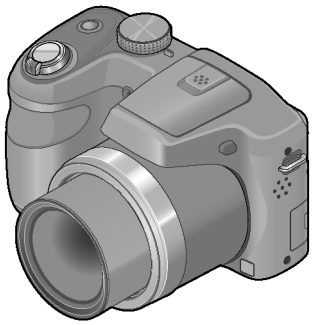
Service Manual

Digital Camera

LUMIX



Model No. DMC-LZ20P
DMC-LZ20E
DMC-LZ20EE
DMC-LZ20GN
DMC-LZ20PU
DMC-LZ20GC
DMC-LZ20GF
DMC-LZ20GW
DMC-LZ20GK

Colour
(R).....Red Type
(K).....Black Type

Panasonic

TABLE OF CONTENTS

1 Safety Precautions

1.1. General Guidelines

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

1.2. Leakage Current Cold Check

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

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

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

Hot-Check Circuit

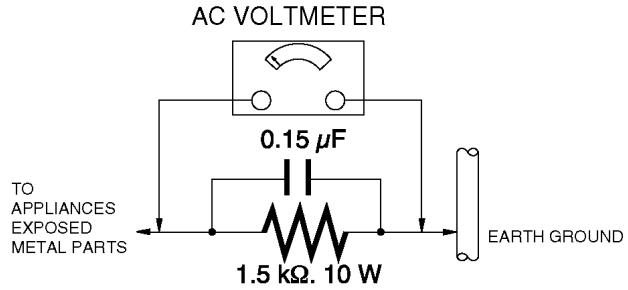


Figure. 1

1.4. How to Discharge the E.Capacitor on the Frame Unit

CAUTION:

1. **Make sure to discharge the E.capacitor on the Frame Unit.**
2. **Be careful of the high voltage circuit on the Frame Unit when servicing.**

[Discharging Procedure]

1. Refer to the disassemble procedure and remove the necessary parts/unit.
2. Install the insulation tube onto the lead part of resistor (ERG5SJ102:1kΩ /5W).
   (an equivalent type of resistor may be used.)
3. Place a resistor between both terminals of E.capacitor on the Frame Unit for approx. 5 seconds.
4. After discharging, confirm that the E.capacitor voltage is lower than 10V using a voltmeter.

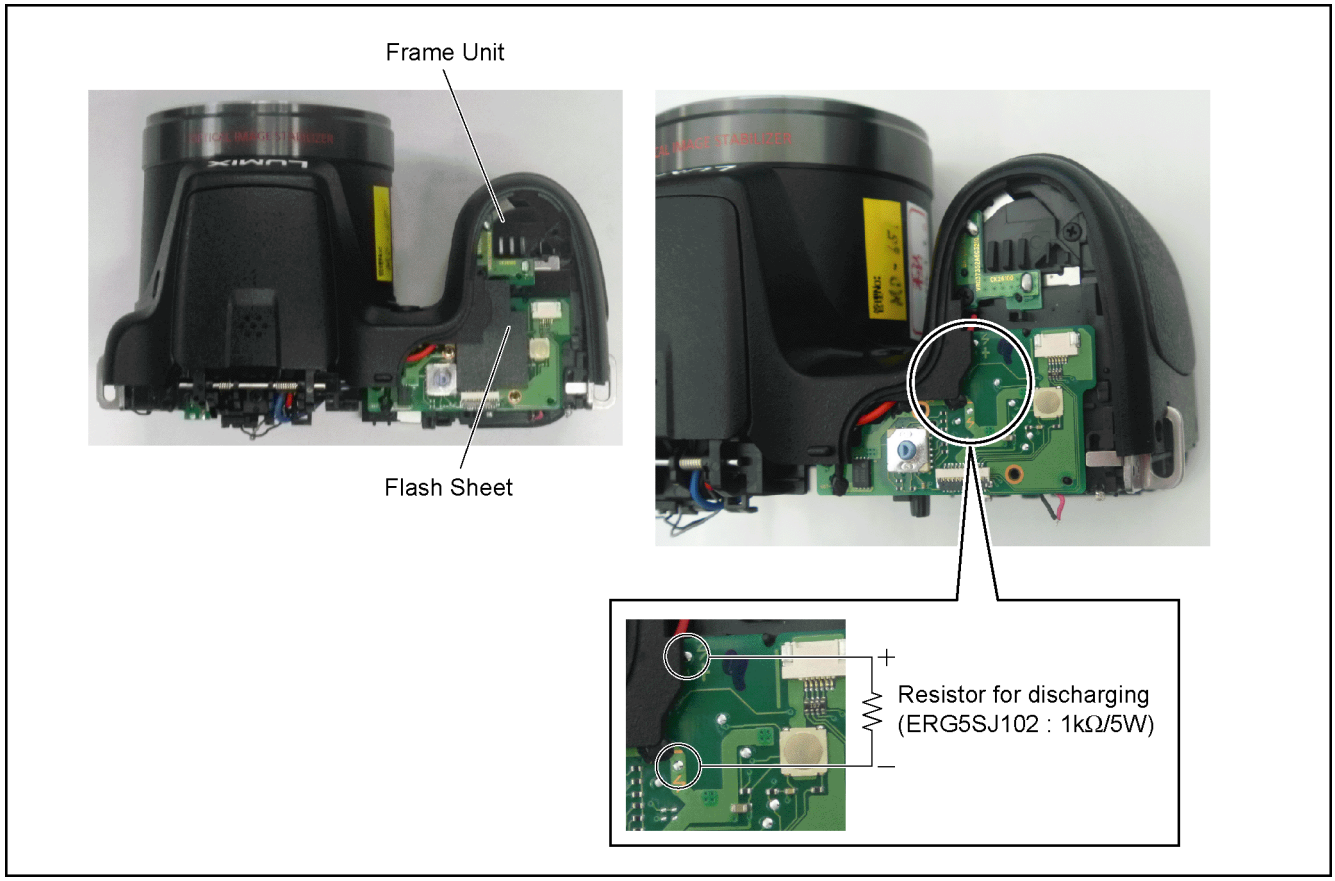


Fig. F1

2 Warning

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

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

> Examples of typical ES devices are IC (integrated circuits) and some field-effect transistors and semiconductor “chip” components.

The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

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

3 Service Navigation

3.1. Introduction

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

3.2. General Description About Lead Free Solder (PbF)

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

Distinction of P.C.B. Lead Free Solder being used

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

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

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

Recommended Lead Free Solder (Service Parts Route.)

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

Note

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

3.3. Important Notice

After replacing the MAIN P.C.B. and / or the Lens Unit, be sure to achieve adjustment.
Refer to the procedure described in "8. Measurements and Adjustments".

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

There are six kinds of DMC-LZ20, regardless of the colours.

- a) DMC-LZ20P
- b) DMC-LZ20E
- c) DMC-LZ20EE
- d) DMC-LZ20GN
- e) DMC-LZ20GK
- f) DMC-LZ20PU/GC/GF/GW

What is the difference is that the “Initial Setting” data which is stored in Flash-ROM mounted on MAIN P.C.B..

3.4.1. Defining methods:

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

a) DMC-LZ20P

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

b) DMC-LZ20E

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

c) DMC-LZ20EE

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

d) DMC-LZ20GN

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

e) DMC-LZ20GK

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

f) DMC-LZ20PU/GC/GF/GW

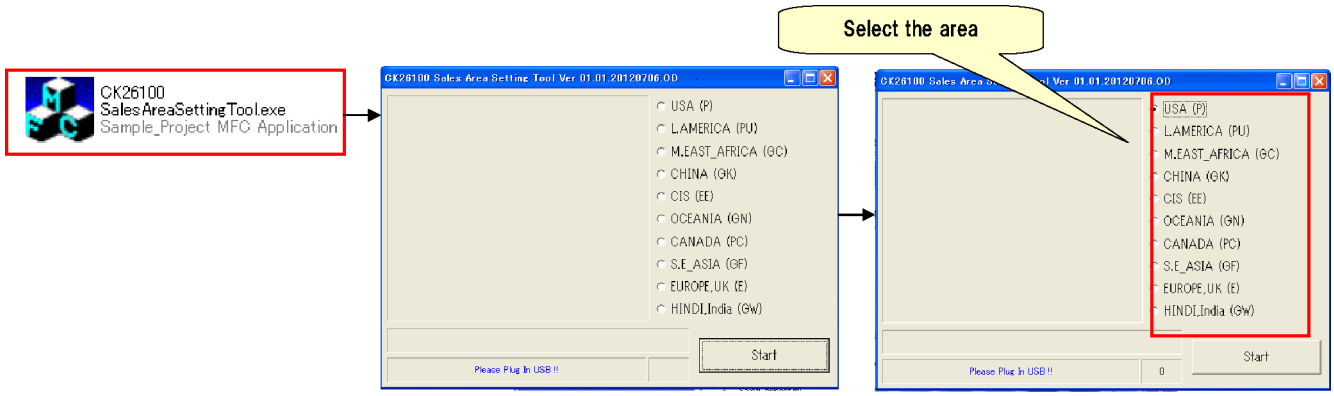
The nameplate for these models do not show any above Safety registration mark.
DMC-LZ20PU/GC: The nameplate shows the country of origin.
DMC-LZ20GF/GW: The nameplate does not show the country of origin.

NOTE:

After replacing the MAIN P.C.B., make sure to perform the “Initial Setting” and “adjustment”.
The adjustment software is available at "TSN Website".

3.4.2. Initial Setting

1. Execute the Sales Area Setting Tool



2. Connect the DSC to PC by USB cable

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Connect the DSC to PC by USB cable.

3. Sales Area Setting automatically

→ Auto power off

4 Specifications

NOTE:

The following specification is for DMC-LZ20. Some specifications may differ depending on model suffix.

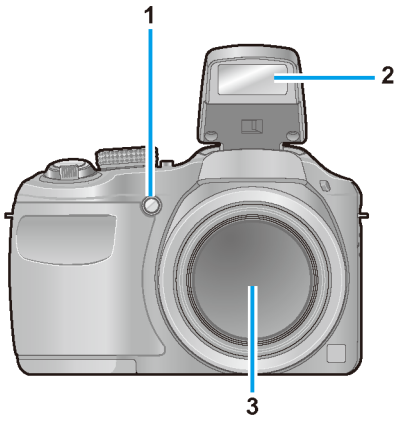
Specifications are subject to change without notice.

Power Source	DC 6 V LR6/AA Alkaline batteries (4) DC 4.8 V HR6/AA Rechargeable Ni-MH (nickel metal hydride) batteries (4)
Power Consumption	When recording: 1.6 W When playing back: 1.0 W
Camera effective pixels	16,100,000 pixels
Image sensor	1/2.33” CCD, total pixel number 16,400,000 pixels Primary color filter
Lens	Optical 21x zoom f=4.5 mm to 94.5 mm (35 mm film camera equivalent: 25 mm to 525 mm)/ F3.1 (Max. Wide) to F5.8 (Max. Tele)
Image Stabilizer	Optical method
Focus range	
P / M	30 cm (0.98 feet) (Max. Wide) / 2 m (6.6 feet) (Max. Tele) to ∞
Macro / Intelligent Auto / Motion picture	2 cm (0.066 feet) (Max. Wide) / 0.6 m (2.0 feet) (Max. Tele) to ∞
Shutter system	Electronic shutter + Mechanical shutter
Shutter speed	15 seconds to 1/2000th of a second
Exposure (AE)	Program AE (P) / Manual exposure (M) Exposure Compensation (1/3 EV Step, -3 EV to +3 EV)
Metering Mode	Multiple
LCD monitor	3.0” TFT LCD (4:3) (Approx. 460,800 dots) (field of view ratio about 100%)
Flash	Flash range: (ISO AUTO) Approx. 0.6 m (2.0 feet) to 6.8 m (22 feet) (Max.Wide)
Microphone	Monaural
Speaker	Monaural
Recording media	Built-in Memory (Approx. 100 MB) / SD Memory Card / SDHC Memory Card / SDXC Memory Card
Recording file format	
Still picture	JPEG (based on Design rule for Camera File system, based on Exif 2.3 standard)
Motion pictures	QuickTime Motion JPEG (motion pictures with audio)
Interface	
Digital	USB 2.0 (High Speed)
Analog video	DMC-LZ20P: NTSC Composite DMC-LZ20PU: NTSC / PAL Composite (Switched by menu)
Audio	Audio line output (Monaural)
Terminal	AV OUT/DIGITAL: Dedicated jack (8 pin)
Dimensions	Approx. 119.1 mm (W) x 76.5 mm (H) x 79.8 mm (D) [4.69” (W) x 3.02” (H) x 3.14” (D)] (excluding the projection part)
Mass (weight)	With card and batteries: Approx. 499 g (1.1 lb) Excluding card and batteries: Approx. 390 g (0.86 lb)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating humidity	10%RH to 80%RH

5 Location of Controls and Components

NOTE:

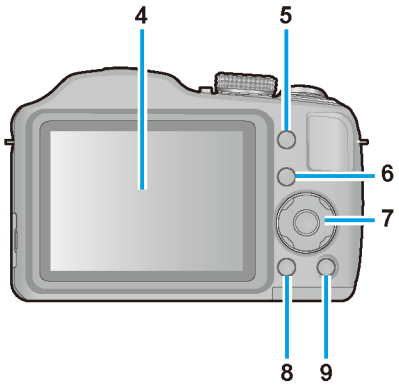
The following description is for DMC-LZ20. Some descriptions may differ depending on model suffix.



1 Self-timer indicator/ AF Assist Lamp

2 Flash

3 Lens



4 LCD monitor

5 [EXPOSURE] button
Operate this when setting the shutter speed or aperture value (only in the M mode).

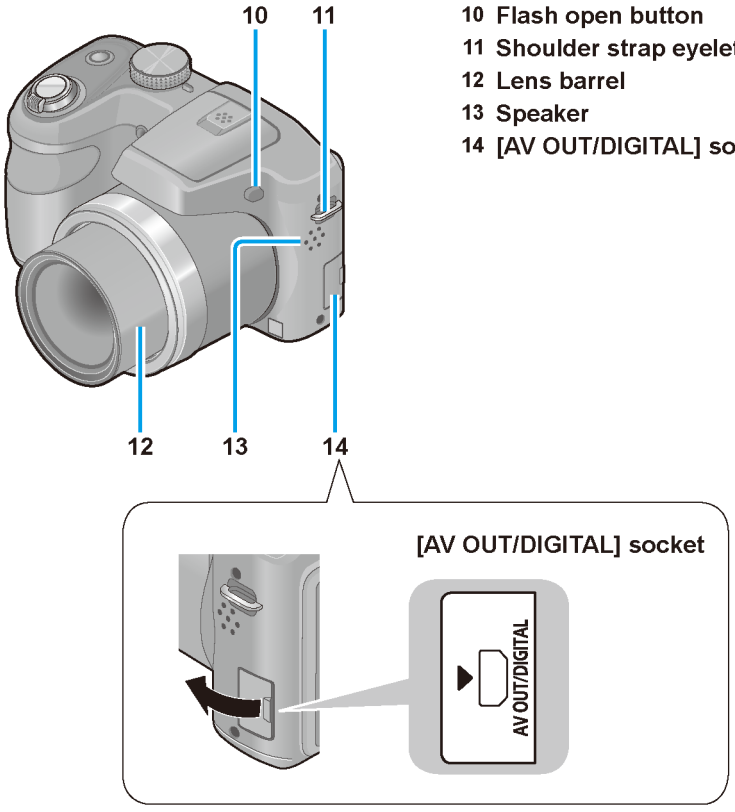
6 Playback button
Use this to switch to playback mode.

7 Cursor button

8 [DISP.] button
Use this to change display.

9 [Q.MENU] / [🗑] / [⮌] button
In the recording mode:
Quick menu is displayed.
In the playback mode:
Pictures are deleted.
During menu operations:
Previous screen is restored.

● The illustrations and screens in this manual may differ from the actual product.



10 Flash open button

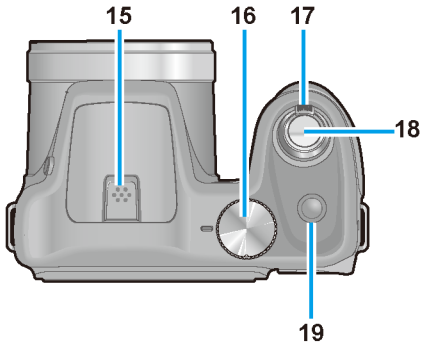
11 Shoulder strap eyelet

12 Lens barrel

13 Speaker

14 [AV OUT/DIGITAL] socket

● Some methods of holding the camera may block the speaker, making it difficult to hear the beep, etc.



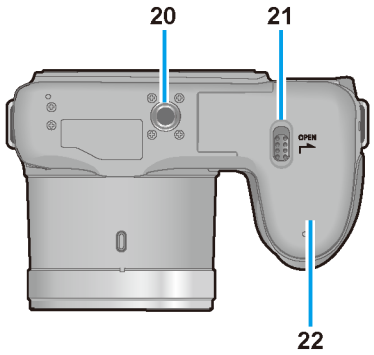
15 Microphone

16 Mode dial
Use this to select the recording mode.

17 Zoom lever
Operate this when zooming in on a distant subject to record it larger.

18 Shutter button
Use this to focus and record still and motion pictures.

19 Power button
Use this to turn the camera on and off.

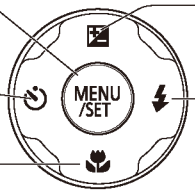


20 Tripod Mount
Do not attach to a tripod with a 5.5 mm (0.22") or longer screw. Doing so may damage this unit.

21 Release lever

22 Card/Battery door

Cursor button



[MENU/SET]
Use this to display the menus, enter the settings, etc.

Up cursor button (▲)
• Exposure Compensation, Auto Bracket etc.

Left cursor button (◀)
• Self-timer

Right cursor button (▶)
• Flash

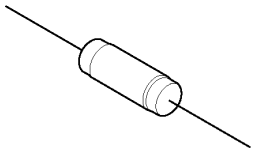
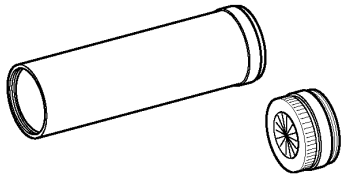
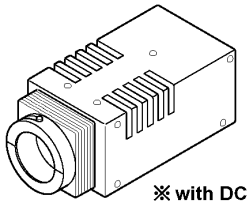
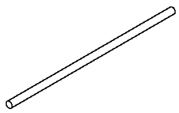
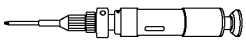
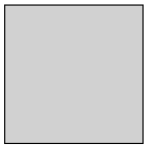
Down cursor button (▼)
• Macro Mode etc.

● In this manual, the button that is used is indicated by ▲▼◀▶.

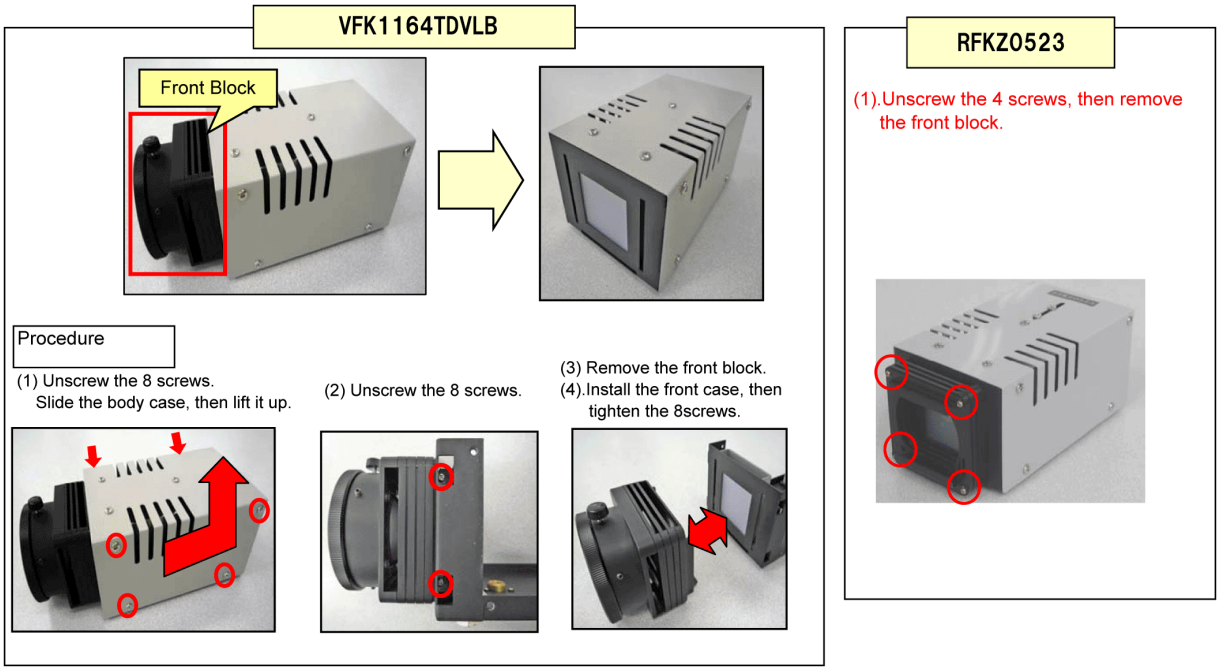
6 Service Fixture & Tools

6.1. Service Fixture and Tools

The following Service Fixture and tools are used for checking and servicing this unit.

