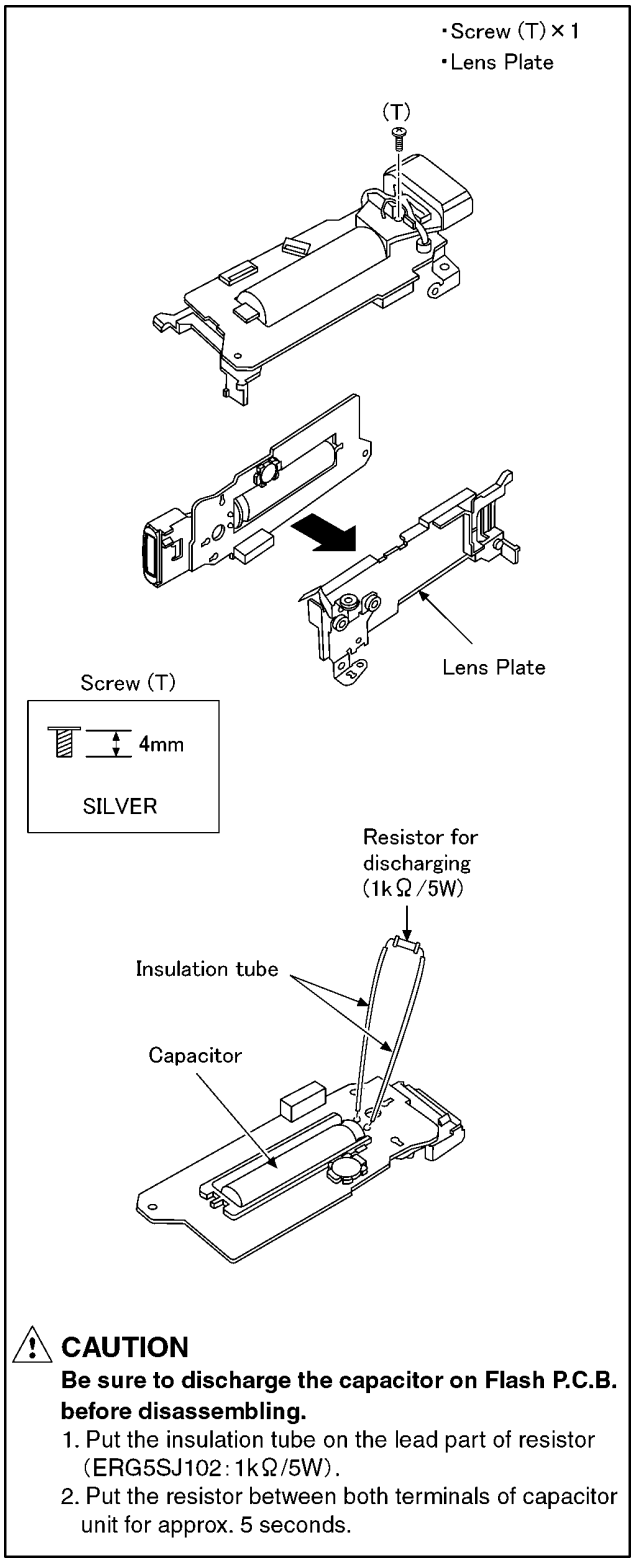

(Fig. D12)

## 8.3.11. Removal of the Sub P.C.B.




(Fig. D13)

## 8.3.12. Removal of the Flash P.C.B.

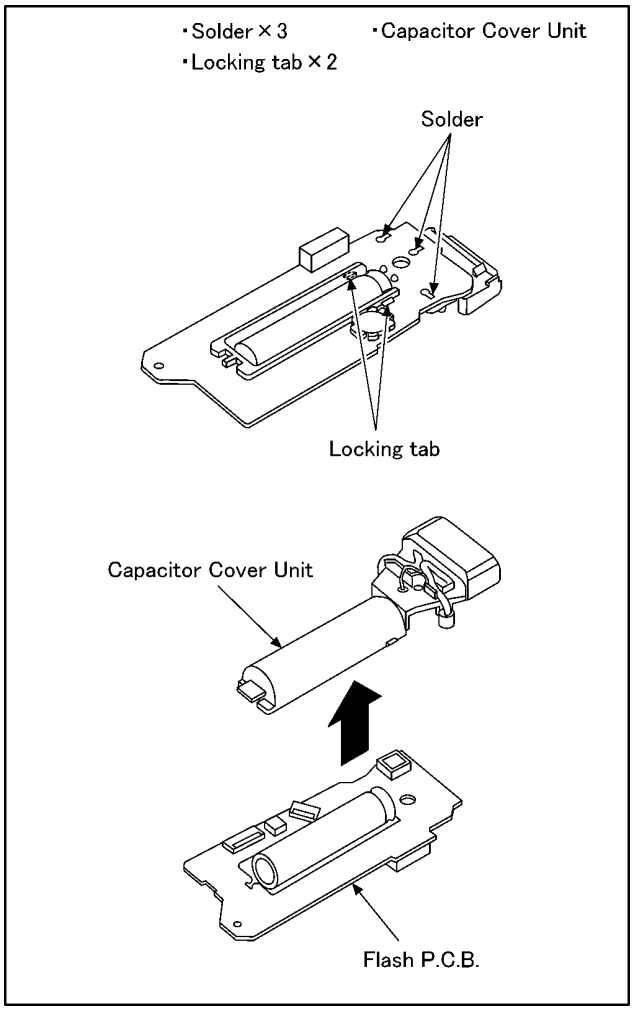



**⚠ CAUTION**

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

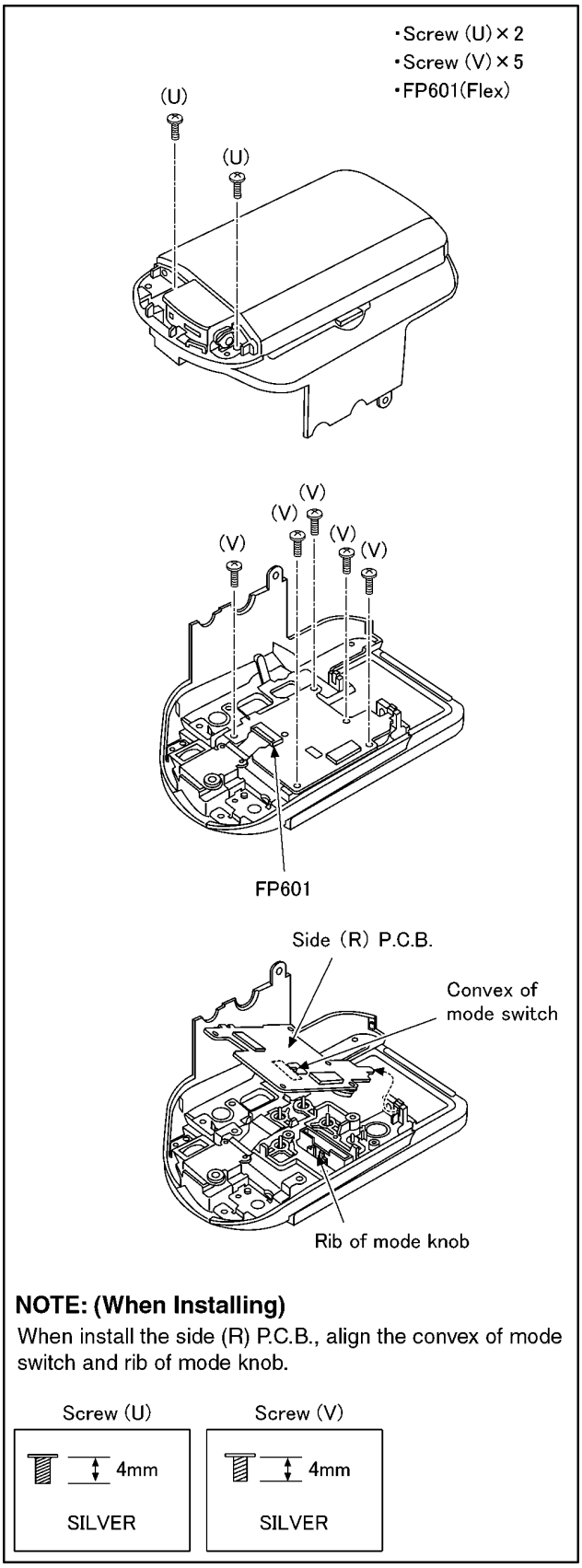
1. Put the insulation tube on the lead part of resistor (ERG5SJ102:1kΩ/5W).
2. Put the resistor between both terminals of capacitor unit for approx. 5 seconds.

(Fig. D14)



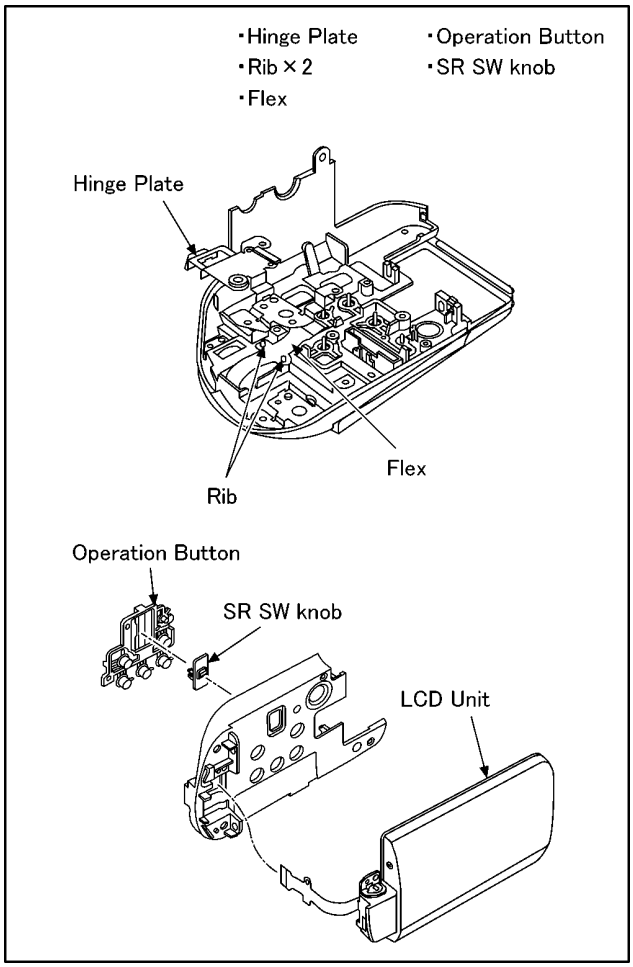

(Fig. D15)

## 8.3.13. Removal of the Side (R) P.C.B.

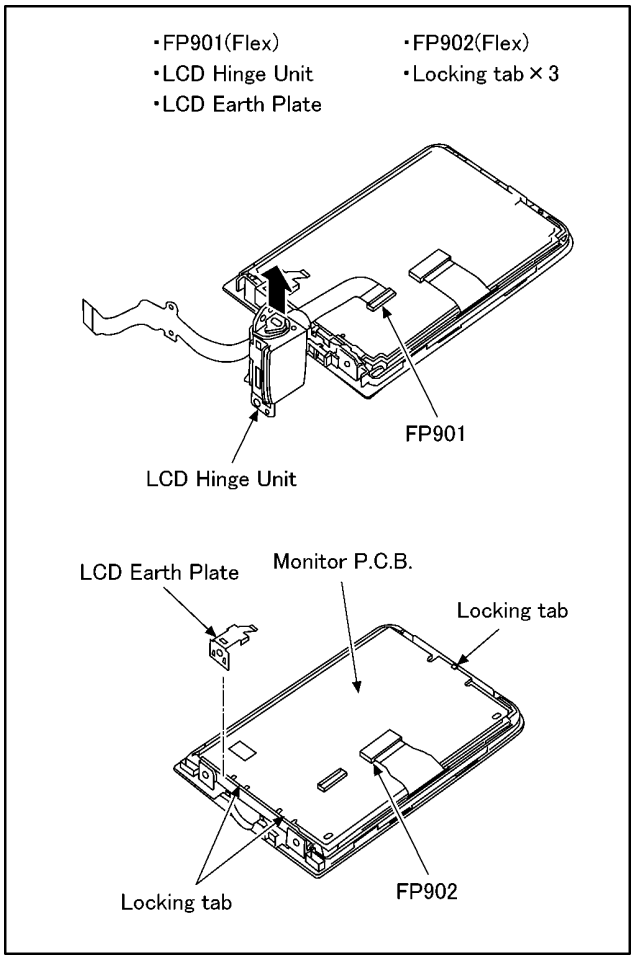



(Fig. D16)

## 8.3.14. Removal of the LCD Unit

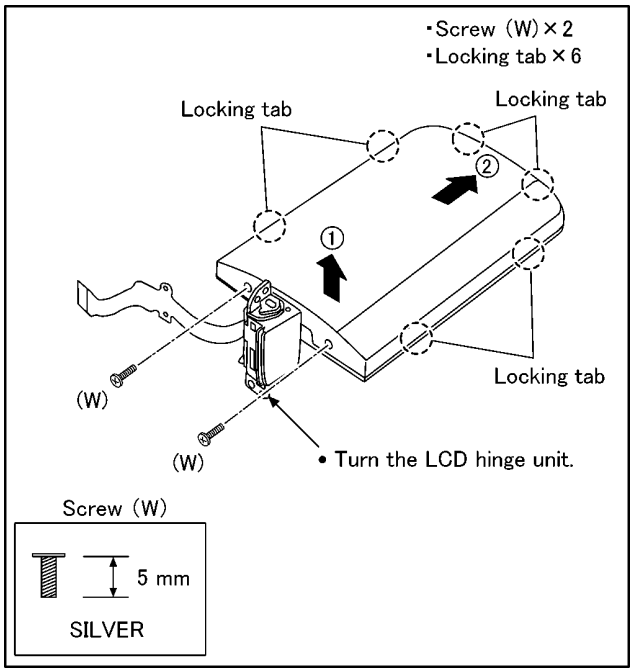



(Fig. D17)



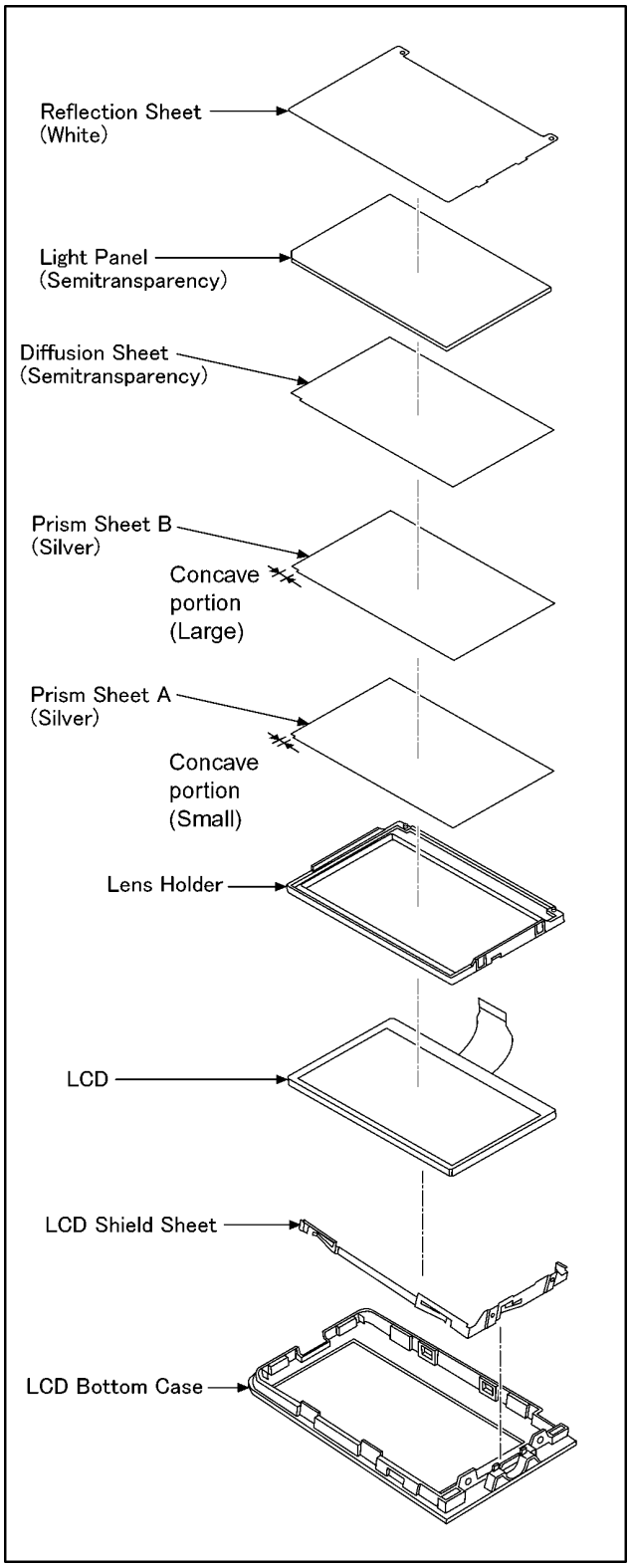

(Fig. D19)

## 8.3.15. Removal of the Monitor P.C.B.



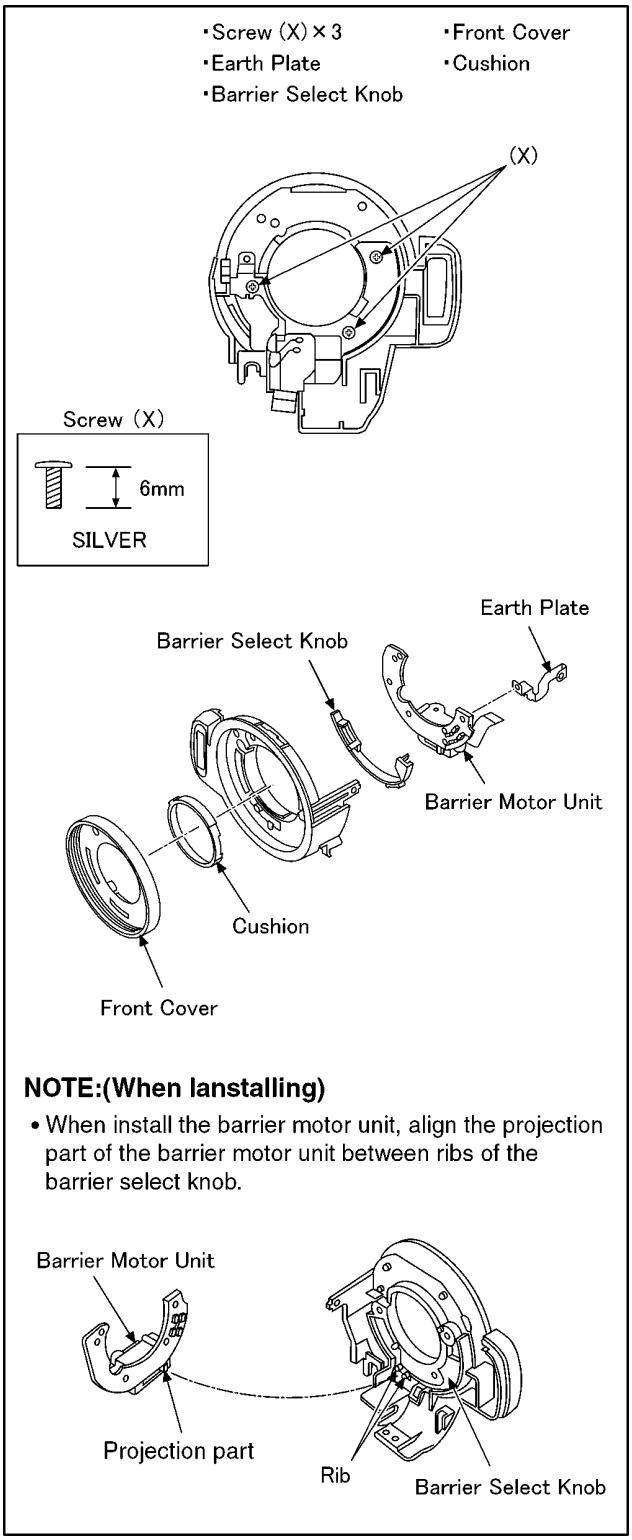

(Fig. D18)

## 8.3.16. Removal of the LCD



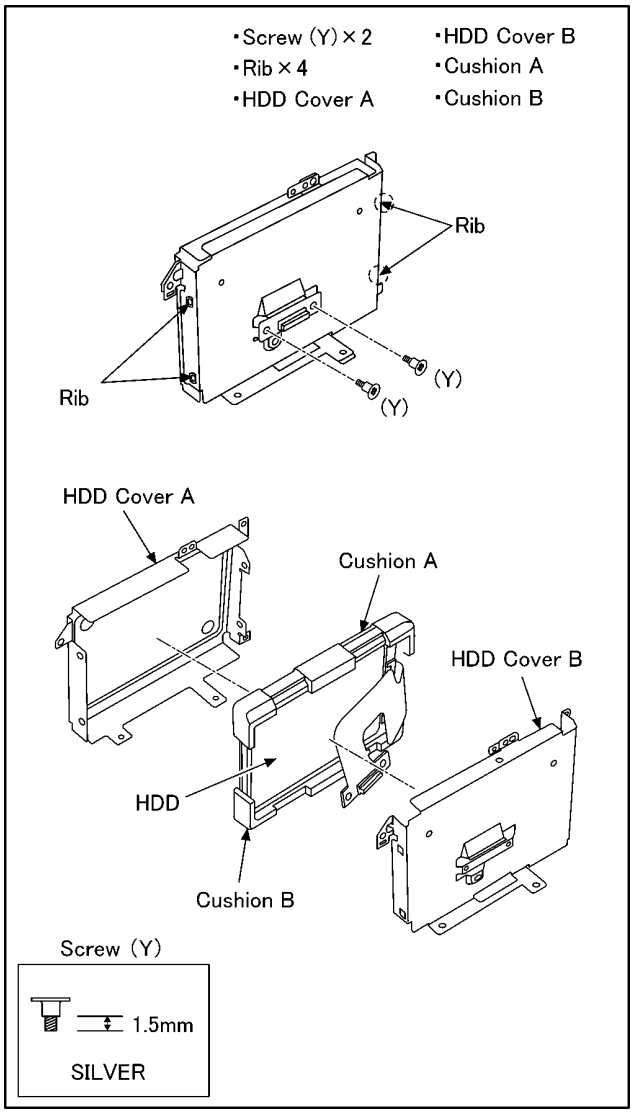

(Fig. D20)

