ORDER NO. VM0803025CE
B27

Service Manual

SD Video Camera

Model No. SDR-S7P
SDR-S7PC
SDR-S7PL
SDR-S7PR
SDR-S7E
SDR-S7EB
SDR-S7EE
SDR-S7EF
SDR-S7EG
SDR-S7EP
SDR-S7GC
SDR-S7GD
SDR-S7GJ
SDR-S7GK
SDR-S7GN
SDR-S7GT

Vol. 1

Colour
(S).....Silver Type (except PR,GD,GT)
(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.

Panasonic

TABLE OF CONTENTS

1 Safety Precaution

1.1. General Guidelines

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

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

1.2. Leakage Current Cold Check

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

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

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

Hot-Check Circuit

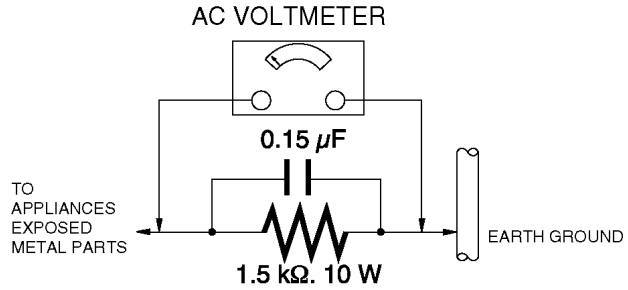


Figure. 1

2 Warning

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

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

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION :
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

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

ENGLISH

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

FRANÇAIS

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

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

2.3.1. Information for Your Safety

IMPORTANT

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

WARNING

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

CAUTION

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

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

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

2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362
Check for the ASRA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safety.
There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

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

Blue	Neutral
Brown	Live

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

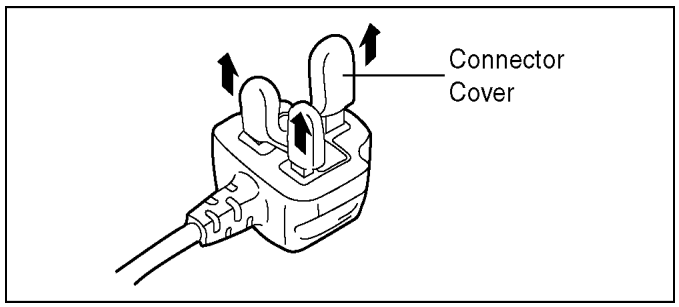
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

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

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

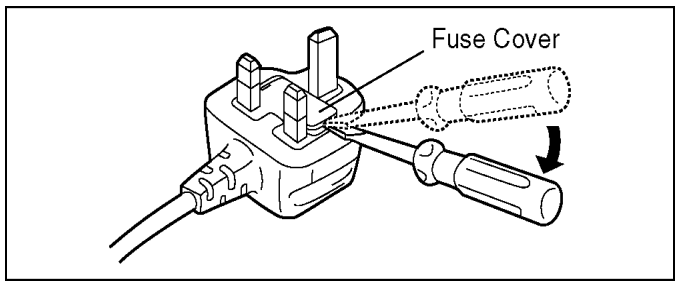
2.3.2.2. Before Use

Remove the Connector Cover as follows.

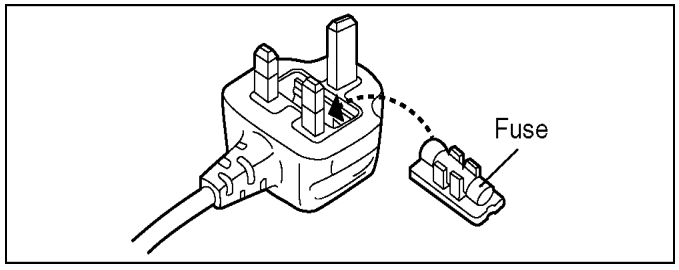


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



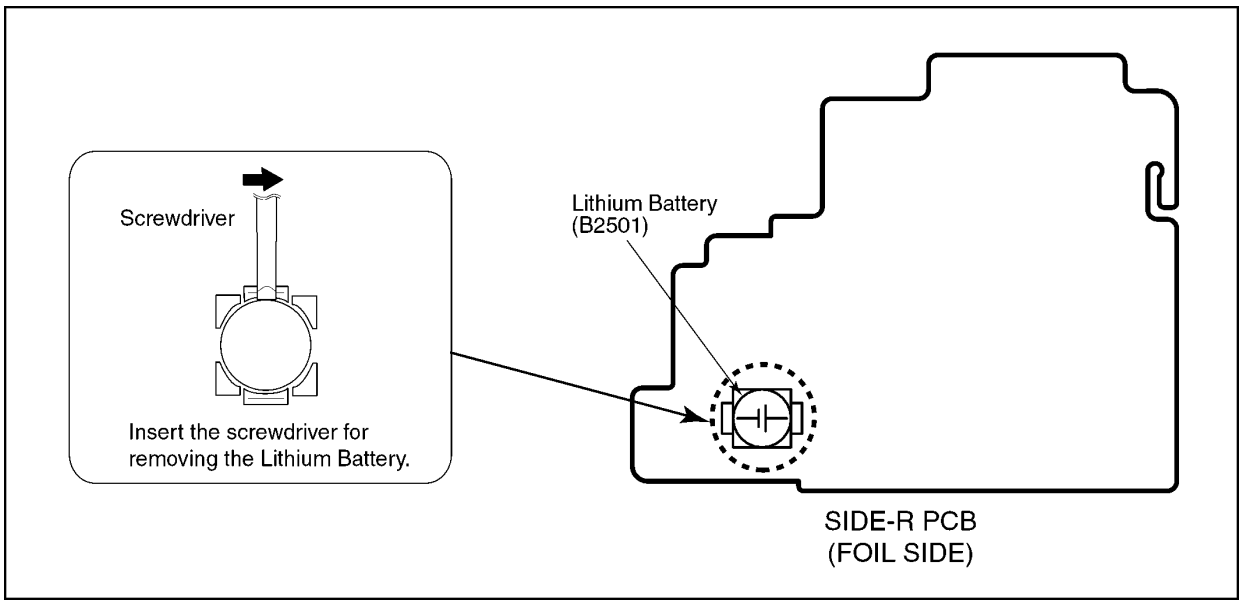
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the SIDE-R PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. “B2501” at foil side of SIDE-R PCB) and then replace it into new one.



NOTE:

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

(For English)

CAUTION

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

(For German)

ACHTUNG

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

(For French)

MISE EN GARDE

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

NOTE:

Above caution is applicable for a battery pack which is for SDR-S7 series, as well.

3 Service Navigation

3.1. Introduction

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

3.2. General Description About Lead Free Solder (PbF)

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

Distinction of PCB Lead Free Solder being used

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

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

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

Recommended Lead Free Solder (Service Parts Route.)

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

Note

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

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

1. The service manual does not contain the following information, because of the impossibility of servicing at component level without concerned equipment/facilites.
   a. Schematic diagram, Block Diagram and PCB layout of MAIN PCB.
   b. Parts list for invidual parts for MAIN PCB.
   When a part replacement is required for repairing MAIN PCB, replace as an assembled parts. (Main PCB)
2. The following category is /are recycle module part. Please send it/them to Central Repair Center.
   - MAIN PCB (VEP03H52A : SDR-S7P/PC)
   - MAIN PCB (VEP03H52B : SDR-S7E/EF/EG)
   - MAIN PCB (VEP03H52C : SDR-S7GC)
   - MAIN PCB (VEP03H52D : SDR-S7EE)
   - MAIN PCB (VEP03H52E : SDR-S7GK)
   - MAIN PCB (VEP03H52F : SDR-S7EP)
   - MAIN PCB (VEP03H52G : SDR-S7PL)
   - MAIN PCB (VEP03H52H : SDR-S7EB)
   - MAIN PCB (VEP03H52J : SDR-S7GN)
   - MAIN PCB (VEP03H52K : SDR-S7GJ)
   - MAIN PCB (VEP03H52L : SDR-S7PR)
   - MAIN PCB (VEP03H52M : SDR-S7GT)

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

There are six kinds of SDR-S7.

- a) SDR-S7P
- b) SDR-S7PC
- c) SDR-S7E/EB/EF/EG/EP
- d) SDR-S7EE
- e) SDR-S7GN
- f) SDR-S7GK
- g) SDR-S7GT
- h) SDR-S7GD
- i) SDR-S7PL/PR/GC/GJ

What is the difference is that the “INITIAL SETTING” data which is stored in Flash ROM mounted on Main PCB.

3.4.1. Defining methods:

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

a) SDR-S7P

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

b) SDR-S7PC

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

c) SDR-S7E/EB/EF/EG/EP

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

d) SDR-S7EE

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

e) SDR-S7GN

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

f) SDR-S7GK

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

g) SDR-S7GT

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

D31221

h) SDR-S7GD

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

i) SDR-S7PL/PR/GC/GJ

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

NOTE:

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

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

4 Specifications

For P/PC/PL areas

SD Video Camera : Information for your safety

Power source:	DC 5.0 V (When using AC adaptor), DC 3.6 V (When using battery)
Power consumption:	Recording: 2.9 W, Charging: 4.5 W

Signal system	EIA Standard: 525 lines, 60 fields NTSC color signal
Image sensor	1/6˝ CCD image sensor Total: 680 K Effective pixels: Moving picture: 340 K (4:3), 300 K (16:9) Still picture: 350 K (4:3)
Lens	Auto Iris, F1.8 to F2.4 Focal length: 2.3 mm to 23.0 mm Macro (Full range AF)
Zoom	10x optical zoom, 25/700x digital zoom
Monitor	2.7˝ wide LCD monitor (approx. 123 K pixels)
Microphone	Stereo (with a zoom function)
Speaker	1 round speaker
White balance adjustment	Auto tracking white balance system
Standard illumination	1,400 lx
Minimum required illumination	Approx. 6 lx (Low light mode, 1/30) [Approx. 2 lx with the MagicPix function]
Video output level	1.0 Vp-p, 75 Ω
Audio output level	316 mV, 600 Ω
USB	Card reader/writer function (No copyright protection support) Hi-Speed USB (USB 2.0), USB terminal Type miniAB, PictBridge-compliant
Dimensions (excluding the projecting parts)	41.0 mm (W) x 59.0 mm (H) x 102.0 mm (D) [1.60˝ (W) x 2.30˝ (H) x 4.00˝ (D)]
Mass (Weight)	Approx. 160 g (0.35 lbs.) without an SD card and supplied battery
Mass (Weight) in operation	Approx. 182 g (0.40 lbs.) with an SD card and supplied battery
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating humidity	10 % to 80 %
Battery operation time	Refer to "Charging time and recordable time".

Motion pictures

Recording media	SD Memory Card: 256 MB/512 MB/1 GB/2 GB (FAT12 and FAT16 format corresponding) SDHC Memory Card: 4 GB/8 GB/16 GB (FAT32 format corresponding)
Picture size	704 x 480
Recordable time	Refer to "Recording mode and recording times".
Compression	MPEG2 (SD-Video standard compliant)
Recording mode and transfer rate	XP: 10 Mbps (VBR), SP: 5 Mbps (VBR), LP: 2.5 Mbps (VBR)
Audio compression	MPEG1-Layer2 compliant (stereo), Dolby Digital compliant (Dolby AC3) (stereo)

Still pictures

Recording media	SD Memory Card: 8 MB/16 MB/32 MB/64 MB/128 MB/256 MB/ 512 MB/1 GB/2 GB (FAT12 and FAT16 format corresponding) SDHC Memory Card: 4 GB/8 GB/16 GB (FAT32 format corresponding)
Number of recordable pictures	Refer to "Picture quality".
Compression	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture size	640 x 480 (4:3)

AC adaptor : Information for your safety

Power source:	AC 110 V to 240 V, 50/60 Hz
Power consumption:	12 W
DC output:	DC 5.0 V, 1.6 A

Dimensions	76 mm (W) x 22 mm (H) x 46 mm (D) [2.99˝ (W) x 0.87˝ (H) x 1.81˝ (D)]
Mass (Weight)	Approx. 100 g (0.22 lbs.)

Battery pack : Information for your safety

Maximum voltage:	DC 4.2 V
Nominal voltage:	DC 3.6 V
Rated capacitance:	1000 mAh

Specifications may change without prior notice.

For other areas

SD Video Camera : Information for your safety

Power source:	DC 5.0 V (When using AC adaptor), DC 3.6 V (When using battery)
Power consumption:	Recording: 2.9 W, Charging: 4.5 W

Signal system	EIA Standard: 625 lines, 50 fields PAL colour signal
Image sensor	1/6" CCD image sensor Total: 800 K Effective pixels: Moving picture: 400 K (4:3), 350 K (16:9) Still picture: 410 K (4:3)
Lens	Auto Iris, F1.8 to F2.4 Focal length: 2.3 mm to 23.0 mm Macro (Full range AF)
Zoom	10x optical zoom, 25/700x digital zoom
Monitor	2.7˝ wide LCD monitor (approx. 123 K pixels)
Microphone	Stereo (with a zoom function)
Speaker	1 round speaker
White balance adjustment	Auto tracking white balance system
Standard illumination	1,400 lx
Minimum required illumination	Approx. 6 lx (Low light mode, 1/30) [Approx. 2 lx with the MagicPix function]
Video output level	1.0 Vp-p, 75 Ω
Audio output level	316 mV, 600 Ω
USB	Card reader/writer function (No copyright protection support) Hi-Speed USB (USB 2.0), USB terminal Type miniAB, PictBridge-compliant
Dimensions (excluding the projecting parts)	41.0 mm (W) x 59.0 mm (H) x 102.0 mm (D)
Mass (Weight)	Approx. 160 g without an SD card and supplied battery
Mass (Weight) in operation	Approx. 182 g with an SD card and supplied battery
Operating temperature	0 °C to 40 °C
Operating humidity	10 % to 80 %
Battery operation time	Refer to "Charging time and recordable time".

Motion pictures

Recording media	SD Memory Card: 256 MB/512 MB/1 GB/2 GB (FAT12 and FAT16 format corresponding) SDHC Memory Card: 4 GB/8 GB/16 GB (FAT32 format corresponding)
Picture size	704 x 576
Recordable time	Refer to "Recording mode and recording times".
Compression	MPEG2 (SD-Video standard compliant)
Recording mode and transfer rate	XP: 10 Mbps (VBR), SP: 5 Mbps (VBR), LP: 2.5 Mbps (VBR)
Audio compression	MPEG1-Layer2 compliant (stereo)

Still pictures

Recording media	SD Memory Card: 8 MB/16 MB/32 MB/64 MB/128 MB/256 MB/ 512 MB/1 GB/2 GB (FAT12 and FAT16 format corresponding) SDHC Memory Card: 4 GB/8 GB/16 GB (FAT32 format corresponding)
Number of recordable pictures	Refer to "Picture quality".
Compression	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture size	640 x 480 (4:3)

AC adaptor : Information for your safety

Power source:	AC 110 V to 240 V, 50/60 Hz
Power consumption:	12 W
DC output:	DC 5.0 V, 1.6 A

Dimensions	76 mm (W) x 22 mm (H) x 46 mm (D)
Mass (Weight)	Approx. 100 g

Battery pack : Information for your safety

Maximum voltage:	DC 4.2 V
Nominal voltage:	DC 3.6 V
Rated capacitance:	1000 mAh

Specifications may change without prior notice.

Charging time and recordable time

Times are given for a temperature of 25 ˚C (77 ˚F) and humidity of 60 %.
The charging time shown in the table are approximations. In high or low temperatures, charging requires more time.

- Supplied battery VW-VBJ10 (3.6 V, 1000 mAh)

Charging time	Approx. 2 h 15 min	
Recordable time	**Maximum continuously recordable time**	**Actual recordable time**
	Approx. 1 h 10 min	Approx. 40 min

- Actual recordable time includes recording and stopping, power ON/OFF switching, zooming and other operations.
- Recordable time varies according to conditions of use. For example, the recordable time shortens when the [POWER LCD] setting is on while recording.
- The recordable time shortens in some environments (i.e., low temperatures, etc.), therefore it is recommended to charge a spare battery.

Recording mode and recording times

Recording times depend on the recording mode selected.

Recording times for Panasonic SD cards (approximate)

SD card capacity	Recording mode		
	XP (Highest picture quality)	SP (Standard)	LP (Longest recording time)
256 MB	3 min	6 min	12 min
512 MB	6 min	12 min	25 min
1 GB	12 min	25 min	50 min
2 GB	25 min	50 min	1 h 40 min
4 GB	50 min	1 h 40 min	3 h 20 min
8 GB	1 h 40 min	3 h 20 min	6 h 40 min
16 GB	3 h 20 min	6 h 40 min	13 h 20 min

- If a single scene exceeds 4 GB during motion picture recording, recording continues as a separate scene.
- Recording fast-moving objects or repeatedly writing on the same SD card numerous times shortens recording time.
- Mosaic-like interference may be generated on playback screens in the following circumstances:
  - Complicated pictures in background
  - The unit is moved greatly or quickly
  - Recording is of a rapidly moving object (particularly if recording mode is set to [LP])

Picture quality

Picture size is 640×480 (0.3 M). The number of pictures that may be recorded depends on the picture quality selected.

Picture quality and number of pictures for Panasonic SD cards (approximate)

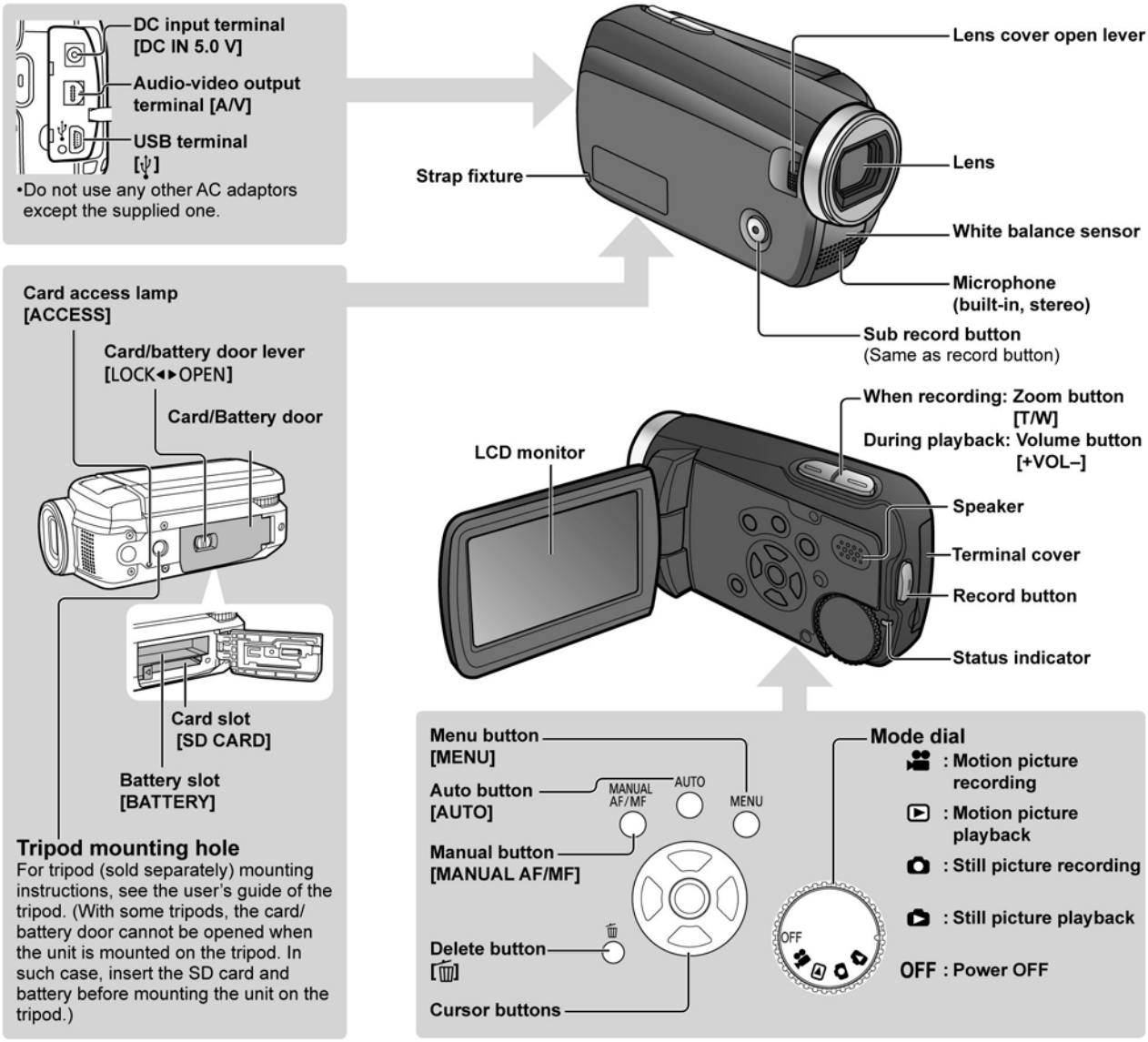
SD card capacity	Picture quality	
	High (highest picture quality)	**Standard (largest number of pictures)**
8 MB	37	75
16 MB	92	185
32 MB	200	410
64 MB	430	850
128 MB	820	1640
256 MB	1710	3410
512 MB	3390	6780
1 GB	6790	13580
2 GB	13820	27640
4 GB	27150	54290
8 GB	55260	99999*
16 GB	99999*	99999*

*This unit can record only up to 99,999 still pictures in these SD cards.

- Pictures taken with the [ ] setting may suffer a mosaic-like effect for certain objects.
- Depending on the object, the number of pictures that may be recorded may vary if a mixture of [ ] and [ ] settings have been used.

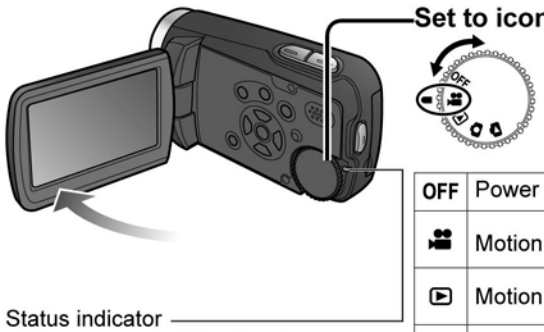
5 Location of Controls and Components

Parts identification and handling



Turning power ON/OFF (Selecting modes)

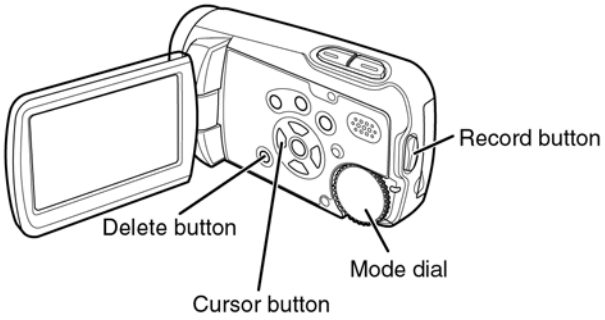
Rotate the mode dial slowly but surely to the desired position.

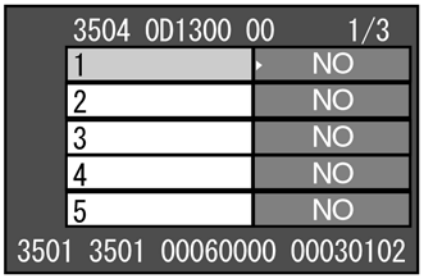


OFF	Power OFF
	Motion picture recording mode
	Motion picture playback mode
	Still picture recording mode
	Still picture playback mode

6 Service Mode

1. **Indication method of the service menu**
   Set the mode dial “Video playback“ mode.
2. While keep pressing the “[LEFT<] of cursor” button, “record” button and “delete” button for more than 3 seconds until the top screen of the Service Menu being displayed.





