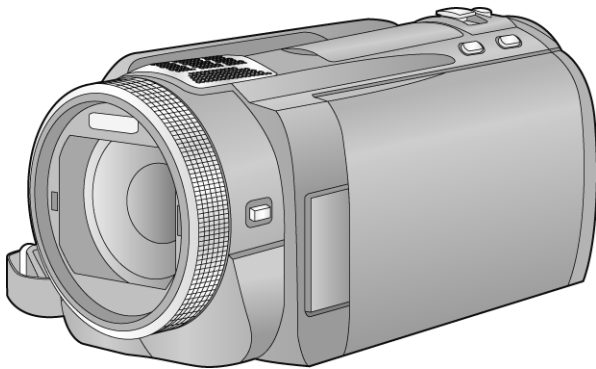


Service Manual

High Definition Video Camera



Model No. **HDC-HS900P**
HDC-HS900PC
HDC-HS900PU
HDC-HS900EB
HDC-HS900EE
HDC-HS900EG
HDC-HS900EP
HDC-HS900GC
HDC-HS900GN
HDC-HS900GT
HDC-HS900GK



Vol. 1
Colour
(K).....Black 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.

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1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

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

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

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

1.2. Leakage Current Cold Check

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

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

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

Hot-Check Circuit



Figure. 1

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

CAUTION:

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

Before disassembling, perform "6.6. Forced full flash emission" for discharging capacitor.
The capacitor also can be discharged according to the following procedures.

[Discharging Procedure]

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

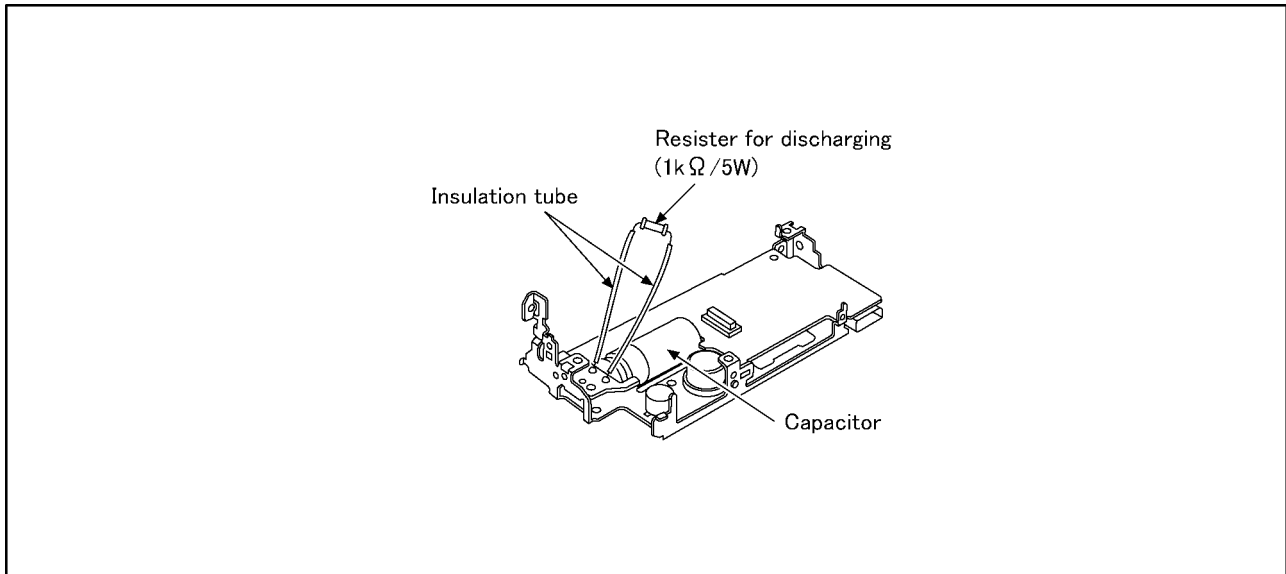


Fig. F1

2 Warning

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

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

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

CAUTION :

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

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

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

ENGLISH



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

FRANÇAIS



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

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

2.3.1. Information for Your Safety

IMPORTANT

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

WARNING

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

CAUTION

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

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

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

2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

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

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



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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

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

Blue	Neutral
Brown	Live

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

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

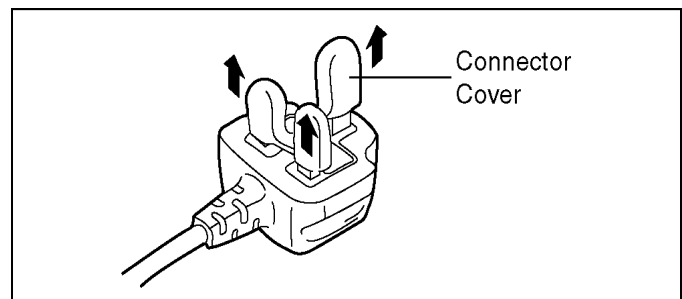
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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



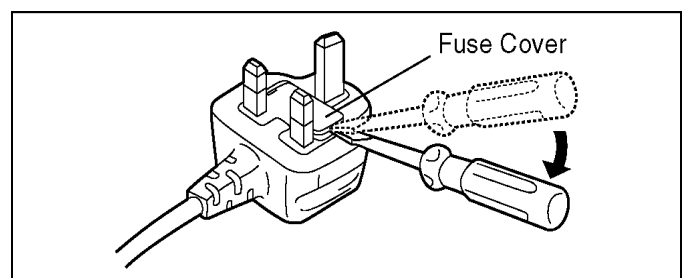
2.3.2.2. Before Use

Remove the Connector Cover as follows.

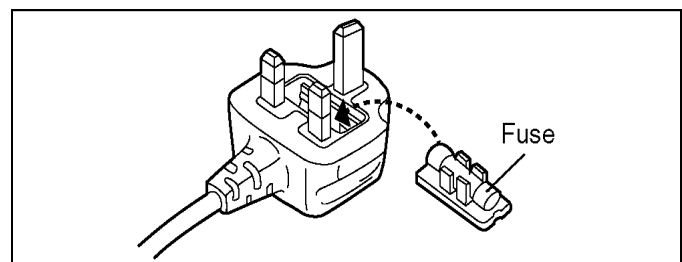


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



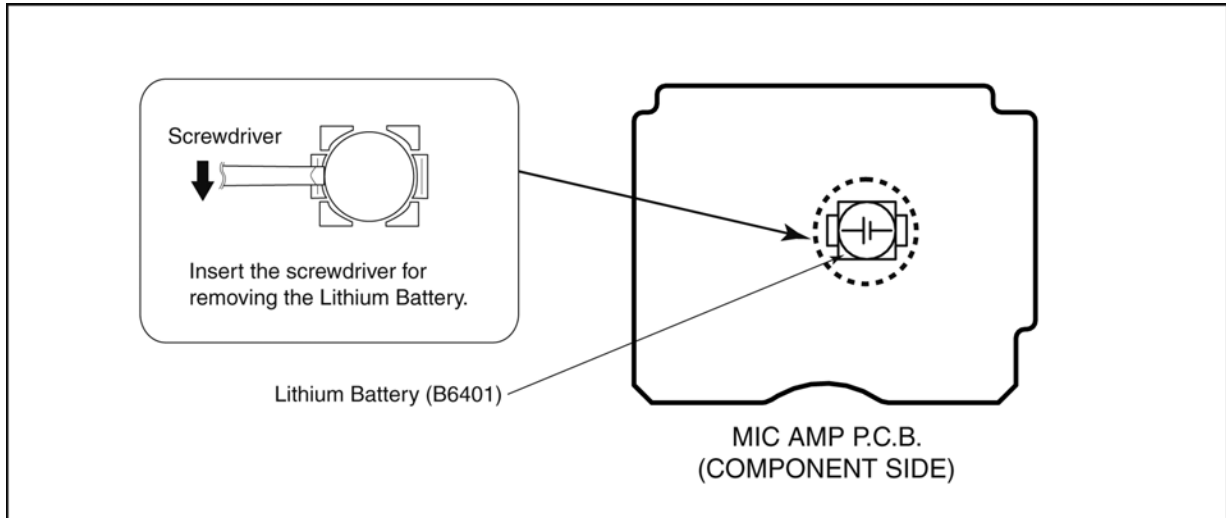
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

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



NOTE:

This Lithium battery is a critical component.

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

It must never be subjected to excessive heat or discharge.

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

Replacement batteries must be of same type and manufacture.

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

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

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

(For English)

CAUTION

Danger of explosion if battery is incorrectly replaced.

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

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

(For German)

ACHTUNG

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

Behandeln Sie gebrauchte Batterien nach den Anweisungen des Herstellers.

(For French)

MISE EN GARDE

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

NOTE:

Above caution is applicable for a battery pack which is for HDC-HS900 series, as well.

1. Battery Pack for this model.

3 Service Navigation

3.1. Introduction

This service manual contains technical information, which allow service personnel's to understand and service this model.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, the information will be followed by service manual to be controlled with original service manual.

3.2. General Description About Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30°C (86°F) more than that of the normal solder.

Distinction of P.C.B. Lead Free Solder being used

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

PbF

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

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

Recommended Lead Free Solder (Service Parts Route.)

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

Note

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

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

1. The service manual does not contain the following information, because of the impossibility of servicing at component level without concerned equipment/facilities.
 - a. Schematic diagram, Block Diagram and P.C.B. layout of MAIN P.C.B..
 - b. Parts list for individual parts for MAIN P.C.B..

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

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

- MAIN P.C.B. (VEP03J06CN: HDC-HS900P/PC/PU/GT)
- MAIN P.C.B. (VEP03J06CP: HDC-HS900EB/EG/EP)
- MAIN P.C.B. (VEP03J06CQ: HDC-HS900EE/GC/GK/GN)

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






There are six kinds of HDC-HS900.

- a) HDC-HS900P
- b) HDC-HS900PC
- c) HDC-HS900EB/EG/EP/GN
- d) HDC-HS900EE
- e) HDC-HS900GK
- f) HDC-HS900GC/PU

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

3.4.1. Defining methods:

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

<p>a) HDC-HS900P The nameplate for this model shows the following Safety registration mark.</p> 
<p>b) HDC-HS900PC The nameplate for this model shows the following Safety registration mark.</p> 
<p>c) HDC-HS900EB/EG/EP/GN The nameplate for these models show the following Safety registration mark.</p> 
<p>d) HDC-HS900EE The nameplate for this model shows the following Safety registration mark.</p> 
<p>e) HDC-HS900GK The nameplate for this model shows the following Safety registration mark.</p> 
<p>f) HDC-HS900GC/PU The nameplate for these models show the following Safety registration mark.</p>

NOTE:

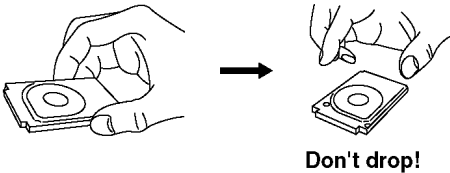

After replacing the MAIN P.C.B., be sure to achieve adjustment.

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

3.5. Precautions for Handling HDD

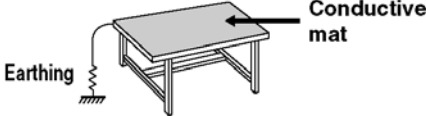

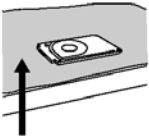
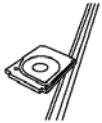


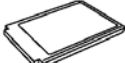
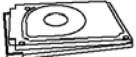
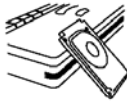




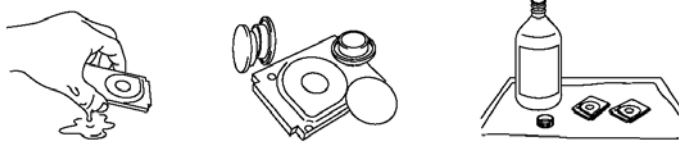
1. Handle HDD very carefully to prevent the static electricity and shock.
2. Set the HDD quickly after taking it out from the package. Make sure to put the HDD on buffer materials, etc.

3.5.1. Precautions at incoming process and for opening packages

Preventing shock	<ul style="list-style-type: none"> • 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. • 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 particularly slippery. • 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	<ul style="list-style-type: none"> • 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. • Avoid entrance or window areas where temperature changes easily for storage.
Holding example	<ul style="list-style-type: none"> • Take out HDD holding both sides, not to press the top cover and the center of the device label. <div style="text-align: center;"> <p><OK></p>  <p><NG></p>  </div>
Preventing static electricity	<ul style="list-style-type: none"> • After opening package, HDD must be handled only by a specified worker in E.S.D.* free environment on a conductive mat. It may cause damage on HDD components due to overvoltage such as electrostatic discharge, etc.

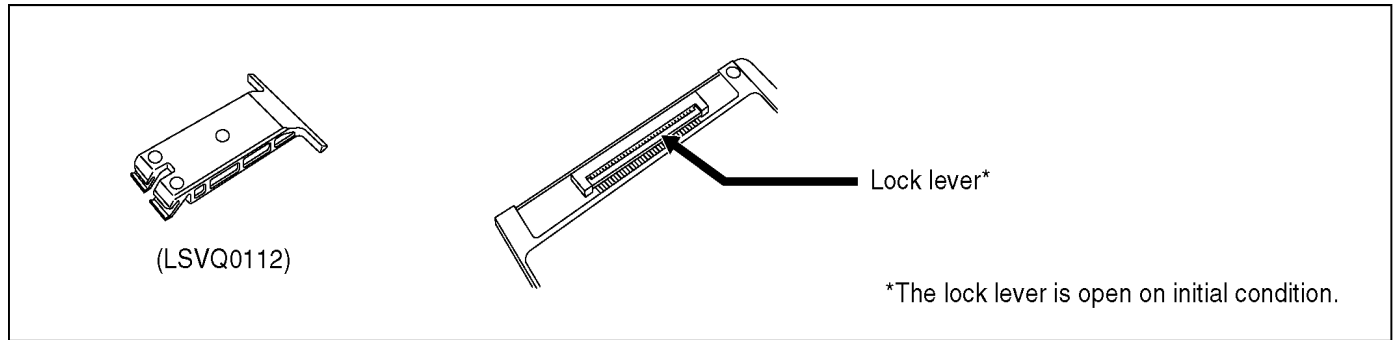
*E.S.D. = Electrostatically Sensitive Devices

3.5.2. Precautions for installing HDD

<p>Preventing static electricity</p>	<ul style="list-style-type: none"> 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. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><OK></p>  </div> <div style="text-align: center;"> <p><OK></p>  </div> </div>
<p>Preventing shock</p>	<ul style="list-style-type: none"> Place HDD with its face upward (the device label upward) on the flat and stable surface using buffer materials, etc. Do not stand HDD. If it falls down, the excessive impacts may damage HDD. 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. 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. 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. <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p><OK></p>  <p>Buffer materials</p> </div> <div style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="text-align: center;"> <p><NG></p>  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; flex-wrap: wrap; gap: 10px; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> </div>
<p>No water / solvent</p>	<ul style="list-style-type: none"> Do not hold HDD with a wet hand or put magnets, solvent, tea, coffee, etc, close to HDD. This affects internal components and outside of HDD. <div style="text-align: center; margin-top: 20px;"> <p><NG></p>  </div>
<p>Connector</p>	<ul style="list-style-type: none"> The interface connector pin is easily damaged. Push it lightly and firmly to the end along the connector guide. For further details, refer to "Precautions for inserting and removing HDD FPC".

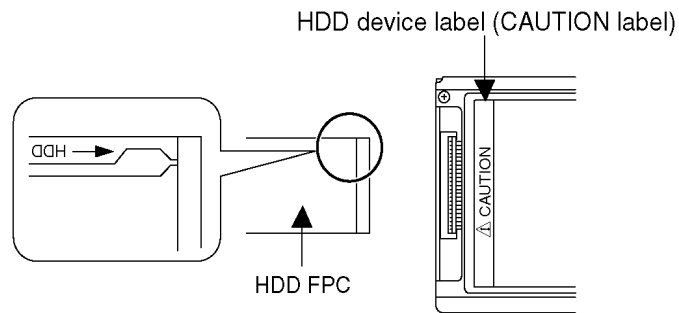
3.5.3. Precautions for inserting and removing HDD FPC

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.



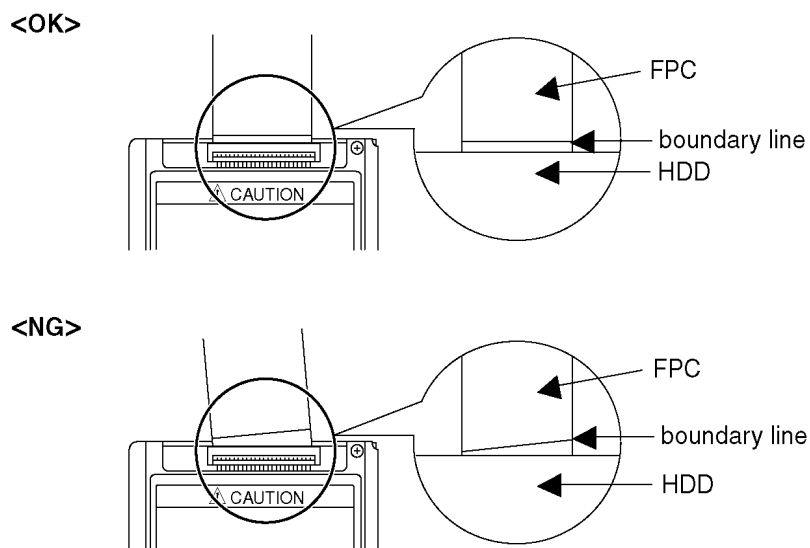
Insert HDD FPC

- 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.



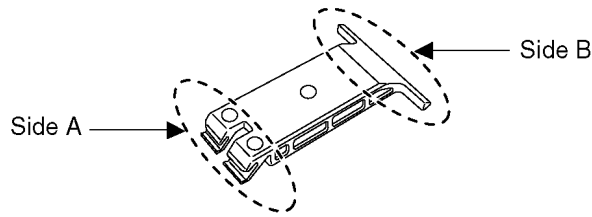
Check HDD FPC

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



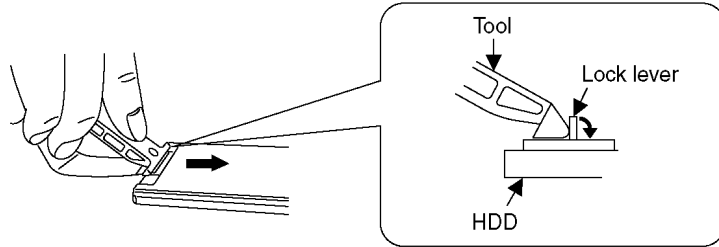
Tool operation

Lock using the tool after inserting HDD FPC.



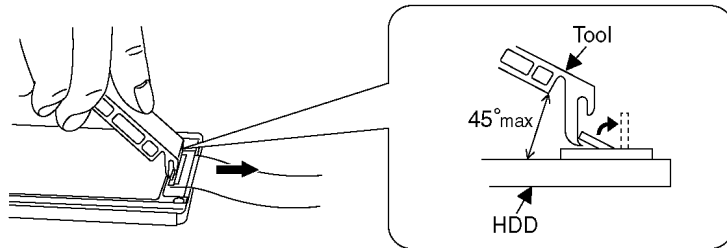
<How to lock>

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

[FORMAT MEDIA]

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

- 1 Touch [FORMAT MEDIA].
- 2 Touch [SD CARD] or [HDD].

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

Use this unit to format media.

Formatting HDD is only available with this unit.

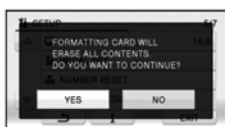
Do not format an SD card using any other equipment such as a PC. The card may not be used on this unit.

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

- Formatting and deletion of this unit or computer only changes the file management information and does not completely delete the data in the SD card.
- It is recommended that the SD card is physically destroyed or the SD card is physically formatted using this unit when disposing of or giving away the SD card.

To physically format the SD card, connect the unit via the AC adaptor, select [SETUP] → [FORMAT MEDIA] → [SD CARD] from the menu, and then press and hold the recording start/stop button on the screen below for about 3 seconds.

When the SD card data deletion screen appears, select [YES], and then follow the on-screen instructions.



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

When disposing of or giving away this unit, note that:

- Formatting and deletion simply change the file management information and cannot be used to completely erase the data in HDD of this unit. The data can be recovered using commercially available software or the like.
- We recommend that you physically format the HDD before disposing of or giving away this unit.

To physically format the HDD, connect the unit via the AC adaptor, select [SETUP] → [FORMAT MEDIA] → [HDD] from the menu, and then press and hold the recording start/stop button on the screen below for about 3 seconds.

When the HDD data deletion screen appears, select [YES], and then follow the on-screen instructions.



- Please look after the data in your HDD carefully. Panasonic will not be held responsible in the unlikely case that private data is divulged.

4 Specifications

High Definition Video Camera

Information for your safety

Power source:	DC 9.3 V (When using AC adaptor) DC 7.2 V (When using battery)	
Power consumption:	Recording: 7.4 W	Charging: 10.9 W

Signal system:

1080/60p, 1080/60i, 540/30p (NTSC areas)
1080/50p, 1080/50i, 540/25p (PAL areas)

Recording format:

[1080/60p]: Original format (NTSC areas)
[1080/50p]: Original format (PAL areas)
[HA]/[HG]/[HX]/[HE]; AVCHD format compliant
[iFrame]; MPEG-4 AVC file format compliant (.MP4)

Image sensor:

1/4.1" 3MOS image sensor
Total; 3050 K×3
Effective pixels;
Motion picture; 2530 K×3 (16:9)
Still picture; 2320 K×3 (4:3), 2630 K×3 (3:2), 2530 K×3 (16:9)

Lens:

Auto Iris, 12× Optical Zoom, F1.5 to F2.8
Focal length; 3.45 mm to 41.4 mm
Macro (Full range AF)
35 mm equivalent;
Motion picture; 35 mm to 420 mm (16:9)
Still picture; 38.8 mm to 466 mm (4:3), 35.7 mm to 428 mm (3:2), 35 mm to 420 mm (16:9)
Minimum focus distance;
Normal; Approx. 4 cm (1.6") (Wide)/Approx. 1.2 m (3.9 feet) (Tele)
Tele macro; Approx. 70 cm (28") (Tele)
Intelligent auto Macro; Approx. 1 cm (0.4") (Wide)/Approx. 70 cm (28") (Tele)

Filter diameter:

46 mm

Zoom:

12× Optical Zoom, 20× i.Zoom, 30×/700× Digital Zoom

Image Stabilizer function:

Optical (Hybrid Optical Image Stabilizer, Active Mode, Optical Image Stabilizer Lock function)

Monitor:

3.5" wide LCD monitor (Approx. 460 K dots)

Viewfinder:

0.24" wide EVF (Approx. 263 K dots)

Microphone:

5.1 channel surround microphone
(with a zoom microphone/focus microphone function)

Speaker:

1 round speaker, dynamic type

White balance adjustment:

Auto tracking white balance system

Standard illumination:

1,400 lx

Minimum required illumination:

Approx. 1.6 lx (1/30 with Low light mode in the Scene mode) (NTSC areas)
Approx. 1 lx with the Color Night Rec function (NTSC areas)
Approx. 1.6 lx (1/25 with low light mode in the scene mode) (PAL areas)
Approx. 1 lx with the colour night view function (PAL areas)

AV multi connector video output level:

Component video output level;

Y; 1.0 Vp-p, 75 Ω

Pb; 0.7 Vp-p, 75 Ω

Pr; 0.7 Vp-p, 75 Ω

AV video output level;

1.0 Vp-p, 75 Ω, NTSC system (NTSC areas)

1.0 Vp-p, 75 Ω, PAL system (PAL areas)

HDMI mini connector video output level:

HDMI™ (x.v.Color™) 1080p/1080i/480p (NTSC areas)

HDMI™ (x.v.Colour™) 1080p/1080i/576p (PAL areas)

AV multi connector audio output level (Line):

316 mV, 600 Ω, 2 ch

Headphone output:

77 mV, 32 Ω (Stereo mini jack)

HDMI mini connector audio output level:

[1080/60p] (NTSC areas), [1080/50p] (PAL areas)

[AVCHD]; Dolby Digital/Linear PCM

[iFrame]; Linear PCM

MIC input:

−70 dBV (Mic sensitivity −50 dB equivalent, 0 dB=1 V/Pa, 1 kHz)
(Stereo mini jack)

USB:

Reader/writer function

SD card; Read only (No copyright protection support) (EB/EF/EG/EP areas)

SD card; Read/Write (No copyright protection support) (Other areas)

HDD; Read only

Hi-Speed USB (USB 2.0), USB terminal Type Mini AB

USB host function (for DVD burner)

Flash:

Available range; Approx. 1.0 m to 2.5 m (3.3 feet to 8.2 feet)

Dimensions:

67 mm (W)×72 mm (H)×146 mm (D)
[2.64" (W)×2.83" (H)×5.75" (D)] (excluding projecting parts)

Mass (Weight):

Approx. 455 g (Approx. 1.00 lbs.) [without battery (supplied)]

Mass (Weight) in operation:

Approx. 520 g (Approx. 1.15 lbs.) [with battery (supplied)]

Operating temperature:

0 °C to 40 °C (32 °F to 104 °F)

Operating humidity:

10%RH to 80%RH

Battery operation time:

See "Charging and recording time"

■ 3D Conversion Lens (optional)

Lens:

F3.2 (f = 2.5 mm)
35 mm equivalent; 58 mm
Minimum recording distance; Approx. 1.2 m (3.9 feet)

Minimum illumination:

Approx. 28 lx (1/30 when [AUTO SLOW SHTR (3D)] is set to [ON]) (NTSC areas)
Approx. 28 lx (1/25 when [AUTO SLOW SHTR (3D)] is set to [ON]) (PAL areas)

■ Motion pictures

Recording media:

SD Memory Card (FAT12 and FAT16 system compliant)
SDHC Memory Card (FAT32 system compliant)
SDXC Memory Card (exFAT system compliant)
Refer to "Recording to a card" for details on SD cards usable in this unit.
HDD; 220 GB

Compression:

MPEG-4 AVC/H.264

Recording mode and transfer rate:

[1080/60p]; Approx. 28 Mbps (VBR) (NTSC areas)
[1080/50p]; Approx. 28 Mbps (VBR) (PAL areas)
[HA]; Approx. 17 Mbps (VBR)
[HG]; Approx. 13 Mbps (VBR)
[HX]; Approx. 9 Mbps (VBR)
[HE]; Approx. 5 Mbps (VBR)
[iFrame]; Approx. 28 Mbps (VBR)
Refer to "Recording modes/approximate recordable time" for the recordable time.

Picture size:

(NTSC areas)
[1080/60p]; 1920×1080/60p
[HA]/[HG]/[HX]/[HE]; 1920×1080/60i
[iFrame]; 960×540/30p
(PAL areas)
[1080/50p]; 1920×1080/50p
[HA]/[HG]/[HX]/[HE]; 1920×1080/50i
[iFrame]; 960×540/25p

Audio compression:

[1080/60p] (NTSC areas), [1080/50p] (PAL areas)
[AVCHD]; Dolby Digital/5.1 ch (built-in microphone), 2 ch (built-in microphone/
external microphone)
[iFrame]; AAC/2ch

■ Still pictures

Recording media:

SD Memory Card (FAT12 and FAT16 system compliant)
SDHC Memory Card (FAT32 system compliant)
SDXC Memory Card (exFAT system compliant)
Refer to "Recording to a card" for details on SD cards usable in this unit.
HDD; 220 GB

Compression:

JPEG (Design rule for Camera File system, based on Exif 2.2 standard),
DPOF corresponding

Picture size:

Picture aspect [4:3]; 4032×3024/3200×2400/2560×1920/640×480
Picture aspect [3:2]; 4608×3072/3600×2400/2880×1920
Picture aspect [16:9]; 4864×2736/3840×2160/3072×1728/1920×1080
Refer to "Approximate number of recordable pictures" for the number of recordable pictures.

AC adaptor

Information for your safety

Power source:	AC 110 V to 240 V, 50/60 Hz
Power consumption:	16 W
DC output:	DC 9.3 V, 1.2 A

Dimensions:

52 mm (W)×26 mm (H)×86.3 mm (D) [2.1" (W)×1.0" (H)×3.4" (D)]

Mass (Weight):

Approx. 115 g (Approx. 0.25 lbs.)

Specifications may change without prior notice.

Charging and recording time

■ Charging/Recording time

- Temperature: 25 °C (77 °F)/humidity: 60%RH
- When using the viewfinder (times in parentheses are when using the LCD monitor)

NTSC areas					
Battery model number [Voltage/Capacity (minimum)]	Charging time	Recording destination	Recording mode	Maximum continuous recordable time	Actual recordable time
Supplied battery/ VW-VBN130 (optional) [7.2 V/1250 mAh]	2 h 30 min	HDD	[1080/60p]	1 h 15 min (1 h 10 min)	45 min (45 min)
			[HA], [HG], [HX], [HE]	1 h 20 min (1 h 15 min)	50 min (45 min)
			[iFrame]	1 h 20 min (1 h 20 min)	50 min (50 min)
		SD	[1080/60p]	1 h 15 min (1 h 15 min)	45 min (45 min)
			[HA], [HG]	1 h 20 min (1 h 20 min)	50 min (45 min)
			[HX], [HE]	1 h 20 min (1 h 20 min)	50 min (45 min)
		[iFrame]	1 h 25 min (1 h 20 min)	50 min (50 min)	
VW-VBN260 (optional) [7.2 V/2500 mAh]	4 h 30 min	HDD	[1080/60p]	2 h 25 min (2 h 20 min)	1 h 30 min (1 h 25 min)
			[HA], [HG], [HX], [HE]	2 h 35 min (2 h 30 min)	1 h 35 min (1 h 30 min)
			[iFrame]	2 h 40 min (2 h 35 min)	1 h 40 min (1 h 35 min)
			[1080/60p]	2 h 30 min (2 h 25 min)	1 h 30 min (1 h 30 min)
		SD	[HA]	2 h 40 min (2 h 35 min)	1 h 35 min (1 h 35 min)
			[HG], [HX], [HE]	2 h 40 min (2 h 35 min)	1 h 40 min (1 h 35 min)
			[iFrame]	2 h 45 min (2 h 40 min)	1 h 40 min (1 h 40 min)
			[1080/60p]	2 h 30 min (2 h 25 min)	1 h 30 min (1 h 30 min)

PAL areas					
Battery model number [Voltage/Capacity (minimum)]	Charging time	Recording destination	Recording mode	Maximum continuously recordable time	Actual recordable time
Supplied battery/ VW-VBN130 (optional) [7.2 V/1250 mAh]	2 h 30 min	HDD	[1080/50p]	1 h 15 min (1 h 15 min)	45 min (45 min)
			[HA]	1 h 20 min (1 h 20 min)	50 min (45 min)
			[HG], [HX], [HE]	1 h 20 min (1 h 20 min)	50 min (50 min)
			[iFrame]	1 h 25 min (1 h 20 min)	50 min (50 min)
		SD	[1080/50p]	1 h 20 min (1 h 15 min)	50 min (45 min)
			[HA], [HG], [HX], [HE]	1 h 25 min (1 h 20 min)	50 min (50 min)
[iFrame]	1 h 25 min (1 h 25 min)		55 min (50 min)		
VW-VBN260 (optional) [7.2 V/2500 mAh]	4 h 30 min	HDD	[1080/50p]	2 h 30 min (2 h 25 min)	1 h 30 min (1 h 30 min)
			[HA], [HG], [HX], [HE]	2 h 40 min (2 h 35 min)	1 h 40 min (1 h 35 min)
			[iFrame]	2 h 45 min (2 h 40 min)	1 h 40 min (1 h 40 min)
		SD	[1080/50p]	2 h 35 min (2 h 30 min)	1 h 35 min (1 h 30 min)
			[HA]	2 h 45 min (2 h 35 min)	1 h 40 min (1 h 35 min)
			[HG], [HX], [HE]	2 h 45 min (2 h 40 min)	1 h 40 min (1 h 35 min)
			[iFrame]	2 h 50 min (2 h 45 min)	1 h 45 min (1 h 40 min)

Recording to a card

The unit can record still pictures or motion pictures to an SD card or built-in memory. To record to an SD card, read the following.

This unit (an SDXC compatible device) is compatible with SD Memory Cards, SDHC Memory Cards and SDXC Memory Cards. When using an SDHC memory card/SDXC memory card with other equipment, check the equipment is compatible with these memory cards.

Cards that you can use with this unit

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

Card type	Capacity	Motion picture recording	Still picture recording
SD Memory Card	8 MB/16 MB/ 32 MB	Cannot be used.	Cannot be guaranteed in operation.
	64 MB/128 MB/ 256 MB	Cannot be guaranteed in operation.	
	512 MB/1 GB/ 2 GB		
SDHC Memory Card	4 GB/6 GB/8 GB/ 12 GB/16 GB/ 24 GB/32 GB	Can be used.	Can be used.
SDXC Memory Card	48 GB/64 GB		


* SD Speed Class Rating is the speed standard regarding continuous writing. Check via the label on the card, etc.





e.g.:







Approximate number of recordable pictures


- SD cards are only mentioned with their main memory size. The stated number is the approximate number of recordable pictures.





(When [ASPECT RATIO] is set to [4:3] and [QUALITY] is set to )




Picture size					
		4032×3024	3200×2400	2560×1920	640×480
SD card	4 GB	610	940	1500	30000
	16 GB	2500	3900	6200	122000
	64 GB	10000	15800	25000	492000
HDD	220 GB	33000	53000	84000	899100

(When [ASPECT RATIO] is set to [3:2] and [QUALITY] is set to )

Picture size				
		4608×3072	3600×2400	2880×1920
SD card	4 GB	500	850	1300
	16 GB	2100	3400	5500
	64 GB	8400	14000	22000
HDD	220 GB	29000	45000	75000

(When [ASPECT RATIO] is set to [16:9] and [QUALITY] is set to )

Picture size					
		4864×2736	3840×2160	3072×1728	1920×1080
SD card	4 GB	550	850	1420	3600
	16 GB	2200	3400	5600	14000
	64 GB	9000	14000	23000	59000
HDD	220 GB	31000	49000	78000	201000

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

Recording modes/approximate recordable time

- SD cards are only mentioned with their main memory size. The stated times are the approximate recordable times for continuous recording.

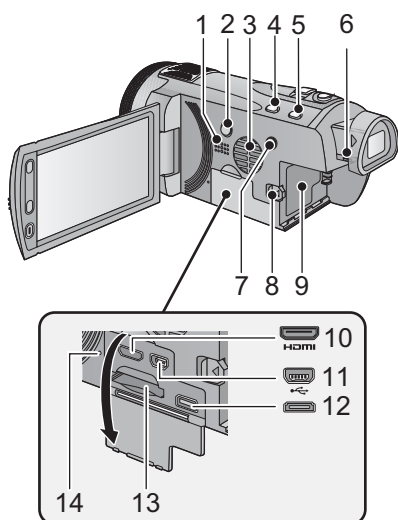
		← A →				B →
Recording mode		[1080/60p] (NTSC areas) [1080/50p] (PAL areas)	[HA]	[HG]	[HX]	[HE]
Picture size		1920×1080	1920×1080	1920×1080	1920×1080	1920×1080
SD card	4 GB	19 min	30 min	40 min	1 h	1 h 30 min
	16 GB	1 h 20 min	2 h	2 h 40 min	4 h 10 min	6 h 40 min
	64 GB	5 h 20 min	8 h 30 min	11 h	16 h 50 min	27 h 30 min
HDD	220 GB	18 h 30 min	29 h	37 h 30 min	57 h 30 min	94 h

- A Favors image quality
- B Favors recording time

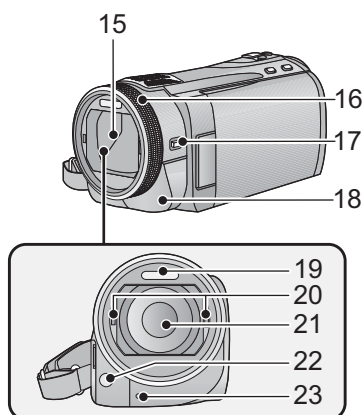
Recording mode	[iFrame]	
Picture size		
960×540		
SD card	4 GB	19 min
	16 GB	1 h 20 min
	64 GB	5 h 20 min
HDD	220 GB	18 h 30 min

- If recording for long periods, prepare batteries for 3 or 4 times the period you wish to record for.
- The default setting is [HG] Mode.
- Recordable time of 3D recording mode is the same. (During 3D recording mode, 1080/60p and iFrame recording mode cannot be used.)
- Maximum continuously recordable time for one scene: 12 hours
- The recording is paused once when the recording time for one scene exceeds 12 hours, and the recording will automatically resume after a few seconds.
- If a recording with a lot of action is recorded, the recording time is reduced.
- The recordable time may be reduced if recording of short scene is repeated.
- Use time in the row of 4 GB in above table as a guideline for the time that can be copied onto one DVD disc (4.7 GB).

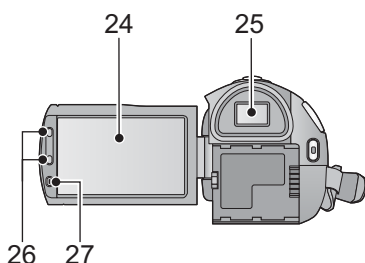
5 Location of Controls and Components



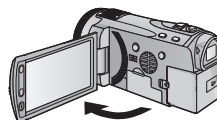
- 1 Speaker
- 2 Power button [ψ /I]
- 3 Inlet (cooling fan)
- 4 Intelligent auto/Manual button [iA/MANUAL]
- 5 Optical image stabilizer button [(O.I.S.)]
- 6 Eyepiece corrector dial
- 7 1080/60p button [1080/60p] (NTSC areas)
1080/50p button [1080/50p] (PAL areas)
- 8 Battery release lever [BATT]
- 9 Battery holder
- 10 HDMI mini connector [HDMI]
- 11 USB terminal [\leftarrow]
- 12 AV multi connector
- Use the AV multi cable (only the supplied cable).
- 13 Card slot
- 14 Access lamp [ACCESS]



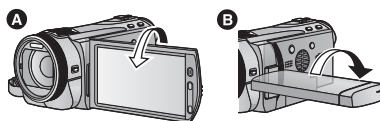
- 15 Lens cover
- The lens cover opens in Motion Picture Recording Mode or Still Picture Recording Mode.
- 16 Multi manual ring
- 17 Camera function button [CAMERA FUNCTION]
- 18 Remote control sensor
- 19 Built-in flash
- 20 3D Conversion Lens attachment part (concave)
- 21 Lens (LEICA DICOMAR)
- 22 AF assist lamp
- 23 Recording lamp



24 LCD monitor (Touch screen)



- It can open up to 90°.



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

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.

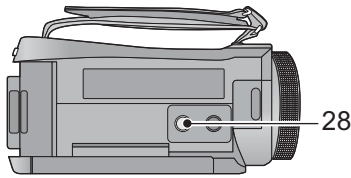
25 Viewfinder

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

26 Zoom buttons

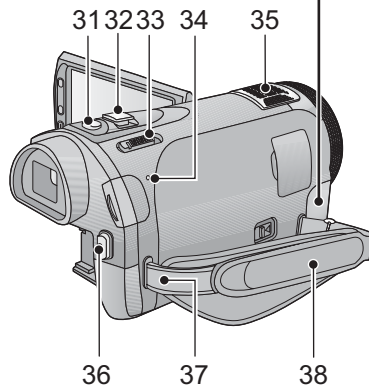
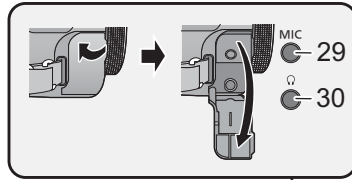
27 Sub recording start/stop button

- This button functions in the same manner as the recording start/stop button.



28 Tripod receptacle

- If you attach a tripod which has 5.5 mm (0.22") screw or larger, it may damage this unit.



29 Microphone terminal [MIC]

- A compatible plug-in powered microphone can be used as an external microphone.
- Audio will be stereo (2 ch) with the external microphone input.

- □□□■ (Microphone input level meter) is displayed when the external microphone is connected.

- When the unit is connected with the AC adaptor, sometimes noise may be heard depending on the microphone type. In this case, please switch to the battery for the power supply and the noise will stop.

30 Headphone terminal []

31 Photoshot button []

32 Zoom lever [W/T] (In Motion Picture Recording Mode or Still Picture Recording Mode)

Thumbnail display switch [/Q] / Volume lever [-VOL+] (In Playback Mode)

33 Mode switch

34 Status indicator

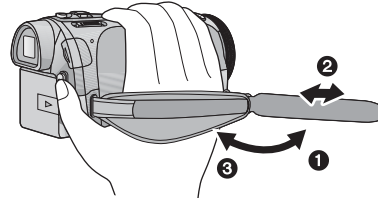
35 Internal microphones

36 Recording start/stop button

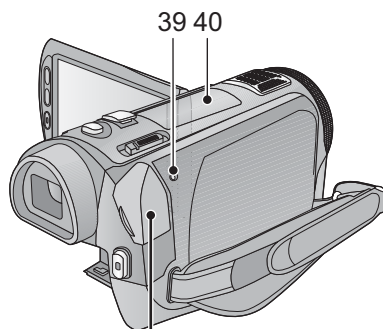
37 Shoulder strap fixture

38 Grip belt

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



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

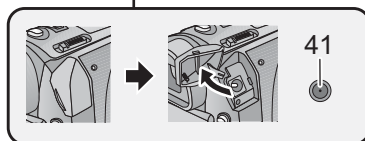


39 HDD access lamp [ACCESS HDD]

40 Accessory shoe




41 DC input terminal [DC IN]

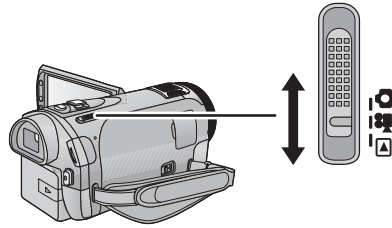
- Do not use any other AC adaptors except the supplied one.






Selecting a mode

Change the mode to recording or playback.

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



	Motion Picture Recording Mode
	Still Picture Recording Mode
	Playback Mode

How to use the touch screen

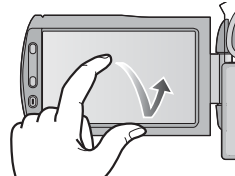
You can operate by directly touching the LCD monitor (touch screen) with your finger.

It is easier to use the stylus pen (supplied) for detailed operation or if it is hard to operate with your fingers.

■ Touch

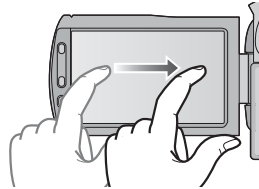
Touch and release the touch screen to select icon or picture.

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



■ Slide while touching

Move your finger while pressing on the touch screen.



■ About the operation icons

 /  /  / .


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

 :

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

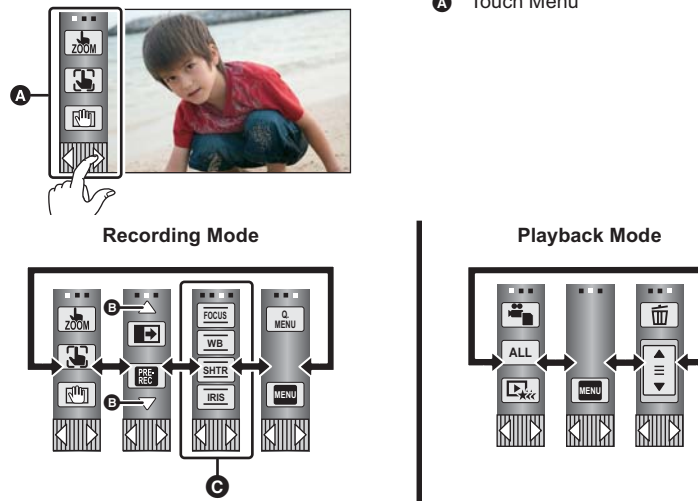


About the Touch Menu

Touch ◀ (left side)/▶ (right side) of  on the Touch Menu to switch the operation icons.

Touch ◀ (left side)/▶ (right side) of on the Touch Menu.


- It is also possible to switch the operation icons by sliding the Touch Menu right or left while touching it.



- **B** Touch these icons to switch pages upward or downward.
- **C** Displayed only during the Manual Mode.

■ To display the Touch Menu



The Touch Menu will disappear when no function is performed for a specific period of time during Recording mode. To display it again, touch .

