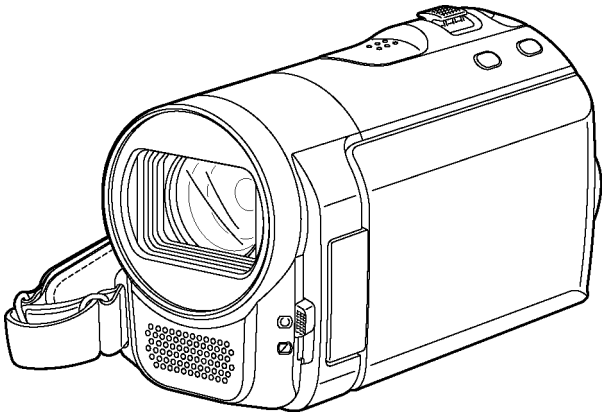
ORDER NO.VM1004027CE

Service Manual

SD Video Camera

Model No. **SDR-S45EG**
SDR-S45EF
SDR-S45EC
SDR-S45EP
SDR-S45EB
SDR-S45EE
SDR-S45GC
SDR-S45GA
SDR-S45GN
SDR-S45PU
SDR-S45PR



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

⚠ WARNING

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

Panasonic

TABLE OF CONTENTS

1 Safety Precautions

1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE

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

1.1.1. 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 1MΩ and 5.2MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.1.2. 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" to exposed metallic part on the set. And connect "B" to 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 0.25 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.

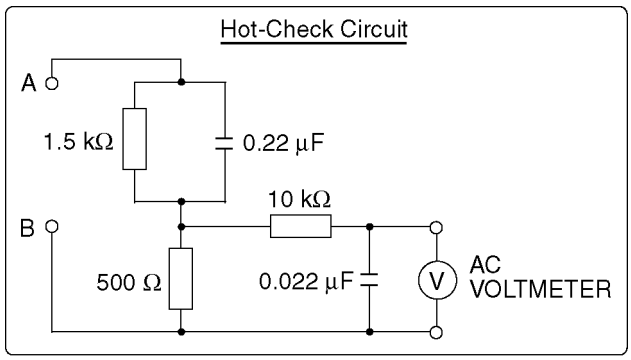


Figure 1

2 Warning

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

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic 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).

IMPORTANT SAFETY NOTICE

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2.2. Service caution based on legal restrictions

2.2.1. 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 degrees C (86°F) more than that of the normal solder.

Definition 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 degrees C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

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

Note

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

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

2.3.1. Information for your safety

IMPORTANT

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

WARNING

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

CAUTION

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

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVER

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

2.3.2. Caution for AC mains lead

For your safety, please read the following text carefully.

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

ASTA mark	BSI mark

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

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

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

2.3.2.1. Important

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

Blue	Neutral
Brown	Live

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

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

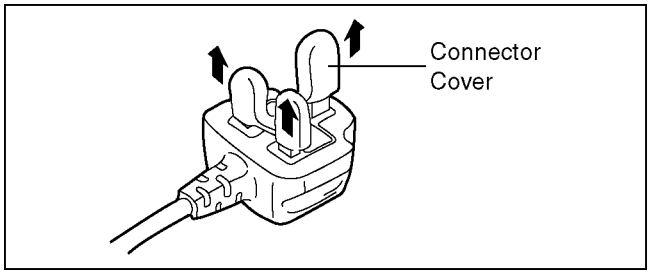
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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

Earth Symbol	⏚

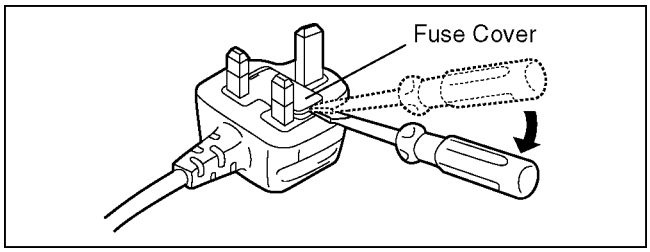
2.3.2.2. Before use

remove the Connector Cover as follows.

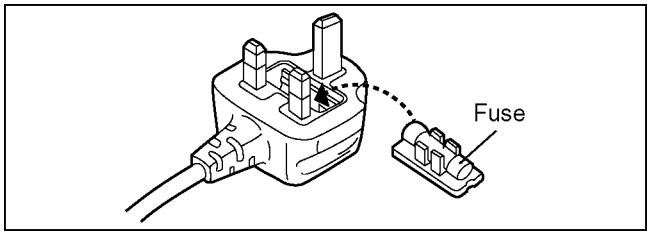


2.3.2.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.

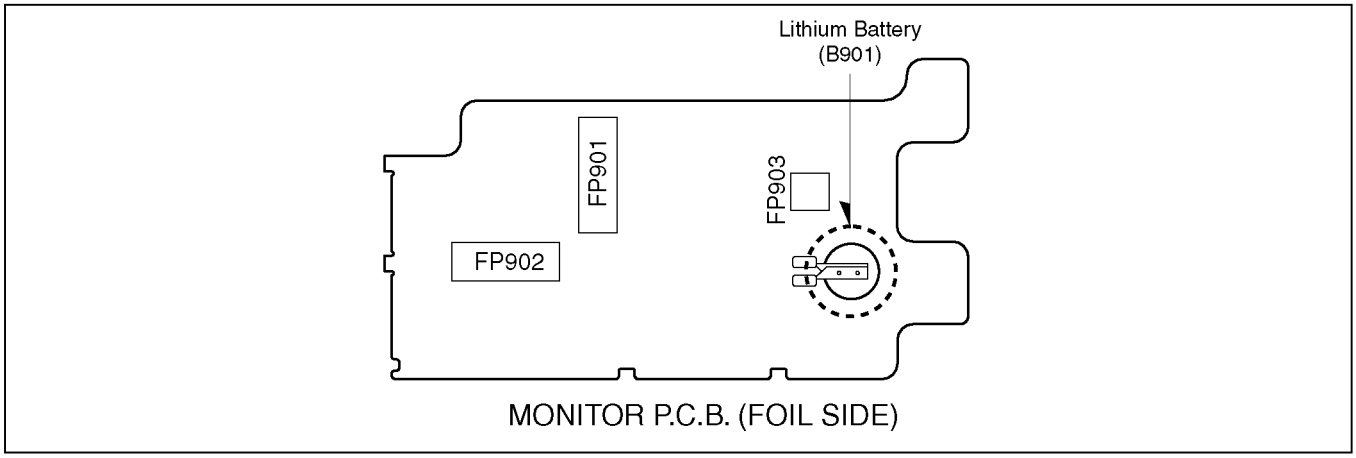


2. Replace the fuse and attach the Fuse cover.



2.4. How to Replace the Lithium Battery (PROCEDURE)

1. Remove the Monitor P.C.B. (Refer to Disassembly Procedures.)
2. Unsolder the Lithium Battery “ML-614S/DN” and then replace the new one. (See Fig. B1.)



CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

CAUTION
The battery used in this device may present a risk of fire or chemical burn if mistreated.
Do not recharge, disassemble, heat above 100°C (212°F), or incinerate.
Replace battery with Panasonic part number ML-614S/DN only.
Use of another battery may present a risk of fire or explosion.
Dispose of used battery promptly.
Keep away from children.
Do not disassemble and do not dispose of in fire.

Fig. B1

Note:

The lithium battery is a critical component.
(Type No.: ML-614S/DN **Manufactured by Energy Company, Panasonic Corporation**)
It must never be subjected to excessive heat or discharge.
It must therefore only be fitted in equipment designed specifically for its use.
Replacement batteries must be of the 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 equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

(For French)

PRECAUTION

Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

(For German)

VORSICHT

Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe abliefern.

(For Swedish)

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

(For Norwegian)

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

(For Finnish)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Note:

Above caution is applicable for a battery pack which is for SDR-S45 series, as well.

3 Service Navigation

3.1. Service Information

This service manual contains technical information which will 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, this information will be followed by supplement service manual to be filed with original service manual.

Notes 1:

1) This service manual does not contain the following information, because of the impossibility of servicing at component level.
   1. Schematic Diagram, Block Diagram and P.C.B. layout of Main P.C.B.
   2. Parts List for individual parts of Main P.C.B.
2) The following category are recycle module part. Please send them to Central Repair Center.
   *Main P.C.B. (VEP03H83DP : SDR-S45EG/EF/EC/EP/EB)
   (VEP03H83DQ : SDR-S45EE/GC/GA/GN)
   (VEP03H83DN : SDR-S45PU/PR)

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

There are three kinds of SDR-S45, regardless of the colours.

- a) SDR-S45EG/EF/EC/EP/EB/GN
- b) SDR-S45EE
- c) SDR-S45GC/GA/PU/PR

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

3.2.1. Defining methods

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

a) SDR-S45EG/ EF/ EC/ EP/ EB/ GN

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

b) SDR-S45EE

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

C) SDR-S45GC/ GA/ PU/ PR

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

Note:

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

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

4 Specifications

SD Video Camera

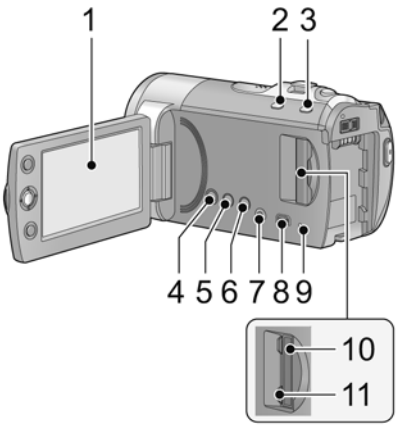
<table>
<tr><th>ITEM</th><th>SPECIFICATION</th></tr>
<tr><td>POWER</td><td>SD Video Camera:
Power Source: DC 5.0 V (When using AC adaptor)
DC 3.6 V (When using battery)
Power Consumption: 2.9 W (Recording)
7.7 W (Charging)
AC Adaptor:
Power Source: AC 110-240 V, 50/60 Hz
Power Consumption: 12 W
DC Output: DC 5.0V, 1.6 A
(Unit Operation)</td></tr>
<tr><td>RECORDING FORMAT SD Card</td><td>Normal recording mode: Based on the SD-Video standard</td></tr>
<tr><td></td><td>Long recording mode: Independent standard</td></tr>
<tr><td rowspan="3">CAMERA</td><td>Zoom: 40X optical zoom,
70X/2000X digital</td></tr>
<tr><td>Monitor: 2.7 - inch wide LCD (approx. 123K pixels)</td></tr>
<tr><td>Lens: Auto Iris, F1.9 - F3.4, Focal Length; 1.48 - 59.2 mm
Macro (Wide Range AF)</td></tr>
<tr><td></td><td>Image Sensor: 1/8 - inch CCD Image Sensor</td></tr>
<tr><td rowspan="2">VIDEO</td><td>Television System :
EIA Standard : 525 Lines, 60 Fields NTSC Colour Signal
(SDR-S45PU/PR)
CCIR : 625 Lines, 50 Fields PAL Colour Signal
(Except SDR-S45PU/PR)</td></tr>
<tr><td>Video Output Level: 1.0 Vp-p, 75 ohm,
(AV Multi Jack) NTSC/ PAL System</td></tr>
<tr><td>AUDIO</td><td>Audio Output Level (Line): 316 mV, 600 ohm, 2ch
(AV Multi Jack)</td></tr>
<tr><td>MOTION PICTURES</td><td>Recording media:
SD Memory Card (removable type) :
512 MB/1 GB/2 GB
(FAT12 and FAT16 system compliant)
SDHC Memory Card (removable type) :
4 GB/6 GB/8 GB/12 GB/16 GB/32 GB
(FAT32 system compliant)
SDXC Memory Card (removable type) :
48 GB/64 GB
(exFAT system compliant)
Compression:
Normal recording mode: MPEG-2
Long recording mode: MPEG-4 AVC/ H.264
Recoding mode and transfer rate:
XP: Approx. 10 Mbps (VBR)
SP: Approx. 5 Mbps (VBR)
LP: Approx. 2.5 Mbps (VBR)
LXP: Approx. 5 Mbps (VBR)
LSP: Approx. 2.5 Mbps (VBR)
LLP: Approx. 1.25 Mbps (VBR)
Recordable time:
Approx.
<table>
<tr><td></td><td colspan="4">SD Card (1GB)</td></tr>
<tr><td>XP</td><td>12 minutes</td><td>LXP</td><td>24 minutes</td></tr>
<tr><td>SP</td><td>25 minutes</td><td>LSP</td><td>50 minutes</td></tr>
<tr><td>LP</td><td>50 minutes</td><td>LLP</td><td>1 h. 40 minutes</td></tr>
</table>
Picture Size:
640 × 480 (4:3), 640 × 360 (16:9)
Audio compression:
Normal recording mode: MPEG-1 Audio Layer 2
Long recording mode: AAC 16 bit (48kHz)</td></tr>
</table>

<table>
<tr><th>ITEM</th><th>SPECIFICATION</th></tr>
<tr><td>STILL PICTURES</td><td>Recording Media:
SD Memory Card (removable type):
8 MB /16 MB /32 MB /64 MB /128 MB /256 MB /
512 MB /1 GB/2 GB
(FAT12 and FAT16 system compliant)
SDHC Memory Card (removable type):
4 GB /6 GB /8 GB /12 GB /16 GB /32 GB
(FAT32 system compliant)
SDXC Memory Card (removable type):
48 GB /64 GB
(exFAT system compliant)
Compression:
JPEG (Design rule for Camera File system,
based on Exif 2.2 standard), DPOF corresponding
Picture Size:
640 × 480 (4:3), 640 × 360 (16:9)</td></tr>
<tr><td>STANDARD ILLUMINATION</td><td>1,400 lx</td></tr>
<tr><td>MINIMUM REQUIRED ILLUMINATION</td><td>Approx. 5 lx (1/30 in low light mode)
(Approx. 2 lx with the Colour night rec function)</td></tr>
<tr><td>SD Card</td><td>Read/Write (No copyright protection support)</td></tr>
<tr><td>USB</td><td>Hi-Speed USB (USB 2.0) compliant
USB terminal Type Mini AB
USB host function (for DVD burner)</td></tr>
<tr><td>MICROPHONE</td><td>Stereo (with a zoom function)</td></tr>
<tr><td>SPEAKER</td><td>1 round speaker</td></tr>
<tr><td>OPERATING TEMPERATURE</td><td>0˚C - 40˚C (32 ˚F - 104 ˚F)</td></tr>
<tr><td>OPERATING HUMIDITY</td><td>10 % - 80 %</td></tr>
<tr><td>Mass (WEIGHT)</td><td>SD Video Camera:
Approx. 205 g (Approx. 0.45 lbs)
(without battery and SD card)
AC Adaptor: Approx.115 g (0.25 lbs)</td></tr>
<tr><td>DIMENSIONS</td><td>SD Video Camera: (excluding projecting parts)
54.9 mm (W) × 64 mm (H) × 107.3 mm (D)
2.16 inch (W) × 2.52 inch (H) × 4.22 inch (D)
AC Adaptor:
46 mm (W) × 25 mm (H) × 75.5 mm (D)
1.8 inch (W) × 1.0 inch (H) × 3.0 inch (D)</td></tr>
<tr><td>STANDARD ACCESSORIES</td><td>1 pc. AC Adaptor
1 pc. Battery Pack Unit
1 pc. AC Cord (Except SDR-S45GC)
2 pcs. AC Cord (SDR-S45GC)
1 pc. AV Cable
1 pc. CD-ROM</td></tr>
<tr><td>SOLDER</td><td>This model use lead free solder (PbF).</td></tr>
</table>

Specifications may change without prior notice.

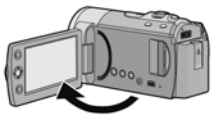
5 Location of Controls and Components

Followings are the Location of Controls and Components for SDR-S45EB, S50EB, T50EB, T55EB, H85EB as a sample.
For other models, refer to each Operating Instructions.

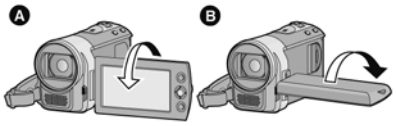


1 LCD monitor

- Pull the LCD monitor out in the direction of the arrow with your fingers.



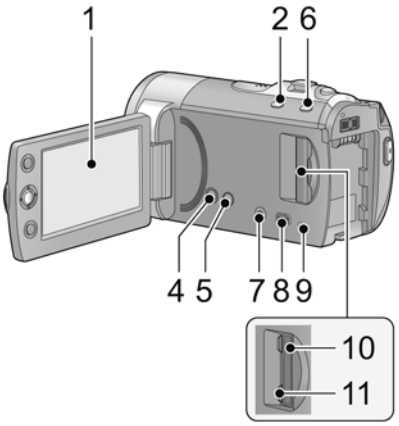
- It can open up to 90°.



- It can rotate up to 180° Ⓐ towards the lens or 90° Ⓑ towards the opposite direction.
- The brightness and colour level of the LCD monitor can be adjusted.

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

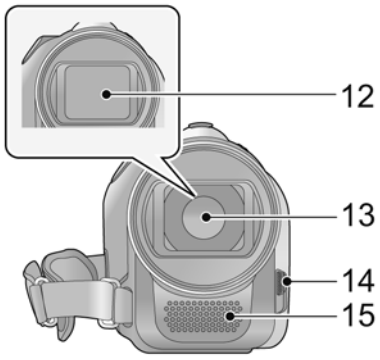
SDR-S45 only



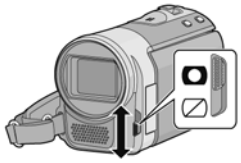
2 Intelligent auto/Manual button [iA/MANUAL]
3 Optical image stabilizer button [((✋)), O.I.S.] (SDR-S50/SDR-T55/ SDR-T50/SDR-H85)
4 Power button [⏻/I]
5 Delete button [🗑]
6 Long recording button [LONG REC.]
7 Audio-video output terminal [A/V]

- Use the AV cable (only the supplied cable).

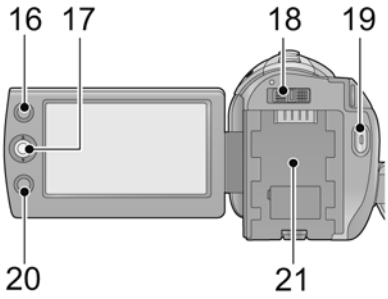
8 USB terminal [⇐]
9 Access lamp [ACCESS]
10 SD card slot
11 SD card cover [SD CARD]



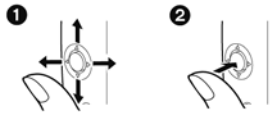
12 Lens cover
13 Lens
14 Open/close switch for the lens cover
For the lens protection, be sure to close the lens cover when not in use.
Slide open/close switch for the lens cover.



15 Microphone (built-in, stereo)

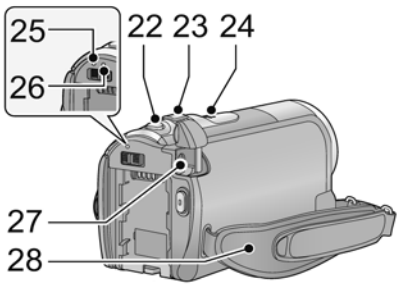


16 AF/AE button [AF/AE]
17 Joystick
Use the joystick to select the recording functions and playback operations, and to operate the menu screen.
Move the joystick up, down, left, or right to select a setting or scene and then press the joystick to set it.



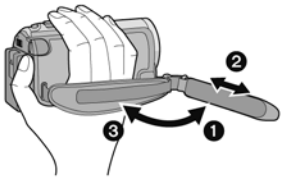
❶ Select by moving up, down, left or right.
❷ Set by pressing the centre.
- Menu screen operations
- To select the recording functions
- To adjust manually
- Playback operations

18 Mode switch
19 Recording start/stop button
20 Menu button [MENU]
21 Battery holder

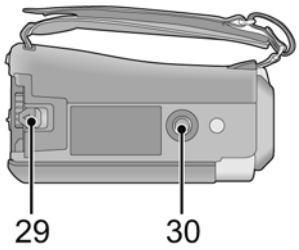


22 Photoshot button [ ]
23 When recording: Zoom lever [W/T]
When playing back: Thumbnail display switch [/] / Volume lever [−VOL+]
24 Speaker
25 Status indicator
26 HDD access lamp [ACCESS HDD] (SDR-H85)
27 DC input terminal [DC IN]
- Do not use any other AC adaptors except the supplied one.

