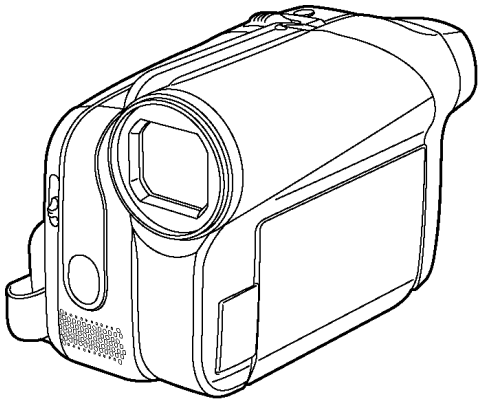
ORDER NO.VM0801001CE
B21

# Service Manual

## Digital Video Camcorder/Digital Video Camera

Panasonic Mini DV PAL Mini DV NTSC USB



# PV-GS90P

**PV-GS90PC**
**PV-GS90PL**
**NV-GS90EG**
**NV-GS90E**
**NV-GS90EB**
**NV-GS90EP**
**NV-GS90EE**
**NV-GS90EF**
**NV-GS90EK**
**NV-GS90GC**
**NV-GS90GCS**
**NV-GS90GN**
**NV-GS98GK**

VOL.1

Colour

(S).....Silver Type

**⚠ WARNING**

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

Panasonic®

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# CONTENTS

# 1 Safety Precaution

## 1.1. General Guidelines

1. IMPORTANT SAFETY NOTICE
   There are special components used in this equipment which are important for safety. These parts are marked by in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress. It 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.

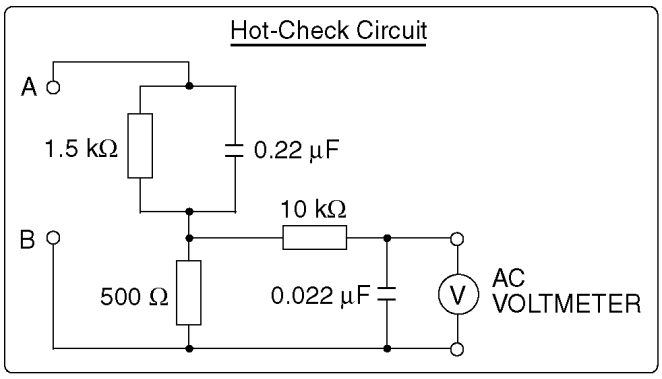



Figure 1

# 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**

There are special components used in this equipment which are important for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

# 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.

  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%

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

## 2.3.1. Information for your safety

**IMPORTANT**

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

**WARNING**

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

**CAUTION**

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

**FOR YOUR SAFETY**

**DO NOT REMOVE THE OUTER COVER**

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

## 2.3.2. Caution for AC mains lead

For your safety, please read the following text carefully.

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

A 5-ampere fuse is fitted in this plug.

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

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

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

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

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

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

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

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

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

If in any doubt, please consult a qualified electrician.

### 2.3.2.1. Important

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

| | |
|---|---|
| Blue | Neutral |
| Brown | Live |

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

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

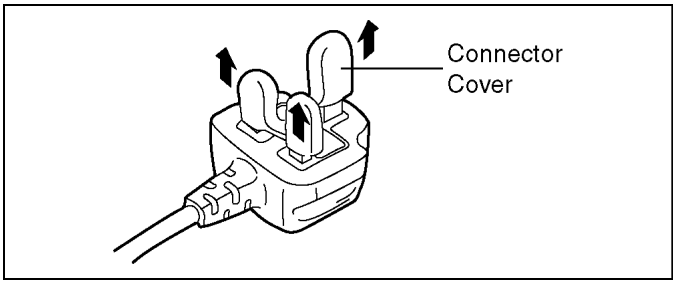
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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

| Earth Symbol | ⏚ |
|---|---|

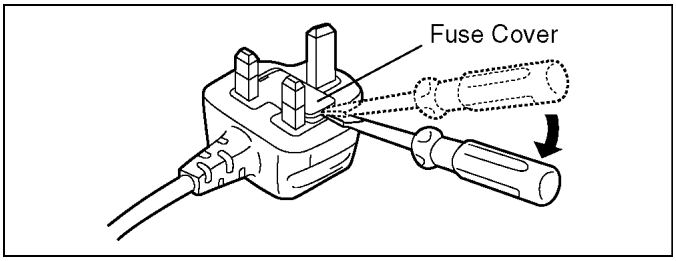
### 2.3.2.2. Before use

remove the Connector Cover as follows.

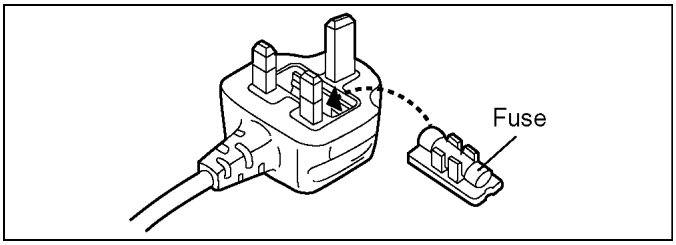



### 2.3.2.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.

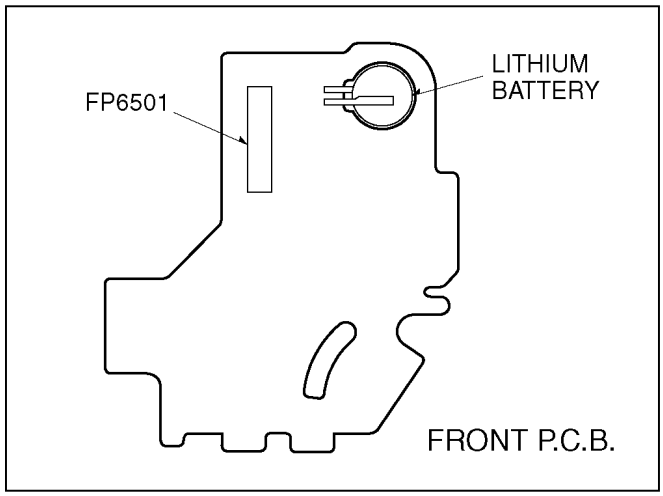



2. Replace the fuse and attach the Fuse cover.



# 2.4. How to Replace the Lithium Battery (PROCEDURE)

1. Remove the Front P.C.B.. (Refer to Disassembly Procedures.)
2. Unsolder the Lithium Battery “ML-621S/F9D” and then replace the new one. (See Figure 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-621S/F9D 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-621S/F9D Manufactured by Panasonic.)

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.

**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.

**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.

**VORSICHT**

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

**VARNING**

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

**ADVARSEL!**

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

**VAROITUS**

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

## 2.5. How to Recycle the Lithium Battery (U.S. Only)

**U.S.A./CANADA CONSUMERS: ATTENTION:**


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.

# 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. VSK0697 is indicated on AC Adapter used on the following models:
   PV-GS90P/PC/PL.
   However, the AC Adapter replacement part number is DE-A51BA which should be used when ordering.
2. VSK0698 is indicated on AC Adapter used in the following models:
   NV-GS90EG/E/EB/EP/EE/EF/EK/GC/GCS/GN.
   However, the AC Adapter replacement part number is DE-A51CA which should be used when ordering.
3. VSK0698 is indicated on AC Adapter used on the following model:
   NV-GS98GK.
   However, the AC Adapter replacement part number is DE-A51DA which should be used when ordering.

**Notes 2:**

1) This service manual does not contain the following information, because of the impossibility of sevicing 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. (LSEP8439A1: PV-GS90P/PC/PL)
   (LSEP8439P1: NV-GS90EG/E/EB/EF/EP)
   (LSEP8439Q1: NV-GS90EE/EK/GC/GCS/GN, NV-GS98GK)

When a part replacement is required for repairing each Main P.C.B., replace the assembly parts.

(Main P.C.B.)

The following circuits are contained in Main P.C.B.

1. Main Connection Circuit
2. AVIO Circuit
3. Video 1 Circuit
4. Video 2 Circuit
5. Main Jack Circuit
6. EVF/LCD Circuit
7. Power Circuit
8. Control Circuit
9. Lens Drive Circuit
10. TG/AFE Circuit
11. Drive Circuit

## 3.2. Service Caution

### 3.2.1. EEPROM data for spare parts of the Main P.C.B.

When the Main P.C.B. is replaced, the fixed and average data must be changed by PC-EVR Adjustment Program according to the Movie Camera's suffix.

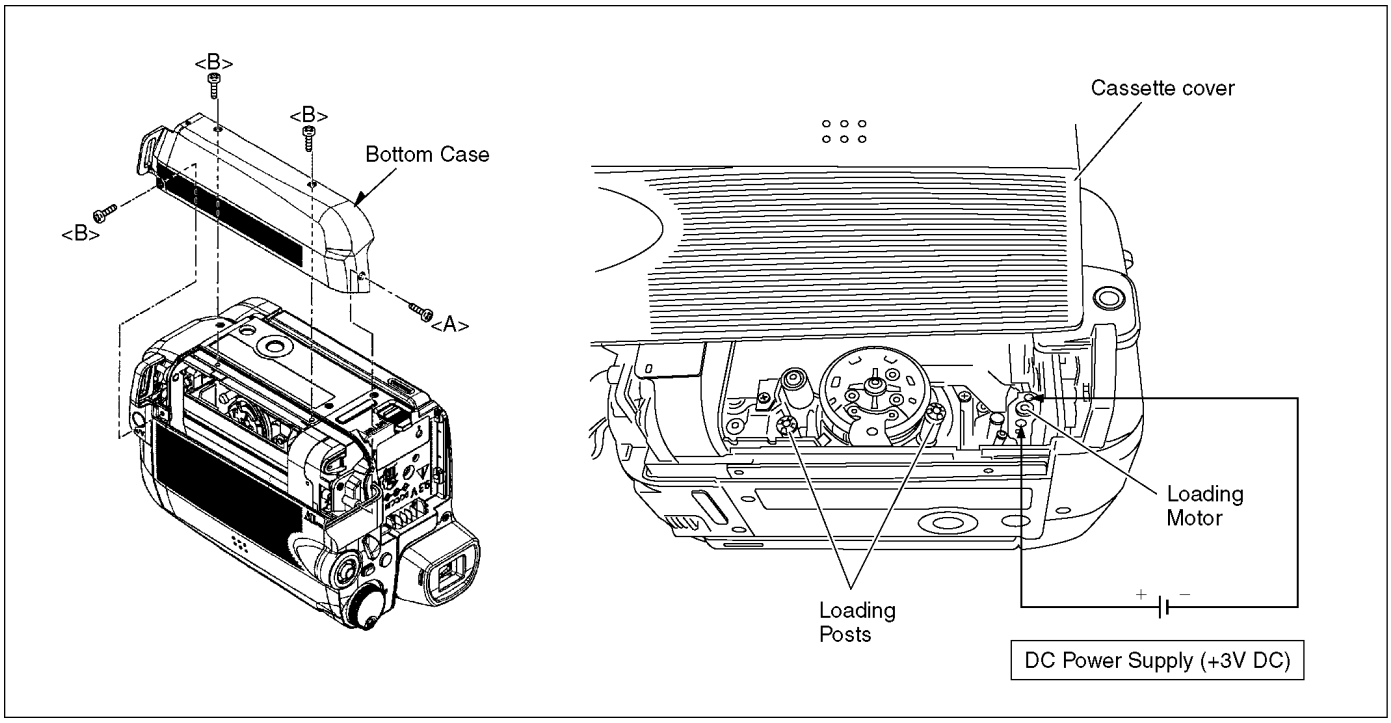
Then, confirm and/or adjust the VTR and Camera section one by one.

# 3.3. Procedure for Removing Tape

## 3.3.1. Procedure for Removing the tape manually

Please removing the tape by the following procedure when the disc cannot be removeing due to the breakdown of the electrical system etc.

1. Remove the 1 Screw (A) and 3 Screws (B).
2. Remove the Bottom Case, and open the Cassette Cover.
3. Connect two batteries (1.5V spec.) to the Loading Motor in series for supplying 3.0V to rotate the Loading Motor as shown below.
4. Remove the tape.



# 4 Specifications

**Digital Video Camcorder / Digital Video Camera**

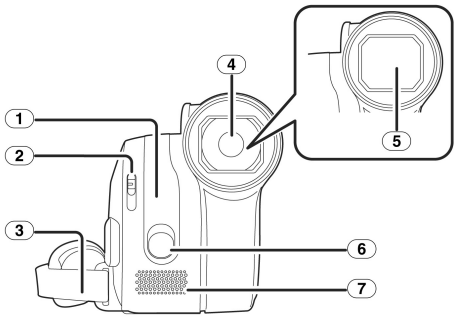
| ITEM | SPECIFICATION | ITEM | SPECIFICATION |
|---|---|---|---|
| POWER | Source: DC 9.3 / 7.2 V<br>Consumption: 4.1 W (Recording) | STANDARD ILLUMINATION | 1,400 lx |
| RECORDING FORMAT | Mini DV (Consumer-use Digital Video SD Format) | MINIMUM REQUIRED ILLUMINATION | 6 lx<br>2 lx (MagicPix function) (PV-GS90P/PC/PL)<br>2 lx (Colour Night View function) (Except PV-GS90P/PC/PL) |
| TAPE USED | 6.35 mm digital video tape | | |
| RECORDING / PLAYBACK TIME | SP mode: 80 min. with DVM80<br>LP mode: 120 min. with DVM80 | USB (Except PV-GS90P/ PC/PL) | Card reader / writer function<br>No copyright protection support<br>Pict Bridge-Compliant |
| CAMERA | Zoom: 42:1 Power Zoom | | |
| | Monitor: 2.7-inch LCD | DIGITAL INTERFACE | DV Input / Output Terminal (IEEE1394, 4-pin)<br>(PV-GS90P/PC/PL)<br>DV Output Terminal (IEEE1394, 4-pin)<br>(Except PV-GS90P/PC/PL) |
| | Lens: Auto Iris, F1.9 - F4.3,<br>Focal Length; 2.45 - 24.5 mm,<br>Macro (Full Range AF) | | |
| | Image Sensor: 1/6-inch Image Sensor | MICROPHONE | Stereo (with a zoom function) |
| | Viewfinder: Colour Electronic Viewfinder | SPEAKER | 1 round speaker ϕ20 mm |
| WEB CAMERA (Except PV-GS90P/ PC/PL) | Compression: Motion JPEG | OPERATING TEMPERATURE | 0 °C - 40 °C (32 °F - 104 °F) |
| | Image Size: 320 × 240 pixels (QVGA) | | |
| | Frame Rate: Approx. 6 fps | OPERATING HUMIDITY | 10 % - 80 % |
| VIDEO | Recording System: Digital Component | | |
| | Television System:<br>EIA Standard; 525 Lines, 60 Fields NTSC Colour Signal<br>(PV-GS90P/PC/PL)<br>CCIR; 625 Lines, 50 Fields PAL Colour Signal<br>(Except PV-GS90P/PC/PL) | WEIGHT | Approx. 390 g (0.86 lbs) (without supplied Battery and DV Cassette)<br>Approx. 470 g (1.03 lbs) (with supplied Battery and DVM60) |
| | Video Output Level: 1.0 Vp-p 75 ohm<br>(AV Multi Jack) | DIMENSIONS | 67.0 mm (W) × 84.5 mm (H) × 119.3 mm (D)<br>2.638 inch (W) × 3.327 inch (H) × 4.697 inch (D)<br>(excluding the projection parts) |
| AUDIO | Recording System: PCM Digital Recording<br>16 bit (48 kHz/2 ch)<br>12 bit (32 kHz/4 ch) | STANDARD ACCESSORIES | 1 pc. AC Adaptor<br>1 pc. Battery Pack Unit<br>1 pc. DC Cable<br>1 pc. AC Cord (Except NV-GS90GC/GCS)<br>2 pc. AC Cord (NV-GS90GC/GCS)<br>1 pc. AV Cable<br>1 pc. Cleaning Cassette (NV-GS90EE/GC/GCS/GN, NV-GS98GK) |
| | Audio Output Level (Line): 316 mV, 600 ohm<br>(AV Multi Jack) | | |
| | | SOLDER | This model use lead free solder (PbF). |

Weight and dimensions are approximate values.
Specifications may change without prior notice.

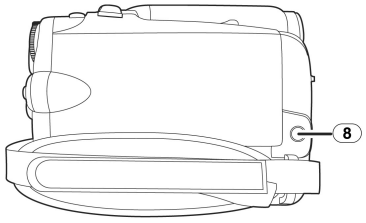
# 5 Location of Controls and Components

Followings are the Location of Controls and Components for PV-GS90P/PC as a sample.

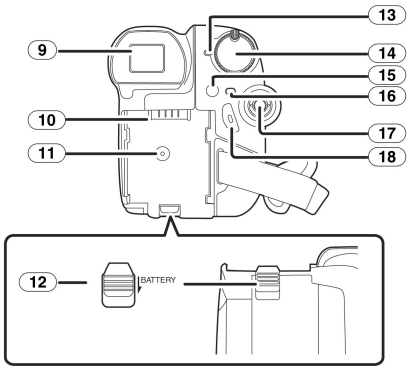
For other models, refer to each Operatin Instructions.




1 **White balance sensor**
2 **Lens cover open/close swich [▢/▣]**
3 **Grip belt**
4 **Lens**
5 **Lens cover**
6 **Built-in LED video light**
7 **Microphone (built-in, stereo)**



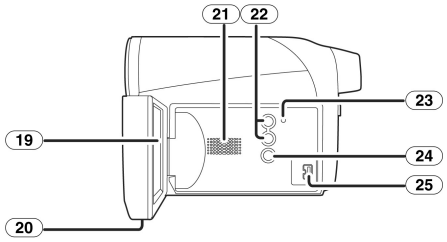

8 **Audio-video output terminal [A/V]**
- Use the supplied AV cable only.




9 **Viewfinder**

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

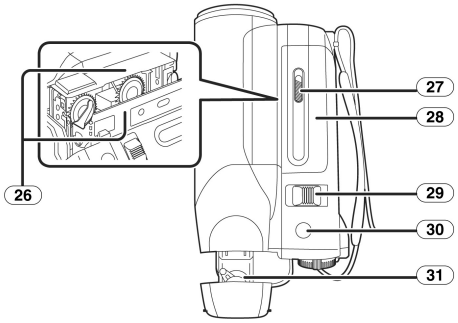
10 **Battery holder**
11 **DC input terminal [DC/C.C.IN]**
12 **Battery release lever [BATTERY]**
13 **Status indicator**
14 **Mode dial**
15 **Optical image stabilizer button [O.I.S.]**
16 **Menu button [MENU]**
17 **Joystick**
18 **Recording start/stop button**



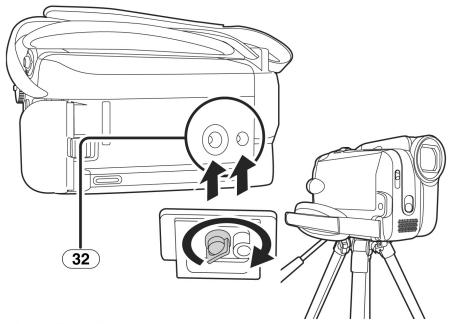

**19 LCD monitor**

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.

**20 LCD monitor open part**
**21 Speaker**
**22 Mode select buttons [AUTO]/ [MANUAL AF/MF]**
**23 Reset button [RESET]**
**24 Light Button [LIGHT]**
**25 DV input/output terminal [DV]**




**26 Cassette holder**
**27 Cassette eject lever [OPEN/EJECT]**
**28 Cassette cover**
**29 Zoom lever [W/T]**
**Volume lever [−VOL+]**
**30 Photoshot button [📷]**
**31 Eyepiece corrector knob**

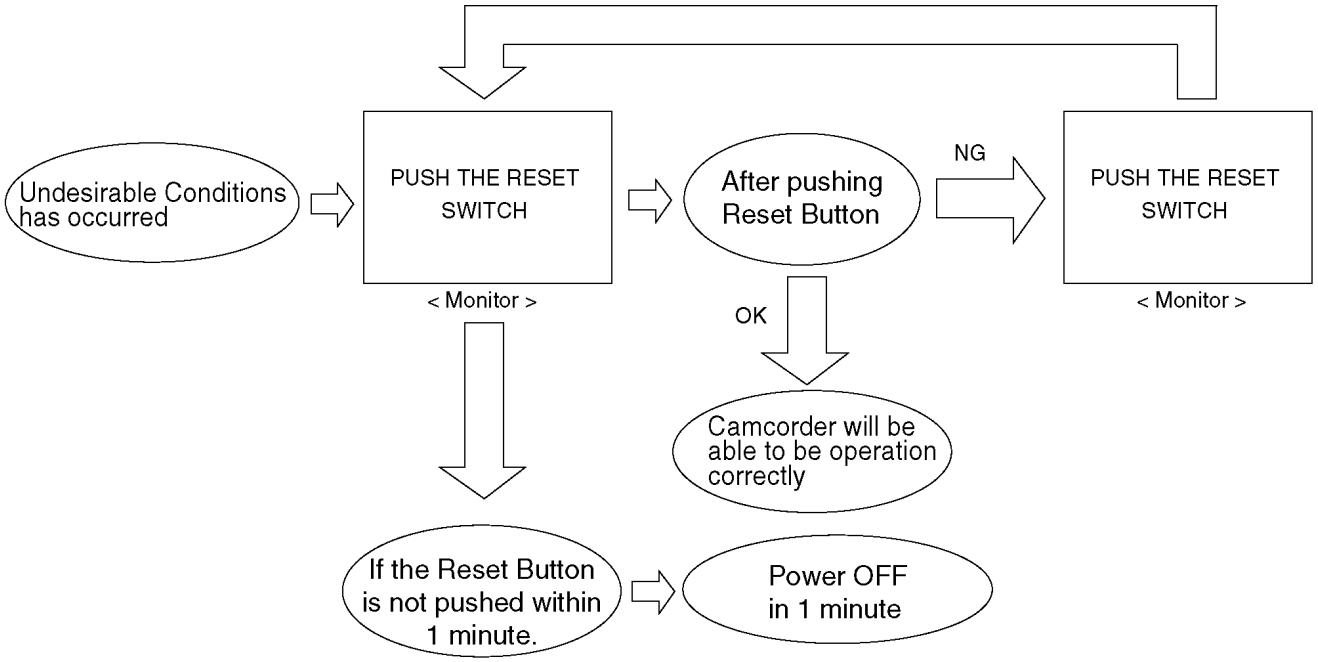



**32 Tripod receptacle**
This is a hole for attaching the Camcorder to optional tripod. (Please carefully read the operating instructions for how to attach the tripod to the Camcorder.)

# 6 Service Mode

## 6.1. Error Display

“PUSH THE RESET SWITCH” is displayed automatically on the EVF or the LCD Monitor when an undesirable condition has occured.




**Note:**

When "PUSH THE RESET SWITCH" is displayed repeatedly, required.
Check the Error Code which is listed in the Service Menu.

# 6.2. Service Menu

**When abnormal detection contents are confirmed, do the following operation. Automatic diagnosis code will be displayed. (Service Menu)**

1. Preparation
   (1) Remove the tape from this unit.
2. To enter the Service Menu. (see Fig. S1)
   (1) Turn on power and set the Mode Dial to [TAPE PLAYBACK MODE].
   (2) Pushed [PHOTO SHOT] button, [JOYSTICK CONTROL LEFT] button and [MANUAL AF/MF] button simmultaneously for 3 seconds.
3. To select the Item.
   (1) Press the [JOYSTICK CONTROL UP/DOWN] to select item [1] or [3].
   (2) Press the [JOYSTICK CONTROL RIGHT] to display [YES/NO] screen.
   (3) Press the [JOYSTICK CONTROL UP/DOWN] to select [YES].
   (4) Press the [JOYSTICK CONTROL CENTER].
4. To exit the Service Menu.
   (1) Unplug the AC Cord.

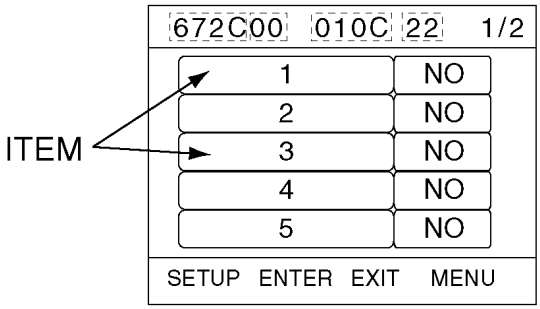


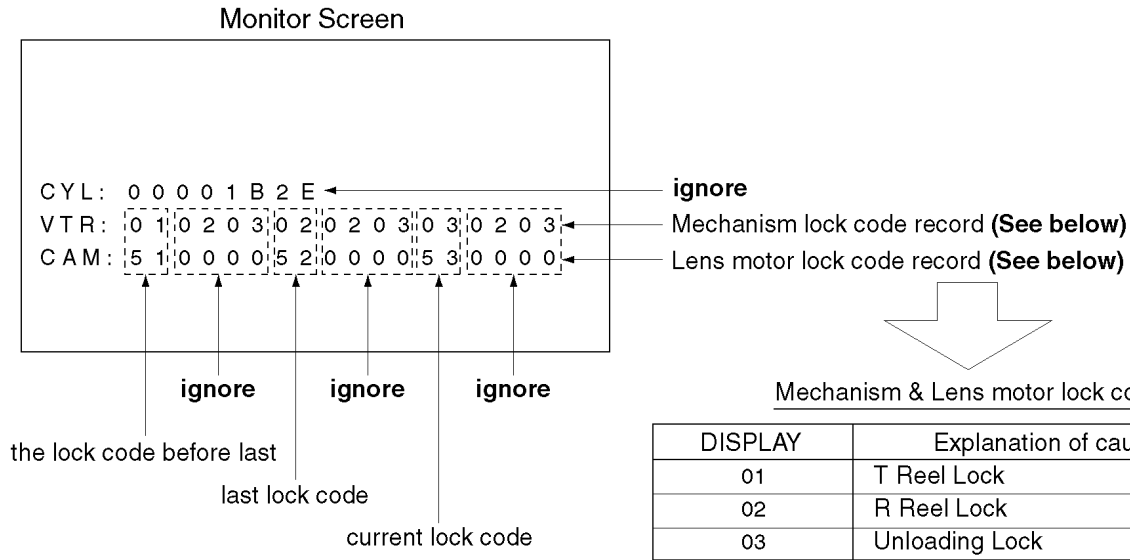

Fig. S1

**NOTE:**

Do not operate items except for [1] and [3] in the Service Menu.

**Self diagnosis code contents are as follows.**

**<Item 3>**




Mechanism & Lens motor lock code

| DISPLAY | Explanation of cause |
|---|---|
| 01 | T Reel Lock |
| 02 | R Reel Lock |
| 03 | Unloading Lock |
| 04 | Loading Lock |
| 05 | Cylinder Lock |
| 51 | Zoom Motor Lock |
| 52 | Focus Motor Lock |
| 53 | OIS Lens Control Error |
| 71 | Lens Cover Open / Close Error |

Please do the error code backup record the clear after repair completion.

**CLEAR METHOD**

If the Tape inserted, take out it before Service Mode operation.

Turn on power and set the Mode Dial to [TAPE RECORDING MODE].

Pushed [MANUAL AF/MF] button, [JOYSTICK CONTROL LEFT] and [RECORDING START/STOP] button simmultaneously for 3 seconds.