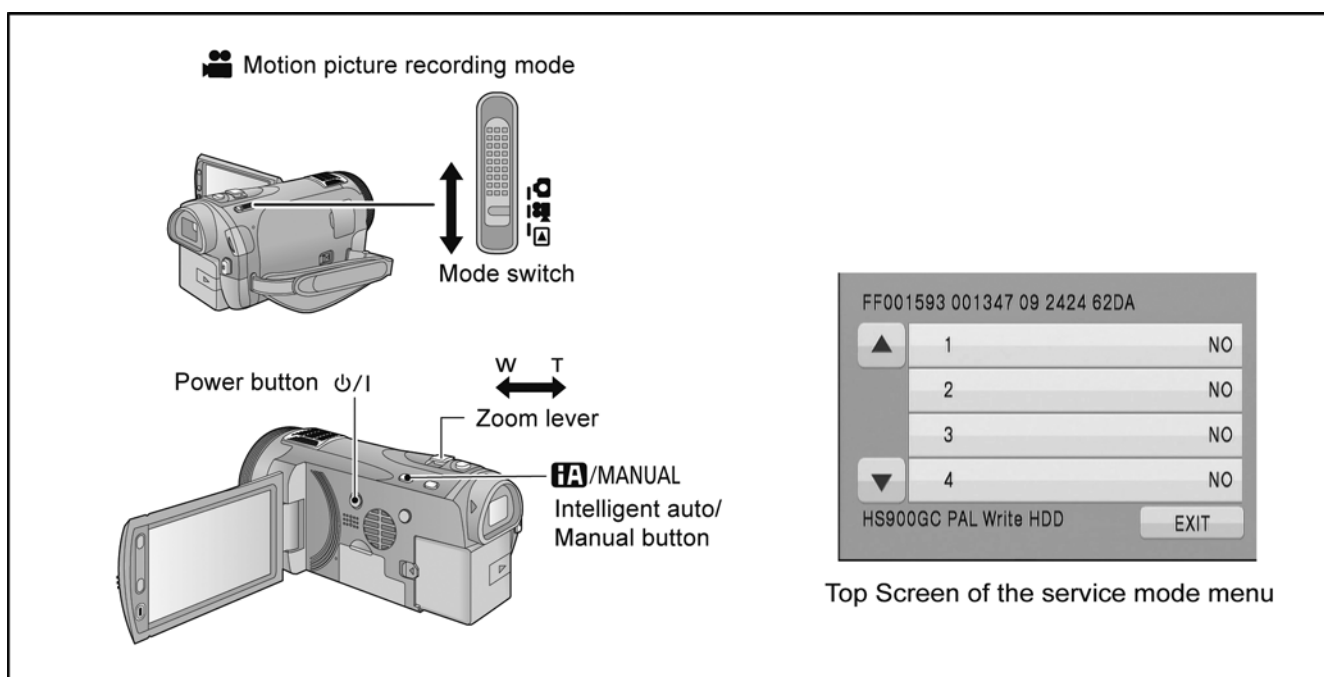
- Do not touch on the LCD monitor with hard pointed tips, such as ball point pens.
- Perform the touch screen calibration when the touch is not recognized or wrong location is recognized.

6 Service Mode

1. Indication method of the service menu

Set the mode switch "Motion Picture Recording" mode.

2. While the power is turned OFF, keep pressing the "Power" button, "Zoom lever" to W side and "intelligent auto/Manual" button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



Service mode menu

Screen display	Contents	Function
1	Factory settings	Function to throw a product up in a factory shipment state (When recorded data in HDD, "error display" is done)
2	Drive information display	Fall detection frequency of HDD, Frequency that exceeds highest/lowest operation guarantee temperature and serial number display
3	HDD self check execution	Function to check self as for the state of HDD
4	Lock search history indication	Display the camera system error cord for three histories saved in EEPROM
5	Power ON self check result display	Power ON self check (function to diagnose correct function of the device and interface between devices) result display
6	HDD hardware test	Function to confirm state of HDD hardware
9	Forced full flash emission	Forced full flash emission for discharging the capacitor on FLASH SD P.C.B. and set to prohibit charge
10	Erasing the lock histories	Erasing the error histories (working time is not erased)
11	Erasing the internal media management information	Erasing the internal media management information for fast boot stored in IC3402(flash memory)
12	Camera data indications while the video playback	Display the camera informations (Shutter speed, Iris value, White balance and focal length) while playing recorded video

NOTE:

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

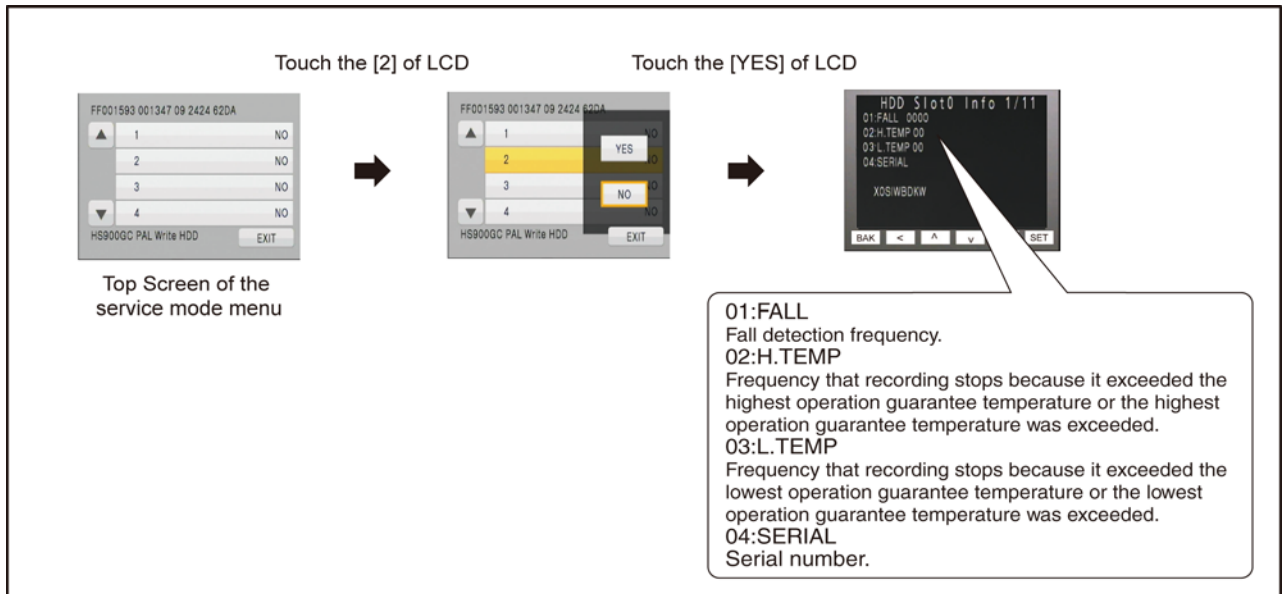
3. End method of the top screen of the service mode menu

Touch the [EXIT] of LCD to end the service mode, and then POWER OFF.

6.1. Drive Information Display

Touch the [2] of LCD, select Drive Information display.

Operation specifications



Indication contents

- Drive Information display

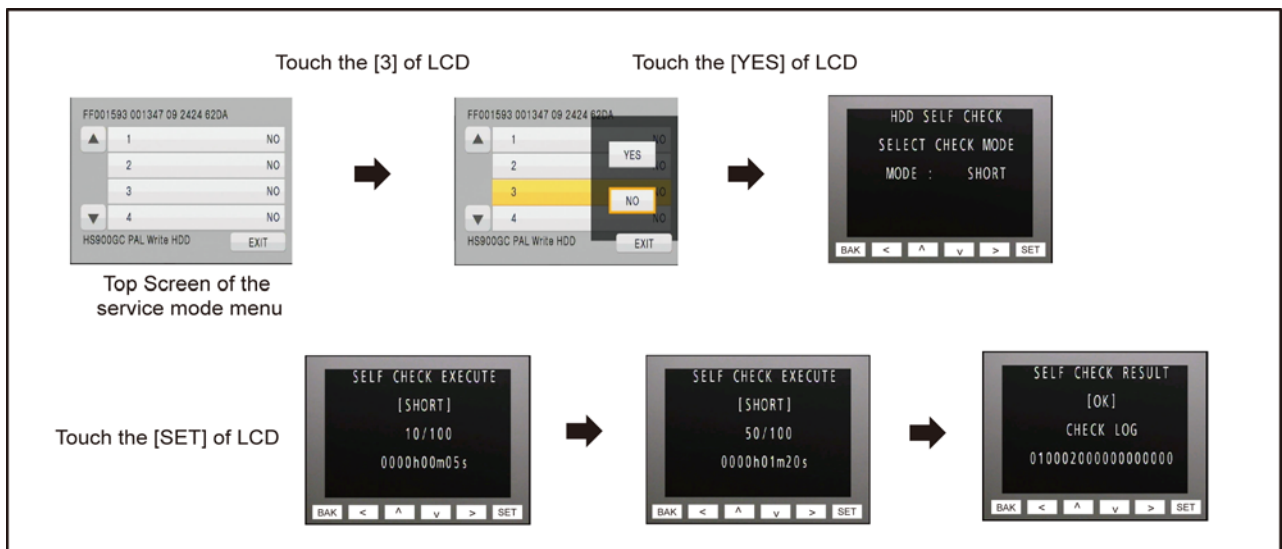
Display the fall detection frequency of HDD, Frequency that exceeds highest/lowest operation guarantee temperature and serial number.

Touch the [BAK] of LCD to end the service mode, and then POWER OFF.

6.2. HDD Self Check Execution

Touch the [3] of LCD, select HDD self check execution.

Operation specifications



Indication contents

- HDD self check execution

Display the HDD self check result information.

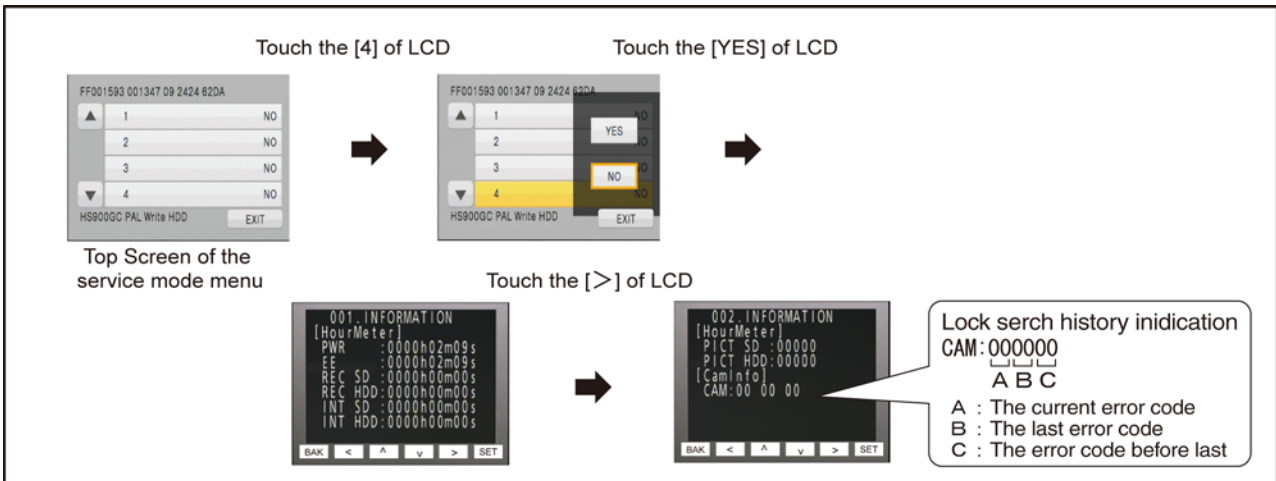
Displays other than “OK” are abnormalities of HDD.

Touch the [BAK] of LCD to end the service mode, and then POWER OFF.

6.3. Lock Search History Indication

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

Operation specifications



Indication contents

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

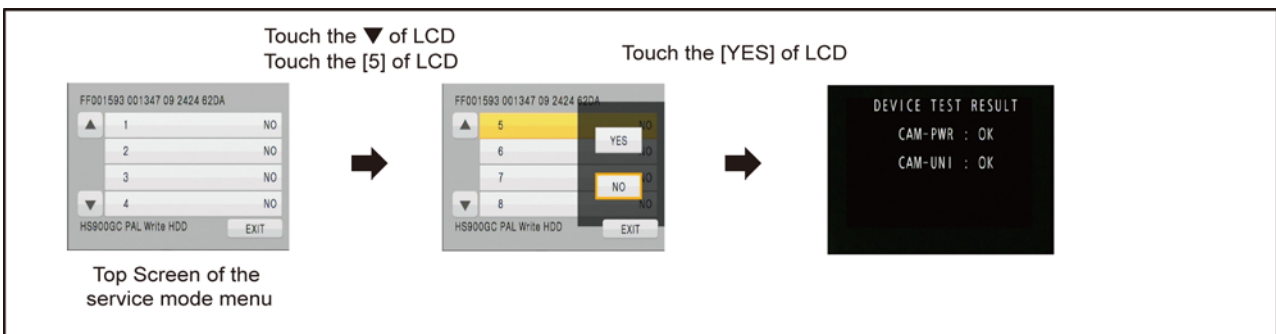
Error code	Function
51	Focus control is abnormal
52	Zoom control is abnormal
53	OIS lens control is abnormal
71	Lens cover open/close is abnormal
72	Cooling fan is abnormal
73	High temperature is abnormal
33	Communication between IC2006 to IC3401 is abnormal

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

6.4. Power ON Self Check Result Display

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

Operation specifications



Indication contents

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

Display the following commnucation test result.

- CAM-PWR : Commnucation test between IC2006 to IC2304
- CAM-UNI : Commnucation test between IC2006 to IC3401

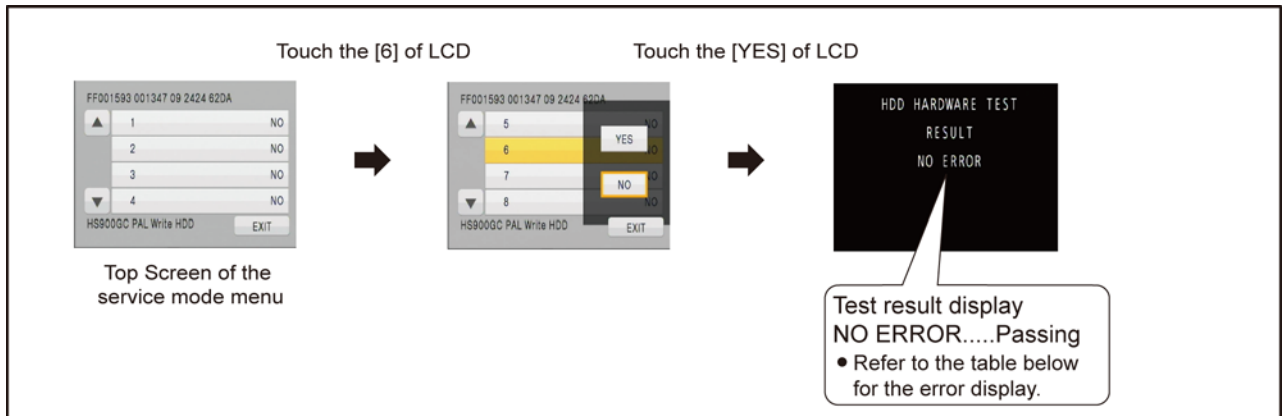
Display other than “OK” are abnormalities of each lines.

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

6.5. HDD Hardware Test

Touch the [6] of LCD, select HDD hardware test.

Operation specifications



Indication contents

- HDD hardware test
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 ERROR	Reserved

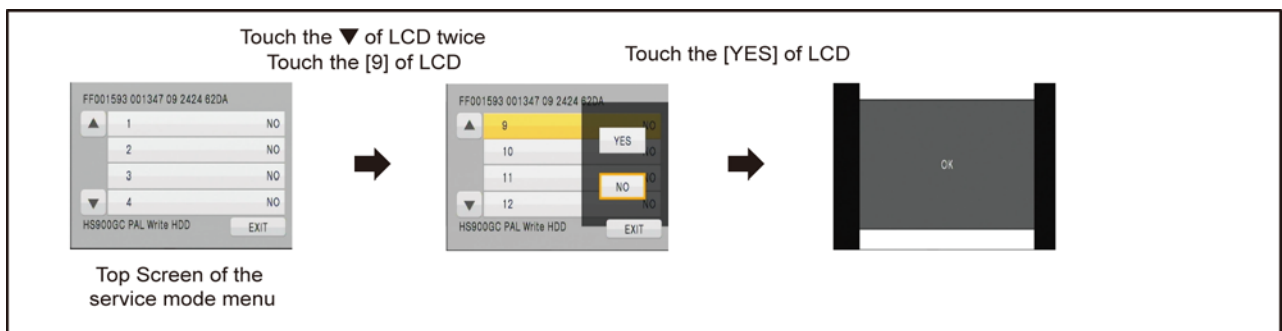
In the above table, displays other than “NO ERROR” are abnormalities of HDD.

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

6.6. Forced full flash emission

Touch the [9] of LCD, select Forced full flash execution.

Operation specifications



Indication contents

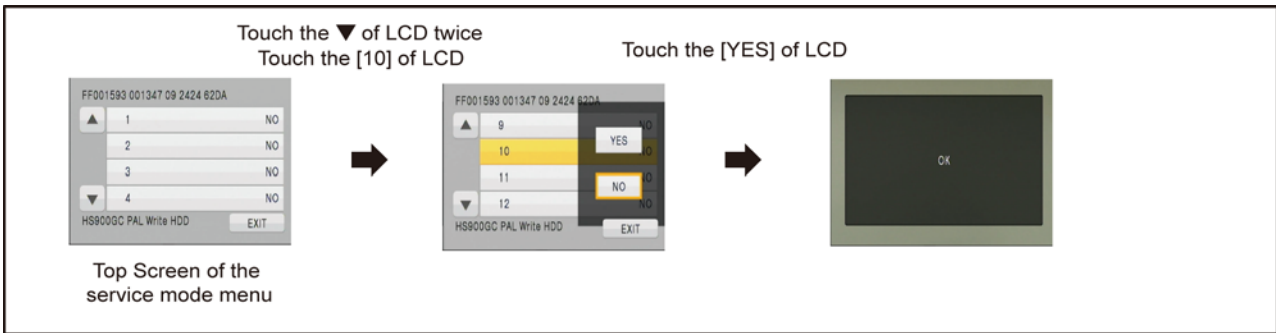
- Discharging the capacitor without using register.
Forced full flash emission for charge capacitor completely discharge.
To prevent electric shock, we recommend enforcement before disassembling.

Press the power button and turn off.

6.7. Erasing the lock histories

Touch the [10] of LCD, select erasing the lock histories execution.

Operation specifications



Indication contents

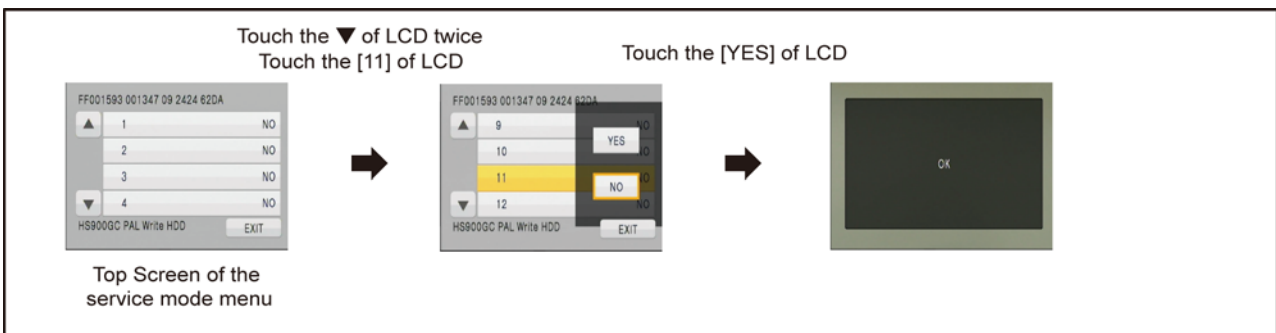
- Erasing the error histories stored in EEPROM. (working time is not erased)

Press the power button and turn off.

6.8. Erasing the internal media management information

Touch the [11] of LCD, select erasing the internal media management information for fast boot stored in flash memory.

Operation specifications



Indication contents

- The fast boot management informations of the internal media are stored in the flash memory.
The following cases, be sure to implement for protection of customer's recorded data.
However, if there is no problem to delete customer's recorded data, erasing the internal media management information is not required.
- Case1:
When replacing the flash memory chip (IC3402) or replacing the MAIN P.C.B. Unit.
Before checking the operations after replacing the parts, erasing the internal media management information.
- Case2:
When replacing the HDD Unit.
Before replacing the HDD Unit, erasing the internal media management information. then replace it new one.

CAUTION:

When turning the unit on after performing the above operation, the internal media management information is stored into the unit, the playback of the recorded data is normally.

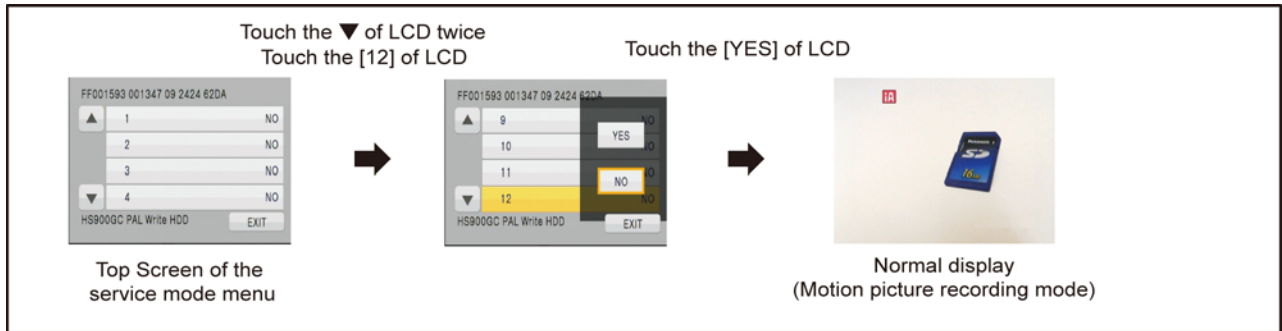
When not performing the above operation, the customer's recorded data will disappear.

Press the power button and turn off.

6.9. Camera data indications while the video playback

Touch the [12] of LCD, select indicating the camera informations while playing back the recorded video.

Operation specifications



Indication contents

- While playing back the recorded videos, the camera informations (Shutter speed, Iris value, White balance and focal length) are superimposed on the LCD screen.



Press the power button and turn off.

7 Service Fixture & Tools

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

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

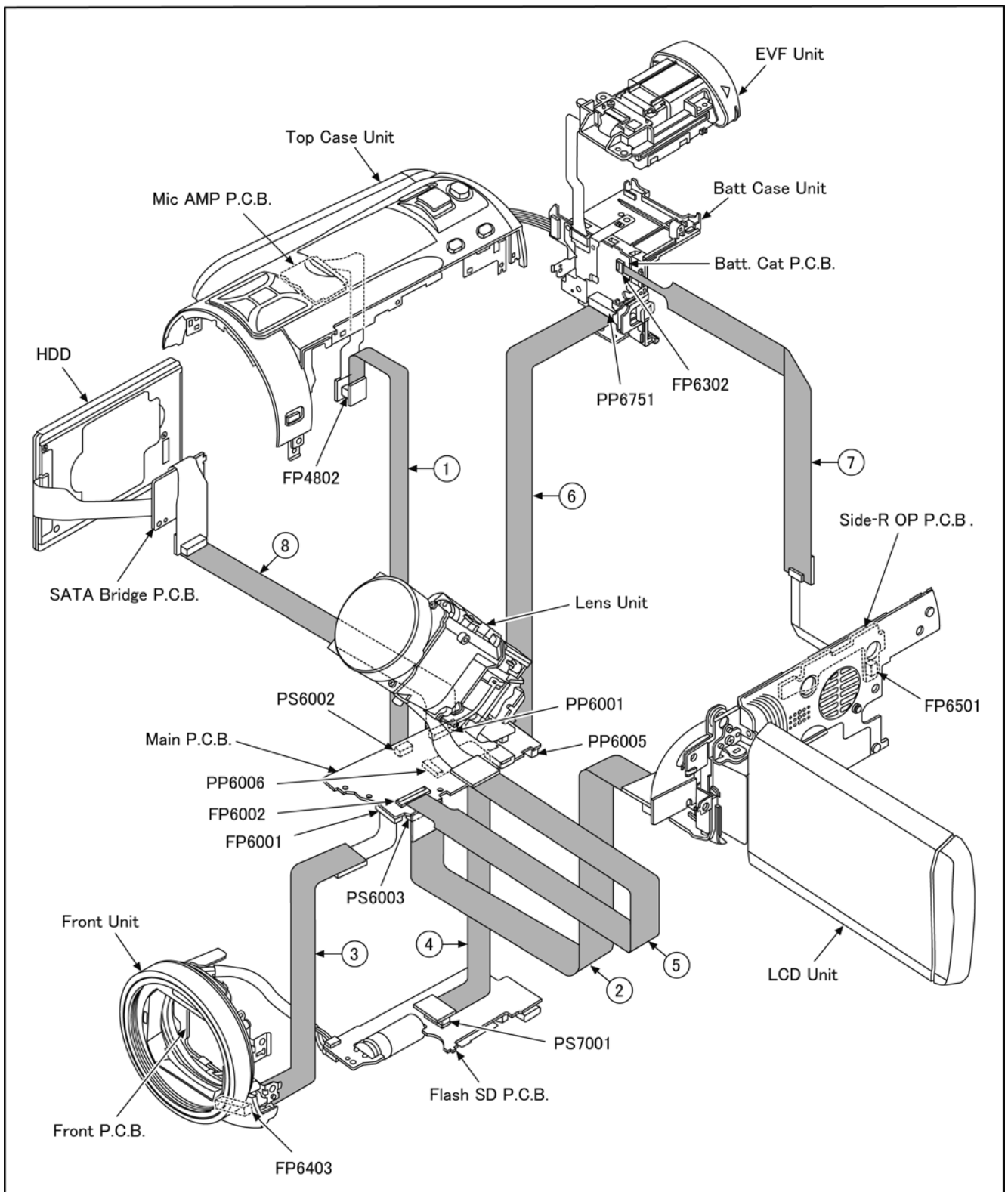
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN system", together with Maintenance software.

7.2. Service Position

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

Table S1 Extension Cable List

No.	Parts No.	Connection	Form
1	RFKZ0342	PS6002(MAIN) - FP4802(MIC AMP FPC)	20PIN 0.5 B to B
2	VFK1933	PS6003(MAIN) - MONITOR FPC	34PIN 0.5 B to B
3	VFK1950	FP6001(MAIN) - FP6403(FRONT)	33PIN 0.3 FFC
4	RFKZ0343	PP6006(MAIN) - PS7001(FLASH SD)	30PIN 0.5 B to B
5	RFKZ0416	FP6002(MAIN) - LENS UNIT	41PIN 0.3 FFC
6	RFKZ0582	PP6005(MAIN) - PP6751(BATT CATCHER)	60PIN 0.5 B to B
7	VFK1441	FP6302(BATT CATCHER) - FP6501(SIDE R OP)	8PIN 0.5 FFC
8	RFKZ0379	FP6001(MAIN) - MAIN SATA FPC	40PIN 0.5 B to B



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

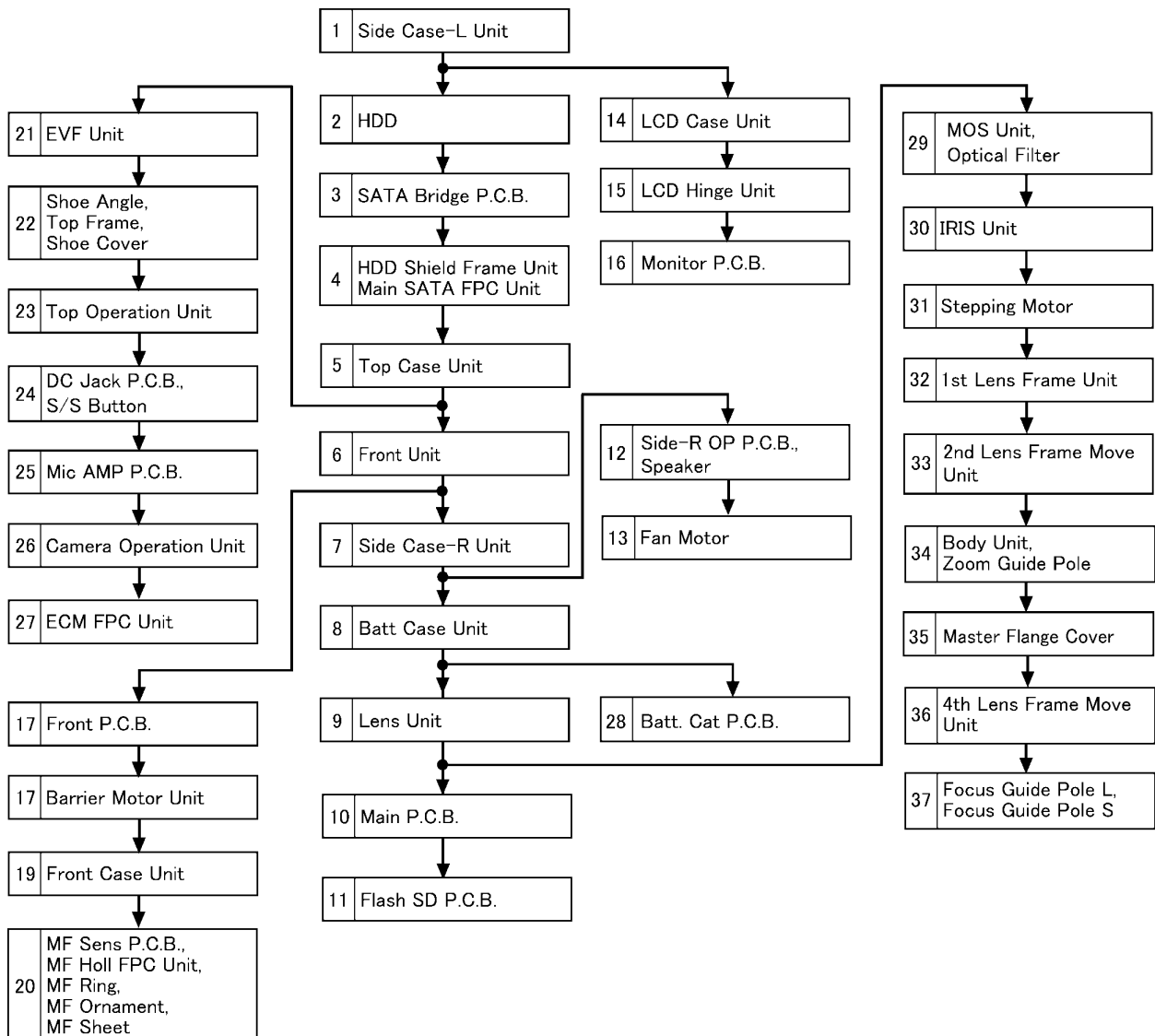
1. Be sure to discharge the capacitor on FLASH SD P.C.B..
Refer to "HOW TO DISCHARGE THE CAPACITOR ON FLASH SD P.C.B.".
The capacitor voltage is not lowered soon even if the AC Cord is unplugged or the battery is removed.
2. Be careful of the high voltage circuit on FLASH SD P.C.B..
3. DO NOT allow other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

8 Disassembly and Assembly Instructions

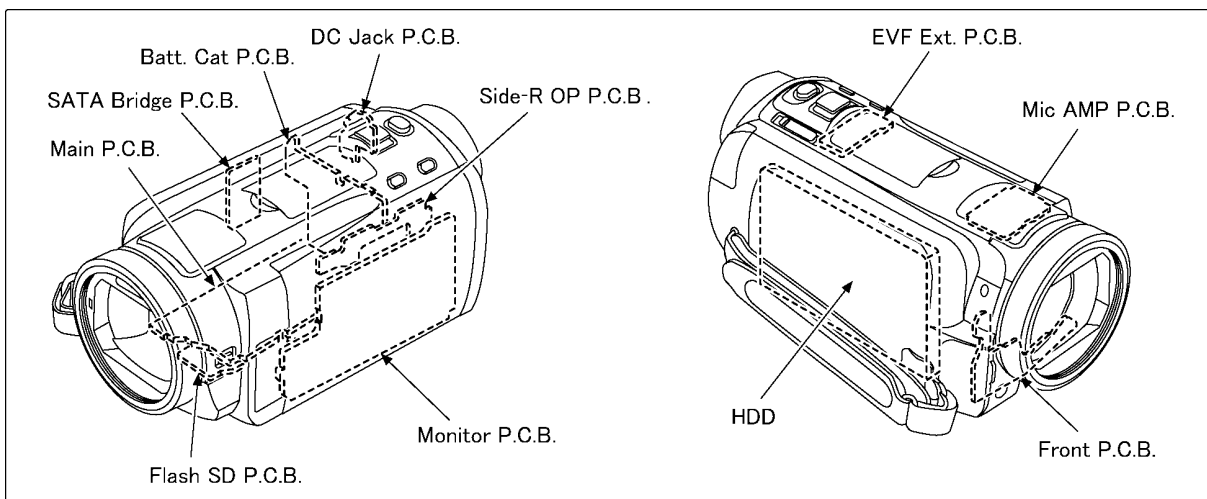
8.1. Disassembly Flow Chart for the Unit

This is a disassembling chart.

When assembling, perform this chart conversely.



8.2. PCB Location



8.3. Disassembly Procedure for the Unit

No.	Item	Fig	Removal
1	Side Case-L Unit	(Fig. D1)	3 Screws (A)
			4 Screws (B)
			2 Locking tabs
			Sensor Cover Unit
		(Fig. D2)	3 Screws (C)
			4 Locking tabs
			Side Case-L Unit
2	HDD	(Fig. D3)	FP3102(Flex)
			2 HDD Cushions
			HDD
3	SATA Bridge P.C.B.	(Fig. D4)	FP3101(Flex)
			1 Screw (D)
			SATA Bridge P.C.B.
4	HDD Shield Frame Unit Main SATA FPC Unit	(Fig. D5)	4 Screws (E)
			1 Screw (F)
			1 Rib
			PP6001(Connector)
			HDD Shield Frame Unit
			Main SATA FPC Unit
5	Top Case Unit	(Fig. D6)	2 Screws (G)
			2 Screws (H)
			1 Screw (I)
			1 Screw (J)
			2 Locking tabs
			SR Cover
			1 Rib
		(Fig. D7)	PS6002(Connector)
			P6752(Connector)
			1 Rib
			1 Locking tab
			FP851 (Flex)
			Top Case Unit
		NOTE: (When Removing)	
		NOTE: (When Installing)	
6	Front Unit	(Fig. D8)	P7001(Connector)
			P7002 (Connector)
			1 Screw (K)
			1 Rib
		(Fig. D9)	1 Locking tab
			FP6403 (Flex)
			Front Unit
7	Side Case-R Unit	(Fig. D10)	4 Screws (L)
			1 Screw (M)
		(Fig. D11)	PS6003 (Connector)
			FP6501 (Flex)
		Side Case-R Unit	
8	Batt Case Unit	(Fig. D12)	1 Screw (N)
			1 Screw (O)
			2 Ribs
		(Fig. D13)	PP6005 (Connector)
			Batt Case Unit
9	Lens Unit	(Fig. D14)	2 Screws (P)
			1 Rib
			2 Projection parts
		(Fig. D15)	PS6011 (Connector)
			FP6002(Flex)
			1 Screw (Q)
		Lens Frame Unit	
		Lens Unit	

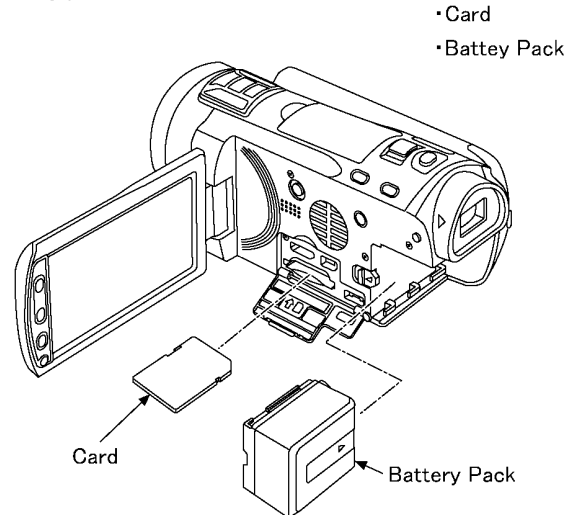
No.	Item	Fig	Removal
10	Main P.C.B.	(Fig. D16)	3 Screws (R)
			2 Ribs
		(Fig. D17)	Main Heat Radiation Plate
			PP6006 (Connector)
		1 Projection part	
		Main P.C.B.	
11	Flash SD P.C.B.	(Fig. D18)	2 Screws (S)
			1 Projection part
			Flash SD P.C.B.
12	Side-R OP P.C.B. Speaker	(Fig. D19)	2 Screws (T)
			SP angle
			PS6501(Connector)
			P6501(Connector)
			Side-R OP P.C.B.
		Speaker	
		(Fig. D20)	NOTE: (When Installing)
13	Fan Motor	(Fig. D21)	3 Convexes
			Fan Damper
			Fan Motor
14	LCD Case Unit	(Fig. D22)	2 Screws (U)
			Holder
			SR OP Button
			3 Locking tabs
			Earth Plate
			Sheet
			Light Guide Plate
			3 Ribs
			LCD Case Unit
15	LCD Hinge Unit	(Fig. D23)	2 Screws (V)
			2 Screws (W)
			6 Locking tabs
			LCD Case (T) Unit
			FP901 (Flex)
			FP902 (Flex)
			LCD Hinge Unit
16	Monitor P.C.B.	(Fig. D24)	FP903 (Flex)
			FP904 (Flex)
			FP905 (Flex)
			1 Screw (Y)
			3 Ribs
		(Fig. D25) (Fig. D26)	LCD Frame
			3 Locking tabs
			1 Locking tab
			Reflection Sheet
			Light Guide Plate
			Diffusion Sheet
			Prism Sheet B
			Prism Sheet A
			Lens Holder
			Monitor P.C.B.
17	Front P.C.B.	(Fig. D27)	1 Screw (a)
			1 Screw (b)
			FP6400 (Flex)
			FP6402 (Flex)
			Front P.C.B.
18	Barrier Motor Unit	(Fig. D28)	1 Screw (c)
			Barrier Motor Unit
		(Fig. D29)	NOTE: (When Installing)
19	Front Case Unit	(Fig. D30)	Lens Plate
		(Fig. D31)	4 Screws (d)
			Front Case Unit

No.	Item	Fig	Removal
20	MF Sens P.C.B. MF Holl FPC Unit MF Ring MF Ornament MF Sheet	(Fig. D32)	1 Screw (e)
			2 Hooks
			1 Convex
		(Fig. D33)	MF P.C.B. Holder
			P2701 (Flex)
			MF Sens P.C.B.
			MF Holl FPC Unit
			MF Ring
			MF Ornament
			MF Sheet
21	EVF Unit	(Fig. D34)	2 Screws (f)
			1 Screw (g)
		(Fig. D35)	EVF Unit
22	Shoe Angle Top Frame Shoe Cover	(Fig. D36)	3 Screws (h)
			Shoe Angle
		(Fig. D37)	5 Screws (i)
23	Top Operation Unit	(Fig. D38)	3 Screws (j)
			FP4803 (Flex)
			1 Rib
24	DC Jack P.C.B. S/S Button	(Fig. D39)	Top Operation Unit
			4 Screws (k)
			1 Screw (m)
			DC PCB Holder
			S/S Case Unit
25	Mic AMP P.C.B.	(Fig. D40)	2 Locking tabs
			DC Jack P.C.B.
			S/S Button
			FP4801(Flex)
			FP4804(Flex)
26	Camera Operation Unit	(Fig. D41)	2 Locking tabs
			Camera Operation Unit
27	ECM FPC Unit	(Fig. D42)	3 Bended portions
			MIC Net
			MIC Cushion (A)
			MIC Cushion (B)
			MIC Cushion (C)
			ECM FPC Unit
			28
2 Locking tabs			
Rear Frame			
1 Hanging part			
Batt. Cat P.C.B.			
29	MOS Unit Optical Filter	(Fig. D44)	2 Screws (o)
			Optical Filter
			MOS Unit
30	IRIS Unit	(Fig. D45)	Solder (18 points)
			3 Screws (p)
			3 Ribs
			IRIS Unit
31	Stepping Motor	(Fig. D46)	2 Screws (q)
			Stepping Motor
32	1st Lens Frame Unit	(Fig. D47)	3 Screws (r)
			1st Lens Frame Unit
33	2nd Lens Frame Move Unit	(Fig. D48)	2nd Lens Frame Move Unit Spring
			2nd Lens Frame Move Unit
			2nd Lens Frame Move Unit
34	Body Unit Zoom Guide Pole	(Fig. D49)	3 Screws (s)
			Body Unit
			Zoom Guide Pole
35	Master Flange Cover	(Fig. D50)	2 Screws (t)
			Master Flange Cover

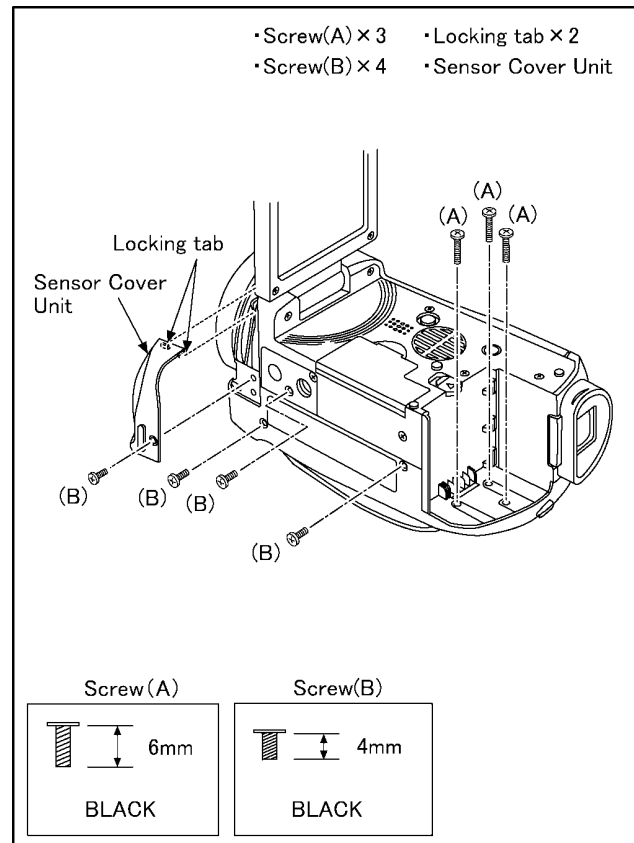
No.	Item	Fig	Removal
36	4th Lens Frame Move Unit	(Fig. D51)	2 Side Yorks
		(Fig. D52)	3 Ribs
			4th Lens Frame Move Unit
37	Focus Guide Pole L	(Fig. D53)	Focus Guide Pole L
	Focus Guide Pole S		Focus Guide Pole S

NOTE:

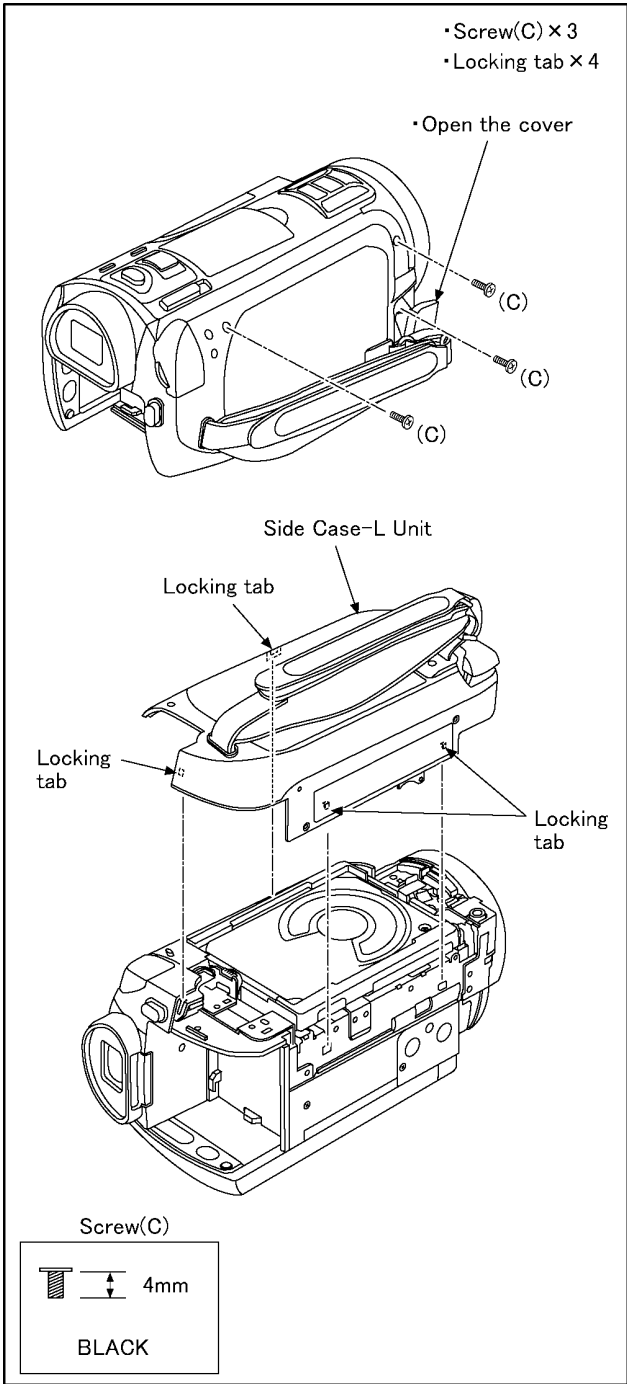
When servicing and reassembling, remove the card and battery pack from the unit.