28 Grip belt
Adjust the belt length and the pad position.



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



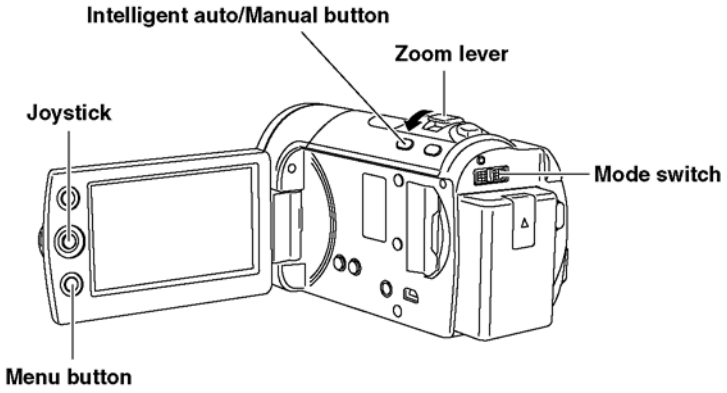
29 Battery release lever [BATTERY]
30 Tripod receptacle

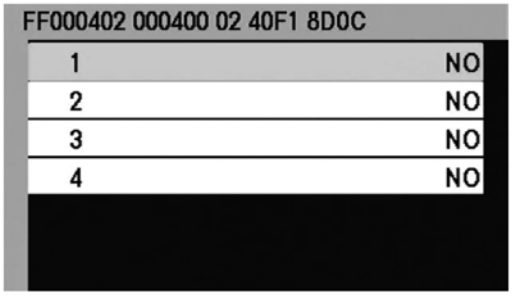
6 Service Mode

1. **Indication method of the service menu**

   Set the mode switch " Recording" mode.

2. While keep pressing the "Intelligent auto/Manual" button and "Menu" button, hold left the Zoom Lever towards to "[W]" position for more than 3 seconds until the top screen of the Service Menu being displayed.





Top screen of the service menu

Service mode menu

Screen display	Contents	Function
1	Factory settings	Function to throw a product up in a factory shipment state
4	Lock search history indication	Display an error code for three histories saved in EEPROM
5	Power ON self check result display	Power ON self check (function to diagnose correct function of the device and interface between devices) result display
10	Lock search history clear	An error code for three histories in EEPROM is cleared

Note:

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

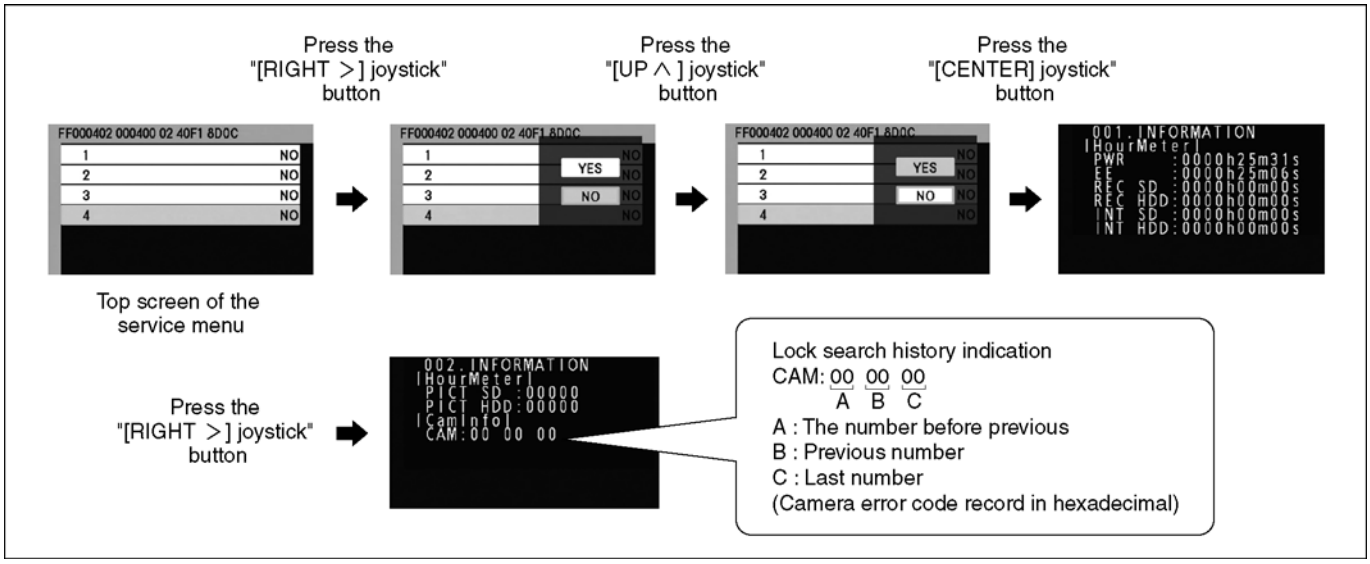
3. **End method of the top screen of the service menu**

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

6.1. Lock Search History Indication

1. Select [4] Lock search history indication.

Operation specifications



Indication contents

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

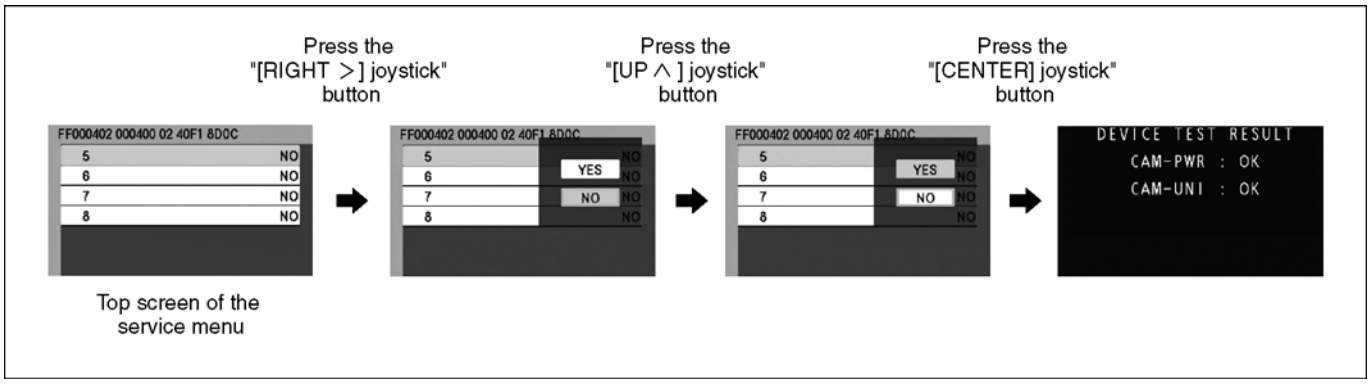
Error code	Function
51	Focus control is abnormal
52	Zoom control is abnormal
73	High temperature is abnormal
33	Communication between camera to ARM is abnormal

Lock search history indication is finished by POWER OFF.

6.2. Power ON Self Check Result Display

1. Select [5] Power ON self check result display.

Operation specifications



Indication contents

- Power ON self check result display
  Function to diagnose correct function of the device and interface between devices result display.
  Display the following communication test result.
  - CAM-PWR : Communication test between IC2304 to IC2006
  - CAM-UNI : Communication test between IC3401 to IC2006

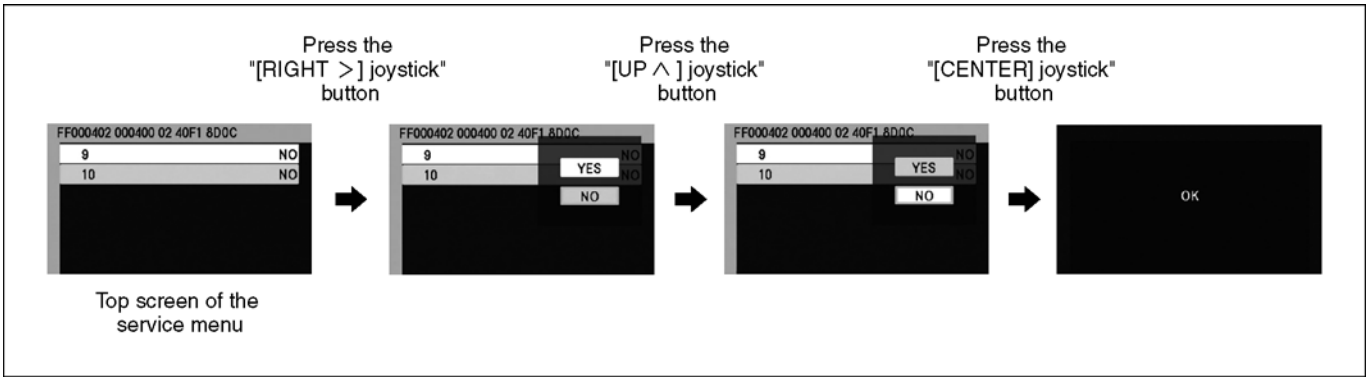
  Display other than “OK” are abnormalities of each lines.

Power ON self check result display is finished by POWER OFF.

6.3. Lock Search History Clear

1. Select [10] Lock Search History Clear.

Operation specifications



• Lock Search History Clear

An error code for three histories in EEPROM is cleared.

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

7 Service Fixture & Tools

7.1. Service Tools and Equipment

Parts Name	Parts No.	Q'ty	Remarks
PC	---	1	
AC Adaptor	---	1	
DC Cable	---	1	
AV Multi Cable	---	1	
USB Cable	---	1	
PC-Adjustment Program	---	1	
Light Box	VFK1164LBX1	1	
Infinity Lens	VFK1164TCM02 or VFK1164TCM03	1	With Focus Chart
Color Bar Chart	VFK1164TFCB2	1	
Gray Scale Chart	VFK1164TFGS2	1	
Color Conversion	VFK1164TFCT2	1	
Light Box	VFK1164TDVLB or RFKZ0523	1	
Color Conversion (C12)	VFK1164LBB12	1	
Color Conversion (C2)	VFK1164LBB2	1	
Color Conversion (C4)	VFK1164LBB4	1	
Color Conversion (C8)	VFK1164LBB8	1	
Tripod	RFKZ0333B	1	
Adapter for infinity Lens	RFKZ0333H	1	
Grease	LSUQ0050	1	
Plier	LSUQ0028	1	
Pin For CCD	RFKZ0476	1	
Extension Flat Cable (6pin)	VFK1480	1	FP6009 (Main) - Front Case/Mic Unit
Extension Flat Cable (27pin)	VFK1491	1	FP6001 (Main) - Side Case R/LCD Unit
Extension Flat Cable (33pin)	VFK1950	1	FP6008 (Main) - Lens Unit
Extension Flat Cable (18pin)	VFK1443	1	FP6007 (Main) - CCD Unit
Extension Flat Cable (22pin)	VFK1282	1	FP6004 (Main) - FP3901 (Rear)
Extension Flat Cable (40pin)	RFKZ0379	1	FP6002 (Main) - FP6701 (DC BATT OP FPC)

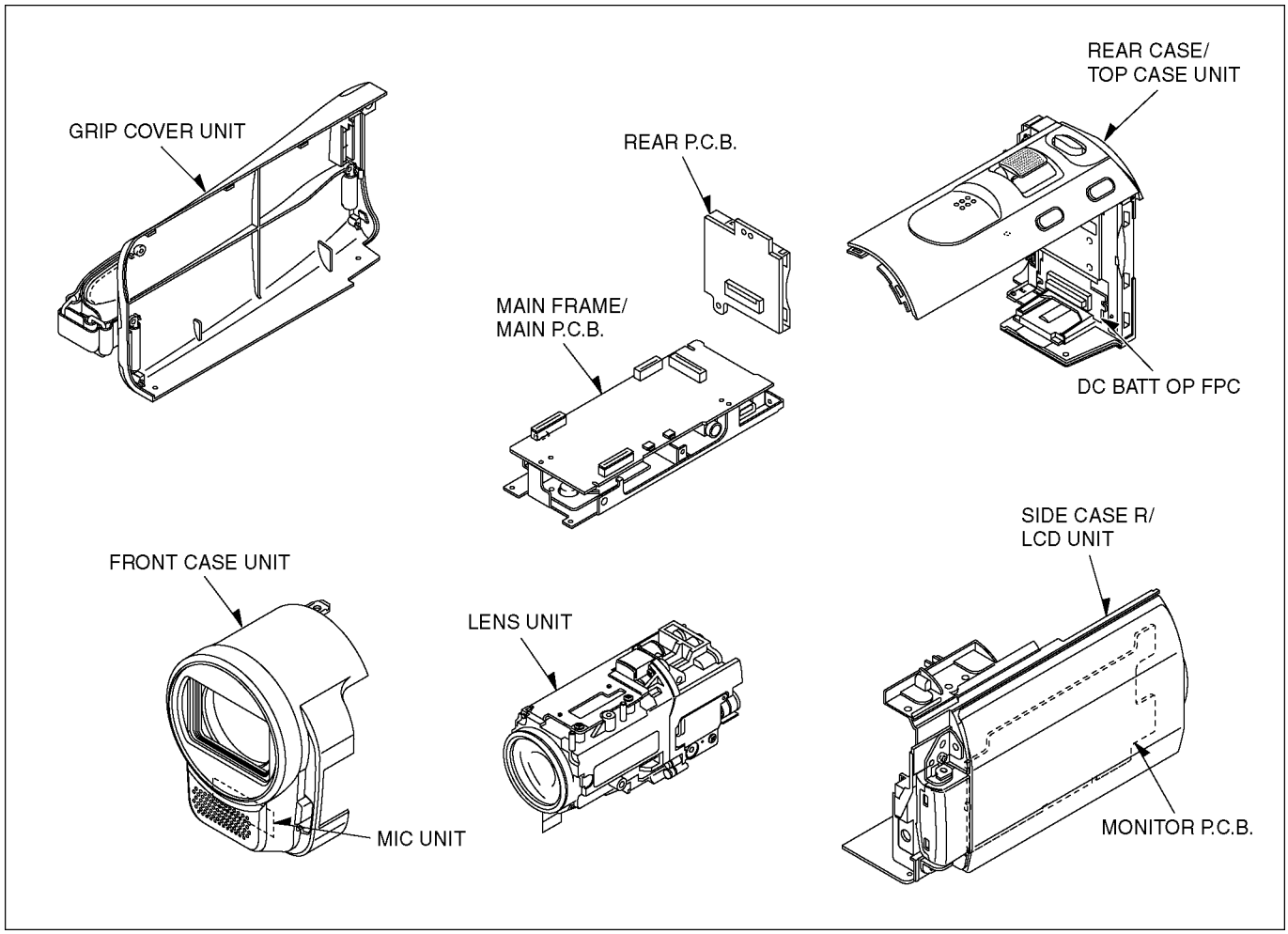
8 Disassembly and Assembly Instructions

8.1. Disassembly Flow Chart

This flow chart indicates the disassembly steps the cabinet parts and P.C.B. Unit in order to access to be serviced.
When reinstalling, perform the steps in the reverse order.

1	GRIP COVER UNIT
2	REAR CASE/ TOP CASE UNIT
3	DC BATT OP FPC
4	TOP OPERATION UNIT, SPEAKER
5	FRONT CASE UNIT
6	MIC UNIT
7	MAIN P.C.B.
8	REAR P.C.B.
9	SIDE CASE R/ LCD UNIT, LENS UNIT
10	MONITOR P.C.B.

8.2. P.C.B. Layout



8.3. Disassembly Procedures

No.	Item / Part	Fig.	Removal (Screw, Connection, FPC & Other)
1	Grip Cover Unit	Fig.D2	2-Screws (A)
		Fig.D3	4-Screws (B)
			3-Tabs
			Grip Cover Unit
2	Rear Case/ Top Case Unit	Fig.D4	4-Screws (C)
			1-Connector FP6002
			2-Tabs
			Rear Case/ Top Case Unit
3	DC BATT OP FPC	Fig.D5	2-Connectors FP6703, P6702
			1-Screw (D)
			Top Case Unit
			Rear Case Unit
		Fig.D6	2-Screws (E)
			Earth Plate
			DC BATT OP FPC
4	Top Operation Unit, Speaker	Fig.D7	3-Screws (F)
			Top Operation Unit
		Fig.D8	Note for attaching Top Operation Unit
		Fig.D9	1-Screw (G)
			Speaker Angle
			Speaker
		Fig.D10	Note for attaching Speaker Angle
5	Front Case Unit	Fig.D11	1-Connector FP6009
		Fig.D12	1-Screw (H)
			2-Screw (I)
			1-Tab
			Front Case Unit
6	Mic Unit	Fig.D13	2-Screws (J)
			Shutter Unit
		Fig.D14	4-Tabs
			Shutter Cover
			Shutter Panel
		Fig.D15	Mic Unit
7	Main P.C.B.	Fig.D16	1-Screw (K)
			3-Screws (L)
			Side L Angle
		Fig.D17	4-Connectors FP6001, FP6004, FP6007, FP6008
			1-Screw (M)
			Main Frame
		Fig.D18	2-Screws (N)
			Main P.C.B.
8	Rear P.C.B.	Fig.D19	1-Screw (O)
			Rear P.C.B.
9	Side Case R/LCD Unit, Lens Unit	Fig.D20	1-Screw (P)
			Side Case R/LCD Unit
			Lens Unit
10	Monitor P.C.B.	Fig.D21	Turn the LCD Case to the arrow direction so that the screws can be seen, and remove the 2 screws (Q).
			8-Tabs
			LCD Case A Unit
			1-Connector FP901
			Side Case R Unit
			LCD Case B Unit
		Fig.D22	2-Connectors FP902, FP903
			1-Screw (R)
			Menu Selector Unit
			6-Tabs
			LCD Unit
			Monitor P.C.B.

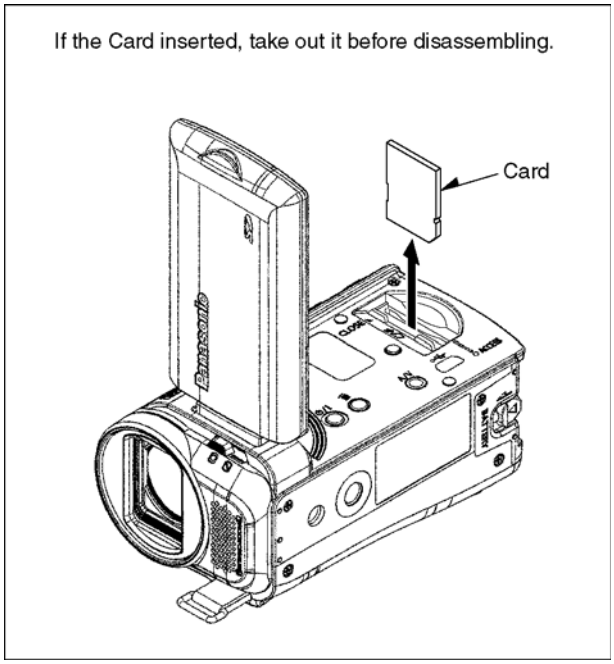


Fig. D1

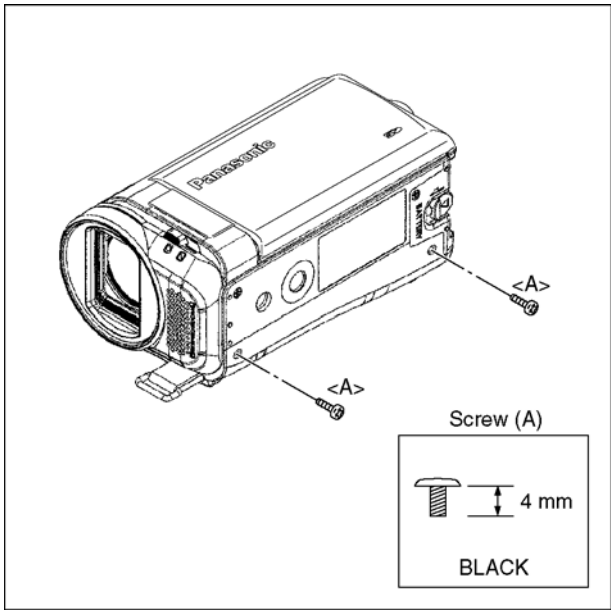


Fig. D2

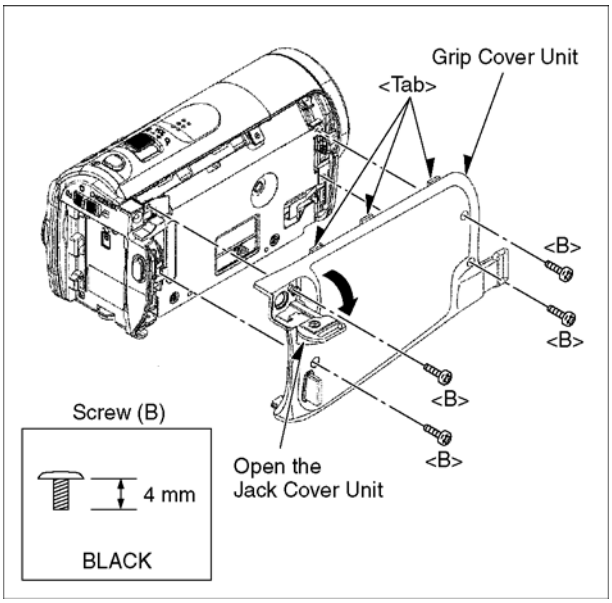

Grip Cover Unit
<Tab>
<B>
<B>
<B>
<B>
Screw (B)
4 mm
BLACK
Open the
Jack Cover Unit