Top screen of the service menu

Service mode menu

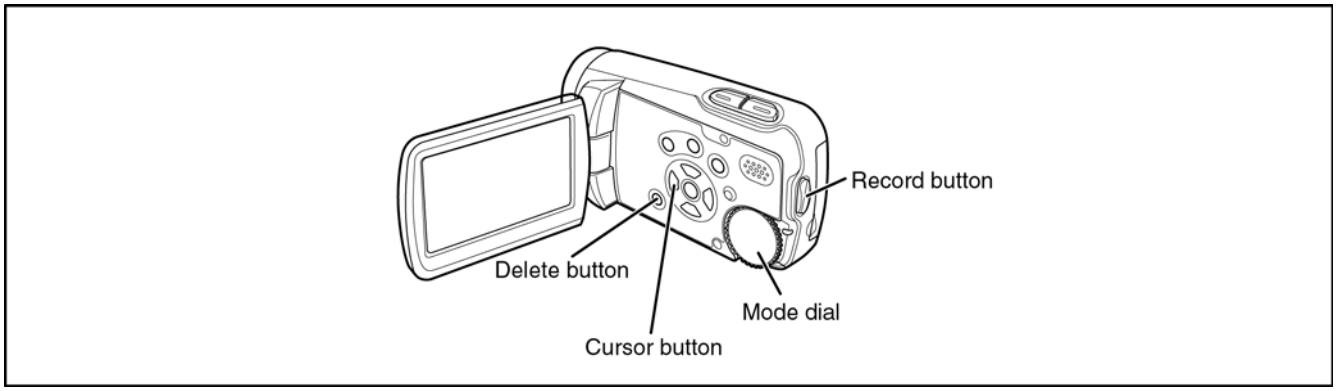
Screen display	Contents	Function
4	Lock search history indication	Display an error cord for three histories saved in EEPROM

NOTE:
Do not using service mode except [4] of Service Menu.

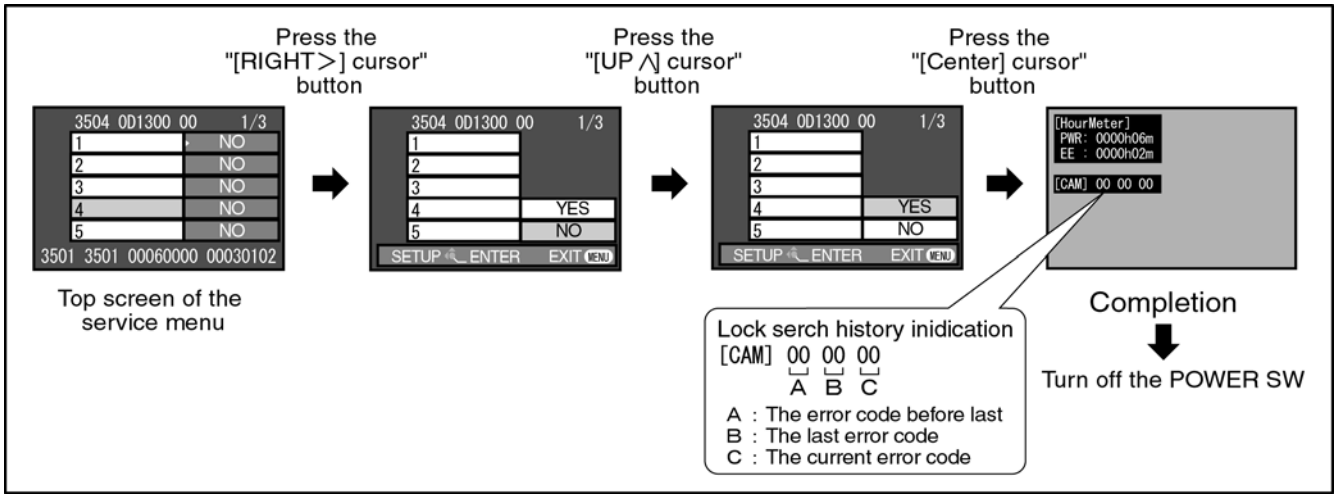
3. End method of the top screen of the service menu
   Top screen of the service menu is finished by POWER OFF.

6.1. Lock Search History Indication

1. Set the mode dial “Video playback“ mode.
2. While keep pressing the “[LEFT<] of cursor” button, “record” button and “delete” button for more than 3 seconds until the top screen of the Service Menu being displayed.
3. Select [4] Lock search history indication.



Operation specifications



Indication contents

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

Error code	Function
51	Focus control is abnormal
52	Zoom control is abnormal
53	OIS lens control is abnormal
33	Communication between camera to ARM is abnormal

Lock search history indication is finished by POWER OFF.

7 Service Fixture & Tools

7.1. When Replacing the Main PCB

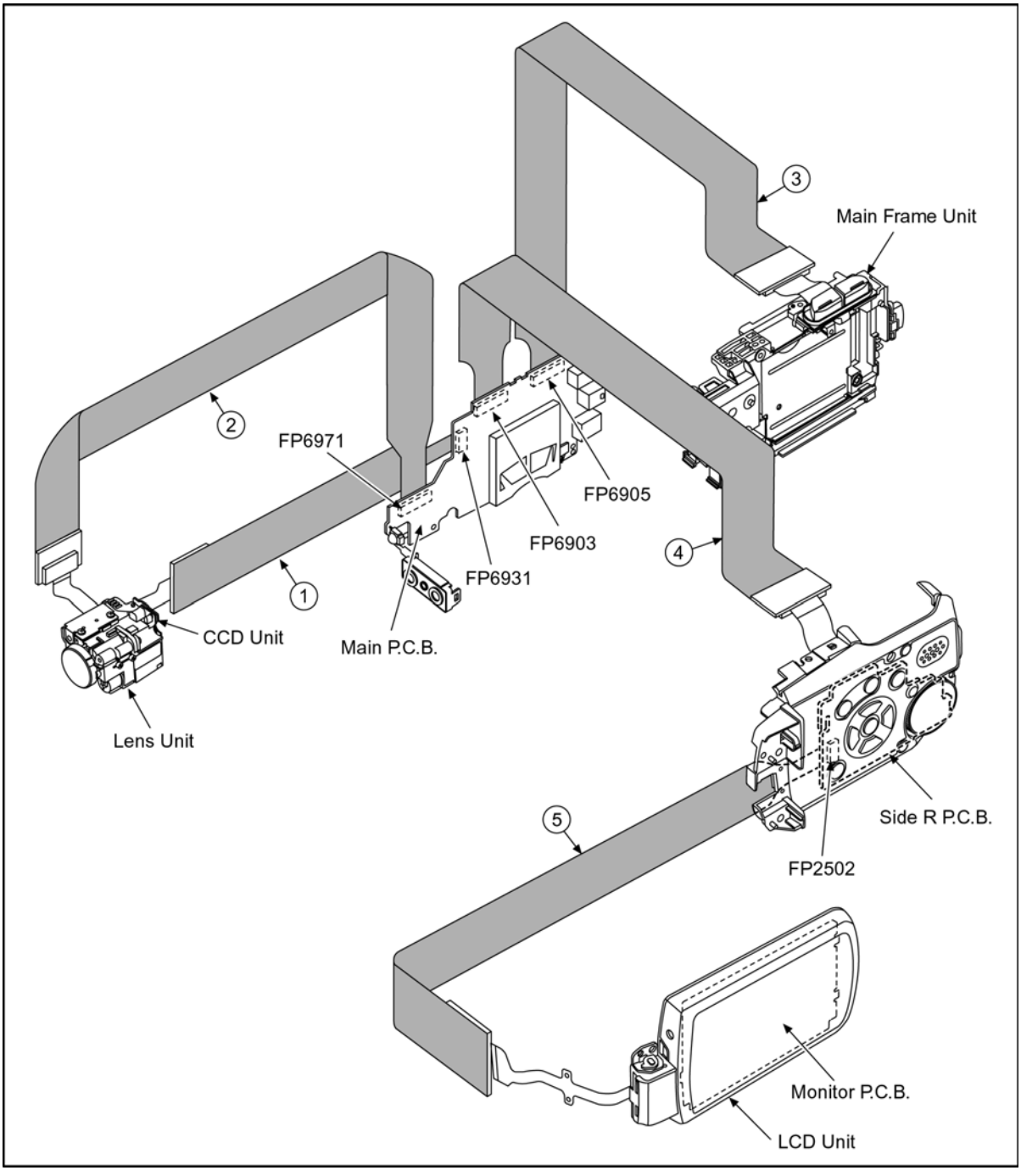
After replacing the MAIN PCB, be sure to achieve adjustment.
The adjustment instruction is available at “software download” on the “Support Information from NWBG/VDBG-PAVC” web-site in “TSN system”, together with Maintenance software.

7.2. Service Position

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

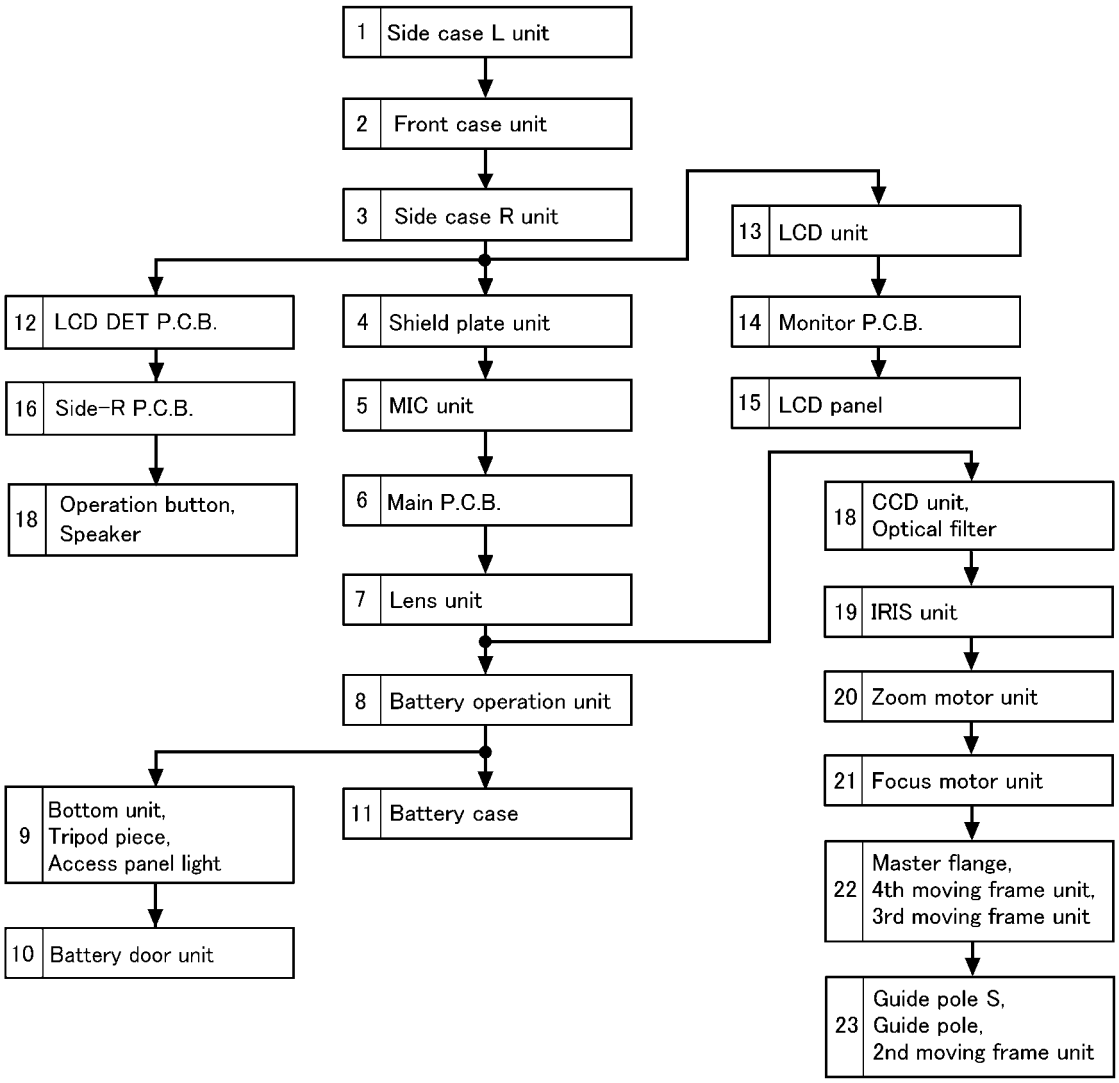
Table S1 Extension Cable List

No.	Parts No.	Connection	Form
1	VFK1173	FP6931 (MAIN) - CCD UNIT	14PIN 0.5 FFC
2	VFK1461	FP6971 (MAIN) - LENS UNIT	20PIN 0.5 FFC
3	VFK1284	FP6905 (MAIN) - BATTERY FPC	24PIN 0.5 FFC
4	RFKZ0487	FP6903 (MAIN) - SIDE-R PCB	35PIN 0.3 FFC
5	VFK1284	FP2502 (SIDE-R) - MONITOR FPC	24PIN 0.5 FFC

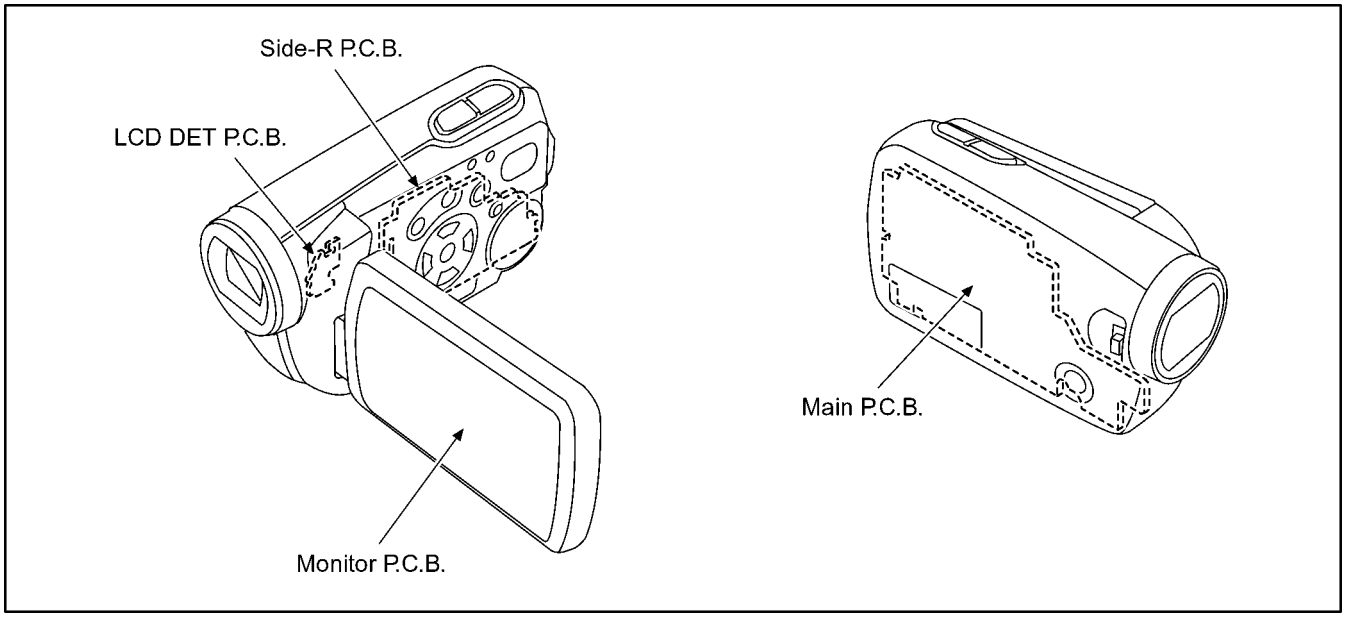


8 Disassembly and Assembly Instructions

8.1. Disassembly Flow Chart



8.2. PCB Location

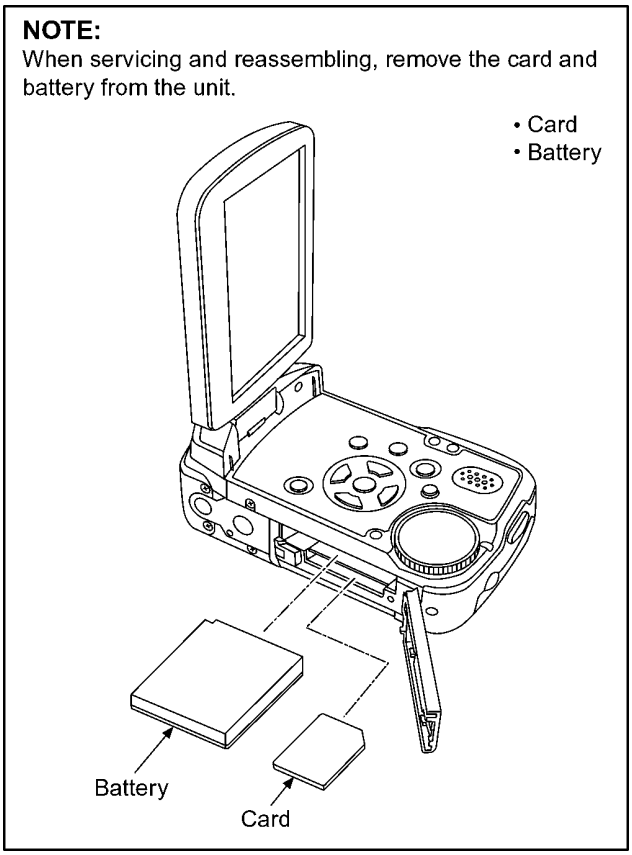


8.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Side case L unit	Fig. D1	1 Screw (A)
			3 Screws (B)
		Fig. D2	Rear case
			1 Screw (C)
			Top case
		Fig. D3	2 Screws (D)
			2 Locking tabs
			Side case L unit
2	Front case unit	Fig. D4	1 Screw (E)
			1 Screw (F)
		Fig. D5	1 Locking tabs
			Front case unit
3	Side case R unit	Fig. D6	1 Screw (G)
			FP6903(Flex)
			3 Screws (H)
		Fig. D7	Side case R unit
4	Shield plate unit	Fig. D8	4 Screws (I)
			Shield plate unit
5	MIC unit	Fig. D9	FP6910(Flex)
			3 Locking tabs
			MIC unit
6	Main P.C.B.	Fig. D10	FP6905(Flex)
			FP6931(Flex)
			FP6971(Flex)
			2 Locking tabs
			Min P.C.B.
7	Lens unit	Fig. D11	1 Screw (J)
			Lens unit
8	Battery operation unit	Fig. D12	1 Screw (K)
			2 Locking tabs
			1 Screw (L)
			1 Hook
		Fig. D13	Zoom operation rubber unit
			Battery operation unit
9	Bottom unit, Tripod piece, Access panel light	Fig. D14	3 Screws (M)
			Bottom unit
			Tripod piece
			Access panel light
10	Battery door unit	Fig. D15	Battery door shaft
			Battery door unit
11	Battery case	Fig. D16	1 Screw (N)
			2 Locking tabs
			Battery case
12	LCD DET P.C.B.	Fig. D17	1 Screw (O)
			LCD DET P.C.B.
13	LCD unit	Fig. D18	2 Screw (P)
			Hinge holder
			FP2502(Flex)
			2 Ribs
			LCD unit
14	Monitor P.C.B.	Fig. D19	2 Screw (Q)
			6 Locking tabs
			FP901(Flex)
			FP902(Flex)
			LCD hinge unit
			Earth plate
			3 Locking tabs
			Monitor P.C.B.

No.	Item	Fig	Removal
15	LCD panel	Fig. D20	Reflection sheet
			Lighting plate
			Diffusion sheet
			Prism sheet B
			Prism sheet A
			Light guide holder
			LCD panel
			LCD shield case
			LCD case bottom unit
16	Side-R P.C.B.	Fig. D21	3 Screws (R)
			P2502(Connector)
			Side-R P.C.B.
17	Operation button, Speaker	Fig. D22	2 Locking tabs
			Shield plate
			Operation button
			Speaker
18	CCD unit, Optical filter	Fig. D23	2 Screws (S)
			CCD cushion rubber
			CCD unit
			Optical filter
19	IRIS unit	Fig. D24	Solder (8 points)
			3 Screws (T)
			1 Rib
		Fig. D25	IRIS unit
20	Zoom motor unit	Fig. D26	2 Screws (U)
			Zoom motor unit
21	Focus motor unit	Fig. D27	2 Screws (V)
			Focus motor unit
22	Master flange, 4th moving frame unit, 3rd moving frame unit	Fig. D28	3 Screws (W)
			Master flange
			4th moving frame unit
			3rd moving frame unit
23	Guide pole S, Guide pole, 2nd moving frame unit	Fig. D29	Guide pole S
			Guide pole
			2nd moving frame unit

