

Service Manual

SD Video Camera



Model No. **SDR-SW20P**
SDR-SW20PC
SDR-SW20PL
SDR-SW20E
SDR-SW20EB
SDR-SW20EE
SDR-SW20EF
SDR-SW20EG
SDR-SW20EP
SDR-SW20GC
SDR-SW20GN
SDR-SW28GK

Vol. 1

Colour

(S).....Silver Type

(R).....Red Type

WARNING

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

Panasonic®

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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 $1\text{ M}\Omega$ 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

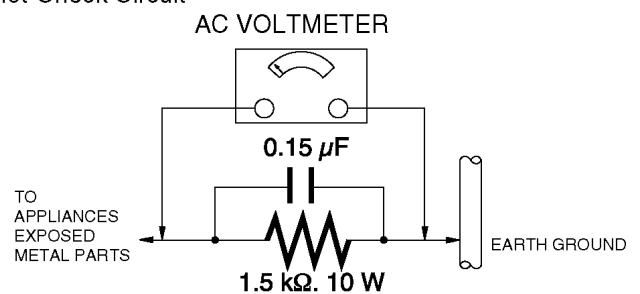


Figure. 1

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)

2.3.1. Information for Your Safety

IMPORTANT

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

WARNING

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

CAUTION

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

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

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

2.3.2. Caution for AC Mains Lead

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

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

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



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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

2.3.2.1. Important

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

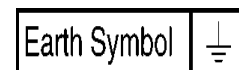
Blue	Neutral
Brown	Live

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

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

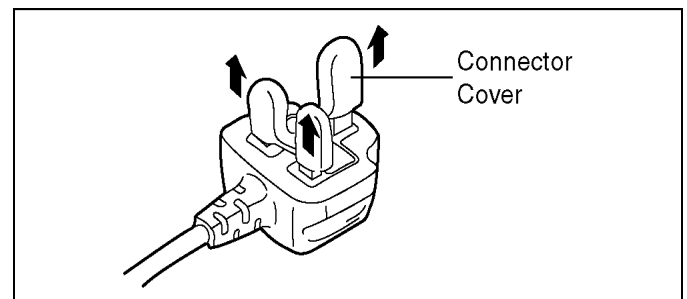
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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



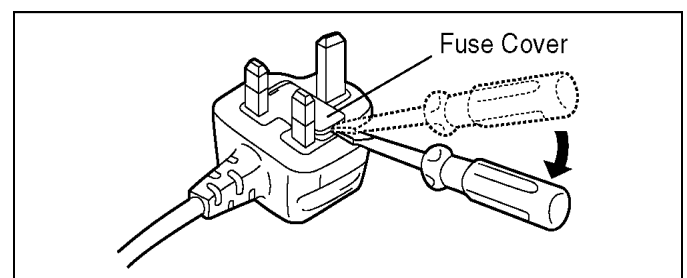
2.3.2.2. Before Use

Remove the Connector Cover as follows.

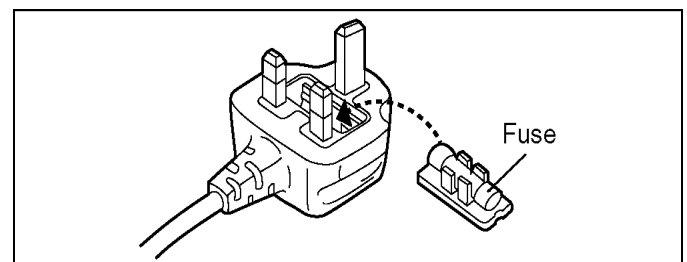


2.3.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



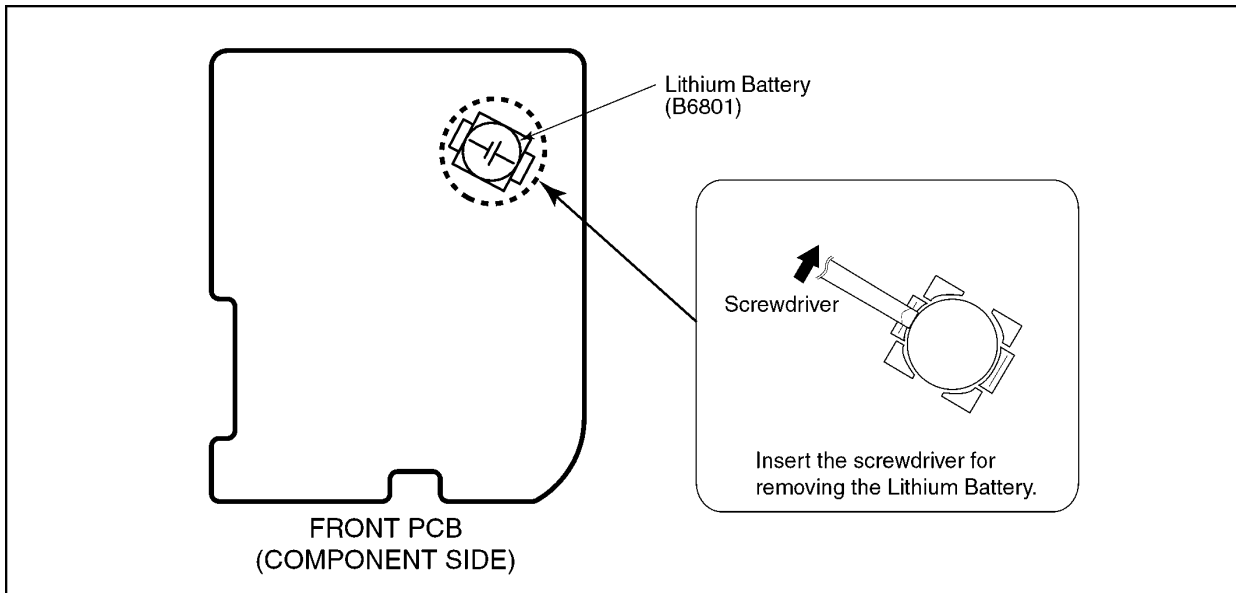
2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery

2.4.1. Replacement Procedure

1. Remove the FRONT PCB. (Refer to Disassembly Procedures.)
2. Remove the Lithium battery (Ref. No. "B6801" at component side of FRONT 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 fabricant.

NOTE:

Above caution is applicable for a battery pack which is for SDR-SW20/SW28 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/facilities.

- a. Schematic diagram, Block Diagram and PCB layout of MAIN PCB.
- b. Parts list for individual parts for MAIN PCB.

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

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

- MAIN PCB (VEP03H40A : SDR-SW20P/PC)
- MAIN PCB (VEP03H40B : SDR-SW20E/EF/EG)
- MAIN PCB (VEP03H40C : SDR-SW20GC)
- MAIN PCB (VEP03H40D : SDR-SW20EE)
- MAIN PCB (VEP03H40E : SDR-SW28GK)
- MAIN PCB (VEP03H40F : SDR-SW20EP)
- MAIN PCB (VEP03H40H : SDR-SW20PL)
- MAIN PCB (VEP03H40J : SDR-SW20EB)
- MAIN PCB (VEP03H40K : SDR-SW20GN)

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

There are six kinds of SDR-SW20/SW28.

- a) SDR-SW20P
- b) SDR-SW20PC
- c) SDR-SW20E/EB/EF/EG/EP
- d) SDR-SW20EE
- e) SDR-SW20GN
- f) SDR-SW20PL/GC, SDR-SW28GK

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-SW20P
The nameplate for this model show the following
Safety registration mark.



b) SDR-SW20PC
The nameplate for this model show the following
Safety registration mark.



c) SDR-SW20E/EB/EF/EG/EP
The nameplate for these models show the following
Safety registration mark.



d) SDR-SW20EE
The nameplate for this model show the following
Safety registration mark.



e) SDR-SW20GN
The nameplate for this model show the following
Safety registration mark.



f) SDR-SW20PL/GC, SDR-SW28GK
The nameplate for these models do not show any above Safety registration mark.



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
Audio output level	316 mV, 600
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)	33.8 mm (W) x 63.4 mm (H) x 115.4 mm (D) [1.33" (W) x 2.50" (H) x 4.54" (D)]
Mass (Weight)	Approx. 224 g (0.49 lbs.) without an SD card and supplied battery
Mass (Weight) in operation	Approx. 246 g (0.54 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".
Integral water-resistant function	Equivalent to IEC 60529 "Degrees of protection provided by enclosures (IP code)" IPX8. (Supports use underwater down to a depth of 1.5 m (5 feet) for up to 30 minutes.)
Shock-proof performance	Discrete drop tests, where the unit is dropped from a height of 1.2 m (4 feet) in accordance with "MIL-STD 810F Method 516.5—Shock," passed. (The product was dropped on top of 5 cm (2") thick plywood.)
Dustproof performance	Equivalent to IEC 60529 "Degrees of protection provided by enclosures (IP code)" IP5X.

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, 1/25) [Approx. 2 lx with the Colour night view function]
Video output level	1.0 Vp-p, 75
Audio output level	316 mV, 600
USB	Card reader function (E/EB/EF/EG/EP) Card reader/writer function (other areas) (No copyright protection support) Hi-Speed USB (USB 2.0), USB terminal Type miniAB, PictBridge-compliant
Dimensions (excluding the projecting parts)	33.8 mm (W) x 63.4 mm (H) x 115.4 mm (D)
Mass (Weight)	Approx. 224 g without an SD card and supplied battery
Mass (Weight) in operation	Approx. 246 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".
Integral water-resistant function	Equivalent to IEC 60529 "Degrees of protection provided by enclosures (IP code)" IPX8. (Supports use underwater down to a depth of 1.5 m for up to 30 minutes.)
Shock-proof performance	Discrete drop tests, where the unit is dropped from a height of 1.2 m in accordance with "MIL-STD 810F Method 516.5—Shock," passed. (The product was dropped on top of 5 cm thick plywood.)
Dustproof performance	Equivalent to IEC 60529 "Degrees of protection provided by enclosures (IP code)" IP5X.

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 hours 15 minutes	
Recordable time	Maximum continuously recordable time	Actual recordable time
	Approx. 1 hour 10 minutes	Approx. 40 minutes

- 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 minutes	6 minutes	12 minutes
512 MB	6 minutes	12 minutes	25 minutes
1 GB	12 minutes	25 minutes	50 minutes
2 GB	25 minutes	50 minutes	1 hour 40 minutes
4 GB	50 minutes	1 hour 40 minutes	3 hours 20 minutes
8 GB	1 hour 40 minutes	3 hours 20 minutes	6 hours 40 minutes
16 GB	3 hours 20 minutes	6 hours 40 minutes	13 hours 20 minutes

- The maximum continuous recording time for this unit is 8 hours.
- 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.

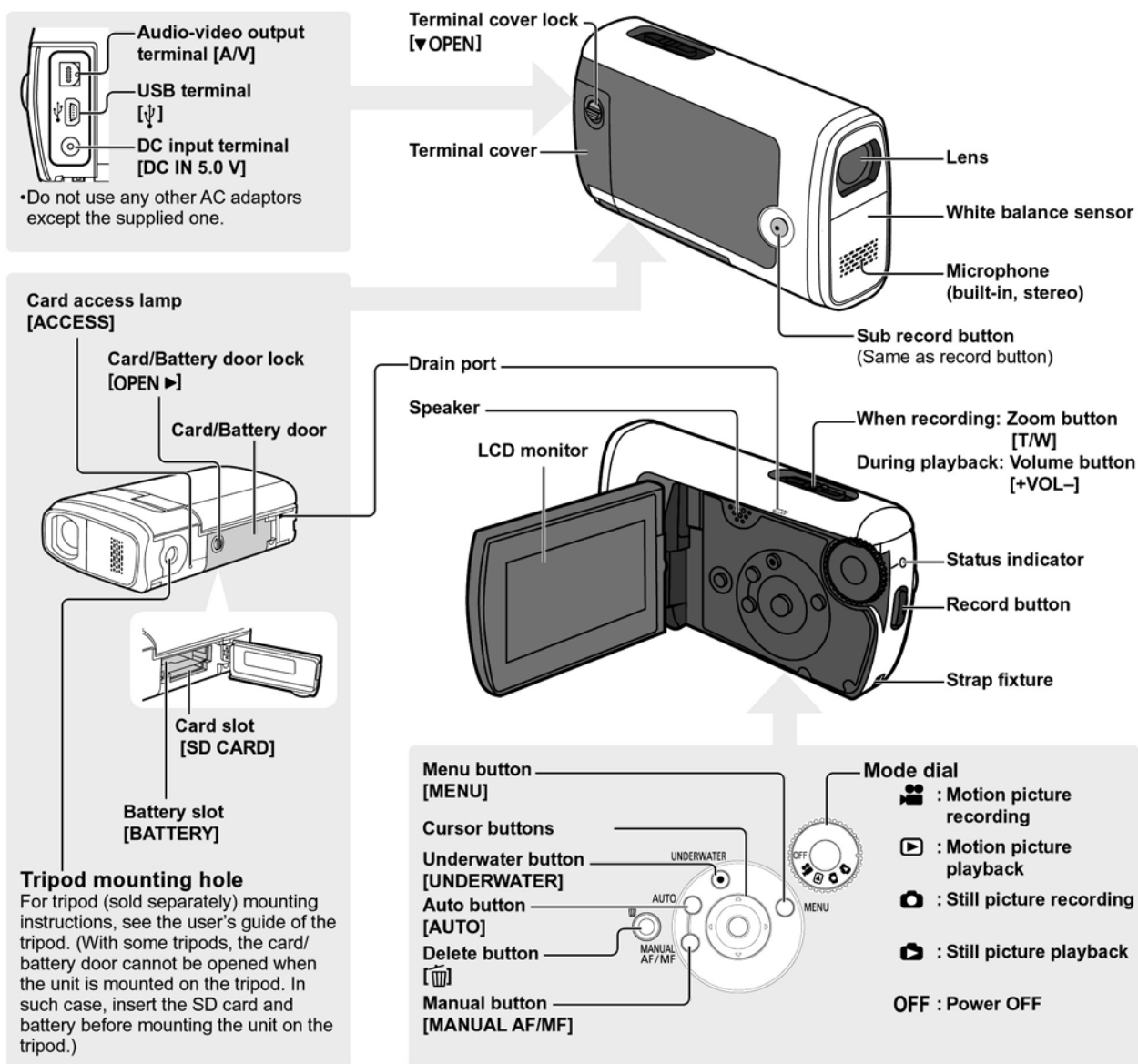
Picture quality and number of pictures for Panasonic SD cards (approximate)

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

- 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.

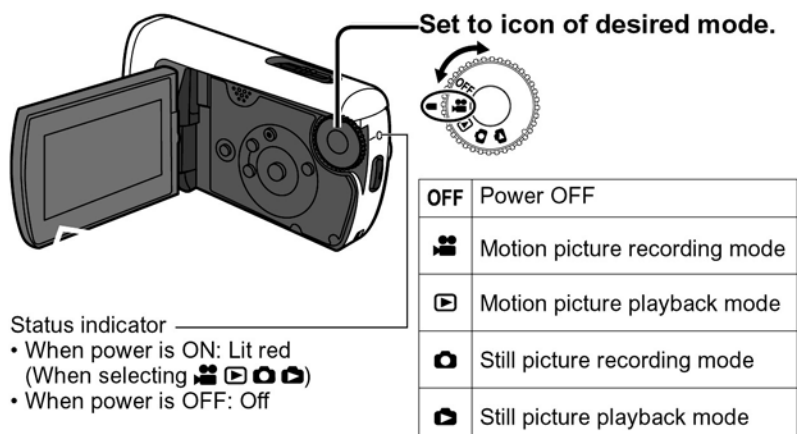
5 Location of Controls and Components

Parts identification



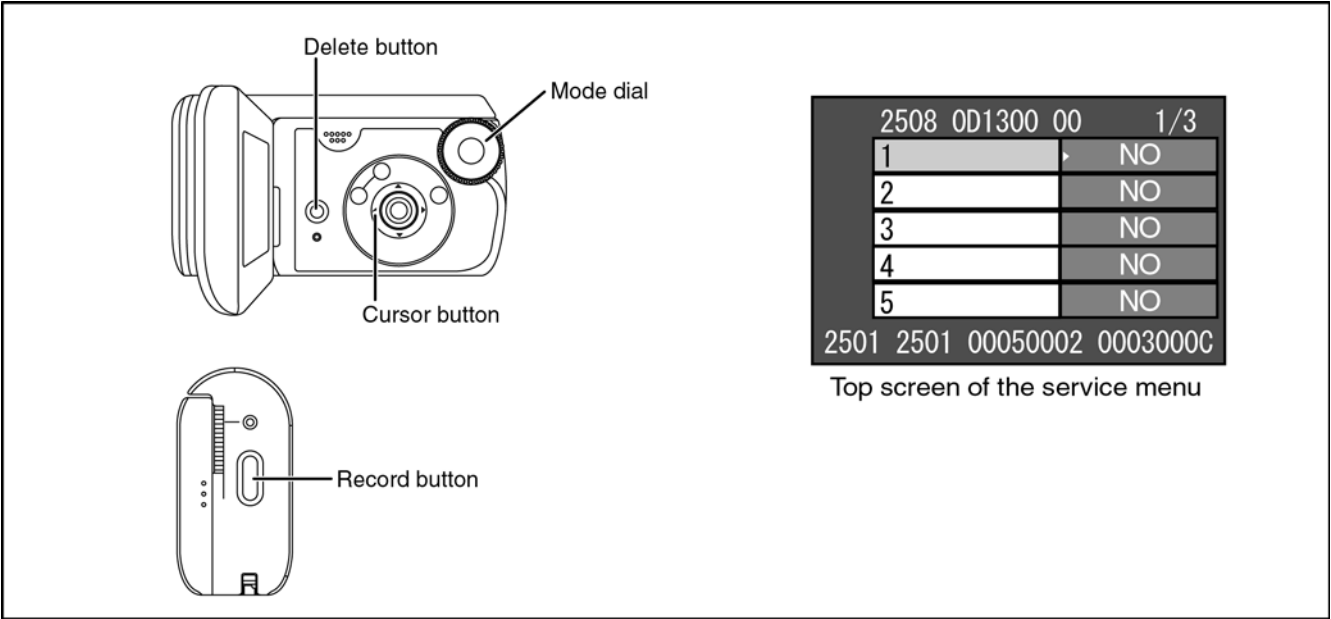
Turning power ON/OFF (Selecting modes)

Rotate the mode dial slowly but surely to the desired position without turning it recklessly.



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.



Service mode menu

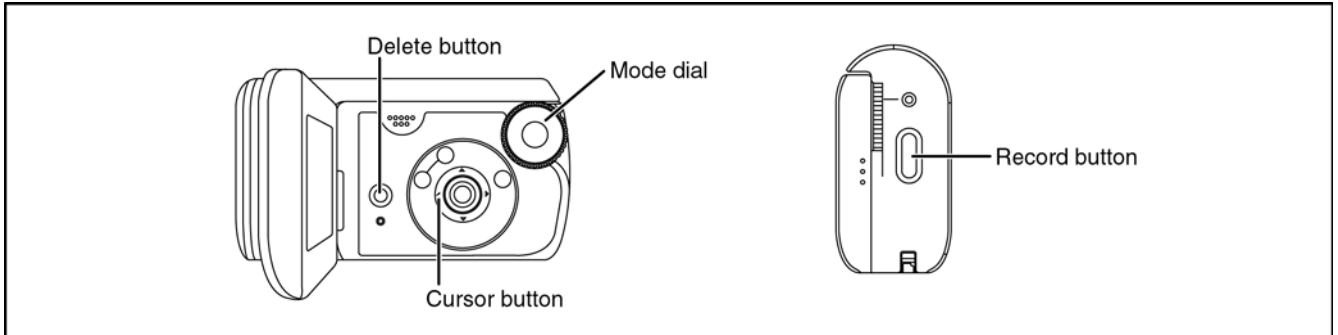
Screen display	Contents	Function
4	Lock search history indication	Display an error cord for three histories saved in EEPROM

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

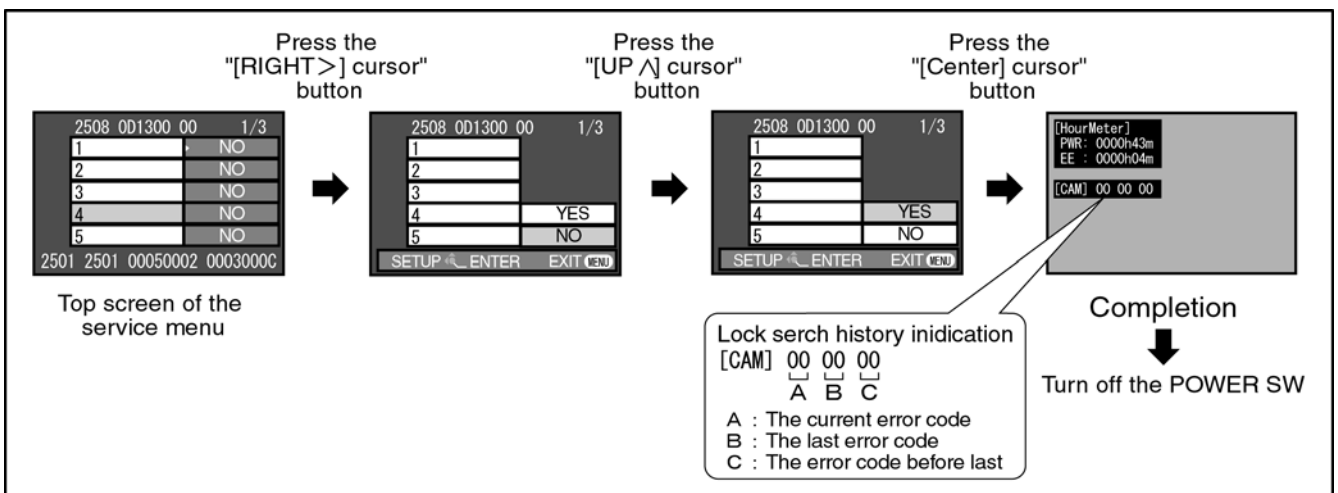
- 3. End method of the top screen of the service menu
Top screen of the service menu is finished by POWER OFF.

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.

