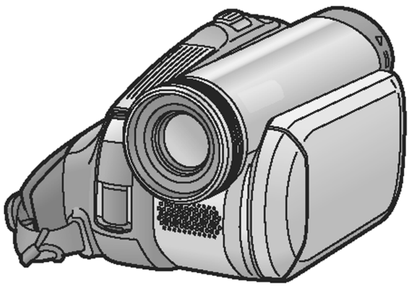
ORDER NO. VM0602001CE

Service Manual

Digital Video Camcorder



PbF
Solder Lead free

NV-GS24EG NV-GS26GK
NV-GS27E NV-GS27EB
NV-GS27EE NV-GS27EF
NV-GS27EG NV-GS27EP
NV-GS27GC NV-GS27GN
NV-GS37E NV-GS37EB
NV-GS37EG NV-GS37EK
NV-GS37EP NV-GS47EE
NV-GS47GC NV-GS57EE
NV-GS57GC NV-GS58GK

Vol. 1

Colours

(S)...................Silver Type

Panasonic

⚠ 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.

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 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.

2 Warning

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

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

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

   CAUTION :

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

2.2. Caution for AC Cord (VJA0940 type)

2.2.1. 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.

2.2.2. 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.

2.2.2.1. 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.

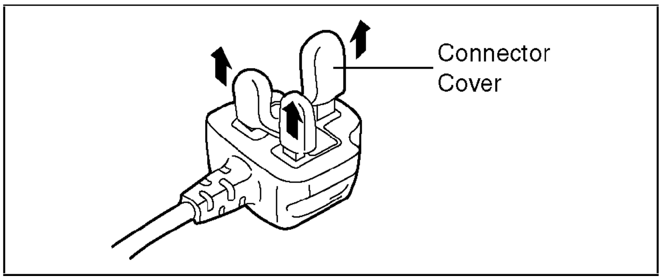
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

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	⏚

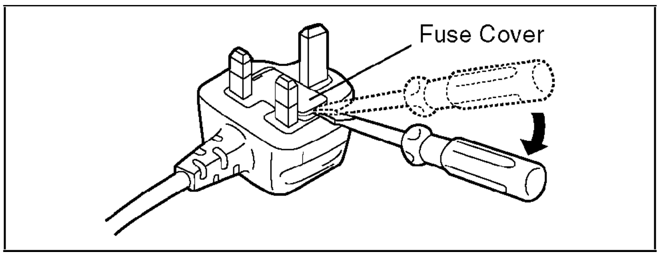
2.2.2.2. Before use

Remove the Connector Cover as follows.

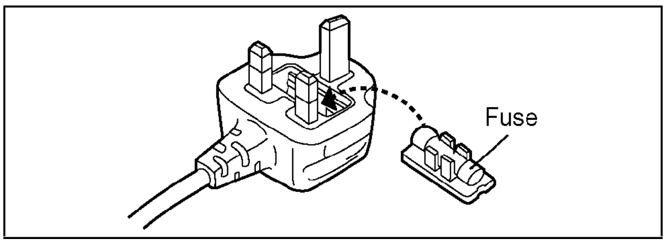


2.2.2.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.

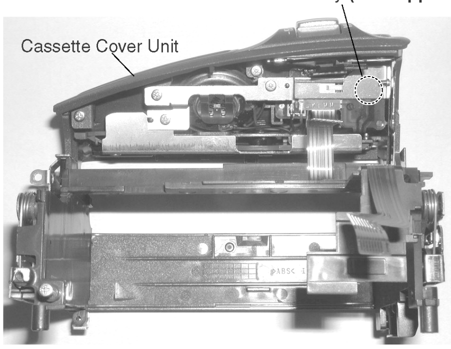


2. Replace the fuse and attach the Fuse cover.



2.3. How to Replace the Lithium Battery

The lithium battery (ML-621S/F9D) is not supplied as a service part and must be replaced as part of the Cassette Cover Unit. (Refer to "Disassembly and Assembly Instructions.")



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.

NOTE:

This Lithium battery is a critical component. (Type No.: ML-621S/F9D Manufactured by Panasonic.) **(Not supplied)**

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.

3 Service Navigation

3.1. Introduction

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.

Note 1:

1. VSK0561 is indicated on the AC Adaptor used in the following models:
   NV-GS26GK and NV-GS58GK.
   However, the AC Adaptor replacement part number is DE-974HA which should be used when ordering.
2. VSK0561 is indicated on AC Adaptor used in the following models:
   NV-GS24EG, NV-GS27E, NV-GS27EB, NV-GS27EE, NV-GS27EF, NV-GS27EG, NV-GS27EP, NV-GS27GC, NV-GS27GN, NV-GS37E, NV-GS37EB, NV-GS37EG, NV-GS37EK, NV-GS37EP, NV-GS47EE, NV-GS47GC, NV-GS57EE, and NV-GS57GC.
   However, the AC Adaptor replacement part number is DE-974GB which should be used when ordering.

Note 2:

1. This service manual does not contain the following information, because of the impossibility of servicing at component level.
   a. Schematic Diagram, Block Diagram and P.C.B. layout of Main P.C.B. and Camera P.C.B.
   b. Parts List for individual parts of Main P.C.B. and Cemera P.C.B.
2. The following category are recycle module parts. Please send it to Central Repair Center.
   a. *Main P.C.B. (LSEP8330P1/ LSEP8330Q1/ LSEP8330R1/ LSEP8330S1)
   b. *Camera P.C.B. (LSEP8331P1/ LSEP8331Q1/ LSEP8331R1/ LSEP8331S1)

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

3.2. About Lead Free Solder (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution:

- Pb free solder has a higher melting point than standard solder; Typically the melting point is 50-70°F (30-40°C) higher.
  Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700±20°F (370±10°C).
- Pb free solder will tend to splash when heated too high (about 1100°F/600°C).

When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

4 Specifications

ITEM	SPECIFICATION
Power	Digital Video Camera: Power Source: DC 7.9/7.2 V Power Consumption (Recording): 2.5 W (When using viewfinder) 3.1 W (When using LCD monitor) AC adaptor: Power Source: AC 110-240 V, 50/60 Hz Power Consumption: 19 W DC Output: DC 7.9 V, 1.4 A (Movie camera operation) DC 8.4 V, 0.65 A (Battery charging)
Recording format	Mini DV (Consumer-use digital video SD format)
Tape used	6.35 mm digital video tape
Recording/ playback time	SP: 80 min.; LP: 120 min. (with DVM80)
Video Recording system	Digital component
Television system	CCIR: 625 lines, 50 fields PAL colour signal
Audio Recording system	PCM digital recording 16 bit (48 kHz/2ch), 12 bit (32 kHz/4ch)
Image sensor	1/6-inch CCD image sensor
Lens	Auto Iris, F1.8 - F3.9, Focal length; 1.9 mm - 57 mm Macro (Full range AF)
Filter diameter	30.5 mm
Zoom	30:1 Power zoom
Monitor	2.5-inch LCD
Viewfinder	Electronic viewfinder
Microphone	Stereo (with a zoom function)

ITEM	SPECIFICATION
Speaker	1 round speaker ∅ 20 mm
Standard illumination	1,400 lx
Minimum required illumination	2 lx (Colour Night View Mode)
Output level	Video output level: 1.0 Vp-p, 75 ohm Audio output level (Line): 316 mV, 600 ohm
USB	USB 2.0 compliant(Full-Speed) No copyright protection support
Digital interface	DV output terminal (IEEE1394, 4-pin)
WEB camera	Compression: Motion JPEG Image size: 320 X 240 pixels (QVGA) Frame rate: Approx. 6 fps
Operating condition	0 °C-40 °C (Temperature) 10 %-80 % (Humidity)
Weight	Digital Video Camera: 410 g (without supplied battery, DV cassette and lens cap) 480 g (with supplied battery, DV cassette and lens cap) AC adaptor: 110 g
Dimensions	Digital Video Camera: 82 mm x 69 mm x 120 mm (W x H x D) AC adaptor: 61 mm x 32 mm x 91 mm (W x H x D)
Solder	**This model uses lead free solder (PbF).**

5 Location of Controls and Components

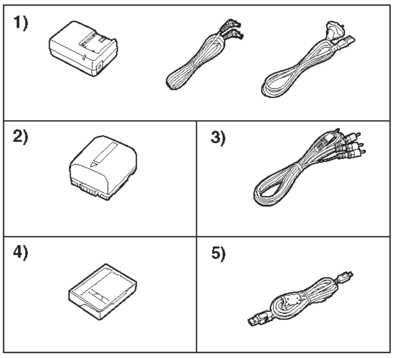
Followings are the Operation Guide for NV-GS27GN as a sample.

For other models, refer to each original Operation Guide.

Before using

Accessories

The followings are the accessories supplied with this product.



1) **AC adaptor, DC input lead, AC mains lead** *-7-*
2) **Battery pack** *-7-*
3) **AV cable** *-30-*
4) **Digital video head cleaner** *-39-*
5) **USB cable**

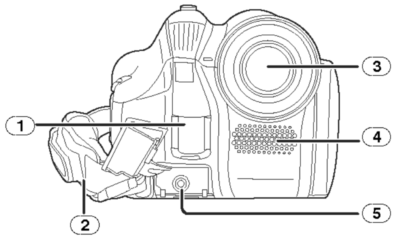
Optional

1) AC adaptor (VW-AD11GN)
2) Battery pack (lithium/CGR-DU06/640mAh)
3) Battery pack (lithium/CGA-DU07/680mAh)
4) Battery pack (lithium/CGA-DU12/1150mAh)
5) Battery pack (lithium/CGA-DU14/1360mAh)
6) Battery pack (lithium/CGA-DU21/2040mAh)
7) Wide conversion lens (VW-LW3007E)
8) Tele conversion lens (VW-LT3014E)
9) ND filter (VW-LND30E)
10) MC protector (VW-LMC30E)
11) Tripod (VW-CT45E)
12) DV cable (VW-CD1E)

- Some optional accessories may not be available in some countries.

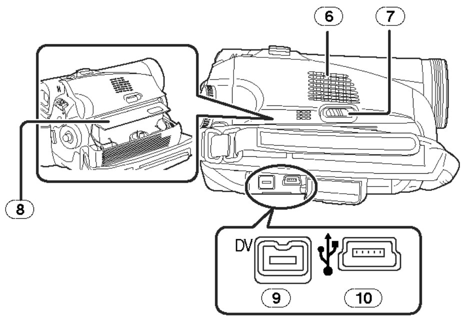
Parts identification and handling

■ **Camera**

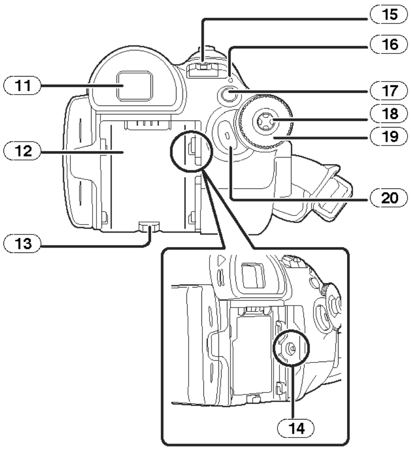


(1) **White balance sensor** *-26-*
(2) **Grip belt** *-6-*
(3) **Lens**
- Fit the MC protector (VW-LMC30E; optional), the ND filter (VW-LND30E; optional), the tele conversion lens (VW-LT3014E; optional) or the wide conversion lens (VW-LW3007E; optional) in front of the lens. Do not fit the other accessories. (except for the lens cap)

(4) **Microphone (built-in, stereo)** *-20-, -23-*
(5) **Audio-video output terminal [A/V]** *-30-*



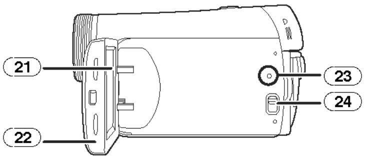
(6) **Speaker** *-28-*
(7) **Cassette eject lever [OPEN/EJECT]** *-12-*
(8) **Cassette holder** *-12-*
(9) **DV terminal [DV]** *-30-, -30-*
(10) **USB terminal [⊻]**



(11) **Viewfinder** *-10-, -41-*

> 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.

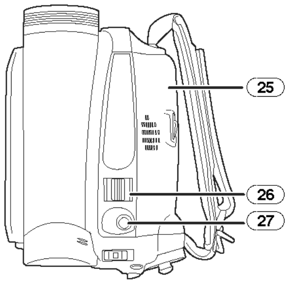
(12) **Battery holder** *-7-*
(13) **Battery release lever [BATTERY RELEASE]** *-7-*
(14) **DC input terminal [DC/C.C.IN]** *-7-*
(15) **Power switch [OFF/ON]** *-8-*
(16) **Status indicator** *-8-*
(17) **Menu button [MENU]** *-15-*
(18) **Joystick** *-13-*
(19) **Mode dial** *-13-*
(20) **Recording start/stop button** *-18-*



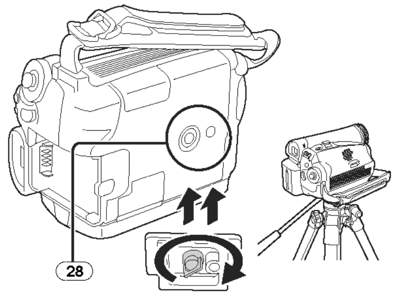
(21) **LCD monitor** *-10-, -41-*

> 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.

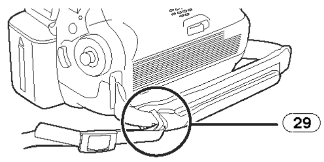
(22) **LCD monitor open part [OPEN]** *-10-*
(23) **Reset button [RESET]** *-35-, -38-*
(24) **Mode select switch [AUTO/MANUAL/FOCUS]** *-17-, -24-, -27-*



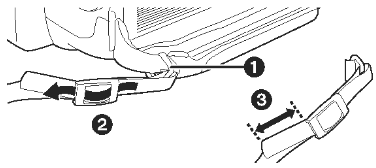
(25) **Cassette cover** *-12-*
(26) **Zoom lever [W/T]** *-20-*
Volume lever [−VOLUME+] *-28-*
(27) **Photoshot button [PHOTO SHOT]** *-19-*



(28) **Tripod receptacle**
This is a hole for attaching the camera to optional tripod/VW-CT45E. (Please carefully read the operating instructions for how to attach the tripod to the camera.)



(29) **Shoulder strap fixture**

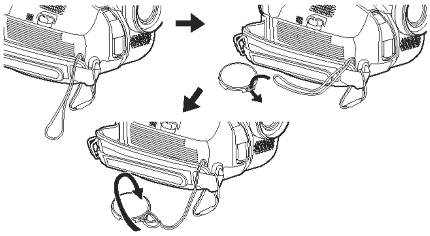


- Put the strap (optional) through the fixture 1 and through the stopper 2 so it will not come off. Extend part 3 by at least 2 cm.
- Fit the other end of the belt similarly.

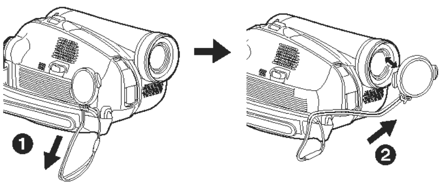
Fitting the lens cap

Fit the lens cap to protect the surface of the lens.

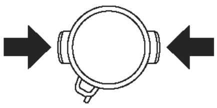
1 The lens cap and lens cap cord comes preattached to the grip belt. Pass the end of the lens cap cord through the attached eye on the lens cap. Then pass the lens cap through the loop made by itself and pull tight.



- When not using the lens cap, pull the lens cap cord in the direction of the arrow. ❶
- When you are not recording, be sure to cover the lens with the lens cap for protection. ❷



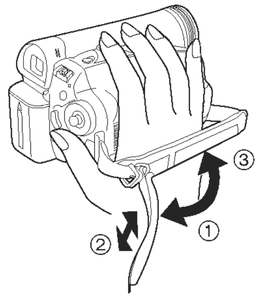
- When you remove the lens cap, press the knobs firmly.



The grip belt

Adjust the belt length so it fits your hand.

1 Adjust the belt length.



① Flip the belt.
② Adjust the length.
③ Fix the belt.

Power supply

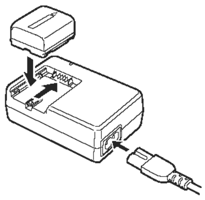
■ Charging the battery

When this product is purchased, the battery is not charged. Charge the battery before using this product.

- Battery charging time (-8-)
- We recommend using Panasonic batteries.
- If you use other batteries, we cannot guarantee the quality of this product.
- If the DC input lead is connected to the AC adaptor, then the battery will not get charged. Remove the DC input lead from the AC adaptor.

1 **Connect the AC mains lead to the AC adaptor and the AC mains socket.**

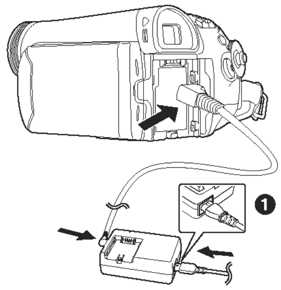
2 **Put the battery on the battery mount by aligning the mark, and then securely plug it in.**



■ Charging lamp

Lights up: Charging
Goes off: Charging completed
Flashing: The battery is over discharged (discharged excessively). In a while, the lamp will light up and normal charging will start.
When the battery temperature is excessively high or low, the [CHARGE] lamp flashes and the charging time will be longer than normal.

■ Connecting to the AC outlet



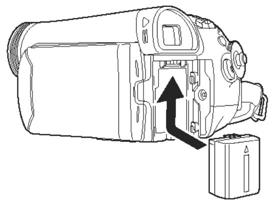
1 **Connect the AC mains lead to the AC adaptor and the AC mains socket.**

2 **Connect the DC input lead to the AC adaptor.**

3 **Connect the DC input lead to this product.**
- The output plug of the AC mains lead is not completely connected to the AC adaptor socket. As shown in ❶, there is a gap.
- Do not use the power cord for other equipment since the power cord is exclusively designed for the movie camera. Or do not use the power cord of other equipment for the movie camera.

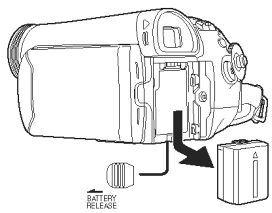
■ Fitting the battery

Push the battery against the battery holder and slide it until it clicks.



■ Removing the battery

While sliding the [BATTERY RELEASE] lever, slide the battery to remove it.



- Hold the battery with your hand so it does not fall.
- Before removing the battery, be sure to set the [OFF/ON] switch to [OFF].

Charging time and recordable time

The times shown in the table below show the times at a temperature of 25 °C and a humidity of 60%. This is just a guide. If the temperature is higher or lower than the specified value, the charging time will become longer.

Supplied battery/ CGR-DU06 (7.2 V/ 640 mAh)	Ⓐ	1 h 40 min
	Ⓑ	1 h 50 min (1 h 25 min)
	Ⓒ	55 min (45 min)
CGA-DU12 (7.2 V/ 1150 mAh)	Ⓐ	2 h 25 min
	Ⓑ	3 h 15 min (2 h 40 min)
	Ⓒ	1 h 40 min (1 h 20 min)
CGA-DU14 (7.2 V/ 1360 mAh)	Ⓐ	2 h 45 min
	Ⓑ	3 h 50 min (3 h)
	Ⓒ	1 h 55 min (1 h 30 min)
CGA-DU21 (7.2 V/ 2040 mAh)	Ⓐ	3 h 55 min
	Ⓑ	5 h 45 min (4 h 30 min)
	Ⓒ	2 h 55 min (2 h 15 min)
CGA-DU07 (7.2 V/ 680 mAh)	Ⓐ	1 h 30 min
	Ⓑ	1 h 55 min (1 h 30 min)
	Ⓒ	1 h (45 min)

Ⓐ Charging time
Ⓑ Maximum continuously recordable time
Ⓒ Intermittent recordable time

(The intermittent recordable time refers to recordable time when the recording and stopping operations are repeated.)

"1 h 40 min" indicates 1 hour 40 minutes.

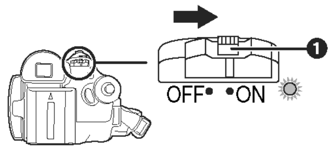
- The battery CGR-DU06 is supplied.
- The times shown in the table are rough estimates. The times indicate the recordable times when the viewfinder is used. The times in parentheses indicate the recordable times when the LCD monitor is used.
- We recommend the Battery Pack CGA-DU12, CGA-DU14 and CGA-DU21 for long time recording (2 hours or more for continuous recording, 1 hour or more for intermittent recording).
- The recordable time will become shorter in the following cases:
  - When you use both the viewfinder and the LCD monitor simultaneously while rotating the LCD monitor frontward to record yourself etc.
- The batteries heat up after use or charging. The main unit of the movie camera being used will also heat up. This is normal.
- Along with the reduction of the battery capacity, the display will change: → → → → . If the battery discharges, then ( ) will flash.

Turning the camera on

When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.

■ How to turn on the power

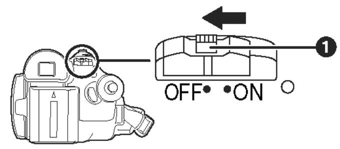
1 While pressing the button ❶, set the [OFF/ON] switch to [ON].



- The status indicator lights red and the power turns on.
- If the LCD monitor is closed and the viewfinder is retracted while the [OFF/ON] switch is set to [ON] in the Tape Recording Mode, the power turn off.

■ How to turn off the power

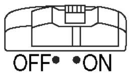
1 While pressing the button ❶, set the [OFF/ON] switch to [OFF].



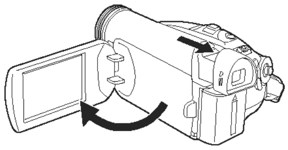
- **Set the [OFF/ON] switch to [OFF] when not using the camera.**
- The status indicator goes off when the power turns off.

How to turn the power on and off with the LCD monitor/viewfinder

When the power switch is set to [ON], the power can be turned on and off with the LCD monitor and the viewfinder when the unit is in Tape Recording Mode.

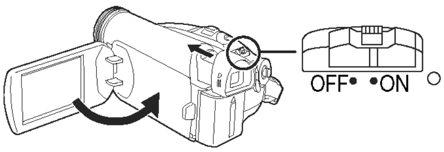


1 Open the LCD monitor out or extend the viewfinder to use. (-*10*-)



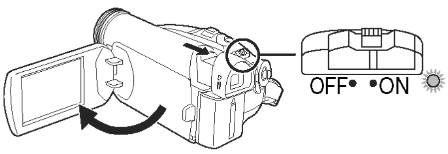
- The LCD monitor or the viewfinder will be activated.

2 Close the LCD monitor and retract the viewfinder.



- The power will not turn off unless the LCD monitor is closed and the viewfinder is retracted.
- The status indicator automatically goes off and the power turns off. (If quick start is set to [ON] (-*11*-), the unit goes into quick start standby mode and the status indicator lights green.)
- The power does not turn off even if the LCD monitor is closed and the viewfinder is retracted while recording on a tape.

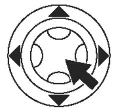
3 Open the LCD monitor or extend the viewfinder to turn the power on and use the movie camera again.



- The status indicator lights up and the power turns on.

Setting date and time

When the movie camera is turned on for the first time, [SET DATE AND TIME] will appear.

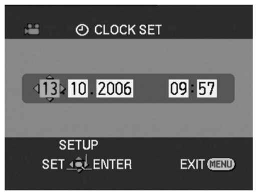


- Select [YES] and press the centre of the joystick. Do steps 2 and 3 below to set the date/ time.

If the screen shows the incorrect date/time, then adjust it.

- **Set to Tape Recording Mode.**

1 Set [BASIC] >> [CLOCK SET] >> [YES]. (-*15*-)



2 Move the joystick left or right in order to select the item to be set. Then move the joystick up or down to set the desired value.

- The year will change as follows:
  2000, 2001, ..., 2089, 2000, ...
- The 24-hour clock is used.

3 Press the joystick to determine the setting.

- The clock function starts at [00] seconds.

About date/time

- The date and time function are driven by a built-in lithium battery.
- Make sure to check the time before recording because the built-in clock is not very accurate.

■ Recharging the built-in lithium battery

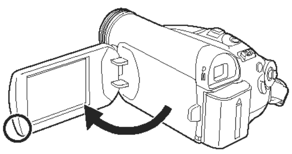
- If [ ] or [--] is appears when the camera is turned on, then the built-in lithium battery has run down. Use the steps below to charge the battery. When turn on the power for the first time after charging, [SET DATE AND TIME] will appear. Select [YES] and set the date and time. Connect the AC adaptor to the camera or attach the battery to the camera, and the built-in lithium battery will be recharged. Leave the camera as is for approx. 24 hours, and the battery will drive the date and time for approx. 6 months. (Even if the [OFF/ON] switch is set to [OFF], the battery is still being recharged.)

WARNING
THE LITHIUM BATTERY IN THIS UNIT MUST ONLY BE REPLACED BY QUALIFIED PERSONNEL. IF THIS IS NECESSARY, CONTACT THE PANASONIC CUSTOMER CARE CENTRE ON 132600 FOR YOUR NEAREST AUTHORIZED SERVICE CENTRE.

Using the LCD monitor

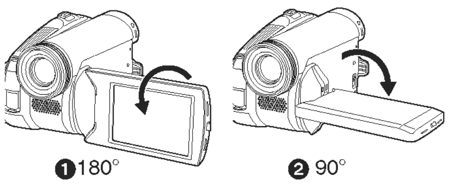
You can record the image while viewing it on the opened LCD monitor.

1 Put a finger on the LCD monitor open part and open the LCD monitor out in the direction of the arrow.



- It can open up to 90°.

2 Adjust the angle of the LCD monitor as you prefer.



❶180°　　❷ 90°

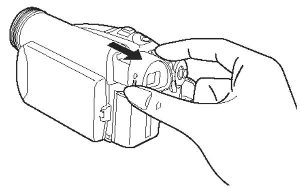
- It can rotate up to 180° ❶ towards the lens or 90° ❷ towards the viewfinder.

- The brightness and colour level of the LCD monitor can be adjusted from the menu.
- If it is forcibly opened or rotated, the camera may be damaged or fail.
- If the LCD monitor is rotated by 180° towards the lens and the viewfinder is extended (when recording yourself), the LCD monitor and the viewfinder simultaneously light.

Using the viewfinder

■ Extending the viewfinder

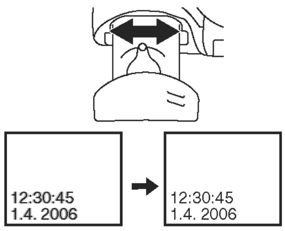
1 Pull out the viewfinder. Extend it by pinching the extension knob.



- The viewfinder will be activated. (If the LCD monitor is opened, the viewfinder will be deactivated.)

■ Adjusting the field of view

1 Adjust the focus by sliding the eyepiece corrector knob.



- You can adjust the brightness of the viewfinder from the menu.

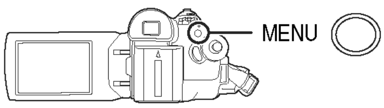
Quick start

When quick start is on the battery power is still being consumed, even when the LCD monitor and the viewfinder are closed.
The camera will resume recording/pause mode about 1.7 seconds after the LCD monitor or the viewfinder is reopened.

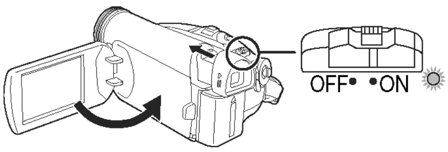
- Please note in quick start mode approximately half the pause recording power is being consumed. Using quick start mode will reduce the battery recording/playback time.
- This is only activated in the following cases.
  - A tape is inserted, while the Tape Recording Mode is set.

● Set to Tape Recording Mode.

1 Set [SETUP] >> [QUICK START] >> [ON]. (-15-)

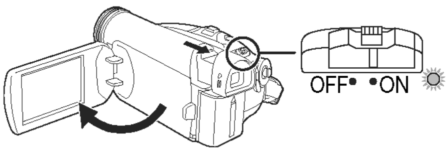


2 While the [OFF/ON] switch is still set to [ON], close the LCD monitor and retract the viewfinder.



- The status indicator lights green and the unit goes into quick start standby mode.
- The movie camera will not go into quick start standby unless the LCD monitor is closed and the viewfinder is retracted.

3 Open the LCD monitor or extend the viewfinder.



- The status indicator lights red and the camera is put into recording pause approx. 1.7 seconds after it is turned on.

■ To cancel Quick Start

1 Set [SETUP] >> [QUICK START] >> [OFF]. (-15-)

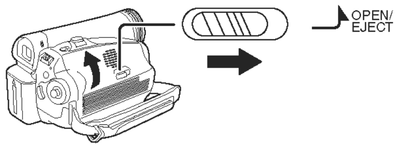
- If the [OFF/ON] switch is set to [OFF] while the unit is in quick start standby, the power turns off.
- If the standby continues for approx. 30 minutes, then the status indicator will go off and the camera will be completely turned off.

- If the Mode dial is moved or the battery is removed in quick start standby mode, quick start is cancelled and the power turns off.
- When the camera is quick-started with the white balance on automatic, it may take some time until the white balance is adjusted if the scene being recorded has a light source different from the scene last recorded. (When the colour night view function is used, however, the white balance of the scene last recorded is retained.)
- If the power is turned on in quick start standby, the zoom magnification becomes 5× and the picture size may differ from what it was before quick start standby.
- If [POWER SAVE] (-32-) is set to [5 MINUTES] and the unit automatically goes into quick start standby mode, set the [OFF/ON] switch to [OFF], then to [ON] again. Also, close the LCD monitor and retract the viewfinder and then open the LCD monitor or extend the viewfinder again.
- When using the AC adaptor, quick start can be used even if a tape is not inserted.

Inserting/removing a cassette

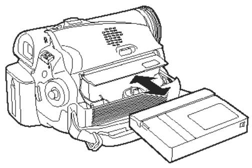
1 Fit the AC adaptor or the battery and turn on the power.

2 Slide the [OPEN/EJECT] lever and open the cassette cover.



- When the cover is fully opened, the cassette holder will come out.

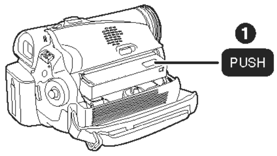
3 After the cassette holder is opened, insert/ remove the cassette.



- When inserting a cassette, orient it as shown in the figure, and then securely insert it as far as it goes.
- When removing, pull it straight out.

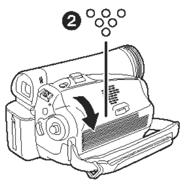
4 Push the [PUSH] mark ❶ in order to close the cassette holder.

- The cassette holder is housed.



Caution:
Take care not to trap your fingers under the cassette holder when closing it.

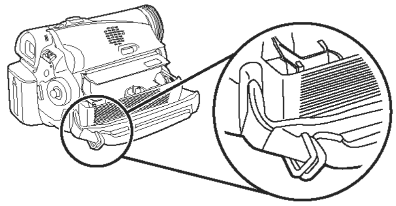
5 Only after the cassette holder is completely housed, close the cassette cover by pressing the mark ❷.



- When inserting a previously recorded cassette, use the blank search function to find the position where you want to continue recording. If you are overwriting a previously recorded cassette, be sure to find the position where you want to continue recording.
- Close the cassette cover tightly.
- When closing the cassette cover, do not get anything, such as a cable, caught in the cover.
- After use, be sure to rewind the cassette completely, remove it and put it in a case. Store the case in an upright position. (*-40-*)
- If the indicator of the condensation does not display on the LCD monitor and/or the viewfinder and you notice condensation on the lens or the main unit, do not open the cassette cover otherwise condensation may be formed on the heads or the cassette tape. (*-38-*)

■ When the cassette holder does not come out

- Close the cassette cover completely, and then open it again completely.
- Check if the battery has run down.
- Check if the cassette compartment cover is in contact with grip belt as shown below. If so, be sure the grip belt stays clear of the cover when opening.

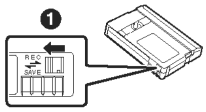


■ When the cassette holder cannot be housed

- Set the [OFF/ON] switch to [OFF], then to [ON] again.
- Check if the battery has run down.

■ Accidental erasure prevention

If the accidental erasure prevention slider ❶ of a cassette is opened (slide in the direction of the [SAVE] arrow), the cassette cannot be recorded. When recording, close the accidental erasure prevention slider of the cassette (slide in the direction of the [REC] arrow).

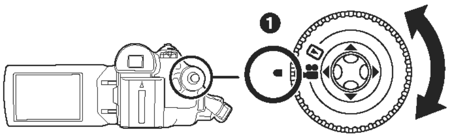


Selecting a mode

Rotate the mode dial to select the desired mode.

1 Rotate the mode dial.

- Set your desired mode to ❶.



: TAPE RECORDING MODE

Use this when you record the image on a tape.

: TAPE PLAYBACK MODE

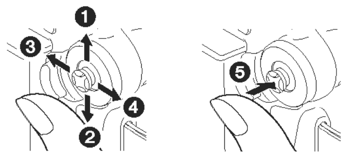
Use this to play back a tape.

How to use the joystick

Basic joystick operations

Operations on the menu screen and selection of files to be played back on the multi-image display

Move the joystick up, down, left or right to select an item or file, and then push in the centre to set it.



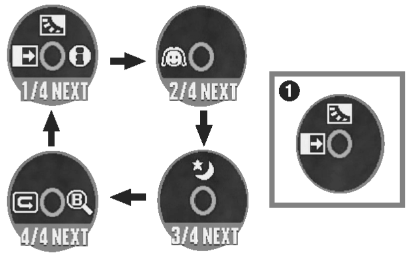
❶	Select by moving up.
❷	Select by moving down.
❸	Select by moving left.
❹	Select by moving right.
❺	Determine by pushing the centre.

Joystick and screen display

Push the centre of the joystick, and icons will be displayed on the screen. Each time the joystick is moved down, the indication changes.

(In the Tape Playback Mode, the icons will be automatically displayed on the screen.)

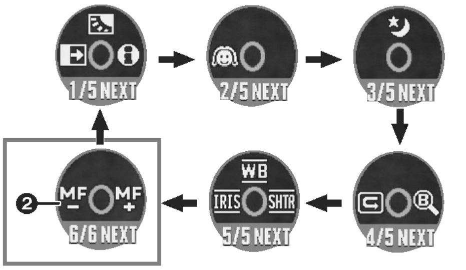
1) Tape Recording Mode ([AUTO/MANUAL/FOCUS] switch is set to [AUTO])

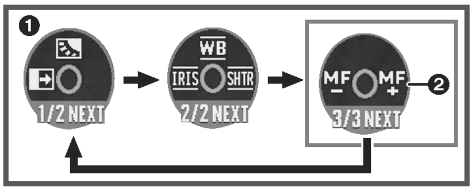


1/4	◄		Fade	-22-
	▲		Backlight compensation	-21-
	►		Help mode	-14-
2/4	◄		Soft skin mode	-22-
3/4	▲		Colour night view	-21-
4/4	◄		Recording check	-18-
	►		Blank search	-19-

- ❶ is displayed while recording on a tape.

2) Tape Recording Mode ([AUTO/MANUAL/FOCUS] switch is set to [MANUAL])





5/5	◀	IRIS	Iris or gain value	-27-
	▲	WB	White balance	-25-
	▶	SHTR	Shutter speed	-27-
6/6	◀	MF −	Manual focus adjustment	-26-
	▶	MF +	(When set to [FOCUS])	

- ❶ is displayed while recording on a tape.
- ❷ is displayed only when the [AUTO/MANUAL/FOCUS] switch is set to [FOCUS].

3) Tape Playback Mode

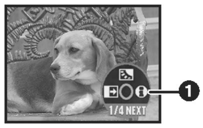
	▲	▶/❚❚	Playback/pause	-28-
	▼	■	Stop	-28-
	◀	◀◀	Rewind (review playback)	-28-
	▶	▶▶	Fast forward (cue playback)	-28-

Help mode

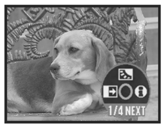
Select an icon for an explanation of the function.

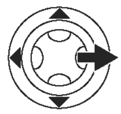
- **Set to Tape Recording Mode.**

1 Press the joystick to display the icon during the recording pause. Move the joystick down until icon ❶ appears.



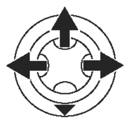
2 Move the joystick right to select the Help mode icon [ⓘ].





- The help mode explains the operation icons displayed when the [AUTO/MANUAL/FOCUS] switch is set to [AUTO] in Tape Recording Mode.

3 Move the joystick up, left, or right to select the desired icon.



- An explanation of the selected icon is displayed on the screen.
- Each time the joystick is moved down, the indication changes.

■ To exit the Help mode

Select [EXIT] or press the [MENU] button.

- When the Help mode is used, functions cannot be set.

Switching the language

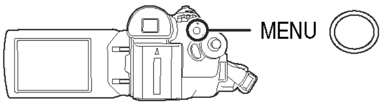
You can switch the language on the screen display or the menu screen.

1 Set [LANGUAGE] >> select the desired language.

Using the menu screen

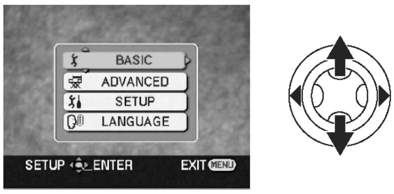
For each individual menu, please refer to *-31-*.

1 Press the [MENU] button.



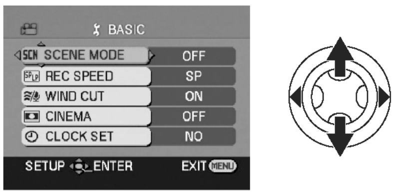
- The menu corresponding to the mode selected by the mode dial is displayed.
- Do not switch the mode dial when the menu is displayed.

2 Move the joystick up or down in order to select the top menu.



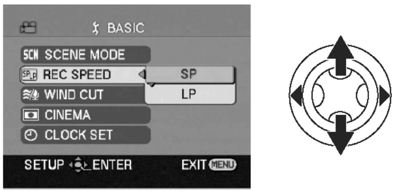
3 Move the joystick right or press it to set the selection.

4 Move the joystick up or down in order to select the sub-menu.



5 Move the joystick right or press it to set the selection.

6 Move the joystick up or down in order to select the item to be set.



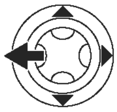
7 Press the joystick to determine the setting.

■ To exit the menu screen

Press the [MENU] button.

■ To get back to the previous screen

Move the joystick left.



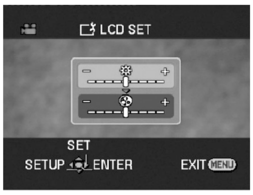
■ About the menu setting

- The menu is not displayed while recording on a tape. Also, you cannot record on a tape while the menu is displayed.

Adjusting LCD monitor/viewfinder

■ Adjusting the brightness and colour level

1 Set [SETUP] >> [LCD SET] or [EVF SET] >> [YES].



2 Move the joystick up or down in order to select the item to be adjusted.

[LCD SET]

: Brightness of the LCD monitor

: Colour level of the LCD monitor

[EVF SET]

EVF: Brightness of the viewfinder

3 Move the joystick left or right to move the bar indication representing the brightness.

4 Press the [MENU] button or the joystick to complete the settings.

- When the LCD monitor is rotated by 180° towards the lens, the brightness of the LCD monitor cannot be adjusted.
- To adjust the brightness of the viewfinder, close the LCD monitor and extend the viewfinder to activate it.
- These settings will not affect the images actually recorded.

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 occurred.