Fig. D3

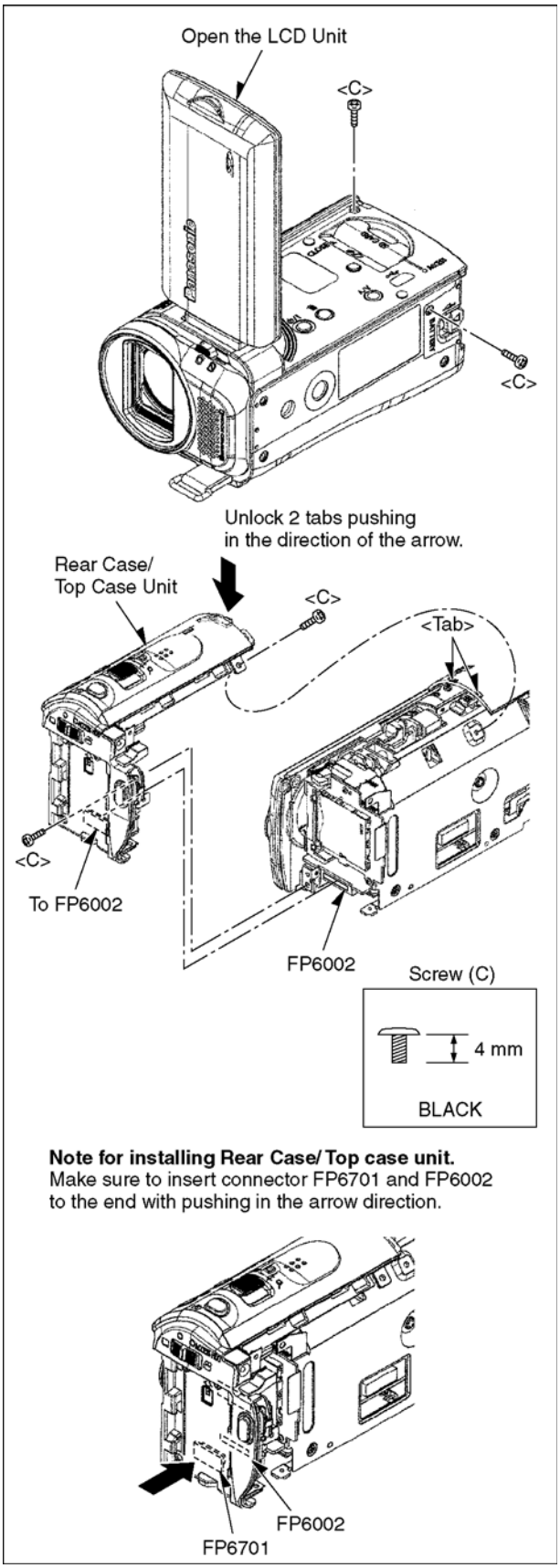

Open the LCD Unit
<C>
<C>
Unlock 2 tabs pushing
in the direction of the arrow.
Rear Case/
Top Case Unit
<C>
<Tab>
<C>
To FP6002
FP6002
Screw (C)
4 mm
BLACK
Note for installing Rear Case/ Top case unit.
Make sure to insert connector FP6701 and FP6002
to the end with pushing in the arrow direction.
FP6002
FP6701

Fig. D4

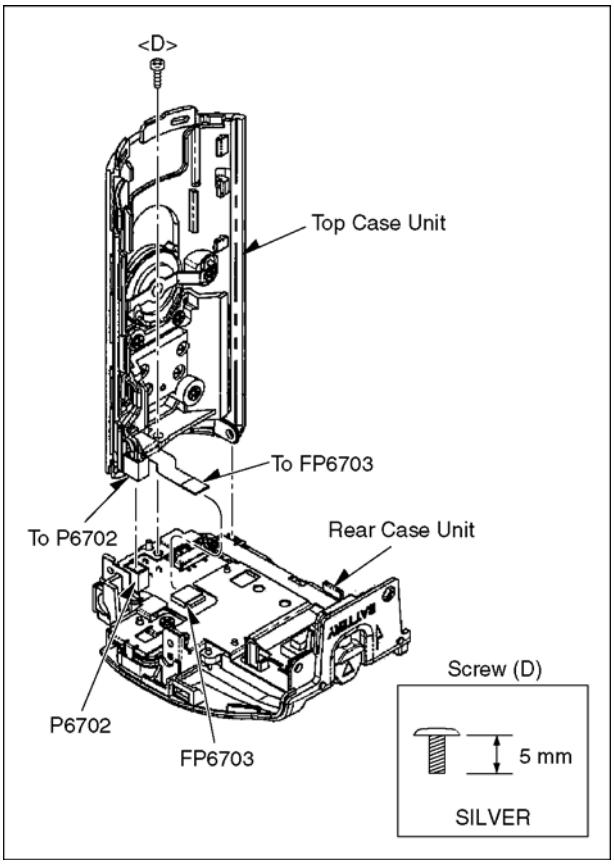


Fig. D5

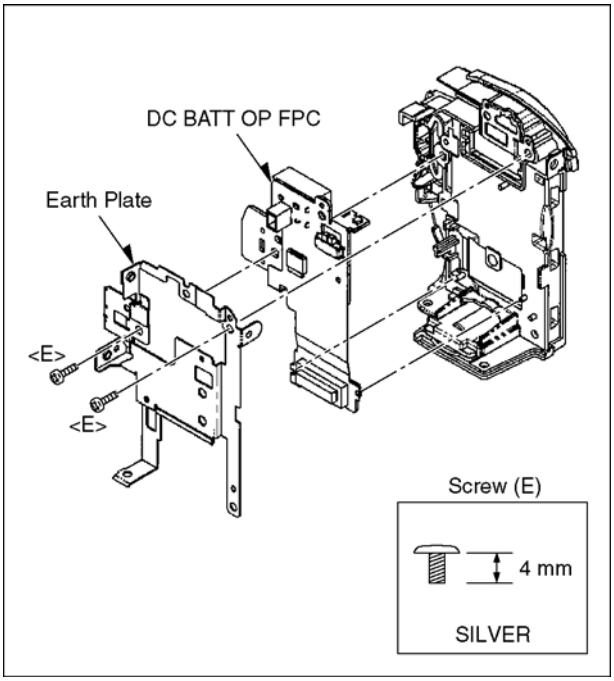


Fig. D6

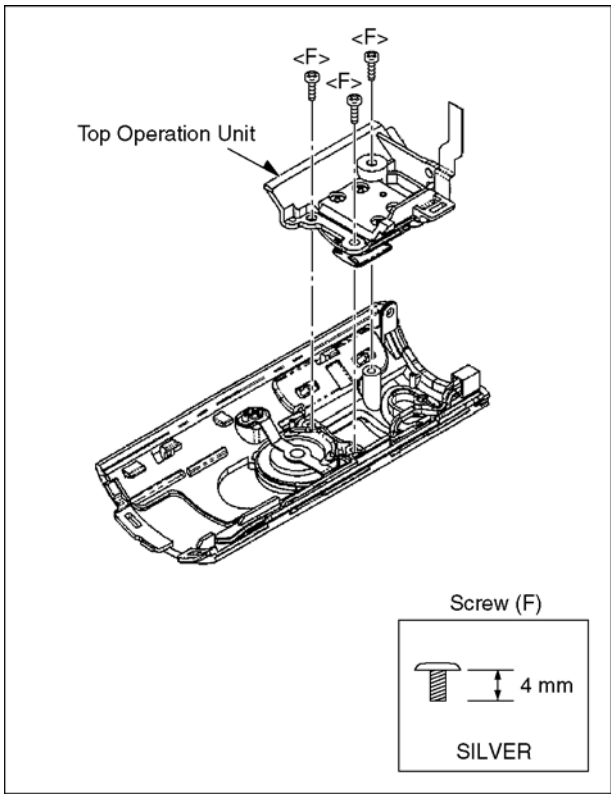


Fig. D7

Note for attaching Top Operation Unit

- Top Operation Unit is installed and the following wire rod is a thing that becomes like Fig.D8.

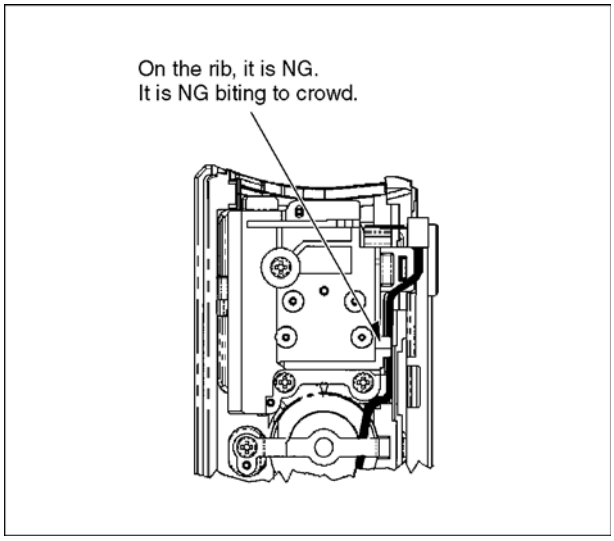


Fig. D8

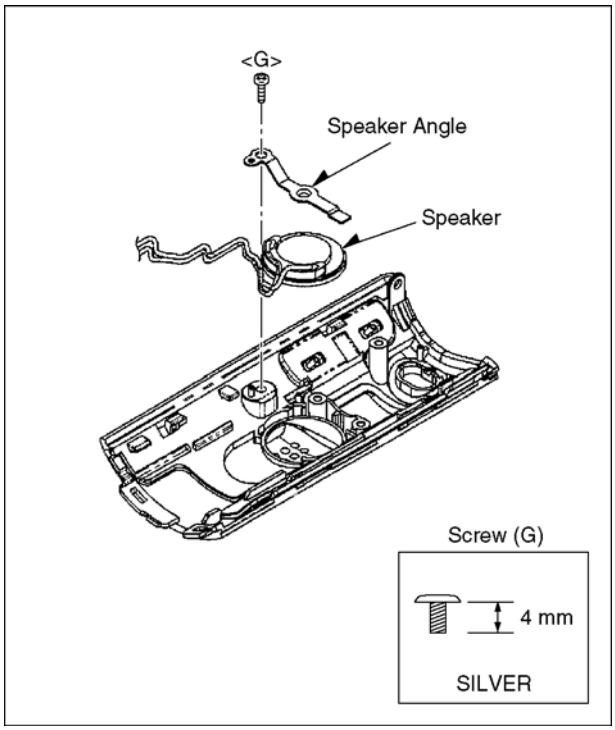


Fig. D9

Note for attaching Speaker Angle

• Make sure that speaker wire is under Speaker Angle.