8.3.1. Removal of the Side Case-L Unit

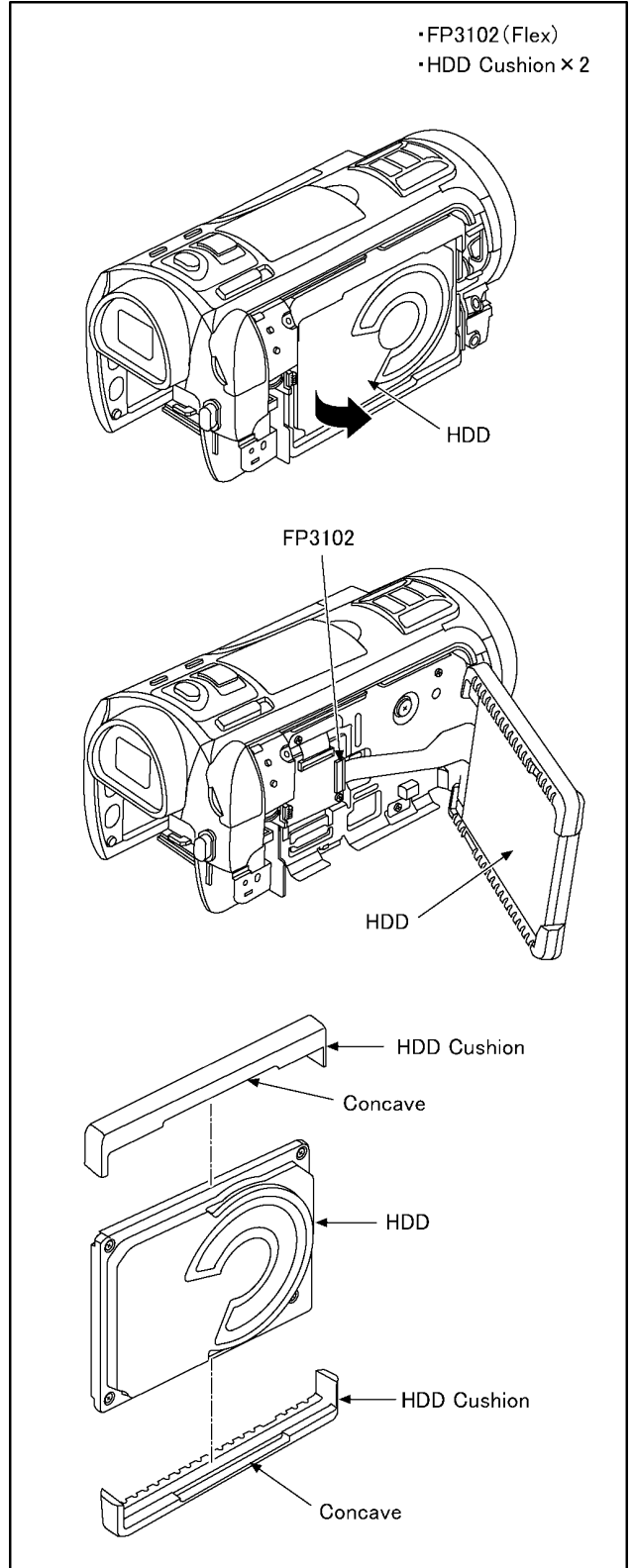


(Fig. D1)



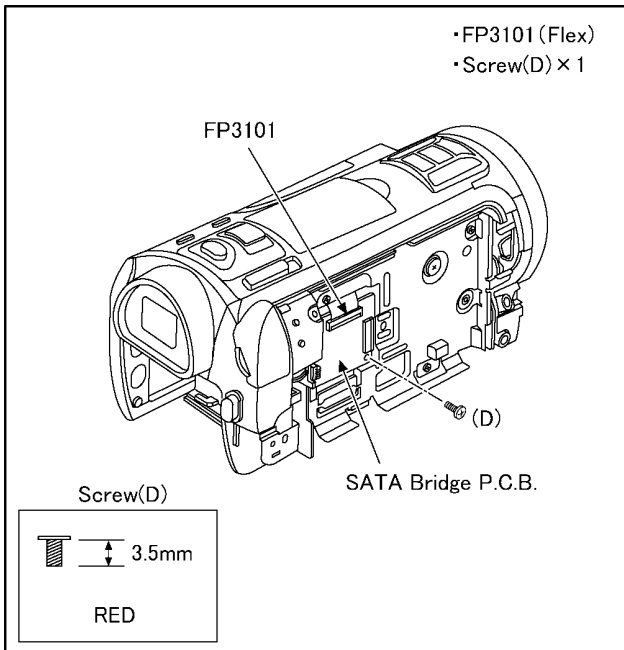
(Fig. D2)

8.3.2. Removal of the HDD



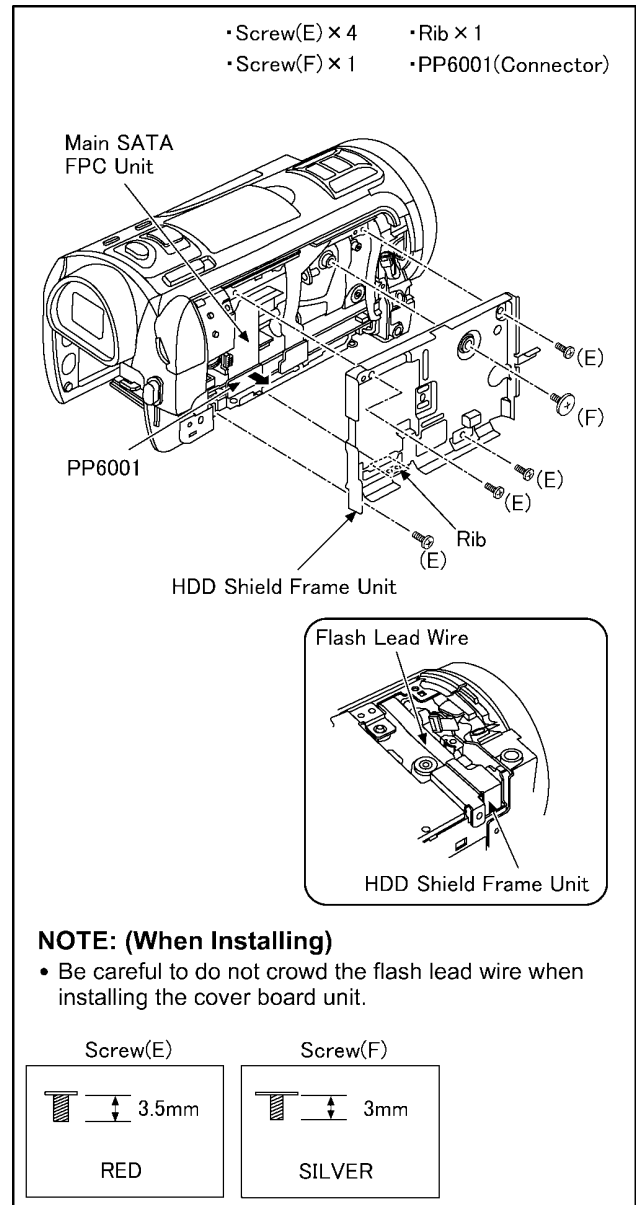
(Fig. D3)

8.3.3. Removal of the SATA Bridge P.C.B.



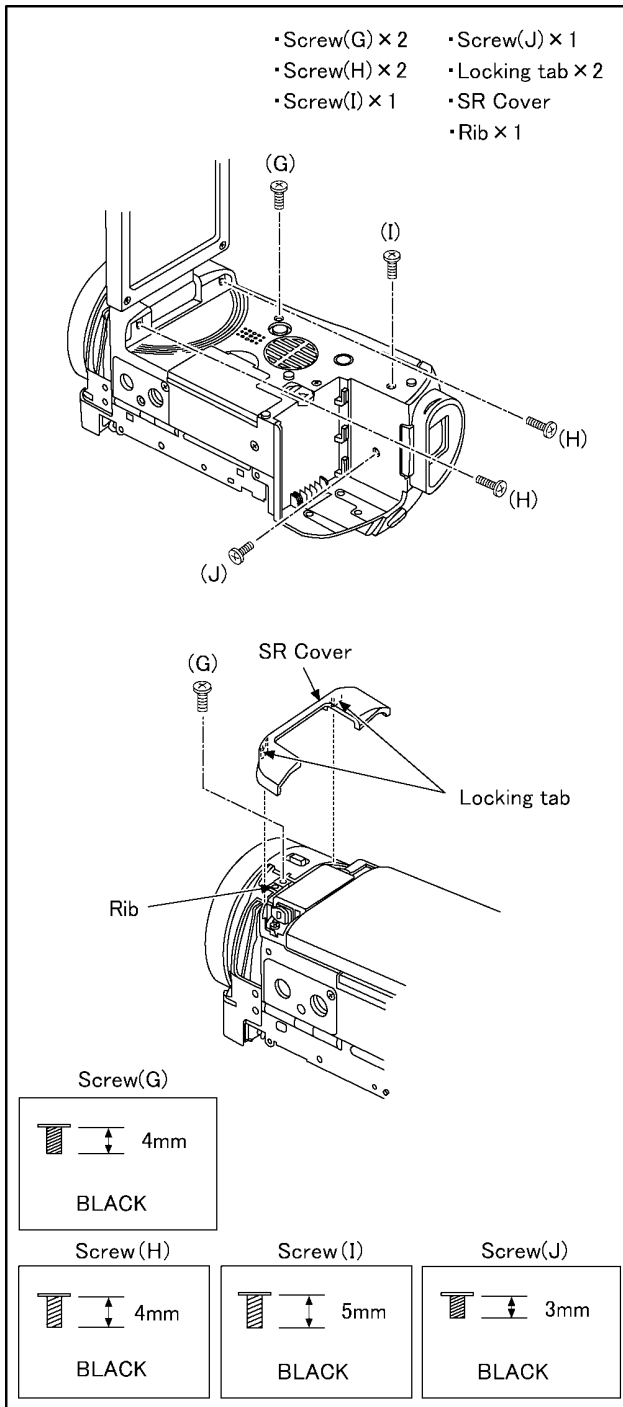
(Fig. D4)

8.3.4. Removal of the HDD Shield Frame Unit and Main SATA FPC Unit

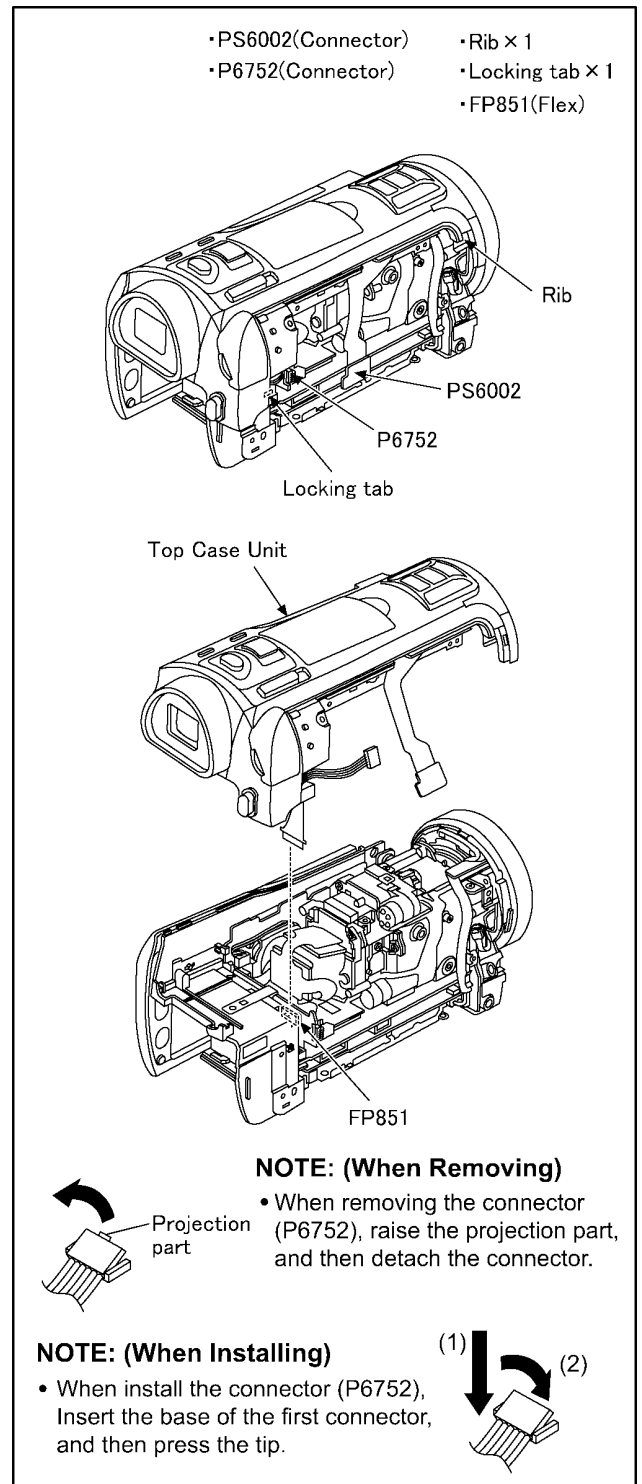


(Fig. D5)

8.3.5. Removal of the Top Case Unit

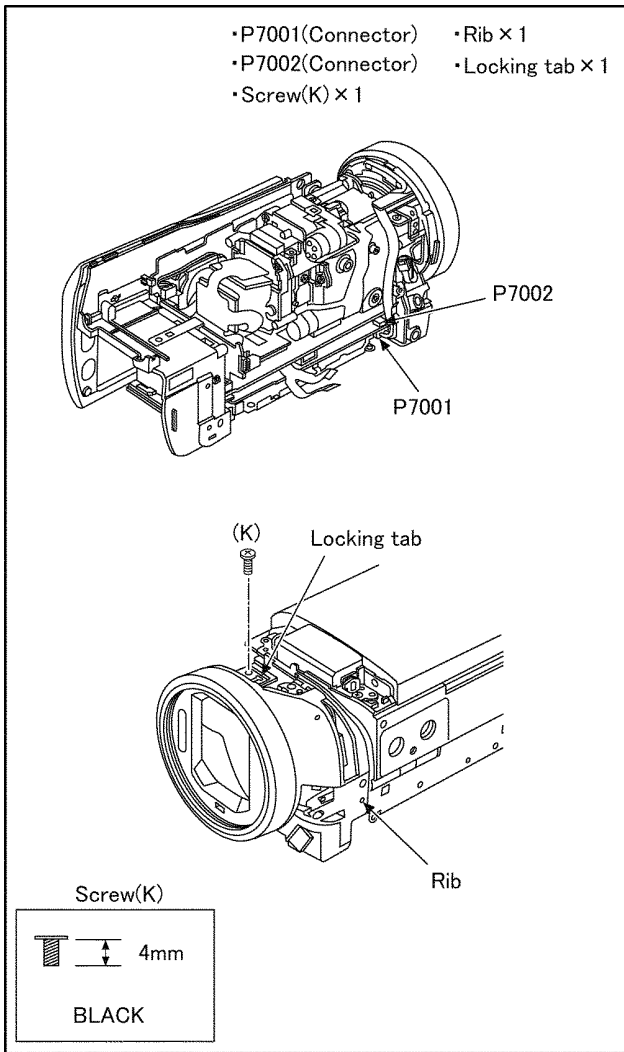


(Fig. D6)

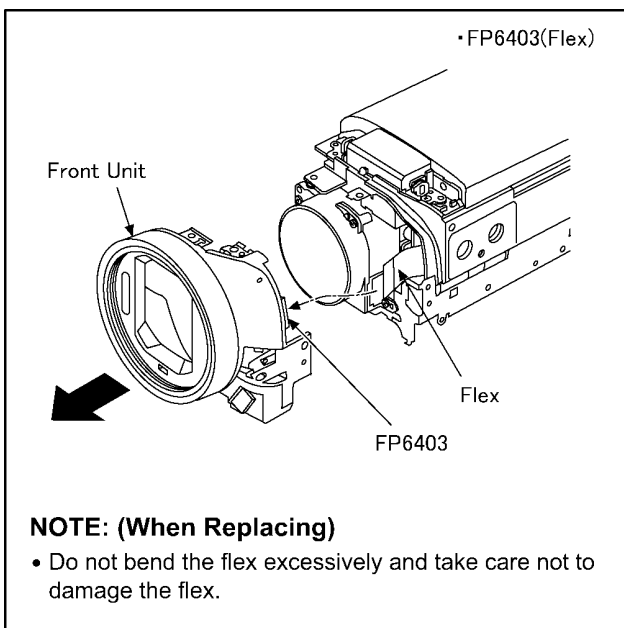


(Fig. D7)

8.3.6. Removal of the Front Unit

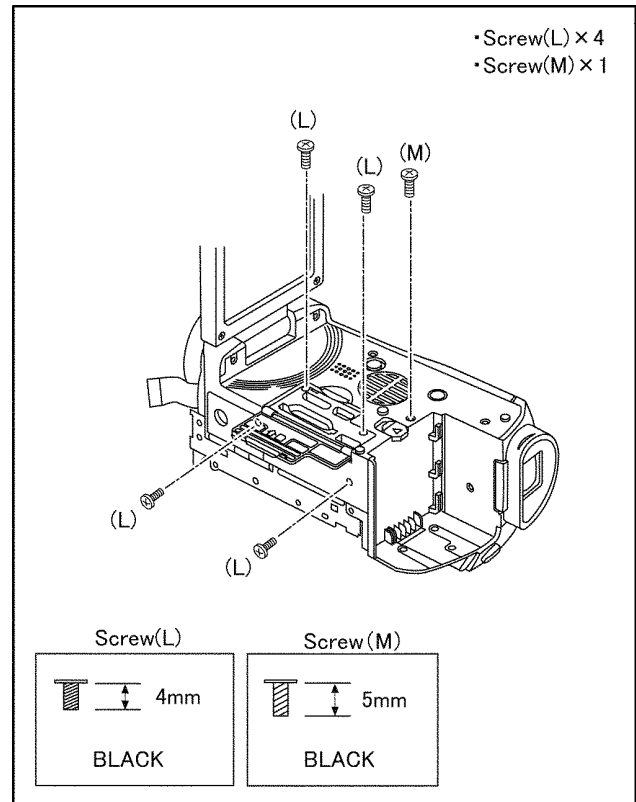


(Fig. D8)

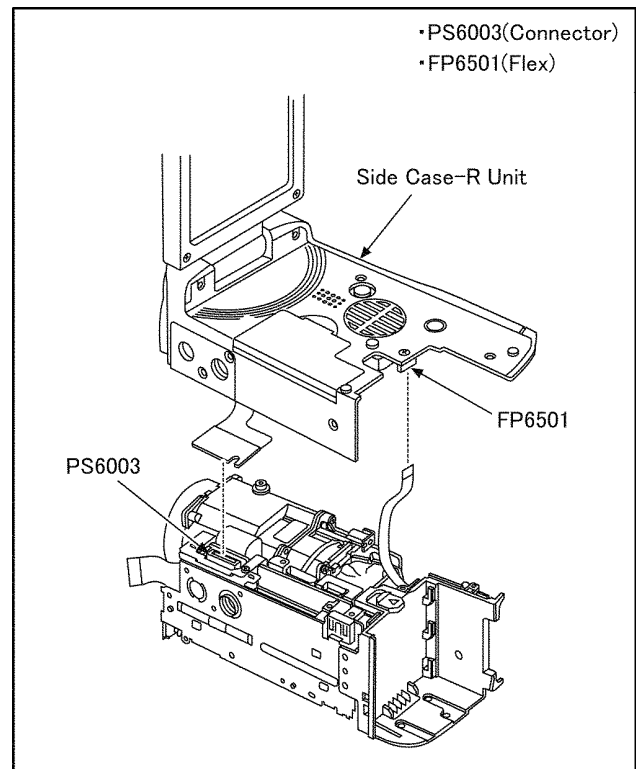


(Fig. D9)

8.3.7. Removal of the Side Case-R Unit

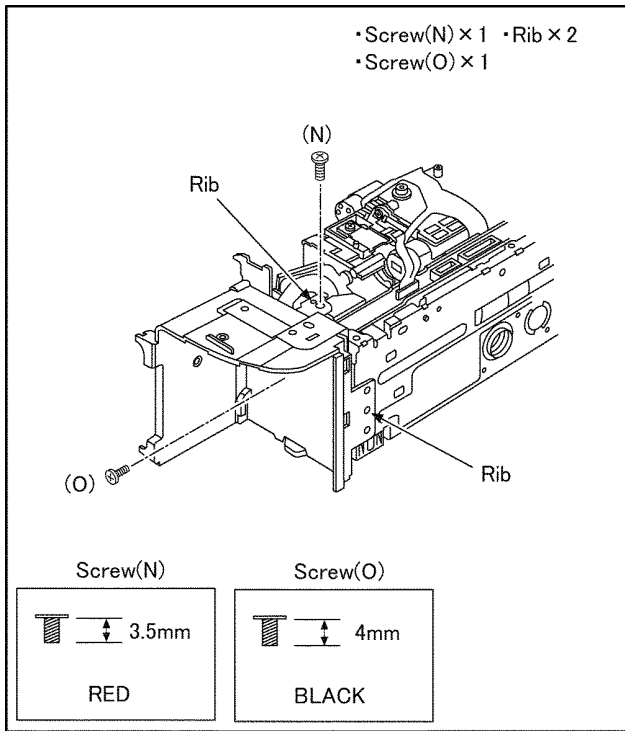


(Fig. D10)



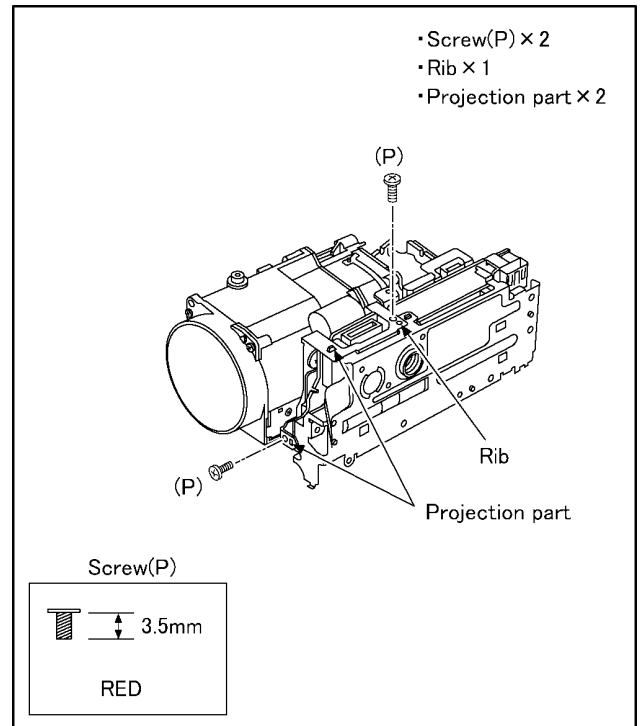
(Fig. D11)

8.3.8. Removal of the Batt Case Unit

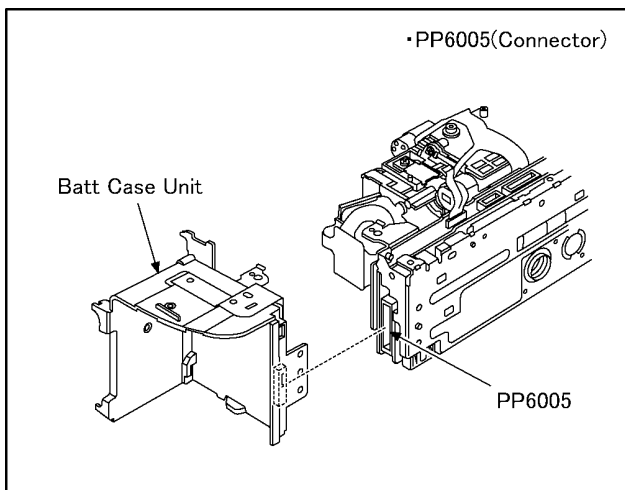


(Fig. D12)

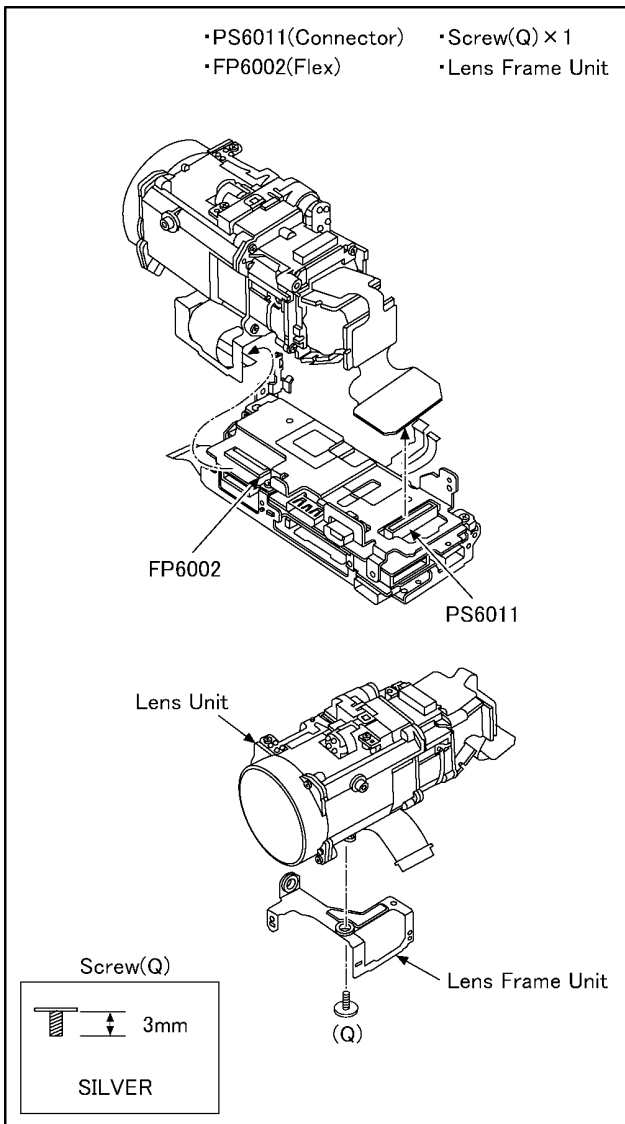
8.3.9. Removal of the Lens Unit



(Fig. D14)

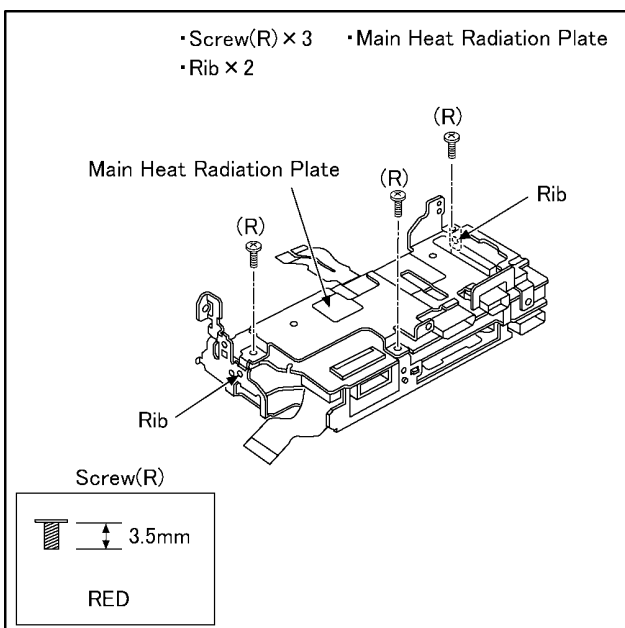


(Fig. D13)

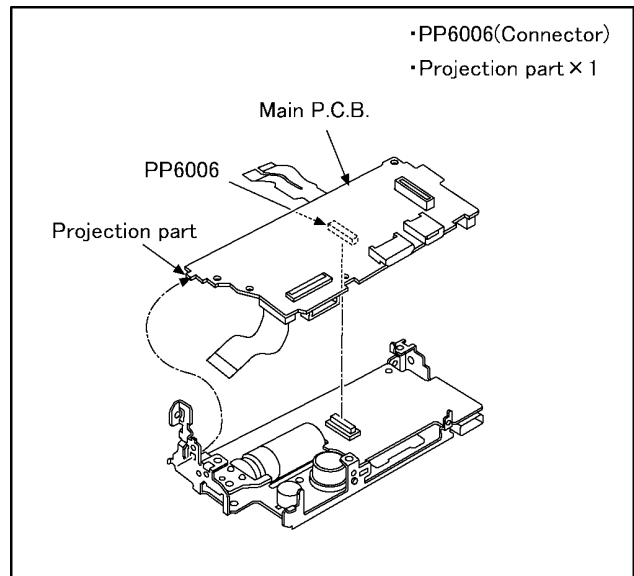


(Fig. D15)

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

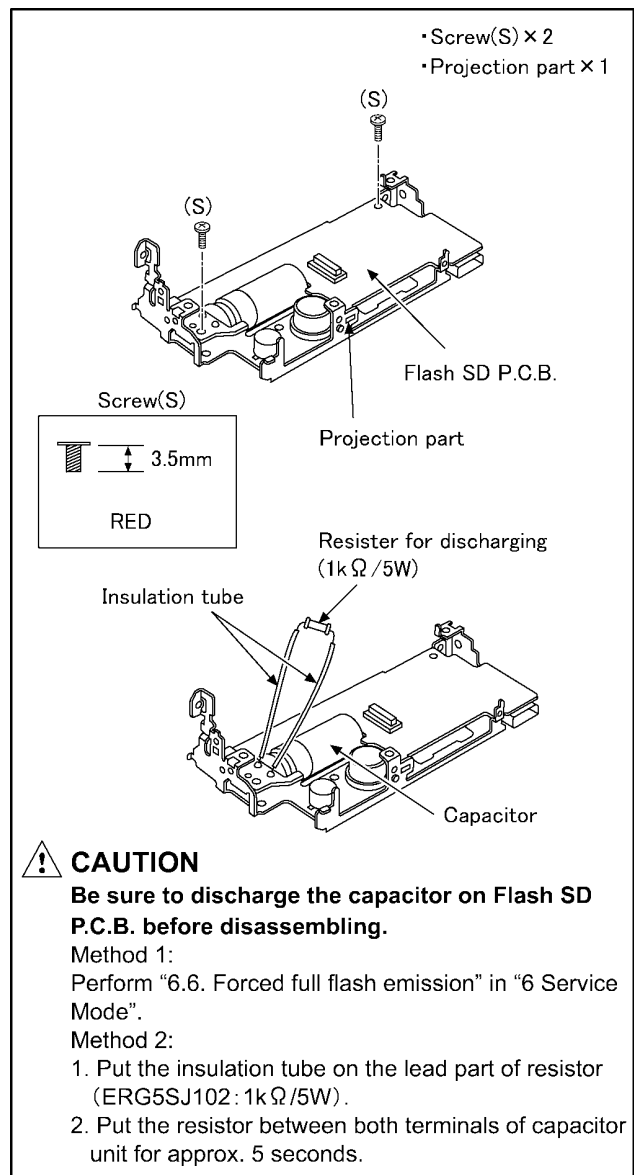


(Fig. D16)



(Fig. D17)

8.3.11. Removal of the Flash SD P.C.B.



CAUTION

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

Method 1:

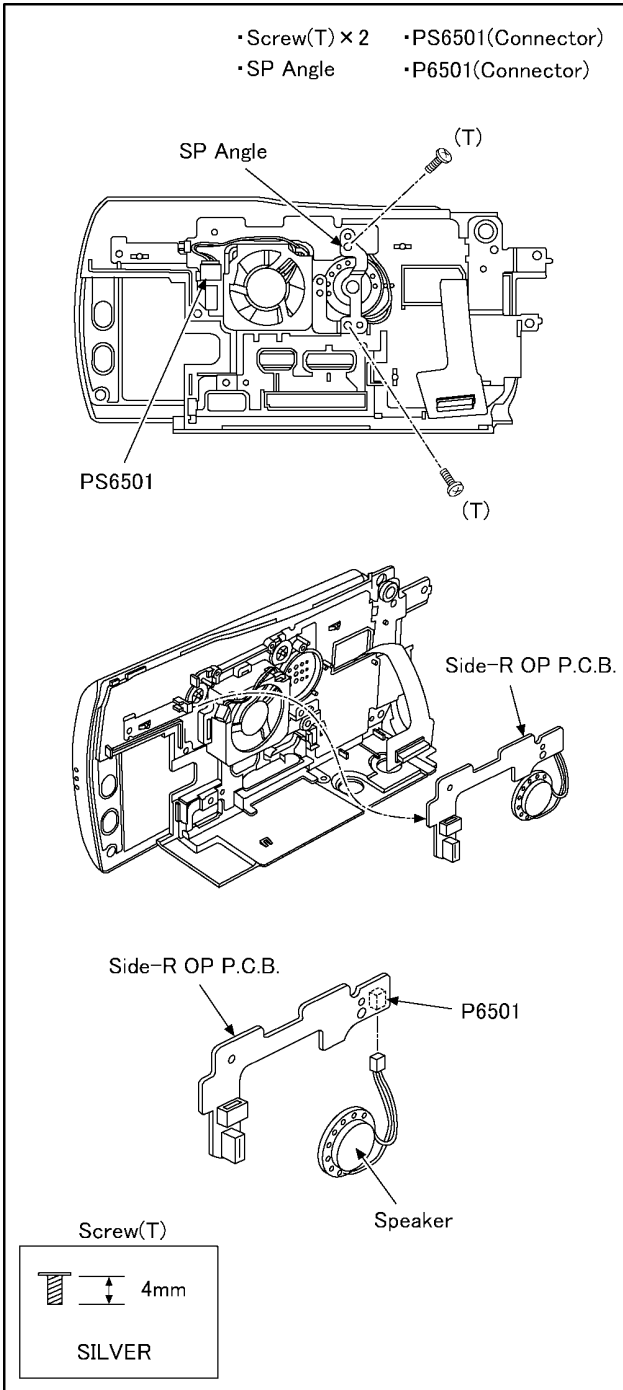
Perform "6.6. Forced full flash emission" in "6 Service Mode".

Method 2:

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. D18)

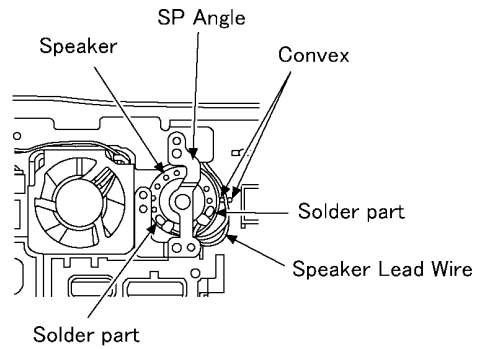
8.3.12. Removal of the Side-R OP P.C.B. and Speaker



(Fig. D19)

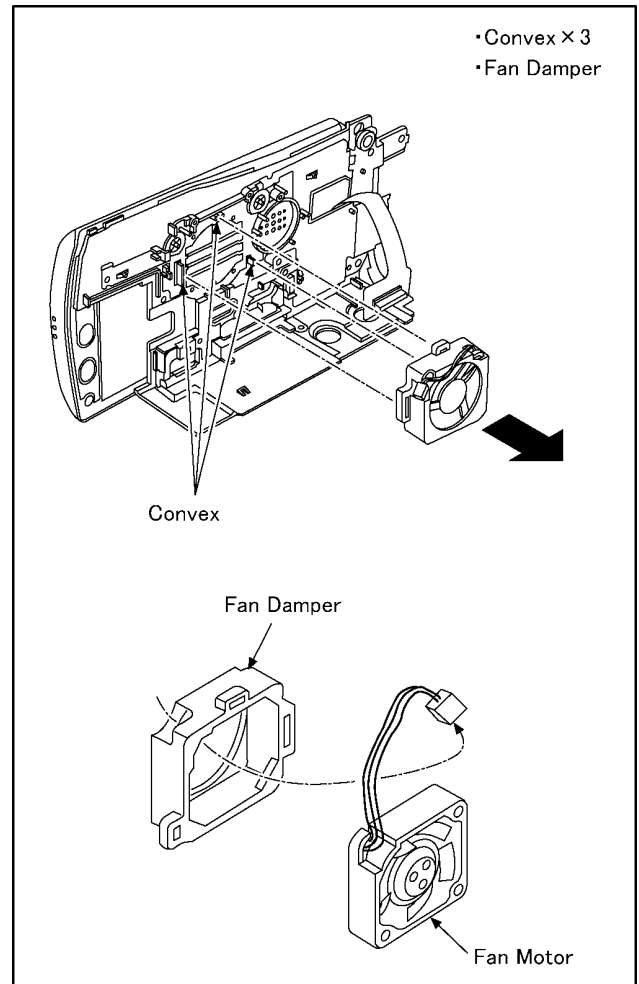
NOTE: (When Installing)

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



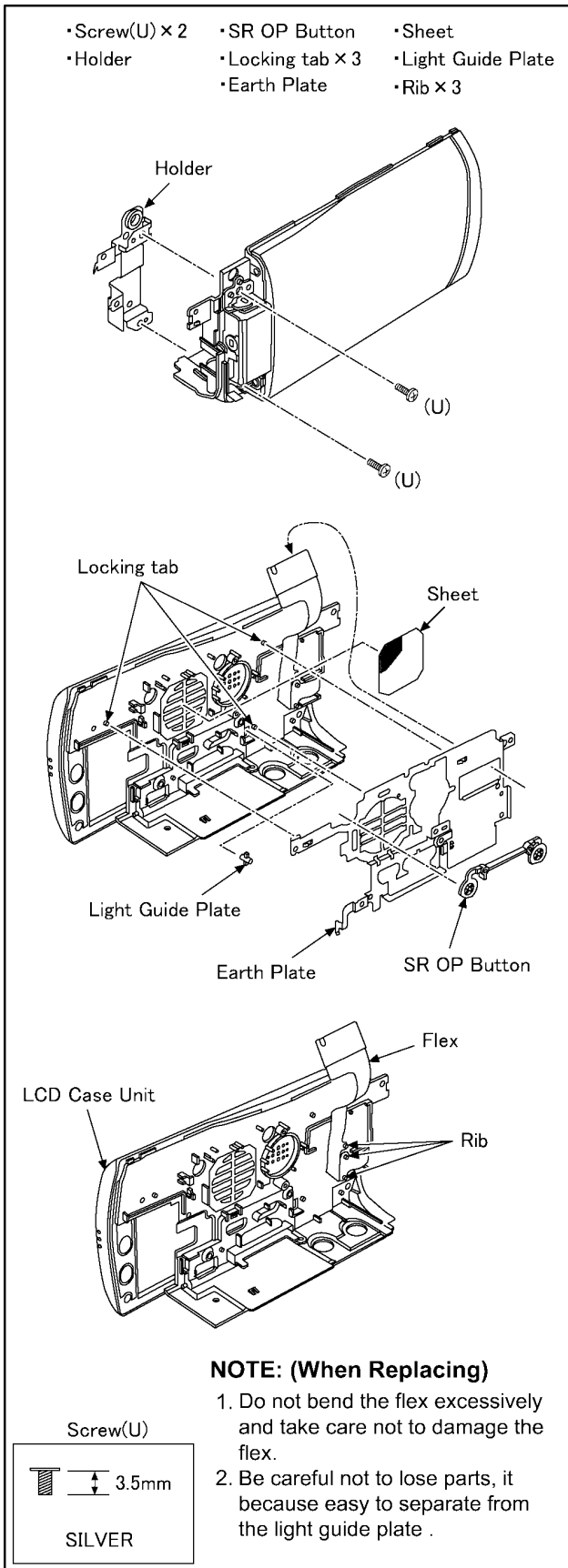
(Fig. D20)

8.3.13. Removal of the Fan Motor



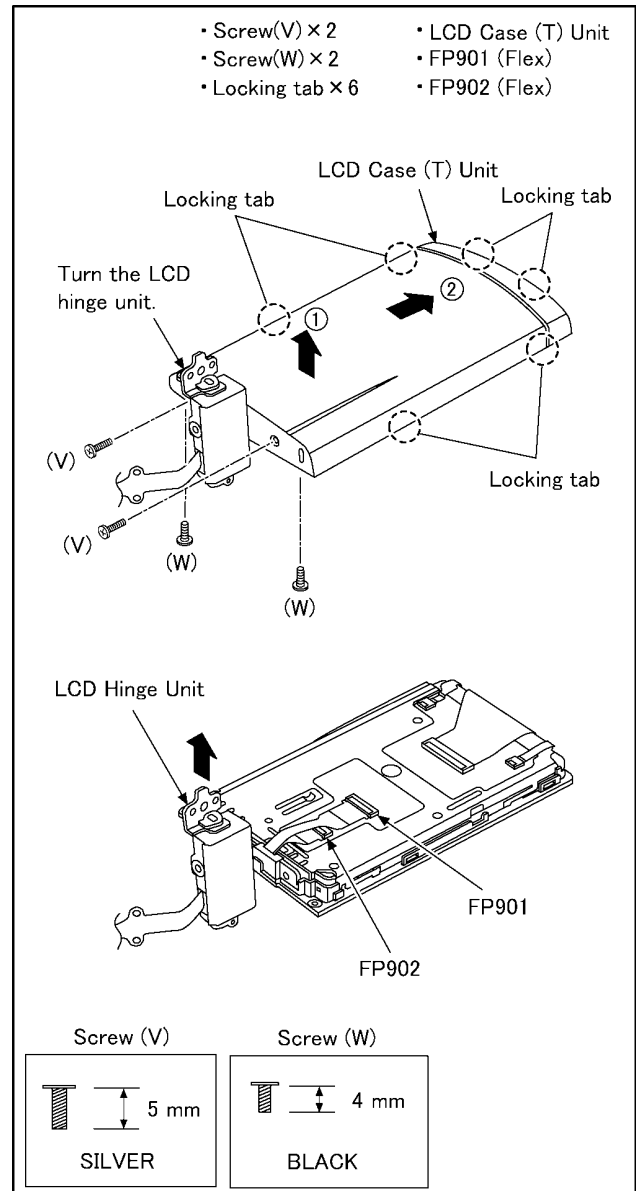
(Fig. D21)

8.3.14. Removal of the LCD Case Unit



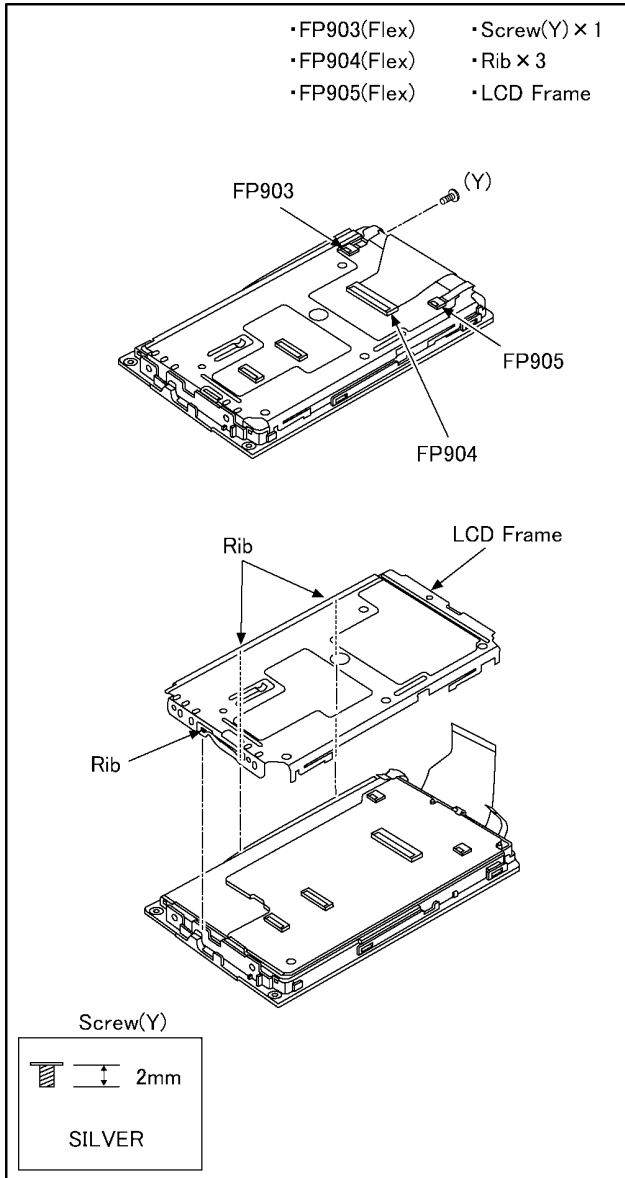
(Fig. D22)

8.3.15. Removal of the LCD Hinge Unit

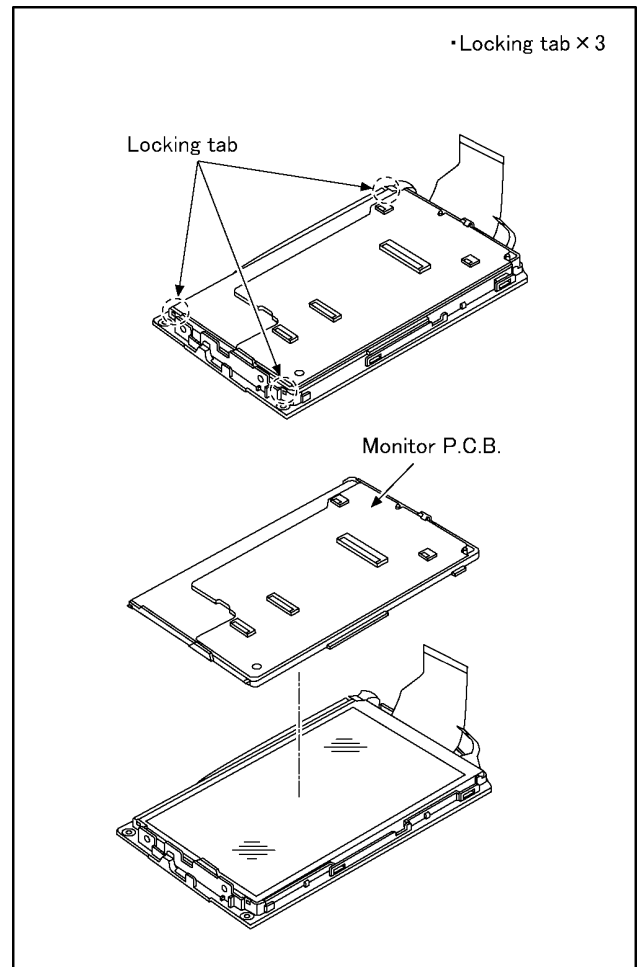


(Fig. D23)

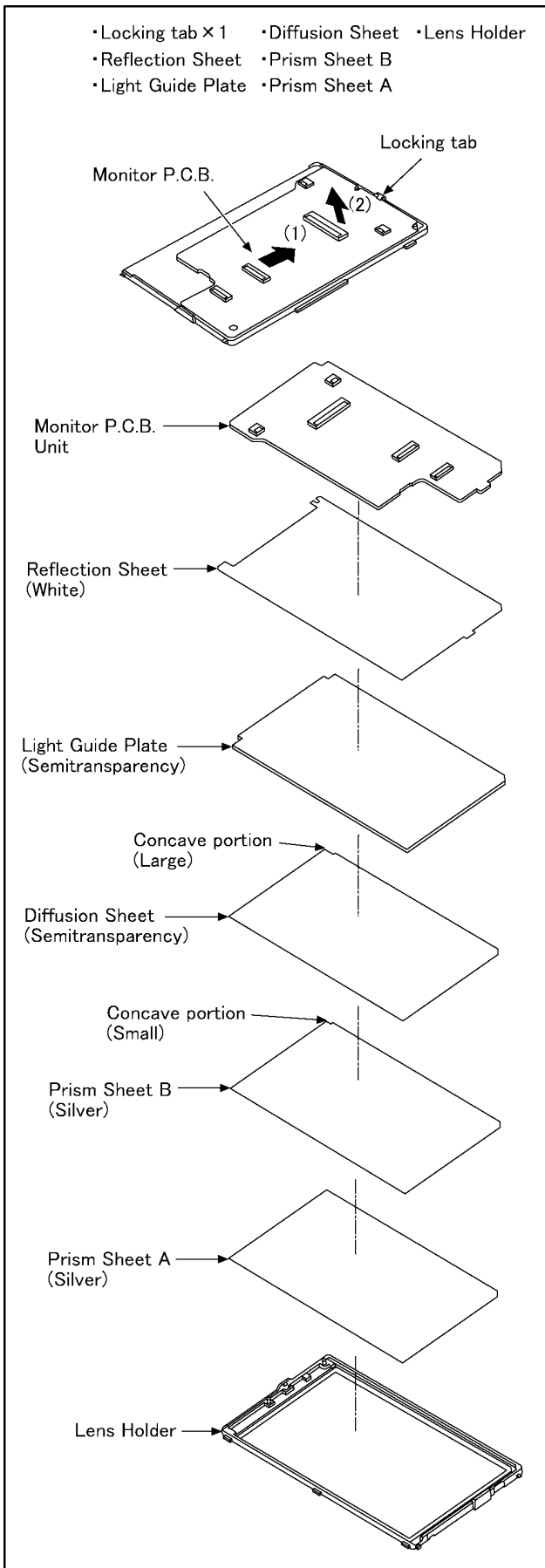
8.3.16. Removal of the Monitor P.C.B.