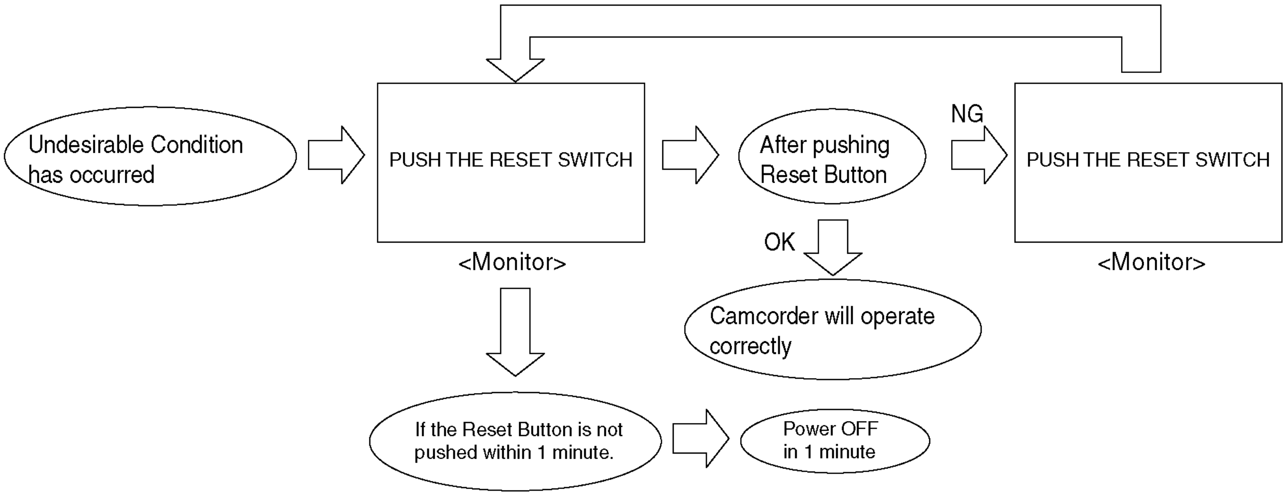


Fig. 1

Note:

When "PUSH THE RESET SWITCH" is displayed repeatedly, service is 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 bedisplayed. (Service Menu)

To enter the Service Menu

Push the [PHOTO SHOT], [JOYSTICK CONTROL LEFT] and [RECORDING START/STOP] simultaneously for 3 seconds (with no SD Card inserted).

Note:

If a Disc or SD Card is inserted, the above operation will not work.

This operation displays the following Service Menu items.

To select the Item

1. Set to Service Menu.
2. Press the [JOYSTICK CONTROL UP/DOWN] to select item [3].
3. Press the [JOYSTICK CONTROL RIGHT] to display [YES/NO] screen.
4. Press the [JOYSTICK CONTROL UP/DOWN] to select [YES].
5. Press the [JOYSTICK CONTROL CENTER].

Note:

Only perform items 3 in the Service Menu.

To exit the Service Menu

Unplug the AC Cord.

0505 0113 00 RS18 1/2

1	NO
2	NO
3	NO
4	NO
5	NO

<Service Menu 1/2>

Item [1]: Factory setting (reset)
Item [2]: Life Mode } **ignore**
Item [3]: Error/Lock Code/elapsed time
Item [4]: Envelope/HID
Item [5]: BER } **ignore**

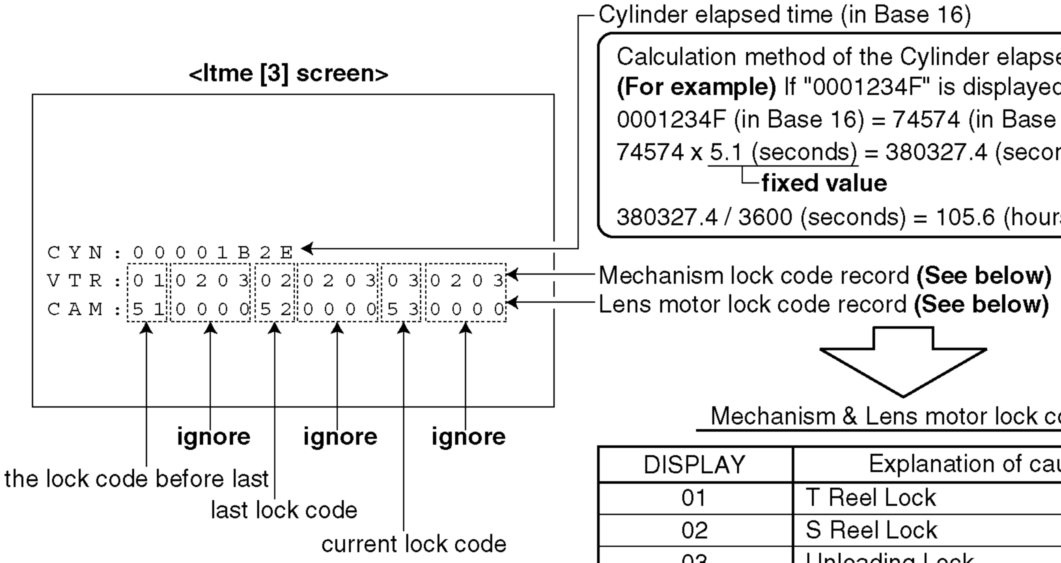
0505 0113 00 RS18 2/2

6	NO
7	NO
8	NO
9	NO

<Service Menu 2/2>

Item [6]: AD 24ch data
Item [7]: Not used
Item [8]: Resets the Cylinder elapsed time
Item [9]: Not used } **ignore**

<Itme [3] screen>



Calculation method of the Cylinder elapsed time:
(For example) If "0001234F" is displayed,
0001234F (in Base 16) = 74574 (in Base 10)
74574 x 5.1 (seconds) = 380327.4 (seconds)
└**fixed value**
380327.4 / 3600 (seconds) = 105.6 (hours)

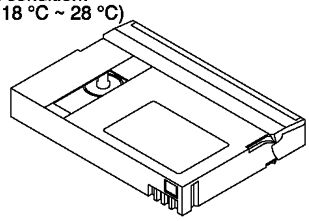
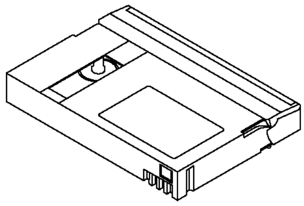
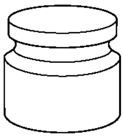
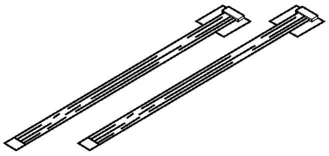
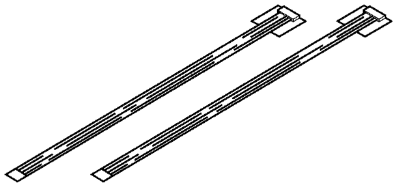
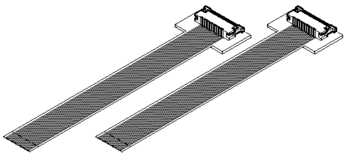
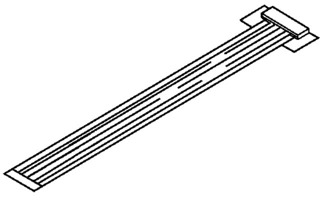
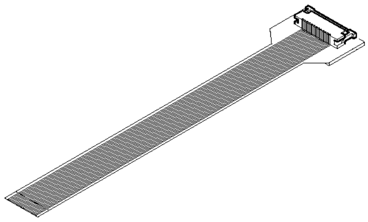
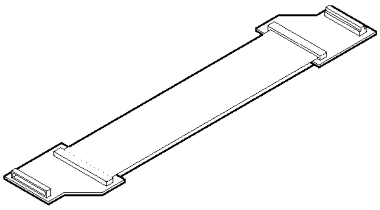
Mechanism & Lens motor lock code

DISPLAY	Explanation of cause
01	T Reel Lock
02	S Reel Lock
03	Unloading Lock
04	Loading Lock
05	Cylinder Lock
51	Zoom Motor Lock
52	Focus Motor Lock

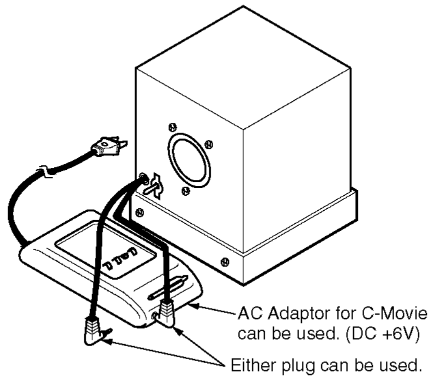
Fig. 2

7 Service Fixture & Tools

7.1. Service Fixture and Tools

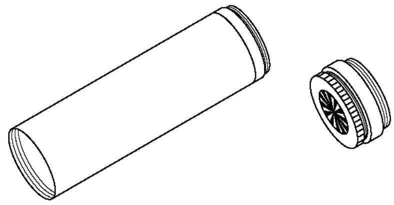
Color Bar Standard Tape VFM3110EDS (Keeping condition: Keep at 18 °C ~ 28 °C) 	DVC Head Cleaning Tape VFK1451 	Plier for Non ZIF Connector LSVQ0028 
Grease LSUQ0050 	Extension Cable 8P (2 pcs) LSUA0019 	Extension Cable 10P (2 pcs) LSUA0016 
Extension Cable 18P (2 pcs) LSUA0017 	Extension Cable 22P VUVS0012 	Extension Cable 28P VUVS0015 
Extension Cable 90P LSUA0060 		

Light Box and AC Adaptor VFK1164LBX1

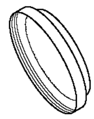


(AC Adaptor is not supplied)

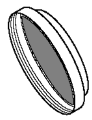
Infinity Lens (with Focus Chart) VFK1164TCM02



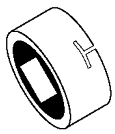
27mm Ring VFK1164TAR27



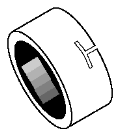
Color Conversion Filter (C14) VFK1164TFCT2



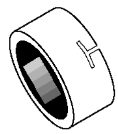
White Chart VFK1164TFWC2



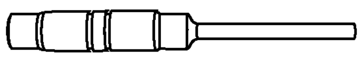
Color Bar Chart VFK1164TFCB2



Gray Scale Chart VFK1164TFGS2



Post Height Adjustment Fixture VFK1899



7.2. Service Position

7.2.1. Extension Cables for Service Position

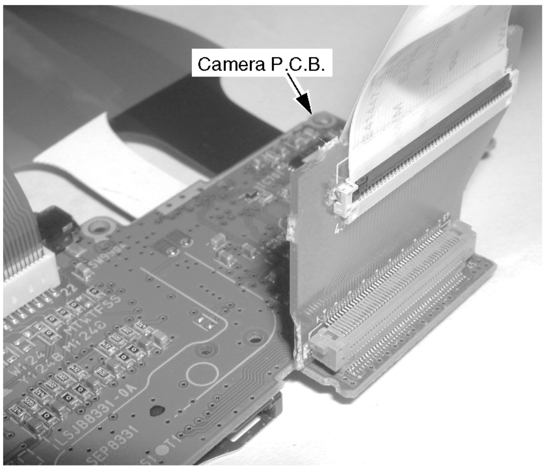
Using the following Extension Cables, place the unit as shown for check and service.

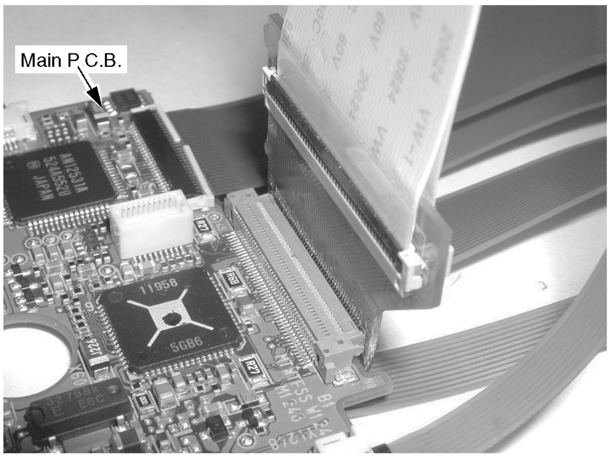
NO.	PART NUMBER	PART NAME	CONNECTION
①	LSUA0016	10Pin Extension Cable	FP7001 on Main P.C.B. ~ Zoom Switch F.P.C. of Cassette Cover Unit
②	VUVS0012	22Pin Extension Cable	FP9902 on Camera P.C.B. ~ EVF F.P.C. on EVF Unit **(For models with Color EVF)**
③	LSUA0060	90Pin Extension Cable	B1 on Main P.C.B. ~ B9901 on Camera P.C.B.
④	VUVS0015	28Pin Extension Cable	FP8 on Main P.C.B. ~ LCD F.P.C. on LCD Unit
⑤	LSUA0017	18Pin Extension Cable	FP4 on Main P.C.B. ~ Capstan F.P.C. on Mechanism Chassis Ass'y
⑥	LSUA0017	18Pin Extension Cable	FP2 on Main P.C.B. ~ Sub Mechanism F.P.C. on Mechanism Chassis Ass'y
⑦	LSUA0016	10Pin Extension Cable	FP3 on Main P.C.B. ~ Cylinder F.P.C. on Mechanism Chassis Ass'y
⑧	LSUA0019	8Pin Extension Cable	FP1 on Main P.C.B. ~ Mechanism F.P.C. on Mechanism Chassis Ass'y
⑨	LSUA0019	8Pin Extension Cable	FP5 on Main P.C.B. ~ Head Amp F.P.C. on Mechanism Chassis Ass'y

Note:

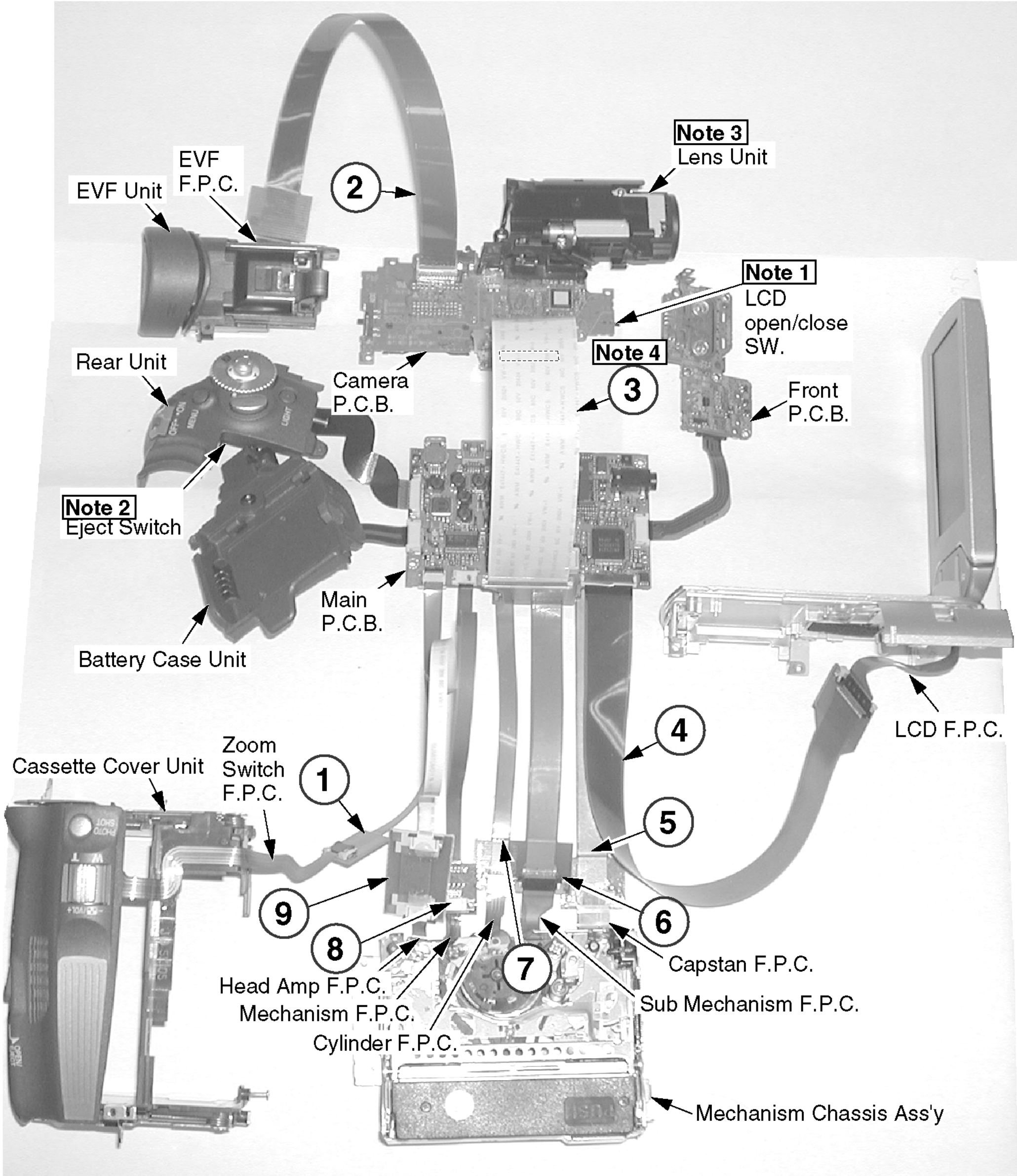
1. The LCD open/close Switch is for changing between LCD Display and EVF Display. When turning on EVF Display, place some paper or tape, etc. on LCD open/close Switch so that this Switch stays ON.
2. To eject the Mechanism, hold down the Eject Switch on the Rear Unit for a short time.
3. Use a grounded ESD wrist strap while disassembling the Lens portion.
4. Connect the F.P.C.s to the connectors, verifying the direction of F.P.C.s.
   The Main P.C.B. or a Chip part will be especially damaged if the 90 Pin Extension Cable (LSUA0060) is misconnected.

Connections of 90 Pin Extension Cable (LSUA0060)





5. Use extreme care when plugging or unplugging in connectors.



Non ZIF connectors are on the Main P.C.B. and the Camera P.C.B. as shown in gray.

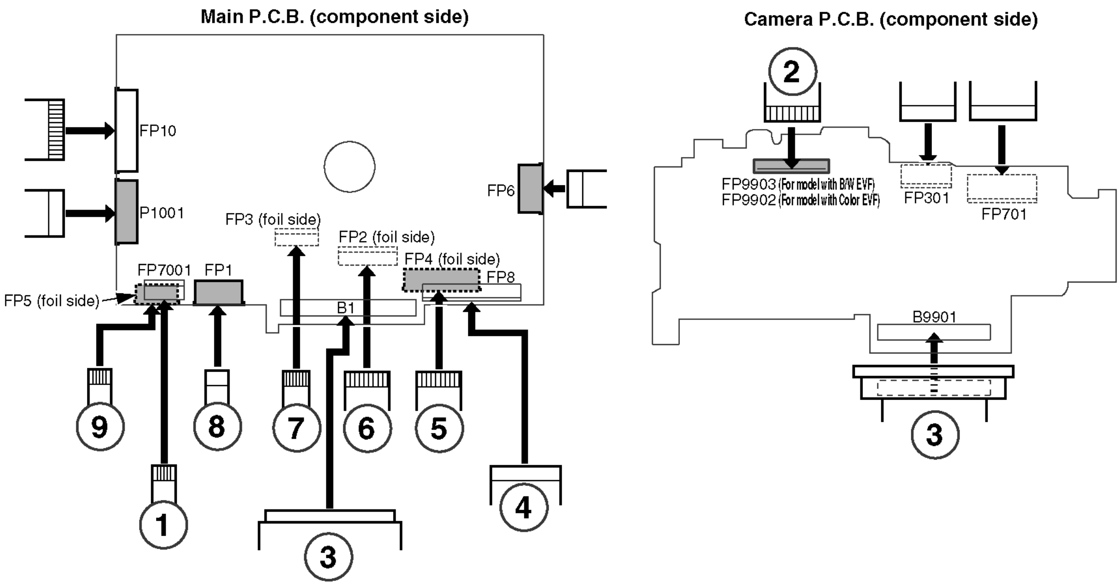


Fig. 3

7.3. Removal/Installation of F.P.C. From Non ZIF (Zero Insertion Force) Connector

Removal/Installation of F.P.C. from the Non ZIF (Zero Insertion Force) connector:

1. The Non ZIF connectors and the ZIF connectors are used on the unit. And there are 2 types (Type A, Type B) of Non ZIF connectors.
2. To remove the F.P.C. from the Non ZIF connector, use the Plier for Non ZIF Connector (LSVQ0028) to pull out the F.P.C. as shown. The same Plier for Non ZIF Connector (LSVQ0028) should also be used to install the F.P.C. to the Non ZIF Connector.

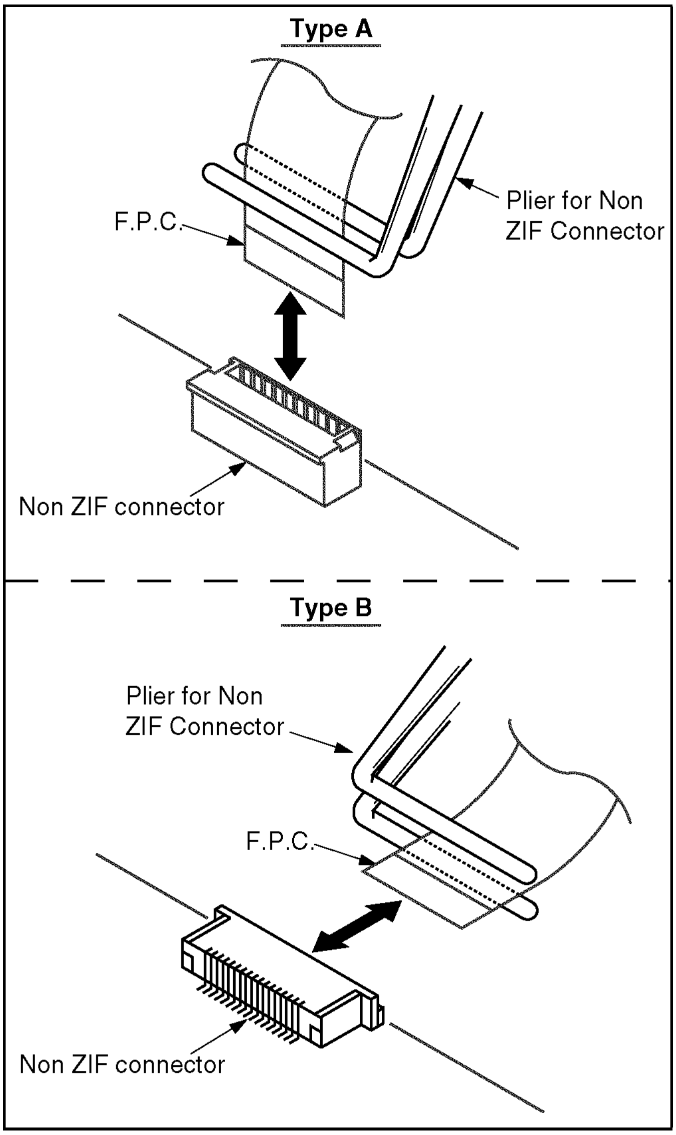


Fig. 4-1

3. Connect the F.P.C.s to the Non ZIF connectors, verifying the direction of F.P.C as shown.

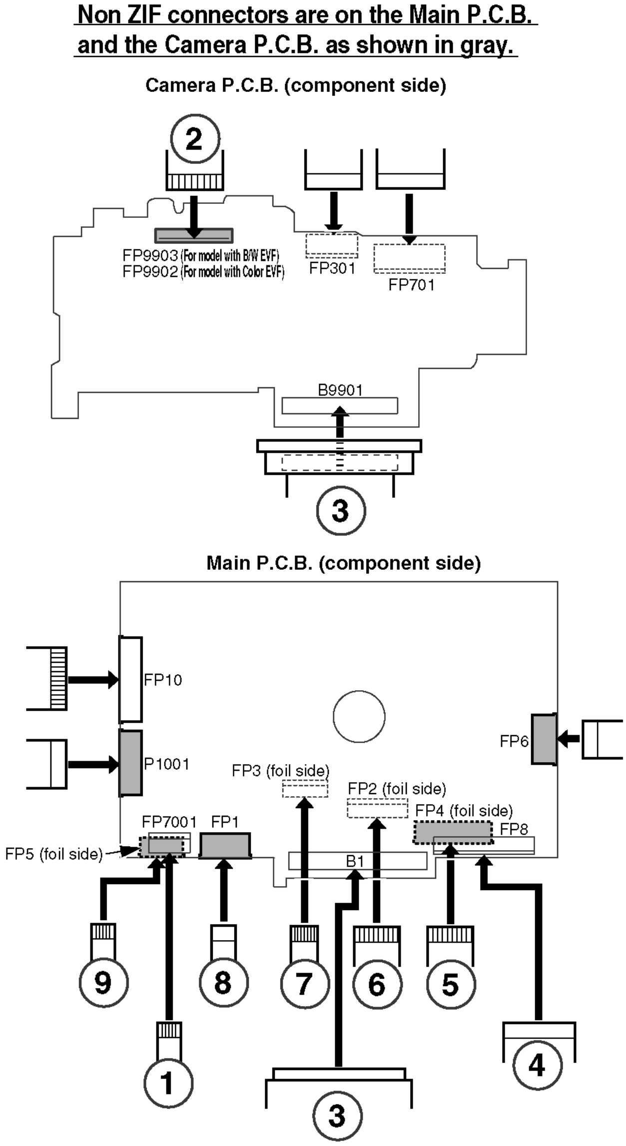


Fig. 4-2

7.4. Method for Loading/Unloading of Mechanism

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue to apply DC Power.

Apply +3 VDC Power Supply to the Loading Motor terminals.

Loading:

DC (-) to Portion "a," DC (+) to Portion "b"

Unloading:

DC (+) to Portion "a," DC (-) to Portion "b"

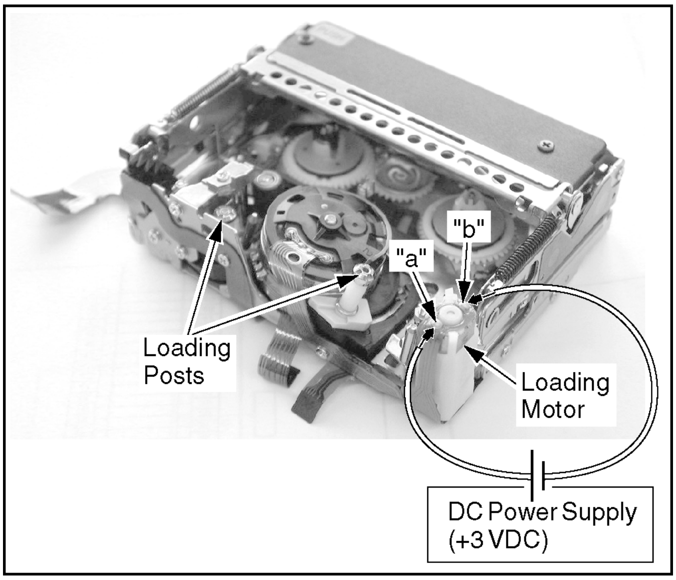


Fig. 5

7.5. EEPROM Data

CAUTION:

Be sure to save the EEPROM data using PC-EVR Adjustment Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. using PC-EVR Adjustment Program by first.

EEPROM IC

C.B.A.	EEPROM IC Ref. No.
Main C.B.A.	IC6003

7.6. Special Note

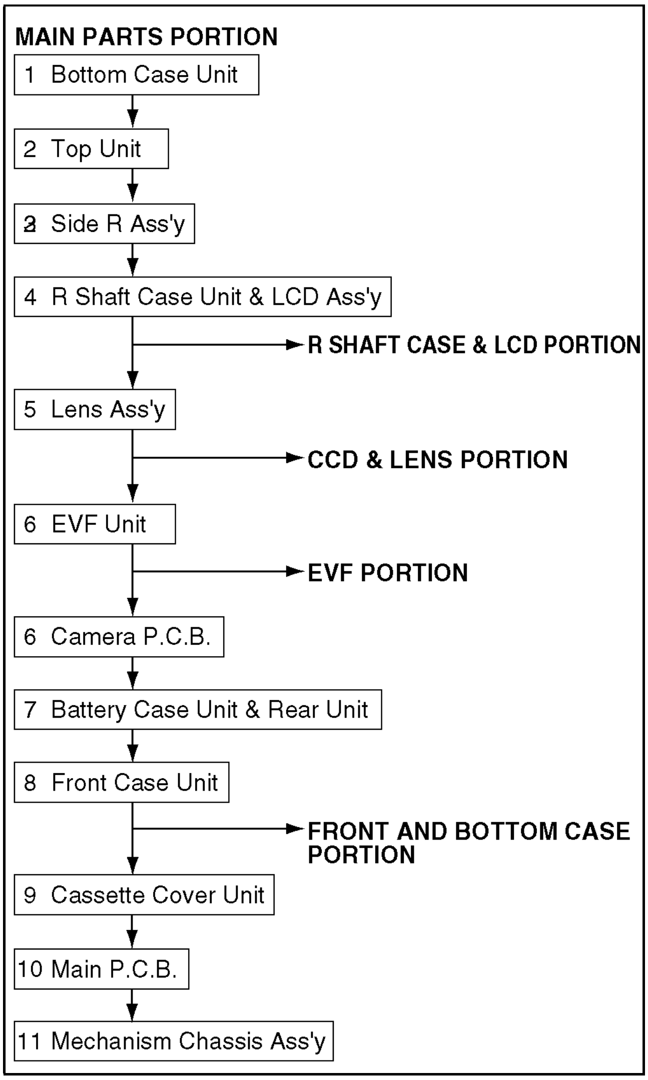
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handlings techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

8 Disassembly and Assembly Instructions

8.1. Cabinet Section

8.1.1. DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.



Note:

1. When removing the cabinet, work with care so as not to break the Locking Tabs.
2. Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
3. When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.
4. Do not supply power to the unit during disassembly and reassembly.

8.1.2. Disassembly Method

MAIN PARTS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	7	Bottom Case Unit	1	3(433), 2(519), 3(537)	1
2	50	Top Unit	1	3(433), (519)	2
3	-	Side R Ass'y	1	3(433), B1, FP8	3
4	-	R Shaft Case Unit & LCD Ass'y	1	2(533), 3(537)	4
5	-	Lens Ass'y	1	2(537), FP301, FP701	5
6	12 E20	EVF Unit Camera P.C.B.	1	(537), FP9902 or FP9903 (For models with B/W EVF)	6
7	26 27	Battery Case Unit Rear Unit	1	2(540), FP10, P1001 2(433)	7
8	51	Front Case Unit	1	2(433), (519), FP6	8
9	2	Cassette Cover Unit	1	3(519), FP7001	9
10	E10	Main P.C.B.	1	2(545), FP1, FP2, FP3, FP4, FP5	10
11	-	Mechanism Chassis Ass'y	1	3(441), (24)	11
A	B	C	D	E	F

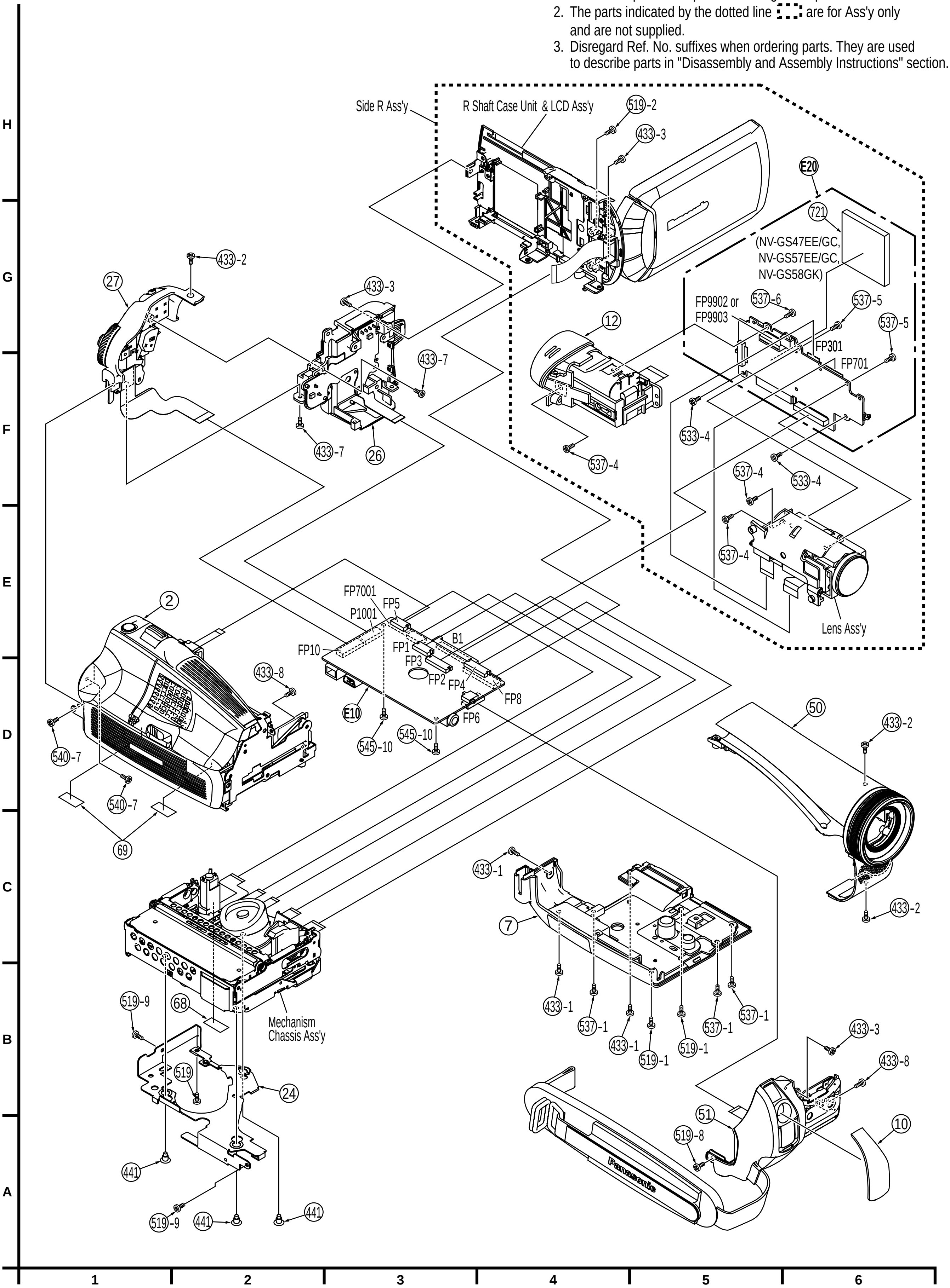
How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❶ MAIN PARTS SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



FRONT CASE PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	E30	Front P.C.B.	2	5(533)	11
2	52	(For models with Light) LED Light Lens	2	-----	11
3	56	Front Case	2	-----	-
A	B	C	D	E	F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.

B: Ref No.

C: Part to be removed or installed.