## 8.3.17. Removal of the Barrier Motor Unit



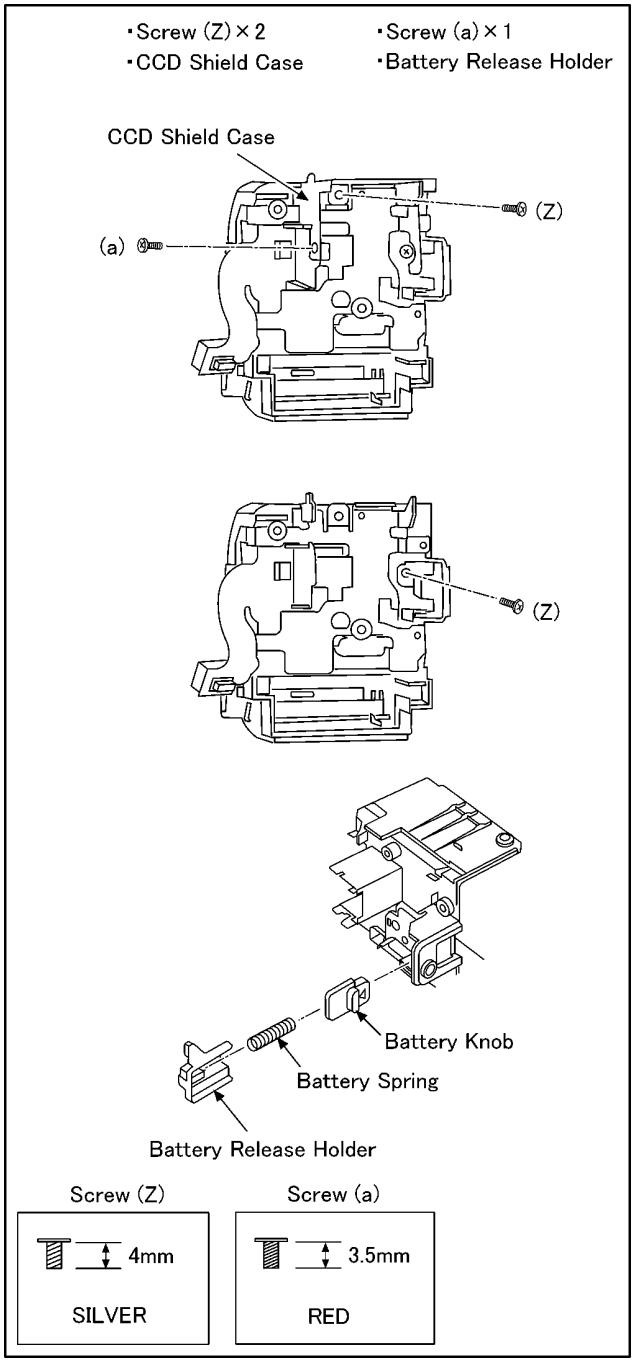

(Fig. D21)

## 8.3.18. Removal of the HDD



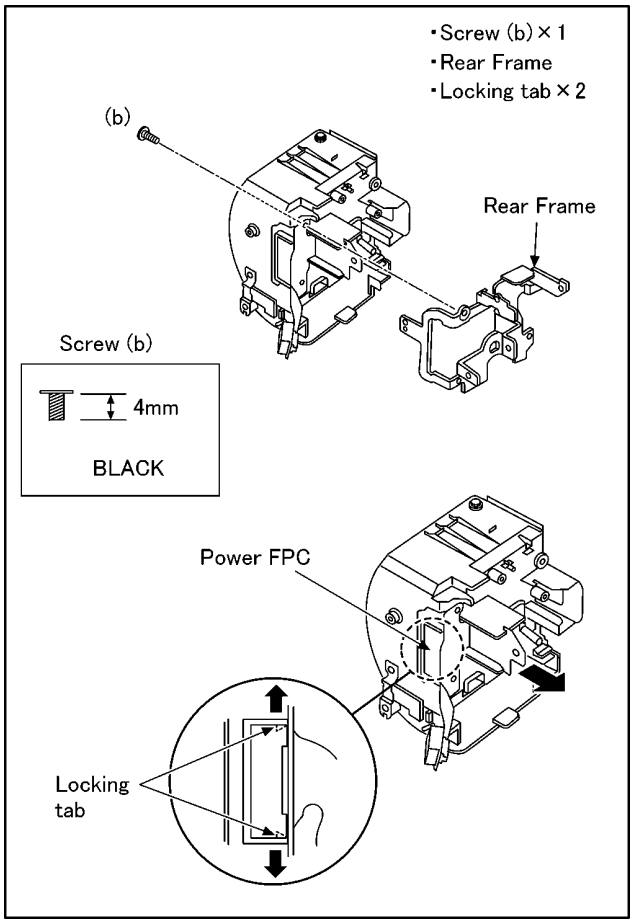

(Fig. D22)

## 8.3.19. Removal of the Battery Spring and Battery knob



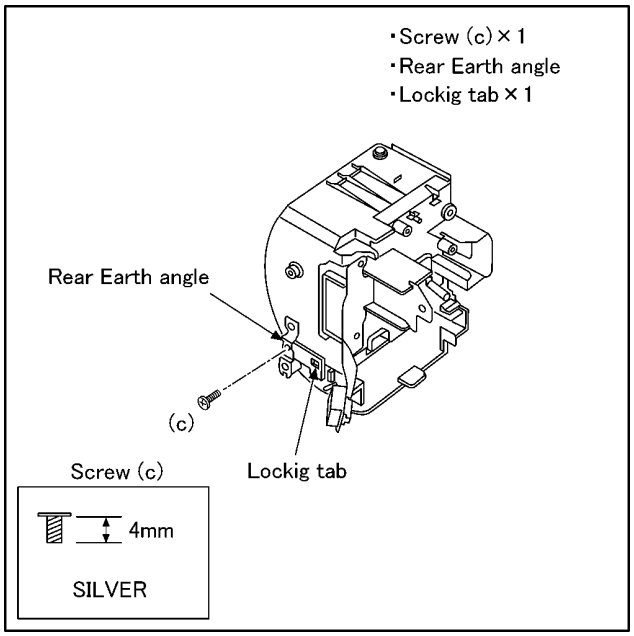

(Fig. D23)

## 8.3.20. Removal of the Power FPC

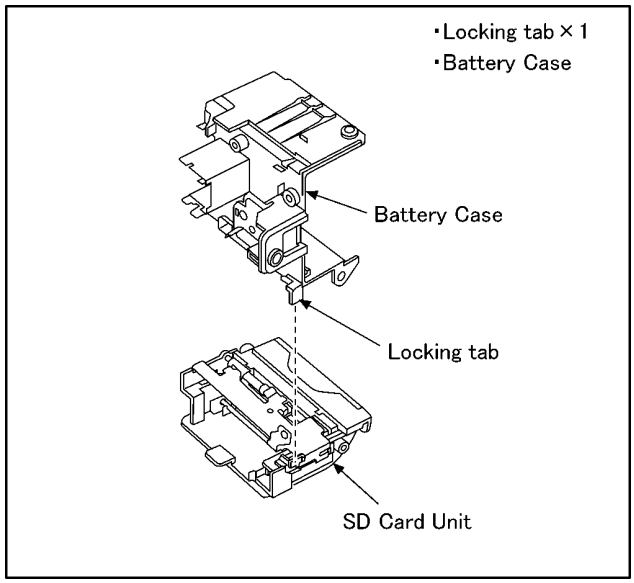



(Fig. D24)

## 8.3.21. Removal of the SD Card unit

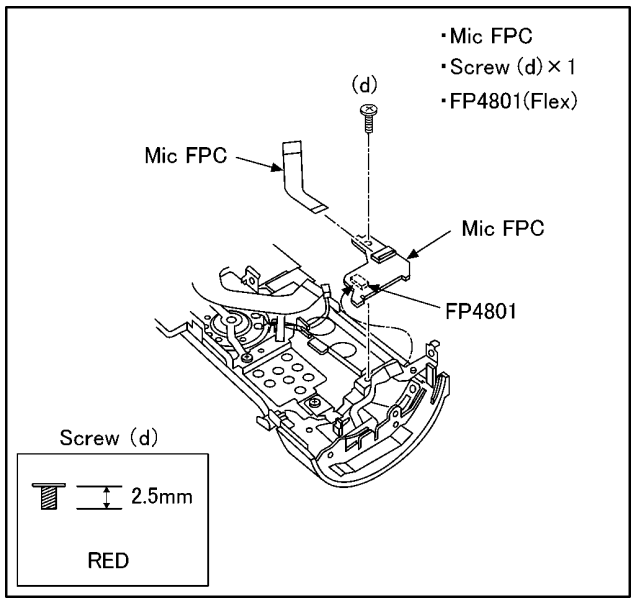



(Fig. D25)



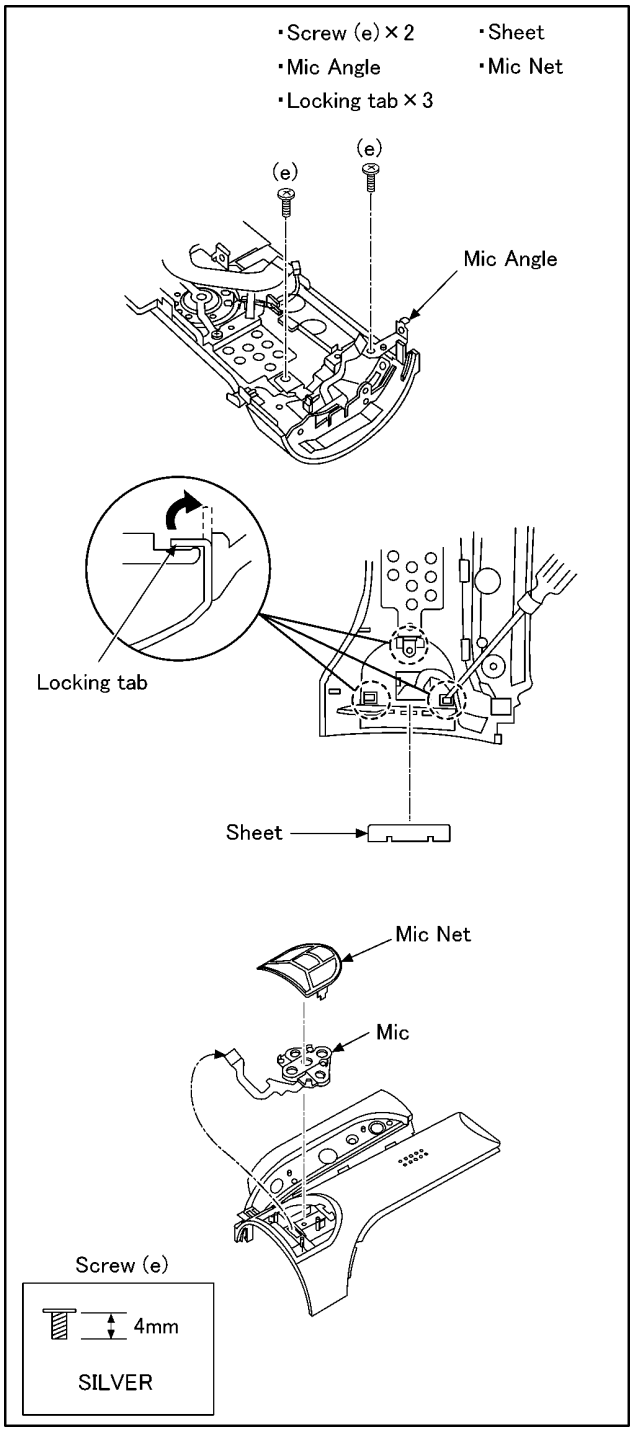

(Fig. D26)

## 8.3.22. Removal of the Mic P.C.B.



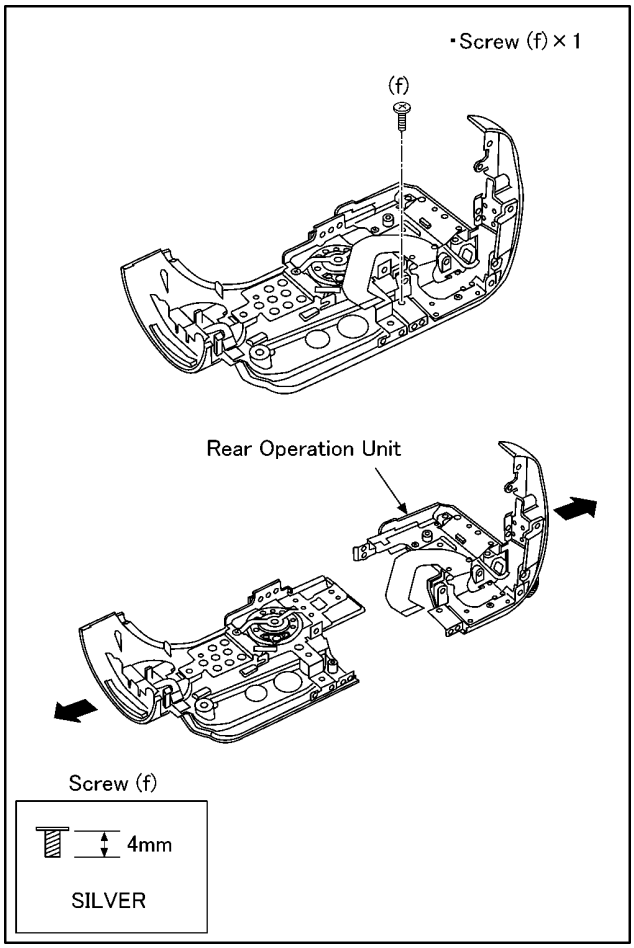

(Fig. D27)

### 8.3.23. Removal of the Mic



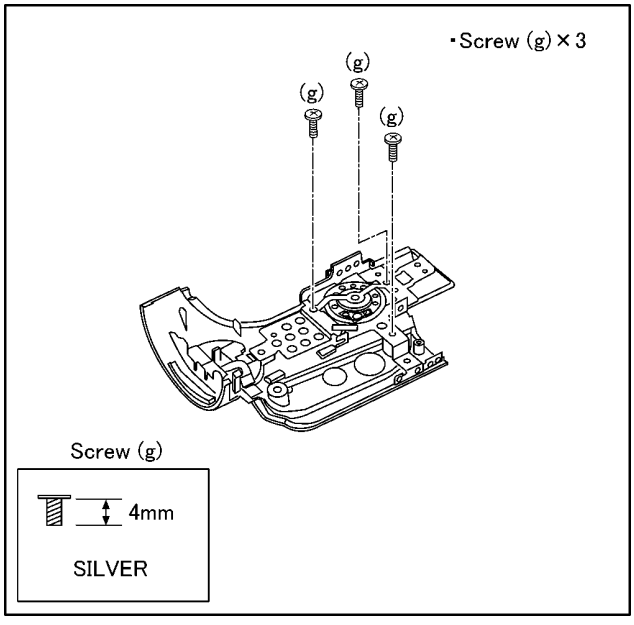

(Fig. D28)

### 8.3.24. Removal of the Rear Operation Unit

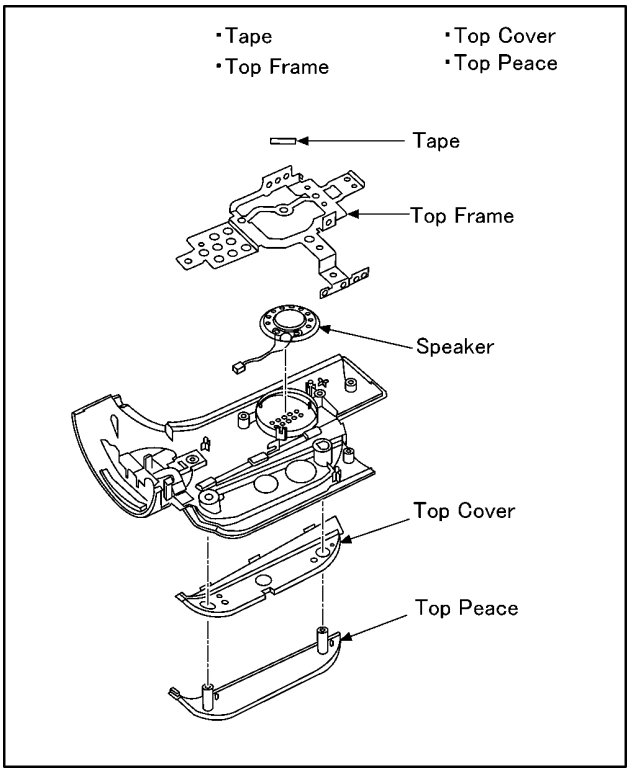



(Fig. D29)

### 8.3.25. Removal of the Speaker

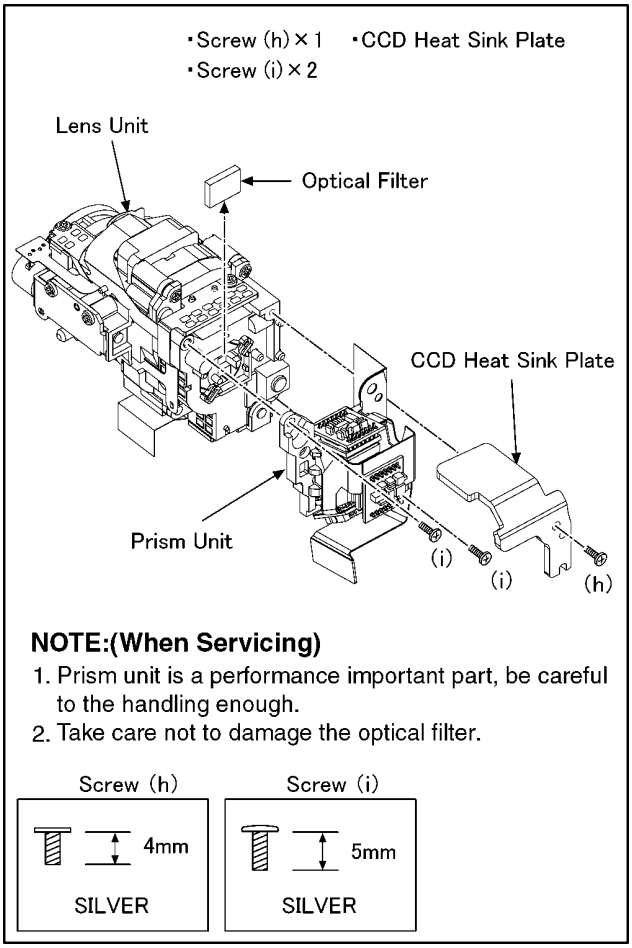



(Fig. D30)



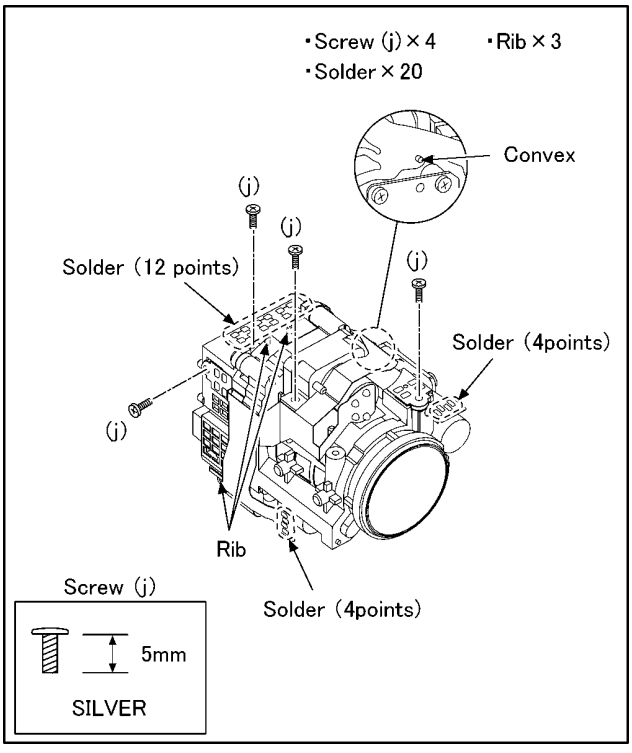

(Fig. D31)

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

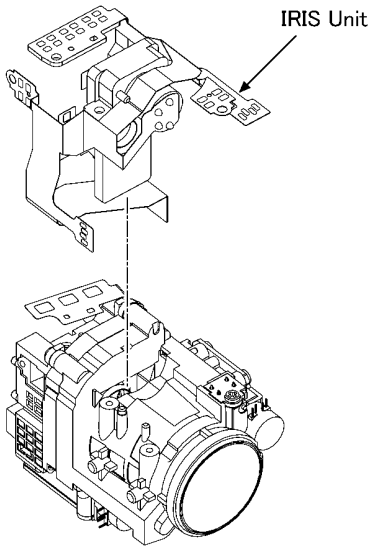



(Fig. D32)

## 8.3.27. Removal of the IRIS Unit




(Fig. D33)

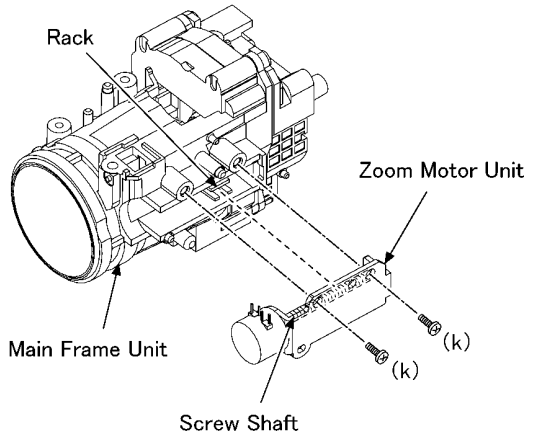



**NOTE: (When Assembling)**

- Do not bend the flex excessively and take care not to damage the flex.