Resistor for Discharging ERG5SJ102	Infinity Lens (with Focus Chart) VFK1164TCM02	LIGHT BOX VFK1164TDVLB
 An equivalent type of Resistor may be used.	 * VFK1164TCM03 can be used.	 ※ with DC Cable * RFKZ0523 can be used.
Lens Cleaning Kit (BK) VFK1900BK	Locator Pin (Battery Door Shaft) VMS7867	Torque Driver RFKZ0542
 * Only supplied as 10 set/box.		
Gray chart RFKZ0612		
		

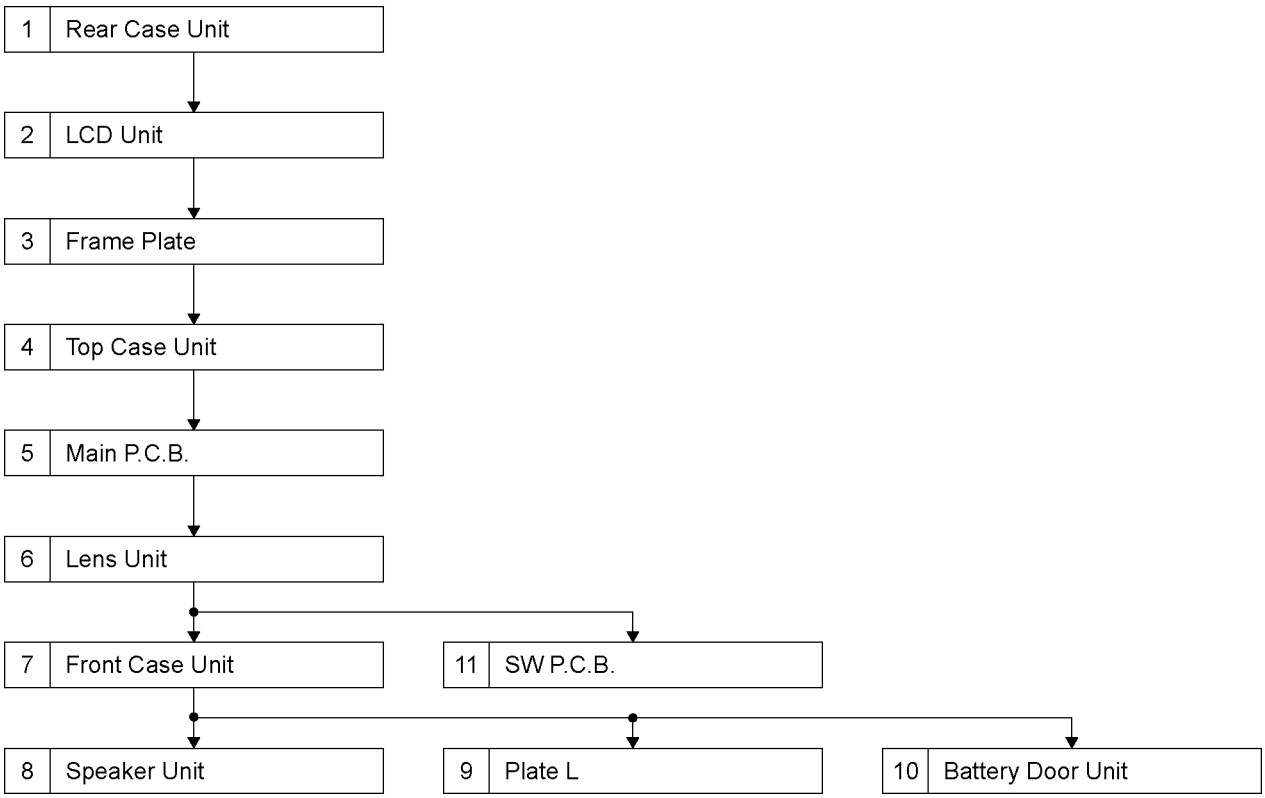
REMARKS
1. ABOUT "LIGHT BOX":



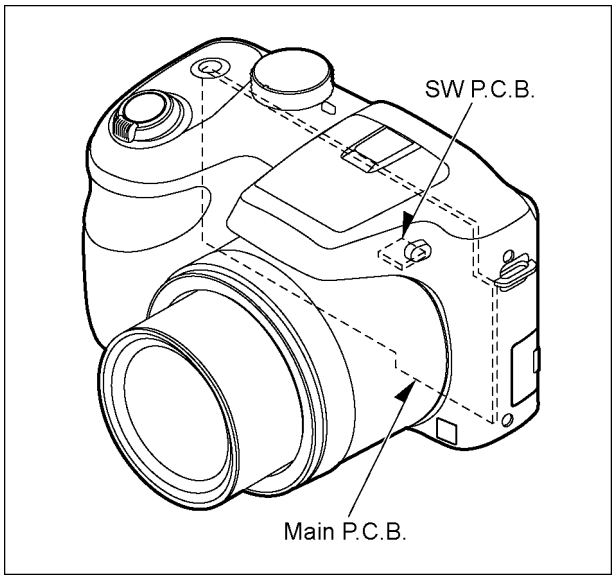
7 Disassembly and Assembly Instructions

7.1. Disassembly Flow Chart

This is a disassembling chart.
When installing, perform this chart conversely.



7.2. PCB Location



7.3. Disassembly Procedure

No.	Item	Fig	Removal
1	Rear Case Unit	(Fig. D1)	Card
			Battery
		(Fig. D2)	2 Screws (A)
		(Fig. D3)	1 Screw (B)
			1 Screw (C)
			1 Screw (D)
		(Fig. D4)	4 Screws (E)
			2 Screws (F)
		(Fig. D5)	1 Screw (G)
		(Fig. D6)	2 Screws (H)
		(Fig. D7)	Rear Case Unit
2	LCD Unit	(Fig. D8)	Connector (A)
			LCD Unit
3	Frame Plate	(Fig. D9)	6 Screws (I)
			Frame Plate
			Tripod
4	Top Case Unit	(Fig. D10)	1 Screw (J)
		(Fig. D11)	Connector (B)
			Top Case Unit
5	Main P.C.B.	(Fig. D12)	2 Screws (K)
			FPC Sheet 1
			FPC Sheet 2
		(Fig. D13)	Connector (C)
			Connector (D)
			Connector (E)
			Connector (F)
			Flash FPC
			10 Solders
			Jack Holder
			Main P.C.B.
6	Lens Unit	(Fig. D14)	3 Screws (L)
			Lens Unit
7	Front Case Unit	(Fig. D15)	Flash Sheet (Caution for Discharging)
		(Fig. D16)	6 Screw (M)
			Front Case Unit
		(Fig. D17)	Jack Cover
			AF Light Cover
			Flash Open Button
8	Speaker Unit	(Fig. D18)	1 Screw (N)
			Strap R
			Speaker Unit
9	Plate L	(Fig. D19)	1 Screw (O)
			Strap L
			Plate L
10	Battery Door Unit	(Fig. D20)	Battery Door Shaft
			Battery Door Unit
11	SW P.C.B.	(Fig. D21)	1 Screw (P)
			SW P.C.B.

7.3.1. Removal of the Rear Case Unit

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

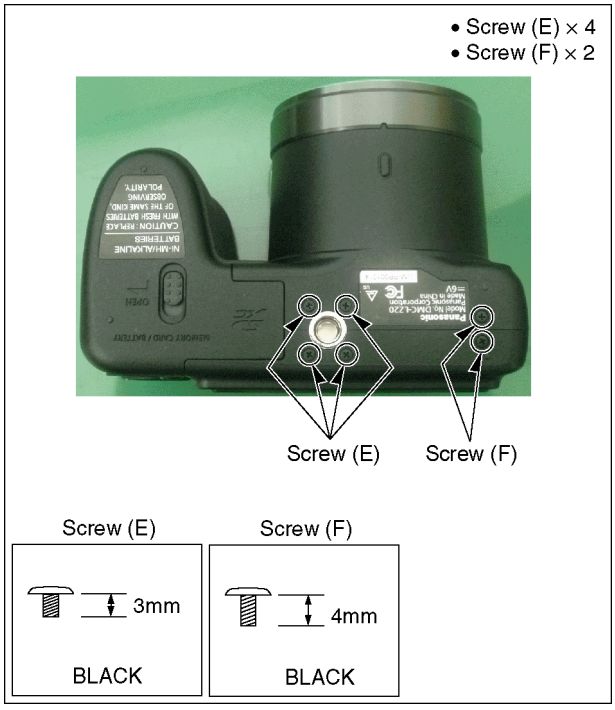
· Card
· Battery

(Fig. D1)

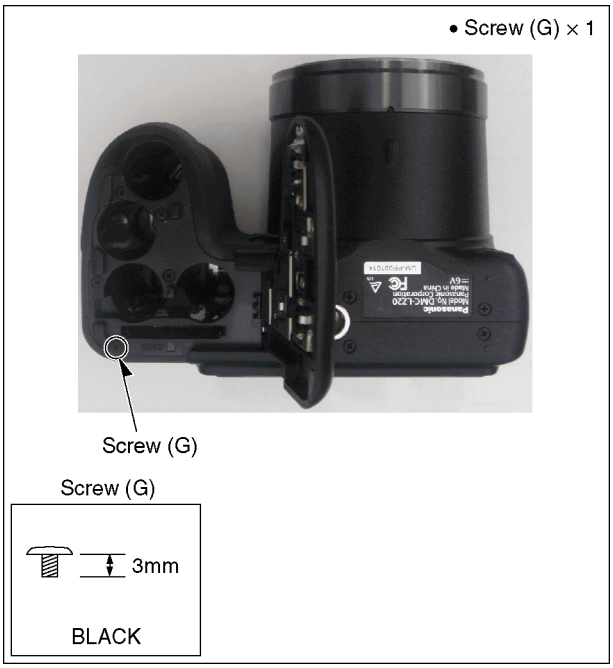
• Screw (A) × 2

(Fig. D2)

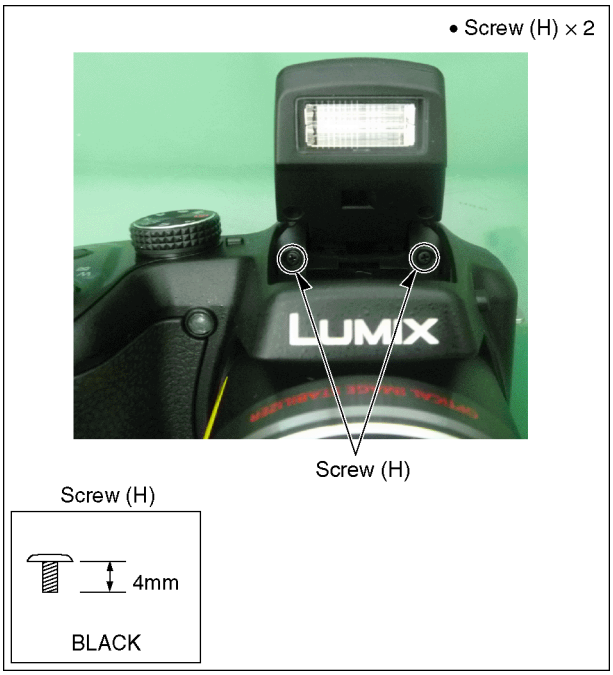
(Fig. D3)



(Fig. D4)



(Fig. D5)



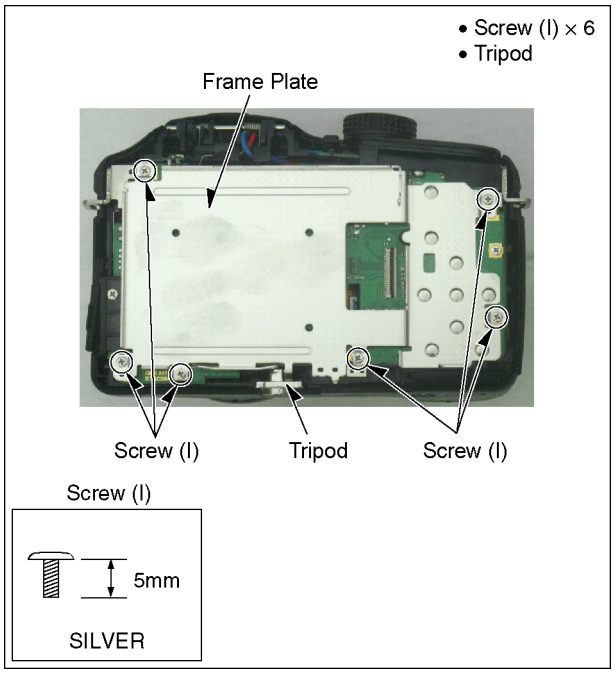
(Fig. D6)

(Fig. D7)

7.3.2. Removal of the LCD Unit

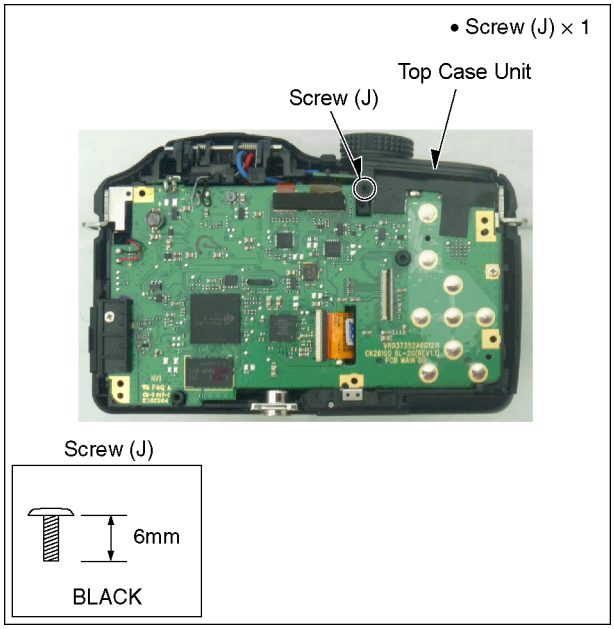
(Fig. D8)

7.3.3. Removal of the Frame Plate

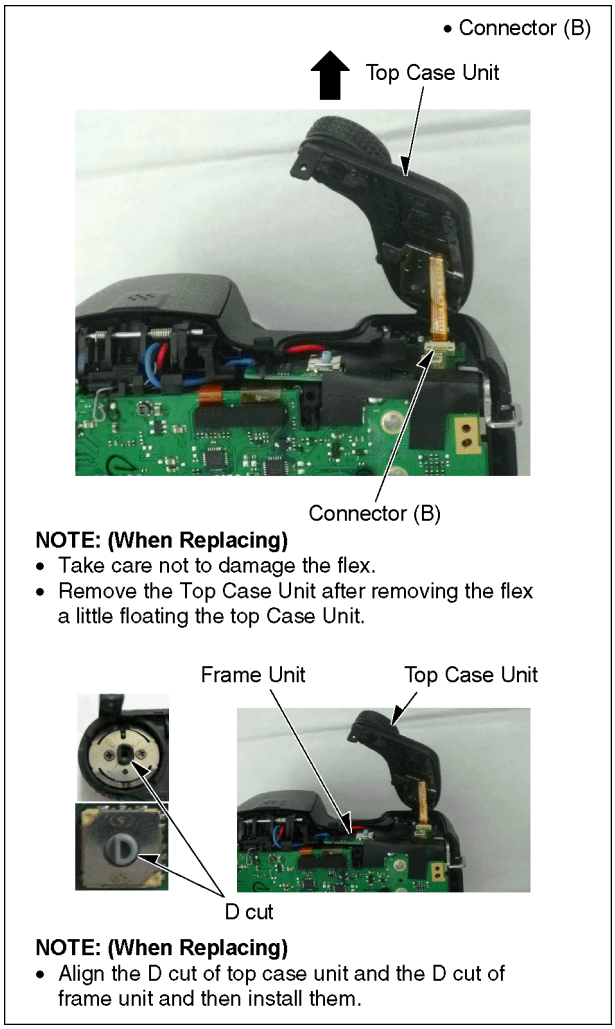


(Fig. D9)

7.3.4. Removal of the Top Case Unit

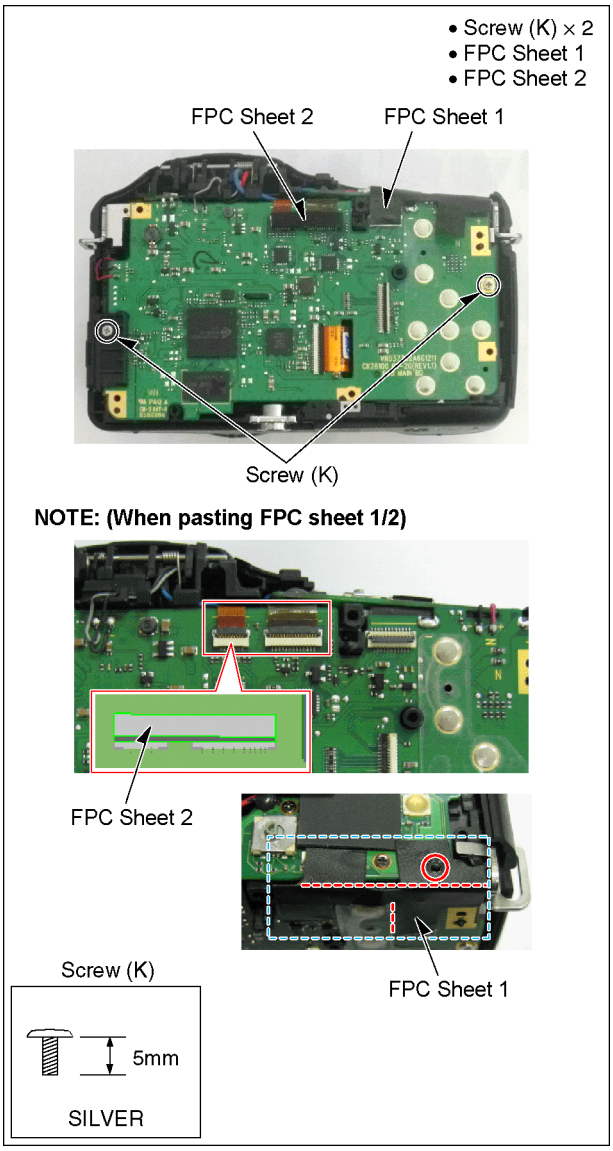


(Fig. D10)

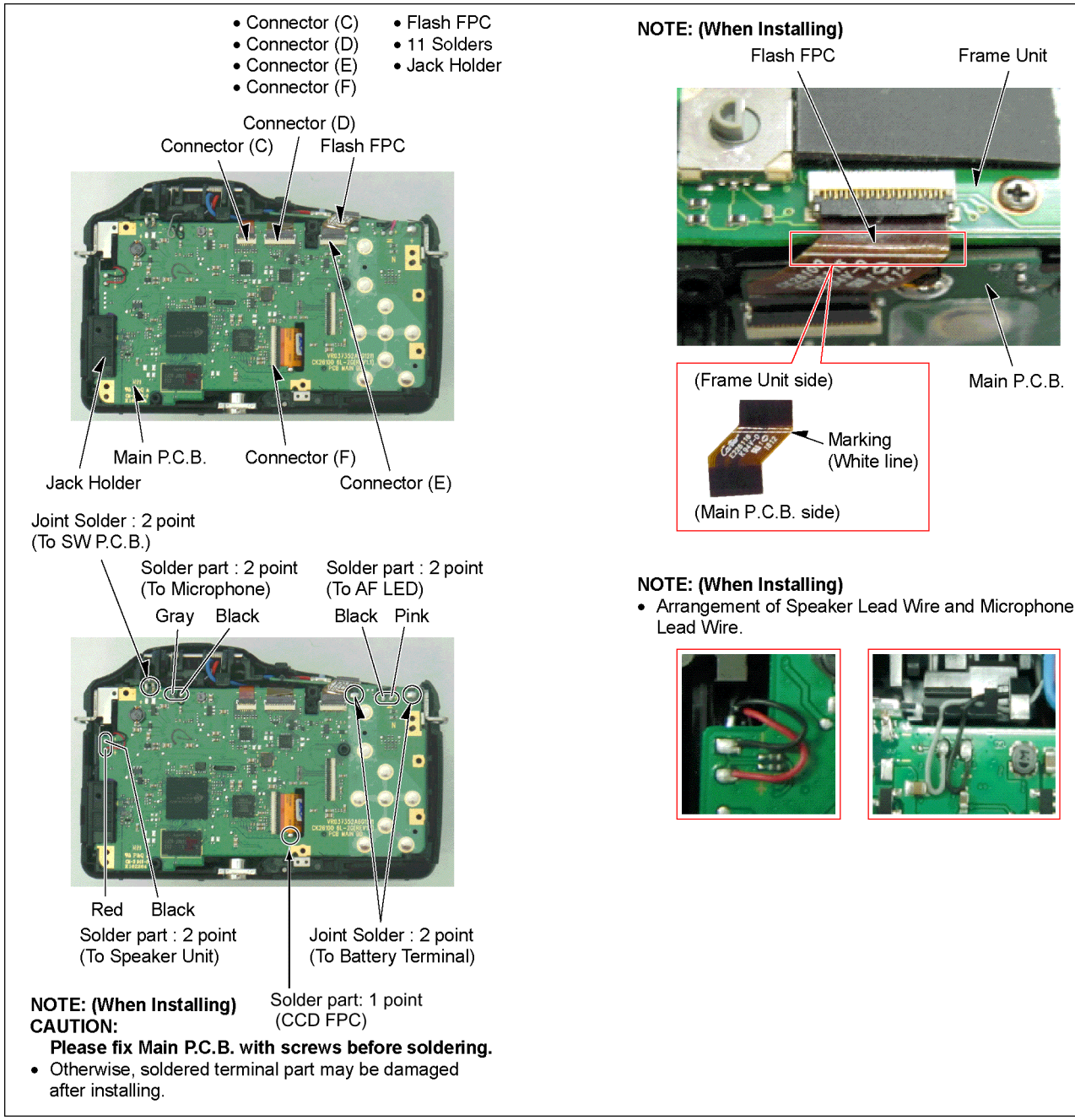


(Fig. D11)

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



(Fig. D12)



NOTE: (When Installing)
CAUTION:
Please fix Main P.C.B. with screws before soldering.
- Otherwise, soldered terminal part may be damaged after installing.

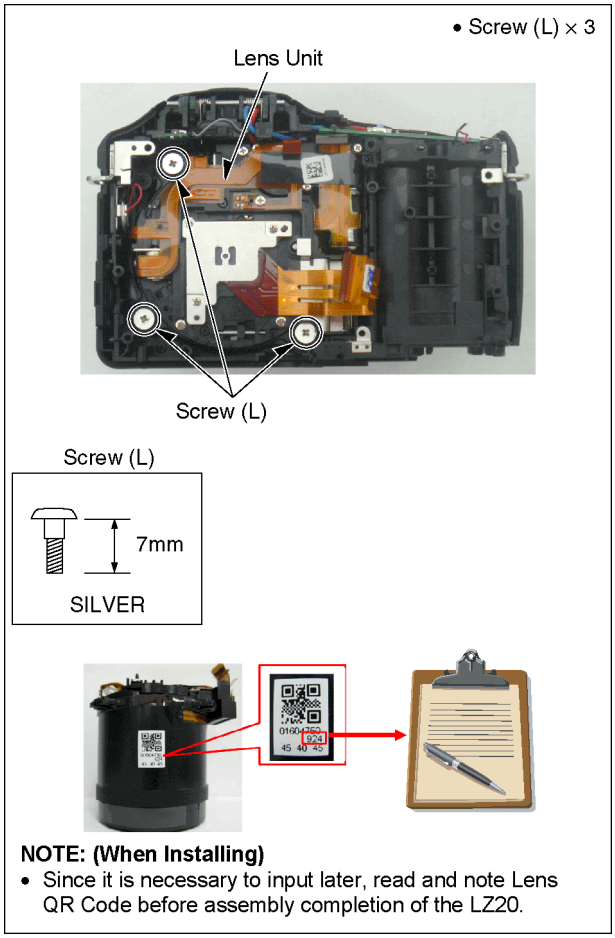
(Fig. D13)

7.3.6. Removal of the Lens Unit

NOTE:

When Disassembling and Installing for the Lens Unit

1. Take care that the dust and dirt are not entered into the lens. In case of the dust is putted on the lens, blow off them by airbrush.
2. Do not touch the surface of lens.
3. Use lens cleaning KIT(BK) (VFK1900BK).