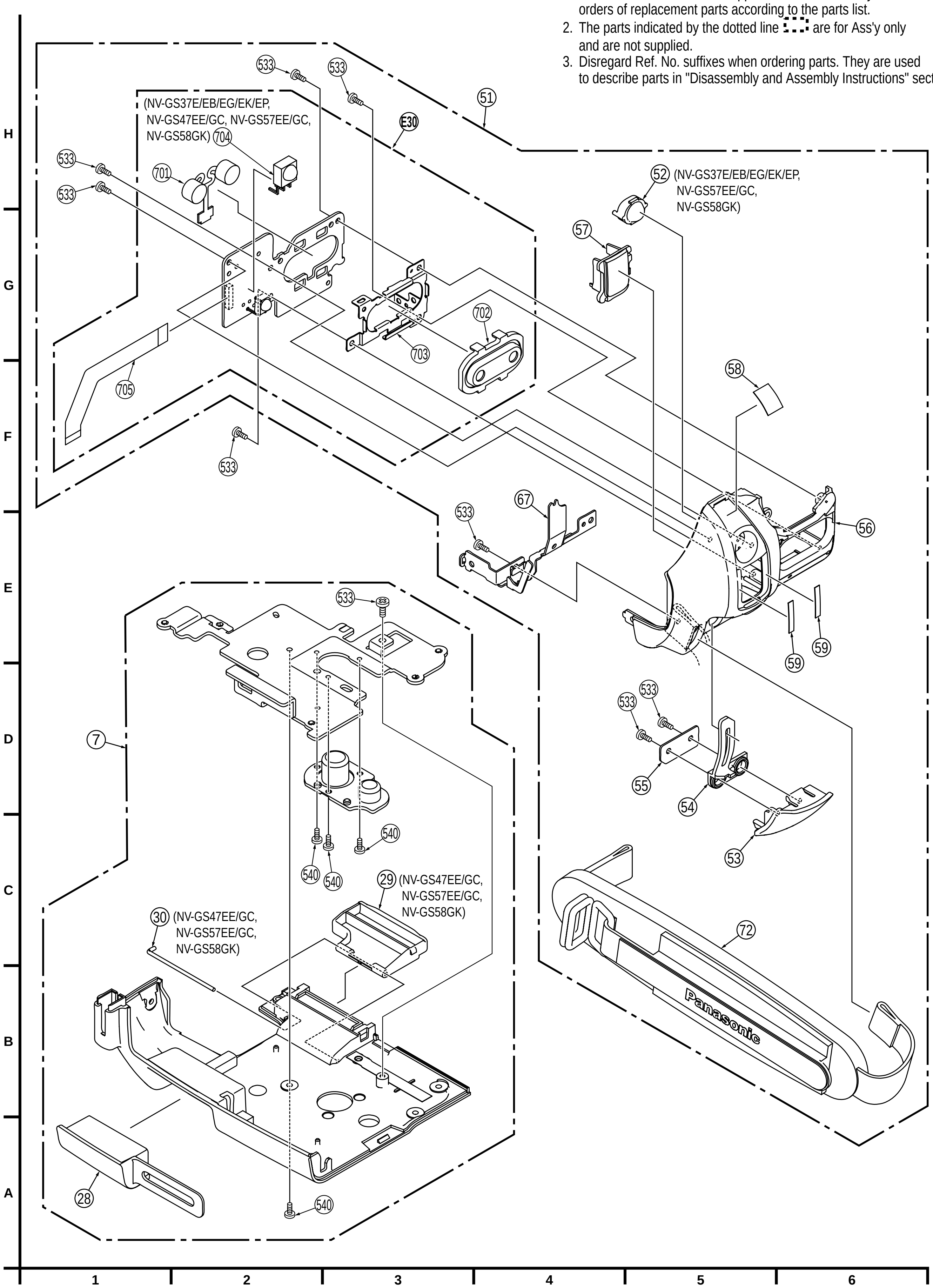
D: Section No.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❷ FRONT AND BOTTOM CASE SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁚⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



R SHAFT CASE & LCD PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	33	LCD Case A Unit	3	2(519), 8(L-1)	12
2	31	R Shaft Case Unit	3	FP8101	12
3	E40	LCD Backlight P.C.B	3	(533), (L-2), FP8102	13
4	34	LCD Case B	3	4(L-3)	13
5	-	LCD Panel Ass'y	3	7(L-4)	13
	35	LCD Shield Case Unit			

A B C D E F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	42	LCD Panel	3	-----	14
2	39	Reflect Sheet	3	(L-5)	14
3	37	Lead Light Panel	3	-----	14
4	38	Diffusion Sheet	3	-----	14
5	40	BEF Sheet	3	-----	14
6	41	BEF Sheet A	3	-----	14
7	36	Panel Holder Unit	3	-----	14

A B C D E F

How to read chart shown above:

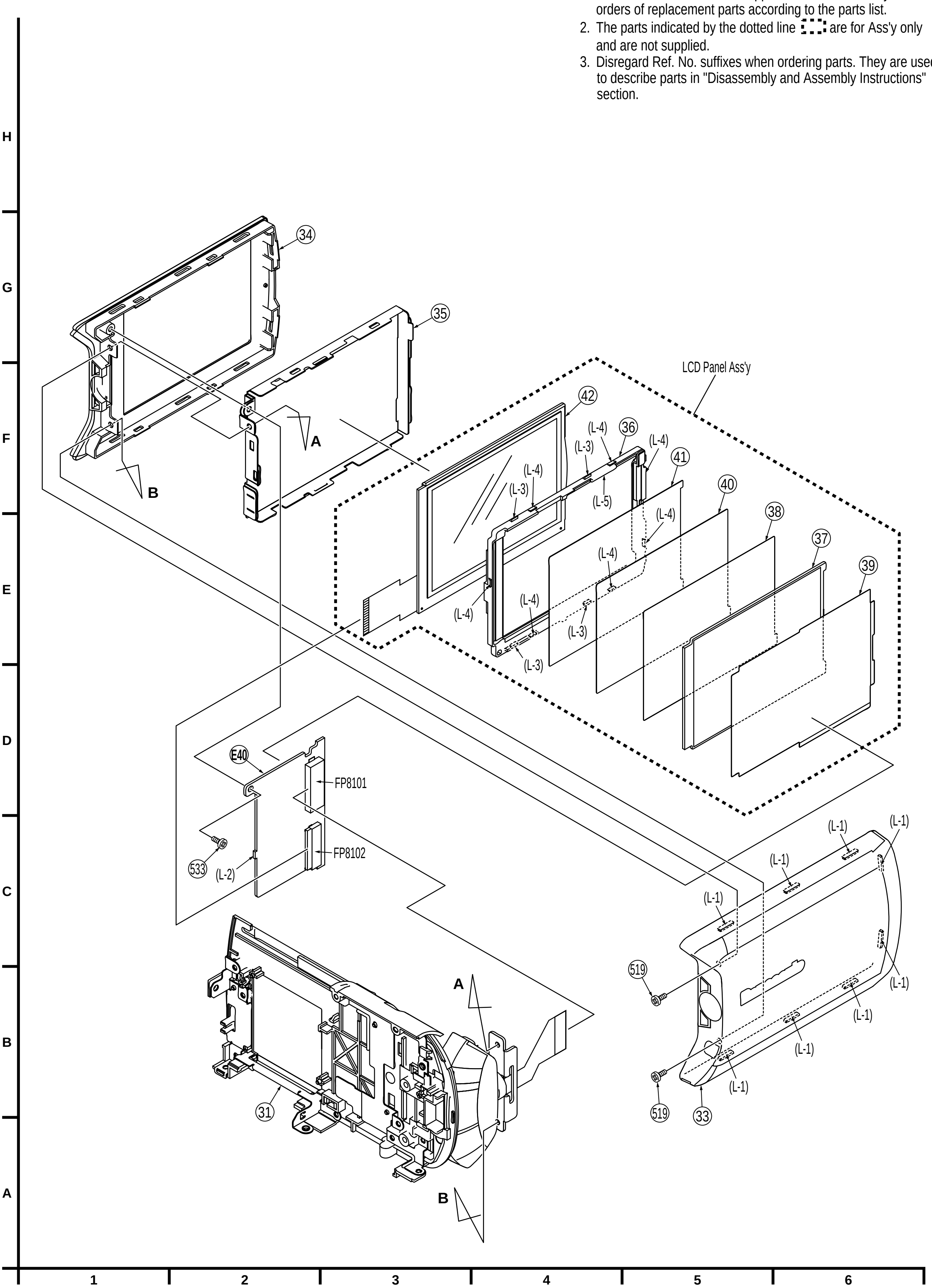
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❸ R SHAFT CASE UNIT AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁚⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



CCD & LENS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	E50	CCD P.C.B	4	2(536)	15
2	64	Filter Rubber	4	-----	15
3	63	Optical Filter	4	-----	15
A	B	C	D	E	F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	9	Lens Cover	4	2(537)	-
2	65	Zoom Motor Unit	4	2(538),Unsolder	16
3	66	Focus Motor Unit	4	2(538),Unsolder	16
A	B	C	D	E	F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

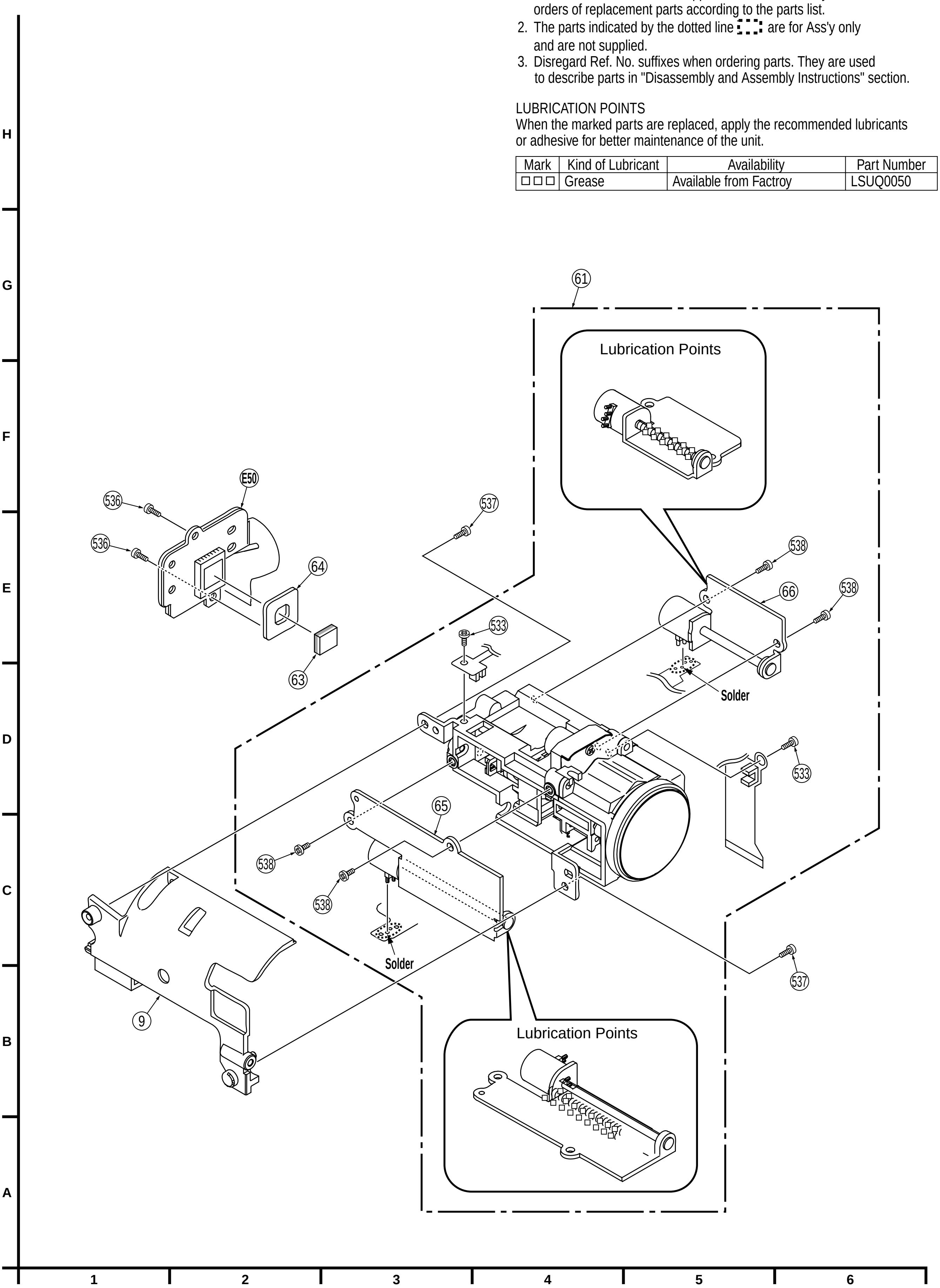
F: Refer to "Notes in chart."

❹ CCD AND LENS SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" 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



EVF PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑲	EVF Frame	5	2(537)	17
2	⑯	EVF Slide Piece	5	2(450)	17
3	⑬ ⑮	EVF Base Frame EVF Earth Plate	5	2(L-1)	17
4	⑭	EVF Spring	5	(450), (L-2)	18
5	⑰	EVF F.P.C.	5	FP951 (For models with Color EVF) FP901 (For models with B/W EVF)	18
A	B	C	D	E	F

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑱	Eye Cap	5	2(524)	19
2	㉓	EVF Lens Unit	5	-----	20
3	㉒	Eye Sight Lever	5	-----	20
A	B	C	D	E	F

How to read chart shown above:

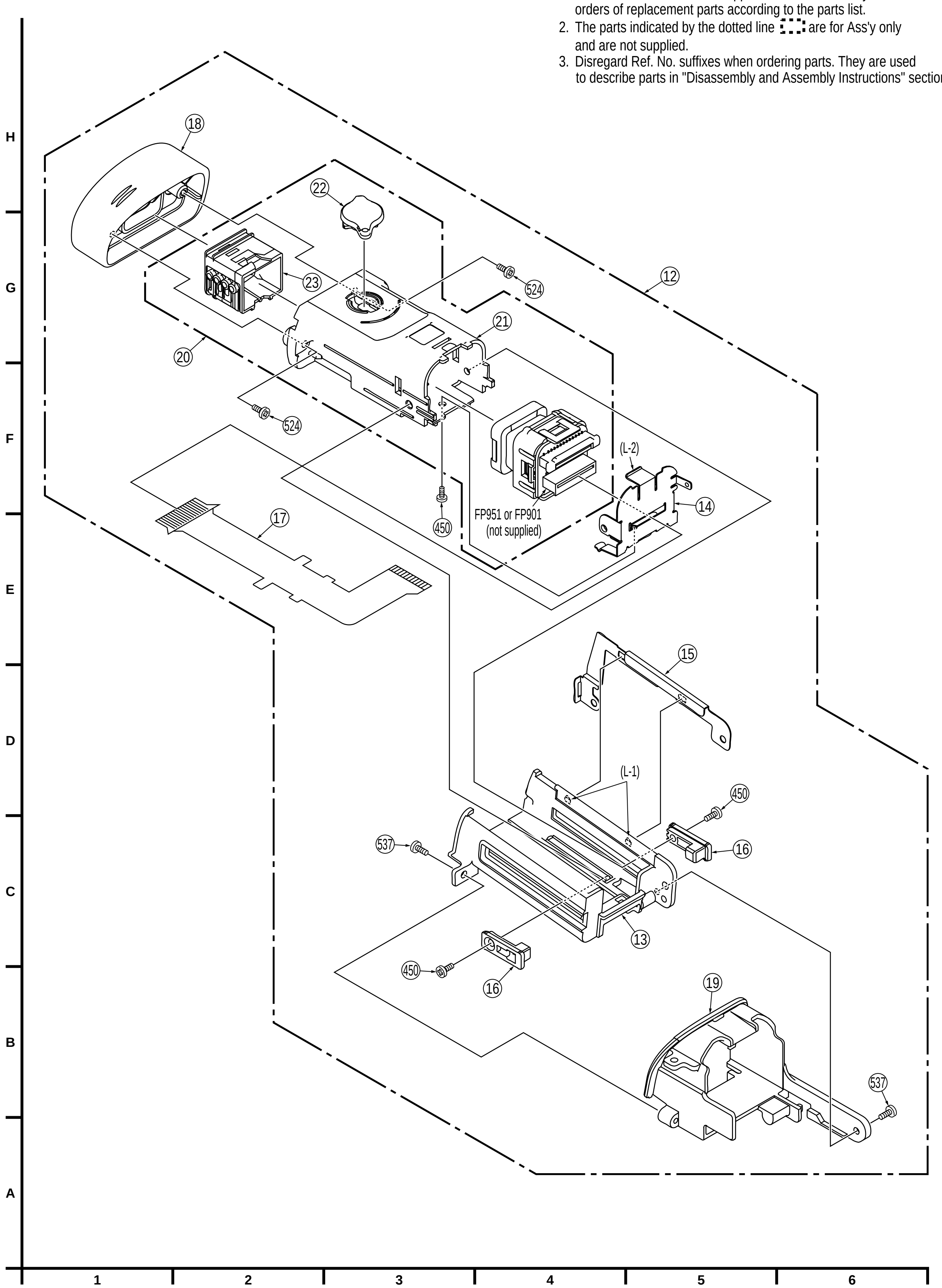
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.

F: Refer to "Notes in chart."

❺ EVF SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



Notes in chart

1. **Removal of Bottom Case Unit**
    1) Remove the 8 Screws (433, 519, 537)
    2) Release the Hand Strap from the plate and remove the Bottom Case Unit.

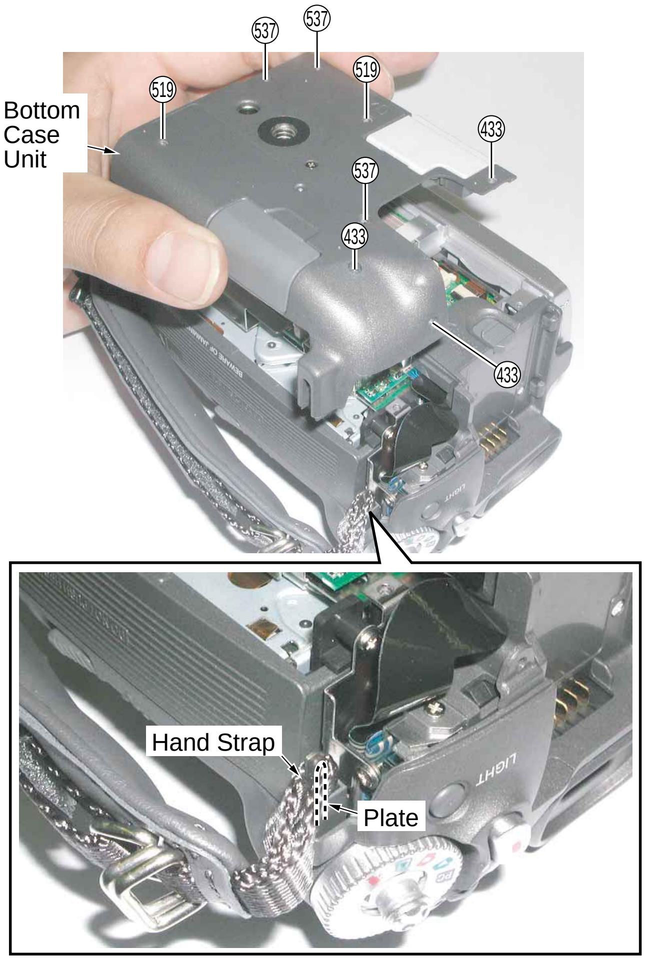


Fig. D1

2. **Removal of Top Unit**
    1) Open the LCD and remove the 4 Screws (433, 519).
    2) Pull and slide the Top Unit carefully.

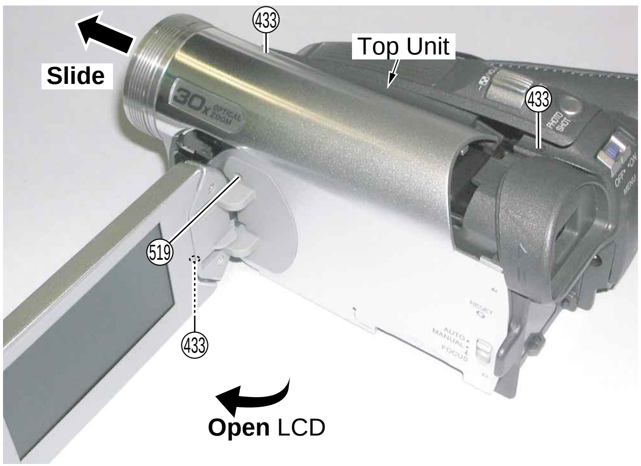
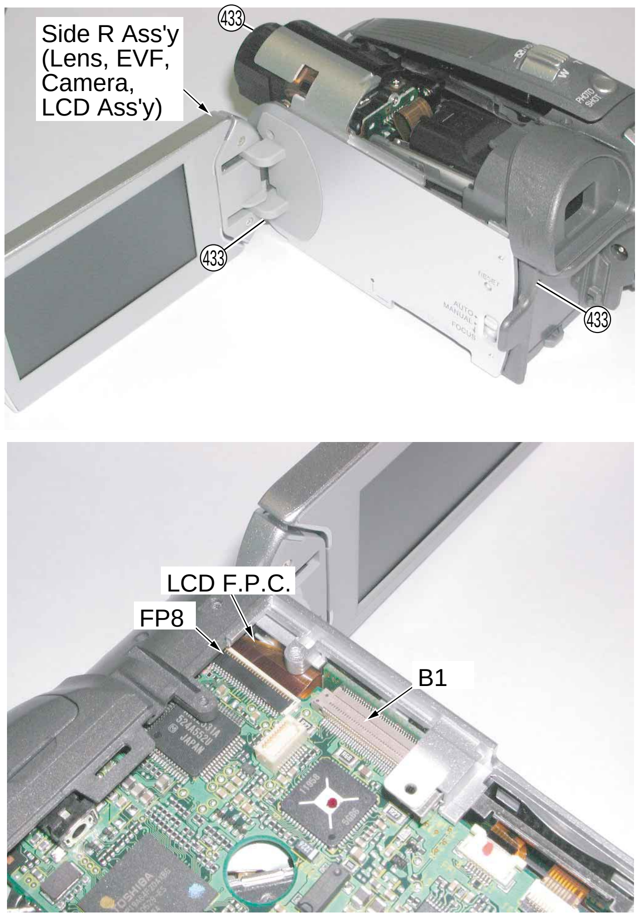


Fig. D2

3. **Removal of Side R Ass'y**
    1) Remove the 3 Screws (433).
    2) Disconnect the F.P.C. from Connector FP8.
    3) Remove the Side R Ass'y (Connector B1 is disconnected).



<Bottom View>

Fig. D3

4. **Removal of R Shaft Case Unit & LCD Ass'y**
   Take care not to damage the LCD open/close Switch.
   1) Remove the 5 Screws (533, 537), and remove the R Shaft Case Unit & LCD Ass'y.

   Installation of R Shaft Case Unit & LCD Ass'y
   1) Install the R Shaft Case Unit & LCD Ass'y so that the tab is inserted into slot.
   2) Tighten 5 Screws (533, 537).

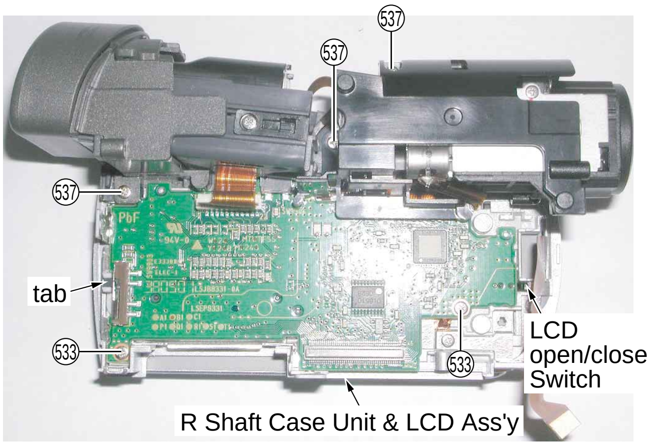


Fig. D4

5. **Installation of Lens Ass'y**
   Take care not to damage the motor leads.
   1) Install the Lens Ass'y with the 3 bosses and 2 Screws (537).
   2) Connect the F.P.C.s to Connector FP701 and FP301, then place the sheet on Connector FP301.

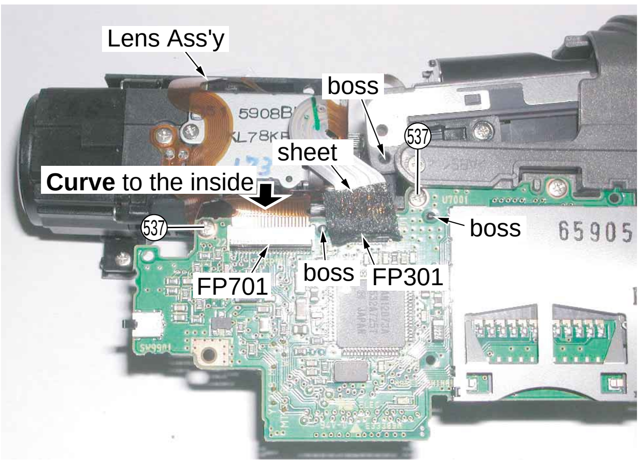
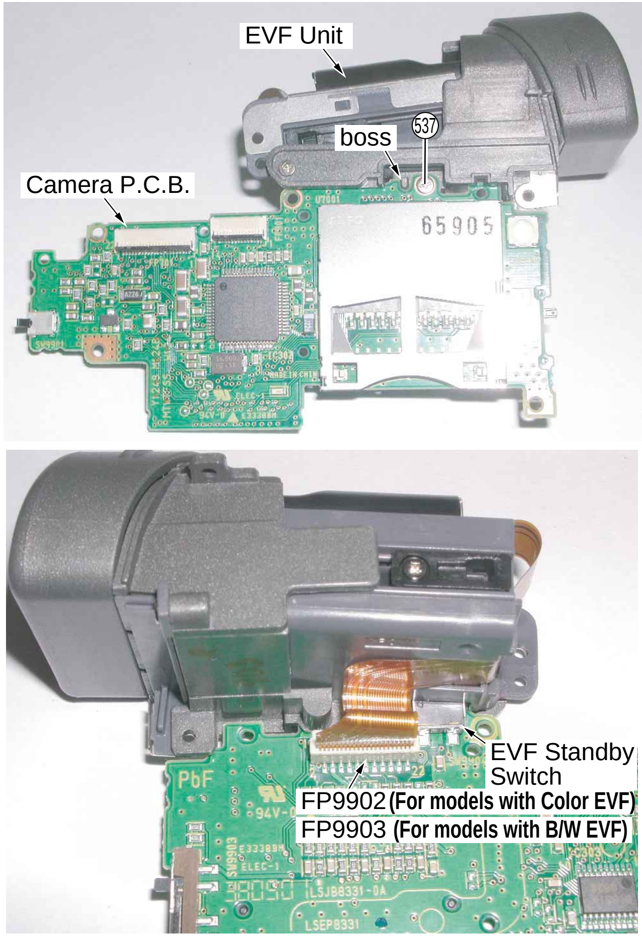


Fig. D5

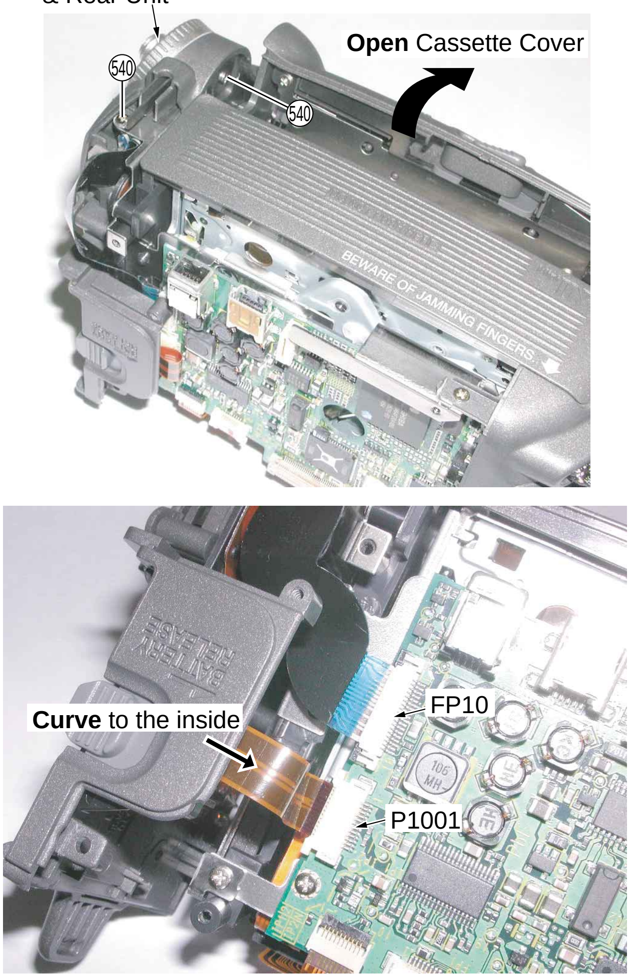
6. **Installation of EVF Unit, Camera P.C.B.**
   Take care not to damage the EVF standby Switch.
   1) Install the EVF Unit with the boss and Screw (537).
   2) Connect the F.P.C. to Connector FP9902 or FP9903 **(For models with B/W EVF)**.



<Foil Side>
Fig. D6

7. **Removal of Battery Case Unit & Rear Unit**
    1) Open the Cassette Cover and remove the 2 Screws (540).
    2) Disconnect the F.P.C.s from Connectors FP10 and P1001.

Battery Case Unit
& Rear Unit



<Bottom View>
Fig. D7

Installation of Battery Case Unit, Rear Unit
1) Remove the 2 Screws (433).

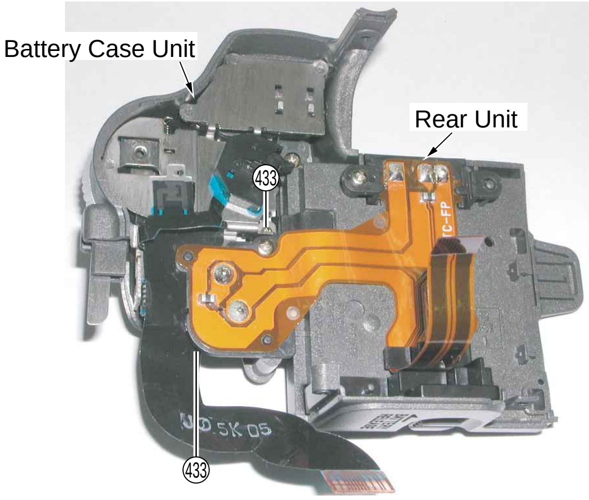
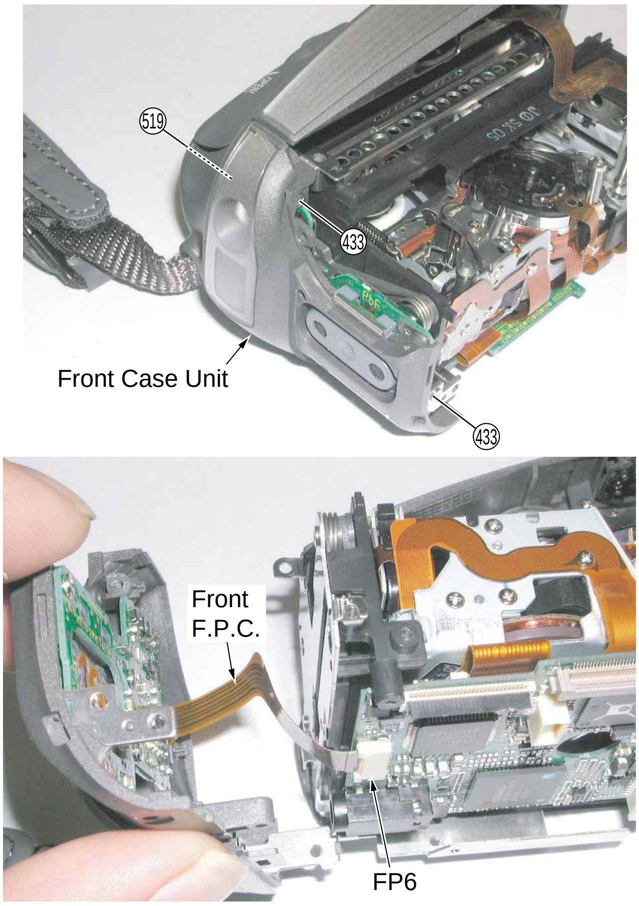


Fig. D8

8. **Removal of Front Case Unit**
    1) Remove the 3 Screws (433, 519).
    2) Disconnect the Front F.P.C. from Connector FP6.



<Bottom View>
Fig. D9

9. **Removal of Cassette Cover Unit**
   1) Remove the 3 Screws (519).
   2) Disconnect the F.P.C. from Connector FP7001.
   3) Pull off the Mechanism Ass'y & Main P.C.B.

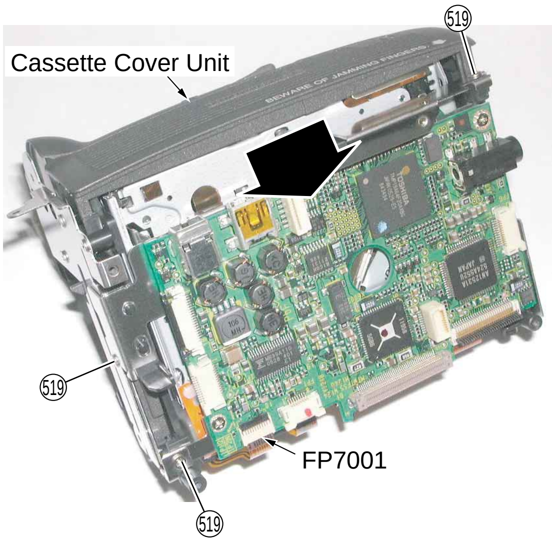


Fig. D10

10. **Installation of Main P.C.B.**
    Take care not to damage the F.P.C.s.
    1) Connect the F.P.C.s to the connectors on the Main P.C.B., verifying that the direction of the Flexible Cables is correct. Refer to "REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR."
    2) Tighten the 2 Screws (545).
    3) After installing the Main P.C.B, confirm the F.P.C.s are positioned as shown.

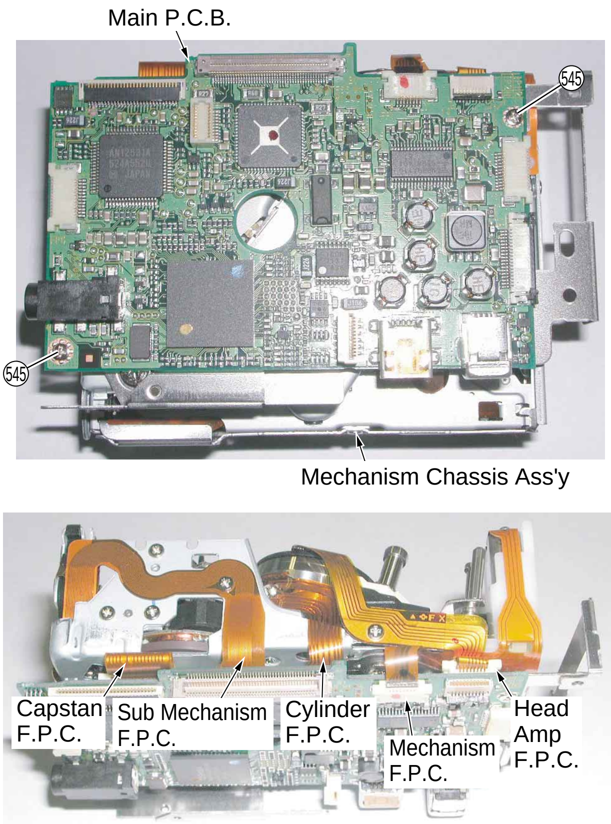
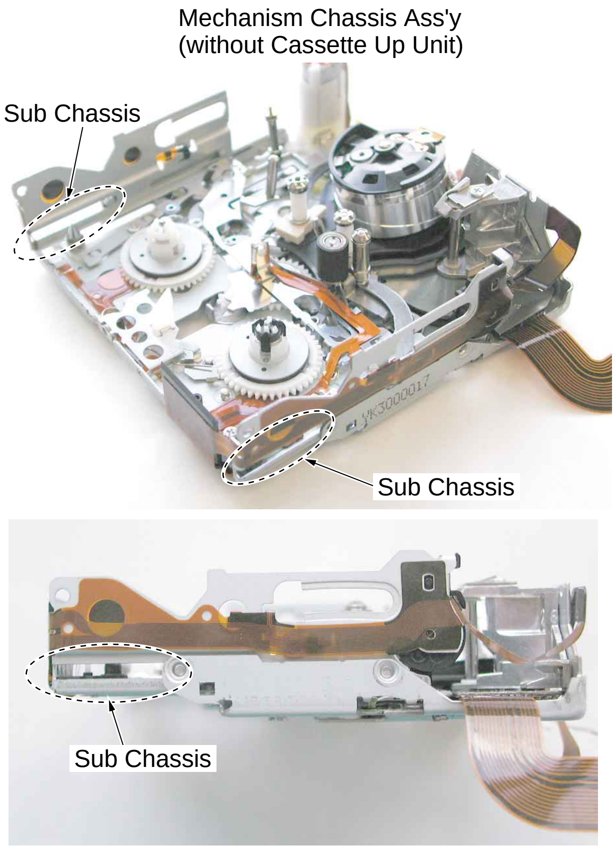


Fig. D11-1

Replacement of Mechanism Chassis Ass'y
When replacing the Main Chassis Ass'y or the Cylinder Unit, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

Mechanism Chassis Ass'y Handling Caution
When servicing the Mechanism Chassis Ass'y without the Cassette Up Unit, do not handle the Sub Chassis of the Mechanism Chassis Ass'y.



<Side View>
Fig. D11-2

11. **Installation of Front P.C.B.**
    1) Install the LED Light Lens **(For models with Light)** into the Front Case Unit.
    2) Install the Front P.C.B. with the 5 or 7 **(For models with Light)** bosses and the 5 Screws (533).

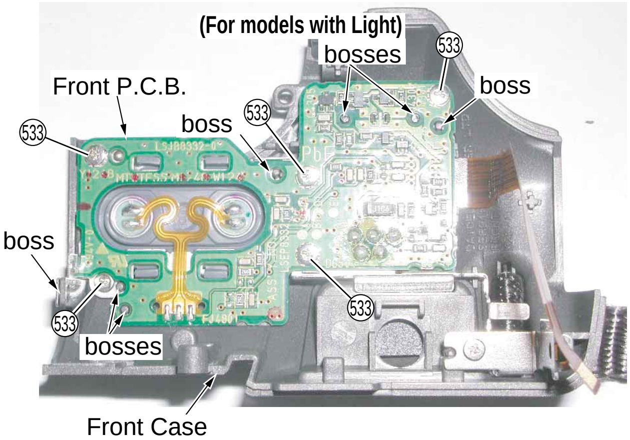
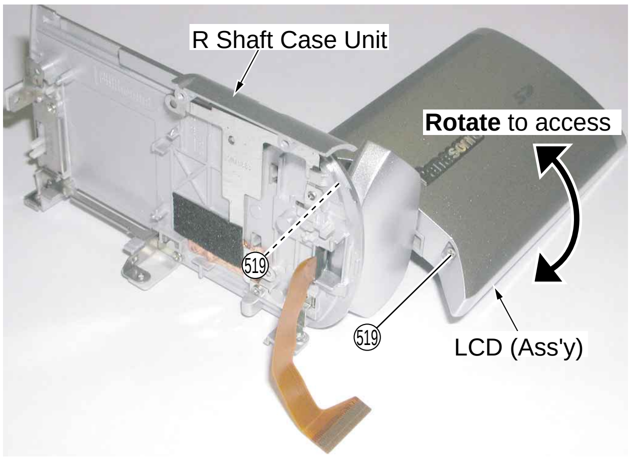


Fig. D12

12. **Removal of R Shaft Case Unit, LCD Case A Unit**
    1) Open and rotate the LCD to access the 2 Screws (519) as shown below.
    2) Release the 8 Locking Tabs (L-1) and remove the LCD Case A Unit.
    3) Disconnect the F.P.C. from Connector FP8101.
    4) Remove the R Shaft Case Unit.



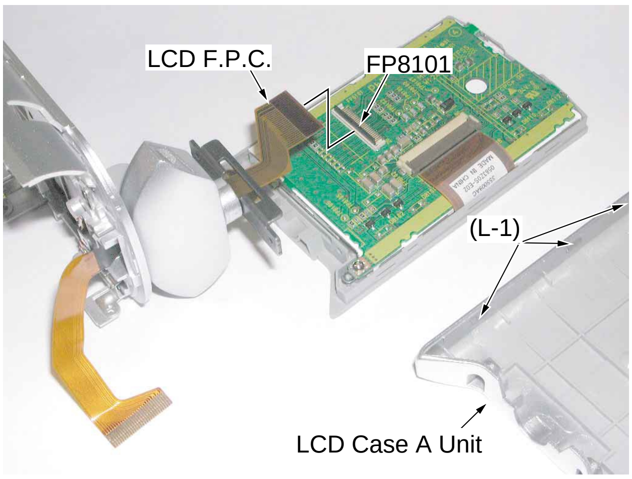


Fig. D13

13. **Installation of LCD Backlight P.C.B., LCD Panel Ass'y, LCD Shield Case Unit and LCD Case B**

Use extreme care regarding LEDs when handling the LCD Backlight P.C.B.

Install in order shown below.

1) Install the LCD Panel Ass'y onto the LCD Shield Case Unit with the 7 Locking Tabs (L-4) while carefully bending the LCD F.P.C. at its base so as not to damage it.
2) Install the LCD Shield Case into the LCD Case B with the 4 Locking Tabs (L-3).
3) Install the LCD Backlight P.C.B. onto the LCD Panel Ass'y with the Locking Tab (L-2).
4) Tighten the Screw (533) while keeping the LCD Backlight P.C.B. pressed toward the right. Then, connect the F.P.C. to Connector FP8102.

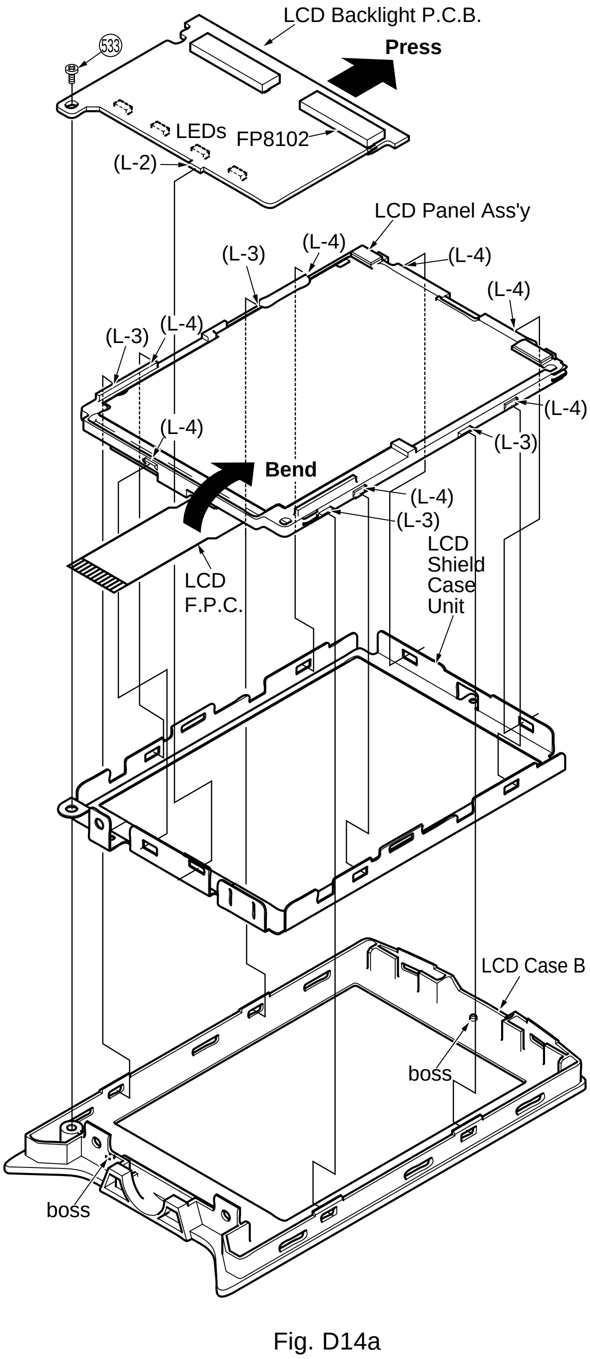


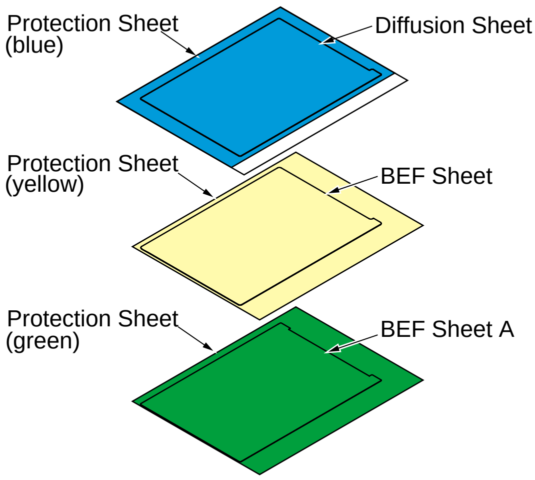
Fig. D14a

14. **Installation of LCD Panel, Reflect Sheet, Lead Light Panel, Diffusion Sheet, BEF Sheet, BEF Sheet A and Panel Holder Unit**

a. When replacing the LCD Panel, the Diffusion Sheet, the BEF Sheet and the BEF Sheet A, make sure to remove the Protection Sheets.