# 7 Service Fixture & Tools

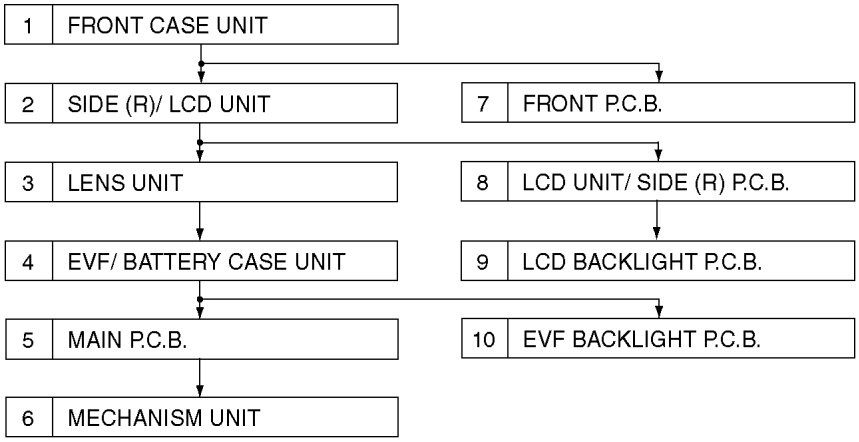
## 7.1. Service Tools and Equipment

| 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 | |
| Colour bar Standard Tape (NTSC) | VFM3010EDS | 1 | |
| Colour bar Standard Tape (PAL) | VFM3110EDS | 1 | |
| DVC Head Cleaning Tape | VFK1451 | 1 | |
| Post Height Adj. Fixture | VFK1899 | 1 | |
| Light Box | VFK1164LBX1 | 1 | |
| White Chart | VFK1164TFWC2 | 1 | |
| Color Bar Chart | VFK1164TFCB2 | 1 | |
| Gray Scale Chart | VFK1164TFGS2 | 1 | |
| Color Conversion | VFK1164TFCT2 | 1 | |
| Light Box (New) | VFK1164TDVLB | 1 | |
| Color Conversion (C12) (New) | VFK1164LBB12 | 1 | |
| Color Conversion (C2) (New) | VFK1164LBB2 | 1 | |
| Color Conversion (C4) (New) | VFK1164LBB4 | 1 | |
| Color Conversion (C8) (New) | VFK1164LBB8 | 1 | |
| Infinity Lens | VFK1164TCM02 | 1 | With Focus Chart |
| Infinity Lens | RFKZ0422 | 1 | |
| Tripod | VFK1164TST | 1 | |
| Tripod | RFKZ0333B | 1 | |
| Adapter for infinity Lens | RFKZ0333H | 1 | |
| Grease | LSUQ0050 | 1 | |
| Plier | LSUQ0028 | 1 | |
| Pin For CCD | RFKZ0476 | 1 | New |
| Extension Cable (22pin) | VFK1282 | 1 | FP41 (Main) - FP6501 (Front) |
| Extension Cable (18pin) | VFK1443 | 1 | FP91 (Main) - FP8901 (EVF Backlight) |
| Extension Cable (24pin) | VFK1284 | 1 | FP81 (Main) - FP8101 (LCD Backlight) |
| Extension Cable (6pin) | VFK1480 | 1 | FP62 (Main) - Side Case R Unit |
| Extension Cable (33pin) | VFK1950 | 1 | FP71 (Main) - Lens Unit |
| Extension Cable (16pin) | VFK1175 | 1 | FP31 (Main) - Prism Unit |
| Extension Cable (12pin) | VFK1388 | 1 | FP11 (Main) - Battery Case Unit |
| Extension Cable (16pin) | VFK1175 | 1 | FP61 (Main) - Side Case L Unit |
| Extension Cable (18pin) | VFK1443 | 1 | FP23 (Main) - Capstan (Drive) |
| Extension Cable (26pin) | VFK1492 | 1 | FP21 (Main) - Cylinder (Drive) |
| Extension Cable (8pin) | VFK1441 | 1 | FP24 (Main) - Cylinder (Head AMP) |
| Extension Cable (10pin) | VFK1440 | 1 | FP22 (Main) - Mechanism |

# 8 Disassembly and Assembly Instructions

## 8.1. Disassembly Frow Chart

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




## 8.2. P.C.B. Layout

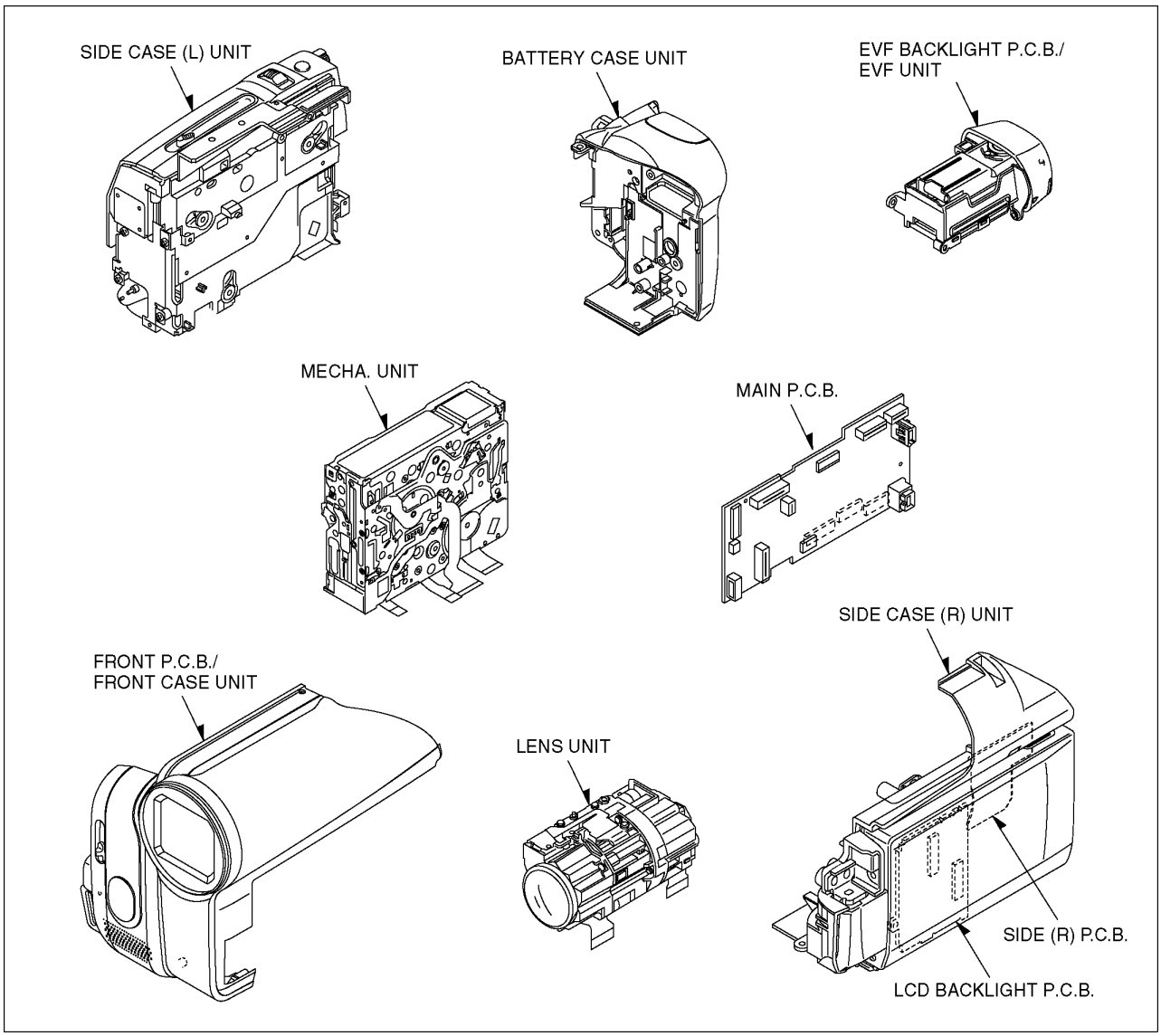



Fig. F1

# 8.3. Disassembly Procedures

Flow-Chart for Disassembly Procedure

| No. | It, / Part | Fig. | Removal (Screw,Connector,FPC. & Other) |
|---|---|---|---|
| 1 | Front Case Unit | Fig.D1 | Detach the Grip Belt |
| | | Fig.D2 | 1-Screw (A), 3-Screws (B)<br>Bottom Case |
| | | Fig.D3 | Open the LCD Unit<br>2-Screws (C)<br>Open the Cassette Cover<br>1-Screw (D), 1-Screw (E),<br>2-Screws (F)<br>1-Connector FP6501<br>Front Case Unit |
| 2 | Side (R)/ LCD Unit | Fig.D4 | 1-Screw (G), 3-Screws (H)<br>2-Connectors FP62,FP81<br>Side (R)/ LCD Unit |
| 3 | Lens Unit | Fig.D5 | 1-Screw (I)<br>2-Connectors FP31,FP71<br>Lens Unit |
| 4 | EVF/ Battery Case Unit | Fig.D6 | Open the Cassette Cover<br>1-Screw (J), 2-Screws (K)<br>2-Connectors FP11,FP91<br>EVF/ Battery Case Unit |
| 5 | Main P.C.B. | Fig.D7 | 2-Screws (L)<br>5-Connectors<br>FP21,FP22,FP23,FP24,FP61<br>Main P.C.B. |
| 6 | Mecha. Unit | Fig.D8 | Open the Cassette Cover<br>3-Screws (M)<br>Mecha. Unit |
| 7 | Front P.C.B. | Fig.D9 | 2-Screws (N)<br>Front P.C.B. |
| 8 | LCD Unit/ Side (R) P.C.B. | Fig.D10 | 1-Screw (O), 2-Screws (P)<br>LCD Unit |
| | | Fig.D11 | 5-Screws (Q)<br>Speaker Angle, Speaker, Side (R) P.C.B. |
| 9 | LCD Backlight P.C.B. | Fig.D12 | 2-Screws (R)<br>8-Tabs<br>1-Connector FP8101<br>LCD Case A |
| | | Fig.D13 | 1-Screw (S)<br>1-Connector FP8102<br>2-Tabs<br>LCD Backlight P.C.B. |
| 10 | EVF Backlight P.C.B. | Fig.D14 | 1-Screw (T)<br>EVF Unit |
| | | Fig.D15 | 3-Tabs<br>EVF Lock Plate |
| | | Fig.D16 | 2-Tabs<br>1-Connector FP8901<br>EVF Case Unit |
| | | Fig.D17 | 2-Tabs<br>EVF LCD Unit |
| | | Fig.D18 | 3-Tabs<br>1-Connector FP8902<br>EVF Backlight P.C.B. |