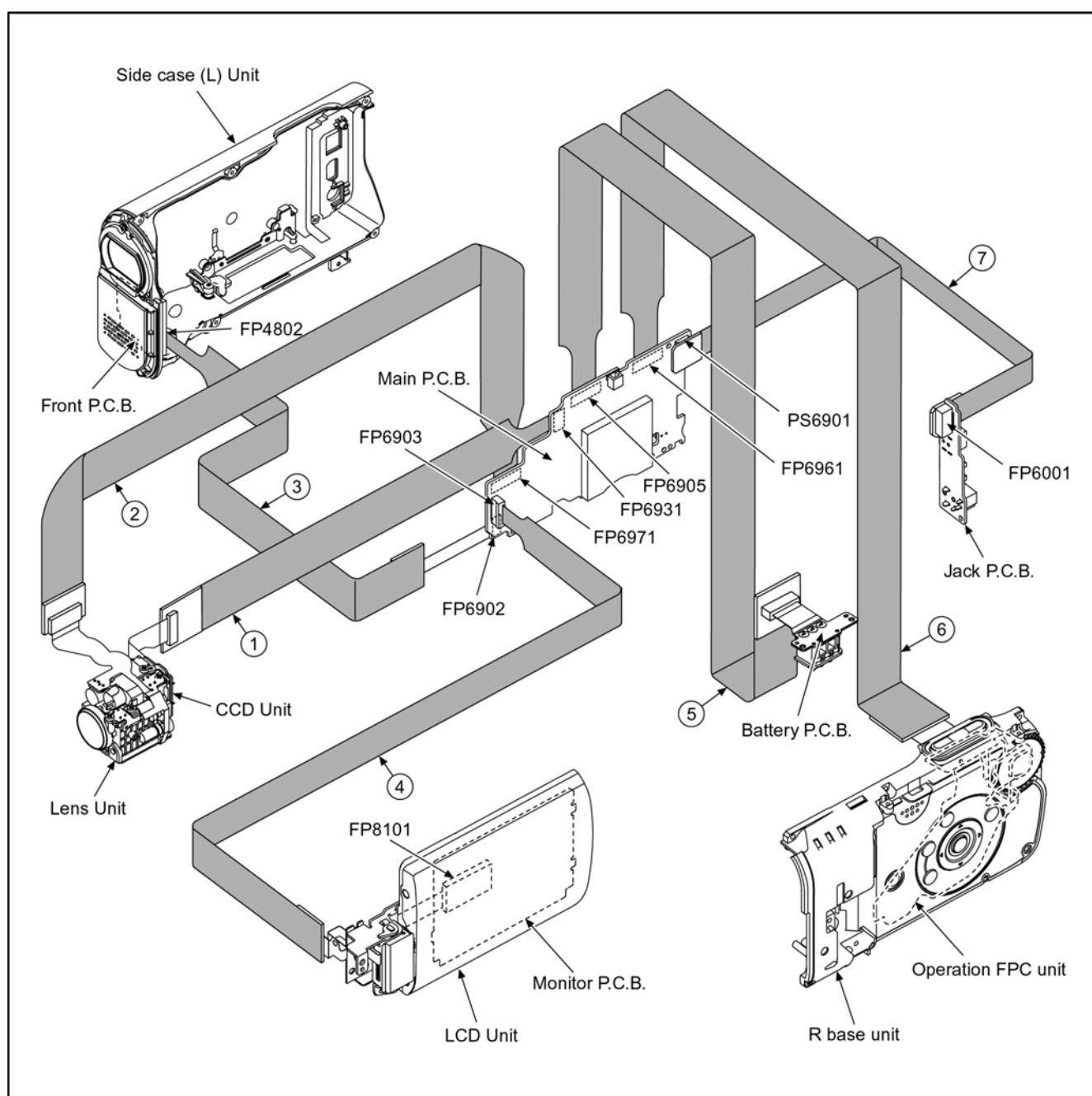
The adjustment instruction is available at "software download" on the "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with Maintenance software.

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	VFK1364	FP6931 (MAIN) - CCD UNIT	14PIN 0.5 FFC
2	VFK1461	FP6971 (MAIN) - LENS UNIT	20PIN 0.5 FFC
3	VFK1388	FP6902 (MAIN) - FP4802 (FRONT)	12PIN 0.5 FFC
4	VFK1716	FP6903 (MAIN) - FP8101 (MONITOR)	25PIN 0.3 FFC
5	VFK1461	FP6905 (MAIN) - BATTERY CHATCER UNIT	20PIN 0.5 FFC
6	VFK1461	FP6961 (MAIN) - OPERATION FPC UNIT	20PIN 0.5 FFC
7	VFK1870	PS6901 (MAIN) - FP6001 (JACK)	20PIN B to B



8 Disassembly and Assembly Instructions

NOTES ON REPAIR AND MAINTENANCE OF THE UNIT

1. Confirm the state of the polka dot sheet before starting repair or maintenance. (Three parts of the Tripod/LCD/Main Frame Unit)

POLKA DOTS SHEET	State	Repair/Periodic maintenance	Remarks/Repair conditions
 Red pattern	NORMAL	REPAIRABLE	When the POLKA DOT sheets for all three sections of the TRIPOD, LCD, and Main Frame Unit indicate the state shown in the figures on the left, the sections can be repaired, and the maintenance for these parts can be executed. Replace all designated parts.
 All red	EXPOSED TO WATER	UNREPAIRABLE	When any of the POLKA DOT sheets (for any of the TRIPOD, LCD, and Main Frame Unit) indicates the state shown in the figure on the left, the sections cannot be repaired, and maintenance for these parts cannot be executed.

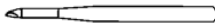
2. Parts designated for replacement at the time of repair or periodic maintenance.

(Parts in other sections other than the section to be repaired must be replaced. Replace whenever repairs are needed.)

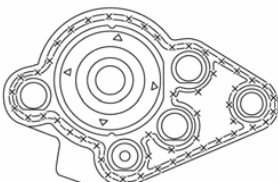
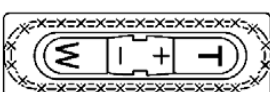
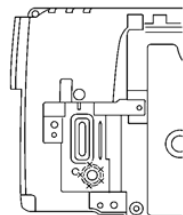
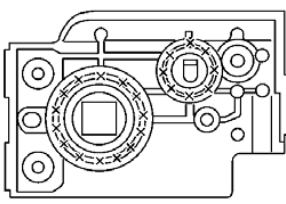
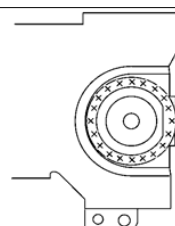
All three kinds of A/B/C must be replaced. Since these parts are integrated into a kit, all parts included must be replaced.

TYPE	PARTS NAME	PARTS NO.	REF. NO. (CABINET PARTS LOCATION)	REMARKS
A	WATERPROOF RUBBER KIT	VUMG1791	3/7-10/15/34-37/54/ 56/72/75/83/89	
B	WATERPROOF CABINET KIT	VUYK2J30A	2/12/48/51/53/80/86	SDR-SW20 PR,PLR
B	WATERPROOF CABINET KIT	VUYK2J30B	2/12/48/51/53/80/86	SDR-SW20 PCR
B	WATERPROOF CABINET KIT	VUYK2J30C	2/12/48/51/53/80/86	SDR-SW20 EGR,ER,EBR,EFR,EPR,GCR,GNR,EER
B	WATERPROOF CABINET KIT	VUYK2J30D	2/12/48/51/53/80/86	SDR-SW28 GKR
B	WATERPROOF CABINET KIT	VUYK2J30E	2/12/48/51/53/80/86	SDR-SW20 PS,PLS
B	WATERPROOF CABINET KIT	VUYK2J30F	2/12/48/51/53/80/86	SDR-SW20 PCS
B	WATERPROOF CABINET KIT	VUYK2J30G	2/12/48/51/53/80/86	SDR-SW20 EGS,ES,EBS,EFS,EPS,GCS,GNS,EES
B	WATERPROOF CABINET KIT	VUYK2J30H	2/12/48/51/53/80/86	SDR-SW28 GKS
C	LCD BOTTOM CASE UNIT	VUKM7340	93	(SILVER)
C	LCD BOTTOM CASE UNIT	VUKM7345	93	(RED)

3. Tools required for repairs and periodic maintenance

			
GREASE : RFKZ0463	SYRINGE : RFKZ0479	SILICONE TIPS : RFKZ0478 (FLAT CHISEL)	TORQUE DRIVER : RFKZ0456

4. Sections other than the main unit case and the LCD case O-ring where grease must be applied.(Apply the grease indicated by the "XX".)

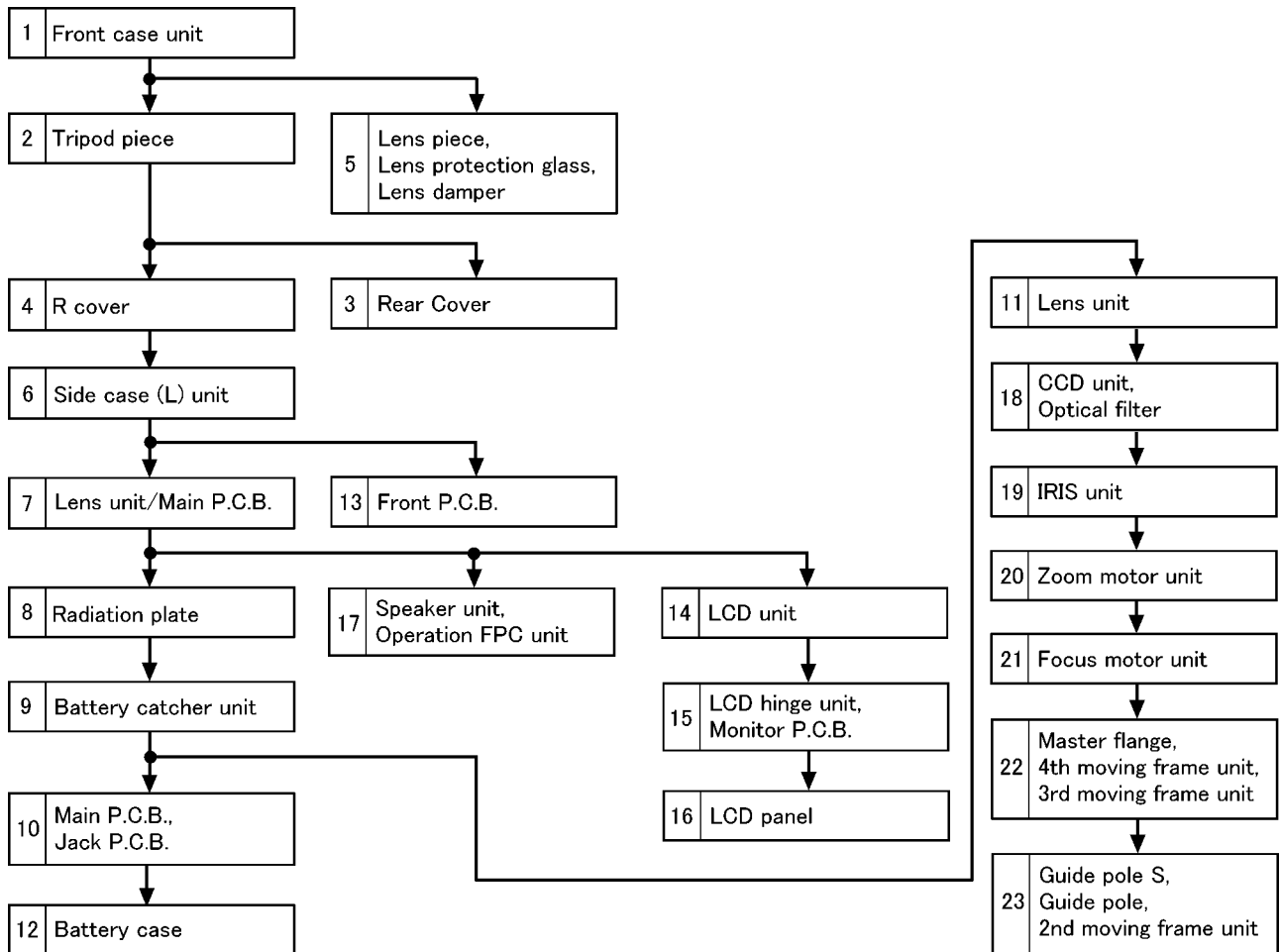
		
OPERATION BUTTON	ZOOM BUTTON	RECORD BUTTON
		
GND O-RING	TRIPOD UNIT	SUB RECORD BUTTON

5. Notes on using the screws

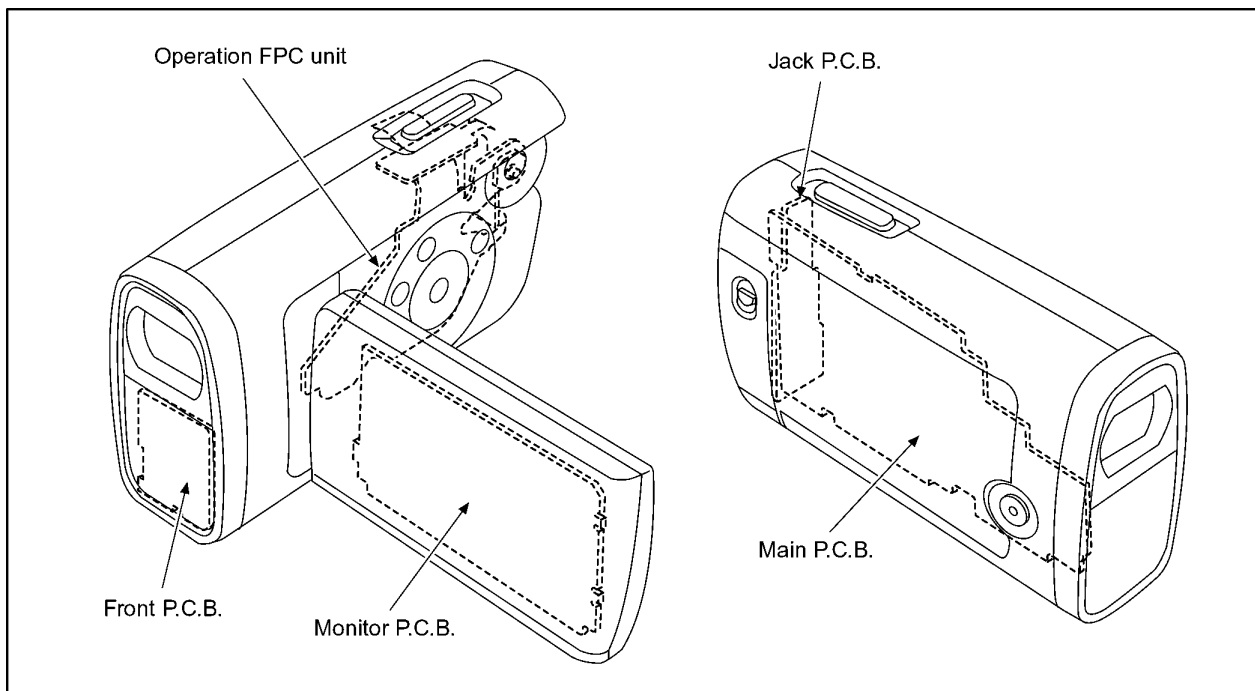
Certain torque values are designated for tightening the screws in some sections.

Tighten the screws to the designated torque value in the sections indicated during disassembly or assembly.

8.1. Disassembly Flow Chart



8.2. PCB Location



8.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Front case unit	Fig. D1	2 Screws (A) Front case unit
2	Tripod piece	Fig. D2	2 Screws (B) Access panel light Tripod O ring Panel light O ring Tripod piece
3	Rear cover	Fig. D3	2 Screws (C) Rear cover
4	R cover	Fig. D4 Fig. D5	2 Screws (D) 5 Locking tabs R cover
5	Lens piece, Lens protection glass Lens damper	Fig. D6	3 Screws (E) Lens piece Lens protection glass Lens damper
6	Side case (L) unit	Fig. D7 Fig. D8 Fig. D9	6 Screws (F) Case O ring FP4802(Flex) 1 Screw (G) Battery cover Side case (L) unit Attention when installing the Case O ring NOTE: (When Installing)
7	Lens unit/Main P.C.B.	Fig. D10 Fig. D11	4 Screws (H) FP6961(Flex) P6901(Connector) FP6903(Flex) Lens unit/Main P.C.B.
8	Radiation plate	Fig. D12	4 Screws (I) Radiation plate
9	Battery catcher unit	Fig. D13	2 Screws (J) FP6905(Flex) Battery catcher unit
10	Main P.C.B., Jack P.C.B.	Fig. D14 Fig. D15	1 Screw (K) FP6931(Flex) FP6971(Flex) FP6905(Flex) 2 Locking tabs FP6001(Connector) Main P.C.B. Jack P.C.B.
11	Lens unit	Fig. D16	FP6931(Flex) FP6971(Flex) 1 Screw (L) 1 Locking tab Lens unit
12	Battery case	Fig. D17	1 Screw (M) 2 Locking tabs Battery case
13	Front P.C.B.	Fig. D18	1 Screw (N) 2 Ribs FP4801(Flex) Front P.C.B.
14	LCD unit	Fig. D19 Fig. D20	R base rubber 4 Screw (N) GND O ring LCD unit

No.	Item	Fig	Removal
15	LCD hinge unit, Monitor P.C.B.	Fig. D21 Fig. D22	4 Screws (P) Packing angle 4 screw O rings 2 Screws (Q) 2 Locking tabs LCD case top FP8101(Flex) 3 Locking tabs FP8102(Flex) LCD hinge unit Monitor P.C.B.
16	LCD panel	Fig. D23 Fig. D24	Reflection sheet Lighting plate Diffusion sheet Prism sheet B Prism sheet A Light guide holder LCD panel LCD shield case LCD case bottom unit Attention when installing the LCD O ring
17	Speaker unit, Operation FPC unit	Fig. D25 Fig. D26 Fig. D27	9 Screws (R) Operation angle Earth angle Speaker unit SS operation angle Zoom operation angle SS button rubber unit Zoom OP rubber unit Operation FPC unit NOTE: (When Installing)
18	CCD unit, Optical filter	Fig. D28	2 Screws (S) CCD cushion rubber CCD unit Optical filter
19	IRIS unit	Fig. D29 Fig. D30	Solder (8 points) 3 Screws (T) 1 Rib IRIS unit NOTE: (When Installing)
20	Zoom motor unit	Fig. D31	2 Screws (U) Zoom motor unit
21	Focus motor unit	Fig. D32	2 Screws (V) Focus motor unit
22	Master flange, 4th moving frame unit, 3rd moving frame unit	Fig. D33	3 Screws (W) Master flange 4th moving frame unit 3rd moving frame unit
23	Guide pole S, Guide pole, 2nd moving frame unit	Fig. D34	Guide pole S Guide pole 2nd moving frame unit

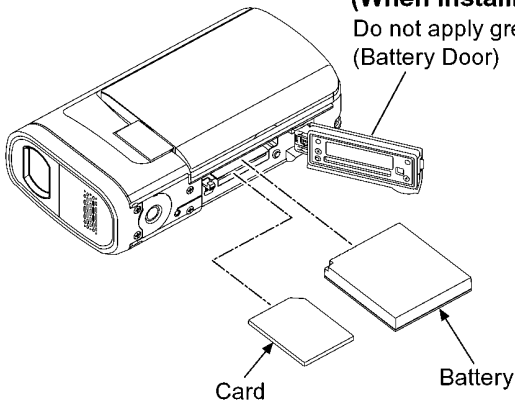
NOTE:

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

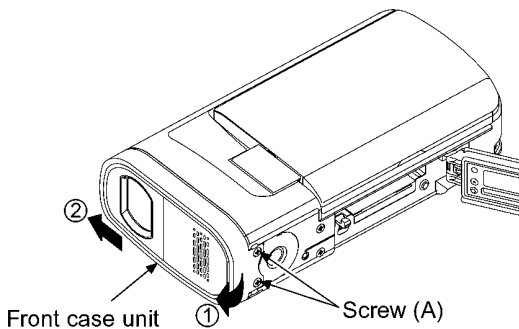
- Card
- Battery

NOTE:

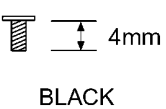
(When Installing)
Do not apply grease
(Battery Door)

**8.3.1. Removal of the Front case unit**

- Screw (A) × 2



Screw (A)

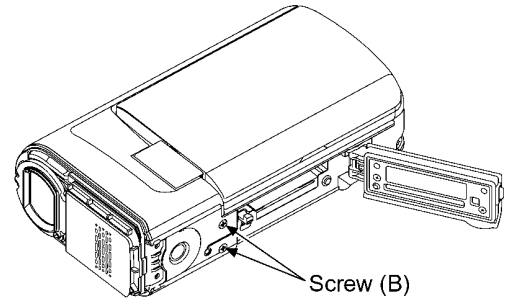
**NOTE: (When Installing)**

Screw (A) torque value = 10N·cm

Fig. D1

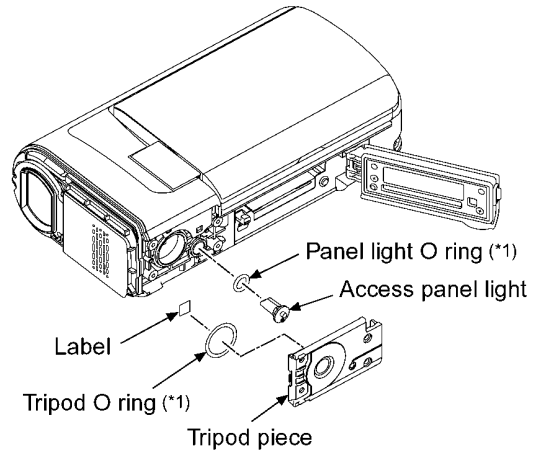
8.3.2. Removal of the Tripod piece

- Screw (B) × 2
- Tripod O ring
- Access panel light
- Panel light O ring

**NOTE: (When Installing)**

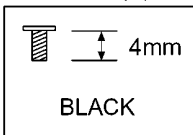
To install the O-ring, confirm that the installation position is correct and that no dust adheres to the surface of the O-ring.

Screw (A) torque value = 10N·cm



(*1) Apply Grease

Screw (B)