To distinguish Sheets from attached Protection Sheet:

- A blue Protection Sheet is affixed to both faces of the Diffusion Sheet.
- A yellow Protection Sheet is affixed to both faces of the BEF Sheet.
- A green Protection Sheet is affixed to both faces of the BEF Sheet A.



b. Use extreme care when handling the LCD Panel, the Reflect Sheet, the Lead Light Panel, the Diffusion Sheet, the BEF Sheet and the BEF Sheet A to avoid damage, dust, and spots (especially fingerprints, etc.)

Install in order shown below.

1) Install in order, the BEF Sheet A, BEF Sheet and Diffusion Sheet while inserting the corners of each sheet into the slots of the Panel Holder Unit.
2) Install the Lead Light Panel while inserting the corners into the slots of the Panel Holder Unit.
3) Place the Reflect Sheet so it is aligned with the edge of the Panel Holder Unit, then install it using the adhesive tape portions of the Reflect Sheet.

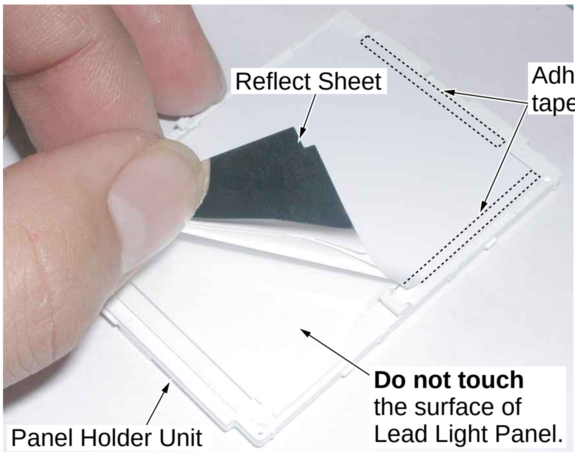
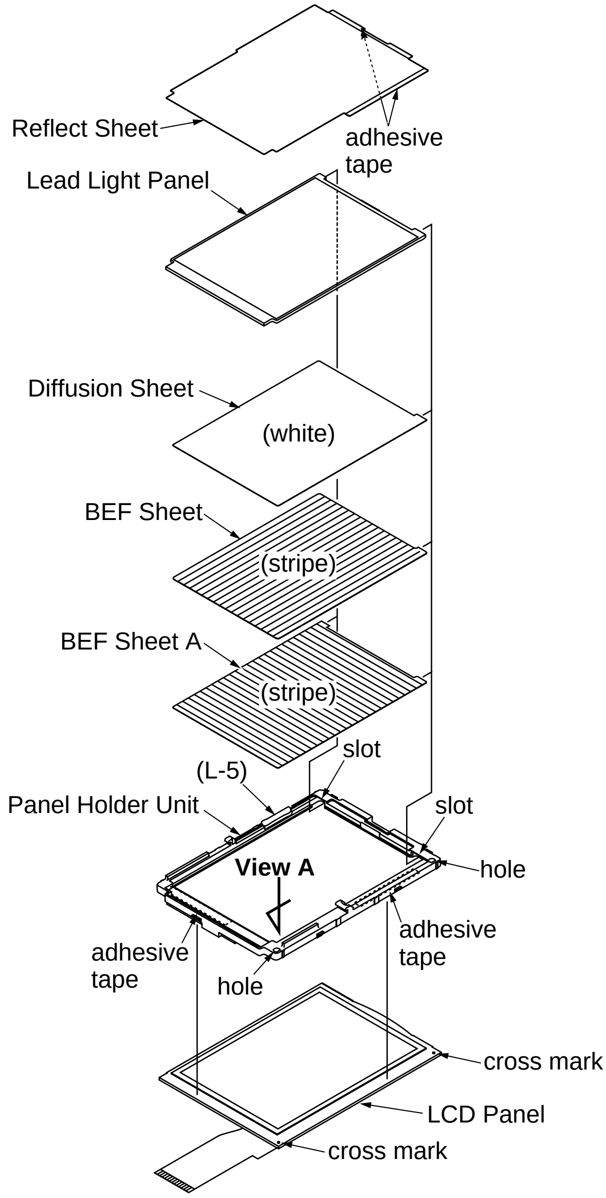


Fig. D15-1a

4) Install the LCD Panel with adhesive tape so that the cross marks are positioned in the center of the holes in the Panel Holder Unit.



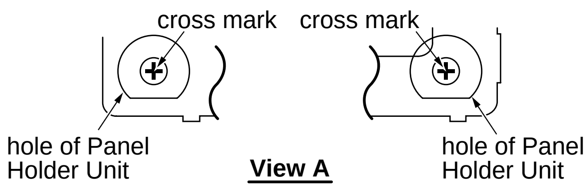


Fig. D15-2a

15. **Removal of CCD P.C.B., Filter Rubber and Optical Filter**

CAUTION:

1) When removing the CCD P.C.B., take care that the Optical Filter does not fall out.
2) Use extreme caution when removing the CCD P.C.B. as it is easily damaged by static electricity. Use a Wrist Strap while removing and installing.
3) Do not touch the CCD window surface.

Installation of CCD P.C.B., Filter Rubber and Optical Filter

Install in order shown below.

1) Install the Optical Filter correctly.
   Note: Make sure that no dust gets on the Optical Filter or in the Lens Unit. Clean the Optical Filter with lens cleaning paper dampened with lens cleaner if necessary.
2) Install the Filter Rubber on the Optical Filter correctly as shown below.
   Note: Make sure that no dust gets on the Filter Rubber.
3) Install the CCD P.C.B. into the Lens Unit. Then, tighten the 2 Screws (536).
   Note: Do not touch the Lens Surface. Clean the surface with lens cleaning paper dampened with lens cleaner if necessary.

16. **Installation of Zoom Motor Unit/Focus Motor Unit**

Install the Zoom Motor Unit/Focus Motor Unit so that the Shaft of the Zoom Motor Unit/Focus Motor Unit is set in the Holder.

Zoom Motor Unit

Focus Motor Unit

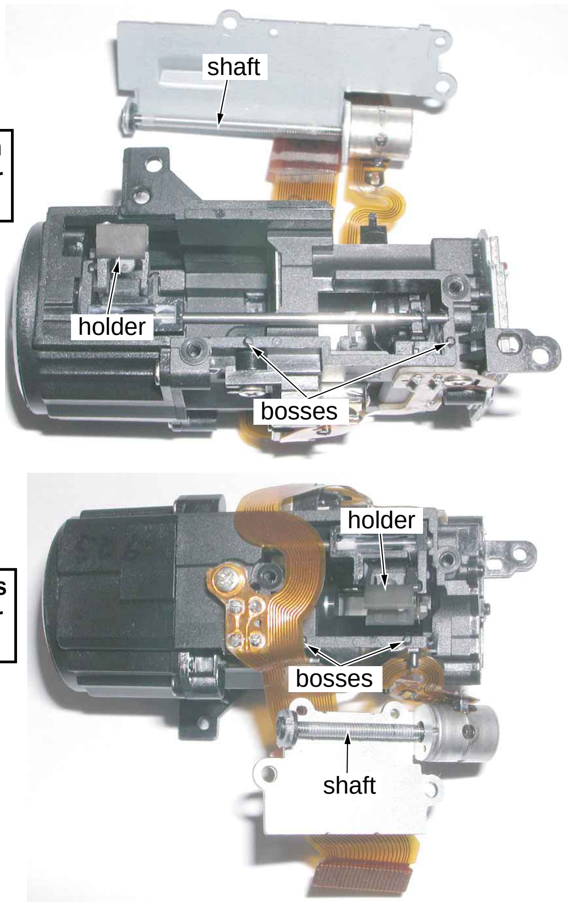
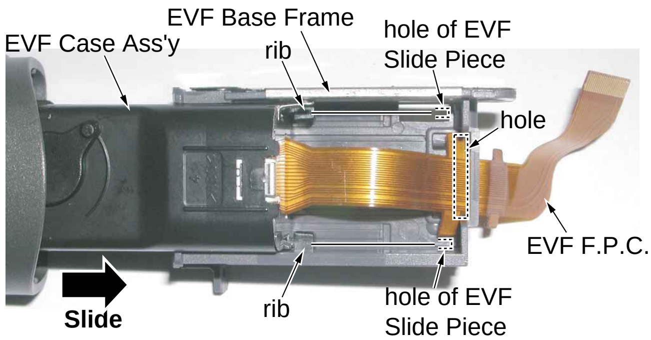


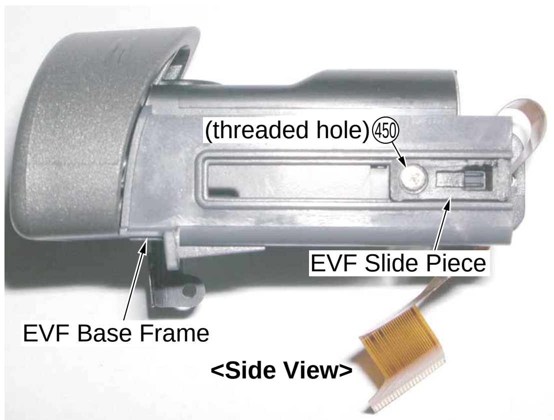
Fig. D16

17. **Installation of EVF Slide Piece, EVF Base Frame and EVF Frame**

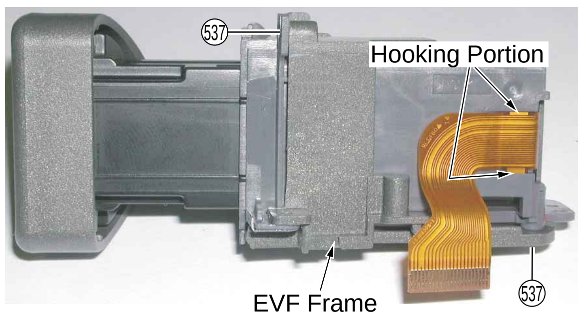
1) Pass the EVF F.P.C. through the EVF Base Frame hole.
2) Install the EVF Slide Pieces into the EVF Base Frame from both sides.
3) Slide the EVF Case Ass'y to the end so that the ribs are inserted into the holes of the EVF Slide Pieces.
4) Locate the threaded holes, and tighten the 2 Screws (450).
5) After installing, confirm the EVF moves correctly.
6) Install the EVF Frame with the 2 Screws (537).
7) Hook both sides of the F.P.C. to the EVF Base Frame.



<Top View>



<Side View>



<Bottom View>

Fig. D17

18. **Installation of EVF Spring, EVF F.P.C.**
    1) Insert the EVF F.P.C. into the EVF Spring hole paying particular attention to the direction.
    2) Connect the EVF F.P.C. to Connector FP951 or FP901 **(For models with B/W EVF)**.
    3) Insert the Locking Tab (L-2) at first, then fit the EVF Spring in the EVF Case and tighten the Screw (450).

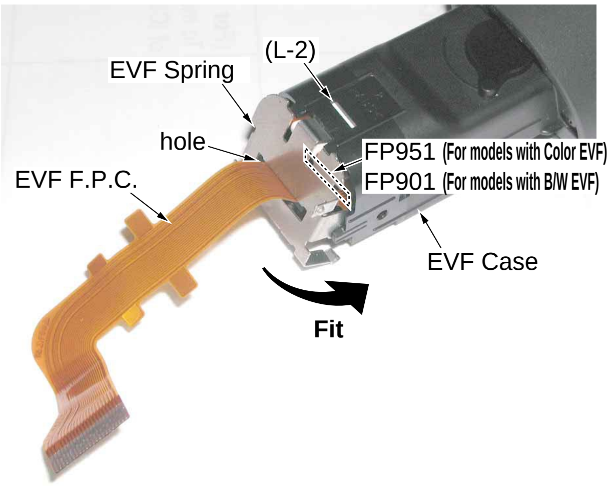


Fig. D18

19. **Removal of Eye Cap**
    Remove the Eye Cap after removing the 2 Screws (524).

20. **Handling cautions of EVF Lens Unit**
    Use extreme care when handling the EVF Lens Unit to avoid damage, dust, and spots (especially fingerprints, etc.)

    Installation of EVF Lens Unit, Eye Sight Lever
    1) Install the Eye Sight Lever into the EVF Case hole in the direction shown.
    2) Install the EVF Lens Unit into the EVF Case.
    3) After installing, confirm the Eye Sight Lever and the EVF Lens Unit work together correctly.

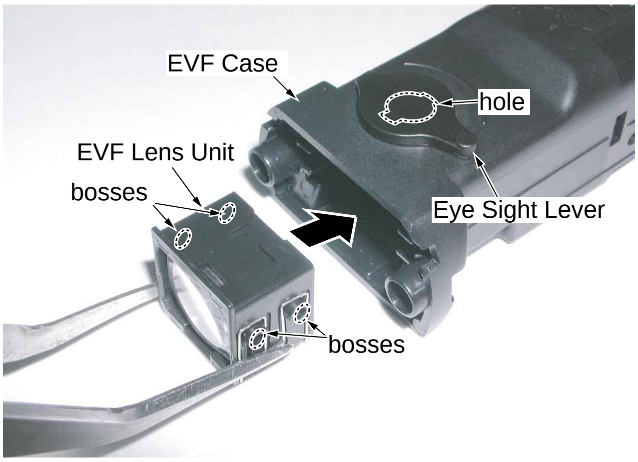


Fig. D19

8.2. Mechanism Section

Flow-Chart for Disassembly Procedures

No.	Item / Part	Fig.	Removal (Screw, Connector, Flex. & Other)
1	Cassette Up Unit	Fig. M1 Fig. M2 Fig. M3 Fig. M4	It makes the mechanism position in Eject condition (For Battery) 3-Screws (A) 3-Tabs It remove the piece arrangement unit from rail department
2	Cylinder Unit	Fig. M5 Fig. M6	1-Screw (B) 3-Screw (C) Cylinder Unit

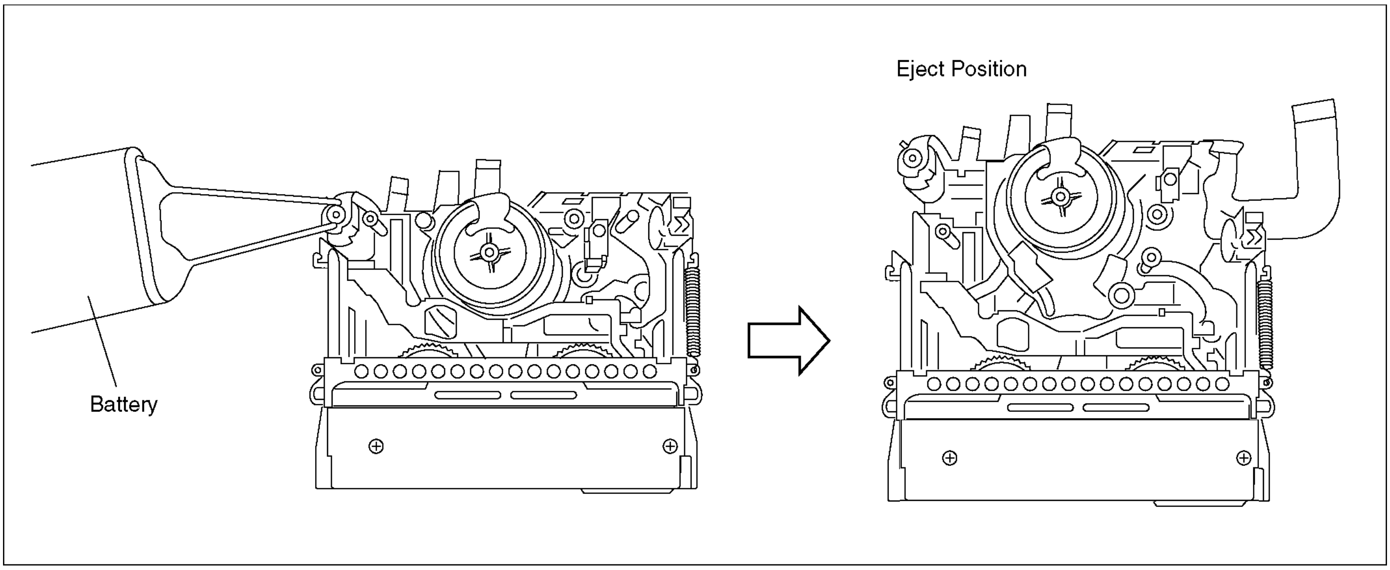


Fig. M1

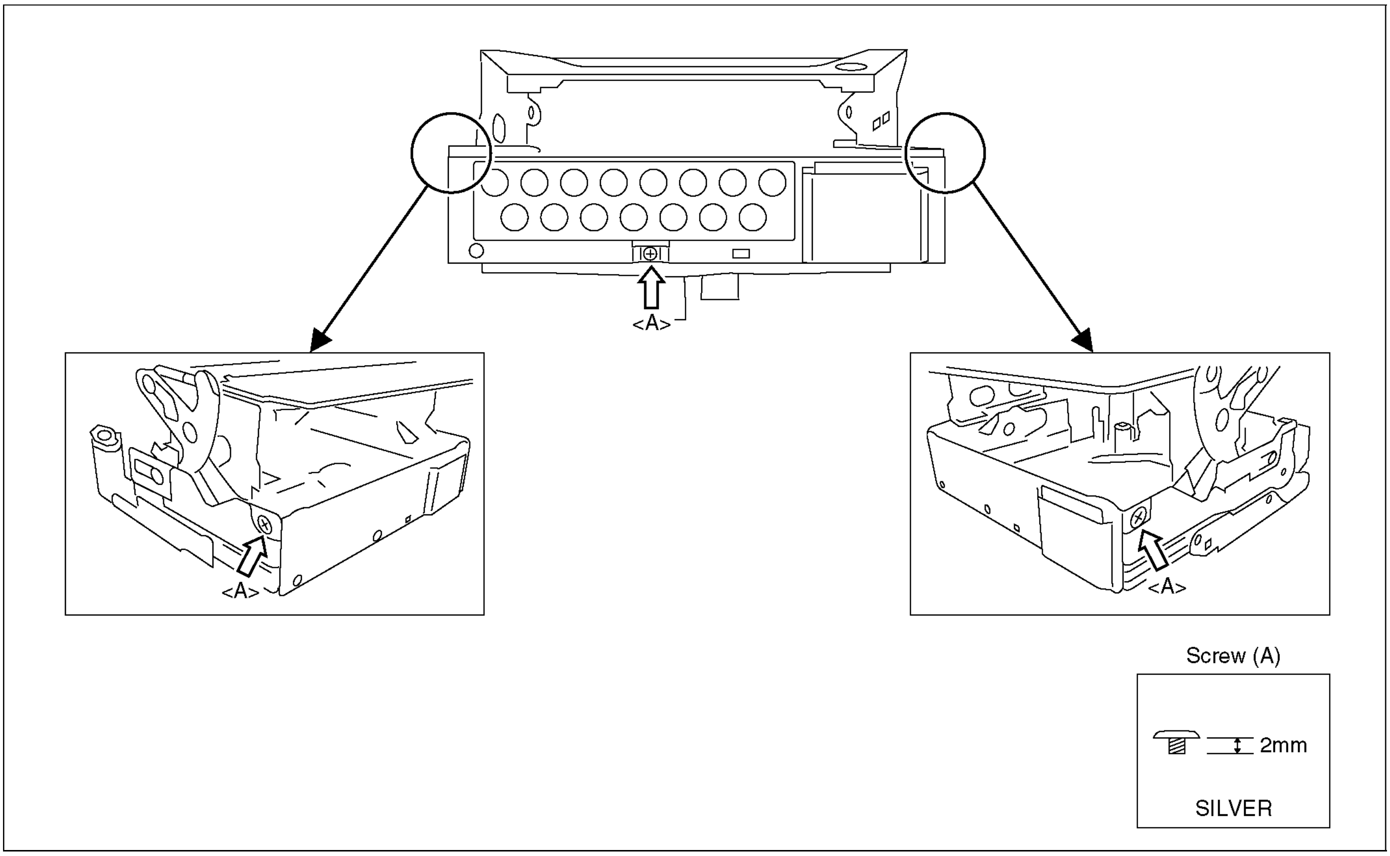


Fig. M2

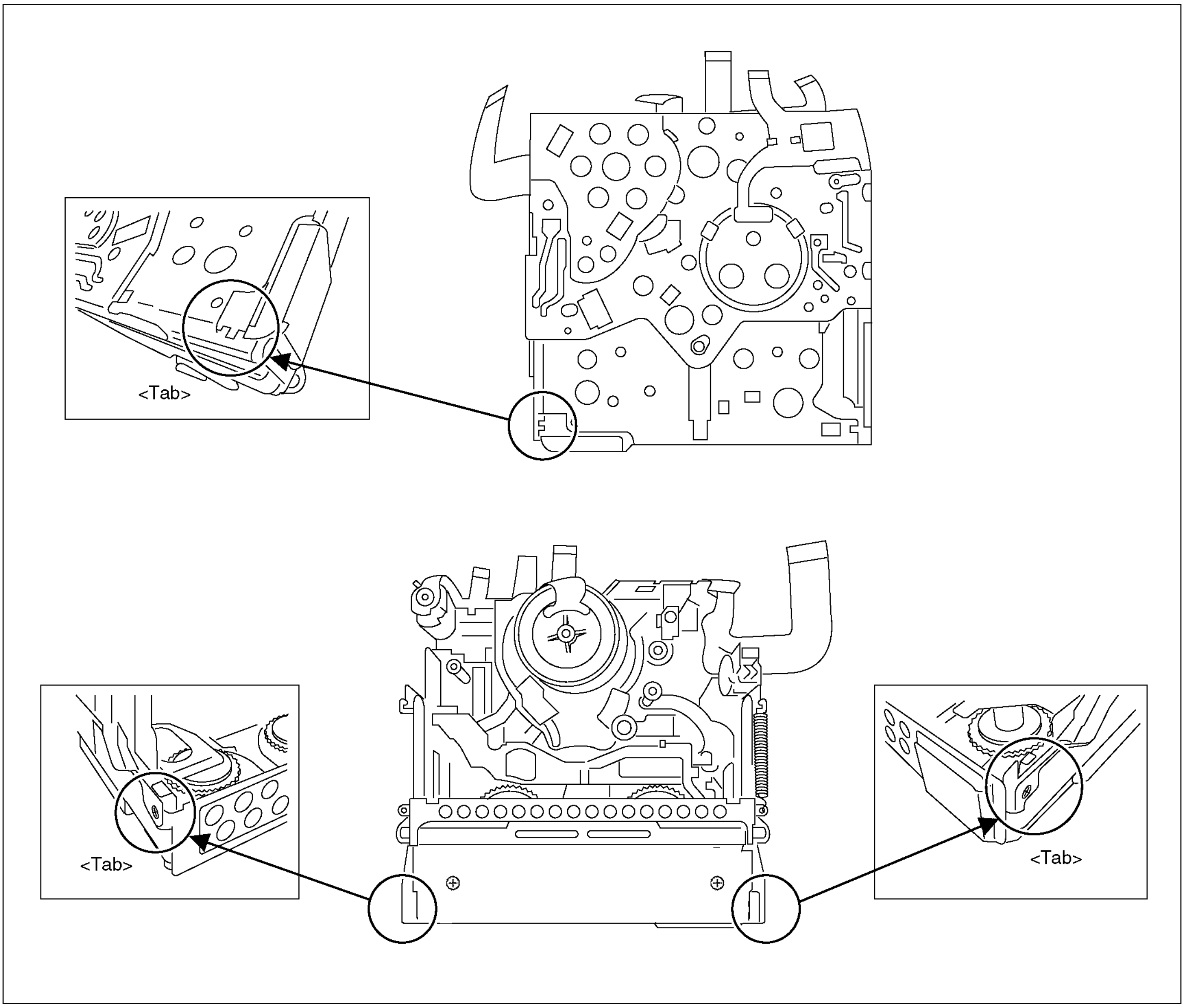


Fig. M3

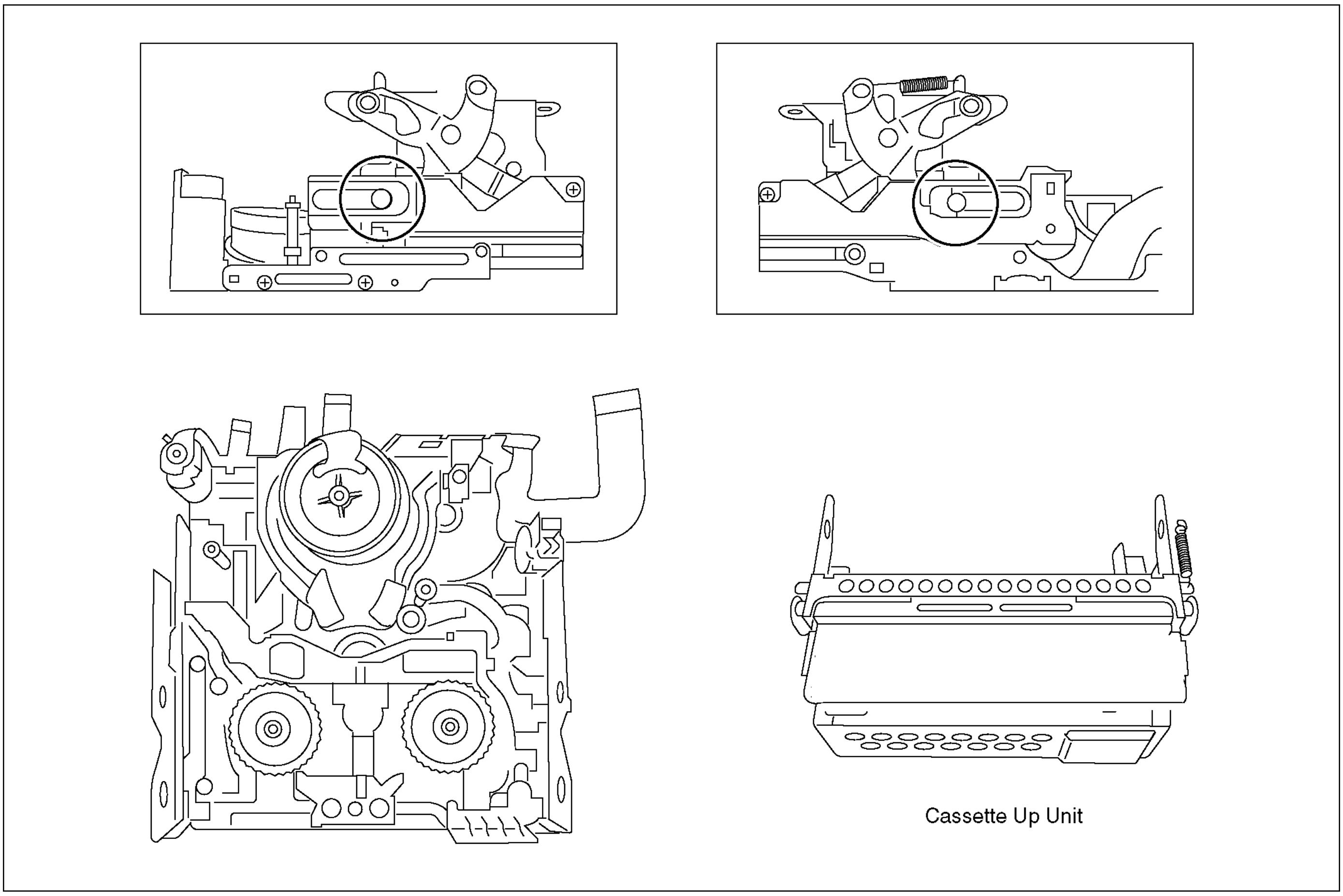


Fig. M4

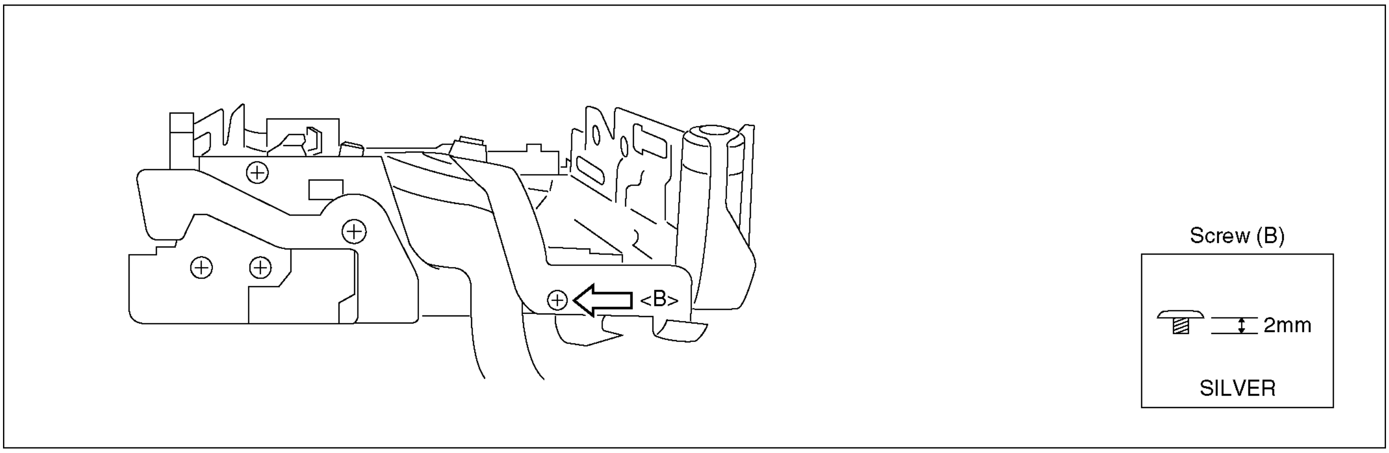


Fig. M5

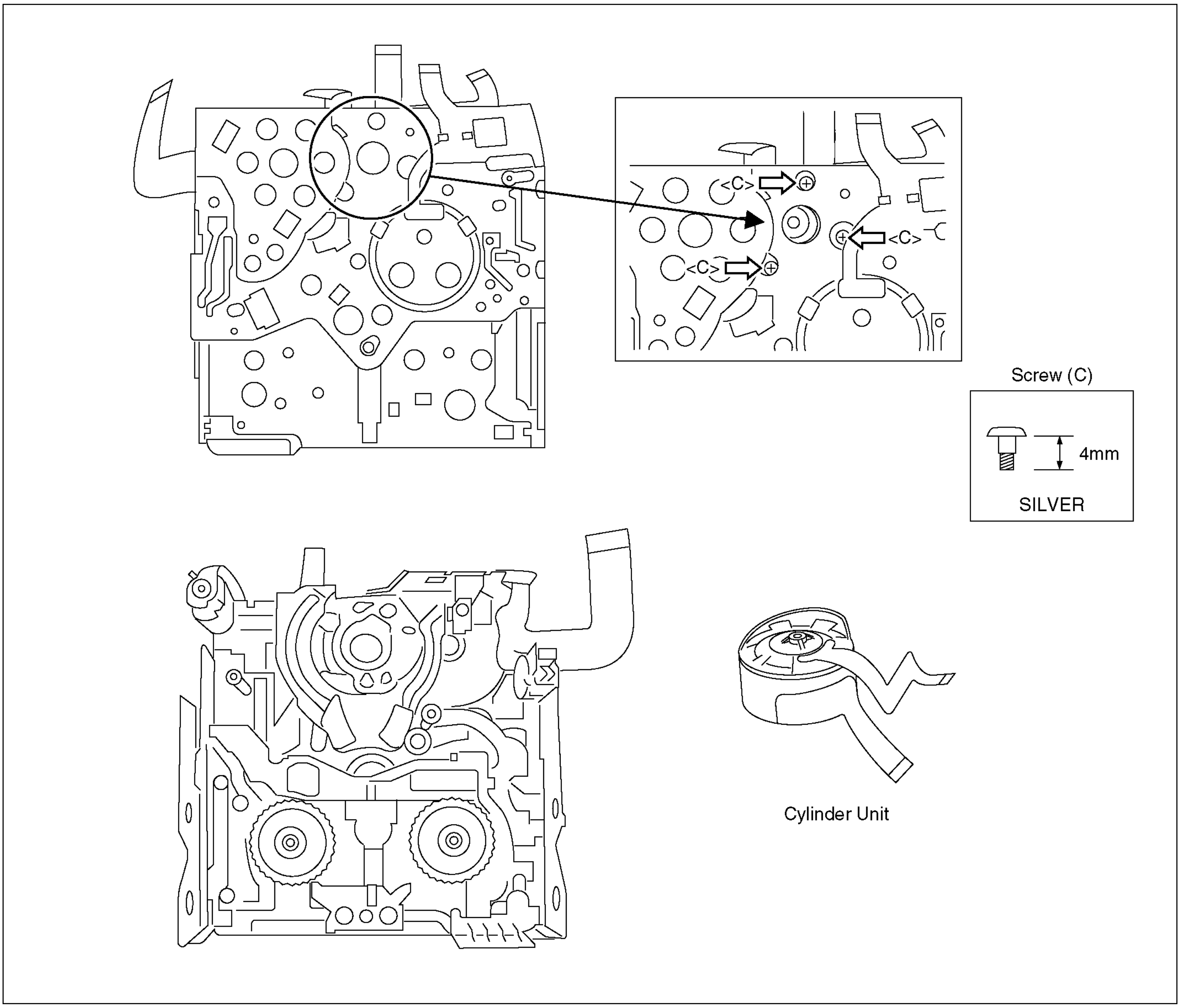


Fig. M6

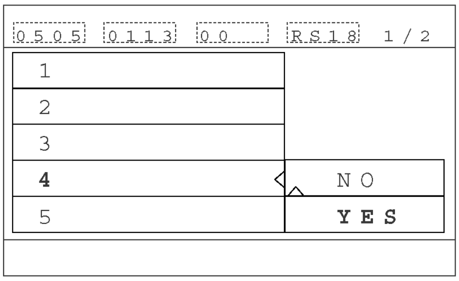
9 Measurements and Adjustments

9.1. Mechanical Adjustment

9.1.1. 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, Top Unit and Side R Ass´y (Refer to "Disassembly and Assembly Instructions.").
2. Connect the 90 Pin Extension Cable (LSUA0060) between Connector B1 on the Main P.C.B. and B9901 on the Camera P.C.B.
3. Connect the AV Cable to the Camcorder.
4. Connect the oscilloscope to VIDEO OUT plug "Envelope" and AUDIO R plug "HID."
5. Enter the Service Menu (Refer to “Service Menu,” and select item [4].
6. Playback the Color Bar Standard Tape (VFM3110EDS). "Envelope" and "HID" will be output.
7. Adjust the S1 post by turning the top of post with Post Height Adjustment Fixture so that the left half of envelope signal becomes flat as possible.
8. Adjust the T1 post by turning the top of post with Post Height Adjustment Fixture so that the right half of envelope signal becomes flat as possible.



Enter :
[PHOTO SHOT], [JOYSTICK CONTROL LEFT] and [RECORDING START/STOP] (for more than 3 seconds)

Exit:
Power OFF.

<Service Menu 1/2>

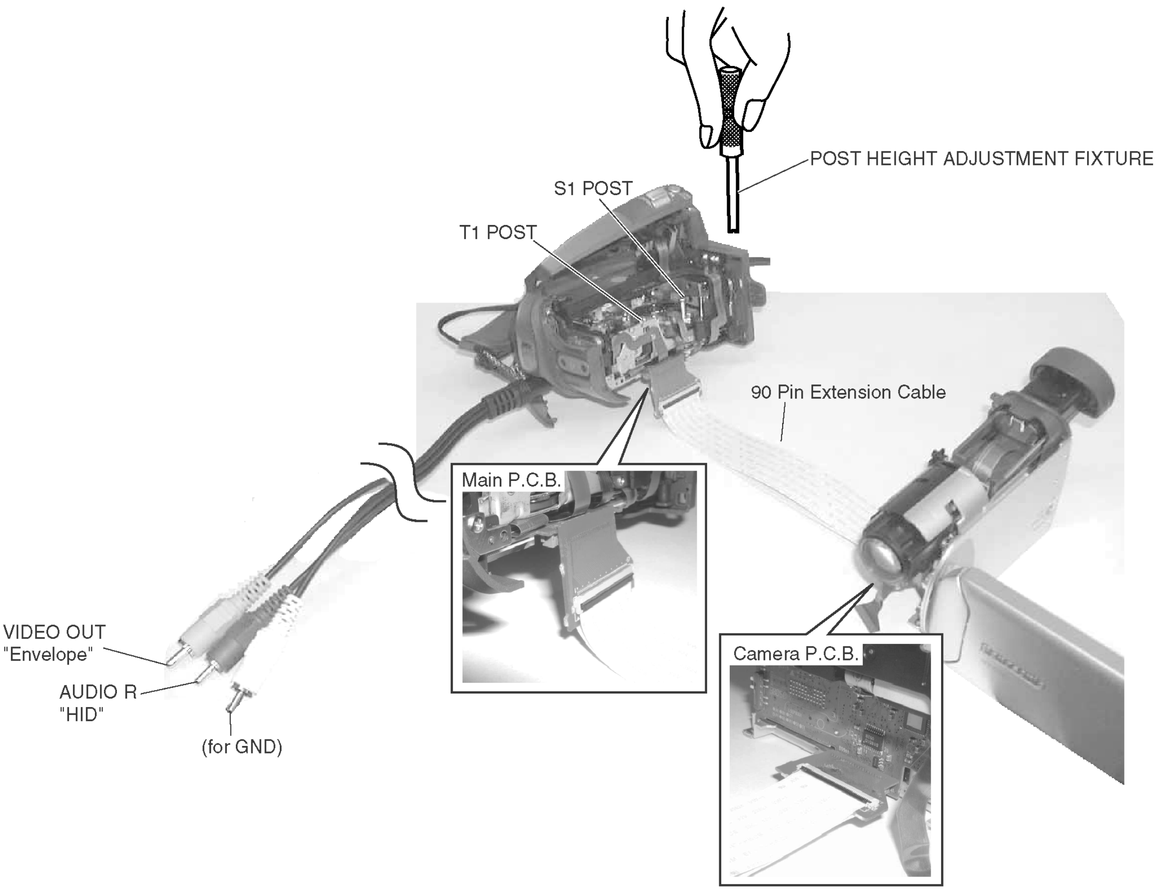
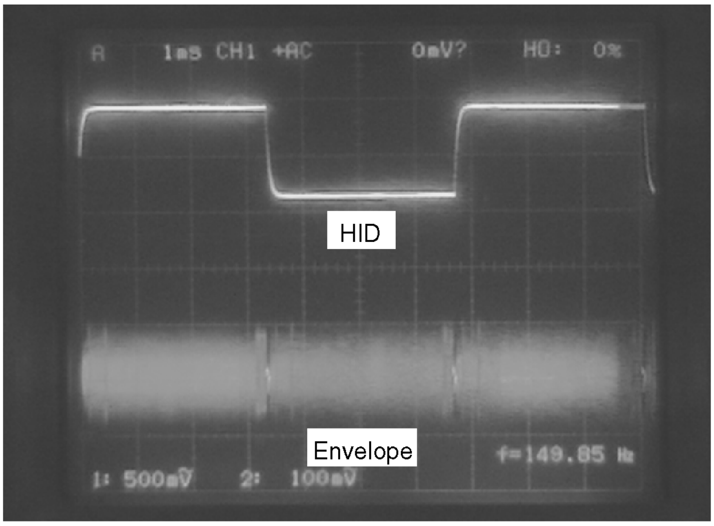


Fig. E1-1



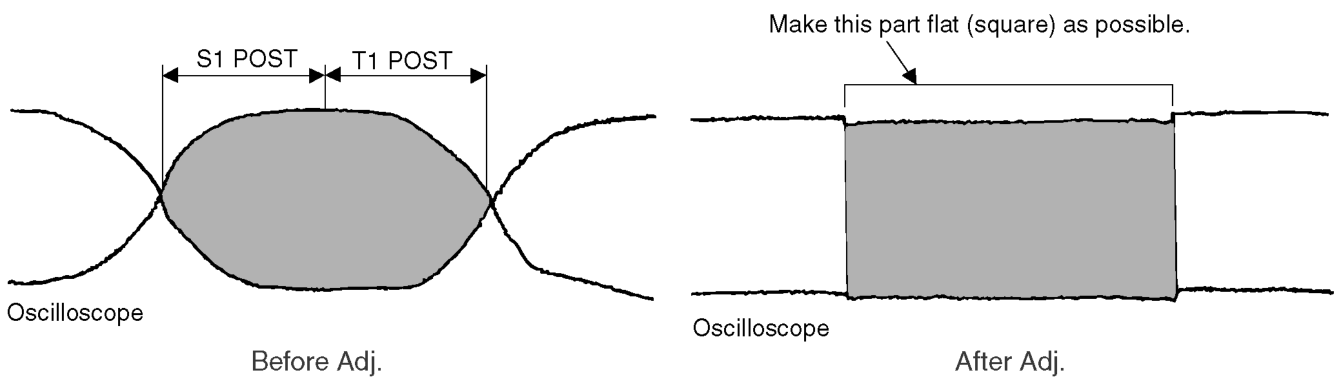


Fig. E1-2

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.