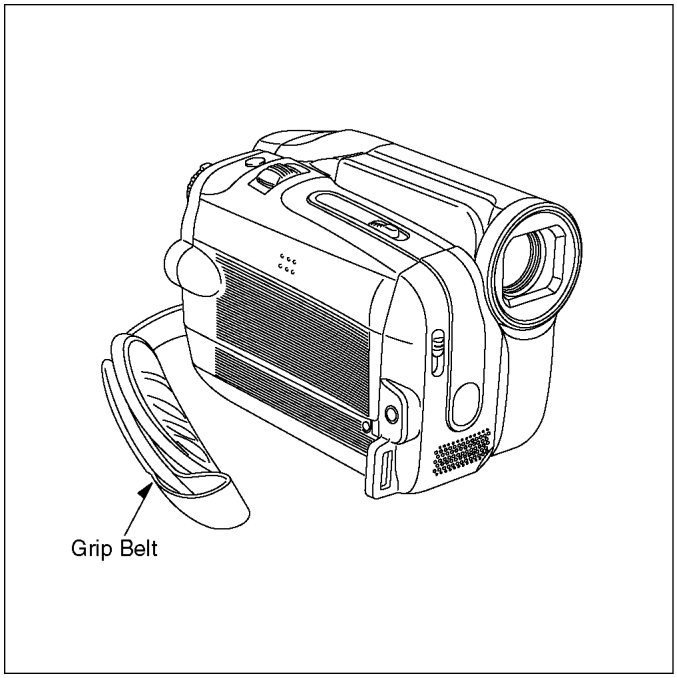



Fig. D1

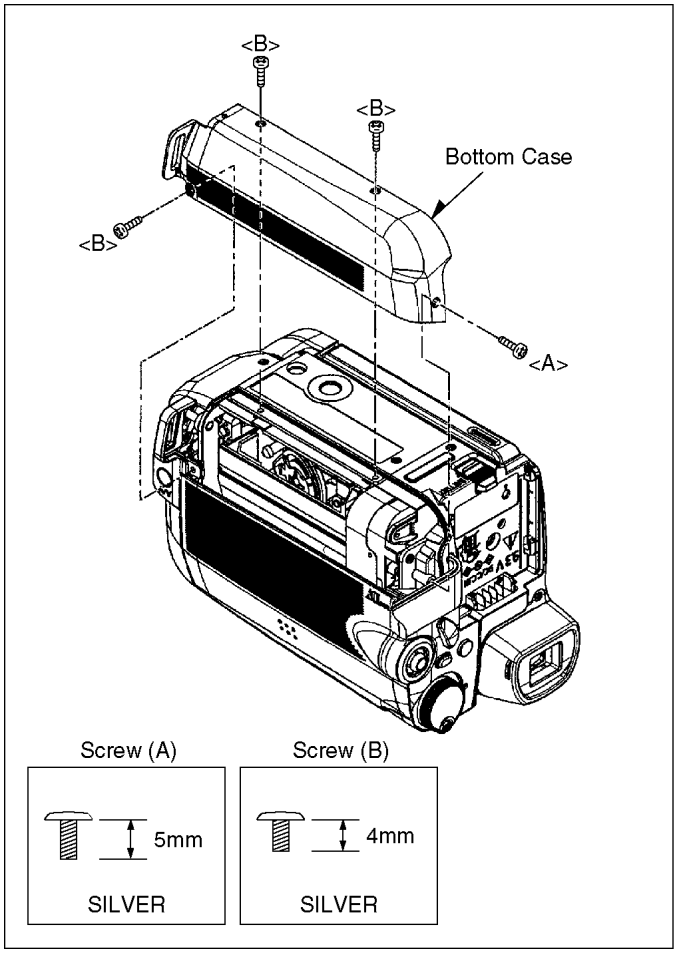



Fig. D2

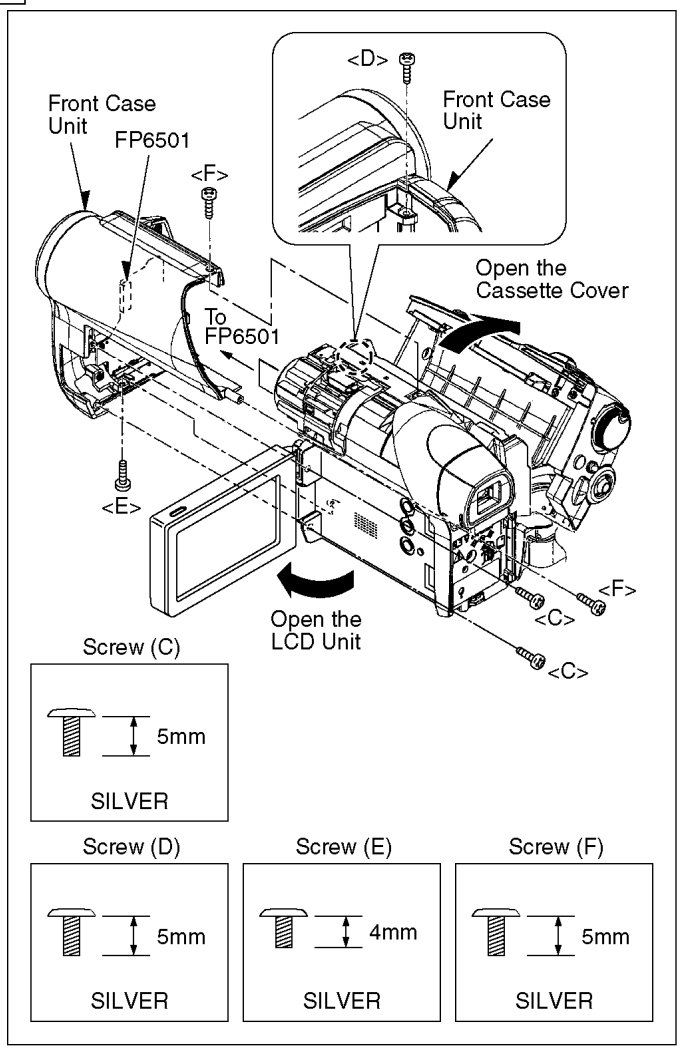



Fig. D3

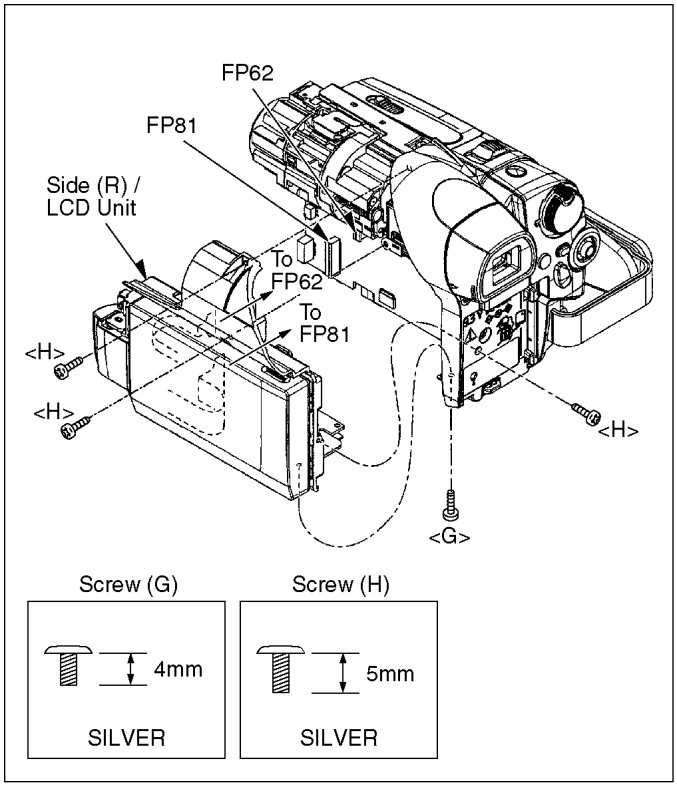



Fig. D4

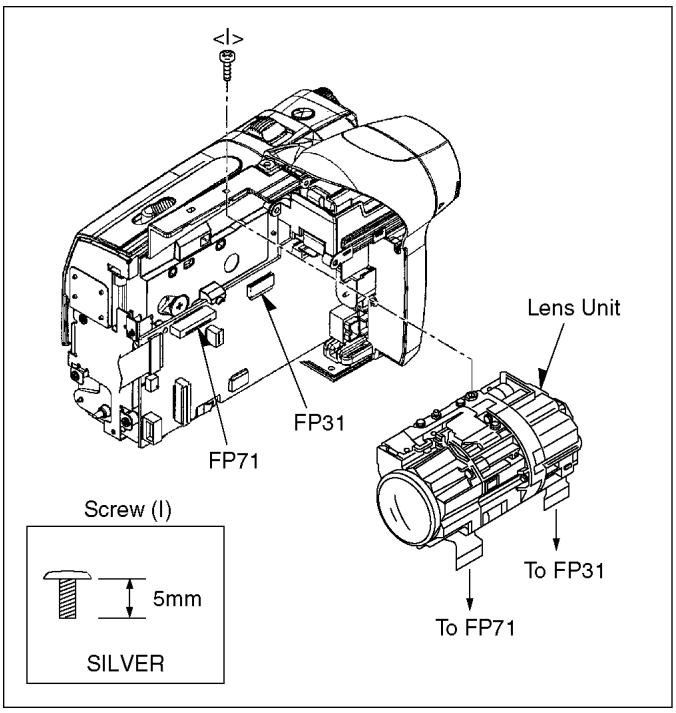



Fig. D5

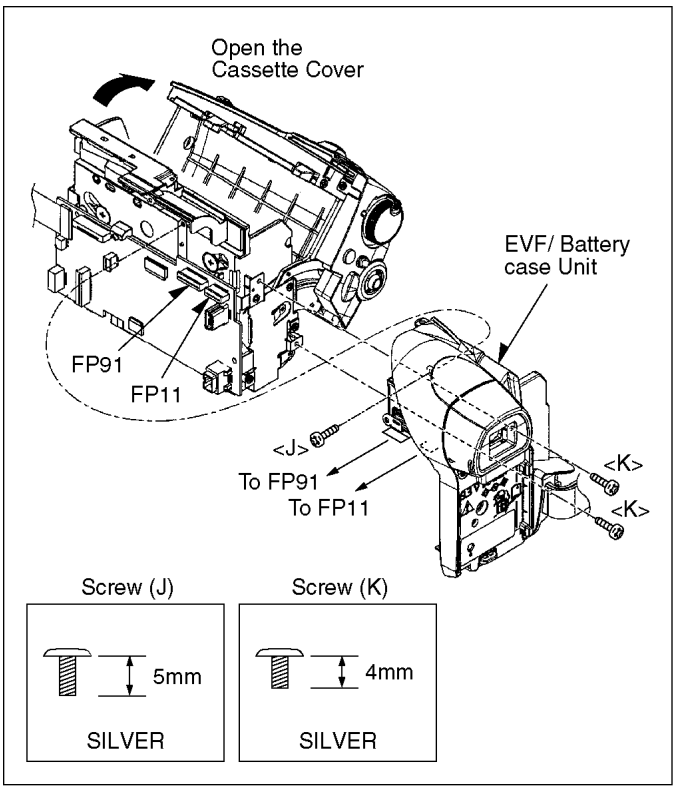



Fig. D6

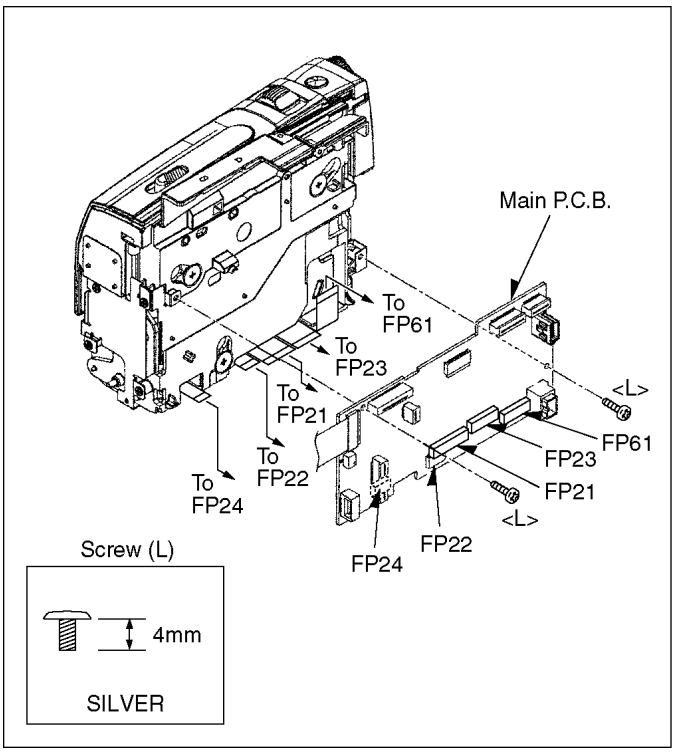



Fig. D7

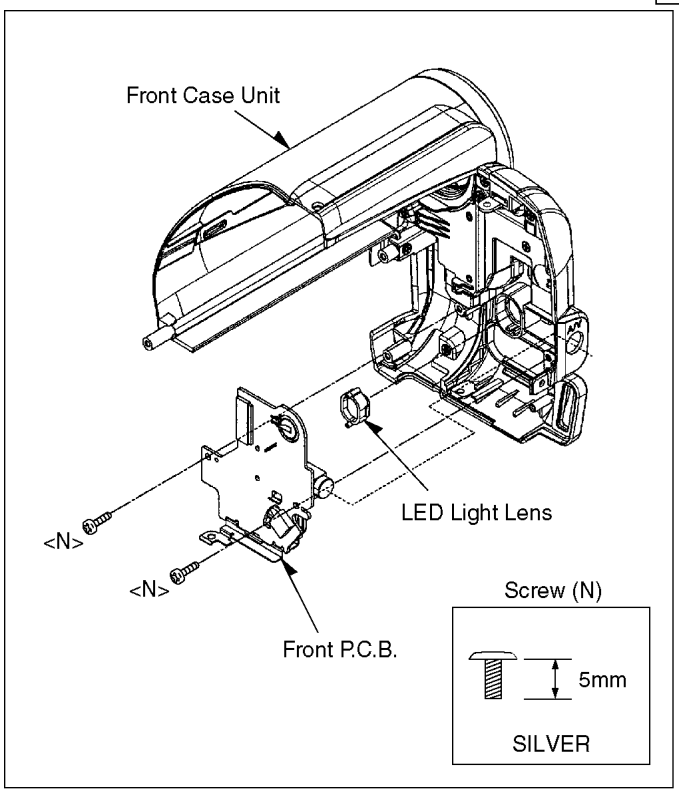



Fig. D9

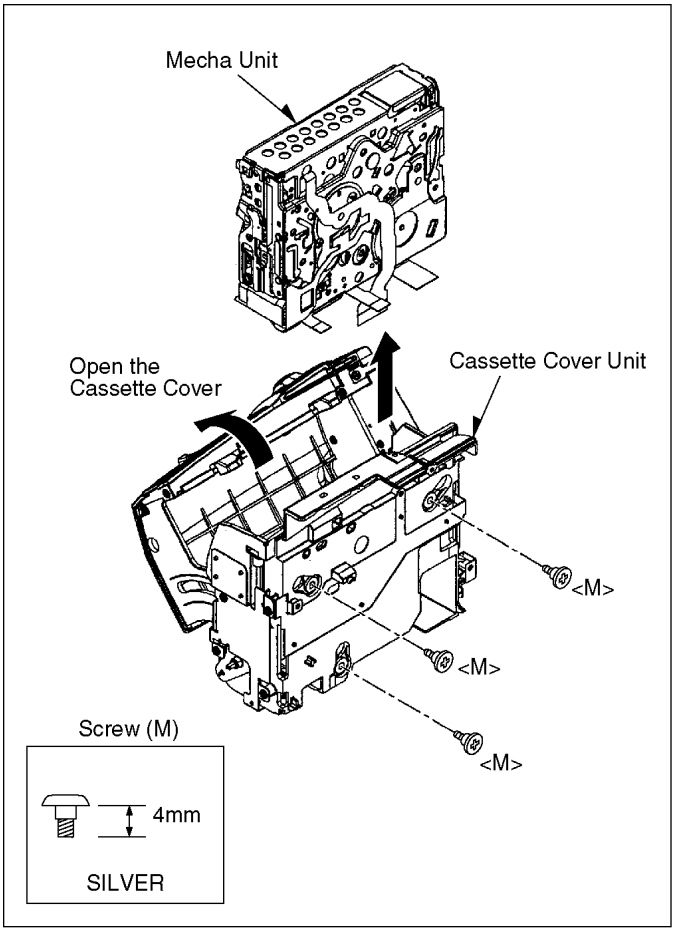



Fig. D8

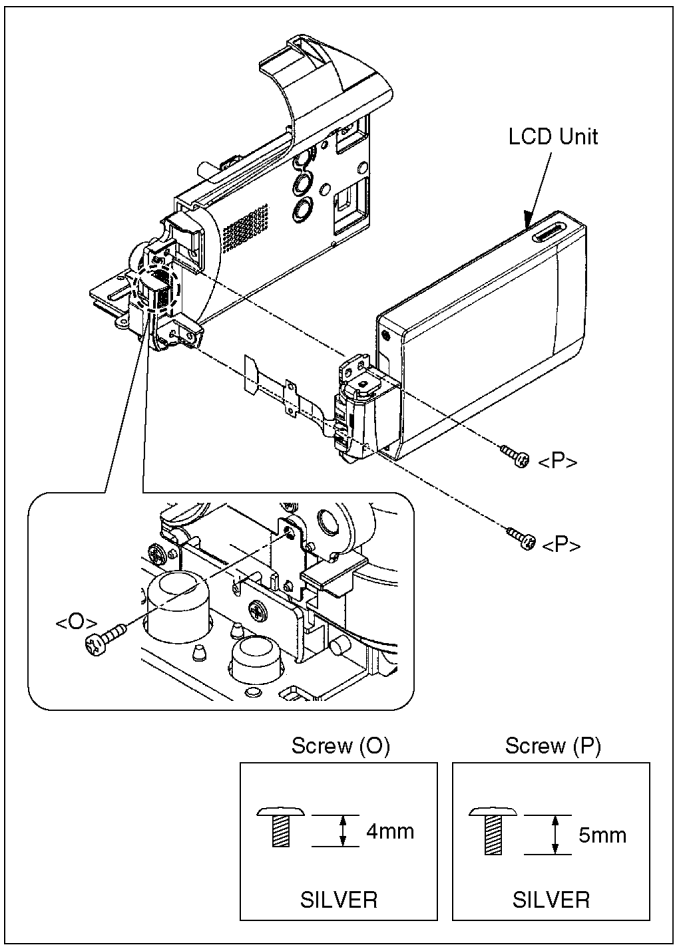



Fig. D10

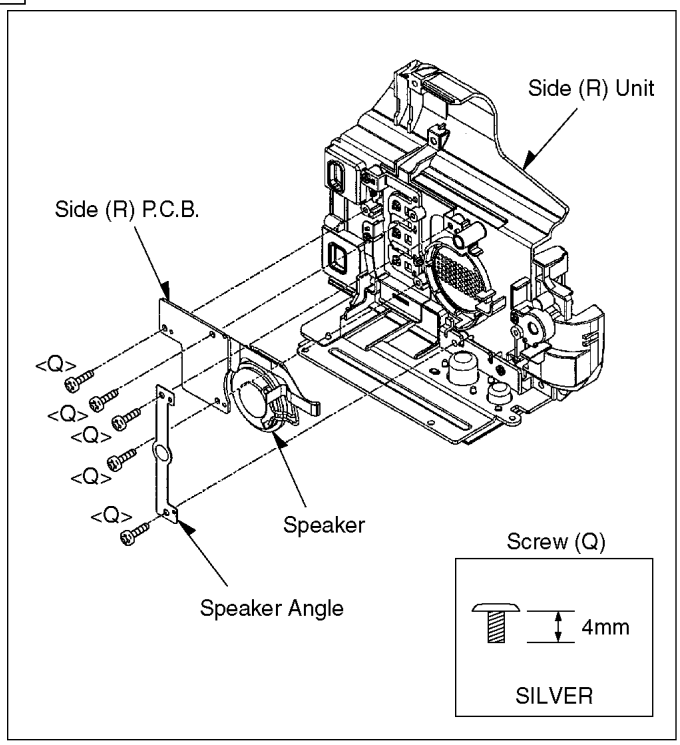



Fig. D11

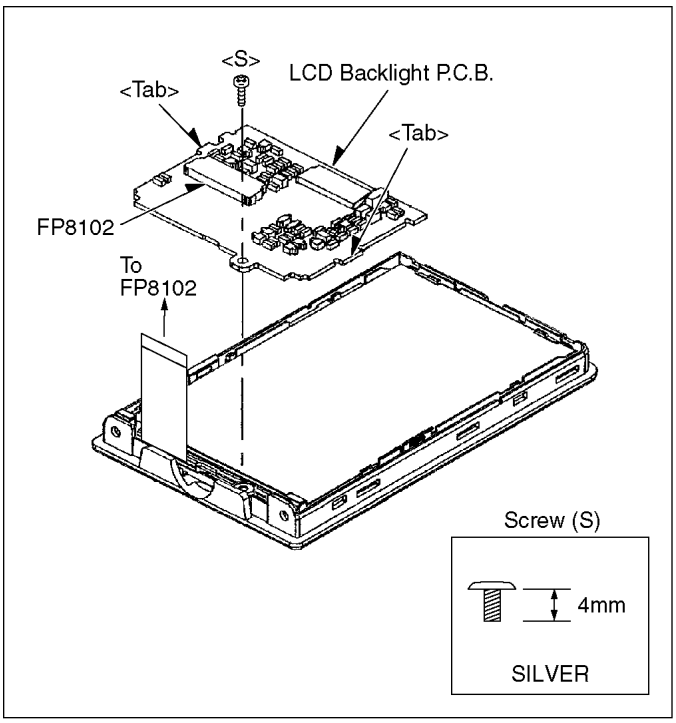



Fig. D13

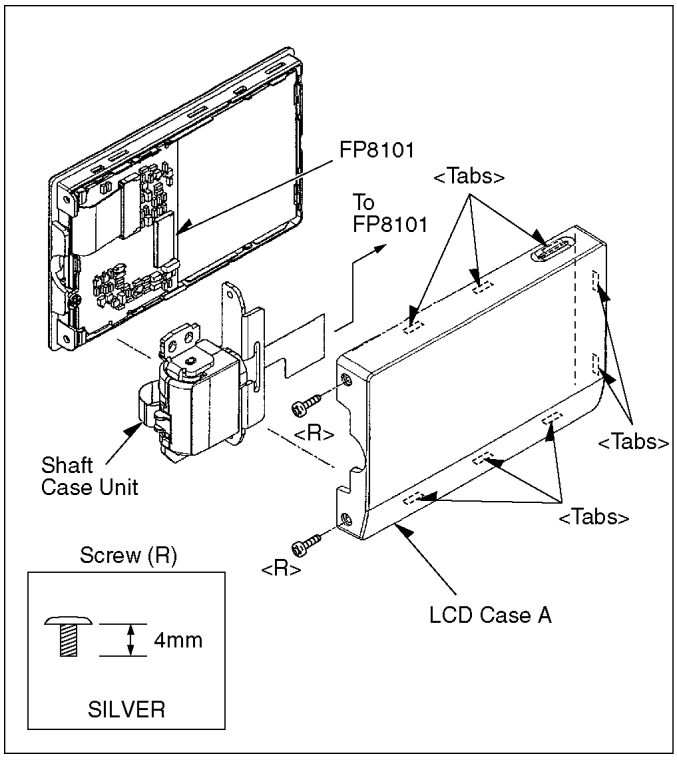



Fig. D12

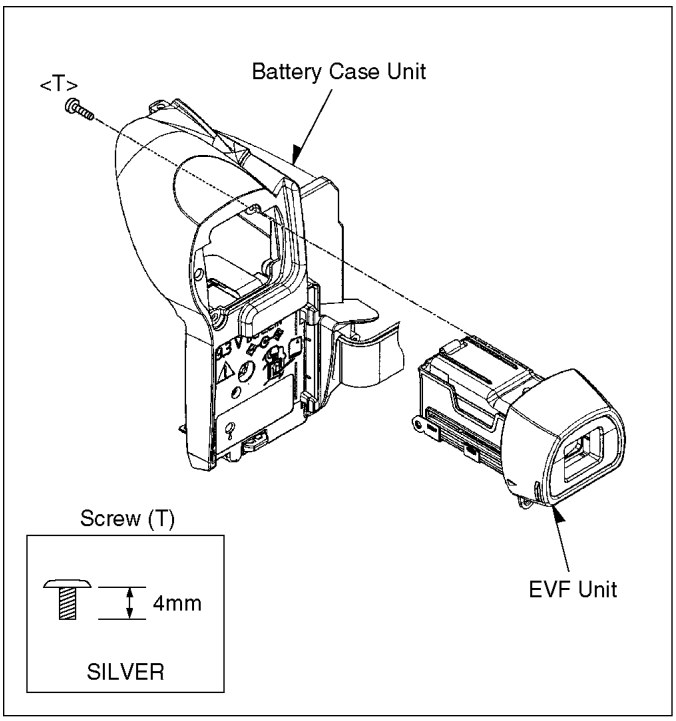



Fig. D14

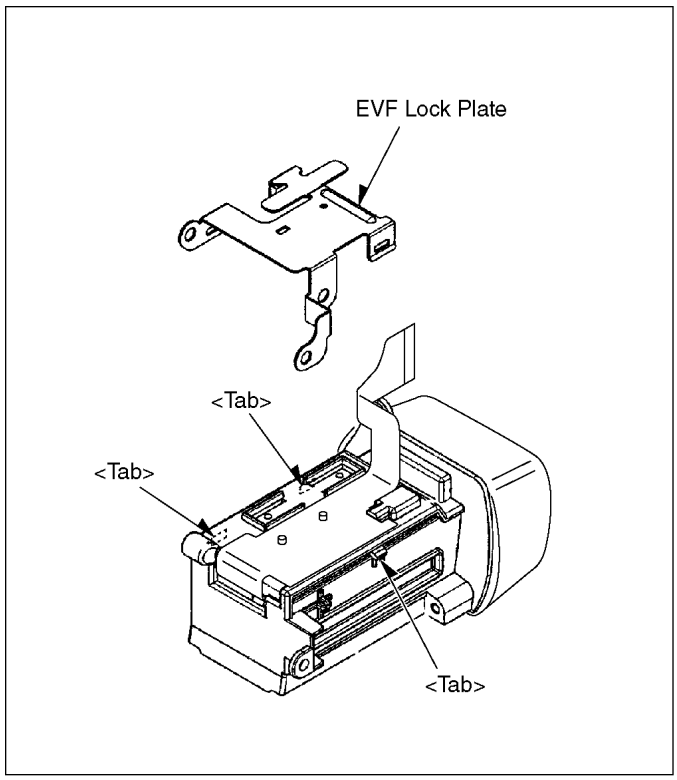



Fig. D15

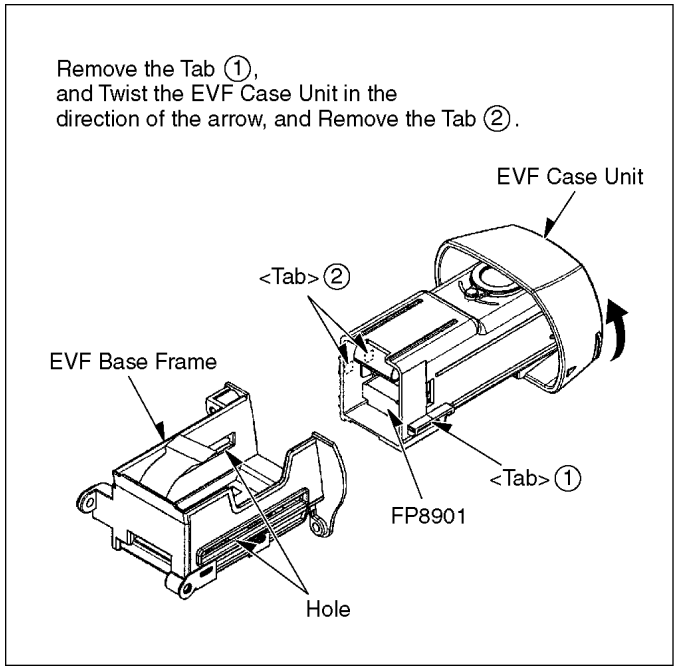



Fig. D16

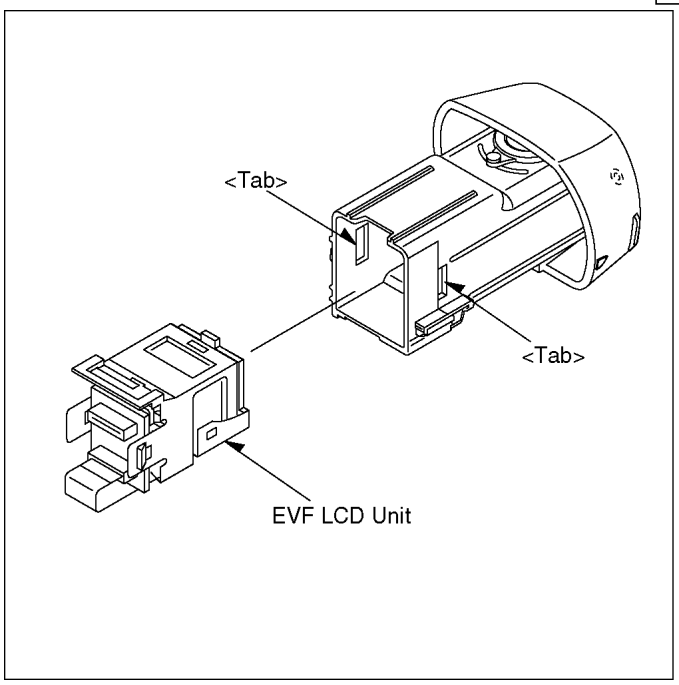



Fig. D17

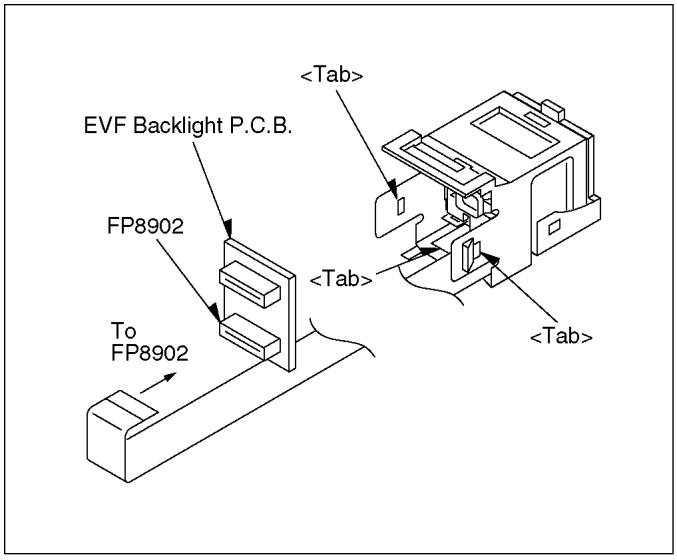



Fig. D18

# 8.4. Disassembly Procedures Mecha. Unit

Flow-Chart for Disassembly Procedure

| No. | Item / Part | Fig. | Removal (Screw, Connector, Flex. & Other) |
|---|---|---|---|
| 1 | Cassette Up Unit | Fig.M1 | It makes the mechanism position in Eject condition. (For Battery) |
| | | Fig.M2 | Raise the Cassette Up Unit while pushing 2 ridbs.<br>Remove the Cassette Up Unit from rail department. |
| 2 | Cylinder Unit | Fig.M3 | 1-Screw (A) |
| | | Fig.M4 | 3-Screw (B)<br>Cylinder Unit |

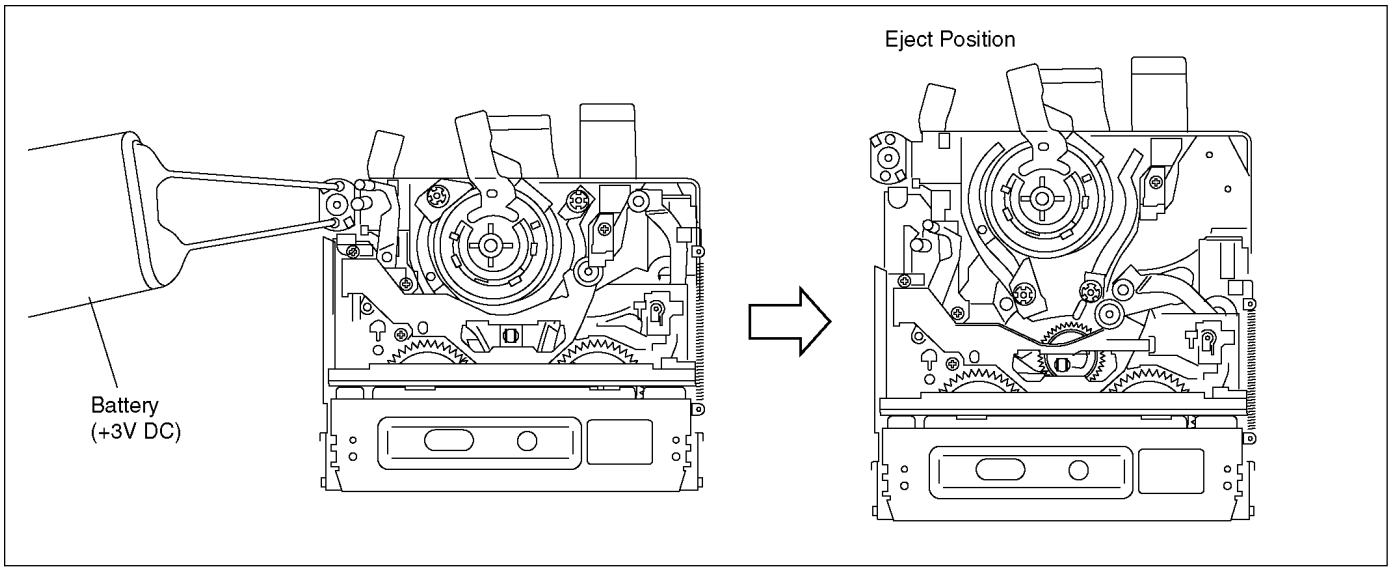
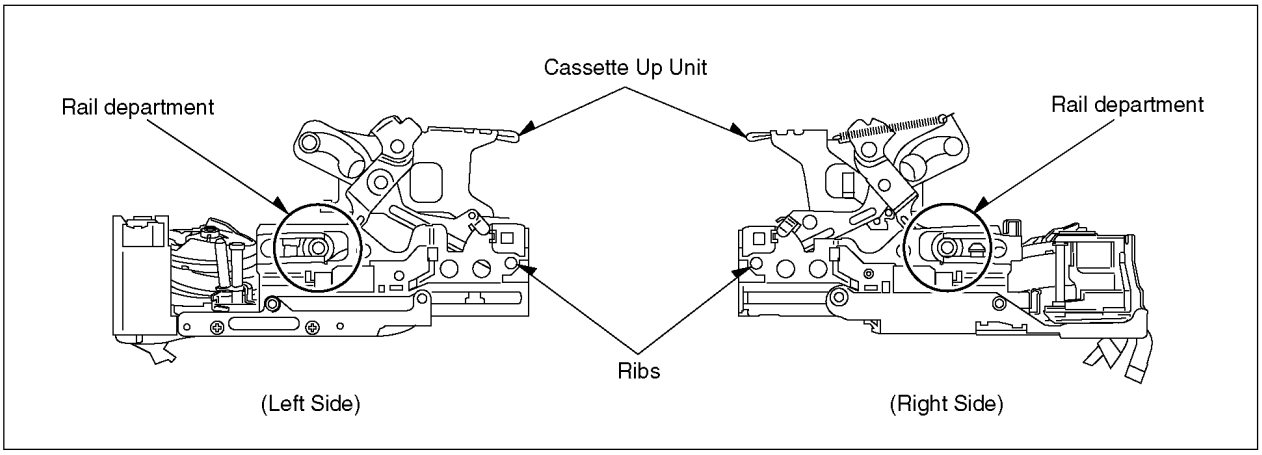
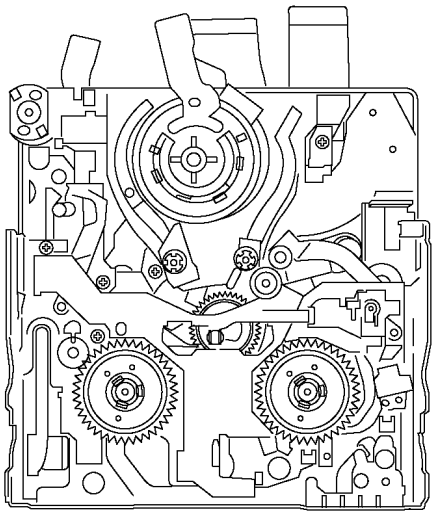
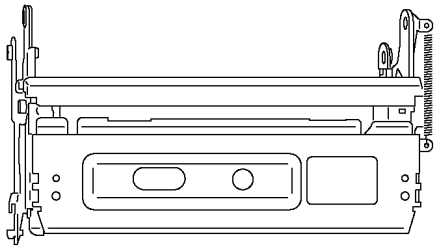



Fig. M1

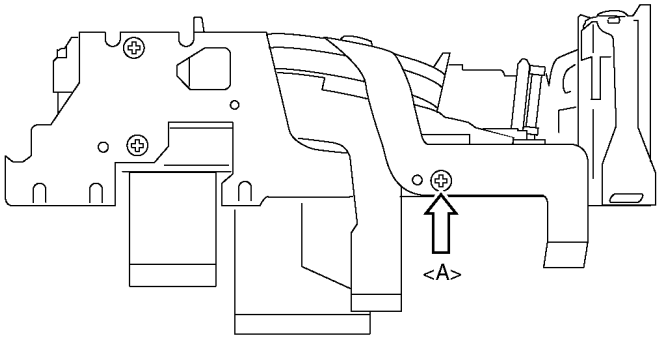




Cassette Up Unit

Fig. M2



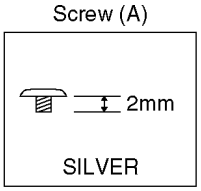




Fig. M3

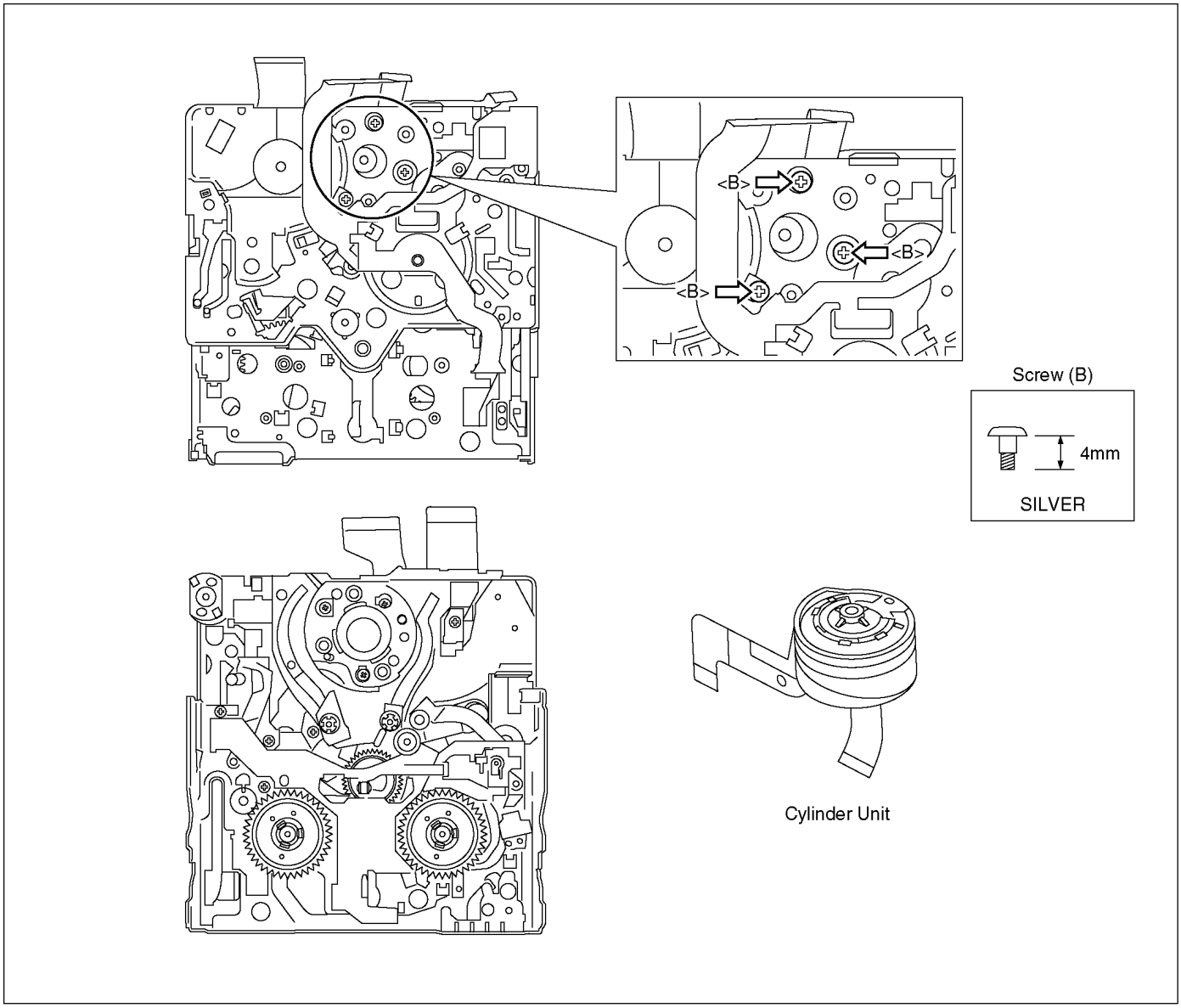



Fig. M4

# 8.5. 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.403 |
| 2. CCD Cushion Rubber | Ref.-No.405 |
| 3. Optical LPF | Ref.-No.404 |
| 4. CCD Case | Ref.-No.402 |
| 5. Zoom Motor Unit | Ref.-No.401-1 |
| 6. Focus Motor Unit | Ref.-No.401-2 |
| 7. IRIS Unit | Ref.-No.401-3 |

Notes : 1) Each Ref. numbers are equivalent to number of Fig. L2 and Parts List.
2) While attaching the CCD P.C.B., secure position with the Regulation Pin (RFKZ0476) for CCD.

Fig. L1

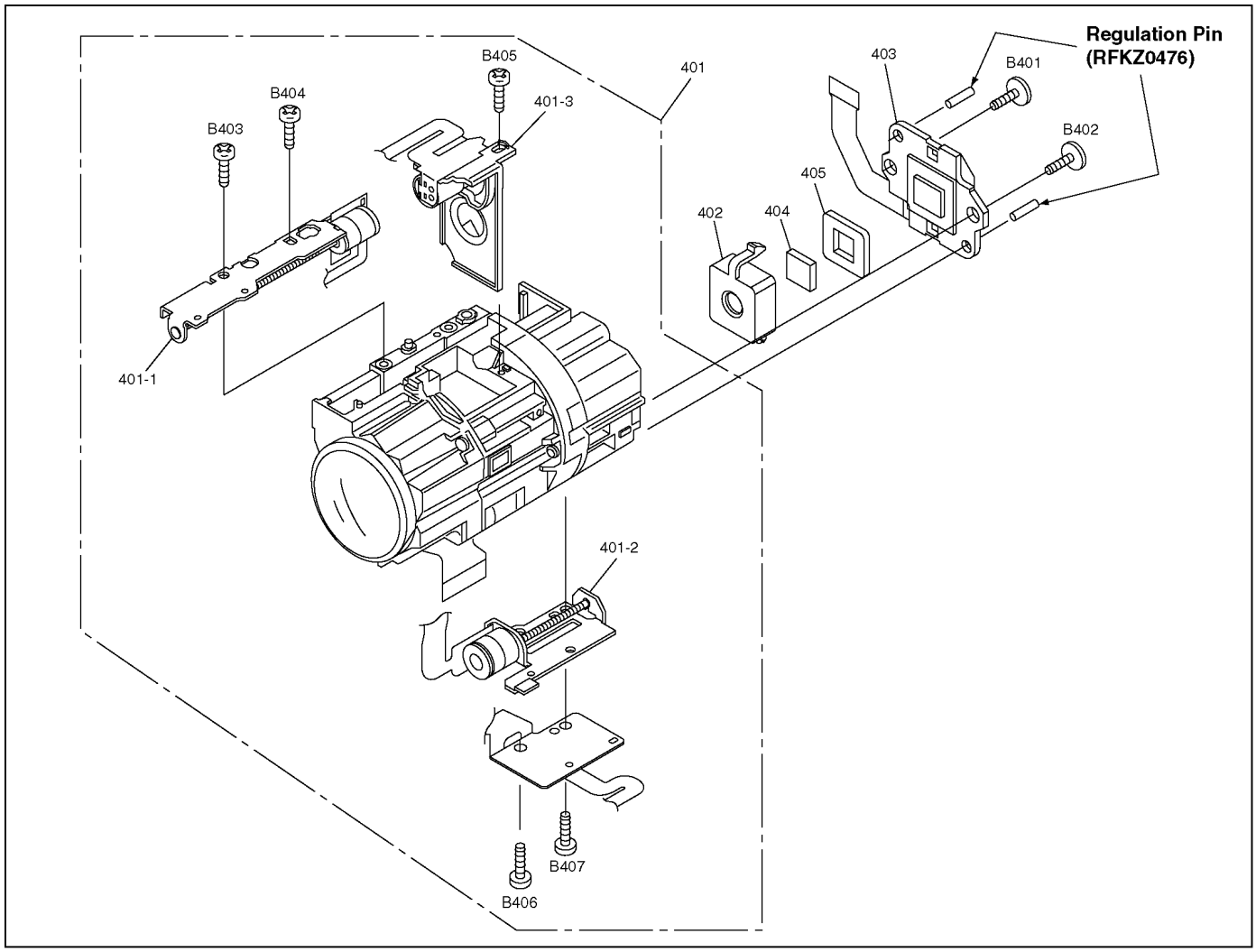



Fig. L2

# 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 software is available at “TSN Website”, therefore, access to “TSN Website” at “Support Information from NWBG/VDBG-PAVC”.