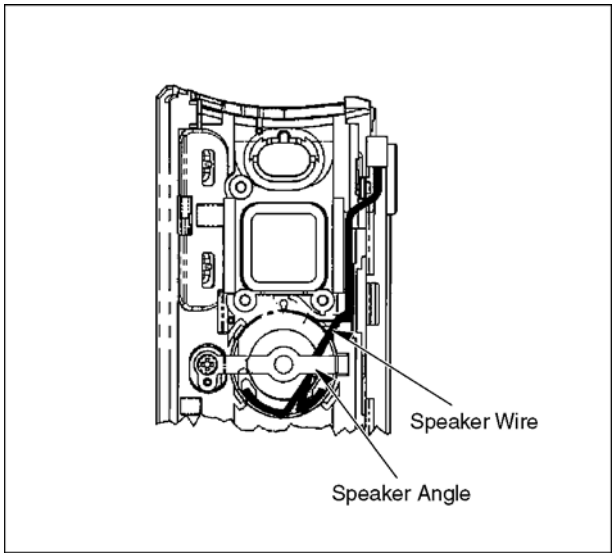


Fig. D10

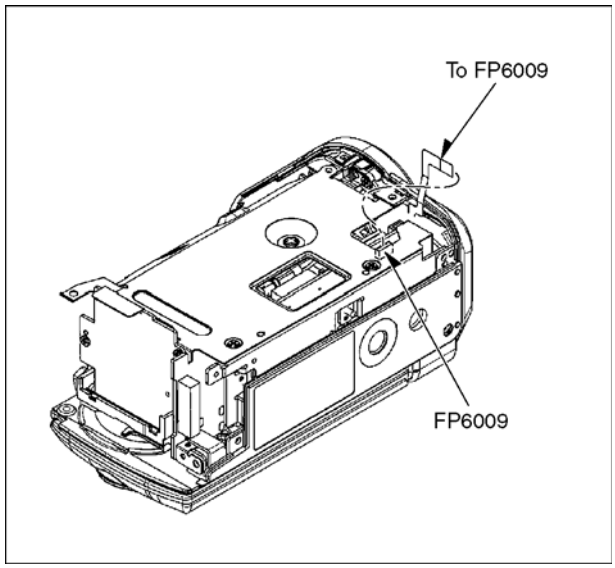


Fig. D11

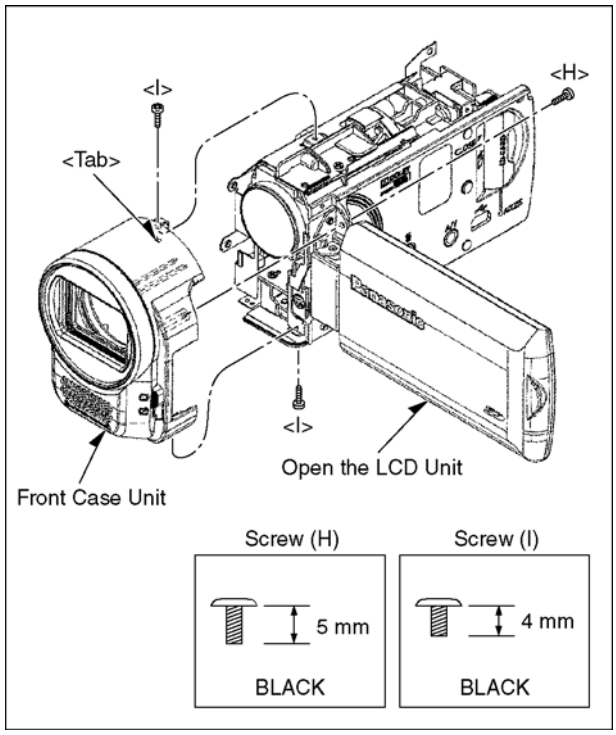


Fig. D12

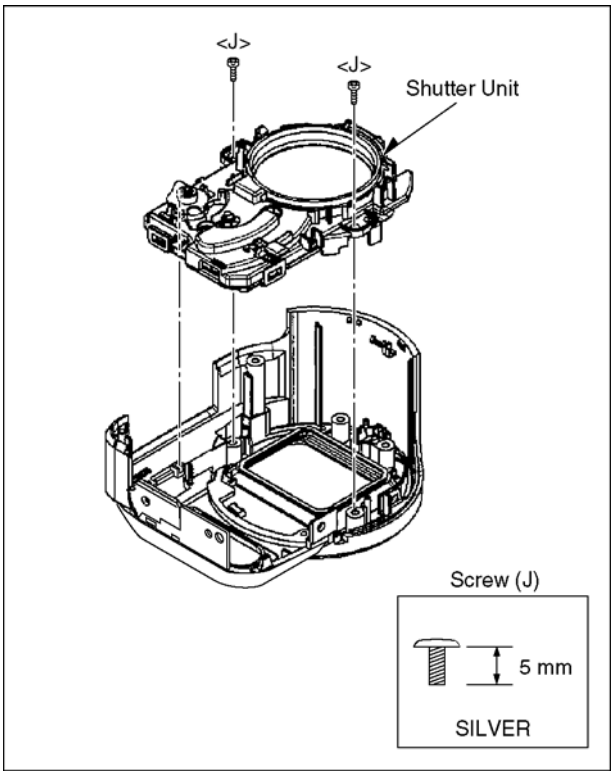


Fig. D13

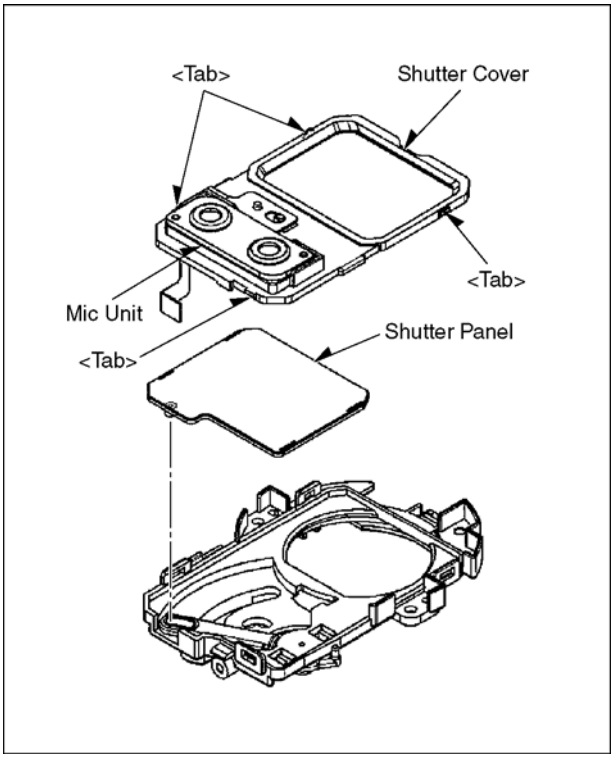


Fig. D14

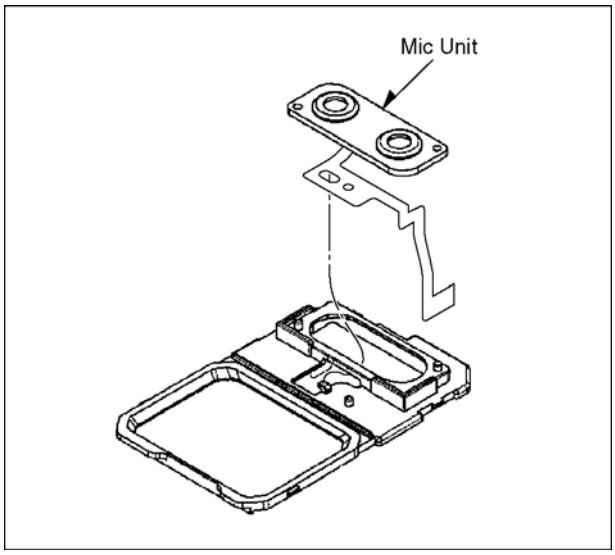


Fig. D15

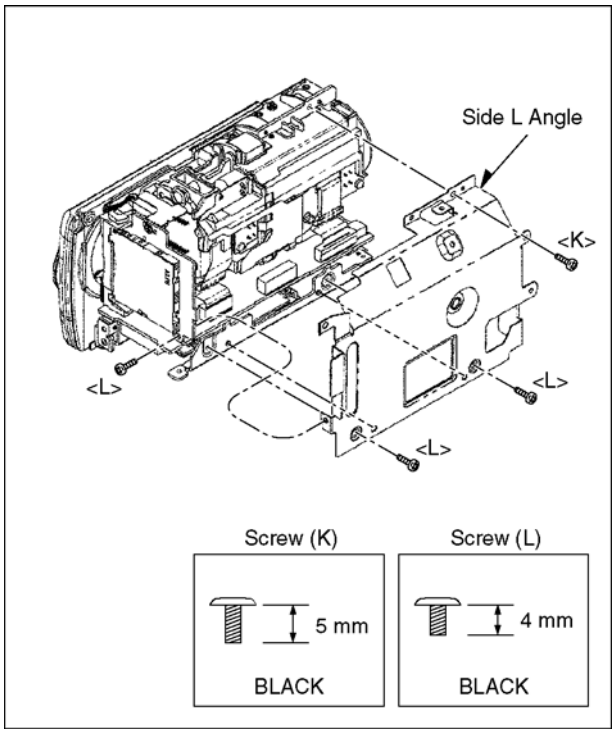


Fig. D16

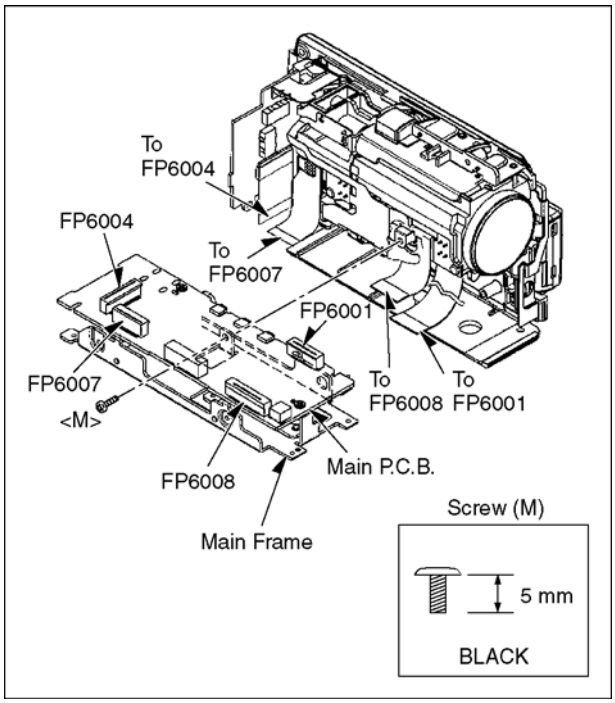


Fig. D17

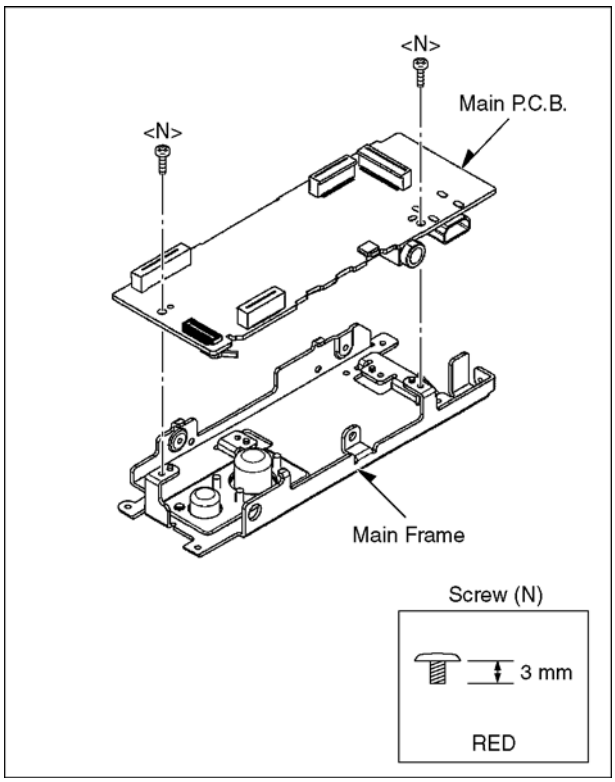


Fig. D18

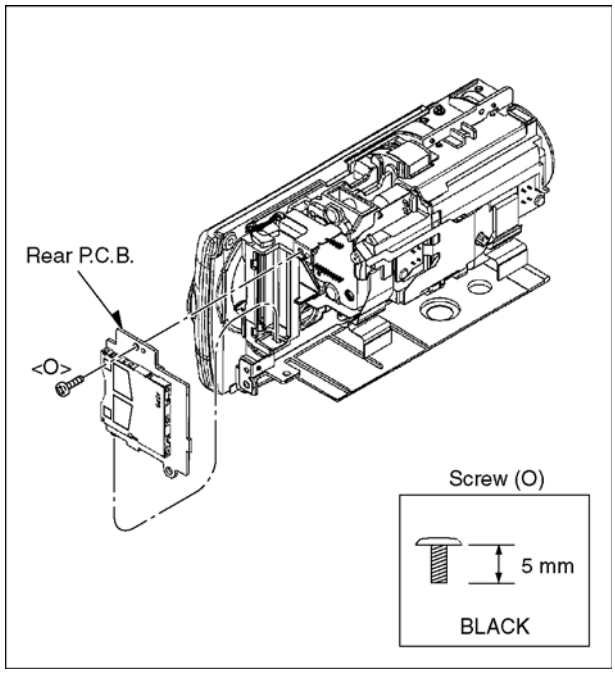


Fig. D19

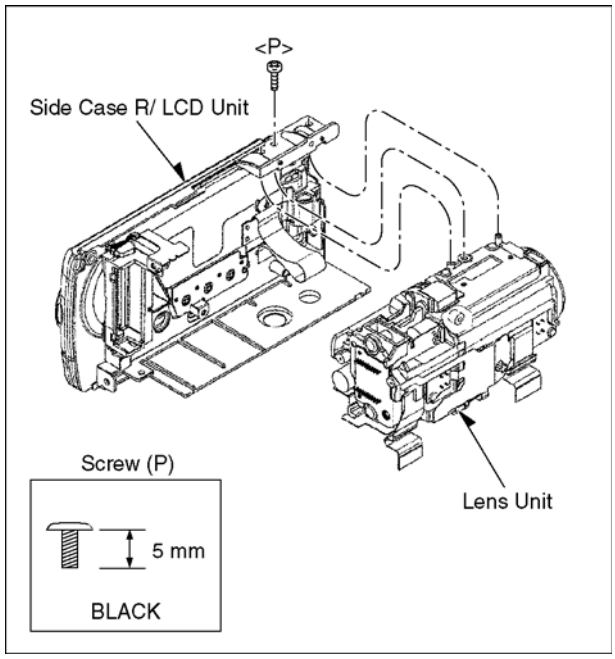


Fig. D20

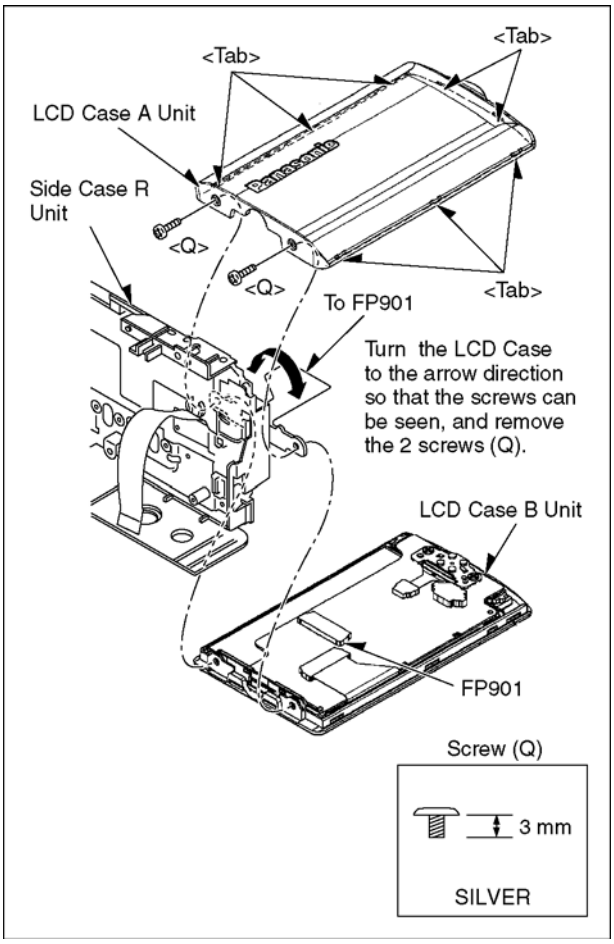


Fig. D21

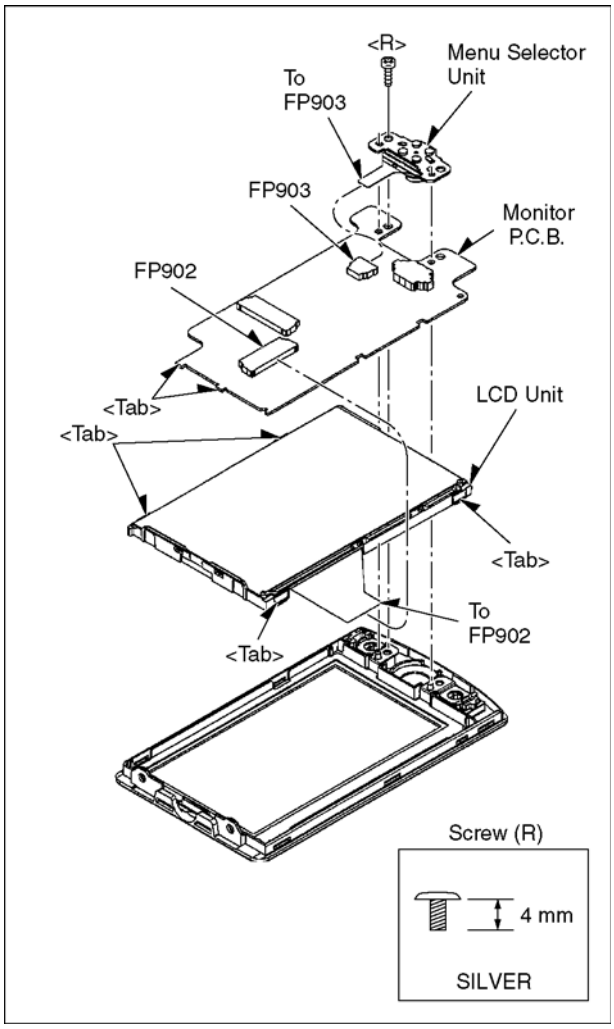


Fig. D22

8.4. Disassembly Procedures of Camera Lens Unit

The following flowchart describes order or steps for removing the Camera lens unit and certain printed circuit boards in order to make access to the item needing service.
To reassemble the unit follow the steps in reverse order.

1. CCD P.C.B.	Ref.-No.402
2. CCD Cushion	Ref.-No.405
3. Optical LPF	Ref.-No.404
4. CCD Case	Ref.-No.403
5. Zoom Motor Unit	Ref.-No.401-1
6. Focus Motor Unit	Ref.-No.401-2
7. IRIS Unit	Ref.-No.401-3

Notes : Each Ref. numbers are equivalent to number of Fig. L2 and Parts List.

Fig. L1

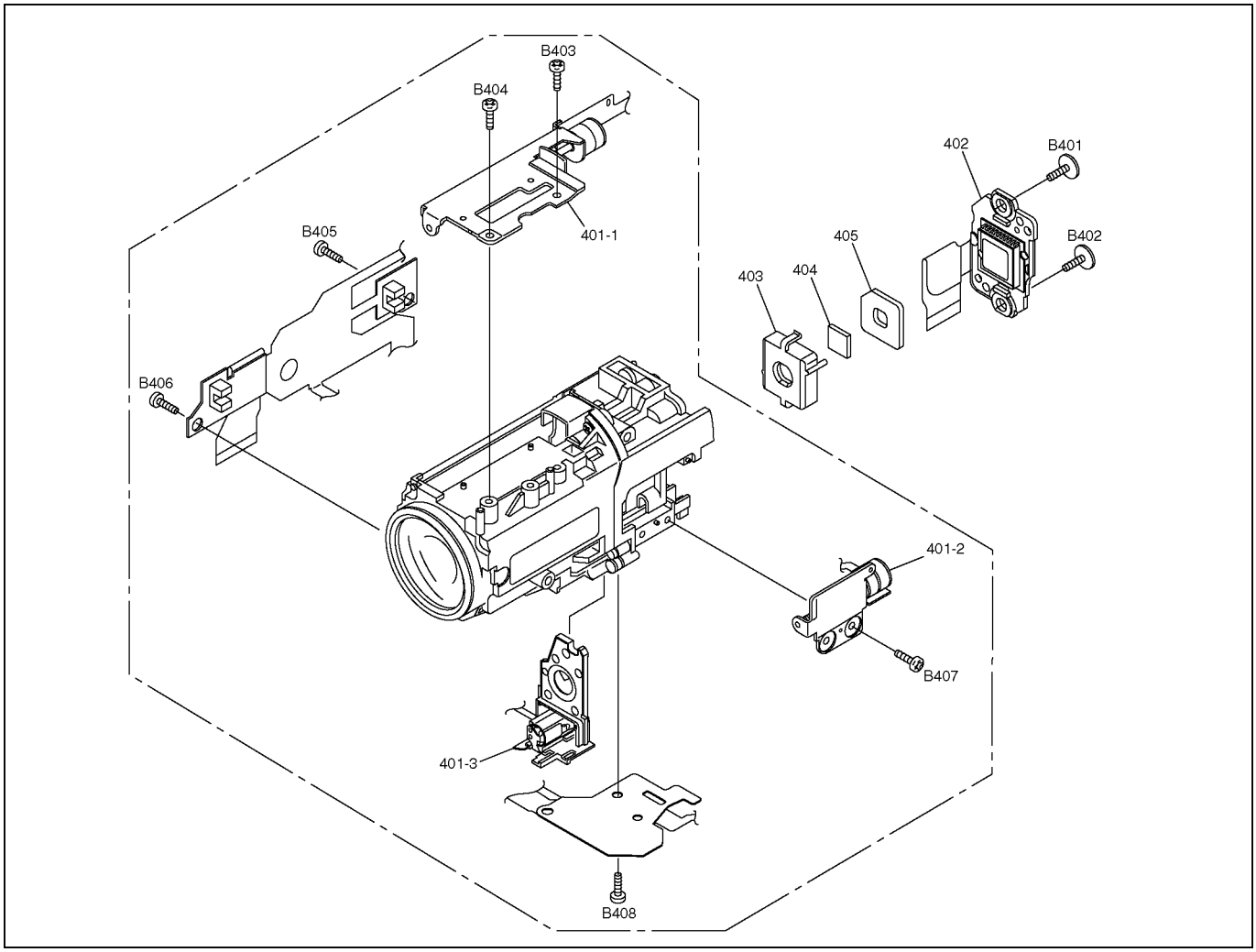
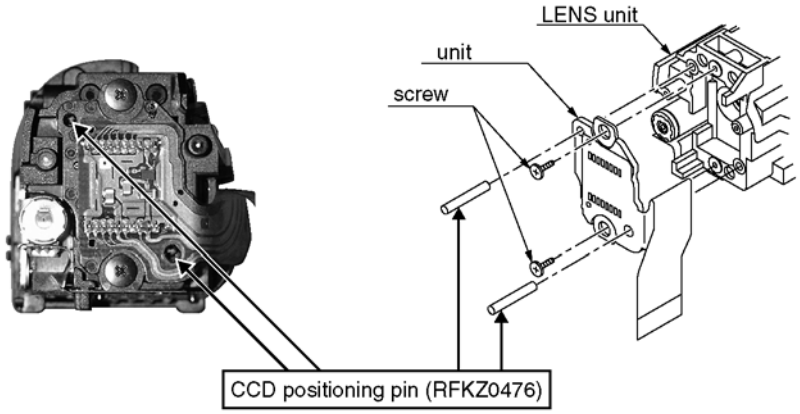


Fig. L2

8.4.1. How to use of CCD positioning pin (RFKZ0476)

The CCD unit and the LENS unit are fixed by using two CCD positioning pins as shown in figure, and the screw two places for CCD fixation are tightened.



Note:
Please remove the positioning pin after installing CCD Unit.
Please tighten tightening two screws uniformly.
(Recommendation 8Ncm : In the torque driver at the time of tightening)
Please execute an optical adjustment for TATSUJIN Software after it exchanges CCD unit.

9 Measurements and Adjustments

9.1. EEPROM Data for spare parts of the MAIN P.C.B.

After replacing the MAIN P.C.B., be sure to achieve adjustment.
As for Adjustment condition/procedure, consult the "Adjustment Manual" which is available in Adjustment software.
The adjustment instruction is available at "Software download" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN System".

9.2. Service Positions

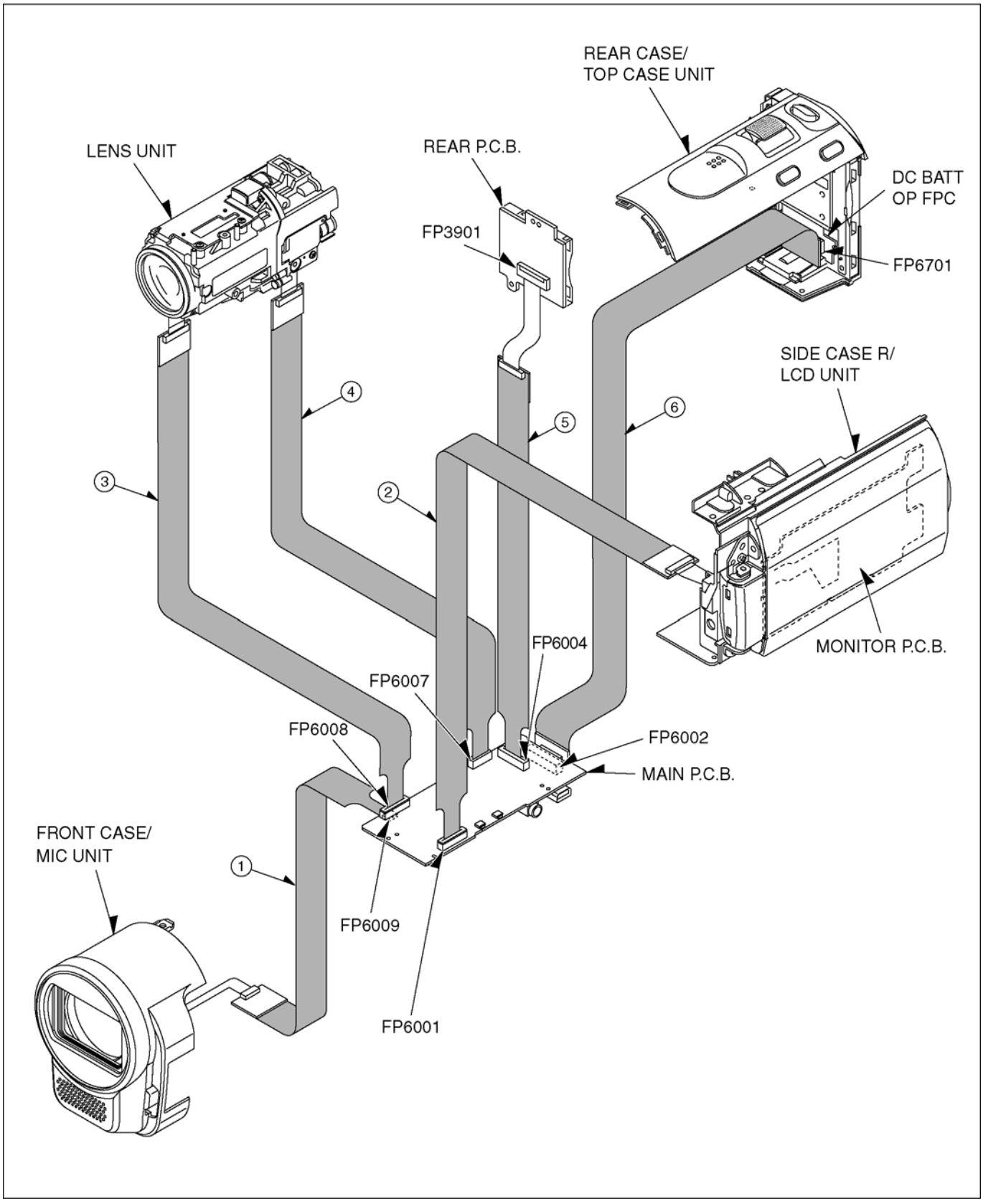
9.2.1. List of the extension cables

Use the following extension cables when checking or adjusting individual circuit boards except module Parts (Main P.C.B.).

Ref.	Part No.	Pin	Part Name	Connection	Q'ty
1	VFK1480	6	Flat Cable	FP6009 (Main) - Front Case/Mic Unit	1
2	VFK1491	27	Flat Cable	FP6001 (Main) - Side Case/LCD Unit	1
3	VFK1950	33	Flat Cable	FP6008 (Main) - Lens Unit	1
4	VFK1443	18	Flat Cable	FP6007 (Main) - CCD Unit	1
5	VFK1282	22	Flat Cable	FP6004 (Main) - FP3901 (Rear)	1
6	RFKZ0379	40	Flat Cable	FP6002 (Main) - FP6701 (DC BATT OP FPC)	1

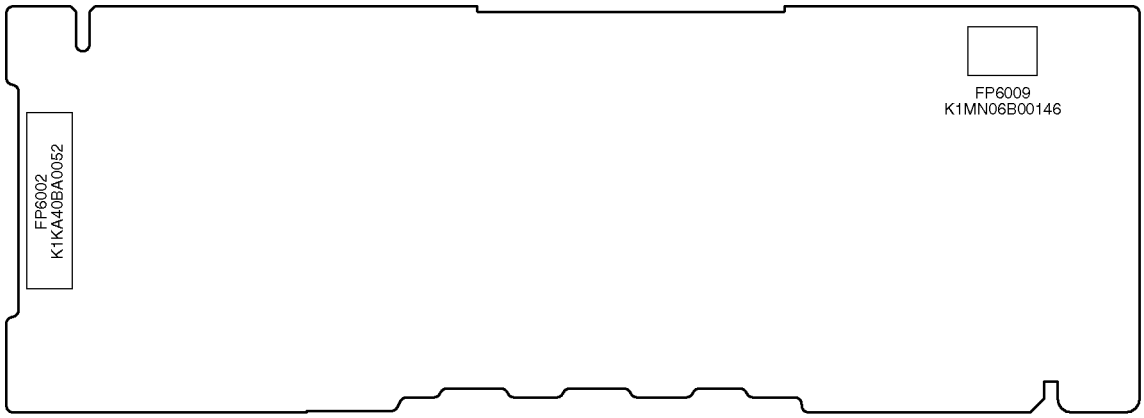
9.2.2. Checking and repairing individual circuit boards

How to use extension cables.