9.2. Electrical Adjustment

9.2.1. 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 & IRIS/HALL AMP CONTROL)	IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)	IC3101 (VIDEO/AUDIO SIGNAL PROCESS)	IC6001 (SYSTEM MICROCONTROLLER)	IC6003 (EEPROM)	CAMERA P.C.B.	LCD P.C.B.	IC8001(LCD RGB /EVF SIGNAL PROCESS)	CCD UNIT	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	○			○	○		○							
LCD	LCD Contrast							○			○				
	LCD Bright							○			○				
	LCD Sub Bright							○			○				
	LCD VCOM level							○			○				
EVF	EVF Horizontal free running							○			○				
	EVF Contrast							○			○				
	EVF Bright							○			○				
	EVF Sub Bright							○			○				
	EVF VCOM leve							○			○				

Note: ○ : Adjustment Item

9.2.2. Installation of USB-SERIAL driver

Execute the "Setup.exe" file in "ComMass" folder by double clicking to install the USB-SERIAL driver.

9.2.3. COM Mode

If a Disc or SD Card is inserted, remove before operation.

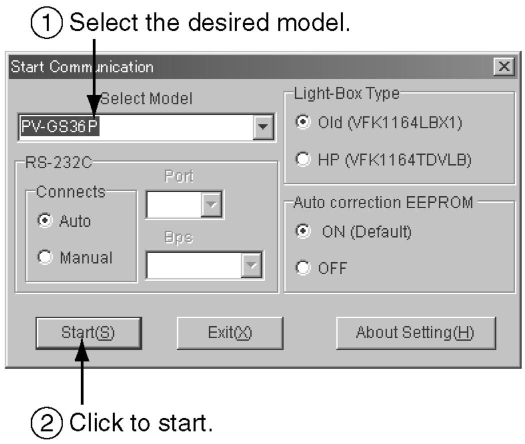
To enter the PC connection (COM) mode, push the [PHOTO SHOT], [RECORDING START/STOP] and [JOYSTICK CONTROL UP] simultaneously for 3 seconds without connecting the USB Cable.

<LCD Monitor>

9.2.4. 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 "kdv2006.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".



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

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

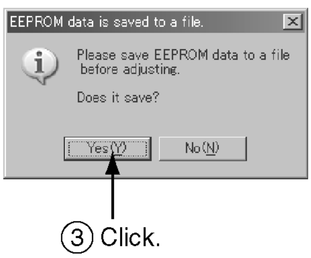


Fig. E2-2

6. When saving EEPROM data is complete, the menu will appear.

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

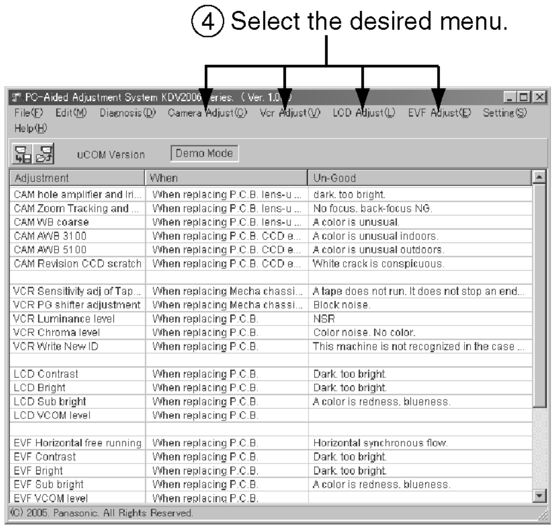


Fig. E2-3

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.

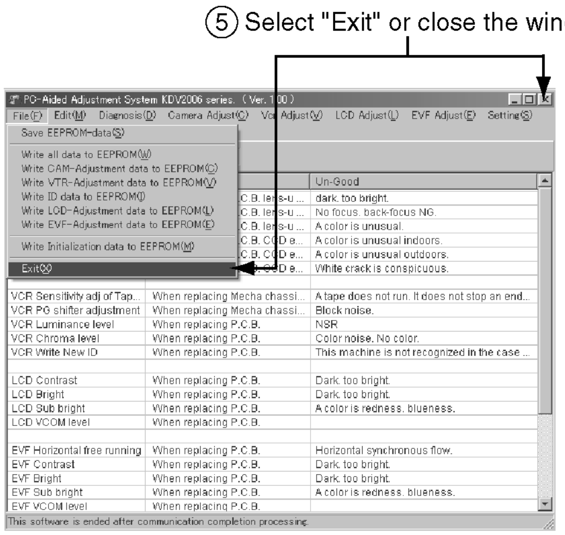


Fig. E2-4

8. To release the PC connection (COM) mode, push the [PHOTO SHOT], [RECORDING START/STOP] an [JOYSTICK CONTROL UP] simultaneously for 3 seconds without connecting the USB Cable.

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 gently wipe the surface.

Note:

Lens cleaning paper and lens cleaner are available at camera shops, etc.

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

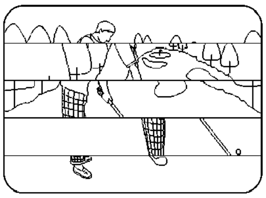
Please use the cleaning tape as described below.

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

1. Confirm the picture.
   ↓ **NG**
2. Playback the cleaning tape for 20 seconds.
   ↓
3. Confirm the picture again. → **OK** → Playback any normal DVC tape for 20 minutes or over.
   ↓ **NG**
4. Playback the cleaning tape for 20 seconds.
   ↓
5. Confirm the picture again. → **OK** → Playback any normal DVC tape for 20 minutes or over.
   ↓ **NG**
6. Playback the cleaning tape for 20 seconds.
   ↓
7. Confirm the picture again. → **OK** → Playback any normal DVC tape for 20 minutes or over.
   ↓ **NG**
8. Replace the Cylinder Unit
   ↓

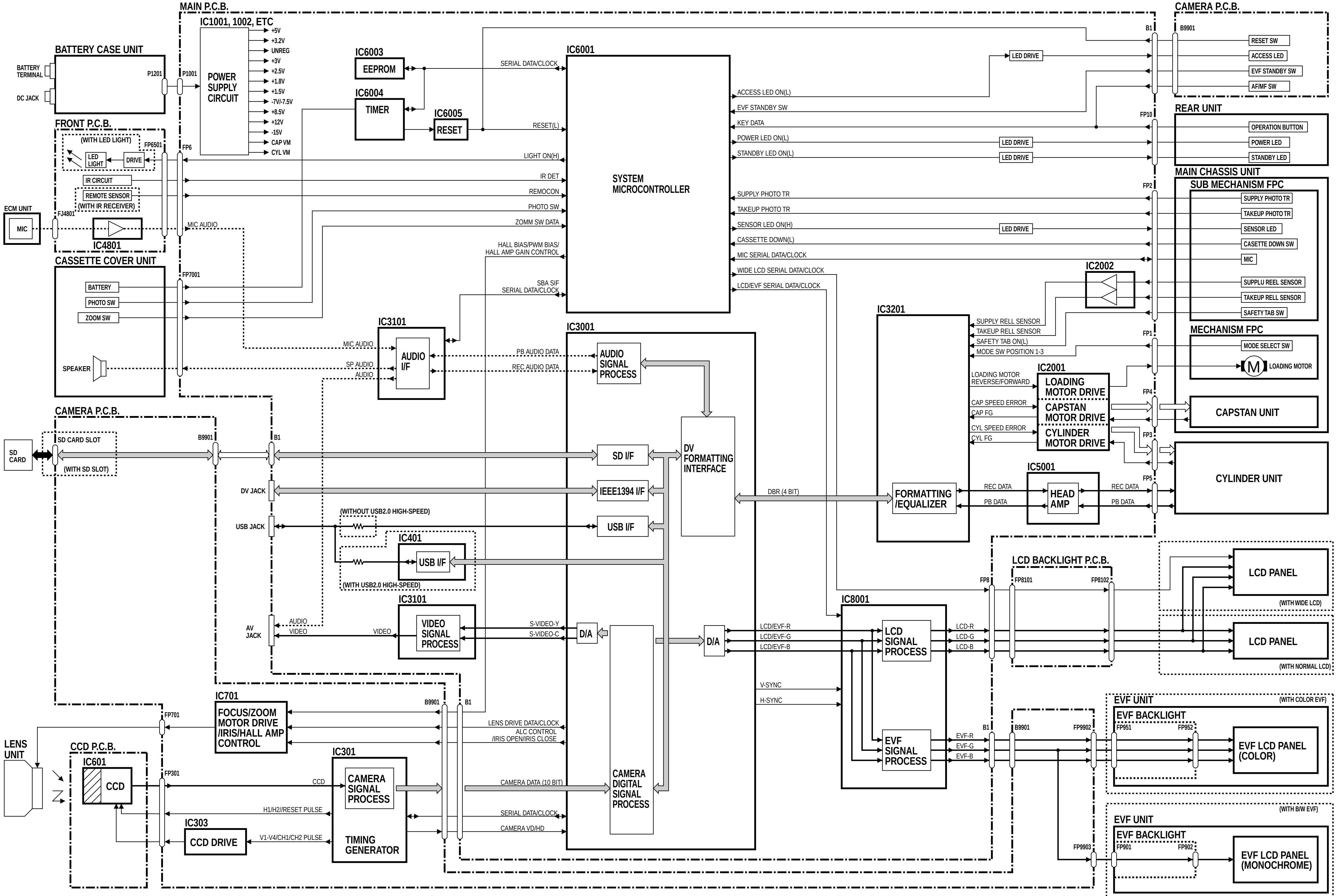
OK

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



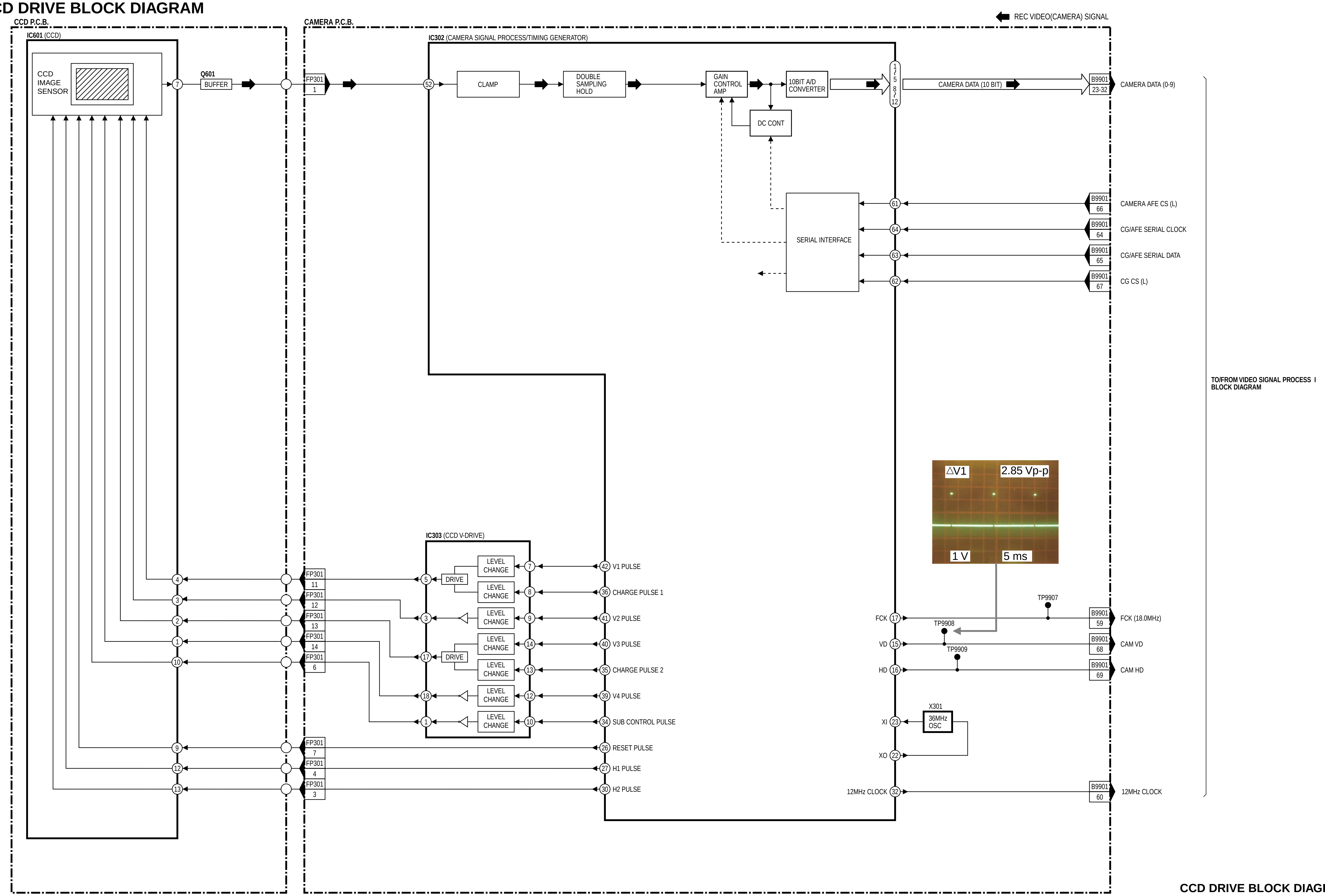
11 Block Diagrams

OVERALL BLOCK DIAGRAM



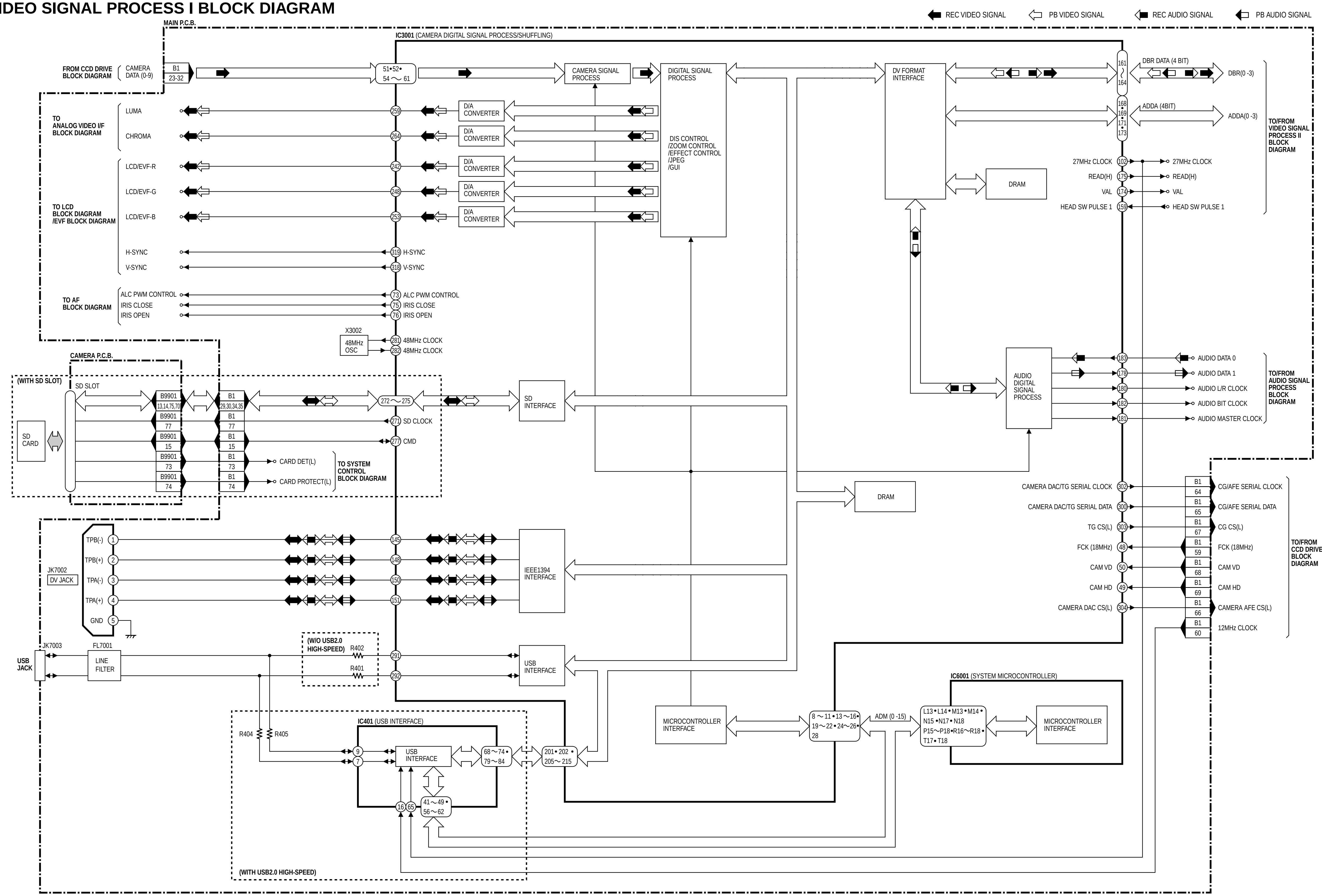
OVERALL BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

CCD DRIVE BLOCK DIAGRAM



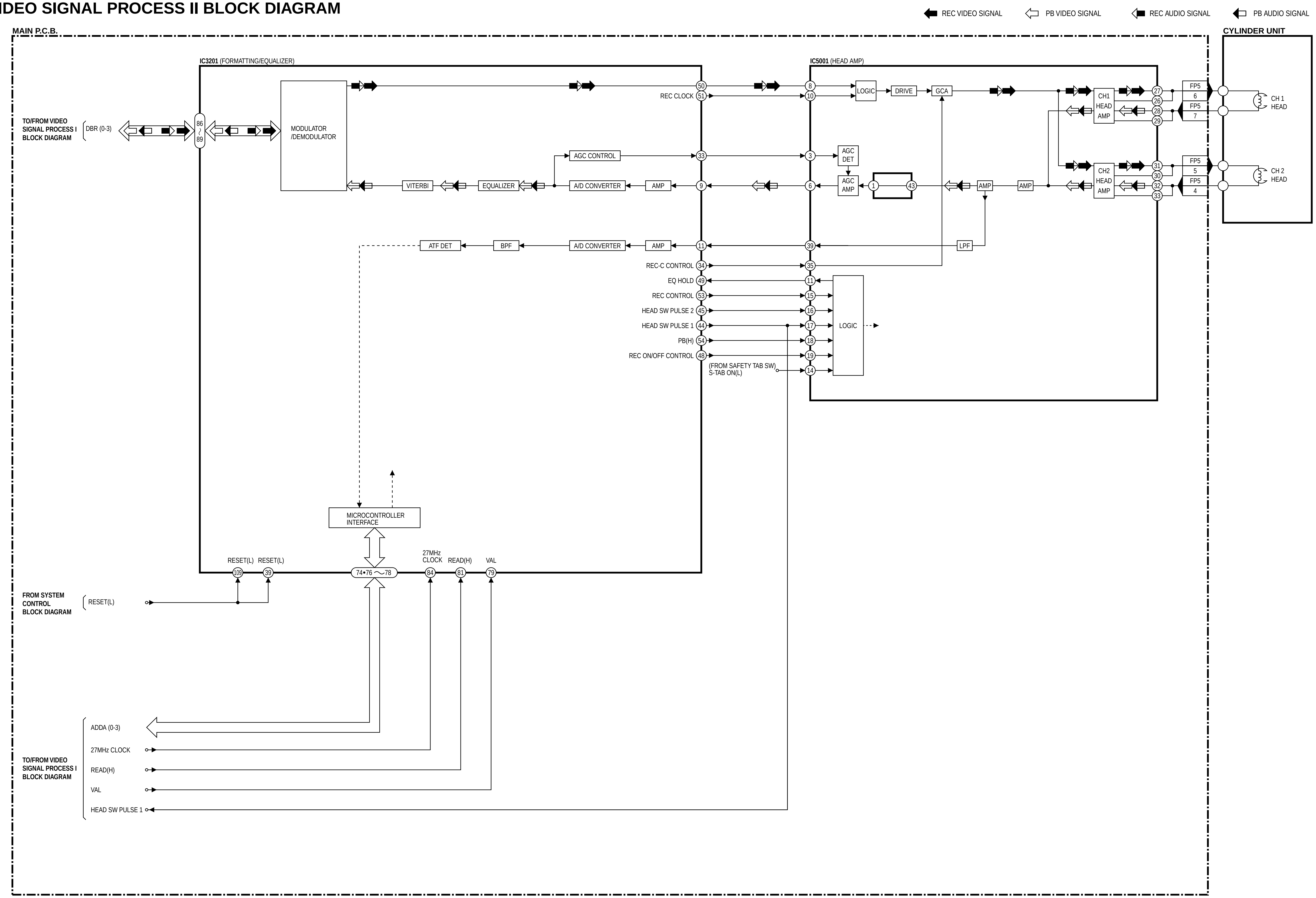
CCD DRIVE BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

VIDEO SIGNAL PROCESS I BLOCK DIAGRAM



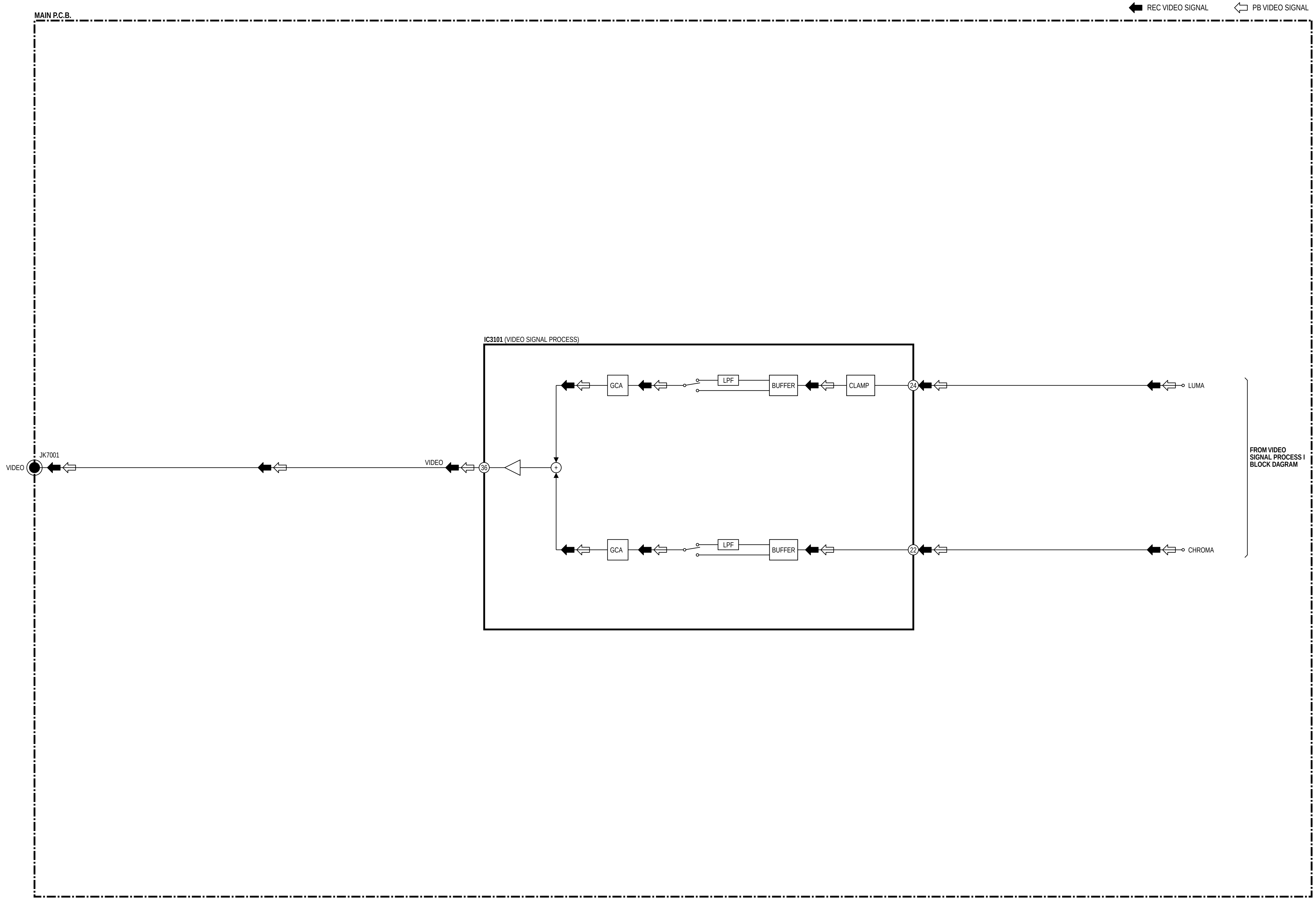
VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

VIDEO SIGNAL PROCESS II BLOCK DIAGRAM



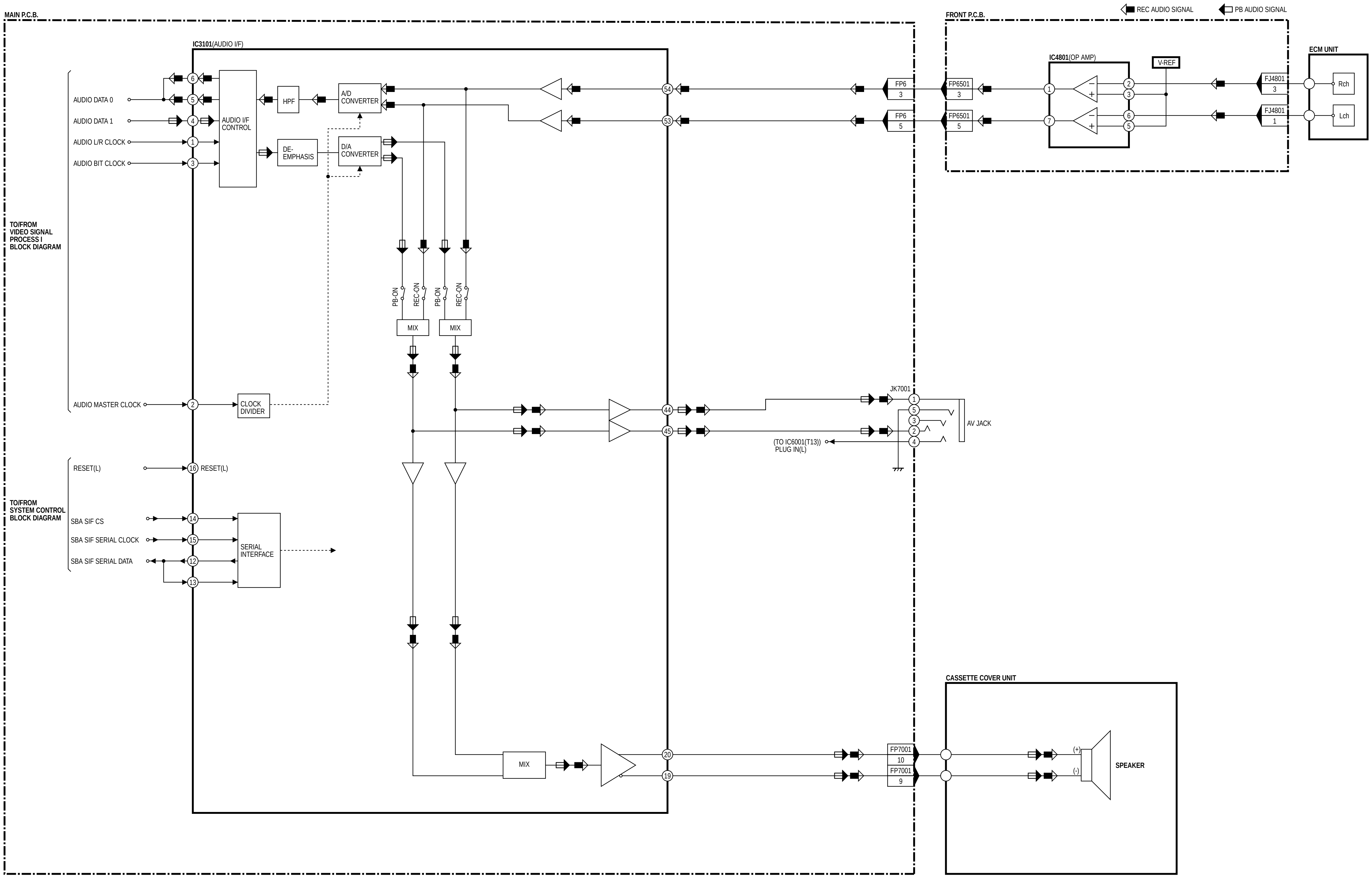
VIDEO SIGNAL PROCESS II BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

ANALOG VIDEO I/F BLOCK DIAGRAM



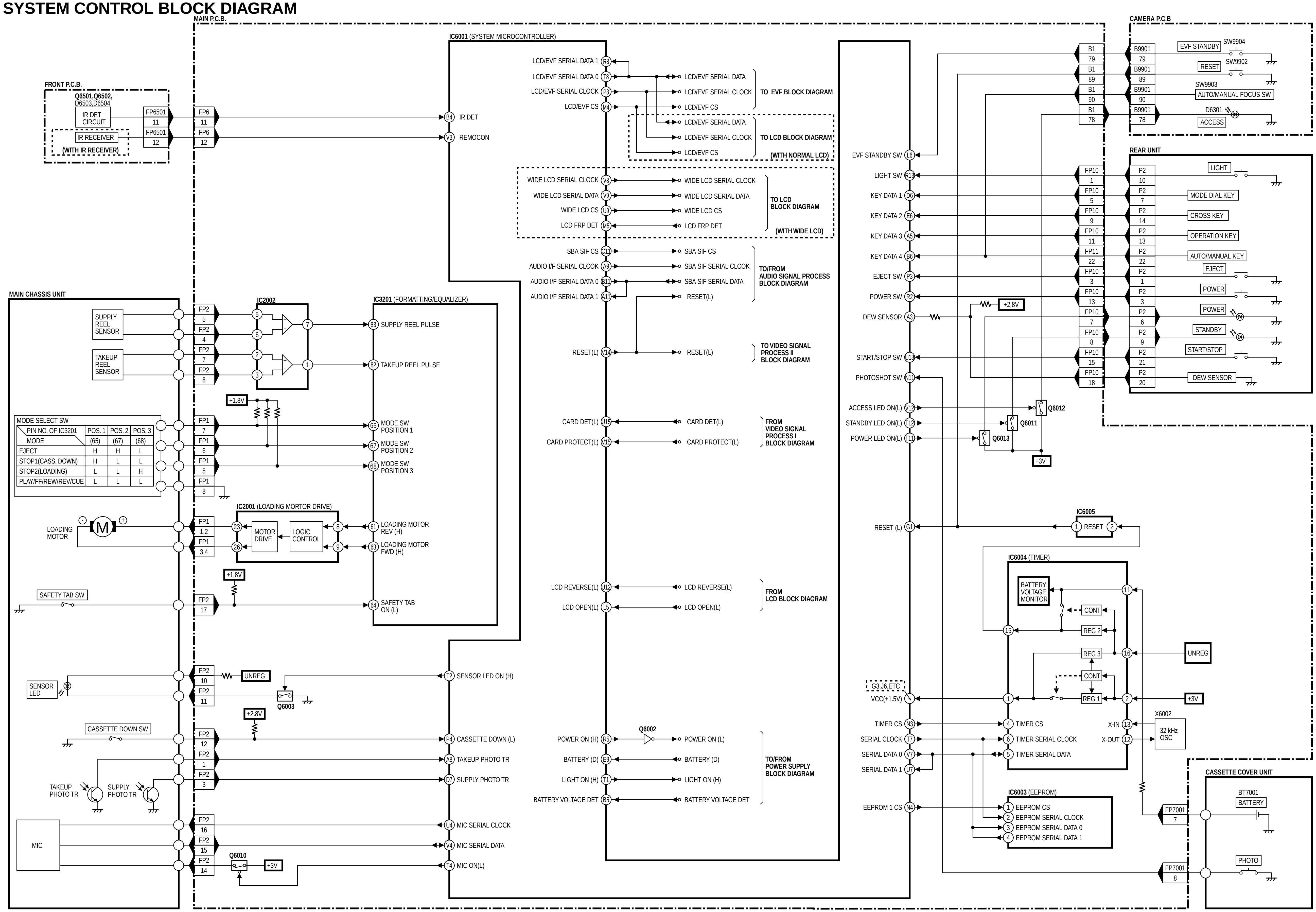
ANALOG VIDEO I/F BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

AUDIO SIGNAL PROCESS BLOCK DIAGRAM



AUDIO SIGNAL PROCESS BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

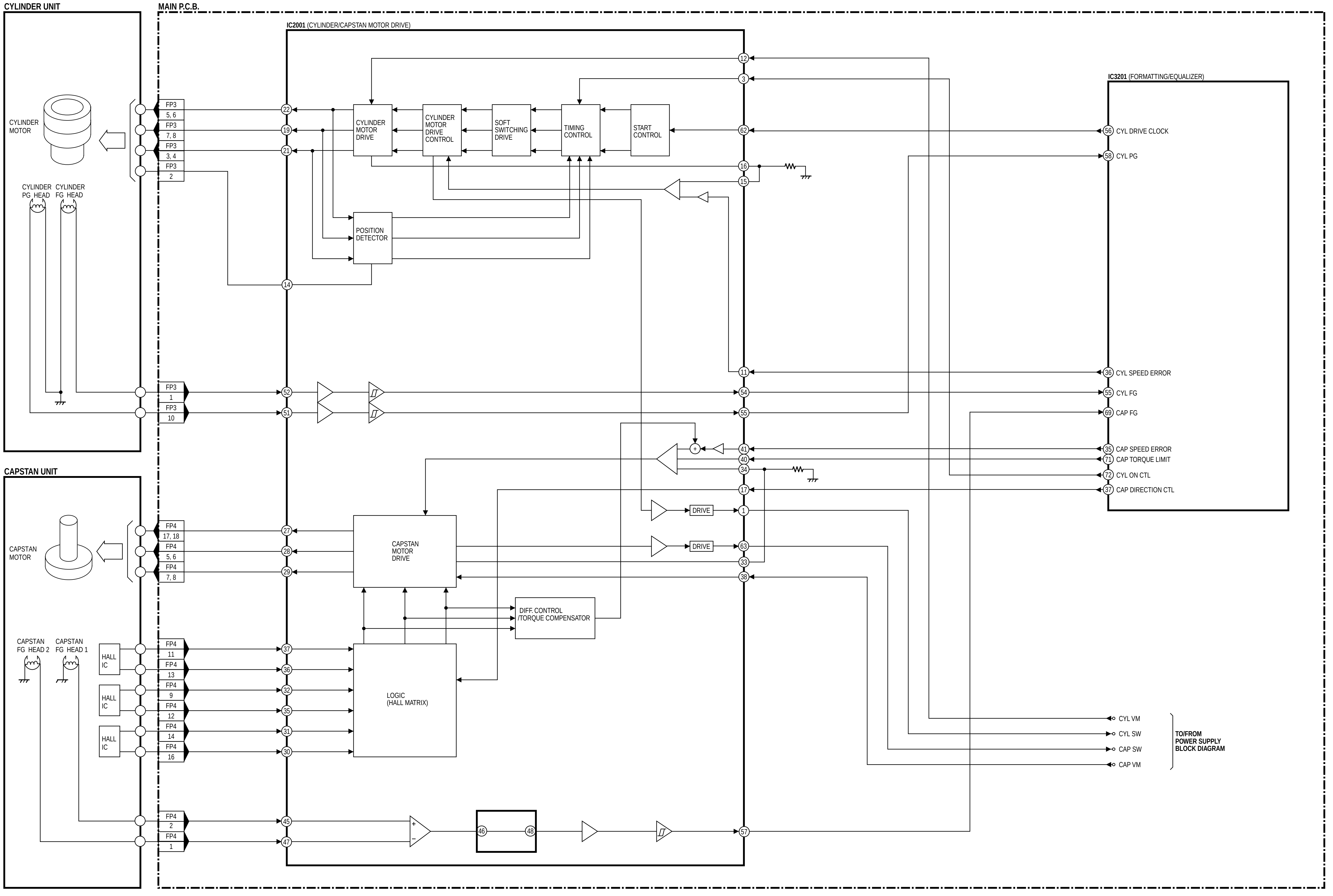
SYSTEM CONTROL BLOCK DIAGRAM



PIN NO. OF IC3201 / MODE	POS. 1 (65)	POS. 2 (67)	POS. 3 (68)
EJECT	H	H	L
STOP1(CASS. DOWN)	H	L	L
STOP2(LOADING)	L	L	H
PLAY/FF/REW/REV/CUE	L	L	L