NOTE: (When Installing)

- Since it is necessary to input later, read and note Lens QR Code before assembly completion of the LZ20.

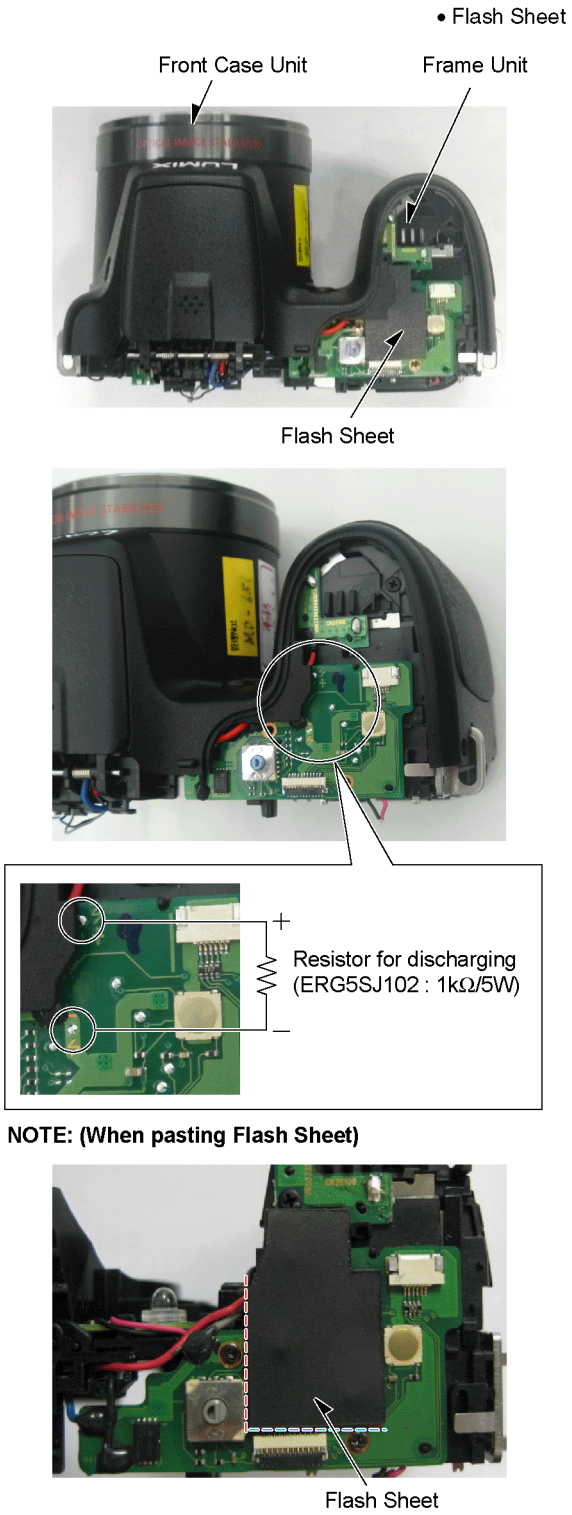
(Fig. D14)

7.3.7. Removal of the Front Case Unit

⚠ CAUTION

Be sure discharge the E.Capacitor on the Frame Unit before disassembling.

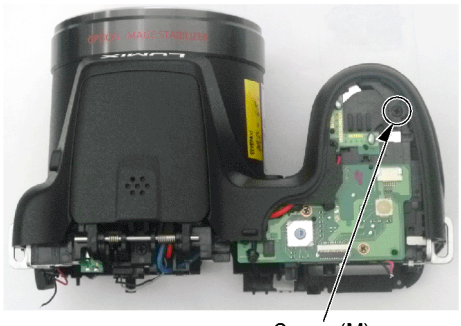
1. Peel off the Flash Sheet.
2. Put the insulation tube on the lead part of resistor (ERG5SJ102: 1kΩ/5W).
3. Put the resistor between both terminal of E.Capacitor unit for approx. 5 seconds.



NOTE: (When pasting Flash Sheet)

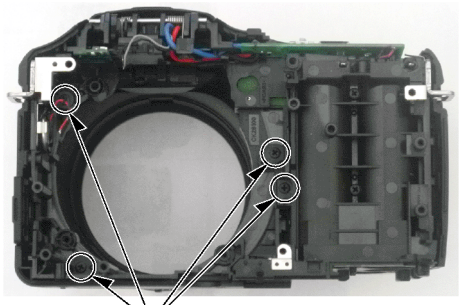
(Fig. D15)

• Screw (M) × 6



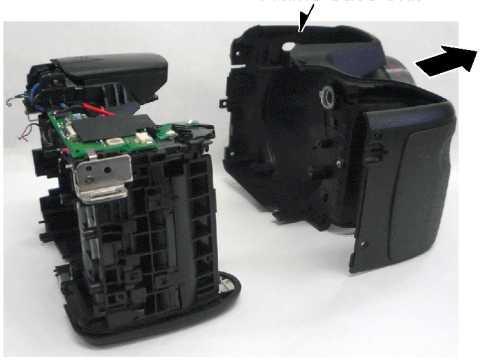
Screw (M)

Screw (M)



Screw (M)

Frame Case Unit



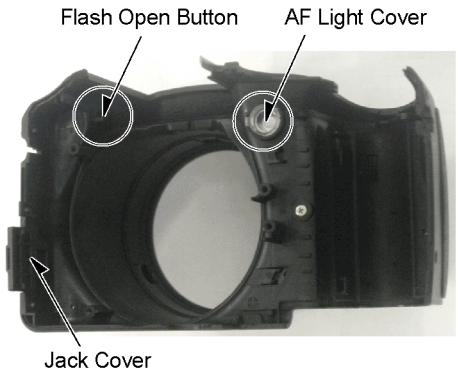
Screw (M)

4mm

BLACK

(Fig. D16)

• Jack Cover
• AF Light Cover
• Flash Open Button



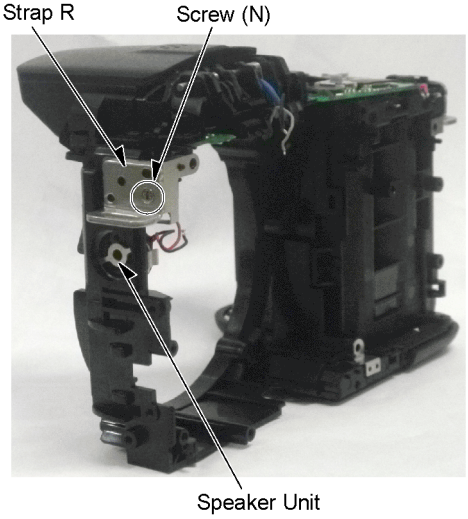
NOTE: (When Replacing)

- Be careful not to lose parts, it because easy to separate from the Flash Open Button, when remove the front Case Unit.

(Fig. D17)

7.3.8. Removal of the Speaker Unit

• Strap R
• Screw (N) × 1



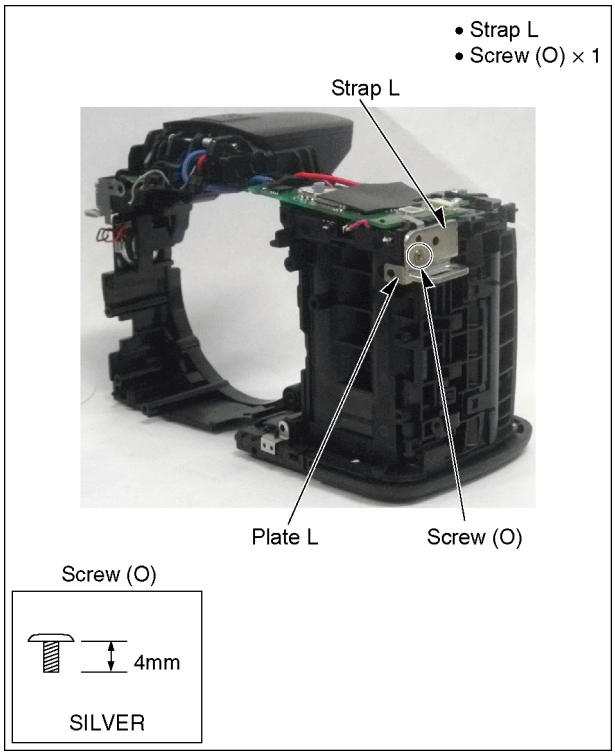
Screw (N)

4mm

SILVER

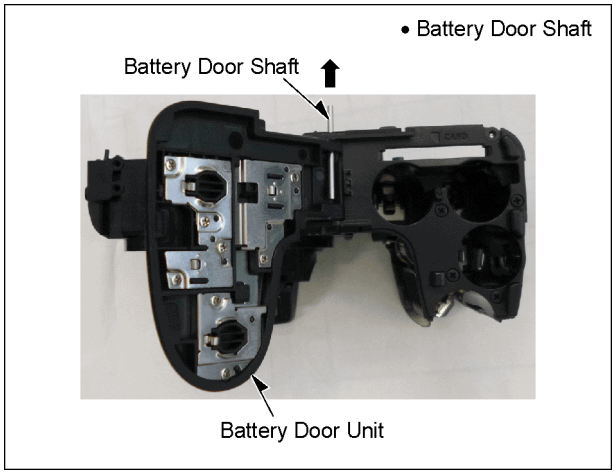
(Fig. D18)

7.3.9. Removal of the Plate L



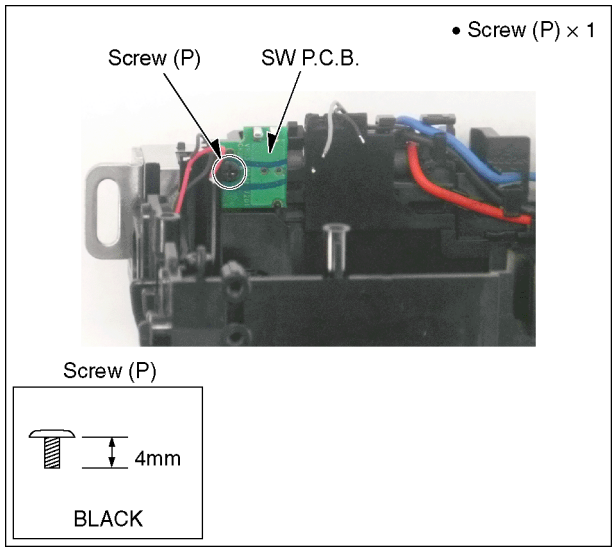
(Fig. D19)

7.3.10. Removal of the Battery Door Unit



(Fig. D20)

7.3.11. Removal of the SW P.C.B.



(Fig. D21)

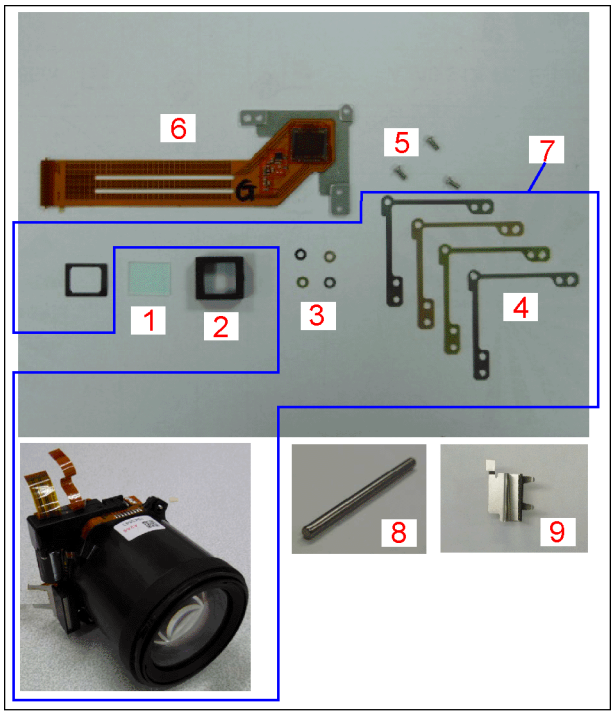
NOTE: (When Installing)

Make sure to confirm the following points when installing:

- The Screw is tightened enough.
- Installing conditions are fine. (No distortion, no abnormal-space.)
- No dust and/or dirt on Lens surfaces.
- LCD image is fine. (No dust and dirt on it, and no gradient images.)

7.4. Lens unit

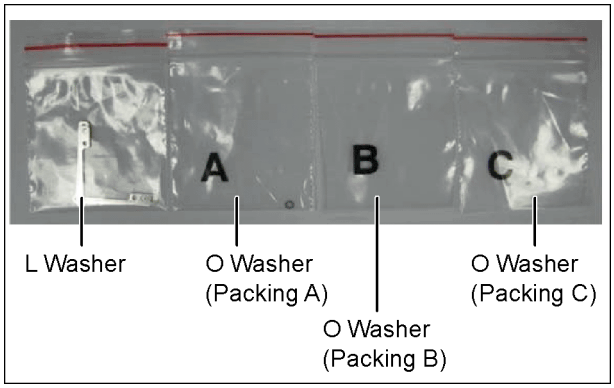
7.4.1. Lens unit parts



1	IR Filter
2	Lens Rubber
3	O Washer
4	L Washer
5	screw × 3
6	CCD Unit
7	Lens Unit (W/O CCD) KIT
8	Locator Pin (Battery Door Shaft : VMS7867)
9	Lens Plate Unit

7.4.2. About the Washers

• The Washers are inserted to adjust optical tilt.
There are two types of the Washer. (L Washer, O Washer)
Depending on each Lens, Packing A, B and C may or may not be included.

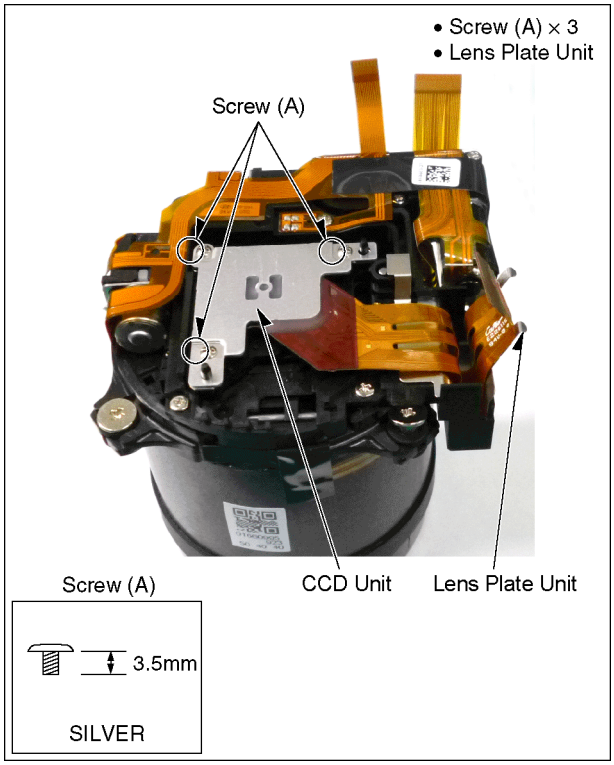


7.5. Lens Disassembly Procedure

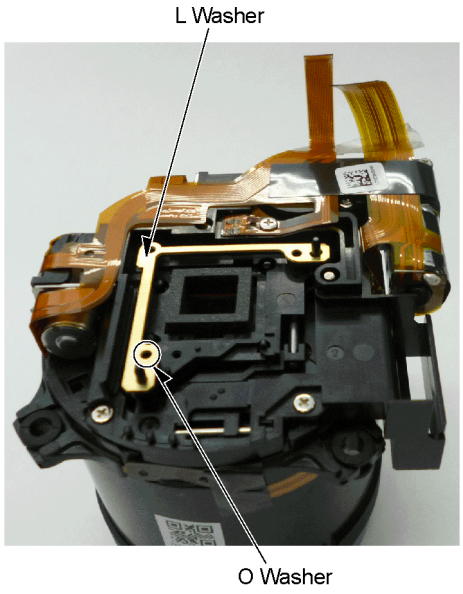
Precaution:

1. Do not remove the CCD Unit when disassembling or reassembling the lens in order to maintain it clean.
2. Keep dust or dirt away from the Lens.
3. To remove dirt or dust from the Lens, blow with dry air.
4. Do not touch the Lens surface.
5. Use Lens cleaning KIT (BK)(VFK1900BK).

7.5.1. Removal of the CCD Unit



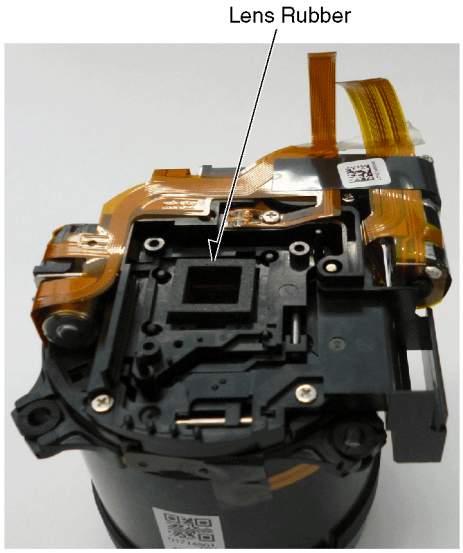
7.5.2. Removal of the L Washer and the O Washer



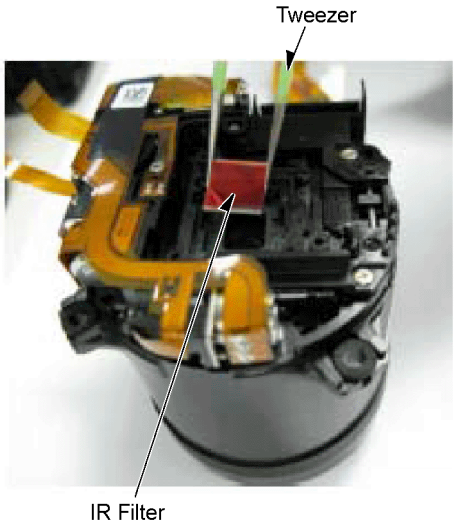
Note: (When Replacing)

- Handle with care, do not bend or damage the Washers.
- Does not mix up the O Washer, only remove from zipper bag when it is time for assembly.

7.5.3. Removal of the Lens Rubber



7.5.4. Removal of the IR Filter

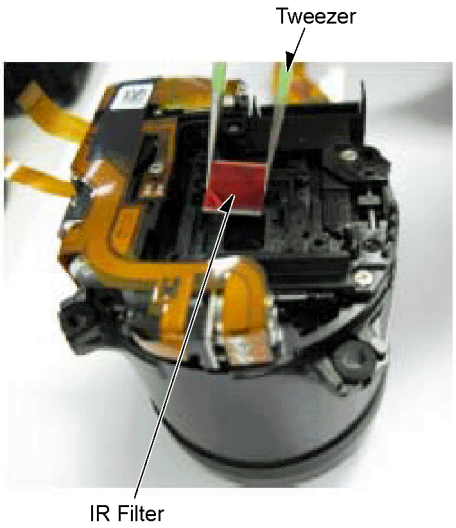


Note: (When Replacing)

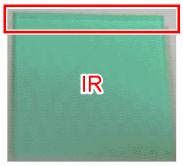
- When remove the IR Filter, use tweezer.

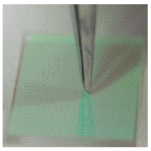
7.6. Assemble Procedure

7.6.1. Assembly for the IR Filter

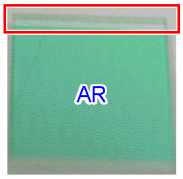


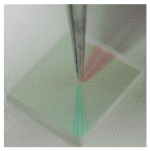
NOTE: (When Installing)
- When install the IR Filter, use tweezer.
- Place the IR Filter onto the Lens (IR surface facing the Lens).





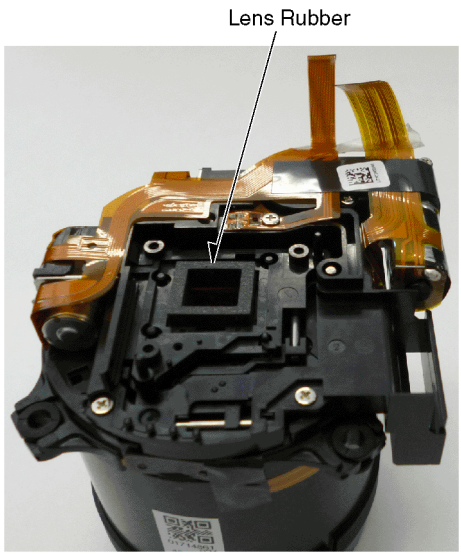
No gap in
IR Filter reflection.
It is IR Filter surface.



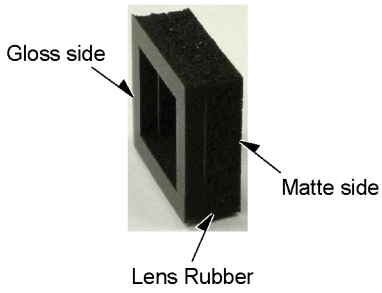


Gap in reflection.
It is AR surface.

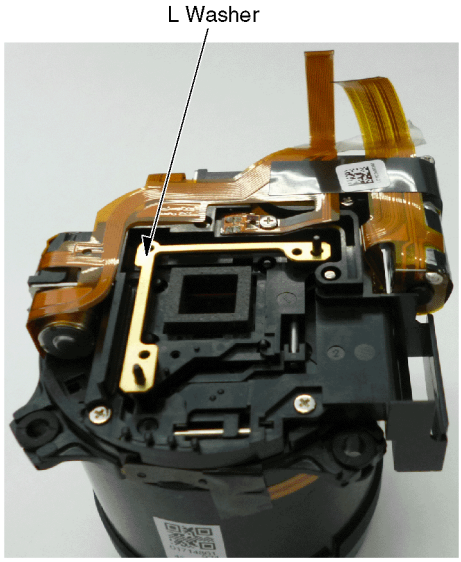
7.6.2. Assembly for the Lens Rubber



NOTE: (When Installing)
- Place the Lens Rubber onto the IR Filter (Gloss side facing the IR Filter).