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



8.3.1. Removal of the Side case L unit

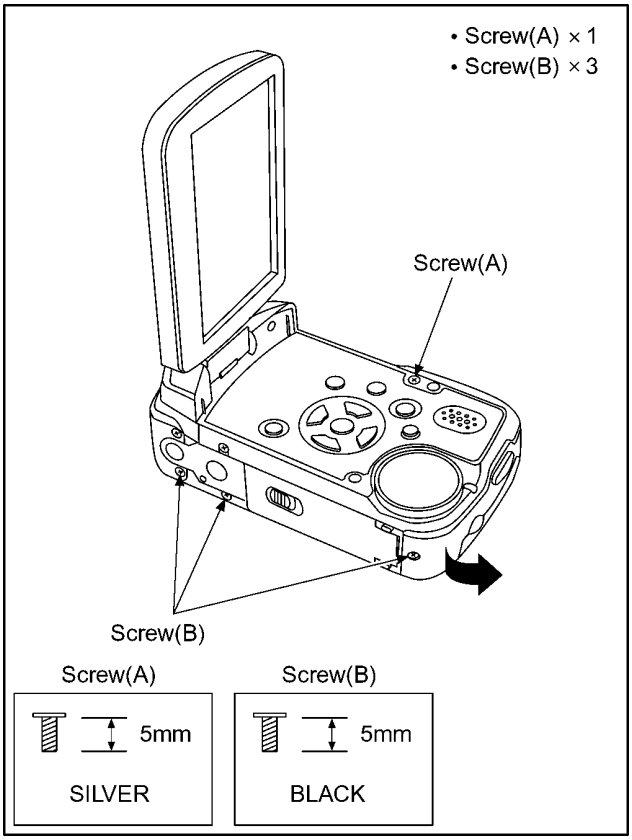


Fig. D1

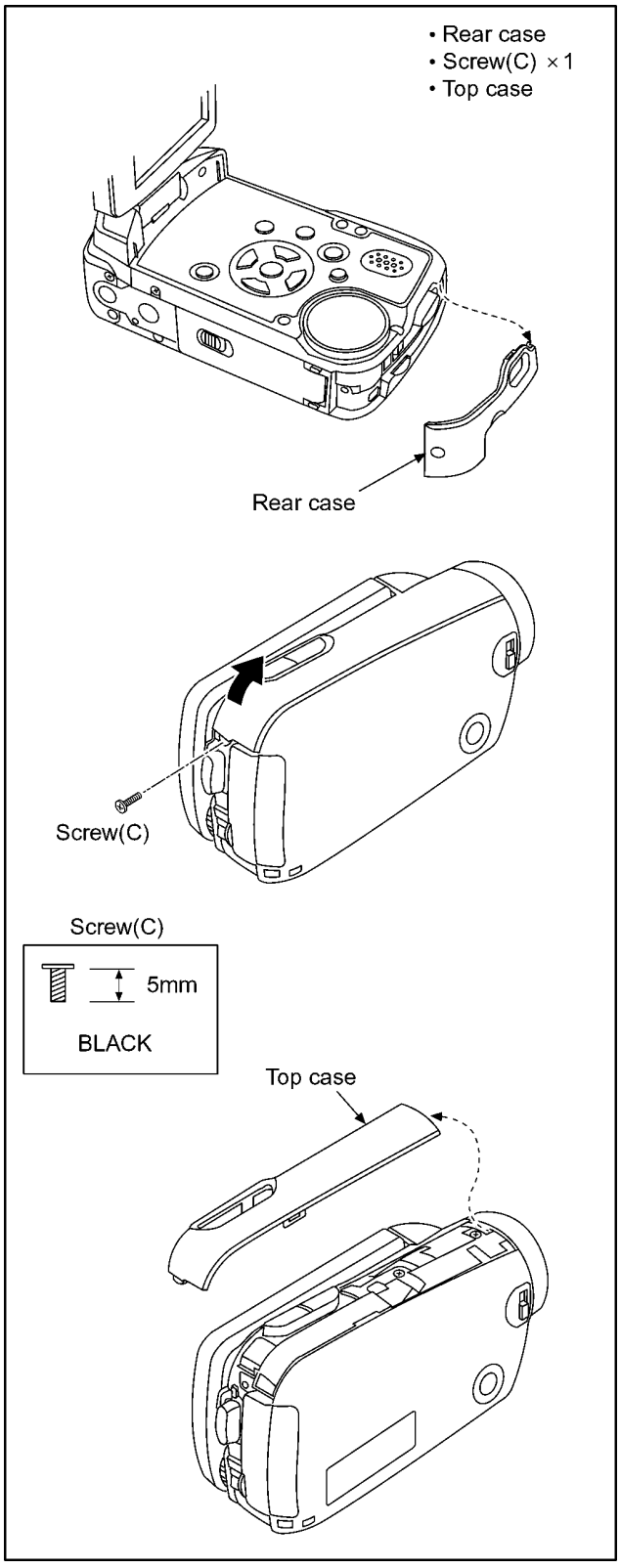


Fig. D2

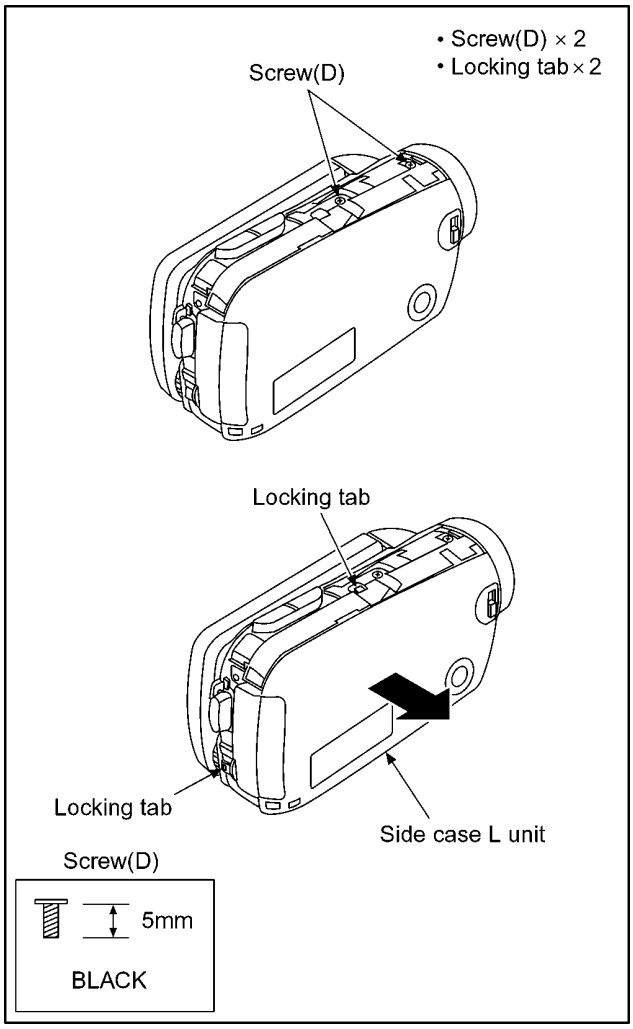


Fig. D3

8.3.2. Removal of the Front case unit

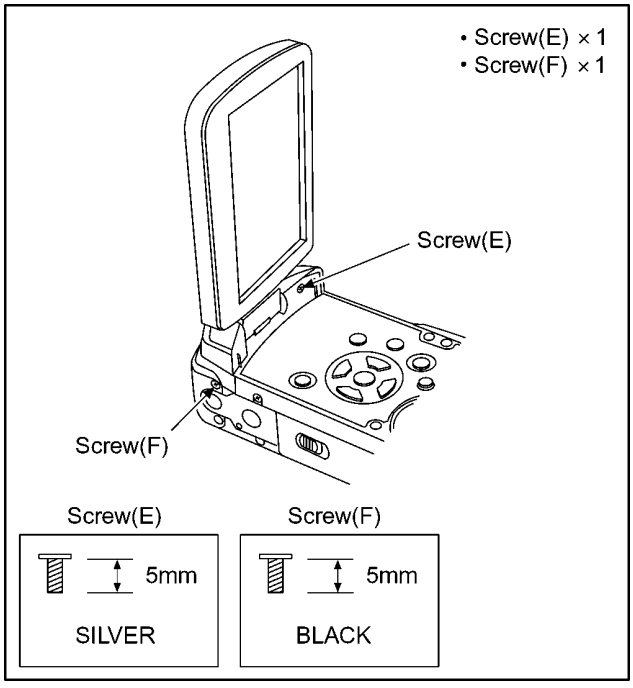


Fig. D4

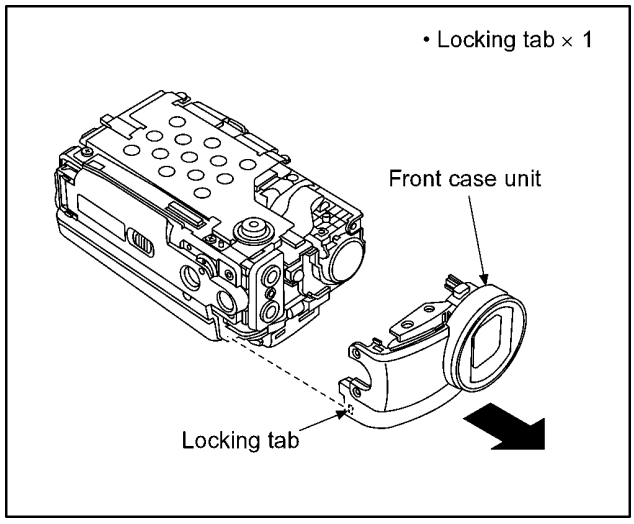


Fig. D5

8.3.3. Removal of the Side case R unit

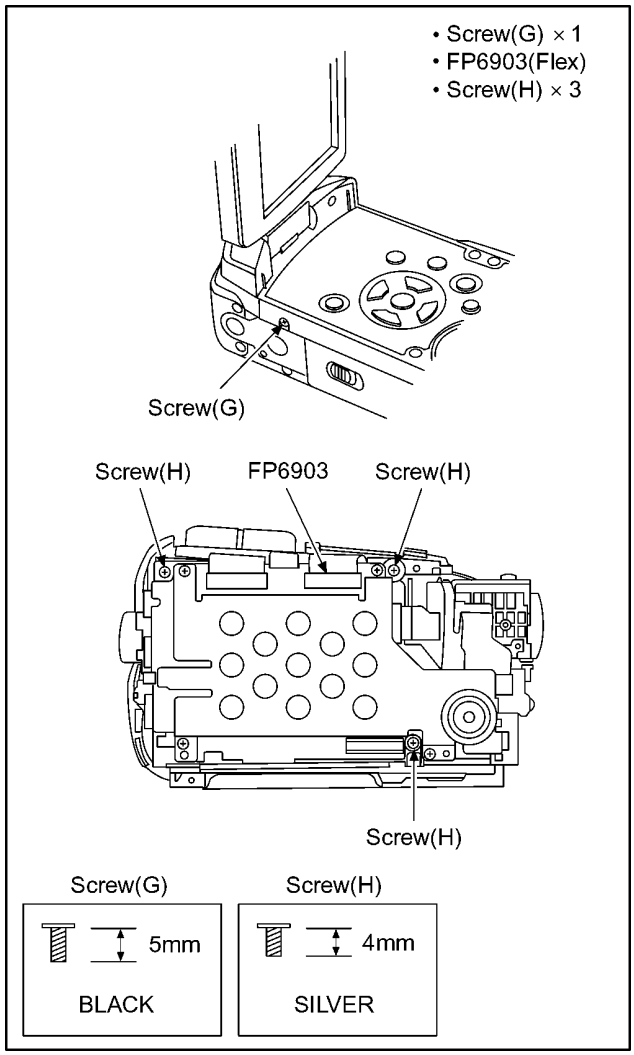


Fig. D6

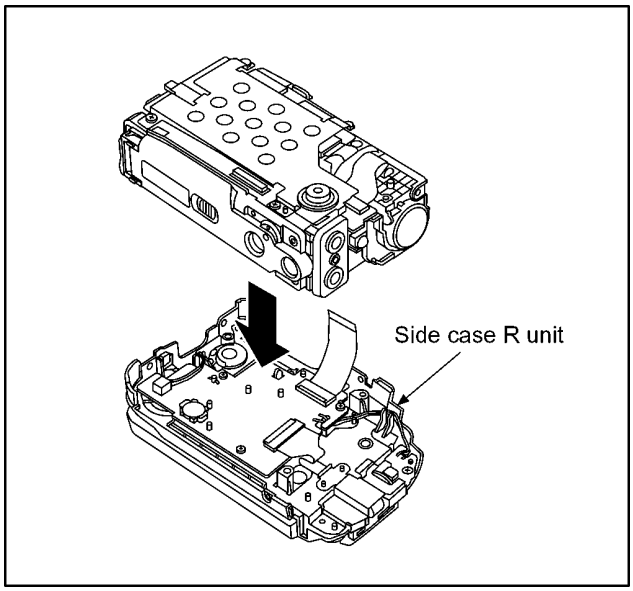


Fig. D7

8.3.4. Removal of the Shield plate unit

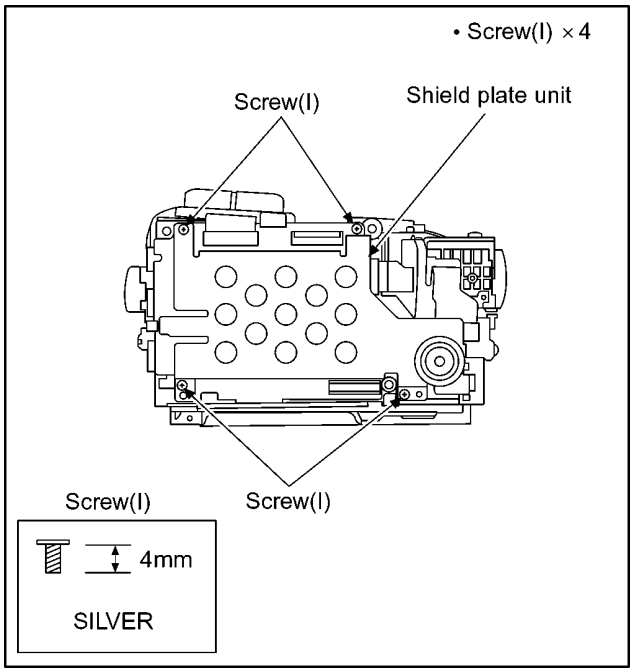


Fig. D8

8.3.5. Removal of the MIC unit

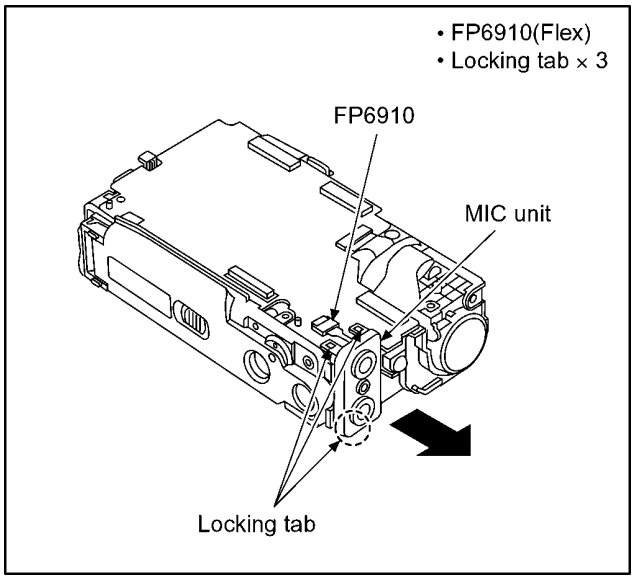


Fig. D9

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

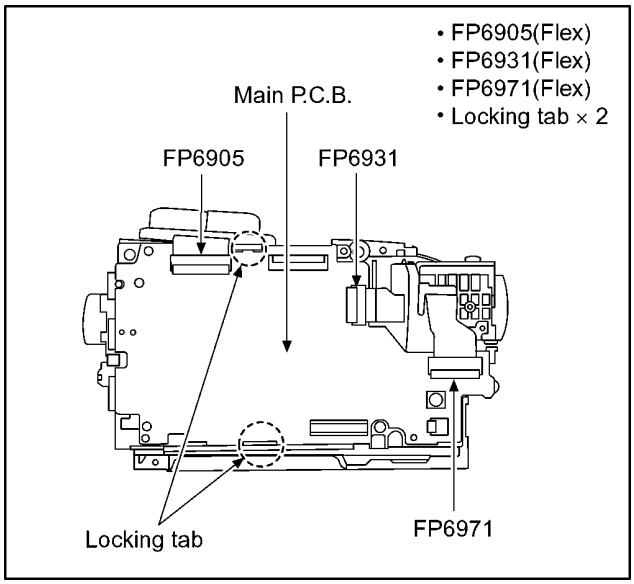


Fig. D10

8.3.7. Removal of the Lens unit

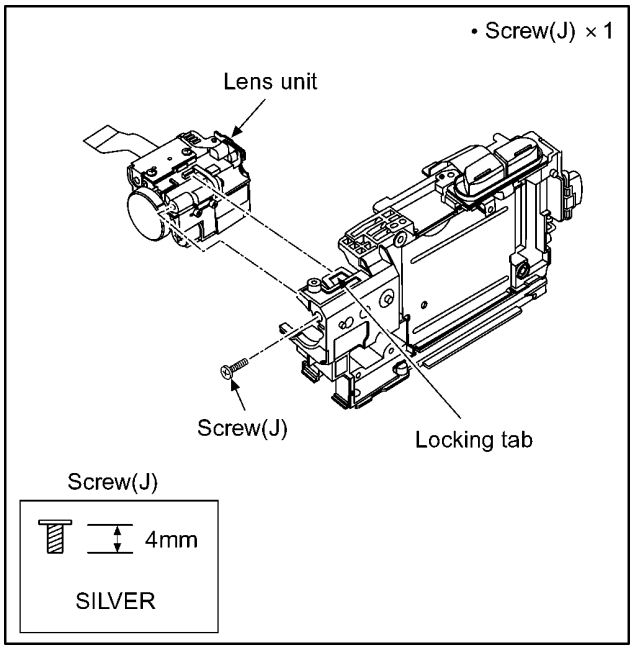


Fig. D11

8.3.8. Removal of the Battery operation unit

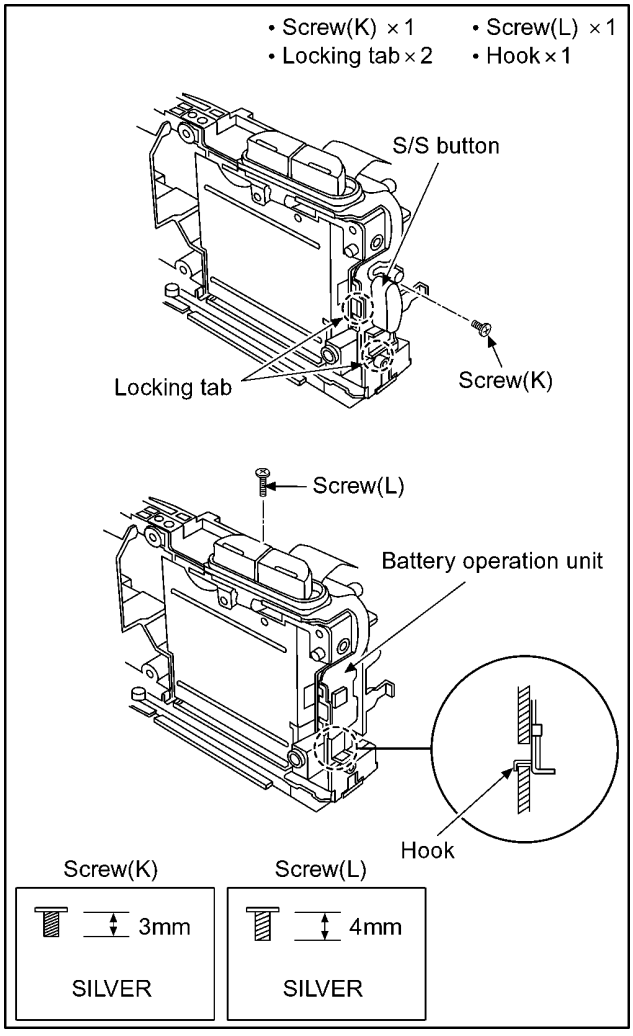


Fig. D12

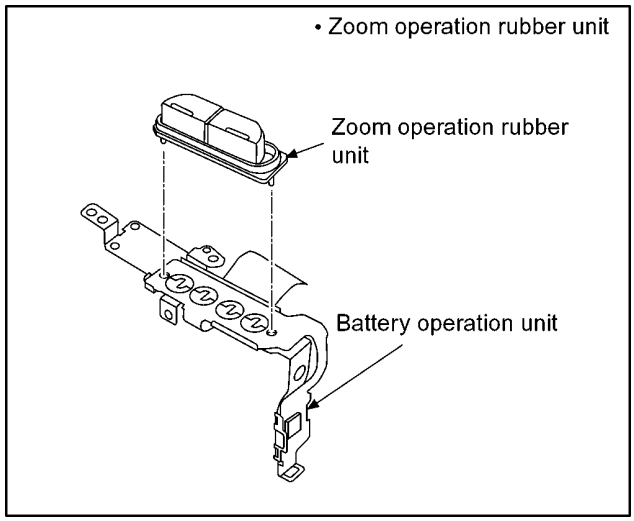


Fig. D13

8.3.9. Removal of the Bottom unit, Tripod piece and Access panel light

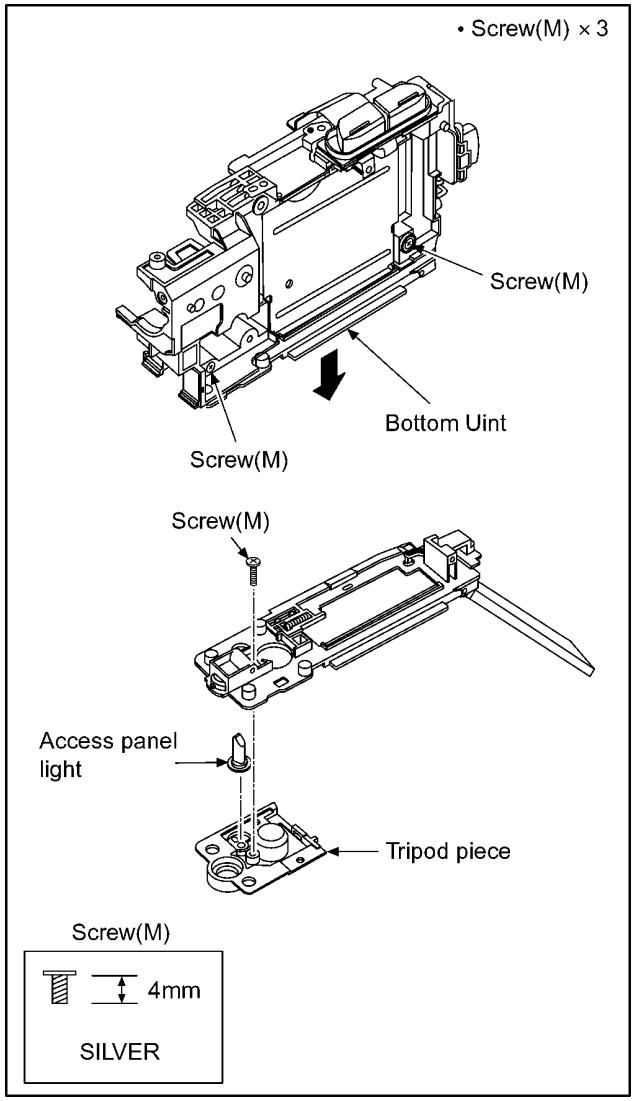


Fig. D14

8.3.10. Removal of the Battery door unit

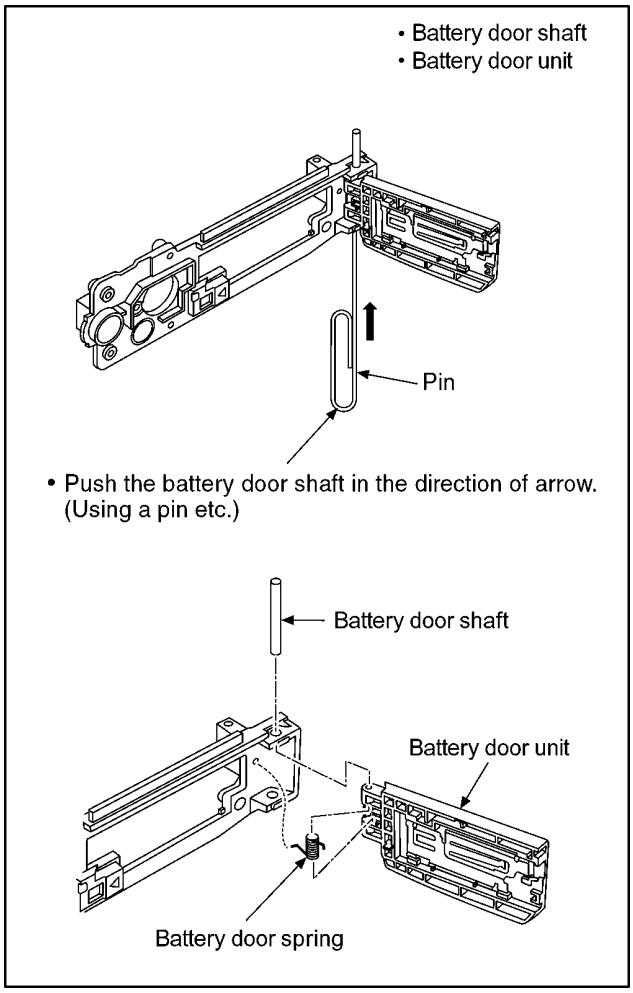


Fig. D15

8.3.11. Removal of the Battery case

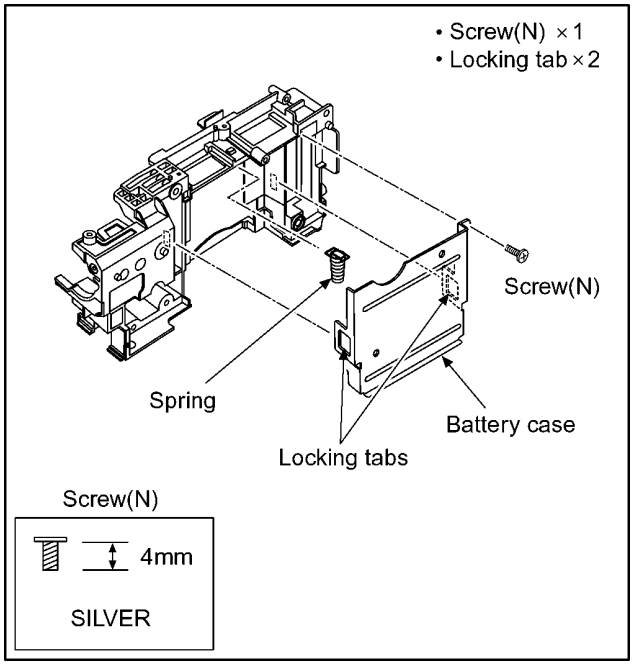


Fig. D16

8.3.12. Removal of the LCD DET P.C.B.