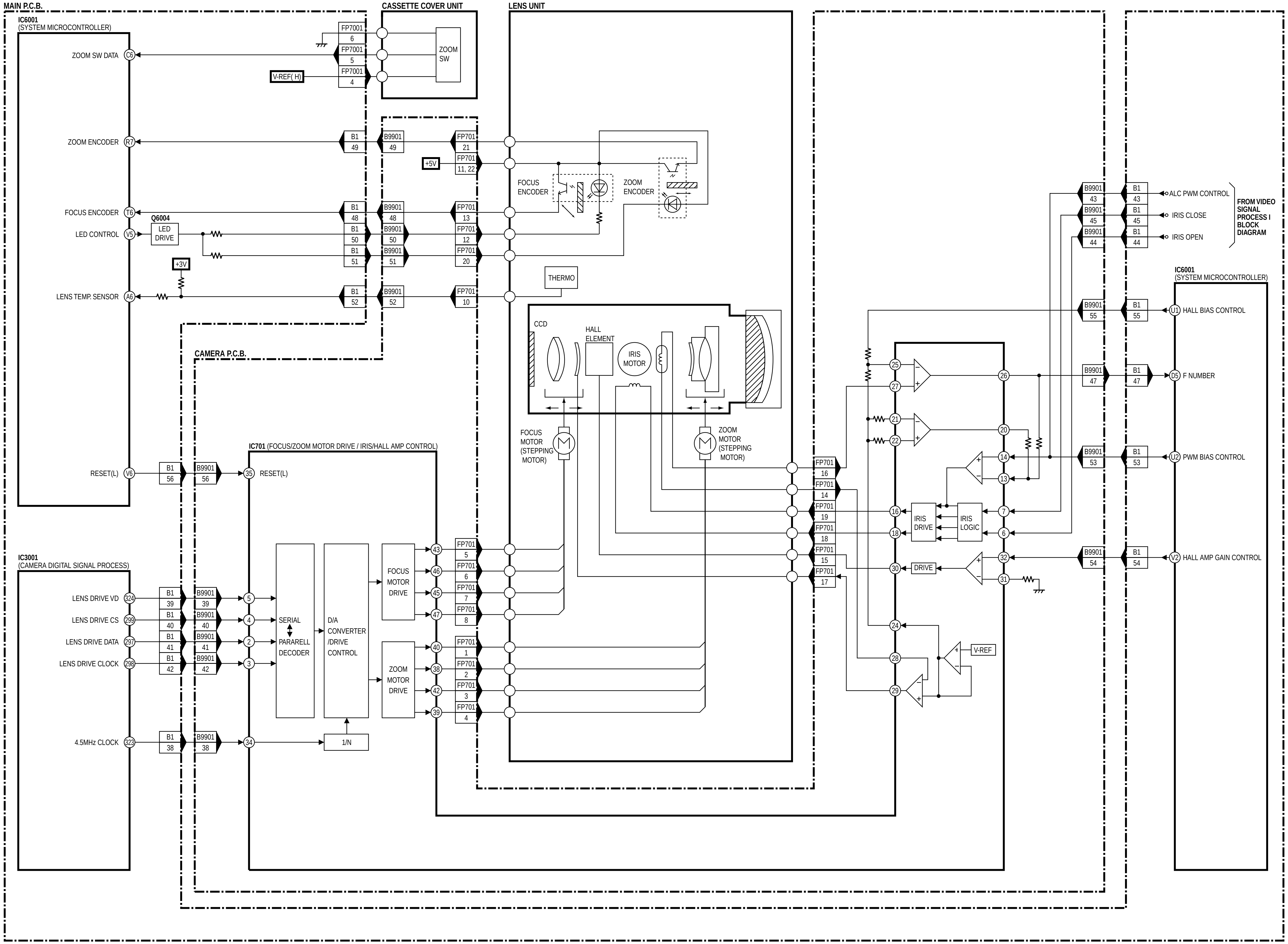
SYSTEM CONTROL BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

SERVO BLOCK DIAGRAM



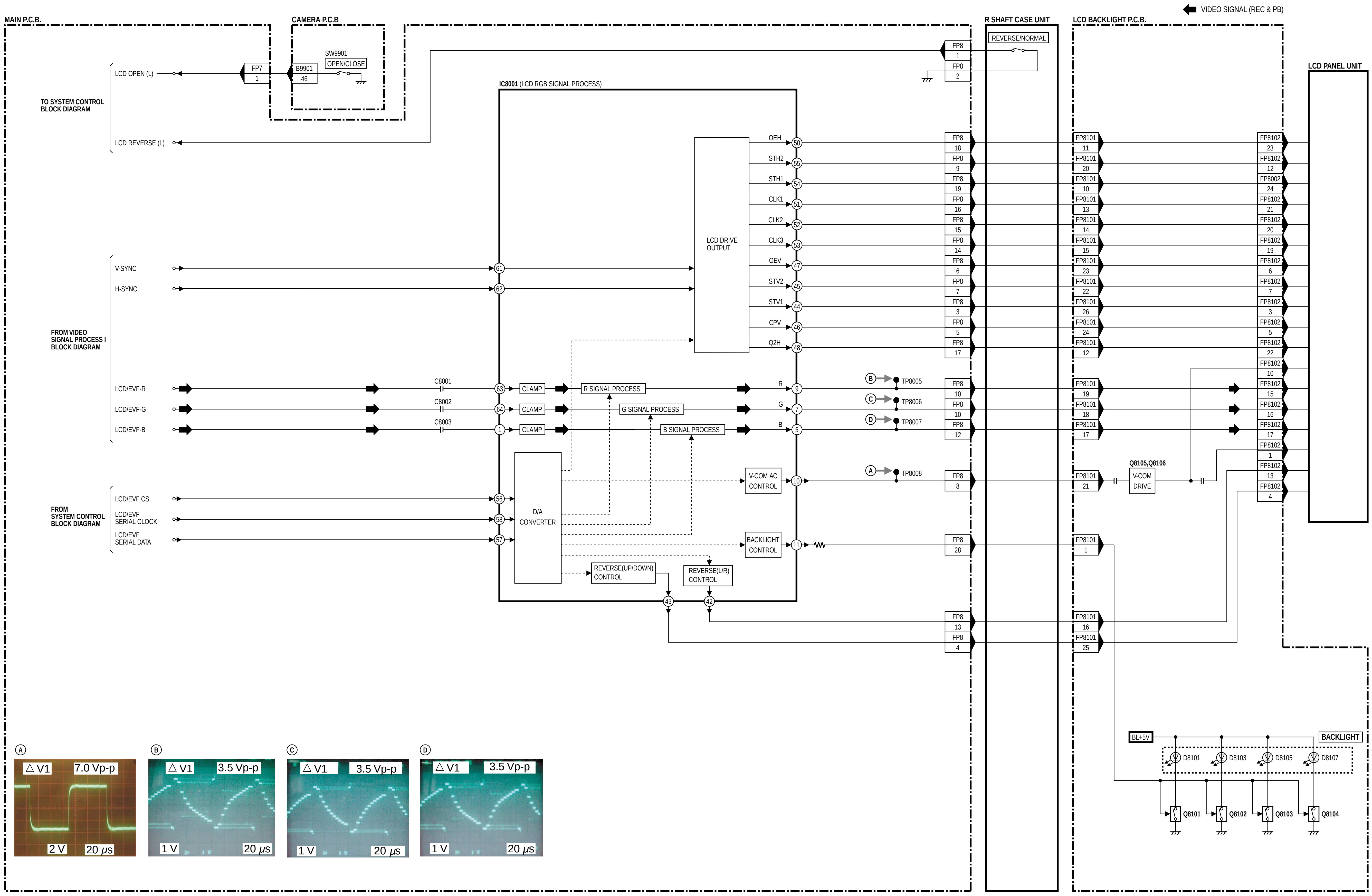
SERVO BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

AF BLOCK DIAGRAM



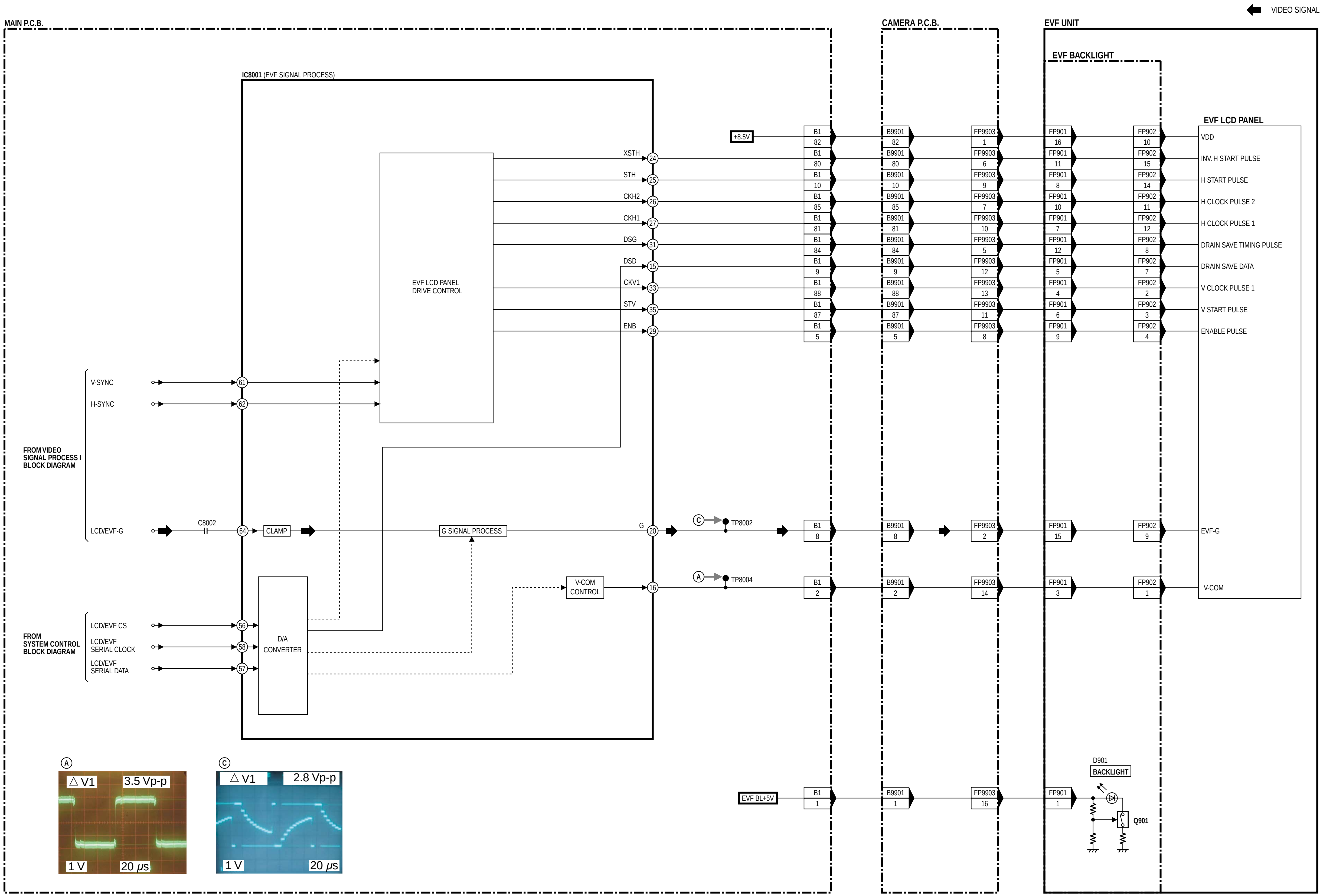
AF BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

LCD DRIVE BLOCK DIAGRAM



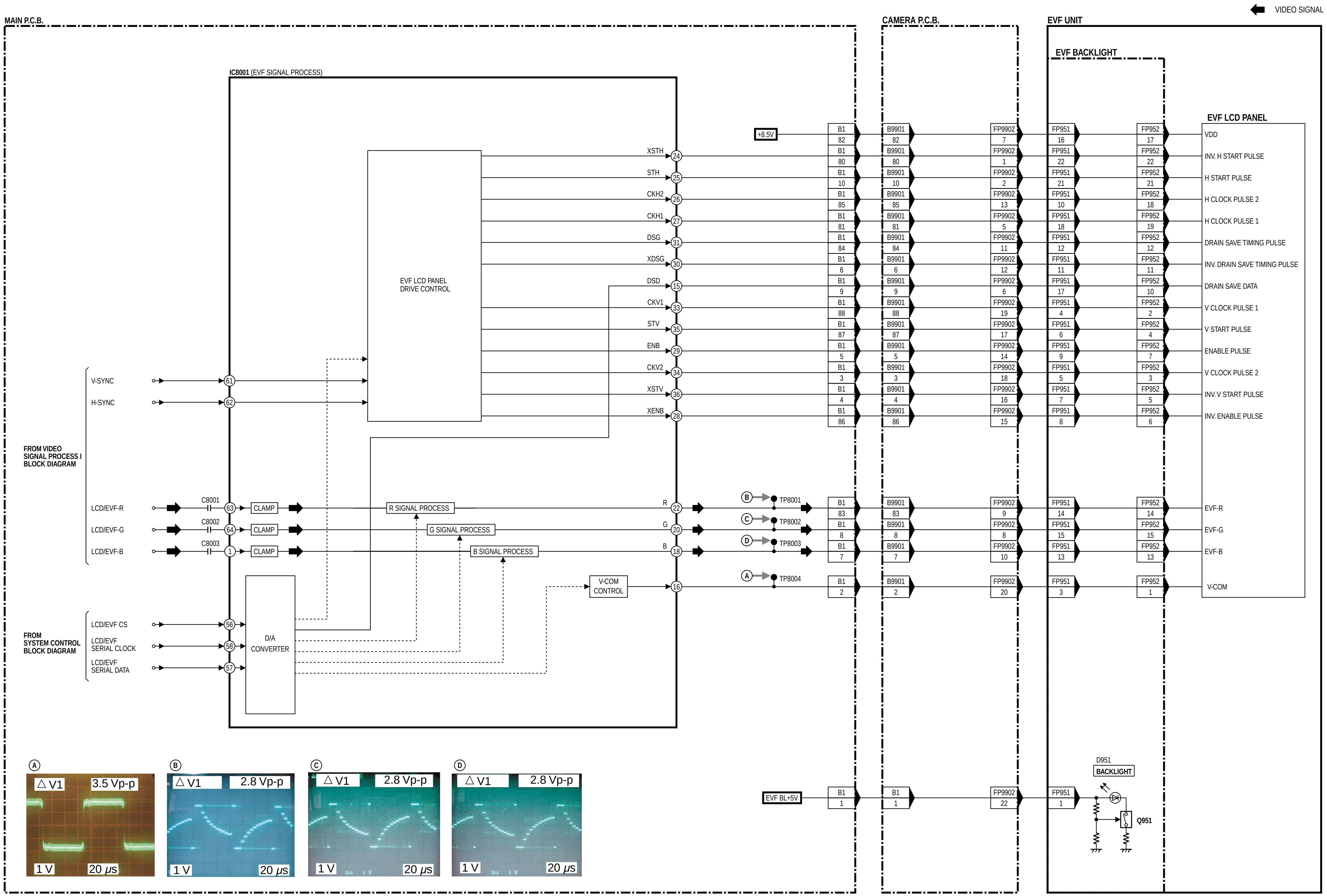
LCD DRIVE BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

EVF BLOCK DIAGRAM (Models: NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC)



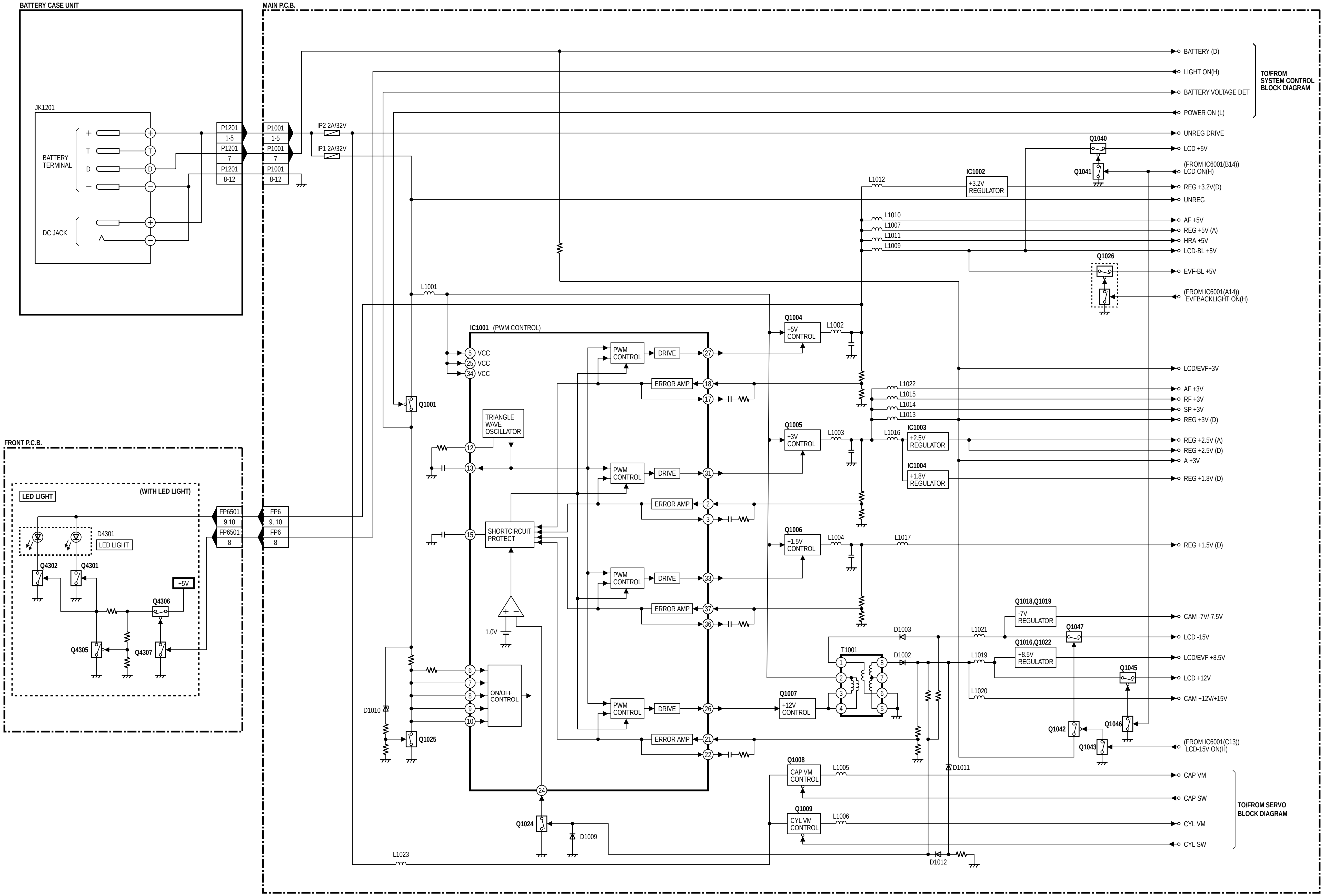
EVF BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC

EVF BLOCK DIAGRAM (Models: NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK)



EVF BLOCK DIAGRAM
NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK

POWER SUPPLY BLOCK DIAGRAM



POWER SUPPLY BLOCK DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12 Schematic Diagrams

12.1. SCHEMATIC DIAGRAM & CIRCUIT BOARD LAYOUT NOTES

1. **Important safety notice**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

2. Do not use the part numbers shown on these drawings for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information

   ○ : Test point with no test pin.

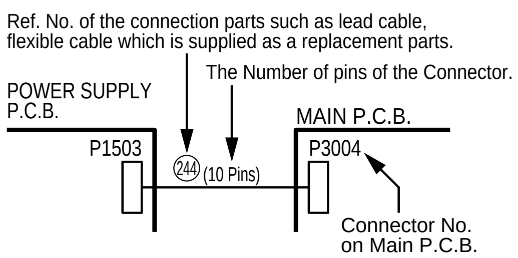
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltages of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V)......Zener Voltage

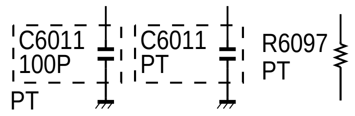
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to (its counter part). Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between two P.C.B.s are shown below.



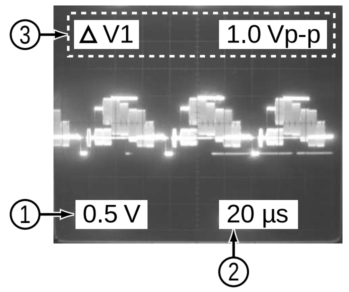
3. Parts marked "PT" are not used in any models included in this service model.

   Example:



Signal Waveform Note

How to read Signal Waveform



① Volts/Div
② Time/Div
③ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layouts show components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layouts include components which are not used.

Model Number Indication

Model numbers are indicated without "NV-GS."

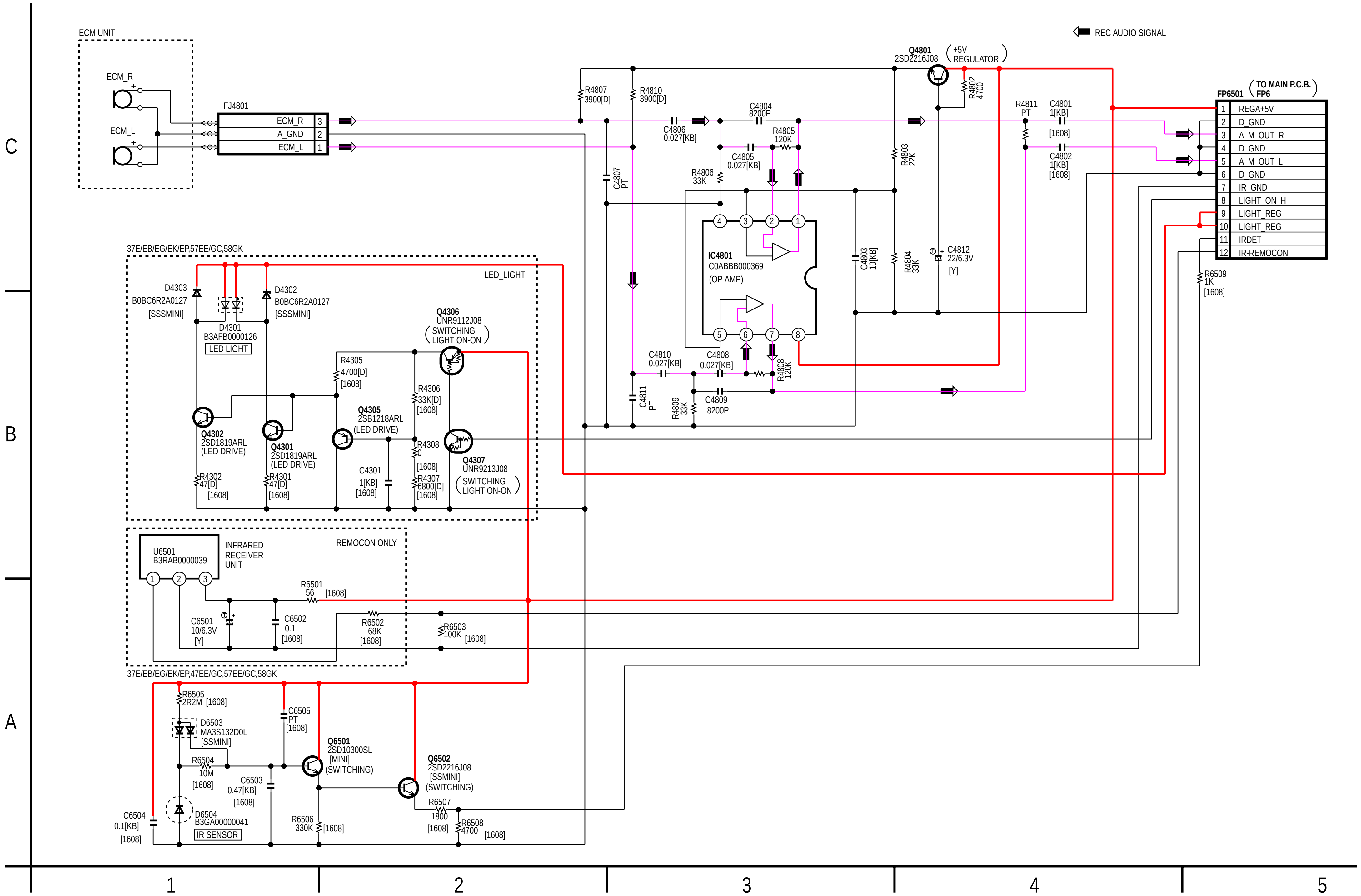
12.2. FRONT SCHEMATIC DIAGRAM

FRONT SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: PARTS MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



12.3. LCD BACKLIGHT SCHEMATIC DIAGRAM

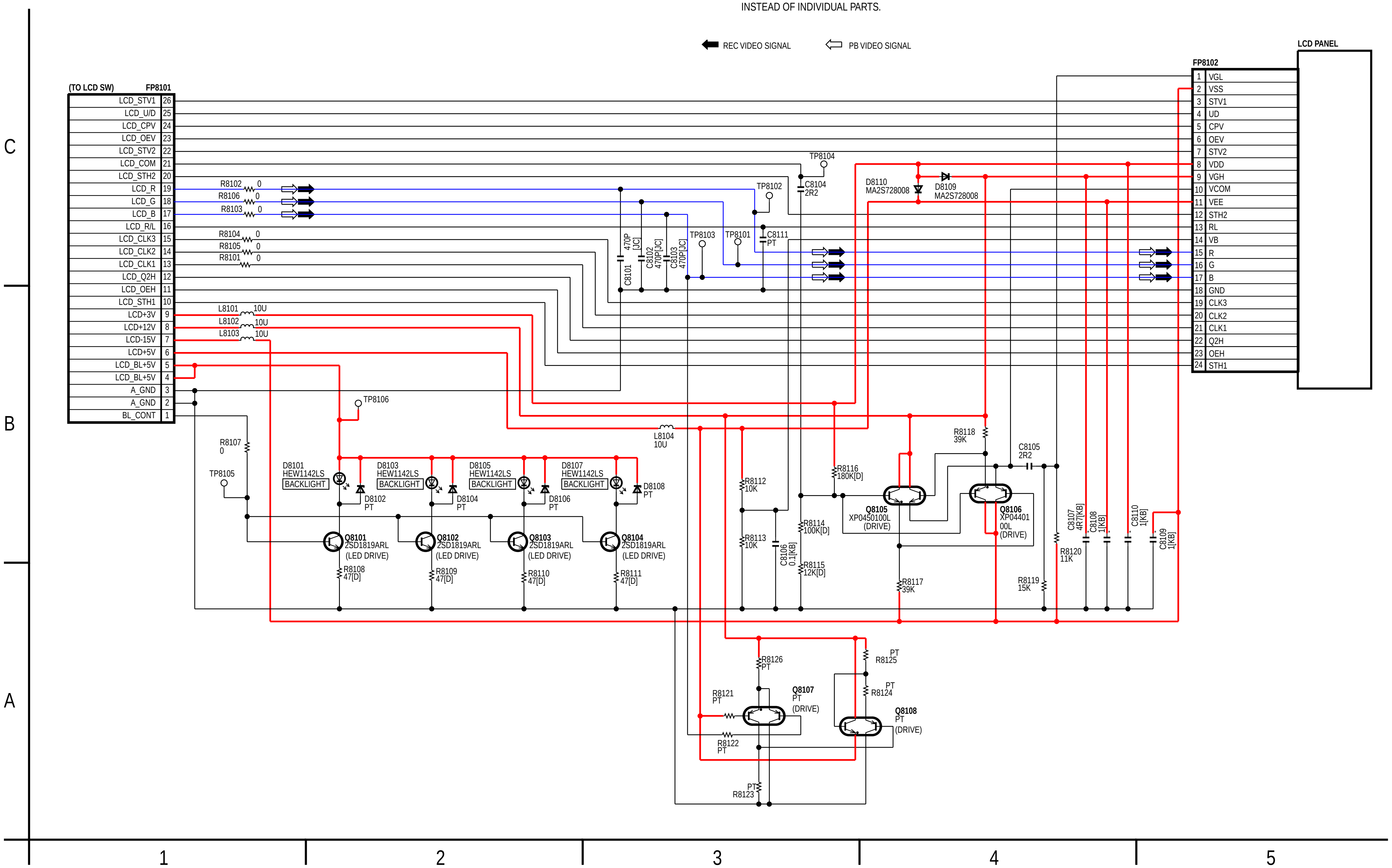
LCD BACKLIGHT SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: PARTS MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: ALL INDIVIDUAL PARTS EXCEPT D8101, D8103, D8105, AND D8107 ON LCD BACKLIGHT P.C.B. ARE SUPPLIED AS REPLACEMENT PARTS. WHEN SERVICING THESE PARTS, REPLACE LCD BACKLIGHT P.C.B. INSTEAD OF INDIVIDUAL PARTS.



LSJB8334
LCD BACKLIGHT SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.4. EVF BACKLIGHT / CASSETTE COVER SCHEMATIC DIAGRAMS

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

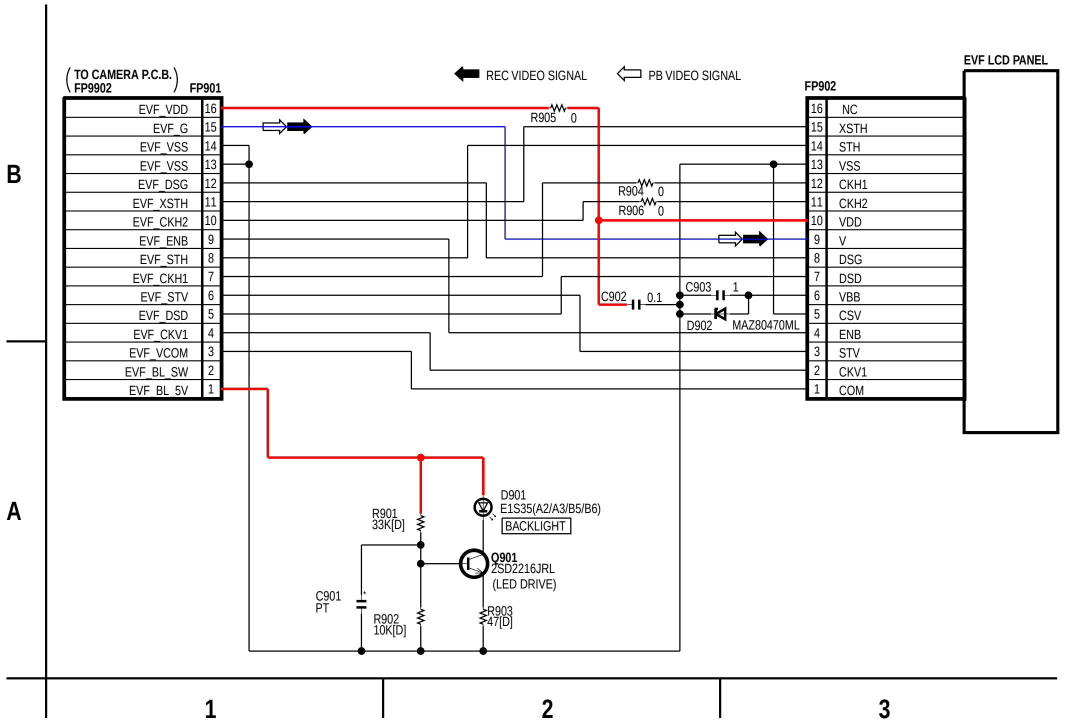
NOTE: PARTS MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

EVF BACKLIGHT SCHEMATIC DIAGRAM NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS47EE/GC

"FOR REFERENCE ONLY"

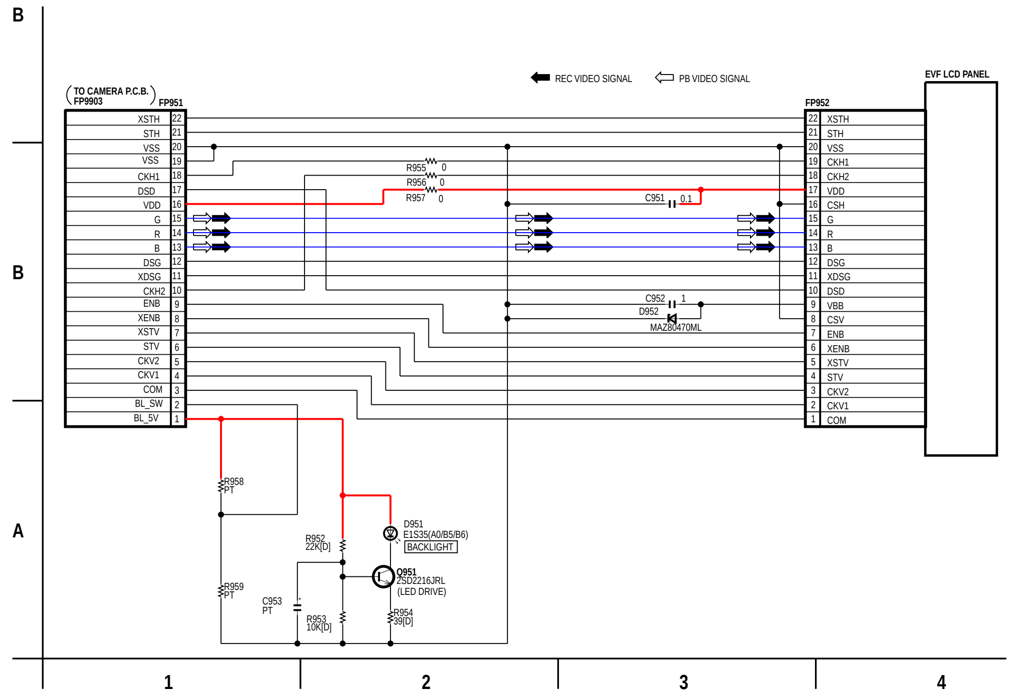
NOTE: EVF BACKLIGHT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



EVF BACKLIGHT SCHEMATIC DIAGRAM NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK

"FOR REFERENCE ONLY"

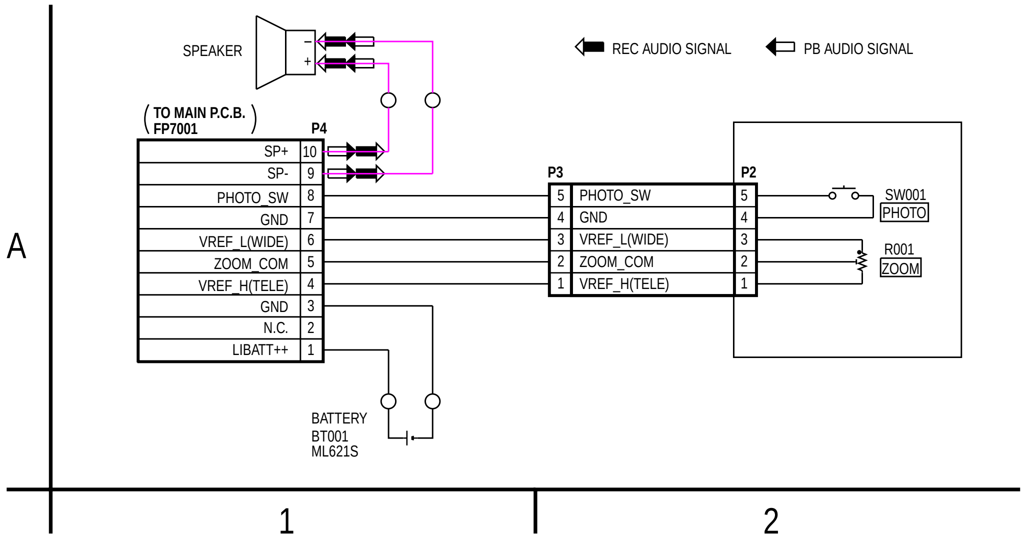
NOTE: EVF BACKLIGHT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



CASSETTE COVER SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE: CASSETTE COVER UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



EVF BACKLIGHT SCHEMATIC DIAGRAM
CASSETTE COVER SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN, NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.5. CCD / REAR / LCD SW / BATTERY CASE SCHEMATIC DIAGRAMS

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

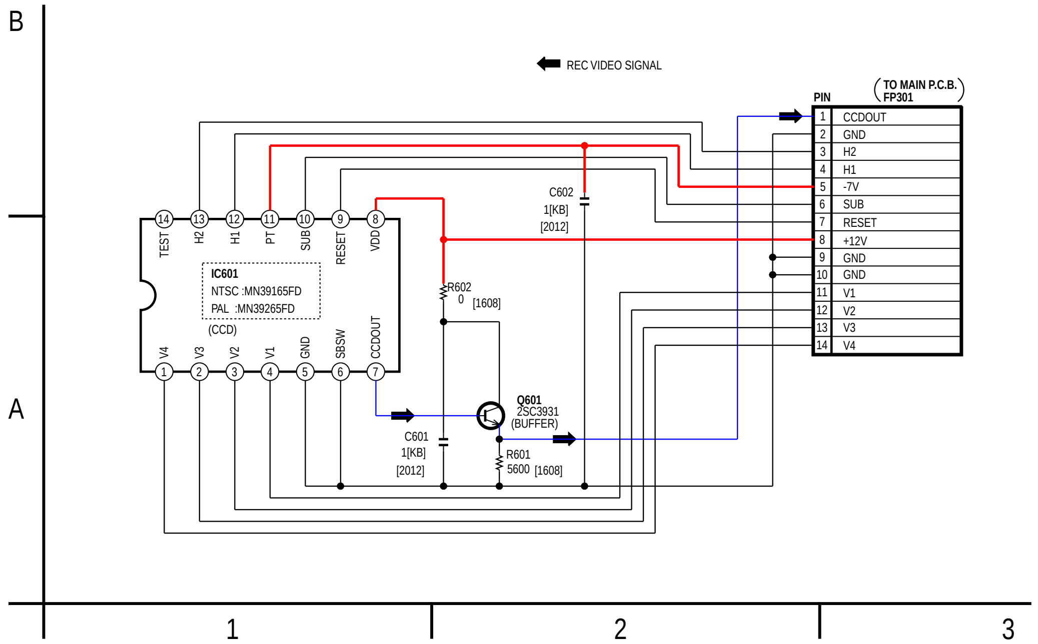
NOTE: PARTS MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

CCD SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

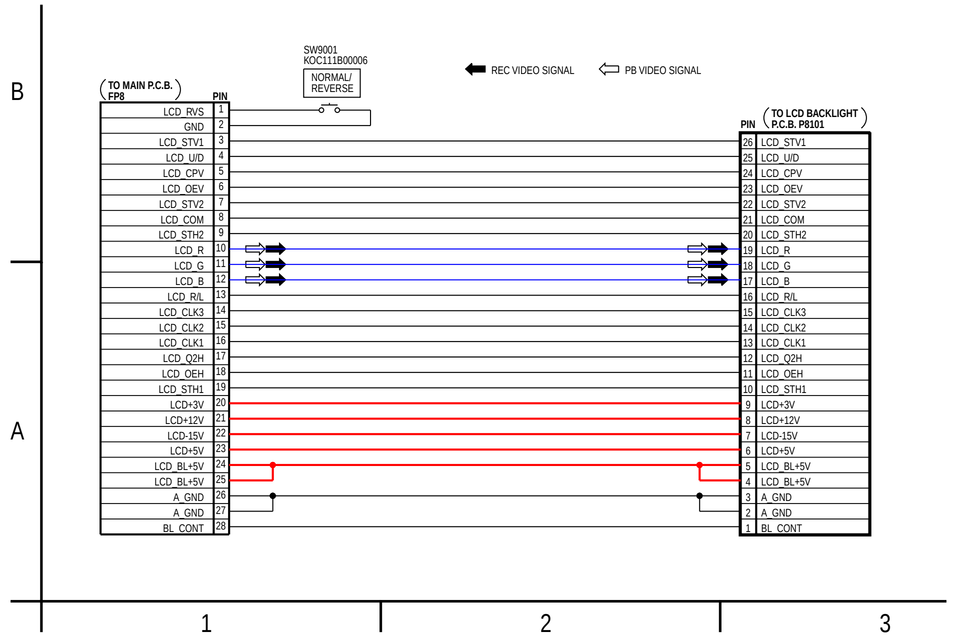
NOTE: CCD P.C.B. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



LCD SW SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

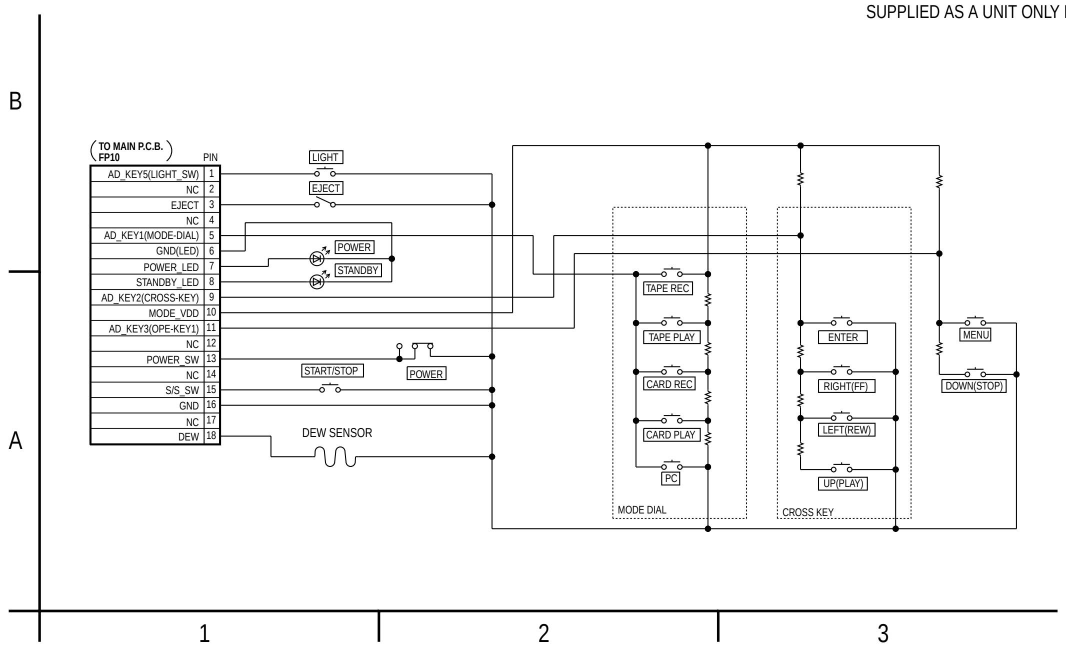
NOTE: LCD SW IS NOT SERVICEABLE AND IS SUPPLIED AS A R SHAFT CASE UNIT ONLY FOR REPLACEMENT.