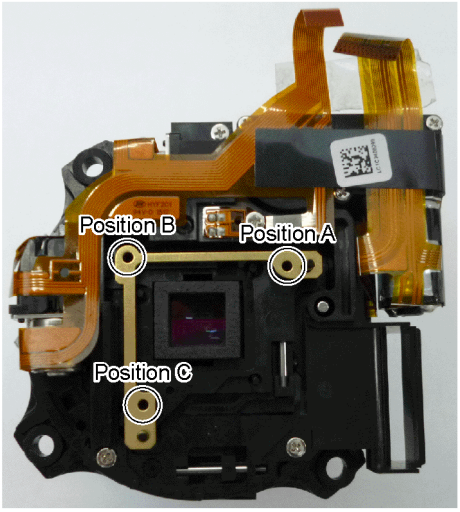
7.6.3. Assembly for the L Washer



NOTE: (When Installing)
- Handle with care, do not bend or damage the L Washer

7.6.4. Assembly for the O Washer

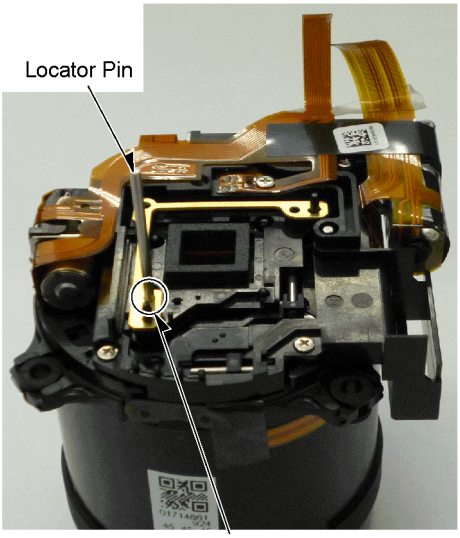
- If there is Packing A, Set the O Washer in the Packing A to the Position A.
- If there is Packing B, Set the O Washer in the Packing B to the Position B.
- If there is Packing C, Set the O Washer in the Packing C to the Position C.



NOTE: (When Installing)

- Handle with care, do not bend or damage the O Washer.

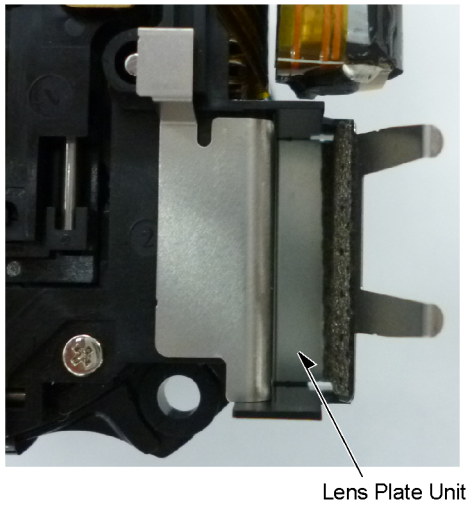
- Installing the O Washer is easy, if the Locator pin is used so that the O Washer do not move.



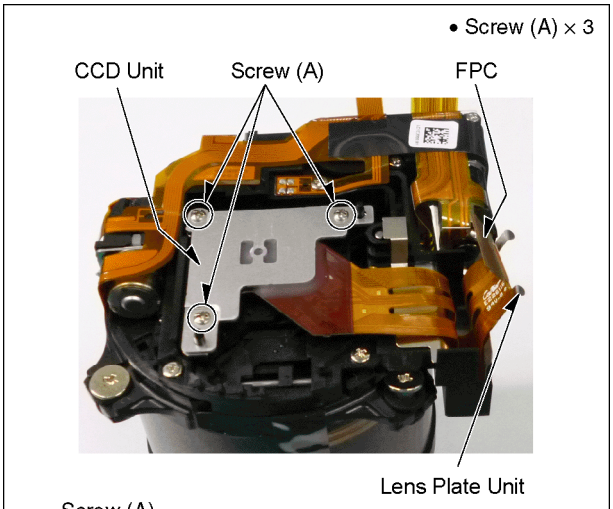
O Washer (Position C)

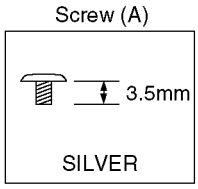
Example: The O Washer is set to Position C.

7.6.5. Assembly for the Lens Plate Unit



7.6.6. Assembly for the CCD Unit





NOTE: (When Installing)

- Insert the FPC into the Lens Plate Unit.
- Take care not to damage the FPC.
- If used the Locator pin, tighten the screws after removing the locator pin.
- Torque: 0.5±0.05kgfcm2(5±0.5Ncm), on "Low" gear.

8 Measurements and Adjustments

8.1. Introduction

When servicing this unit, make sure to perform the adjustments necessary based on the part(s) replaced.
To perform the adjustment, it is necessary to use the “SPCA5330_v1010.exe” and “CK26100WriteQRCodeTool.exe” software.
The Adjustment software “SPCA5330_v1010.exe” and “CK26100WriteQRCodeTool.exe” are available at “TSN Website”.

8.2. Matrix chart (Replaced part and Adjustment item)

The following matrix table shows the relation between the replaced part and the necessary adjustment.
When a part is replaced, make sure to perform the necessary adjustment(s) in the order indicated.

DMC-LZ20 Adjustment Procedure

	JIG/TOOL	Repairing Service Parts (Unit)				
		MAIN PCB	LCD	LENS u Without CCD	CCD	FRAME u (with TOP PCB)
1. Read and note Lens QR Code	※Before assembly completion of the LZ20	●	—	●	—	—
2. USB driver installation	•USB driver <SPCA5330_v1010> •USB cable ※Once you have installed, it is unnecessary to execute again.	●	—	●	—	—
3. MB/LCD Function Check	•SD Card	●	●	●	●	●
4. Focus Calibration	•Light Box :RFKZ0523 or VFK1164TDVLB •Collimator : VFK1164TCM02 or VFK1164TCM03	●	—	●	●	—
5. OB Calibration		●	—	—	—	—
6. WB/AGC Calibration	•Light Box :RFKZ0523 or VFK1164TDVLB	●	—	●	●	—
7. MeShut (LV13/LV14) Calibration	•Light Box :RFKZ0523 or VFK1164TDVLB	●	—	●	●	—
8. Dark DP Calibration	•Light Box :RFKZ0523 or VFK1164TDVLB	●	—	—	—	—
9. Light / S.S / Preview DP Calibration		●	—	—	—	—
10. Flash WB Calibration	•Gray Chart : RFKZ0612	●	—	—	—	●
11. Write Lens QR Code	•Lens QR code write tool	●	—	●	—	—

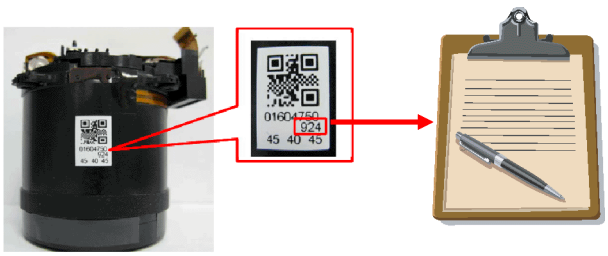
NOTE

1. Don't replace the sequence of the Adjustment because the previous calibration matters with the next adjustment.

8.3. Adjustment procedure

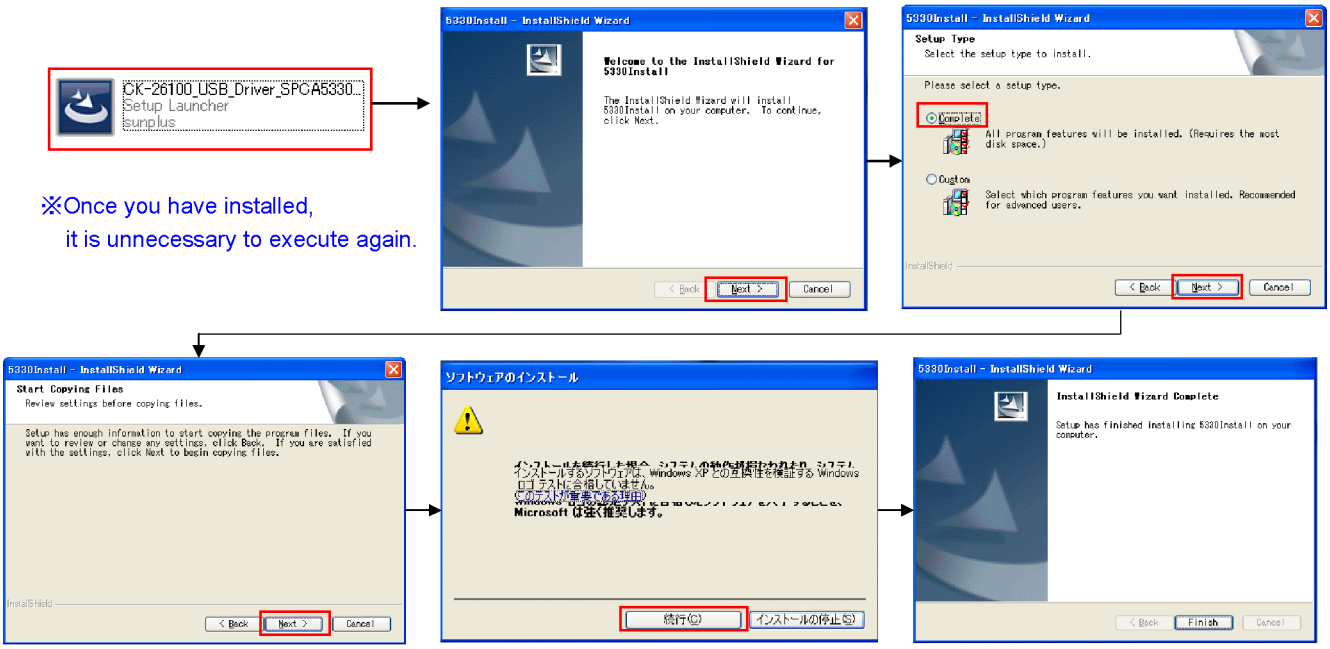
8.3.1. Read Lens QR Code

Since it is necessary to input later, read and note Lens QR Code before assembly completion of the LZ20.



8.3.2. USB driver installation

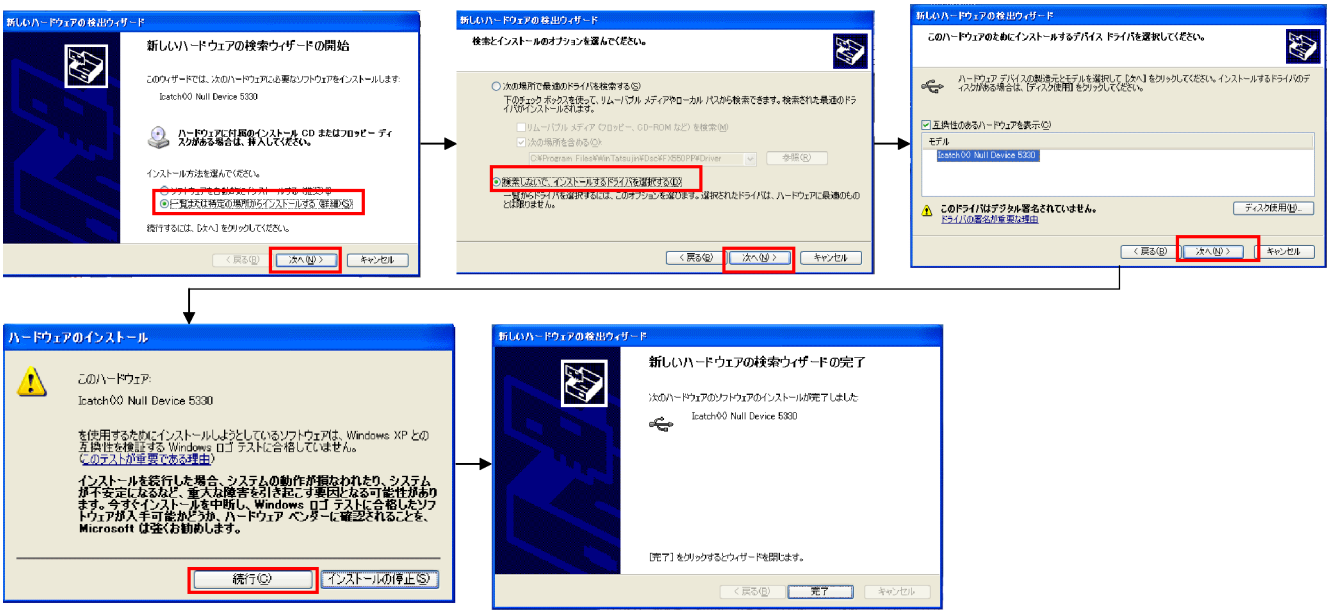
1. Execute the Setup Launcher



2. Connect the DSC to PC by USB cable

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Connect the DSC to PC by USB cable.

3. Install the Hardware to PC



8.3.3. MB/LCD Function Check

1. Setting the DSC

1. Set the battery to the camera.
2. Insert the SD card.
3. Turn off the power.
4. Press "Tele" + "Menu/Set" + "Playback" key at the same time.
   It starts in the state of "Engineer Mode" automatically.
5. Press "Playback" key to enter selection menu.
6. Turn the DSC to the usual distance and brightness in photography.

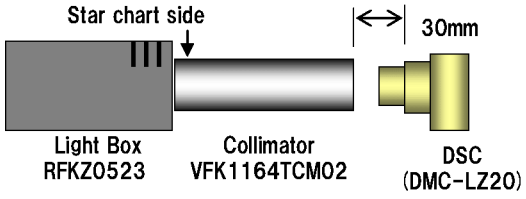
2. Execute MB/LCD Function Check

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "**MB/LCD**", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. Checking Items are executing in turn automatically as follows.
   a. RTC → Check the Crystal RTC.
   b. Iris → Check the Iris operation.
   c. MSHUT → Check the Mechanical Shutter operation.
   d. ZOOM → Check the Detection of Lens Zoom Position (Wide/Tele).
   e. STROB → Check Strobe board flush function.
   f. CARD → Check SD card socket can be read/write.
   g. AUDIO → Check MIC and Speaker by REC/PLAY audio file.
      Input voice when ADUIO REC is displayed.
   h. Memory → Check Internal memory size.
6. When Mark overlap Between RED and Green, the screen will show the result "OK" or "NG".
7. Press "PLAYBACK Key" to return to calibration.

8.3.4. Focus Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. Set the Collimator's Star-chart side to the front of Light Box.
6. Move the DSC to the center of the collimator on the opposite side of the Light Box.



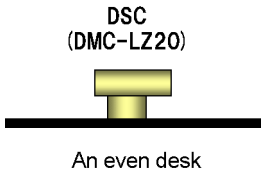
2. Execute Calibration

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "**FOCUS(Infinity)**", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

8.3.5. OB Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. Put the DSC on a desk where the lens side is turned downward in order to make "all black" environment.



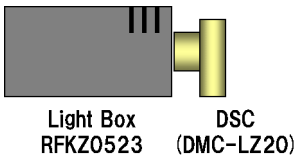
2. Execute Calibration

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "**OB CLB(BLACK)**", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

8.3.6. WB/AGC Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. To Select the Light box mode, carry out the following operations.
   a. Press "Right Key" or "Left Key" to change selected item to "**WB/AG(LV10)**", and press "PLAYBACK Key".
   b. Press "UP Key" or "Down Key" to change selected item to "Light Src", and press "Right Key" or "Left Key" to set the value as "2", and press "OK Key".
6. Set the DSC to the front of light box closely.



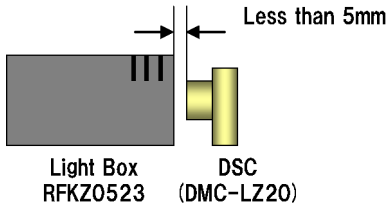
2. Execute Calibration

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "WB/AG(LV10)" again, and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

8.3.7. MeShut(LV13/LV14) Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. To Select the Light box mode, carry out the following operations.
   a. Press "Right Key" or "Left Key" to change selected item to "**WB/AG(LV10)**", and press "PLAYBACK Key".
   b. Press "UP Key" or "Down Key" to change selected item to "Light Src", and press "Right Key" or "Left Key" to set the value as "2", and press "OK Key".
6. Set the DSC to the front of light box closely less than 5mm.



2. Execute Calibration

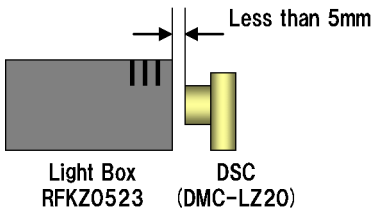
1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "MeShut(LV13)", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Choose "MeShut(LV14)", and operate and execute calibration same as "MeShut(LV14)".
7. Press "PLAYBACK Key" to return to calibration menu.

8.3.8. Dark DP Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. Set the DSC to the front of Light Box closely less than 5mm.

* The "Light box mode" is not depend on the calibration result.



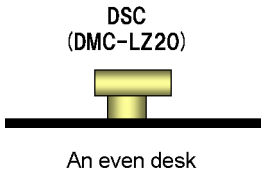
2. Execute Calibration

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "Dark DF(LV10)", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

8.3.9. Light / S.S / Preview Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. Put the DSC on a desk Where a lens side is turned downward in order to make "all black" environment.



2. Execute Calibration

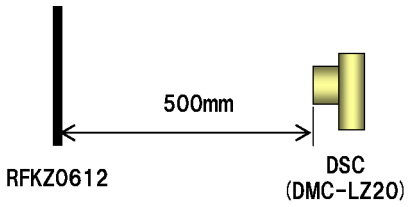
1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "Light/S(BLACK)", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

* Carrying out this adjustment after 25 minutes after power ON is recommended.
* It takes several minutes.

8.3.10. FLASHWB Calibration

1. Setting the DSC

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Press "Playback" key to enter selection menu.
5. In dark environment not Light is reflected
6. Set gray chart (RFKZ0612) from DSC at 500 mm.

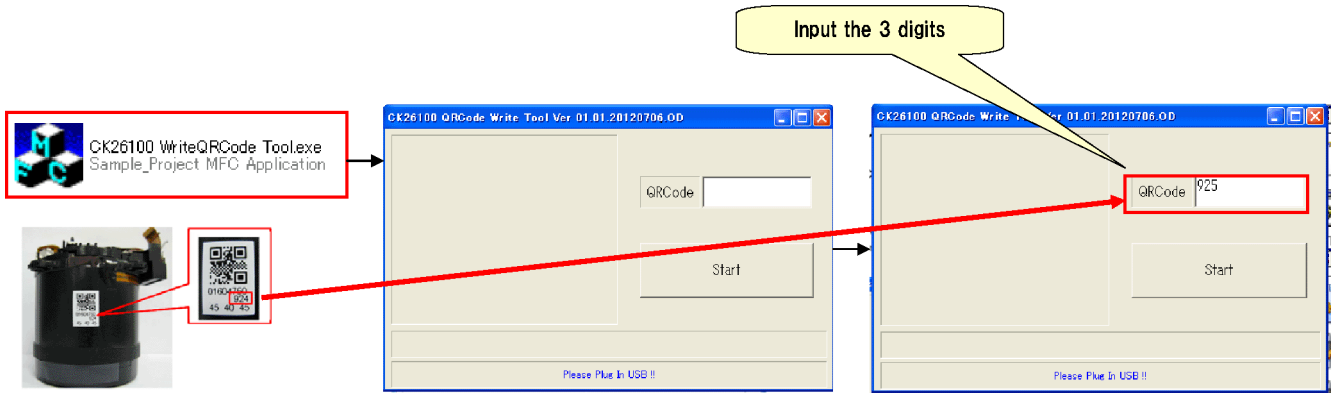


2.Execute Calibration

1. Press "Right Key" or "Left Key" or "Up Key" or "Down Key" to change selected item.
2. Choose "FLASH WB", and press "Display Key".
3. Change the flag status of "Disable" from 00001 to 00000 by operating "Right Key" or "Left Key", and then press "Menu/Set Key".
4. Press "Menu/Set Key" again, and select "OK", and press "Menu/Set Key" to start checking.
5. When calibration finishes, the screen will show the result "OK" or "NG".
6. Press "PLAYBACK Key" to return to calibration menu.

8.3.11. Write Lens QR Code

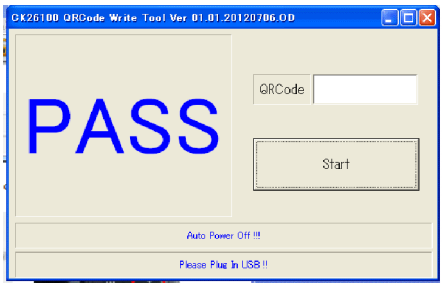
1. Execute the Write QRCode Tool



2. Connect the DSC to PC by USB cable

1. Set the battery to the camera.
2. Turn off the power.
3. Press "Tele" + "Menu/Set" + "Playback" key at the same time. It starts in the state of "Engineer Mode" automatically.
4. Connect the DSC to PC by USB cable.