## 9.2. Service Positions

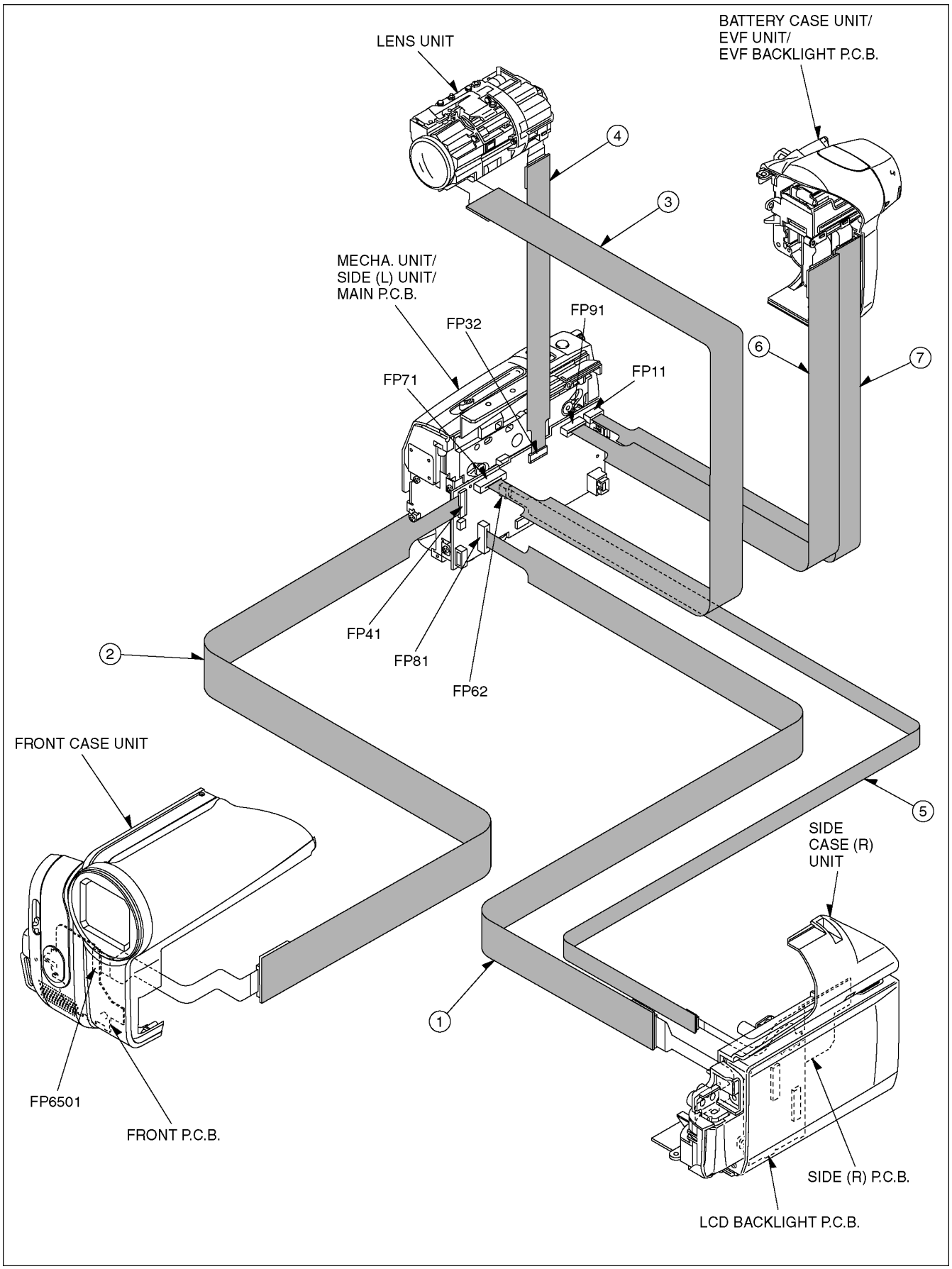
### 9.2.1. List of the extension cables

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

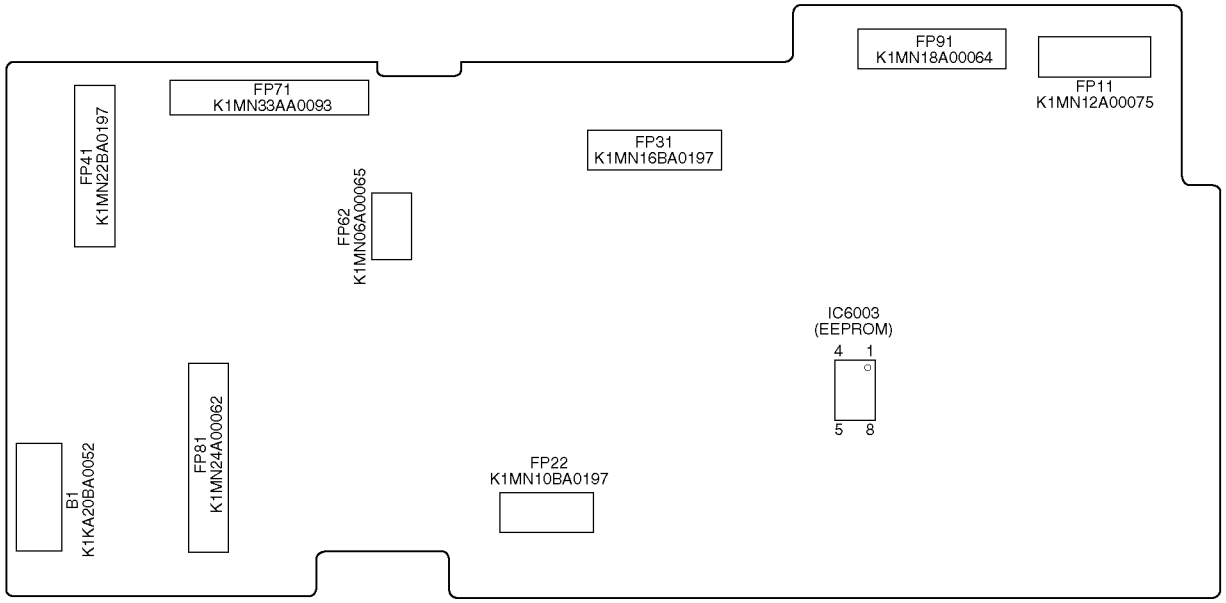
| Ref. | Part No. | Pin | Part Name | Connection | | | | Q'ty |
|---|---|---|---|---|---|---|---|---|
| 1 | VFK1284 | 24 | Flat Cable | FP81 | (Main) | - | FP8101 (LCD Backlight) | 1 |
| 2 | VFK1282 | 22 | Flat Cable | FP41 | (Main) | - | FP6501 (Front) | 1 |
| 3 | VFK1950 | 33 | Flat Cable | FP71 | (Main) | - | Lens Unit | 1 |
| 4 | VFK1175 | 16 | Flat Cable | FP31 | (Main) | - | Prism Unit | 1 |
| 5 | VFK1480 | 6 | Flat Cable | FP62 | (Main) | - | Side Case R Unit | 1 |
| 6 | VFK1443 | 18 | Flat Cable | FP91 | (Main) | - | FP8901 (EVF Backlight) | 1 |
| 7 | VFK1388 | 12 | Flat Cable | FP11 | (Main) | - | Battery Case Unit | 1 |

## 9.2.2. Checking and repairing individual circuit boards except module parts (Main P.C.B.)

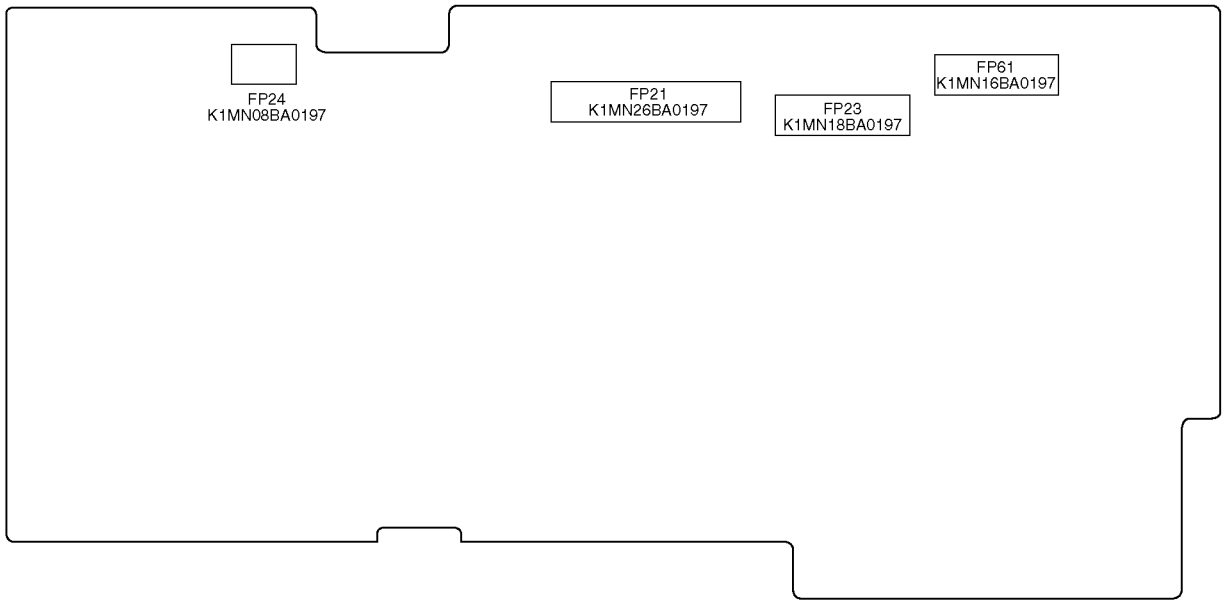
How to use extension cables.



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




(COMPONENT SIDE)




(FOIL SIDE)

# 9.4. Electrical Adjustment Procedures

## 9.4.1. Initial guideline

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced.
Make sure to perform these adjustments shown below as necessary.

| Adjustment Item \ Replacement Parts | | MAIN P.C.B. | IC302 (CAMERA SIGNAL PROCESS) | IC701 (FOCUS/ZOOM MOTOR DRIVE & OIS/IRIS/HALL AMP CONTROL) | IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING) | IC3301 (VIDEO/AUDIO SIGNAL PROCESS) | IC6001 (SYSTEM MICROCONTROLLER) | IC6003 (EEPROM) | CCD P.C.B. | LENS UNIT | CYLINDER UNIT | MAIN CHASSIS UNIT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Camera | CAM hall amplifier and Iris PWM | ◯ | | ◯ | | | ◯ | ◯ | | ◯ | | |
| | CAM Zoom Tracking and De-focus | ◯ | | | | | | ◯ | | ◯ | | |
| | CAM WB coarse | ◯ | ◯ | | ◯ | | | ◯ | ◯ | | | |
| | CAM AWB 3100 | ◯ | ◯ | | ◯ | | | ◯ | ◯ | | | |
| | CAM AWB 5100 | ◯ | ◯ | | ◯ | | | ◯ | ◯ | | | |
| | CAM Revision CCD scrach | ◯ | | | | | | ◯ | ◯ | | | |
| Video | VCR Sensitivity adj of Tape sensors | ◯ | | | | | | ◯ | | | | ◯ |
| | VCR PG shifter adjustment | ◯ | | | | | | ◯ | | | ◯ | ◯ |
| | VCR Luminance level | ◯ | | | ◯ | ◯ | | ◯ | | | | |
| | VCR Chroma level | ◯ | | | ◯ | ◯ | | ◯ | | | | |

**Note:** ◯ : Adjustment Item

## 9.4.2. Set-up manual for Digital Video Camcorder or Digital Video Camera.

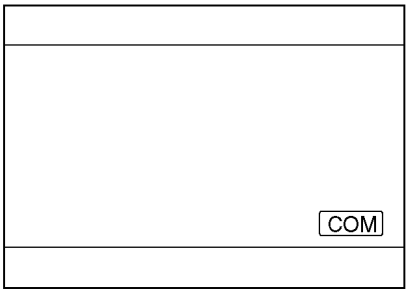
1. Installation of USB-SERIAL Driver

   Execute the “Setup.exe” file in “Com Mass” folder by double clicking to install the USB-SERIAL driver.

2. Set-Up

   a. Remove the tape from this unit.

   b. To enter the PC connection (COM) mode, push the [PHOTO SHOT] button, [RECORDING START/STOP] button and [MANUAL AF/MF] simultaneously for 3 seconds without connecting the USB Cable.

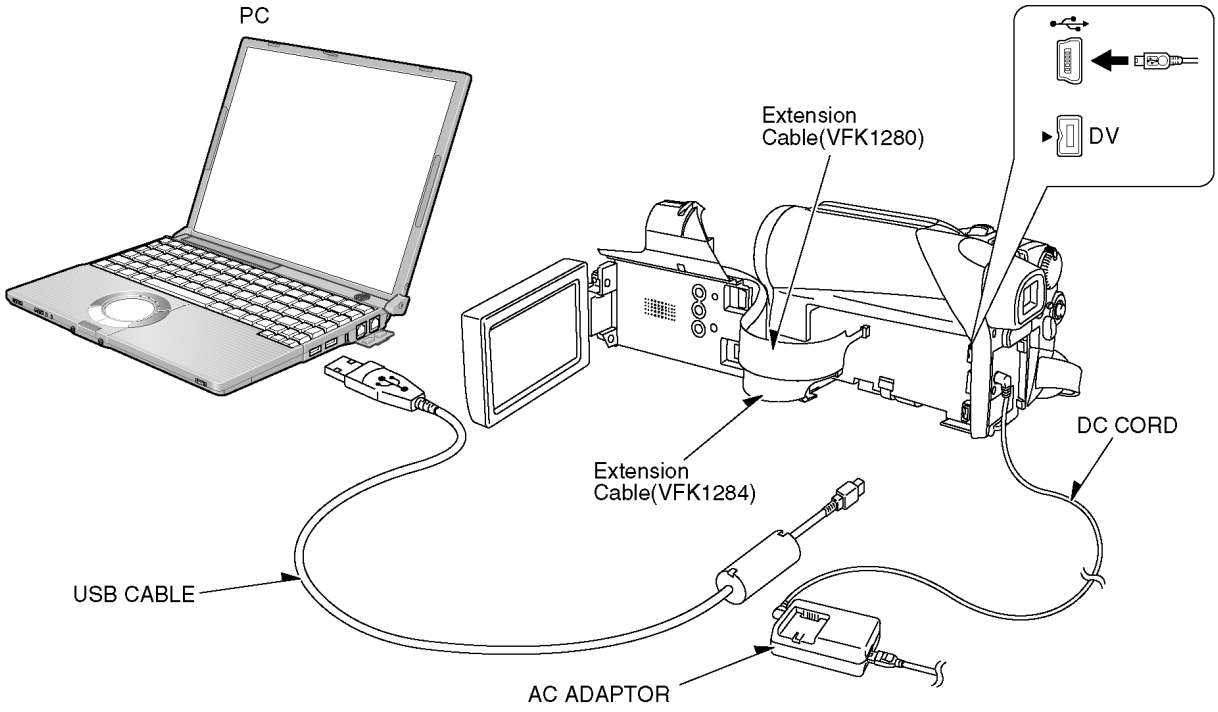



<LCD Monitor>

c. Connect the PC and Digital Video Comcorder or Digital Video Camera as shown in Fig. E1 and E2.

**PV-GS90**

1. Remove the Front Case Unit and Side (R)/ LCD Unit. (Refer to Disassembly Procedures.)
2. Assemble the Front Case.
3. Connect Extension Cable between Main P.C.B. and LCD Backlight P.C.B. (VFK1284), Main P.C.B. and Side Case (R) Unit (VFK1480).




**Except PV-GS90**

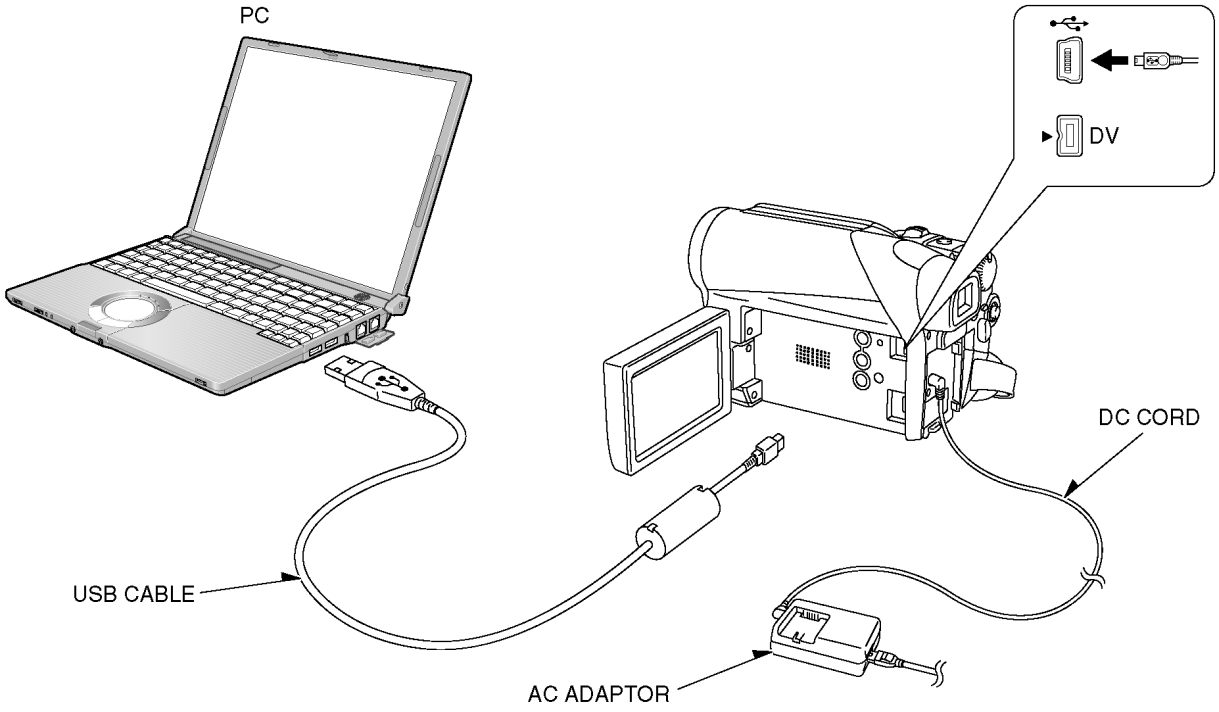



Fig. E1

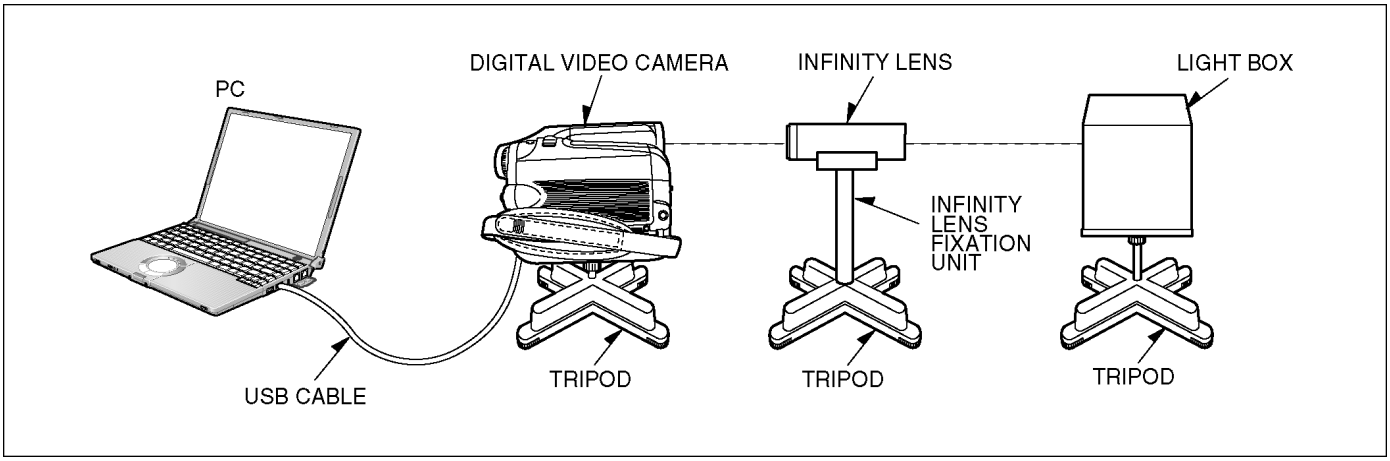



Fig. E2 Rough image of set-up connection

**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 Tatsuin Software |
| 2 | AC Adaptor | --- | 1 | The AC Adaptor for Video Camera |
| 3 | DC Cable | --- | 1 | |
| 4 | USB Cable | --- | 1 | |
| 5 | Infinity Lens Fixation Unit | --- | 1 | |
| 6 | TATSUJIN PC-Adjustment Program | --- | 1 | |

## 9.4.3. Set up of PC-EVR Adjustment Program

1. Turn on the PC and install the PC-EVR Adjustment Program into the PC.
2. Execute the “kdv2008.exe” file by double clicking to start up the PC-EVR adjustment program.

   The main menu will be displayed.
3. Select the appropriate model.
4. Turn on the camcorder and set to PC connection (COM) mode. Then click "Start".

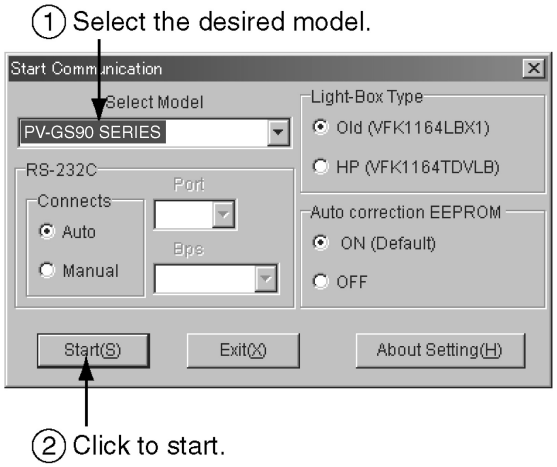



Fig. E3-1

5. When the communication is complete, the following dialog will appear.

   Click "Yes" and "Save" to save the EEPROM data.

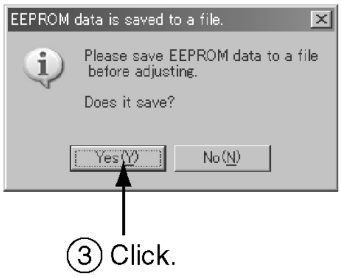



Fig. E3-2

6. When EEPROM data has been saved, the menu will appear.

   To perform each adjustment, display the adjustment menu by selecting from "Camera Adjust" or "VCR Adjust" and select each adjustment item.

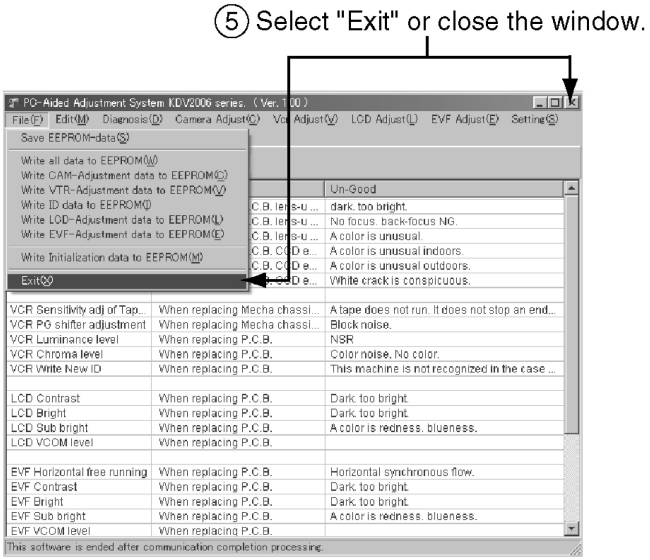



Fig. E3-3

**Note:**

The adjusted data is stored in the EEPROM IC after each adjustment.

7. After adjustment, to close the software, select "Exit" in the File menu or close the window.

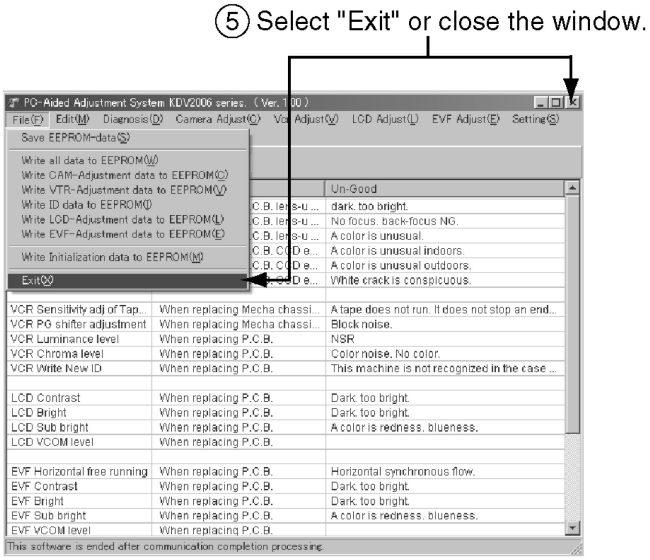



Fig. E3-4

8. To release the PC connection (COM) mode, push the [PHOTO SHOT], [RECORDING START/STOP] and [MANUAL AF/MF] simultaneously for 3 seconds with the USB Cable disconnected.

# 9.5. Mechanical Adjustment

## 9.5.1. ENVELOPE OUTPUT ADJUSTMENT

When replacing the Main Chassis Unit or the Cylinder Unit, be sure to perform the Envelope Output Adjustment as shown below.

1. Remove the Bottom Case Unit and Front Case Unit. (Refer to "Disassembly and Assembly Instructions")
2. Connect the oscilloscope to TP3908 (Envelope) and TP3906 (HID) on the Main P.C.B..
3. Play back the Color Bar Standard Tape (VFM3010EDS or VFM3110EDS). "Envelope" and "HID" signal will be output.
4. Adjust the S1 post by turning the top of post with Post Height Adjustment Fixture (VFK1899) so that the left half of envelope signal becomes as flat as possible.
5. Adjust the T1 post by turning the top of post with Post Height Adjustment Fixture (VFK1899) so that the right half of envelope signal becomes as flat as possible.

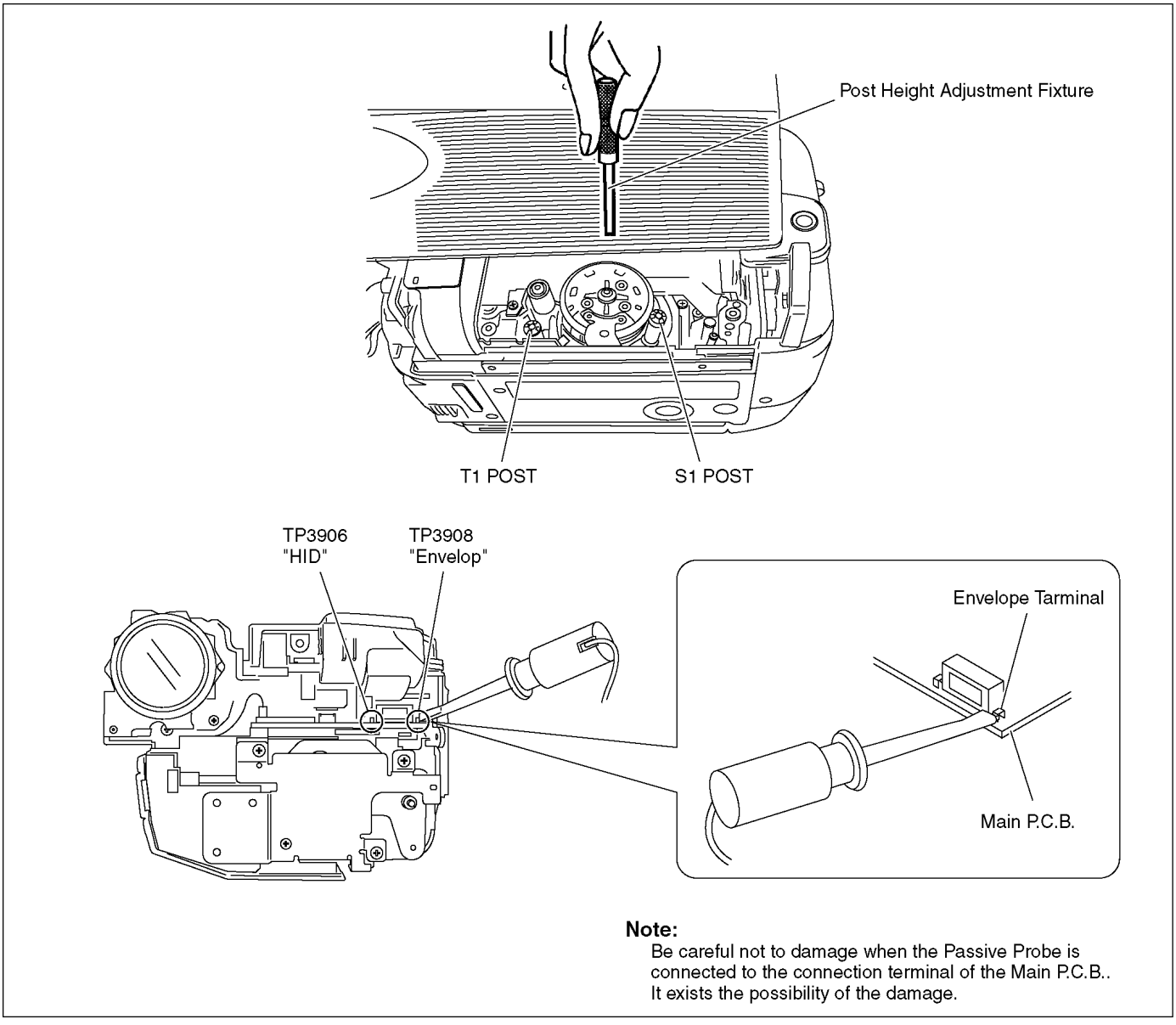
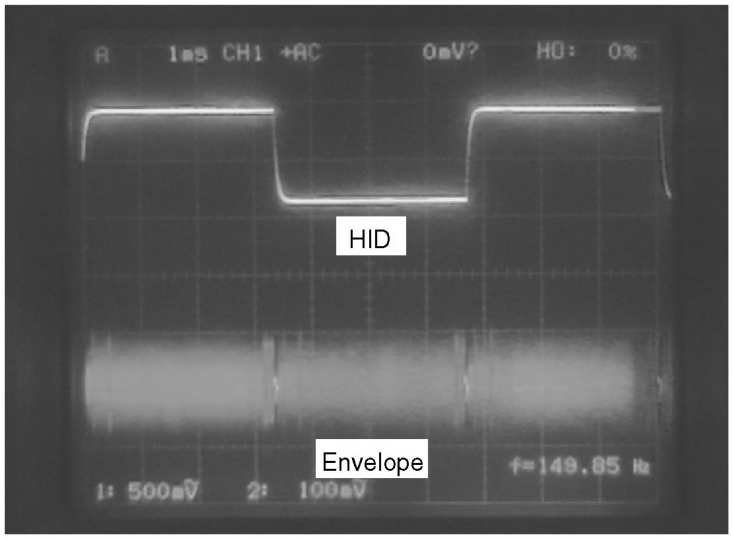



Fig. M1-1



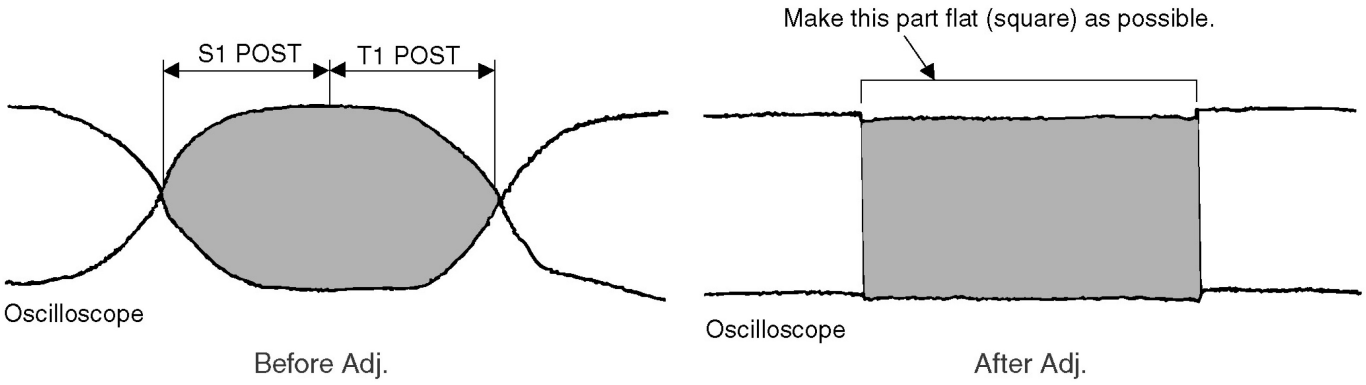




Fig. M1-2

**Note:**
**After the adjustment, be sure to confirm BER (Bit Error Ratio) using EVR Adjustment Software.**
**If it is NG, try this adjustment once again.**

# 10 Maintenance

## 10.1. Cleaning Lens, Viewfinder and LCD Panel

Do not touch the surface of the lens, Viewfinder 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.