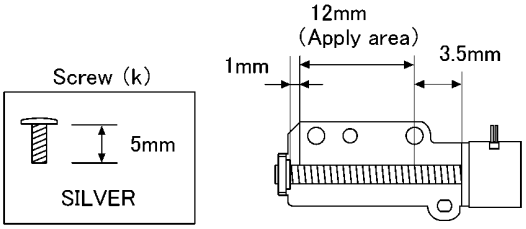
(Fig. D34)

## 8.3.28. Removal of the Zoom Motor Unit



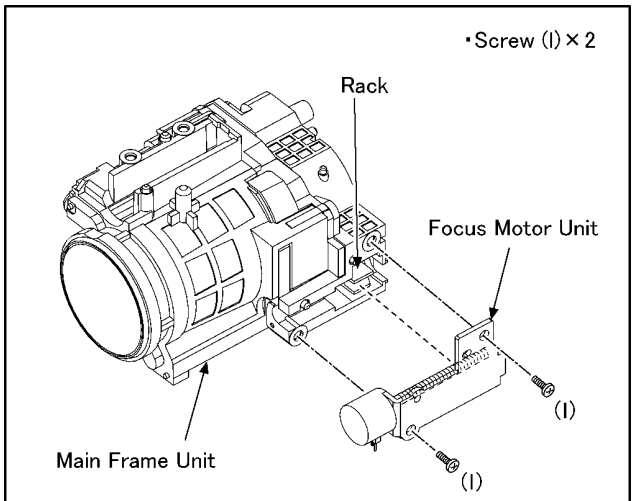

**NOTE:(When lanstalling)**

- Align the screw shaft to the rack for insertion.
- Blow air to the screw shaft of zoom motor unit to prevent the adhesion of foreign material.
- Apply grease to the screw shaft of zoom motor unit.



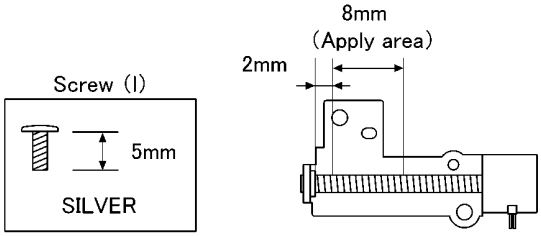

(Fig. D35)

## 8.3.29. Removal of the Focus Motor Unit



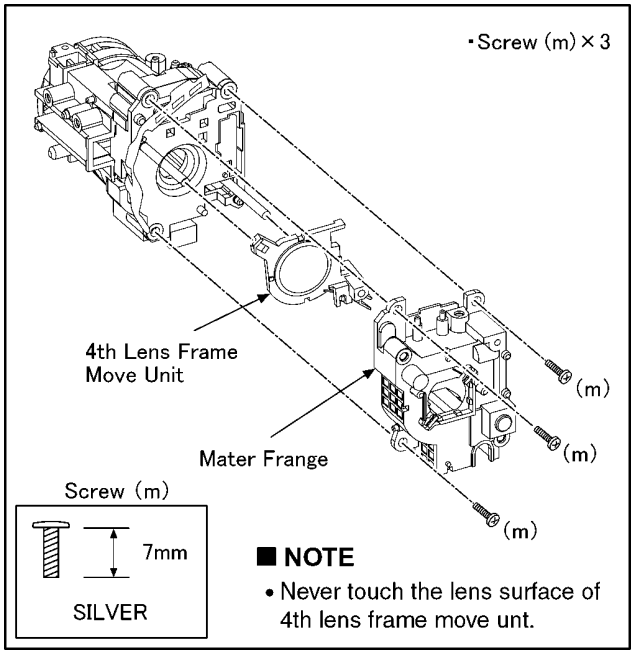

**NOTE:(When lanstalling)**

- Align the screw shaft to the rack for insertion.
- Blow air to the screw shaft of focus motor unit to prevent the adhesion of foreign material.
- Apply grease to the screw shaft of focus motor unit.




(Fig. D36)

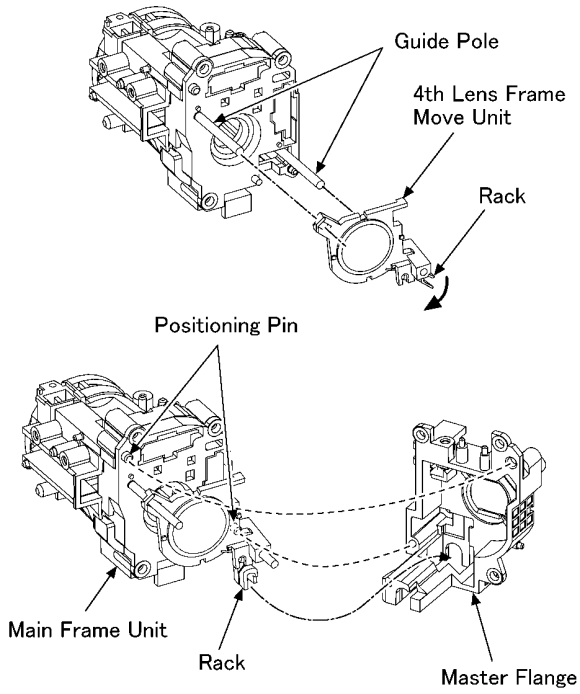
## 8.3.30. Removal of the Master Frange Unit and 4th Lens Frame Move Unit




(Fig. D37)

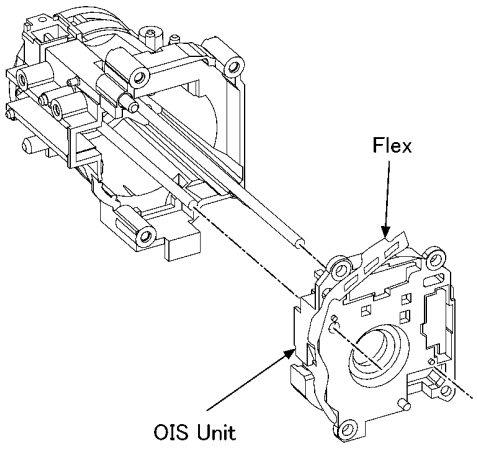
**NOTE: (When Installing)**

1. Move the rack in the direction of the arrow to install 4th lens frame move unit to the guide pole.
2. Be careful to that any foreign particle or dust may not adhere on the lens part of 4th lens frame move unit.
3. Match the positioning hole of master flange to the positioning pin of main frame unit.
4. Make sure that the master flange does not contact with the rack when inserting.




(Fig. D38)

## 8.3.31. Removal of the OIS Unit

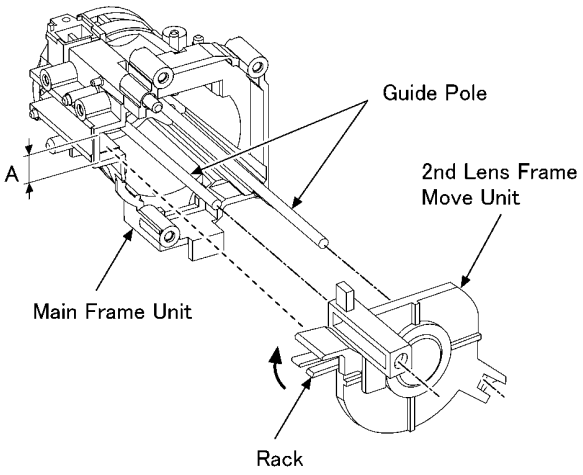



**NOTE: (When Installing)**

1. Be careful to that any foreign particle or dust may not adhere on the lens part of OIS unit.
2. Take care for pinching and break of flex.

(Fig. D39)

## 8.3.32. Removal of the 2nd Lens Frame Move Unit and Guide Pole




**NOTE: (When Installing)**

1. Move rack so as to set in the A range of 1st lens frame move unit.
2. Apply grease to the guide pole.
3. Be careful to that any foreign particle or dust may not adhere on the lens part of 2nd lens frame move unit.

(Fig. D40)

# 9 Measurements and Adjustments

## 9.1. Electric Adjustment

- Adjustment method is different from a conventional SD 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-PAVC" web-site in "TSN System".

**Figure of connection**

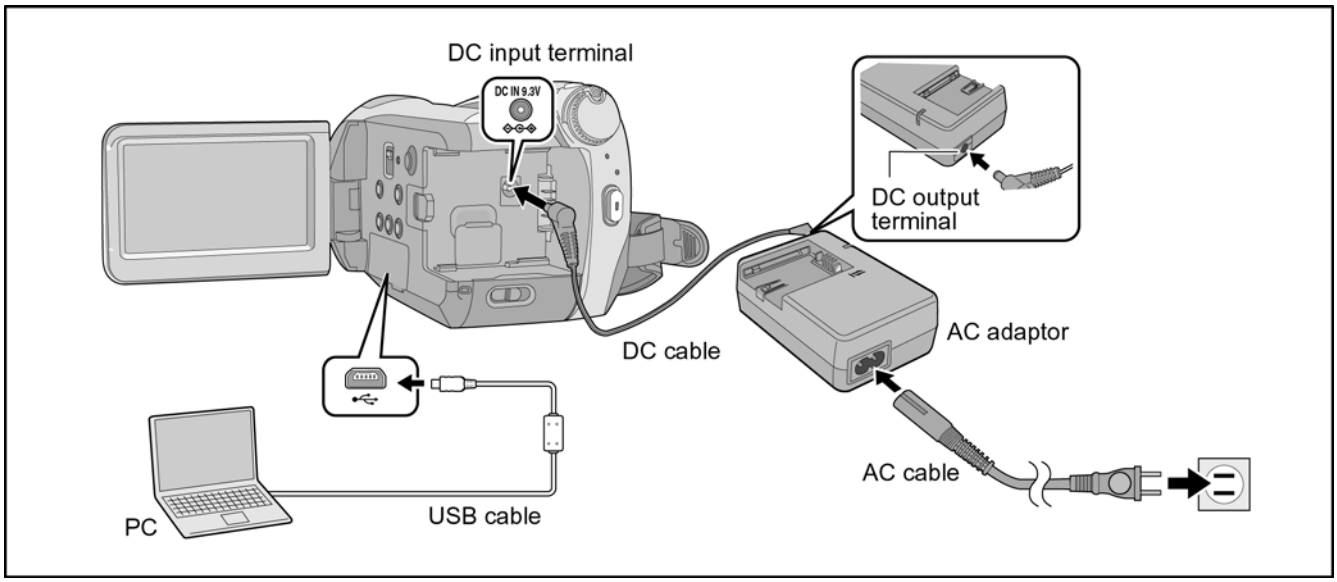
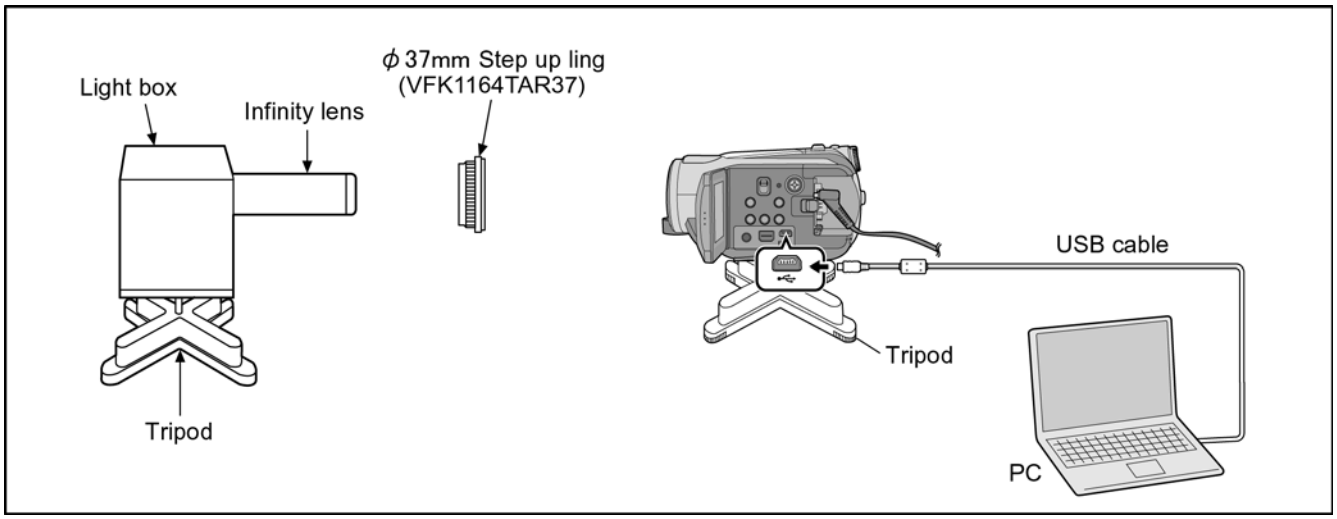



**Figure of image when adjustment**




**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 | DC Cable | ------ | |
| 4 | USB Cable | ------ | |
| 5 | 37mm Step Up Ling | VFK1164TAR37 | |
| 6 | Adjustment Software (Tatsujin) | ------ | |

**Adjustment Items**

- Adjustment item as follows.

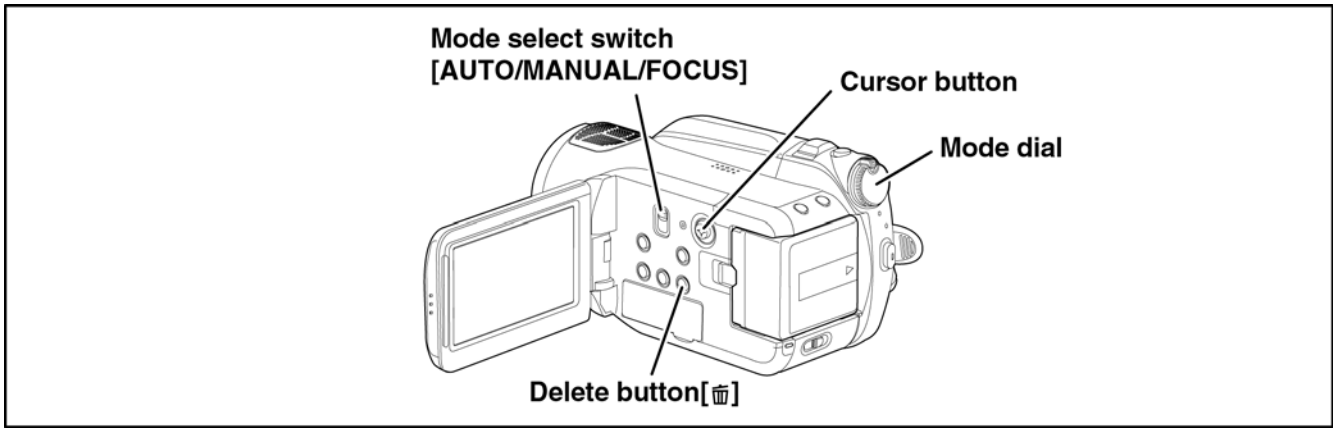
  The adjustment instruction is available at "Software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN System".

| Adjustment item \ Replacement part | | Main P.C.B. | IC2007(EEPROM) | Lens P.C.B. | Prism Unit | IRIS | 4th lens frame move unit | IC3400 |
|---|---|---|---|---|---|---|---|---|
| Camera Part | ●Hall amplifire/PWM bias (Automatic) | ○ | ○ | ○ | ○ | ○ | | |
| | ●OI Hall amplifire adjustment | ○ | ○ | ○ | ○ | ○ | | |
| | ●Zoom tracking adjustment (Automatic) | ○ | ○ | ○ | ○ | ○ | ○ | |
| | ●Address wound revision | ○ | ○ | | ○ | | | |
| | ●White balance adjustment | ○ | ○ | | ○ | | | |
| Video Part | ●Brightness level adjustment | ○ | ○ | | ○ | | | |
| | ●DDR revision | | | | | | | ○ |

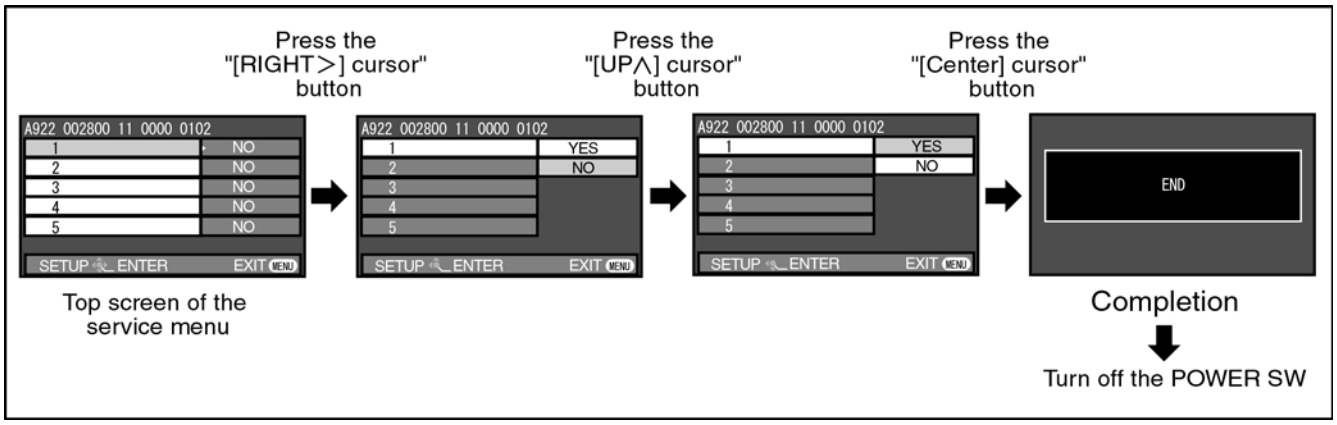
# 10 Factory Setting

## 10.1. HOW TO TURN ON THE FACTORY SETTINGS?

1. Set the mode dial “HDD Recording” mode.
2. While keep pressing the “[LEFT<] of cursor” button and “delete” button, hold down the Mode Select Switch towards to “[FOCUS]” position for more than 3 seconds until the top screen of the Service Menu being displayed.




3. Under the condition of the Item No.”1” is yellow high lighted, press the “[RIGHT>] of cursor“ button.
4. By pressing the “[UP ^] of cursor” button, then press the “[center] of cursor” button.
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. The OSD MENU setting data.
2. Deletion only for all scene files in a card and format of the MPEG2 file system area.
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.

**The setting position of factory settings:**

| Name | Setting position |
|---|---|
| Mode select switch | AUTO |
| Mode dial | OFF |

VM0802007CE

# Service Manual

# Diagrams and Replacement Parts List

High Definition Video Camera

Model No.

| | |
|---|---|
| HDC-HS9P | HDC-HS9EG |
| HDC-HS9PC | HDC-HS9EP |
| HDC-HS9PL | HDC-HS9GC |
| HDC-HS9E | HDC-HS9GK |
| HDC-HS9EB | HDC-HS9GN |
| HDC-HS9EE | HDC-HS9SG |

Vol. 1
Colour
(S).....Silver Type

## Table of contents

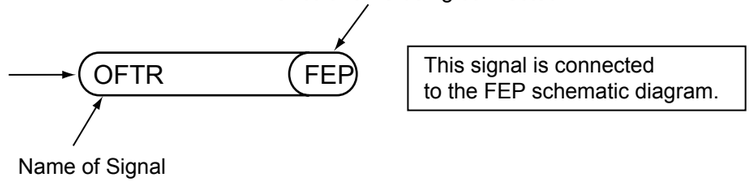


# S1. About Indication of The Schematic Diagram

## S1.1. Important Safety Notice

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

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



# S2. Voltage Chart

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

## S2.1. Flash P.C.B.

| REF No. | PIN No. | POWER ON |
|---|---|---|
| Q7001 | E | 0 |
| Q7001 | C | 0 |
| Q7001 | B | 1 |
| Q7002 | E | 0 |
| Q7002 | C | 1 |
| Q7002 | B | 0 |
| Q7003 | E | 0 |
| Q7003 | C | 2.6 |
| Q7003 | B | 0.8 |
| QR6402 | E | 3.8 |
| QR6402 | C | 3.6 |
| QR6402 | B | 0 |
| QR6403 | E | 3.8 |
| QR6403 | C | 0 |
| QR6403 | B | 4.1 |
| QR7001 | E | 0 |
| QR7001 | C | 2.3 |
| QR7001 | B | 0 |
| QR7008 | E | 0 |
| QR7008 | C | 1 |
| QR7008 | B | 0 |