(Fig. D24)

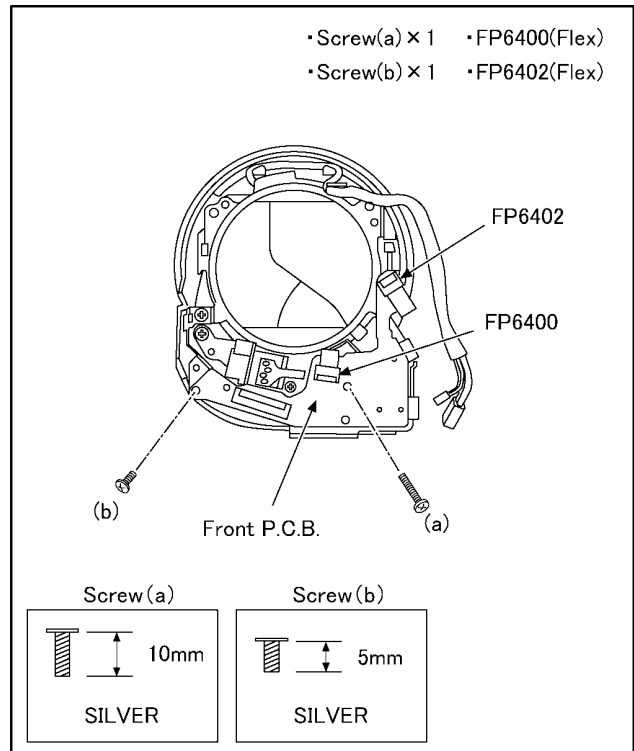


(Fig. D25)



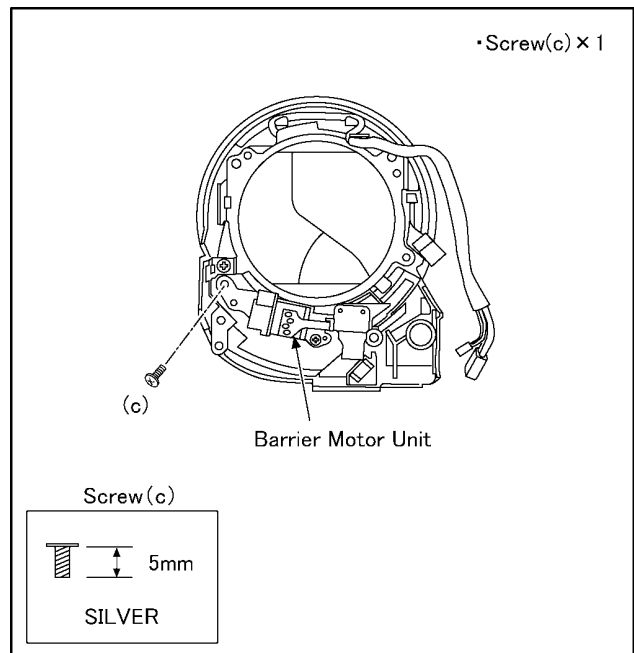
(Fig. D26)

8.3.17. Removal of the Front P.C.B.



(Fig. D27)

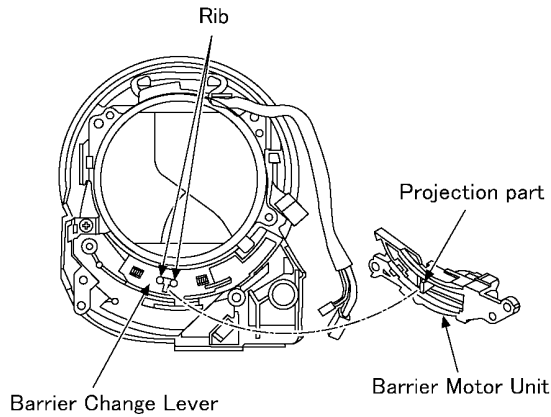
8.3.18. Removal of the Barrier Motor Unit



(Fig. D28)

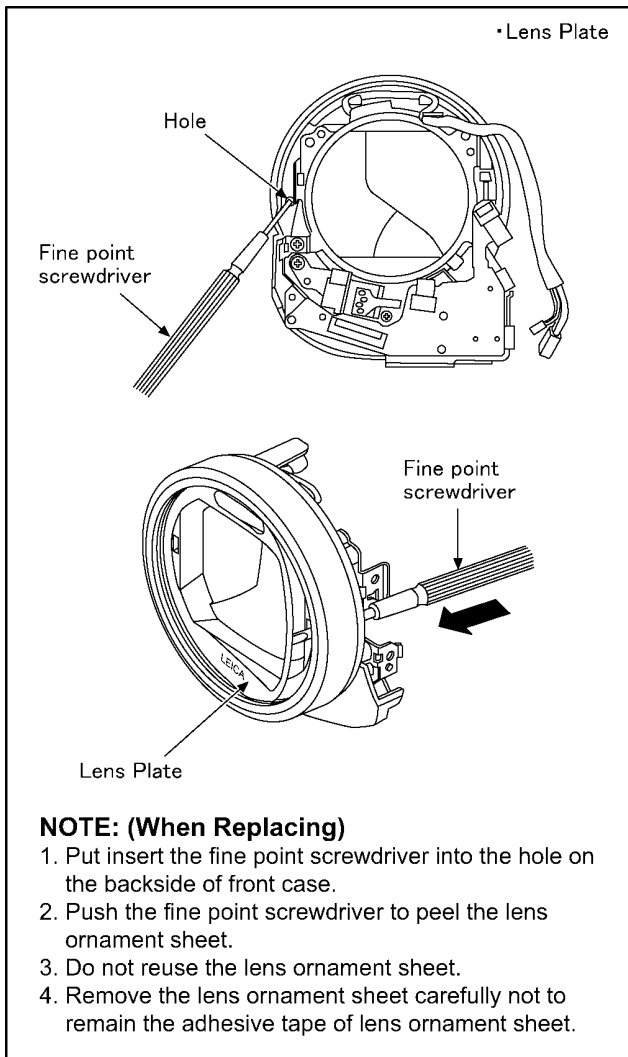
NOTE: (When Installing)

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



(Fig. D29)

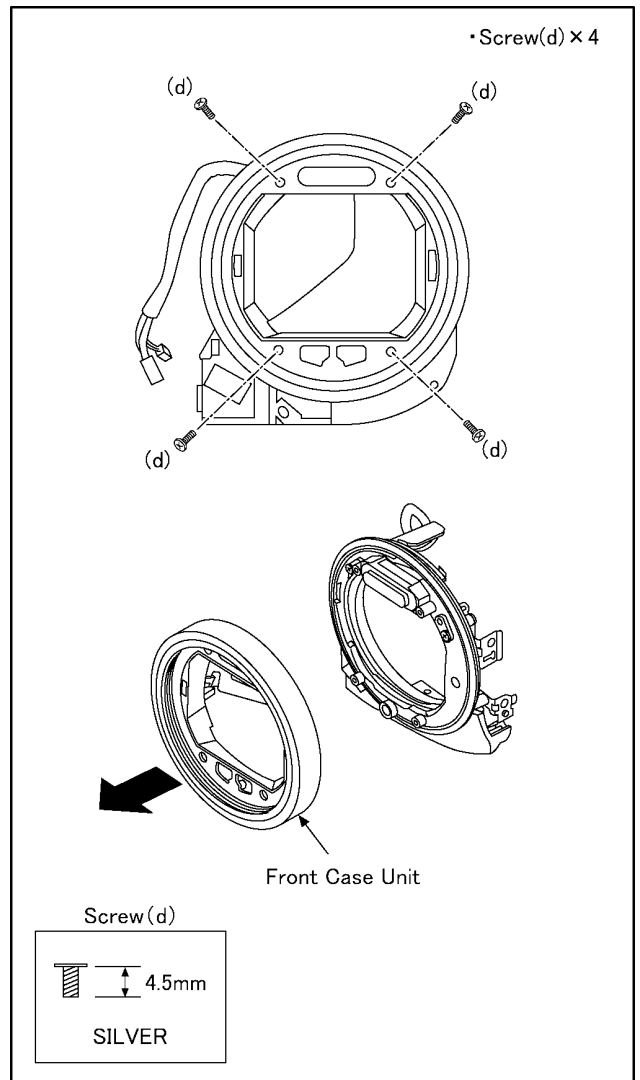
8.3.19. Removal of the Front Case Unit



(Fig. D30)

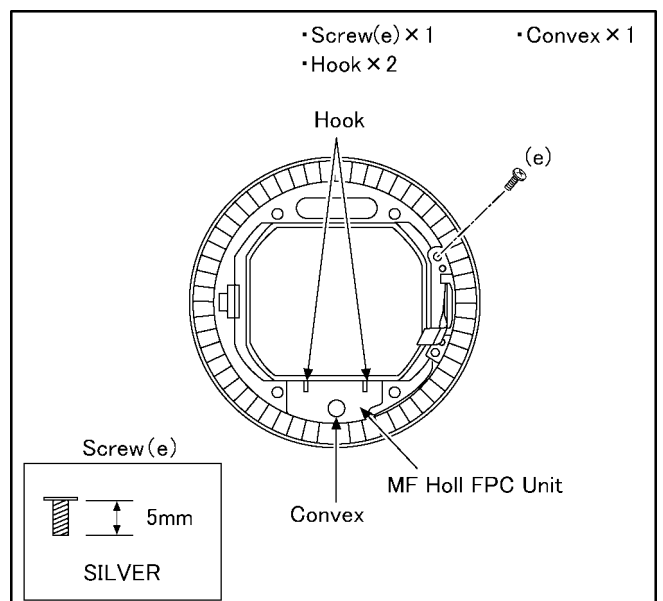
NOTE: (When Replacing)

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



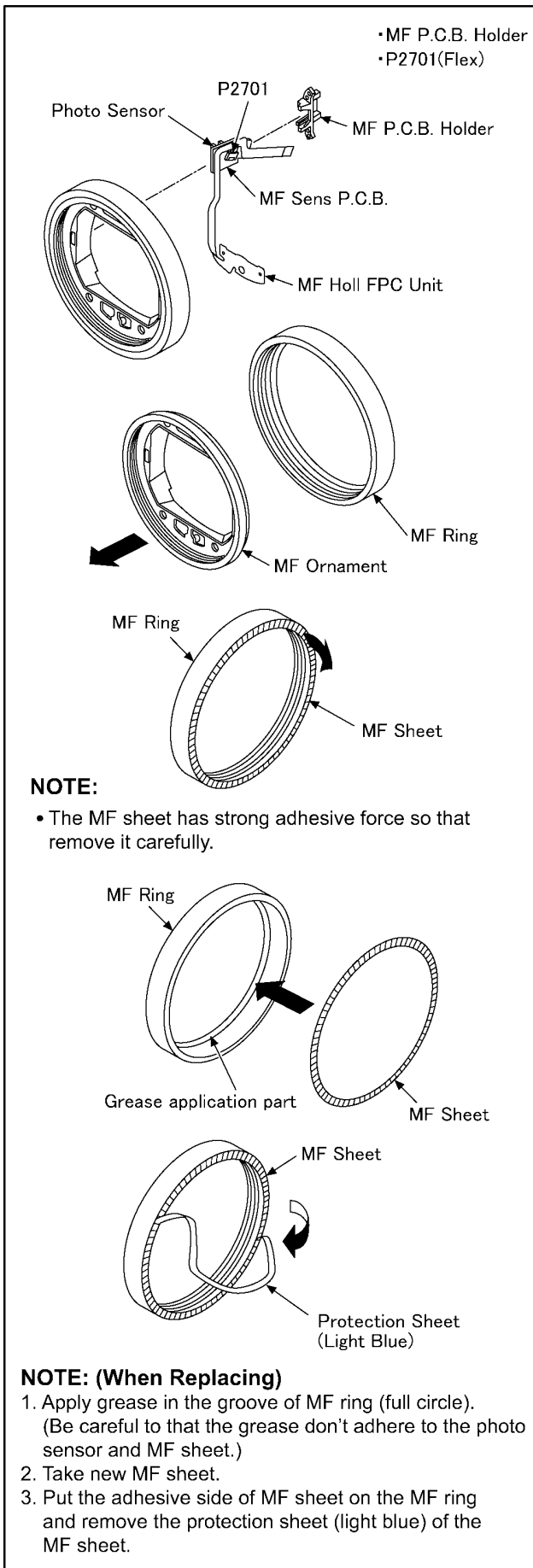
(Fig. D31)

8.3.20. Removal of the MF Sens P.C.B., MF Holl FPC Unit, MF Ring, MF Ornament and MF Sheet

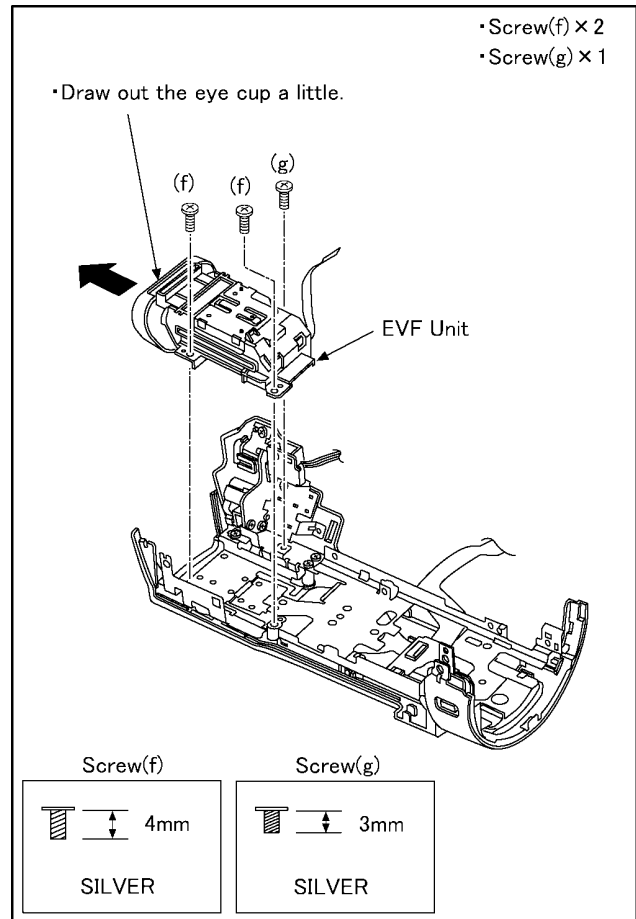


(Fig. D32)

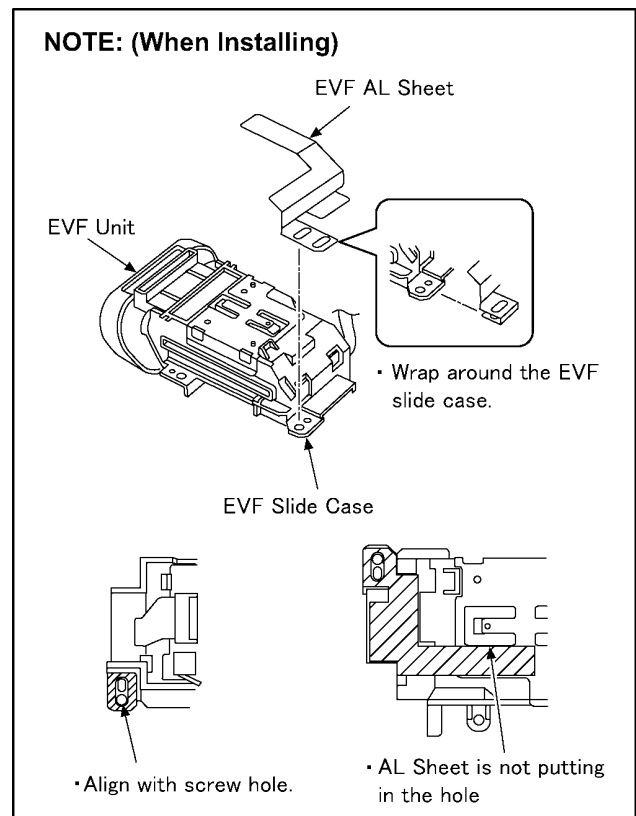
8.3.21. Removal of the EVF Unit



(Fig. D33)

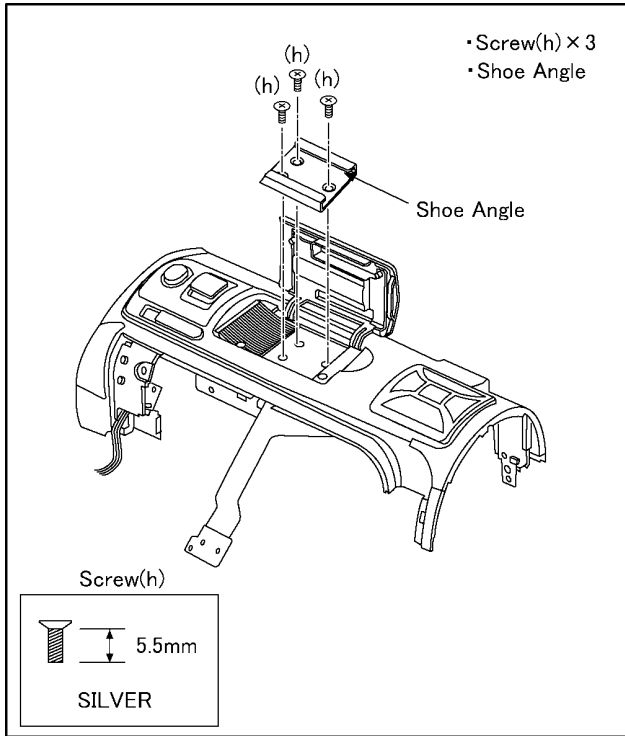


(Fig. D34)

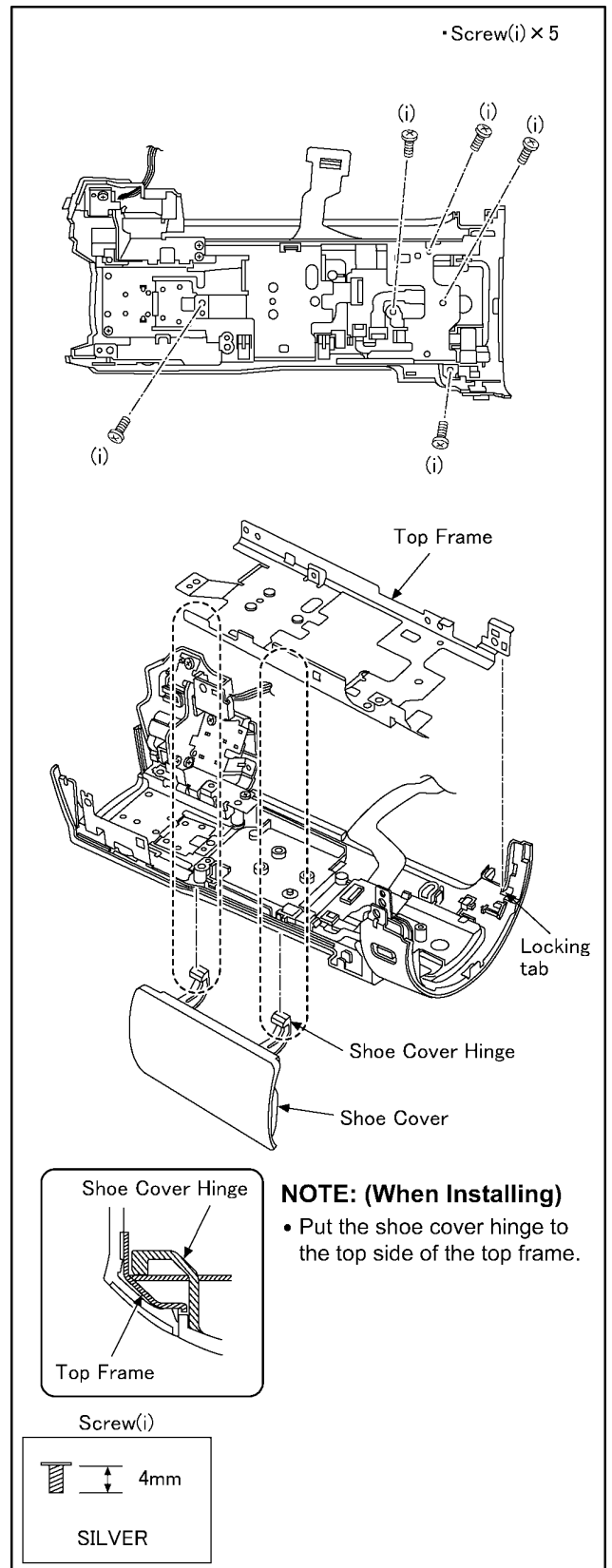


(Fig. D35)

8.3.22. Removal of the Shoe Angle, Top Frame and Shoe Cover

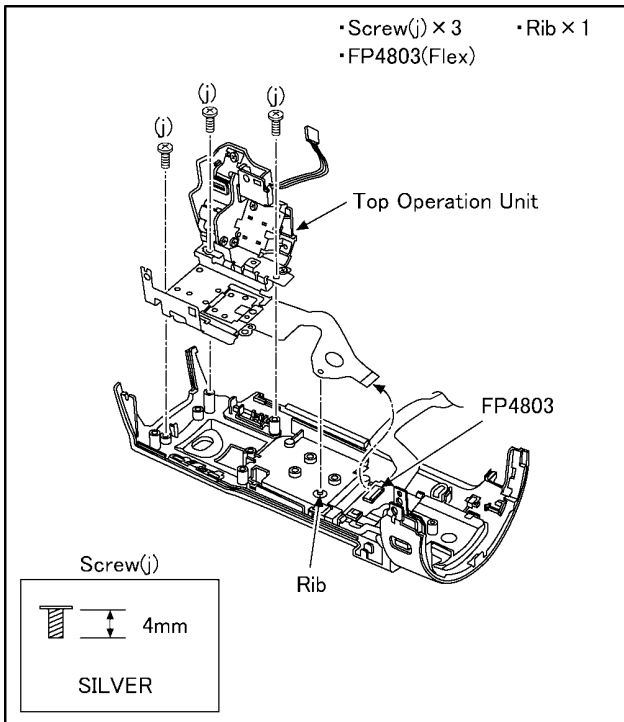


(Fig. D36)



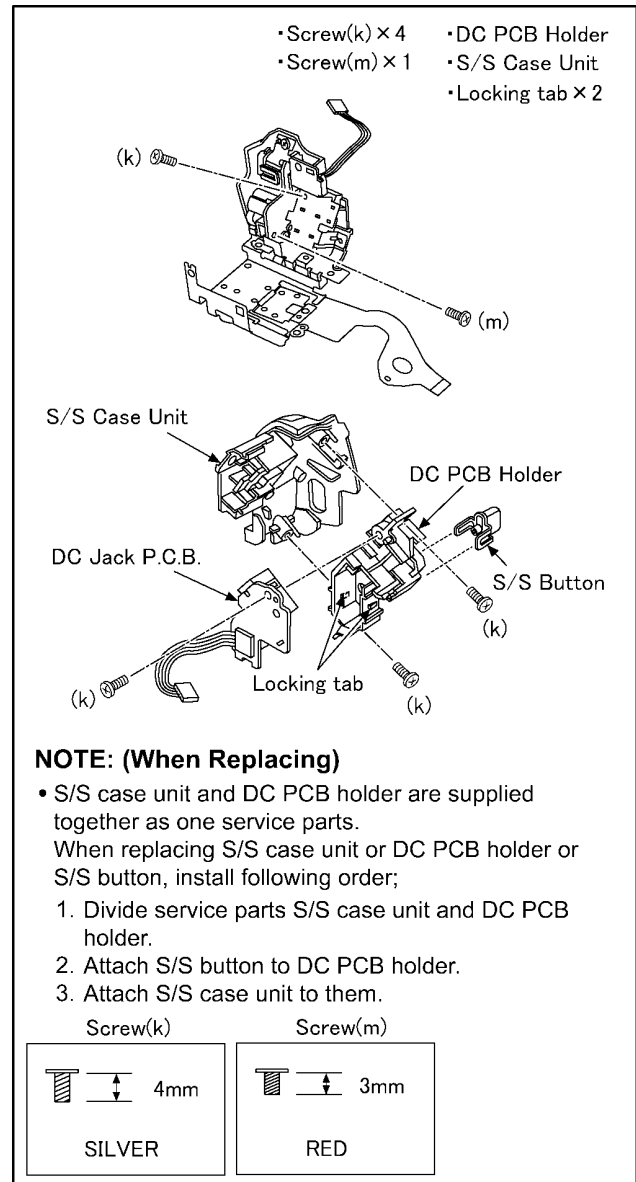
(Fig. D37)

8.3.23. Removal of the Top Operation Unit



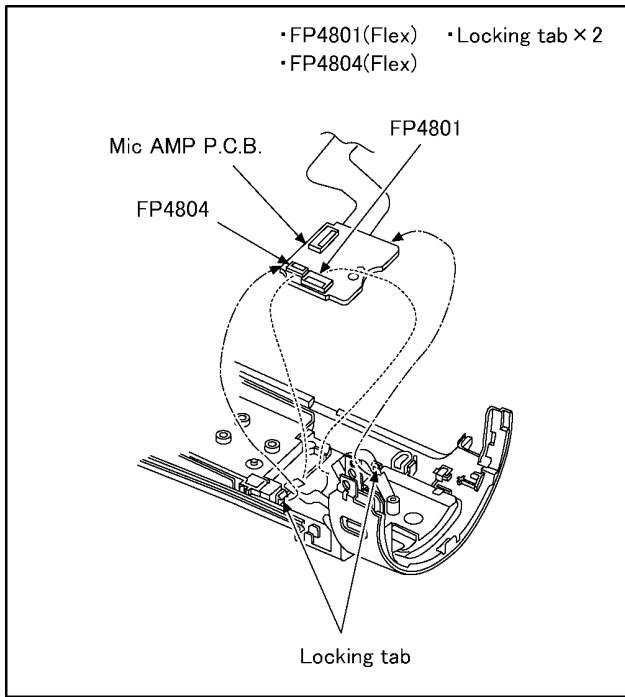
(Fig. D38)

8.3.24. Removal of the DC Jack P.C.B. and S/S Button



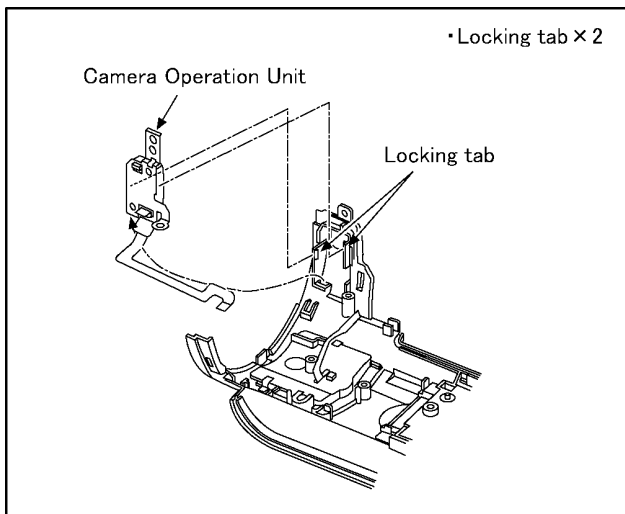
(Fig. D39)

8.3.25. Removal of the Mic AMP P.C.B.



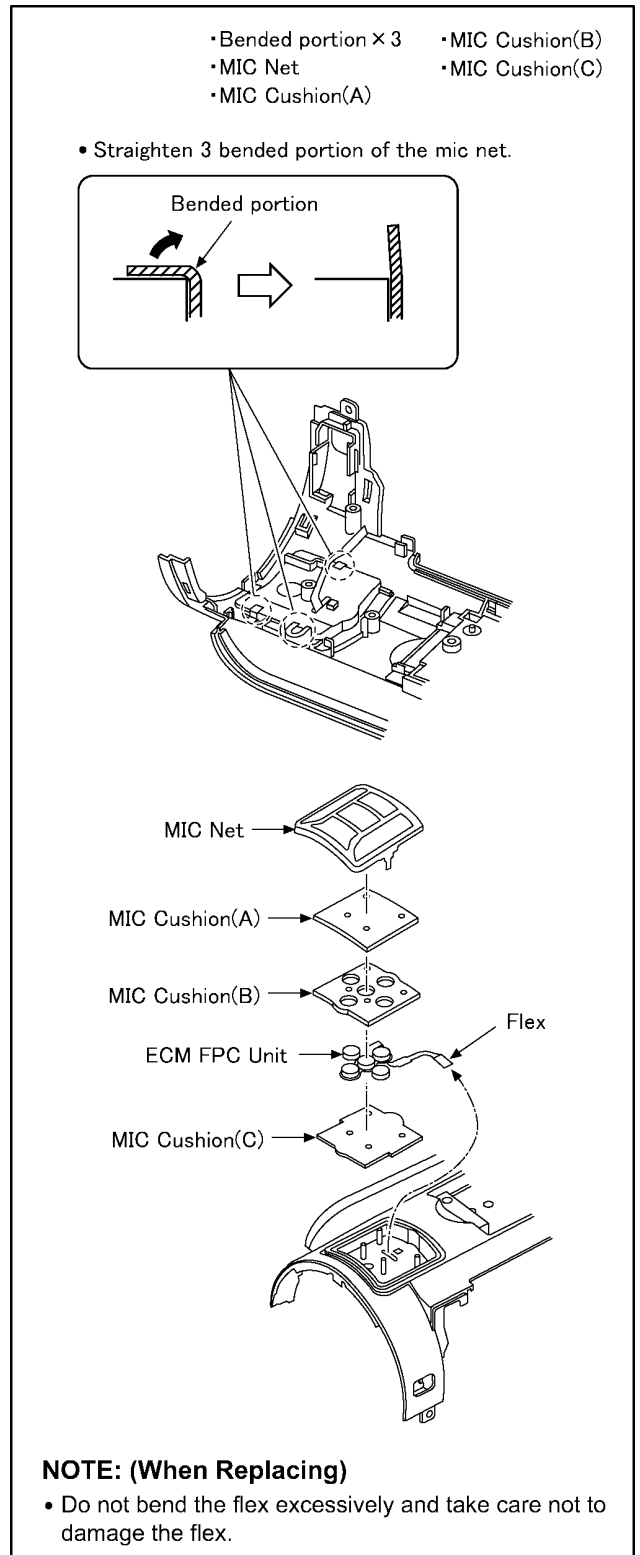
(Fig. D40)

8.3.26. Removal of the Camera Operation Unit



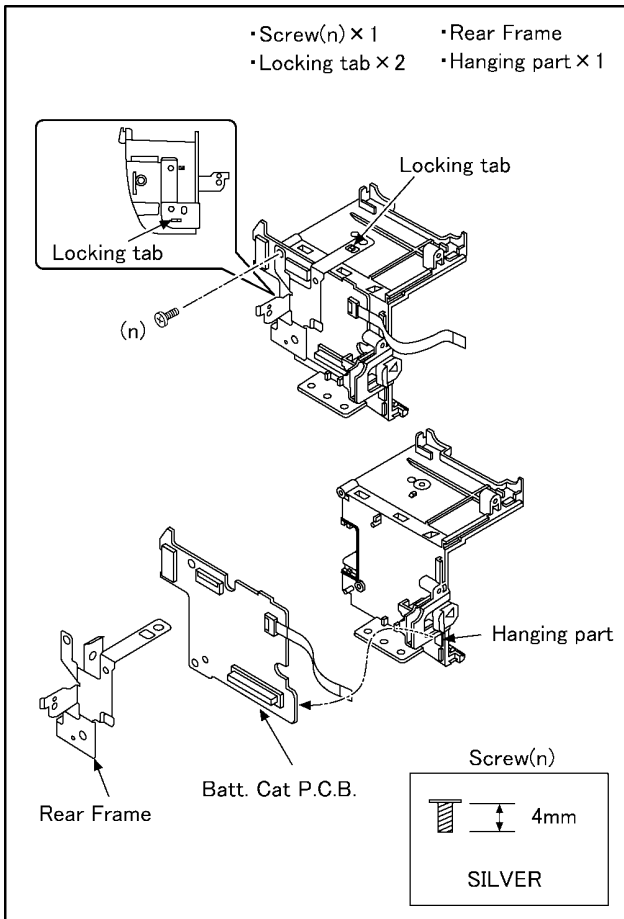
(Fig. D41)

8.3.27. Removal of the ECM FPC Unit



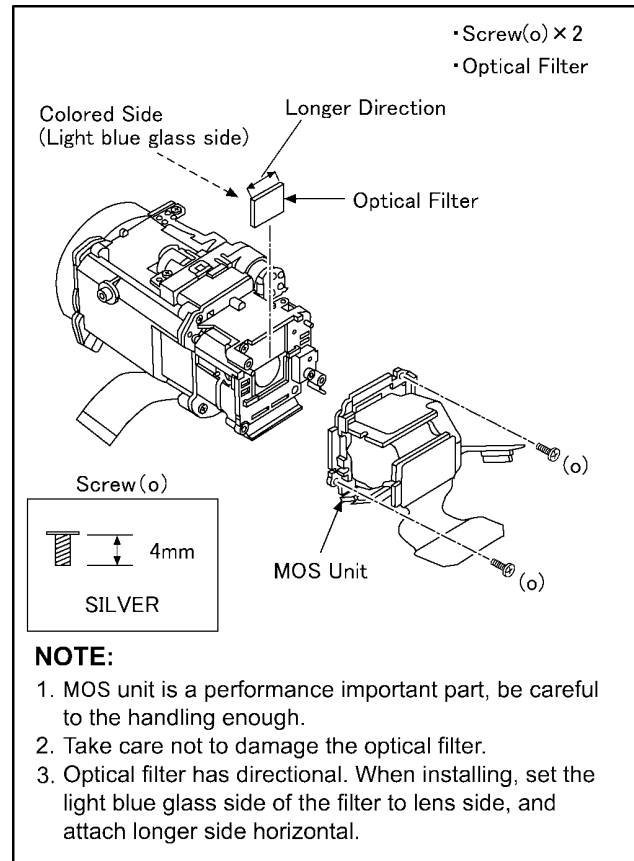
(Fig. D42)

8.3.28. Removal of the Batt. Cat P.C.B.



(Fig. D43)

8.3.29. Removal of the MOS Unit and Optical Filter

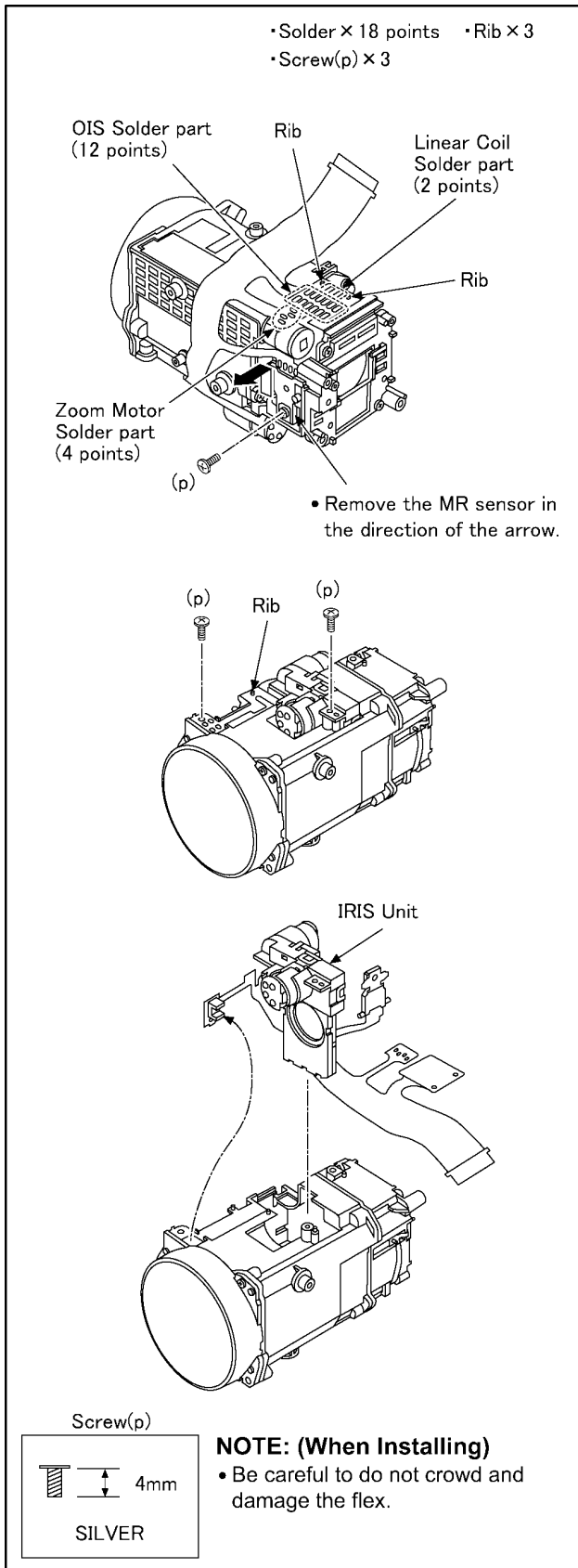


NOTE:

1. MOS unit is a performance important part, be careful to the handling enough.
2. Take care not to damage the optical filter.
3. Optical filter has directional. When installing, set the light blue glass side of the filter to lens side, and attach longer side horizontal.