REAR SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

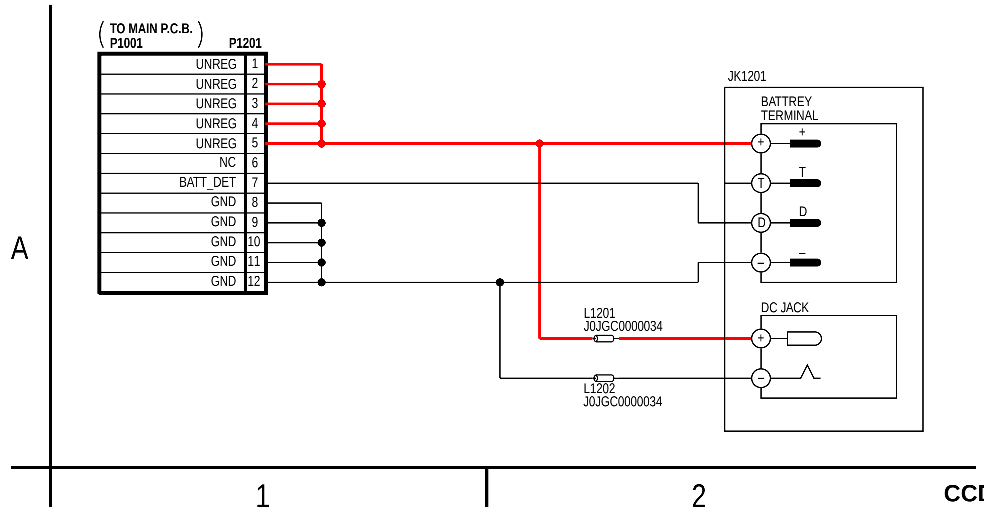
NOTE: REAR UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



BATTERY CASE SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE: BATTERY CASE UNIT IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



CCD SCHEMATIC DIAGRAM
REAR SCHEMATIC DIAGRAM
LCD SW SCHEMATIC DIAGRAM
BATTERY CASE SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

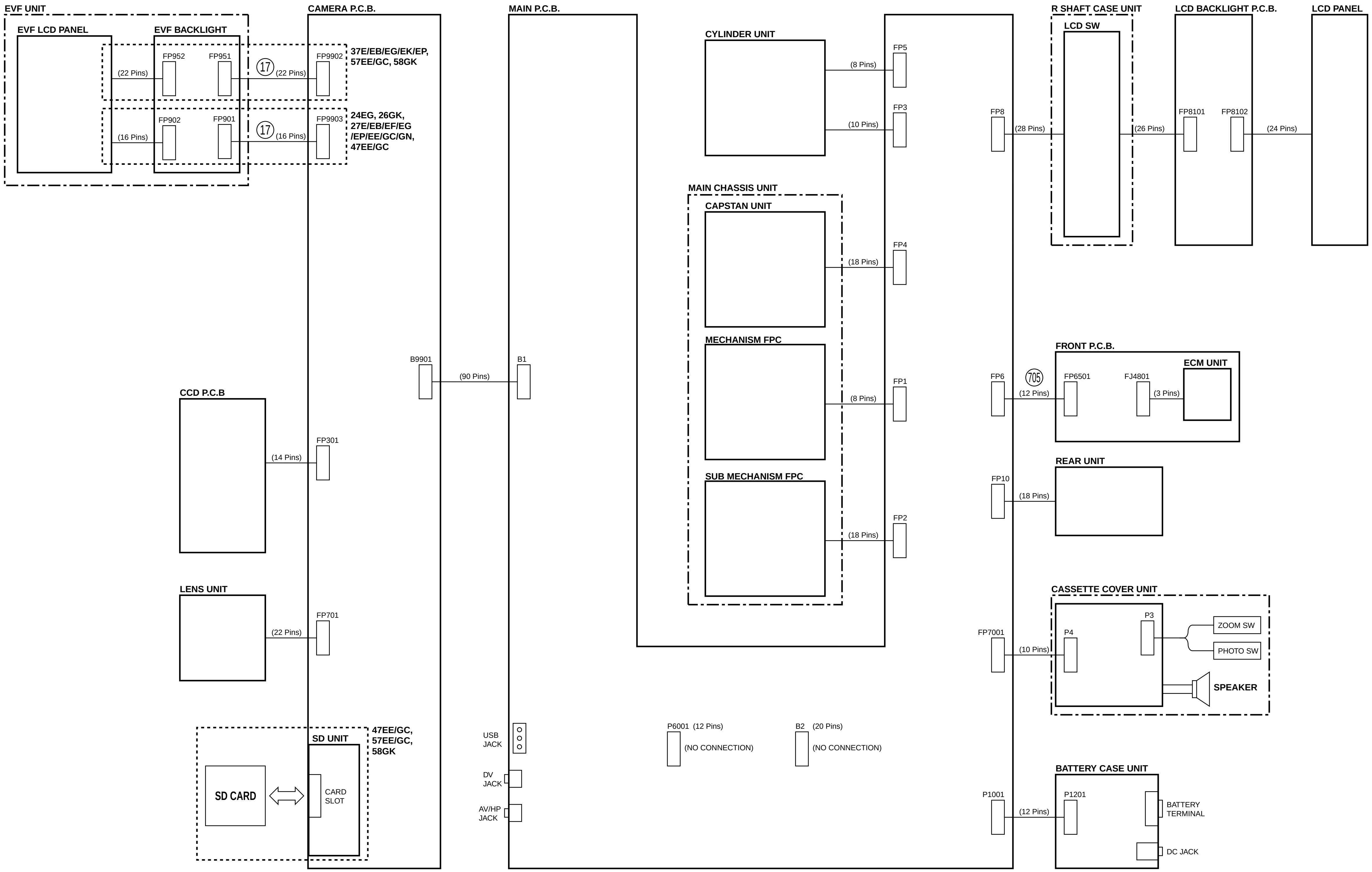
12.6. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: PARTS MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



INTERCONNECTION SCHEMATIC DIAGRAM
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

12.7. VOLTAGE CHART

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

LCD BACKLIGHT P.C.B.

MODE / PIN NO.	CAMERA
Q8101	
E	0.7
C	1.8
B	1.5
Q8102	
E	0.7
C	1.8
B	1.5
Q8103	
E	0.7
C	1.8
B	1.5
Q8104	
E	0.7
C	1.8
B	1.5
Q8105	
1	0.7
2	1.2
3	12.0
4	1.2
5	1.7
6	12.0
Q8106	
1	1.7
2	1.3
3	-14.7
4	1.2
5	0.7
6	-14.7
TP8101	2.6
TP8102	2.6
TP8103	2.6
TP8104	1.5
TP8105	1.5
TP8106	5.0

13 Printed Circuit Board

13.1. FRONT P.C.B.

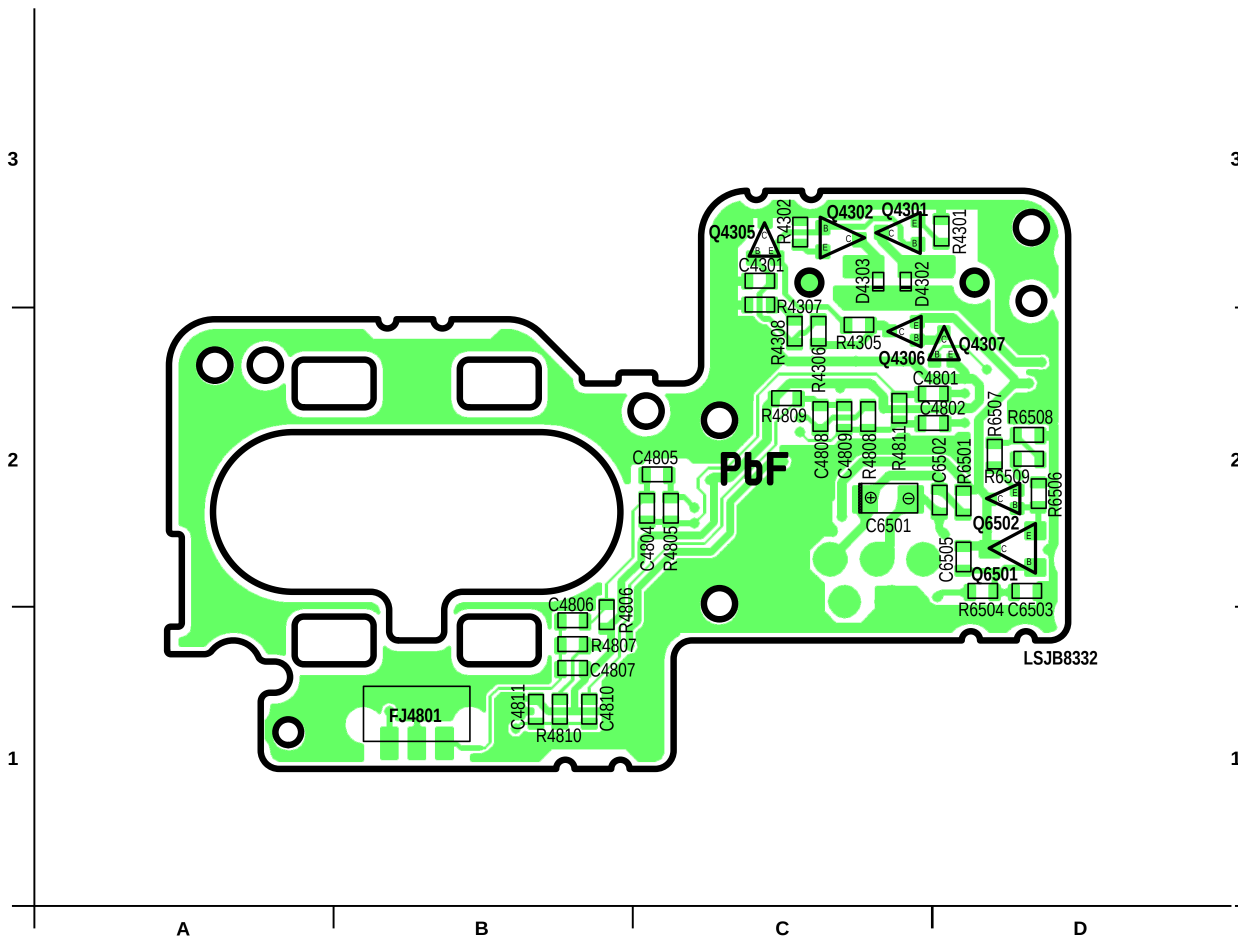
FRONT P.C.B. LSEP8332A1 NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN
LSEP8332C1 NV-GS37E/EB/EG/EK/EP, NV-GS57EE/GC, NV-GS58GK
LSEP8332D1 NV-GS47EE/GC

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

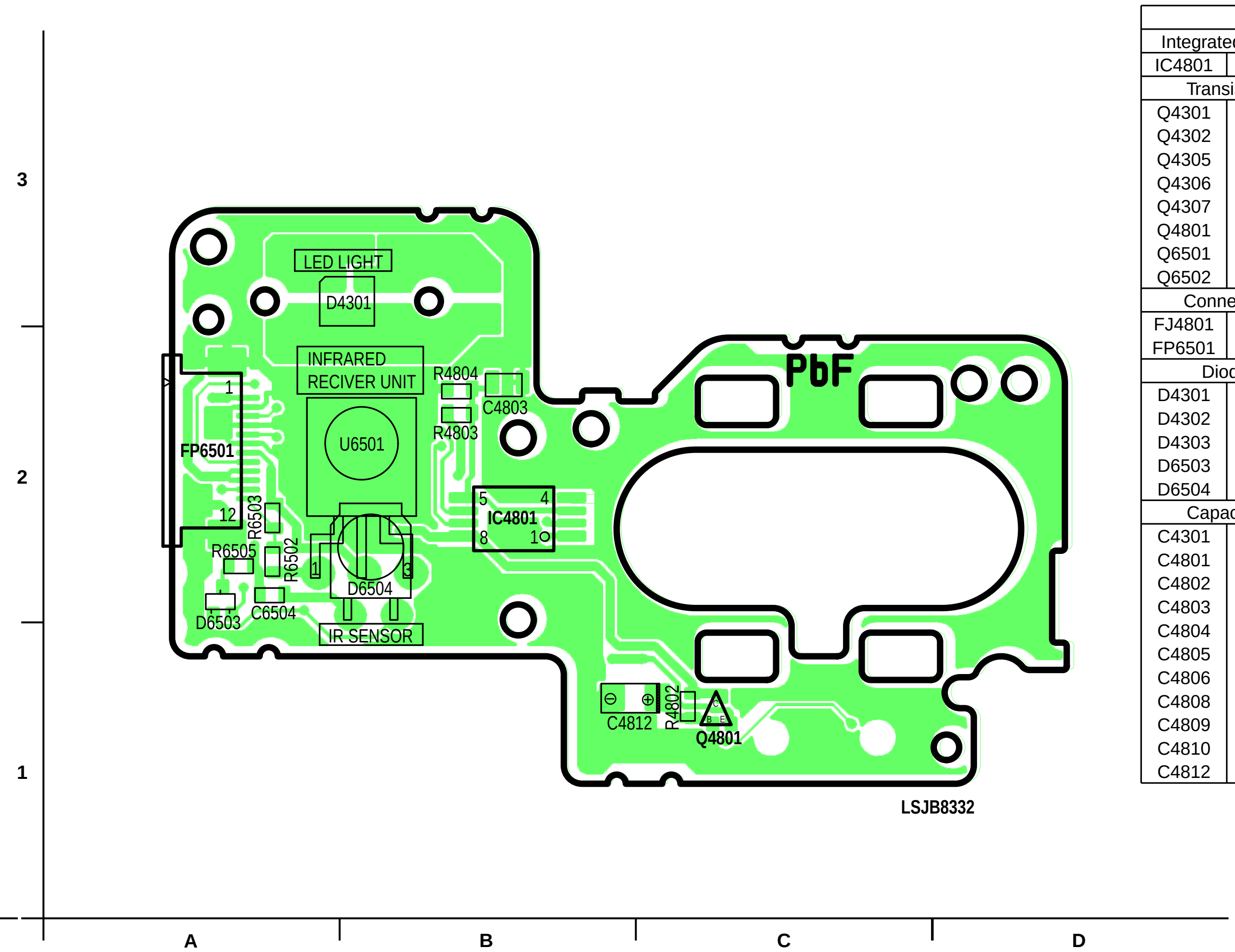
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

(COMPONENT SIDE)



(DUAL PATTERNS)

(FOIL SIDE)



(DUAL PATTERNS)

Parts Location

FRONT P.C.B.					
Integrated Circuit			C6501	C-2	C
IC4801	B-2	F	C6502	D-2	C
Transisters			C6503	D-2	C
Q4301	C-3	C	C6504	A-2	F
Q4302	C-3	C	Resistors		
Q4305	C-3	C	R4301	D-3	C
Q4306	C-2	C	R4302	C-3	C
Q4307	D-2	C	R4305	C-2	C
Q4801	C-1	F	R4306	C-2	C
Q6501	D-2	C	R4307	C-2	C
Q6502	D-2	C	R4308	C-2	C
Connectors			R4802	C-1	F
FJ4801	B-1	C	R4803	B-2	F
FP6501	A-2	F	R4804	B-2	F
Diodes			R4805	C-2	C
D4301	B-3	F	R4806	B-1	C
D4302	C-3	C	R4807	B-1	C
D4303	C-3	C	R4808	C-2	C
D6503	A-2	F	R4809	C-2	C
D6504	B-2	F	R4810	B-1	C
Capacitors			R6501	D-2	C
C4301	C-3	C	R6502	A-2	F
C4801	C-2	C	R6503	A-2	F
C4802	C-2	C	R6504	D-2	C
C4803	B-2	F	R6505	A-2	F
C4804	C-2	C	R6506	D-2	C
C4805	C-2	C	R6507	D-2	C
C4806	B-1	C	R6508	D-2	C
C4808	C-2	C	R6509	D-2	C
C4809	C-2	C	Miscellaneous		
C4810	B-1	C	U6501	B-2	F
C4812	B-1	F			

FRONT P.C.B.
LSEP8332A1/LSEP8332C1/LSEP8332D1
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

13.2. LCD BACKLIGHT P.C.B.

LCD BACKLIGHT P.C.B. LSEP8334A1

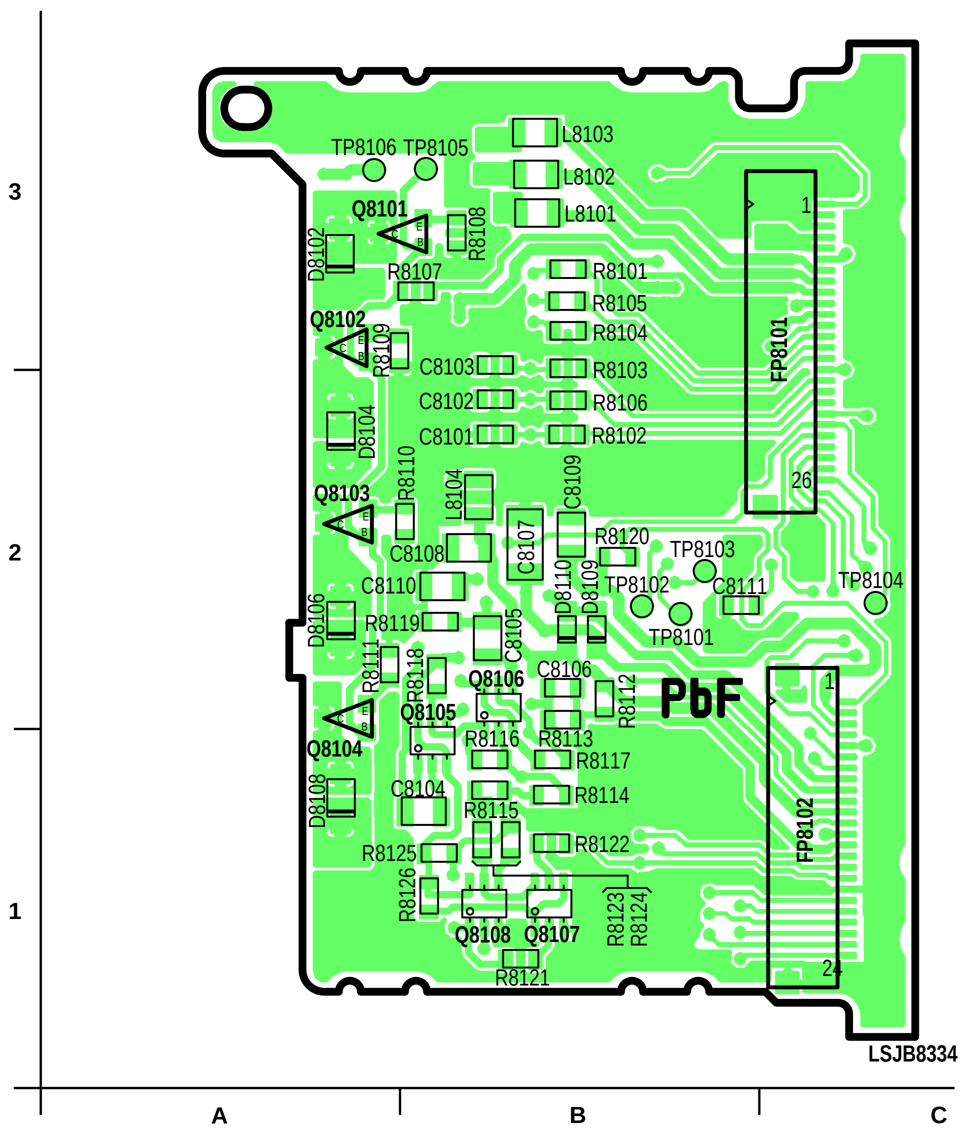
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

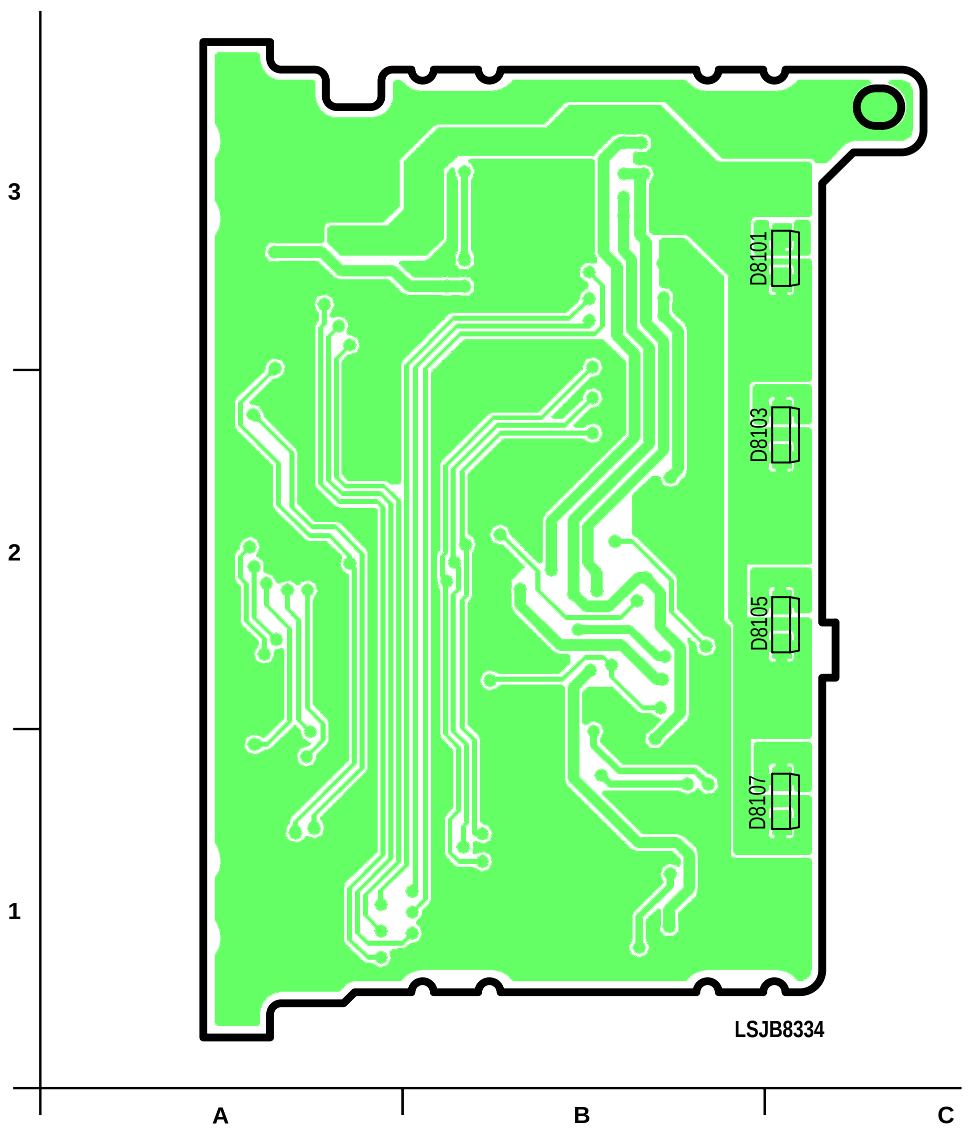
NOTE:
ALL INDIVIDUAL PARTS EXCEPT D8101, D8103, D8105, AND D8107 ON LCD BACKLIGHT P.C.B. ARE SUPPLIED AS REPLACEMENT PARTS. WHEN SERVICING THESE PARTS, REPLACE LCD BACKLIGHT P.C.B. INSTEAD OF INDIVIDUAL PARTS.

(COMPONENT SIDE)



(DUAL PATTERNS)

(FOIL SIDE)



(DUAL PATTERNS)

Parts Location

LCD BACKLIGHT P.C.B.					
Transisters			C8102	B-2	C
Q8101	A-3	C	C8103	B-3	C
Q8102	A-3	C	C8104	B-1	C
Q8103	A-2	C	C8105	B-2	C
Q8104	A-1	C	C8106	B-2	C
Q8105	B-2	C	C8107	B-2	C
Q8106	B-2	C	C8108	B-2	C
Test Points			C8109	B-2	C
TP8101	B-2	C	C8110	B-2	C
TP8102	B-2	C	Resistors		
TP8103	B-2	C	R8101	B-3	C
TP8104	C-2	C	R8102	B-2	C
TP8105	B-3	C	R8103	B-2	C
TP8106	A-3	C	R8104	B-3	C
Connectors			R8105	B-3	C
FP8101	C-3	C	R8106	B-2	C
FP8102	C-1	C	R8107	B-3	C
Diodes			R8108	B-3	C
D8101	C-3	F	R8109	A-3	C
D8103	C-2	F	R8110	B-2	C
D8105	C-2	F	R8111	A-2	C
D8107	C-1	F	R8112	B-2	C
D8109	B-2	C	R8113	B-1	C
D8110	B-2	C	R8114	B-1	C
Coils			R8115	B-1	C
L8101	B-3	C	R8116	B-1	C
L8102	B-3	C	R8117	B-1	C
L8103	B-3	C	R8118	B-2	C
L8104	B-2	C	R8119	B-2	C
Capacitors			R8120	B-2	C
C8101	B-2	C			

LCD BACKLIGHT P.C.B.
LSEP8334A1
NV-GS24EG, NV-GS26GK, NV-GS27E/EB/EF/EG/EP/EE/GC/GN,
NV-GS37E/EB/EG/EK/EP, NV-GS47EE/GC, NV-GS57EE/GC, NV-GS58GK

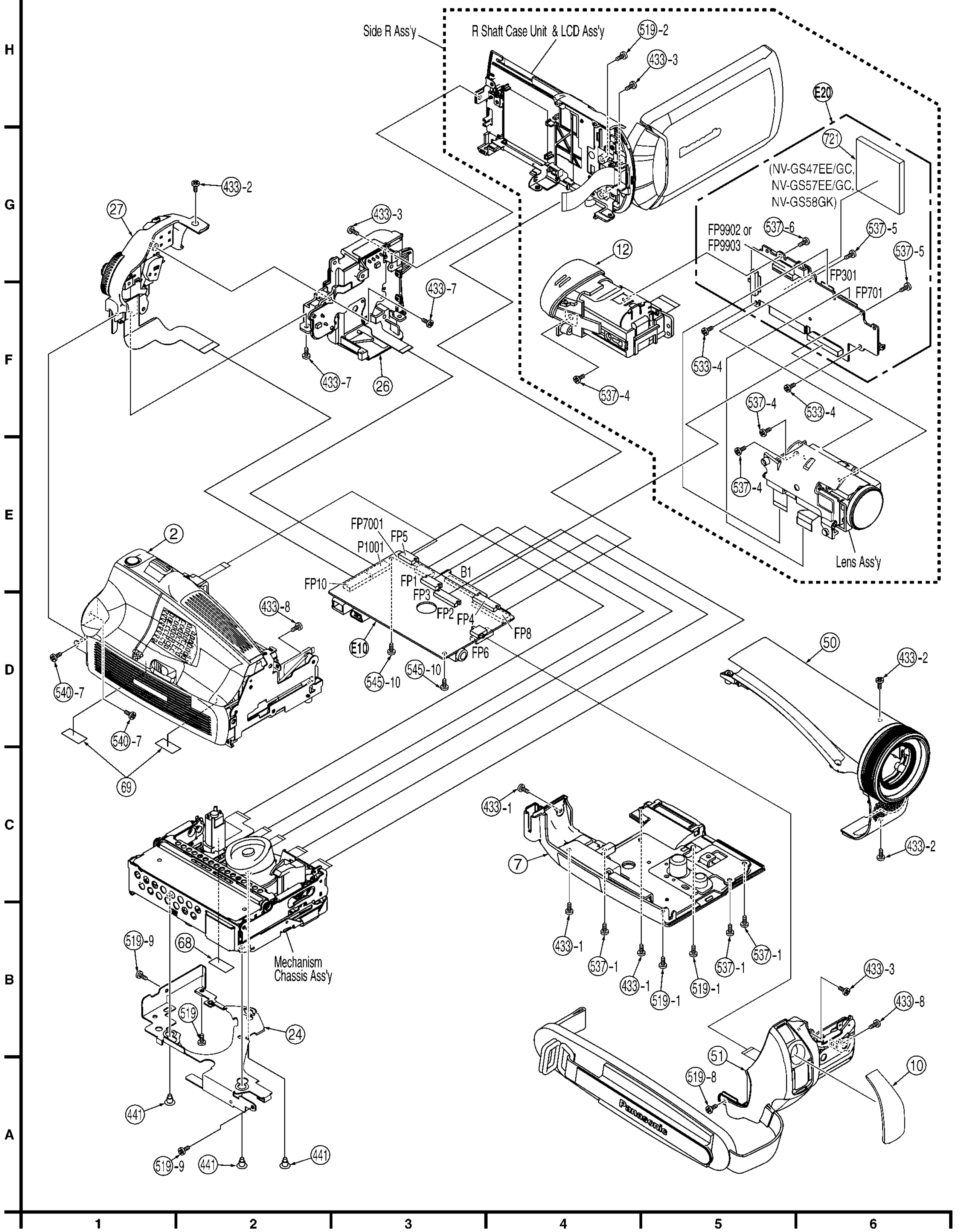
14 Exploded Views

14.1. MAIN PARTS SECTION

❶ MAIN PARTS SECTION

Note:

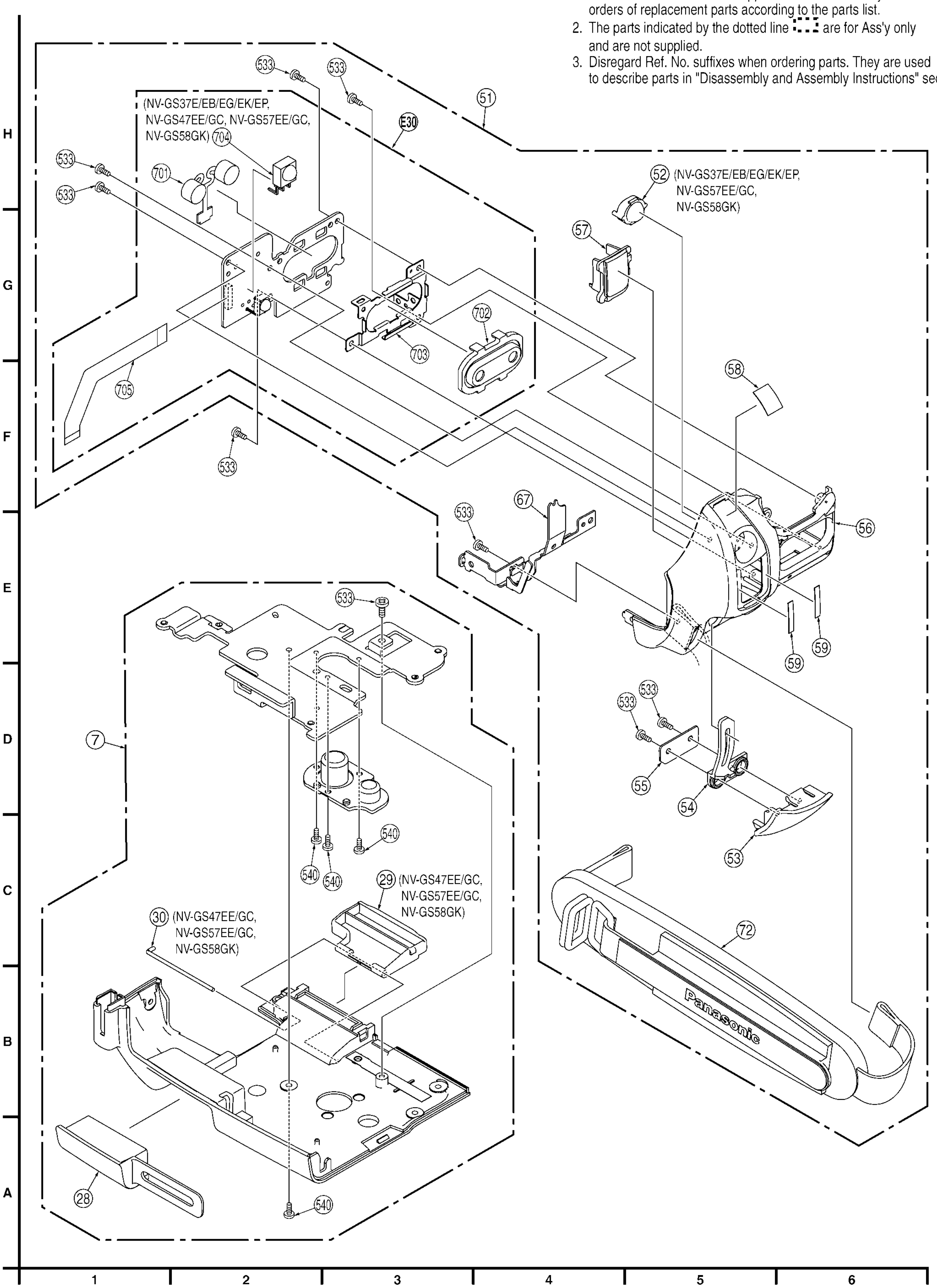
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



14.2. FRONT AND BOTTOM CASE SECTION

❷ FRONT AND BOTTOM CASE SECTION

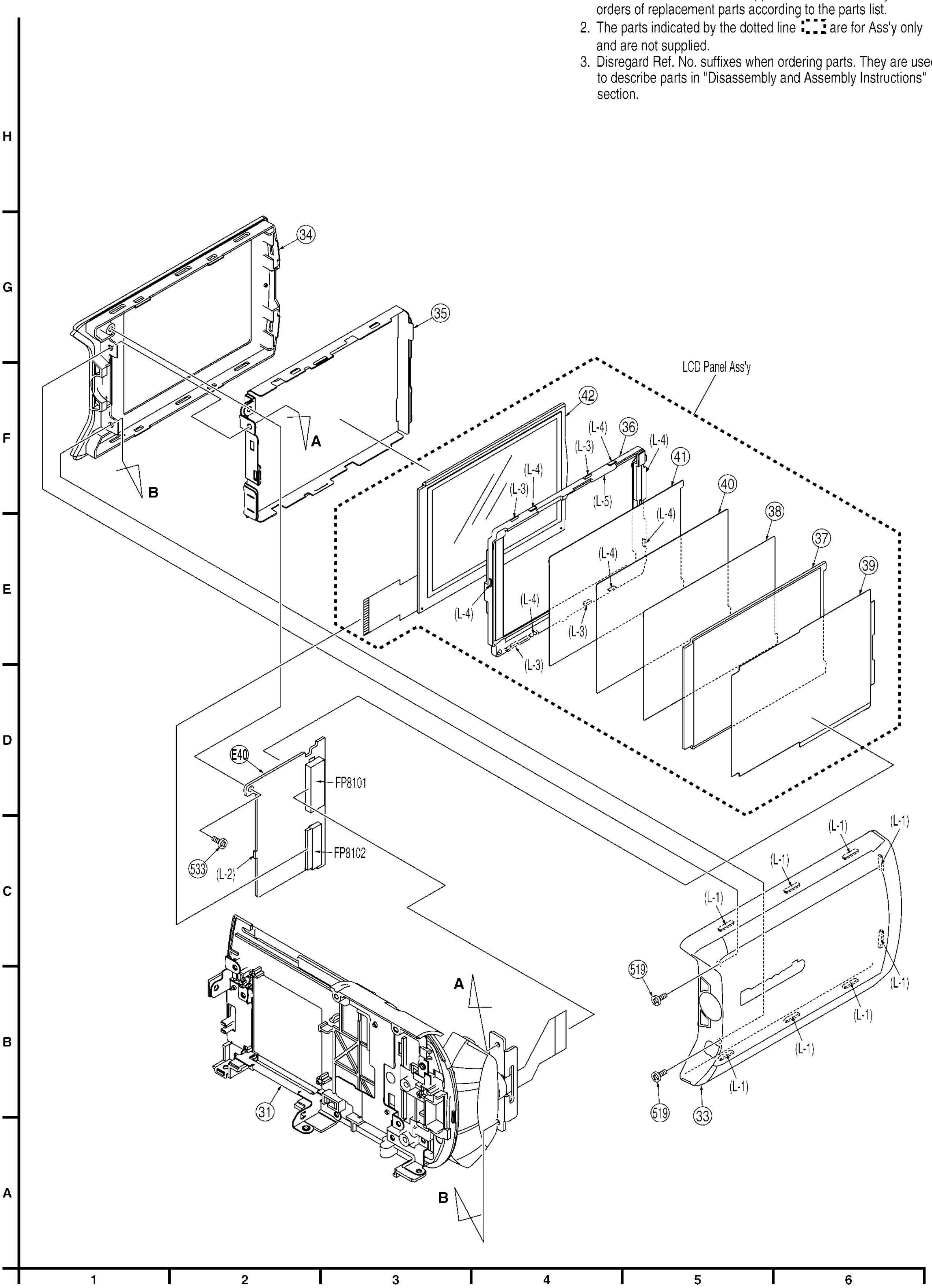
Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



14.3. SIDE CASE R AND LCD SECTION

❸ R SHAFT CASE UNIT AND LCD SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



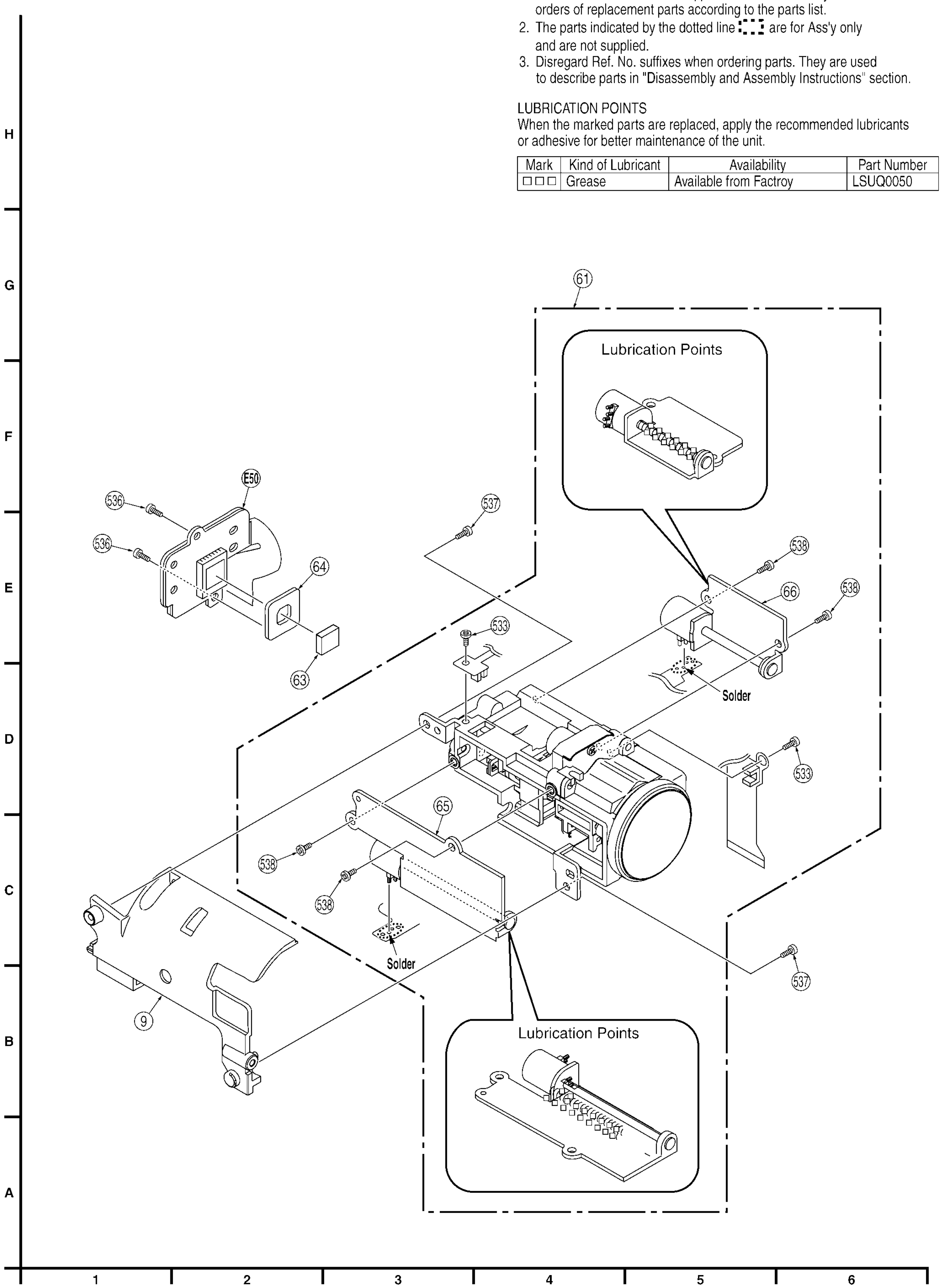
14.4. CCD AND LENS SECTION

❹ CCD AND LENS SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.