Label distinction method

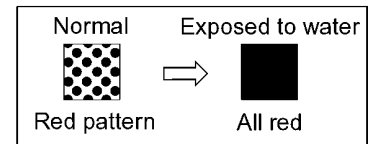


Fig. D2

8.3.3. Removal of the Rear cover

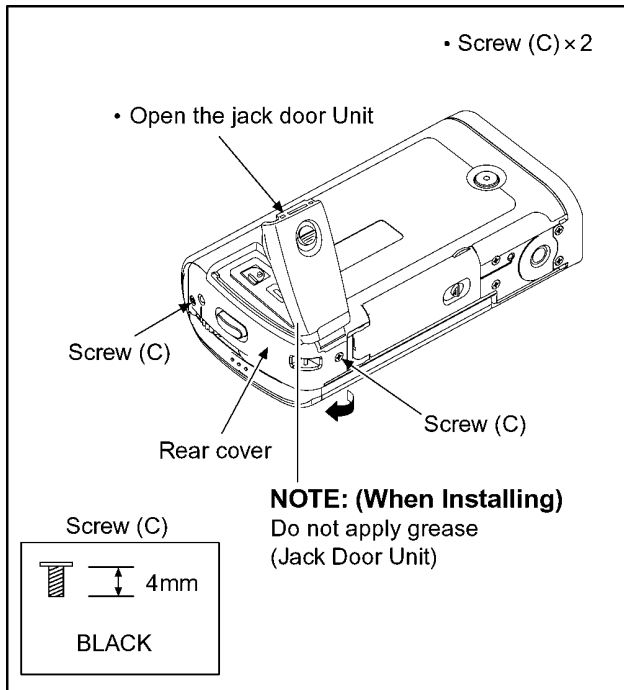


Fig. D3

8.3.4. Removal of the R cover

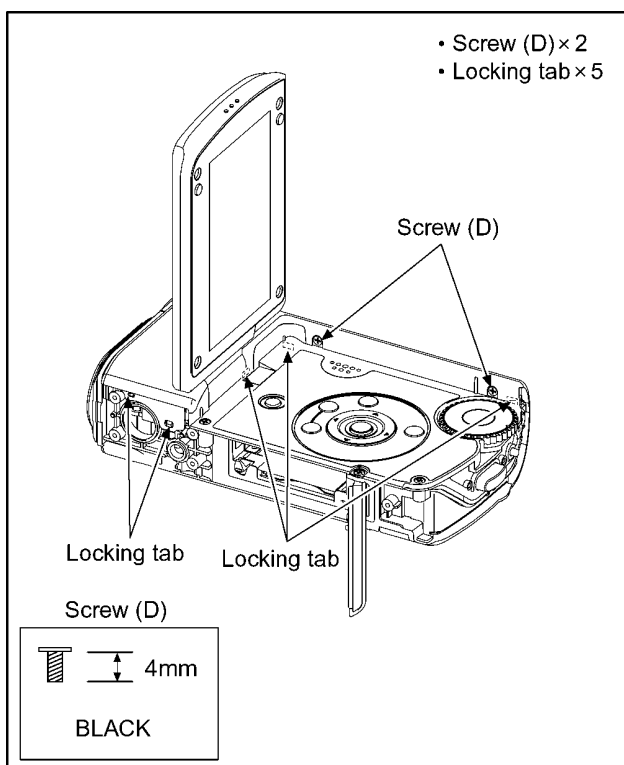


Fig. D4

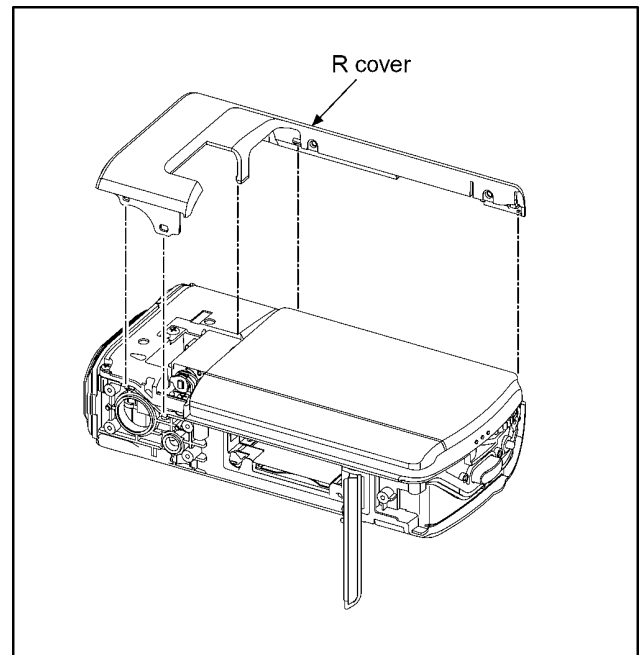


Fig. D5

8.3.5. Removal of the Lens piece, Lens protection glass and Lens damper

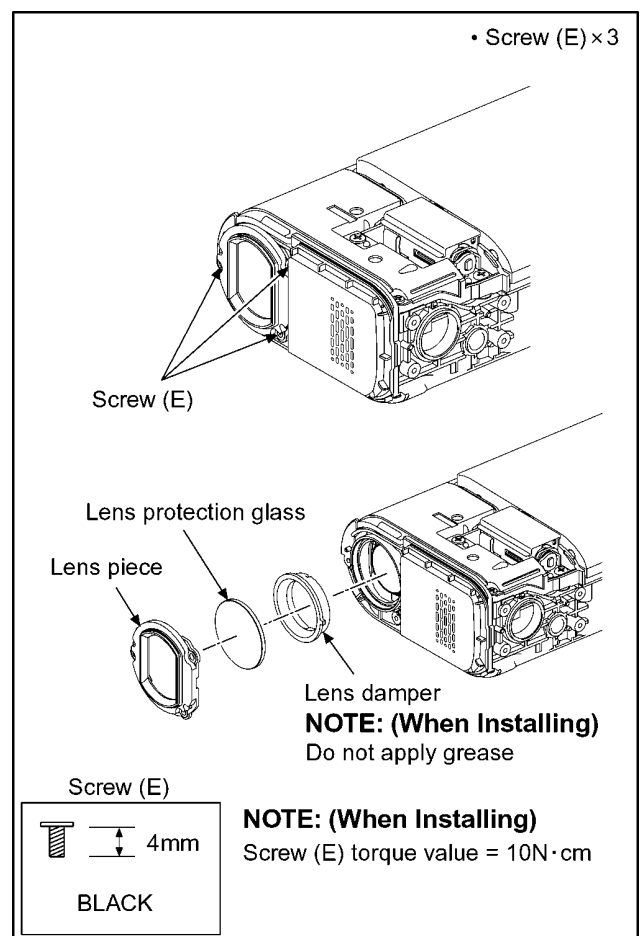


Fig. D6

8.3.6. Removal of the Side case (L) unit

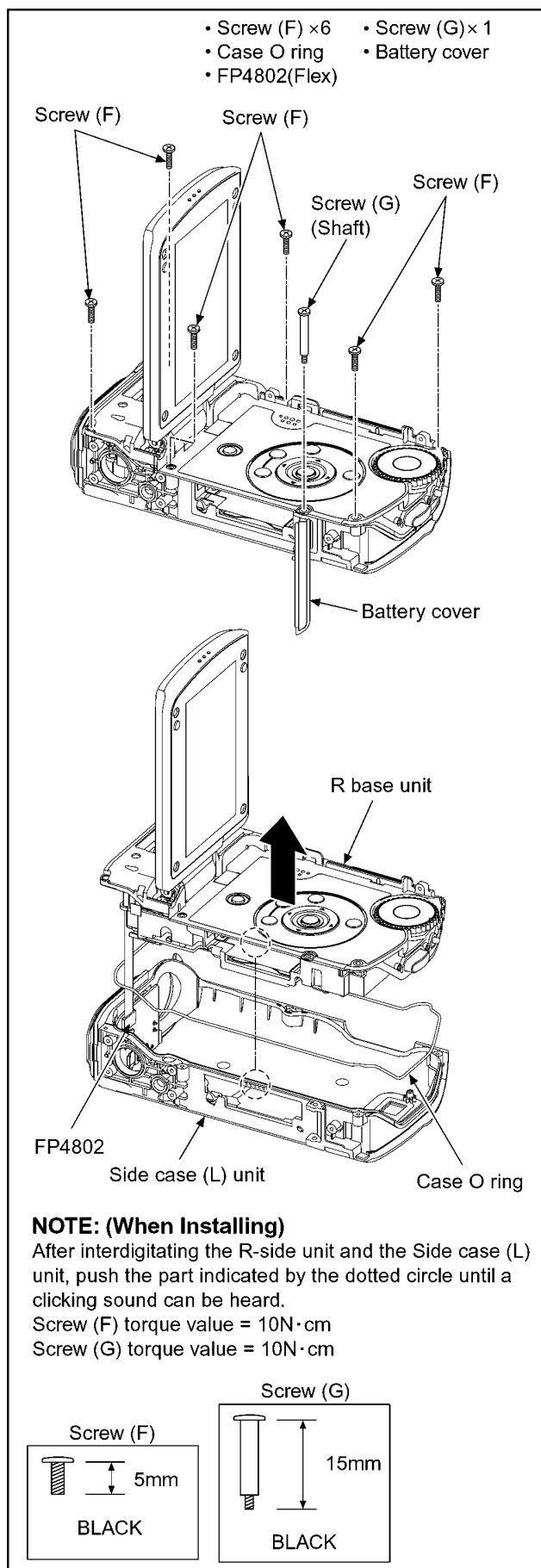
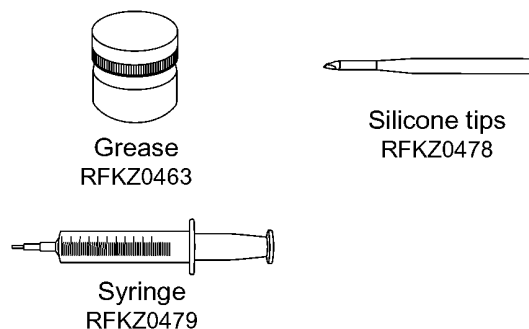


Fig. D7

■ Notes on installation of the Case O-ring

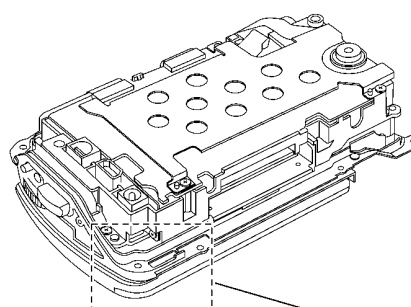
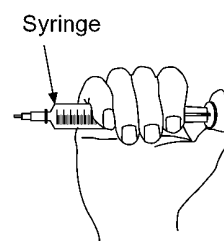
- Tools to be used for installing the case O-ring



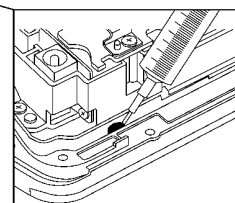
- How to hold the syringe

Hold the syringe as shown in the right figure and apply grease.

1. Push the syringe slowly with your thumb.
2. In the beginning, a small amount of grease must be pushed out before application.



1. Start applying the grease from the position shown in the figure on the right.



2. Spread the grease evenly in the groove using the silicon tips.

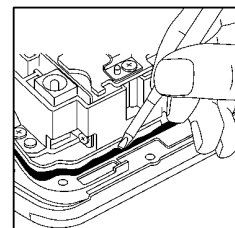


Fig. D8

NOTE: (When Installing)

1. To install the case O-ring, confirm that the installation position is correct and that no dust adheres to the surface of the case O-ring.
2. Set the case O-ring in the groove at the start position. Do not apply excessive pressure at that time. Insert the O-ring into the groove by pushing it lightly. Be careful not to detach the O-ring from the R-side unit. Adjust the length of the O-ring at the straight part at the bottom (R-side unit).