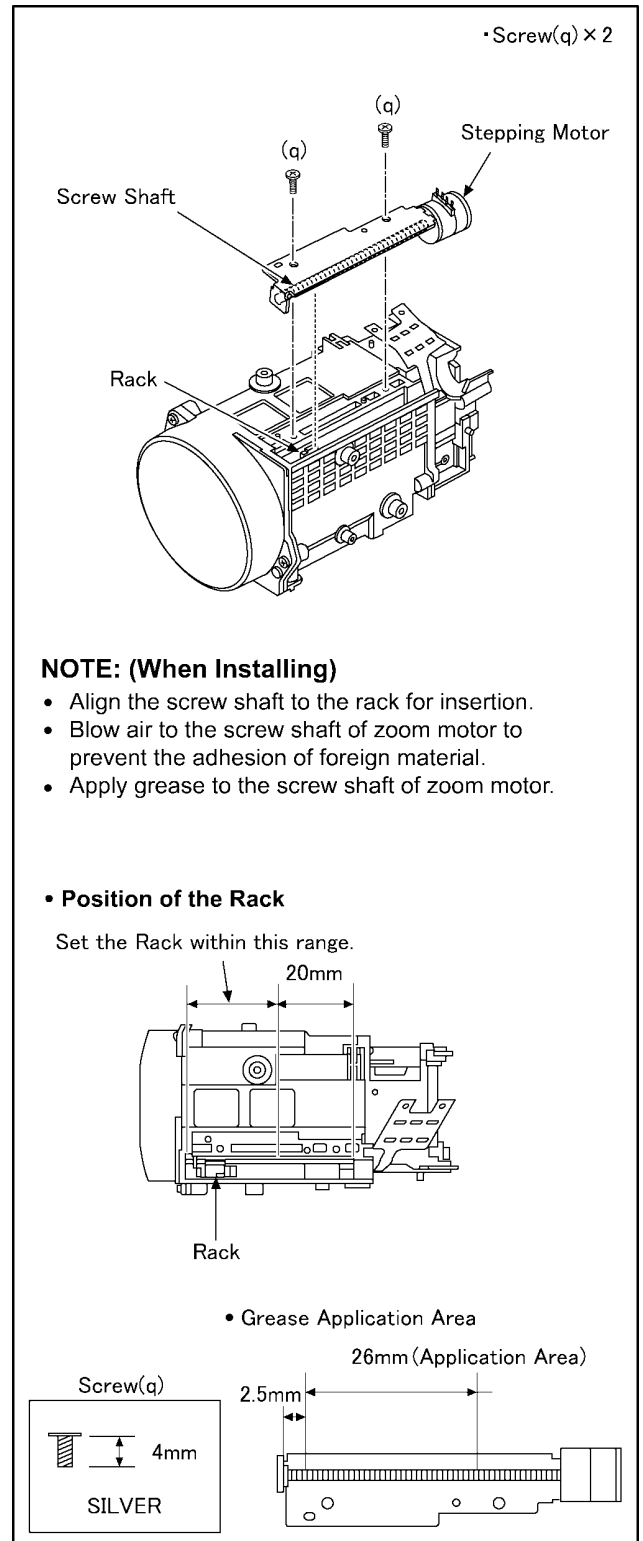
(Fig. D44)

8.3.30. Removal of the IRIS Unit



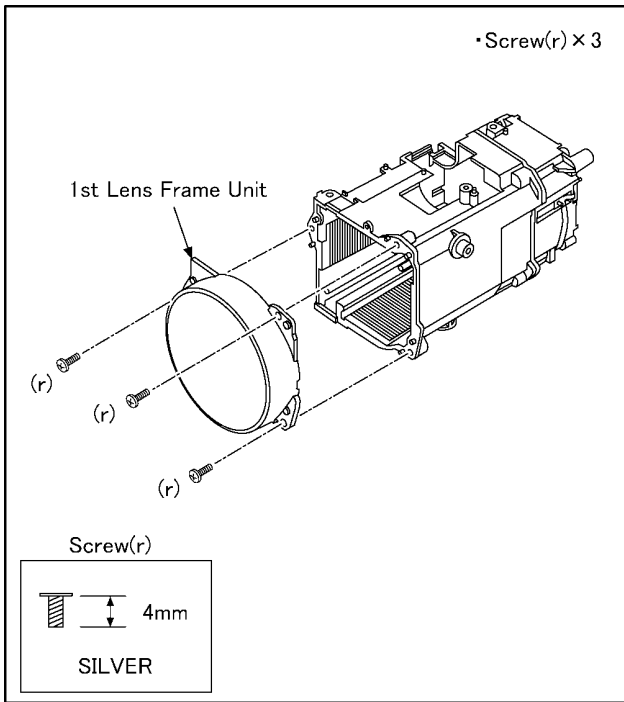
(Fig. D45)

8.3.31. Removal of the Stepping Motor



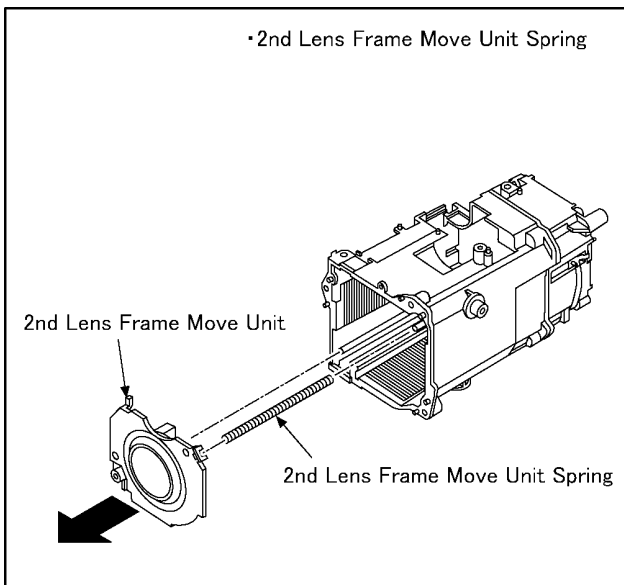
(Fig. D46)

8.3.32. Removal of the 1st Lens Frame Unit



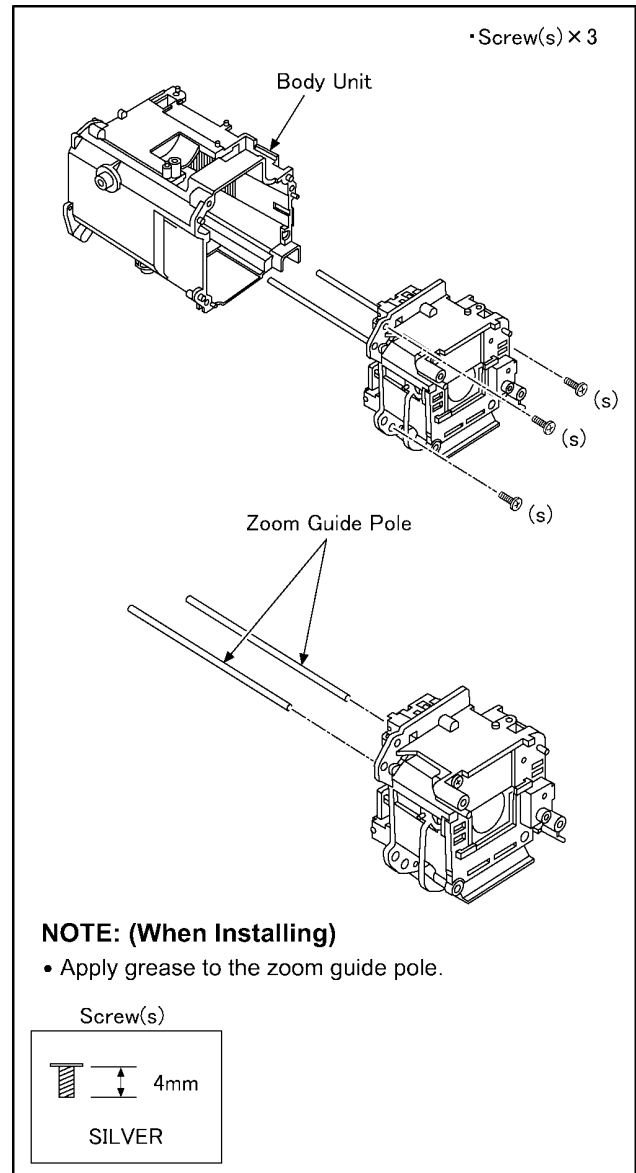
(Fig. D47)

8.3.33. Removal of the 2nd Lens Frame Move Unit



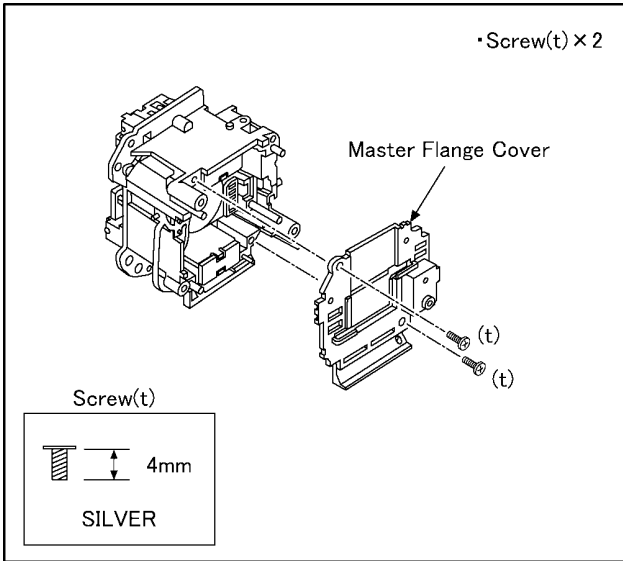
(Fig. D48)

8.3.34. Removal of the Body Unit and Zoom Guide Pole



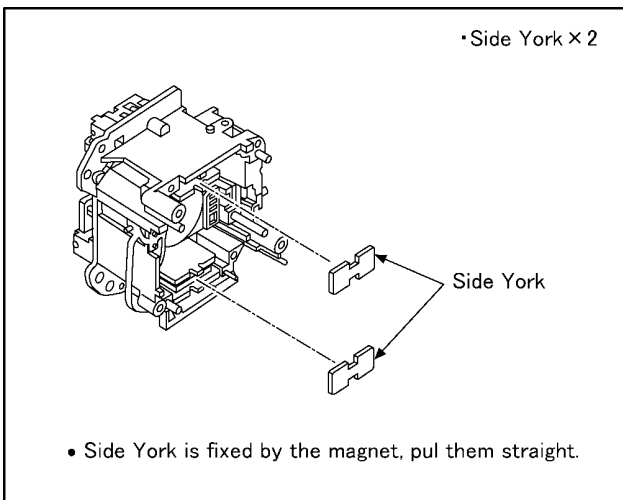
(Fig. D49)

8.3.35. Removal of the Master Flange Cover

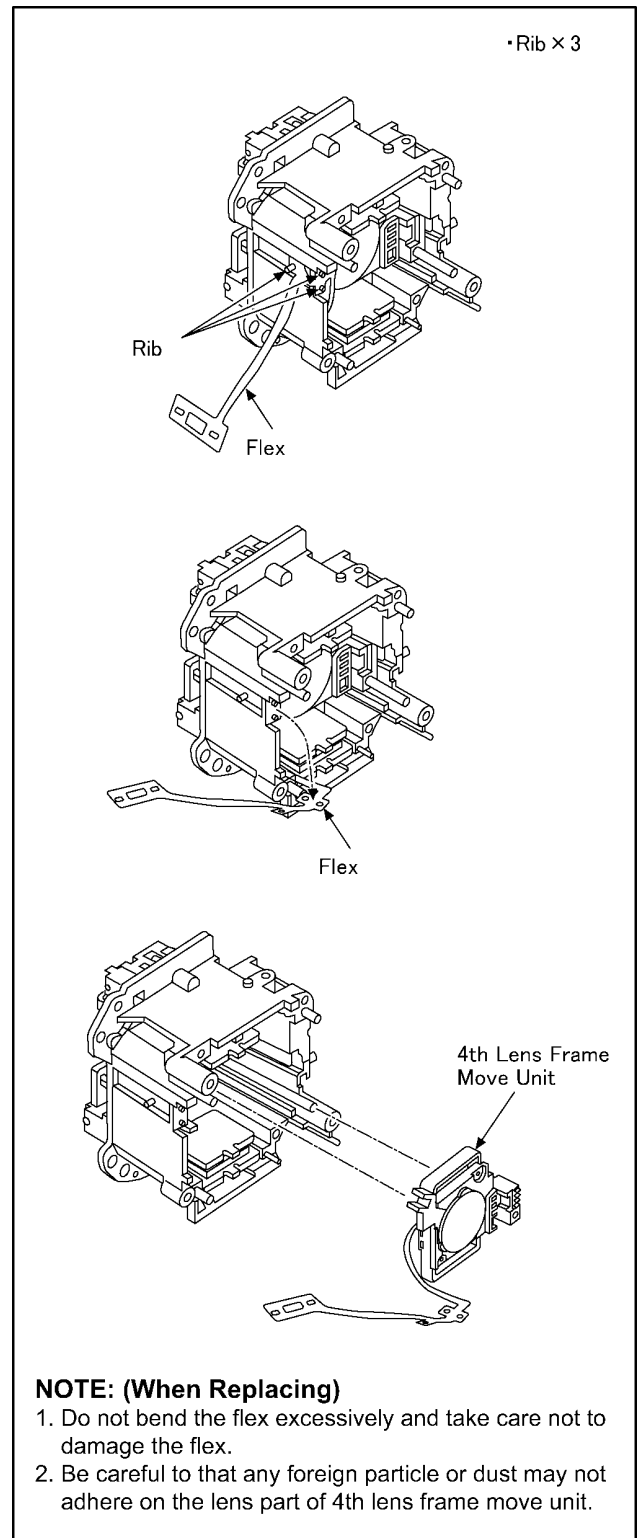


(Fig. D50)

8.3.36. Removal of the 4th Lens Frame Move Unit

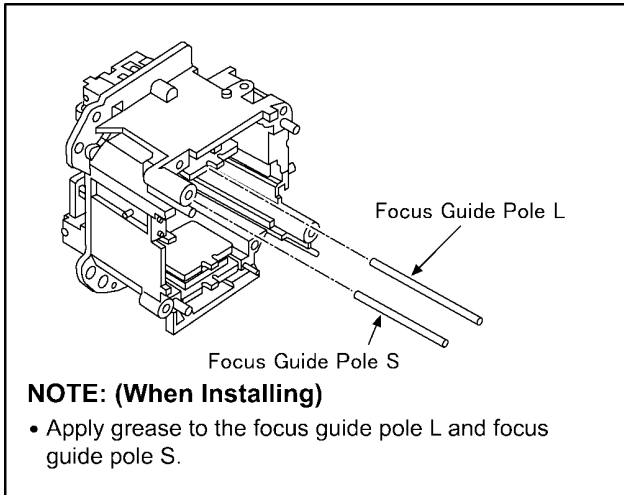


(Fig. D51)



(Fig. D52)

8.3.37. Removal of the Focus Guide Pole L and Focus Guide Pole S



(Fig. D53)

9 Measurements and Adjustments

9.1. Electric Adjustment

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

9.1.1. Adjustment Procedure

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

Figure of connection

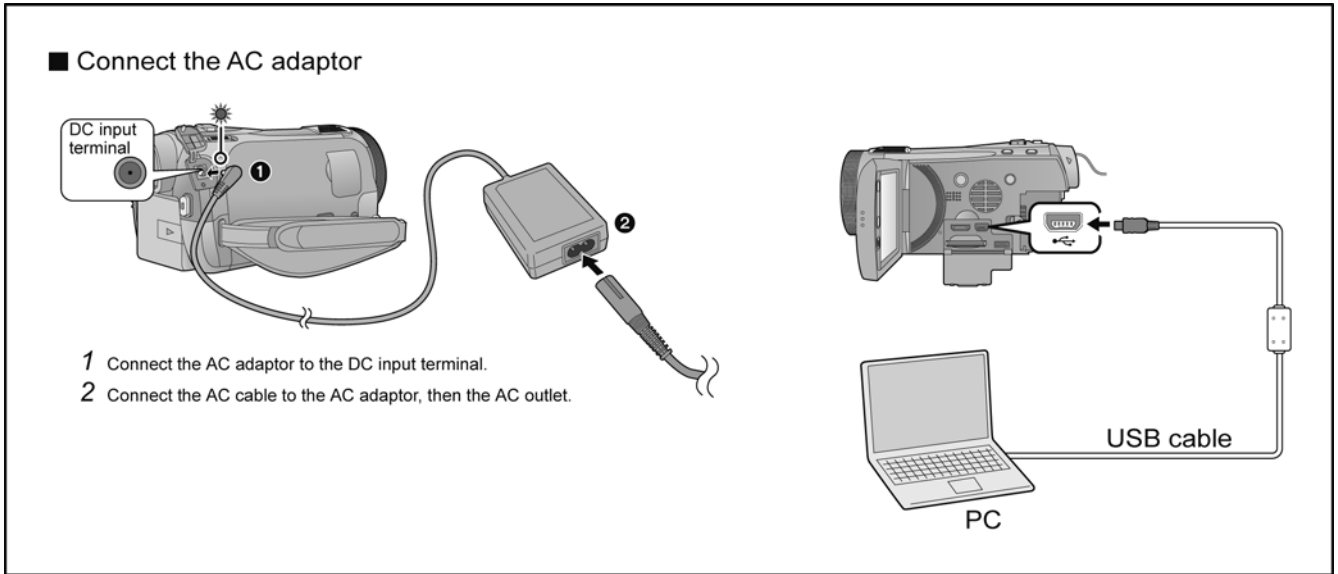
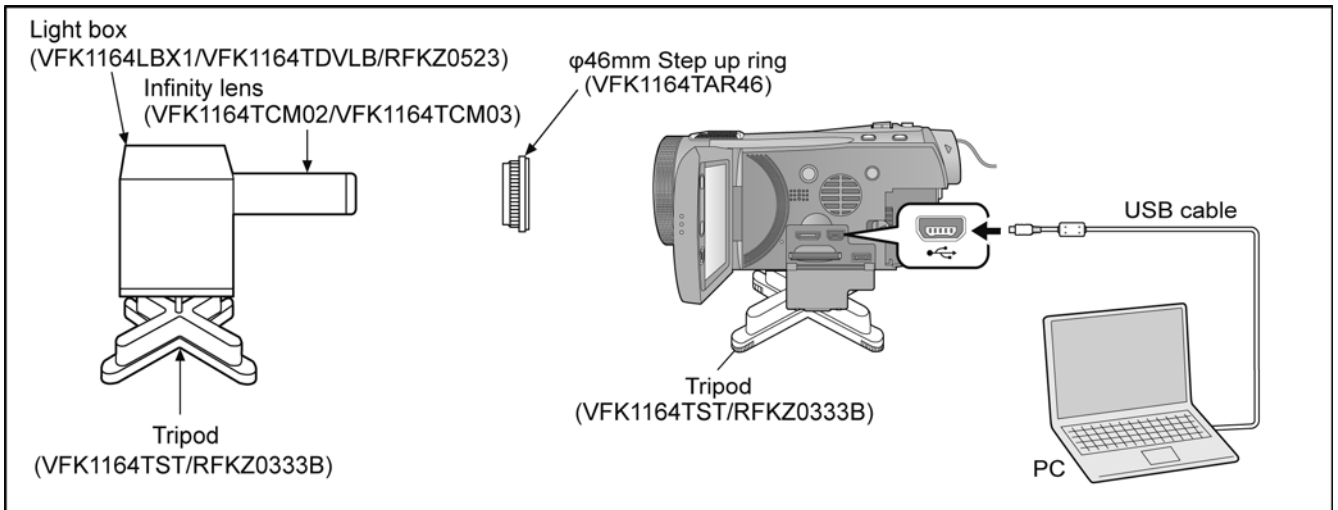


Figure of image when adjustment



Part Number of jig

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

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

Adjustment Items

- Adjustment item as follows.

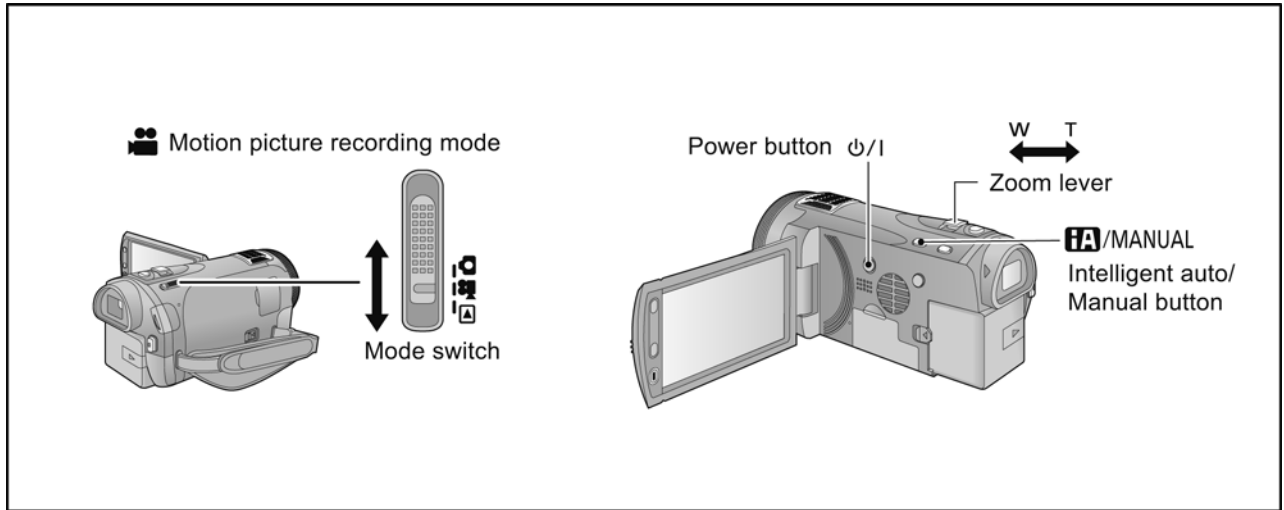
The adjustment instruction is available at "Software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN System".

	Replacement part		Main P.C.B.	IC2002(EEPROM)	Lens Unit	MOS Unit	IC3701	IC3401, IC3402	IC701	IC6301
	Adjustment item									
Camera Part	● Hall amplifire/PWM bias/ OIS Hall amplifire adjustment (automatic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>	<input type="radio"/>
	● OIS Sensor Offset adjustment (automatic)	<input type="radio"/>	<input type="radio"/>							<input type="radio"/>
	● Zoom tracking adjustment (automatic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>	
	● Address wound revision (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
	● White balance adjustment (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
	● Gain adjustment between channels (automatic)	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>					
Video Part	● Brightness level adjustment (automatic)	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>				
	● UniPhier DDR revision (automatic)	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>			

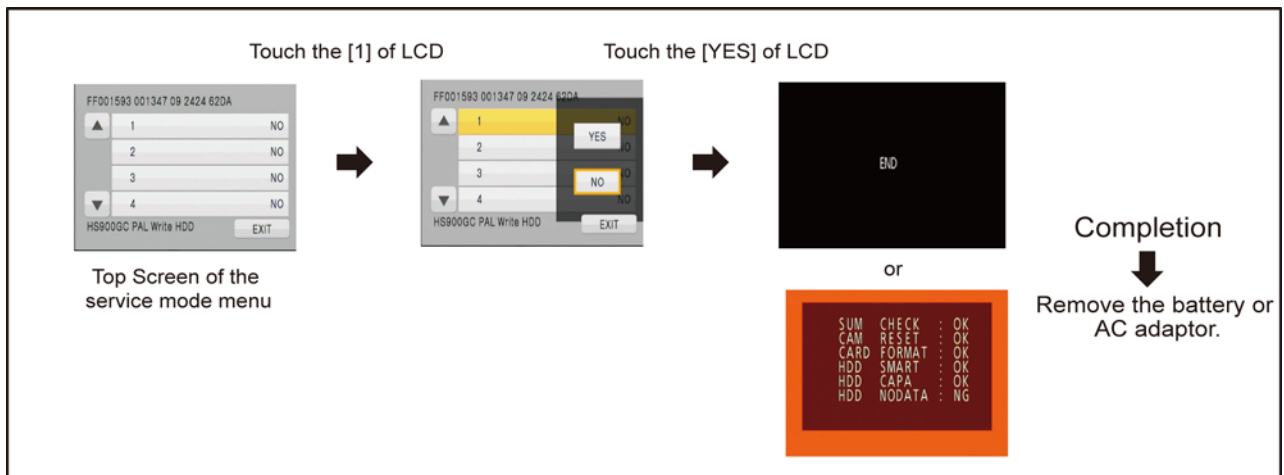
10 Factory Setting

10.1. How To Turn On The Factory Settings?

1. Set the mode switch "Motion Picture Recording" mode.
2. While the power is turned OFF, keep pressing the "Power" button, "Zoom lever" to W side and "intelligent auto/Manual" button for more than 3 seconds until the top screen of the Service Mode Menu being displayed.



3. Touch the [1] of LCD.
4. Touch the [YES] of LCD.
5. After few seconds "END" is displayed or "ESD NODATA" as "NG" is displayed on LCD monitor. Cutting of battery connection or AC power supply connection as a completion of the "FACTORY SETTINGS".
(After use at least once, even if the physical format of the build-in memory will be performed, "ESD NODATA" as "NG" is indicated, but "FACTORY SETTINGS" is completed.)



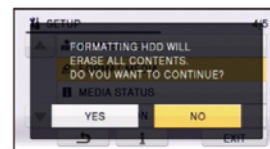
10.2. What Is The Factory Settings?

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

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

If the "Factory Settings" is completed, physical format of the build-in memory is not performed, execute physical format according to the following procedure.

To physically format the HDD, connect the unit via the AC adaptor, select [SETUP] → [FORMAT MEDIA] → [HDD] from the menu, and then press and hold the recording start/stop button on the screen below for about 3 seconds. When the HDD data deletion screen appears, select [YES], and then follow the on-screen instructions:



The setting position of factory settings:

Name	Setting position
Mode switch	Motion picture recording mode

Service Manual

Diagrams and Replacement Parts List

High Definition Video Camera

Model No.

HDC-HS900P	HDC-HS900GC
HDC-HS900PC	HDC-HS900GN
HDC-HS900PU	HDC-HS900GT
HDC-HS900EB	HDC-HS900GK
HDC-HS900EE	
HDC-HS900EG	
HDC-HS900EP	

Vol. 1
 Colour
 (K).....Black Type

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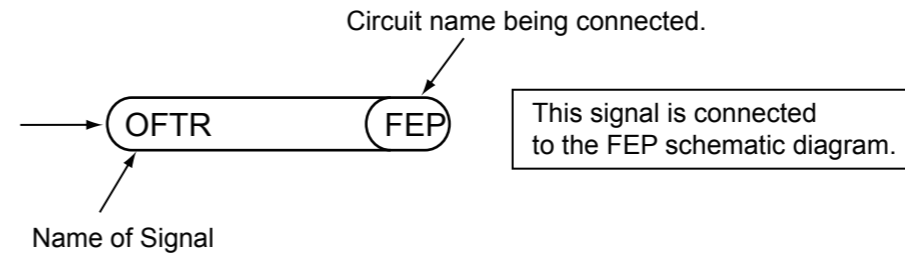
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S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

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

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



S2. Voltage Chart

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

S2.1. Flash P.C.B.

REF No.	PIN No.	POWER ON
IC7001	1	0
IC7001	2	0
IC7001	3	0
IC7001	4	0
IC7001	5	3.2
IC7001	6	0
IC7001	7	0
IC7001	8	0
IC7001	9	2.9
IC7001	10	9.2
Q3901	E	3.2
Q3901	C	3.2
Q3901	B	3.2

S2.2. SATA Bridge P.C.B.

REF No.	PIN No.	POWER ON
IC3101	1	0
IC3101	2	0
IC3101	3	0
IC3101	4	3.3
IC3101	5	0
IC3101	6	0
IC3101	7	0
IC3101	8	0
IC3101	9	1.8
IC3101	10	0
IC3101	11	0
IC3101	12	0
IC3101	13	0
IC3101	14	0
IC3101	15	0
IC3101	16	3.2
IC3101	17	3.3
IC3101	18	-
IC3101	19	-
IC3101	20	3.3
IC3101	21	-
IC3101	22	1.3
IC3101	23	1.3
IC3101	24	3.3
IC3101	25	0
IC3101	26	0.4
IC3101	27	0.8
IC3101	28	0.4
IC3101	29	1.8
IC3101	30	0
IC3101	31	1.5
IC3101	32	1.5
IC3101	33	-
IC3101	34	0.2
IC3101	35	-
IC3101	36	-
IC3101	37	-
IC3101	38	-
IC3101	39	-
IC3101	40	-
IC3101	41	1.8
IC3101	42	0
IC3101	43	-
IC3101	44	3.3
IC3101	45	-
IC3101	46	0
IC3101	47	0
IC3101	48	3.2
IC3101	49	0
IC3101	50	0
IC3101	51	0
IC3101	52	-
IC3101	53	0
IC3101	54	3.2
IC3101	55	3.1
IC3101	56	1.8
IC3101	57	0
IC3101	58	0
IC3101	59	3.2
IC3101	60	0
IC3101	61	0
IC3101	62	0
IC3101	63	0
IC3101	64	0

S2.3. Front P.C.B.

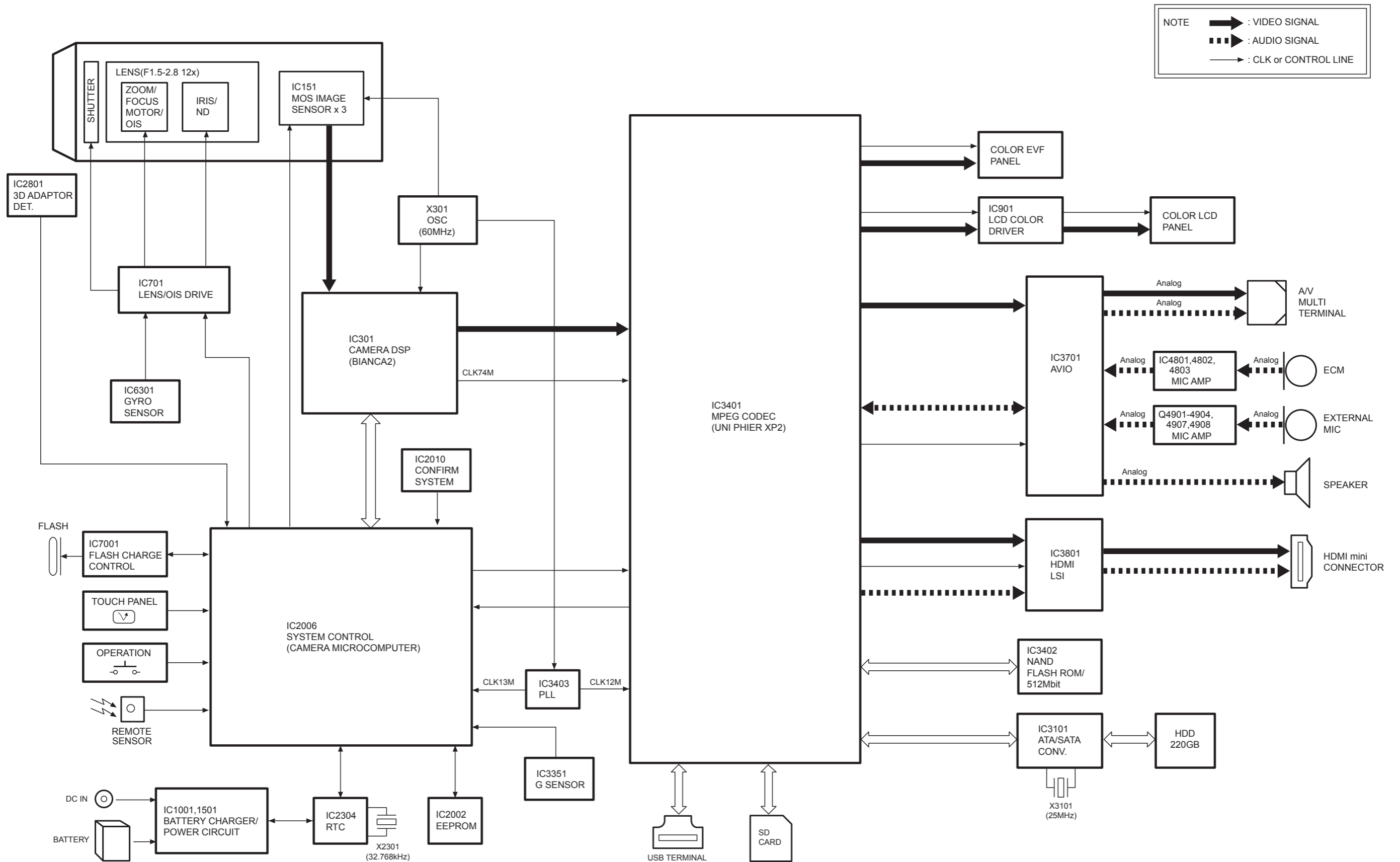
REF No.	PIN No.	POWER ON
Q4901	E	0.4
Q4901	C	3.7
Q4901	B	1
Q4902	E	4.3
Q4902	C	2.7
Q4902	B	3.7
Q4903	E	0.5
Q4903	C	3.7
Q4903	B	1
Q4904	E	4.3
Q4904	C	2.7
Q4904	B	3.7
Q4907	E	4.3
Q4907	C	5
Q4907	B	5
Q4908	E	2.7
Q4908	C	4.3
Q4908	B	3.3
Q6401	E	5
Q6401	C	-0.5
Q6401	B	5
QR6401	E	0
QR6401	C	5
QR6401	B	0

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

REF No.	PIN No.	POWER ON
IC4801	1	2.6
IC4801	2	2.6
IC4801	3	2.6
IC4801	4	0
IC4801	5	2.6
IC4801	6	2.6
IC4801	7	2.6
IC4801	8	5
IC4802	1	2.6
IC4802	2	2.6
IC4802	3	2.6
IC4802	4	0
IC4802	5	2.6
IC4802	6	2.6
IC4802	7	2.6
IC4802	8	5
IC4803	1	2.6
IC4803	2	2.6
IC4803	3	2.6
IC4803	4	0
IC4803	5	2.6
IC4803	6	2.6
IC4803	7	2.6
IC4803	8	5
Q4801	E	4.3
Q4801	C	5
Q4801	B	5

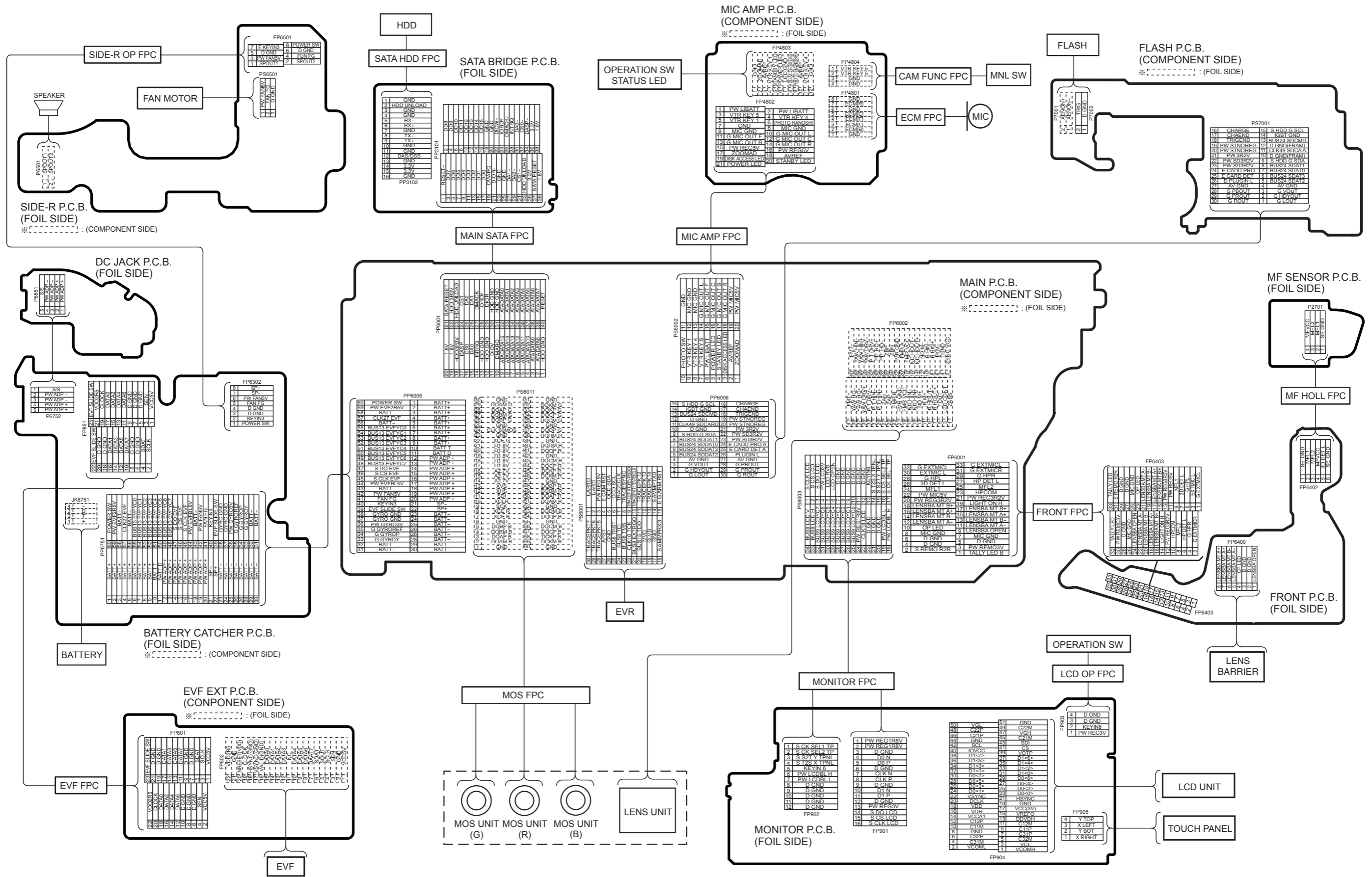
S3. Block Diagram

S3.1. Overall Block Diagram

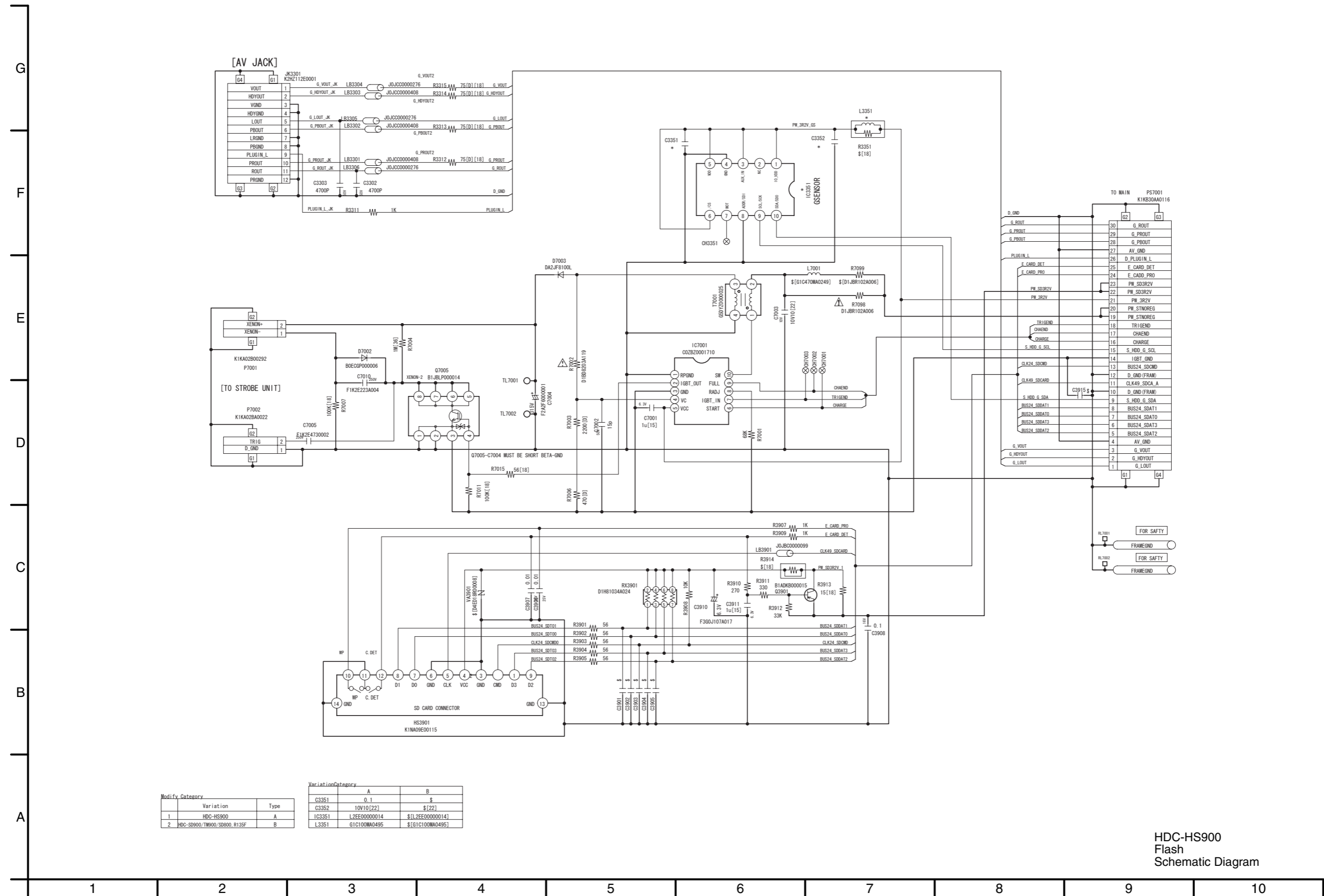


S4. Schematic Diagram

S4.1. Interconnection Diagram



S4.2. Flash Schematic Diagram

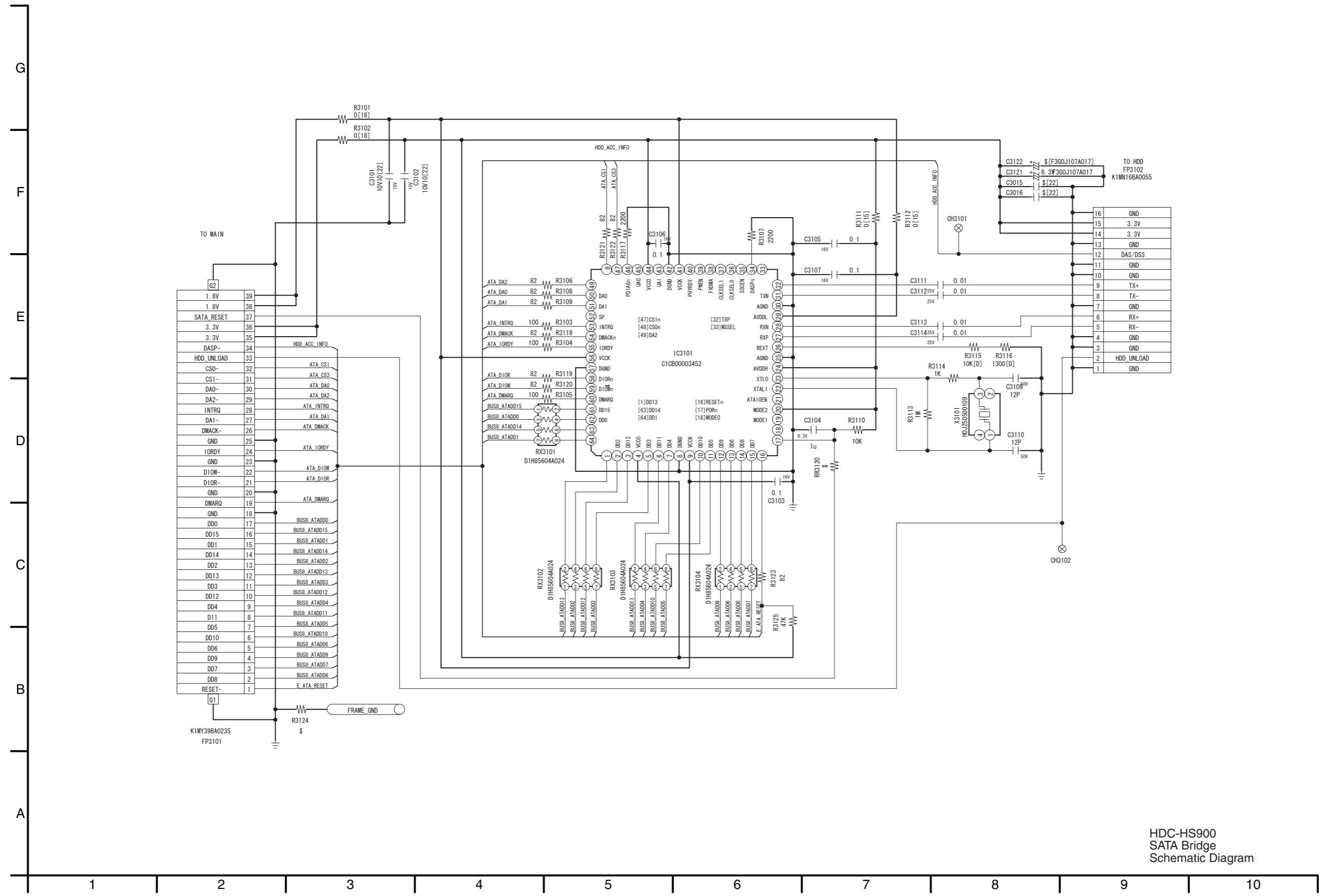


Modify	Category	Variation	Type
1	HDC-HS900	A	A
2	HDC-SB900, TM900, SD900, R135F	B	B