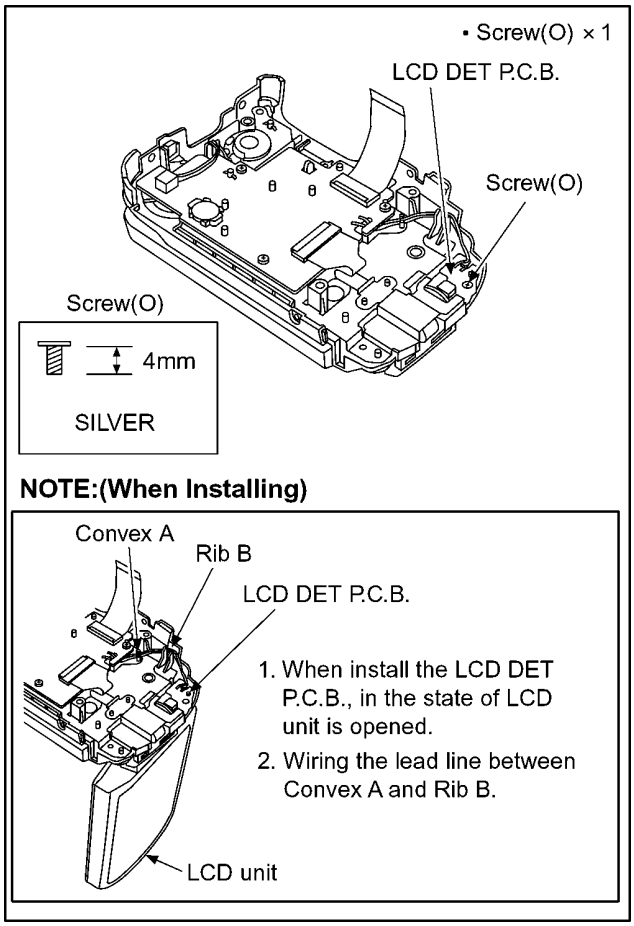


Fig. D17

8.3.13. Removal of the LCD unit

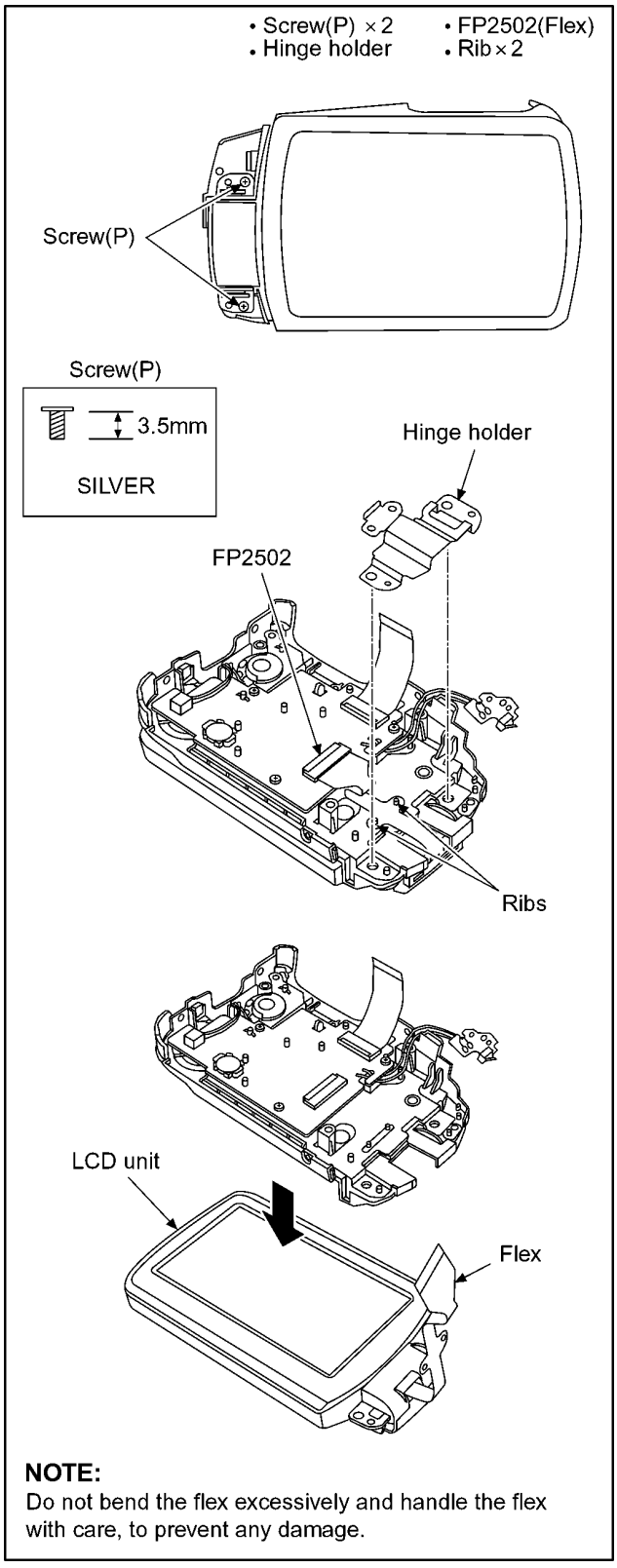


Fig. D18

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

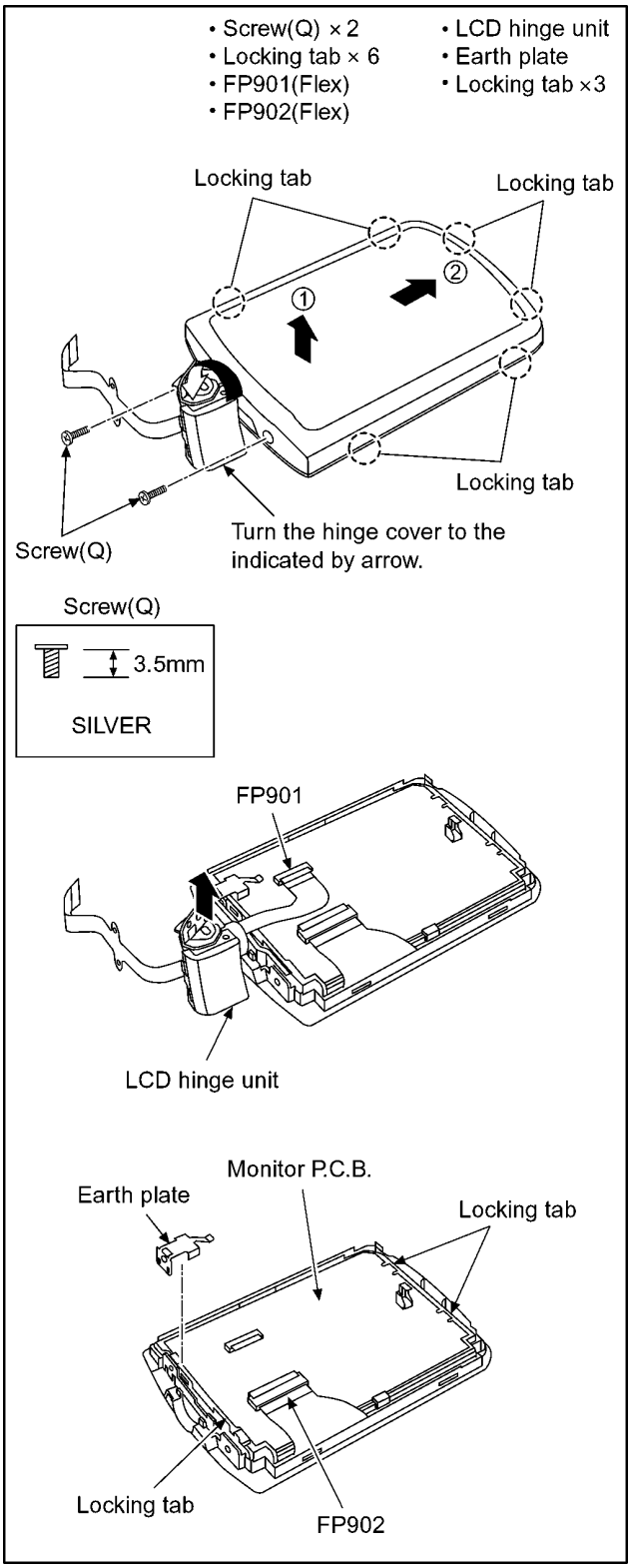
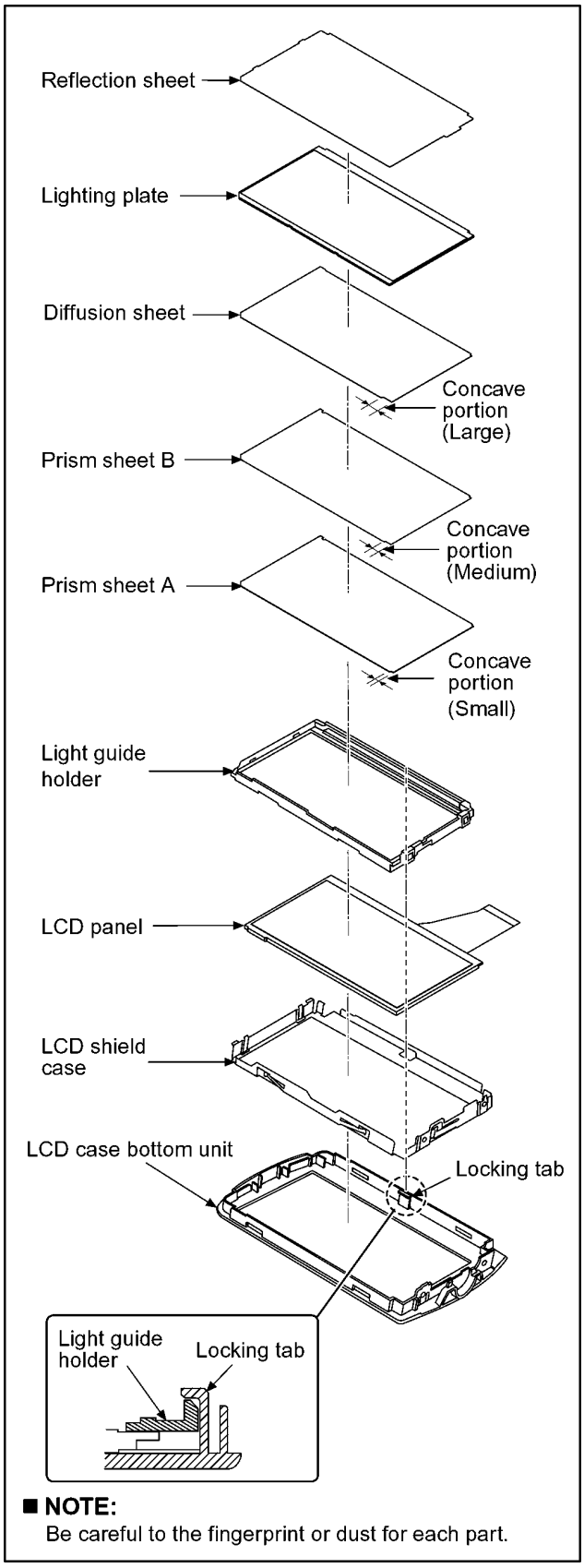


Fig. D19

8.3.15. Removal of the LCD panel



■ **NOTE:**
Be careful to the fingerprint or dust for each part.

Fig. D20

8.3.16. Removal of the Side-R P.C.B.

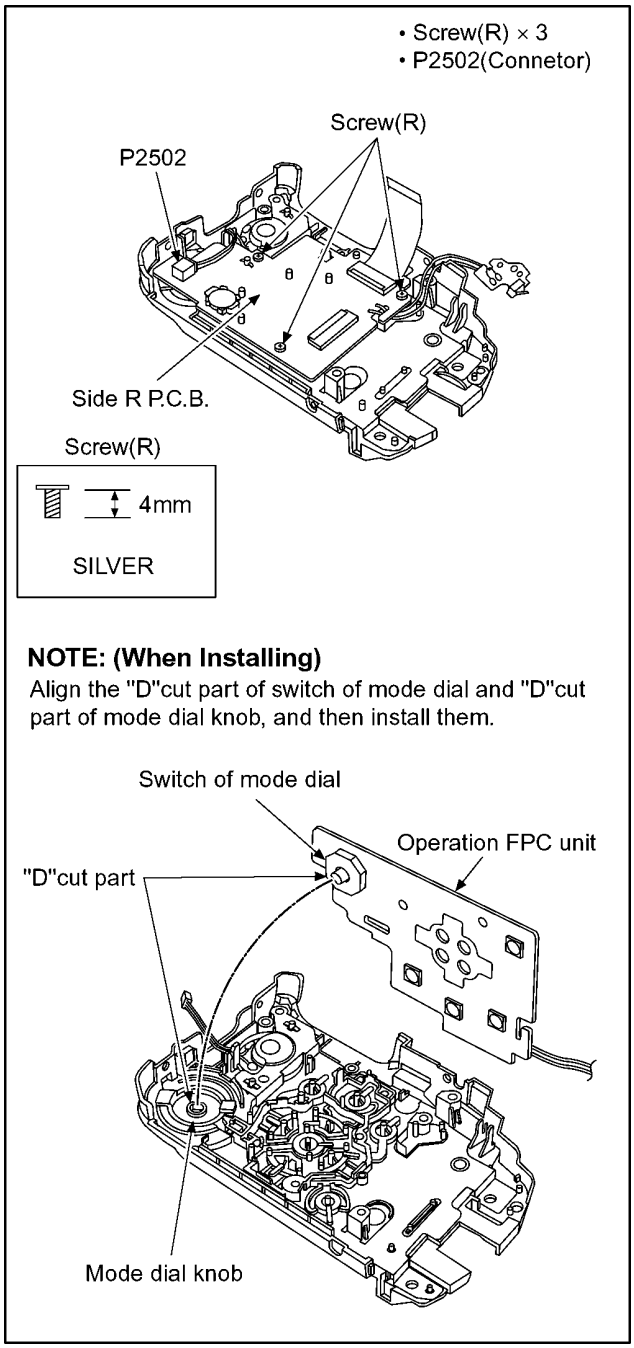


Fig. D21

8.3.17. Removal of the Operation button and Speaker

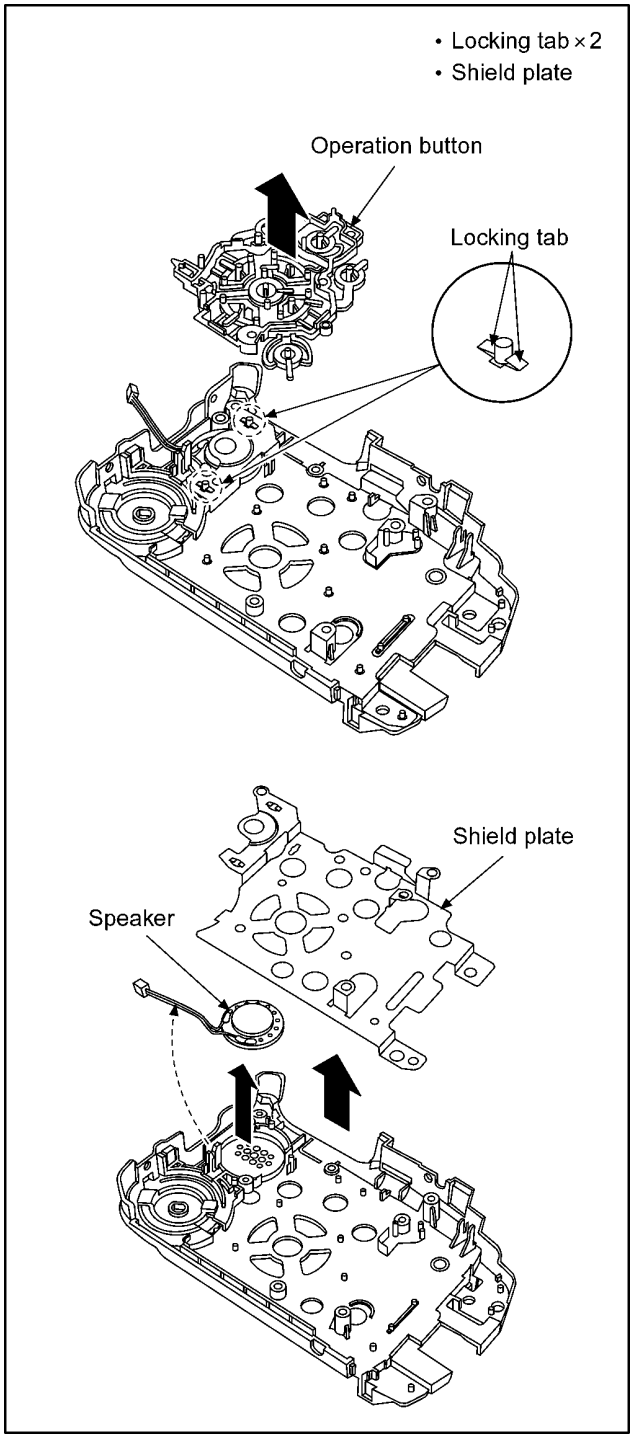
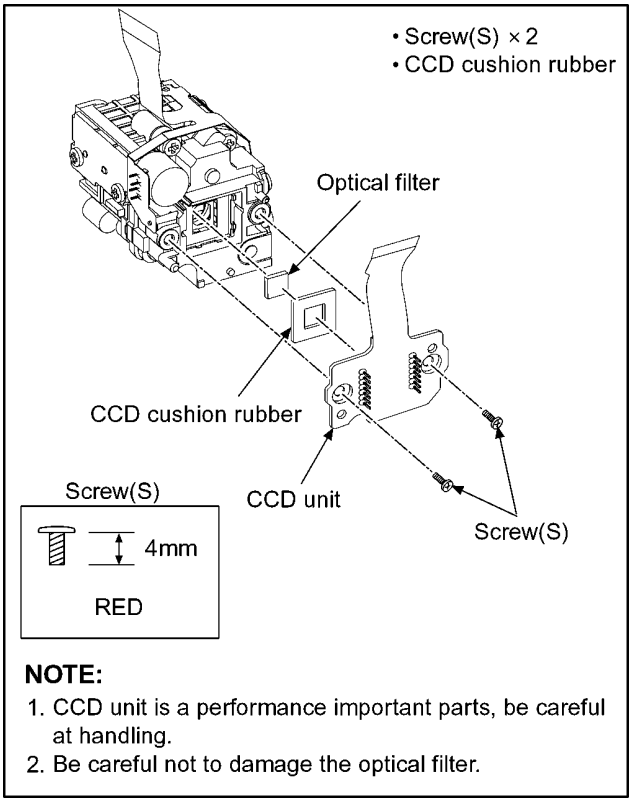


Fig. D22

8.3.18. Removal of the CCD unit and Optical filter

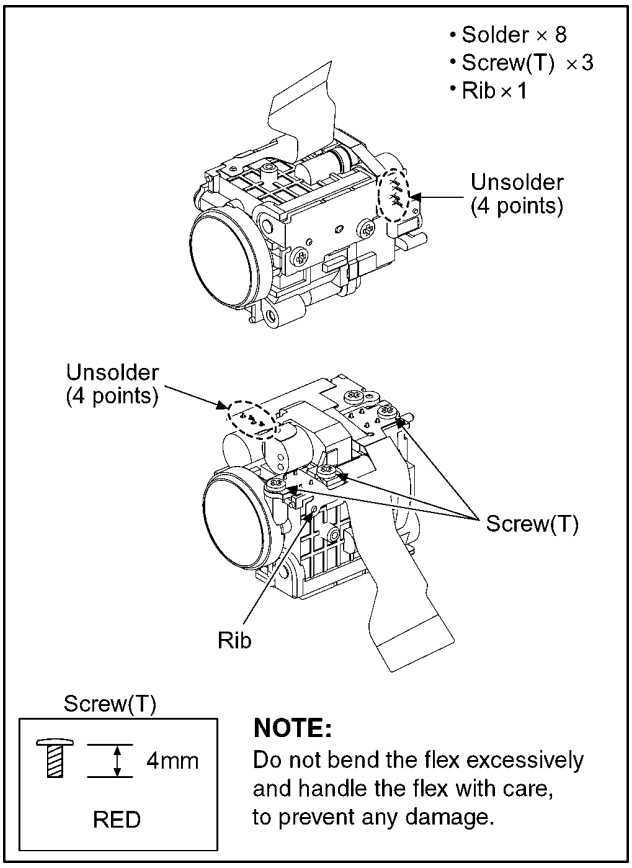


NOTE:

1. CCD unit is a performance important parts, be careful at handling.
2. Be careful not to damage the optical filter.

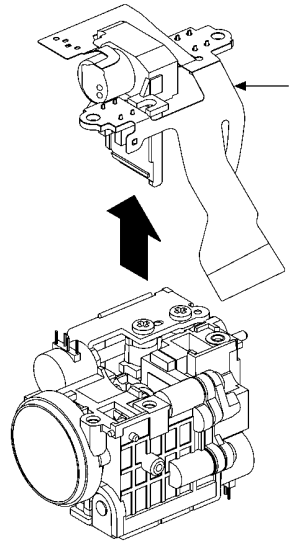
Fig. D23

8.3.19. Removal of the IRIS unit



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

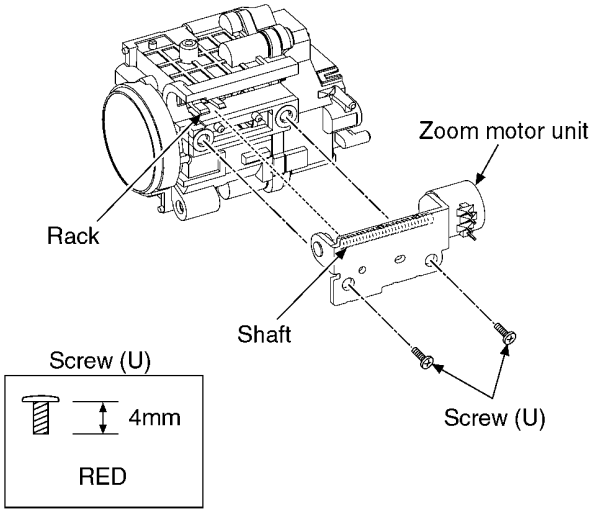
Fig. D24



NOTE: (When Installing)
Take care not to damage the flex.

Fig. D25

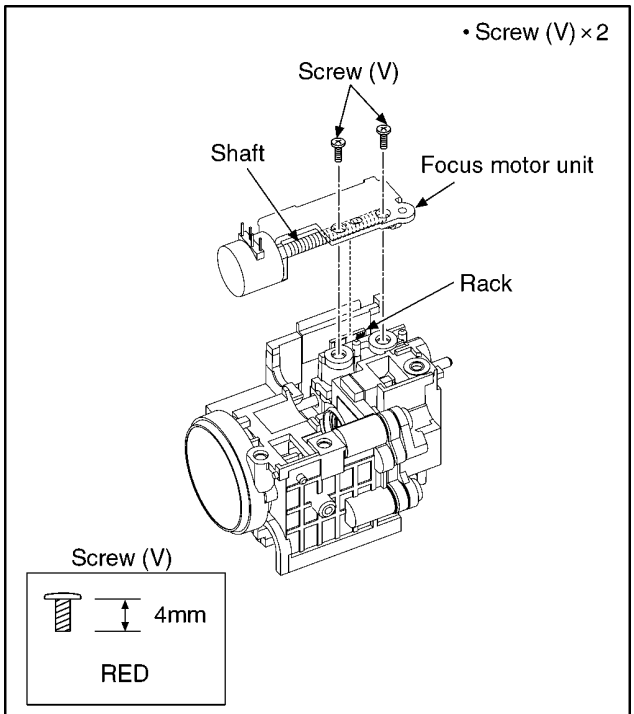
8.3.20. Removal of the Zoom motor unit



NOTE: (When Installing)
- Match the shaft to the rack.
- Air blow to the shaft of the zoom motor unit, and remove the dust.
- Grease applly to the shaft of zoom motor unit.