## S2.2. Side R P.C.B.

| REF No. | PIN No. | POWER ON |
|---|---|---|
| IC601 | 1 | 1.8 |
| IC601 | 2 | 0 |
| IC601 | 3 | 2.5 |
| IC601 | 4 | 2.7 |
| IC601 | 5 | 0 |
| IC601 | 6 | 0 |
| IC601 | 7 | 1.4 |
| IC601 | 8 | 2.7 |
| IC601 | 9 | 3 |
| IC601 | 10 | 0.2 |
| IC601 | 11 | 0.1 |
| IC601 | 12 | 3.2 |
| IC601 | 13 | 3.5 |
| IC601 | 14 | 3.2 |
| IC601 | 15 | 0 |
| IC601 | 16 | 0 |
| IC601 | 17 | 1.4 |
| IC601 | 18 | 1.3 |
| IC601 | 19 | 3.2 |
| IC601 | 20 | 3.2 |
| IC601 | 21 | 3.1 |
| IC601 | 22 | 0 |
| IC601 | 23 | 0 |
| IC601 | 24 | 6 |
| IC601 | 25 | 0 |
| IC601 | 26 | 0 |
| IC601 | 27 | 3.3 |
| IC601 | 28 | 3.3 |
| IC601 | 29 | 3.3 |
| IC601 | 30 | 3.3 |
| IC601 | 31 | 6 |
| IC601 | 32 | 6.6 |
| IC601 | 33 | 6 |
| IC601 | 34 | 0.3 |
| IC601 | 35 | 5.6 |
| IC601 | 36 | 6.3 |
| IC601 | 37 | 0 |
| IC601 | 38 | 2.7 |
| IC601 | 39 | 3.5 |
| IC601 | 40 | 3.5 |
| IC601 | 41 | 6.7 |
| IC601 | 42 | 2 |
| IC601 | 43 | 1.4 |
| IC601 | 44 | 1 |
| IC601 | 45 | 0.9 |
| IC601 | 46 | 0.8 |
| IC601 | 47 | 0.3 |
| IC601 | 48 | 0 |
| IC601 | 49 | 0.2 |
| IC601 | 50 | 0.2 |
| IC601 | 51 | 0.2 |
| IC601 | 52 | 0 |
| IC601 | 53 | 0 |
| IC601 | 54 | 0.2 |
| IC601 | 55 | 0 |
| IC601 | 56 | 2.7 |
| IC601 | 57 | 2.6 |
| IC601 | 58 | 0 |
| IC601 | 59 | 0 |
| IC601 | 60 | 0 |
| IC601 | 61 | 3.2 |
| IC601 | 62 | 0 |
| IC601 | 63 | 0 |
| IC601 | 64 | 1.2 |
| IC604 | 1 | 6 |
| IC604 | 2 | 0 |

| REF No. | PIN No. | POWER ON |
|---|---|---|
| IC604 | 3 | 0 |
| IC604 | 4 | 3.3 |
| IC604 | 5 | 6 |

## S2.3. Mic P.C.B.

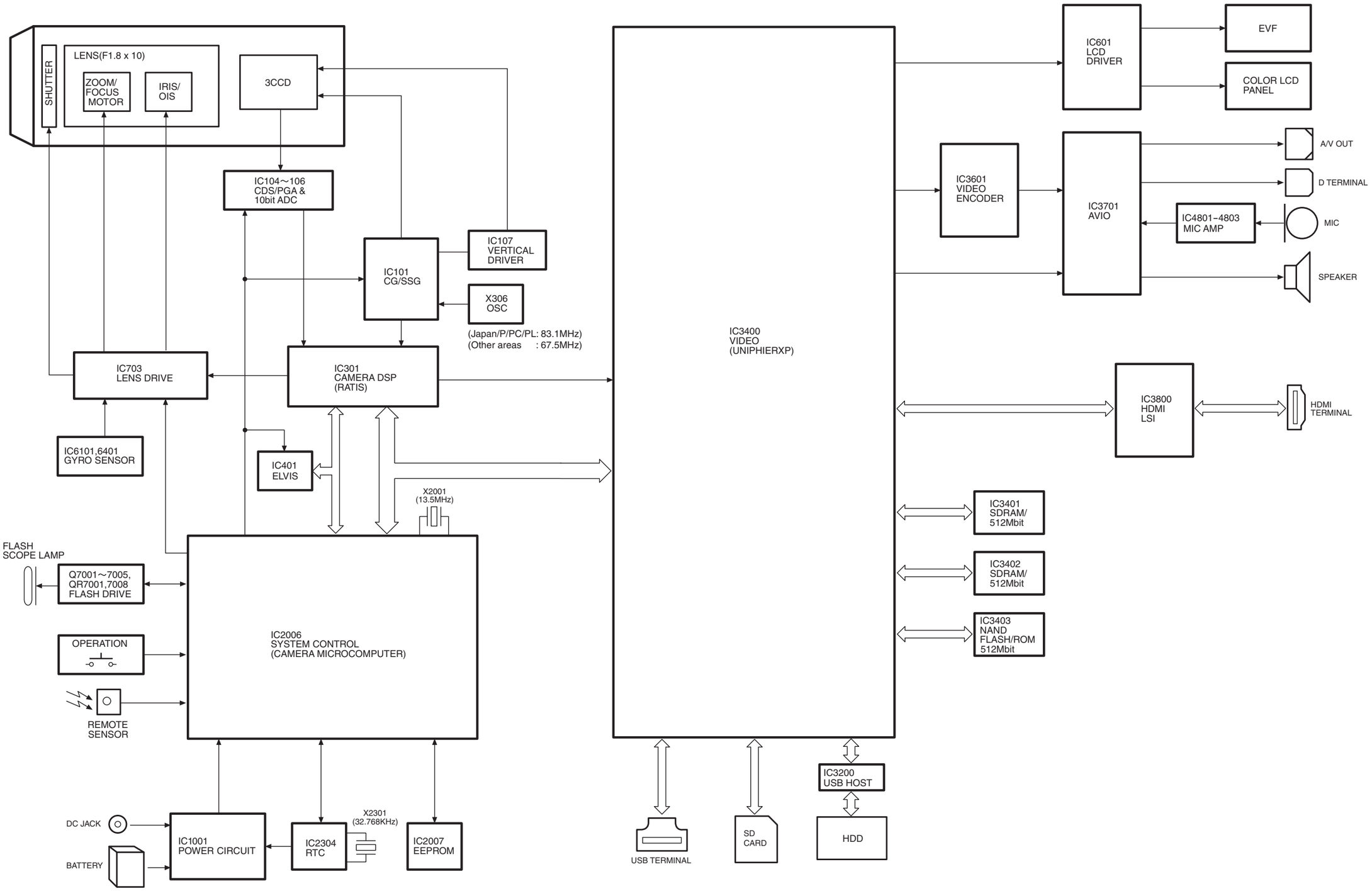
| REF No. | PIN No. | POWER ON |
|---|---|---|
| IC4801 | 1 | 3.3 |
| IC4801 | 2 | 3.3 |
| IC4801 | 3 | 2.8 |
| IC4801 | 4 | 0 |
| IC4801 | 5 | 2.8 |
| IC4801 | 6 | 3.3 |
| IC4801 | 7 | 2.9 |
| IC4801 | 8 | 6.5 |
| IC4803 | 1 | 2.8 |
| IC4803 | 2 | 2.8 |
| IC4803 | 3 | 2.8 |
| IC4803 | 4 | 0 |
| IC4803 | 5 | 2.8 |
| IC4803 | 6 | 2.6 |
| IC4803 | 7 | 2.6 |
| IC4803 | 8 | 6.5 |
| Q4801 | E | 5.7 |
| Q4801 | C | 6.5 |
| Q4801 | B | 6.5 |

## S2.4. Monitor P.C.B.

| REF No. | PIN No. | POWER ON |
|---|---|---|
| Q901 | E | 0.9 |
| Q901 | C | 2.3 |
| Q901 | B | 1.9 |
| Q902 | E | 0.9 |
| Q902 | C | 2.3 |
| Q902 | B | 1.9 |
| Q903 | E | 0.9 |
| Q903 | C | 2.3 |
| Q903 | B | 1.9 |
| Q905 | E | 0 |
| Q905 | C | -6.2 |
| Q905 | B | 0 |
| Q910 | E | 1.9 |
| Q910 | C | 0 |
| Q910 | B | 1 |