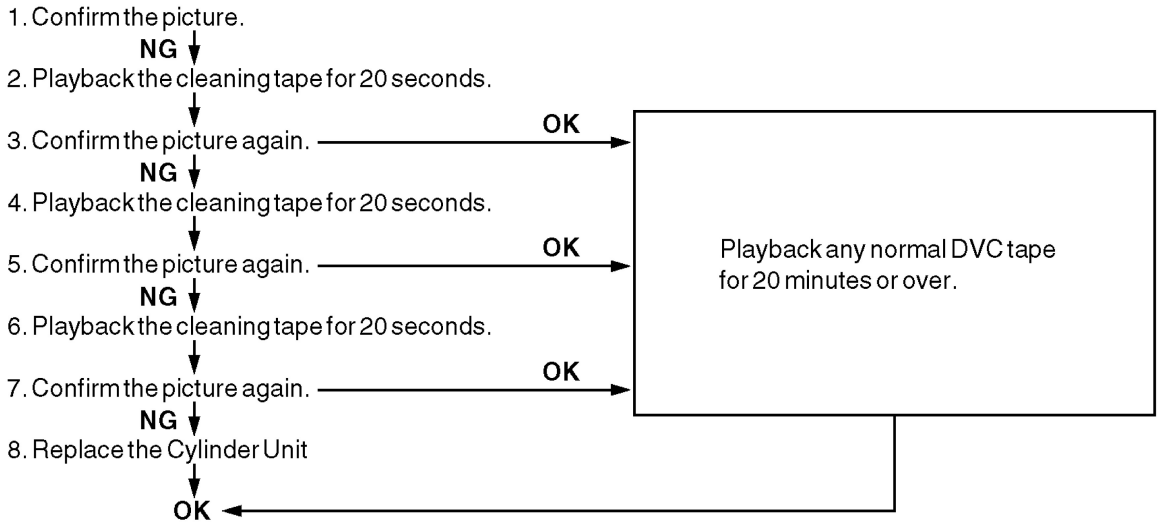
**Note:**

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

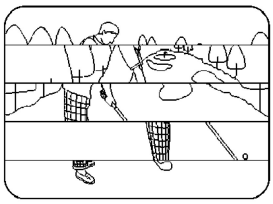
## 10.2. How to use the DVC Head Cleaning Tape/VFK1451

Please use the cleaning tape as described below.

**Note:** This cleaning tape has a total playback time of 2 minutes 30 seconds. it can be used 30 times.

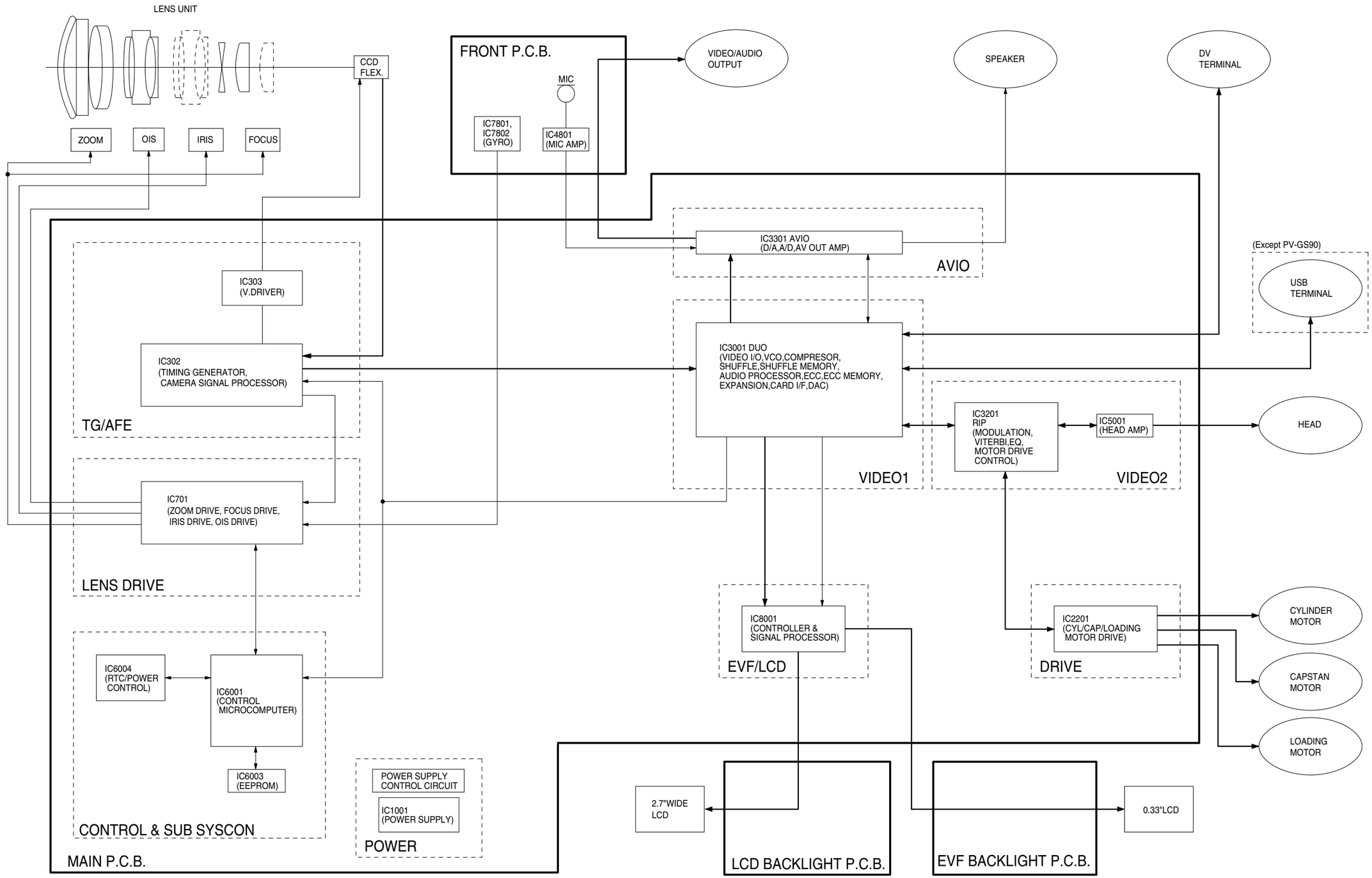



The picture will look like this in case of clogged video head.



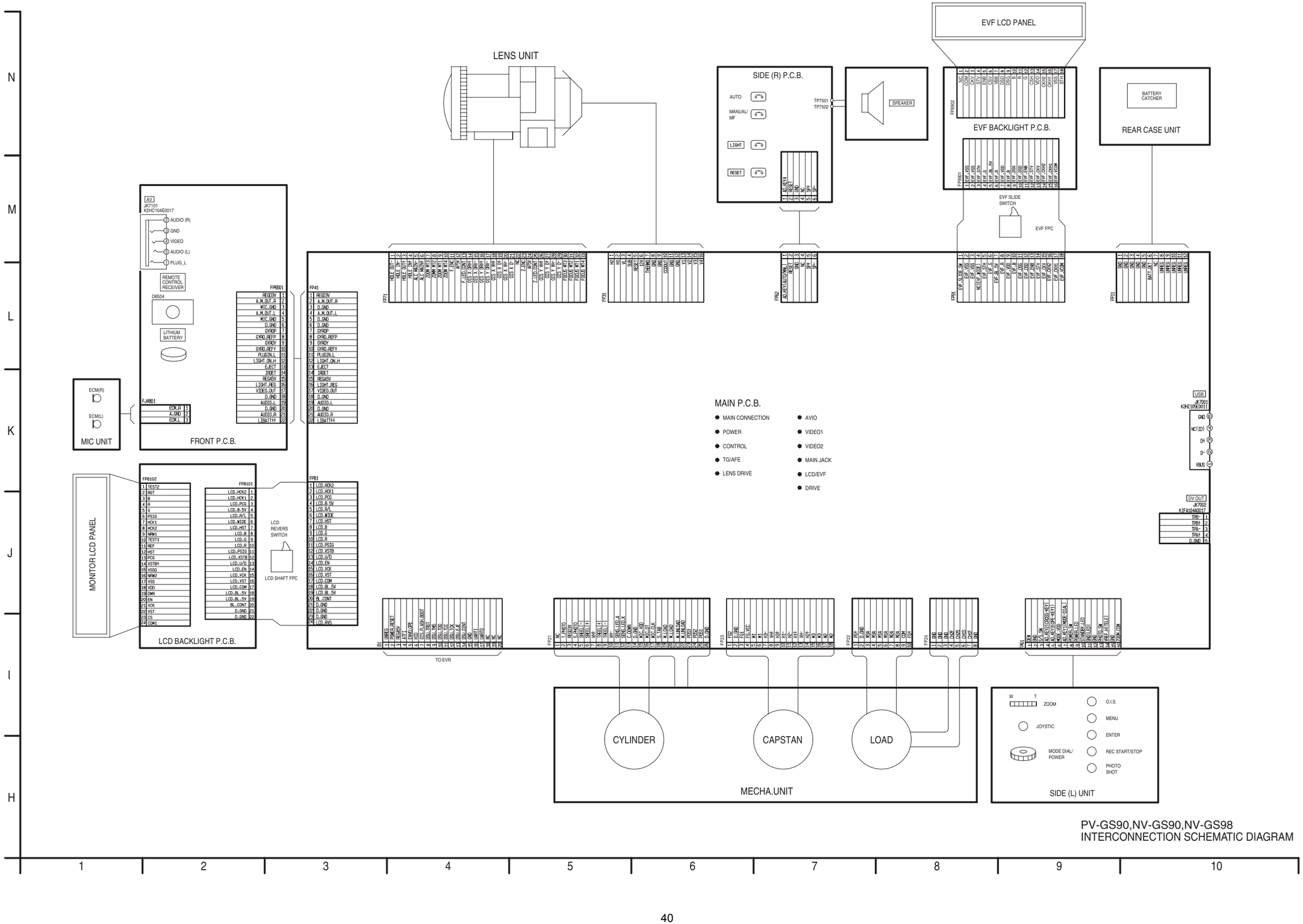
# 11 Schematic Diagrams

## 11.1. OVERALL SCHEMATIC DIAGRAM



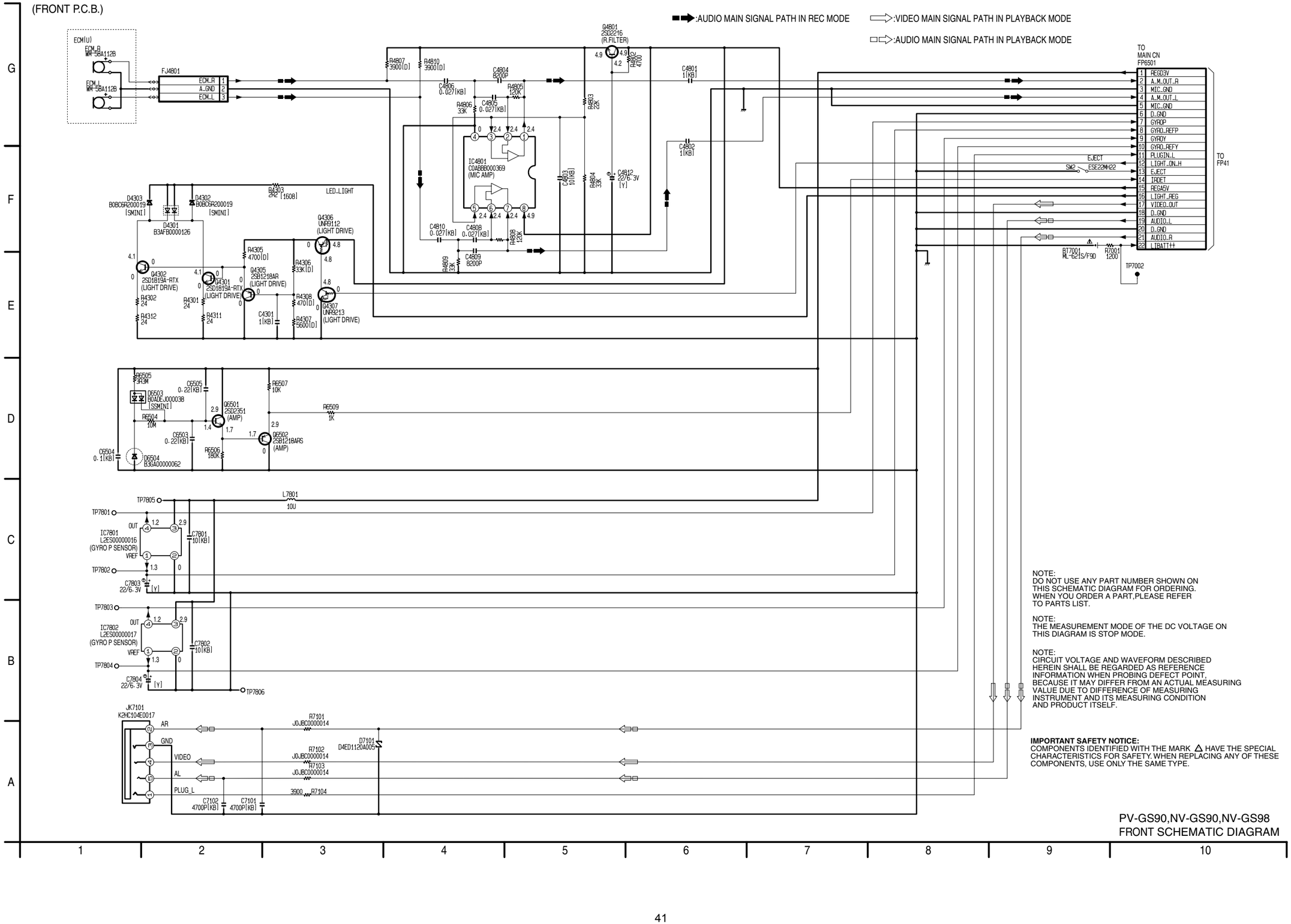

PV-GS90,NV-GS90,NV-GS98
OVERALL SCHEMATIC DIAGRAM

# 11.2. INTERCONNECTION SCHEMATIC DIAGRAM

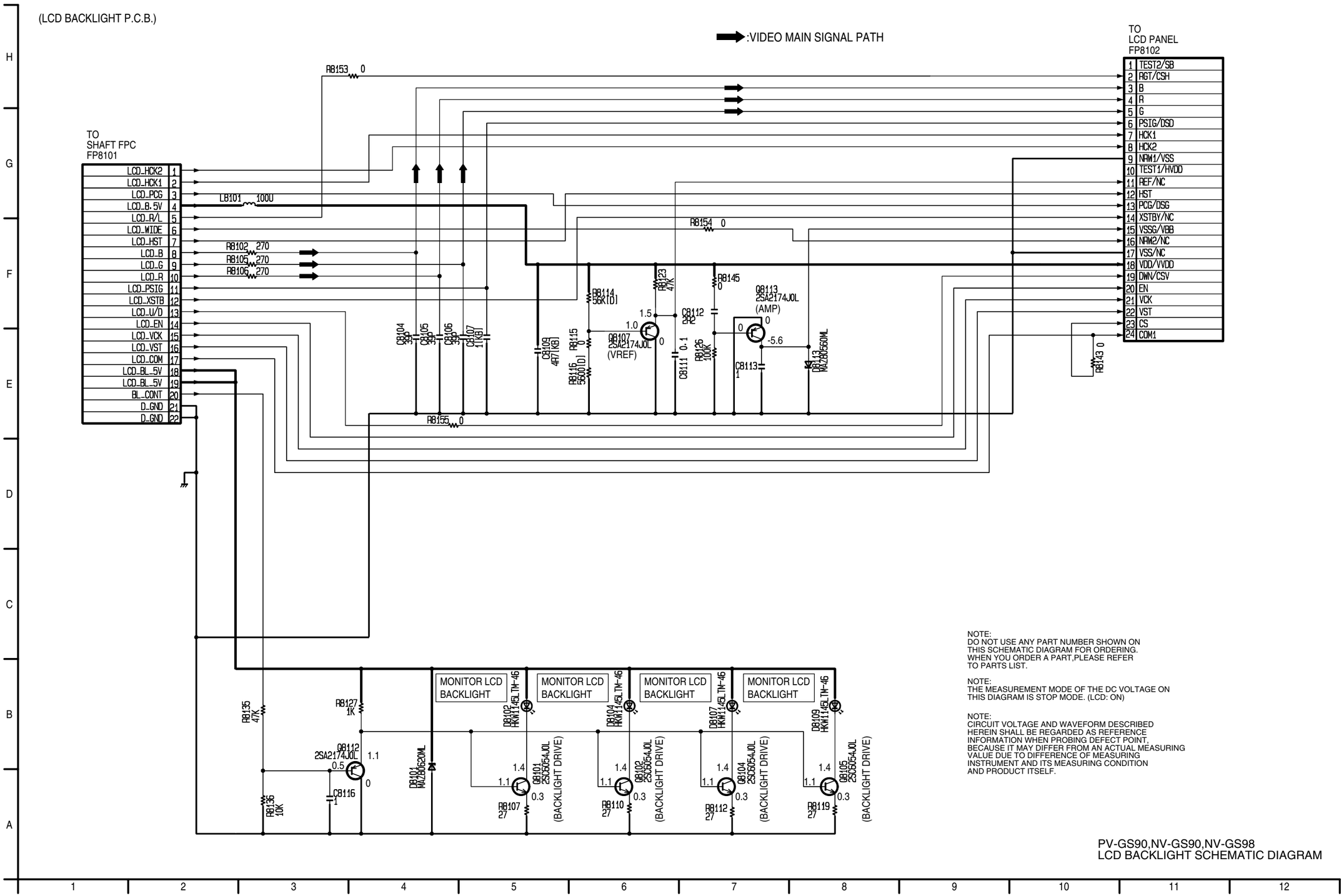



PV-GS90,NV-GS90,NV-GS98
INTERCONNECTION SCHEMATIC DIAGRAM

# 11.3. FRONT SCHEMATIC DIAGRAM



# 11.4. LCD BACKLIGHT SCHEMATIC DIAGRAM



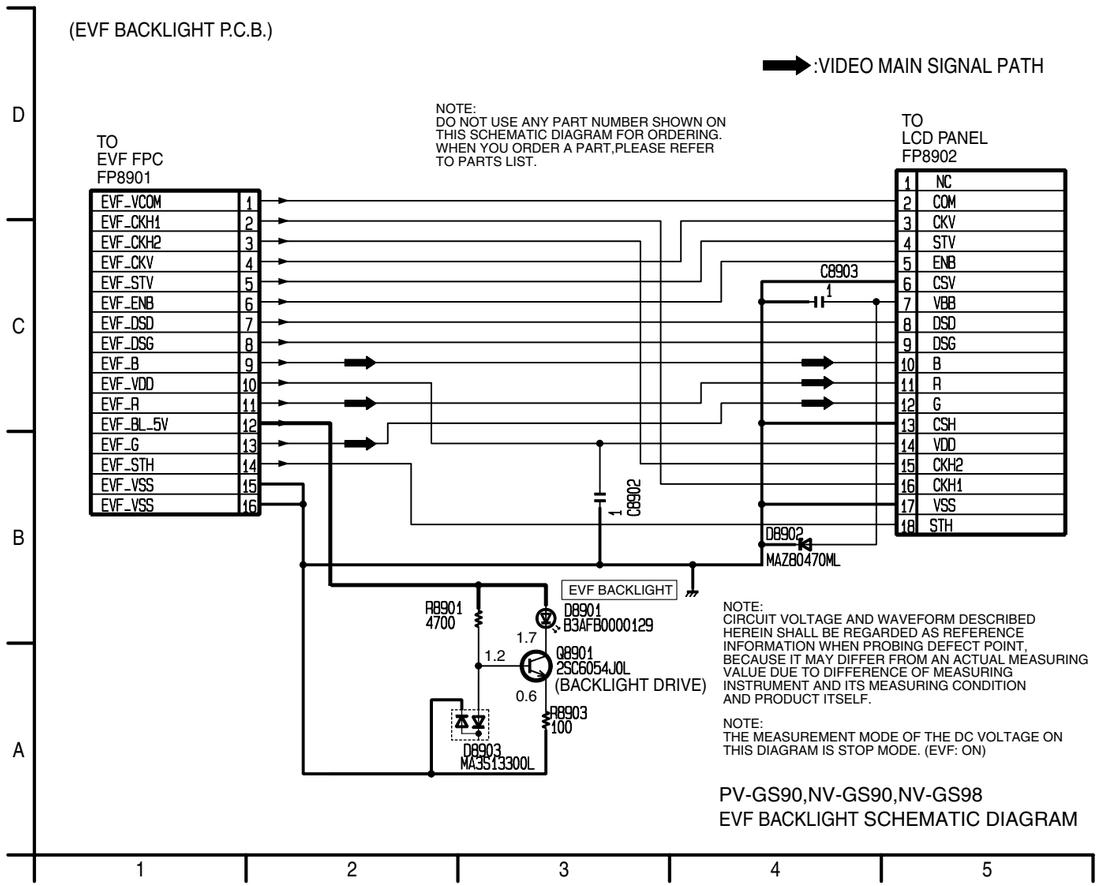

NOTE:
DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NOTE:
THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE. (LCD: ON)

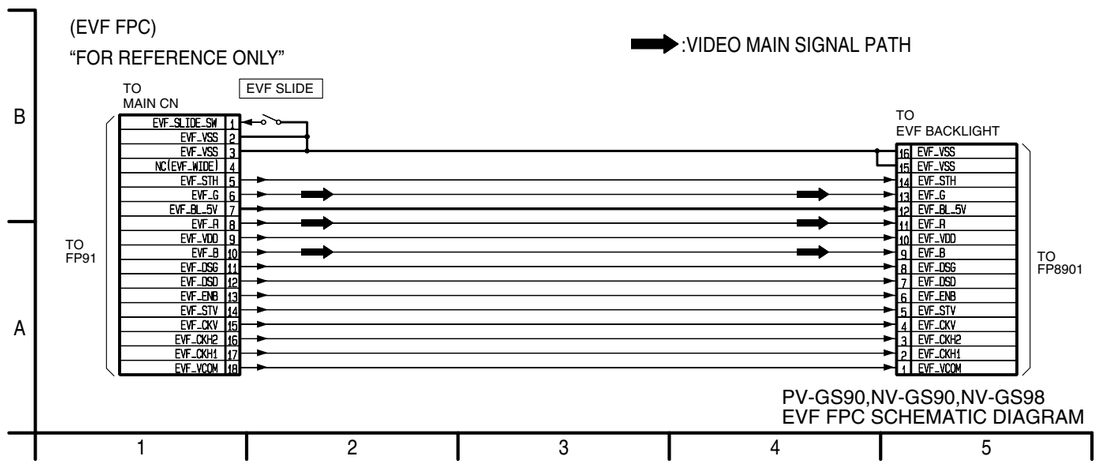
NOTE:
CIRCUIT VOLTAGE AND WAVEFORM DESCRIBED HEREIN SHALL BE REGARDED AS REFERENCE INFORMATION WHEN PROBING DEFECT POINT, BECAUSE IT MAY DIFFER FROM AN ACTUAL MEASURING VALUE DUE TO DIFFERENCE OF MEASURING INSTRUMENT AND ITS MEASURING CONDITION AND PRODUCT ITSELF.

PV-GS90,NV-GS90,NV-GS98
LCD BACKLIGHT SCHEMATIC DIAGRAM

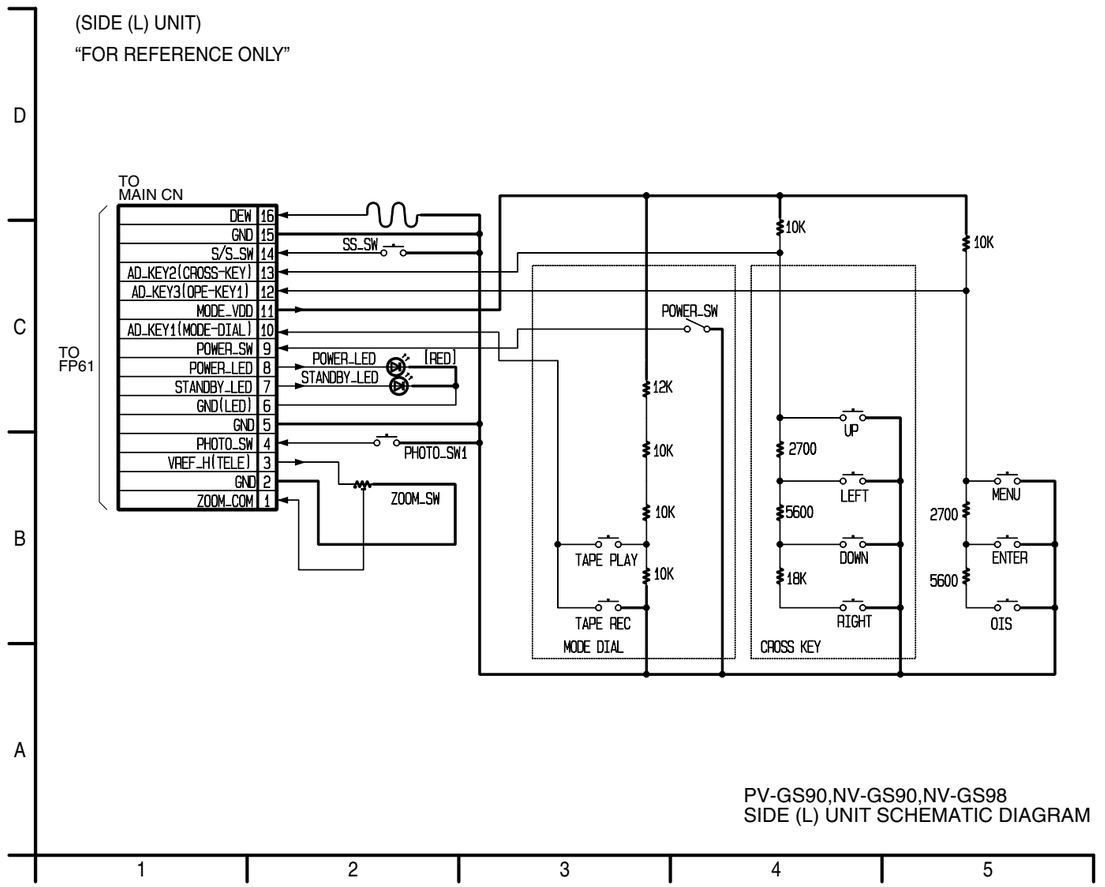
## 11.5. EVF BACKLIGHT SCHEMATIC DIAGRAM