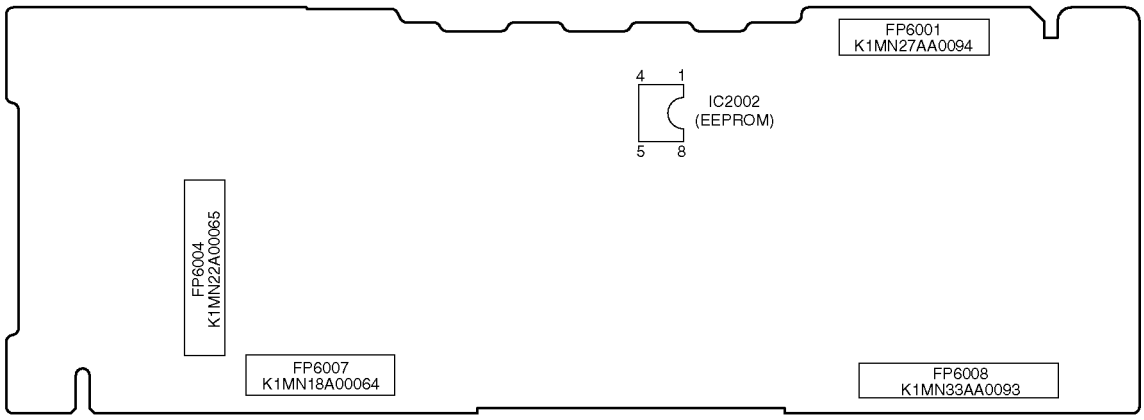


9.3. Location for Connectors of the Main P.C.B.

9.3.1. Main P.C.B.



(COMPONENT SIDE)



(FOIL SIDE)

9.4. Electrical 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.

9.4.1. Adjustment Procedure

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

Figure of connection

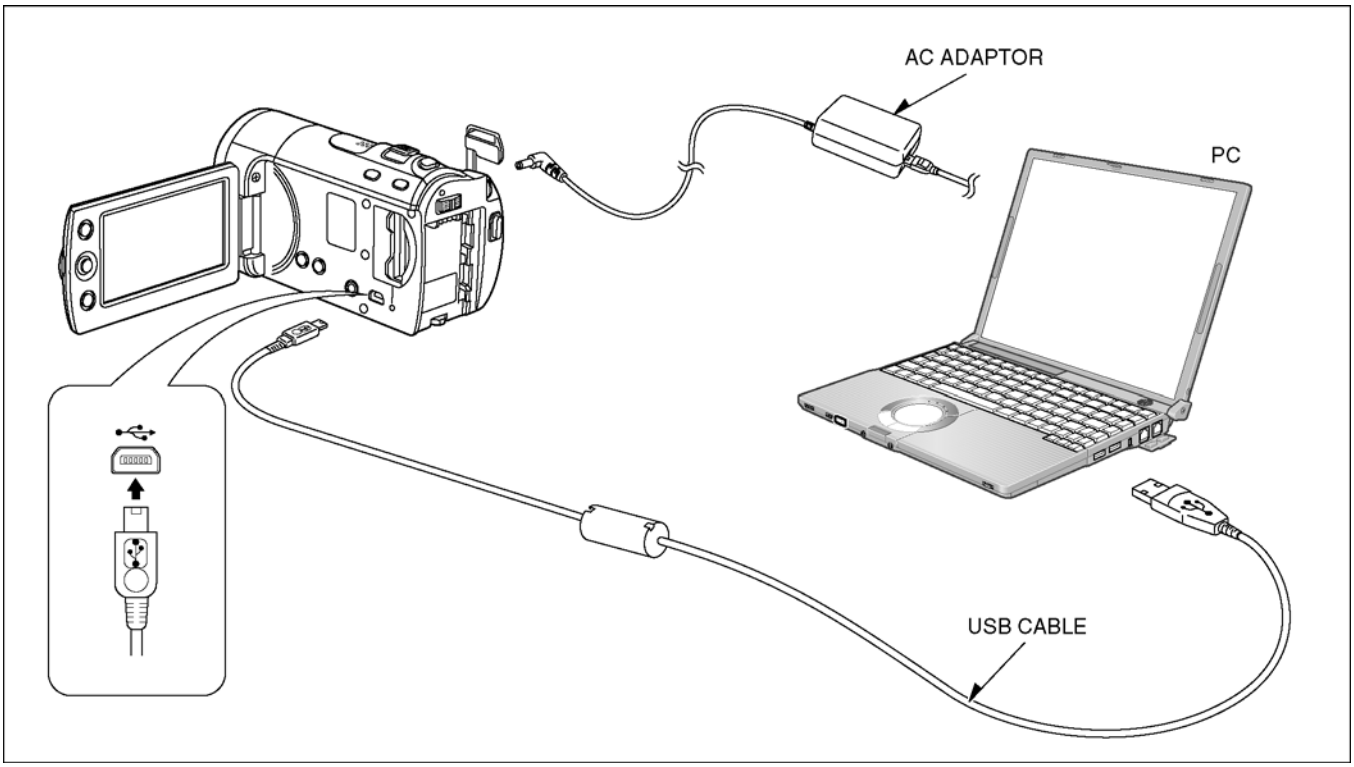
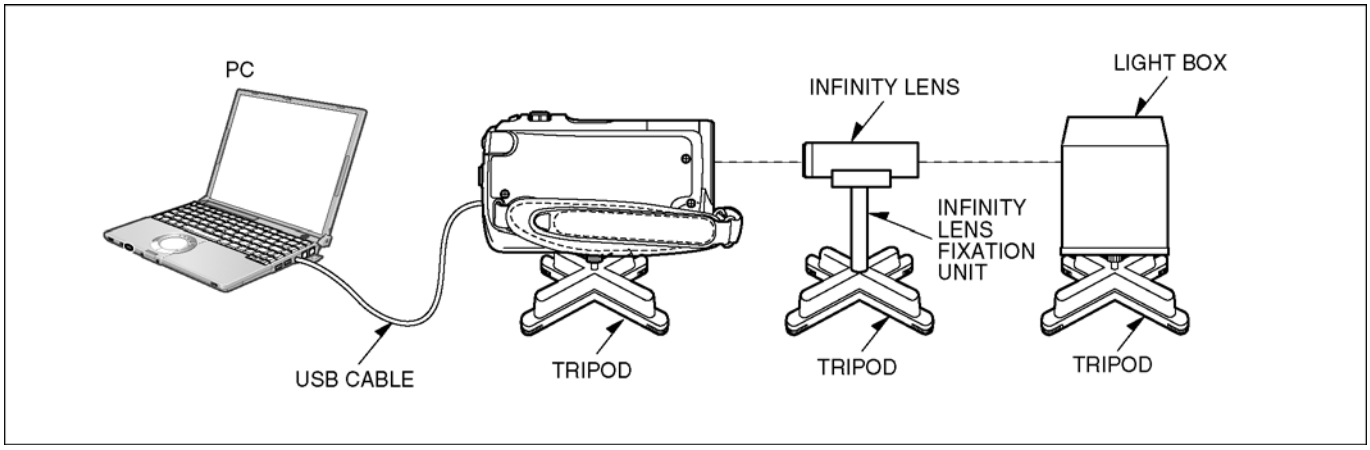


Figure of Image when adjustment



Part Number of jig

- Only a necessary jig mentions it setup electric adjustment

Ref	Parts Name	Parts No.	Q’ty	Remarks
1	Personal Computer	---	1	With Tatsujin Software
2	AC Adaptor	---	1	The AC Adaptor for SD Video Camera
3	USB Cable	---	1	
4	Adjustment Software (Tatsujin)	---	1	

Adjustment Items

• Adjustment item as follows.

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

Adjustment Item \ Replacement Parts		Main P.C.B.	IC101 (CAMERA SIGNAL PROCESS)	IC701 (FOCUS/ZOOM MOTOR DRIVE & OIS/IRIS/HALL AMP CONTROL)	IC3401 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)	IC3701 (VIDEO/AUDIO SIGNAL PROCESS)	IC2006 (SYSTEM MICROCONTROLLER)	IC2002 (EEPROM)	CCD P.C.B.	Lens Unit
Camera	CAM hall amplifier and Iris PWM	○		○			○	○		○
	CAM Tracking and De-focus	○		○				○		○
	CAM WB rough	○	○		○			○	○	
	CAM AWB 3100	○	○		○			○	○	
	CAM AWB 5100	○	○		○			○	○	
	CAM Revision CCD white scratch	○						○	○	
	CAM Revision CCD black scratch	○						○	○	
Video	VIDEO Luminance level	○			○	○		○		

Note : ○ : Adjustment Item

• How to use the software.

Please reference help of the TATSUJIN software.

Set-up manual for SD Video Camera

1. Installation of USB-SERIAL Driver

   Execute the "Setup.exe" file in "Com Mass" folder by double clicking to install the USB-SERIAL driver.
2. Set-Up
   a. Remove the SD card from this unit.
   b. While keep pressing the "iA" button and "DEL" button, hold left the "zoom lever" towards to "W" position for more than 3 seconds until the "COM" is displayed on LCD.
3. Release of COM mode (It is necessary for normal mode.)

   Retry above 2-b, then "COM" is disappeared.

10 Maintenance

10.1. Cleaning Lens and LCD Panel

Do not touch the surface of the lens and LCD Panel with your hand.

When cleaning the lens, use air-Blower to blow off the dust.

When cleaning the LCD Panel, dampen the lens cleaning paper with lens cleaner, and the gently wipe the their surface.

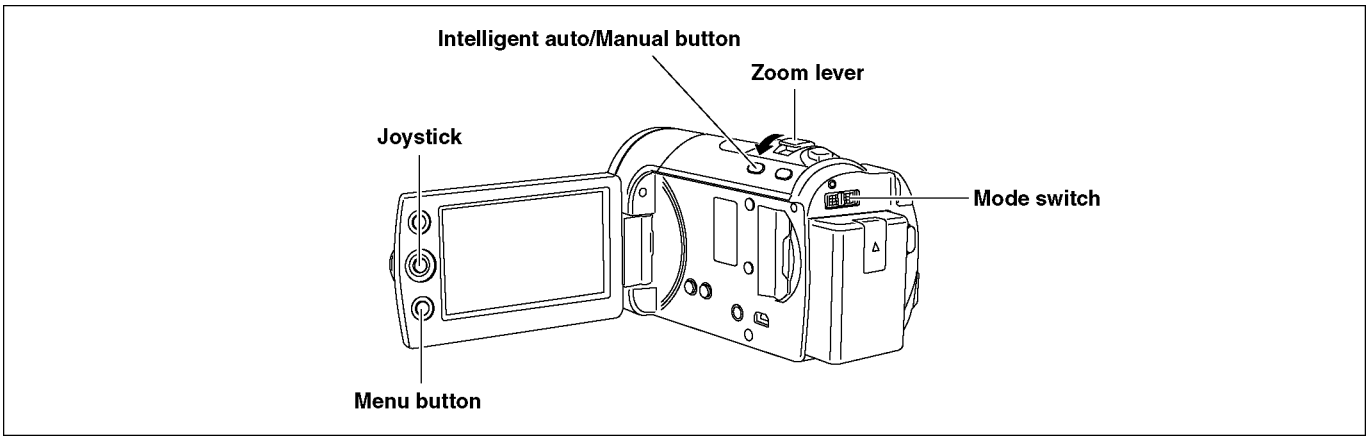
Note:

A lens cleaning paper and lens cleaner are available at local camera shops and market place.

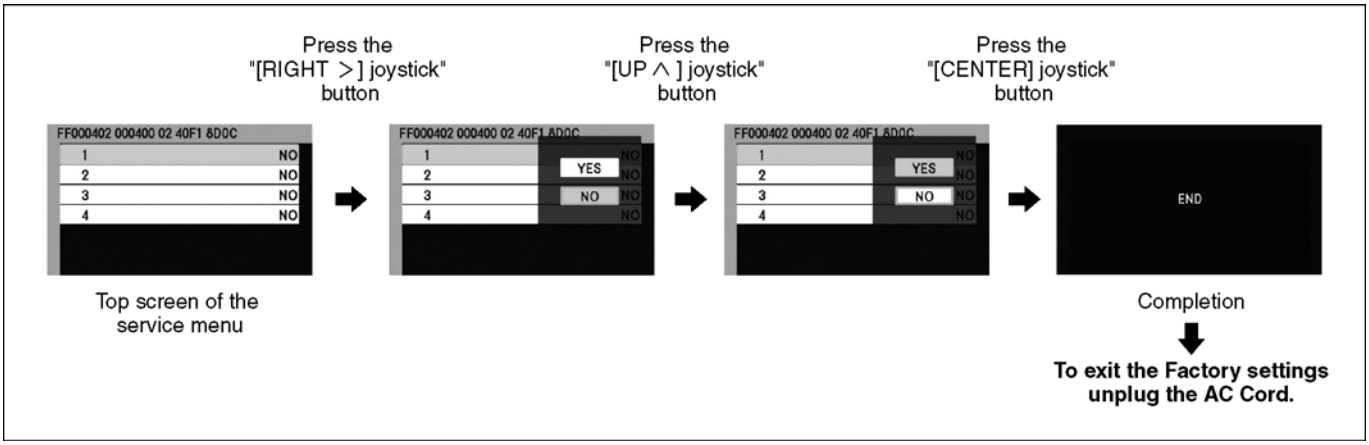
11 Factory Setting

11.1. How to turn on the factory setting?

1. **Indication method of the service menu**
   Set the mode switch " Recording" mode.
2. While keep pressing the "Intelligent auto/Manual" button and "Menu" button, hold left the Zoom Lever towards to "[W]" position for more than 3 seconds until the top screen of the Service Menu being displayed.



3. Under the condition of the Item No."1" is yellow high lighted, press the "[RIGHT ＞] of joystick" button.
4. By pressing the "[UP ∧] of joystick" button, then press the "[center] of joystick" button.
5. After few seconds "END" is displayed on LCD monitor.Cutting of battery connection or AC power supply connection as a completion of the "FACTORY SETTINGS".



11.2. What is the factory settings?

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

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

The setting position of factory settings:

Name	Setting position
Mode switch	
Open/close switch	

VM1004027CE

Service Manual

Diagrams and Replacement Parts List

SD Video Camera

Model No.

SDR-S45EG	SDR-S45GC
SDR-S45EF	SDR-S45GA
SDR-S45EC	SDR-S45GN
SDR-S45EP	SDR-S45PU
SDR-S45EB	SDR-S45PR
SDR-S45EE	

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

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:

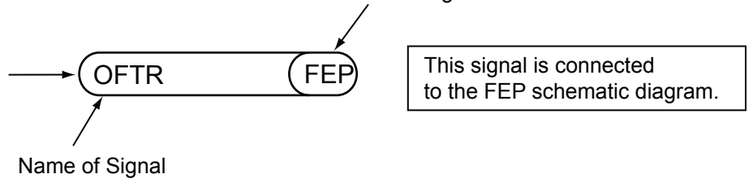


Table of contents

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. Rear P.C.B.

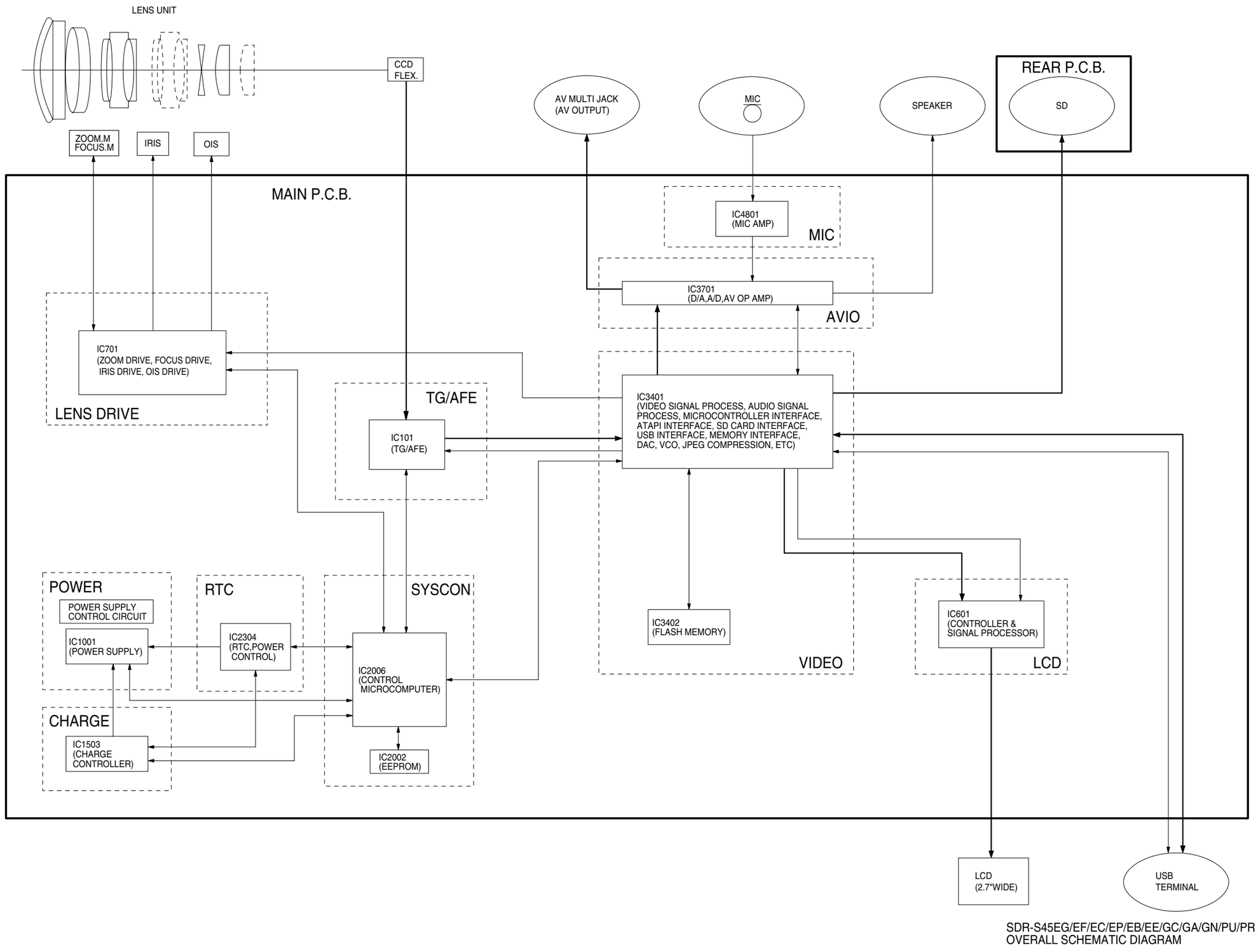
REF No.	PIN No.	REC	PB	EE
Q3901	E	3.1	3.1	3.1
Q3901	C	0	0	0
Q3901	B	3.1	3.1	3.1

S2.2. Monitor P.C.B.