3. Write Lens QR Code automatically



→ Auto power off

9 Maintenance

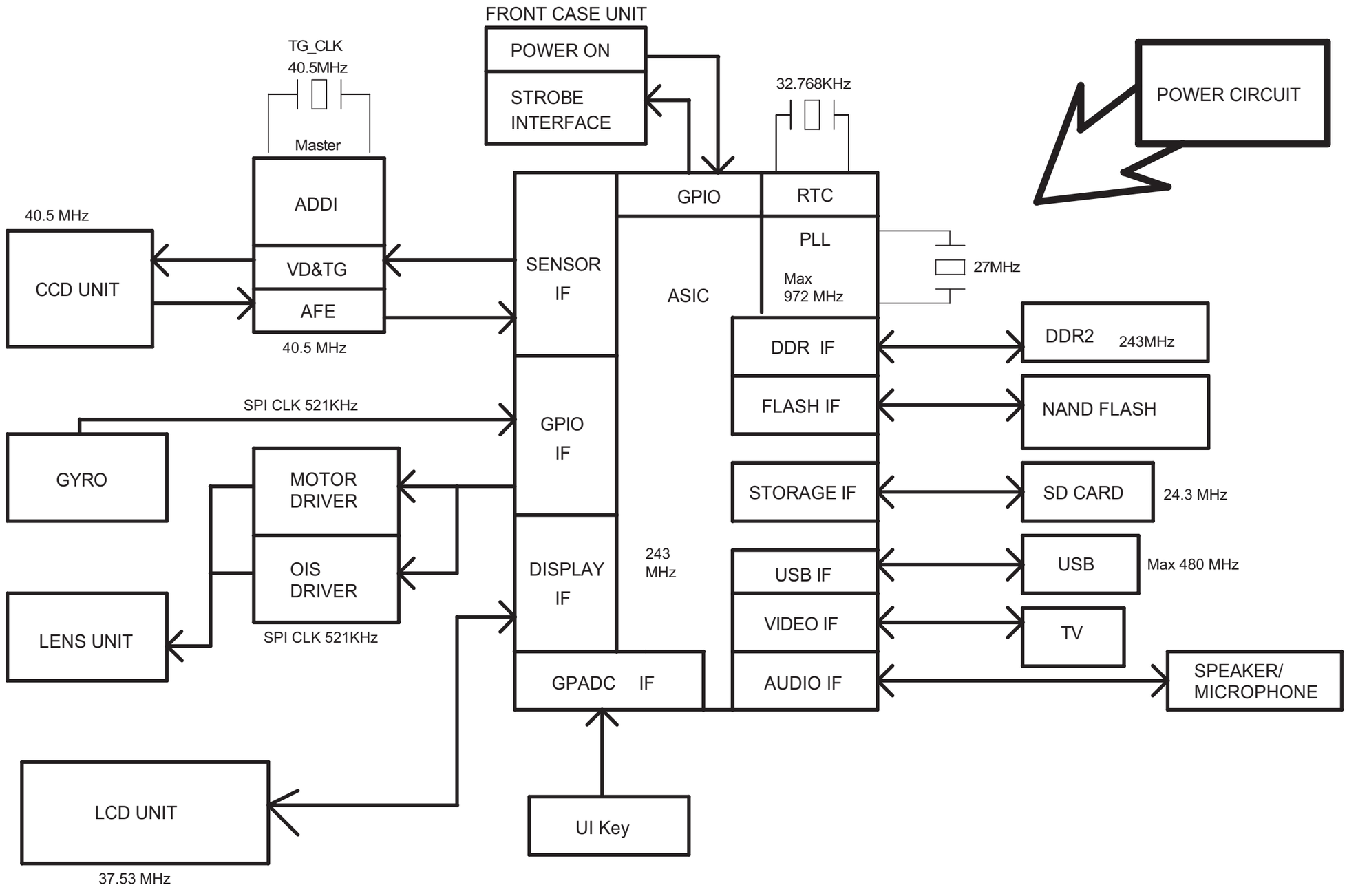
9.1. Cleaning Lens and LCD Panel

Do not touch the surface of lens and LCD Panel with your hand.
When cleaning the lens, use air-Blower to blow off the dust.
When cleaning the LCD Panel, dampen the lens cleaning paper with lens cleaner, and the gently wipe the its surface.
Note:

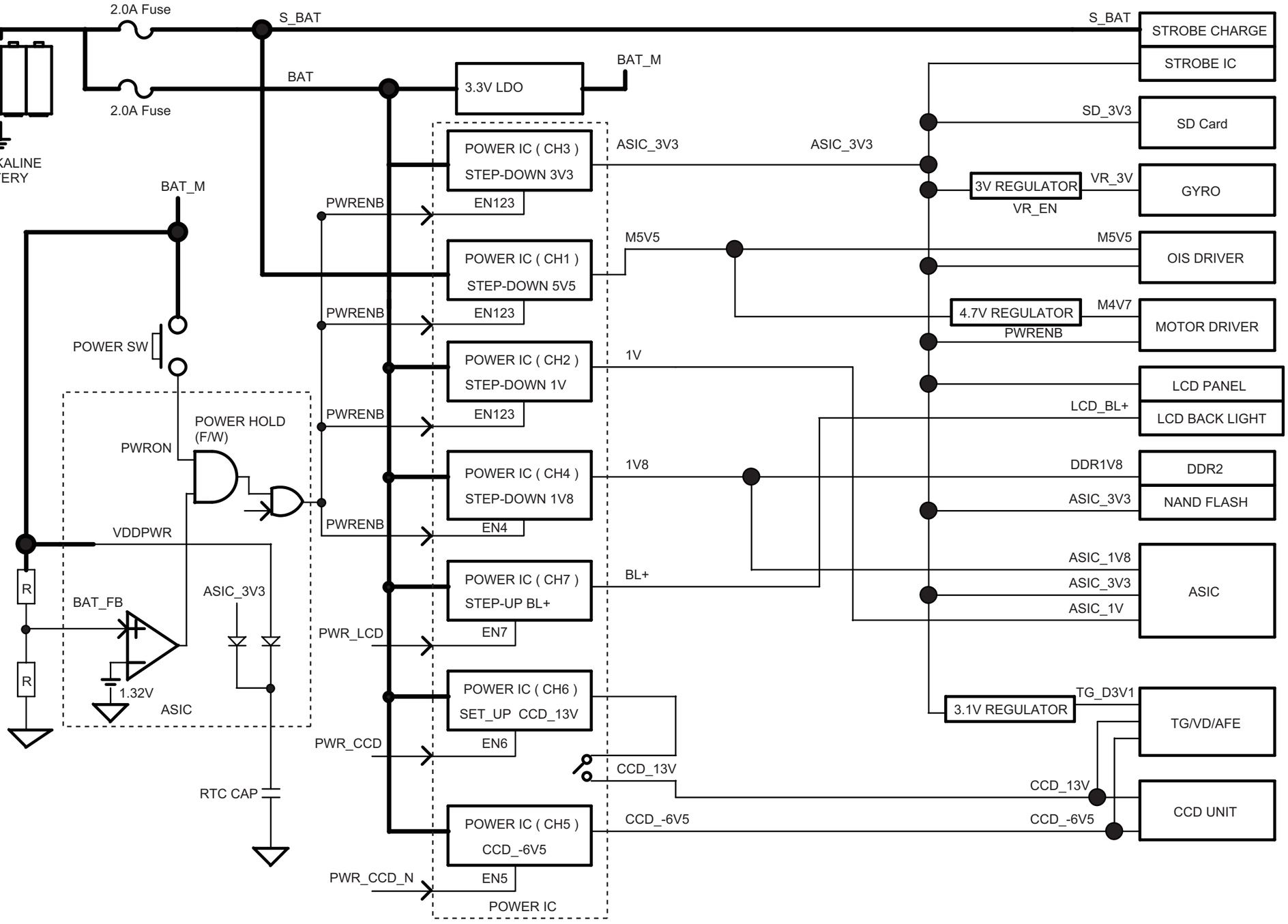
The Lens Cleaning KIT ; VFK1900BK (Only supplied as 10 set/Box) is available as Service Aid.

10 Block Diagram

10.1. Overall Block Diagram

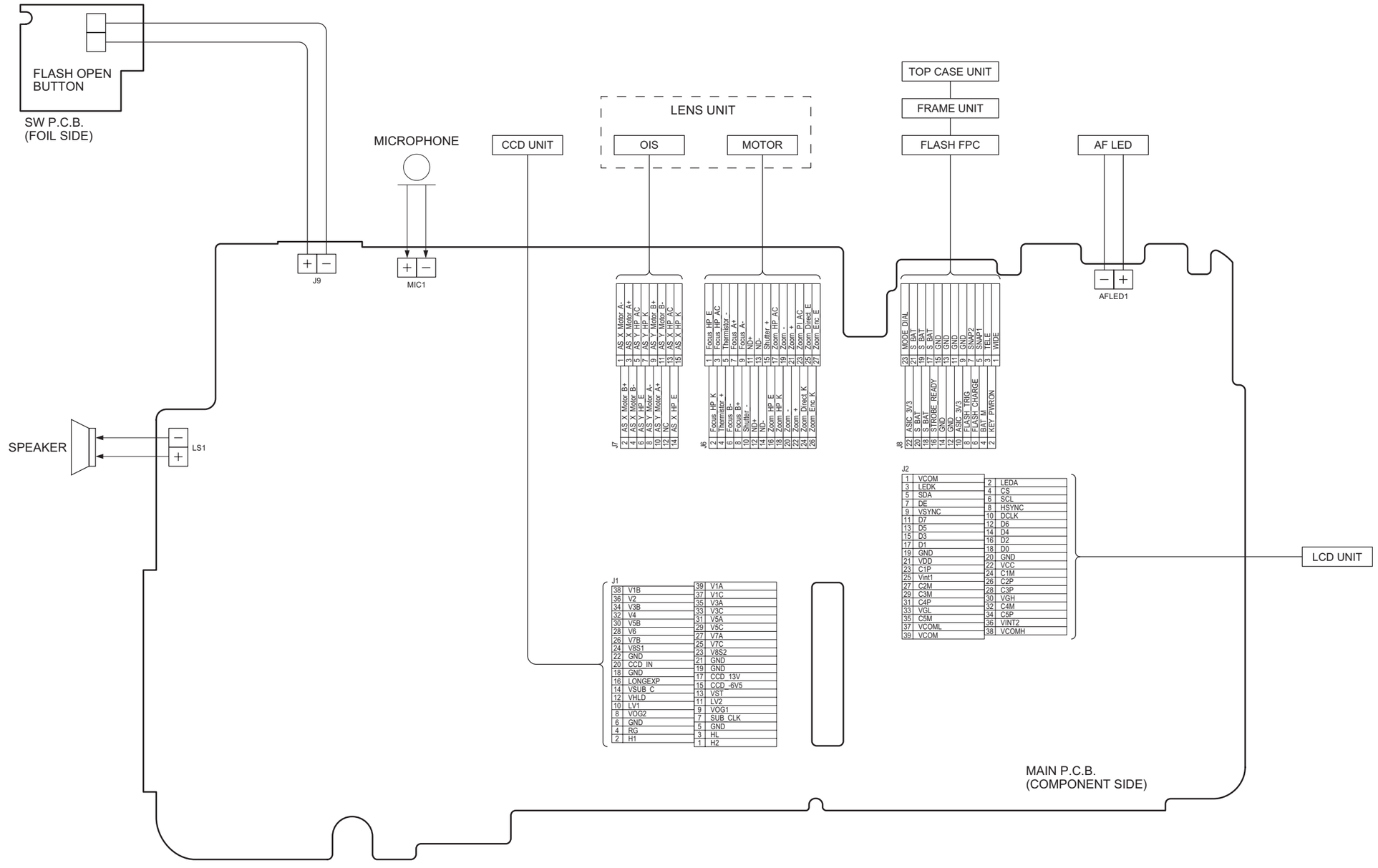


10.2. Power Block Diagram



11 Wiring Connection Diagram

11.1. Interconnection Schematic Diagram



IMPORTANT SAFETY NOTICE:

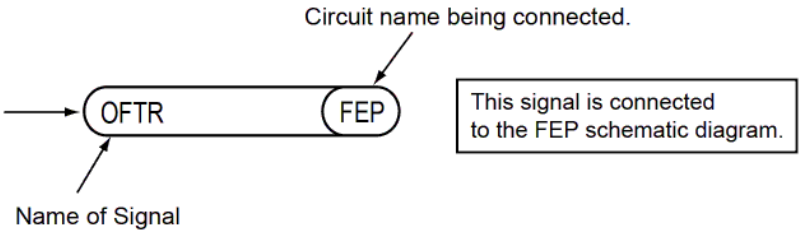
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

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

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

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

4.Indication on Schematic diagrams:



5. It might be taking time for display and/or access of the Schematic Diagrams & P. C. B having the heavy data volume.

Model No. : DMC-LZ20 Parts List Note

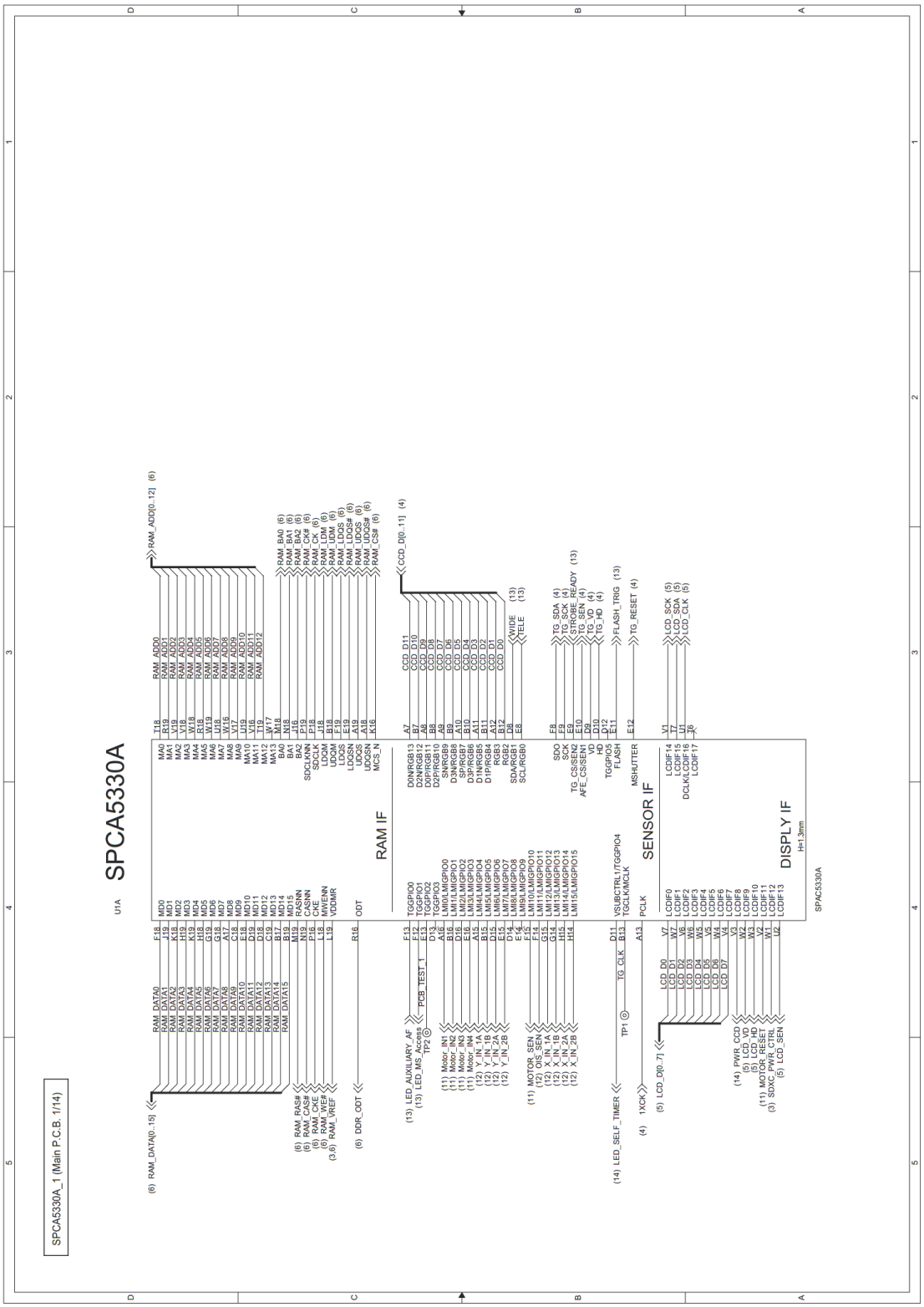
Note:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified with the mark ⚠ have the special characteristics for safety.
   When replacing any of these components, use only the same type.
3. Unless otherwise specified,
   All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS (uf), P=uuF.
4. The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.
5. Supply of CD-ROM, in accordance with license protection, is allowable as replacement parts only for customers who accidentally damaged or lost their own.

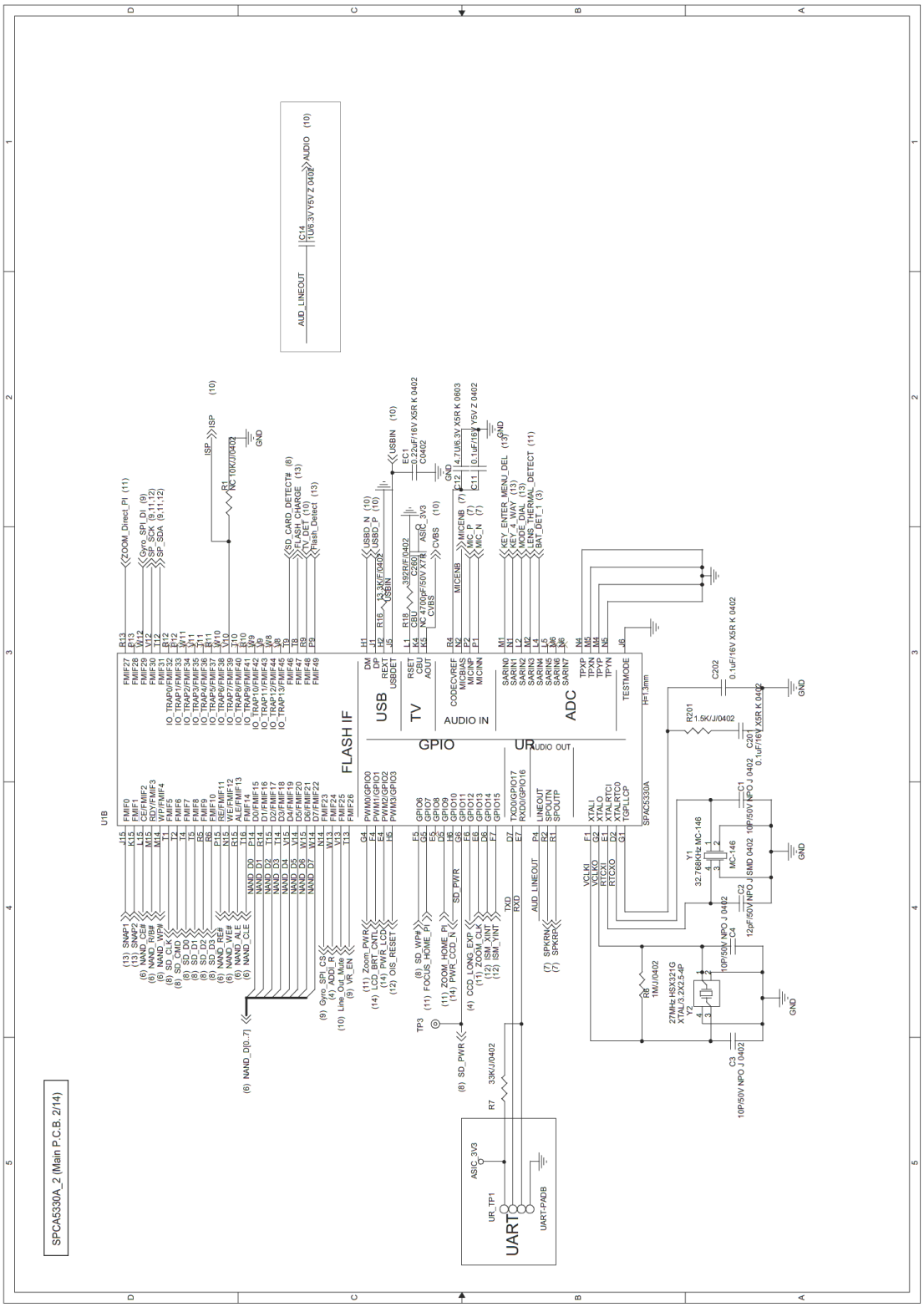
E.S.D. standards for Electrostatically Sensitive Devices, refer to "PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section.

Definition of Parts supplier:

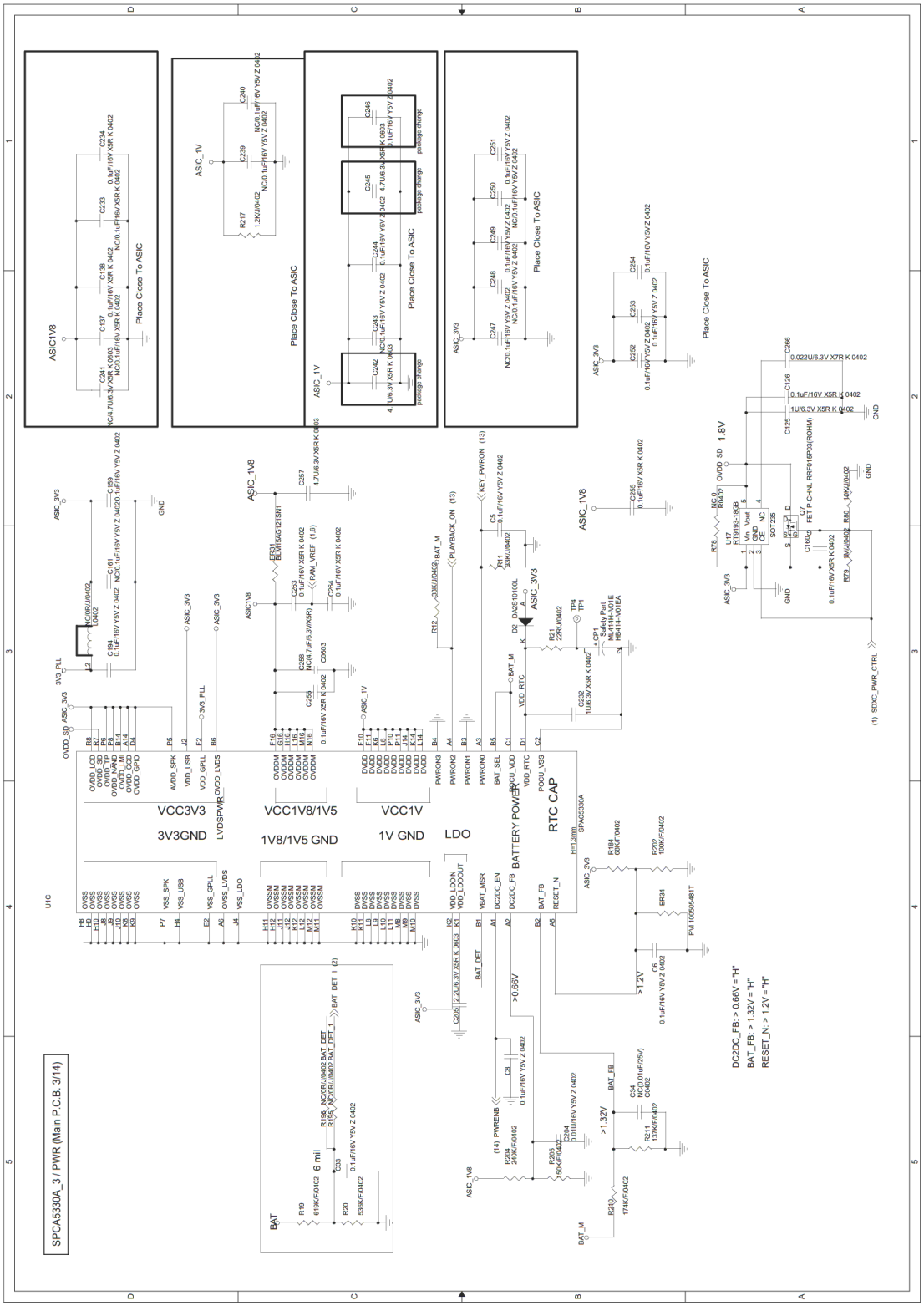
1. All parts are supplied from PAVCX.