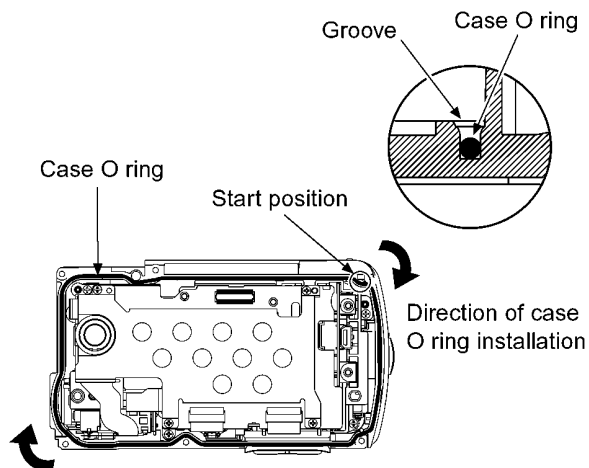


Fig. D9

8.3.7. Removal of the Lens unit/ Main P.C.B

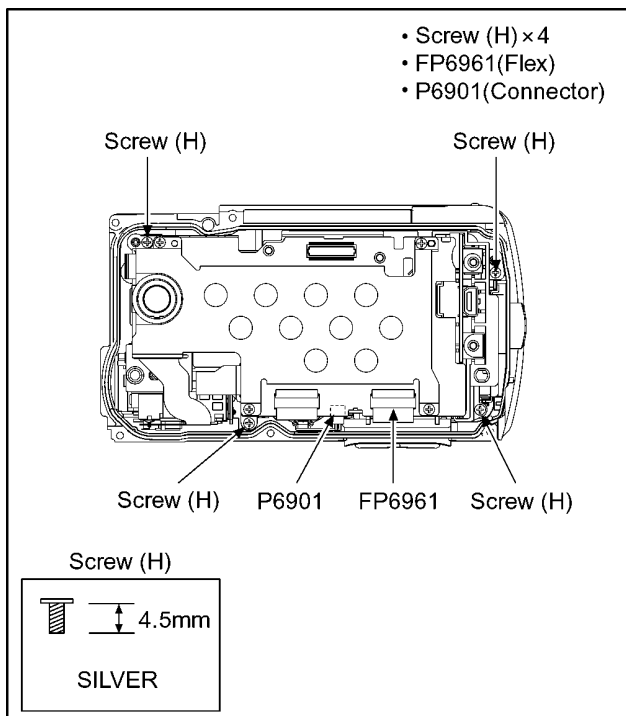


Fig. D10

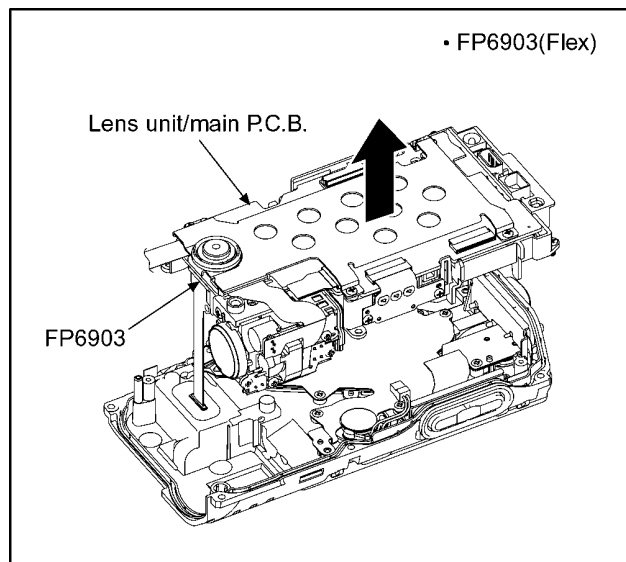


Fig. D11

8.3.8. Removal of the Radiation plate

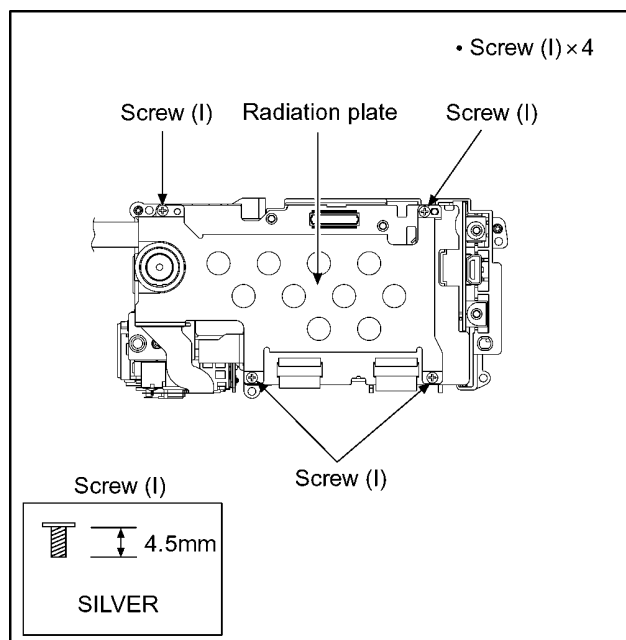


Fig. D12

8.3.9. Removal of the Battery catcher unit

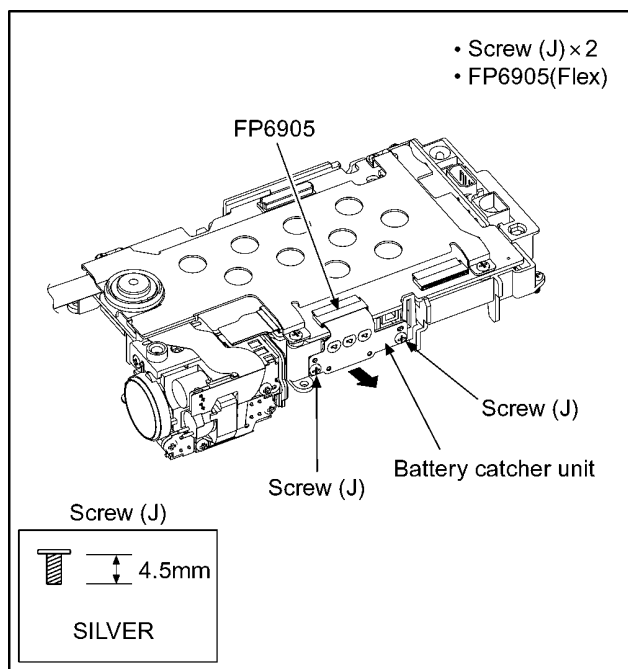


Fig. D13

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

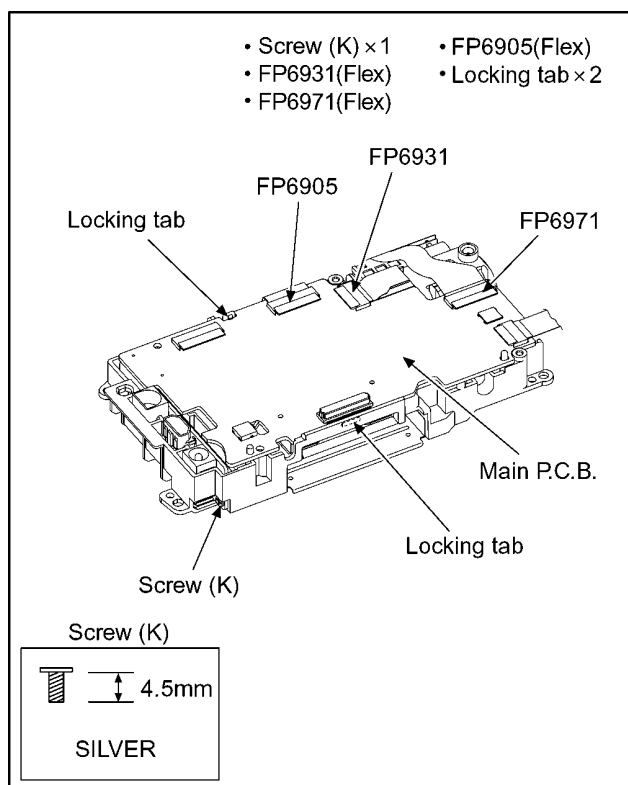


Fig. D14

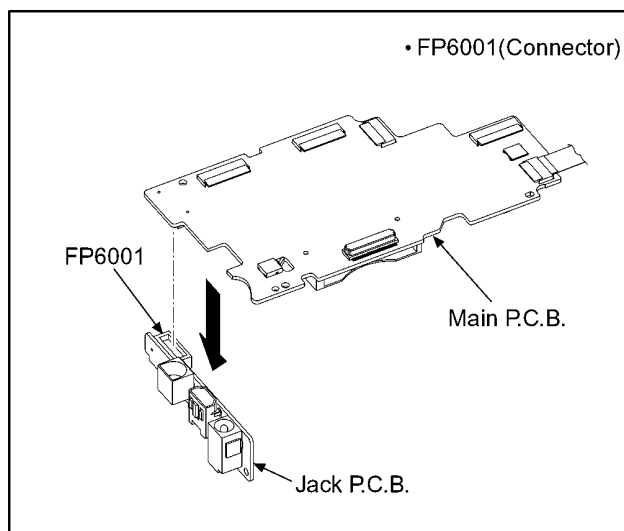


Fig. D15

8.3.11. Removal of the Lens unit

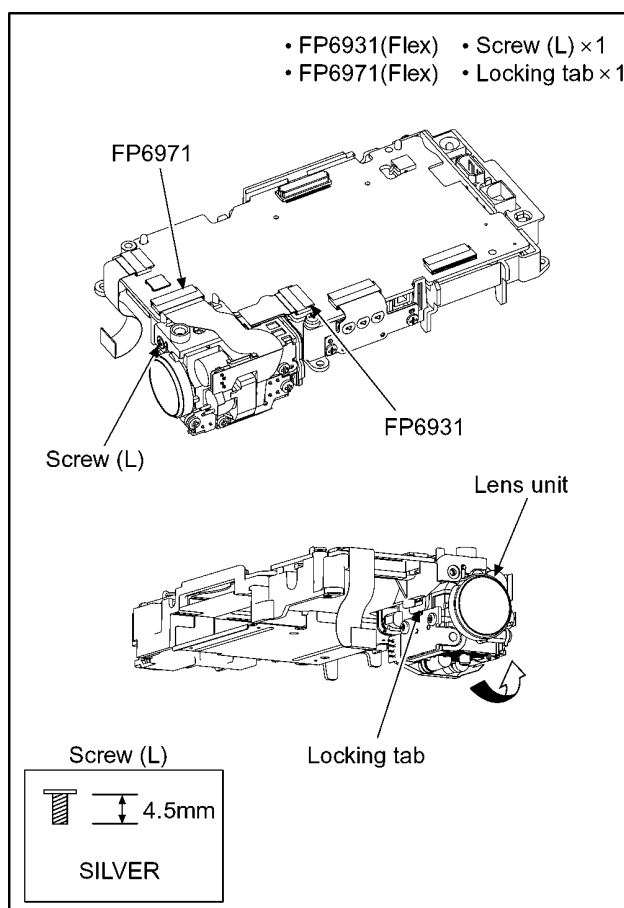


Fig. D16

8.3.12. Removal of the Battery case

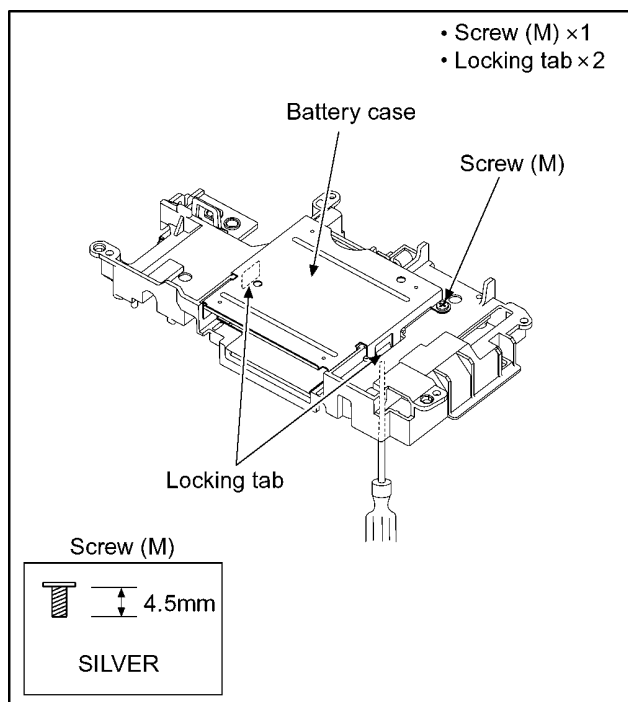


Fig. D17

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

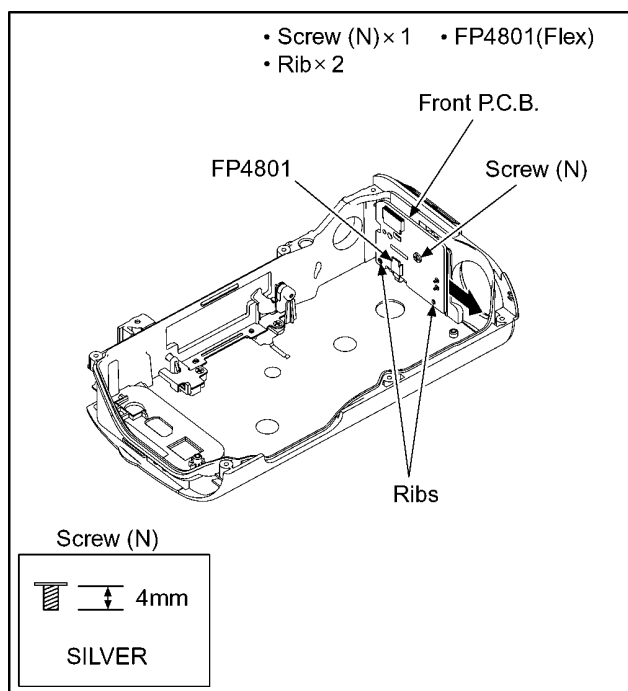


Fig. D18

8.3.14. Removal of the LCD unit

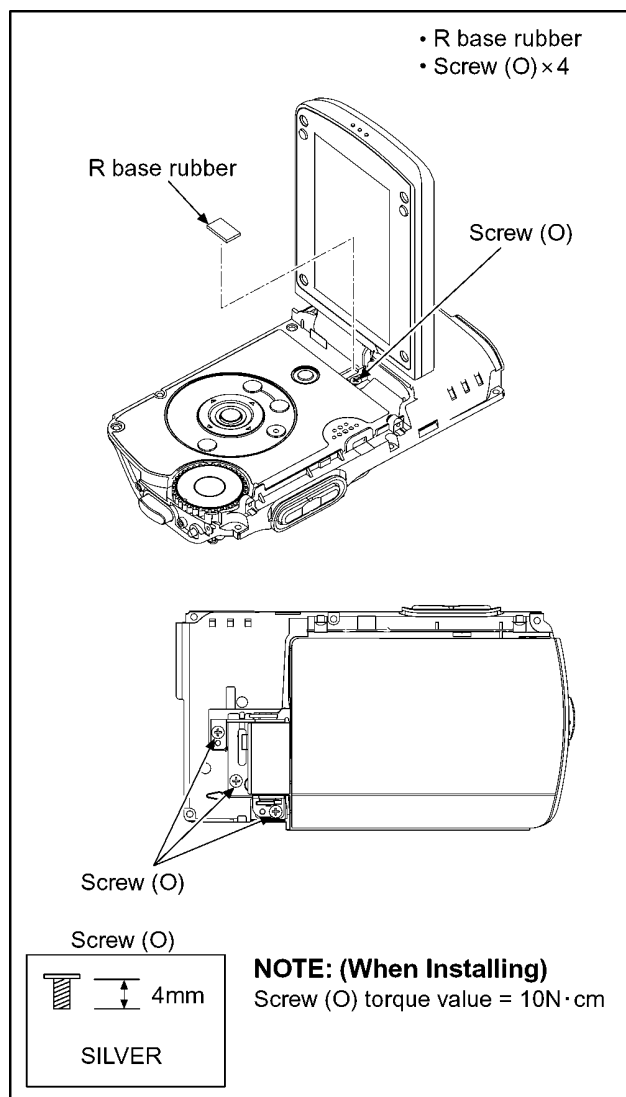


Fig. D19

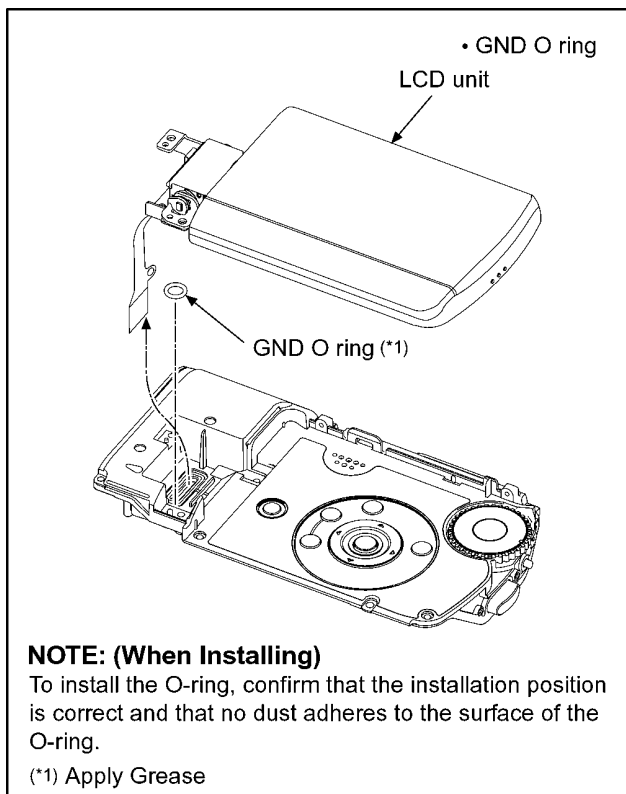


Fig. D20

8.3.15. Removal of the LCD hinge unit and Monitor P.C.B.

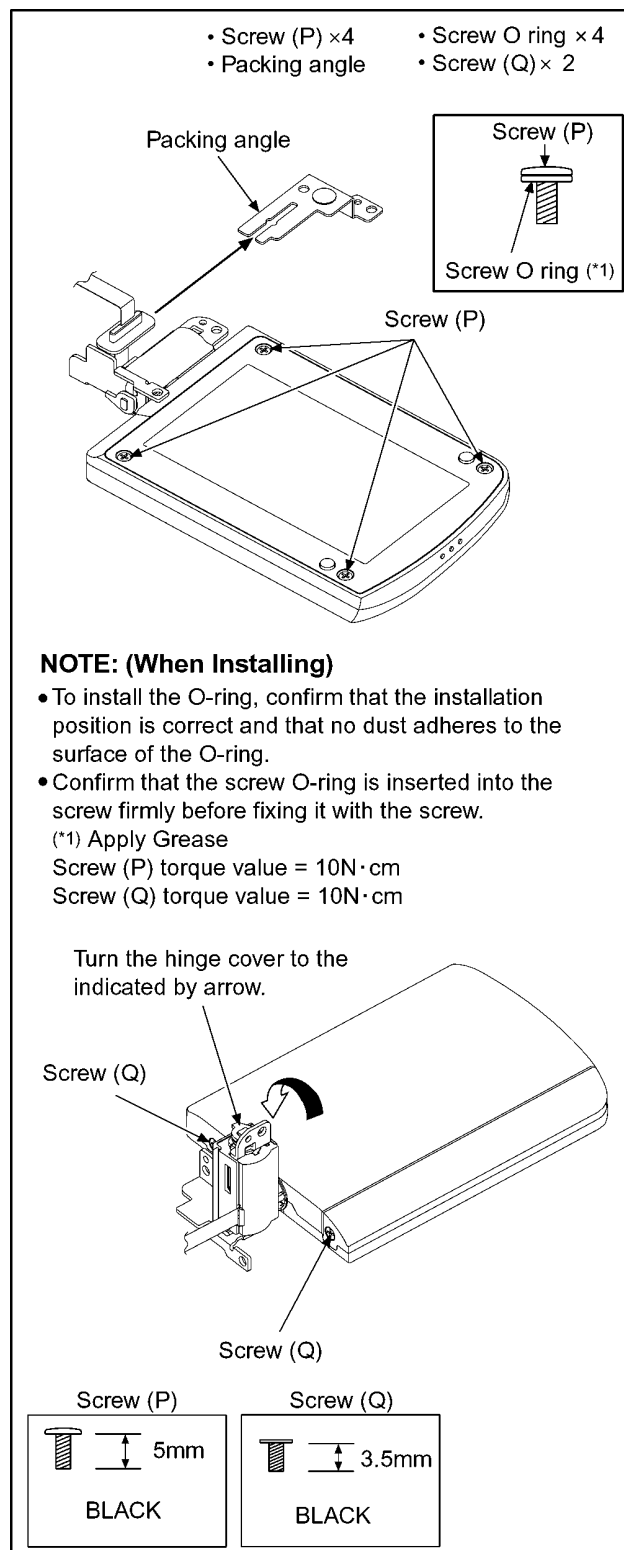


Fig. D21

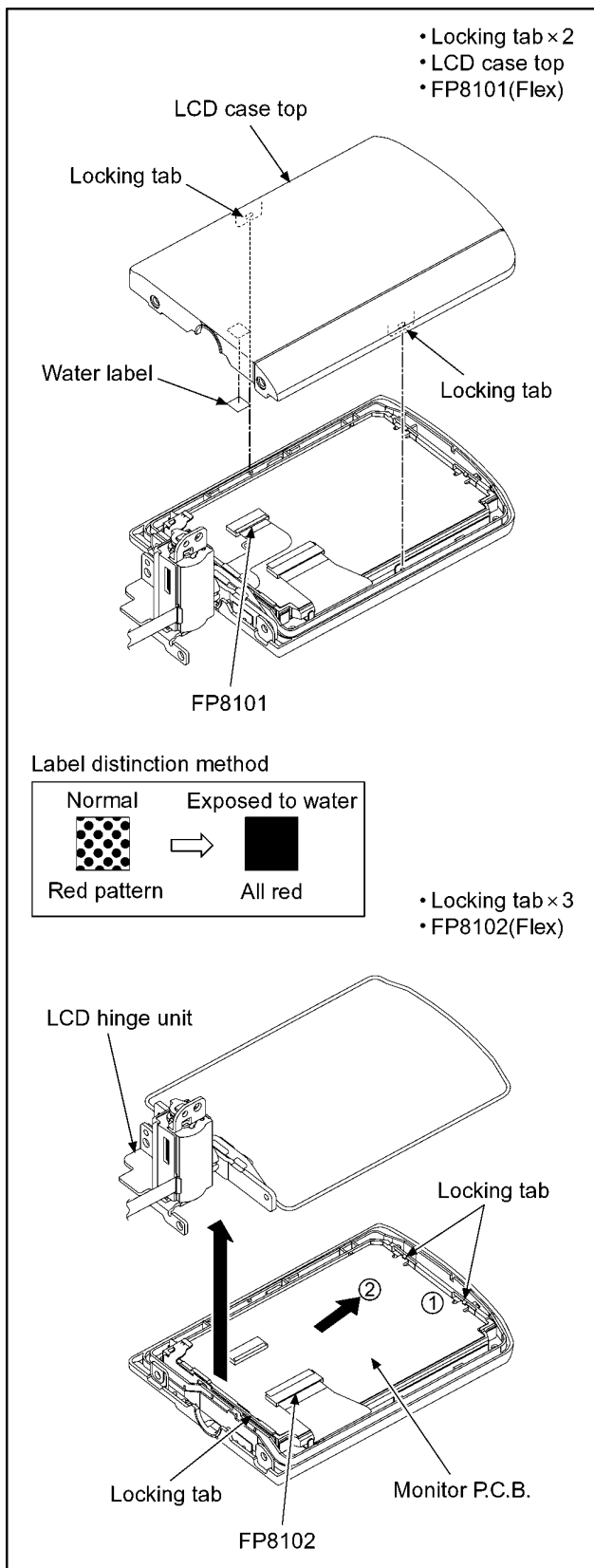


Fig. D22

8.3.16. Removal of the LCD panel

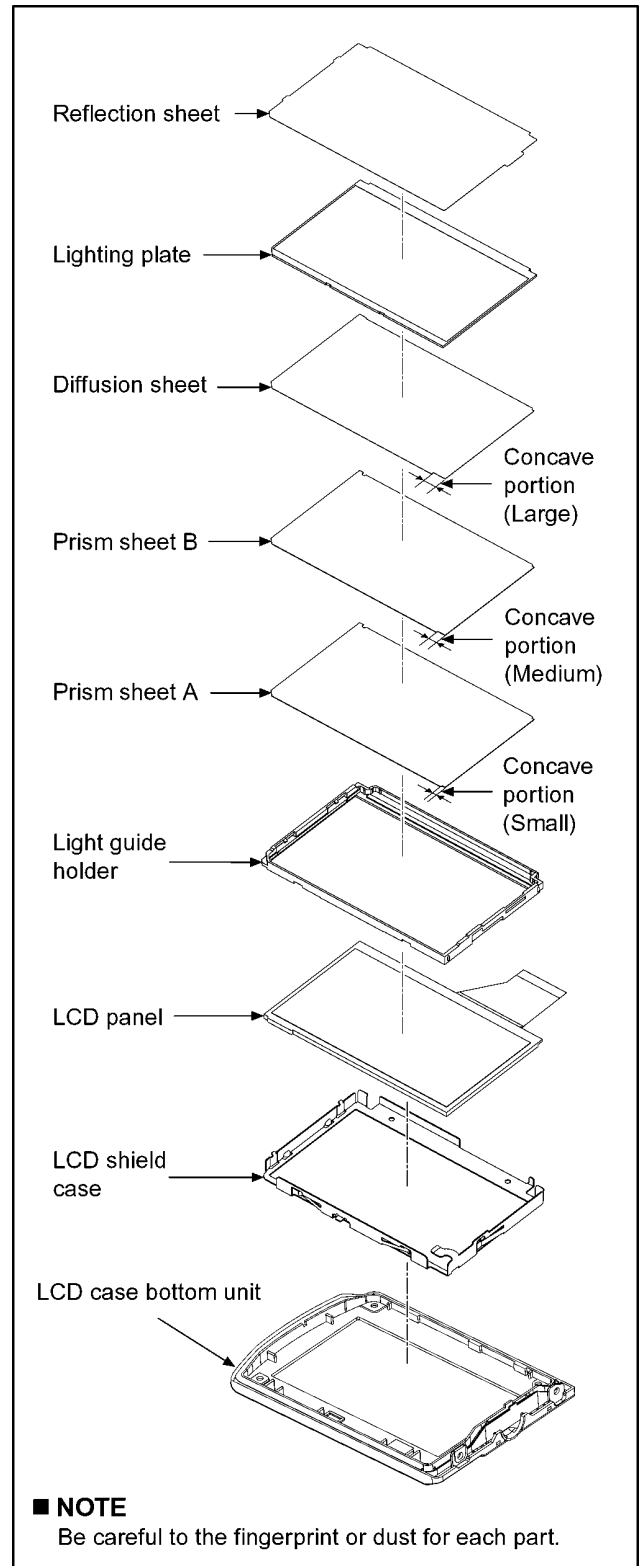
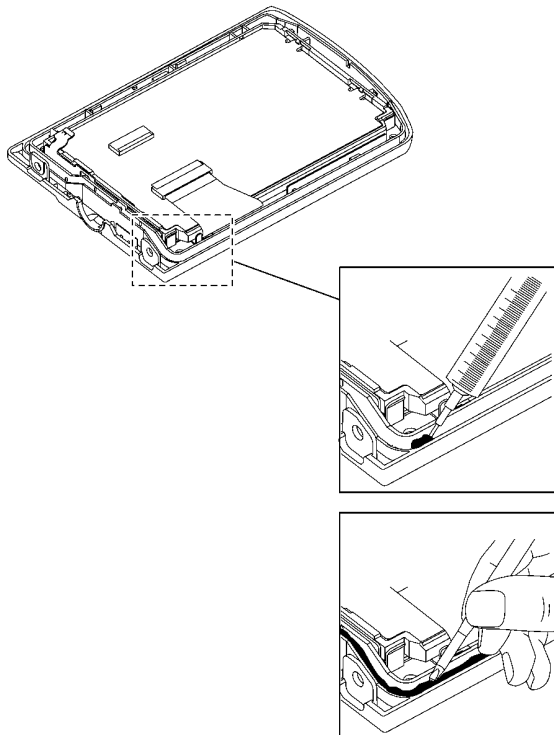


Fig. D23

■ Notes on installation of the LCD O-ring

- For instructions on how to hold the tools and the syringe for installation of the LCD O-ring, refer to "Notes on installation of the case O-ring" (Fig. D8).



NOTE: (When Installing)

1. Insert the LCD O-ring into the groove firmly.
(To install the O-ring, confirm that the installation position is correct and that no dust adheres to the surface of the O-ring.)
2. Confirm that the LCD O-ring is not detached from the groove.

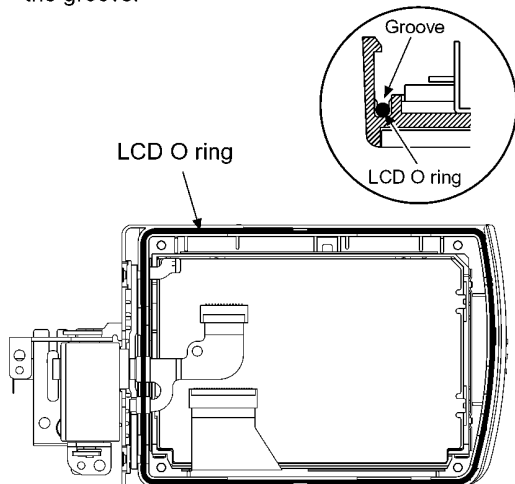
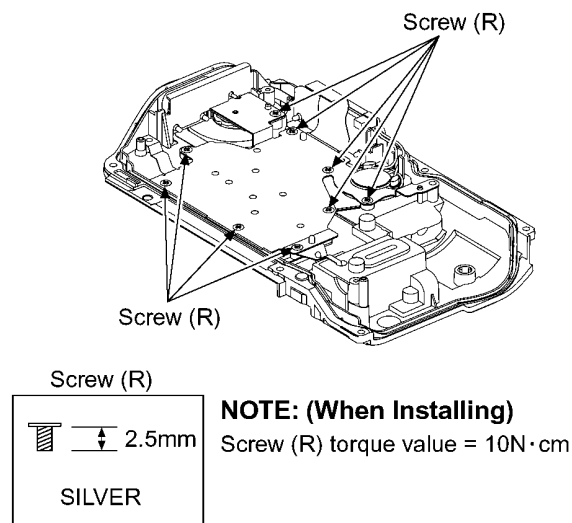


Fig. D24

8.3.17. Removal of the Speaker unit and Operation FPC unit

- Screw (R) × 9
- Operation angle
- Earth angle



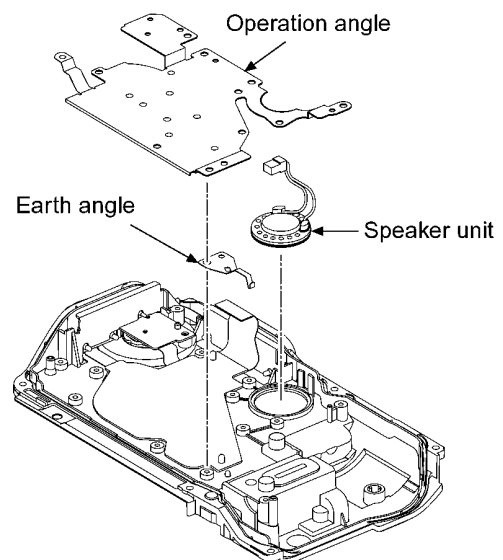
Screw (R)

2.5mm

SILVER

NOTE: (When Installing)

Screw (R) torque value = 10N·cm



NOTE: (When Installing)

1. Connect the rib A and B with the lead wire of the speaker.
2. The solder of the speaker should not contact the operation angle.