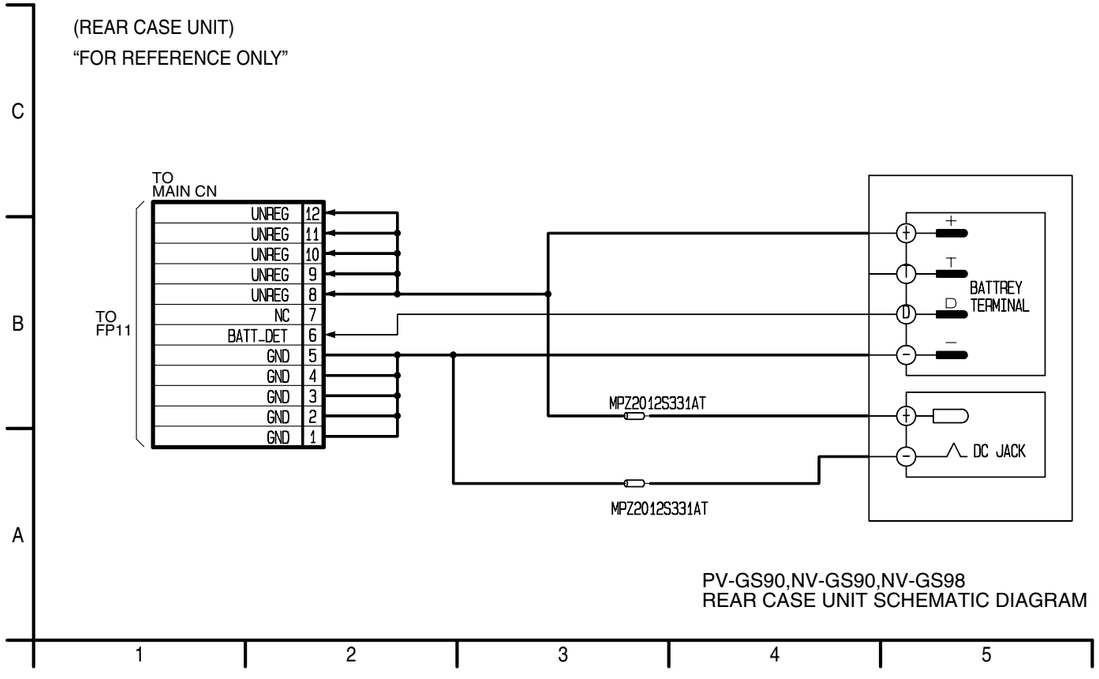

## 11.6. EVF FPC SCHEMATIC DIAGRAM



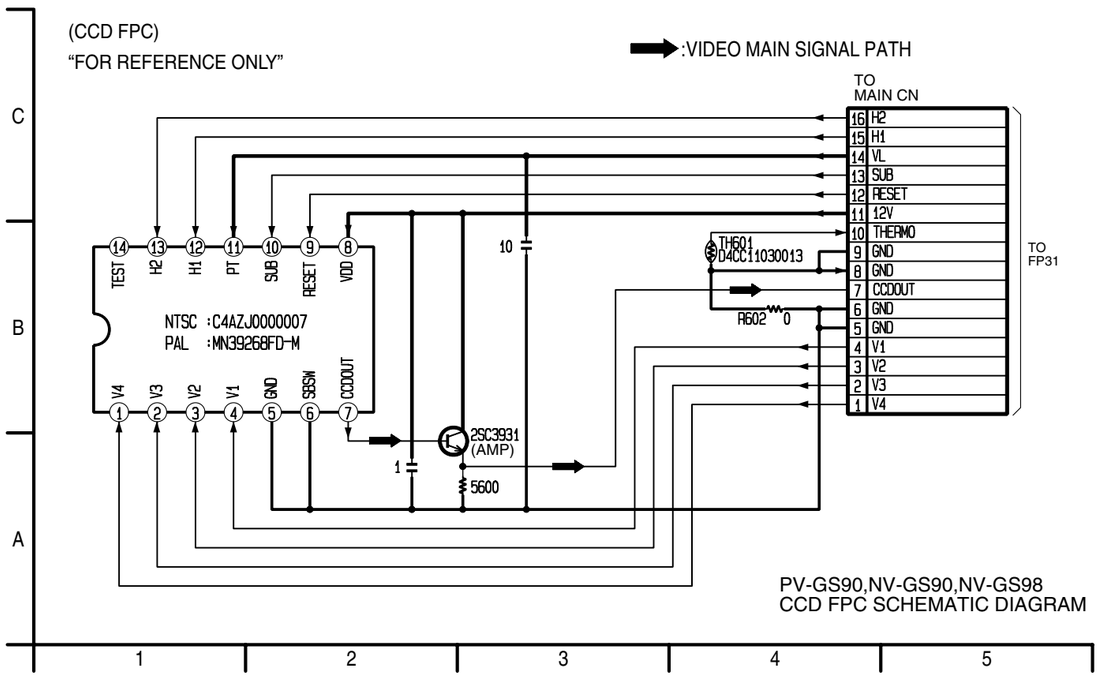

## 11.7. SIDE (L) UNIT SCHEMATIC DIAGRAM



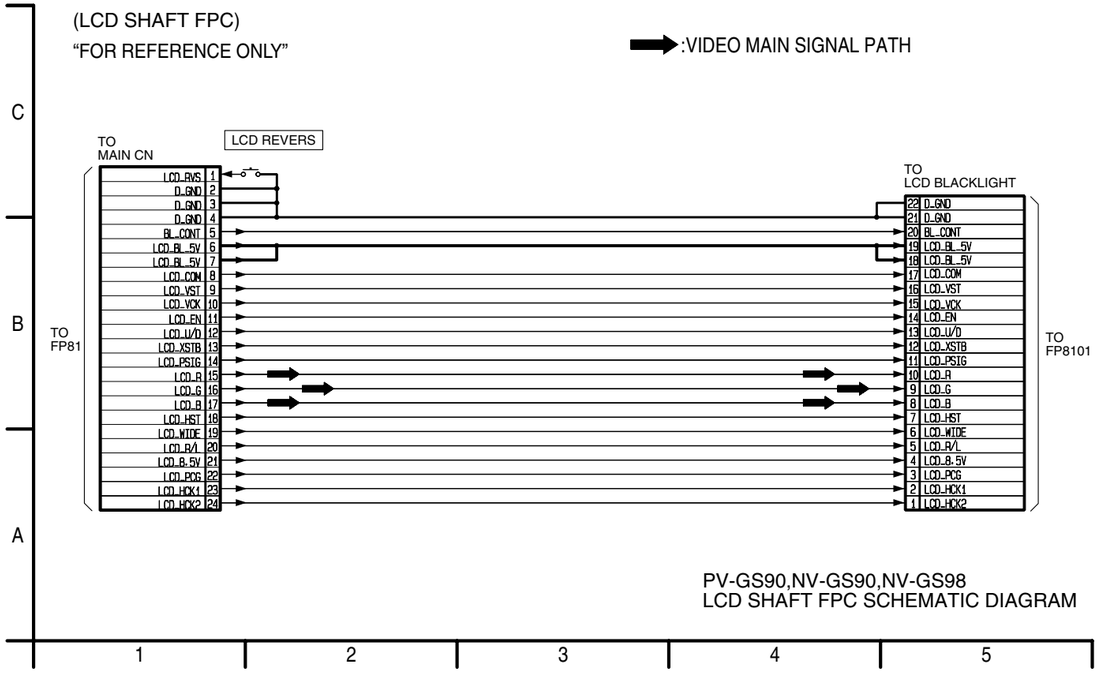
## 11.8. REAR CASE UNIT SCHEMATIC DIAGRAM



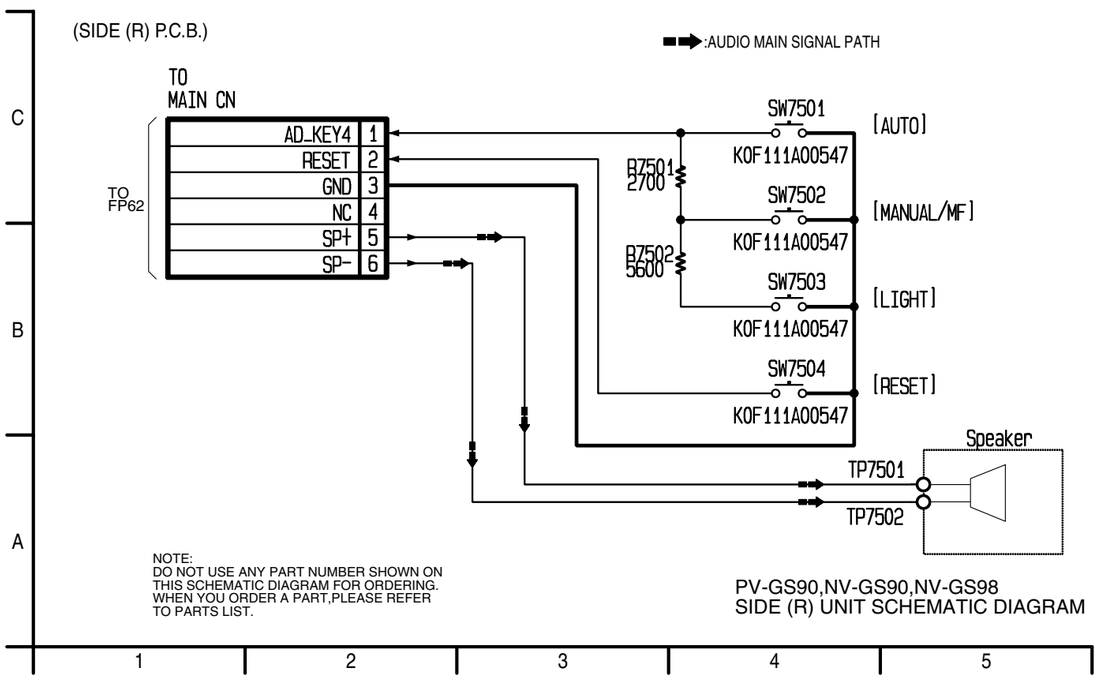

## 11.9. CCD SCHEMATIC DIAGRAM




## 11.10. LCD SHAFT FPC SCHEMATIC DIAGRAM



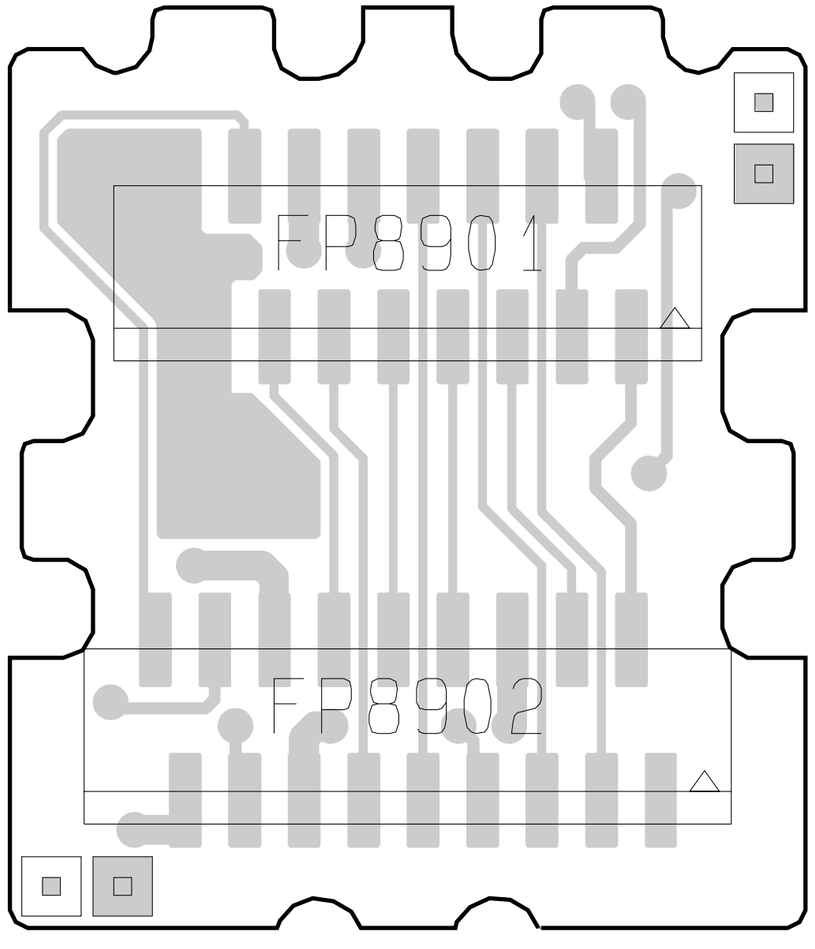

## 11.11. SIDE (R) SCHEMATIC DIAGRAM



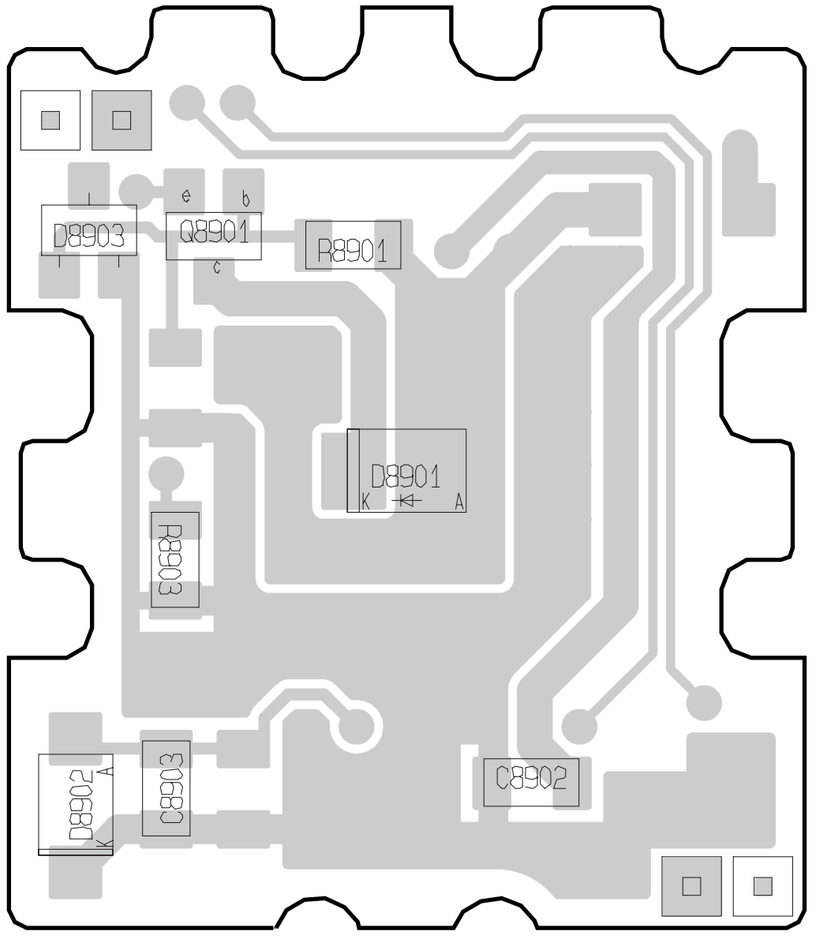
# 12 Printed Circuit Board

## 12.1. EVF BACKLIGHT P.C.B.

(LSEP8365A1)




(COMPONENT SIDE)

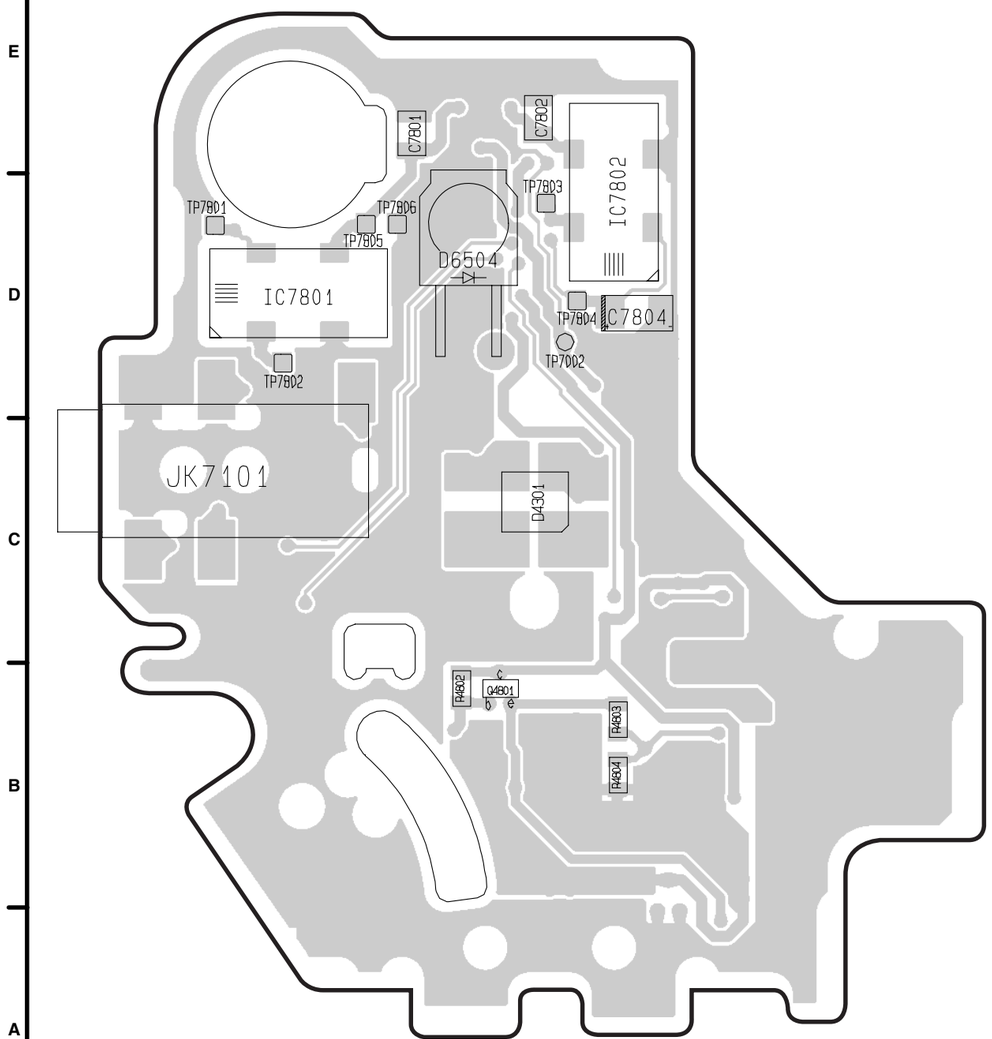



(FOIL SIDE)

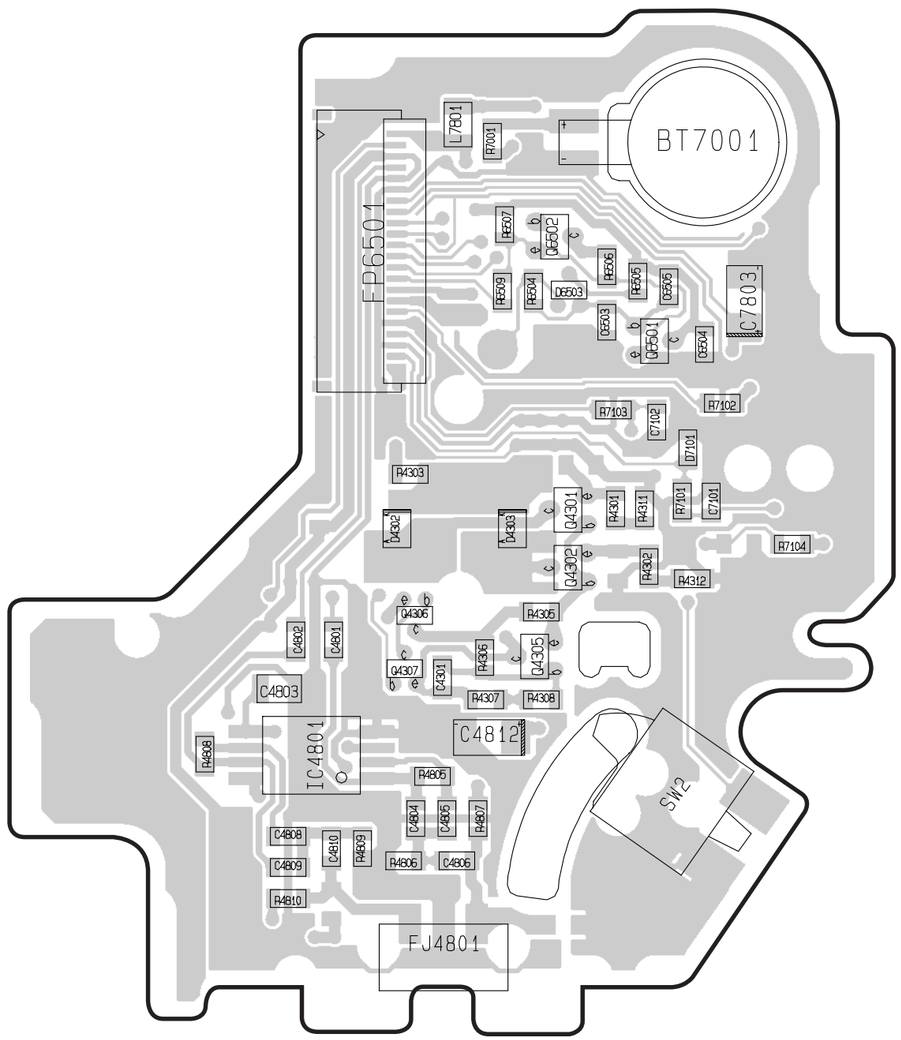
PV-GS90,NV-GS90,NV-GS98
EVF BLACKLIGHT P.C.B.

## 12.2. FRONT P.C.B.

(LSEP8440B1)




(COMPONENT SIDE)

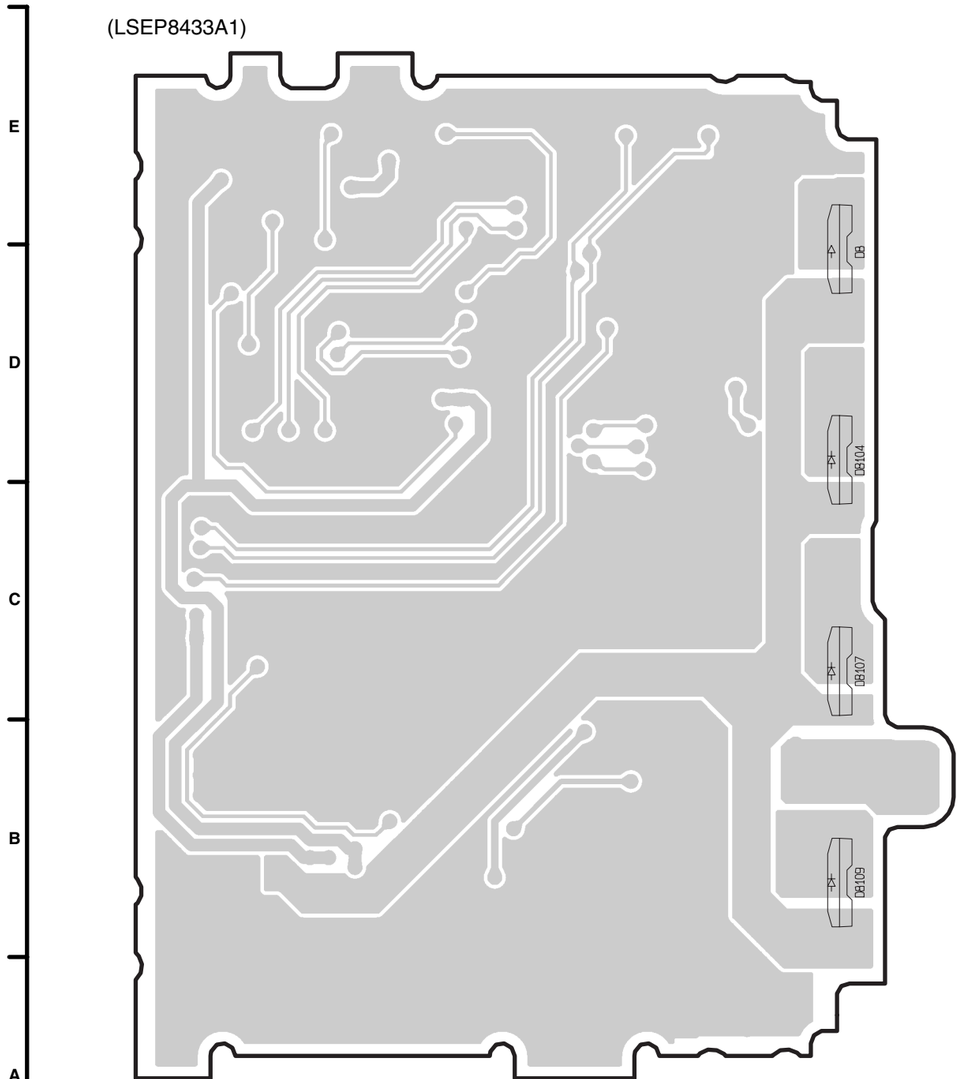



(FOIL SIDE)

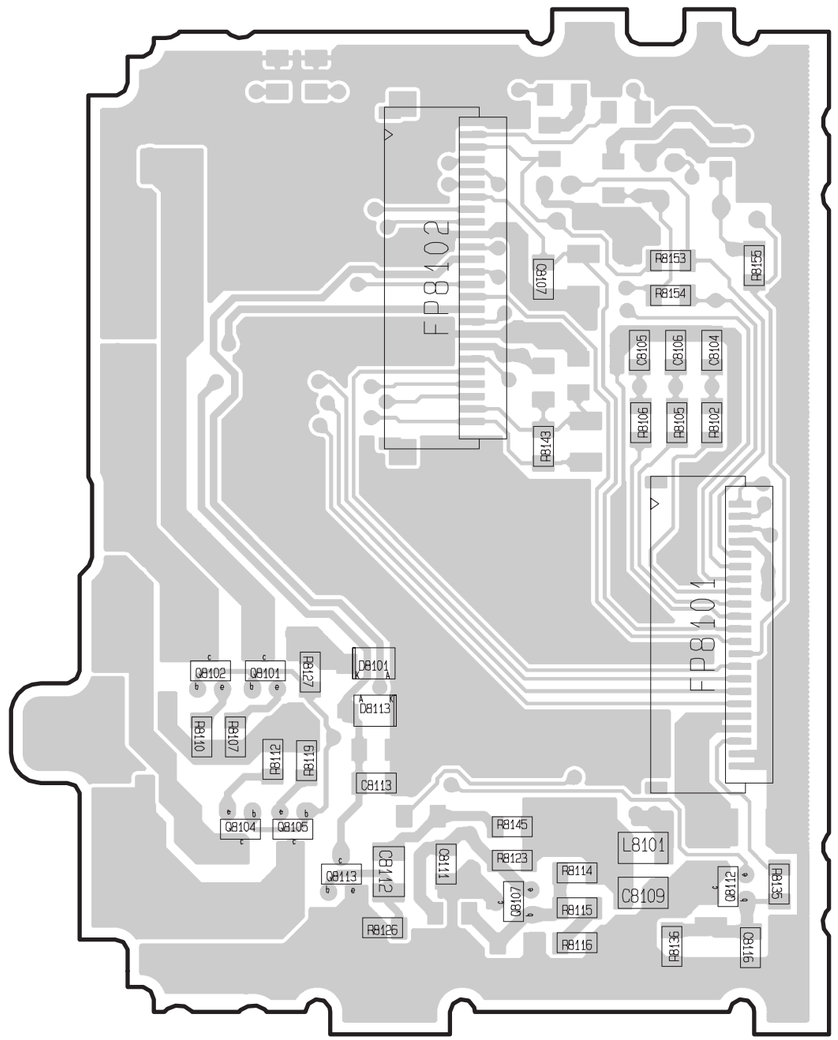
PV-GS90,NV-GS90,NV-GS98
FRONT P.C.B.

## 12.3. LCD BACKLIGHT P.C.B.

(LSEP8433A1)




(COMPONENT SIDE)

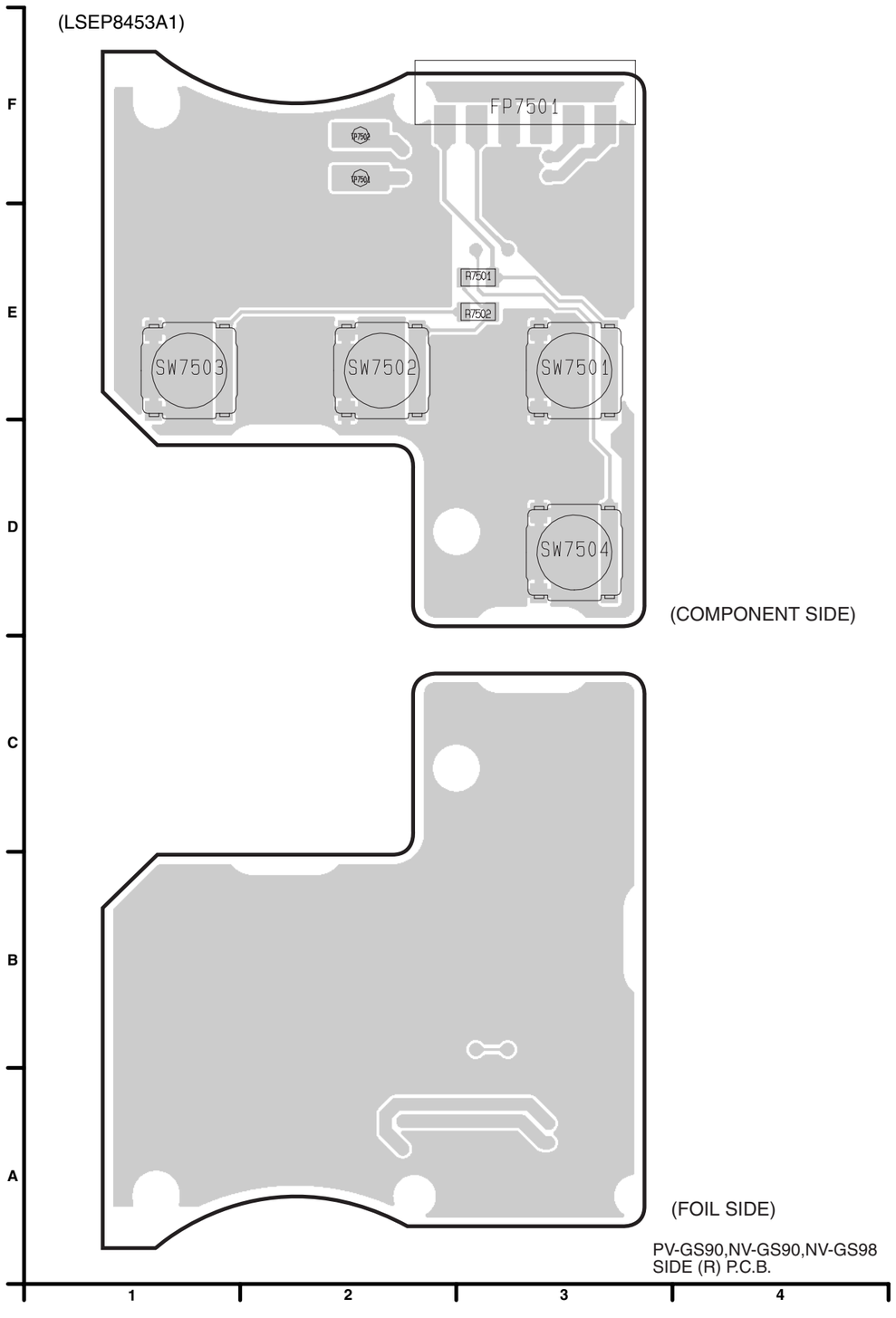



(FOIL SIDE)

PV-GS90,NV-GS90,NV-GS98
LCD BLACKLIGHT P.C.B.