Variation	Category	A	B
C3351		0.1	\$
C3352		10V10[22]	1[22]
IC3351		L2EE00000014	1L2EE000000141
L3351		G1C100MA0495	1G1C100MA0495

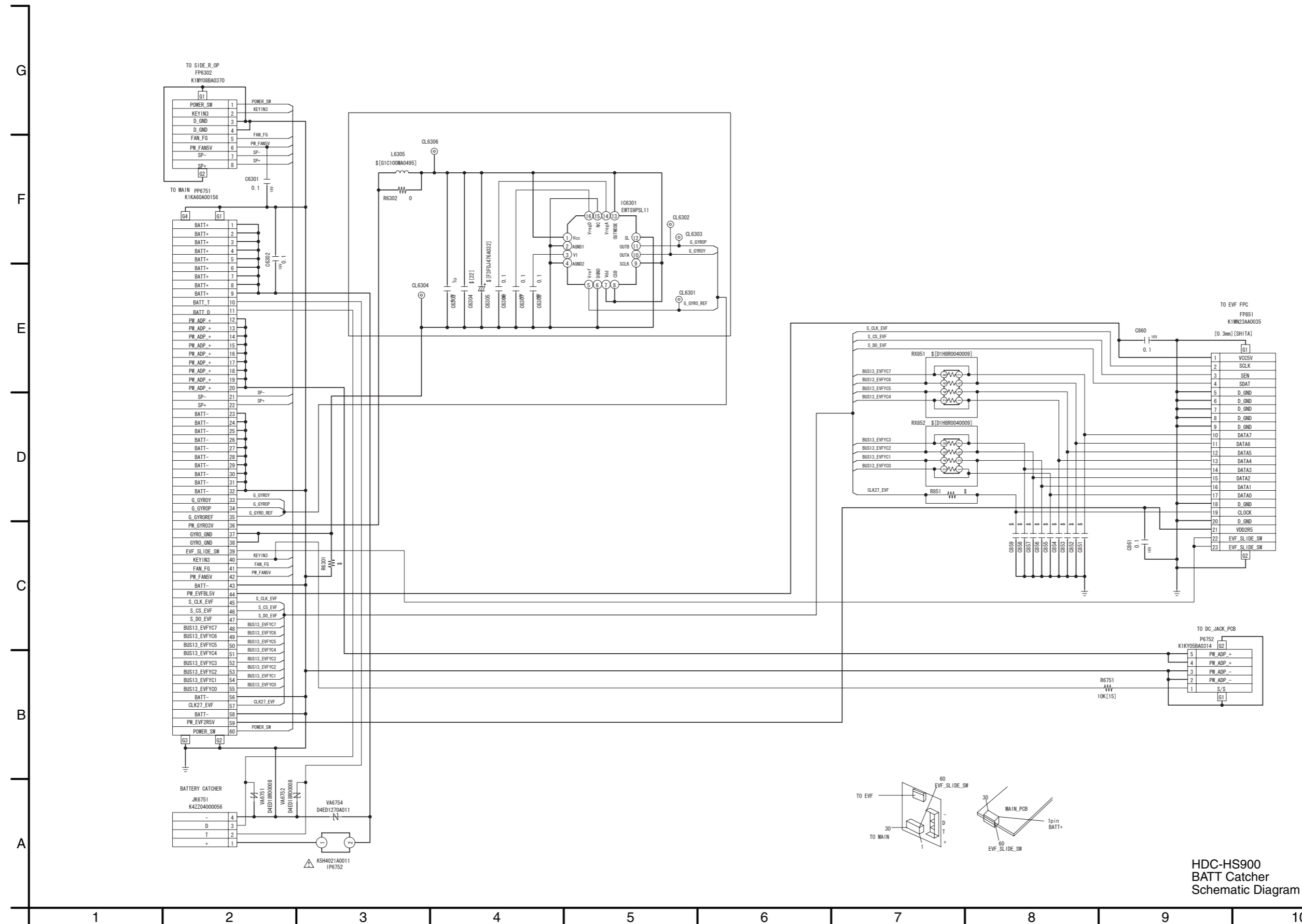
HDC-HS900
Flash
Schematic Diagram

S4.3. SATA Bridge Schematic Diagram



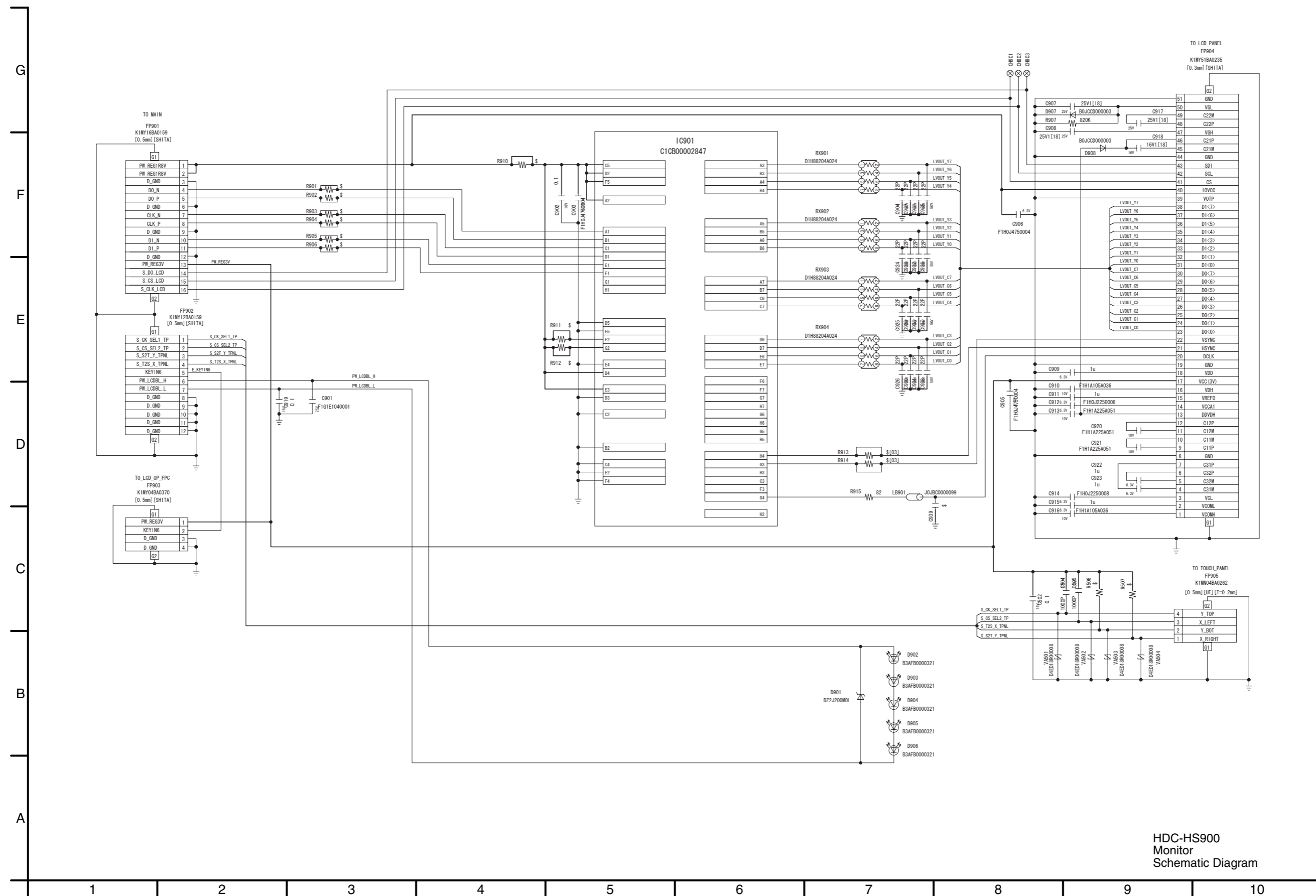
HDC-HS900
SATA Bridge
Schematic Diagram

S4.4. BATT Catcher Schematic Diagram



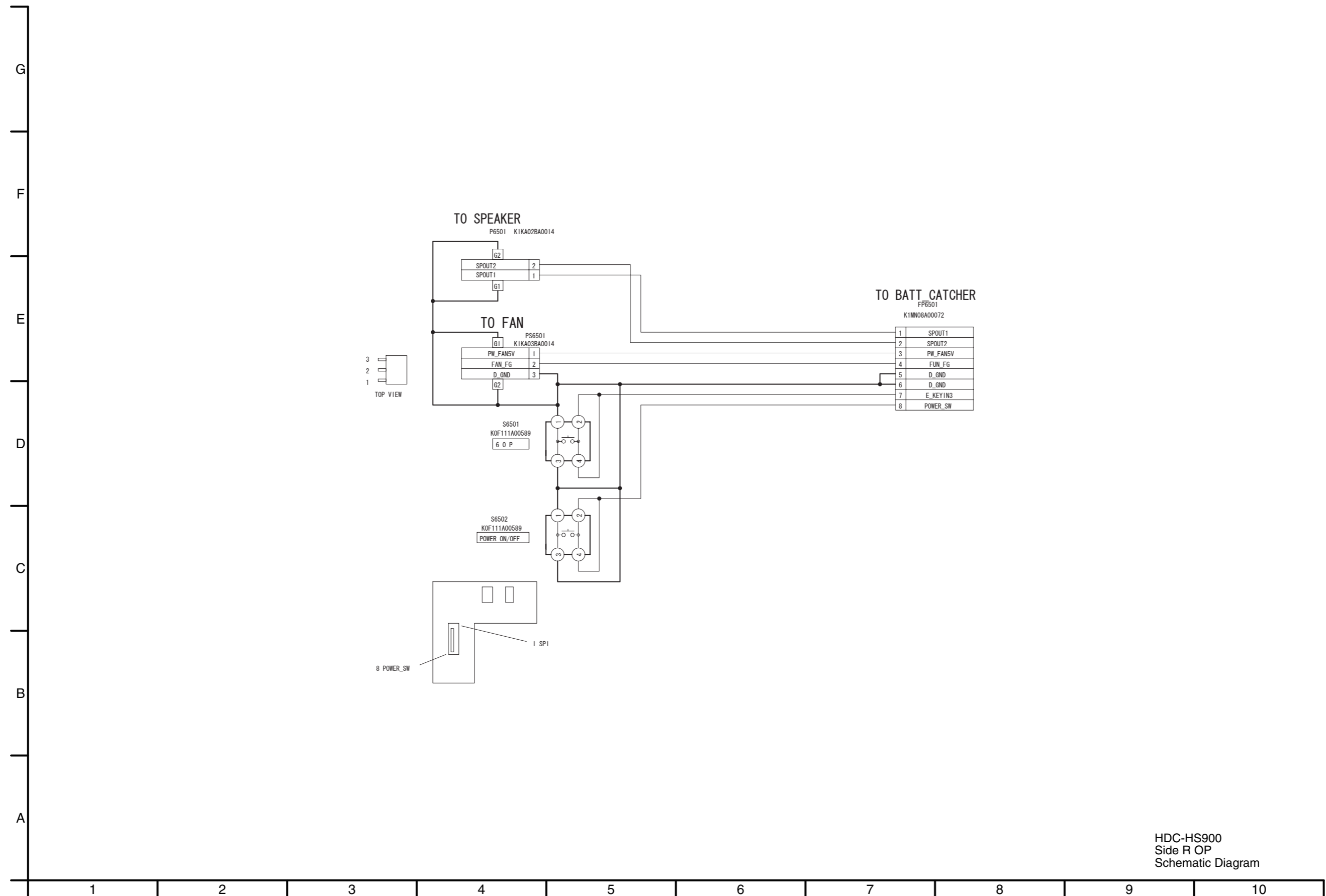
HDC-HS900
BATT Catcher
Schematic Diagram

S4.5. Monitor Schematic Diagram



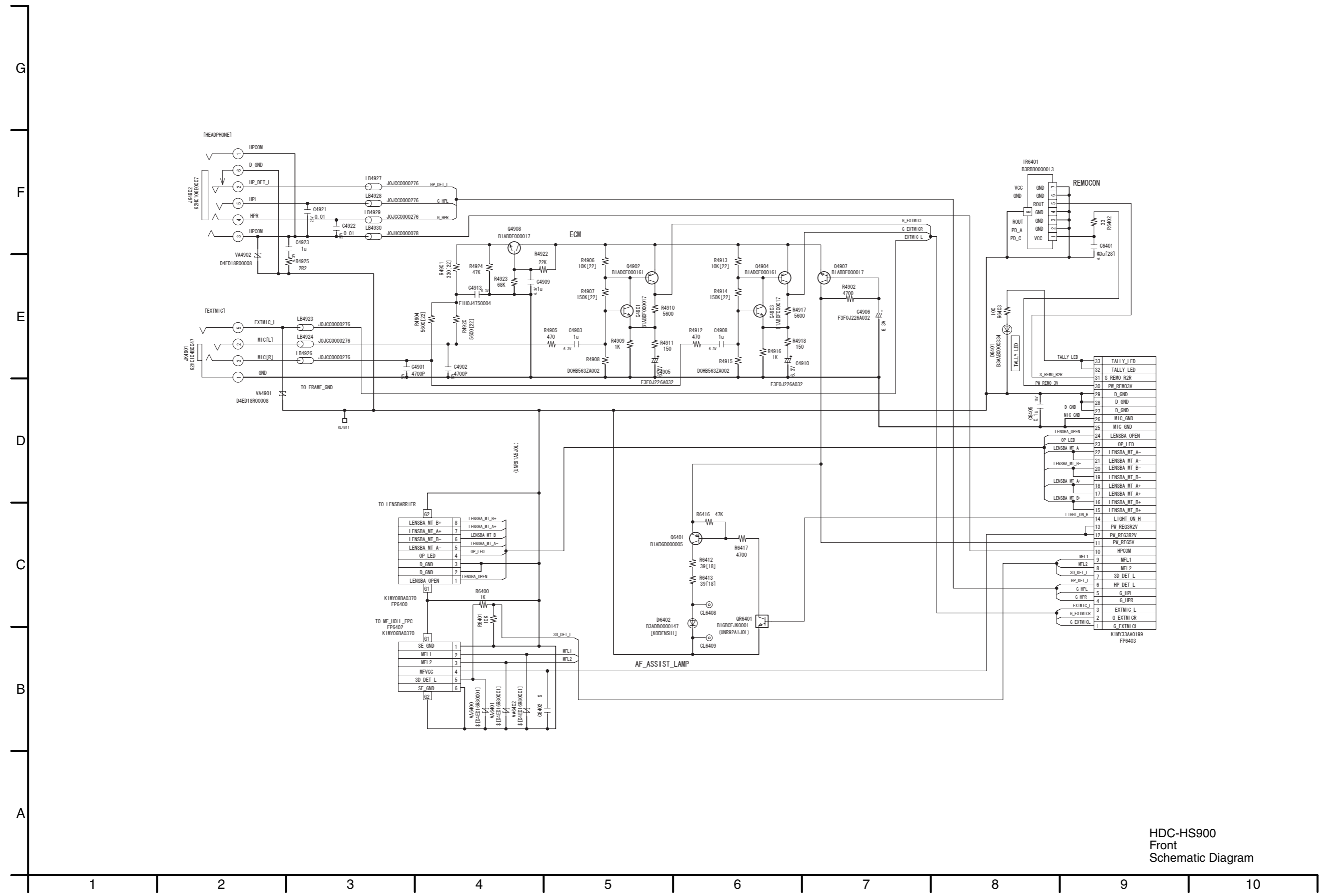
HDC-HS900
Monitor
Schematic Diagram

S4.6. Side R OP Schematic Diagram



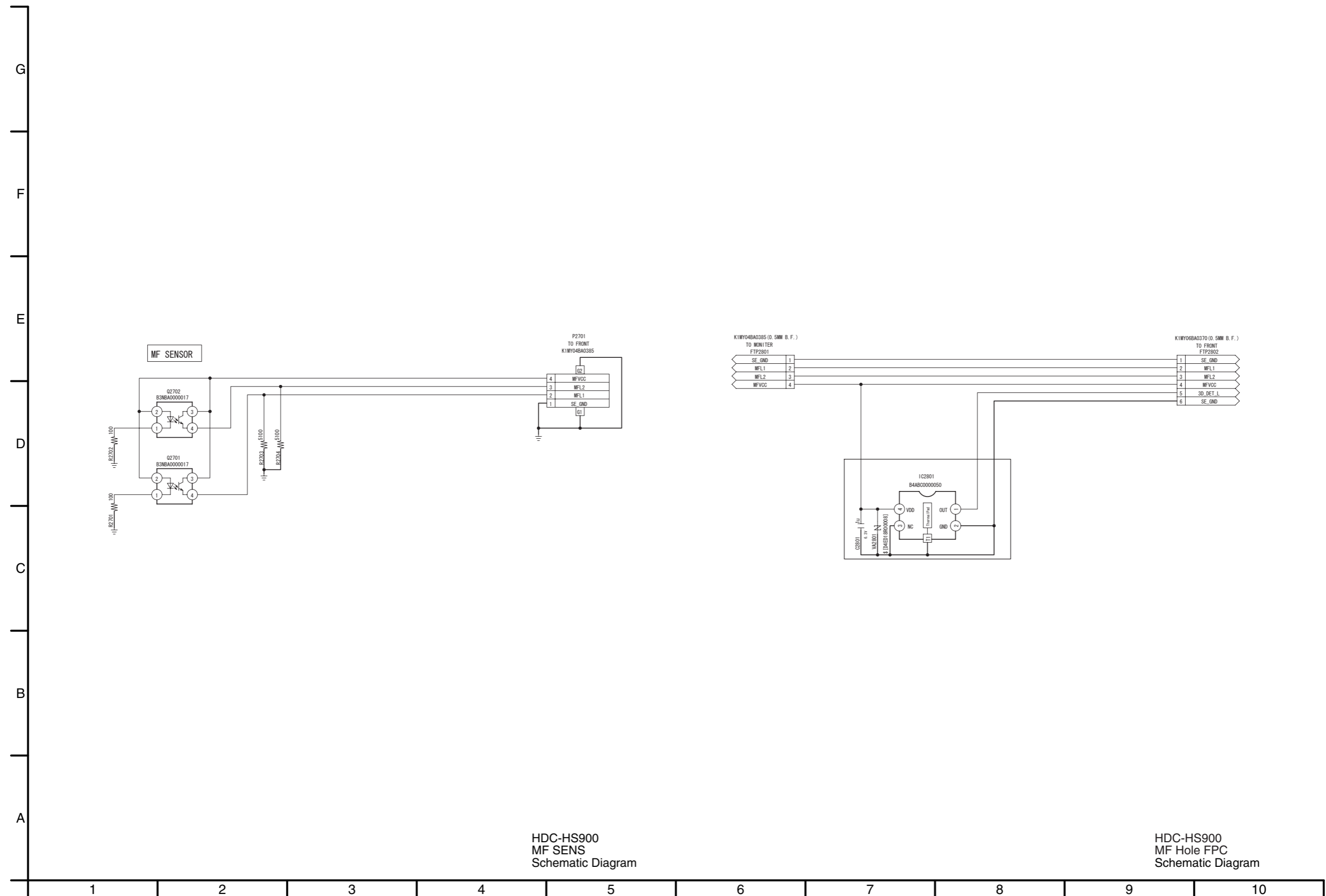
HDC-HS900
Side R OP
Schematic Diagram

S4.7. Front Schematic Diagram



HDC-HS900
Front
Schematic Diagram

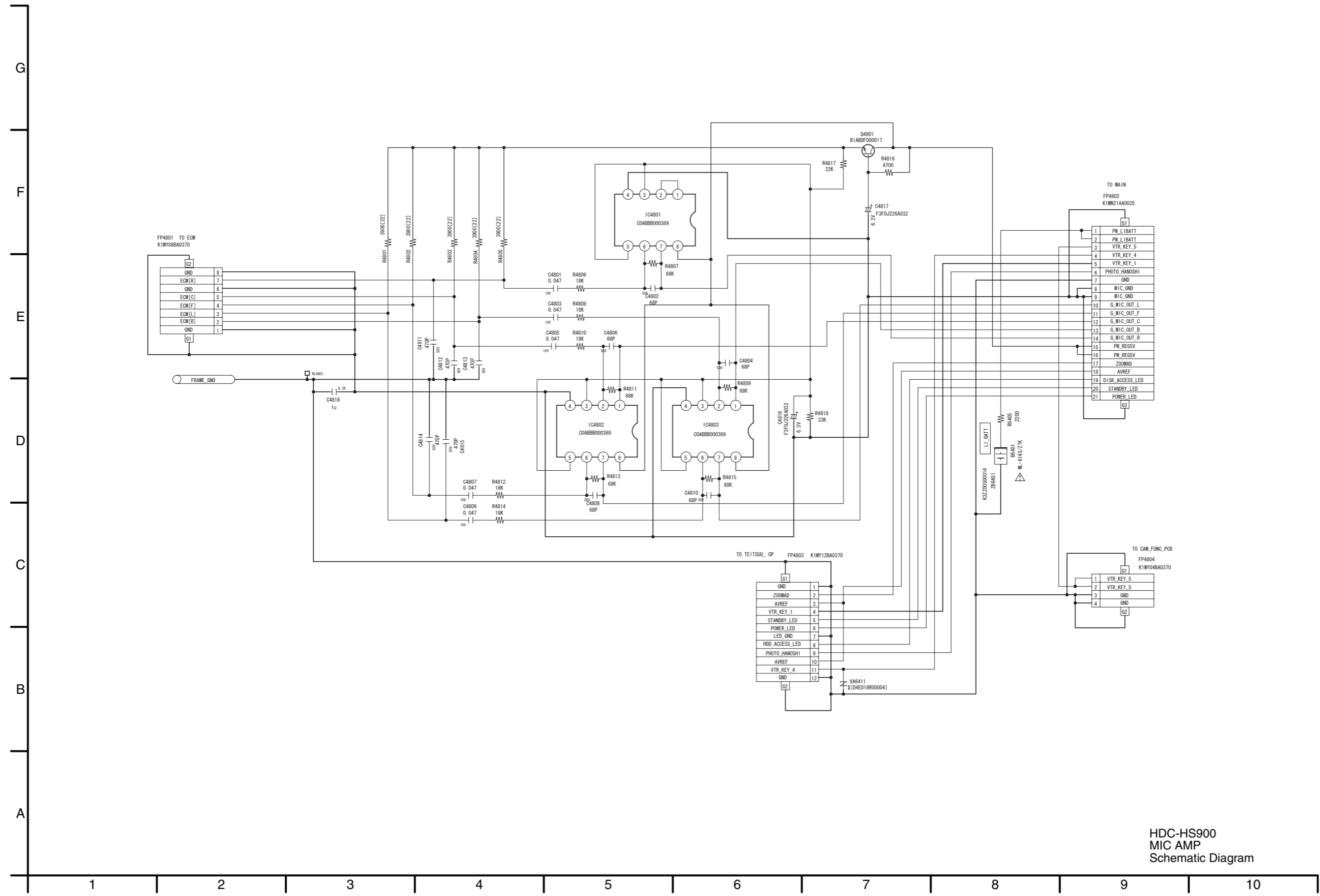
S4.8. MF SENS Schematic Diagram / S4.9. MF Hole FPC Schematic Diagram



HDC-HS900
MF SENS
Schematic Diagram

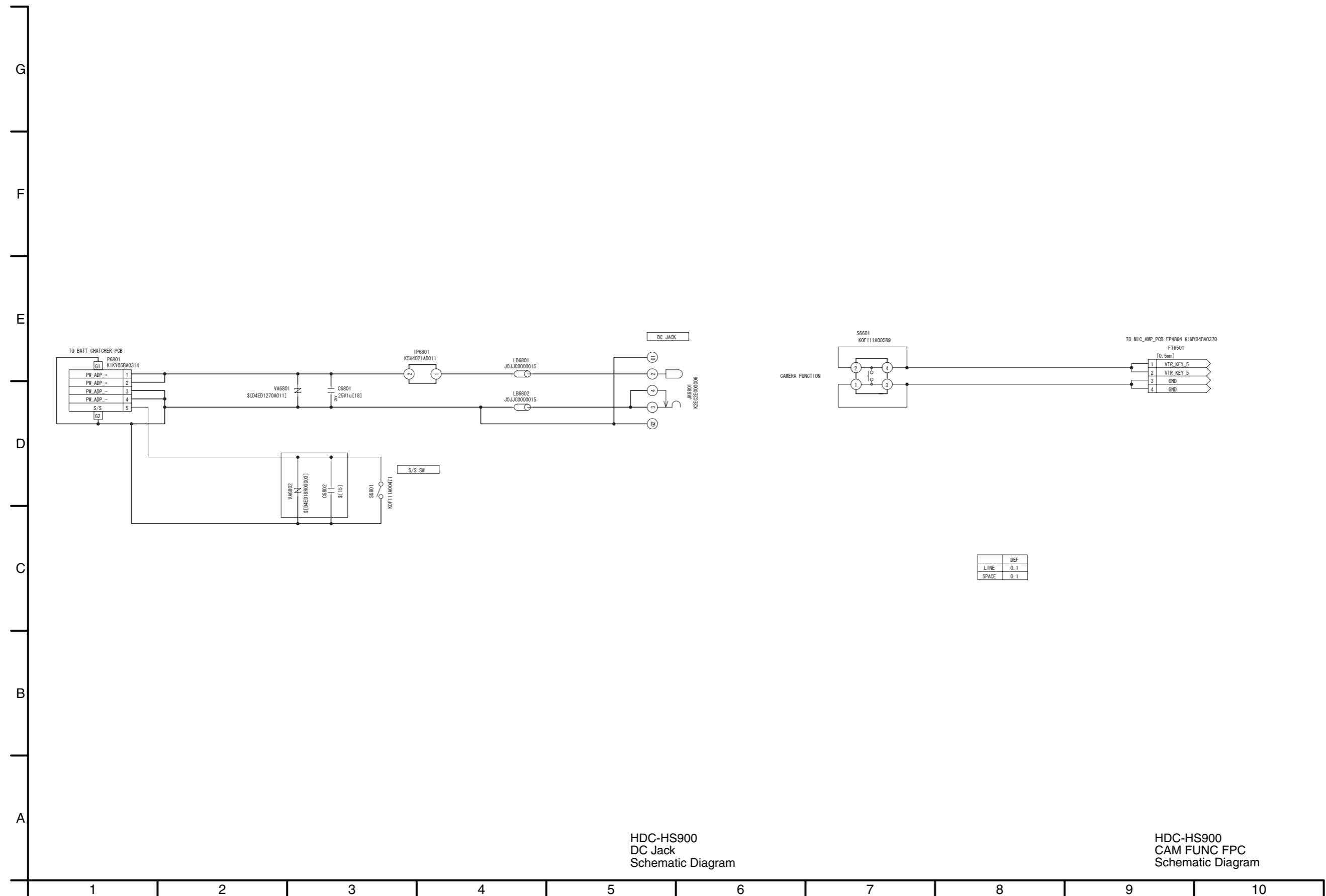
HDC-HS900
MF Hole FPC
Schematic Diagram

S4.10. MIC AMP Schematic Diagram



HDC-HS900
MIC AMP
Schematic Diagram

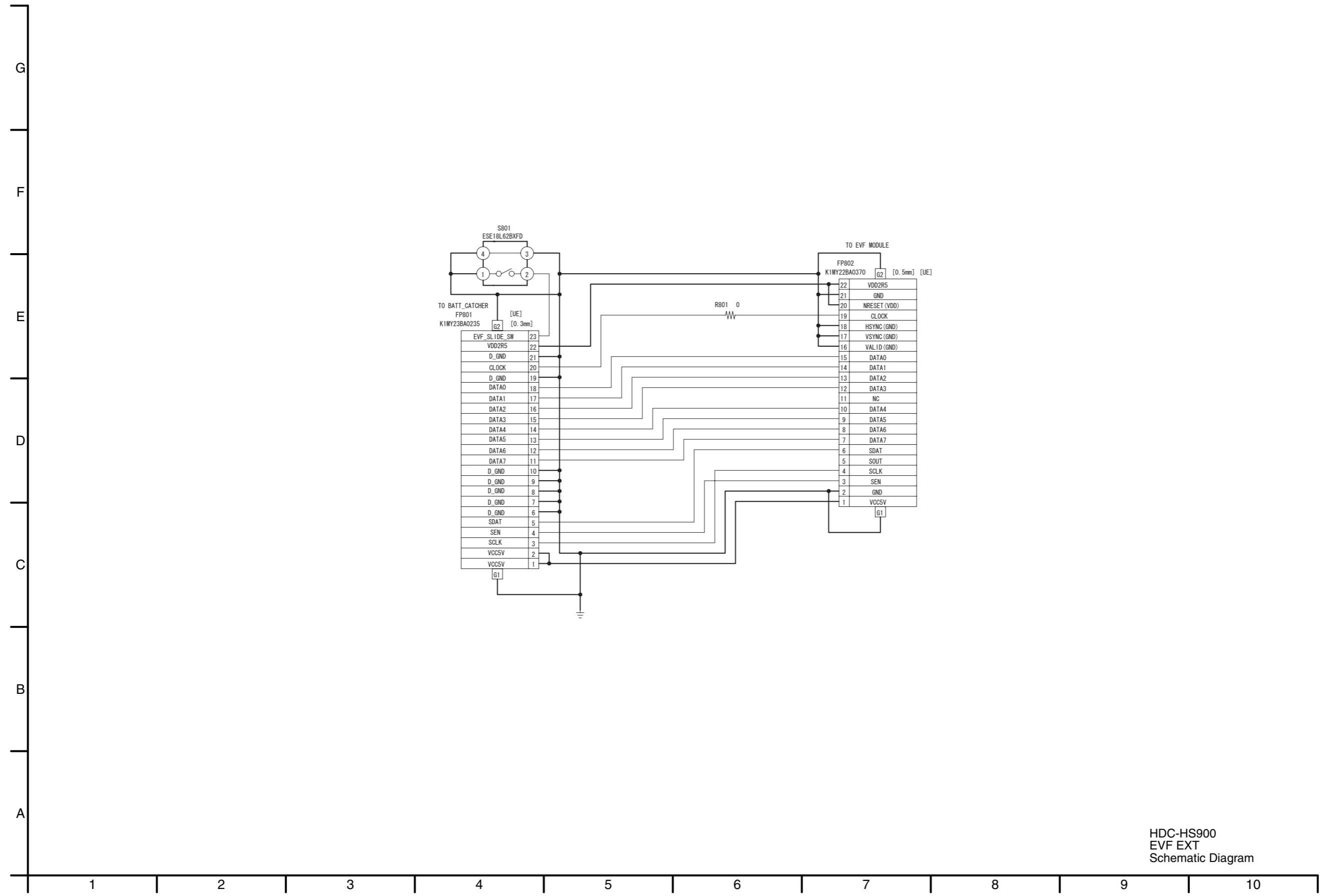
S4.11. DC Jack Schematic Diagram / S4.12. CAM FUNC FPC Schematic Diagram



HDC-HS900
DC Jack
Schematic Diagram

HDC-HS900
CAM FUNC FPC
Schematic Diagram

S4.13. EVF EXT Schematic Diagram

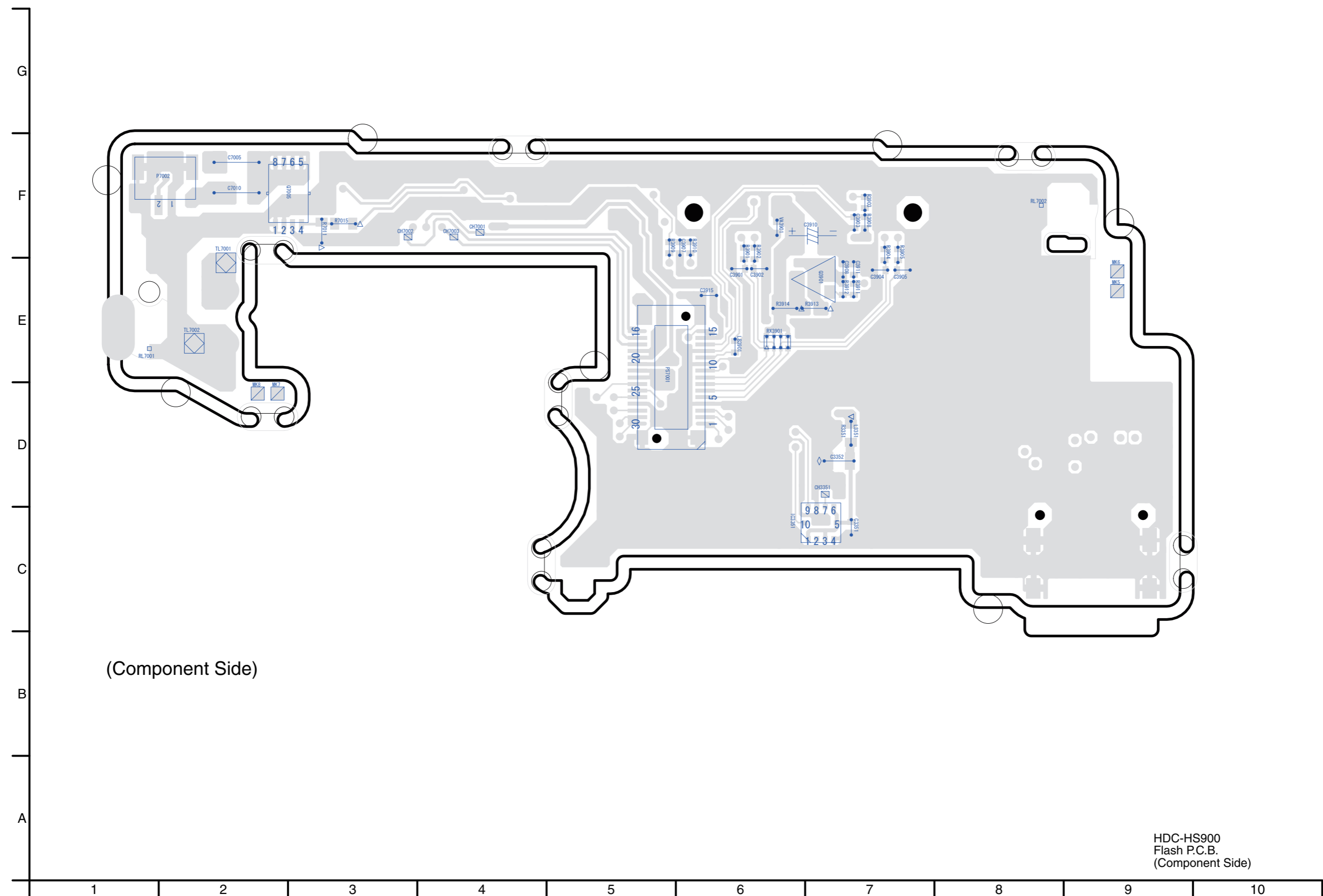


HDC-HS900
EVF EXT
Schematic Diagram

S5. Print Circuit Board

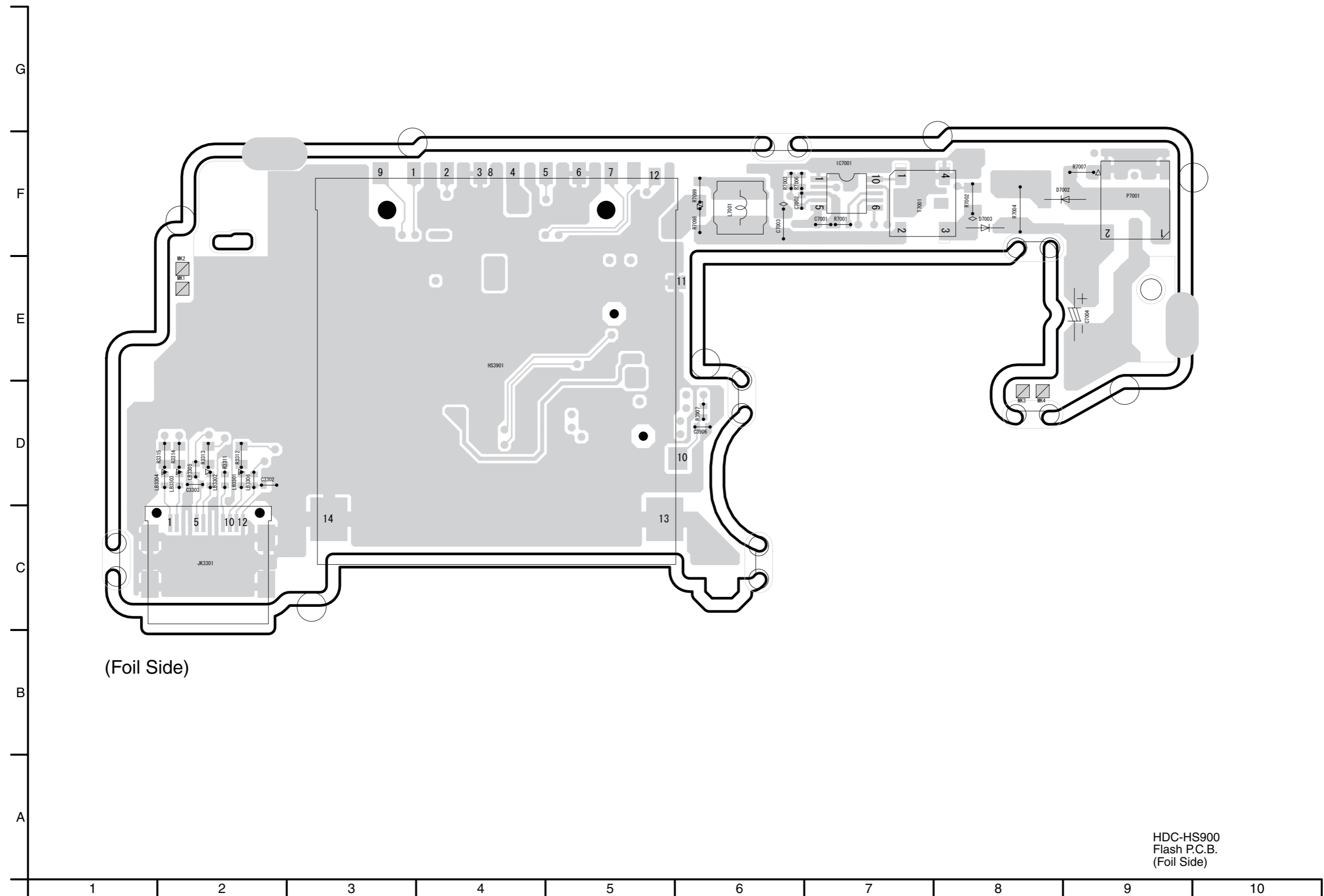
S5.1. Flash P.C.B.

S5.1.1. Flash P.C.B. (Component Side)

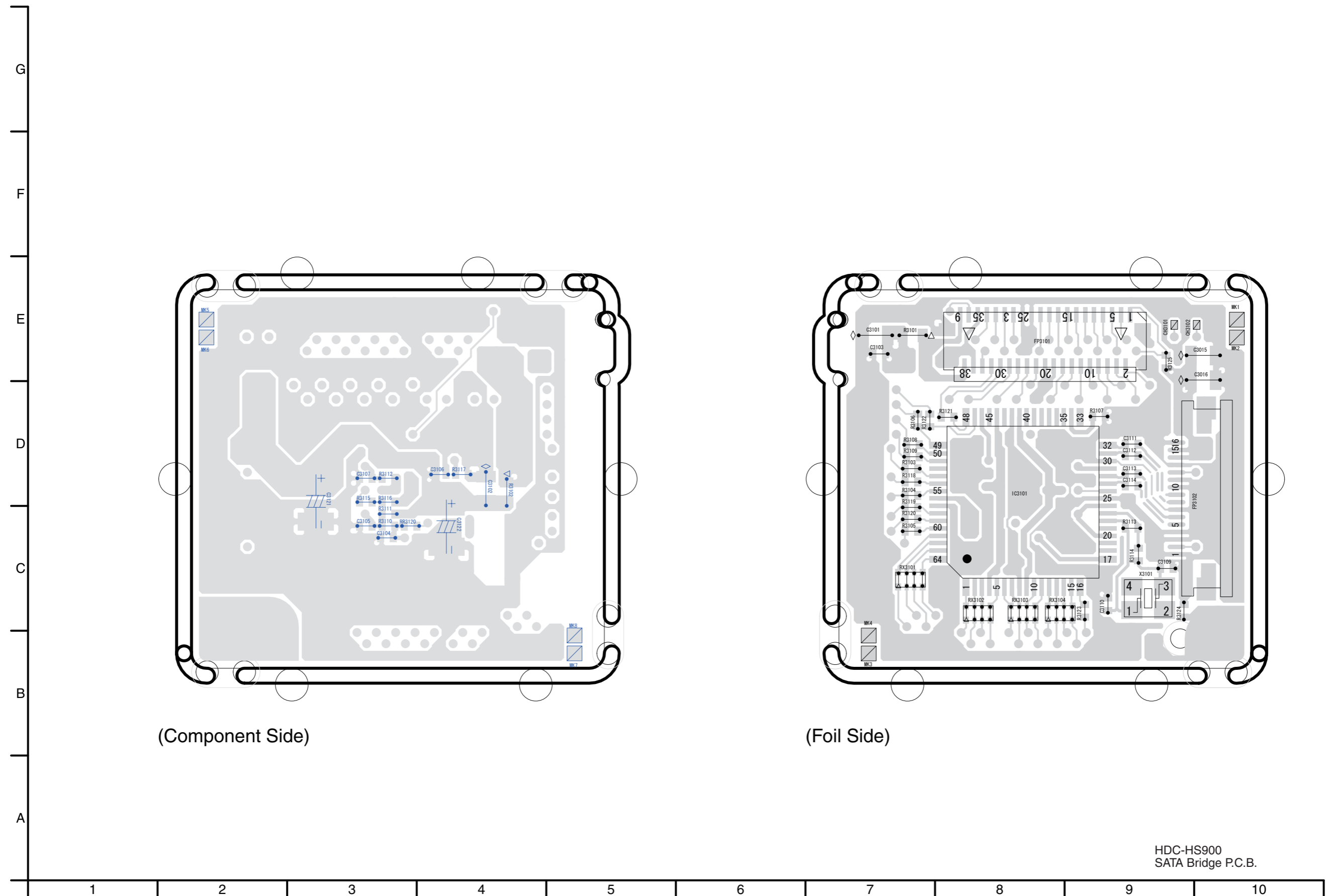


HDC-HS900
Flash P.C.B.
(Component Side)

S5.1.2. Flash P.C.B. (Foil Side)



S5.2. SATA Bridge P.C.B.