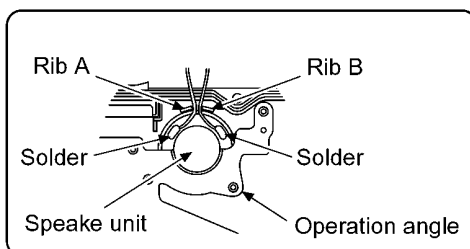


Fig. D25

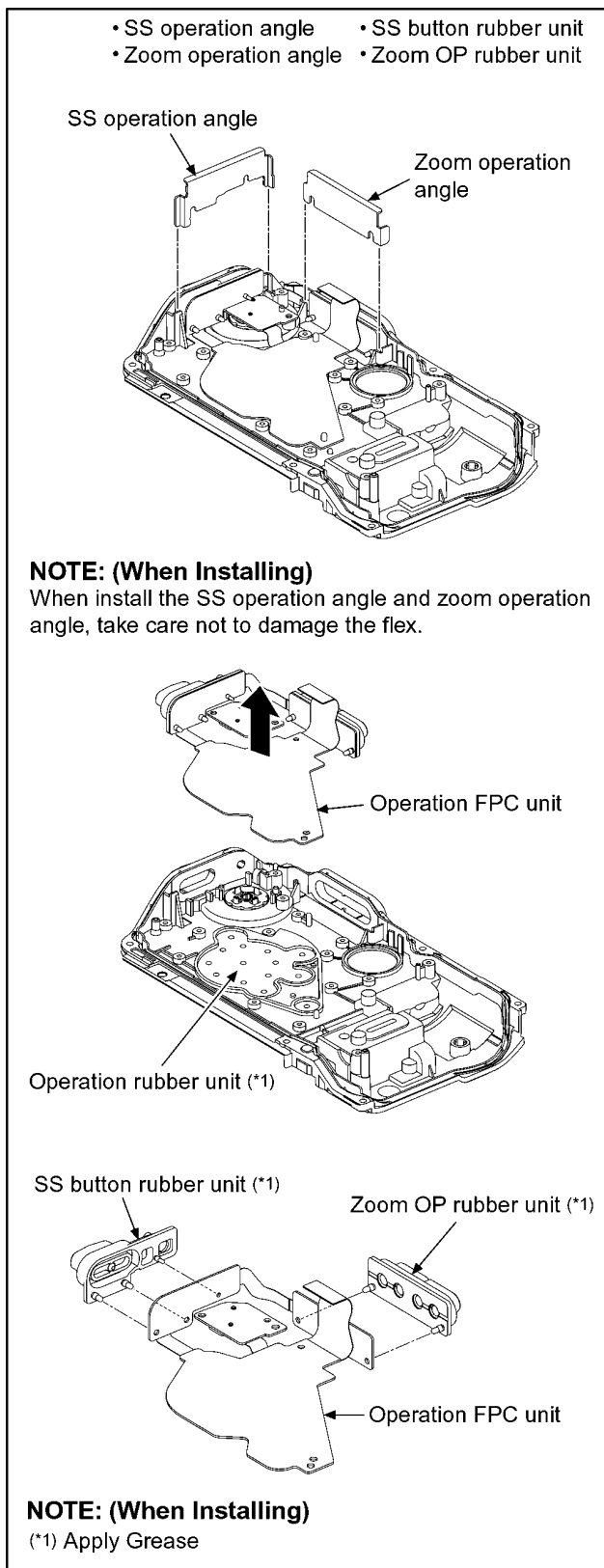


Fig. D26

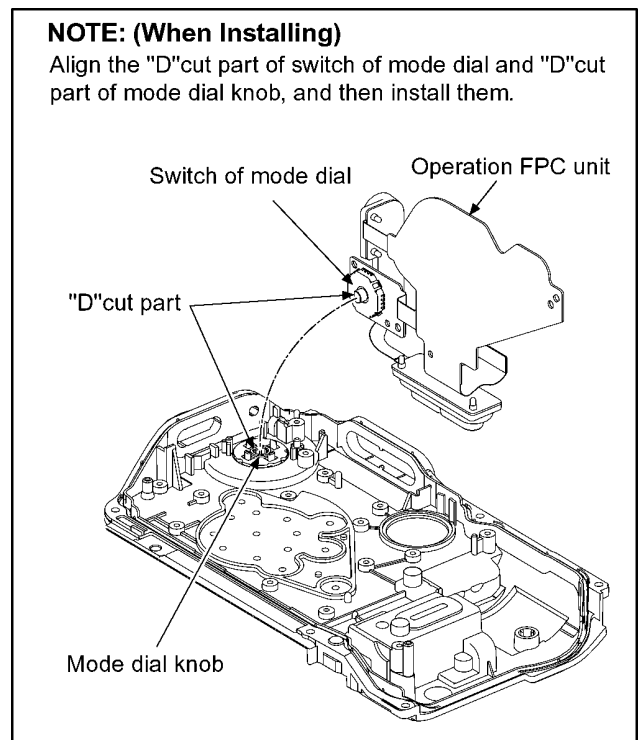


Fig. D27

8.3.18. Removal of the CCD unit and Optical filter

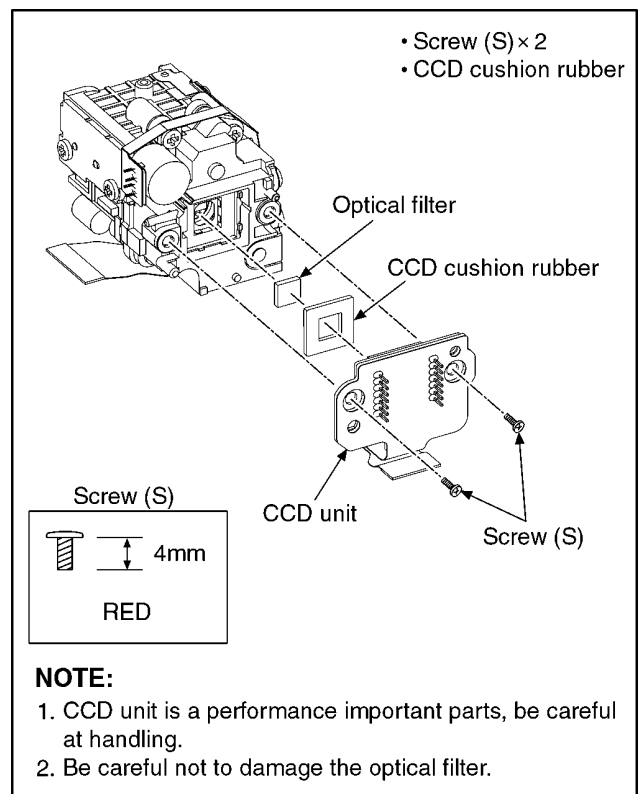


Fig. D28

8.3.19. Removal of the IRIS unit

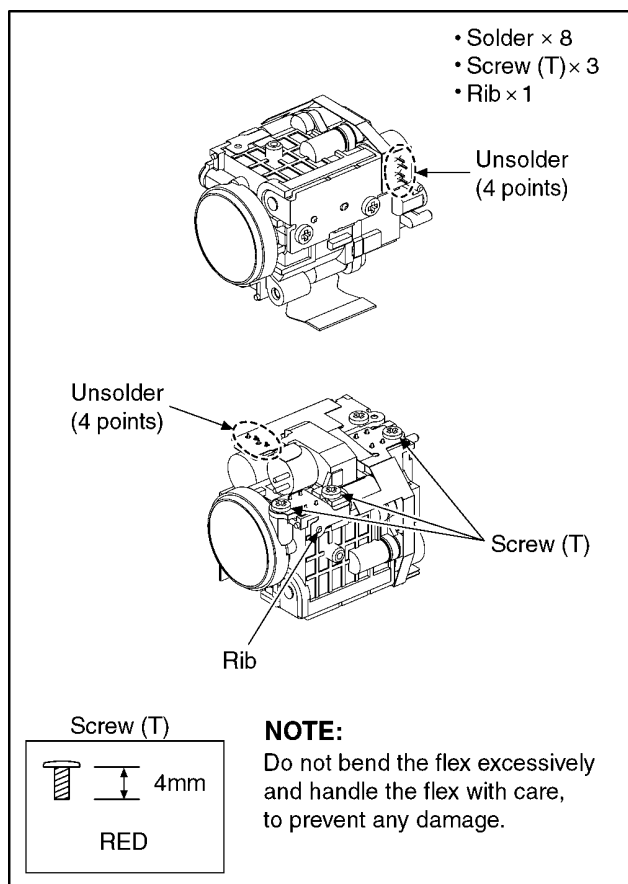


Fig. D29

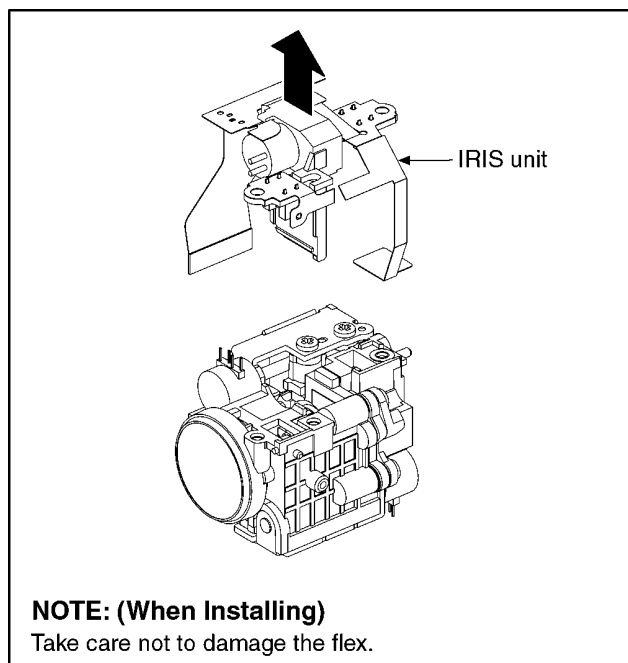


Fig. D30

8.3.20. Removal of the Zoom motor unit

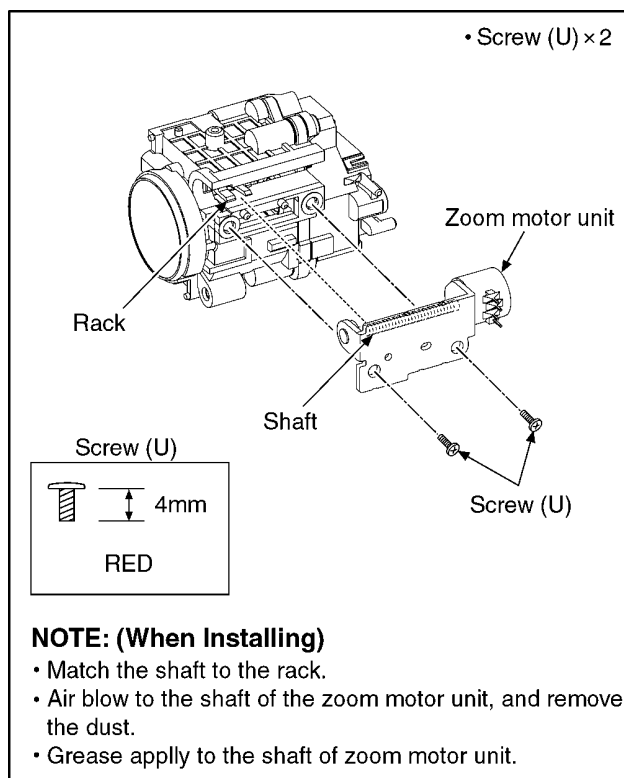


Fig. D31

8.3.21. Removal of the Focus motor unit

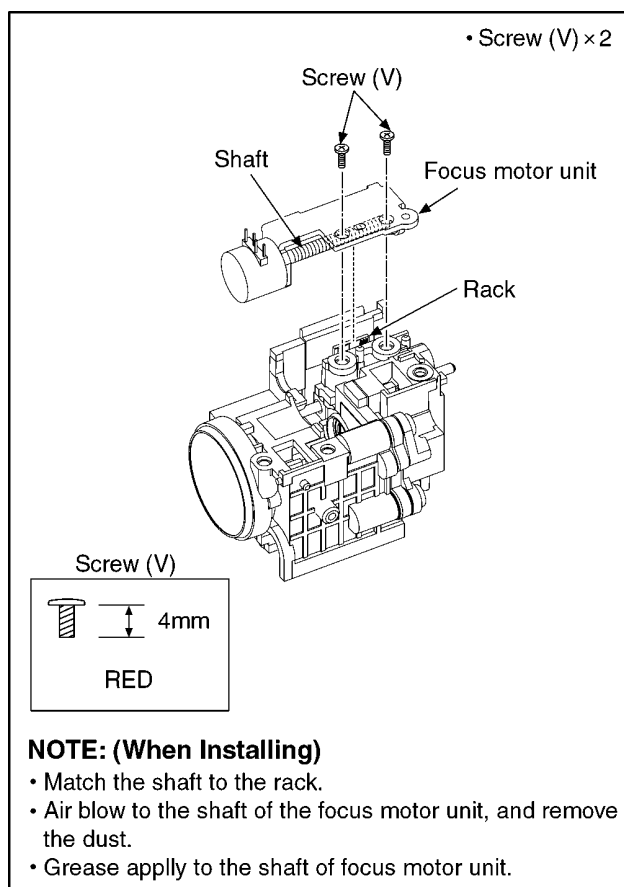


Fig. D32

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

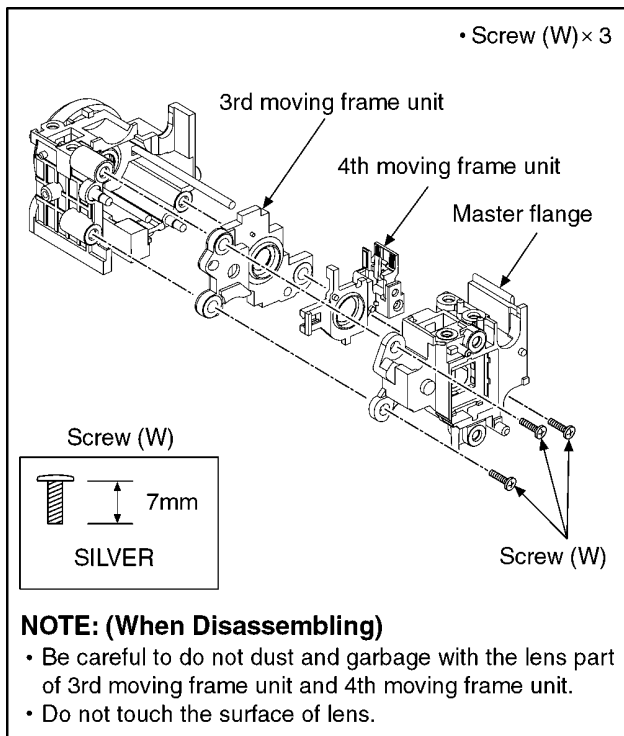


Fig. D33

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

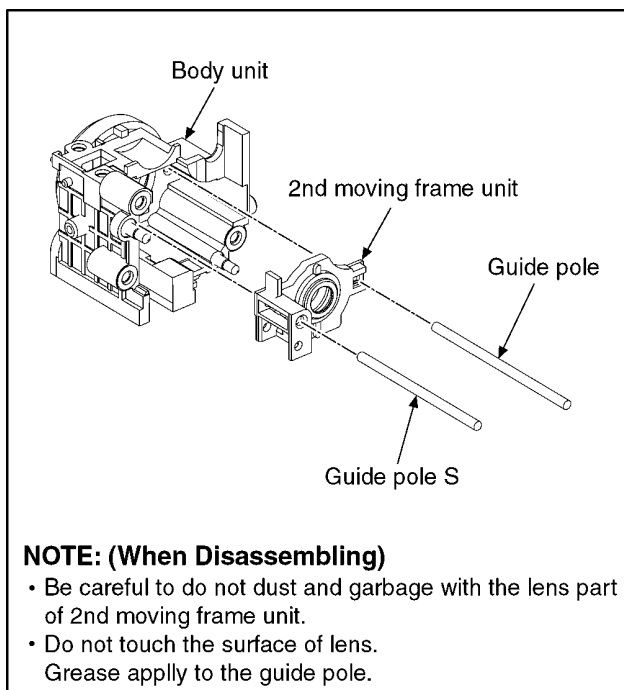


Fig. D34

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

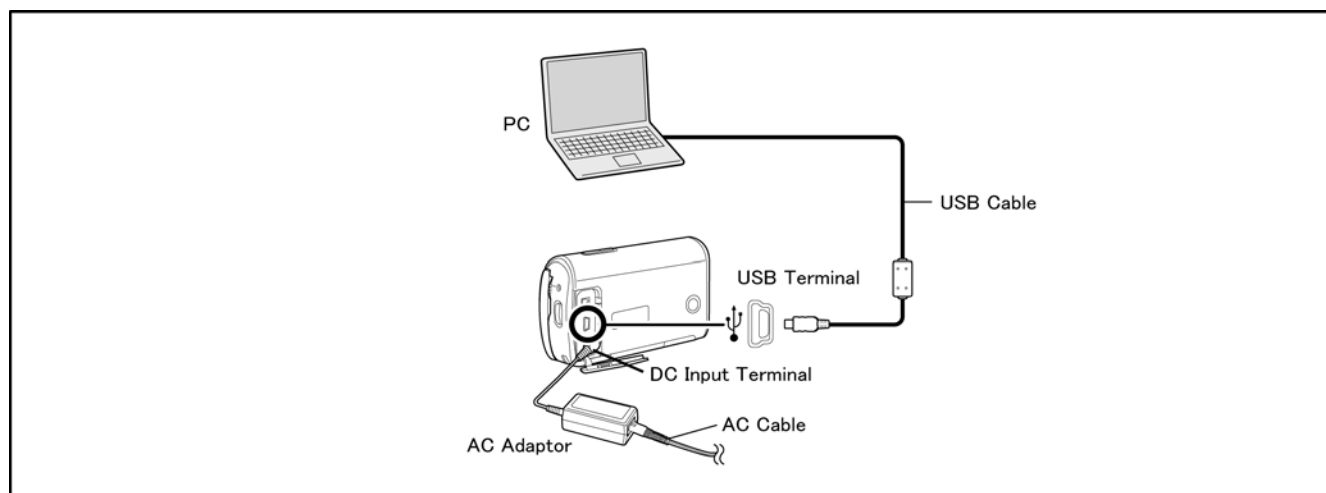
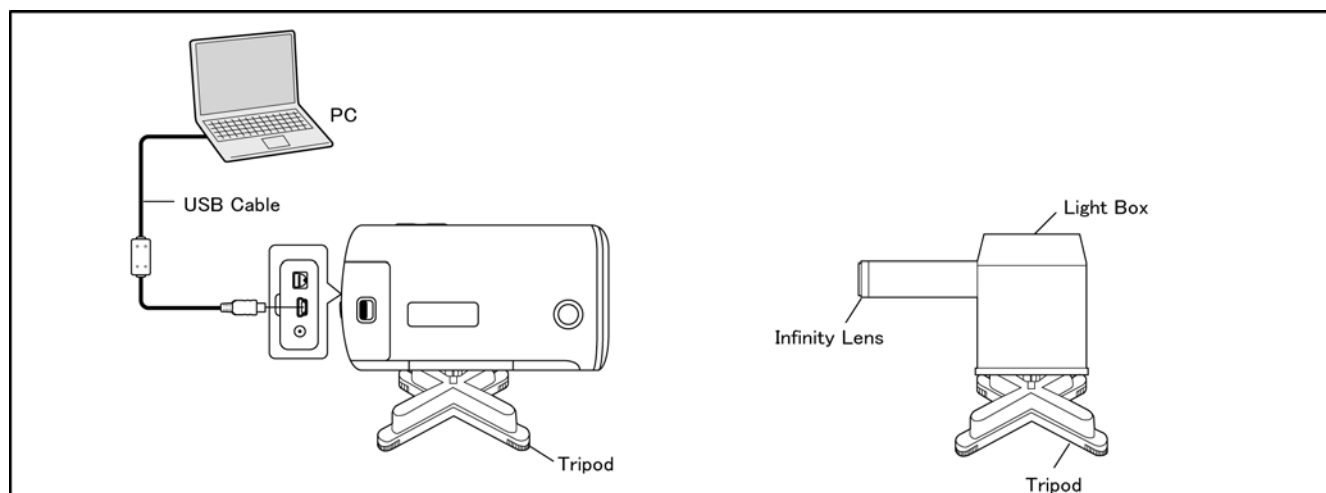


Figure of image when adjustment



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		○	○		○		

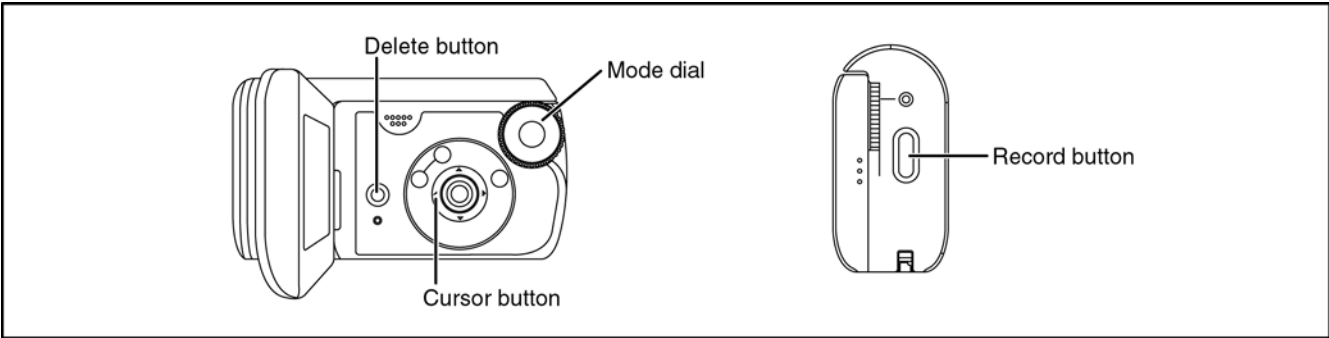
9.2. Repair Record

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

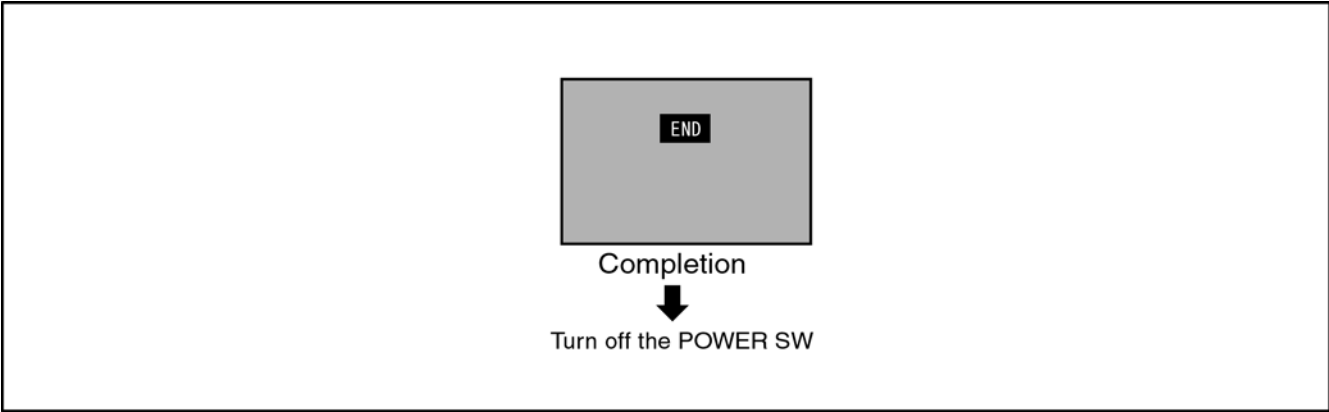
10 Factory Setting

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

Service Manual

Diagrams and Replacement Parts List

SD Video Camera

Model No.

SDR-SW20P	SDR-SW20EF
SDR-SW20PC	SDR-SW20EP
SDR-SW20PL	SDR-SW20GC
SDR-SW20EG	SDR-SW20GN
SDR-SW20E	SDR-SW20EE
SDR-SW20EB	SDR-SW28GK

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

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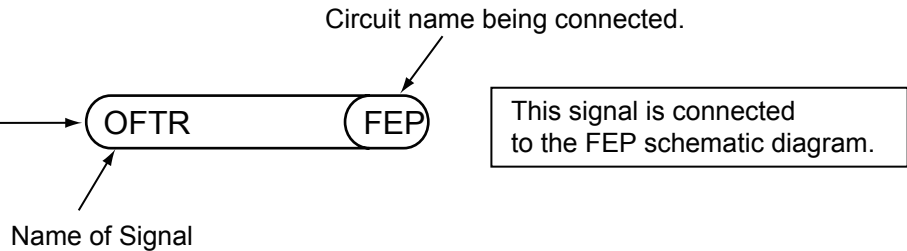
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S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

COMPONENTS IDENTIFIED WITH THE MARK  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. Front P.C.B.

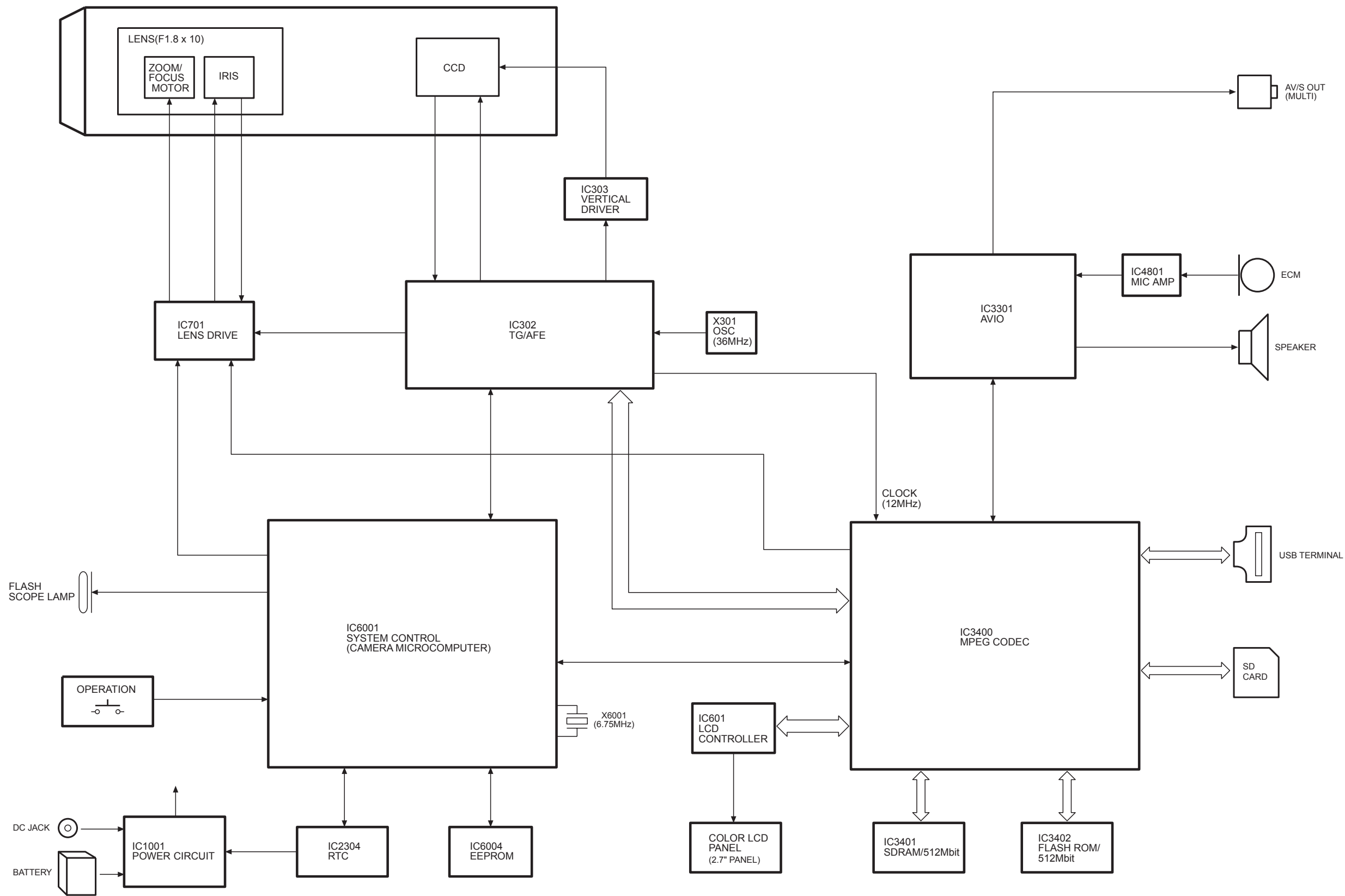
REF No.	PIN No.	POWER ON
IC4801	1	3.2
IC4801	2	3.2
IC4801	3	3.2
IC4801	4	0
IC4801	5	3.2
IC4801	6	3.2
IC4801	7	3.2
IC4801	8	6.2
Q4801	E	5.4
Q4801	C	6.2
Q4801	B	6.1
Q6501	E	2.7
Q6501	C	3.7
Q6501	B	0.7
Q6502	E	3.4
Q6502	C	0
Q6502	B	2.7

S2.2. Monitor P.C.B.