Fig. D26

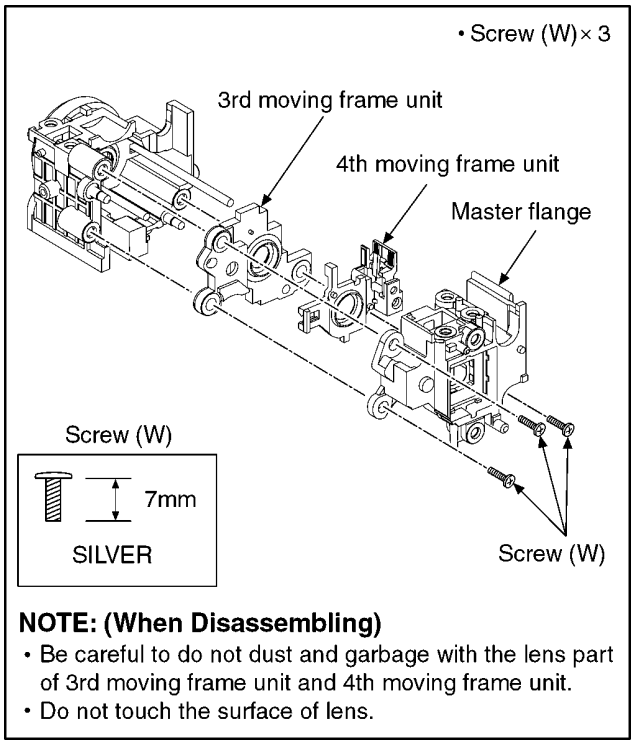
8.3.21. Removal of the Focus motor unit



NOTE: (When Installing)
- Match the shaft to the rack.
- Air blow to the shaft of the focus motor unit, and remove the dust.
- Grease applly to the shaft of focus motor unit.

Fig. D27

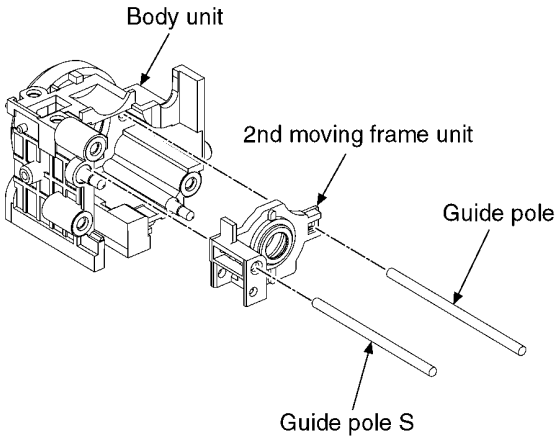
8.3.22. Removal of the Master flange, 4th moving frame unit and 3rd moving frame unit



NOTE: (When Disassembling)
- Be careful to do not dust and garbage with the lens part of 3rd moving frame unit and 4th moving frame unit.
- Do not touch the surface of lens.

Fig. D28

8.3.23. Removal of the Guide pole S, Guide pole and 2nd moving frame unit



NOTE: (When Disassembling)

- Be careful to do not dust and garbage with the lens part of 2nd moving frame unit.
- Do not touch the surface of lens.
  Grease applly to the guide pole.

Fig. D29

9 Measurements and Adjustments

9.1. Electric Adjustment

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

9.1.1. Adjustment Procedure

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

Figure of connection

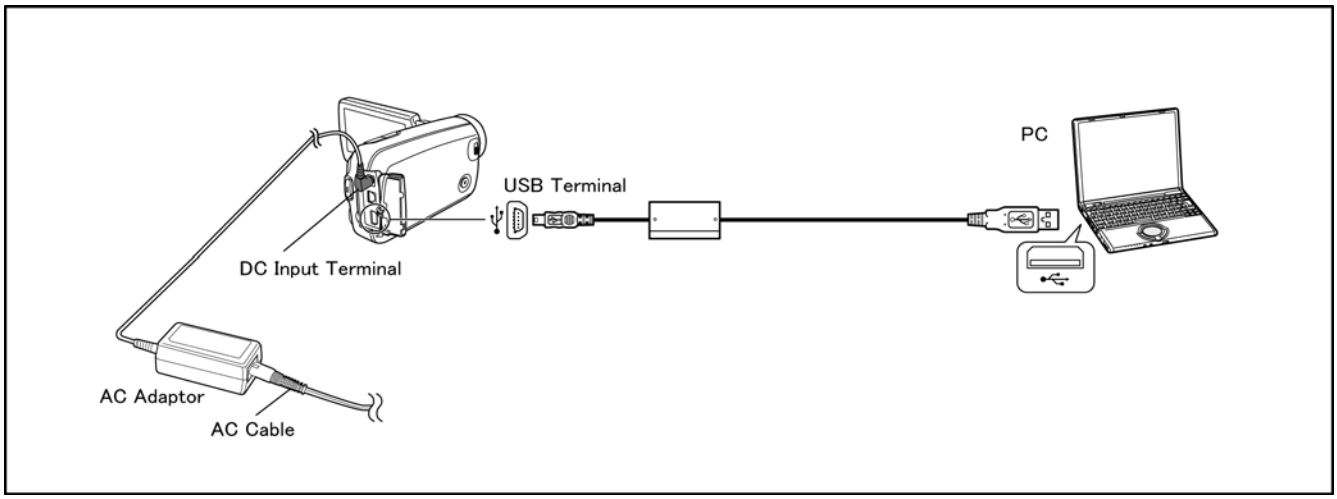
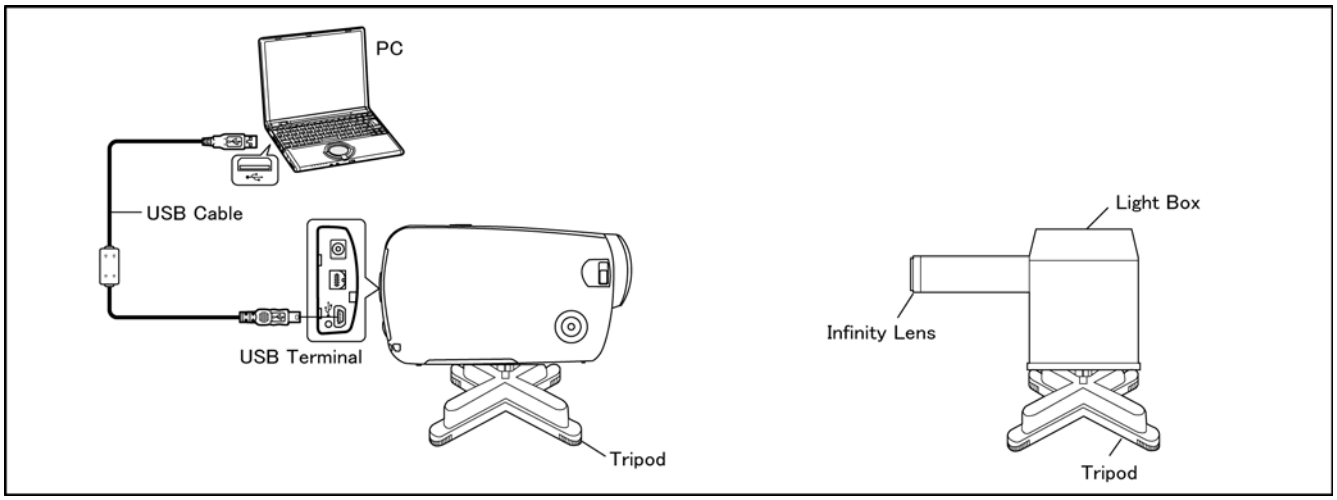


Figure of image when adjustment



Part Number of jig

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

No.	Part Name	Part Number	Remarks
1	PC	------	
2	AC Adaptor	------	
3	AC Cable	------	
4	USB Cable	------	
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-PAVC" web-site in "TSN System".

Adjustment item \ Replacement part		Main P.C.B.	IC6004(EEPROM)	Lens P.C.B.	Prism Unit	IRIS	4th lens frame move unit
Camera Part	●Hall amplifire/PWM bias (Automatic)	○	○	○	○	○	
	●Hall amplifire adjustment	○	○	○	○	○	
	●Zoom tracking adjustment (Automatic)	○	○	○	○	○	○
	●Address wound revision	○	○		○		
	●White balance adjustment	○	○		○		
Video Part	●Brightness level adjustment	○	○		○		

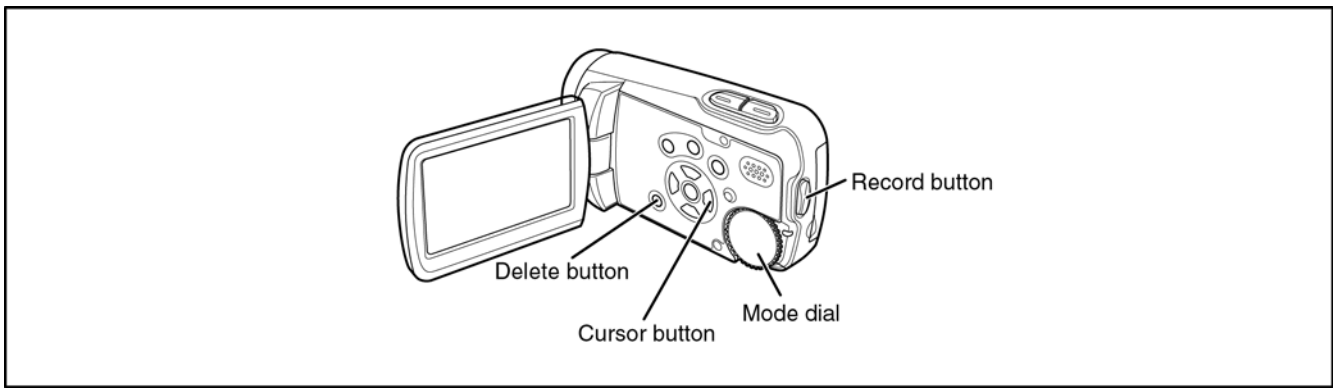
9.2. Repair Record

Using the applicable items in (Repair & Maintenance) that is newly provided in the adjustment software, record the treatment and the date of execution.

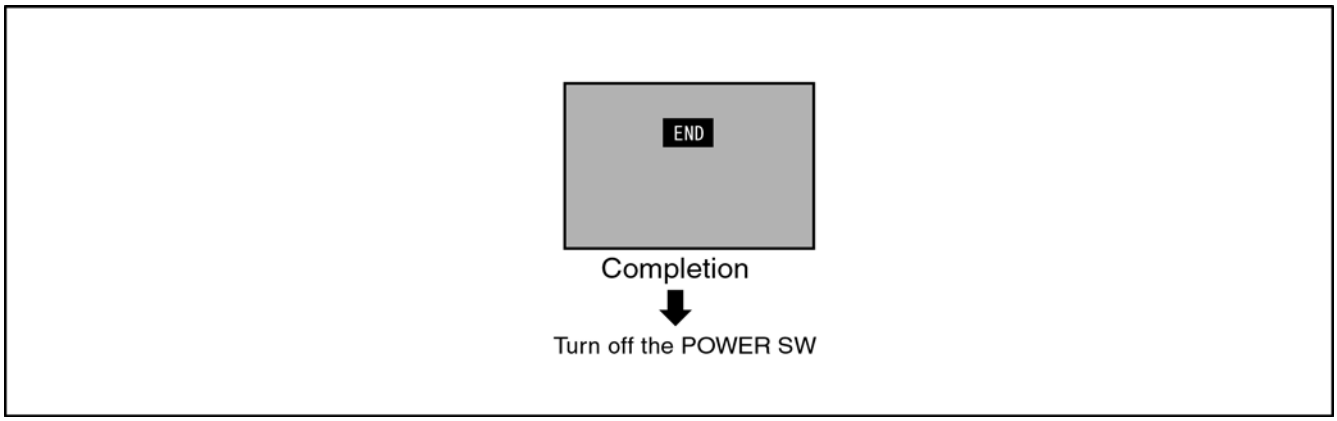
10 Factory Setting

10.1. HOW TO TURN ON THE FACTORY SETTINGS?

1. Set the mode dial to the Motion picture recording position.
2. Press three buttons (“Cursor button [Right]”, “Delete button” and “Record button” simultaneously for 3 seconds or more.



3. Beep tone is generated and then the shutter sound is generated.
4. When “END” appears on the display, the Factory Setting is completed.
5. Set the mode dial to the OFF position to close the Factory Setting.



10.2. WHAT IS THE FACTORY SETTINGS?

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

1. The OSD MENU setting data.
2. Deletion only for all scene files in a card and format of the MPEG2 file system area.
3. Reset the folder number and file number of still pictures.
   (Setting the folder number is 100, and file number is 0.)
4. Clear the mechanism lock information.
5. Clear the service mode information contents.

The setting position of factory settings:

Name	Setting position
Mode dial	OFF

VM0803025CE

Service Manual

Diagrams and Replacement Parts List

SD Video Camera

Model No.

SDR-S7P	SDR-S7EP
SDR-S7PC	SDR-S7GC
SDR-S7PL	SDR-S7GN
SDR-S7PR	SDR-S7EE
SDR-S7EG	SDR-S7GK
SDR-S7E	SDR-S7GJ
SDR-S7EB	SDR-S7GT
SDR-S7EF	SDR-S7GD

Vol. 1
Colour
(S).....Silver Type (except PR/GT/GD)
(K).....Black Type

Table of contents

S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

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

1.Although reference number of the parts is indicated on the P.C.B. drawing and/or schematic diagrams, it is NOT mounted on the P.C.B. when it is displayed with "$" mark.

2.It is only the "Test Round" and no terminal (Pin) is available on the P.C.B. when the TP (Test Point) indicated as "●" mark.

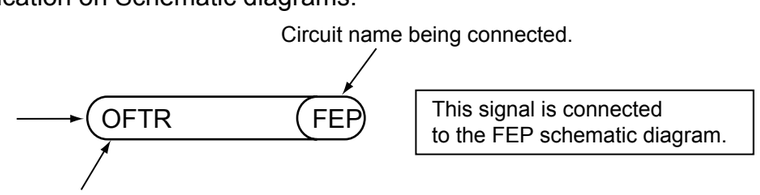
3.The voltage being indicated on the schematic diagram is measured in "Standard-Playback" mode when there is no specify mode is mentioned.

4.Although the voltage and waveform available on here is measured with standard frame, it may be differ from actual measurement due to modification of circuit and so on.

5.The voltage being indicated here may be include observational-error (deviation) due to internal-resistance and/or reactance of equipment. Therefore, handle the value indicated on here as reference.

6.Use the parts number indicated on the Replacement Parts List .

7.Indication on Schematic diagrams:



S2. Voltage Chart

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

S2.1. Side R P.C.B.

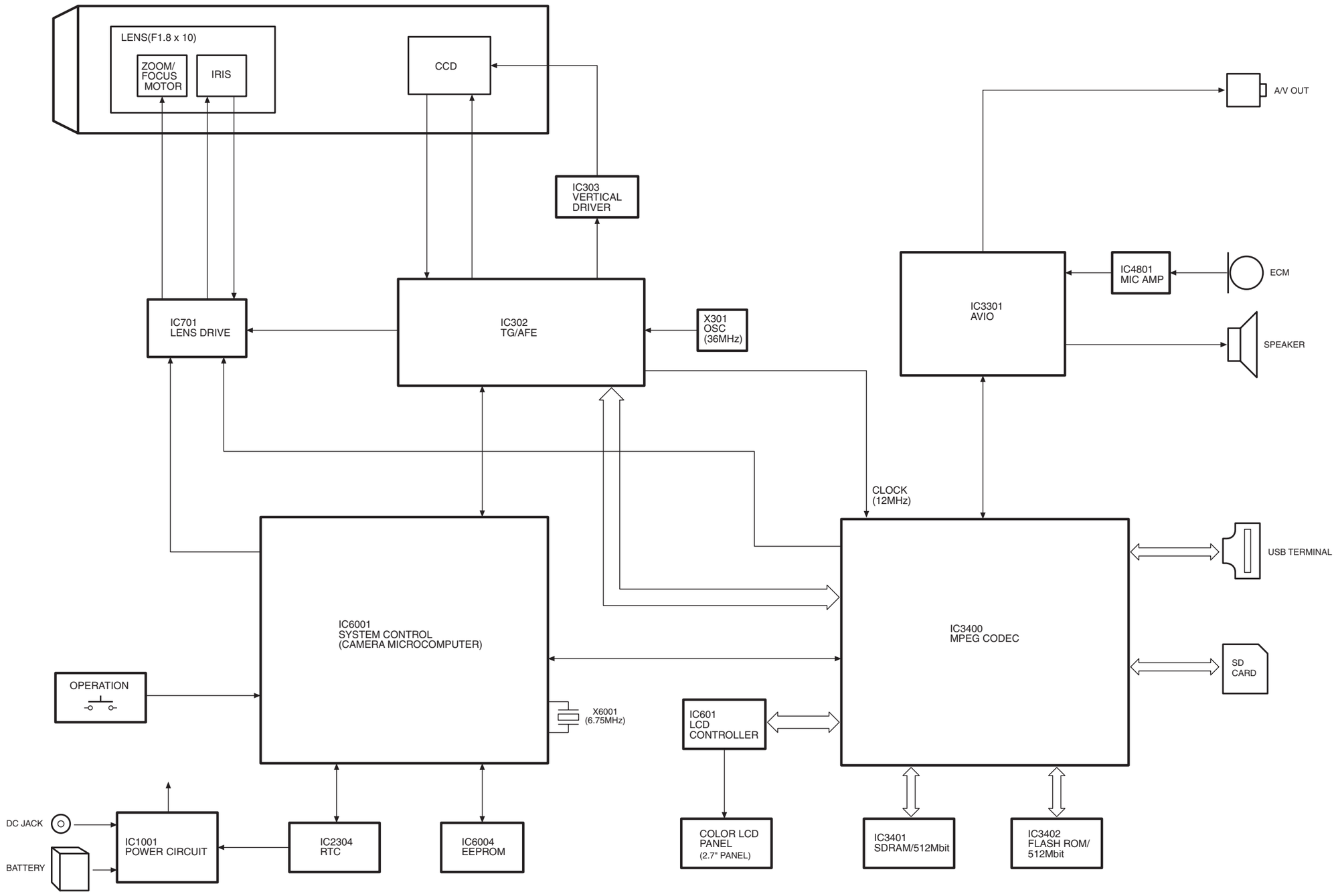
REF No.	PIN No.	POWER ON
IC601	1	1.6
IC601	2	0
IC601	3	0
IC601	4	3.7
IC601	5	3.5
IC601	6	3.7
IC601	7	3.7
IC601	8	3.7
IC601	9	3.5
IC601	10	0
IC601	11	0.9
IC601	12	0
IC601	13	0
IC601	14	0.6
IC601	15	0.6
IC601	16	0.6
IC601	17	0
IC601	18	1.5
IC601	19	0.7
IC601	20	0.7
IC601	21	0.7
IC601	22	0.7
IC601	23	0
IC601	24	6.2
IC601	25	3.3
IC601	26	3.3
IC601	27	3.3
IC601	28	0
IC601	29	5.9
IC601	30	5.7
IC601	31	0.9
IC601	32	0.3
IC601	33	6.2
IC601	34	5.5
IC601	35	2.9
IC601	36	3.3
IC601	37	0
IC601	38	3.7
IC601	39	0
IC601	40	3.7
IC601	41	0
IC601	42	0
IC601	43	0
IC601	44	0
IC601	45	3.7
IC601	46	3.7
IC601	47	1.8
IC601	48	1.7
IC601	49	0
IC601	50	0
IC601	51	3.7
IC601	52	0
IC601	53	3.7
IC601	54	0.2
IC601	55	0.2
IC601	56	3.7
IC601	57	1.7
IC601	58	1.7
IC601	59	0
IC601	60	0
IC601	61	3.4
IC601	62	2.9
IC601	63	0
IC601	64	1.9

S2.2. Monitor P.C.B.

REF No.	PIN No.	POWER ON
Q8101	E	0.5
Q8101	C	2
Q8101	B	1.5
Q8102	E	0.5
Q8102	C	2
Q8102	B	1.5
Q8104	E	0.5
Q8104	C	2
Q8104	B	1.5
Q8105	E	0.5
Q8105	C	2
Q8105	B	1.5
Q8107	E	1.6
Q8107	C	0
Q8107	B	0.9
Q8108	E	0.5
Q8108	C	2
Q8108	B	1.5
Q8112	E	1.5
Q8112	C	0
Q8112	B	0.7
Q8113	E	0
Q8113	C	-6.7
Q8113	B	0