# S3. Block Diagram

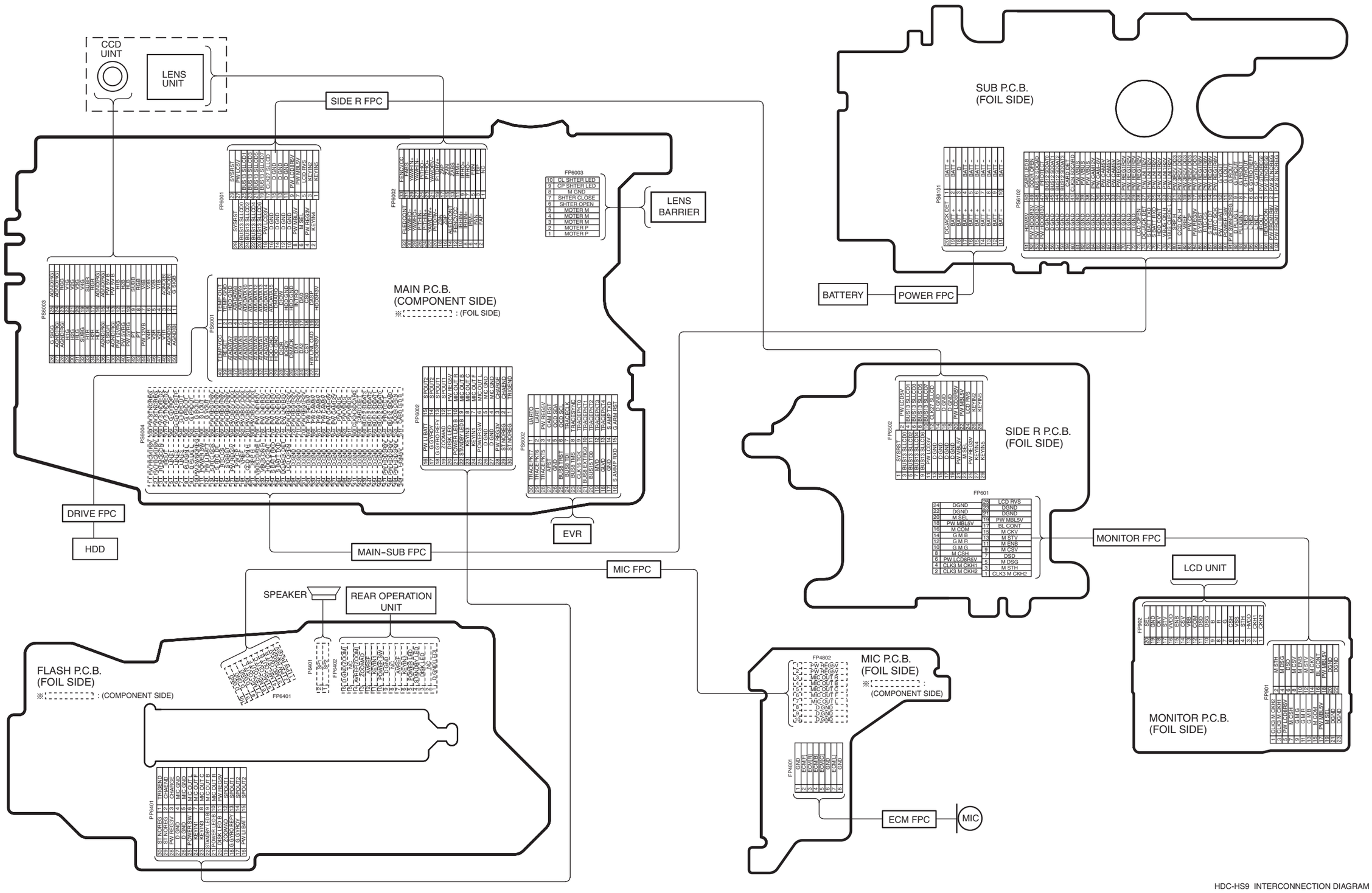
## S3.1. Overall Block Diagram




HDC-HS9 OVERALL BLOCK DIAGRAM

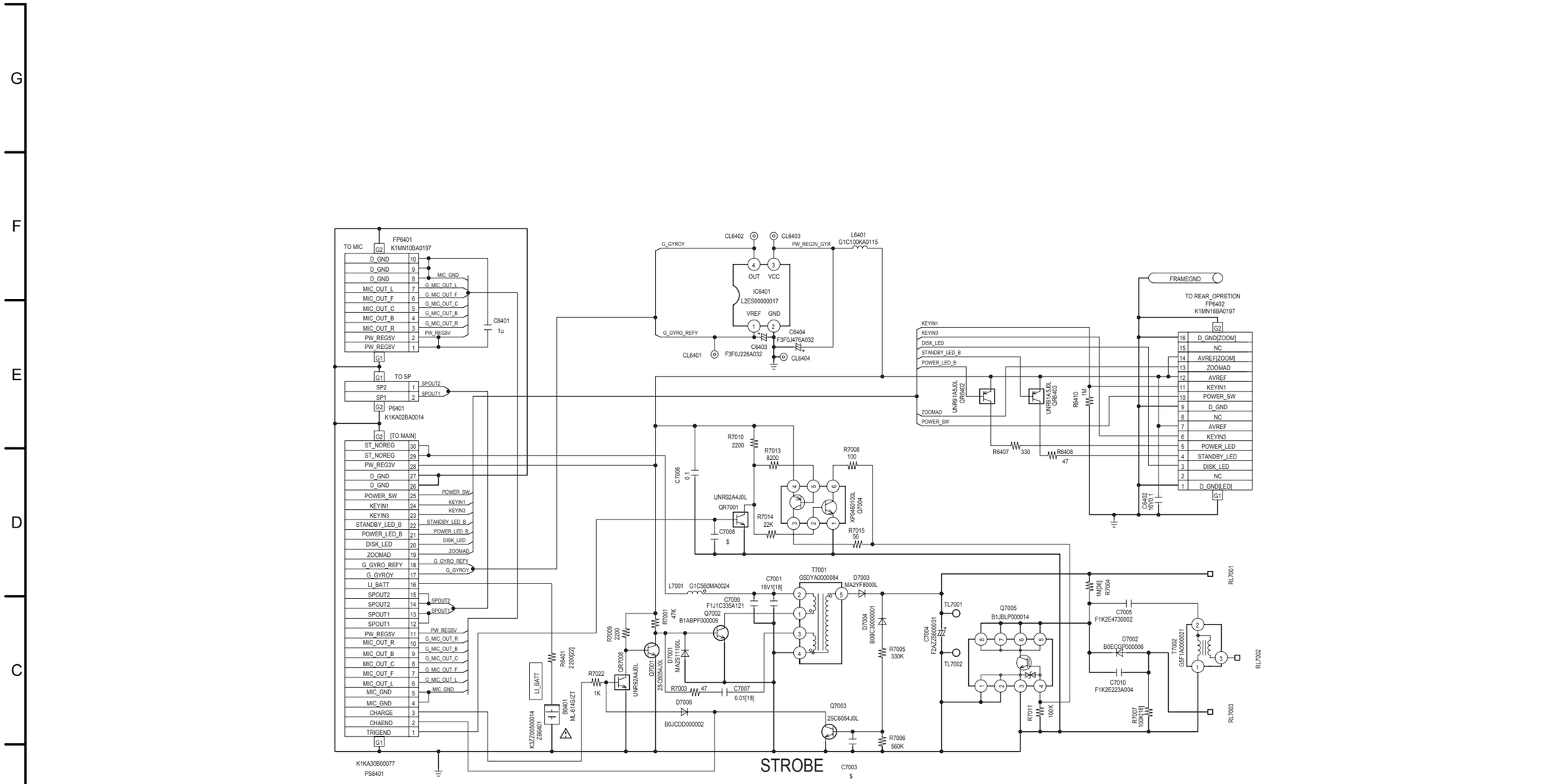
# S4. Schematic Diagram

## S4.1. Interconnection Diagram



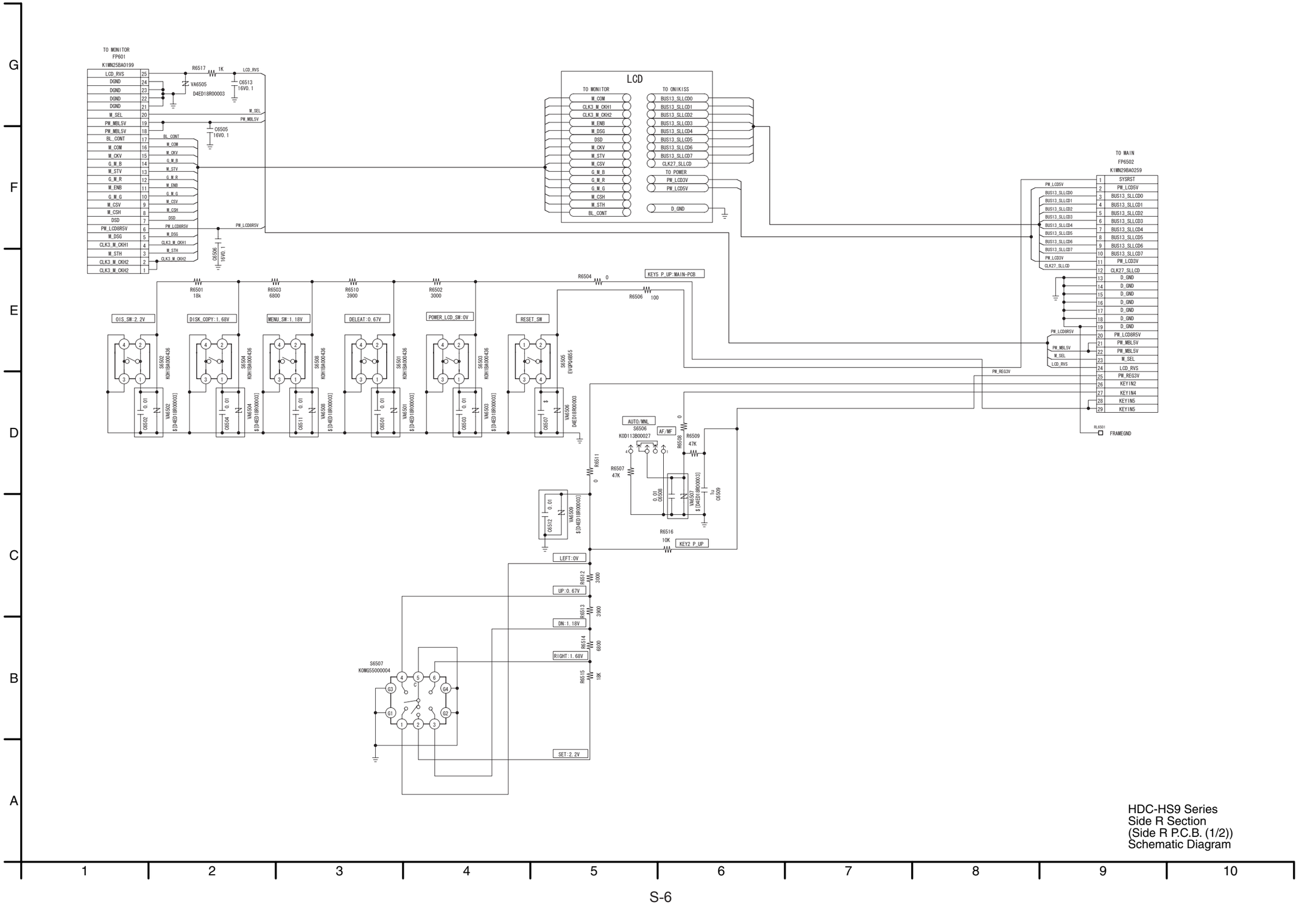

HDC-HS9 INTERCONNECTION DIAGRAM

## S4.2. Flash Schematic Diagram

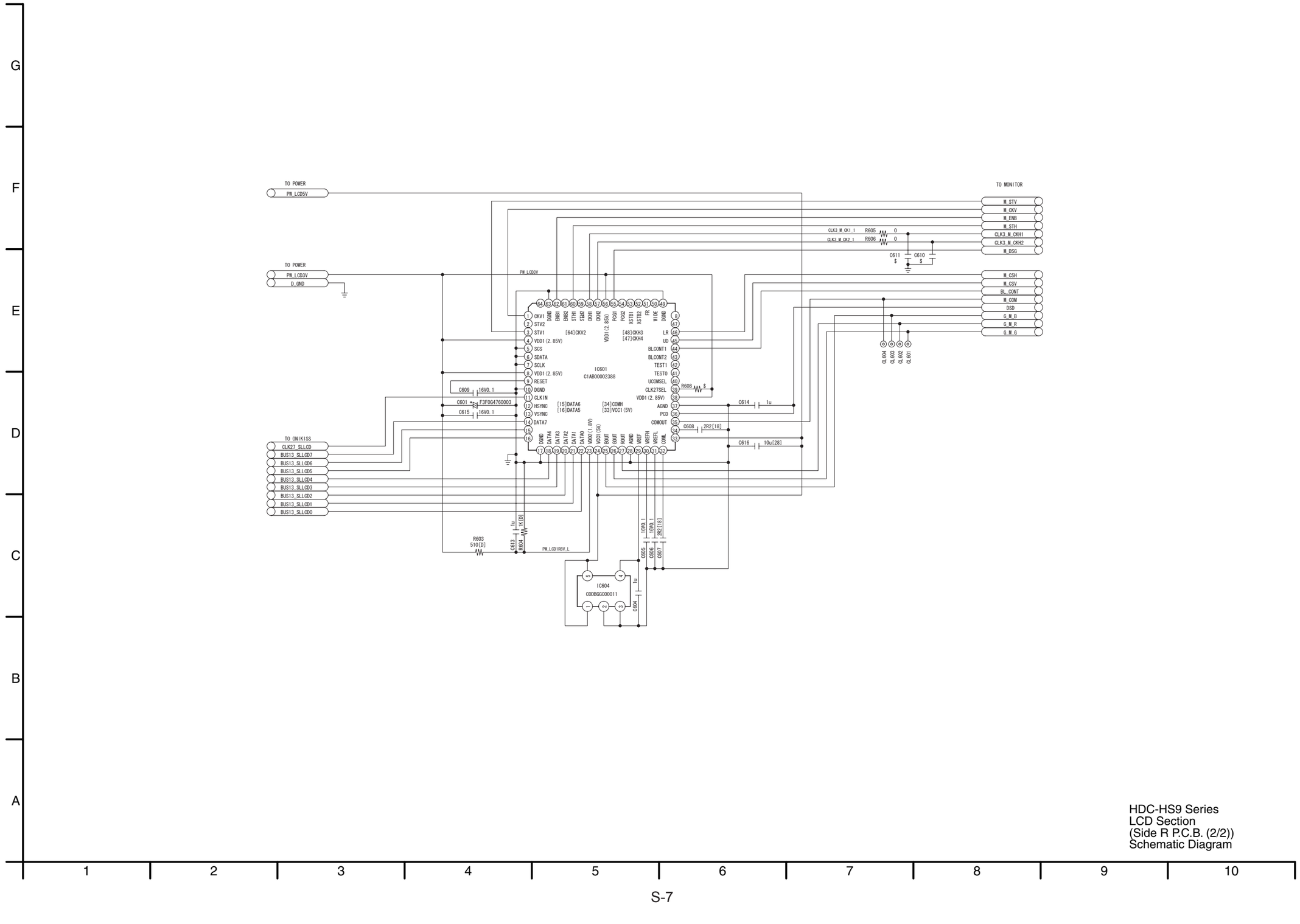



HDC-HS9 Series
Flash
Schematic Diagram

# S4.3. Side R Schematic Diagram

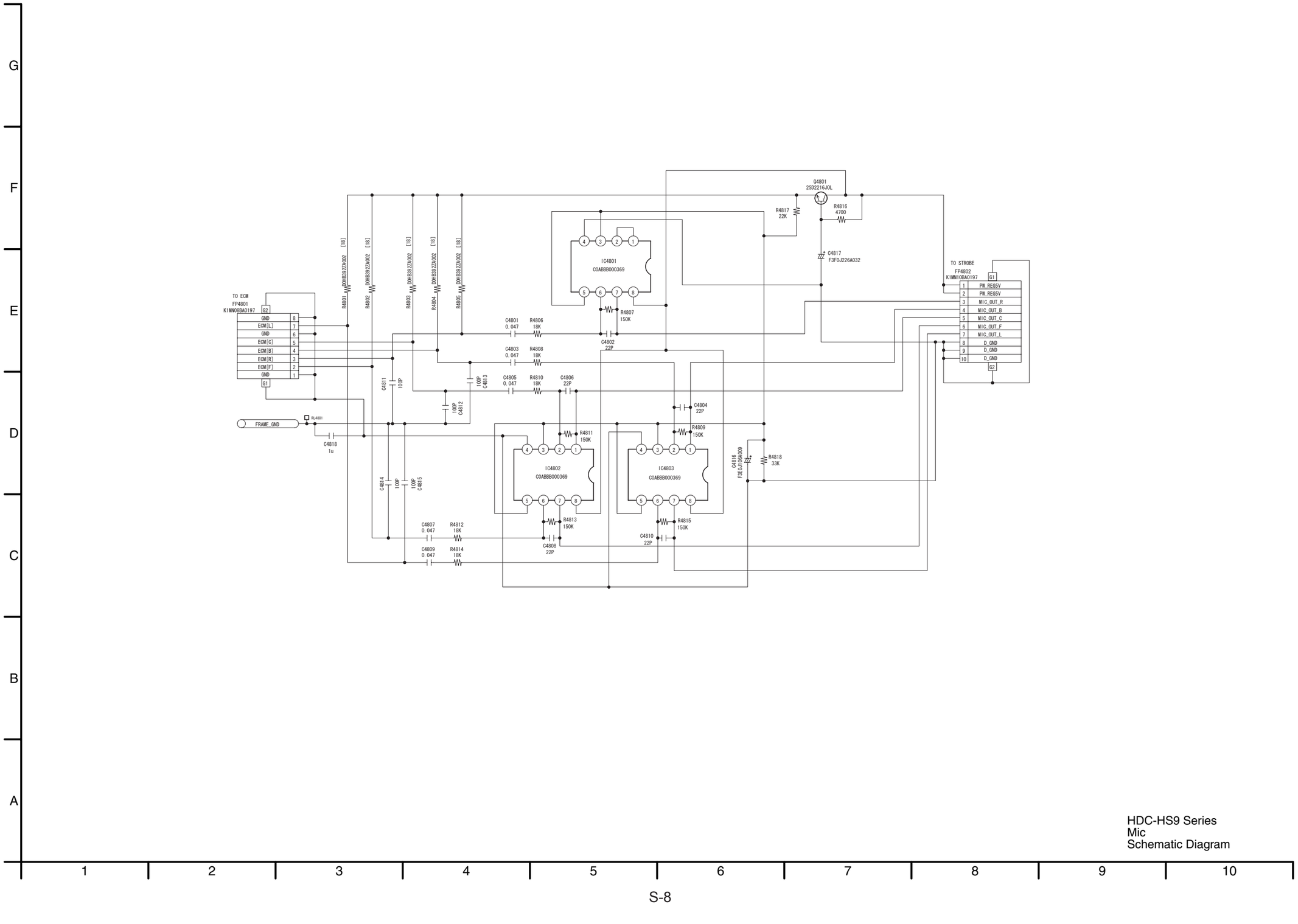


## S4.4. LCD Schematic Diagram



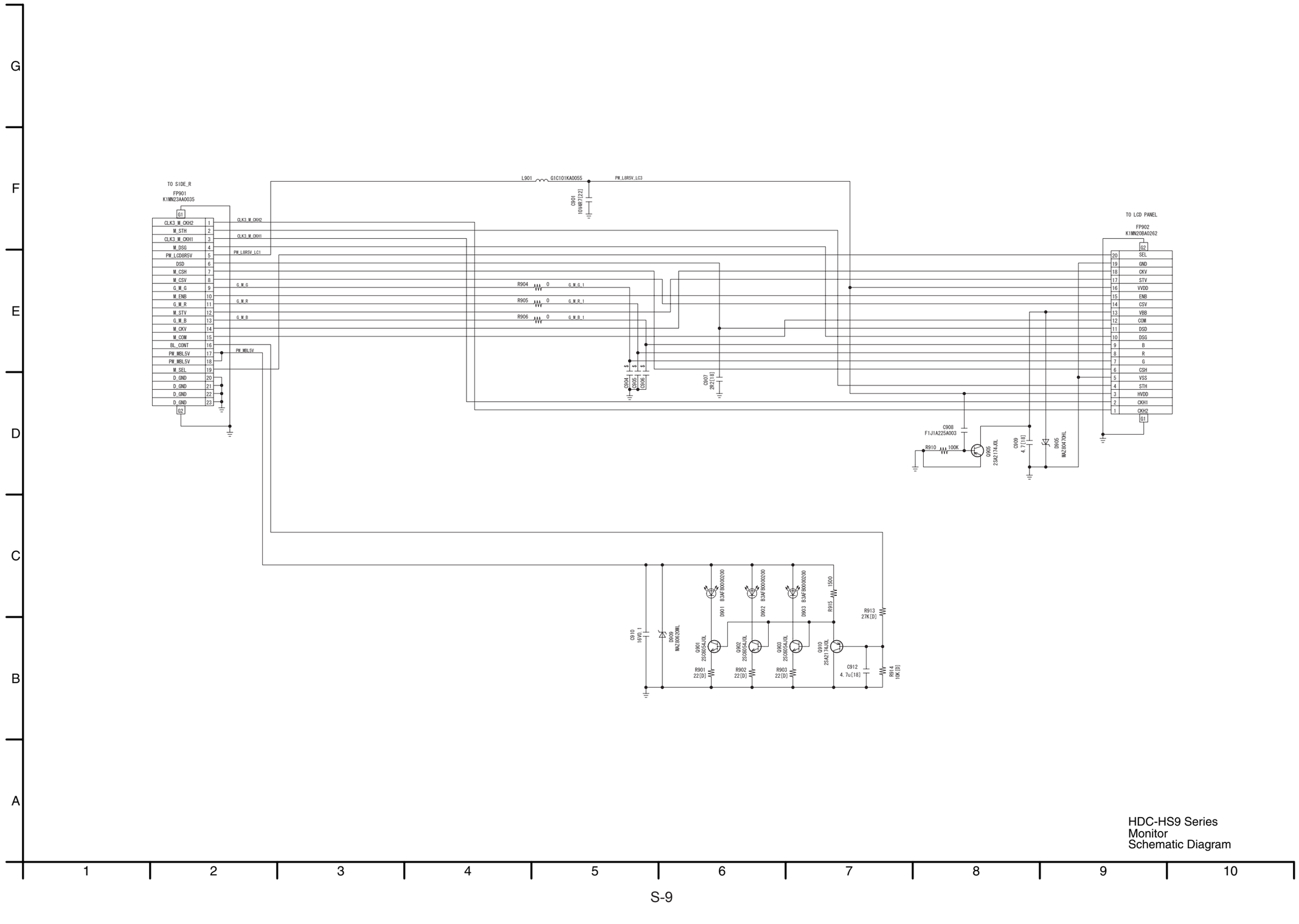

HDC-HS9 Series
LCD Section
(Side R P.C.B. (2/2))
Schematic Diagram

## S4.5. Mic Schematic Diagram

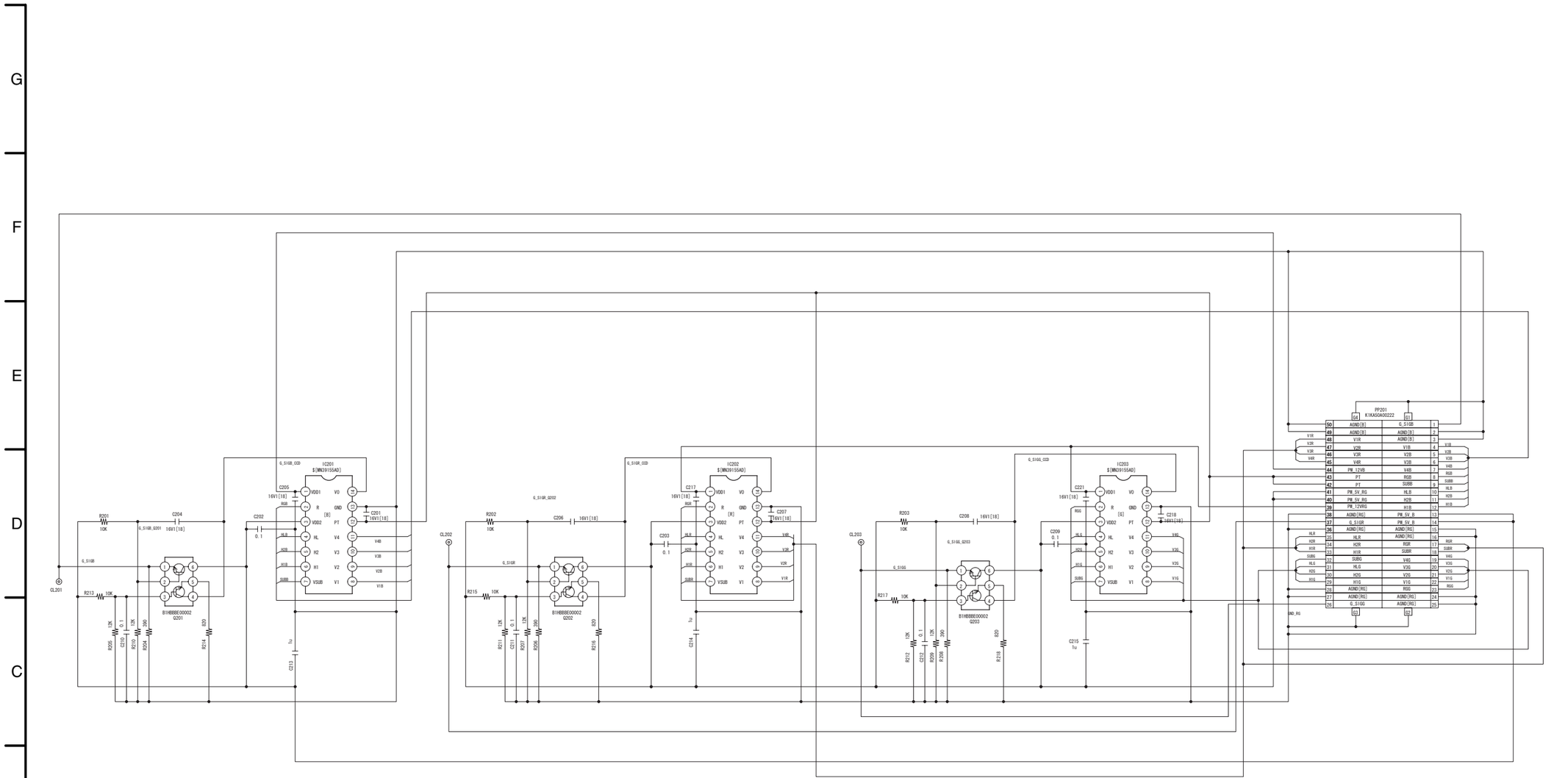



HDC-HS9 Series
Mic
Schematic Diagram

## S4.6. Monitor Schematic Diagram



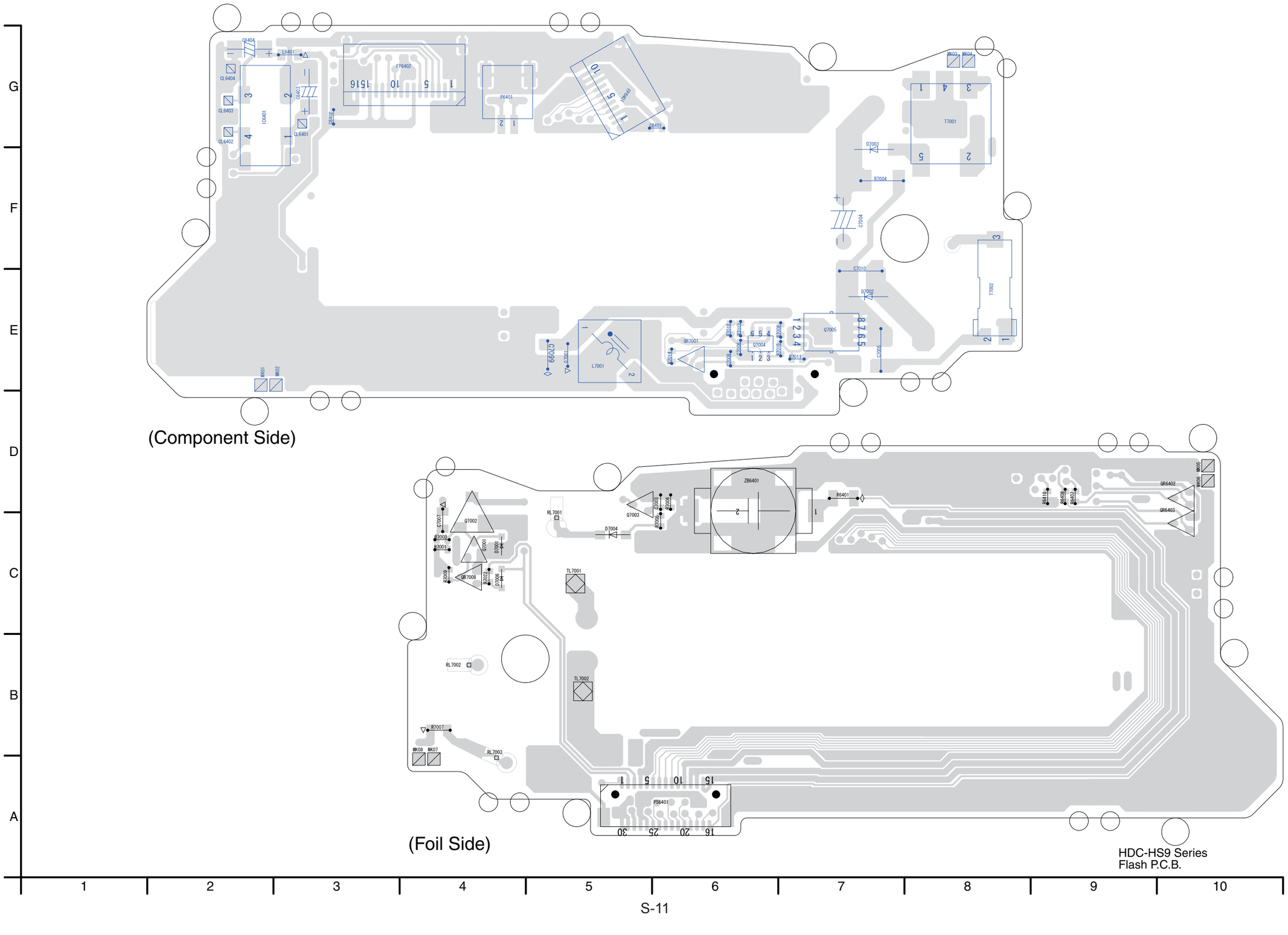
## S4.7. CCD FPC Schematic Diagram



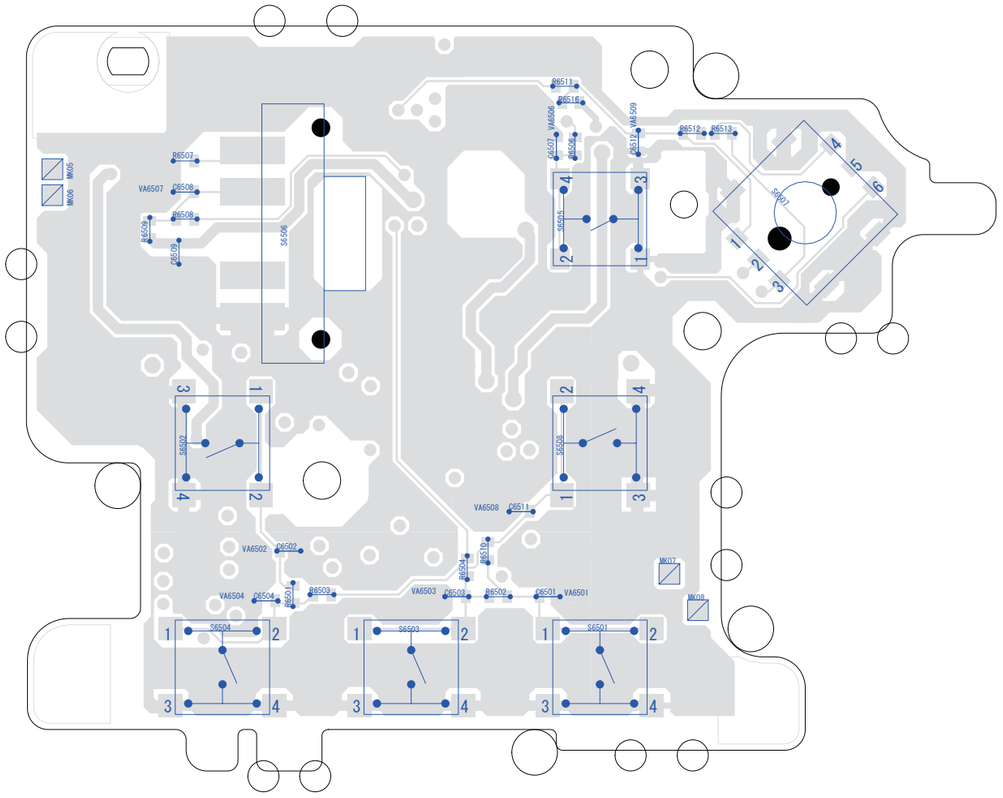

HDC-HS9 Series
CCD FPC
Schematic Diagram

# S5. Print Circuit Board

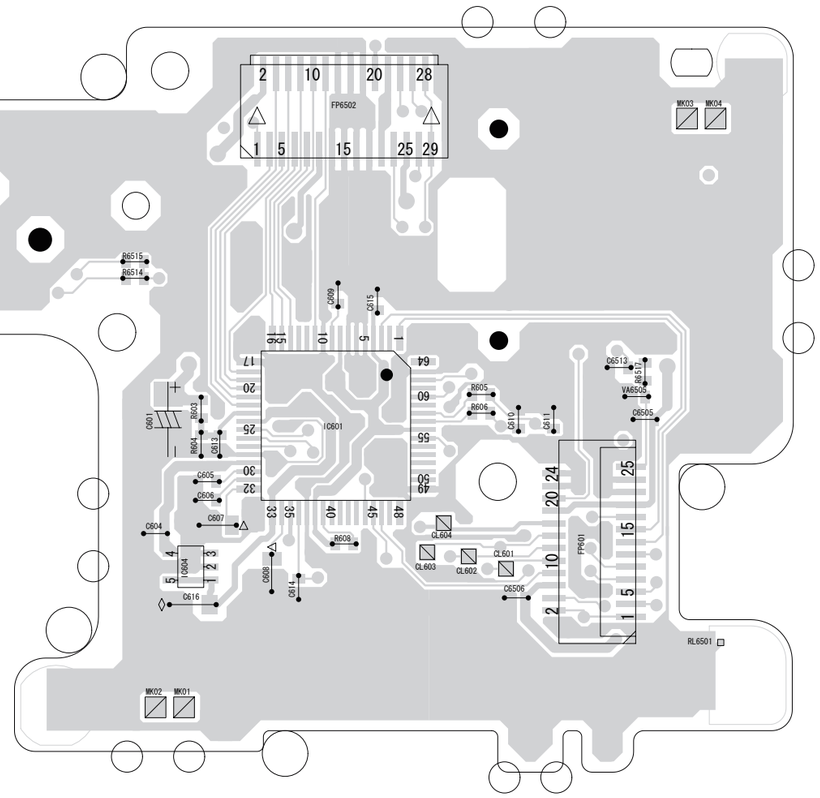
## S5.1. Flash P.C.B.