REF No.	PIN No.	POWER ON
Q8101	E	0.7
Q8101	C	2.1
Q8101	B	1.6
Q8102	E	0.7
Q8102	C	2.1
Q8102	B	1.6
Q8104	E	0.7
Q8104	C	2.1
Q8104	B	1.6
Q8105	E	0.7
Q8105	C	2.1
Q8105	B	1.6
Q8107	E	1.5
Q8107	C	0
Q8107	B	1.1
Q8108	E	0.7
Q8108	C	2.1
Q8108	B	1.6
Q8112	E	1.6
Q8112	C	0
Q8112	B	0.4
Q8113	E	0
Q8113	C	-7.1
Q8113	B	0.1

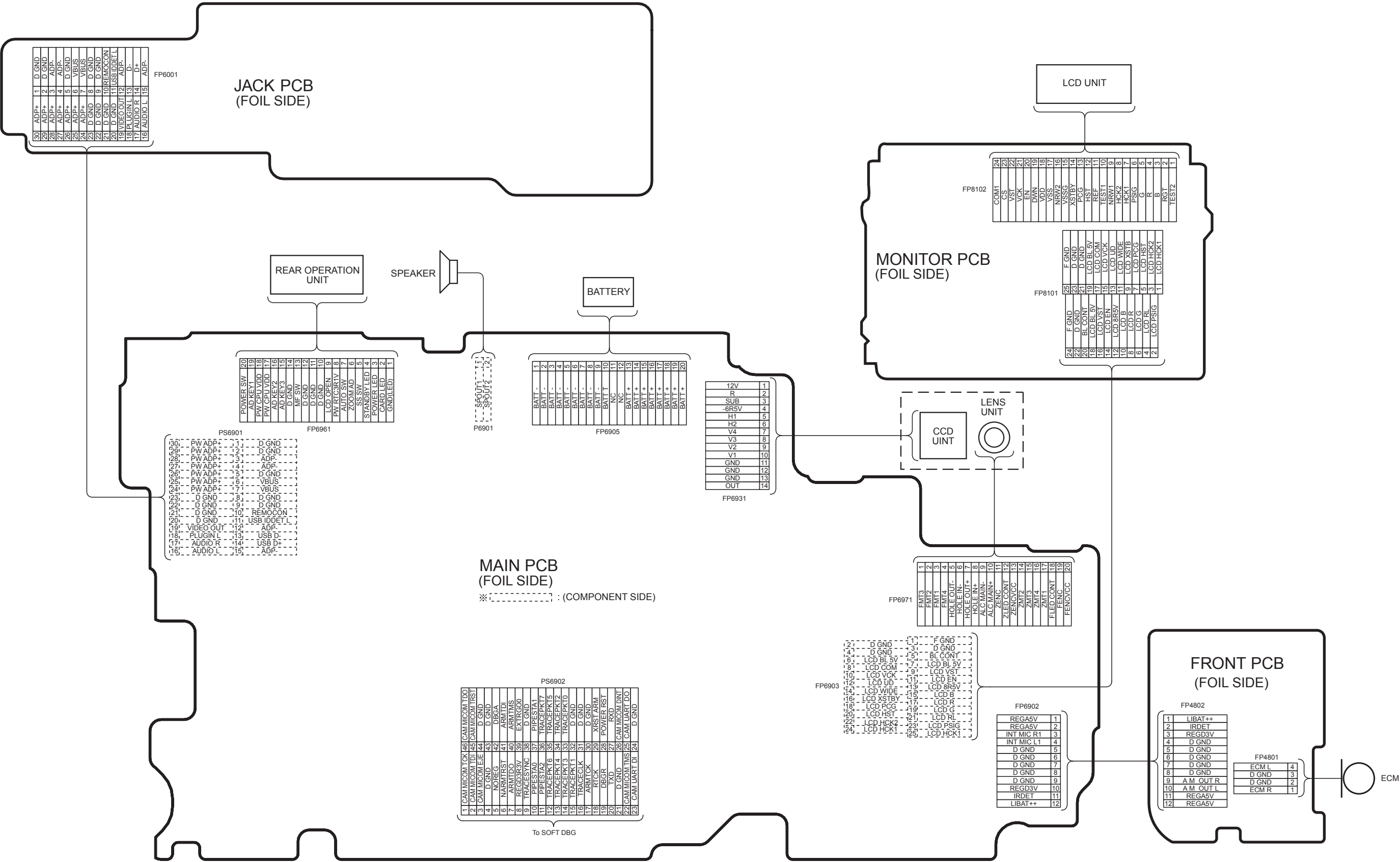
S3. Block Diagram

S3.1. Overall Block Diagram

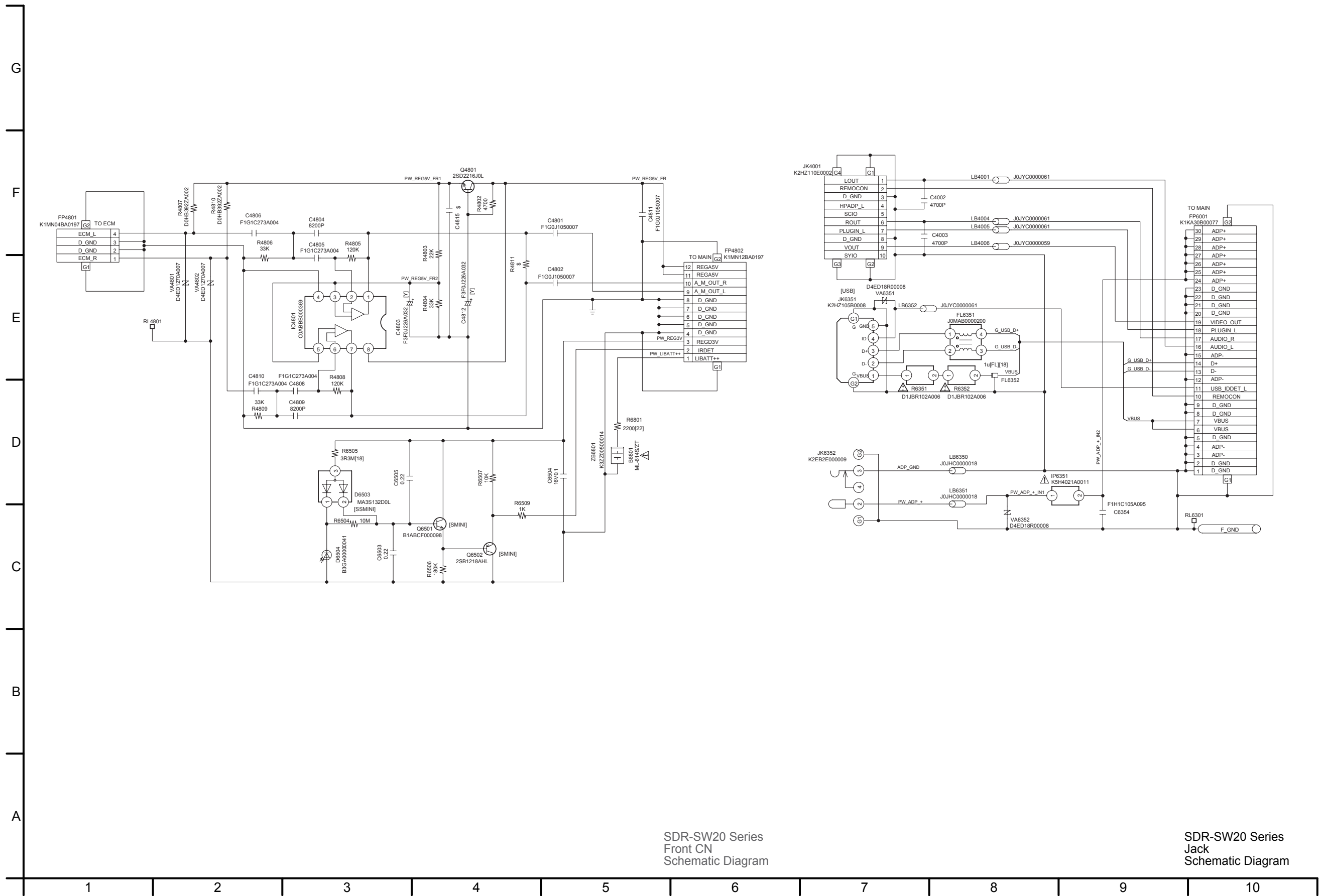


S4. Schematic Diagram

S4.1. Interconnection Diagram



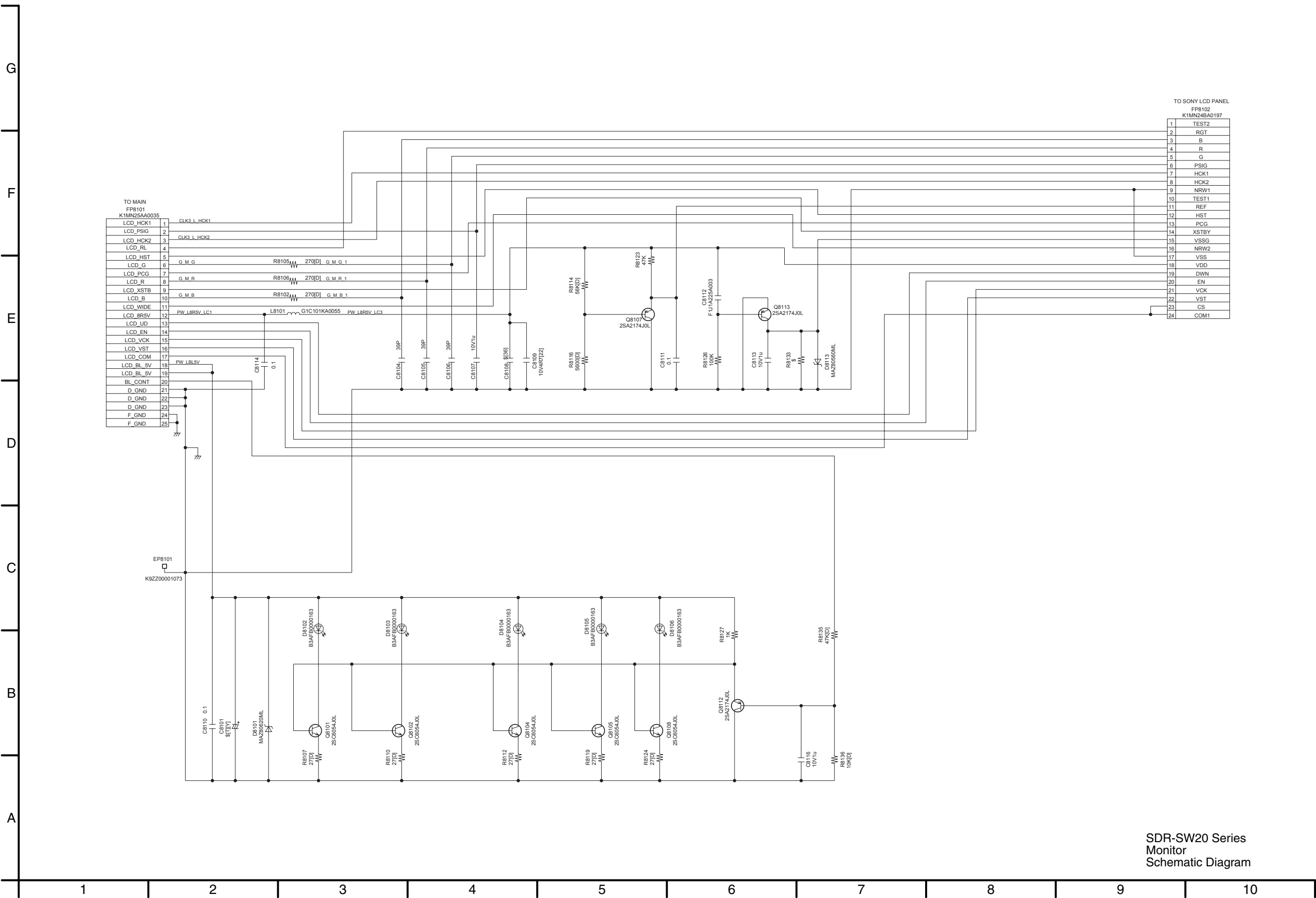
S4.2. Front CN Schematic Diagram / S4.3. Jack Schematic Diagram



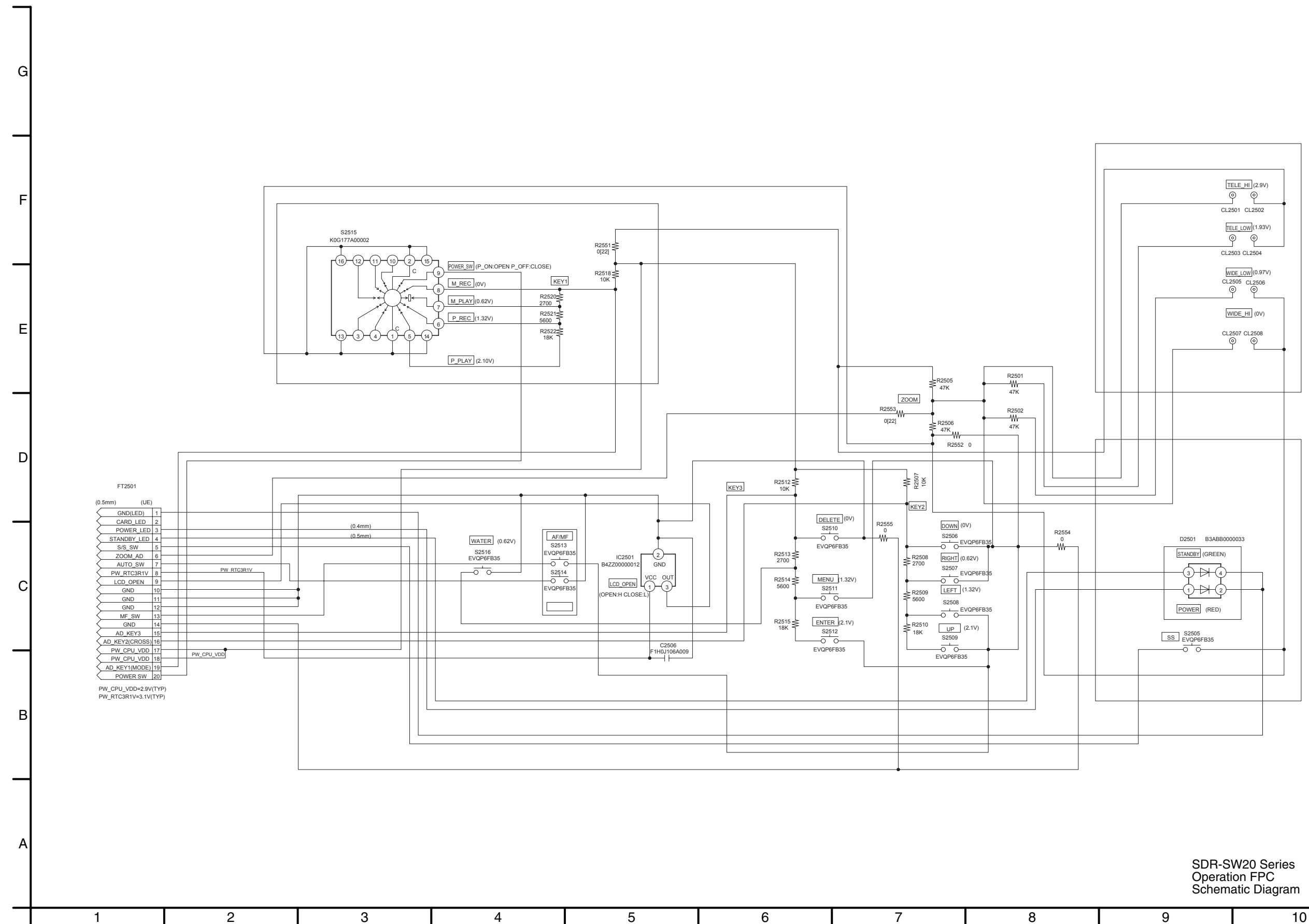
SDR-SW20 Series
Front CN
Schematic Diagram

SDR-SW20 Series
Jack
Schematic Diagram

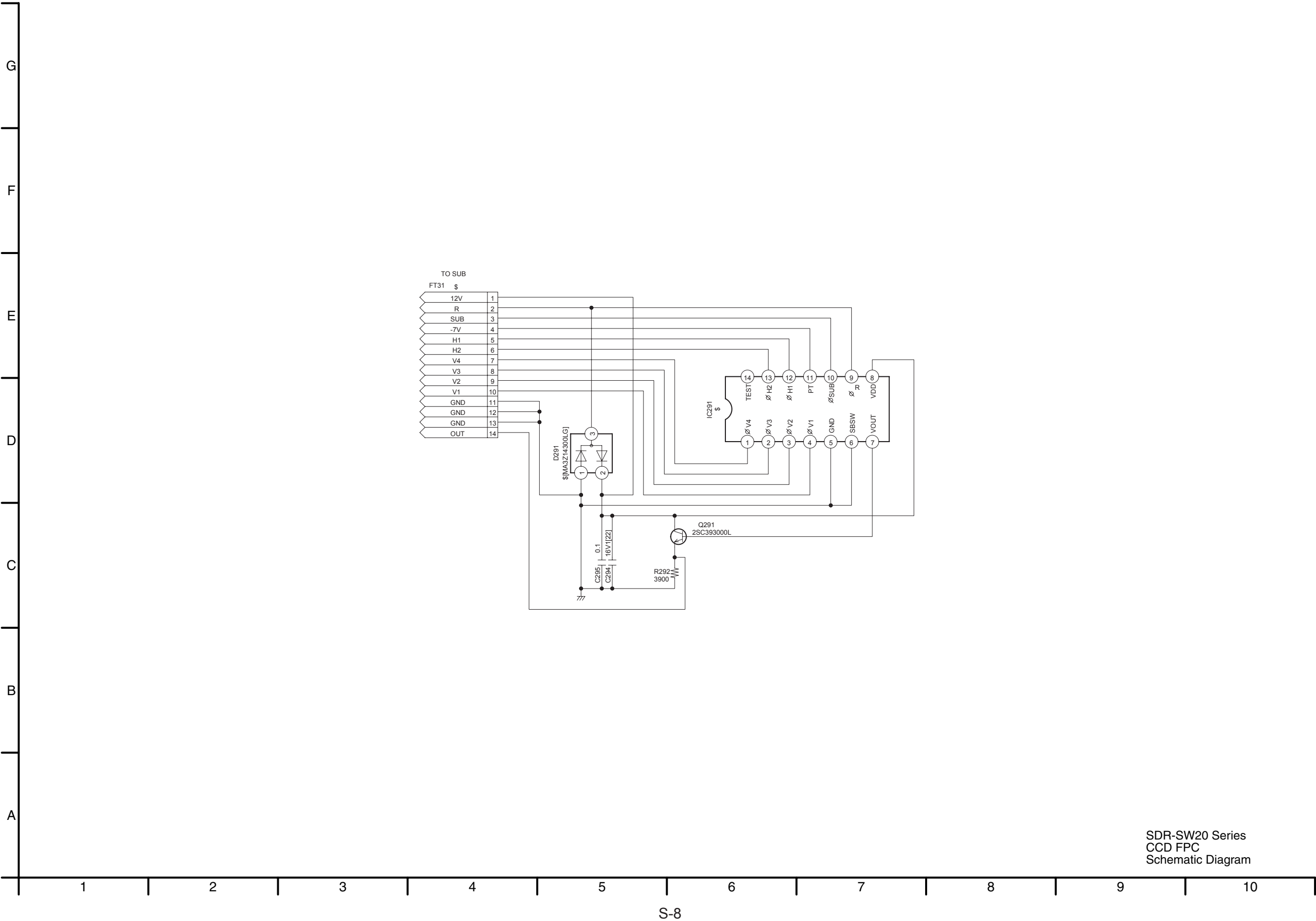
S4.4. Monitor Schematic Diagram



S4.5. Operation FPC Schematic Diagram

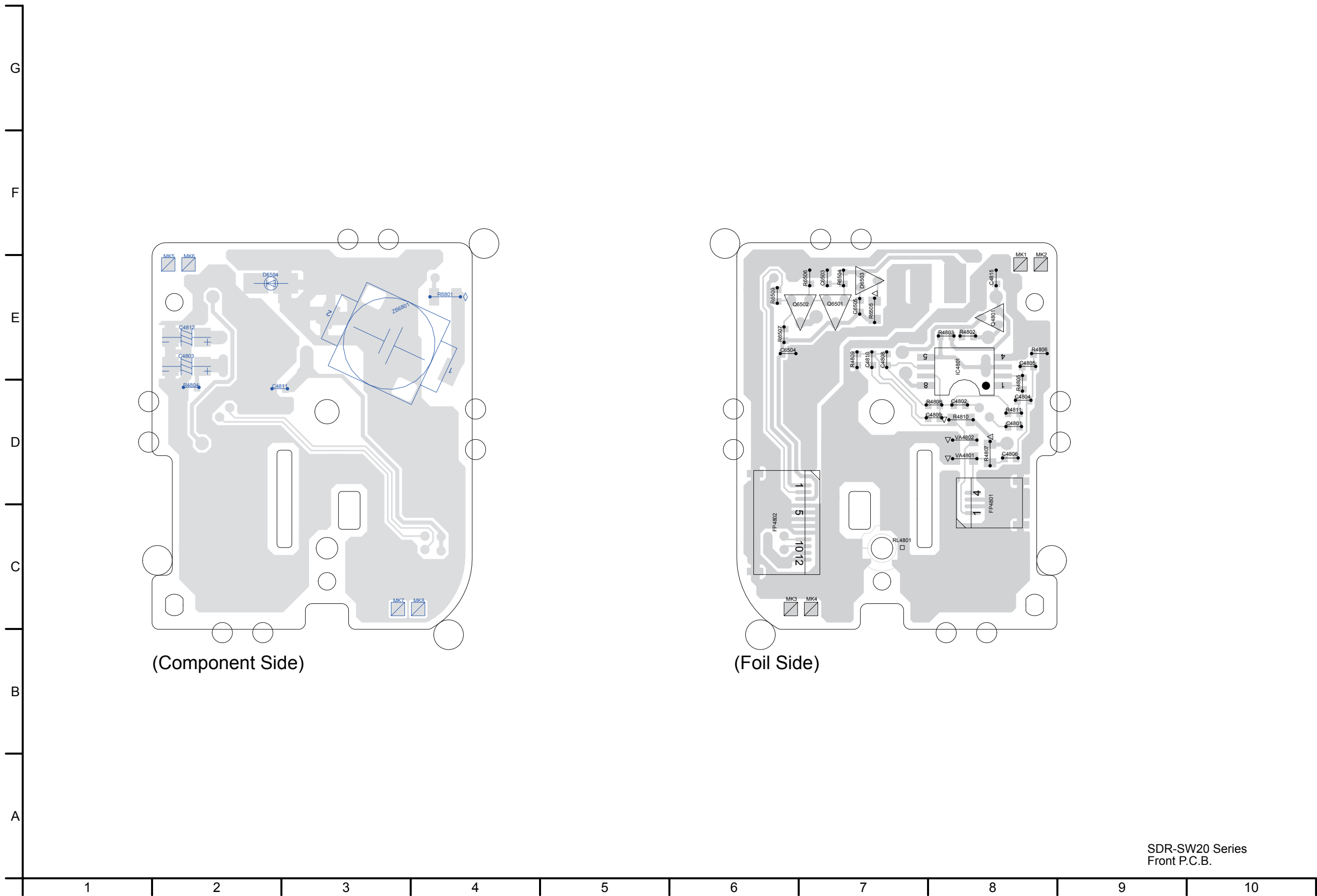


S4.6. CCD FPC Schematic Diagram

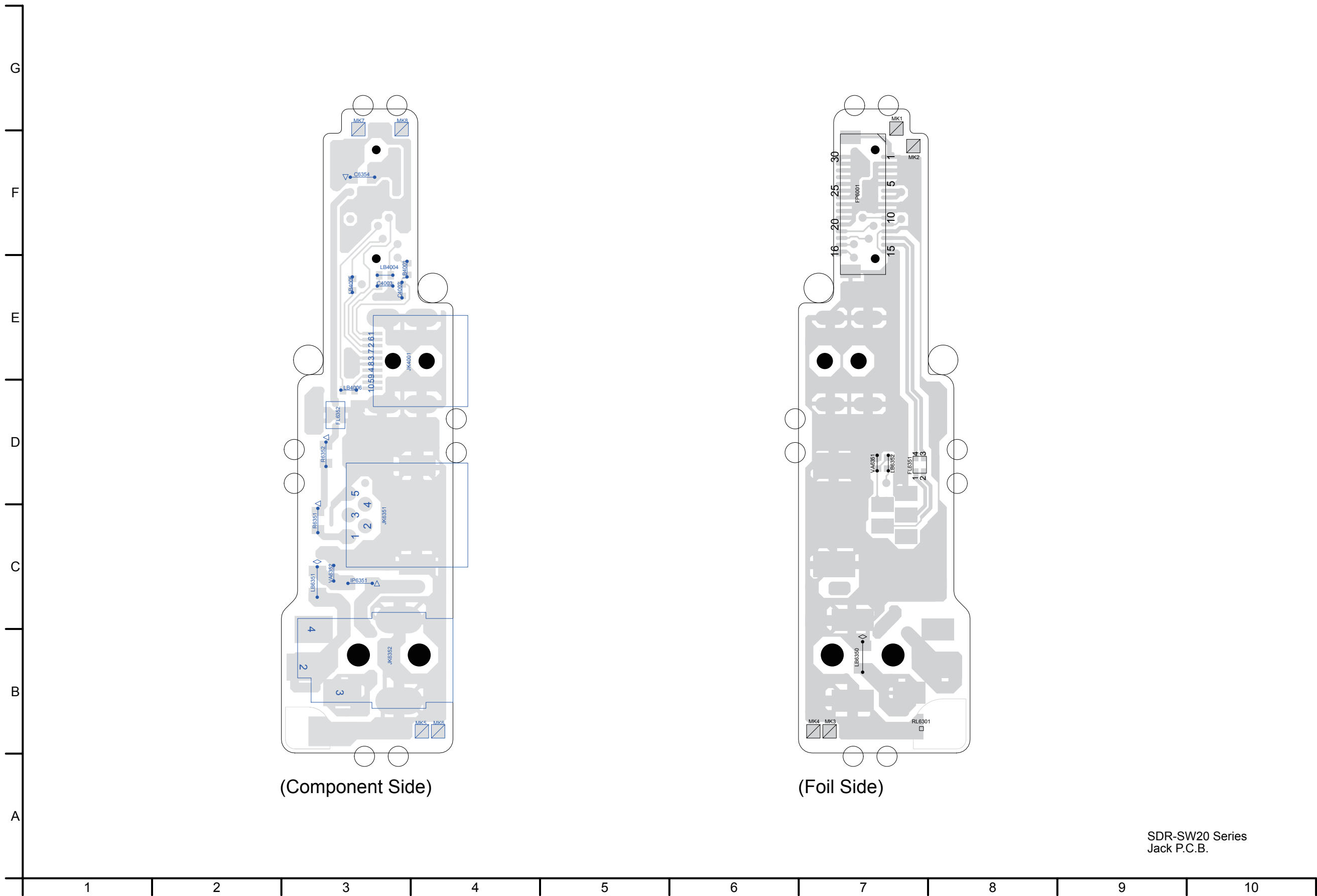


S5. Print Circuit Board

S5.1. Front P.C.B.