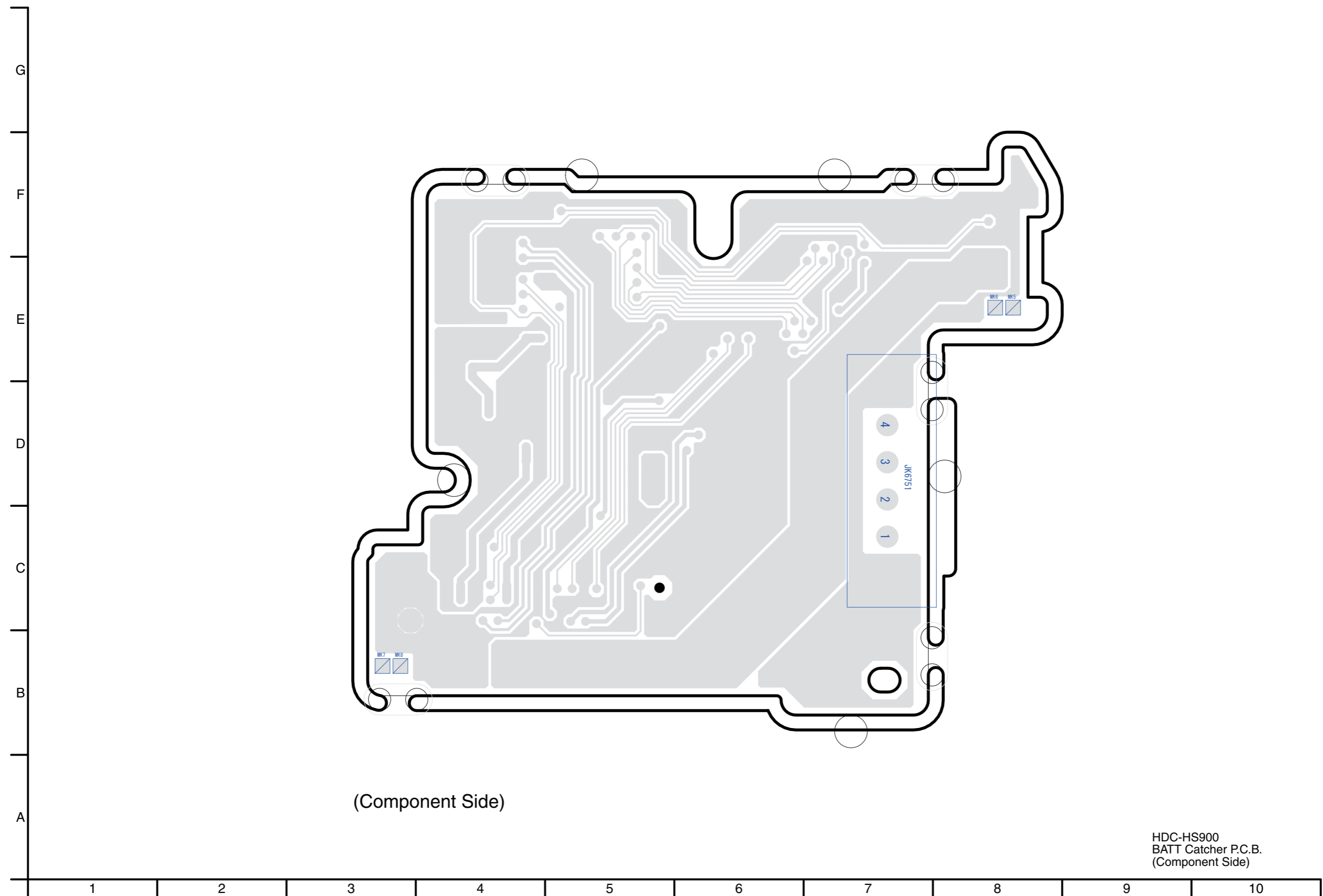
(Component Side)

(Foil Side)

HDC-HS900
SATA Bridge P.C.B.

S5.3. BATT Catcher P.C.B.

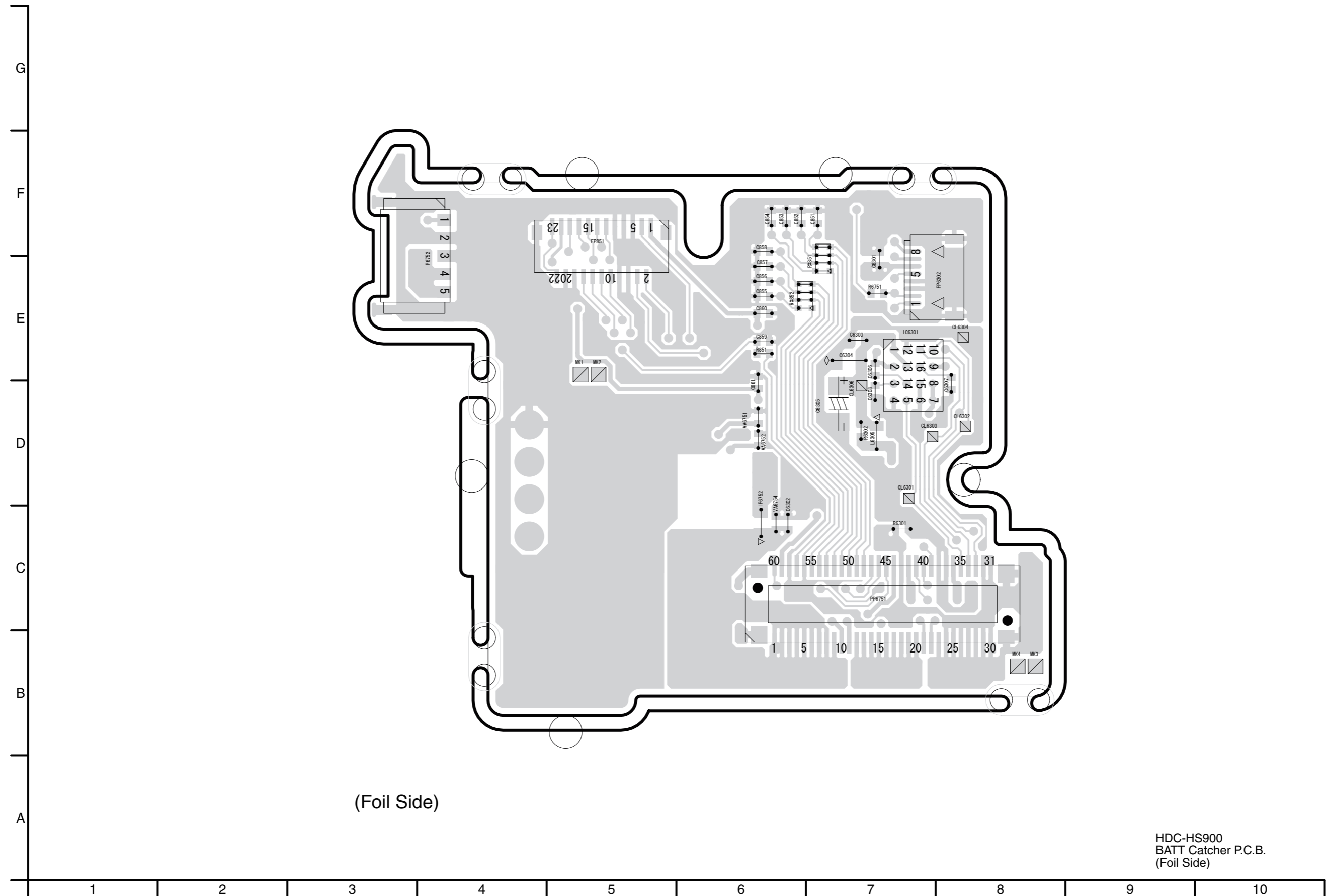
S5.3.1. BATT Catcher P.C.B. (Component Side)



(Component Side)

HDC-HS900
BATT Catcher P.C.B.
(Component Side)

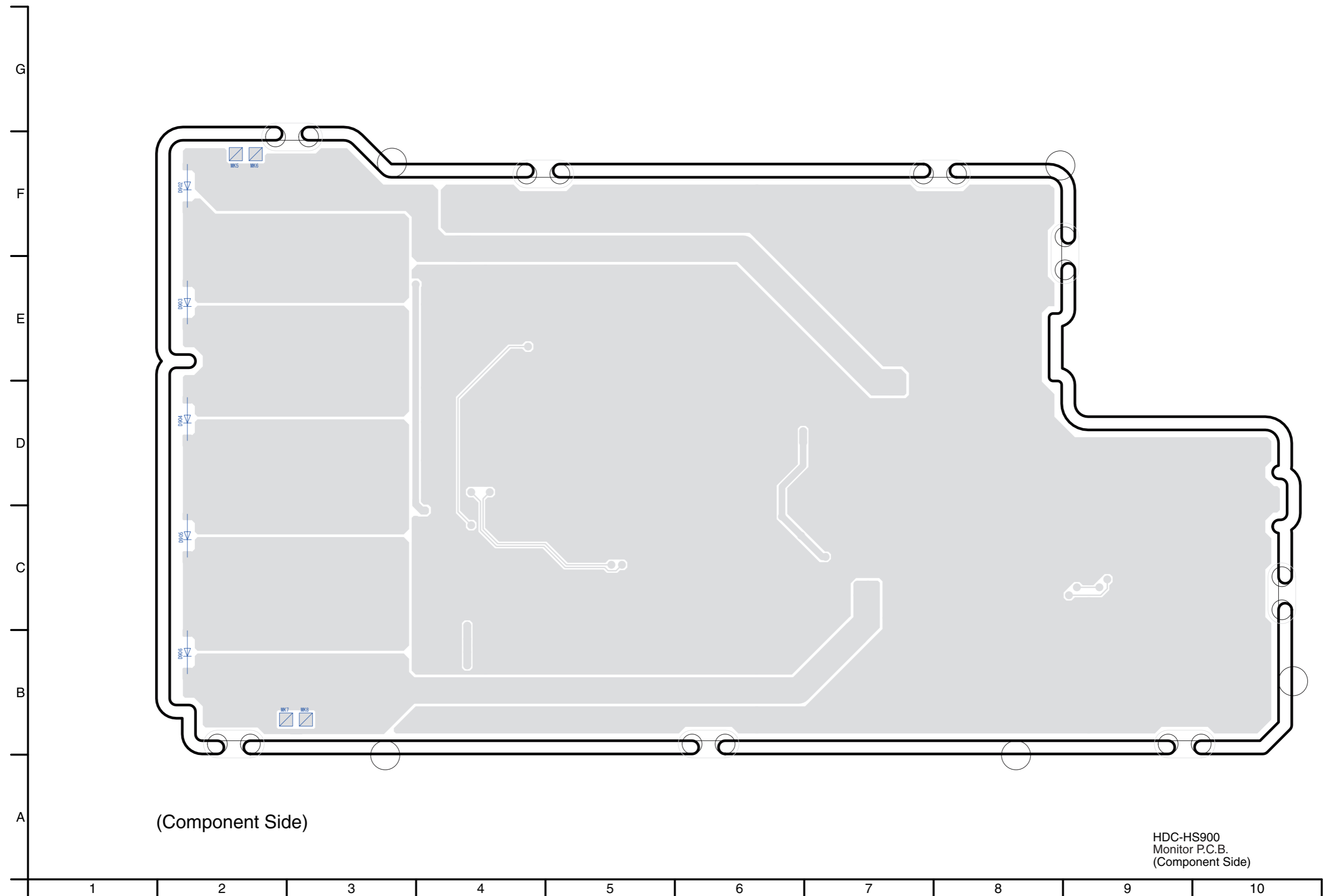
S5.3.2. BATT Catcher P.C.B. (Foil Side)



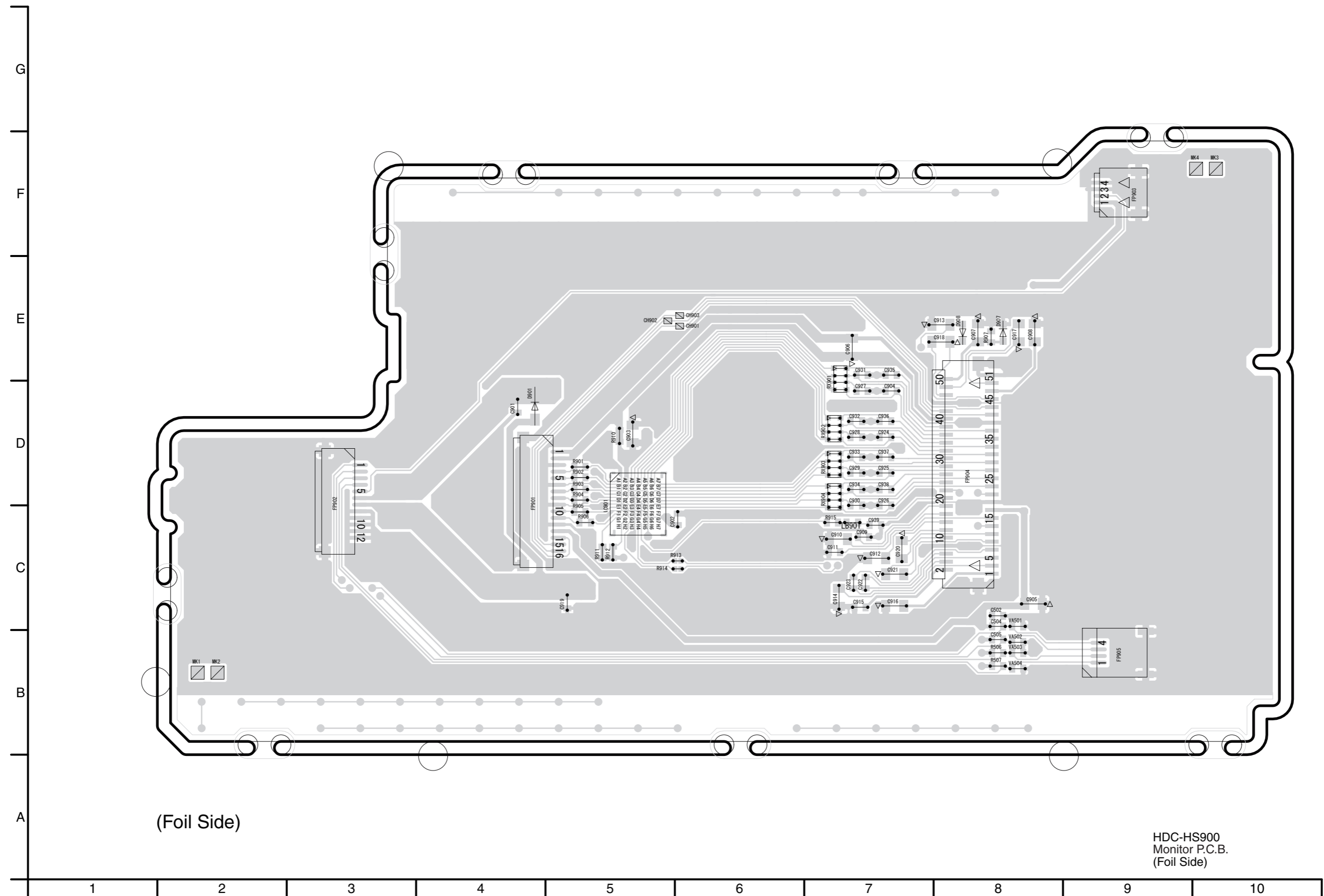
HDC-HS900
BATT Catcher P.C.B.
(Foil Side)

S5.4. Monitor P.C.B.

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



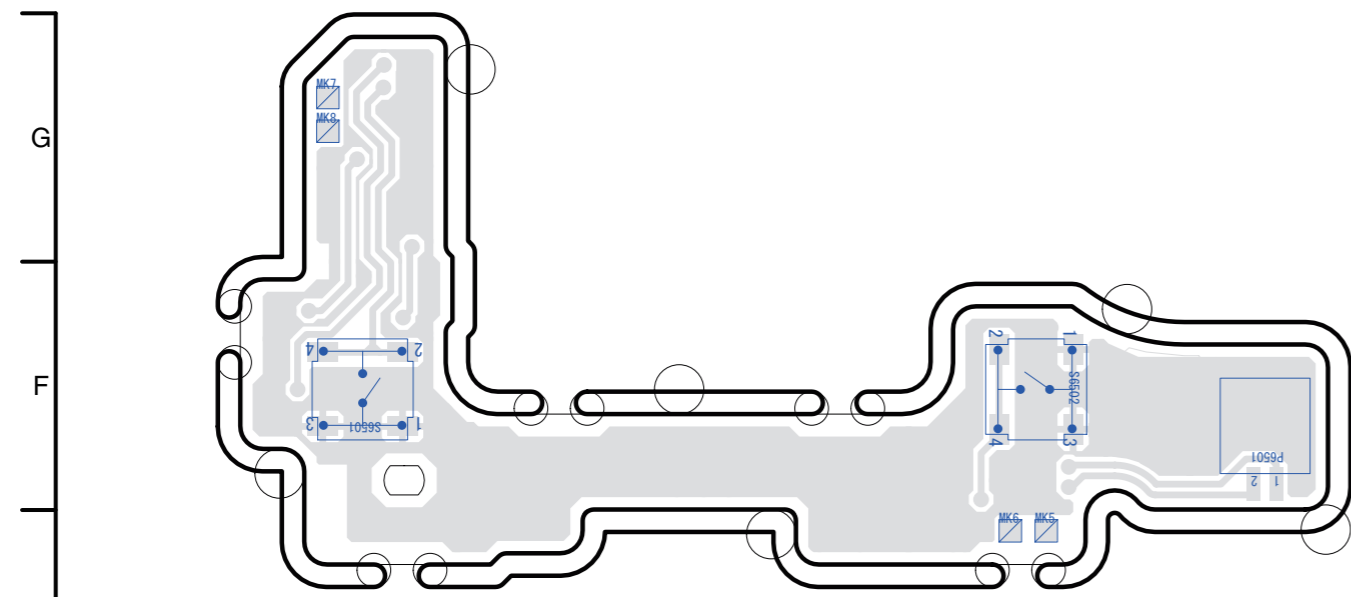
S5.4.2. Monitor P.C.B. (Foil Side)



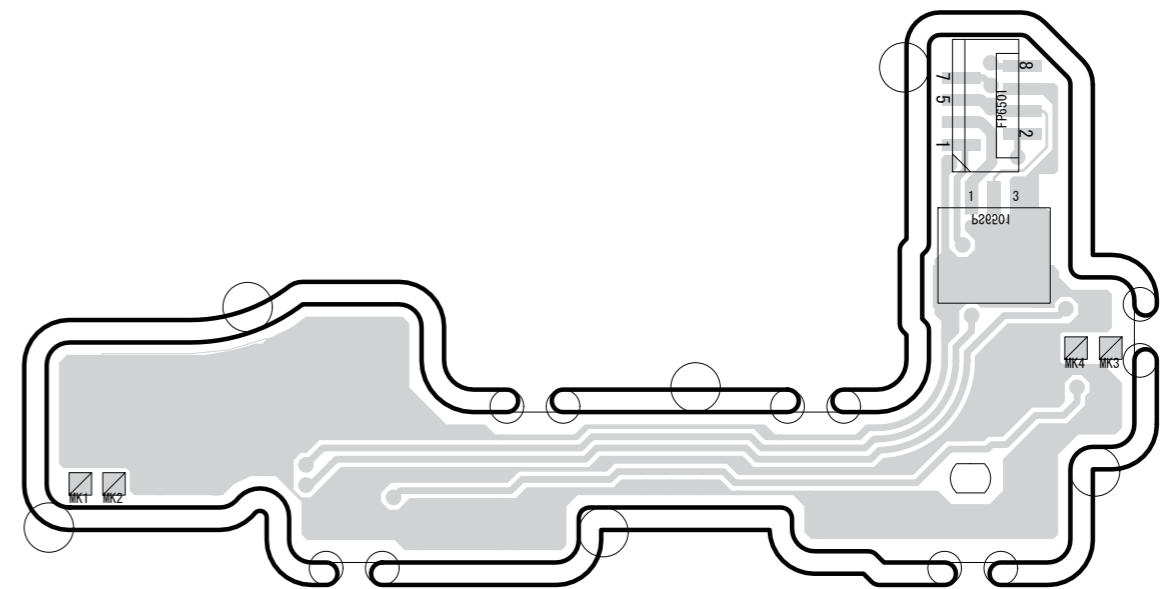
(Foil Side)

HDC-HS900
Monitor P.C.B.
(Foil Side)

S5.5. Side R OP P.C.B.



(Component Side)

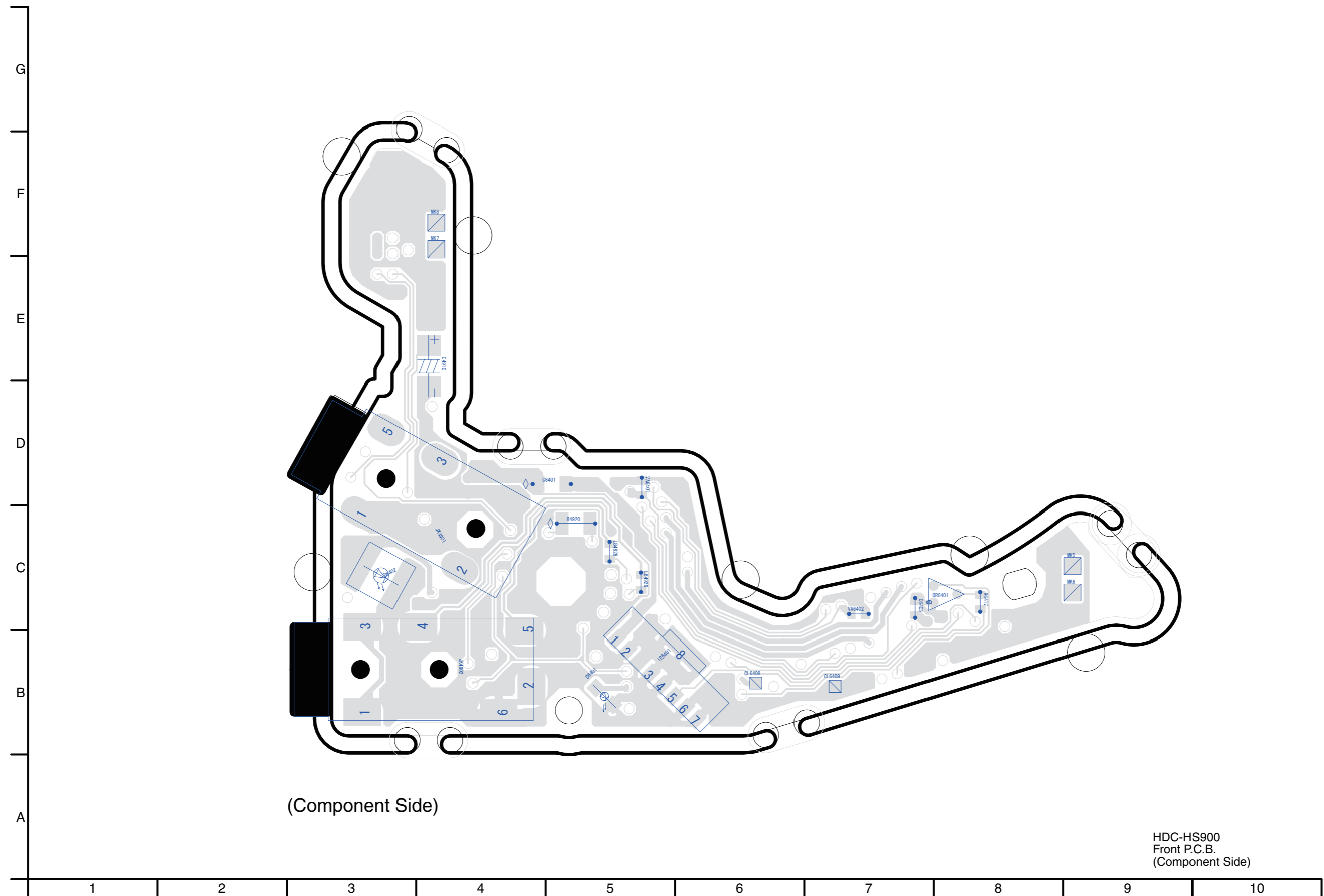


(Foil Side)

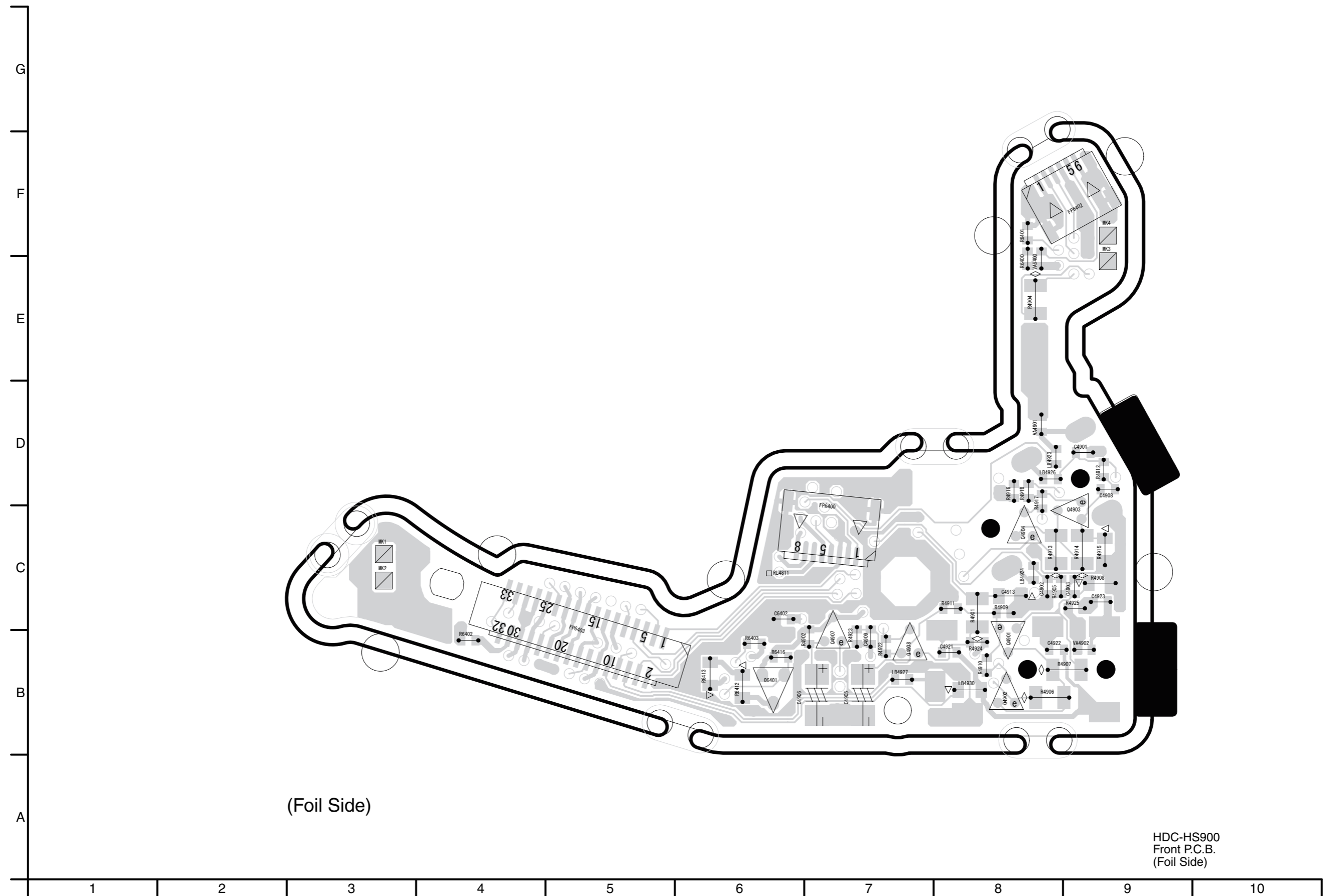
HDC-HS900
Side R OP P.C.B.

S5.6. Front P.C.B.

S5.6.1. Front P.C.B. (Component Side)



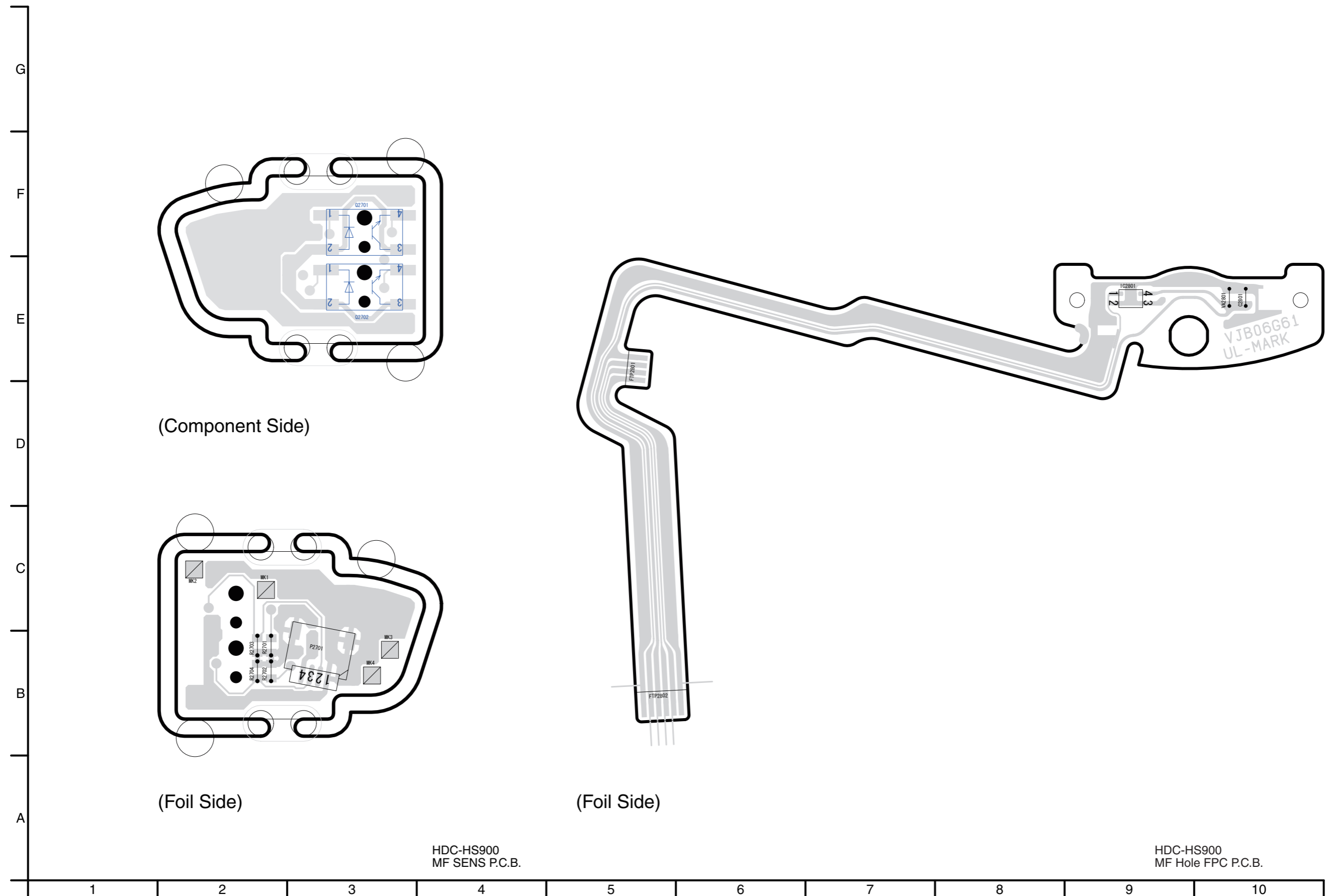
S5.6.2. Front P.C.B. (Foil Side)



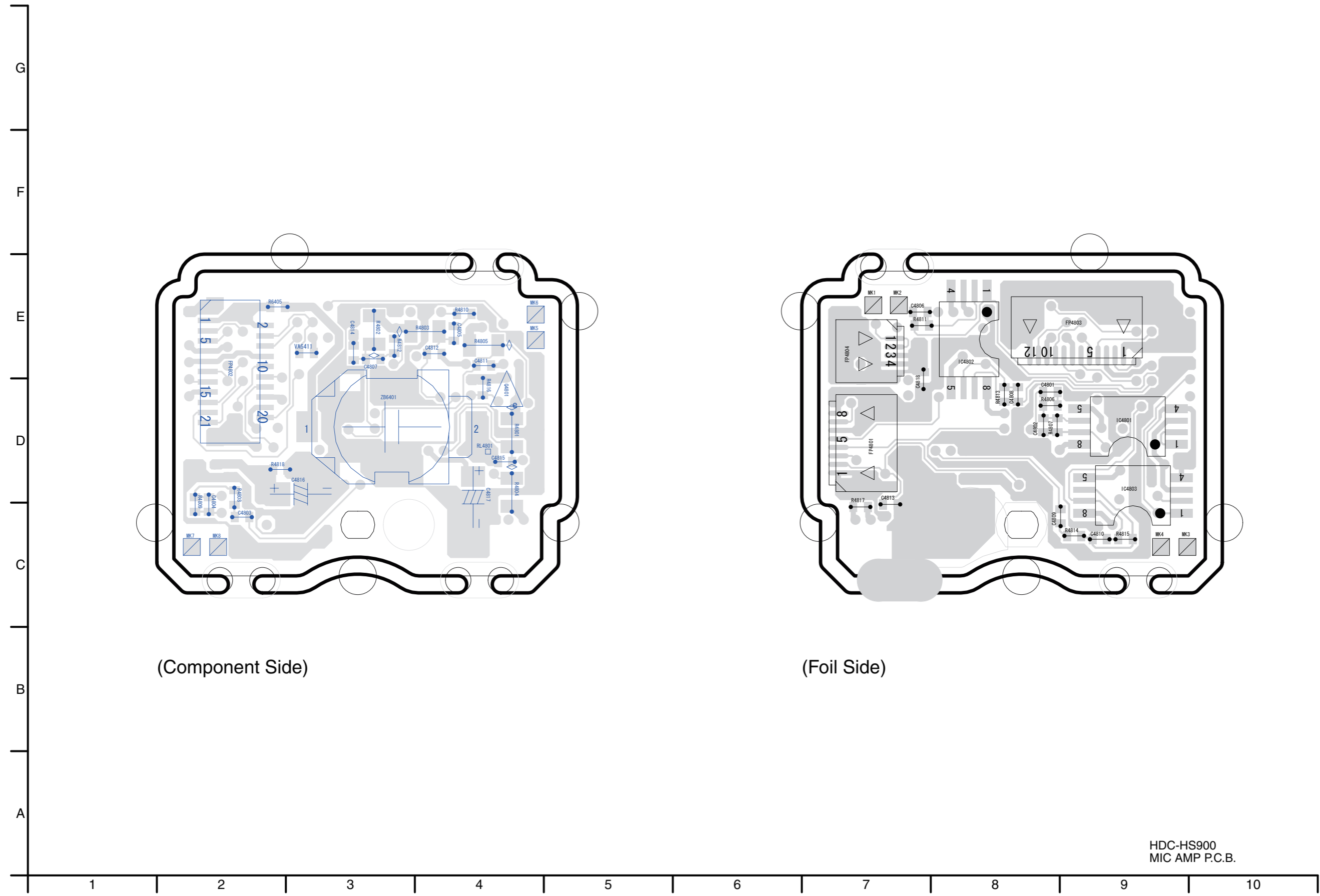
(Foil Side)

HDC-HS900
Front P.C.B.
(Foil Side)

S5.7. MF SENS P.C.B. / S5.8. MF Hole FPC P.C.B.



S5.9. MIC AMP P.C.B.

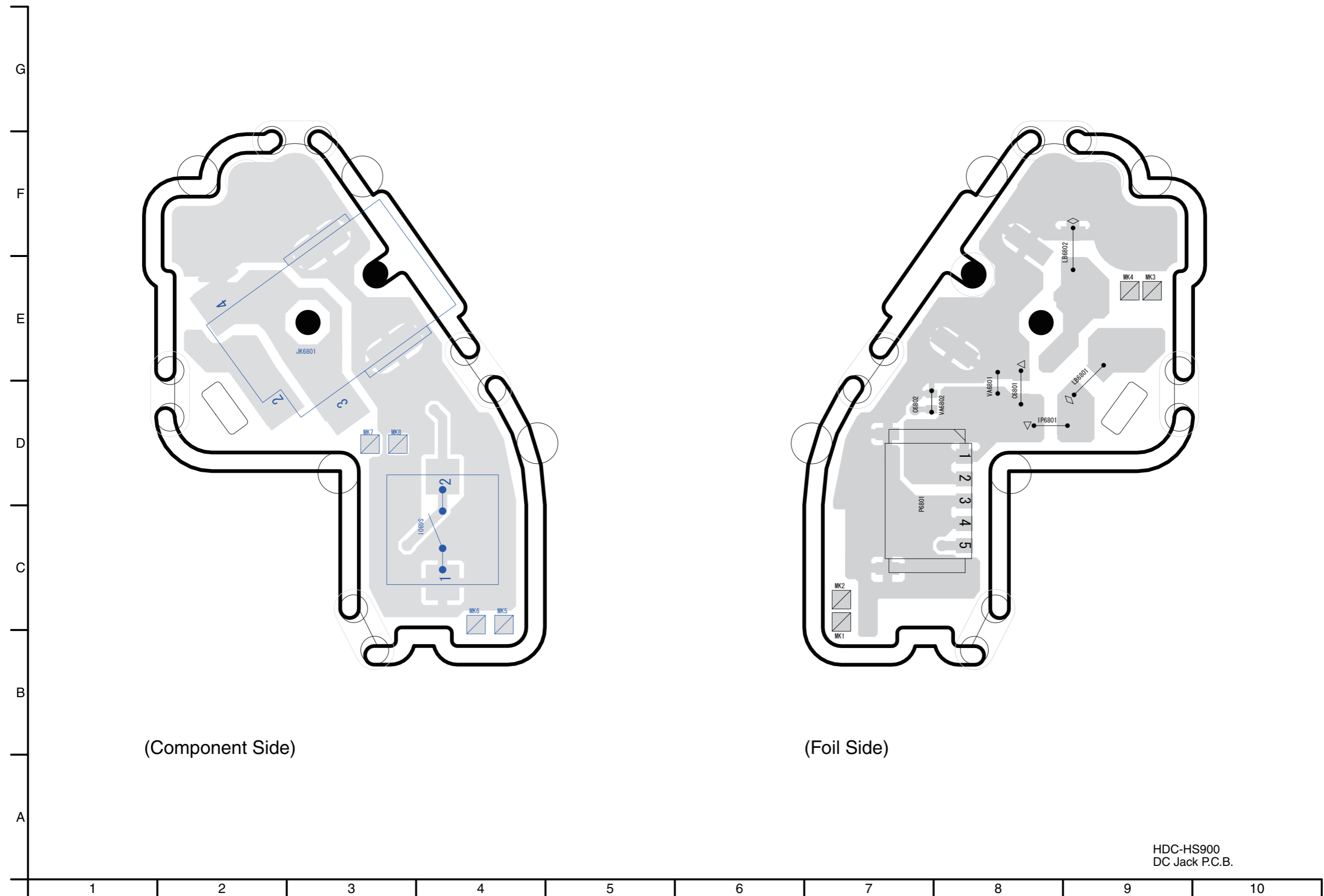


(Component Side)

(Foil Side)

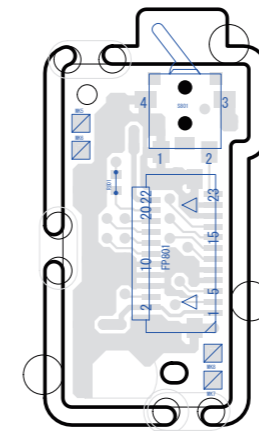
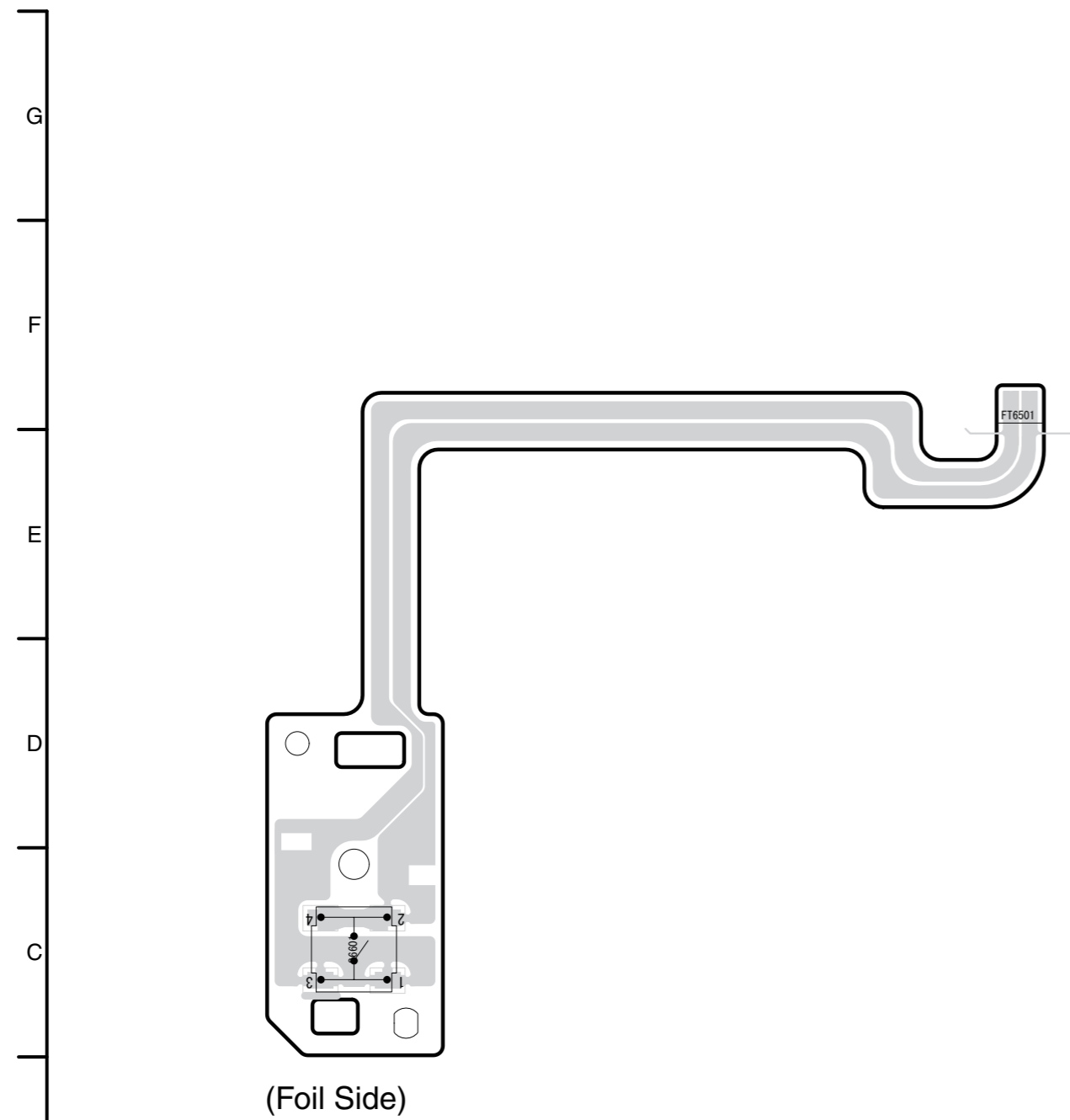
HDC-HS900
MIC AMP P.C.B.

S5.10. DC Jack P.C.B.

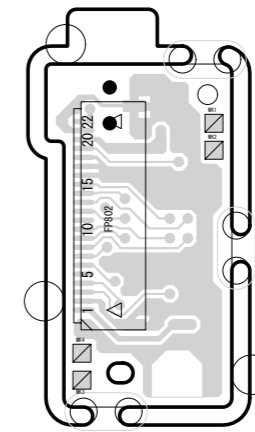


HDC-HS900
DC Jack P.C.B.

S5.11. CAM FUNC FPC P.C.B. / S5.12. EVF EXT P.C.B.



(Component Side)



(Foil Side)

HDC-HS900
CAM FUNC FPC P.C.B.

HDC-HS900
EVF EXT P.C.B.