## S5.2. Side R P.C.B.



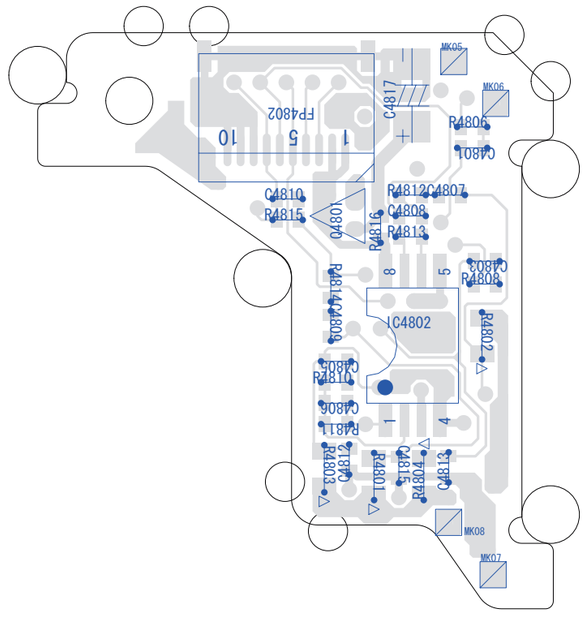

(Component Side)



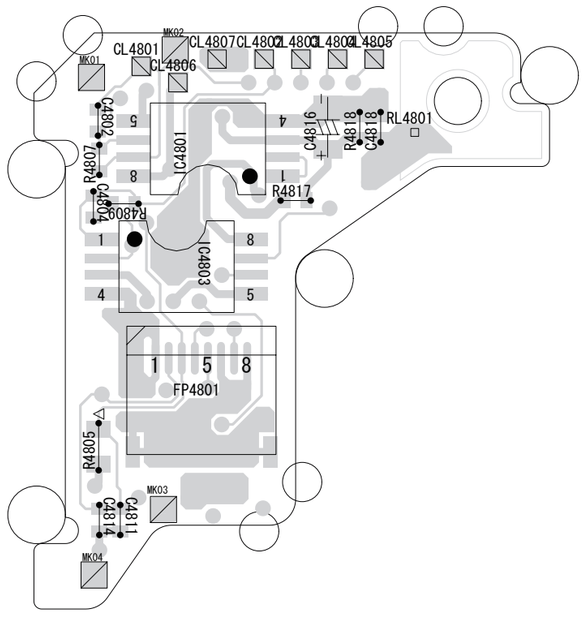

(Foil Side)

HDC-HS9 Series
Side R P.C.B.

## S5.3. Mic P.C.B.




(Component Side)

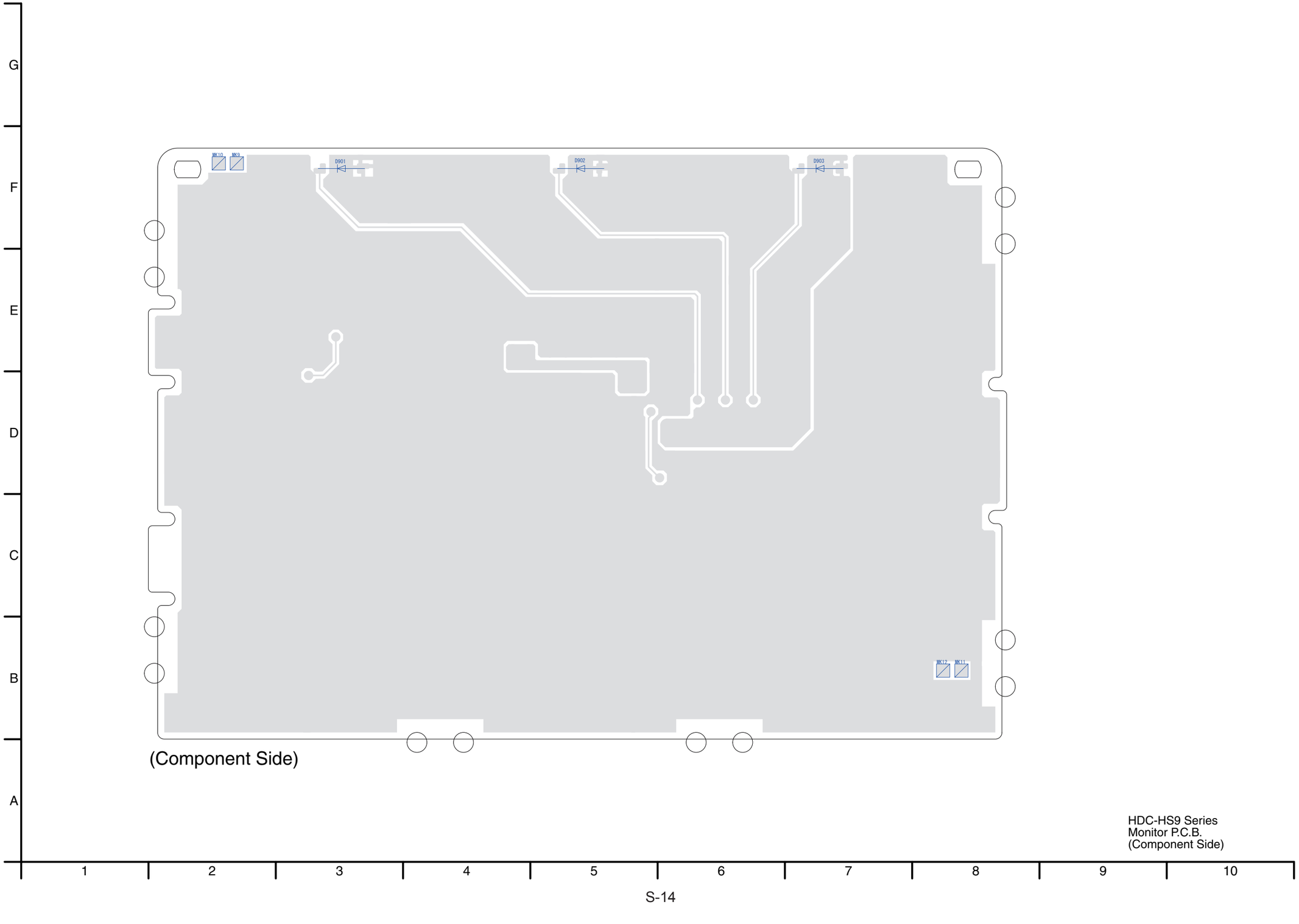



(Foil Side)

HDC-HS9 Series
Mic P.C.B.

## S5.4. Monitor P.C.B.

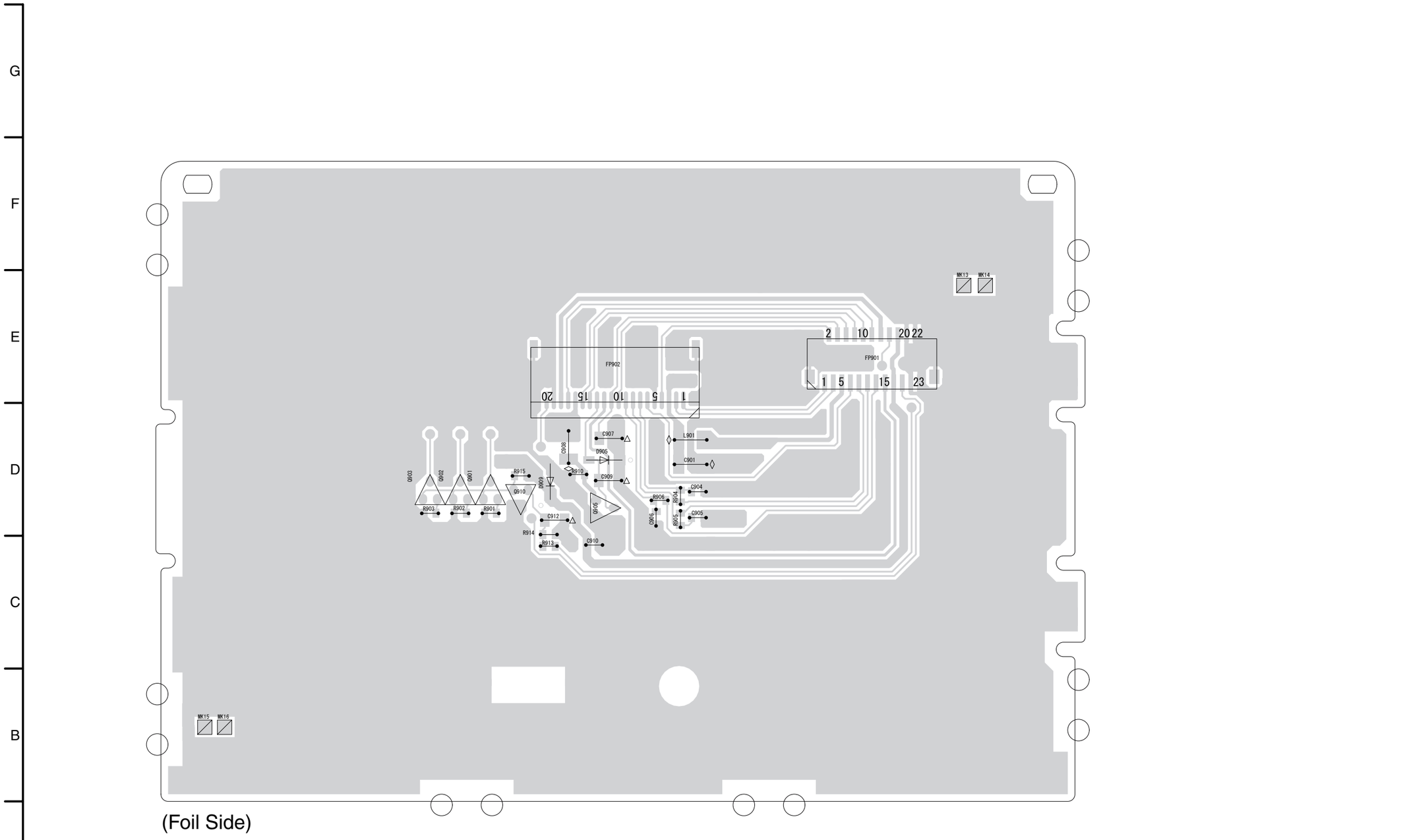
### S5.4.1. Monitor P.C.B. (Component Side)




(Component Side)

HDC-HS9 Series
Monitor P.C.B.
(Component Side)

## S5.4.2. Monitor P.C.B. (Foil Side)

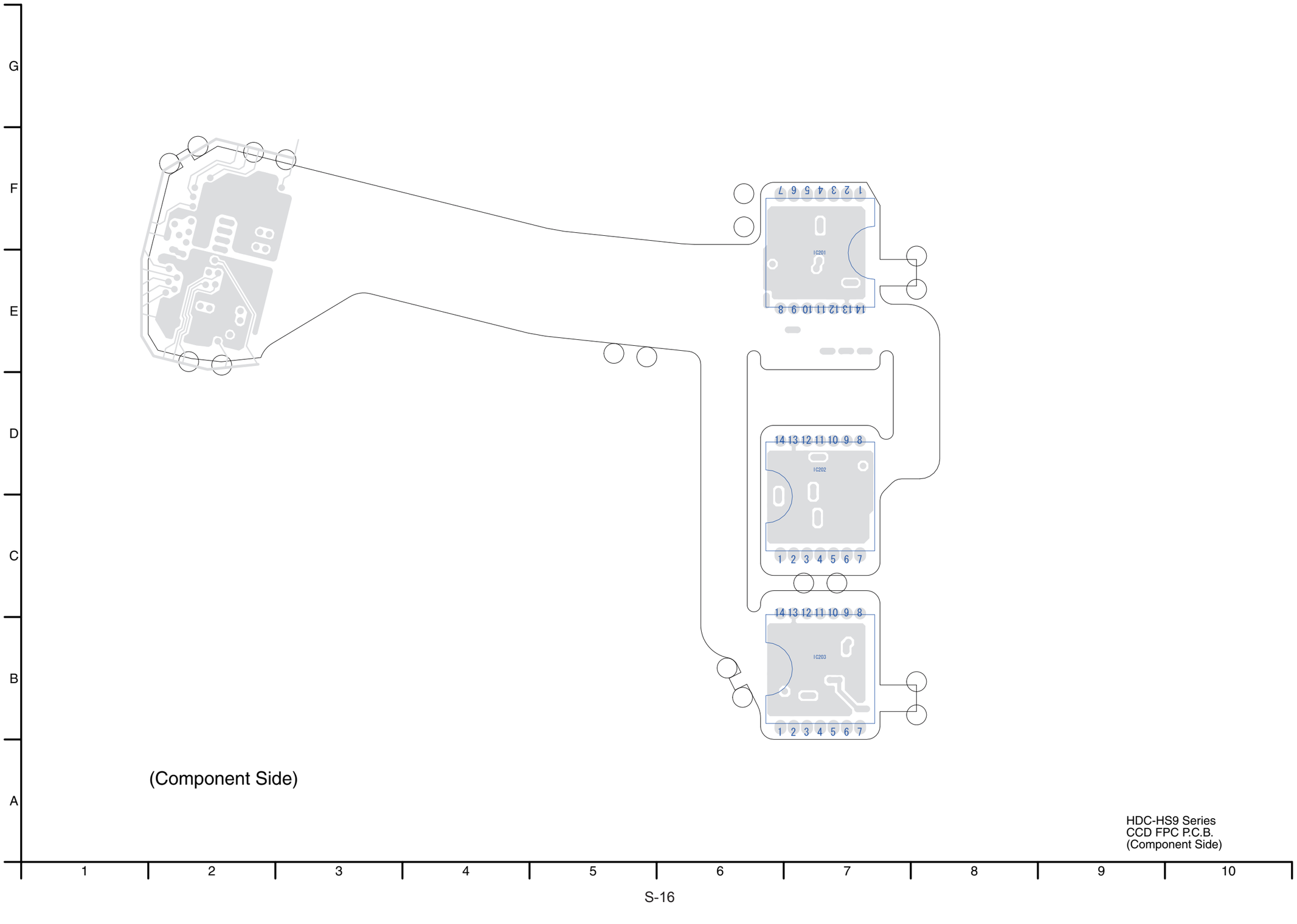



(Foil Side)

HDC-HS9 Series
Monitor P.C.B.
(Foil Side)

## S5.5. CCD FPC P.C.B.

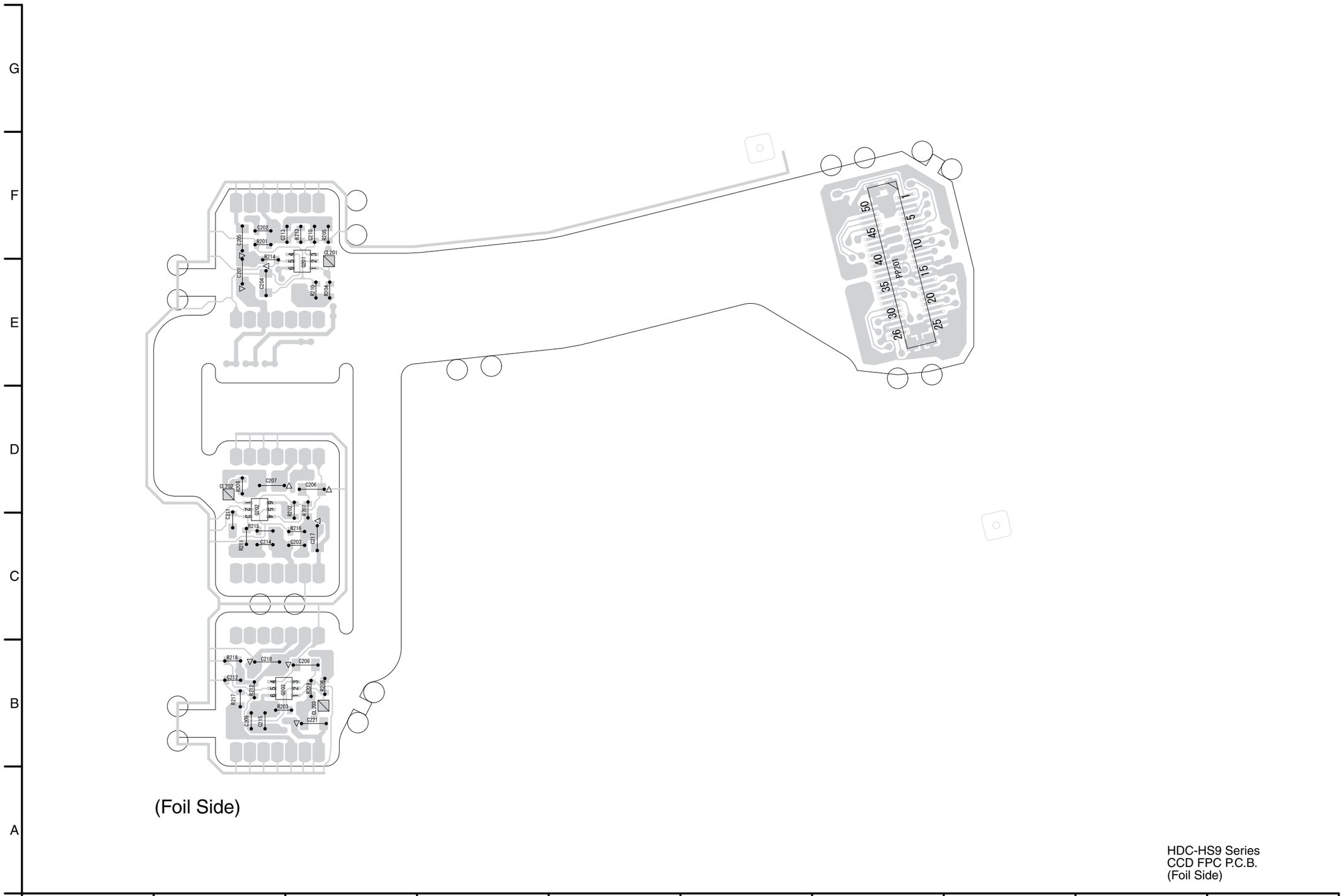
### S5.5.1. CCD FPC P.C.B. (Component Side)




(Component Side)

HDC-HS9 Series
CCD FPC P.C.B.
(Component Side)