S3. Block Diagram

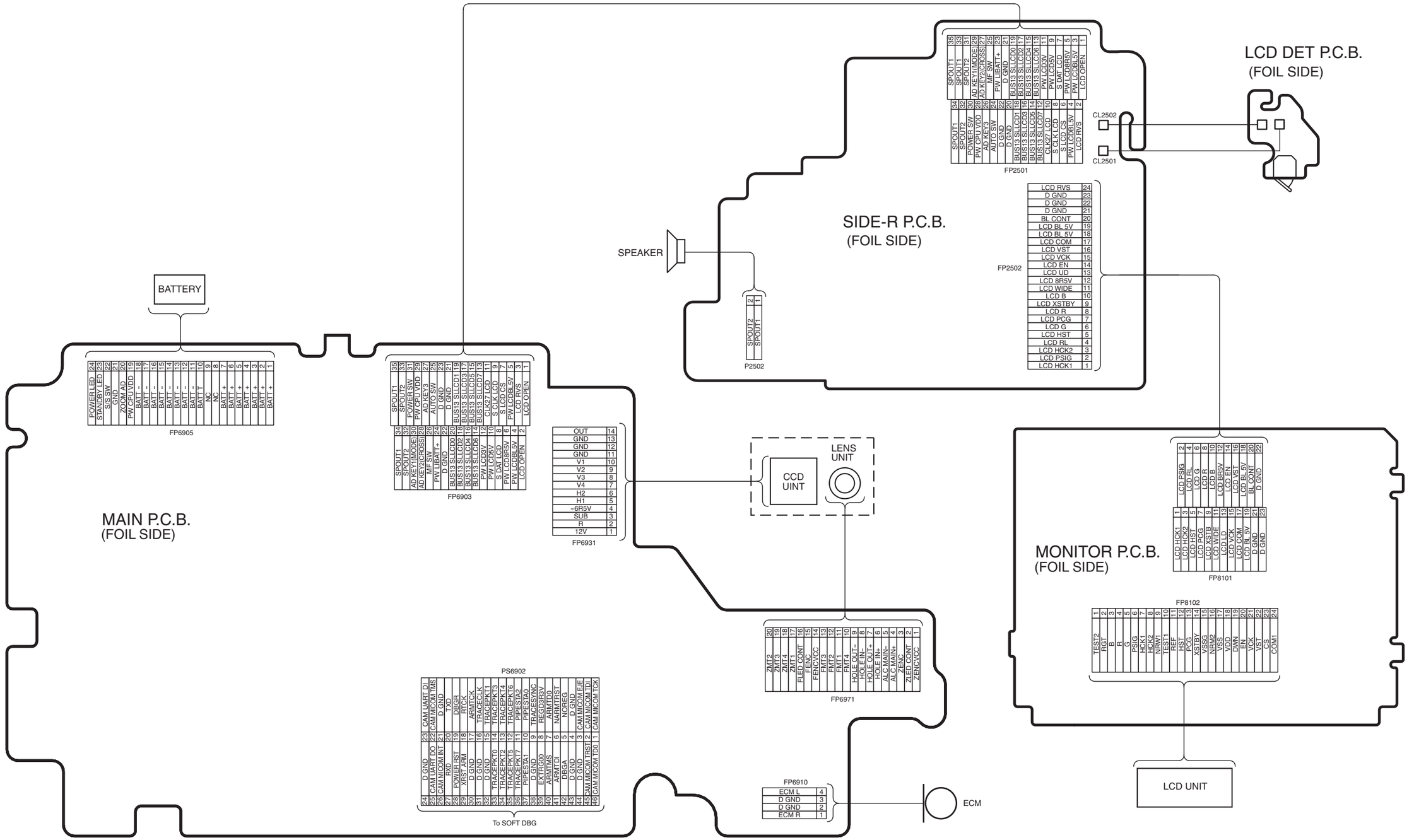
S3.1. Overall Block Diagram



SDR-S7 OVERALL BLOCK DIAGRAM

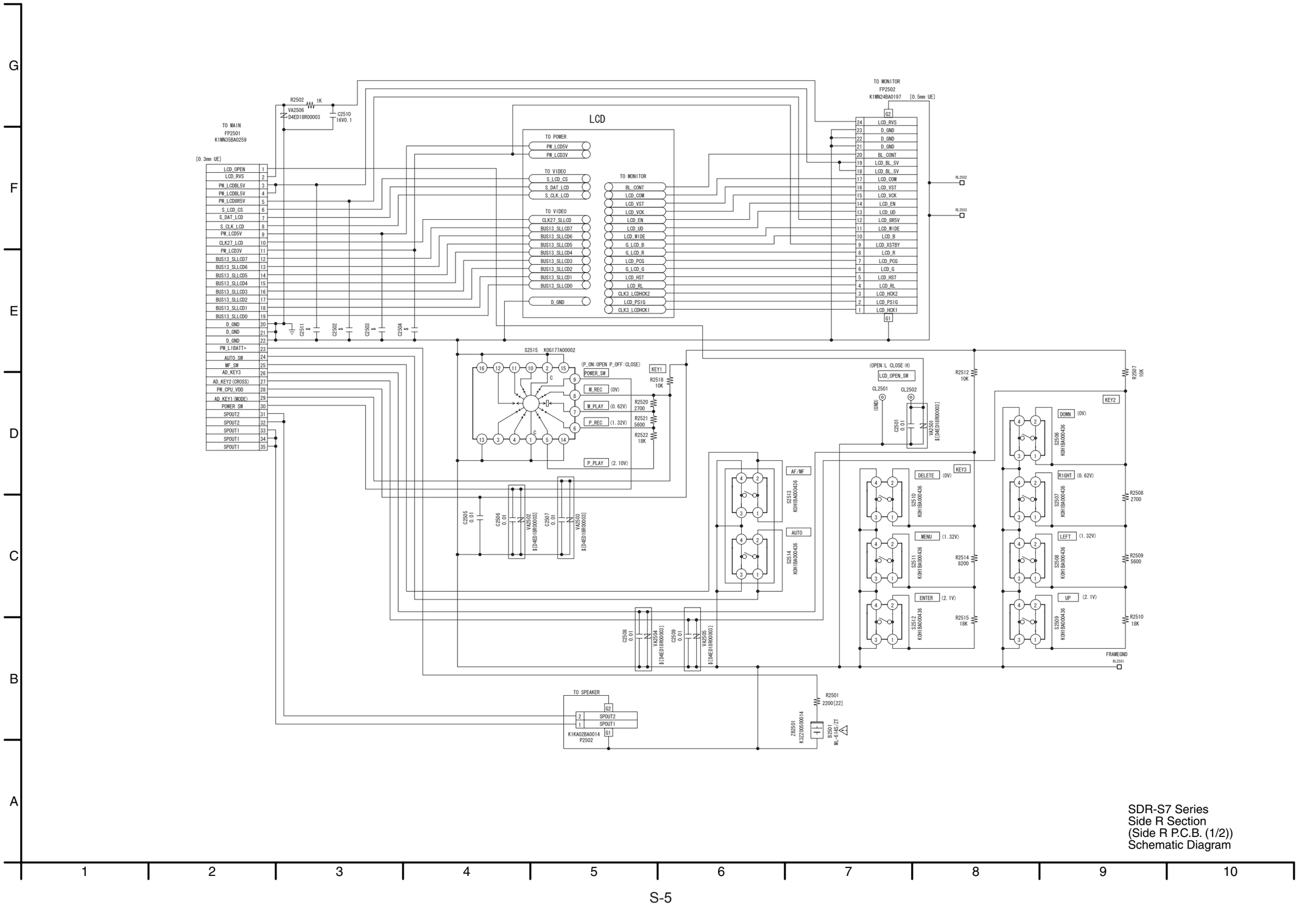
S4. Schematic Diagram

S4.1. Interconnection Diagram

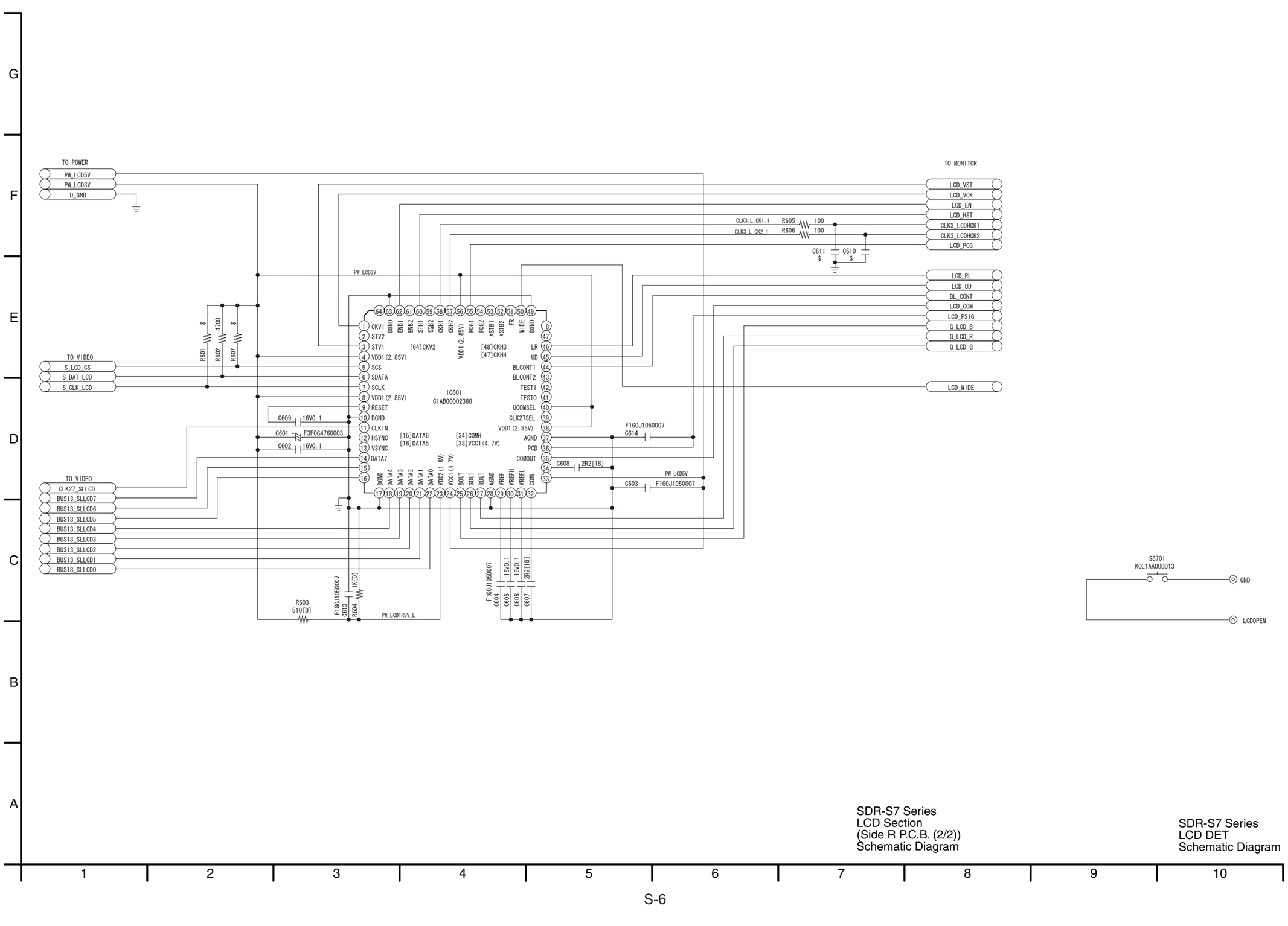


SDR-S7 INTERCONNECTION DIAGRAM

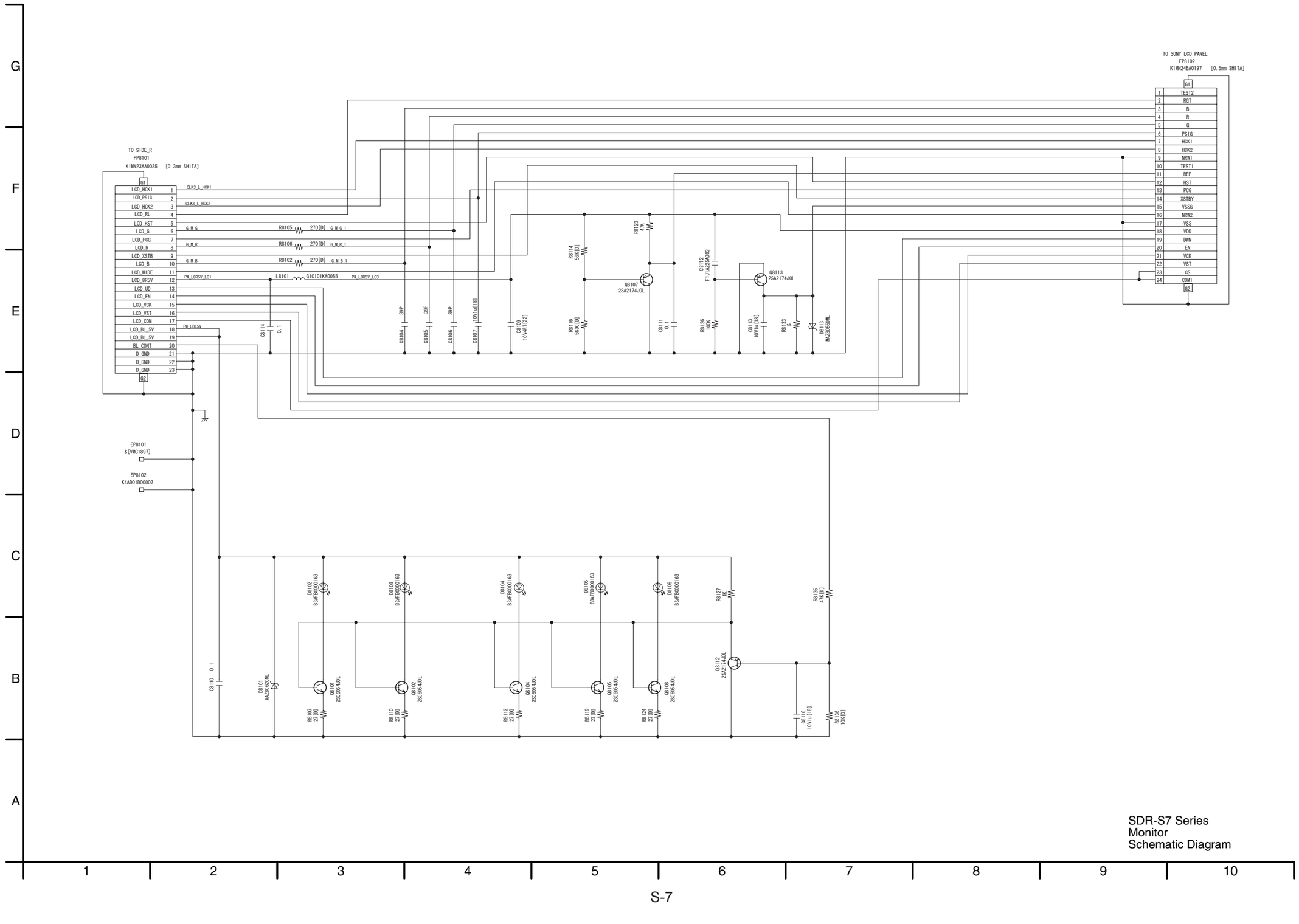
S4.2. Side R Schematic Diagram



S4.3. LCD Schematic Diagram / S4.4. LCD DET Schematic Diagram

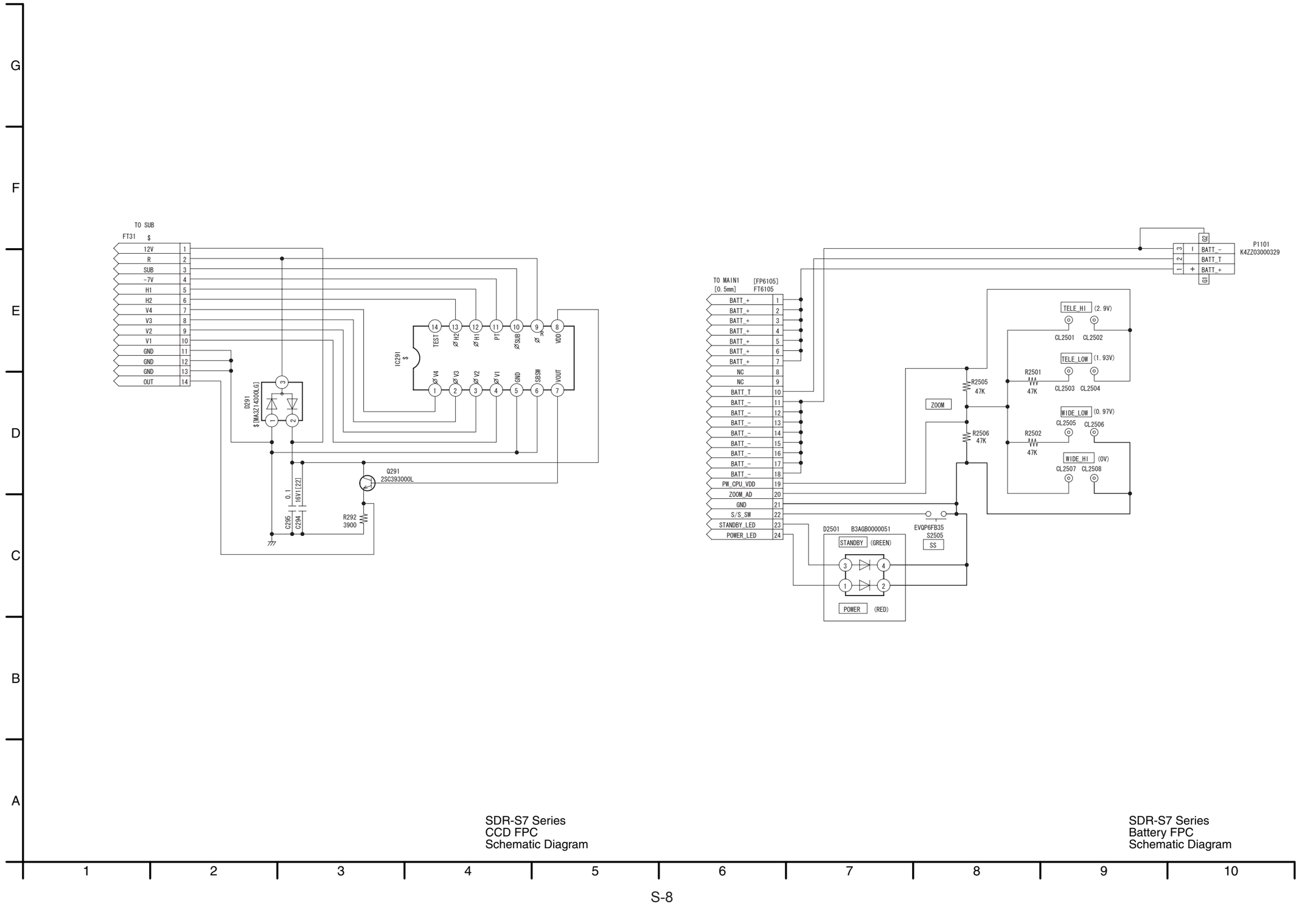


S4.5. Monitor Schematic Diagram



SDR-S7 Series
Monitor
Schematic Diagram

S4.6. CCD FPC Schematic Diagram / S4.7. Battery FPC Schematic Diagram



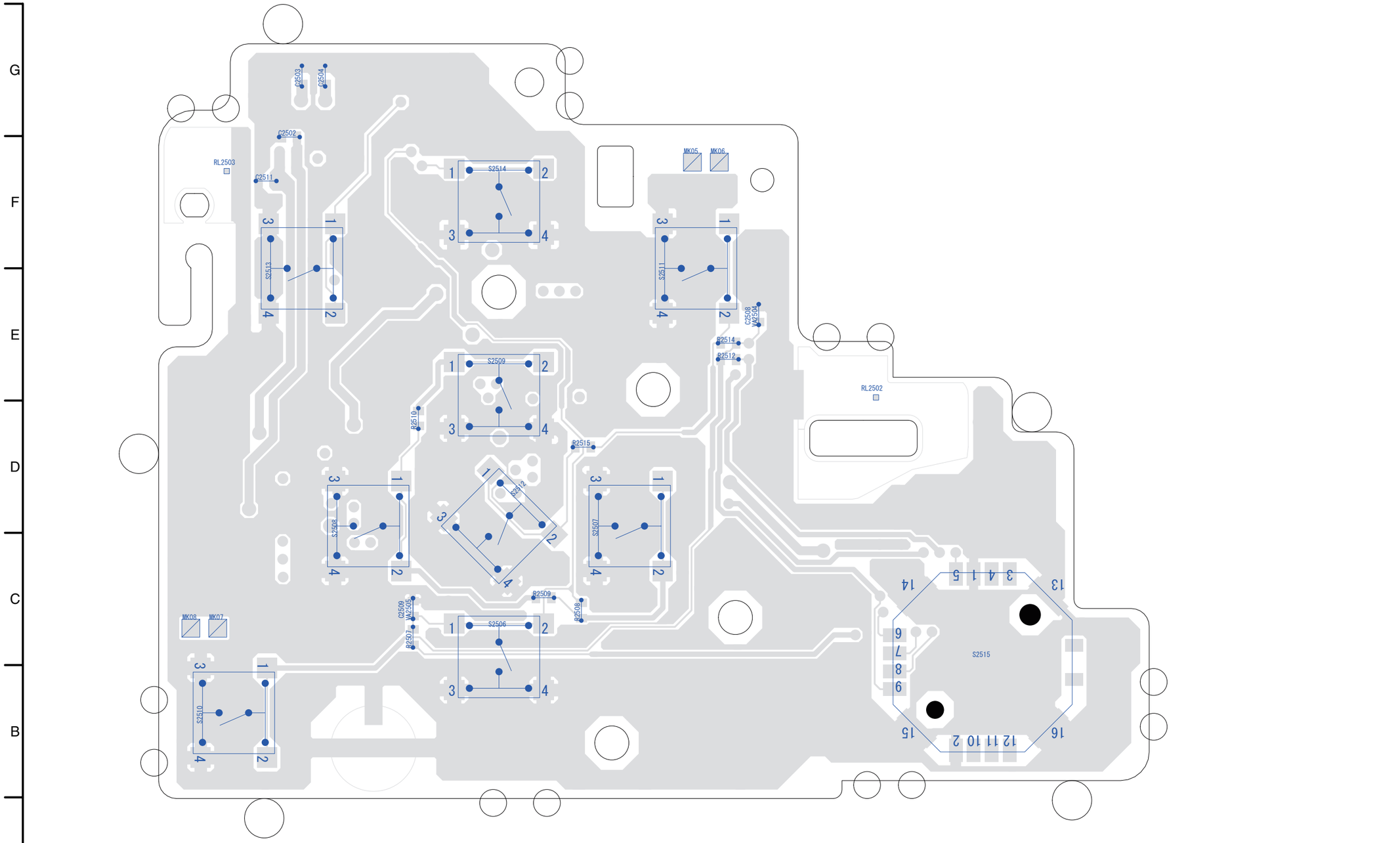
SDR-S7 Series
CCD FPC
Schematic Diagram

SDR-S7 Series
Battery FPC
Schematic Diagram

S5. Print Circuit Board

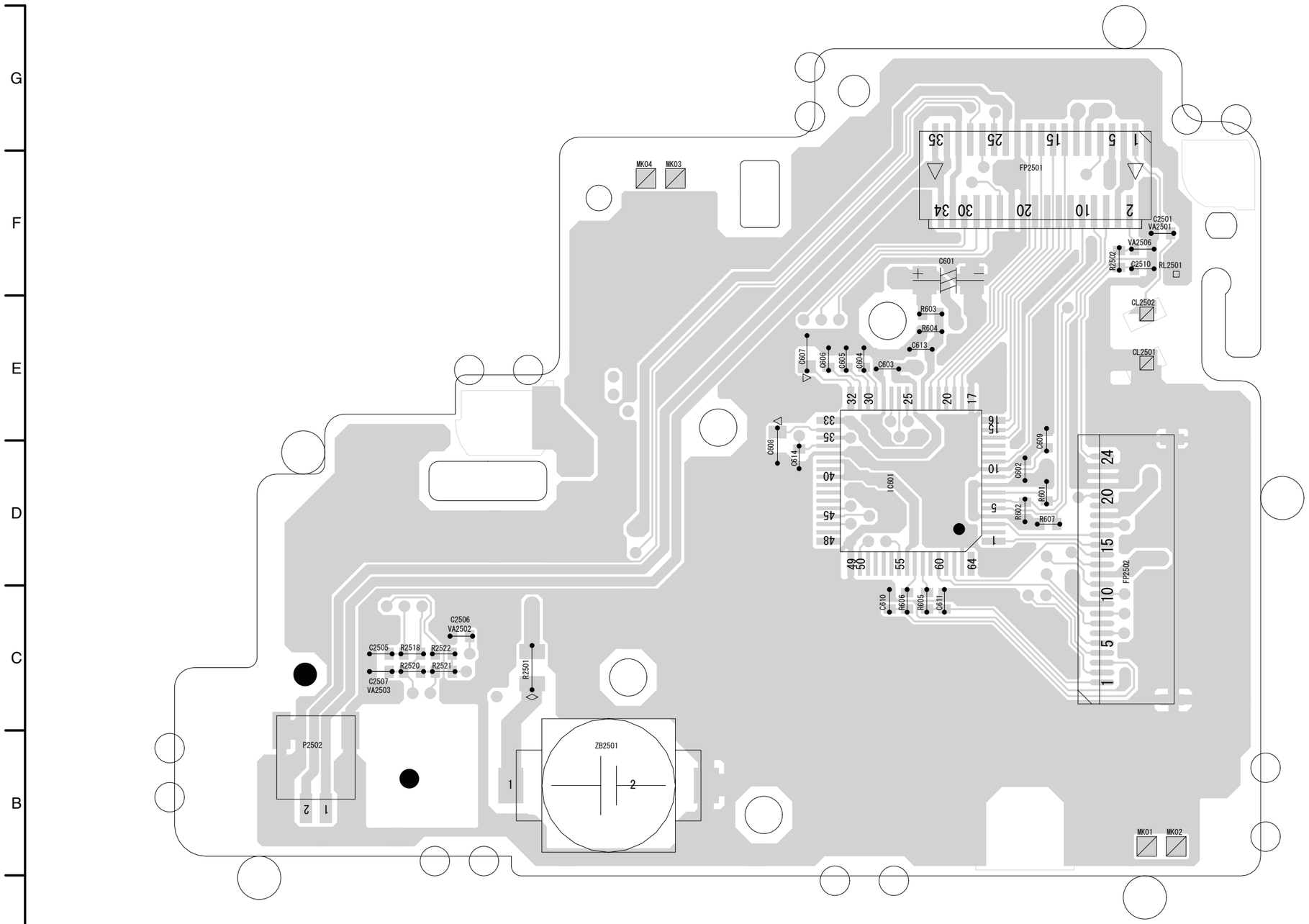
S5.1. Side R P.C.B.

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



SDR-S7 Series
Side R P.C.B.
(Component Side)

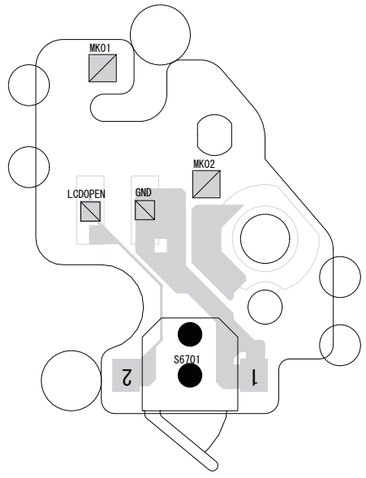
S5.1.2. Side R P.C.B. (Foil Side)



(Foil Side)

SDR-S7 Series
Side R P.C.B.
(Foil Side)

S5.2. LCD DET P.C.B.