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

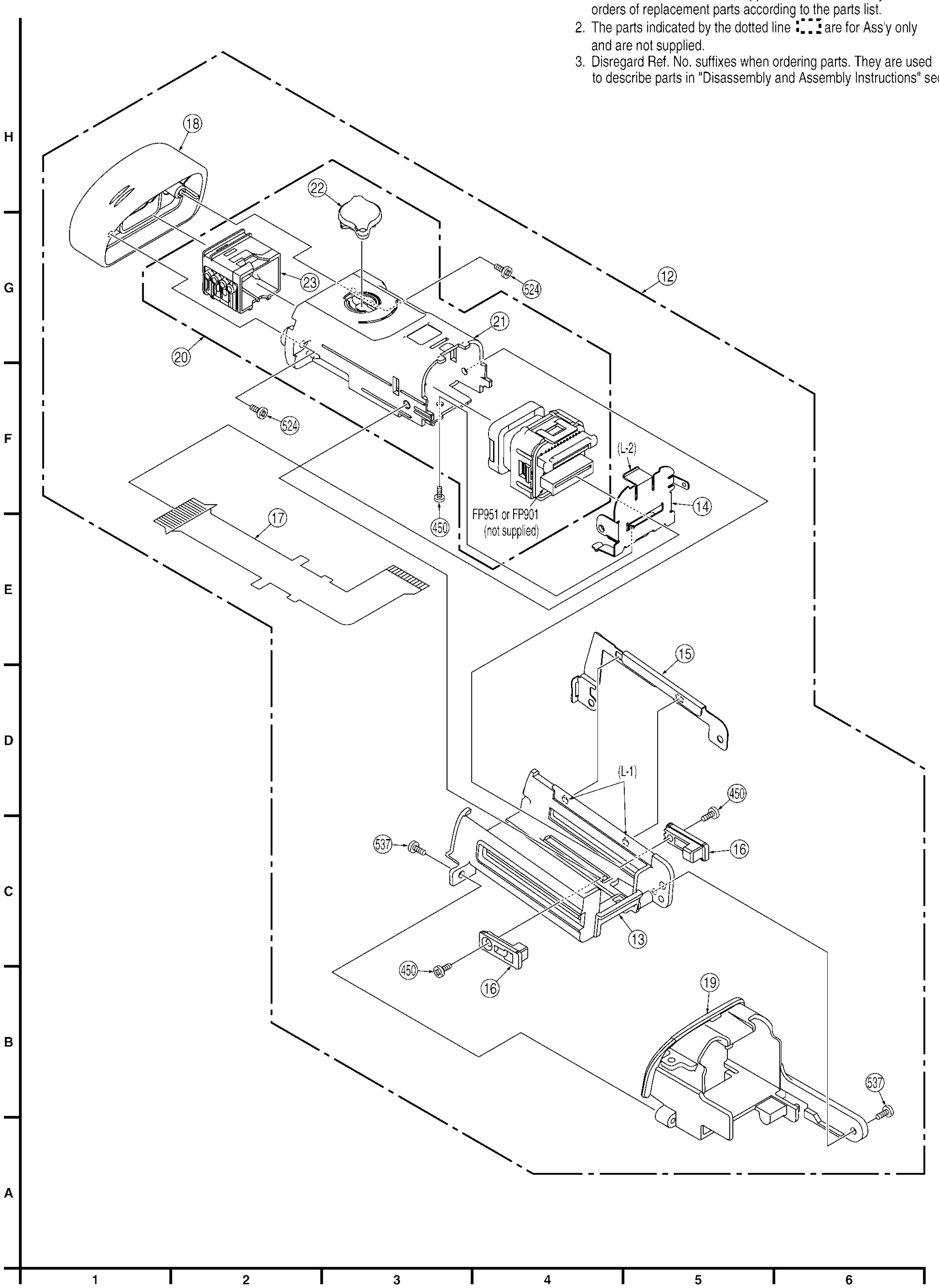
Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Available from Factroy	LSUQ0050



14.5. EVF SECTION

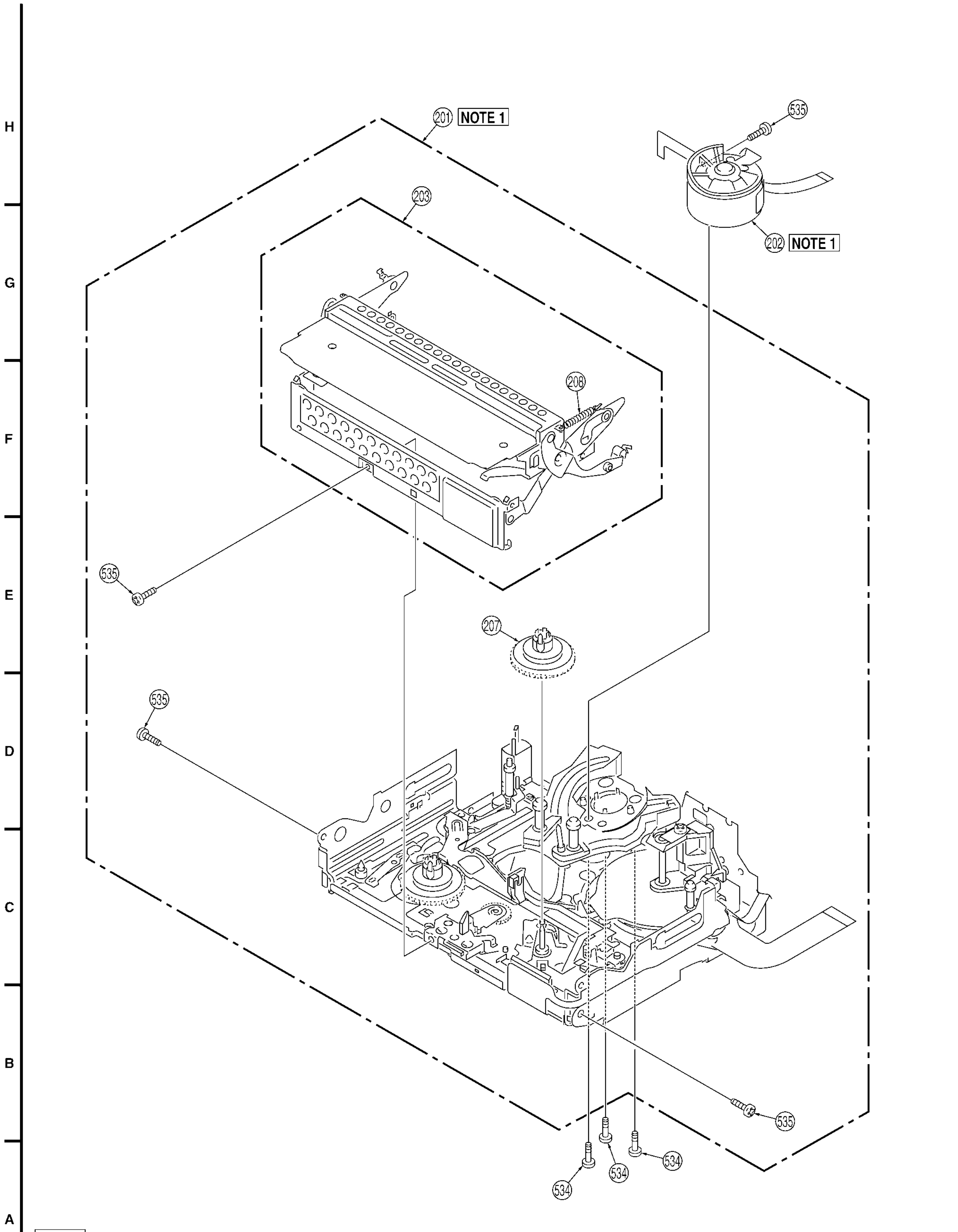
❺ EVF SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly and Assembly Instructions" section.



14.6. MECHANISM SECTION

❻ MECHANISM SECTION



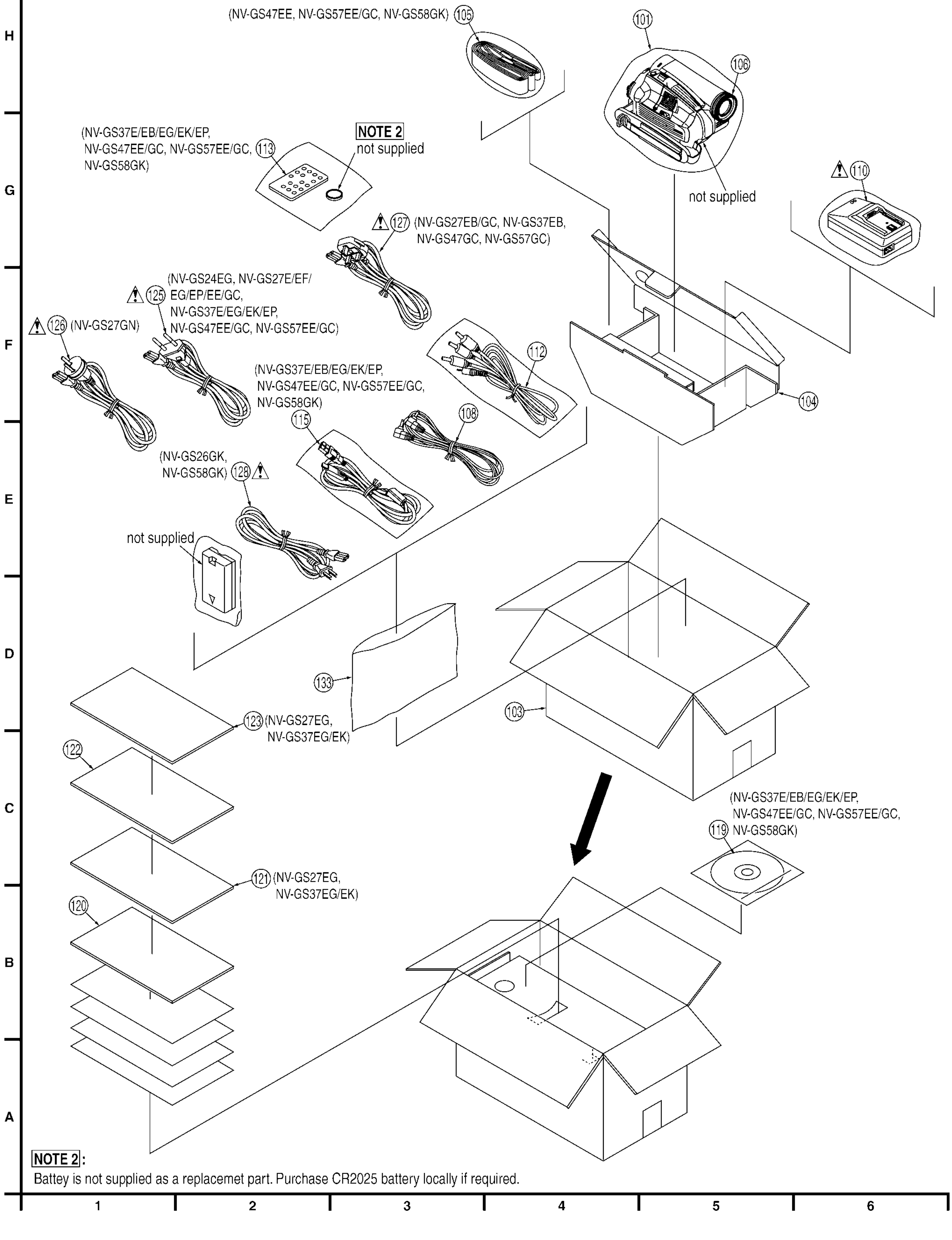
NOTE 1 :
When replacing the Main Chassis Unit (Ref. No. 201) or Cylinder Unit (Ref. No. 202), be sure to perform the Envelope Output Adjustment.
Refer to "ENVELOPE OUTPUT ADJUSTMENT" in Mechanical Adjustment.

14.7. PACKING PARTS AND ACCESSORIES SECTION

❼ PACKING PARTS AND ACCESSORIES SECTION

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



NOTE 2:
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

15 Replacement Parts Lists

BEFORE REPLACING PARTS, READ THE FOLLOWING:

1. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. Definition of Parts supplier:

   a. Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.

   b. Parts without mark in the Remarks column are supplied from PSEC.

4. Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.

5. Model Number Indication:

   Model numbers are indicated in the Remarks column without "NV-GS."

6. Unless otherwise specified;

   All resistors are in Ω, K = 1,000 Ω, M = 1,000 kΩ.

7. Abbreviation

   RTL: Retention Time Limited

   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

   NR: Non Repairable Board Ass´y

   MGF CHIP: Metal Glaze Film Chip

   C CHIP: Ceramic Chip

   COMPLX CMP: Complex Component

   W FLMPRF: Wirewound Flameproof

   P.C.B.: Circuit Board Assembly

   P.C.B.: Printed Circuit Board

   E.S.D.: Electrostatically Sensitive Devices

   CSP: Chip Size Package

8. AC Adaptor

   a. VSK0561 is indicated on the AC Adaptor used in the following models:

      NV-GS26GK and NV-GS58GK.

      However, the AC Adaptor replacement part number is DE-974HA which should be used when ordering.

   b. VSK0561 is indicated on AC Adaptor used in the following models:

      NV-GS24EG, NV-GS27E, NV-GS27EB, NV-GS27EE, NV-GS27EF, NV-GS27EG, NV-GS27EP, NV-GS27GC, NV-GS27GN, NV-GS37E, NV-GS37EB, NV-GS37EG, NV-GS37EK, NV-GS37EP, NV-GS47EE, NV-GS47GC, NV-GS57EE, and NV-GS57GC.

      However, the AC Adaptor replacement part number is DE-974GB which should be used when ordering.

15.1. MECHANICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. **Parts with mark "SPC" in the Remarks column are supplied from Spare Parts Center of Panasonic AVC Company.**
2. **Parts without mark in the Remarks column are supplied from PSEC.**

Notes:

Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
2	LSYK1699	CASSETTE COVER UNIT	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,37E/EB/EG/EK/EP
2	LSYK1694	CASSETTE COVER UNIT	47EE/GC,57EE/GC,58GK
7	LSXK0243	BOTTOM CASE UNIT,ABS RESIN	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,37E/EB/EG/EK/EP
7	LSXK0242	BOTTOM CASE UNIT,ABS RESIN	47EE/GC,57EE/GC,58GK
9	LSKM1193	LENS COVER	
10	LSGF0541	LIGHT PROTECTOR	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC
10	LSGF0544	LIGHT PROTECTOR	37E/EB/EG/EK/EP,57EE/GC,58GK
12	LSXK0240	EVF UNIT	RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC
12	LSXK0241	EVF UNIT	RTL 37E/EB/EG/EK/EP,57EE/GC,58GK
13	LSKM1165	EVF BASE FRAME	
14	LSMA0721	EVF SPRING	
15	LSSC0833	EVF EARTH PLATE	
16	LSMD0799	EVF SLIDE PIECE	
17	LSJB8306	EVF FLEXIBLE PRINTED CIRCUIT	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC

Ref. No.	Part No.	Part Name & Description	Remarks
17	LSJB8305	EVF FLEXIBLE PRINTED CIRCUIT	37E/EB/EG/EK/EP,57EE/GC,58GK
18	LSGQ0182	EYE CAP	
19	LSKM1164	EVF FRAME	
20	LSYK1532	EVF CASE 1 UNIT,ABS RESIN	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC
20	LSYK1533	EVF CASE 1 UNIT,ABS RESIN	37E/EB/EG/EK/EP,57EE/GC,58GK
21	LSKM1024	EVF CASE,ABS RESIN	
22	LSGT0068	EYE SIGHT LEVER	
23	LSYK1415	EVF LENS UNIT	
24	LSYK1712	MECHA FRAME UNIT	
26	LSYK1668	BATTERY CASE UNIT,ABS RESIN	
27	LSYK1698	REAR UNIT	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
27	LSYK1697	REAR UNIT	37E/EB/EG/EK/EP
27	LSYK1696	REAR UNIT	47EE/GC
27	LSYK1695	REAR UNIT	57EE/GC,58GK
28	LSKF0655	BOTTOM JACK COVER	
29	LSKF0656	SD COVER	47EE/GC,57EE/GC,58GK
30	LSGQ0183	SD COVER SHAFT	47EE/GC,57EE/GC,58GK
31	LSYK1673	R SHAFT CASE UNIT,ABS RESIN	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,37E/EB/EG/EK/EP
31	LSYK1672	R SHAFT CASE UNIT,ABS RESIN	47EE/GC,57EE/GC,58GK
33	LSYK1684	LCD CASE A UNIT,ABS RESIN	24EG
33	LSYK1719	LCD CASE A UNIT,ABS RESIN	26GK
33	LSYK1683	LCD CASE A UNIT,ABS RESIN	27E/EB/EF/EG/EP/EE/GC/GN
33	LSYK1682	LCD CASE A UNIT,ABS RESIN	37E/EB/EG/EK/EP
33	LSYK1679	LCD CASE A UNIT,ABS RESIN	47EE/GC
33	LSYK1678	LCD CASE A UNIT,ABS RESIN	57EE/GC
33	LSYK1680	LCD CASE A UNIT,ABS RESIN	58GK
34	LSKM1173	LCD CASE B,ABS RESIN	
35	LSXY0939	LCD SHIELD CASE UNIT,ABS RESIN	
36	LSXY0940	PANEL HOLDER UNIT	
37	LSGL0422	LEAD LIGHT PANEL	
38	LSGL0404	DIFFUSION SHEET	
39	LSGL0423	REFLECT SHEET	
40	LSGL0406	BEF SHEET	
41	LSGL0421	BEF SHEET A	
42	L5BDDYH00014	LIQUID CRYSTAL DISPLAY PANEL	
50	LSYK1687	TOP UNIT	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC
50	LSYK1686	TOP UNIT	37E/EB/EG/EK/EP,57EE/GC,58GK

Ref. No.	Part No.	Part Name & Description	Remarks
51	LSXK0236	FRONT CASE UNIT,ABS RESIN	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
51	LSXK0238	FRONT CASE UNIT,ABS RESIN	37E/EB/EG/EK/EP,57EE/GC,58GK
51	LSXK0239	FRONT CASE UNIT,ABS RESIN	47EE/GC
52	LSMD0822	LED LIGHT LENS	37E/EB/EG/EK/EP,57EE/GC,58GK
53	LSKF0653	FRONT JACK COVER	
54	LSMD0832	FRONT COVER HINGE	
55	LSMF0470	FRONT HINGE COVER PIECE	
56	LSKM1163	FRONT CASE,ABS RESIN	
57	LSGL0441	IR PIECE	
58	LSMZ0409	FRONT BOTH SIDE TAPE A	
59	LSMZ0410	FRONT BOTH SIDE TAPE B	
61	LSXN0042	LENS UNIT	
63	VDL1390-B	OPTICAL LOW PASS FILTER	
64	VMX3282	FILTER RUBBER	
65	L6HA66NB0003	ZOOM MOTOR UNIT	
66	L6HA66NB0006	FOCUS MOTOR UNIT	
67	LSMA0882	FRONT STRAP ANGLE	
68	LSMF0508	SHEET	
69	LSMT0422	CUSHION	
72	LSGQ0181	HAND STRAP	
101	VPF1129	POLY BAG	
103	LSPG2135	PACKING CASE,PAPER	24EG
103	LSPG2134	PACKING CASE,PAPER	26GK
103	LSPG2132	PACKING CASE,PAPER	27E/EB/EF/EG/EP
103	LSPG2133	PACKING CASE,PAPER	27EE/GC/GN
103	LSPG2127	PACKING CASE,PAPER	37E/EB/EG/EK/EP
103	LSPG2130	PACKING CASE,PAPER	47EE/GC
103	LSPG2128	PACKING CASE,PAPER	57EE/GC
103	LSPG2129	PACKING CASE,PAPER	58GK
104	LSPN0659	DVD PACKING	
105	VFC3506-1A	SHOULDER STRAP	47EE,57EE/GC,58GK
106	LSYF0552	LENS CAP UNIT	
108	K2GJ2DC00015	DV CABLE W/PLUG	
110	DE-974GB	AC ADAPTOR UNIT	⚠ 24EG,27E/EB/EF/EG/EP/EE/GC/GN,37E/EB/EG/EK/EP,47EE/GC,57EE/GC
110	DE-974HA	AC ADAPTOR UNIT	⚠ 26GK,58GK
112	K2KC4CB00022	AUDIO VIDEO CABLE W/PLUG	
113	N2QAEC000017	INFRARED REMOTE CONTROL UNIT	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
115	K1HA05CD0009	USB CABLE W/PLUG	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK

Ref. No.	Part No.	Part Name & Description	Remarks
119	VFF0305-1A	CD-ROM (ENGLISH/GERMAN/FRENCH/SPANISH/ITALIAN/CHINESE(SIMPLIFIED))	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
120	LSQT1010-A	INSTRUCTION BOOK (FRENCH)	24EG
120	LSQT1009-A	INSTRUCTION BOOK (CHINESE(SIMPLIFIED))	26GK,58GK
120	LSQT1004-A	INSTRUCTION BOOK (PORTUGUESE/SPANISH/SWEDISH/DANISH)	27E,37E
120	LSQT1006-A	INSTRUCTION BOOK (ENGLISH)	27EB,37EB
120	LSQT1003-A	INSTRUCTION BOOK (FRENCH)	27EF
120	LSQT1002-A	INSTRUCTION BOOK (GERMAN/FRENCH/ITALIAN/DUTCH)	27EG,37EG/EK
120	LSQT1005-A	INSTRUCTION BOOK (ENGLISH/POLISH/CZECH/HANGARIAN)	27EP.37EP
120	LSQT1028-A	INSTRUCTION BOOK (RUSSIAN/UKRAINIAN)	27EE,47EE,57EE
120	LSQT1007-A	INSTRUCTION BOOK (CHINESE(TRADITIONAL)/ENGLISH/RUSSIAN/ARABIC)	27GC,47GC,57GC
120	LSQT1008-A	INSTRUCTION BOOK (ENGLISH)	27GN
121	LSQT1037-A	INSTRUCTION BOOK (TURKISH)	27EG,37EG/EK
122	VQT0T12	INSTRUCTION FOR CD-ROM (GERMAN/FRENCH/ITALIAN/DUTCH)	24EG,27EF/EG,37EG/EK
122	VQT0T31	INSTRUCTION BOOK FOR CD-ROM (CHINESE(SIMPLIFIED))	26GK,58GK
122	VQT0T15	INSTRUCTION BOOK FOR CD-ROM (PORTUGUESE/SPANISH/SWEDISH/DANISH)	27E,37E
122	VQT0T20	INSTRUCTION BOOK FOR CD-ROM (ENGLISH)	27EB/GN,37EB
122	VQT0T18	INSTRUCTION BOOK FOR CD-ROM (ENGLISH/POLISH/CZECH/HANGARIAN)	27EP.37EP
122	VQT0T27	INSTRUCTION BOOK FOR CD-ROM (RUSSIAN/UKRAINIAN)	27EE,47EE,57EE
122	VQT0T23	INSTRUCTION BOOK FOR CD-ROM (CHINESE(TRADITIONAL)/ENGLISH/RUSSIAN/ARABIC)	27GC,47GC,57GC
123	LSQT1038-A	INSTRUCTION BOOK FOR CD-ROM (TURKISH)	27EG,37EG/EK
125	K2CR2DA00004	AC CORD W/PLUG	⚠ 24EG,27E/EF/EG/EP/EE/GC,37E/EG/EK/EP,47EE/GC,57EE/GC
126	K2CJ2DA00011	AC CORD W/PLUG	⚠ 27GN
127	RJA0053-3X	AC CORD W/PLUG	⚠ 27EB/GC,37EB,47GC,57GC
128	K2CA2CA00020	AC CORD W/PLUG	⚠ 26GK,58GK
133	LSPF0107	POLY BAG	
201	VXY1892Z1	MAIN CHASSIS UNIT	
202	VEG1663-M	CYLINDER UNIT	
203	VXA8198	CASSETTE UP UNIT	SPC
207	VXR0401	T-REEL TABLE	SPC
208	VMB3766	CASSETTE UP SPRING	SPC
433	XQN16+BJ6FN	SCREW,STEEL	
441	VHD1133	SCREW,STEEL	
450	XQN16+B4FN	SCREW,STEEL	
519	XQN16+BF4FN	SCREW,STEEL	
524	XQN16+BJ4FNK	SCREW,STEEL	
533	XQN16+BJ4FN	SCREW,STEEL	
534	VHD1757	SCREW,STEEL	
535	XQN14+B2FN	SCREW,STEEL	
536	XQN16+AJ4FN	SCREW,STEEL	
537	XQN16+BJ5FN	SCREW,STEEL	
538	XQN14+BJ4FN	SCREW,STEEL	
540	XQN16+BF3FN	SCREW,STEEL	
545	XQN16+BF25FN	SCREW,STEEL	
701	LSEK0628	ELECTRIC CODENSER MICROPHONE UNIT	
702	LSMG0136	MIC DAMPER	
703	LSSC0832	FRONT EARTH PLATE	
704	B3RAB0000039	INFRARED RECEIVER	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
705	LSJB8337	FRONT FLEXIBLE PRINTED CIRCUIT	
721	K1NA09E00063	SD UNIT	47EE/GC,57EE/GC,58GK
E10	LSEP8330P1	MAIN P.C.B.	RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E10	LSEP8330R1	MAIN P.C.B.	RTL 37E/EB/EG/EP
E10	LSEP8330S1	MAIN P.C.B.	RTL 37EK,57EE/GC,58GK
E10	LSEP8330Q1	MAIN P.C.B.	RTL 47EE/GC
E20	LSEP8331P1	CAMERA P.C.B.	RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E20	LSEP8331R1	CAMERA P.C.B.	RTL 37E/EB/EG/EK/EP
E20	LSEP8331Q1	CAMERA P.C.B.	RTL 47EE/GC
E20	LSEP8331S1	CAMERA P.C.B.	RTL 57EE/GC,58GK
E30	LSEP8332A1	FRONT P.C.B.	RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E30	LSEP8332C1	FRONT P.C.B.	RTL 37E/EB/EG/EK/EP,57EE/GC,58GK
E30	LSEP8332D1	FRONT P.C.B.	RTL 47EE/GC
E40	LSEP8334A1	LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR	
E50	LSEQ0819	CCD P.C.B. NR	

SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFM3110EDS	COLOR BAR STANDARD TAPE	SPC
	VFK1451	DVC HEAD CLEANING TAPE	SPC
	LSVQ0028	PLIER FOR NON ZIF CONNECTOR	
	LSUQ0050	GREASE	
	LSUA0019	EXTENSION CABLE 8P	
	LSUA0016	EXTENSION CABLE 10P	
	VUVS0015	EXTENSION CABLE 28P	
	LSUA0060	EXTENSION CABLE 90P	
	LSUA0017	EXTENSION CABLE 18P	
	VUVS0012	EXTENSION CABLE 22P	
	VFK1164LBX1	LIGHT BOX	SPC
	VFK1164TCM02	INFINITY LENS (WITH FOCUS CHART)	SPC

Ref. No.	Part No.	Part Name & Description	Remarks
	VFK1164TAR58	ATTACHMENT RING (58mm)	SPC
	VFK1164TAR55	ATTACHMENT RING (55mm)	SPC
	VFK1164TAR52	ATTACHMENT RING (52mm)	SPC
	VFK1164TAR49	ATTACHMENT RING (49mm)	SPC
	VFK1164TAR46	ATTACHMENT RING (46mm)	SPC
	VFK1164TAR43	ATTACHMENT RING (43mm)	SPC
	VFK1164TAR37	ATTACHMENT RING (37mm)	SPC
	VFK1164TAR3A	ATTACHMENT RING (30.5mm)	SPC
	VFK1164TAR27	ATTACHMENT RING (27mm)	SPC
	VFK1164TFCT2	COLOR CONVERSION FILTER (C14)	SPC
	VFK1899	POST HEIGHT ADJUSTMENT FIXTURE	SPC
	VFK1164TFWC2	WHITE CHART	SPC
	VFK1164TFCB2	COLOR BAR CHART	SPC
	VFK1164TFGS2	GRAY SCALE CHART	SPC

15.2. ELECTRICAL REPLACEMENT PARTS LIST

Definition of Parts supplier:

1. **All parts are supplied from PSEC.**

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSEP8330P1	MAIN P.C.B.	E.S.D. RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E10	LSEP8330R1	MAIN P.C.B.	E.S.D. RTL 37E/EB/EG/EP
E10	LSEP8330S1	MAIN P.C.B.	E.S.D. RTL 37EK,57EE/GC,58GK
E10	LSEP8330Q1	MAIN P.C.B.	E.S.D. RTL 47EE/GC
E20	LSEP8331P1	CAMERA P.C.B.	E.S.D. RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E20	LSEP8331R1	CAMERA P.C.B.	E.S.D. RTL 37E/EB/EG/EK/EP
E20	LSEP8331Q1	CAMERA P.C.B.	E.S.D. RTL 47EE/GC
E20	LSEP8331S1	CAMERA P.C.B.	E.S.D. RTL 57EE/GC,58GK
E30	LSEP8332A1	FRONT P.C.B.	RTL 24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN
E30	LSEP8332C1	FRONT P.C.B.	RTL 37E/EB/EG/EK/EP,57EE/GC,58GK
E30	LSEP8332D1	FRONT P.C.B.	RTL 47EE/GC
E40	LSEP8334A1	LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR	
E50	LSEQ0819	CCD P.C.B. NR	

15.2.1. MAIN P.C.B.

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP1	K1MN08BA0088	CONNECTOR 8P	
FP2	K1MN18BA0197	CONNECTOR 18P	
FP3	K1MN10BA0197	CONNECTOR 10P	
FP4	K1MN18BA0088	CONNECTOR 18P	
FP5	K1MN08BA0088	CONNECTOR 8P	
FP6	K1MN12BA0088	CONNECTOR 12P	
FP8	K1MN28BA0196	CONNECTOR 28P	
FP10	K1MN18BA0091	CONNECTOR 18P	
FP7001	K1MN10BA0197	CONNECTOR 10P	

15.2.2. CAMERA P.C.B.

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP301	K1MN14BA0197	CONNECTOR 14P	
FP701	K1MN22BA0197	CONNECTOR 22P	
FP9902	K1MN22A00065	CONNECTOR 22P	37E/EB/EG/EK/EP,57EE/GC,58GK
FP9903	K1MN16A00077	CONNECTOR 16P	24EG,26GK,27E/EB/EF/EG/EP/EE/GC/GN,47EE/GC

15.2.3. FRONT P.C.B.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4801	C0ABBB000369	IC, LINEAR	
or IC4801	C0ABBB000262	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4301	2SD1819ARL	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
Q4302	2SD1819ARL	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
Q4305	2SB1218ARL	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
Q4306	UNR9112J08	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
or Q4306	B1GDCFLL0019	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
or Q4306	B1GDCFLL0020	TRANSISTOR SI PNP CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
Q4307	UNR9213J08	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
or Q4307	B1GBCFNN0029	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
or Q4307	B1GBCFNN0030	TRANSISTOR SI NPN CHIP	37E/EB/EG/EK/EP,57EE/GC,58GK
Q4801	2SD2216J08	TRANSISTOR SI NPN CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
or Q4801	B1ABCF000104	TRANSISTOR SI NPN CHIP	
Q6501	2SD10300SL	TRANSISTOR SI NPN CHIP	
Q6502	2SD2216J08	TRANSISTOR SI NPN CHIP	
or Q6502	B1ABCF000104	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4301	B3AFB0000126	LIGHT EMITTING DIODE RED	37E/EB/EG/EK/EP,57EE/GC,58GK
D4302	B0BC6R2A0127	DIODE ZENER CHIP 6.2V	37E/EB/EG/EK/EP,57EE/GC,58GK
D4303	B0BC6R2A0127	DIODE ZENER CHIP 6.2V	37E/EB/EG/EK/EP,57EE/GC,58GK
D6503	MA3S132D0L	DIODE SI CHIP	
D6504	B3GA00000041	LIGHT EMITTING DIODE	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4301	D0HB470ZA003	MGF CHIP 1/16W 47	37E/EB/EG/EK/EP,57EE/GC,58GK
R4302	D0HB470ZA003	MGF CHIP 1/16W 47	37E/EB/EG/EK/EP,57EE/GC,58GK
R4305	ERA3YED472V	MGF CHIP 1/16W 4.7K	37E/EB/EG/EK/EP,57EE/GC,58GK
R4306	ERA3YED333V	MGF CHIP1/16W 33K	37E/EB/EG/EK/EP,57EE/GC,58GK
R4307	ERA3YED682V	MGF CHIP1/16W 6.8K	37E/EB/EG/EK/EP,57EE/GC,58GK
R4308	ERJ3GEY0R00V	MGF CHIP 1/16W 0	37E/EB/EG/EK/EP,57EE/GC,58GK
R4802	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R4803	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R4804	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4805	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R4806	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4807	D0HB392ZA002	MGF CHIP 1/16W 3.9K	
R4808	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R4809	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R4810	D0HB392ZA002	MGF CHIP 1/16W 3.9K	
R6501	ERJ3GEYJ560V	MGF CHIP 1/16W 56	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
R6502	ERJ3GEYJ683V	MGF CHIP 1/16W 68K	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
R6503	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R6504	ERJ3GEYJ106V	MGF CHIP 1/16W 10M	
R6505	ERJ3GEYJ225V	MGF CHIP 1/16W 2.2M	
R6506	ERJ3GEYJ334V	MGF CHIP 1/16W 330K	
R6507	ERJ3GEYJ182V	MGF CHIP 1/16W 1.8K	
R6508	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R6509	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4301	F1H1A105A028	C CHIP 10V 1UF	37E/EB/EG/EK/EP,57EE/GC,58GK
C4801	F1H1A105A028	C CHIP 10V 1UF	
C4802	F1H1A105A028	C CHIP 10V 1UF	
C4803	ECJ2FB0J106K	C CHIP 6.3V 10UF	
C4804	F1H1H822A219	C CHIP 50V 8200PF	
C4805	F1H1C273A041	C CHIP 16V 0.027UF	
C4806	F1H1C273A041	C CHIP 16V 0.027UF	
C4808	F1H1C273A041	C CHIP 16V 0.027UF	
C4809	F1H1H822A219	C CHIP 50V 8200PF	
C4810	F1H1C273A041	C CHIP 16V 0.027UF	
C4812	F3F0J226A055	TANTALUM CHIP 6.3V 22UF	
C6501	F3F0J106A032	TANTALUM CHIP 6.3V 10UF	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
C6502	F1H1C104A008	C CHIP 16V 0.1UF	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
C6503	F1H0J474A002	C CHIP 6.3V 0.47UF	
C6504	F1H1C104A041	C CHIP 16V 0.1UF	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP6501	K1MN12BA0089	CONNECTOR 12P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
701	LSEK0628	ELECTRIC CODENSER MICROPHONE UNIT	
702	LSMG0136	MIC DAMPER	
703	LSSC0832	FRONT EARTH PLATE	
704	B3RAB0000039	INFRARED RECEIVER	37E/EB/EG/EK/EP,47EE/GC,57EE/GC,58GK
705	LSJB8337	FRONT FLEXIBLE PRINTED CIRCUIT	

15.2.4. LIQUID CRYSTAL DISPLAY BACKLIGHT P.C.B. NR

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q8101	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8102	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8103	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8104	2SD1819ARL	TRANSISTOR SI NPN CHIP	
Q8105	XP0450100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8106	XP0440100L	TRANSISTOR COMPLX CMP SI PNP CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D8109	MA2S728008	DIODE SI CHIP	
or D8109	B0JCDD000002	DIODE SI CHIP	
or D8109	MA2S72800L	DIODE SI CHIP	
D8110	MA2S728008	DIODE SI CHIP	
or D8110	B0JCDD000002	DIODE SI CHIP	
or D8110	MA2S72800L	DIODE SI CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R8101	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8102	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8103	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8104	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8105	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8106	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8107	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8108	D0HB470ZA003	MGF CHIP 1/16W 47	
R8109	D0HB470ZA003	MGF CHIP 1/16W 47	
R8110	D0HB470ZA003	MGF CHIP 1/16W 47	
R8111	D0HB470ZA003	MGF CHIP 1/16W 47	
R8112	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8113	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8114	ERA3YKD104V	MGF CHIP 1/16W 100K	
R8115	ERA3YED123V	MGF CHIP 1/16W 12K	
R8116	ERA3YKD184V	MGF CHIP 1/16W 180K	
R8117	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8118	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8119	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R8120	ERJ3GEYJ113V	MGF CHIP 1/16W 11K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C8101	F1H1H471A737	C CHIP 50V 470PF	
C8102	F1H1H471A737	C CHIP 50V 470PF	
C8103	F1H1H471A737	C CHIP 50V 470PF	
C8104	F1J1C2250003	C CHIP 16V 2.2UF	
C8105	F1J1C2250003	C CHIP 16V 2.2UF	
C8106	F1H1C104A041	C CHIP 16V 0.1UF	
C8107	ECJ3YB1C475K	C CHIP 16V 4.7UF	
C8108	F1J1C1050028	C CHIP 16V 1UF	
C8109	F1J1C1050028	C CHIP 16V 1UF	
C8110	F1J1C1050028	C CHIP 16V 1UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L8101	G1C100M00010	COIL CHIP 10UH	
L8102	G1C100M00010	COIL CHIP 10UH	
L8103	G1C100M00010	COIL CHIP 10UH	
L8104	G1C100M00010	COIL CHIP 10UH	

FPC CONNECTORS

Ref. No.	Part No.	Part Name & Description	Remarks
FP8101	K1MN26BA0196	CONNECTOR 26P	
FP8102	K1MN24BA0196	CONNECTOR 24P	