## S5.5.2. CCD FPC P.C.B. (Foil Side)



# S6. Replacement Parts List

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

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

**Definition of Parts supplier:**

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

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| ## | VEP03H43B | MAIN P.C.B. | 1 | (RTL)E.S.D. P,PC,PL |
| | | | | |
| ## | VEP03H43C | MAIN P.C.B. | 1 | (RTL)E.S.D. E,EG |
| | | | | |
| ## | VEP03H43N | MAIN P.C.B. | 1 | (RTL)E.S.D. EB |
| | | | | |
| ## | VEP03H43E | MAIN P.C.B. | 1 | (RTL)E.S.D. EE |
| | | | | |
| ## | VEP03H43P | MAIN P.C.B. | 1 | (RTL)E.S.D. EP |
| | | | | |
| ## | VEP03H43D | MAIN P.C.B. | 1 | (RTL)E.S.D. GC,SG |
| | | | | |
| ## | VEP03H43R | MAIN P.C.B. | 1 | (RTL)E.S.D. GN |
| | | | | |
| ## | VEP03H43F | MAIN P.C.B. | 1 | (RTL)E.S.D. GK |
| | | | | |
| ## | VEP01A02B | SUB P.C.B. | 1 | (RTL)E.S.D. |
| | | | | |
| ## | VEP26312A | FLASH P.C.B. | 1 | (RTL)E.S.D. |
| | | | | |
| ## | VEP29200A | SIDE (R) P.C.B. | 1 | (RTL)E.S.D. |
| | | | | |
| ## | VEP24191A | MIC P.C.B. | 1 | (RTL)E.S.D. |
| | | | | |
| ## | VEP26301A | MONITOR P.C.B. | 1 | (RTL)E.S.D. |
| | | | | |
| | | | | |
| | | | | |
| ## | VEP26312A | FLASH P.C.B. | | (RTL)E.S.D. |
| | | | | |
| ⚠ B6401 | ML-614S/ZT | BATTERY | 1 | E.S.D.(BMI) |
| | | | | |
| C6401 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| C6402 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C6403 | F3F0J226A032 | T.CAPACITOR CH 6.3V 22U | 1 | |
| C6404 | F3F0J476A032 | E.CAPACITOR CH 6.3V 47U | 1 | |
| C7001 | ECJ1VB1C105K | C.CAPACITOR CH 16V 1U | 1 | |
| C7004 | F2AZZ5600001 | CAPACITOR | 1 | |
| C7005 | F1K2E4730005 | SURFACE MOUNTING MULTILAY | 1 | |
| C7006 | F1G1A104A012 | C.CAPACITOR CH 10V 0.1U | 1 | |
| C7007 | ECJ1VB1H103K | C.CAPACITOR CH 50V 0.01U | 1 | |
| C7010 | F1K2E223A004 | C.CAPACITOR 250V 0.022U | 1 | |
| C7099 | F1J1C335A121 | C.CAPACITOR CH 16V 3.3U | 1 | |
| | | | | |
| D7001 | MA2S11100L | DIODE | 1 | E.S.D. |
| D7002 | B0ECGP000006 | DIODE | 1 | E.S.D. |
| D7003 | MA2YF8000L | DIODE | 1 | E.S.D. |
| D7004 | B0BC30000001 | DIODE | 1 | E.S.D. |
| D7006 | B0JCDD000002 | DIODE | 1 | E.S.D. |
| | | | | |
| FP6401 | K1MN10BA0197 | CONNECTOR 10P | 1 | |
| FP6402 | K1MN16BA0197 | CONNECTOR 16P | 1 | |
| | | | | |
| IC6401 | L2ES00000017 | GYROSCOPE | 1 | |
| | | | | |
| L6401 | G1C100KA0115 | CHIP INDUCTOR 10UH | 1 | |
| L7001 | G1C560MA0024 | CHIP INDUCTOR 56UH | 1 | |
| | | | | |
| P6401 | K1KA02BA0014 | CONNECTOR 2P | 1 | |
| | | | | |
| PS6401 | K1KA30B00077 | CONNECTOR 30P | 1 | |
| | | | | |
| Q7001 | 2SC6054J0L | TRANSISTOR | 1 | E.S.D. |
| Q7002 | B1ABPF000009 | TRANSISTOR | 1 | E.S.D. |
| Q7003 | 2SC6054J0L | TRANSISTOR | 1 | E.S.D. |
| Q7004 | XP0460100L | TRANSISTOR | 1 | E.S.D. |
| Q7005 | B1JBLP000014 | TRANSISTOR | 1 | E.S.D. |
| | | | | |
| QR6402 | UNR91A5J0L | TRANSISTOR | 1 | E.S.D. |
| QR6403 | UNR91A5J0L | TRANSISTOR | 1 | E.S.D. |
| QR7001 | UNR92A4J0L | TRANSISTOR | 1 | E.S.D. |
| QR7008 | UNR92A4J0L | TRANSISTOR | 1 | E.S.D. |
| | | | | |
| R6401 | ERJ6GEYJ222V | M.RESISTOR CH 1/10W 2.2K | 1 | |
| R6407 | ERJ2GEJ331 | M.RESISTOR CH 1/16W 330 | 1 | |
| R6408 | ERJ2GEJ470 | M.RESISTOR CH 1/16W 47 | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| R6410 | ERJ2GEJ105 | M.RESISTOR CH 1/16W 1M | 1 | |
| R7001 | ERJ2GEJ473Y | M.RESISTOR CH 1/16W 47K | 1 | |
| R7003 | ERJ2GEJ470 | M.RESISTOR CH 1/16W 47 | 1 | |
| R7004 | ERJ8GEYJ105V | M.RESISTOR CH 1/8W 1M | 1 | |
| R7005 | ERJ2GEJ334 | M.RESISTOR CH 1/16W 330K | 1 | |
| R7006 | ERJ2GEJ564 | M.RESISTOR CH 1/16W 560K | 1 | |
| R7007 | ERJ3GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R7008 | ERJ2GEJ101 | M.RESISTOR CH 1/16W 100 | 1 | |
| R7009 | ERJ2GEJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R7010 | ERJ2GEJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R7011 | ERJ2GEJ104 | M.RESISTOR CH 1/16W 100K | 1 | |
| R7013 | ERJ2GEJ822 | M.RESISTOR CH 1/16W 8.2K | 1 | |
| R7014 | ERJ2GEJ223 | M.RESISTOR CH 1/16W 22K | 1 | |
| R7015 | ERJ2GEJ560 | M.RESISTOR CH 1/16W 56 | 1 | |
| R7022 | ERJ2GEJ102X | M.RESISTOR CH 1/16W 1K | 1 | |
| | | | | |
| T7001 | G5DYA0000084 | SWITCHING TRANSFORMER | 1 | |
| T7002 | G5F1A0000021 | TRIGGER COIL | 1 | |
| | | | | |
| ZB6401 | K3ZZ00500014 | CONNECTOR | 1 | |
| | | | | |
| | | | | |
| | | | | |
| ## | VEP29200A | SIDE (R) P.C.B. | | (RTL)E.S.D. |
| | | | | |
| C601 | F3F0G4760003 | E.CAPACITOR CH 4V 47U | 1 | |
| C604 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| C605 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C606 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C607 | F1H0J225A002 | C.CAPACITOR CH 6.3V 2.2U | 1 | |
| C608 | F1H0J225A002 | C.CAPACITOR CH 6.3V 2.2U | 1 | |
| C609 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C613 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| C614 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| C615 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C616 | F1JOJ106A049 | C.CAPACITOR CH 6.3V 10U | 1 | |
| C6501 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6502 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6503 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6504 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6505 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C6506 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C6508 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6509 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| C6511 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6512 | ECJ0EB1C103K | C.CAPACITOR CH 16V 0.01U | 1 | |
| C6513 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| | | | | |
| FP601 | K1MN25BA0199 | CONNECTOR 25P | 1 | |
| FP6502 | K1MN29BA0259 | CONNECTOR 29P | 1 | |
| | | | | |
| IC601 | C1AB00002388 | IC | 1 | (RTL)E.S.D. |
| IC604 | C0DBGGC00011 | IC | 1 | (RTL)E.S.D. |
| | | | | |
| R603 | ERJ2RHD511 | M.RESISTOR CH 1/16W 510 | 1 | |
| R604 | ERJ2RHD102 | M.RESISTOR CH 1/16W 1K | 1 | |
| R605 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R606 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R6501 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R6502 | ERJ2GEJ302 | M.RESISTOR CH 1/16W 3K | 1 | |
| R6503 | ERJ2RHD682X | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R6504 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R6506 | ERJ2GEJ101 | M.RESISTOR CH 1/16W 100 | 1 | |
| R6507 | ERJ2GEJ473Y | M.RESISTOR CH 1/16W 47K | 1 | |
| R6508 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R6509 | ERJ2GEJ473Y | M.RESISTOR CH 1/16W 47K | 1 | |
| R6510 | ERJ2GEJ392 | M.RESISTOR CH 1/16W 3.9K | 1 | |
| R6511 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R6512 | ERJ2GEJ302 | M.RESISTOR CH 1/16W 3K | 1 | |
| R6513 | ERJ2GEJ392 | M.RESISTOR CH 1/16W 3.9K | 1 | |
| R6514 | ERJ2RHD682X | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R6515 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R6516 | ERJ2GEJ103 | M.RESISTOR CH 1/16W 10K | 1 | |
| R6517 | ERJ2GEJ102X | M.RESISTOR CH 1/16W 1K | 1 | |
| | | | | |
| S6501 | K0H1BA000436 | SWITCH | 1 | |
| S6502 | K0H1BA000436 | SWITCH | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| S6503 | K0H1BA000436 | SWITCH | 1 | |
| S6504 | K0H1BA000436 | SWITCH | 1 | |
| S6505 | EVQPQ6B55 | SWITCH | 1 | |
| S6506 | VSS0533 | SWITCH | 1 | |
| S6507 | K0MG55000004 | SWITCH | 1 | |
| S6508 | K0H1BA000436 | SWITCH | 1 | |
| | | | | |
| VA6505 | D4ED18R00003 | VARISTORS | 1 | |
| VA6506 | D4ED18R00003 | VARISTORS | 1 | |
| | | | | |
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| ## | VEP24191A | MIC P.C.B. | | (RTL)E.S.D. |
| | | | | |
| C4801 | ECJ0EB1A473K | C.CAPACITOR CH 10V 0.047U | 1 | |
| C4802 | ECJ0EC1H220J | C.CAPACITOR CH 50V 22P | 1 | |
| C4803 | ECJ0EB1A473K | C.CAPACITOR CH 10V 0.047U | 1 | |
| C4804 | ECJ0EC1H220J | C.CAPACITOR CH 50V 22P | 1 | |
| C4805 | ECJ0EB1A473K | C.CAPACITOR CH 10V 0.047U | 1 | |
| C4806 | ECJ0EC1H220J | C.CAPACITOR CH 50V 22P | 1 | |
| C4807 | ECJ0EB1A473K | C.CAPACITOR CH 10V 0.047U | 1 | |
| C4808 | ECJ0EC1H220J | C.CAPACITOR CH 50V 22P | 1 | |
| C4809 | ECJ0EB1A473K | C.CAPACITOR CH 10V 0.047U | 1 | |
| C4810 | ECJ0EC1H220J | C.CAPACITOR CH 50V 22P | 1 | |
| C4811 | ECJ0EC1H101J | C.CAPACITOR CH 50V 100P | 1 | |
| C4812 | ECJ0EC1H101J | C.CAPACITOR CH 50V 100P | 1 | |
| C4813 | ECJ0EC1H101J | C.CAPACITOR CH 50V 100P | 1 | |
| C4814 | ECJ0EC1H101J | C.CAPACITOR CH 50V 100P | 1 | |
| C4815 | ECJ0EC1H101J | C.CAPACITOR CH 50V 100P | 1 | |
| C4816 | F3E0J106A009 | E.CAPACITOR CH 6.3V 22U | 1 | |
| C4817 | F3F0J226A032 | T.CAPACITOR CH 6.3V 22U | 1 | |
| C4818 | F1G0J1050007 | C.CAPACITOR CH 6.3V 1U | 1 | |
| | | | | |
| FP4801 | K1MN08BA0197 | CONNECTOR 8P | 1 | |
| FP4802 | K1MN10BA0197 | CONNECTOR 10P | 1 | |
| | | | | |
| IC4801 | C0ABBB000369 | IC | 1 | E.S.D. |
| IC4802 | C0ABBB000369 | IC | 1 | E.S.D. |
| IC4803 | C0ABBB000369 | IC | 1 | E.S.D. |
| | | | | |
| Q4801 | 2SD2216J0L | TRANSISTOR | 1 | E.S.D. |
| | | | | |
| R4801 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4802 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4803 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4804 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4805 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4806 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R4807 | ERJ2GEJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4808 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R4809 | ERJ2GEJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4810 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R4811 | ERJ2GEJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4812 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R4813 | ERJ2GEJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4814 | ERJ2GEJ183 | M.RESISTOR CH 1/16W 18K | 1 | |
| R4815 | ERJ2GEJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4816 | ERJ2GEJ472 | M.RESISTOR CH 1/16W 4.7K | 1 | |
| R4817 | ERJ2GEJ223 | M.RESISTOR CH 1/16W 22K | 1 | |
| R4818 | ERJ2GEJ333 | M.RESISTOR CH 1/16W 33K | 1 | |
| | | | | |
| | | | | |
| | | | | |
| ## | VEP26301A | MONITOR P.C.B. | | (RTL)E.S.D. |
| | | | | |
| C901 | F1J1A475A023 | C.CAPACITOR CH 10V 4.7U | 1 | |
| C907 | F1H0J225A002 | C.CAPACITOR CH 6.3V 2.2U | 1 | |
| C908 | F1J1A2250007 | C.CAPACITOR CH 10V 2.2U | 1 | |
| C909 | F1H0J475A010 | C.CAPACITOR CH 6.3V 4.7U | 1 | |
| C910 | F1G1C104A080 | C.CAPACITOR CH 16V 0.1U | 1 | |
| C912 | F1H0J475A010 | C.CAPACITOR CH 6.3V 4.7U | 1 | |
| | | | | |
| D901 | B3AFB0000200 | LED | 1 | E.S.D. |
| D902 | B3AFB0000200 | LED | 1 | E.S.D. |
| D903 | B3AFB0000200 | LED | 1 | E.S.D. |
| D905 | MAZ80470HL | DIODE | 1 | E.S.D. |
| D909 | MAZ80620ML | DIODE | 1 | E.S.D. |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| FP901 | K1MN23AA0035 | CONNECTOR 23P | 1 | |
| FP902 | K1MN20BA0262 | CONNECTOR 20P | 1 | |
| | | | | |
| L901 | G1C101KA0055 | CHIP INDUCTOR 100UH | 1 | |
| | | | | |
| Q901 | 2SC6054J0L | TRANSISTOR | 1 | E.S.D. |
| Q902 | 2SC6054J0L | TRANSISTOR | 1 | E.S.D. |
| Q903 | 2SC6054J0L | TRANSISTOR | 1 | E.S.D. |
| Q905 | 2SA2174J0L | TRANSISTOR | 1 | E.S.D. |
| Q910 | 2SA2174J0L | TRANSISTOR | 1 | E.S.D. |
| | | | | |
| R901 | ERJ2RKD220 | M.RESISTOR CH 1/16W 22 | 1 | |
| R902 | ERJ2RKD220 | M.RESISTOR CH 1/16W 22 | 1 | |
| R903 | ERJ2RKD220 | M.RESISTOR CH 1/16W 22 | 1 | |
| R904 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R905 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R906 | D0YAR0000007 | M.RESISTOR CH 1/16W 0 | 1 | |
| R910 | ERJ2GEJ104 | M.RESISTOR CH 1/16W 100K | 1 | |
| R913 | ERJ2RHD273 | M.RESISTOR CH 1/16W 27K | 1 | |
| R914 | ERJ2RHD103 | M.RESISTOR CH 1/16W 10K | 1 | |
| R915 | ERJ2GEJ152 | M.RESISTOR CH 1/16W 1.5K | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 1 | VYQ4213 | LENS HOOD UNIT | 1 | |
| 2 | VKM7395 | R COVER | 1 | |
| 3 | VYK2J60 | SIDE CASE (L) UNIT | 1 | |
| 13 | VYQ4211 | MIC NET UNIT | 1 | |
| 14 | VSC6035 | FRONT EARTH PLATE (R4060/ | 1 | |
| 15 | N9ZZ00000326 | BARRIER MOTOR UNIT | 1 | |
| 16 | VML3925-1 | BARRIER SELECT KNOB | 1 | |
| 17 | VDW1233-2 | FRONT FRAME | 1 | |
| 18 | VMG1705 | LENS DAMPER RUBBER | 1 | |
| 19 | VKM7388 | FRONT CASE | 1 | |
| 20 | VGQ9846 | SHEET | 1 | |
| 21 | VMG1107 | DUMPER RUBBER | 1 | |
| 22 | VMP9013 | HINGI ANGLE | 1 | |
| 26 | N9ZZ00000387 | ELECTRONIC COMPONENTS, NO | 1 | |
| 27 | VMP9010 | MIC ANGLE | 1 | |
| 28 | VWJ2019 | MIC FPC | 1 | |
| 29 | VEP24191A | MIC P.C.B. | 1 | (RTL)E.S.D. |
| 30 | VGQ9862 | SHEET | 1 | |
| 31 | VMP9009 | TOP FRAME | 1 | |
| 32 | L0AA02A00075 | SPEAKER UNIT | 1 | |
| 33 | VGQ9752 | BOUON SHEET | 1 | |
| 34 | VGL1269 | LENS | 1 | |
| 35 | VKA0397 | SET LEG CUSHION | 1 | |
| 36 | VKW3378 | SENSOR WINDOW | 1 | |
| 37 | VEP29200A | SIDE (R) P.C.B. | 1 | (RTL)E.S.D. |
| 38 | VGU0C22 | OPERATION BUTTON | 1 | |
| 39 | VGU0B50 | SR SWITCH KNOB | 1 | |
| 40 | VSC6034 | SR EARTH BOARD | 1 | |
| 41 | VKF4324 | JACK COVER | 1 | |
| 42 | VMG1822 | LCD UKEGOMU(A) | 1 | |
| 43 | VKM7452 | SIDE CASE R | 1 | |
| 44 | VGQ9735 | CROSS KEY | 1 | |
| 45 | VGQ9753 | JOY CUSHION | 1 | |
| 46 | VWJ2020 | SIDE_R FPC | 1 | |
| 47 | VEP04930B | ECM FPC | 1 | |
| 48 | VMT1784 | MIC DUMPER | 1 | |
| 49 | VQL1R55 | CAUTION LABEL | 1 | P |
| 49 | VQL1R56 | CAUTION LABEL | 1 | PC |
| 49 | VQL1R57 | CAUTION LABEL | 1 | E,EB,EG,EE,EP,GC,GN,SG,PL |
| 70 | N3CZBSH00001 | HDD UNIT | 1 | |
| 71 | VKM7384 | TOP PIECE | 1 | |
| 72 | VKM7383 | TOP COVER | 1 | |
| 73 | VYK2L07 | HDD SHIELD FRAME UNIT | 1 | |
| 74 | LSMG0196 | CUSHION | 1 | |
| 75 | LSMG0196 | CUSHION | 1 | |
| 76 | VEP79198A | HDD FPC | 1 | E.S.D. |
| 77 | VSC6032 | HDD SHIELD CASE | 1 | |
| 78 | VKM7382 | TOP CASE | 1 | |
| 80 | VGQ9886 | FPC FIXER | 1 | |
| | | | | |
| B1 | XQN16+B4FN | SCREW | 1 | |
| B2 | XQN16+B4FN | SCREW | 1 | |
| B3 | XQN16+B4FN | SCREW | 1 | |
| B4 | XQN16+B4FJK | SCREW | 1 | |
| B5 | XQN16+B4FJK | SCREW | 1 | |
| B6 | XQN16+BJ5FJK | SCREW | 1 | |
| B7 | XQN16+BJ4FJK | SCREW | 1 | |
| B8 | XQN16+BJ4FJK | SCREW | 1 | |
| B11 | XQN16+B4FJK | SCREW | 1 | |
| B12 | XQN16+B4FJK | SCREW | 1 | |
| B13 | XQN16+B5FJK | SCREW | 1 | |
| B16 | XQN16+B5FN | SCREW | 1 | |
| B17 | XQN16+B5FN | SCREW | 1 | |
| B18 | XQN16+B5FN | SCREW | 1 | |
| B19 | XQN16+B5FN | SCREW | 1 | |
| B20 | XQN16+B5FN | SCREW | 1 | |
| B21 | XQN16+B5FN | SCREW | 1 | |
| B22 | XQN16+B4FJK | SCREW | 1 | |
| B23 | XQN16+B4FJK | SCREW | 1 | |
| B24 | XQN16+B4FJK | SCREW | 1 | |
| B25 | XQN16+B4FJK | SCREW | 1 | |
| B26 | VHD1919 | SCREW | 1 | |
| B27 | VHD1919 | SCREW | 1 | |
| B40 | XQN16+BJ6FN | SCREW | 1 | |
| B41 | XQN16+BJ6FN | SCREW | 1 | |
| B42 | XQN16+BJ6FN | SCREW | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| B46 | XQN16+BJ5FJK | SCREW | 1 | |
| B47 | VHD1919 | SCREW | 1 | |
| B48 | XQN16+BJ4FN | SCREW | 1 | |
| B49 | XQN16+BJ4FN | SCREW | 1 | |
| B50 | XQN16+BJ4FN | SCREW | 1 | |
| B51 | XQN16+BJ4FN | SCREW | 1 | |
| B52 | XQN16+BJ4FN | SCREW | 1 | |
| B53 | XQN16+BJ4FN | SCREW | 1 | |
| B54 | XQN16+BJ4FN | SCREW | 1 | |
| B55 | XQN16+BJ4FN | SCREW | 1 | |
| B56 | XQN16+BJ4FN | SCREW | 1 | |
| B57 | XQN16+BJ4FN | SCREW | 1 | |
| B58 | VHD1411 | SCREW | 1 | |
| B58 | XQN16+BJ4FN | SCREW | 1 | |
| B59 | VHD1411 | SCREW | 1 | |
| B60 | VHD2012 | SCREW | 1 | |
| B61 | VHD2012 | SCREW | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 4 | VSC5761 | CCD HEAT SINK PLATE | 1 | |
| 5 | VGQ9574 | CCD RADIATION SHEET | 1 | |
| 6 | VGQ9834 | GASKET | 1 | |
| 7 | VMP9094 | PLATE | 1 | |
| 8 | VEP03H43B | MAIN P.C.B. | 1 | P,PC,PL (RTL)E.S.D. |
| 8 | VEP03H43C | MAIN P.C.B. | 1 | E,EG (RTL)E.S.D. |
| 8 | VEP03H43N | MAIN P.C.B. | 1 | EB (RTL)E.S.D. |
| 8 | VEP03H43E | MAIN P.C.B. | 1 | EE (RTL)E.S.D. |
| 8 | VEP03H43P | MAIN P.C.B. | 1 | EP (RTL)E.S.D. |
| 8 | VEP03H43D | MAIN P.C.B. | 1 | GC,SG (RTL)E.S.D. |
| 8 | VEP03H43R | MAIN P.C.B. | 1 | GN (RTL)E.S.D. |
| 8 | VEP03H43F | MAIN P.C.B. | 1 | GK (RTL)E.S.D. |
| 9 | VYK2J52 | MAIN FRAME UNIT | 1 | |
| 10 | VEP21298A | MAIN-SUB FPC | 1 | E.S.D. |
| 11 | VEP01A02B | SUB P.C.B. | 1 | (RTL)E.S.D. |
| 12 | VYK2J49 | BOTTOM FRAME UNIT | 1 | |
| 23 | VSC6031 | CCD SHIELD CASE | 1 | |
| 24 | VMP9005 | REAR FRAME | 1 | |
| 25 | VEP21297A | POWER FPC | 1 | E.S.D. |
| 50 | VEP26312A | FLASH P.C.B. | 1 | (RTL)E.S.D. |
| 51 | VYK2J51 | LENS PLATE UNIT | 1 | |
| 52 | EFN-MVY55ZC | FLASH | 1 | |
| 53 | VGQ9726 | CONDENSOR COVER | 1 | |
| 55 | VYK2J56 | SD DOOR UNIT | 1 | |
| 56 | VKM7381 | BATTERY CASE | 1 | |
| 57 | VGQ9767 | BATT RELEASE HOLDER | 1 | |
| 58 | VGQ9728 | BATTERY RELEASE KNOB | 1 | |
| 59 | VMB4179 | BATTERY RELEASE SPRING | 1 | |
| 60 | VKF4293 | HDMI COVER | 1 | |
| 79 | VGQ9887 | CUSHION | 1 | |
| 81 | VGQ9888 | CUSHION | 1 | |
| 82 | VSC6036 | REAR EARTH ANGLE | 1 | |
| | | | | |
| B9 | XQN16+B6FJK | SCREW | 1 | |
| B10 | XQN16+B6FJK | SCREW | 1 | |
| B14 | XQN16+B5FJK | SCREW | 1 | |
| B15 | XQN16+B5FJK | SCREW | 1 | |
| B28 | XQN16+B3FJK | SCREW | 1 | |
| B29 | XQN16+B4FJK | SCREW | 1 | |
| B30 | XQN16+BJ5FJK | SCREW | 1 | |
| B31 | VHD1353 | SCREW | 1 | |
| B32 | XQN16+BJ4FN | SCREW | 1 | |
| B33 | VHD1907 | SCREW | 1 | |
| B34 | VHD1907 | SCREW | 1 | |
| B35 | VHD1907 | SCREW | 1 | |
| B36 | VHD1907 | SCREW | 1 | |
| B37 | VHD1907 | SCREW | 1 | |
| B38 | VHD1907 | SCREW | 1 | |
| B39 | XQN16+BJ4FN | SCREW | 1 | |
| B43 | XQN16+BJ4FN | SCREW | 1 | |
| B44 | VHD1907 | SCREW | 1 | |
| B45 | XQN16+B4FJK | SCREW | 1 | |
| B62 | XQN16+BJ4FN | SCREW | 1 | |
| B63 | XQN16+BJ4FN | SCREW | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 151 | VGQ9736 | HINGE COVER (T) | 1 | |
| 152 | VXD0518 | LCD HINGE (1) UNIT | 1 | (with SW601) |
| 153 | VGQ9737 | HINGE COVER B | 1 | |
| 154 | VYK2K78 | LCD CASE (T) UNIT | 1 | P,E,EB,EG,EP,GC,GN,SG |
| 154 | VYK2K76 | LCD CASE (T) UNIT | 1 | PC |
| 154 | VYK2K77 | LCD CASE (T) UNIT | 1 | PL |
| 154 | VYK2K79 | LCD CASE (T) UNIT | 1 | EE |
| 154 | VYK2K80 | LCD CASE (T) UNIT | 1 | GK |
| 155 | VSC6003 | LCD EARTH PLATE | 1 | |
| 156 | VEP26301A | MONITOR P.C.B. | 1 | (RTL)E.S.D. |
| 157 | VGL1256 | REFLECTION SHEET | 1 | |
| 158 | VKW3365 | LIGHTING PLATE | 1 | |
| 159 | VGL1255 | DIFFUSION SHEET | 1 | |
| 160 | VGL1254 | PRISM SHEET B | 1 | |
| 161 | VGL1253 | PRISM SHEET A | 1 | |
| 162 | VGQ9584 | LIGHTING PLATE HOLDER | 1 | |
| 163 | L5BDDXP00002 | ACTIVE MATRIX LIQUID CRYS | 1 | |
| 164 | VSC6004 | MONITOR EARTH PLATE | 1 | |
| 165 | VYK2J66 | LCD CASE (B) UNIT | 1 | |
| | | | | |
| B151 | VHD1828 | SCREW | 1 | |
| B152 | VHD1828 | SCREW | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|