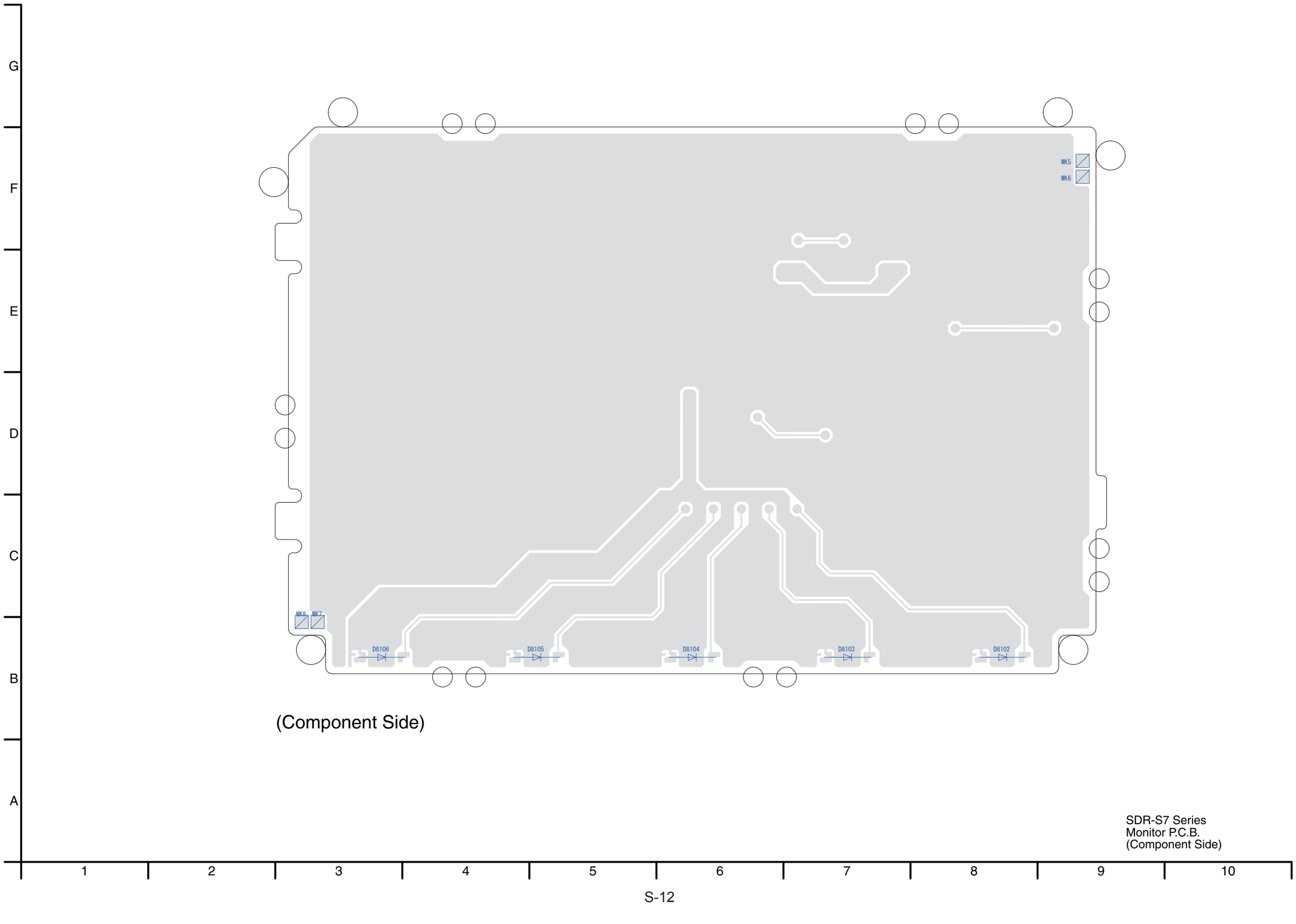


(Foil Side)

SDR-S7 Series
LCD DET P.C.B.

S5.3. Monitor P.C.B.

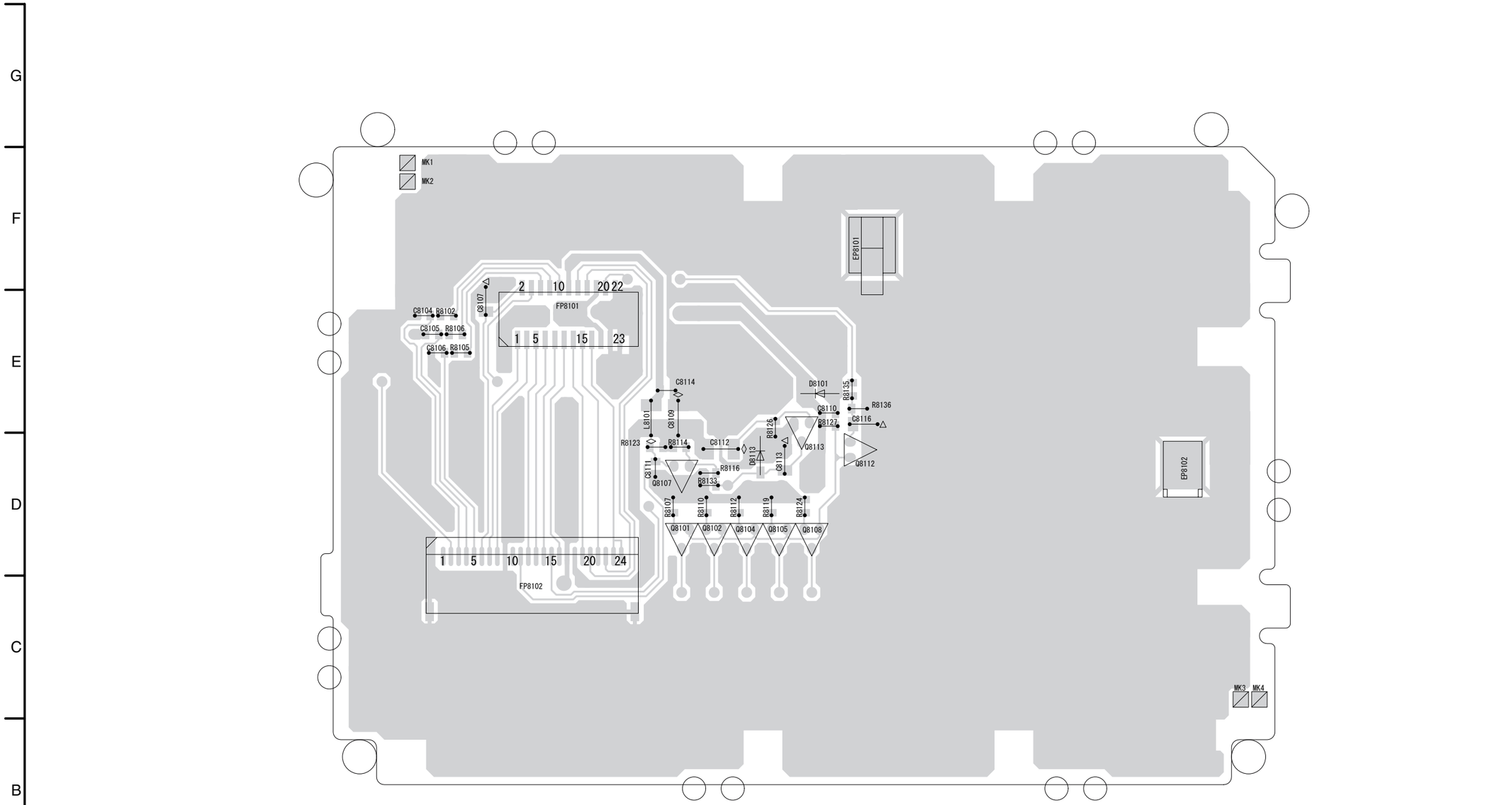
S5.3.1. Monitor P.C.B. (Component Side)



(Component Side)

SDR-S7 Series
Monitor P.C.B.
(Component Side)

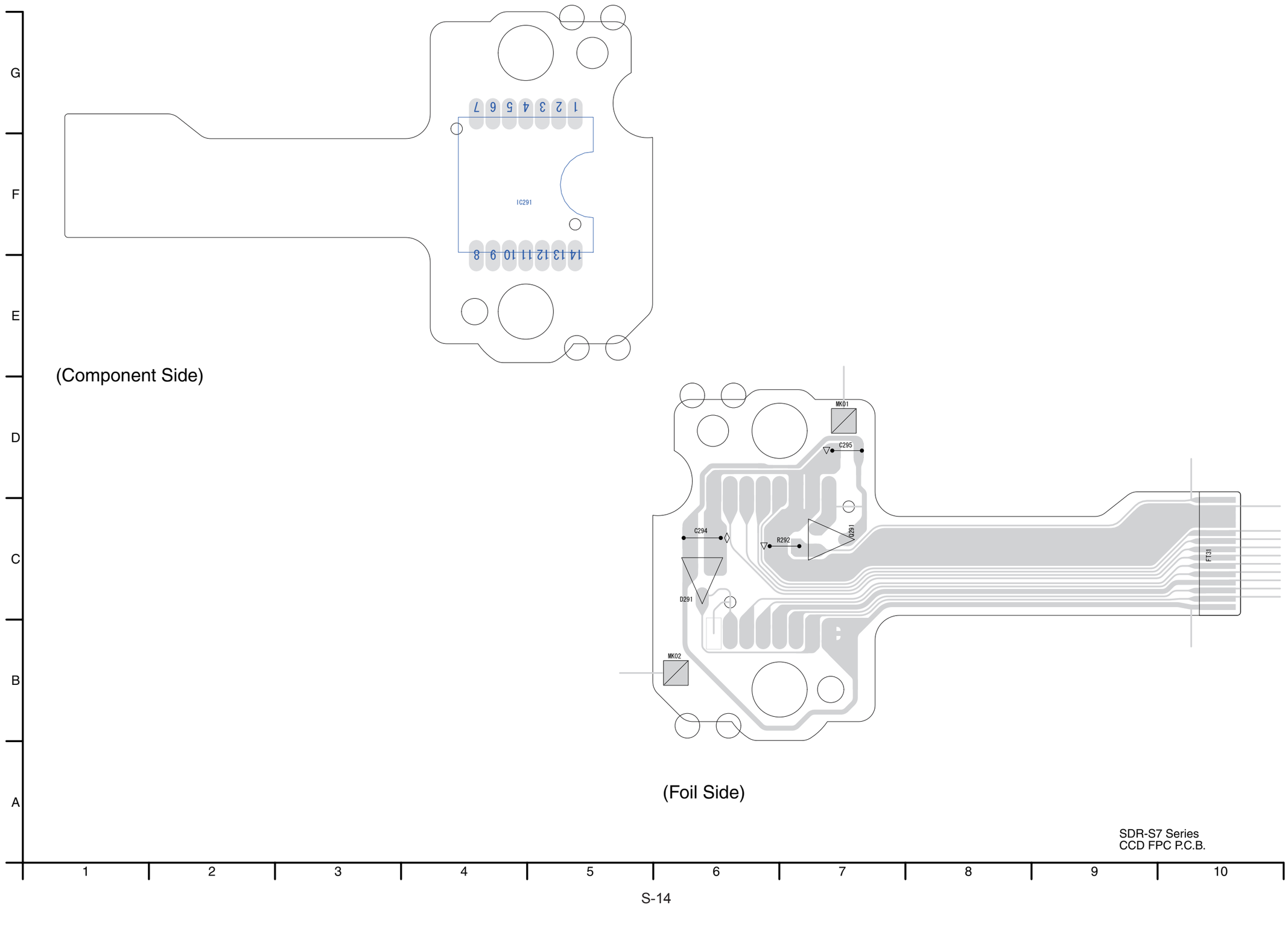
S5.3.2. Monitor P.C.B. (Foil Side)



(Foil Side)

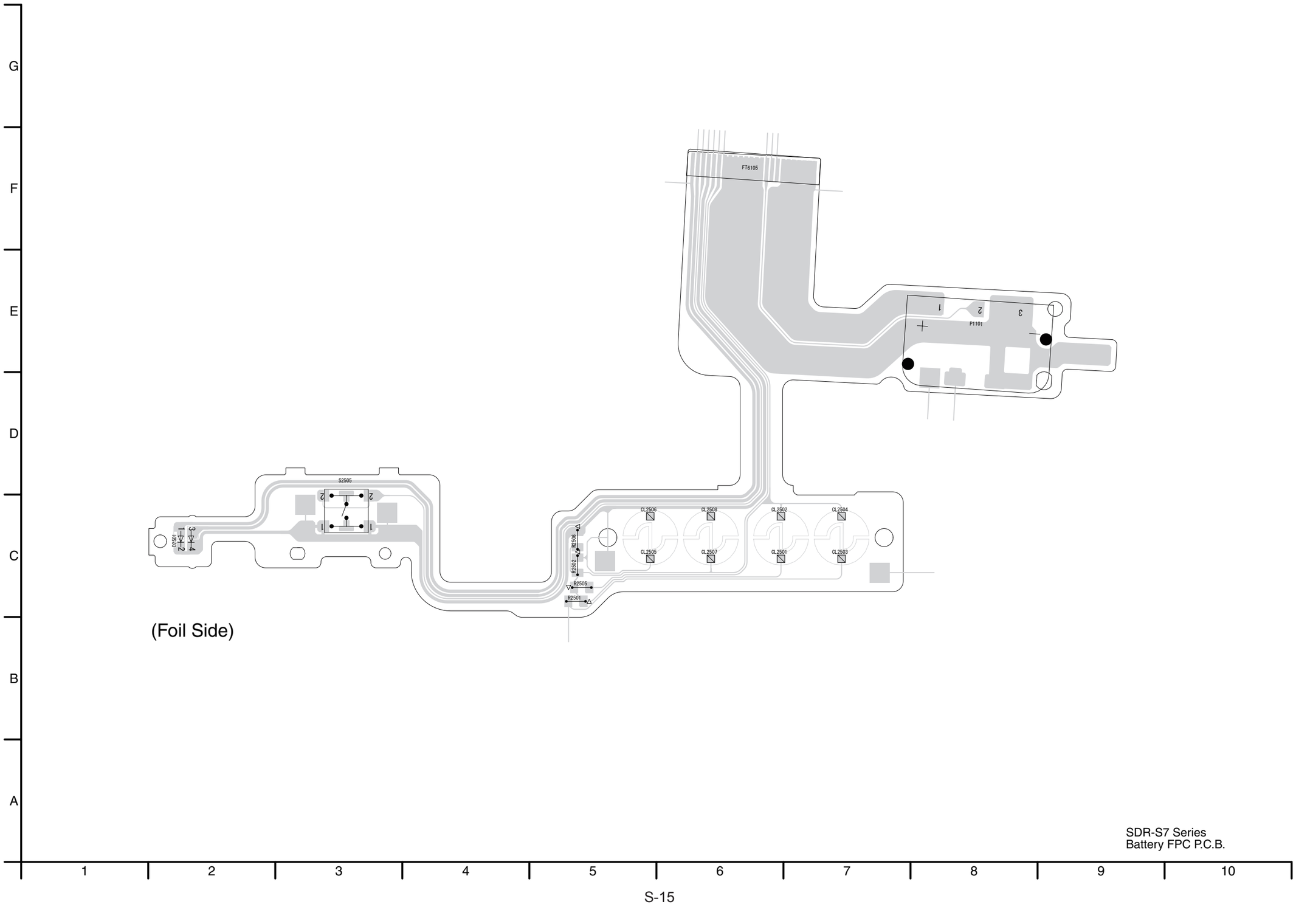
SDR-S7 Series
Monitor P.C.B.
(Foil Side)

S5.4. CCD FPC P.C.B.



SDR-S7 Series
CCD FPC P.C.B.

S5.5. Battery FPC P.C.B.



SDR-S7 Series
Battery FPC P.C.B.

S6. Replacement Parts List

Note:
1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ 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
##	VEP03H52A	MAIN P.C.B.	1	E.S.D. (RTL) P PC
##	VEP03H52G	MAIN P.C.B.	1	E.S.D. (RTL) PL
##	VEP03H52L	MAIN P.C.B.	1	E.S.D. (RTL) PRK
##	VEP03H52B	MAIN P.C.B.	1	E.S.D. (RTL) EG E EF
##	VEP03H52H	MAIN P.C.B.	1	E.S.D. (RTL) EB
##	VEP03H52F	MAIN P.C.B.	1	E.S.D. (RTL) EP
##	VEP03H52C	MAIN P.C.B.	1	E.S.D. (RTL) GC
##	VEP03H52J	MAIN P.C.B.	1	E.S.D. (RTL) GN
##	VEP03H52D	MAIN P.C.B.	1	E.S.D. (RTL) EE
##	VEP03H52E	MAIN P.C.B.	1	E.S.D. (RTL) GK
##	VEP03H52K	MAIN P.C.B.	1	E.S.D. (RTL) GJ
##	VEP03H52M	MAIN P.C.B.	1	E.S.D. (RTL) GT
##	VEP03H52N	MAIN P.C.B.	1	E.S.D. (RTL) GD
##	VEP06G43A	SIDE R P.C.B.	1	E.S.D. (RTL)
##	VEP29205A	MONITOR P.C.B.	1	E.S.D. (RTL)
##	VEP06G43A	SIDE R P.C.B.		E.S.D. (RTL)
⚠ B2501	ML-614S/ZT	BATTERY	1	
C601	F3F0G4760003	E.CAPACITOR CH 4V 47U	1	
C602	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C603	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C604	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C605	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C606	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C607	F1H0J225A002	C.CAPACITOR CH 6.3V 2.2U	1	
C608	F1H0J225A002	C.CAPACITOR CH 6.3V 2.2U	1	
C609	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C613	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C614	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C2501	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2505	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2506	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2507	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2508	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2509	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C2510	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
FP2501	K1MN35BA0259	CONNECTOR 35P	1	
FP2502	K1MN24BA0197	CONNECTOR 24P	1	
IC601	C1AB00002388	IC	1	
P2502	K1KA02BA0014	CONNECTOR 2P	1	
R602	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R603	ERJ2RHD511	M.RESISTOR CH 1/16W 510	1	
R604	ERJ2RHD102X	RESISTOR	1	
R605	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R606	ERJ2GEJ101	M.RESISTOR CH 1/16W 100	1	
R2501	ERJ6GEYJ222V	M.RESISTOR CH 1/10W 2.2K	1	
R2502	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R2507	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R2508	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R2509	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R2510	ERJ2GEJ183	M.RESISTOR CH 1/16W 18K	1	
R2512	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R2514	ERJ2GEJ822	M.RESISTOR CH 1/16W 8.2K	1	
R2515	ERJ2GEJ183	M.RESISTOR CH 1/16W 18K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R2518	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R2520	ERJ2RHD272	M.RESISTOR CH 1/16W 2.7K	1	
R2521	ERJ2GEJ562	M.RESISTOR CH 1/16W 5.6K	1	
R2522	ERJ2GEJ183	M.RESISTOR CH 1/16W 18K	1	
S2506	K0H1BA000436	SWITCH	1	
S2507	K0H1BA000436	SWITCH	1	
S2508	K0H1BA000436	SWITCH	1	
S2509	K0H1BA000436	SWITCH	1	
S2510	K0H1BA000436	SWITCH	1	
S2511	K0H1BA000436	SWITCH	1	
S2512	K0H1BA000436	SWITCH	1	
S2513	K0H1BA000436	SWITCH	1	
S2514	K0H1BA000436	SWITCH	1	
S2515	K0G177A00002	SWITCH	1	
VA2506	D4ED18R00003	VARISTORS	1	
ZB2501	K3ZZ00500014	CONNECTOR	1	
##	VEP29205A	MONITOR P.C.B.		E.S.D. (RTL)
C8104	ECJ0EC1H390J	C.CAPACITOR CH 50V 39P	1	
C8105	ECJ0EC1H390J	C.CAPACITOR CH 50V 39P	1	
C8106	ECJ0EC1H390J	C.CAPACITOR CH 50V 39P	1	
C8107	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
C8109	F1J1A475A023	C.CAPACITOR CH 10V 4.7U	1	
C8110	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C8111	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C8112	F1J1A2250007	C.CAPACITOR CH 10V 2.2U	1	
C8113	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
C8114	F1G1A104A012	C.CAPACITOR CH 10V 0.1U	1	
C8116	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
D8101	MAZ80620ML	DIODE	1	
D8102	B3AFB0000163	DIODE	1	
D8103	B3AFB0000163	DIODE	1	
D8104	B3AFB0000163	DIODE	1	
D8105	B3AFB0000163	DIODE	1	
D8106	B3AFB0000163	DIODE	1	
D8113	MAZ80560ML	DIODE	1	
EP8102	K4AD01D00007	EARTH TERMINAL	1	
FP8101	K1MN23AA0035	CONNECTOR 23P	1	
FP8102	K1MN24BA0197	CONNECTOR 24P	1	
L8101	G1C101KA0055	CHIP INDUCTOR 100UH	1	
Q8101	2SC6054J0L	TRANSISTOR	1	
Q8102	2SC6054J0L	TRANSISTOR	1	
Q8104	2SC6054J0L	TRANSISTOR	1	
Q8105	2SC6054J0L	TRANSISTOR	1	
Q8107	2SA2174J0L	TRANSISTOR	1	
Q8108	2SC6054J0L	TRANSISTOR	1	
Q8112	2SA2174J0L	TRANSISTOR	1	
Q8113	2SA2174J0L	TRANSISTOR	1	
R8102	ERJ2RHD271	M.RESISTOR CH 1/16W 270	1	
R8105	ERJ2RHD271	M.RESISTOR CH 1/16W 270	1	
R8106	ERJ2RHD271	M.RESISTOR CH 1/16W 270	1	
R8107	ERJ2RKD270	M.RESISTOR CH 1/16W 27	1	
R8110	ERJ2RKD270	M.RESISTOR CH 1/16W 27	1	
R8112	ERJ2RKD270	M.RESISTOR CH 1/16W 27	1	
R8114	ERJ2RHD563X	M.RESISTOR CH 1/16W 56K	1	
R8116	ERJ2RHD562	M.RESISTOR CH 1/16W 5.6K	1	
R8119	ERJ2RKD270	M.RESISTOR CH 1/16W 27	1	
R8123	ERJ2GEJ473Y	M.RESISTOR CH 1/16W 47K	1	
R8124	ERJ2RKD270	M.RESISTOR CH 1/16W 27	1	
R8126	ERJ2GEJ104	M.RESISTOR CH 1/16W 100K	1	
R8127	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R8135	ERJ2RHD473	M.RESISTOR CH 1/16W 47K	1	
R8136	ERJ2RHD103	M.RESISTOR CH 1/16W 10K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VKM7463	REAR CASE	1	(K)
1	VKM7487	REAR CASE	1	(S)
2	VKM7462	TOP CASE	1	(K)
2	VKM7491	TOP CASE	1	(S)
3	VKM7461	SIDE CASE(L)	1	(K)
3	VKM7488	SIDE CASE(L)	1	(S)
4	VYQ4304	JACK COVER UNIT	1	(K)
4	VYQ4306	JACK COVER UNIT	1	(S)
5	VXU1669	SUB REC BUTTON UNIT	1	
6	VSC6047	SHIELD PLATE	1	
7	VEK0M01	MIC UNIT	1	
8	VEP03H52A	MAIN P.C.B.	1	E.S.D. (RTL) P PC
8	VEP03H52G	MAIN P.C.B.	1	E.S.D. (RTL) PL
8	VEP03H52L	MAIN P.C.B.	1	E.S.D. (RTL) PRK
8	VEP03H52B	MAIN P.C.B.	1	E.S.D. (RTL) EG E EF
8	VEP03H52H	MAIN P.C.B.	1	E.S.D. (RTL) EB
8	VEP03H52F	MAIN P.C.B.	1	E.S.D. (RTL) EP
8	VEP03H52C	MAIN P.C.B.	1	E.S.D. (RTL) GC
8	VEP03H52J	MAIN P.C.B.	1	E.S.D. (RTL) GN
8	VEP03H52D	MAIN P.C.B.	1	E.S.D. (RTL) EE
8	VEP03H52E	MAIN P.C.B.	1	E.S.D. (RTL) GK
8	VEP03H52K	MAIN P.C.B.	1	E.S.D. (RTL) GJ
8	VEP03H52M	MAIN P.C.B.	1	E.S.D. (RTL) GT
8	VEP03H52N	MAIN P.C.B.	1	E.S.D. (RTL) GD
9	VMB4094	BATTERY OUT SPRING	1	
10	VMD5849	MAIN FRAME	1	
11	VMS7810	BATTERY DOOR SHAFT	1	
12	VMB4104	BATTERY DOOR SPRING	1	
13	VGL1238	ACCESS PANEL LIGHT	1	
14	VGU0C49	BATTERY LOCK KNOB	1	
15	VMB3852	SD LOCK SPRING	1	
16	VGU0C48	DOOR SW LEVER	1	
17	VMP8897	BATTERY DOOR PLATE	1	
18	VGQ9278	BATTERY DOOR KNOB	1	
19	VKM7459	BOTTOM CASE	1	(K)
19	VKM7493	BOTTOM CASE	1	(S)
20	VKF4330	BATTERY DOOR	1	(K)
20	VKF4337	BATTERY DOOR	1	(S)
21	VXU1668	ZOOM OPERATION RUBBER	1	
22	VGU0C52	S/S BUTTON	1	
23	VEP01A08A	BATTERY FPC	1	
24	VMP9079	ZOOM PLATE	1	
25	VMP9077	HINGE REINFORCEMENT PLATE	1	
26	VEP06G43A	SIDE R P.C.B.	1	E.S.D. (RTL)
27	VGU0C47	OPERATION BUTTON	1	(K)
27	VGU0C54	OPERATION BUTTON	1	(S)
28	L0AA01A00029	SPEAKER UNIT	1	
29	VGL1277	SR PANEL LIGHT	1	
30	VSC6046	SHIELD PLATE R	1	
31	VYK2L41	SIDE CASE(R) 2 UNIT	1	PK PLK PRK
31	VYK2M82	SIDE CASE(R) 2 UNIT	1	PS PLS
31	VYK2Q00	SIDE CASE(R) 2 UNIT	1	PCK
31	VYK2Q19	SIDE CASE(R) 2 UNIT	1	PCS
31	VYK2Q07	SIDE CASE(R) 2 UNIT	1	EGK EK EBK EFK EPK GCK
				GNK EEK GJK
31	VYK2Q26	SIDE CASE(R) 2 UNIT	1	EGS ES EBS EFS EPS GCS
				GNS EES GJS
31	VYK2Q14	SIDE CASE(R) 2 UNIT	1	GKK
31	VYK2Q35	SIDE CASE(R) 2 UNIT	1	GKS
31	VYK2Q64	SIDE CASE(R) 2 UNIT	1	GT
31	VYK2R18	SIDE CASE(R) 2 UNIT	1	GD
32	VYK2M78	MODE DIAL UNIT	1	(K)
32	VYK2M84	MODE DIAL UNIT	1	(S)
48	VEP09152A	LCD DET P.C.B.	1	
49	VWJ2039	SIDE_R FPC	1	
50	VYK2L45	FRONT CASE UNIT	1	(K)
50	VYK2M87	FRONT CASE UNIT	1	(S)
51	VMG1724	RUBBER	1	(K)
51	VMG1708	RUBBER	1	(S)
52	VMG1724	RUBBER	1	(K)
52	VMG1708	RUBBER	1	(S)
53	VMG1724	RUBBER	1	(K)
53	VMG1708	RUBBER	1	(S)
63	VGQ9796	TRIPOD PIECE	1	(K)
63	VGQ9841	TRIPOD PIECE	1	(S)
64	VKM7113	BATTERY CASE	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B1	XQN16+BJ5FJK	SCREW	1	(K)
B1	XQN16+BJ5FN	SCREW	1	(S)
B2	XQN16+BJ5FJK	SCREW	1	(K)
B2	XQN16+BJ5FN	SCREW	1	(S)
B3	XQN16+BJ5FJK	SCREW	1	(K)
B3	XQN16+BJ5FN	SCREW	1	(S)
B4	XQN16+BJ5FJK	SCREW	1	(K)
B4	XQN16+BJ5FN	SCREW	1	(S)
B5	XQN16+BJ5FJK	SCREW	1	(K)
B5	XQN16+BJ5FN	SCREW	1	(S)
B6	XQN16+BJ5FJK	SCREW	1	(K)
B6	XQN16+BJ5FN	SCREW	1	(S)
B7	XQN16+BJ5FJK	SCREW	1	(K)
B7	XQN16+BJ5FN	SCREW	1	(S)
B8	XQN16+BJ5FJK	SCREW	1	(K)
B8	XQN16+BJ5FN	SCREW	1	(S)
B9	XQN16+BJ4FN	SCREW	1	
B10	XQN16+BJ4FN	SCREW	1	
B11	XQN16+BJ4FN	SCREW	1	
B12	XQN16+BJ4FN	SCREW	1	
B13	XQN16+BJ4FN	SCREW	1	
B14	XQN16+BJ4FN	SCREW	1	
B15	XQN16+BJ4FN	SCREW	1	
B16	XQN16+BJ4FN	SCREW	1	
B17	XQN16+BJ4FN	SCREW	1	
B18	XQN16+BJ4FN	SCREW	1	
B19	XQN16+BJ4FN	SCREW	1	
B20	XQN16+BJ4FN	SCREW	1	
B21	XQN16+BJ4FN	SCREW	1	
B22	XQN16+B3FN	SCREW	1	
B23	XQN16+B3FN	SCREW	1	
B24	XQN16+BJ4FN	SCREW	1	
B25	XQN16+BJ4FN	SCREW	1	
B26	XQN16+BJ4FN	SCREW	1	
B27	VHD1411	SCREW	1	
B28	VHD1411	SCREW	1	
B31	XQN16+BJ5FJK	SCREW	1	(K)
B31	XQN16+BJ5FN	SCREW	1	(S)
B32	XQN16+BJ5FJK	SCREW	1	(K)
B32	XQN16+BJ5FN	SCREW	1	(S)