REF No.	PIN No.	REC	PB	EE
Q901	E	1.4	1.4	1.4
Q901	C	0	0	0
Q901	B	0.8	0.8	0.8

S3. Block Diagram

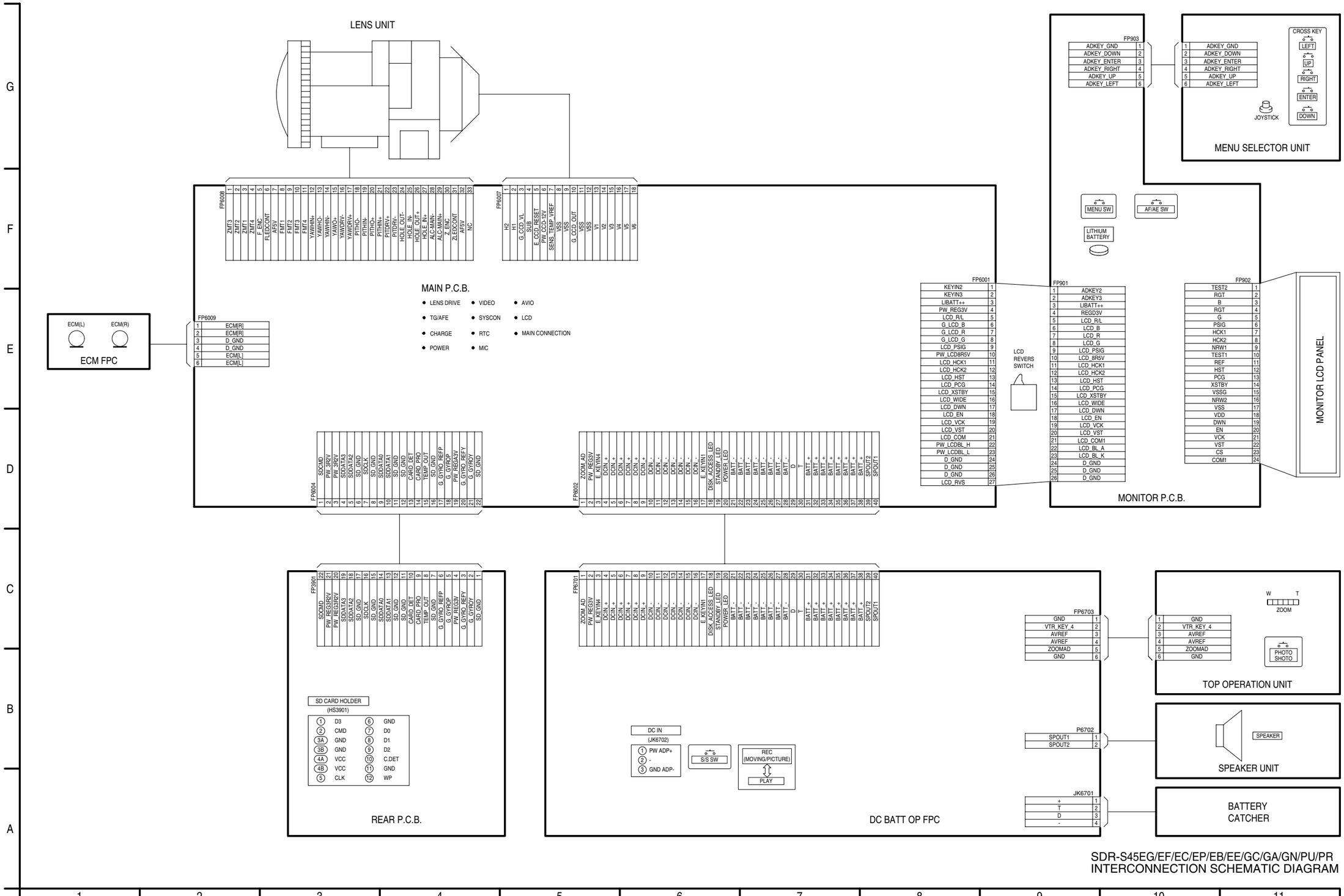
S3.1. Overall Block Diagram



SDR-S45EG/EF/EC/EP/EB/EE/GC/GA/GN/PU/PR
OVERALL SCHEMATIC DIAGRAM

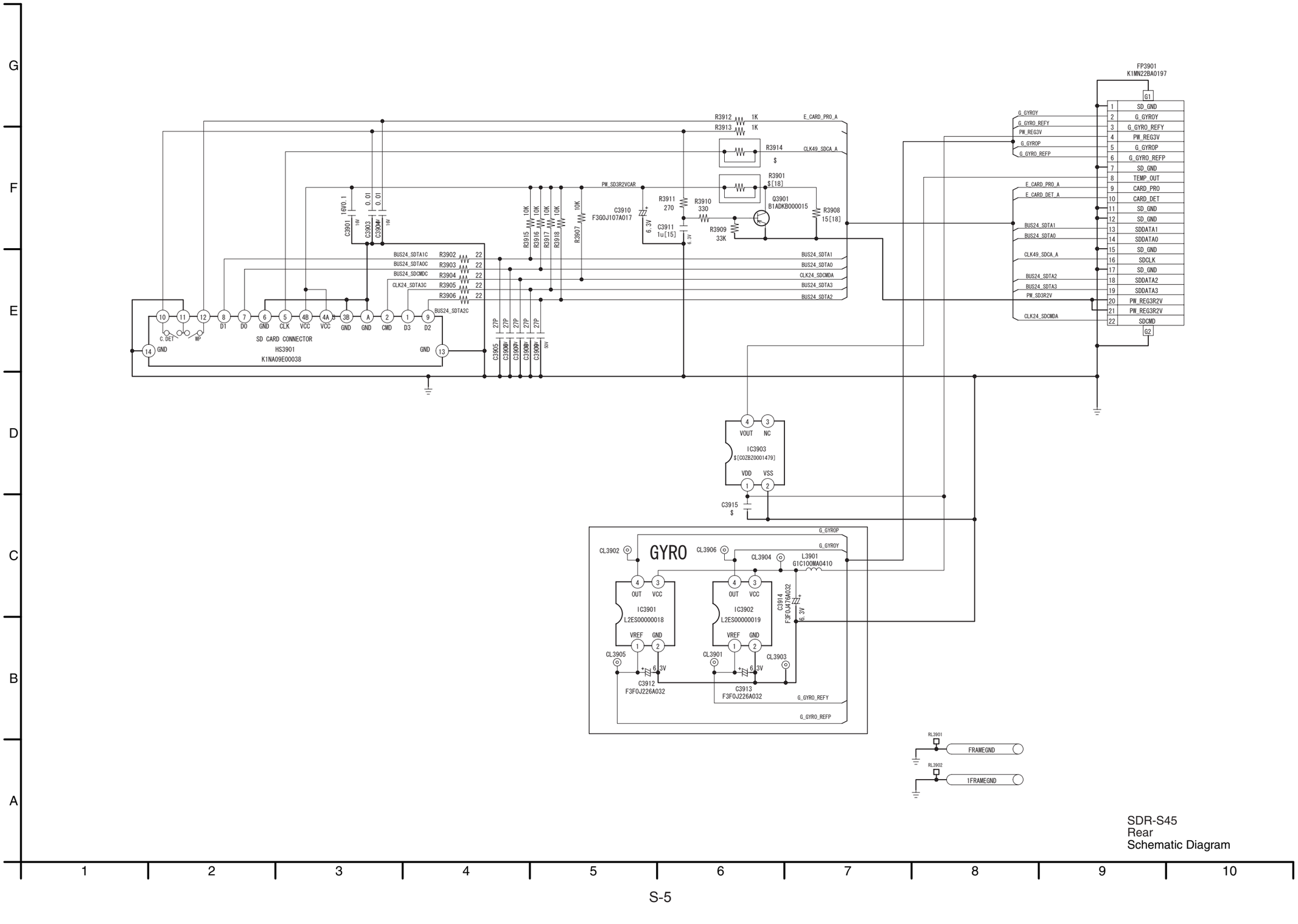
S4. Schematic Diagram

S4.1. Interconnection Diagram



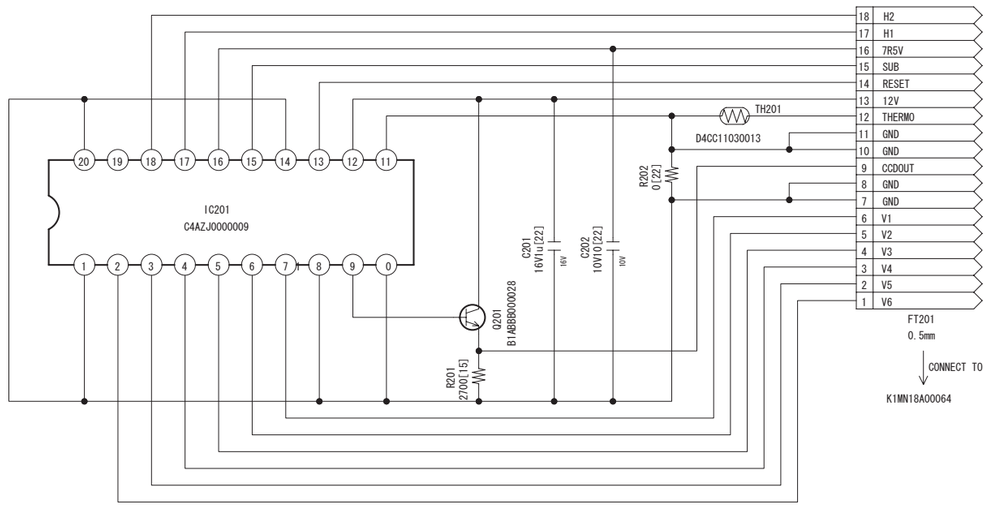
SDR-S45EG/EF/EC/EP/EB/EE/GC/GA/GN/PU/PR
INTERCONNECTION SCHEMATIC DIAGRAM

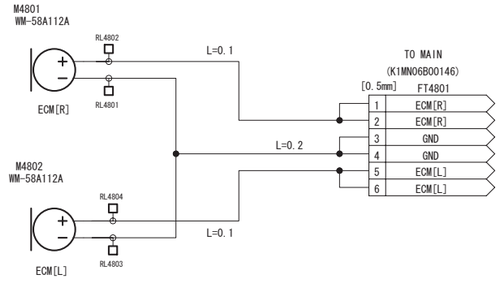
S4.2. Rear Schematic Diagram



SDR-S45
Rear
Schematic Diagram

S4.3. CCD Schematic Diagram / S4.4. EMC Schematic Diagram

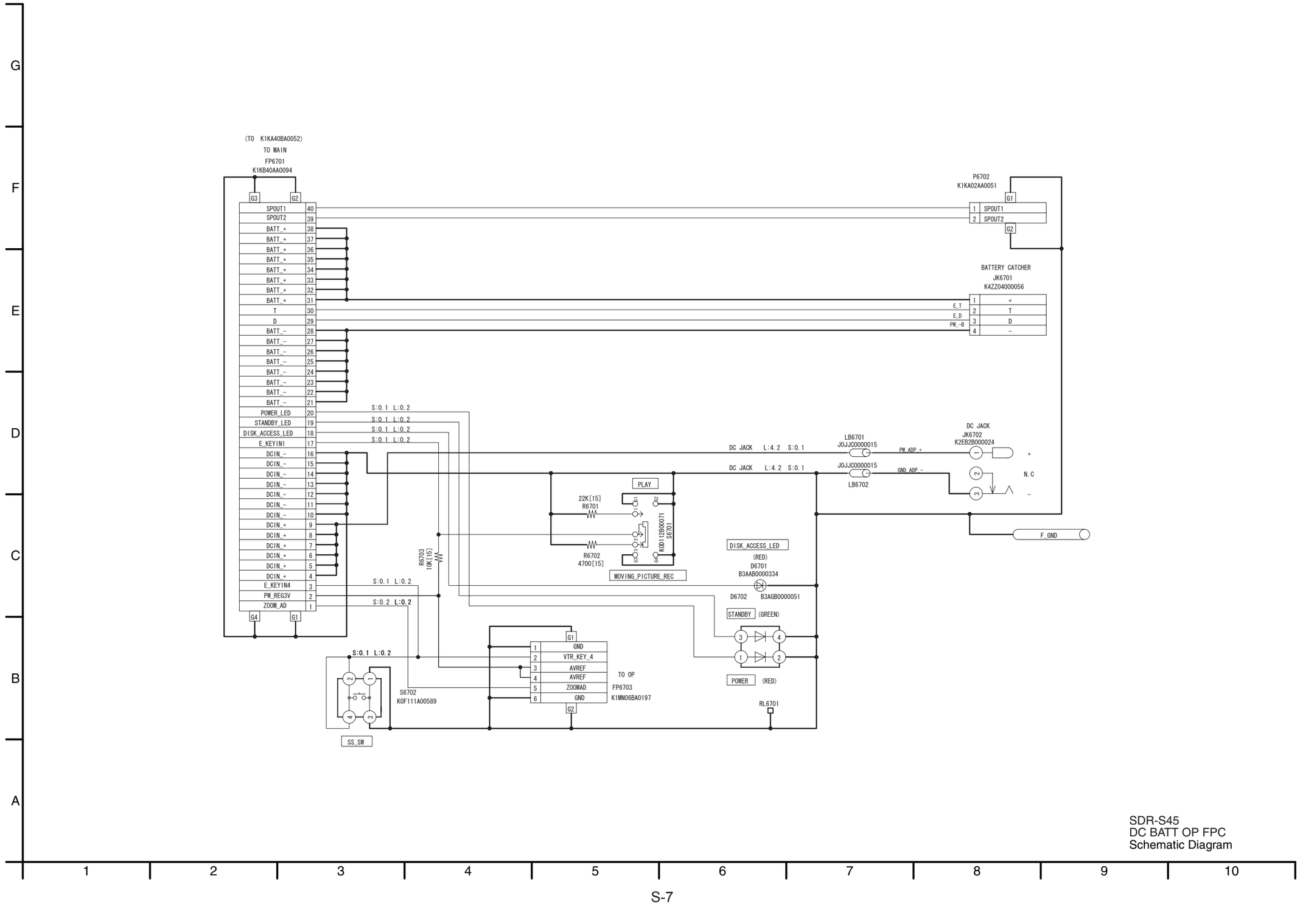




SDR-S45
CCD
Schematic Diagram

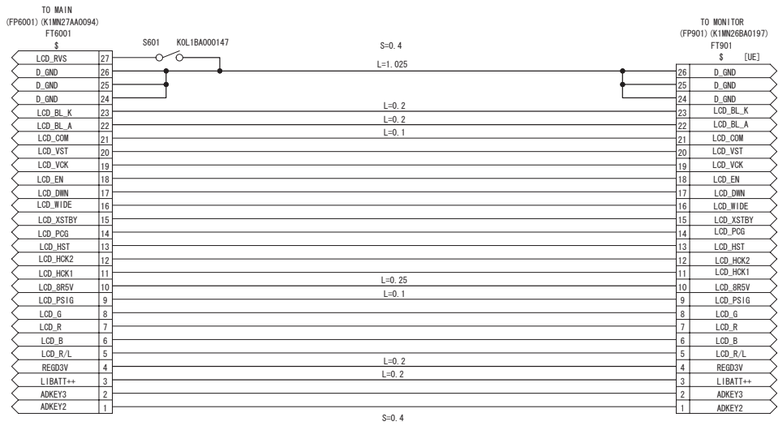
SDR-S45
EMC
Schematic Diagram

S4.5. DC BATT OP FPC Schematic Diagram



SDR-S45
DC BATT OP FPC
Schematic Diagram

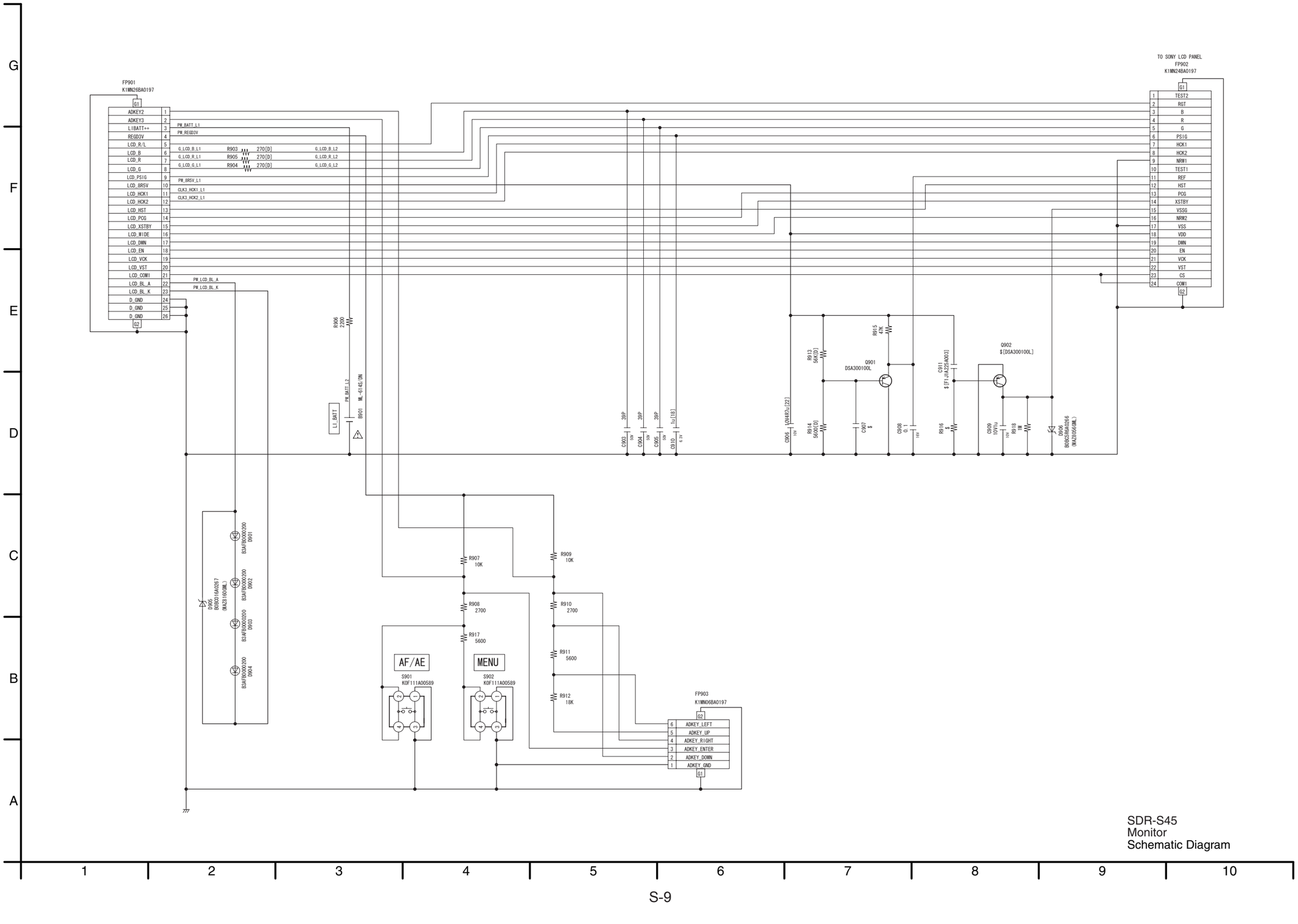
S4.6. MONI FPC Schematic Diagram



	REF
LINE	0.075
SPACE	0.075

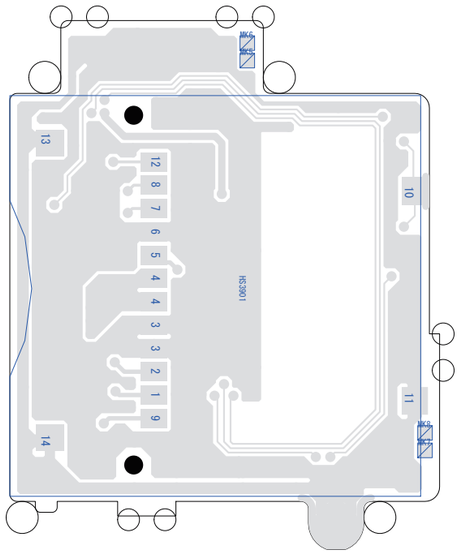
SDR-S45
MONI FPC
Schematic Diagram

S4.7. Monitor Schematic Diagram

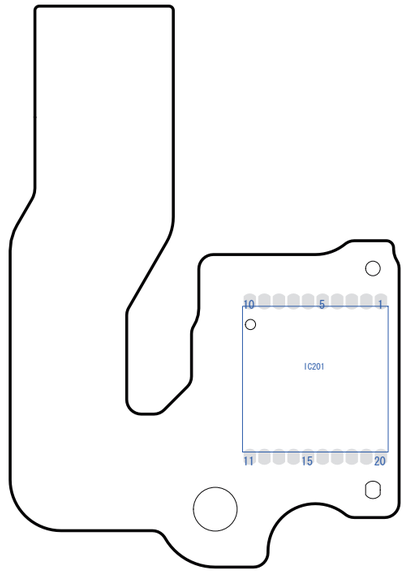


S5. Print Circuit Board

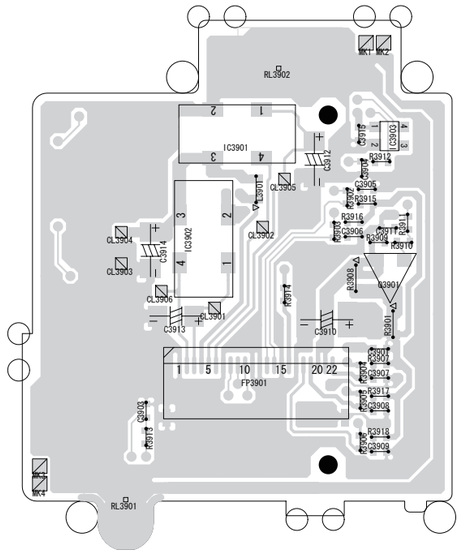
S5.1. Rear P.C.B. / S5.2. CCD P.C.B.