Model No. : DMC-LZ20 SPCA5330A_1 (Main P.C.B. 1/14)

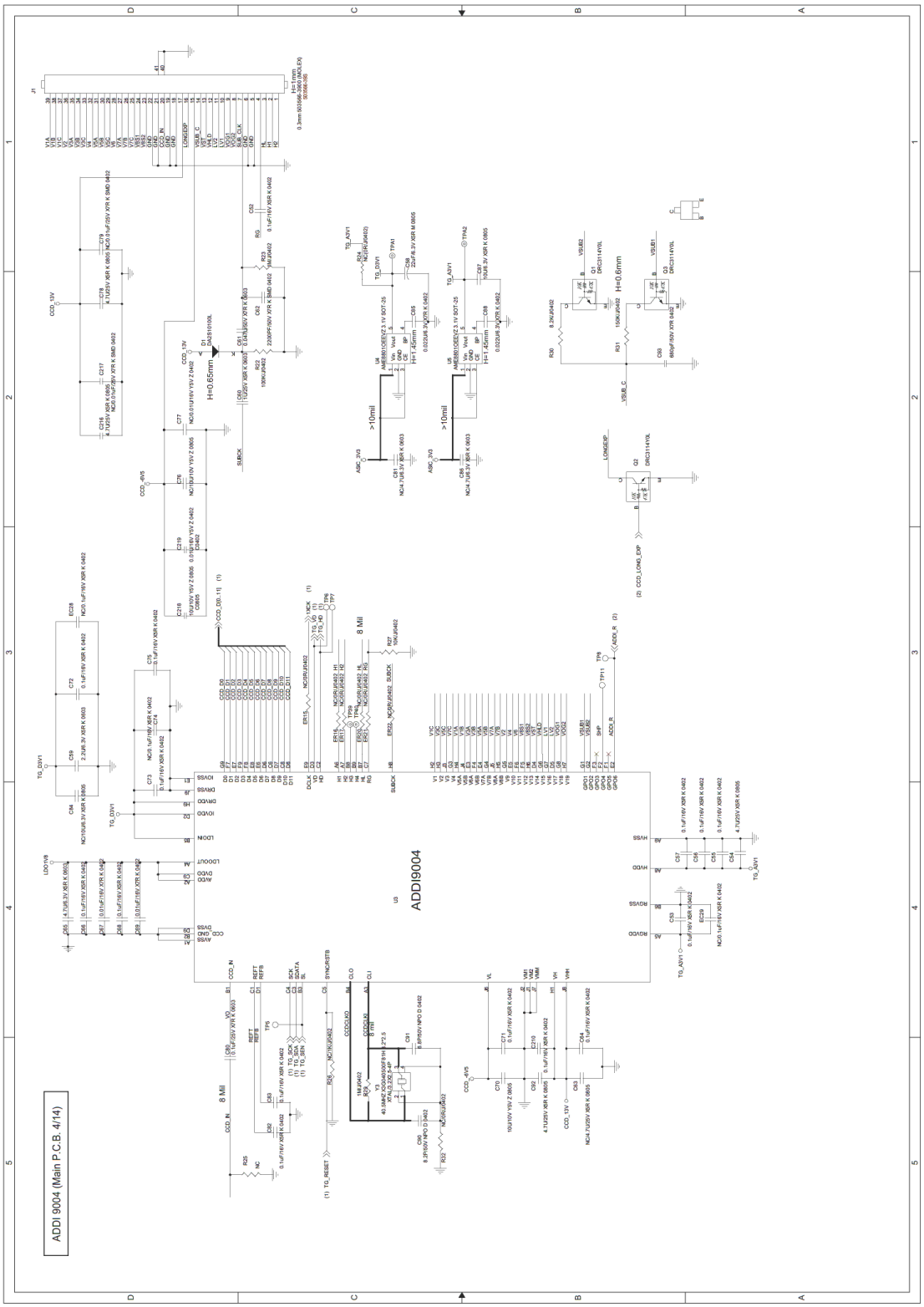



SPCA5330A_2 (Main P.C.B. 2/14)
U1B
FLASH IF
GPIO
USB
TV
AUDIO IN
ADC
UART
UR
AUDIO OUT
SPCA5330A
ZOOM_Direct_PI (11)
Gyro_SPI_DI (9)
SP_SCK (9,11,12)
SP_SDA (9,11,12)
ISP (10)
GND
SD_CARD_DETECT# (8)
FLASH_CHARGE (13)
TV_DET (10)
Flash_Detect (13)
AUD_LINEOUT
IC14
1U/6.3V/Y5V/Z/0402
AUDIO (10)
USBIN (10)
USBD_N (10)
USBD_P (10)
CVBS (10)
MICENB (7)
MIC_P (7)
MIC_N (7)
KEY_ENTER_MENU_DEL (13)
KEY_4_WAY (13)
MODE_DIAL (13)
LENS_THERMAL_DETECT (11)
BAT_DET_1 (3)
ASIC_3V3
R1 NC/10K/J/0402
C201 0.1uF/16V X5R K 0402
C202 0.1uF/16V X5R K 0402
R201 1.5K/J/0402
Y1 32.768KHz/MC-146
Y2 27MHz HSX321G XTAL/3.2X2.5-4P
R8 1M/J/0402
R7 33K/J/0402
C1 10P/50V NPO J 0402
C2 12pF/50V NPO J 0402
C3 10P/50V NPO J 0402
C4 10P/50V NPO J 0402
UART-PADB
UR_TP1
TP3
TESTMODE
HH1.3mm

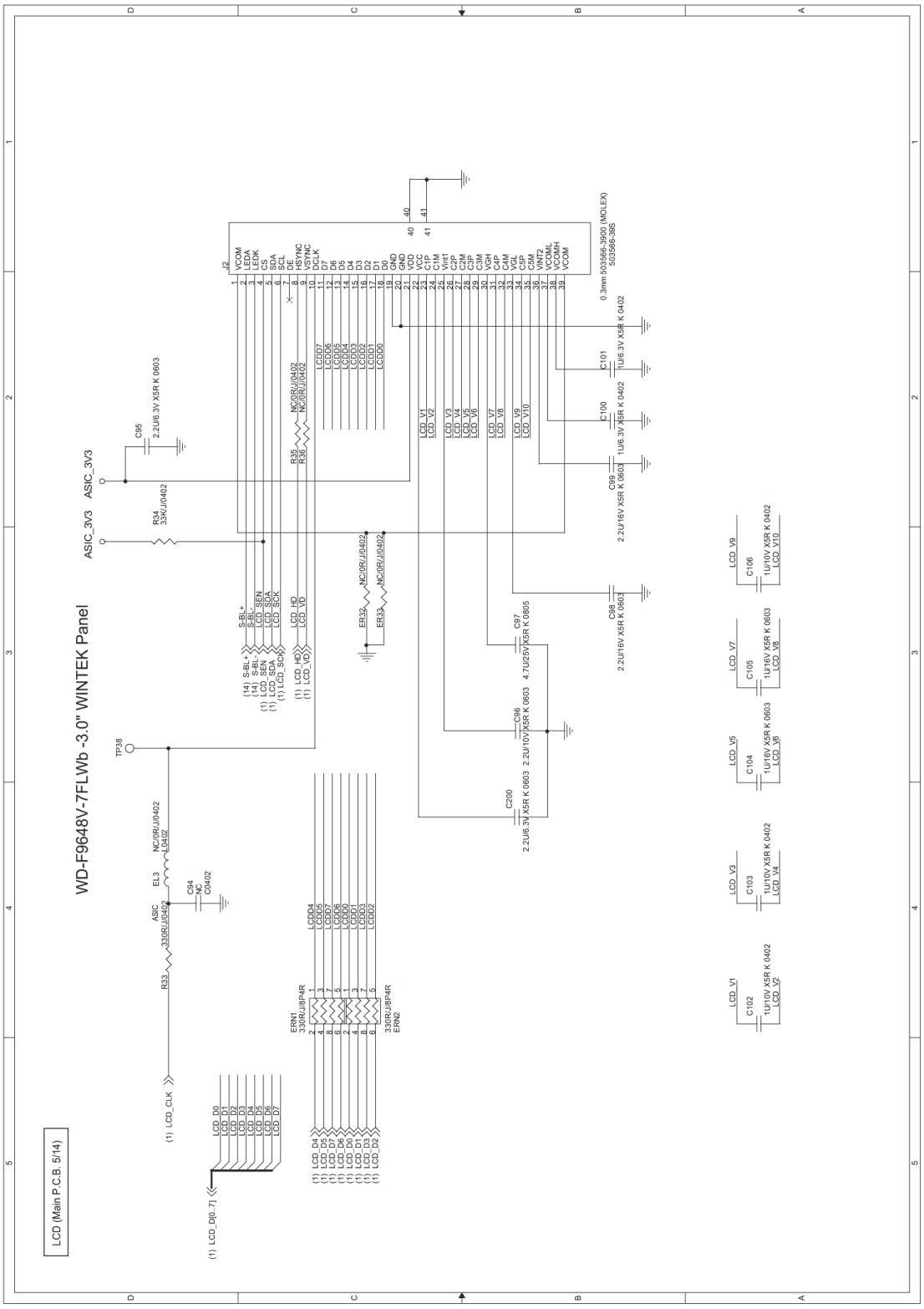
Model No. : DMC-LZ20 SPCA5330A_3 / PWR (Main P.C.B. 3/14)

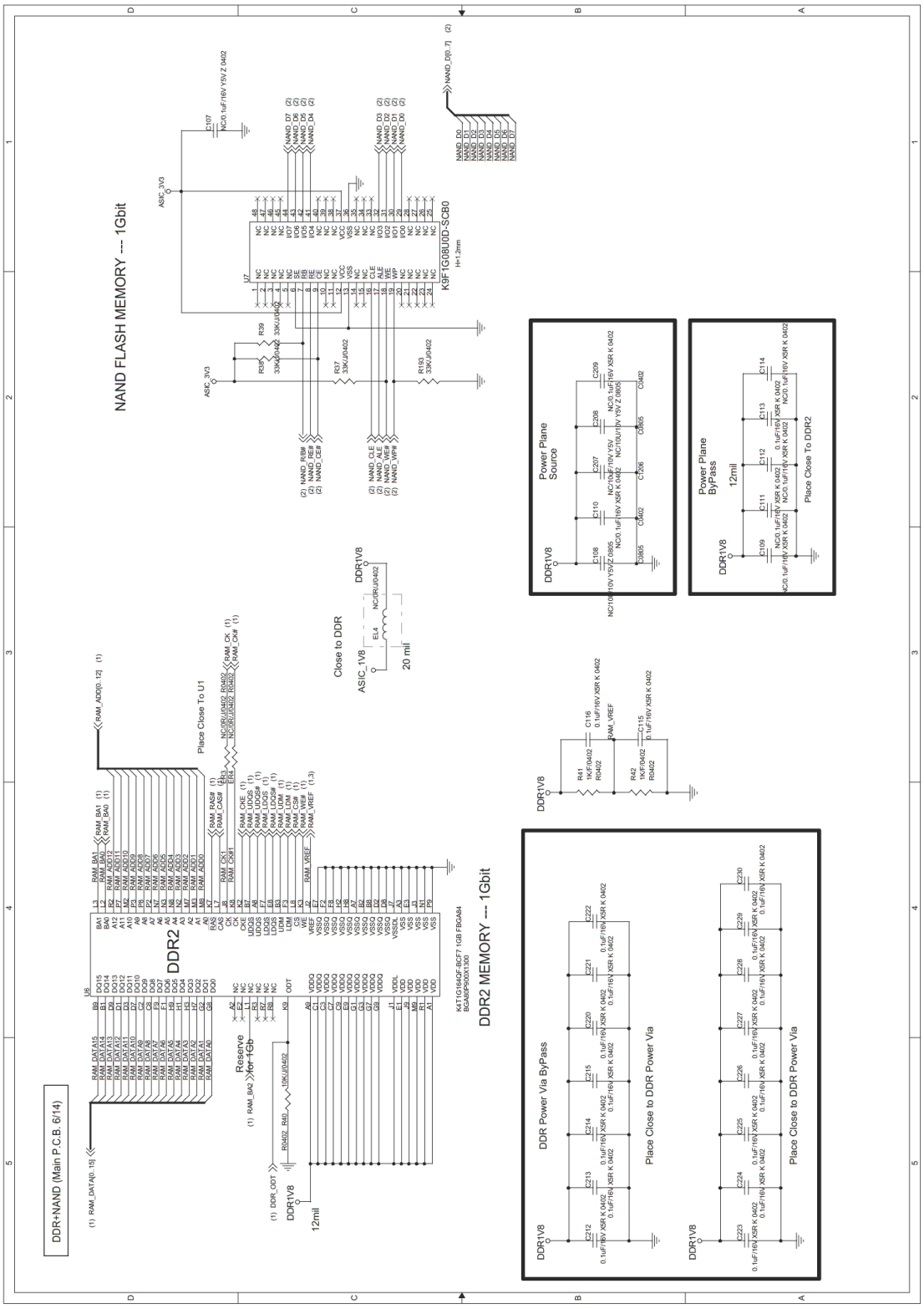


Model No. : DMC-LZ20 ADDI 9004 (Main P.C.B. 4/14)

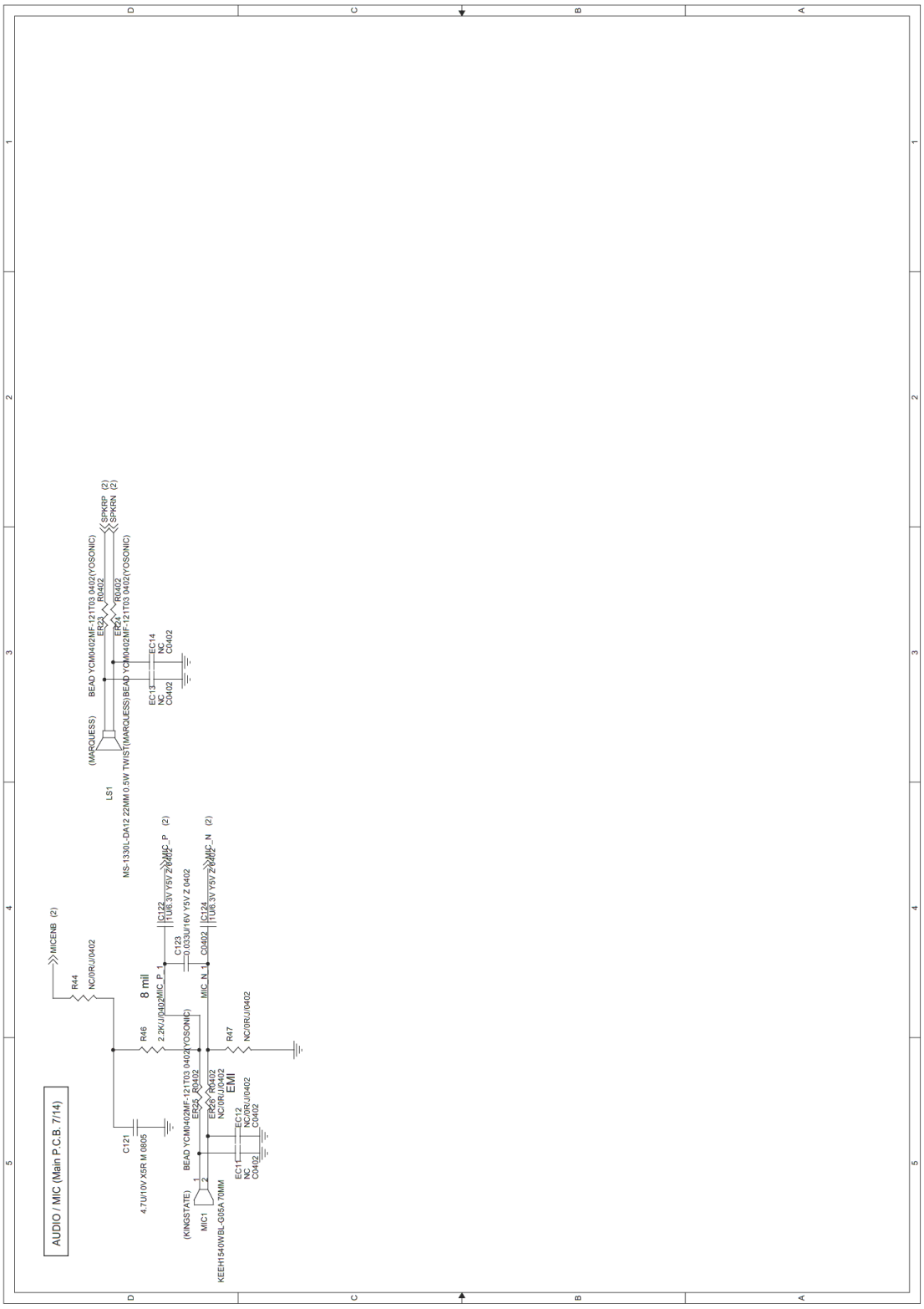


Model No. : DMC-LZ20 LCD (Main P.C.B. 5/14)

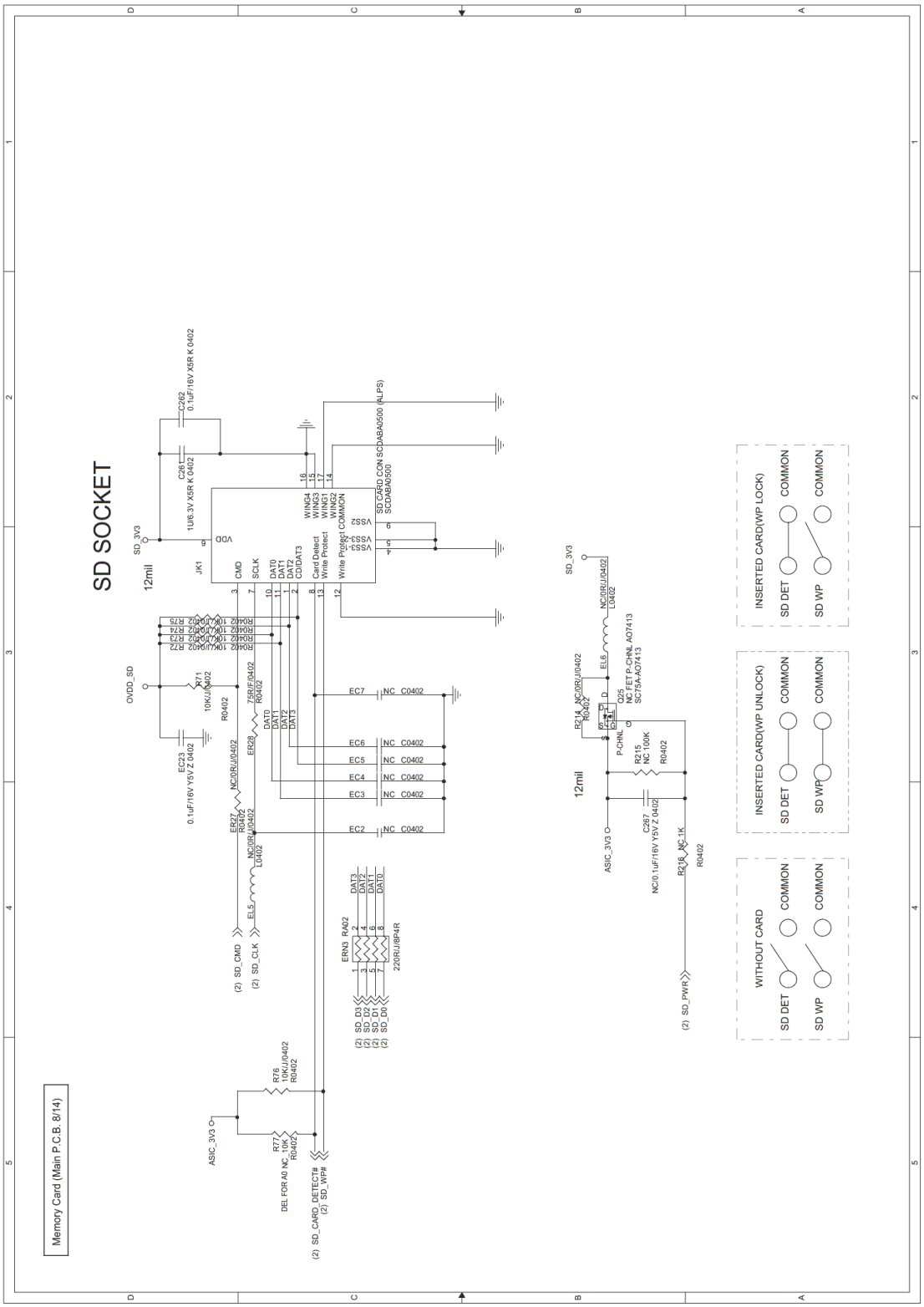



DDR+NAND (Main P.C.B. 6/14)
NAND FLASH MEMORY --- 1Gbit
DDR2 MEMORY --- 1Gbit
K9F1G08U0D-SCB0
K4T1G1644F-BCF7 1GB FBGA84
DDR2
Place Close To U1
Close to DDR
Reserve for 1Gb
Power Plane Source
Power Plane ByPass
DDR Power Via ByPass
Place Close to DDR Power Via
Place Close To DDR2
DDR1V8
ASIC_3V3
ASIC_1V8
12mil
20 mil