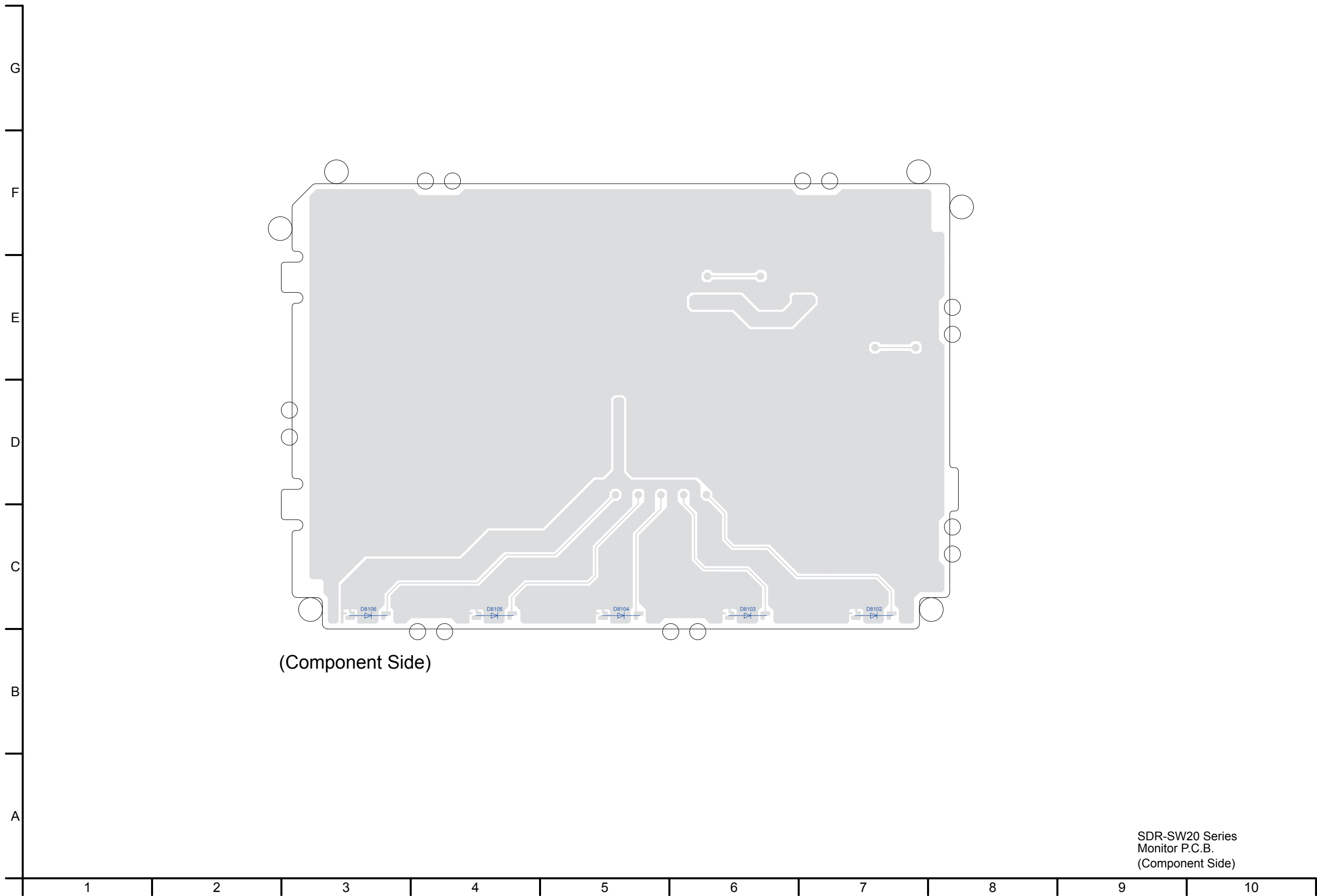


S5.2. Jack P.C.B.

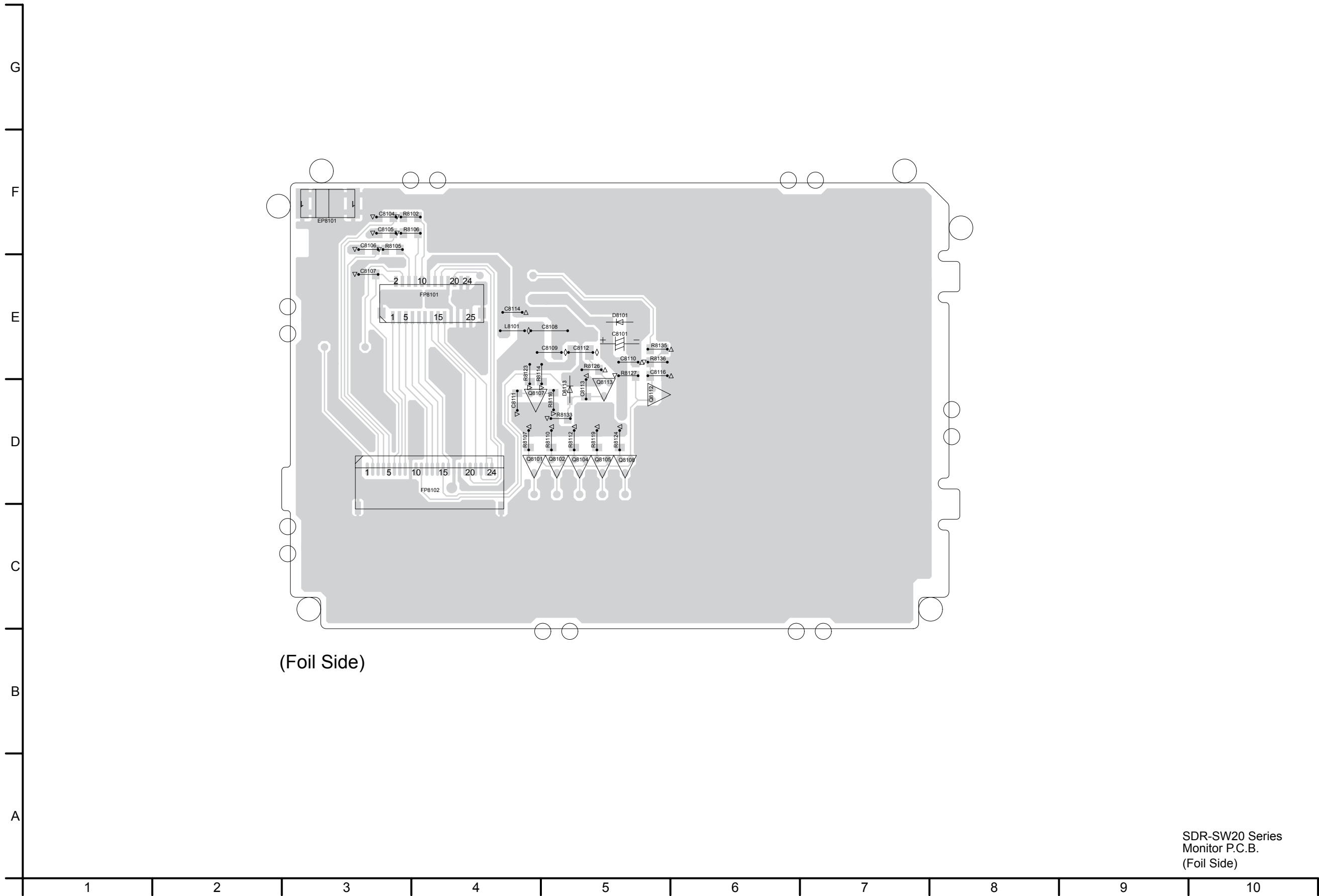


S5.3. Monitor P.C.B.

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

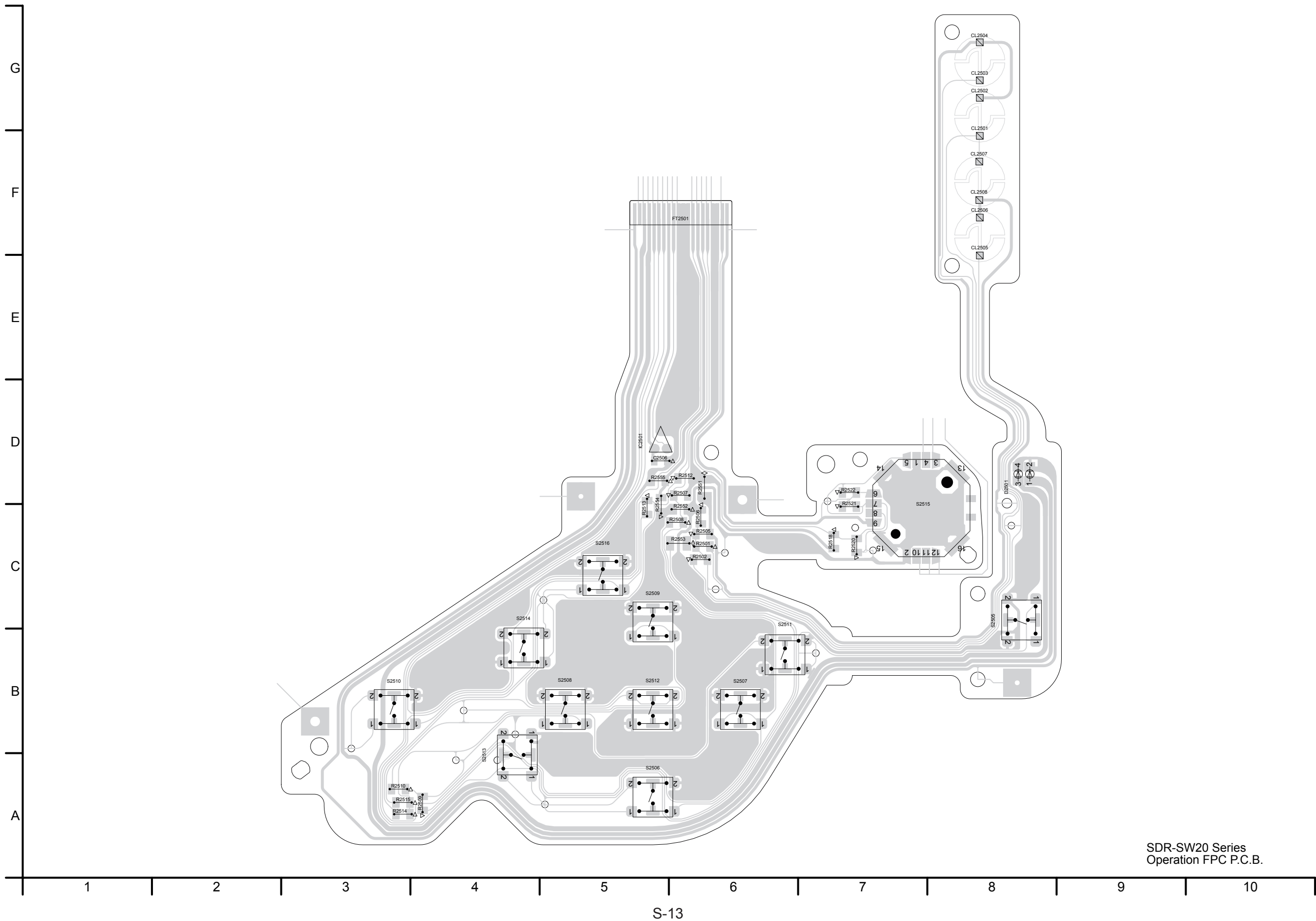


S5.3.2. Monitor P.C.B. (Foil Side)

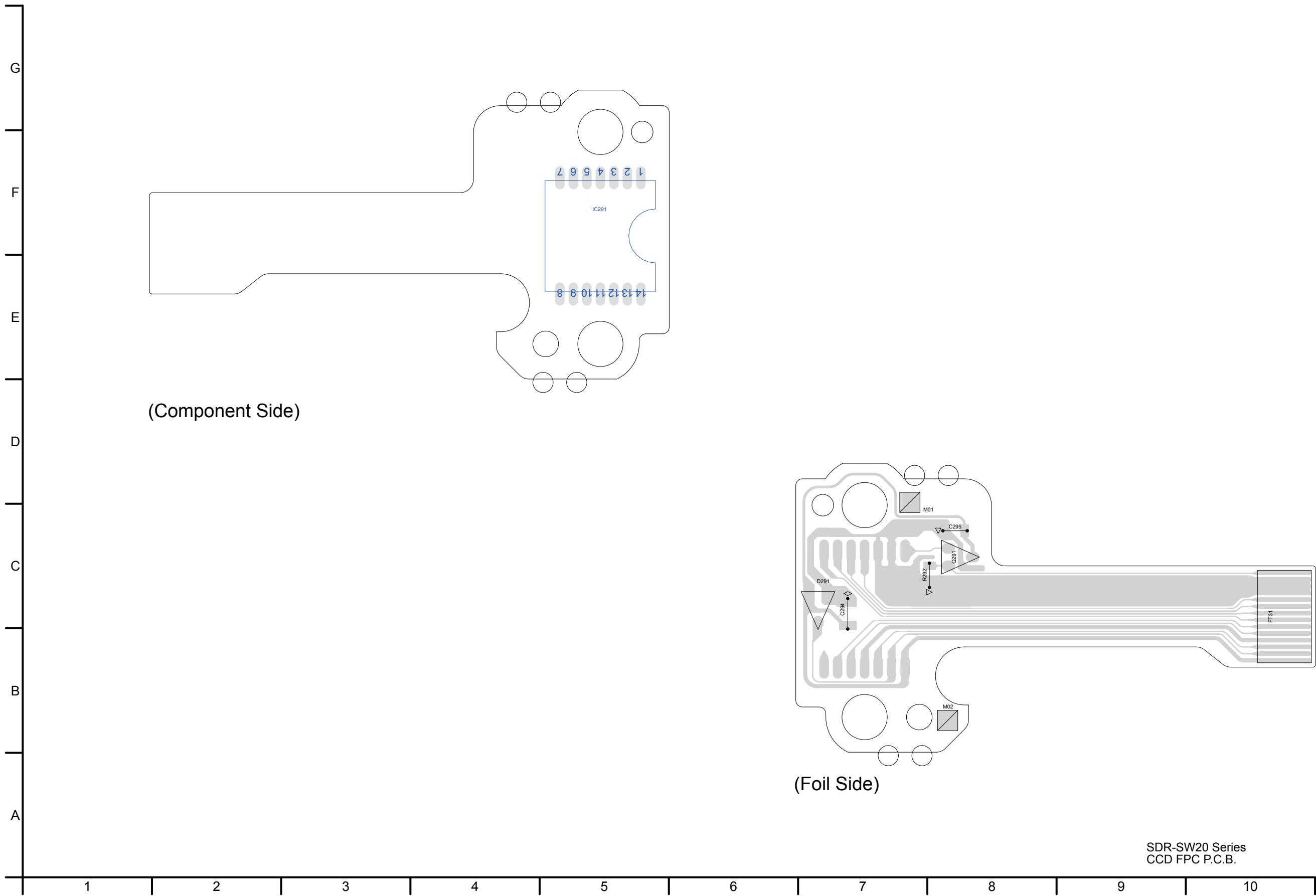


SDR-SW20 Series
Monitor P.C.B.
(Foil Side)

S5.4. Operation FPC P.C.B.



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



S6. Replacement Parts List

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

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

Definition of Parts supplier:

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

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP03H40A	MAIN P.C.B.	1	E.S.D.(RTL) P,PC
##	VEP03H40H	MAIN P.C.B.	1	E.S.D.(RTL) PL
##	VEP03H40B	MAIN P.C.B.	1	E.S.D.(RTL) EG,E,EF
##	VEP03H40J	MAIN P.C.B.	1	E.S.D.(RTL) EB
##	VEP03H40F	MAIN P.C.B.	1	E.S.D.(RTL) EP
##	VEP03H40C	MAIN P.C.B.	1	E.S.D.(RTL) GC
##	VEP03H40K	MAIN P.C.B.	1	E.S.D.(RTL) GN
##	VEP03H40D	MAIN P.C.B.	1	E.S.D.(RTL) EE
##	VEP03H40E	MAIN P.C.B.	1	E.S.D.(RTL) GK
##	VEP04929A	FRONT P.C.B.	1	E.S.D.(RTL)
##	VEP03H41A	JACK P.C.B.	1	E.S.D.(RTL)
##	VEP29191A	MONITOR P.C.B.	1	E.S.D.(RTL)
##	VEP03H42A	OPERATION FPC UNIT	1	E.S.D.(RTL)
##	VEP04929A	FRONT P.C.B.		E.S.D.(RTL)
△ B6801	ML-614S/ZT	BATTERY	1	E.S.D. / MBI
C4801	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4802	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4803	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C4804	ECJ0EB1C822K	C.CAPACITOR CH 16V 8200P	1	
C4805	ECUENC273KBQ	C.CAPACITOR CH 16V 0.027U	1	
C4806	ECUENC273KBQ	C.CAPACITOR CH 16V 0.027U	1	
C4808	ECUENC273KBQ	C.CAPACITOR CH 16V 0.027U	1	
C4809	ECJ0EB1C822K	C.CAPACITOR CH 16V 8200P	1	
C4810	ECUENC273KBQ	C.CAPACITOR CH 16V 0.027U	1	
C4811	F1G0J1050007	C.CAPACITOR CH 6.3V 1U	1	
C4812	F3F0J226A032	T.CAPACITOR CH 6.3V 22U	1	
C6503	F1G0J224A004	C.CAPACITOR CH 6.3V 0.22U	1	
C6504	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C6505	F1G0J224A004	C.CAPACITOR CH 6.3V 0.22U	1	
D6503	MA3S132D0L	DIODE	1	E.S.D.
D6504	B3GA00000041	DIODE	1	E.S.D.
FP4801	K1MN04BA0197	CONNECTOR 4P	1	
FP4802	K1MN12BA0197	CONNECTOR 12P	1	
IC4801	C0ABB000369	IC	1	E.S.D.
Q4801	2SD2216J0L	TRANSISTOR	1	E.S.D.
Q6501	B1ABC000098	TRANSISTOR	1	E.S.D.
Q6502	2SB1218ARL	TRANSISTOR	1	E.S.D.
R4802	ERJ2GEJ472	M.RESISTOR CH 1/16W 4.7K	1	
R4803	ERJ2GEJ223	M.RESISTOR CH 1/16W 22K	1	
R4804	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4805	ERJ2GEJ124	M.RESISTOR CH 1/16W 120K	1	
R4806	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4807	VRE0071E392	M.RESISTOR CH 1/10W 3.9K	1	
R4808	ERJ2GEJ124	M.RESISTOR CH 1/16W 120K	1	
R4809	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R4810	VRE0071E392	M.RESISTOR CH 1/10W 3.9K	1	
R6504	ERJ2GEJ106X	M.RESISTOR CH 1/16W 10M	1	
R6505	ERJ3GEYJ335	M.RESISTOR CH 1/10W 3.3M	1	
R6506	ERJ2GEJ184	M.RESISTOR CH 1/16W 180K	1	
R6507	ERJ2GEJ103	M.RESISTOR CH 1/16W 10K	1	
R6509	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R6801	ERJ6GEYJ222V	M.RESISTOR CH 1/10W 2.2K	1	
VA4801	D4ED1270A007	SURGE ABSORBER	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
VA4802	D4ED1270A007	SURGE ABSORBER	1	
ZB6801	K3ZZ00500014	CONNECTOR	1	
##	VEP03H41A	JACK P.C.B.		E.S.D.(RTL)
C4002	ECJ0EB1E472K	C.CAPACITOR CH 25V 4700P	1	
C4003	ECJ0EB1E472K	C.CAPACITOR CH 25V 4700P	1	
C6354	ECJ1VB1C105K	C.CAPACITOR CH 16V 1U	1	
FL6351	J0MAB0000200	FILTER	1	
FL6352	F1H0J1050028	FILTER	1	
FP6001	K1KA30B00077	CONNECTOR 30P	1	
△ IP6351	K5H4021A0011	IC PROTECTOR	1	
JK4001	K2HZ110E0002	JACK	1	
JK6351	K2HZ105B0008	JACK	1	
JK6352	K2EB2E000009	JACK	1	
LB4001	J0JYC0000061	FILTER	1	
LB4004	J0JYC0000061	FILTER	1	
LB4005	J0JYC0000061	FILTER	1	
LB4006	J0JYC0000059	FILTER	1	
LB6350	VLP0332A420	FILTER	1	
LB6351	VLP0332A420	FILTER	1	
LB6352	J0JYC0000061	FILTER	1	
△ R6351	D1JBR102A006	RESISTOR 1/16W 1K	1	
△ R6352	D1JBR102A006	RESISTOR 1/16W 1K	1	
VA6351	D4ED18R00008	VARISTORS	1	
VA6352	D4ED1270A011	VARISTORS	1	
##	VEP29191A	MONITOR P.C.B.		E.S.D.(RTL)
C8104	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C8105	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C8106	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C8107	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
C8109	F1J1A475A023	C.CAPACITOR CH 10V 4.7U	1	
C8110	ECJ1XB1C104K	C.CAPACITOR CH 16V 0.1U	1	
C8111	ECJ1XB1C104K	C.CAPACITOR CH 16V 0.1U	1	
C8112	F1J1A2250007	C.CAPACITOR CH 10V 2.2U	1	
C8113	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
C8114	ECJ1XB1C104K	C.CAPACITOR CH 16V 0.1U	1	
C8116	ECJ1VB1A105K	C.CAPACITOR CH 10V 1U	1	
D8101	MAZ80620ML	DIODE	1	E.S.D.
D8102	B3AFB0000163	DIODE	1	E.S.D.
D8103	B3AFB0000163	DIODE	1	E.S.D.
D8104	B3AFB0000163	DIODE	1	E.S.D.
D8105	B3AFB0000163	DIODE	1	E.S.D.
D8106	B3AFB0000163	DIODE	1	E.S.D.
D8113	MAZ80560ML	DIODE	1	E.S.D.
EP8101	K9ZZ00001073	EARTH TERMINAL	1	
FP8101	K1MN25AA0035	CONNECTOR 25P	1	
FP8102	K1MN24BA0197	CONNECTOR 24P	1	
L8101	G1C101KA0055	CHIP INDUCTOR 100UH	1	
Q8101	2SC6054J0L	TRANSISTOR	1	E.S.D.
Q8102	2SC6054J0L	TRANSISTOR	1	E.S.D.
Q8104	2SC6054J0L	TRANSISTOR	1	E.S.D.
Q8105	2SC6054J0L	TRANSISTOR	1	E.S.D.
Q8107	2SA2174J0L	TRANSISTOR	1	E.S.D.
Q8108	2SC6054J0L	TRANSISTOR	1	E.S.D.
Q8112	2SA2174J0L	TRANSISTOR	1	E.S.D.
Q8113	2SA2174J0L	TRANSISTOR	1	E.S.D.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R8102	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R8105	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R8106	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R8107	ERJ3RED270	M.RESISTOR CH 1/10W 27	1	
R8110	ERJ3RED270	M.RESISTOR CH 1/10W 27	1	
R8112	ERJ3RED270	M.RESISTOR CH 1/10W 27	1	
R8114	ERJ3RBD563	M.RESISTOR CH 1/10W 56K	1	
R8116	ERJ3RBD562	M.RESISTOR CH 1/10W 5.6K	1	
R8119	ERJ3RED270	M.RESISTOR CH 1/10W 27	1	
R8123	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R8124	ERJ3RED270	M.RESISTOR CH 1/10W 27	1	
R8126	ERJ3GEYJ104	M.RESISTOR CH 1/10W 100K	1	
R8127	D0GB102JA057	M.RESISTOR CH 1/10W 1K	1	
R8135	ERJ3RBD473	M.RESISTOR CH 1/10W 47K	1	
R8136	ERJ3RBD103	M.RESISTOR CH 1/10W 10K	1	
##	VEP03H42A	OPERATION FPC UNIT		E.S.D.(RTL)
C2506	F1H0J106A009	C.CAPACITOR CH 6.3V 10U	1	
D2501	B3ABB0000033	LIGHT EMITTING DEVICES (V	1	E.S.D.
IC2501	B4ZZ00000012	IC	1	E.S.D.
R2501	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R2502	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R2505	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R2506	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R2507	D0GB103JA057	M.RESISTOR CH 1/10W 10K	1	
R2508	ERJ3GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R2509	ERJ3GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R2510	D0GB183JA057	M.RESISTOR CH 1/10W 18K	1	
R2512	D0GB103JA057	M.RESISTOR CH 1/10W 10K	1	
R2513	ERJ3GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R2514	ERJ3GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R2515	D0GB183JA057	M.RESISTOR CH 1/10W 18K	1	
R2518	D0GB103JA057	M.RESISTOR CH 1/10W 10K	1	
R2520	ERJ3GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R2521	ERJ3GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R2522	D0GB183JA057	M.RESISTOR CH 1/10W 18K	1	
R2551	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	1	
R2552	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
R2553	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	1	
R2554	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
R2555	ERJ3GEY0R00	M.RESISTOR CH 1/10W 0	1	
S2505	EVQP6FB35	SWITCH	1	
S2506	EVQP6FB35	SWITCH	1	
S2507	EVQP6FB35	SWITCH	1	
S2508	EVQP6FB35	SWITCH	1	
S2509	EVQP6FB35	SWITCH	1	
S2510	EVQP6FB35	SWITCH	1	
S2511	EVQP6FB35	SWITCH	1	
S2512	EVQP6FB35	SWITCH	1	
S2513	EVQP6FB35	SWITCH	1	
S2514	EVQP6FB35	SWITCH	1	
S2515	K0G177A00002	SWITCH	1	
S2516	EVQP6FB35	SWITCH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##		M1 (CASING SECTION)			72	VUMG1791	WATERPROOF RUBBER KIT	1	
1	VGQ9398	R BASE RUBBER	1		73	VMS7860	BATTERY DOOR SHAFT	1	
2	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR	74	VSC5960	RADIATION PLATE	1	
2	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR	75	VUMG1791	WATERPROOF RUBBER KIT	1	
2	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER	76	VGQ9482	FRAME SHEET	1	
2	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR	77	VWJ1973	FRONT FPC	1	
2	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS	78	VEP03H40A	MAIN P.C.B.	1	P,PC E.S.D.(RTL)
2	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS	78	VEP03H40B	MAIN P.C.B.	1	PL E.S.D.(RTL)
2	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES	78	VEP03H40B	MAIN P.C.B.	1	EG,E,EF E.S.D.(RTL)
2	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS	78	VEP03H40J	MAIN P.C.B.	1	EB E.S.D.(RTL)
3	VUMG1791	WATERPROOF RUBBER KIT	1		78	VEP03H40F	MAIN P.C.B.	1	EP E.S.D.(RTL)
28	VMP8981	OPERATION ANGLE	1		78	VEP03H40C	MAIN P.C.B.	1	GC E.S.D.(RTL)
29	VMP8826	EARTH ANGLE	1		78	VEP03H40K	MAIN P.C.B.	1	GN E.S.D.(RTL)
30	L0AA01A00029	SPEAKER UNIT	1		78	VEP03H40D	MAIN P.C.B.	1	EE E.S.D.(RTL)
31	VMP8799	ZOOM OPERATION ANGLE	1		78	VEP03H40E	MAIN P.C.B.	1	GK E.S.D.(RTL)
32	VMP8800	SS OPERATION ANGLE	1		79	VEP03H41A	JACK P.C.B.	1	E.S.D.(RTL)
33	VEP03H42A	OPERATION FPC UNIT	1	E.S.D.(RTL)	80	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR
34	VUMG1791	WATERPROOF RUBBER KIT	1		80	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR
35	VUMG1791	WATERPROOF RUBBER KIT	1		80	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER
36	VUMG1791	WATERPROOF RUBBER KIT	1		80	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR
37	VUMG1791	WATERPROOF RUBBER KIT	1		80	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS
39	VMS7859	JACK DOOR SHAFT	1		80	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS
41	VEP04929A	FRONT P.C.B.	1	E.S.D.(RTL)	80	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES
42	VMC2050	L EARTH PLATE	1		80	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS
43	VXJ0242	BATTERY LOCK ANGLE UNIT	1		81	VGU0C10	BATTERY DOOR KNOB	1	
44	VMB4105	BATTERY LOCK SPRING	1		82	VMB4146	JACK LOCK SPRING	1	
45	VGU0B18	BATTERY LOCK KNOB	1		83	VUMG1791	WATERPROOF RUBBER KIT	1	
46	VGU0B19	BATT DETECTION BUTTON	1		84	VGQ9731	KNOB SHEET	1	
47	VMB3852	SD LOCK SPRING	1		85	VQL1S52	BATTERY LABEL	1	P,PL,EG,E,EB,EF,EP,GC,GN,EE
48	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR	85	VQL1S53	BATTERY LABEL	1	PC
48	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR	85	VQL1S54	BATTERY LABEL	1	GK
48	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER	86	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR
48	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR	86	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR
48	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS	86	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER
48	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS	86	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR
48	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES	86	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS
48	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS	86	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS
49	VGQ9702	ECM FPC SHEET	1		86	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES
50	VEK0L11	ECM UNIT	1		86	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS
51	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR	87	VMB4146	JACK LOCK SPRING	1	
51	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR	88	VGU0C09	JACK LOCK KNOB	1	
51	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER	89	VUMG1791	WATERPROOF RUBBER KIT	1	
51	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR	90	VGQ9731	KNOB SHEET	1	
51	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS	91	VQL1S49	JACK LABEL	1	P,PL,EG,E,EB,EF,EP,GC,GN,EE
51	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS	91	VQL1S50	JACK LABEL	1	PC
51	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES	91	VQL1S51	JACK LABEL	1	GK
51	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS					
51	VUYK2J30A	WATERPROOF CABINET KIT	1	PR,PLR	B1	VHD1987	SCREW	1	
51	VUYK2J30B	WATERPROOF CABINET KIT	1	PCR	B2	VHD1987	SCREW	1	
51	VUYK2J30C	WATERPROOF CABINET KIT	1	EGR,ER,EBR,EFR,EPR,GCR,GNR,EER	B3	VHD1987	SCREW	1	
51	VUYK2J30D	WATERPROOF CABINET KIT	1	GKR	B4	VHD1987	SCREW	1	
51	VUYK2J30E	WATERPROOF CABINET KIT	1	PS,PLS	B11	VHD1927	SCREW	1	
51	VUYK2J30F	WATERPROOF CABINET KIT	1	PCS	B12	VHD1927	SCREW	1	
51	VUYK2J30G	WATERPROOF CABINET KIT	1	EGS,ES,EBS,EFS,EPS,GCS,GNS,EES	B13	VHD1927	SCREW	1	
51	VUYK2J30H	WATERPROOF CABINET KIT	1	GKS	B14	VHD1927	SCREW	1	
54	VUMG1791	WATERPROOF RUBBER KIT	1		B15	VHD1927	SCREW	1	
55	VGL1238	ACCESS PANEL LIGHT	1		B16	VHD1927	SCREW	1	
56	VUMG1791	WATERPROOF RUBBER KIT	1		B17	VHD1927	SCREW	1	
57	VGQ9405	LABEL	1		B18	VHD1927	SCREW	1	
58	VGQ9460	GASKET	1		B19	VHD1927	SCREW	1	
59	VKM7113	BATTERY CASE	1		B20	XQN16+BJ4FN	SCREW	1	
60	VMB4094	BATTERY OUT SPRING	1		B21	VHD1630	SCREW	1	
61	VMD5661	MAIN FRAME	1		B22	VHD1630	SCREW	1	
62	VYK2H97	MAIN FRAME UNIT	1		B23	XQN16+BJ45FN	SCREW	1	
63	VEK0L08	BATTERY CATCHER UNIT	1		B24	XQN16+BJ45FN	SCREW	1	
65	VGH4992	FRONT NAME PANEL	1		B25	XQN16+BJ45FN	SCREW	1	
66	VKM7335	FRONT CASE	1	(-S)	B26	VHD1984	SCREW	1	
66	VKM7348	FRONT CASE	1	(-R)	B27	VHD1984	SCREW	1	
67	VKM7336	REAR COVER	1	(-S)	B28	VHD1984	SCREW	1	
67	VKM7346	REAR COVER	1	(-R)	B29	VHD1984	SCREW	1	
68	VMS7829	STRAP SHAFT	1		B30	VHD1984	SCREW	1	
69	VKM7334	R COVER	1	(-S)	B31	VHD1984	SCREW	1	
69	VKM7343	R COVER	1	(-R)	B32	VHD1984	SCREW	1	
70	VGQ9358	LENS PIECE	1		B33	VHD1984	SCREW	1	
71	VDL2019	LENS PROTECTION GLASS	1		B34	VHD1984	SCREW	1	
					B35	VHD1984	SCREW	1	
					B36	VHD1984	SCREW	1	

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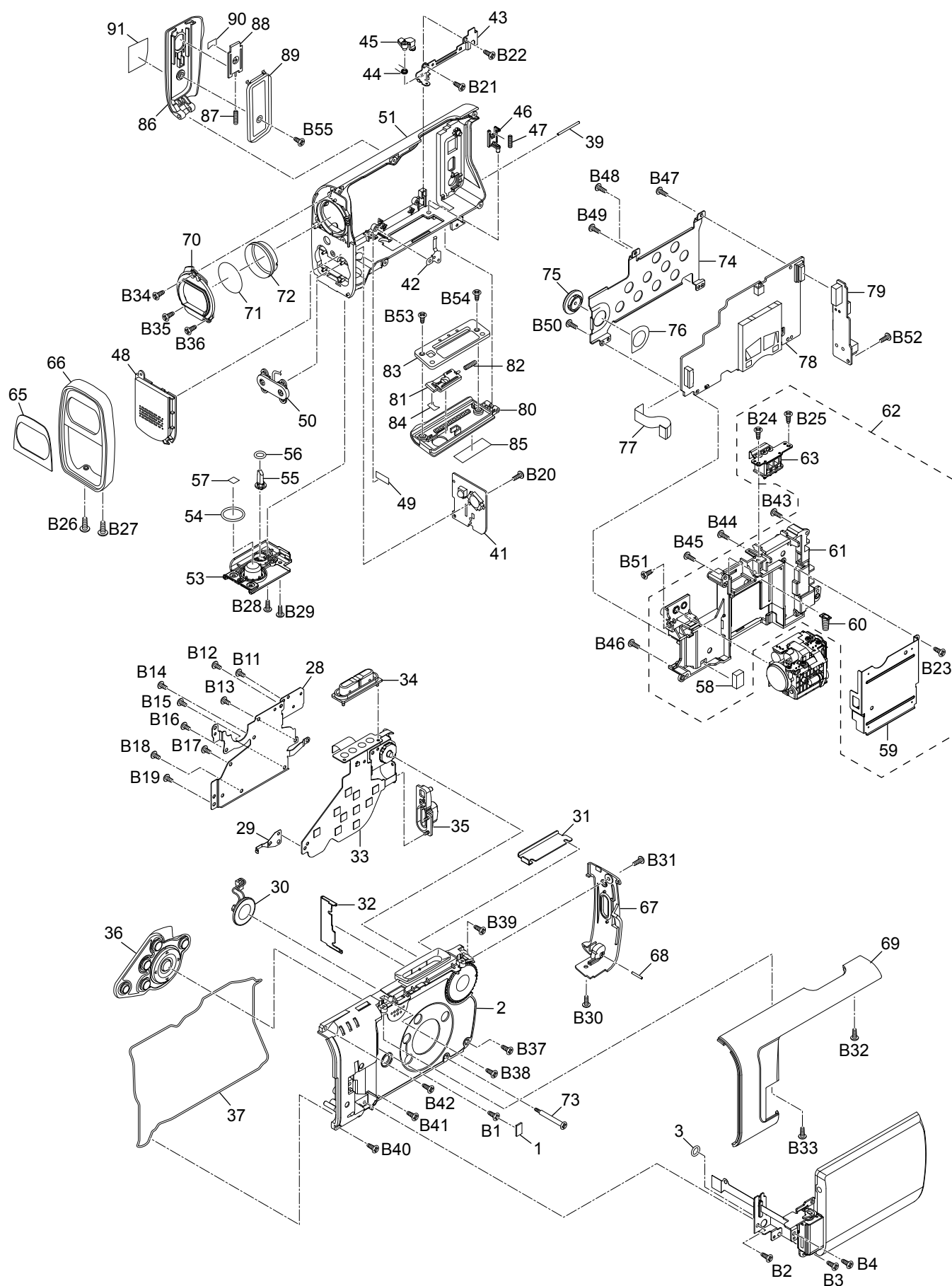
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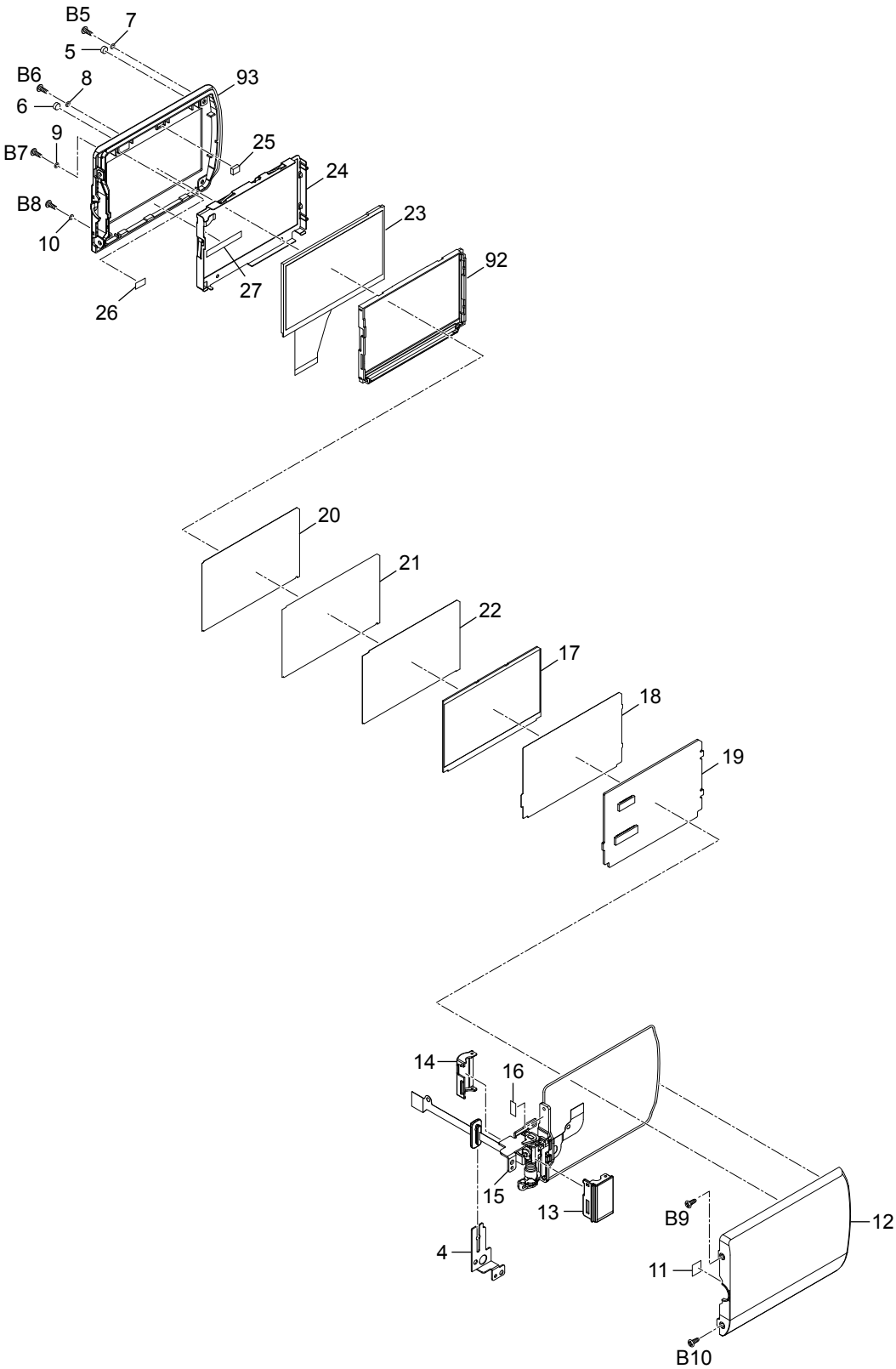
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
#		M4 (PACKING SECTION)		
A 301	-----	BATTERY PACK	1	P,PC
A 301	-----	BATTERY PACK	1	PL,EG,E,EB,EF,EP,G,C,GN,EE
A 301	-----	BATTERY PACK	1	GK
302	K2KZ9CB00002	AV CABLE	1	
A 303	VSK0694	AC ADAPTOR	1	P,PC
A 303	VSK0695	AC ADAPTOR	1	PL,EG,E,EB,EF,EP,G,C,GN,EE,GK
A 304	K2CA2CA00025	AC CABLE	1	P,PC,PL
A 304	K2CA2CA00020	AC CABLE	1	GK
305	VFC4295	2-WAY HAND STRAP	1	
306	K2KZ4CB00011	USB CABLE	1	
307	VPG1Q40	PACKING CASE	1	P,PC
307	VPG1Q41	PACKING CASE	1	PL,EG,E,EB,EF,EP,G,C,GN,EE
307	VPG1Q49	PACKING CASE	1	GK
308	VPN6582	CUSHION	1	
310	VPF1253	BAG, POLYETHYLENE	1	
A 311	VQT1M21	OPERATING INSTRUCTIONS (ENGLISH)	1	P,PC
A 311	VQT1M22	OPERATING INSTRUCTIONS (CANADIAN FRENCH)	1	PC
A 311	VQT1M23	OPERATING INSTRUCTIONS (ENGLISH)	1	PL
A 311	VQT1M24	OPERATING INSTRUCTIONS (SPANISH)	1	PL
A 311	VQT1M25	OPERATING INSTRUCTIONS (GERMAN)	1	EG
A 311	VQT1M26	OPERATING INSTRUCTIONS (FRENCH)	1	EG,EF
A 311	VQT1M27	OPERATING INSTRUCTIONS (ITALIAN)	1	EG
A 311	VQT1M28	OPERATING INSTRUCTIONS (DUTCH)	1	EG
A 311	VQT1M29	OPERATING INSTRUCTIONS (TURKISH)	1	EG
A 311	VQT1M30	OPERATING INSTRUCTIONS	1	E
A 311	VQT1M31	OPERATING INSTRUCTIONS (PORTUGUESE)	1	E
A 311	VQT1M32	OPERATING INSTRUCTIONS	1	E
A 311	VQT1M33	OPERATING INSTRUCTIONS (DANISH)	1	E
A 311	VQT1M34	OPERATING INSTRUCTIONS (ENGLISH)	1	EB,EP,G,C,GN
A 311	VQT1M35	OPERATING INSTRUCTIONS (HUNGARIAN)	1	EP
A 311	VQT1M36	OPERATING INSTRUCTIONS (POLISH)	1	EP
A 311	VQT1M37	OPERATING INSTRUCTIONS (CZECH)	1	EP
A 311	VQT1M38	OPERATING INSTRUCTIONS (CHINESE(TRADITIONAL))	1	GC
A 311	VQT1M39	OPERATING INSTRUCTIONS (ARABIC)	1	GC
A 311	VQT1M40	OPERATING INSTRUCTIONS (PERSIAN)	1	GC
A 311	VQT1M41	OPERATING INSTRUCTIONS (THAI)	1	GC
A 311	VQT1M42	OPERATING INSTRUCTIONS (HUNGARIAN)	1	GC
A 311	VQT1M43	OPERATING INSTRUCTIONS (RUSSIAN)	1	EE
A 311	VQT1M44	OPERATING INSTRUCTIONS (UKRAINIAN)	1	EE
A 311	VQT1M45	OPERATING INSTRUCTIONS	1	GK
312	VFF0397-S	CD-ROM	1	P,PC
312	VFF0398-S	CD-ROM	1	PL,EG,E,EB,EF,EP,G,C,GN,EE,GK
A 313	K2CT3CA00004	AC CABLE	1	EB,G,C
A 314	K2CJ2DA00008	AC CABLE	1	GN
A 316	K2CQ2CA00006	AC CABLE	1	EG,E,EF,EP,G,C,EE
317	VPF1249	CAMERA BAG	1	

S7. Exploded View

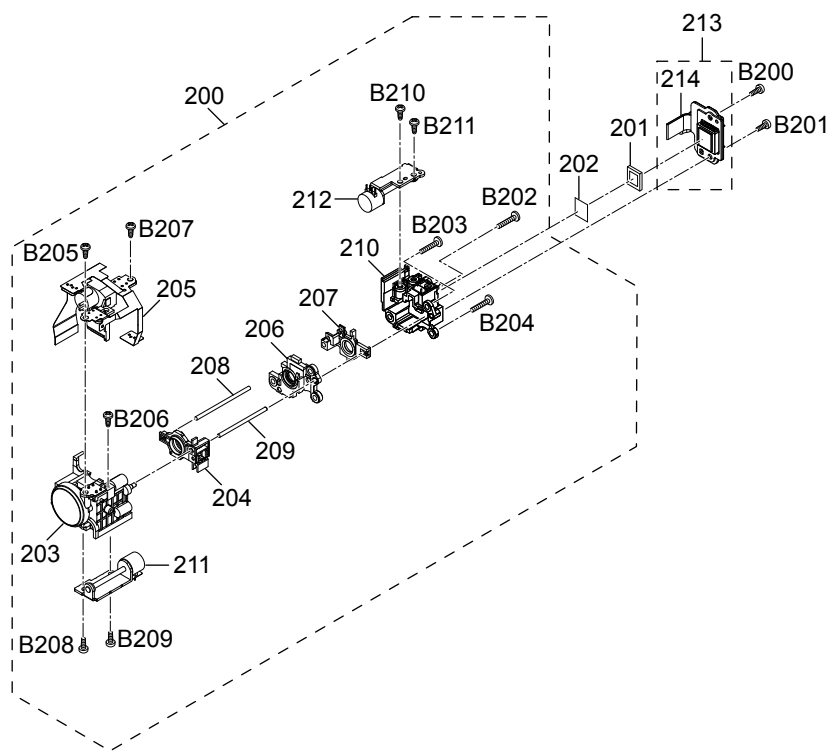
S7.1. Frame and Casing Section



S7.2. LCD Section



S7.3. Lens Section



S7.4. Packing Parts and Accessories Section