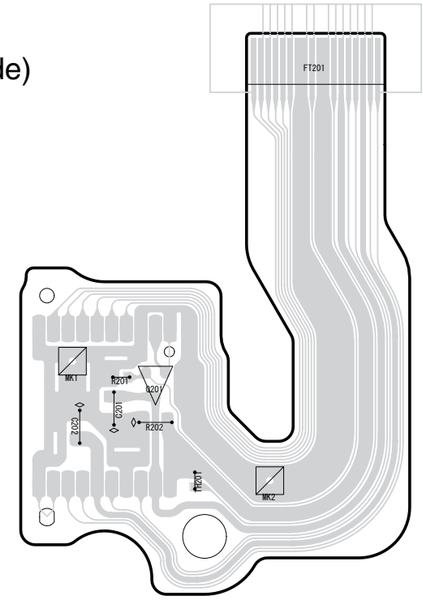
(Component Side)



(Component Side)



(Foil Side)

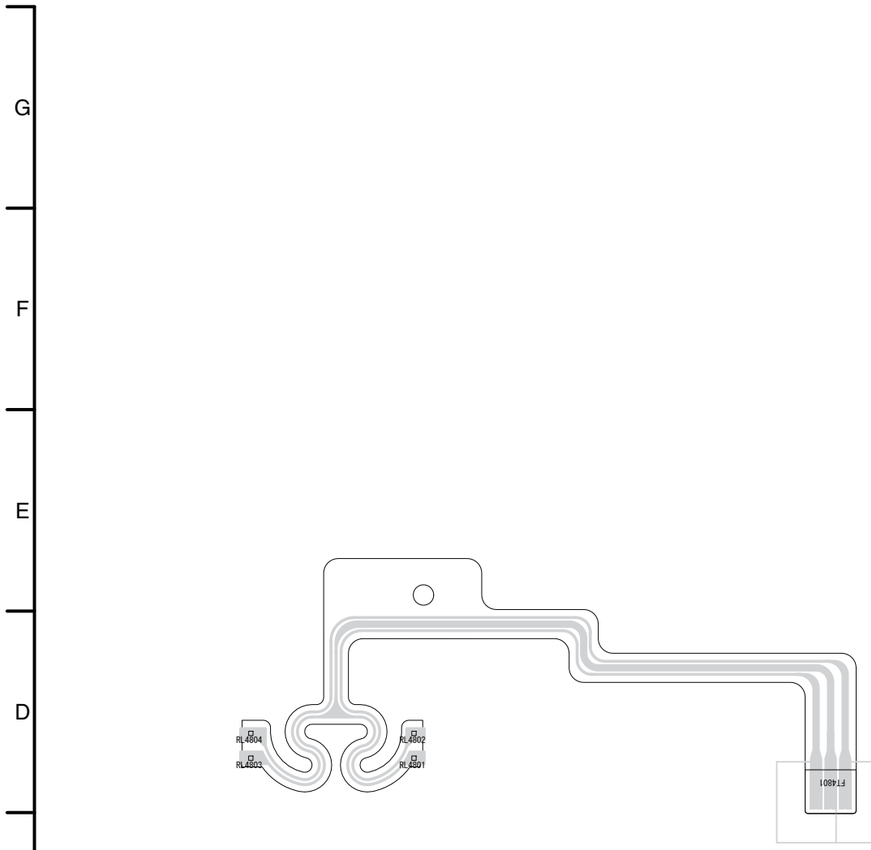


(Foil Side)

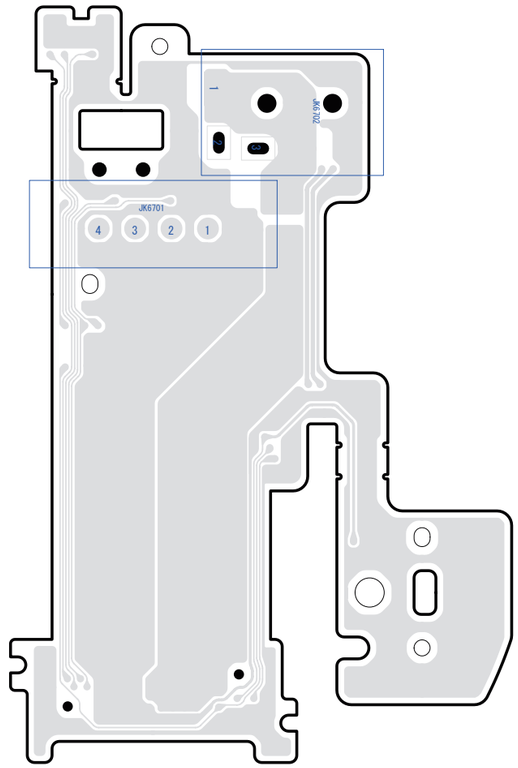
SDR-S45
Rear P.C.B.

SDR-S45
CCD P.C.B.

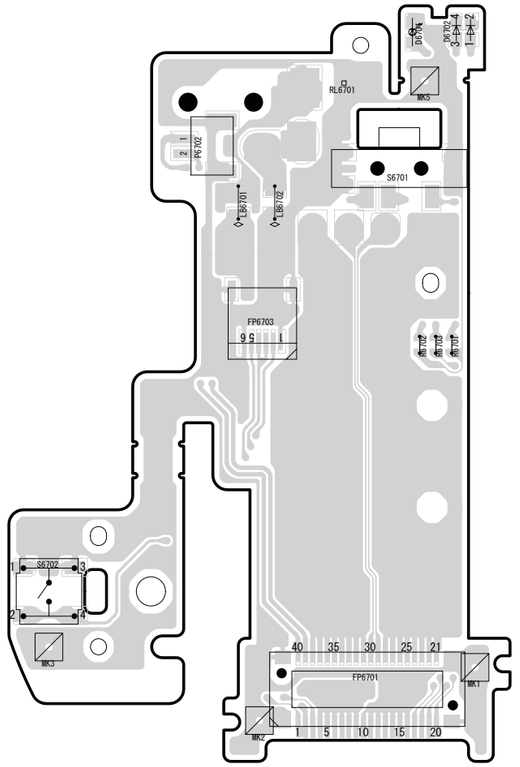
S5.3. EMC FPC P.C.B. / S5.4. DC BATT OP FPC P.C.B.



(Foil Side)



(Component Side)

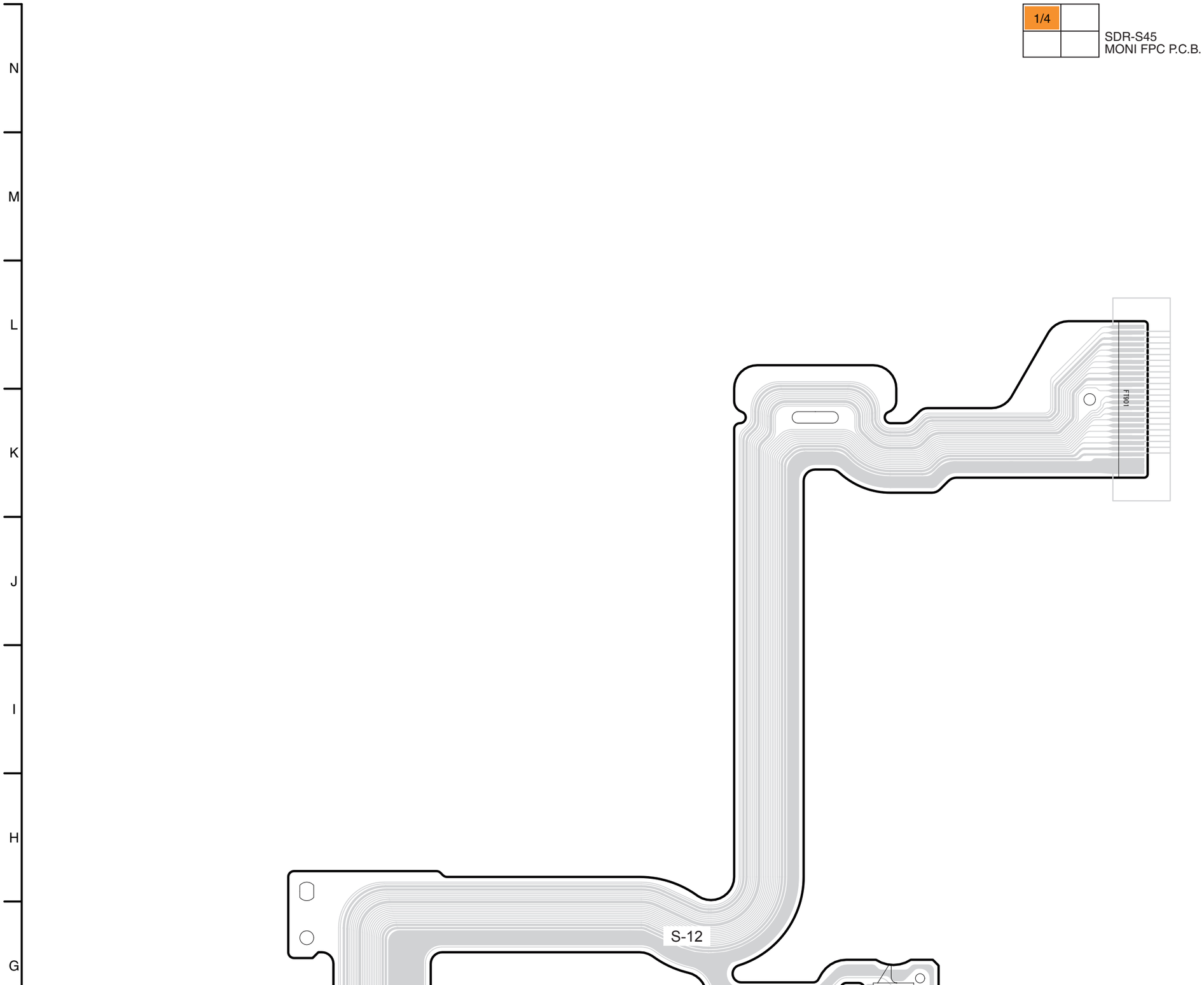


(Foil Side)

SDR-S45
EMC FPC P.C.B.

SDR-S45
DC BATT OP FPC P.C.B.

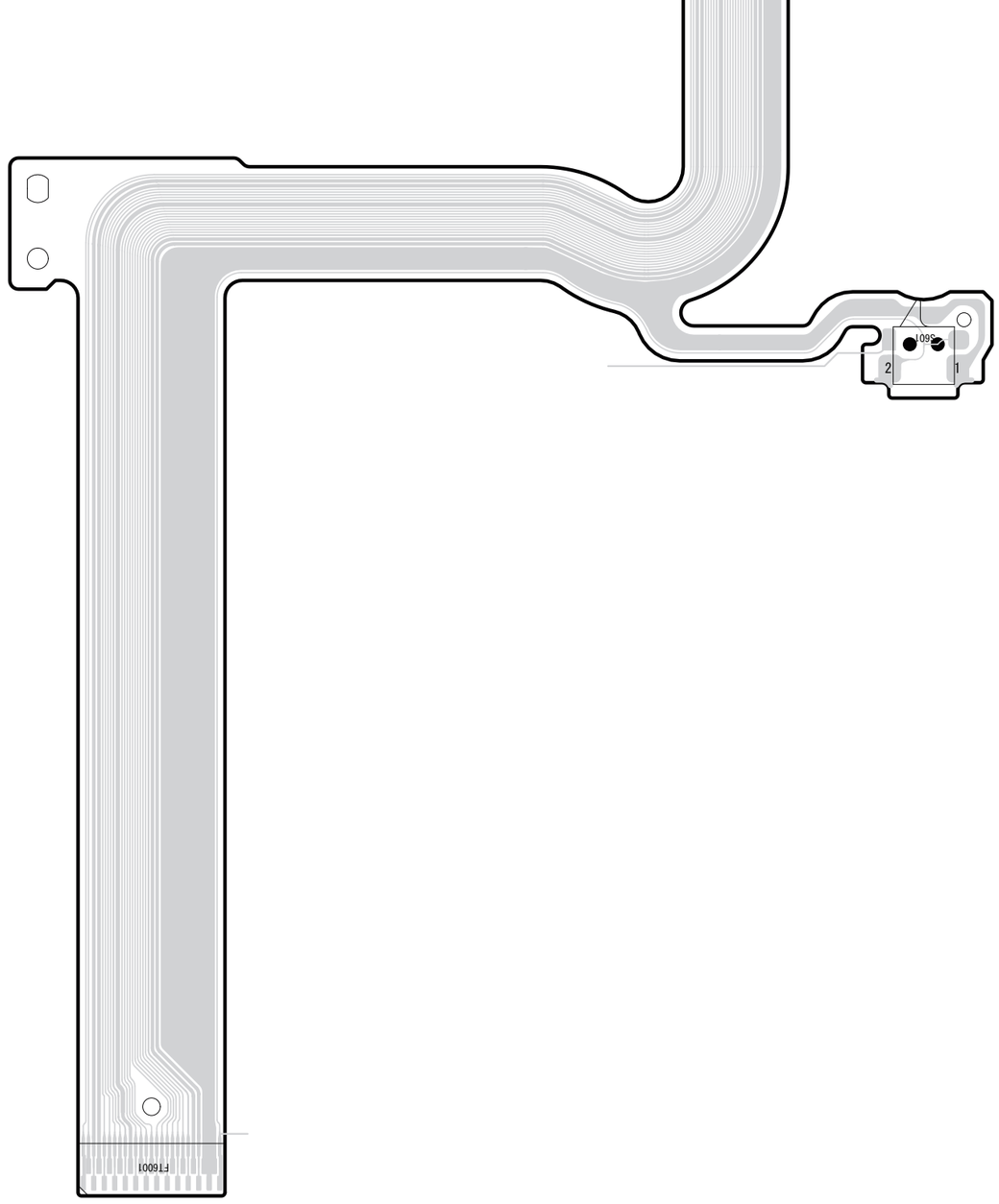
S5.5. MONI FPC P.C.B. / S5.6. Monitor P.C.B.



	2/4

SDR-S45
MONI FPC P.C.B.

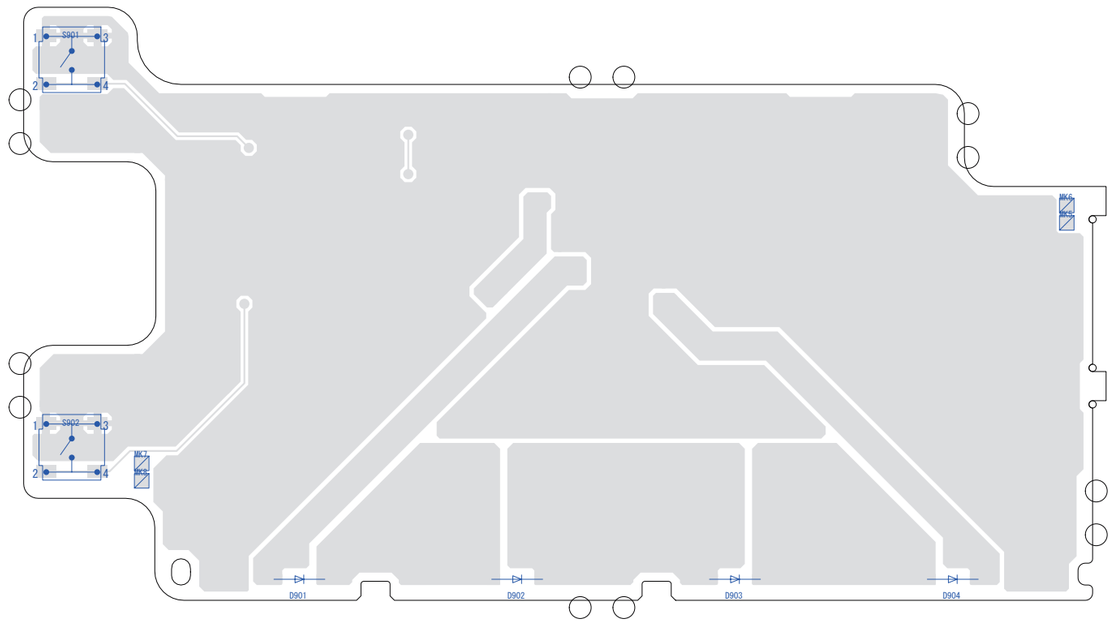
S-13



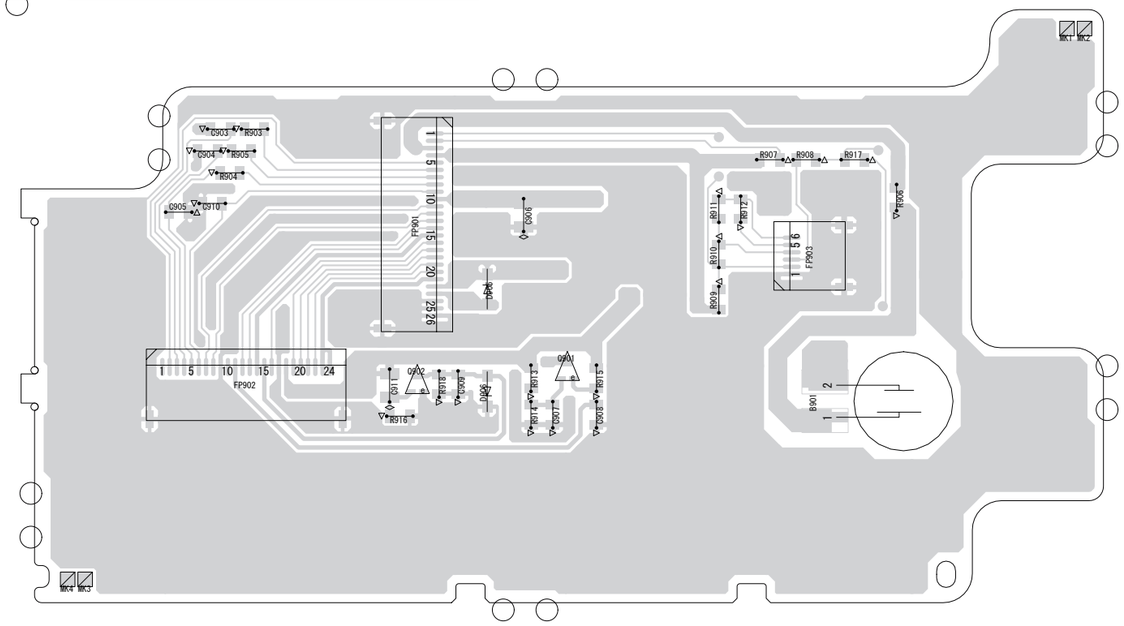
(Foil Side)

3/4	

SDR-S45
MONI FPC P.C.B.



(Component Side)



(Foil Side)

4/4

SDR-S45
Monitor P.C.B.