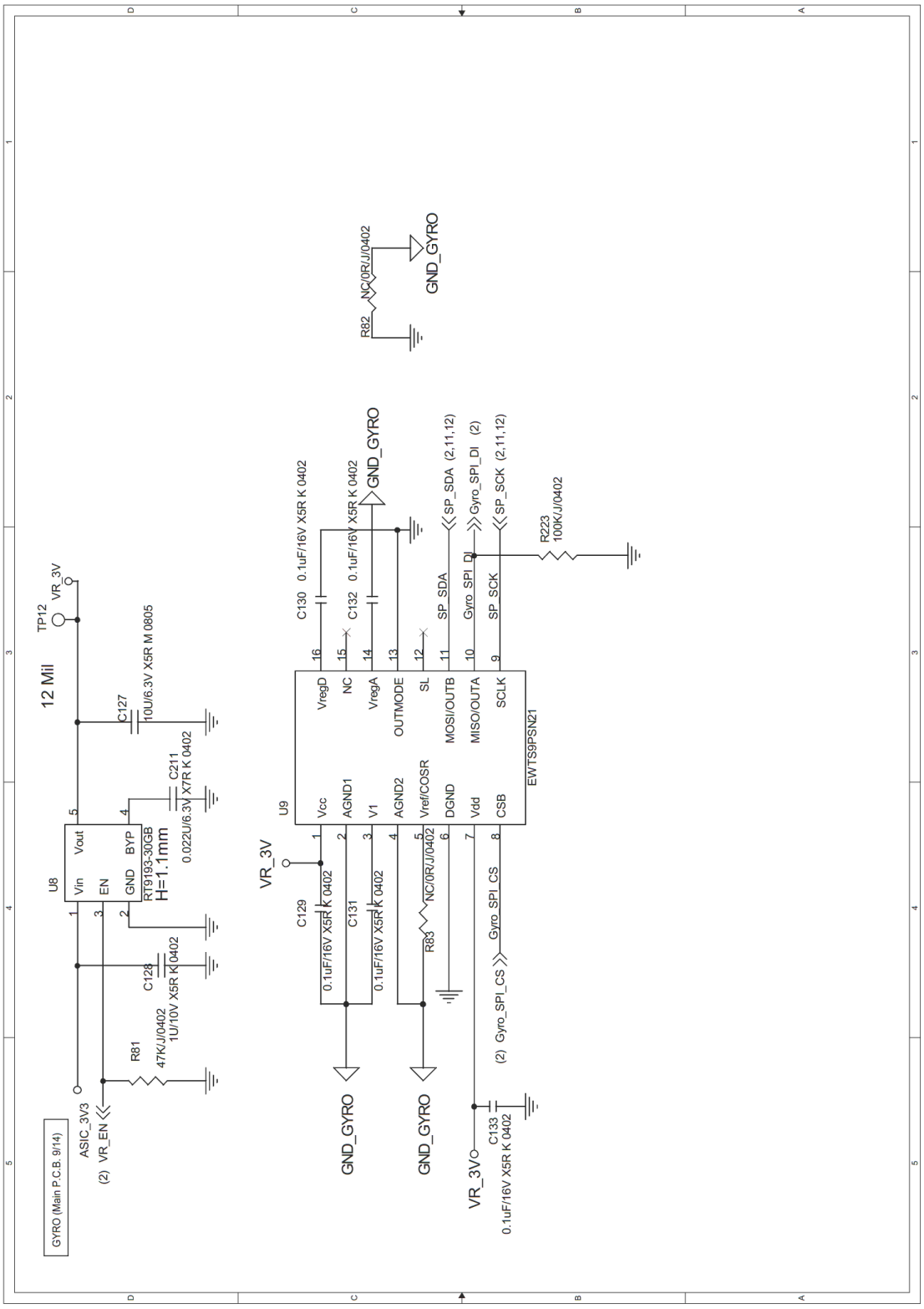
Model No. : DMC-LZ20 AUDIO / MIC (Main P.C.B. 7/14)



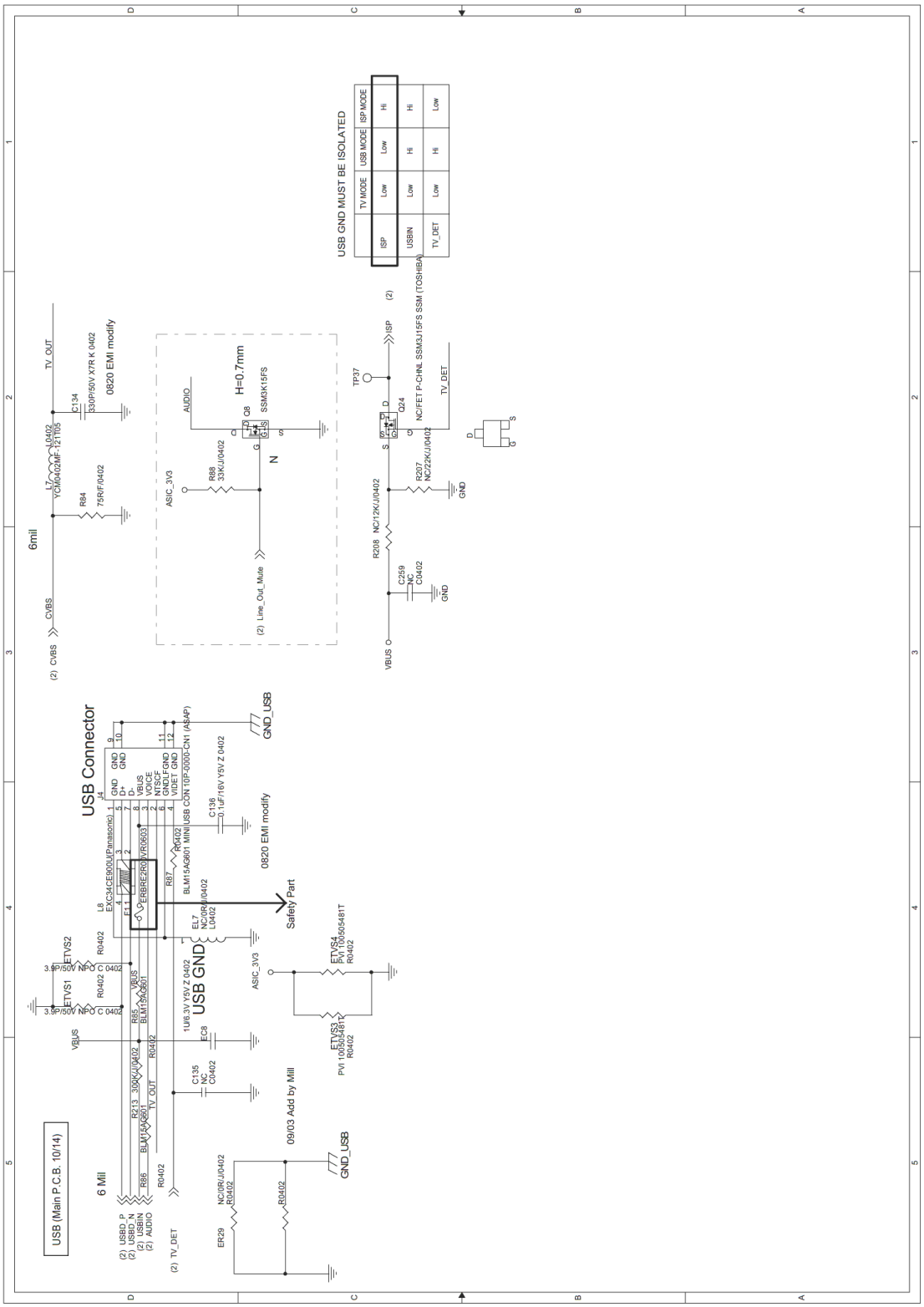
Model No. : DMC-LZ20 Memory Card (Main P.C.B. 8/14)

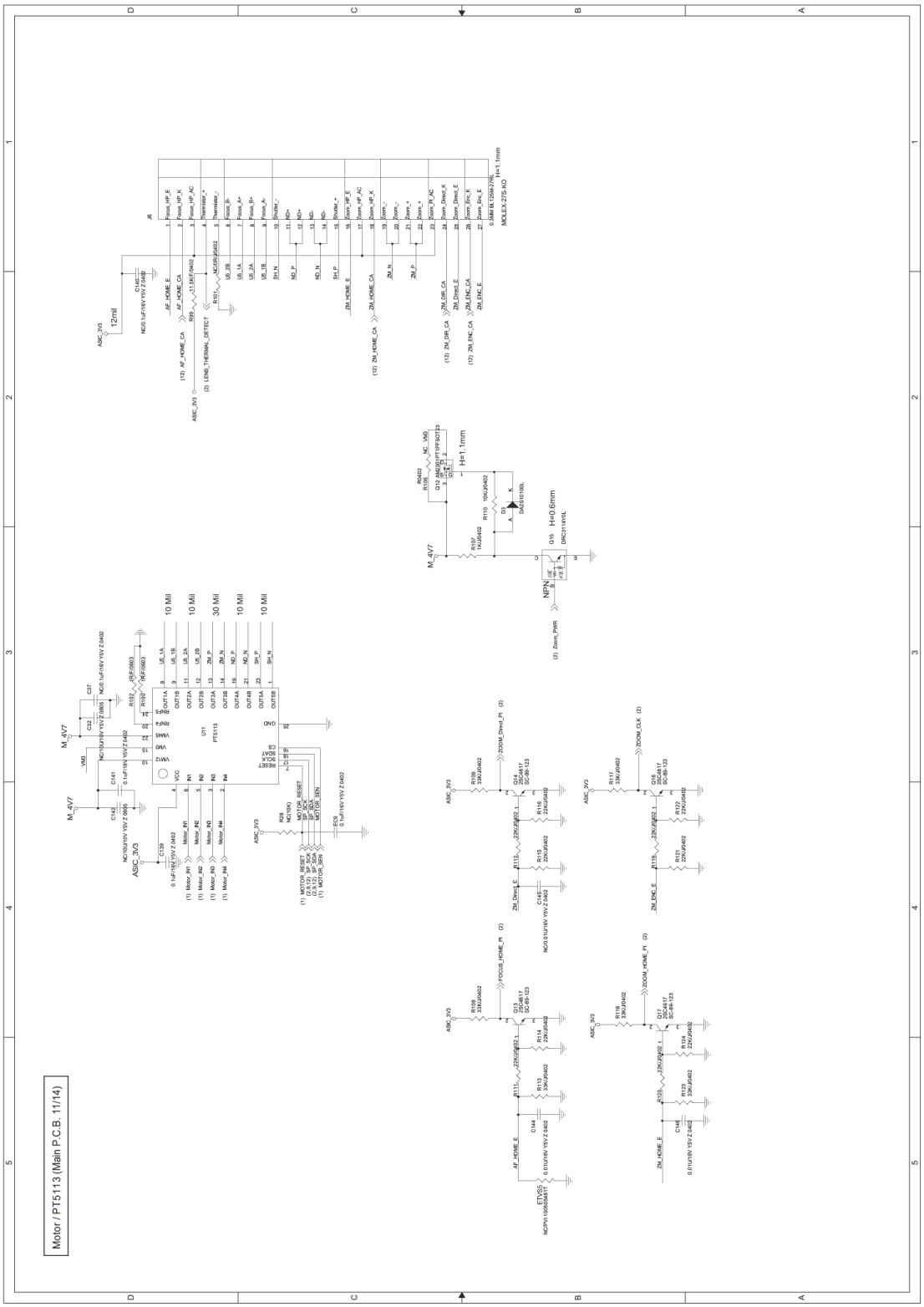


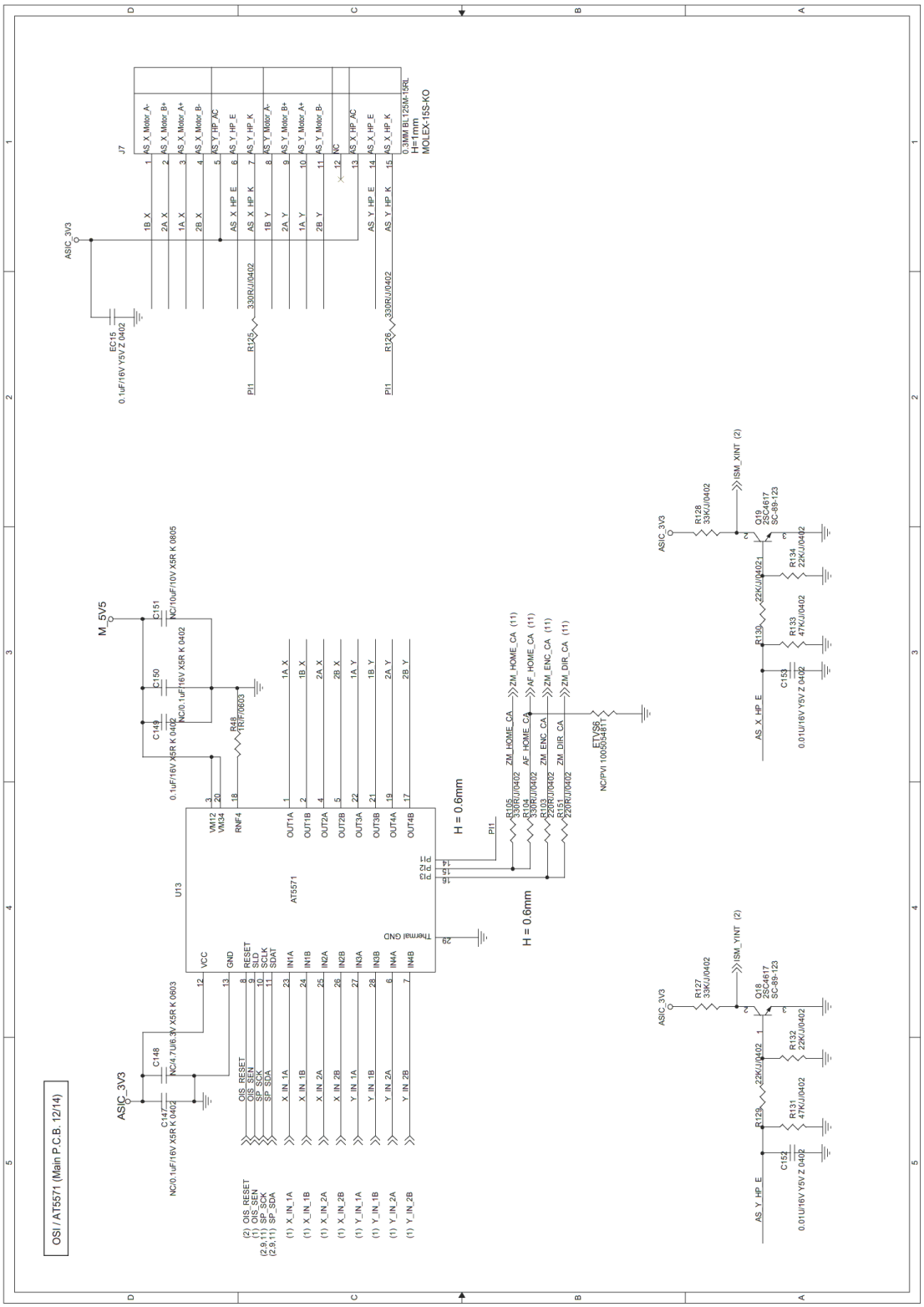
Model No. : DMC-LZ20 GYRO (Main P.C.B. 9/14)

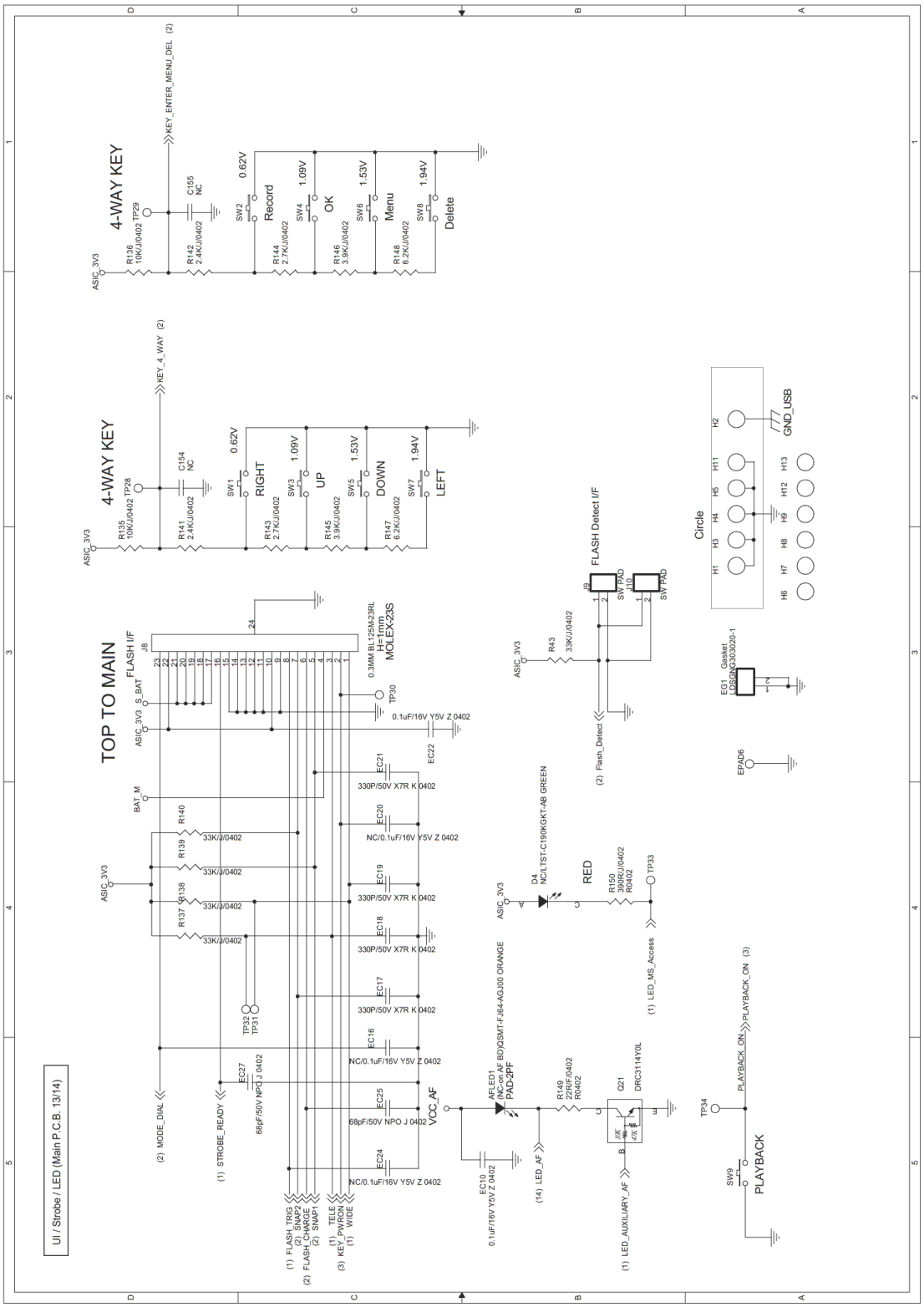


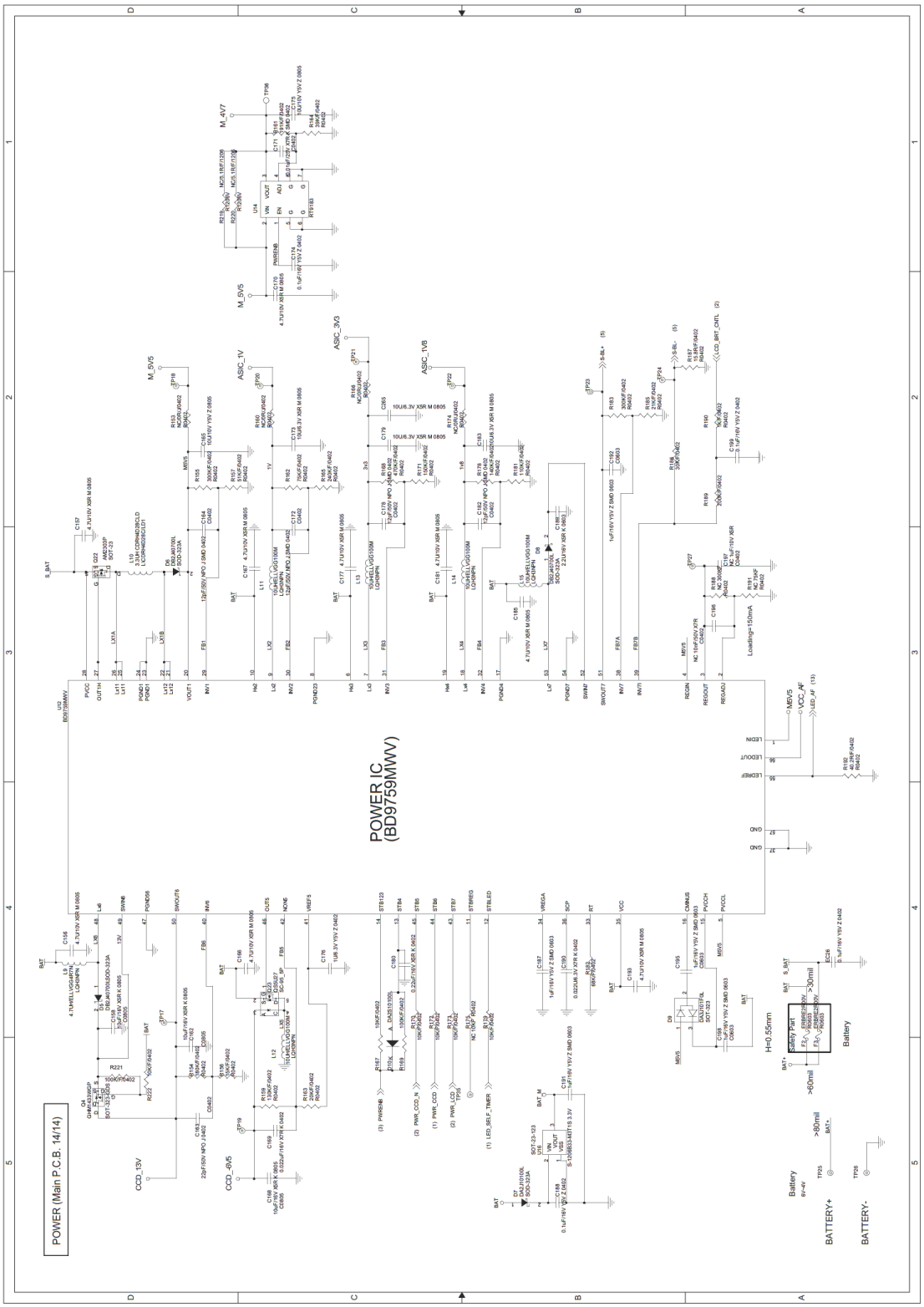
Model No. : DMC-LZ20 USB (Main P.C.B. 10/14)