## 12.4. SIDE (R) P.C.B.

(LSEP8453A1)




(COMPONENT SIDE)

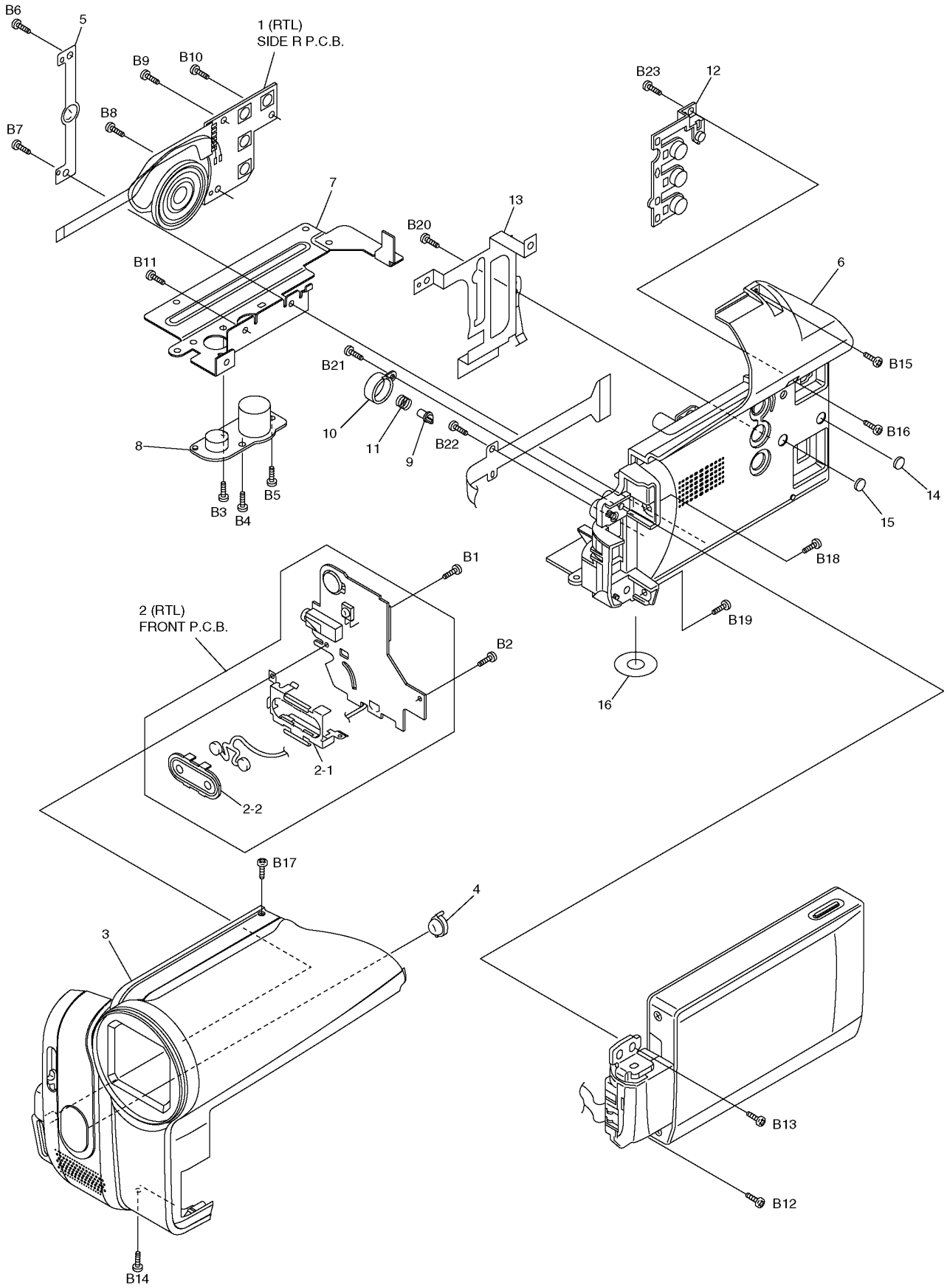
(FOIL SIDE)

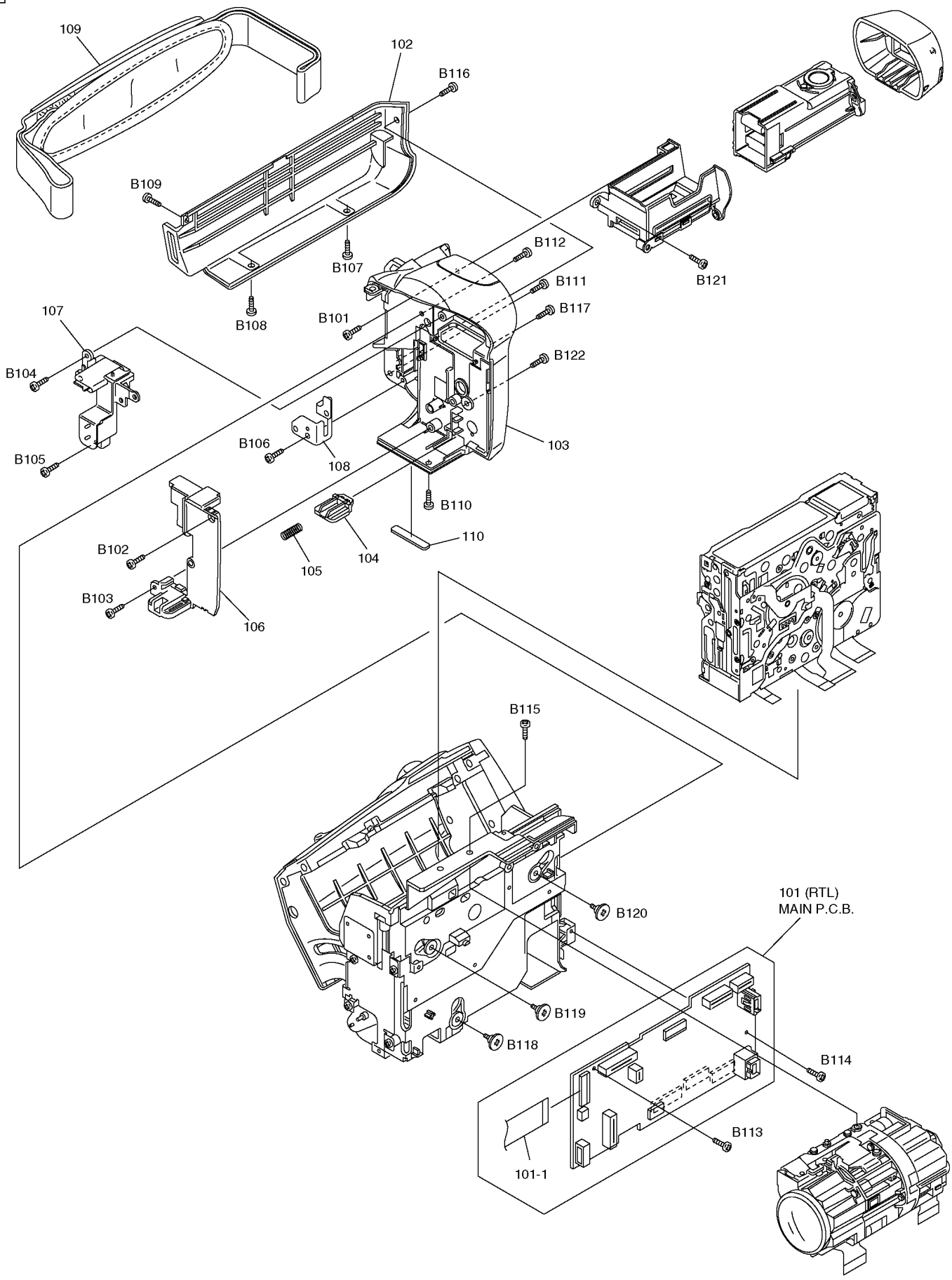
PV-GS90,NV-GS90,NV-GS98
SIDE (R) P.C.B.

# 13 Parts and Exploded Views

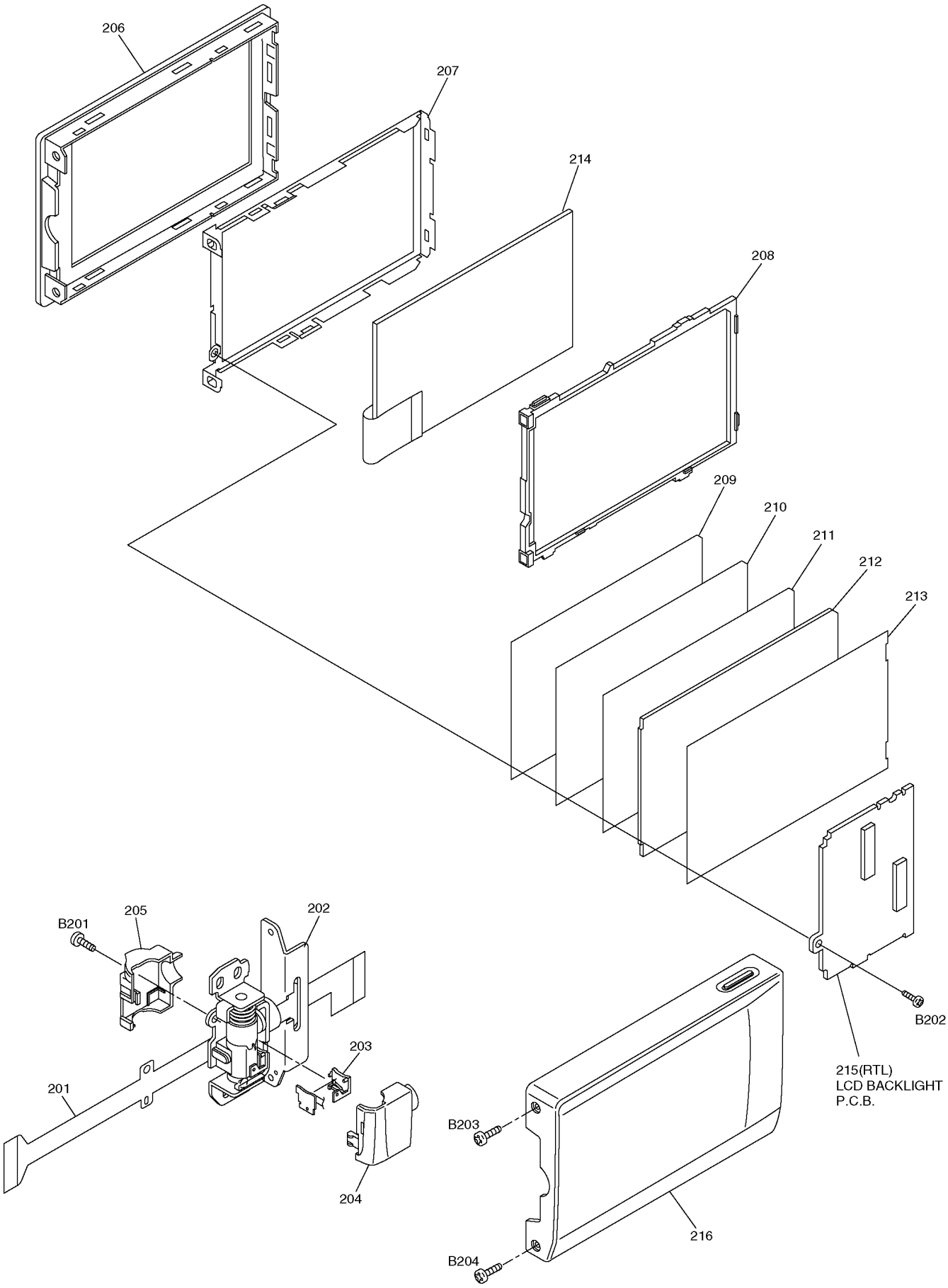
## 13.1. Exploded Views

### 13.1.1. Frame & Casing Section

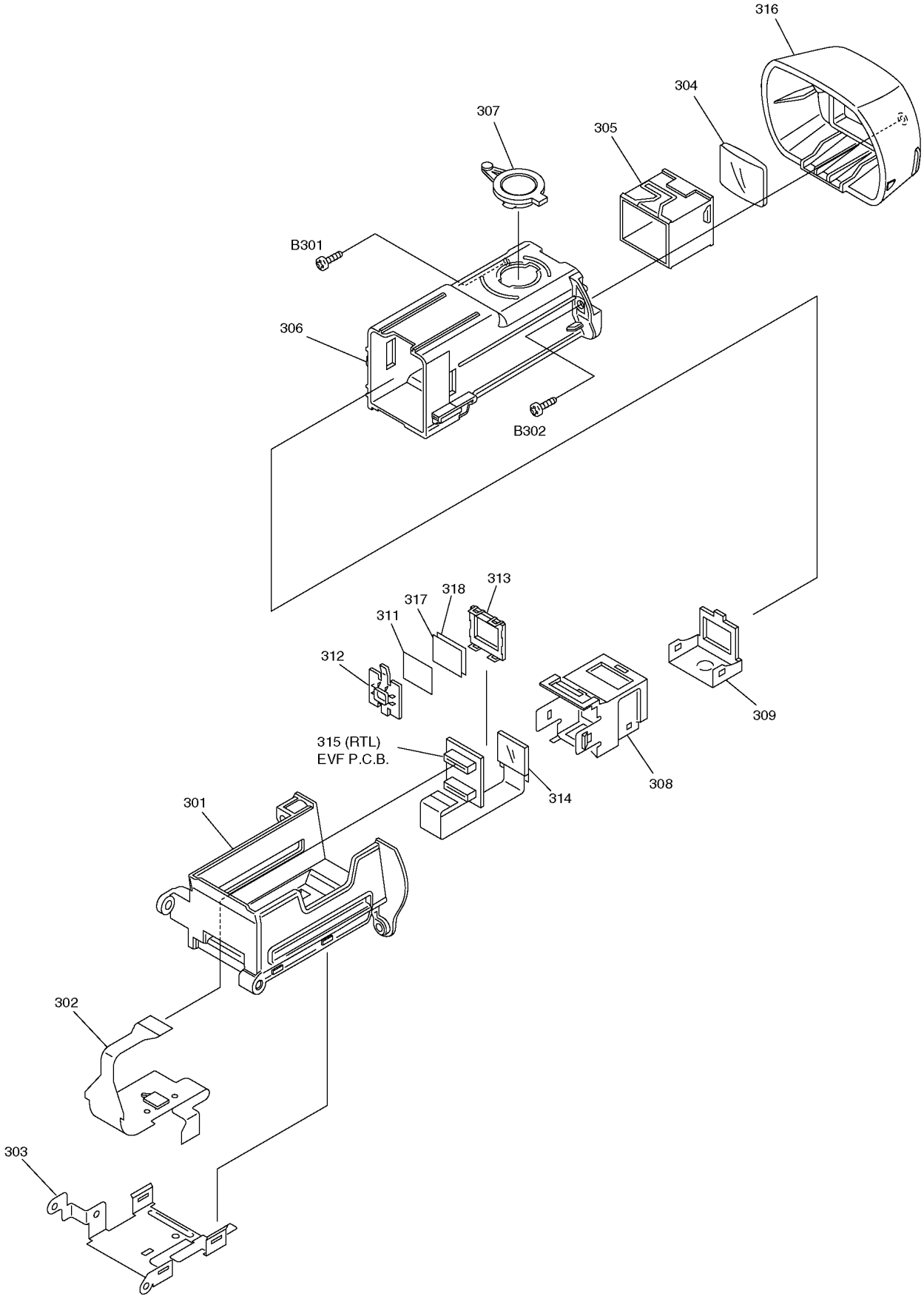



109
102
B116
B109
B107
B108
B112
B111
B117
B101
B121
107
B104
B105
B106
108
B122
103
B110
110
104
105
B102
B103
106
B115
B120
101 (RTL)
MAIN P.C.B.
B119
B118
B114
B113
101-1

## 13.1.2. LCD Section



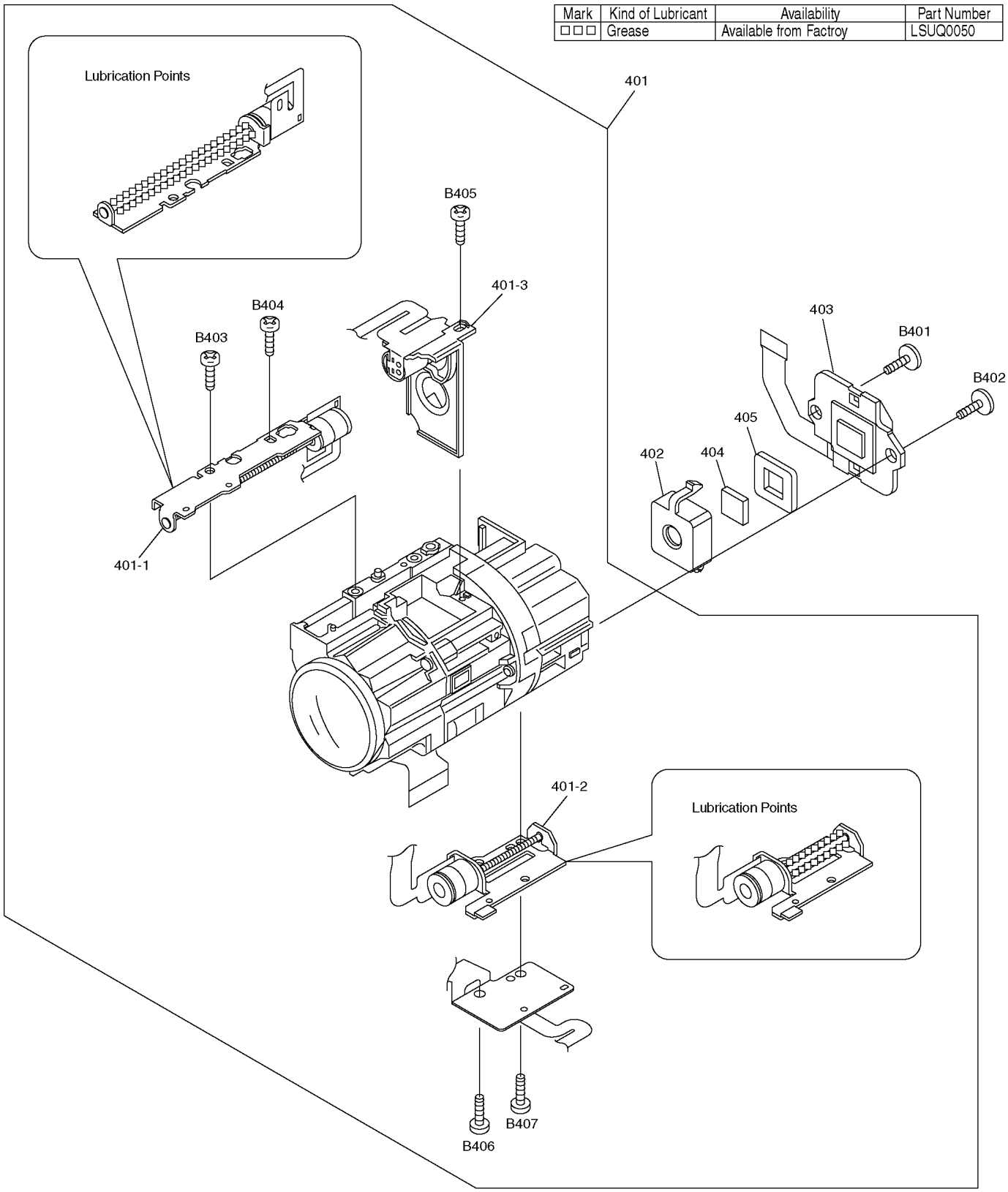
## 13.1.3. EVF Section



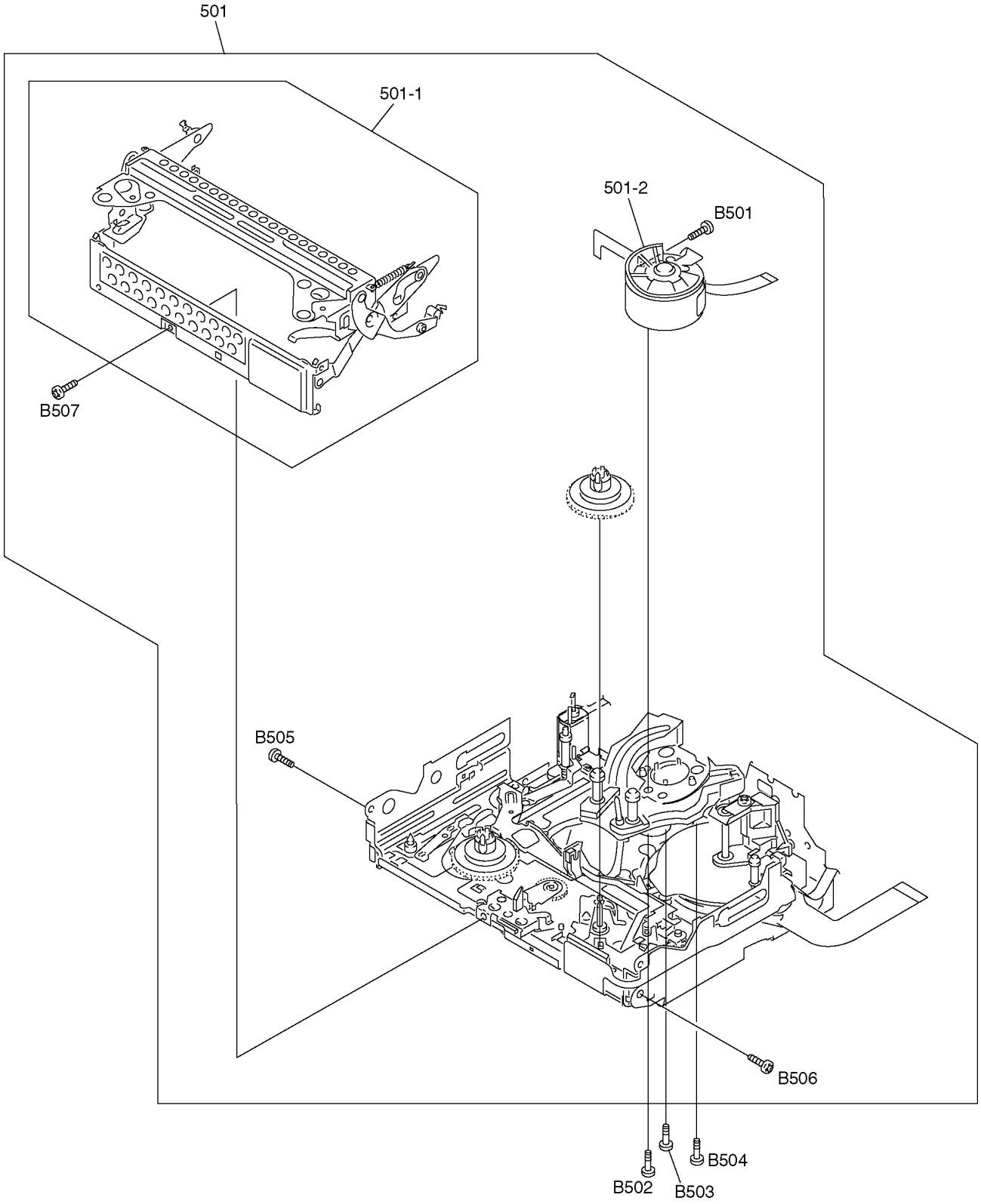
## 13.1.4. Camera Lens Section

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

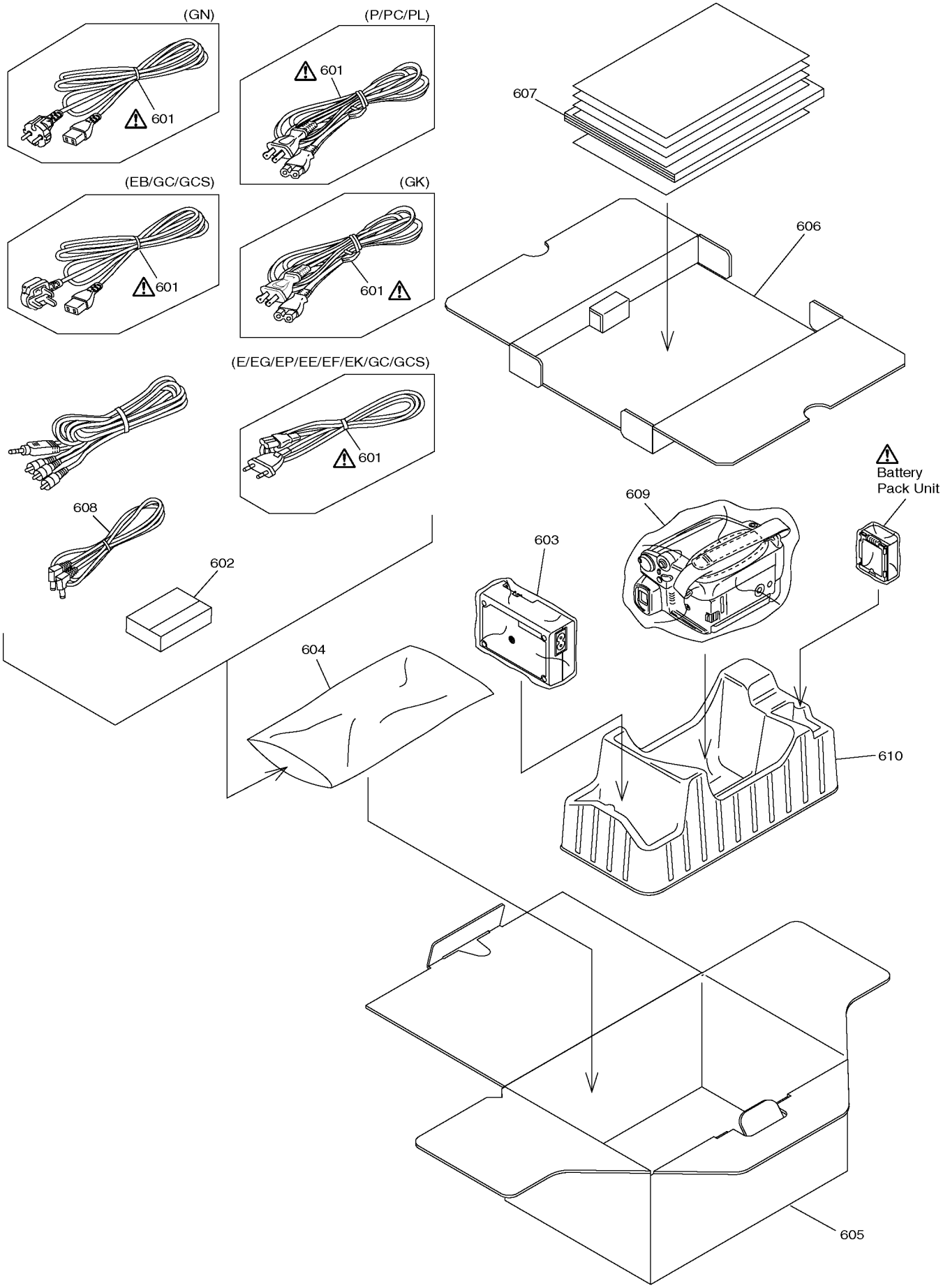
| Mark | Kind of Lubricant | Availability | Part Number |
|---|---|---|---|
| □□□ | Grease | Available from Factroy | LSUQ0050 |