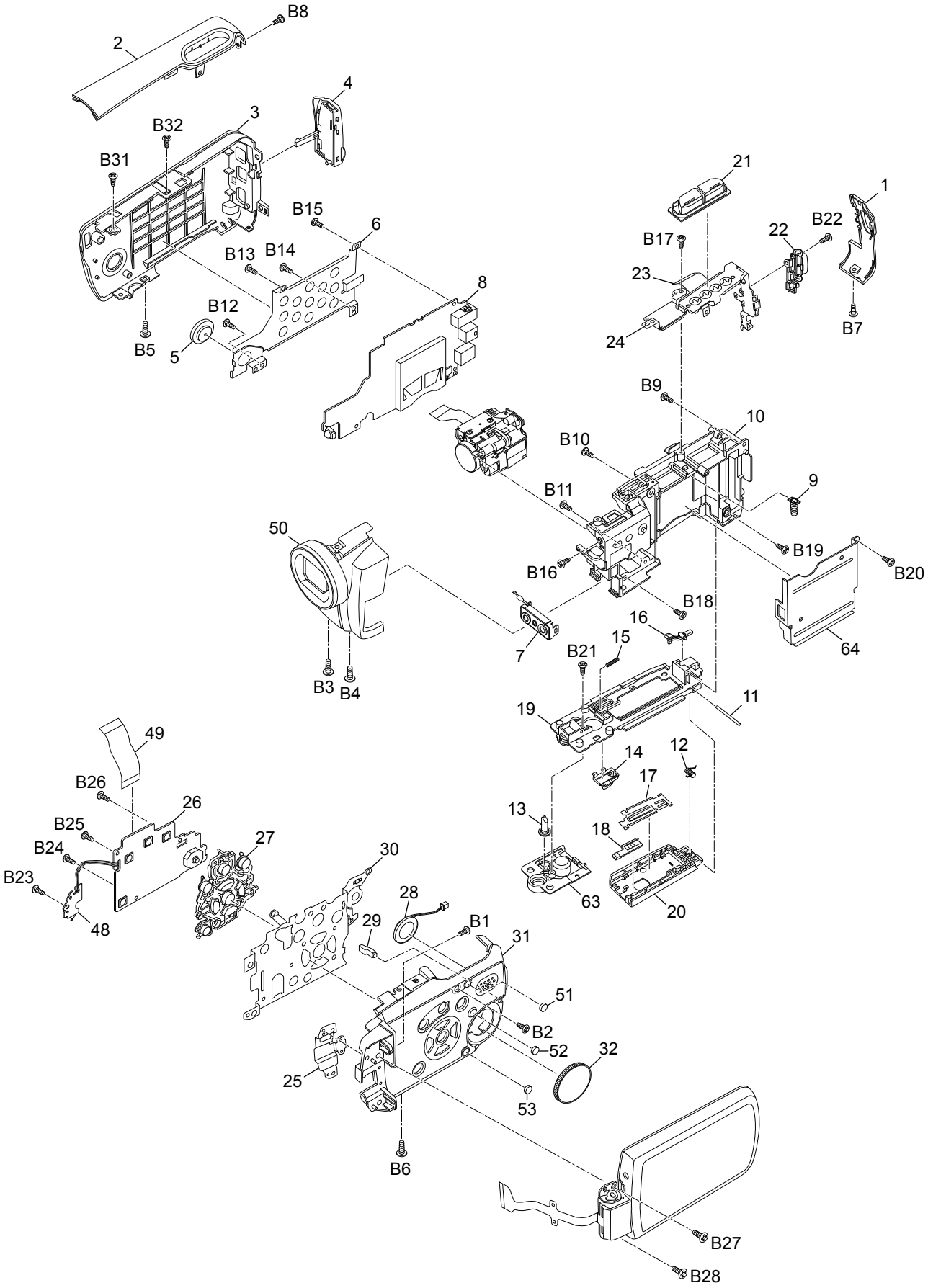
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
33	VGQ9793	HINGE COVER(T)	1	(K)
33	VGQ9838	HINGE COVER(T)	1	(S)
34	VXD0519	LCD HINGE(1) UNIT	1	
35	VGQ9794	HINGE COVER(B)	1	(K)
35	VGQ9839	HINGE COVER(B)	1	(S)
36	VSC6003	LCD EARTH PLATE	1	
37	VEP29205A	MONITOR P.C.B.	1	E.S.D. (RTL)
38	VGL1165	PRISM SHEET (A)	1	
39	VGL1166	PRISM SHEET (B)	1	
40	VGL1164	DIFFUSION SHEET	1	
41	LSGL0505	LIGHTING PLATE	1	
42	VGL1167	REFLECTION SHEET	1	
43	VKM7457	LCD CASE(B)	1	PK PC PL PR EGK EK EBK
				EF EPK GCK GNK EE GK
				GJK GT GD
43	VKM7490	LCD CASE(B)	1	PS EGS ES EBS EPS GCS
				GNS GJS
44	VSC5790	LCD SHIELD CASE	1	
45	L5BDDYH00025	LCD PANEL	1	
46	VGQ8662	HOLDER	1	
47	VUKM7489	LCD CASE UNIT	1	(S)
47	VUKM7456	LCD CASE UNIT	1	(K)
B29	VHD1680	SCREW	1	
B30	VHD1680	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
200	VXW0926	LENS UNIT (W/O CCD)	1	
201	VMX3282	CCD CUSHION RUBBER	1	
202	VDL1390	OPTICAL FILTER	1	
203	VXQ1505	BODY UNIT	1	
204	VXP2253	2ND MOVING FRAME UNIT	1	
205	VXP2905	IRIS UNIT	1	
206	VXQ1136	3RD MOVING FRAME UNIT	1	
207	VXP2255	4TH MOVING FRAME UNIT	1	
208	VMS7296	GUIDE POLE	1	
209	VMS7828	GUIDE POLE	1	
210	VDW1433	MASTER FLANGE	1	
211	L6HA64NC0005	ZOOM MOTOR UNIT	1	
212	L6HA64NC0006	FOCUS MOTOR UNIT	1	
213	VEK0L89	CCD UNIT	1	P PC PL PR GT GD
213	VEK0L90	CCD UNIT	1	EG E EB EF EP GC GN EE
				GK GJ
214	VEP22392A	CCD FPC	1	
B200	XQN16+CJ4FJR	SCREW	1	
B201	XQN16+CJ4FJR	SCREW	1	
B202	XQN16+CJ7FJ	SCREW	1	
B203	XQN16+CJ7FJ	SCREW	1	
B204	XQN16+CJ7FJ	SCREW	1	
B205	XQN16+CJ4FJR	SCREW	1	
B206	XQN16+CJ4FJR	SCREW	1	
B207	XQN16+CJ4FJR	SCREW	1	
B208	XQN16+CJ4FJR	SCREW	1	
B209	XQN16+CJ4FJR	SCREW	1	
B210	XQN16+CJ4FJR	SCREW	1	
B211	XQN16+CJ4FJR	SCREW	1	

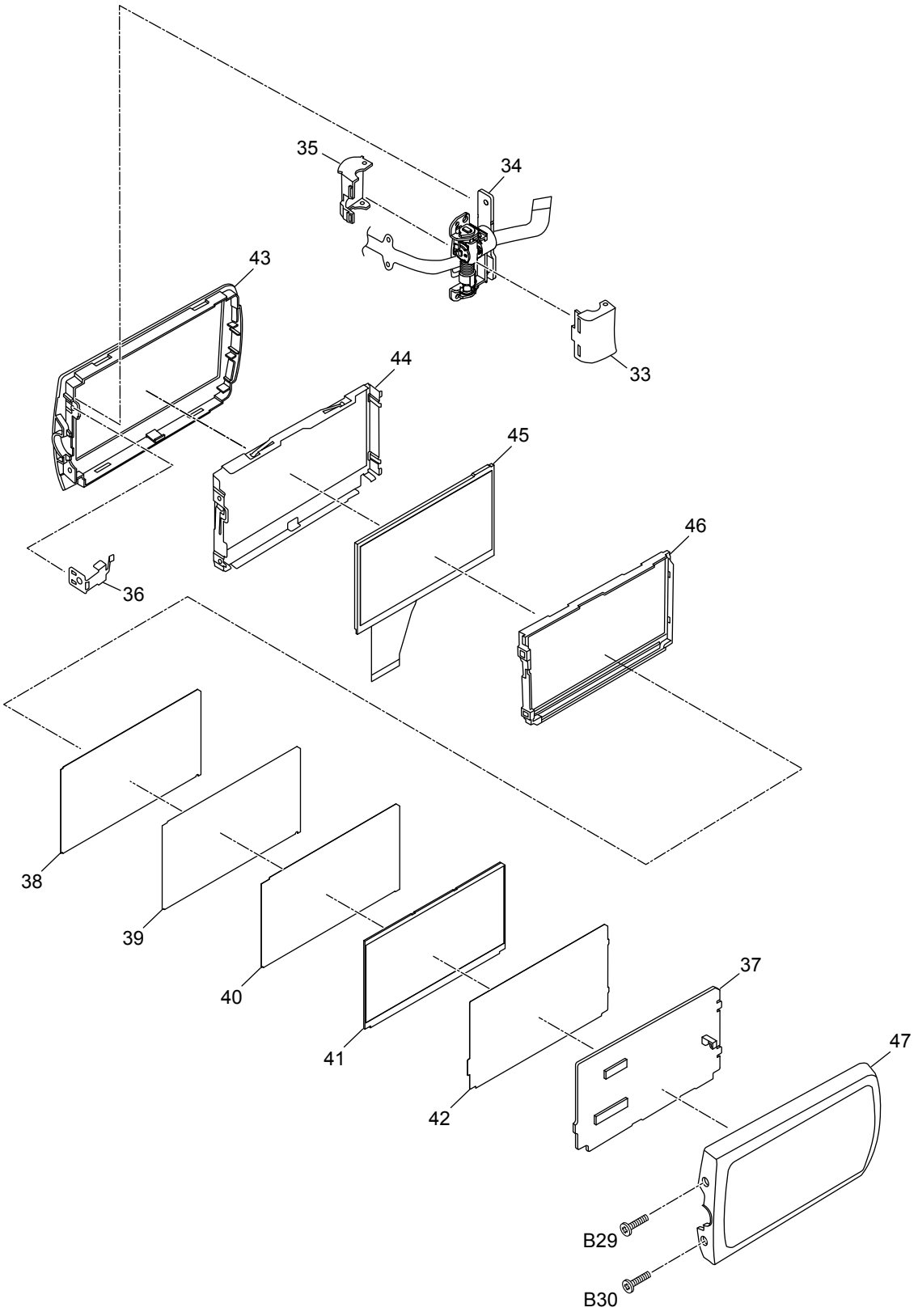
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
301	VFF0417-S	CD-ROM	1	
⚠ 301	VFF0420-S	CD-ROM	1	EG E EP GC
302	K2KZ9CB00002	AV CABLE	1	
303	K2KZ4CB00011	USB CABLE	1	
304	VFC4308	HAND STRAP	1	
305	VPF1221	CAMERA BAG	1	
⚠ 306	VSK0694	AC ADAPTOR	1	P PC
⚠ 306	VSK0695	AC ADAPTOR	1	PL EG E EB EF EP GC GN
				EE GK GJ
⚠ 306	VSK0702	AC ADAPTOR	1	PRK
⚠ 306	VSK0703	AC ADAPTOR	1	GT
⚠ 306	VSK0704	AC ADAPTOR	1	GD
⚠ 307	----	BATTERY PACK	1	
308	VPN6675	PAD	1	
309	VPG1R75	PACKING CASE	1	P PC PL PR
309	VPG1R76	PACKING CASE	1	EG E EB EF EP GC GN EE
				GK GJ GT
310	VPF1253	BAG, POLYETHYLENE	1	
⚠ 311	VQT1R00	OPERATING INSTRUCTIONS	1	P PC
		(ENGLISH)		
⚠ 311	VQT1R01	OPERATING INSTRUCTIONS	1	PC
		(CANADIAN FRENCH)		
⚠ 311	VQT1R02	OPERATING INSTRUCTIONS	1	PL
		(ENGLISH)		
⚠ 311	VQT1R03	OPERATING INSTRUCTIONS	1	PL PR
		(SPANISH)		
⚠ 311	VQT1R52	OPERATING INSTRUCTIONS	1	EG
⚠ 311	VQT1R53	OPERATING INSTRUCTIONS	1	EG
⚠ 311	VQT1R54	OPERATING INSTRUCTIONS	1	EG
⚠ 311	VQT1R55	OPERATING INSTRUCTIONS	1	E
⚠ 311	VQT1R56	OPERATING INSTRUCTIONS	1	E
⚠ 311	VQT1R13	OPERATING INSTRUCTIONS	1	EB GN GJ
		(ENGLISH)		
⚠ 311	VQT1R05	OPERATING INSTRUCTIONS	1	EF
		(FRENCH)		
⚠ 311	VQT1R57	OPERATING INSTRUCTIONS	1	EP
⚠ 311	VQT1R58	OPERATING INSTRUCTIONS	1	EP
⚠ 311	VQT1R59	OPERATING INSTRUCTIONS	1	GC
⚠ 311	VQT1R60	OPERATING INSTRUCTIONS	1	GC
⚠ 311	VQT1R61	OPERATING INSTRUCTIONS	1	GC
⚠ 311	VQT1R22	OPERATING INSTRUCTIONS	1	EE
		(RUSSIAN)		
⚠ 311	VQT1R23	OPERATING INSTRUCTIONS	1	EE
		(UKRAINIAN)		
⚠ 311	VQT1R24	OPERATING INSTRUCTIONS	1	GK
		(CHINESE(SIMPLFIED))		
⚠ 311	VQT1R20	OPERATING INSTRUCTIONS	1	GJ
		(THAI)		
⚠ 311	VQT1R30	OPERATING INSTRUCTIONS	1	GT
		(CHINESE(TRADITIONAL))		
⚠ 311	VQT1R44	OPERATING INSTRUCTIONS	1	GD
⚠ 312	K2CT3CA00004	AC CABLE	1	EB GC
⚠ 312	K2CR2CA00003	AC CABLE	1	GD
⚠ 313	K2CJ2DA00008	AC CABLE	1	GN
⚠ 313	K2CA2CA00027	AC CABLE	1	GT
⚠ 314	K2CA2CA00025	AC CABLE	1	P PC PL
⚠ 314	K2CA2CA00020	AC CABLE	1	GK
⚠ 316	K2CJ2DA00006	AC CABLE	1	PR
⚠ 317	K2CP2YY00001	AC CABLE	1	GJ
⚠ 318	K2CQ2CA00006	AC CABLE	1	EG E EF EP GC EE

S7. Exploded View

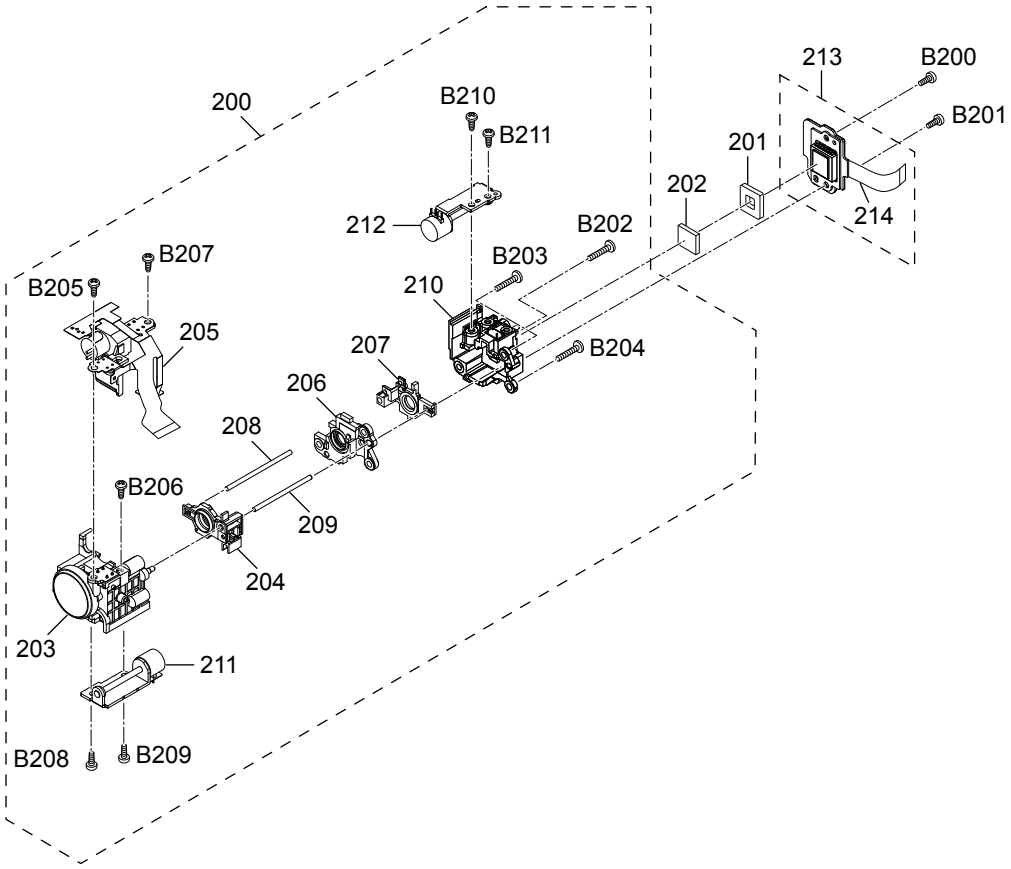
S7.1. Frame and Casing Section



S7.2. LCD Section



S7.3. Lens Section



S7.4. Packing Parts and Accessories Section