S6. Replacement Parts List

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

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

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP03J06CN	MAIN P.C.B. UNIT	1	(RTL) E.S.D. P,PC,PU,GT
##	VEP03J06CP	MAIN P.C.B. UNIT	1	(RTL) E.S.D. EB,EG,EP
##	VEP03J06CQ	MAIN P.C.B. UNIT	1	(RTL) E.S.D. EE,GC,GK,GN
##	VEP03J07A	FLASH SD P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP79297A	MAIN SATA FPC UNIT	1	
##	VEP03J09A	SATA BRIDGE P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP01A47A	BATT. CAT P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP26336A	MONITOR P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP06G50A	SIDE-R OP P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP20D28A	FRONT P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP27229A	MF SENS P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP06G61B	MF HOLL FPC UNIT	1	(RTL) E.S.D.
##	VEP04975A	MIC AMP P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP01A53A	DC JACK P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP20C85A	CAM FUNC P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP29230A	EVF EXT P.C.B. UNIT	1	(RTL) E.S.D.
##	VEP03J07A	FLASH SD P.C.B. UNIT		(RTL) E.S.D.
C3302	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1	
C3303	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1	
C3351	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3352	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
C3906	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3907	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3908	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3910	F3G0J107A017	C.CAPACITOR CH 6.3V 100U	1	
C3911	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C7001	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C7002	F1G1H150A644	C.CAPACITOR CH 50V 15P	1	
C7003	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
C7004	F2A2F6000001	CAPACITOR	1	
C7005	F1K2E4730005	C.CAPACITOR 250V 0.047U	1	
C7010	F1K2E223A004	C.CAPACITOR 250V 0.022U	1	
D7002	B0ECGP000006	DIODE	1	E.S.D.
D7003	DA2JF8100L	DIODE	1	E.S.D.
HS3901	K1NA09E00115	SD CARD SLOT	1	
IC3351	L2EE00000014	IC	1	E.S.D.
IC7001	C0ZB20001710	IC	1	E.S.D.
JK3301	K2HZ112E0001	D-TERMINAL	1	
L3351	G1C100MA0495	CHIP INDUCTOR 10UH	1	
LB3301	J0JCC0000408	FILTER	1	
LB3302	J0JCC0000408	FILTER	1	
LB3303	J0JCC0000408	FILTER	1	
LB3304	J0JCC0000276	FILTER	1	
LB3305	J0JCC0000276	FILTER	1	
LB3306	J0JCC0000276	FILTER	1	
LB3901	J0JBC0000099	FILTER	1	
P7001	K1KA02B00292	CONNECTOR 2P	1	
P7002	K1KA02BA0022	CONNECTOR 2P	1	
PS7001	K1KB30AA0116	CONNECTOR 30P	1	
Q3901	B1ADKB000015	TRANSISTOR	1	E.S.D.
Q7005	B1JBLP000014	TRANSISTOR	1	E.S.D.
R3311	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R3312	ERJ3RED750V	RESISTOR NETWORKS	1	
R3313	ERJ3RED750V	RESISTOR NETWORKS	1	
R3314	ERJ3RED750V	RESISTOR NETWORKS	1	
R3315	ERJ3RED750V	RESISTOR NETWORKS	1	
R3901	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	
R3902	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	
R3903	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	
R3904	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	
R3905	ERJ2GEJ560X	M.RESISTOR CH 1/10W 56	1	
R3907	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3908	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3909	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R3910	ERJ2GEJ271	M.RESISTOR CH 1/10W 270	1	
R3911	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1	
R3912	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R3913	D0GB150JA057	M.RESISTOR CH 1/10W 15	1	
R7001	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
△ R7002	D1BD8203A119	FUSE RESISTOR	1	
R7003	ERJ2RHD222	M.RESISTOR CH 1/16W 2.2K	1	
R7004	ERJ8GEYJ105V	M.RESISTOR CH 1/4W 1M	1	
R7006	ERJ2RHD471X	M.RESISTOR CH 1/16W 470	1	
R7007	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R7011	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R7015	ERJ3GEYJ560	M.RESISTOR CH 1/10W 56	1	
R7098	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
RX3901	EXB28V103JX	RESISTOR NETWORKS	1	
T7001	G5DY20000025	TRANSFORMER	1	
##	VEP79297A	MAIN SATA FPC UNIT		
PS3151	K1KB40A00128	CONNECTOR 40P	1	
##	VEP03J09A	SATA BRIDGE P.C.B. UNIT		(RTL) E.S.D.
C3101	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
C3102	F1J1A106A043	C.CAPACITOR CH 10V 10U	1	
C3103	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3104	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3105	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3107	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C3109	F1G1H120A644	C.CAPACITOR CH 50V 12P	1	
C3110	F1G1H120A644	C.CAPACITOR CH 50V 12P	1	
C3111	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3112	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3113	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3114	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C3121	F3G0J107A017	C.CAPACITOR CH 6.3V 100U	1	
C3401	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
FP3101	K1MY39BA0235	CONNECTOR 39P	1	
FP3102	K1MN16BA0055	CONNECTOR 16P	1	
IC3101	C1CB00003452	IC	1	E.S.D.
R3101	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3102	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
R3103	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R3104	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R3105	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R3106	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3107	ERJ2GEJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3108	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3109	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3110	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3111	D0YAR0000007	M.RESISTOR CH 1/10W 0	1	
R3112	D0YAR0000007	M.RESISTOR CH 1/10W 0	1	
R3113	ERJ2GEJ105	M.RESISTOR CH 1/10W 1M	1	
R3114	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R3115	ERJ2RHD103	M.RESISTOR CH 1/16W 10K	1	
R3116	ERJ2RHD132	M.RESISTOR CH 1/16W 1.3K	1	
R3117	ERJ2GEJ222	M.RESISTOR CH 1/10W 2.2K	1	
R3118	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3119	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3120	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3121	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3122	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
R3123	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
RX3101	D1H85604A024	RESISTOR NETWORKS	1	
RX3102	D1H85604A024	RESISTOR NETWORKS	1	
RX3103	D1H85604A024	RESISTOR NETWORKS	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
RX3104	D1H85604A024	RESISTOR NETWORKS	1	
X3101	H0J250500109	SURFACE MOUNTING CRYSTAL	1	
##	VEP01A47A	BATT. CAT P.C.B. UNIT		(RTL) E.S.D.
C860	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C861	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6301	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6302	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6303	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C6306	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6307	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C6308	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
FP851	K1MN23AA0035	CONNECTOR 23P	1	
FP6302	K1MY08BA0370	CONNECTOR 8P	1	
IC6301	EWTS9PSL11	IC	1	E.S.D.
△ IP6752	K5H4021A0011	IC PROTECTOR	1	
JK6751	K4ZZ04000056	JK, BATTERY	1	
P6752	K1KY05BA0314	CONNECTOR 5P	1	
PP6751	K1KA60A00156	CONNECTOR 60P	1	
R6302	D0YAR0000007	M.RESISTOR CH 1/10W 0	1	
R6751	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
VA6751	D4ED18R00008	VARISTOR	1	
VA6752	D4ED18R00008	VARISTOR	1	
VA6754	D4ED1270A011	VARISTOR	1	
##	VEP26336A	MONITOR P.C.B. UNIT		(RTL) E.S.D.
C502	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C504	F1G1H102A640	C.CAPACITOR CH 50V 1000P	1	
C505	F1G1H102A640	C.CAPACITOR CH 50V 1000P	1	
C901	F1G1E1040001	C.CAPACITOR CH 25V 0.1U	1	
C902	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C903	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
C904	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C905	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
C906	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
C907	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
C908	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
C909	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C910	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	
C911	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C912	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	
C913	F1H1A225A051	C.CAPACITOR CH 10V 2.2U	1	
C914	F1H0J2250008	C.CAPACITOR CH 6.3V 2.2U	1	
C915	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C916	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	
C917	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
C918	ECJ1VB1C105K	C.CAPACITOR CH 16V 1U	1	
C919	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
C920	F1H1A225A051	C.CAPACITOR CH 10V 2.2U	1	
C921	F1H1A225A051	C.CAPACITOR CH 10V 2.2U	1	
C922	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C923	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C924	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C925	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C926	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C927	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C928	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C929	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C930	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C931	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C932	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C933	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C934	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C935	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C936	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C937	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
C938	F1G1H220A644	C.CAPACITOR CH 50V 22P	1	
D901	DZZ2J00M0L	DIODE	1	E.S.D.
D902	B3AFB0000321	DIODE	1	E.S.D.
D903	B3AFB0000321	DIODE	1	E.S.D.
D904	B3AFB0000321	DIODE	1	E.S.D.
D905	B3AFB0000321	DIODE	1	E.S.D.
D906	B3AFB0000321	DIODE	1	E.S.D.
D907	B0JCCD000003	DIODE	1	E.S.D.
D908	B0JCCD000003	DIODE	1	E.S.D.
FP901	K1MY16BA0159	CONNECTOR 16P	1	
FP902	K1MY12BA0159	CONNECTOR 12P	1	
FP903	K1MY04BA0370	CONNECTOR 4P	1	
FP904	K1MY51BA0235	CONNECTOR 51P	1	
FP905	K1MN04BA0262	CONNECTOR 4P	1	
IC901	C1CB00002847	IC	1	E.S.D.
LB901	J0JBC0000099	FILTER	1	
R907	ERJ2GEJ824	M.RESISTOR CH 1/16W 820K	1	
R915	ERJ2GEJ820	M.RESISTOR CH 1/16W 82	1	
RX901	D1H88204A024	RESISTOR NETWORKS	1	
RX902	D1H88204A024	RESISTOR NETWORKS	1	
RX903	D1H88204A024	RESISTOR NETWORKS	1	
RX904	D1H88204A024	RESISTOR NETWORKS	1	
VA501	D4ED18R00008	VARISTOR	1	
VA502	D4ED18R00008	VARISTOR	1	
VA503	D4ED18R00008	VARISTOR	1	
VA504	D4ED18R00008	VARISTOR	1	
##	VEP06G50A	SIDE-R OP P.C.B. UNIT		(RTL) E.S.D.
FP6501	K1MN08A00072	CONNECTOR 8P	1	
P6501	K1KA02BA0014	CONNECTOR 2P	1	
PS6501	K1KA03BA0014	CONNECTOR 3P	1	
S6501	K0F111A00589	SWITCH	1	
S6502	K0F111A00589	SWITCH	1	
##	VEP20D28A	FRONT P.C.B. UNIT		(RTL) E.S.D.
C4901	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1	
C4902	F1G1H472A571	C.CAPACITOR CH 50V 4700P	1	
C4903	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4905	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4906	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4908	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4909	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4910	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4913	F1H0J4750004	C.CAPACITOR CH 6.3V 4.7U	1	
C4921	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C4922	F1G1E1030005	C.CAPACITOR CH 25V 0.01U	1	
C4923	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C6401	F1J0J106A049	C.CAPACITOR CH 6.3V 10U	1	
C6402	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C6405	F1G1C104A077	C.CAPACITOR CH 16V 0.1U	1	
D6401	B3AAB0000334	LED	1	E.S.D.
D6402	B3ADB0000147	DIODE	1	E.S.D.
FP6400	K1MY08BA0370	CONNECTOR 8P	1	
FP6402	K1MY06BA0370	CONNECTOR 6P	1	
FP6403	K1MY33AA0199	CONNECTOR 33P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IR6401	B3RBB0000013	REMOTE SENSOR	1	
JK4901	K2HC104B0047	JK, EXT MIC	1	
JK4902	K2HC106E0007	JACK, AV	1	
LB4923	J0JCC0000276	FILTER	1	
LB4924	J0JCC0000276	FILTER	1	
LB4926	J0JCC0000276	FILTER	1	
LB4927	J0JCC0000276	FILTER	1	
LB4928	J0JCC0000276	FILTER	1	
LB4929	J0JCC0000276	FILTER	1	
LB4930	J0JHC0000078	FILTER	1	
Q4901	B1ABDF000017	TRANSISTOR	1	E.S.D.
Q4902	B1ADCF000161	TRANSISTOR	1	E.S.D.
Q4903	B1ABDF000017	TRANSISTOR	1	E.S.D.
Q4904	B1ADCF000161	TRANSISTOR	1	E.S.D.
Q4907	B1ABDF000017	TRANSISTOR	1	E.S.D.
Q4908	B1ABDF000017	TRANSISTOR	1	E.S.D.
Q6401	B1ADGD000005	TRANSISTOR	1	E.S.D.
QR6401	B1GBCFJK0001	TRANSISTOR	1	E.S.D.
R4901	ERJ6GEYJ331V	M.RESISTOR CH 1/8W 330	1	
R4902	ERJ2GEJ472	M.RESISTOR CH 1/10W 4.7K	1	
R4904	ERJ6GEYJ562V	M.RESISTOR CH 1/8W 5.6K	1	
R4905	ERJ2GEJ471	M.RESISTOR CH 1/10W 470	1	
R4906	ERJ6GEYJ103V	M.RESISTOR CH 1/8W 10K	1	
R4907	ERJ6GEYJ154V	M.RESISTOR CH 1/8W 150K	1	
R4908	D0HB563ZA002	M.RESISTOR CH 1/10W 56K	1	
R4909	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R4910	ERJ2GEJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4911	ERJ2GEJ151	M.RESISTOR CH 1/10W 150	1	
R4912	ERJ2GEJ471	M.RESISTOR CH 1/10W 470	1	
R4913	ERJ6GEYJ103V	M.RESISTOR CH 1/8W 10K	1	
R4914	ERJ6GEYJ154V	M.RESISTOR CH 1/8W 150K	1	
R4915	D0HB563ZA002	M.RESISTOR CH 1/10W 56K	1	
R4916	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R4917	ERJ2GEJ562	M.RESISTOR CH 1/10W 5.6K	1	
R4918	ERJ2GEJ151	M.RESISTOR CH 1/10W 150	1	
R4920	ERJ6GEYJ562V	M.RESISTOR CH 1/8W 5.6K	1	
R4922	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R4923	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4924	ERJ2GEJ473Y	M.RESISTOR CH 1/10W 47K	1	
R4925	ERJ2GEJ2R2X	M.RESISTOR CH 1/16W 2.2	1	
R6400	ERJ2GEJ102Y	M.RESISTOR CH 1/10W 1K	1	
R6401	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R6402	ERJ2RDK330	M.RESISTOR CH 1/16W 33	1	
R6403	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R6412	ERJ3GEYJ390	M.RESISTOR CH 1/10W 39	1	
R6413	ERJ3GEYJ390	M.RESISTOR CH 1/10W 39	1	
R6416	ERJ2GEJ473Y	M.RESISTOR CH 1/10W 47K	1	
R6417	ERJ2GEJ472	M.RESISTOR CH 1/10W 4.7K	1	
VA4901	D4ED18R00008	VARISTOR	1	
VA4902	D4ED18R00008	VARISTOR	1	
VA6401	D4ED16R80001	VARISTOR	1	
VA6402	D4ED16R80001	VARISTOR	1	
##	VEP27229A	MF SENS P.C.B. UNIT		(RTL) E.S.D.
P2701	K1MY04BA0385	CONNECTOR 4P	1	
Q2701	B3NBA0000017	TRANSISTOR	1	E.S.D.
Q2702	B3NBA0000017	TRANSISTOR	1	E.S.D.
R2701	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R2702	ERJ2GEJ101	M.RESISTOR CH 1/10W 100	1	
R2703	ERJ2GEJ512X	M.RESISTOR CH 1/16W 5.1K	1	
R2704	ERJ2GEJ512X	M.RESISTOR CH 1/16W 5.1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP06G61B	MF HOLL FPC UNIT		(RTL) E.S.D.
C2801	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
IC2801	B4ABC0000050	IC	1	E.S.D.
VA2801	D4ED16R80001	VARISTOR	1	
##	VEP04975A	MIC AMP P.C.B. UNIT		(RTL) E.S.D.
△ B6401	ML-614S/ZTK	BATTERY	1	[ENERGY]
C4801	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4802	F1G1H680A644	C.CAPACITOR CH 50V 68P	1	
C4803	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4804	F1G1H680A644	C.CAPACITOR CH 50V 68P	1	
C4805	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4806	F1G1H680A644	C.CAPACITOR CH 50V 68P	1	
C4807	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4808	F1G1H680A644	C.CAPACITOR CH 50V 68P	1	
C4809	F1G1A473A032	C.CAPACITOR CH 10V 0.047U	1	
C4810	F1G1H680A644	C.CAPACITOR CH 50V 68P	1	
C4811	F1G1H471A640	C.CAPACITOR CH 50V 470P	1	
C4812	F1G1H471A640	C.CAPACITOR CH 50V 470P	1	
C4813	F1G1H471A640	C.CAPACITOR CH 50V 470P	1	
C4814	F1G1H471A640	C.CAPACITOR CH 50V 470P	1	
C4815	F1G1H471A640	C.CAPACITOR CH 50V 470P	1	
C4816	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4817	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4818	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
FP4801	K1MY08BA0370	CONNECTOR 8P	1	
FP4802	K1MN21AA0035	CONNECTOR 21P	1	
FP4803	K1MY12BA0370	CONNECTOR 12P	1	
FP4804	K1MY04BA0370	CONNECTOR 4P	1	
IC4801	C0ABBB000369	IC	1	E.S.D.
IC4802	C0ABBB000369	IC	1	E.S.D.
IC4803	C0ABBB000369	IC	1	E.S.D.
Q4801	B1ABDF000017	TRANSISTOR	1	E.S.D.
R4801	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4802	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4803	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4804	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4805	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	1	
R4806	ERJ2GEJ183	M.RESISTOR CH 1/10W 18K	1	
R4807	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4808	ERJ2GEJ183	M.RESISTOR CH 1/10W 18K	1	
R4809	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4810	ERJ2GEJ183	M.RESISTOR CH 1/10W 18K	1	
R4811	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4812	ERJ2GEJ183	M.RESISTOR CH 1/10W 18K	1	
R4813	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4814	ERJ2GEJ183	M.RESISTOR CH 1/10W 18K	1	
R4815	ERJ2GEJ683	M.RESISTOR CH 1/16W 68K	1	
R4816	ERJ2GEJ472	M.RESISTOR CH 1/10W 4.7K	1	
R4817	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R4818	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R6405	ERJ2GEJ222	M.RESISTOR CH 1/10W 2.2K	1	
ZB6401	K3ZZ00500014	BATTERY HOLDER	1	
##	VEP01A53A	DC JACK P.C.B. UNIT		(RTL) E.S.D.
C6851	F1H1E105A116	C.CAPACITOR CH 25V 1U	1	
△ IP6851	K5H4021A0011	IC PROTECTOR	1	
JK6851	K2EC2E000006	JACK	1	

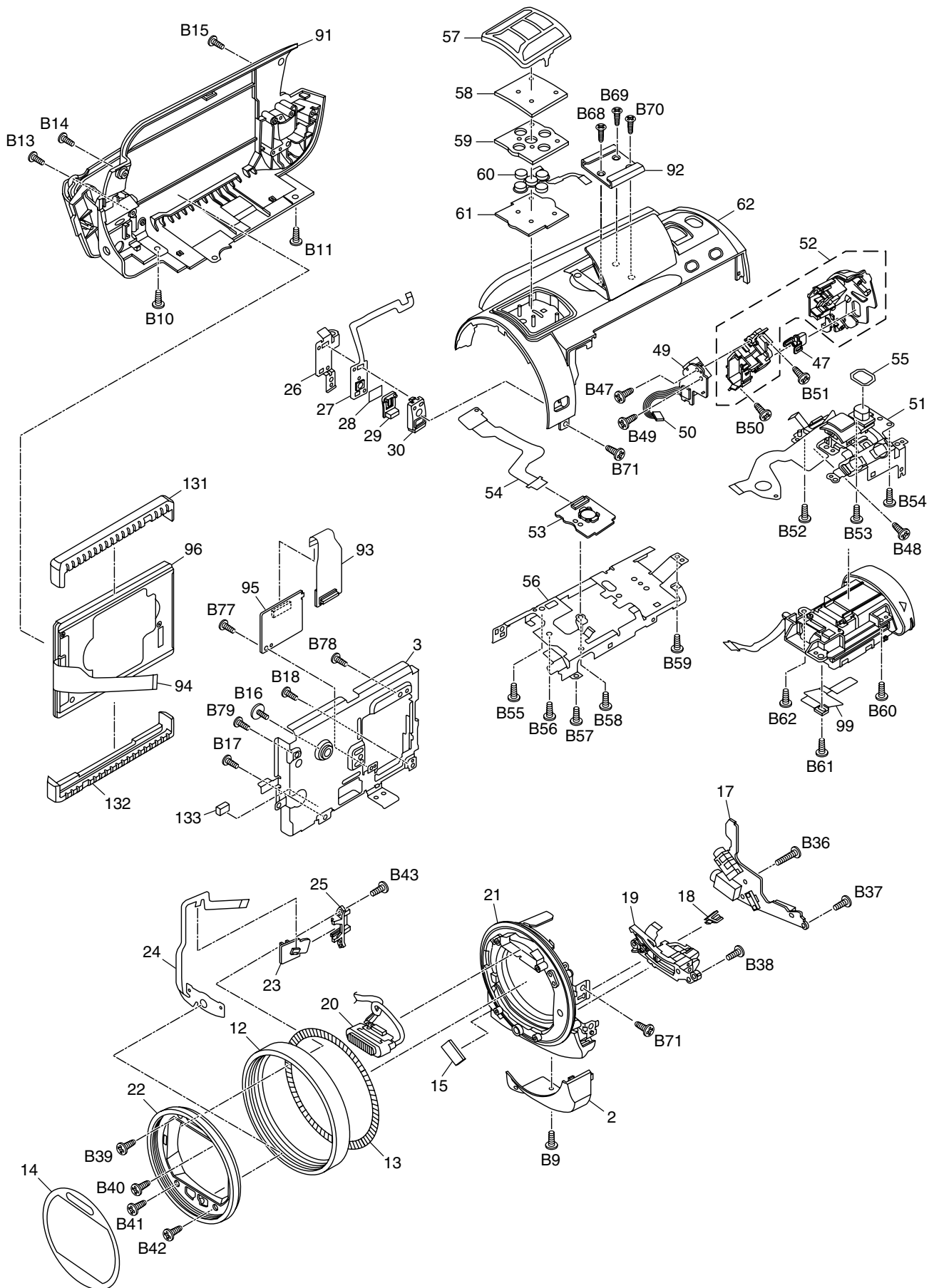
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
2	VYK3Q31	SENSOR COVER UNIT	1	
3	VYK4M53	HDD SHIELD FRAME UNIT	1	
12	VGK3745	MF RING	1	
13	VGQ0K51	MF SHEET	1	
14	VGQ0Q03	LENS PLATE	1	
15	VGL1309	AF PANEL LIGHT	1	
17	VEP20D28A	FRONT P.C.B. UNIT	1	(RTL) E.S.D.
18	VGL1326	TARY PANEL LIGHT	1	
19	N9ZZ00000415	BARRIER MOTOR UNIT	1	
20	EFN-MVBH7ZC	FLASH	1	
21	VYK3Q71	BARIA CASE UNIT	1	
22	VGQ0Q01	MF ORNAMENT	1	
23	VEP27229A	MF SENS P.C.B. UNIT	1	(RTL) E.S.D.
24	VEP06G61B	MF HOLL FPC UNIT	1	(RTL) E.S.D.
25	VGQ0K53	MF PCB HOLDER	1	
26	VMP9616	CAMERA OP ANGLE	1	
27	VEP20C85A	CAM FUNC P.C.B. UNIT	1	(RTL) E.S.D.
28	VGQ0M74	CAMERA DAMPER SHEET	1	
29	VGU0F89	CAMERA OP BUTTON	1	
30	VGQ0K85	CAMERA OP CASE	1	
47	VGU0J06	S/S BUTTON	1	
49	VEP01A53A	DC JACK P.C.B. UNIT	1	(RTL) E.S.D.
50	VEE1K04	DC BATTERY WIRE	1	
51	K0RE00800018	SWITCH UNIT	1	
52	VYK4M55	S/S CASE UNIT	1	
53	VEP04975A	MIC AMP P.C.B. UNIT	1	(RTL) E.S.D.
54	VEP04957A	MIC AMP FPC UNIT	1	
55	VGQ0M76	PHOTO CUSHION	1	
56	VMP9581	TOP FRAME	1	
57	VGQ0S88	MIC NET	1	
58	VGQ0C85	MIC CUSHION (A)	1	
59	VGQ0C86	MIC CUSHION (B)	1	
60	VEP24186B	ECM FPC UNIT	1	
61	VGQ0C87	MIC CUSHION (C)	1	
62	VYK4M43	TOP CASE UNIT	1	
91	VYK4M47	SIDE CASE-L UNIT	1	
92	VMP8492	SHOE ANGLE	1	
93	VEP79297A	MAIN SATA FPC UNIT	1	
94	VWJ2249	SATA-HDD FPC	1	
95	VEP03J09A	SATA BRIDGE P.C.B. UNIT	1	(RTL) E.S.D.
96	RFKV0266HDKT	HDD	1	
99	VGQ0W31	EVF AL SHEET	1	
131	VMG1922	HDD CUSHION	1	
132	VMG1922	HDD CUSHION	1	
133	VGQ9672	GASKET	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B9	XQN16+B4FJK	SCREW	1	
B10	XQN16+B4FJK	SCREW	1	
B11	XQN16+B4FJK	SCREW	1	
B12	XQN16+B4FJK	SCREW	1	
B13	XQN16+B4FJK	SCREW	1	
B14	XQN16+B4FJK	SCREW	1	
B16	VHD2189	SCREW	1	
B17	VHD1907	SCREW	1	
B18	VHD1907	SCREW	1	
B19	XQN16+B4FJK	SCREW	1	
B36	XQN16+BJ10FN	SCREW	1	
B37	XQN16+BJ5FN	SCREW	1	
B38	XQN16+BJ5FN	SCREW	1	
B39	VHD1814	SCREW	1	
B40	VHD1814	SCREW	1	
B41	VHD1814	SCREW	1	
B42	VHD1814	SCREW	1	
B43	XQN14+BJ5FN	SCREW	1	
B47	XQN16+BJ4FN	SCREW	1	
B48	XQN16+BJ4FN	SCREW	1	
B49	VHD1919	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	XQN16+BJ4FN	SCREW	1	
B59	XQN16+BJ4FN	SCREW	1	
B60	XQN16+BJ4FN	SCREW	1	
B61	XQN16+BJ4FN	SCREW	1	
B62	XQN16+B3FN	SCREW	1	
B68	XQS2+A55FN	SCREW	1	
B69	XQS2+A55FN	SCREW	1	
B70	XQS2+A55FN	SCREW	1	
B71	XQN16+B4FJK	SCREW	1	
B77	VHD1907	SCREW	1	
B78	VHD1907	SCREW	1	
B79	VHD1907	SCREW	1	

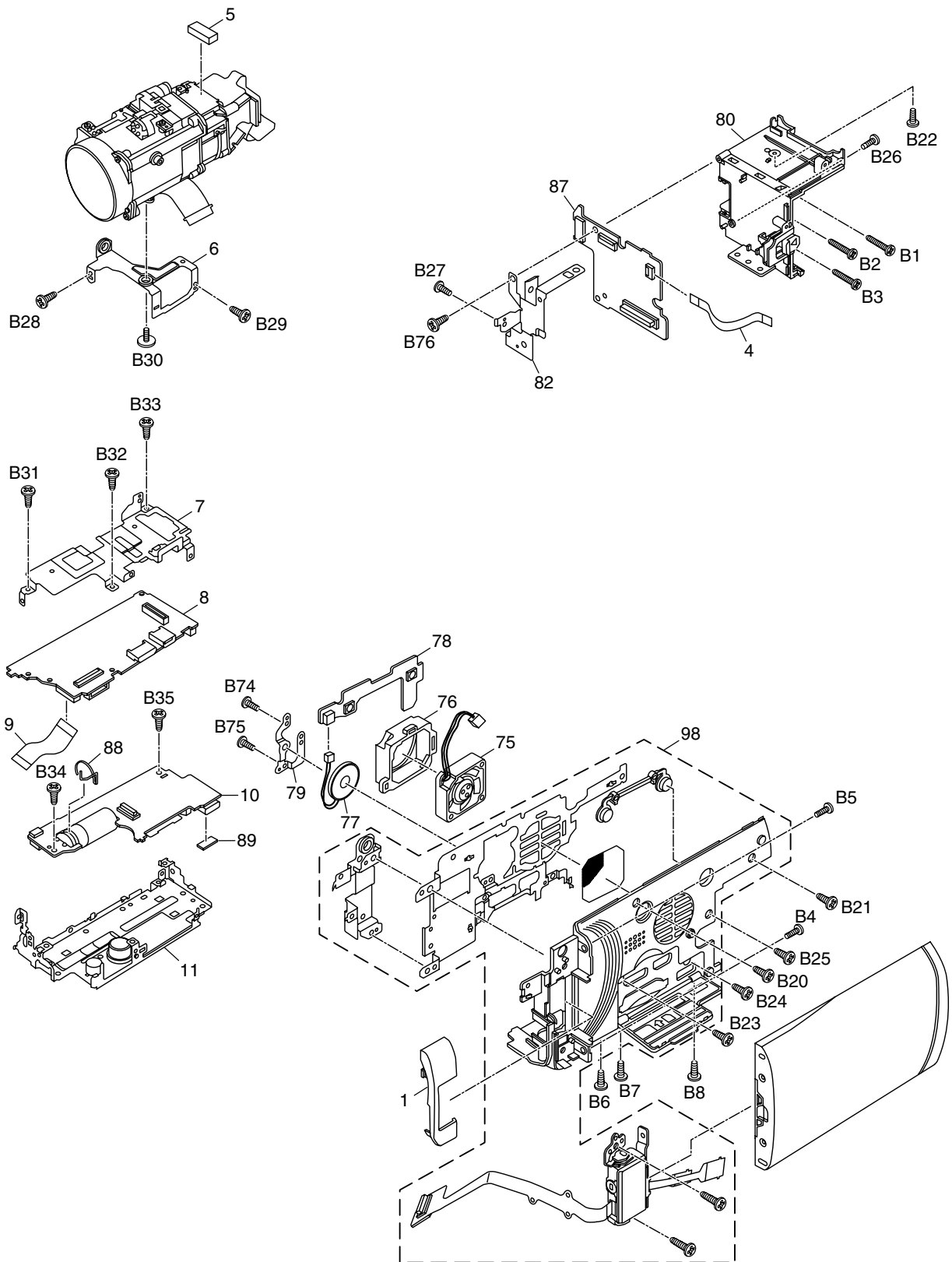
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
△ 301	---	BATTERY PACK	1						
302	K1HY12YY0008	MULTI D/RCA CABLE	1						
303	K1HA05AD0007	USB CABLE	1						
△ 304	K2CA2CA00025	AC CORD W/PLUG	1	P,PC,PU					
△ 304	K2CA29A00021	AC CORD W/PLUG	1	GT					
△ 304	K2CA2YY00070	AC CORD W/PLUG	1	GK					
△ 305	N2QAEC000024	REMOTE CONTROL UNIT	1						
△ 306	VSK0732	AC ADAPTOR	1	P,PC					
△ 306	VSK0733	AC ADAPTOR	1	PU,EB,EE,EG,EP,GC,GN					
△ 306	VSK0734	AC ADAPTOR	1	GK					
△ 306	VSK0735	AC ADAPTOR	1	GT					
307	VGQ0C14	STYLUS PEN	1						
308	VDW2053	LENS HOOD UNIT	1						
309	VFF0718-S	CD-ROM	1	P,PC,PU,EB,EE,EG,EP,GC, GN,GT					
309	VFF0719-S	CD-ROM	1	GK					
310	VPF1294	BAG, POLYETHYLENE	1						
△ 311	VQT3K69	OPERATING INSTRUCTIONS (ENGLISH)	1	P,PC					
△ 311	VQT3K70	OPERATING INSTRUCTIONS (CANADIAN FRENCH)	1	PC					
△ 311	VQT3K71	OPERATING INSTRUCTIONS (ENGLISH)	1	PU					
△ 311	VQT3K72	OPERATING INSTRUCTIONS (SPANISH)	1	PU					
△ 311	VQT3K80	OPERATING INSTRUCTIONS (ENGLISH)	1	EB					
△ 311	VQT3K84	OPERATING INSTRUCTIONS (RUSSIAN/UKRAINIAN)	1	EE					
△ 311	VQT3K73	OPERATING INSTRUCTIONS (GERMAN/TURKISH/ITALIAN/ DUTCH)	1	EG					
△ 311	VQT3K75	OPERATING INSTRUCTIONS (FRENCH)	1	EG					
△ 311	VQT3M55	OPERATING INSTRUCTIONS (PORTUGUESE/SPANISH/ SWEDISH/DANISH/FRENCH)	1	EG					
△ 311	VQT3K78	OPERATING INSTRUCTIONS (ENGLISH/POLISH/CZECH/ HUNGARIAN)	1	EP					
△ 311	VQT3K81	OPERATING INSTRUCTIONS (ENGLISH)	1	GC,GN					
△ 311	VQT3K82	OPERATING INSTRUCTIONS (ARABIC/PERSIAN)	1	GC					
△ 311	VQT3K83	OPERATING INSTRUCTIONS (THAI/ CHINESE(TRADITIONAL)/ HUNGARIAN)	1	GC					
△ 311	VQT3K85	OPERATING INSTRUCTIONS (CHINESE(SIMPLIFIED))	1	GK					
△ 311	VQT3K86	OPERATING INSTRUCTIONS (CHINESE(TRADITIONAL))	1	GT					
312	VPG2V10	PACKING CASE	1	P,PC					
312	VPG2V11	PACKING CASE	1	PU,EB,EE,EG,EP,GC,GN,GT					
312	VYQ6507	PACKING CASE UNIT	1	GK					
313	VPN7197	PAD	1						
314	VPF1389	PROTECT BAG	1						
△ 317	K2CJ29A00002	AC CORD W/PLUG	1	GN					
△ 318	K2CQ29A00002	AC CORD W/PLUG	1	EE,EG,EP,GC					
△ 319	K2CT39A00002	AC CORD W/PLUG	1	EB,GC					
320	VFF0785	CD-ROM(O/I)	1	EE,GC,GN					
320	VFF0784	CD-ROM(O/I)	1	EG,EP					
321	VPQ0308	SHEET	1						

S7. Exploded View

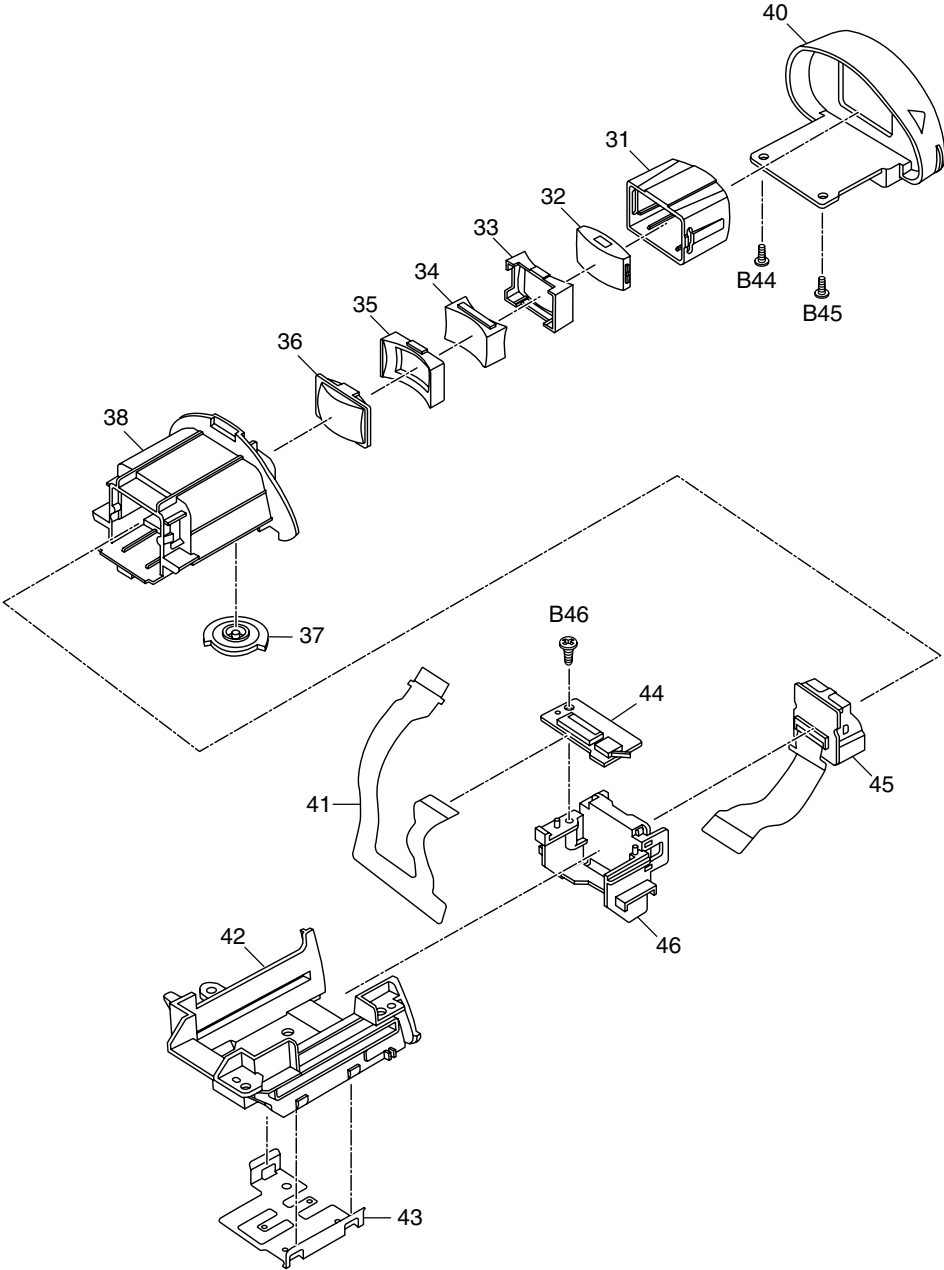
S7.1. Frame and Casing Section (1)



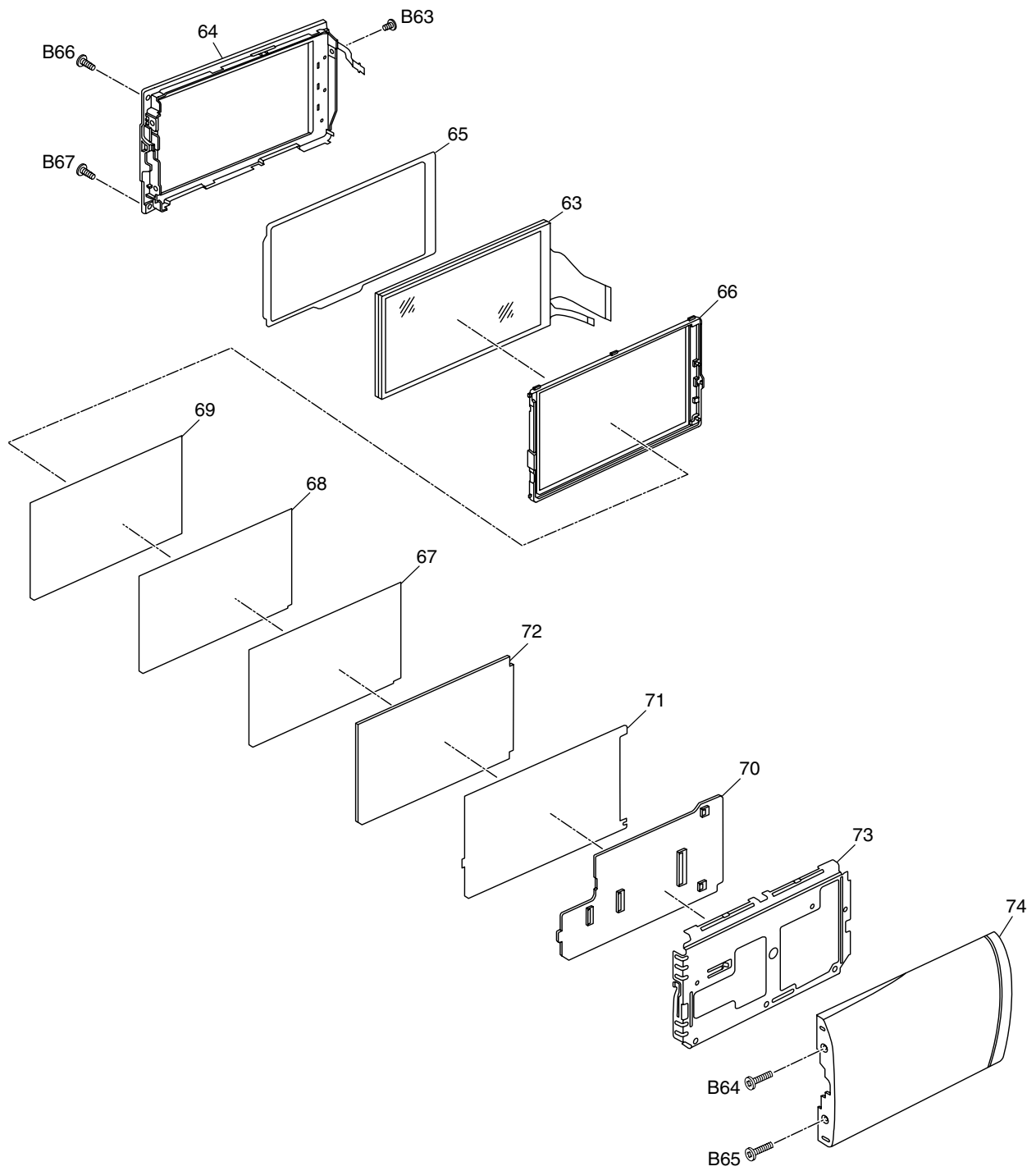
S7.2. Frame and Casing Section (2)



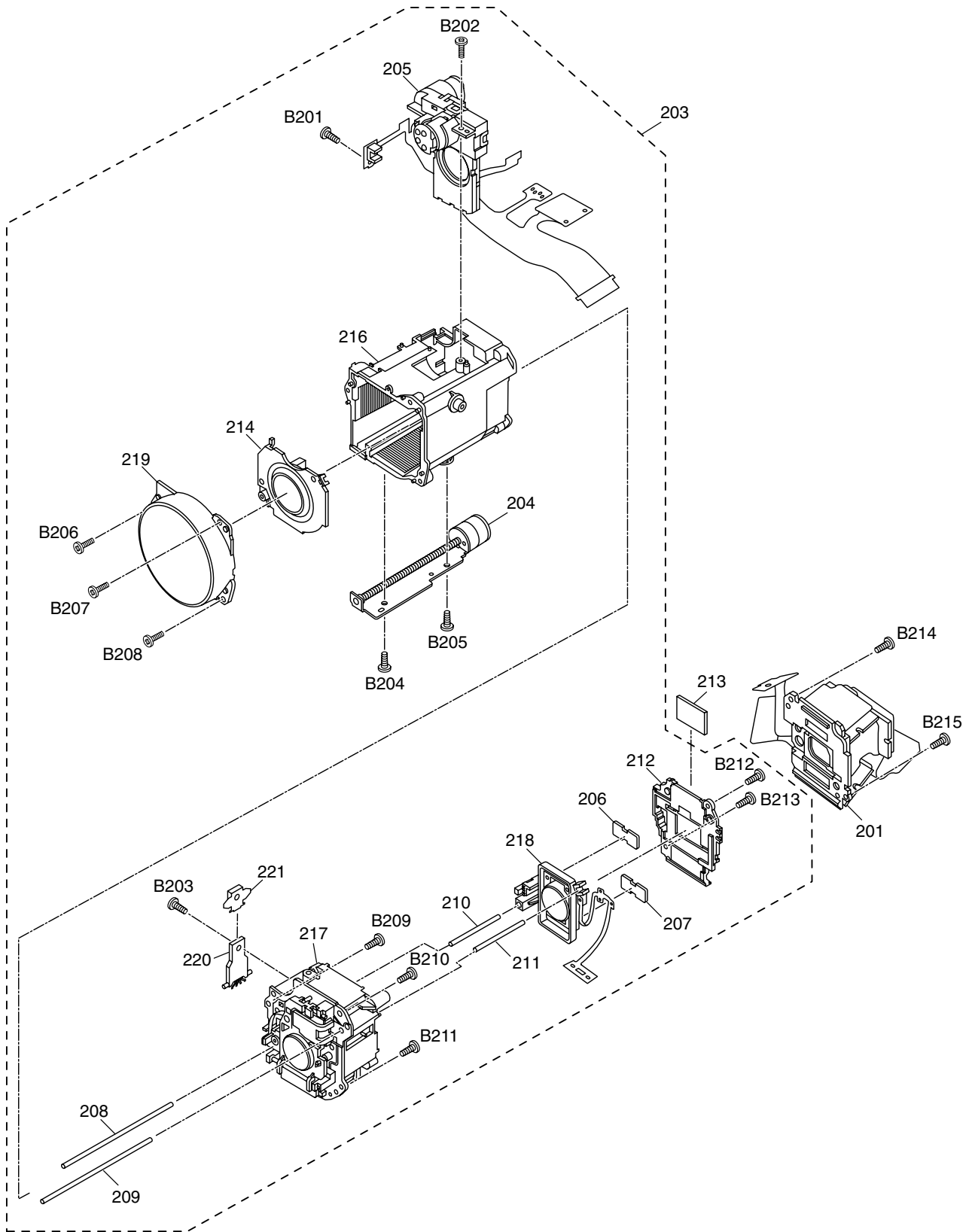
S7.3. EVF Section



S7.4. LCD Section



S7.5. Lens Section



S7.6. Packing Parts and Accessories Section