11 12 13 14 15 16 17 18 19 20 21

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
##	VEP02584B	REAR P.C.B.	1	(RTL) E.S.D.
##	VEP21310B	DC BATT OP FPC	1	(RTL) E.S.D.
##	VEP26326A	MONITOR P.C.B.	1	(RTL) E.S.D.
##	VEP02584B	REAR P.C.B.		(RTL) E.S.D.
C3901	F1G1C104A080	C.CAPACITOR CH 16V 0.1U	1	
C3903	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C3904	ECJ0EB1C103K	C.CAPACITOR CH 16V 0.01U	1	
C3905	F1G1H270A557	C.CAPACITOR CH 50V 27P	1	
C3906	F1G1H270A557	C.CAPACITOR CH 50V 27P	1	
C3907	F1G1H270A557	C.CAPACITOR CH 50V 27P	1	
C3908	F1G1H270A557	C.CAPACITOR CH 50V 27P	1	
C3909	F1G1H270A557	C.CAPACITOR CH 50V 27P	1	
C3910	F3G0J107A017	C.CAPACITOR CH 6.3V 100U	1	
C3911	ECJ0EB0J105K	C.CAPACITOR CH 6.3V 1U	1	
FP3901	K1MN22BA0197	CONNECTOR 22P	1	
HS3901	K1NA09E00038	CONNECTOR 9P	1	
Q3901	B1ADKB000015	TRANSISTOR	1	E.S.D.
R3902	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
R3903	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
R3904	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
R3905	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
R3906	ERJ2GEJ220	M.RESISTOR CH 1/16W 22	1	
R3907	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3908	D0GB150JA057	M.RESISTOR CH 1/10W 15	1	
R3909	ERJ2GEJ333	M.RESISTOR CH 1/16W 33K	1	
R3910	ERJ2GEJ331	M.RESISTOR CH 1/16W 330	1	
R3911	ERJ2GEJ271	M.RESISTOR CH 1/10W 270	1	
R3912	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R3913	ERJ2GEJ102X	M.RESISTOR CH 1/16W 1K	1	
R3915	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3916	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3917	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
R3918	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
##	VEP21310B	DC BATT OP FPC		(RTL) E.S.D.
D6702	B3AGB0000051	LED	1	E.S.D.
FP6701	K1KB40AA0094	CONNECTOR 40P	1	
FP6703	K1MN06BA0197	CONNECTOR 6P	1	
JK6701	K4ZZ04000056	JK, BATTERY	1	
JK6702	K2EB2B000024	JK, DC IN	1	
LB6701	J0JJC0000015	FILTER	1	
LB6702	J0JJC0000015	FILTER	1	
P6702	K1KA02AA0051	CONNECTOR 2P	1	
R6701	D0GA223JA015	M.RESISTOR CH 1/16W 22K	1	
R6702	D0GA472JA021	M.RESISTOR CH 1/16W 4.7K	1	
R6703	ERJ2GEJ103	M.RESISTOR CH 1/10W 10K	1	
S6701	K0D112B00145	SWITCH, PLAY/REC	1	
S6702	K0F111A00589	SWITCH, SS	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP26326A	MONITOR P.C.B.		(RTL) E.S.D.
B901	ML-614S/DN	BUTTON BATTERY	1	
C903	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C904	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C905	ECJ1VC1H390J	C.CAPACITOR CH 50V 39P	1	
C906	F1J1A475A023	C.CAPACITOR CH 10V 4.7U	1	
C908	F1H1C104A071	C.CAPACITOR CH 16V 0.1U	1	
C909	F1H1A105A036	C.CAPACITOR CH 10V 1U	1	
C910	F1H0J105A002	C.CAPACITOR CH 6.3V 1U	1	
D901	B3AFB0000200	LED	1	E.S.D.
D902	B3AFB0000200	LED	1	E.S.D.
D903	B3AFB0000200	LED	1	E.S.D.
D904	B3AFB0000200	LED	1	E.S.D.
D905	B0BC016A0267	DIODE	1	E.S.D.
D906	B0BC5R6A0266	DIODE	1	E.S.D.
FP901	K1MN26BA0197	CONNECTOR 26P	1	
FP902	K1MN24BA0197	CONNECTOR 24P	1	
FP903	K1MN06BA0197	CONNECTOR 6P	1	
Q901	DSA300100L	TRANSISTOR	1	E.S.D.
R903	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R904	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R905	ERJ3RBD271	M.RESISTOR CH 1/10W 270	1	
R906	ERJ3GEYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R907	D0GB103JA057	M.RESISTOR CH 1/10W 10K	1	
R908	ERJ3GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R909	D0GB103JA057	M.RESISTOR CH 1/10W 10K	1	
R910	ERJ3GEYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R911	ERJ3GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R912	D0GB183JA057	M.RESISTOR CH 1/10W 18K	1	
R913	ERJ3RBD563V	M.RESISTOR CH 1/10W 56K	1	
R914	ERJ3RBD562	M.RESISTOR CH 1/10W 5.6K	1	
R915	D0GB473JA057	M.RESISTOR CH 1/10W 47K	1	
R917	ERJ3GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R918	D0GB105JA057	M.RESISTOR CH 1/10W 1M	1	
S901	K0F111A00589	SWITCH, AF/AE	1	
S902	K0F111A00589	SWITCH, MENU	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	VEP02584B	REAR P.C.B.	1	(RTL) E.S.D.
2	LSKF0753	REAR COVER	1	
3	LSGK1049	FRONT CASE	1	
4	LSYK2898	LENS PIECE U	1	
5	LSYK2901	FRONT PANEL U	1	
6	LSGT0633	SHUTTER KNOB	1	
9	LSMG0199	LENS DAMPER	1	
10	LSKM1994	GRIP COVER	1	
11	LSMA1064	STRAP ANGLE	1	
12	LSMA1064	STRAP ANGLE	1	
13	LSGQ0371	GRIP BELT U	1	
14	LSYK2951	JACK COVER	1	
22	VEP03H83DP	MAIN P.C.B.	1	EG,EF,EC,EP,EB (RTL) E.S.D.
22	VEP03H83DQ	MAIN P.C.B.	1	GC,GA,EE,GN (RTL) E.S.D.
22	VEP03H83DN	MAIN P.C.B.	1	PU,PR (RTL) E.S.D.
23	LSKM1999	REAR CASE	1	
24	LSGT0630	BATTERY RELEASE KNOB	1	
25	LSMB0369	BATTERY RELEASE SPRING	1	
26	LSMD1117	BATTERY RELEASE HOLDER	1	
27	LSGT0631	MODE SELECT KNOB	1	
28	LSGL1553	LED PANEL(REAR)	1	
29	LSSC1111	EARTH PLATE(MODE)	1	
30	LSGT0632	S/S BUTTON	1	
31	VEP21310B	DC BATT OP FPC	1	(RTL) E.S.D.
32	LSSC1112	EARTH PLATE (REAR)	1	
35	LSYK2837	SIDE CASE R U	1	EG,EF,EC,EP,EB,GC,GA,EE,GN
36	LSKM2006	TOP CASE	1	
37	LSGU0779	TOP BUTTON	1	
38	LSGK1039	DECO. PIECE (TOP)	1	
39	LSYK2810	TOP OPERATION U	1	
40	L0AA01A00049	SPEAKER	1	
41	LSMC0178	SPEAKER ANGLE	1	
42	LSMA1169	MAIN FRAME	1	
43	LSHN0021	TRIPOD SCREW	1	
44	LSKM1991	SHUTTER GUIDE	1	
45	LSML0386	SHUTTER ARM	1	
46	LSKF0749	SHUTTER PANEL	1	
47	LSGF0561	SHUTTER COVER	1	
48	LSMB0370	SHUTTER SPRING	1	
49	LSEQ0874	MIC U	1	
56	VWJ2129	REAR F.P.C.	1	
58	LSSC1110	SIDE L ANGLE	1	
B1	XQN16+BJ4FN	SCREW	1	
B2	XQN16+BJ4FN	SCREW	1	
B4	XQN16+BJ5FN	SCREW	1	
B5	XQN16+BJ5FN	SCREW	1	
B7	XQN16+B4FJK	SCREW	1	
B8	XQN16+BJ5FJK	SCREW	1	
B9	XQN16+B4FJK	SCREW	1	
B10	XQN16+B4FJK	SCREW	1	
B11	XQN16+B4FJK	SCREW	1	
B12	XQN16+B4FJK	SCREW	1	
B13	XQN16+B4FJK	SCREW	1	
B14	XQN16+B4FJK	SCREW	1	
B15	XQN16+B4FJK	SCREW	1	
B16	XQN16+B4FJK	SCREW	1	
B18	XQN16+BJ5FJK	SCREW	1	
B19	LSHD0132	SCREW	1	
B20	LSHD0132	SCREW	1	
B21	XQN16+BJ4FN	SCREW	1	
B22	XQN16+BJ4FN	SCREW	1	
B23	XQN16+BJ5FJK	SCREW	1	
B24	XQN16+BJ5FN	SCREW	1	
B25	XQN16+B4FJK	SCREW	1	
B30	XQN16+B4FJK	SCREW	1	
B31	XQN16+B4FJK	SCREW	1	
B32	XQN16+BJ5FJK	SCREW	1	
B33	XQN16+B4FJK	SCREW	1	
B34	XQN16+B4FN	SCREW	1	
B35	XQN16+B4FN	SCREW	1	
B36	XQN16+BJ5FJK	SCREW	1	
B37	XQN16+BJ4FN	SCREW	1	
B38	XQN16+BJ4FN	SCREW	1	
B39	XQN16+BJ4FN	SCREW	1	
B40	XQN16+BJ4FN	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
B41	XQN16+B4FN	SCREW	1	
B42	XQN16+B4FN	SCREW	1	
B43	XQN16+B4FN	SCREW	1	
B44	XQN16+B4FJK	SCREW	1	
B45	XQN16+B4FJK	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
15	LSKM1982	LCD CASE B	1	
16	LSGU0776	LCD OPERATION BUTTON	1	
17	LSGU0776	LCD OPERATION BUTTON	1	
18	LSSC1107	LCD SHIELD CASE	1	
19	LSYK2868	LCD U	1	
20	VEP26326A	MONITOR P.C.B.	1	(RTL) E.S.D.
21	LSYK2869	MENU SELECTOR U	1	
33	LSYK2866	SHAFT CASE U	1	
34	LSYK2874	LCD CASE A U	1	
B17	XQN16+BJ4FN	SCREW	1	
B26	XQN16+B3FN	SCREW	1	
B27	XQN16+B3FN	SCREW	1	

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

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
401	LSXN0062	LENS U	1	
401-1	L6HA66NB0011	ZOOM MOTOR UNIT	1	
401-2	L6HA66NB0012	FOCUS MOTOR UNIT	1	
401-3	LSEM0118	AUTO IRIS U	1	
402	VEP22409A	CCD P.C.B.	1	(RTL) E.S.D.
403	LSDW0141	CCD CASE	1	
404	LSFL0343	OPTICAL LPF	1	
405	LSMX0246	CCD CUSHION	1	
B401	LSHD0136	SCREW	1	
B402	LSHD0136	SCREW	1	
B403	XQN16+BJ4FN	SCREW	1	
B404	XQN16+BJ4FN	SCREW	1	
B405	XQN16+BJ4FN	SCREW	1	
B406	XQN16+BJ4FN	SCREW	1	
B407	XQN16+BJ4FN	SCREW	1	
B408	XQN16+BJ4FN	SCREW	1	

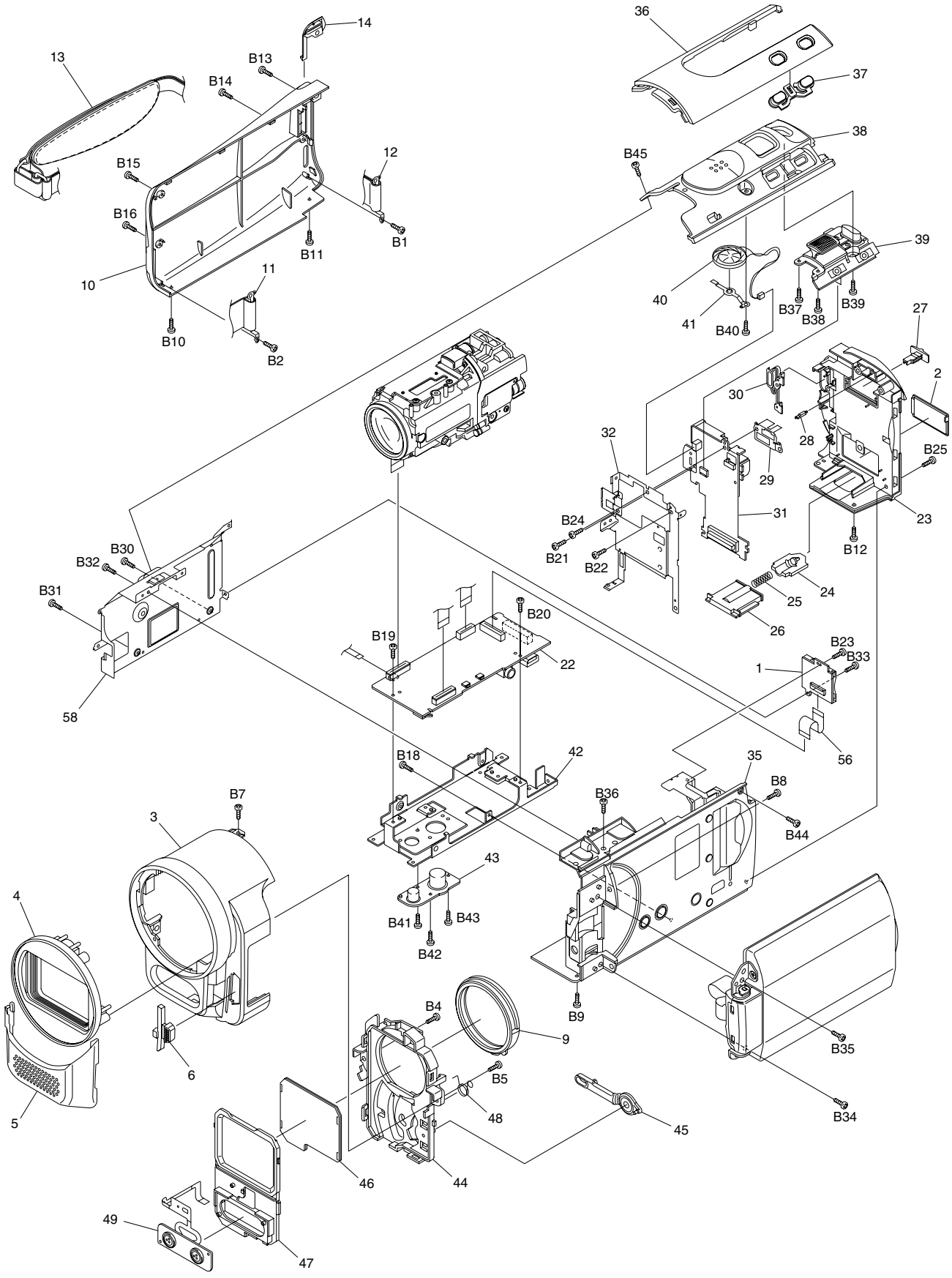
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
501	VPG2L70	PACKING CASE	1	EG,EF,EC,EP,EB,GA,EE,GN,
				PU,PR
501	VPG2L72	PACKING CASE	1	GC
502	VPF1294	POLYETHYLENE BAG	1	
503	VPF1388	PROTECT BAG	1	
504	K2KYYYY00054	AV CABLE	1	
506	K2CQ29A00002	AC CORD	1	EG,EF,EC,EP,GC,GA,EE
506	K2CT39A00002	AC CORD	1	EB,GC,GA
506	K2CJ29A00002	AC CORD	1	GN
506	K2CA2CA00025	AC CORD	1	PU
506	K2CJ29A00003	AC CORD	1	PR
⚠ 507	VSK0712	AC ADAPTER CHARGER	1	
508	VPN6972	PAD	1	EG,EF,EC,EP,EB,GA,EE,GN,
				PU,PR
508	VPN6994	PAD	1	GC
509	VFF0542-S	CD-ROM	1	EG,EF,EC,EP,EB,GA,EE,GN,
				PU,PR
509	VFF0542-S	CD-ROM	1	GC
⚠ 510	VQT2L19	O/I	1	EG
				(GERMAN/FRENCH)
⚠ 510	VQT2L21	O/I	1	EG
				(TURKISH)
⚠ 510	VQT2L20	O/I	1	EG
				(ITALIAN/DUTCH)
⚠ 510	VQT2L22	O/I	1	EF
				(FRENCH)
⚠ 510	VQT2L23	O/I	1	EC
				(PORTUGUESE/SPANISH)
⚠ 510	VQT2L24	O/I	1	EC
				(SWEDISH/DANISH)
⚠ 510	VQT2L25	O/I	1	EC
				(FINNISH)
⚠ 510	VQT2L26	O/I	1	EP
				(ENGLISH/POLISH)
⚠ 510	VQT2L27	O/I	1	EP
				(CZECH/HUNGARIAN)
⚠ 510	VQT2L28	O/I	1	EB
				(ENGLISH)
⚠ 510	VQT2L29	O/I	1	GC
				(ENGLISH)
⚠ 510	VQT2L30	O/I	1	GC
				(ARABIC/PERSIAN)
⚠ 510	VQT2L31	O/I	1	GA
				(ENGLISH/
				CHINESE(TRADITIONAL))
⚠ 510	VQT2L32	O/I	1	GA
				(THAI/HINDI)
⚠ 510	VQT2L33	O/I	1	EE
				(RUSSIAN)
⚠ 510	VQT2L34	O/I	1	EE
				(UKRAINIAN)
⚠ 510	VQT2L35	O/I	1	GN
				(ENGLISH)
⚠ 510	VQT2L16	O/I	1	PU
				(ENGLISH)
⚠ 510	VQT2L17	O/I	1	PU,PR
				(SPANISH)
⚠ 511	VFF0568	CD-ROM(O/I)	1	EG,EC,EP
⚠ 511	VFF0569	CD-ROM(O/I)	1	GC
⚠ 511	VFF0570	CD-ROM(O/I)	1	GA

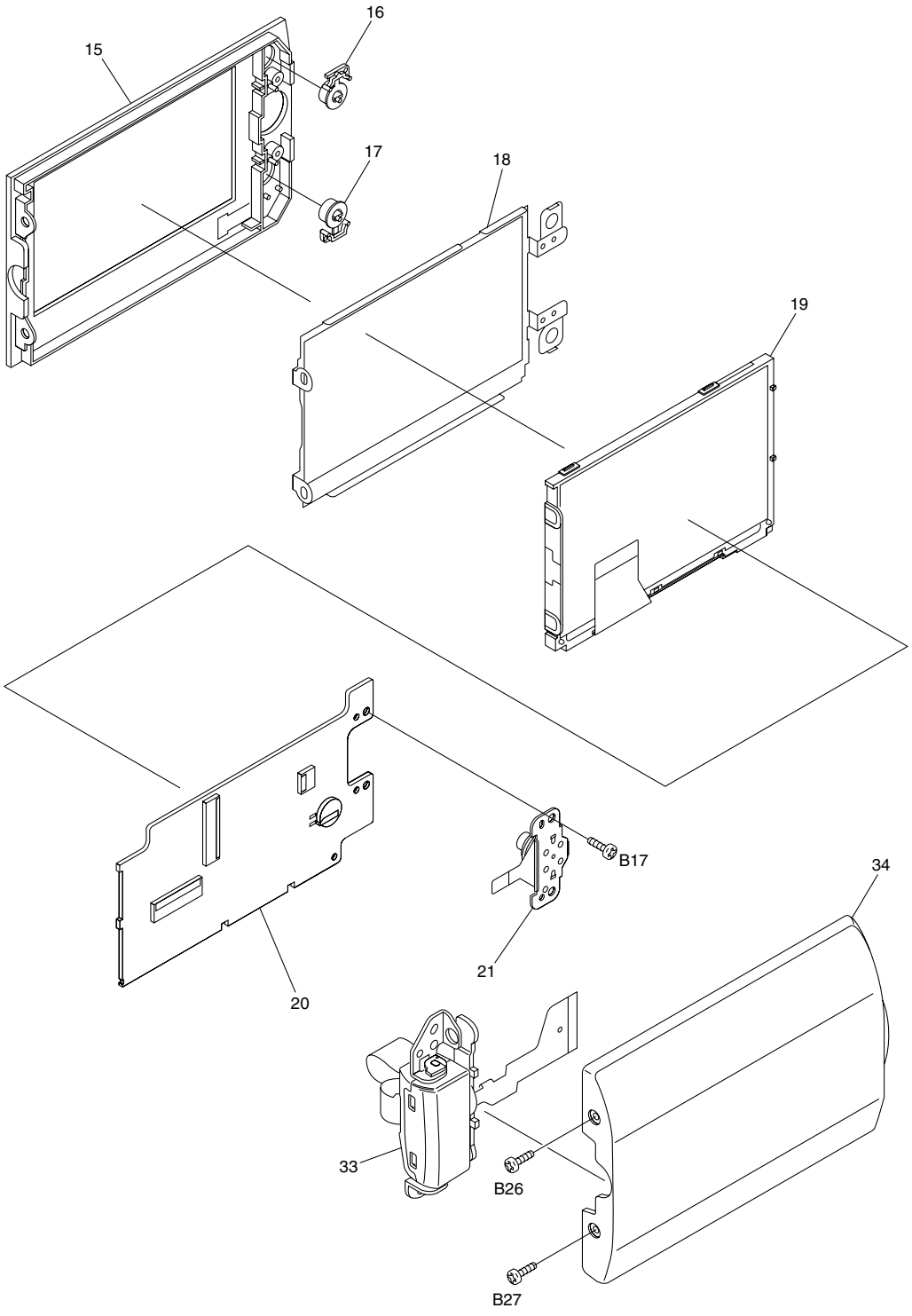
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

S7. Exploded View

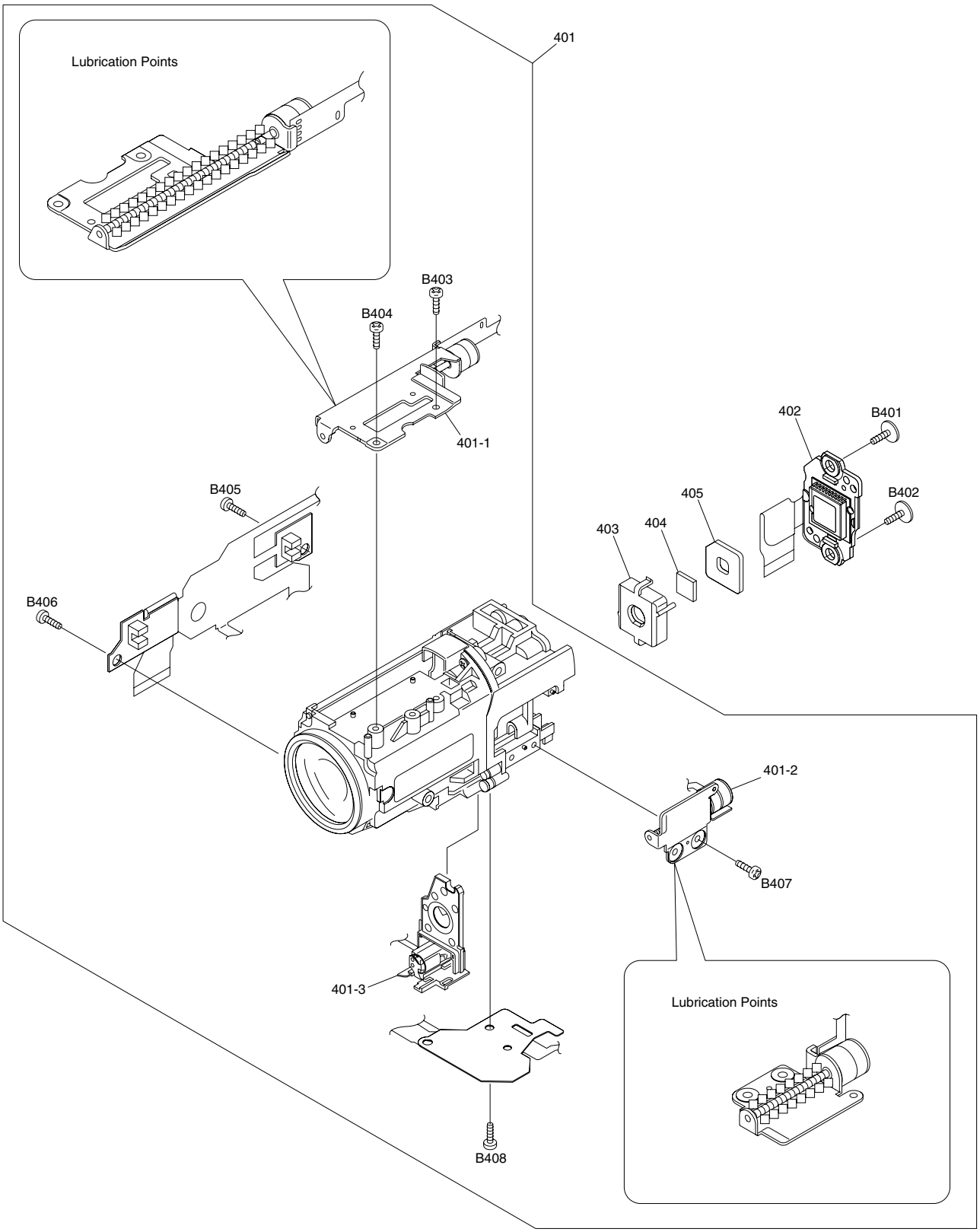
S7.1. Frame and Casing Section



S7.2. LCD Section



S7.3. Lens Section



S7.4. Packing Parts and Accessories Section