## 13.1.5. VCR Mechanism Section



## 13.1.6. Packing Parts & Accessories Section



# 13.2. Replacement Parts List

## 13.2.1. Frame & Casing Section 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.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 1 | LSEP8453A1 | SIDE R C.B.A | 1 | (RTL)(PSECI) |
| 2 | LSEP8440B1 | FRONT P.C.B. | 1 | (PSECI) |
| 2-1 | LSMG0190 | MIC DAMPER | 1 | (PSECI) |
| 2-2 | LSSC1013 | FRONT SHIELD CASE | 1 | (PSECI) |
| 3 | LSYK2268 | FRONT U | 1 | (PSECI) |
| 4 | LSMD0822 | LED LIGHT LENS | 1 | (PSECI) |
| 5 | LSMA1043 | SPEAKER ANGLE | 1 | (PSECI) |
| 6 | LSKM1717 | SIDE CASE R | 1 | (PSECI) |
| 7 | LSMA1042 | BOTTOM ANGLE | 1 | (PSECI) |
| 8 | LSHN0021 | TRIPOD SCREW | 1 | (PSECI) |
| 9 | LSMD0895 | LCD OPEN PIECE | 1 | (PSECI) |
| 10 | LSKF0707 | PIECE COVER | 1 | (PSECI) |
| 11 | LSMB0353 | PIECE SPRING | 1 | (PSECI) |
| 12 | LSSC1030 | R EARTH PLATE | 1 | (PSECI) |
| 13 | LSGU0744 | R OPERATION BUTTON | 1 | (PSECI) |
| 14 | LSMT0441 | LCD CUSHION | 1 | (PSECI) |
| 15 | LSMT0441 | LCD CUSHION | 1 | (PSECI) |
| 16 | LSGQ0222 | TRIPOD SHEET | 1 | (PSECI) |
| | | | | |
| B1 | XQN16+BJ5FN | SCREW | 1 | |
| B2 | XQN16+BJ5FN | SCREW | 1 | |
| B3 | XQN16+BF3FN | SCREW | 1 | |
| B4 | XQN16+BF3FN | SCREW | 1 | |
| B5 | XQN16+BF3FN | SCREW | 1 | |
| B6 | XQN16+BJ4FN | SCREW | 1 | |
| B7 | XQN16+BJ4FN | SCREW | 1 | |
| B8 | XQN16+BJ4FN | SCREW | 1 | |
| B9 | XQN16+BJ4FN | SCREW | 1 | |
| B10 | XQN16+BJ4FN | SCREW | 1 | |
| B11 | XQN16+BJ4FN | SCREW | 1 | |
| B12 | XQN2+BF5FN | SCREW | 1 | |
| B13 | XQN2+BJ5FN | SCREW | 1 | |
| B14 | XQN16+BF4FN | SCREW | 1 | |
| B15 | XQN16+BJ5FN | SCREW | 1 | |
| B16 | XQN16+BJ5FN | SCREW | 1 | |
| B17 | XQN16+BJ5FN | SCREW | 1 | |
| B18 | XQN16+BJ5FN | SCREW | 1 | |
| B19 | XQN16+BJ5FN | SCREW | 1 | |
| B20 | XQN16+BJ4FN | SCREW | 1 | |
| B21 | XQN16+BJ4FN | SCREW | 1 | |
| B22 | XQN16+BJ4FN | SCREW | 1 | |
| B23 | XQN16+BJ4FN | SCREW | 1 | |
| | | | | |
| 101 | LSEP8439Q1 | MAIN P.C.B. | 1 | (RTL) (PSECI)EE,EK, GC,GCS,GN,GK |
| 101 | LSEP8439P1 | MAIN P.C.B. | 1 | (RTL) (PSECI)EB,EF, EG,EP,E |
| 101 | LSEP8439A1 | MAIN P.C.B. | 1 | (RTL) (PSECI)P,PC,P L |
| 101-1 | LSJB8441-1 | FRONT FPC | 1 | (PSECI) |
| 102 | LSKM1719 | BOTTOM CASE | 1 | (PSECI) |
| 103 | LSKM1701 | BATTERY CASE | 1 | (PSECI) |
| 104 | LSGT0622 | BATTERY RELEASE KNOB | 1 | (PSECI) |
| 105 | LSMB0346 | BATTERY RELEASE SPRING | 1 | (PSECI) |
| 106 | LSGF0551 | BATTERY RELEASE HOLDER | 1 | (PSECI) |
| 107 | LSYY0818 | BATTERY TERMINAL FPC U | 1 | (PSECI) |
| 108 | LSMA1045 | STRAP ANGLE R | 1 | (PSECI) |
| 109 | LSGQ0263 | GRIP BELT U | 1 | (PSECI) |
| 110 | LSKA0035 | RUBBER FOOT | 1 | (PSECI) |
| | | | | |
| B101 | XQN16+BJ4FN | SCREW | 1 | |
| B102 | XQN16+BJ4FN | SCREW | 1 | |
| B103 | XQN16+BJ4FN | SCREW | 1 | |
| B104 | XQN16+BJ4FN | SCREW | 1 | |
| B105 | XQN16+BJ4FN | SCREW | 1 | |
| B106 | XQN16+BJ4FN | SCREW | 1 | |
| B107 | XQN16+BF4FN | SCREW | 1 | |
| B108 | XQN16+BF4FN | SCREW | 1 | |
| B109 | XQN16+BF4FN | SCREW | 1 | |
| B110 | XQN16+BF4FN | SCREW | 1 | |
| B111 | XQN16+BF4FN | SCREW | 1 | |
| B112 | XQN16+BF4FN | SCREW | 1 | |
| B113 | XQN16+BJ4FN | SCREW | 1 | |
| B114 | XQN16+BJ4FN | SCREW | 1 | |
| B115 | XQN16+BJ5FN | SCREW | 1 | |
| B116 | XQN16+BJ5FN | SCREW | 1 | |
| B117 | XQN16+BJ5FN | SCREW | 1 | |
| B118 | LSHD0051 | SCREW | 1 | (PSECI) |
| B119 | LSHD0051 | SCREW | 1 | (PSECI) |
| B120 | LSHD0051 | SCREW | 1 | (PSECI) |
| B121 | XQN16+BJ5FN | SCREW | 1 | (PSECI) |
| B122 | XQN16+BJ5FN | SCREW | 1 | (PSECI) |
| | | | | |

## 13.2.2. LCD Section 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.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 201 | LSEP8435A1 | LCD SHAFT FPC | 1 | (PSECI) |
| 202 | LSXA0946 | SHAFT U | 1 | (PSECI) |
| 203 | LSMD0880 | SHAFT SW HOLDER | 1 | (PSECI) |
| 204 | LSKM1685 | SHAFT CASE A | 1 | (PSECI) |
| 205 | LSKM1686 | SHAFT CASE B | 1 | (PSECI) |
| 206 | LSKM1649 | LCD CASE B | 1 | (PSECI) |
| 207 | LSSC1011 | LCD SHIELD CASE | 1 | (PSECI) |
| 208 | LSXY1245 | PANEL HOLDER U | 1 | (PSECI) |
| 209 | LSGL1523 | BEF SHEET A WIDE | 1 | (PSECI) |
| 210 | LSGL1524 | BEF SHEET B WIDE | 1 | (PSECI) |
| 211 | LSGL1525 | DIFFUSION SHEET WIDE | 1 | (PSECI) |
| 212 | LSGL1526 | LEAD LIGHT PANEL | 1 | (PSECI) |
| 213 | LSGL1527 | REFLECT SHEET WIDE | 1 | (PSECI) |
| 214 | L5BDDYH00026 | LCD | 1 | (PSECI) |
| 215 | LSEP8433A1 | LCD BACKLIGHT P.C.B. | 1 | (RTL)(PSECI) |
| 216 | LSKM1684 | LCD CASE A | 1 | (PSECI)EB,EE, EF,EG,EK,EP,E , |
| | | | | GC,GCS,GN |
| 216 | LSKM1683 | LCD CASE A | 1 | (PSECI)GK |
| 216 | LSKM1681 | LCD CASE A | 1 | (PSECI)P,PC,P L |
| | | | | |
| B201 | XQN16+BJ4FN | SCREW | 1 | |
| B202 | XQN16+B3FN | SCREW | 1 | (PSECI) |
| B203 | XQN16+BF4FN | SCREW | 1 | |
| B204 | XQN16+BF4FN | SCREW | 1 | |
| | | | | |

## 13.2.3. EVF Section 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.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 301 | LSKM1700 | EVF BASE FRAME | 1 | (PSECI) |
| 302 | LSEP8436A1 | EVF FPC | 1 | (PSECI) |
| 303 | LSMA1035 | EVF LOCK PLATE | 1 | (PSECI) |
| 304 | LSFL0176 | EVF LENS | 1 | |
| 305 | LSMD0851 | LENS HOLDER | 1 | (PSECI) |
| 306 | LSKM1659 | EVF CASE | 1 | (PSECI) |
| 307 | LSGT0619 | EYE SIGHT LEVER | 1 | (PSECI) |
| 308 | LSMD0847 | EVF MASK CASE | 1 | (PSECI) |
| 309 | LSMD0848 | EVF MASK TOP COVER | 1 | (PSECI) |
| 311 | LSDL0360 | DIFFUSION SHEET | 1 | (PSECI) |
| 312 | LSMD0849 | EVF REFLECT PIECE | 1 | (PSECI) |
| 313 | LSMD0850 | EVF SHEET HOLDER | 1 | (PSECI) |
| 314 | L5BDDXH00027 | LCD PANEL | 1 | (PSECI) |
| 315 | LSEP8365A1 | EVF B/L P.C.B. | 1 | (RTL)(PSECI) |
| 316 | LSGQ0266 | EYE CAP | 1 | (PSECI) |
| 317 | LSDL0359 | PROTECT PLATE | 1 | (PSECI) |
| 318 | LSDL0359 | PROTECT PLATE | 1 | (PSECI) |
| | | | | |
| B301 | XQN16+BJ4FN | SCREW | 1 | |
| B302 | XQN16+BJ4FN | SCREW | 1 | |
| | | | | |

## 13.2.4. Camera Lens Section 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.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 401 | LSXN0054 | KL102 LENS(U) | 1 | (EXCEPT EP) (PSECI) |
| 401 | LSXN0053 | KL102 LENS(U) | 1 | (PSECI)EP |
| 401-1 | L6HA66NB0009 | ZOOM MOTOR U | 1 | (PSECI) |
| 401-2 | L6HA66NB0010 | FOCUS MOTOR U | 1 | (PSECI) |
| 401-3 | LSEM0111 | IRIS U | 1 | (PSECI) |
| 402 | LSDW0122 | CCD CASE | 1 | (PSECI) |
| 403 | LSEP8434B1 | CCD P.C.B. | 1 | (PSECI) (EXCEPT P/PC/PL) |
| 403 | LSEP8434A1 | CCD P.C.B. | 1 | (PSECI)P,PC,PL |
| 404 | LSFL0292 | OPTICAL LPF | 1 | (PSECI) |
| 405 | VMX3282 | CCD CUSHION RUBBER | 1 | |
| | | | | |
| B401 | LSHD0136 | SCREW | 1 | (PSECI) |
| B402 | LSHD0136 | SCREW | 1 | (PSECI) |
| 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 | |
| | | | | |

## 13.2.5. VCR Mechanism Section 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.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 501 | LSYK2356 | MECHANISM U | 1 | (PSECI) (EXCEPT GC) |
| 501 | LSYK2358 | MECHANISM U | 1 | GC |
| 501-1 | VXA8334 | CASSETTE UP U | 1 | |
| 501-2 | VEG1704 | CYLINDER U | 1 | |
| | | | | |
| B501 | VHD1674 | ROTOR SET SCREW | 1 | (PSECI) |
| B502 | VHD1861 | SCREW | 1 | |
| B503 | VHD1861 | SCREW | 1 | |
| B504 | VHD1861 | SCREW | 1 | |
| B505 | VHD1754 | SCREW | 1 | |
| B506 | VHD1754 | SCREW | 1 | |
| B507 | VHD1583 | SCREW | 1 | (PSECI) |
| | | | | |

## 13.2.6. Packing Parts & Accessories Section 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. Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| 601 | K2CQ2CA00006 | AC CORD | 1 | EE,EF,EG,EK,EP,E,GC,GCS △ |
| 601 | K2CT3CA00004 | AC CORD | 1 | EB,GC,GCS △ |
| 601 | K2CJ2DA00011 | AC CORD | 1 | GN △ |
| 601 | K2CA2CA00020 | AC CORD | 1 | GK △ |
| 601 | K2CA2CA00029 | AC CORD | 1 | P,PC,PL △ |
| 602 | AY-DVMCLDKC | CLEANING CASSETTE | 1 | (PSECI)EE,GC,GCS,GN,GK |
| 603 | DE-A51CA | POWER CHARGERS | 1 | (PSECI)EB,EE,EF,EG,EK,EP,E,GC, △ |
| | | | | GCS,GN |
| 603 | DE-A51DA | POWER CHARGERS | 1 | (PSECI)GK △ |
| 603 | DE-A51BA | POWER CHARGERS | 1 | (PSECI)P,PC,PL △ |
| 604 | LSPF0107 | POLY BAG | 1 | |
| 605 | LSPG2586 | PACKING CASE | 1 | (PSECI)EE,GCS,GN |
| 605 | LSPG2584 | PACKING CASE | 1 | (PSECI)EB,EF,EG,EK,E |
| 605 | LSPG2614 | PACKING CASE | 1 | (PSECI)EP |
| 605 | LSPG2585 | PACKING CASE | 1 | GC |
| 605 | LSPG2587 | PACKING CASE | 1 | (PSECI)GK |
| 605 | LSPG2583 | PACKING CASE | 1 | (PSECI)P,PC,PL |
| 606 | LSPN0884 | PAD | 1 | (PSECI) |
| 607 | LSQT1291-A | O/I | 1 | (PSECI)EB |
| 607 | LSQT1293-A | O/I | 1 | (PSECI)EE |
| 607 | LSQT1288-A | O/I | 1 | (PSECI)EF,EG,EK |
| 607 | LSQT1287-A | O/I | 1 | (PSECI)EG,EK |
| 607 | LSQT1290-A | O/I | 1 | (PSECI)EP |
| 607 | LSQT1289-A | O/I | 1 | (PSECI)E |
| 607 | LSQT1292-A | O/I | 1 | (PSECI)GC,GCS |
| 607 | LSQT1294-A | O/I | 1 | (PSECI)GN |
| 607 | LSQT1295-A | O/I | 1 | (PSECI)GK |
| 607 | LSQT1284-A | O/I | 1 | (PSECI)P,PC |
| 607 | LSQT1285-A | O/I | 1 | (PSECI)PC |
| 607 | LSQT1286-A | O/I | 1 | (PSECI)PL |
| 608 | K2GJ2DC00011 | DC CABLE | 1 | |
| 609 | VPF1112 | POLYETHYLENE BAG | 1 | (EXCEPT P/PC/PL) |
| 610 | LSPN0899 | BOTTOM PAD | 1 | (PSECI) |
| | | | | |

## 13.2.7. Electrical 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 MICROFARADS (uf), P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| | | | | |
| ■ | LSEP8439Q1 | MAIN P.C.B. | 1 | (RTL) (PSECI)EE,EK, GC,GCS,GN,GK |
| ■ | LSEP8439P1 | MAIN P.C.B. | 1 | (RTL) (PSECI)EB,EF, EG,EP,E |
| ■ | LSEP8439A1 | MAIN P.C.B. | 1 | (RTL) (PSECI)P,PC,P L |
| ■ | LSEP8434A1 | CCD P.C.B. | | (PSECI)P,PC,P L |
| ■ | LSEP8434B1 | CCD P.C.B. | 1 | (PSECI) (EXCEPT P/PC/PL) |
| ■ | LSEP8440B1 | FRONT P.C.B. | 1 | (PSECI) |
| ■ | LSEP8365A1 | EVF B/L P.C.B. | 1 | (RTL)(PSECI) |
| ■ | LSEP8436A1 | EVF FPC | 1 | (PSECI) |
| ■ | LSEP8442A1 | BATTERY FPC | 1 | (PSECI) |
| ■ | LSEP8453A1 | SIDE R C.B.A | 1 | (RTL)(PSECI) |
| ■ | LSEP8433A1 | LCD BACKLIGHT P.C.B. | 1 | (RTL)(PSECI) |
| ■ | LSEP8435A1 | LCD SHAFT FPC | 1 | (PSECI) |
| ■ | LSEP8434A1 | CCD P.C.B. | | (PSECI)P,PC,P L |
| ■ | LSEP8434B1 | CCD P.C.B. | | (PSECI) (EXCEPT P/PC/PL) |
| | | | | |
| C601 | ECJ2FB1C105K | C.CAPACITOR CH 16V 1U | 1 | |
| C602 | ECUM1A106KBM | C.CAPACITOR CH 10V 10U | 1 | |
| | | | | |
| Q601 | 2SC3931CTX | CHIP TRANSISTOR | 1 | |
| | | | | |
| R601 | ERJ3GEYJ562 | M.RESISTOR CH 1/10W 5.6K | 1 | |
| R602 | ERJ6GEY0R00V | M.RESISTOR CH 1/10W 0 | 1 | |
| | | | | |
| TH601 | D4CC11030013 | THERMISTOR | 1 | |
| | | | | |
| ■ | LSEP8440B1 | FRONT P.C.B. | | |
| | | | | |
| BT7001 | ML-621S/F9DE | BATTERY | 1 | ⚠ (PSECI) |
| | | | | |
| C4301 | ECJ1VB1A105K | C.CAPACITOR CH 10V 1U | 1 | |
| C4801 | ECJ1VB1A105K | C.CAPACITOR CH 10V 1U | 1 | |
| C4802 | ECJ1VB1A105K | C.CAPACITOR CH 10V 1U | 1 | |
| C4803 | F1J0J106A004 | C.CAPACITOR CH 6.3V 10U | 1 | |
| C4804 | ECJ1VB1H822K | C.CAPACITOR CH 50V 8200P | 1 | |
| C4805 | ECJ1VB1C273K | C.CAPACITOR CH 16V 0.027U | 1 | |
| C4806 | F1H1C273A041 | CHIP-CAPACITOR 16V 0.027U | 1 | (PSECI) |
| C4808 | F1H1C273A041 | CHIP-CAPACITOR 16V 0.027U | 1 | (PSECI) |
| C4809 | ECJ1VB1H822K | C.CAPACITOR CH 50V 8200P | 1 | |
| C4810 | F1H1C273A041 | CHIP-CAPACITOR 16V 0.027U | 1 | (PSECI) |
| C4812 | F3F0J226A055 | E.CAPACITOR CH 6.3V 22U | 1 | |
| C6503 | ECJ1VB1A224K | C.CAPACITOR CH 10V 0.22U | 1 | |
| C6504 | ECJ1XB1C104K | C.CAPACITOR CH 16V 0.1U | 1 | |
| C6505 | ECJ1VB1A224K | C.CAPACITOR CH 10V 0.22U | 1 | |
| C7101 | ECJ1VB1H472K | C.CAPACITOR CH 50V 4700P | 1 | |
| C7102 | ECJ1VB1H472K | C.CAPACITOR CH 50V 4700P | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| C7801 | F1J1A106A023 | C.CAPACITOR CH 10V 10U | 1 | |
| C7802 | F1J1A106A023 | C.CAPACITOR CH 10V 10U | 1 | |
| C7803 | F3F0J226A055 | E.CAPACITOR CH 6.3V 22U | 1 | |
| C7804 | F3F0J226A055 | E.CAPACITOR CH 6.3V 22U | 1 | |
| | | | | |
| D4301 | B3AFB0000126 | LED | 1 | (PSECI) |
| D4302 | B0BC6R200019 | DIODE | 1 | (PSECI) |
| D4303 | B0BC6R200019 | DIODE | 1 | (PSECI) |
| D6503 | B0ADEJ000038 | DIODE | 1 | (PSECI) |
| D6504 | B3GA00000062 | DIODE | 1 | |
| D7101 | D4ED1120A005 | VARISTOR | 1 | |
| | | | | |
| FP6501 | K1MN22BA0197 | CONNECTOR 22P | 1 | |
| | | | | |
| IC4801 | C0ABBB000369 | IC | 1 | |
| IC7801 | L2ES00000016 | GYROSCOPE | 1 | |
| IC7802 | L2ES00000017 | GYROSCOPE | 1 | |
| | | | | |
| JK7101 | K2HC104E0017 | JACK | 1 | (PSECI) |
| | | | | |
| L7801 | G1C100KA0031 | COIL 10UH | 1 | (PSECI) |
| | | | | |
| Q4301 | 2SD1819ARL | TRANSISTOR | 1 | |
| Q4302 | 2SD1819ARL | TRANSISTOR | 1 | |
| Q4305 | 2SB1218ARL | TRANSISTOR | 1 | |
| Q4306 | UNR9112J | TRANSISTOR | 1 | |
| Q4307 | UNR9213J | TRANSISTOR-RESISTOR | 1 | |
| Q4801 | 2SD2216J08 | TRANSISTOR | 1 | |
| Q6501 | B1ABCF000098 | TRANSISTOR | 1 | |
| Q6502 | 2SB1218ARL | TRANSISTOR | 1 | |
| | | | | |
| R4301 | ERJ3GEYJ240 | M.RESISTOR CH 1/10W 24 | 1 | (PSECI) |
| R4302 | ERJ3GEYJ240 | M.RESISTOR CH 1/10W 24 | 1 | (PSECI) |
| R4303 | D0GB2R2JA057 | M.RESISTOR CH 1/10W 2.2 | 1 | (PSECI) |
| R4305 | VRE0071E472 | M.RESISTOR CH 1/10W 4.7K | 1 | |
| R4306 | VRE0071E333 | M.RESISTOR 33K | 1 | |
| R4307 | VRE0071E562 | M.RESISTOR 5.6K | 1 | |
| R4308 | VRE0071E471 | M.RESISTOR CH 1/10W 470 | 1 | |
| R4311 | ERJ3GEYJ240 | M.RESISTOR CH 1/10W 24 | 1 | (PSECI) |
| R4312 | ERJ3GEYJ240 | M.RESISTOR CH 1/10W 24 | 1 | (PSECI) |
| R4802 | ERJ3GEYJ472 | M.RESISTOR CH 1/10W 4.7K | 1 | |
| R4803 | ERJ3GEYJ223 | M.RESISTOR CH 1/10W 22K | 1 | |
| R4804 | ERJ3GEYJ333 | M.RESISTOR CH 1/10W 33K | 1 | |
| R4805 | D0GB124JA057 | M.RESISTOR CH 1/10W 120K | 1 | |
| R4806 | ERJ3GEYJ333 | M.RESISTOR CH 1/10W 33K | 1 | |
| R4807 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R4808 | D0GB124JA057 | M.RESISTOR CH 1/10W 120K | 1 | |
| R4809 | ERJ3GEYJ333 | M.RESISTOR CH 1/10W 33K | 1 | |
| R4810 | VRE0071E392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| R6504 | ERJ3GEYJ106 | M.RESISTOR CH 1/10W 10M | 1 | |
| R6505 | ERJ3GEYJ335 | M.RESISTOR CH 1/10W 3.3M | 1 | |
| R6506 | D0GB184JA057 | M.RESISTOR CH 1/10W 180K | 1 | |
| R6507 | D0GB103JA057 | M.RESISTOR CH 1/10W 10K | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| R6509 | D0GB102JA057 | M.RESISTOR CH 1/10W 1K | 1 | |
| R7001 | ERJ3GEYJ122 | M.RESISTOR CH 1/10W 1.2K | 1 | |
| R7101 | J0JBC0000014 | FILTER | 1 | |
| R7102 | J0JBC0000014 | FILTER | 1 | |
| R7103 | J0JBC0000014 | FILTER | 1 | |
| R7104 | ERJ3GEYJ392 | M.RESISTOR CH 1/10W 3.9K | 1 | |
| | | | | |
| SW2 | ESE22MH22 | SWITCH | 1 | |
| | | | | |
| ■ | LSEP8365A1 | EVF B/L P.C.B. | | (RTL)(PSECI) |
| | | | | |
| C8902 | F1H1A105A036 | C.CAPACITOR CH 10V 1U | 1 | |
| C8903 | F1H0J1050012 | C.CAPACITOR CH 6.3V 1U | 1 | |
| | | | | |
| D8901 | B3AFB0000129 | DIODE | 1 | |
| D8902 | MAZ80470ML | DIODE | 1 | |
| D8903 | MA3S13300L | DIODE | 1 | |
| | | | | |
| FP8901 | K1MN16A00077 | CONNECTOR 16P | 1 | |
| FP8902 | K1MN18A00064 | CONNECTOR 18P | 1 | |
| | | | | |
| Q8901 | 2SC6054J0L | TRANSISTOR | 1 | |
| | | | | |
| R8901 | ERJ3GEYJ472 | M.RESISTOR CH 1/10W 4.7K | 1 | |
| R8903 | ERJ3RBD101 | M.RESISTOR CH 1/10W 100 | 1 | |
| | | | | |
| ■ | LSEP8436A1 | EVF FPC | | (PSECI) |
| | | | | |
| SW9201 | ESE18L61D | SWITCH | 1 | (PSECI) |
| | | | | |
| ■ | LSEP8442A1 | BATTERY FPC | | (PSECI) |
| | | | | |
| L1201 | J0JHC0000031 | FILTER | 1 | |
| L1202 | J0JHC0000031 | FILTER | 1 | |
| | | | | |
| ■ | LSEP8453A1 | SIDE R C.B.A | | (RTL)(PSECI) |
| | | | | |
| R7501 | ERJ3GEYJ272 | M.RESISTOR CH 1/10W 2.7K | 1 | |
| R7502 | ERJ3GEYJ562 | M.RESISTOR CH 1/10W 5.6K | 1 | |
| | | | | |
| SW7501 | K0F111A00547 | SWITCH | 1 | |
| SW7502 | K0F111A00547 | SWITCH | 1 | |
| SW7503 | K0F111A00547 | SWITCH | 1 | |
| SW7504 | K0F111A00547 | SWITCH | 1 | |
| | | | | |
| ■ | LSEP8433A1 | LCD BACKLIGHT P.C.B. | | (RTL)(PSECI) |
| | | | | |
| C8104 | F1H1H390A765 | C.CAPACITOR CH 50V 39P | 1 | (PSECI) |
| C8105 | F1H1H390A765 | C.CAPACITOR CH 50V 39P | 1 | (PSECI) |
| C8106 | F1H1H390A765 | C.CAPACITOR CH 50V 39P | 1 | (PSECI) |
| C8107 | F1H1A105A036 | C.CAPACITOR CH 10V 1U | 1 | |
| C8109 | F1J1A475A024 | C.CAPACITOR CH 10V 4.7U | 1 | |
| C8111 | F1H1C104A075 | C.CAPACITOR CH 16V 0.1U | 1 | (PSECI) |
| C8112 | F1J1A2250007 | C.CAPACITOR CH 10V 2.2U | 1 | |
| C8113 | F1H1A105A036 | C.CAPACITOR CH 10V 1U | 1 | |
| C8116 | F1H0J1050012 | C.CAPACITOR CH 6.3V 1U | 1 | |
| | | | | |
| D8101 | MAZ80620ML | DIODE | 1 | |

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| D8102 | B3AFB0000215 | LED | 1 | (PSECI) |
| D8104 | B3AFB0000215 | LED | 1 | (PSECI) |
| D8107 | B3AFB0000215 | LED | 1 | (PSECI) |
| D8109 | B3AFB0000215 | LED | 1 | (PSECI) |
| D8113 | MAZ80510ML | DIODE | 1 | |
| | | | | |
| FP8101 | K1MN22BA0197 | CONNECTOR 22P | 1 | |
| FP8102 | K1MN24BA0196 | CONNECTOR 24P | 1 | (PSECI) |
| | | | | |
| L8101 | G1C101KA0031 | CHIP INDUCTOR 100UH | 1 | (PSECI) |
| | | | | |
| Q8101 | 2SC6054J0L | TRANSISTOR | 1 | |
| Q8102 | 2SC6054J0L | TRANSISTOR | 1 | |
| Q8104 | 2SC6054J0L | TRANSISTOR | 1 | |
| Q8105 | 2SC6054J0L | TRANSISTOR | 1 | |
| Q8107 | 2SA2174J0L | TRANSISTOR | 1 | |
| Q8112 | 2SA2174J0L | TRANSISTOR | 1 | |
| Q8113 | 2SA2174J0L | TRANSISTOR | 1 | |
| | | | | |
| R8102 | ERA3YED271V | M.RESISTOR CH 1/16W 270 | 1 | (PSECI) |
| R8105 | ERA3YED271V | M.RESISTOR CH 1/16W 270 | 1 | (PSECI) |
| R8106 | ERA3YED271V | M.RESISTOR CH 1/16W 270 | 1 | (PSECI) |
| 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 | |
| R8115 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| R8116 | ERA3YED562V | M.RESISTOR CH 1/16W 5.6K | 1 | |
| R8119 | ERJ3RED270 | M.RESISTOR CH 1/10W 27 | 1 | |
| R8123 | D0GB473JA057 | M.RESISTOR CH 1/10W 47K | 1 | |
| R8126 | ERJ3GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R8127 | D0GB102JA057 | M.RESISTOR CH 1/10W 1K | 1 | |
| R8135 | ERA3YKD473V | M.RESISTOR CH 1/16W 47K | 1 | |
| R8136 | ERJ3RBD103 | M.RESISTOR CH 1/10W 10K | 1 | |
| R8143 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| R8145 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| R8153 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| R8154 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| R8155 | ERJ3GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 | |
| | | | | |
| ■ | LSEP8435A1 | LCD SHAFT FPC | | (PSECI) |
| | | | | |
| SW8201 | K0C111B00008 | SWITCH | 1 | (PSECI) |
| | | | | |