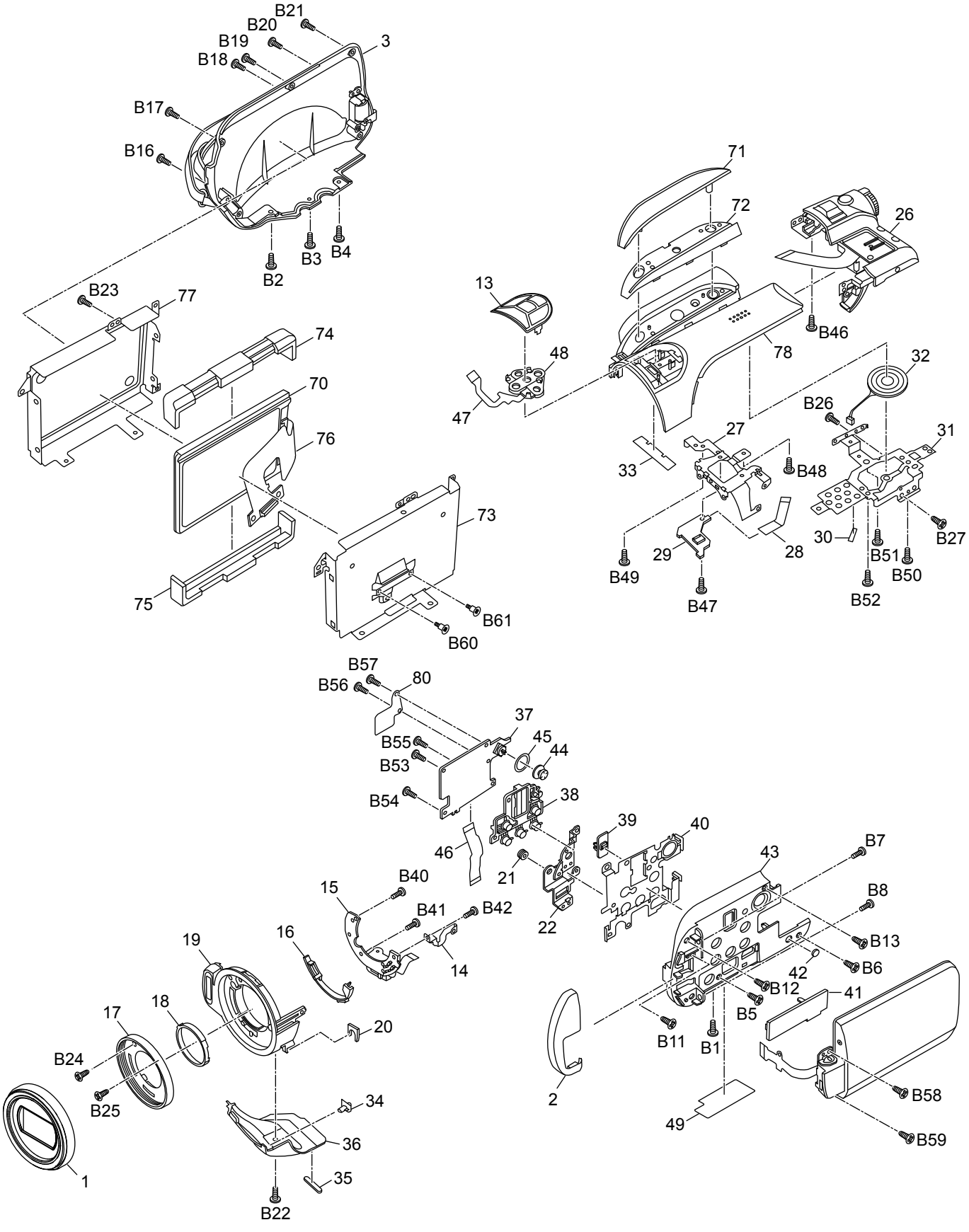
| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 201 | VXQ1548 | PRISM UNIT | 1 | |
| 201-1 | VEP22388A | CCD FPC UNIT | 1 | |
| 203 | VXP2530 | 2ND LENS FRAME MOVE UNIT | 1 | |
| 205 | VXQ1521 | MAIN FRAME | 1 | |
| 206 | VXQ1534 | OIS UNIT | 1 | |
| 207 | VXP2923 | IRIS UNIT | 1 | |
| 208 | L6HA64NC0003 | ZOOM MOTOR UNIT | 1 | |
| 209 | L6HA66NC0012 | STEPPING MOTORS | 1 | |
| 210 | VMS7638 | GUIDE POLE | 1 | |
| 211 | VMS7638 | GUIDE POLE | 1 | |
| 212 | VXP2531 | 4TH LENS FRAME MOVE UNIT | 1 | |
| 217 | VDW1213 | MASTER FLANGE | 1 | |
| 218 | VDL1748 | OPTICAL FILTER | 1 | |
| 219 | VXW0938 | LENS UNIT | 1 | |
| 220 | VGQ9810 | CCD HEAT TRANSFER SHEET | 1 | |
| | | | | |
| B201 | XQN16+CJ7FJ | SCREW | 1 | |
| B202 | XQN16+CJ7FJ | SCREW | 1 | |
| B203 | XQN16+CJ7FJ | SCREW | 1 | |
| B204 | XQN16+CJ5FJ | SCREW | 1 | |
| B205 | XQN16+CJ5FJ | SCREW | 1 | |
| B206 | XQN16+CJ5FJ | SCREW | 1 | |
| B207 | XQN16+CJ5FJ | SCREW | 1 | |
| B208 | XQN16+CJ5FJ | SCREW | 1 | |
| B209 | XQN16+CJ5FJ | SCREW | 1 | |
| B210 | XQN16+CJ5FJ | SCREW | 1 | |
| B211 | XQN16+CJ5FJ | SCREW | 1 | |
| B212 | XQN16+CJ5FJ | SCREW | 1 | |
| B213 | XQN16+CJ5FJ | SCREW | 1 | |

| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|

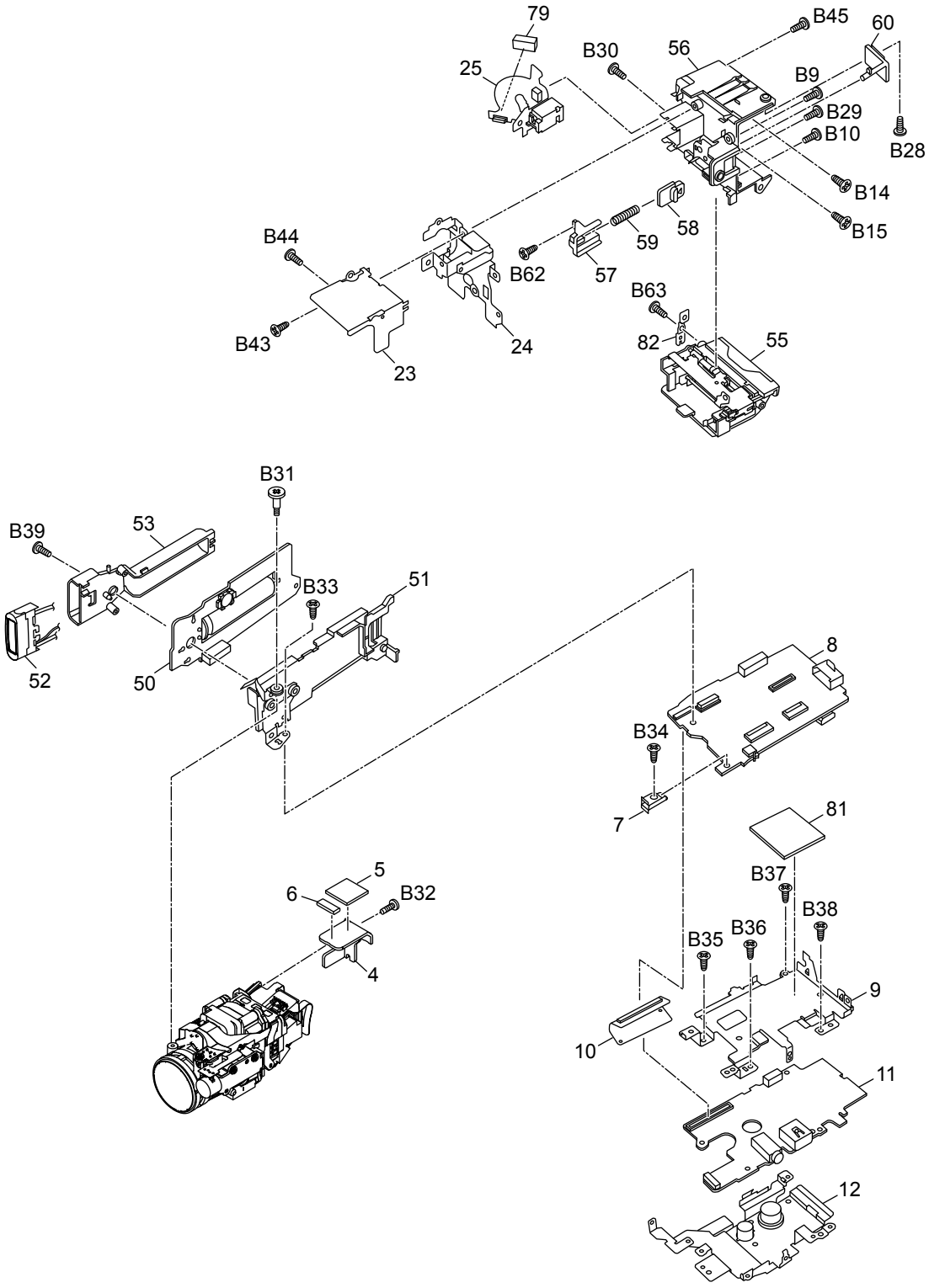
| Ref.No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 301 | VFF0409-S | CD-ROM | 1 | P,PC |
| 301 | VFF0410-S | CD-ROM | 1 | (EXCEPT P,PC) |
| 304 | VPF1112 | POLYETHYLENE BAG | 1 | P,PC,PL,EB,EE,GN,GK |
| 304 | VPF1228 | POLYETHYLENE BAG | 1 | E,EG,EP,GC,SG |
| ⚠ 305 | VQT1N74 | OPERATING INSTRUCTIONS | 1 | P,PC |
| | | (ENGLISH/CANADIAN FRENCH) | | |
| ⚠ 305 | VQT1N76 | OPERATING INSTRUCTIONS | 1 | PL |
| ⚠ 305 | VQT1N83 | OPERATING INSTRUCTIONS | 1 | E |
| | | (PORTGUESE) | | |
| ⚠ 305 | VQT1N84 | OPERATING INSTRUCTIONS | 1 | E |
| ⚠ 305 | VQT1N85 | OPERATING INSTRUCTIONS | 1 | E |
| ⚠ 305 | VQT1N86 | OPERATING INSTRUCTIONS | 1 | E |
| | | (DANISH) | | |
| ⚠ 305 | VQT1N91 | OPERATING INSTRUCTIONS | 1 | EB |
| | | (ENGLISH) | | |
| ⚠ 305 | VQT1N78 | OPERATING INSTRUCTIONS | 1 | EG |
| | | (GERMAN) | | |
| ⚠ 305 | VQT1N79 | OPERATING INSTRUCTIONS | 1 | EG |
| | | (FRENCH) | | |
| ⚠ 305 | VQT1N80 | OPERATING INSTRUCTIONS | 1 | EG |
| | | (ITALIAN) | | |
| ⚠ 305 | VQT1N98 | OPERATING INSTRUCTIONS | 1 | EE |
| | | (RUSSIAN) | | |
| ⚠ 305 | VQT1N99 | OPERATING INSTRUCTIONS | 1 | EE |
| | | (UKRAINIAN) | | |
| ⚠ 305 | VQT1N81 | OPERATING INSTRUCTIONS | 1 | EG |
| | | (DUTCH) | | |
| ⚠ 305 | VQT1N82 | OPERATING INSTRUCTIONS | 1 | EG |
| | | (TURKISH) | | |
| ⚠ 305 | VQT1N87 | OPERATING INSTRUCTIONS | 1 | EP |
| | | (ENGLISH) | | |
| ⚠ 305 | VQT1N88 | OPERATING INSTRUCTIONS | 1 | EP |
| | | (POLISH) | | |
| ⚠ 305 | VQT1N89 | OPERATING INSTRUCTIONS | 1 | EP |
| | | (CZECH) | | |
| ⚠ 305 | VQT1N90 | OPERATING INSTRUCTIONS | 1 | EP |
| | | (HUNGARIAN) | | |
| ⚠ 305 | VQT1N92 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| | | (CHINESE(TRADITIONAL)) | | |
| ⚠ 305 | VQT1N93 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| | | (ENGLISH) | | |
| ⚠ 305 | VQT1N94 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| | | (ARABIC) | | |
| ⚠ 305 | VQT1N95 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| | | (PERSIAN) | | |
| ⚠ 305 | VQT1N96 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| | | (THAI) | | |
| ⚠ 305 | VQT1N97 | OPERATING INSTRUCTIONS | 1 | GC,SG |
| ⚠ 305 | VQT1P00 | OPERATING INSTRUCTIONS | 1 | GN |
| | | (ENGLISH) | | |
| ⚠ 305 | VQT1P01 | OPERATING INSTRUCTIONS | 1 | GK |
| | | (CHINESE(SIMPLFIED)) | | |
| 308 | K2KC4CB00027 | AV CABLE | 1 | |
| ⚠ 309 | K2CQ2CA00006 | AC CABLE | 1 | E,EG,EE,EP,GC,SG |
| 310 | K2KZ4CB00011 | USB CABLE | 1 | |
| 311 | K2KZ9DB00004 | COMPONENT CABLE | 1 | |
| 312 | K2GJYYC00001 | DC CABLE | 1 | |
| ⚠ 313 | ---------- | BATTERY PACK | 1 | |
| 314 | N2QAEC000023 | REMOTE CONTROL | 1 | |
| ⚠ 315 | DE-A51BA | AC ADAPTOR | 1 | P,PC |
| ⚠ 315 | DE-A51CA | AC ADAPTOR | 1 | E,EB,EG,EE,EP,GC,GN,SG,PL |
| ⚠ 315 | DE-A51DA | AC ADAPTOR | 1 | GK |
| 316 | VPG1Q28 | PACKING CASE | 1 | P,PC |
| 316 | VPG1Q29 | PACKING CASE | 1 | (EXCEPT P,PC) |
| 317 | VPN6640 | PAD | 1 | |
| 318 | VPF1129 | PROTECTION BAG | 1 | |
| ⚠ 320 | K2CT3CA00004 | AC CABLE | 1 | EB,GC,SG |
| ⚠ 321 | K2CJ2DA00008 | AC CABLE | 1 | GN |
| ⚠ 322 | K2CA2CA00020 | AC CABLE | 1 | GK |
| ⚠ 323 | K2CP2CA00001 | AC CABLE | 1 | GC,SG |
| 324 | K2CA2CA00025 | AC CABLE | 1 | P,PC,PL |
| 325 | VPQ0266 | SHEET | 1 | |

# S7. Exploded View

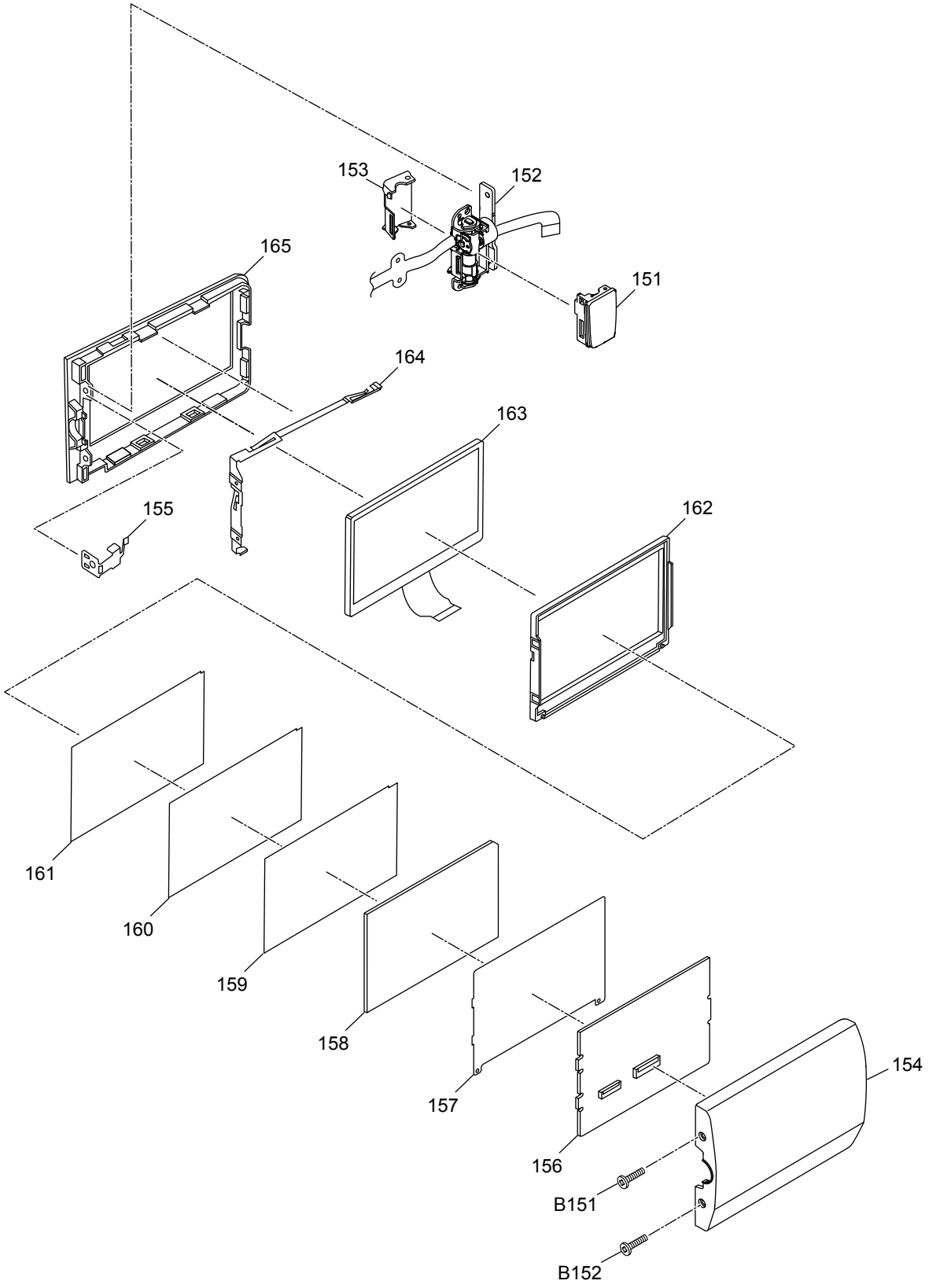
## S7.1. Frame and Casing Section (1)



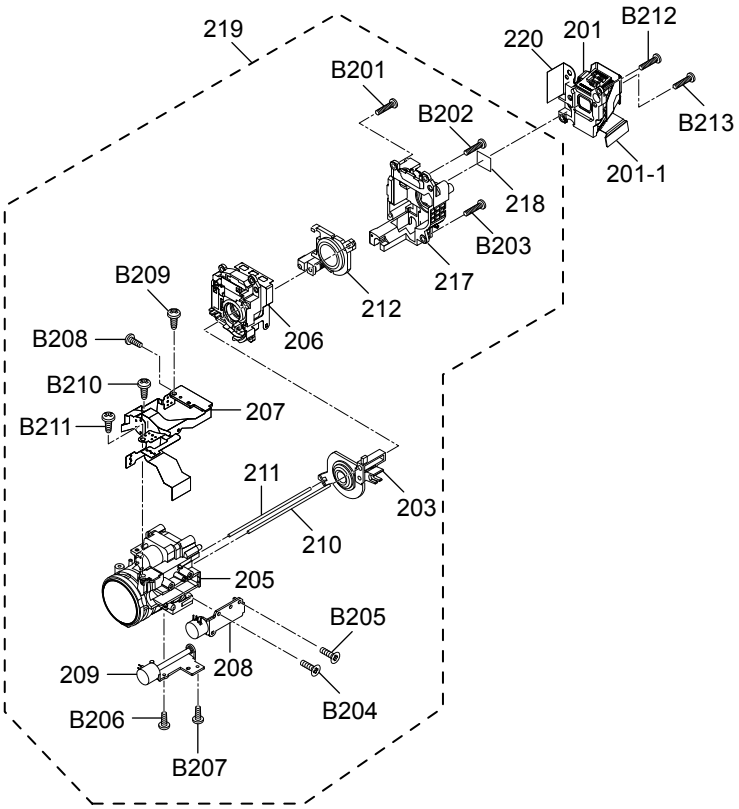
## S7.2. Frame and Casing Section (2)



## S7.3. LCD Section



## S7.4. Camera Lens Section



## S7.5. Packing Parts and Accessories Section