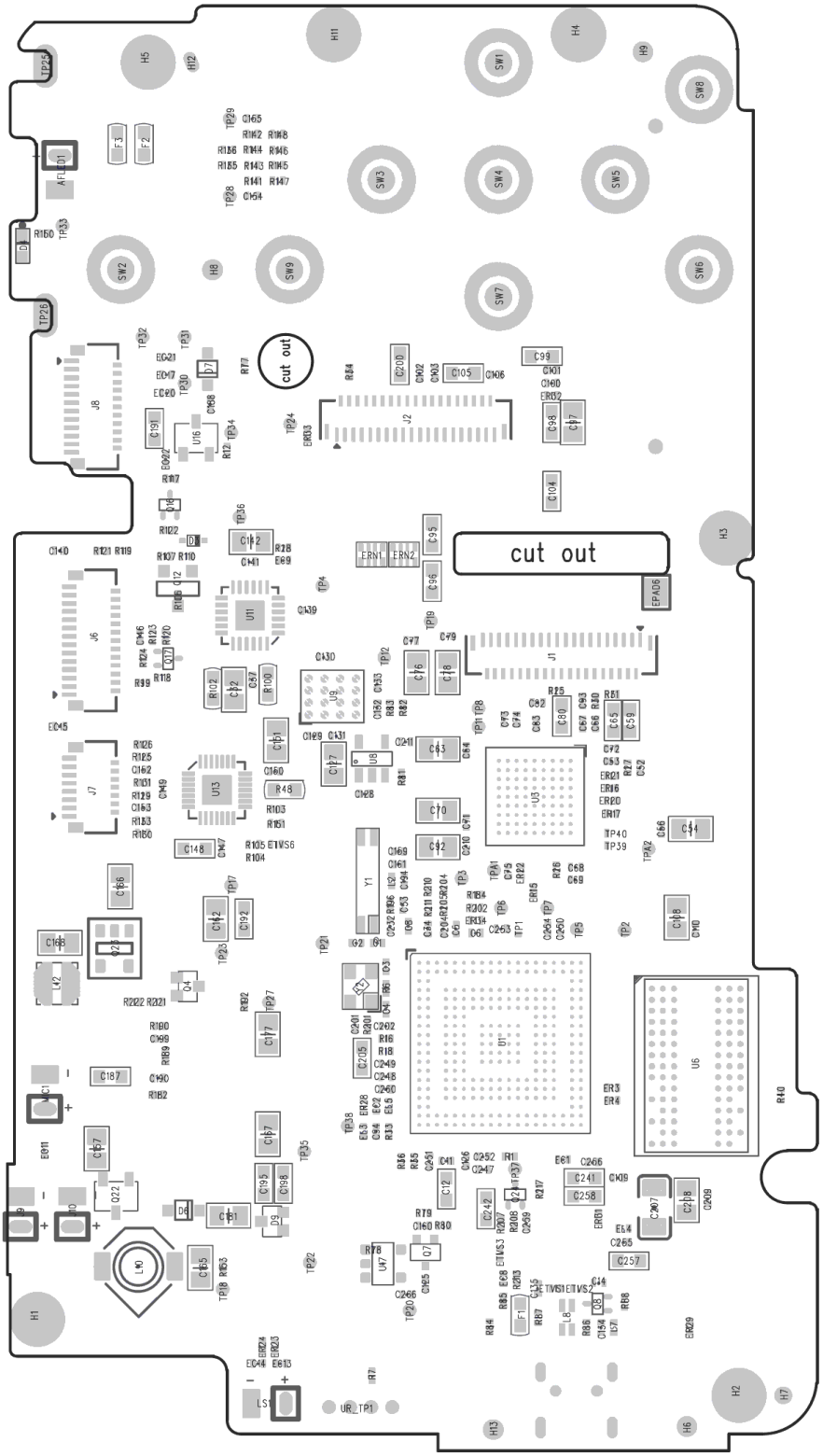

Motor / PT5113 (Main P.C.B. 11/14)


OSI / AT5571 (Main P.C.B. 12/14)
ASIC_3V3
M_5V5
U13
AT5571
VCC
GND
Thermal GND
RESET
SLD
SCLK
SDAT
OUT1A
OUT1B
OUT2A
OUT2B
OUT3A
OUT3B
OUT4A
OUT4B
IN1A
IN1B
IN2A
IN2B
IN3A
IN3B
IN4A
IN4B
VM12
VM34
RNF4
H = 0.6mm
J7
0.3MM BL*25NI-15RL
H=1mm
MOLEX-15S-KO
C147
C148
C149
C150
C151
R46
R105
R104
R103
R102
R125
R126
R127
R128
R129
R130
R131
R132
R133
R134
R135
R136
C152
C153
C154
C155
Q18
Q19
2SC4617
SC-89-123
ISM_YINT (2)
ISM_XINT (2)
ZM_HOME_CA (11)
AF_HOME_CA (11)
ZM_ENC_CA (11)
ZM_DIR_CA (11)
OIS_RESET
OIS_SEN
SP_SCK
SP_SDA
X_IN_1A
X_IN_1B
X_IN_2A
X_IN_2B
Y_IN_1A
Y_IN_1B
Y_IN_2A
Y_IN_2B
AS_X_Motor_A-
AS_X_Motor_B+
AS_X_Motor_A+
AS_X_Motor_B-
AS_Y_HP_AC
AS_Y_HP_E
AS_Y_HP_K
AS_Y_Motor_A-
AS_Y_Motor_B+
AS_Y_Motor_A+
AS_Y_Motor_B-
AS_X_HP_AC
AS_X_HP_E
AS_X_HP_K

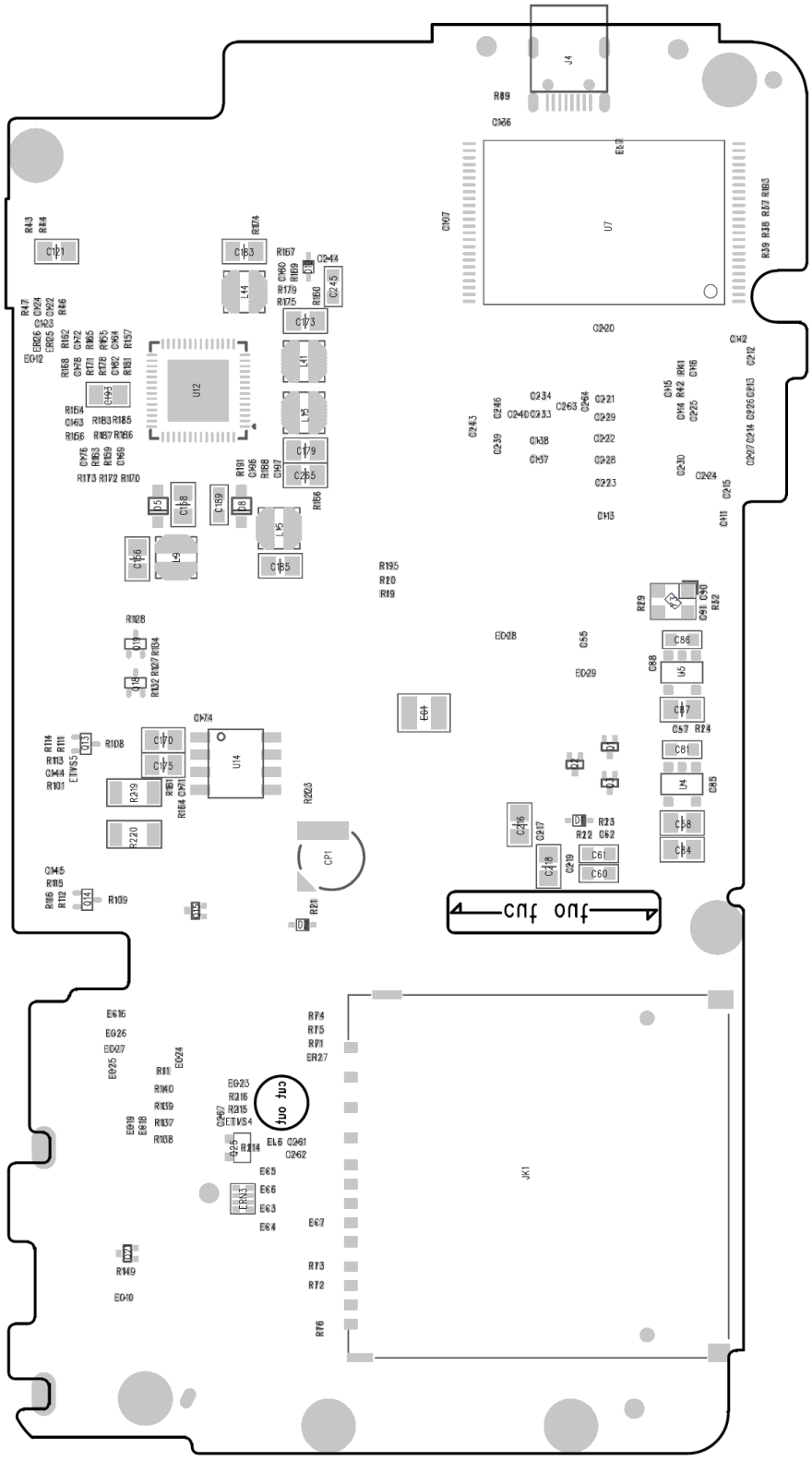

UI / Strobe / LED (Main P.C.B. 13/14)
TOP TO MAIN
FLASH I/F
J8
0.3MM BL125M-23RL
H=1mm
MOLEX-22S
4-WAY KEY
KEY_4_WAY (2)
KEY_ENTER_MENU_DEL (2)
RIGHT
UP
DOWN
LEFT
Record
OK
Menu
Delete
0.62V
1.09V
1.53V
1.94V
ASIC_3V3
S_BAT
BAT_M
VCC_AF
(2) MODE_DIAL
(1) STROBE_READY
(1) FLASH_TRIG
(2) SNAP2
(2) FLASH_CHARGE
(2) SNAP1
(1) TELE
(3) KEY_PWRON
(1) WIDE
FLASH Detect I/F
(2) Flash_Detect
SW PAD
Circle
GND_USB
Gasket
EPAD6
RED
D4
NCJLTST-C190KGKT-AB GREEN
AFLED1
PLAYBACK
PLAYBACK_ON
PLAYBACK_ON (3)
(1) LED_MS_Access
(1) LED_AUXILIARY_AF
(14) LED_AF
Q21
DRC3114Y0L


POWER (Main P.C.B. 14/14)
POWER IC
(BD9759MWV)
S_BAT
M_5V5
M_4V7
ASIC_3V3
ASIC_1V8
ASIC_1V
CCD_13V
CCD_4V5
M5V5
VCC_AF
Battery
BATTERY+
BATTERY-
H=0.55mm
>80mil
>60mil
>30mil

Model No. : DMC-LZ20 Main P.C.B. (Component side)



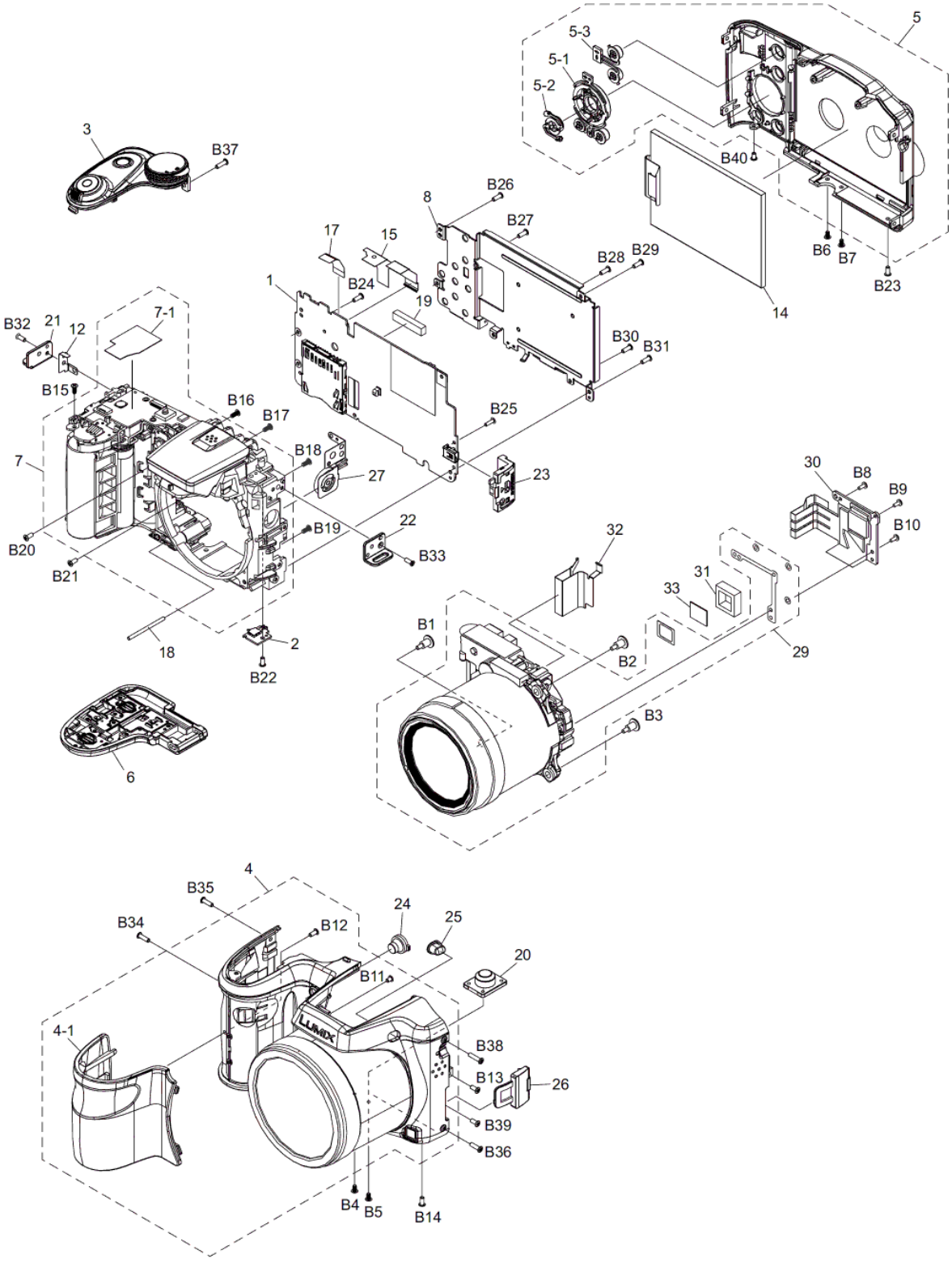
Model No. : DMC-LZ20 Main P.C.B. (Foil side)



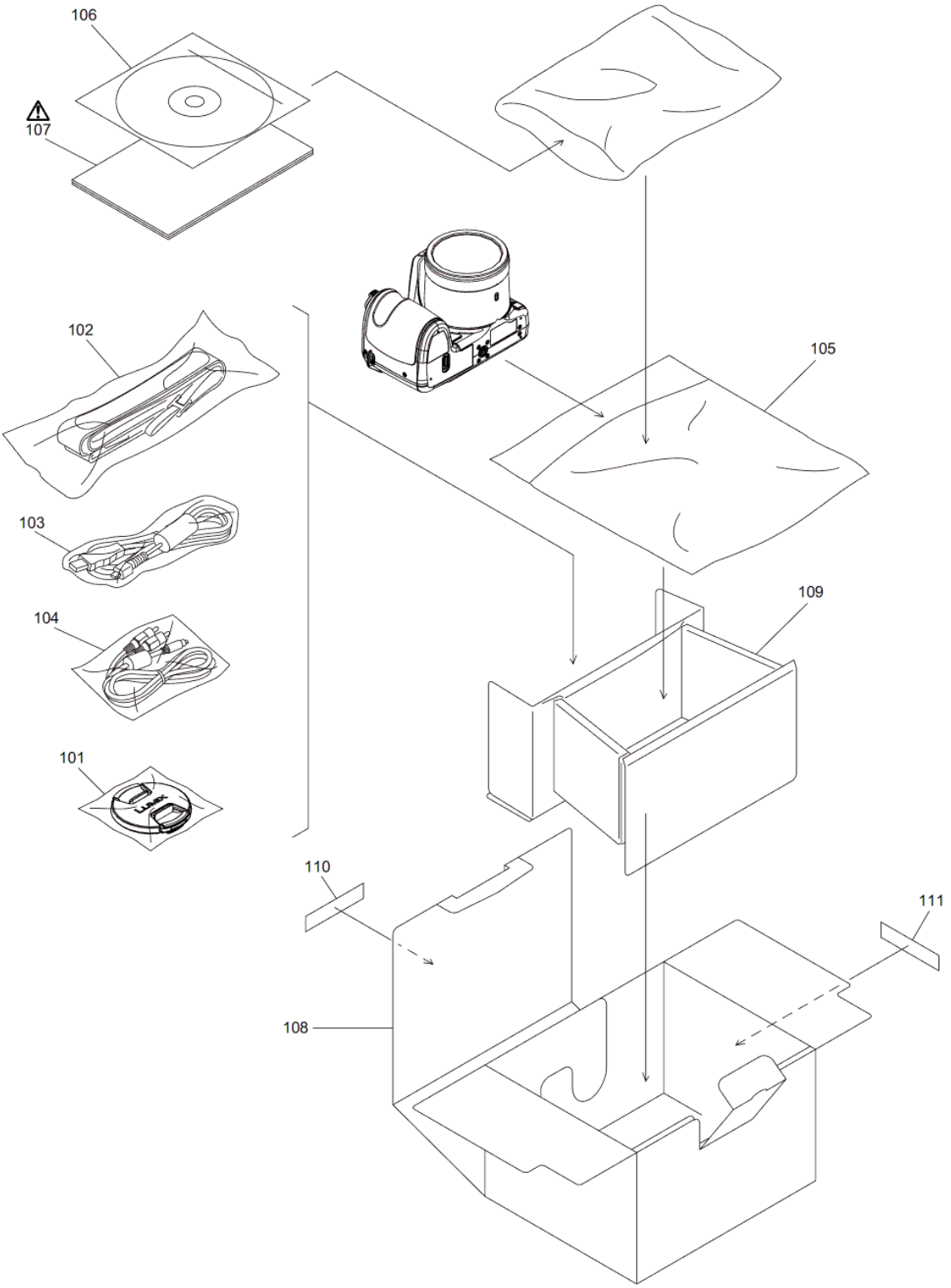
Model No. : DMC-LZ20 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	U1	VUAVG0E00001	IC	1	
	U3	VUAVG0E00002	IC	1	
	U4	VUAVG0E00003	IC	1	
	U5	VUAVG0E00003	IC	1	
	U6	VUAVG0E00004	IC	1	
	U7	VUAVG0E00005	IC	1	
	U8	VUAVG0E00006	IC	1	
	U9	VUAVG0E00007	IC	1	
	U11	VUAVG0E00008	IC	1	
	U12	VUAVG0E00009	IC	1	
	U13	VUAVG0E00010	IC	1	
	U14	VUAVG0E00011	IC	1	
	U16	VUAVG0E00012	IC	1	
	U17	VUAVG0E00013	IC	1	
⚠	F1	ERBRE2R00V	FUSE	1	
⚠	F2	ERBRE2R00V	FUSE	1	
⚠	F3	ERBRE2R00V	FUSE	1	
	Y1	VUAVG0E00014	CRYSTAL OSCILLATOR	1	
	Y2	VUAVG0E00015	CRYSTAL OSCILLATOR	1	
	Y3	VUAVG0E00016	CRYSTAL OSCILLATOR	1	
	JK1	VUAVG0E00017	SD CARD CONNECTOR	1	
	J1	VUAVG0E00018	CONNECTOR 39P	1	
	J2	VUAVG0E00018	CONNECTOR 39P	1	
	J4	VUAVG0E00019	JACK	1	
	J6	VUAVG0E00020	CONNECTOR 27P	1	
	J7	VUAVG0E00021	CONNECTOR 15P	1	
	J8	VUAVG0E00022	CONNECTOR 23P	1	

Model No. : DMC-LZ20 Frame and Casing Section



Model No. : DMC-LZ20 Packing Parts and Accessories



Model No. : DMC-LZ20 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	1	VUAVG0P00001	MAIN PCB	1	
	2	VUAVG0P00002	SW PCB	1	
	3	VUAVG0M00001	TOP CASE UNIT	1	
	4	VUAVG0M00002	FRONT CASE UNIT	1	(-K)
	4	VUAVG0M00003	FRONT CASE UNIT	1	(-R)
	4-1	VUAVG0M00015	GRIP PIECE FRONT	1	
	5	VUAVG0M00004	REAR CASE UNIT	1	(-K)
	5	VUAVG0M00005	REAR CASE UNIT	1	(-R)
	5-1	VUAVG0M00011	CURSOR BUTTON	1	
	5-2	VUAVG0M00012	MENU BUTTON	1	
	5-3	VUAVG0M00013	PLAY BUTTON	1	
	6	VUAVG0M00006	BATTERY DOOR UNIT	1	(-K)
	6	VUAVG0M00007	BATTERY DOOR UNIT	1	(-R)
	7	VUAVG0M00008	FRAME UNIT	1	(-K)
	7	VUAVG0M00009	FRAME UNIT	1	(-R)
	7-1	VUAVG0M00018	FLASH SHEET	1	
	8	VUAVG0M00010	FRAME PLATE	1	
	12	VUAVG0M00014	PLATE L	1	
	14	VUAVG0M00016	LCD UNIT	1	
	15	VUAVG0M00017	FPC SHEET 1	1	
	17	VUAVG0M00019	FLASH FPC	1	
	18	VUAVG0M00020	BATTERY DOOR SHAFT	1	
	19	VUAVG0M00021	FPC SHEET 2	1	
	20	VUAVG0M00022	TRIPOD	1	
	21	VUAVG0M00023	STRAP L	1	
	22	VUAVG0M00024	STRAP R	1	
	23	VUAVG0M00025	JACK HOLDER	1	
	24	VUAVG0M00026	AF LIGHT COVER	1	
	25	VUAVG0M00027	FLASH OPEN BUTTON	1	
	26	VUAVG0M00028	JACK COVER	1	
	27	VUAVG0M00029	SPEAKER UNIT	1	
	29	VUAVG0M00031	LENS UNIT(W/O CCD) KIT	1	
	30	VUAVG0M00032	CCD UNIT	1	
	31	VUAVG0M00033	LENS RUBBER	1	
	32	VUAVG0M00034	LENS PLATE UNIT	1	
	33	VUAVG0M00035	IR FILTER	1	
	B1	VUAVG0S00001	SCREW	1	
	B2	VUAVG0S00001	SCREW	1	
	B3	VUAVG0S00001	SCREW	1	
	B4	VUAVG0S00002	SCREW	1	
	B5	VUAVG0S00002	SCREW	1	
	B6	VUAVG0S00002	SCREW	1	
	B7	VUAVG0S00002	SCREW	1	
	B8	VUAVG0S00005	SCREW	1	
	B9	VUAVG0S00005	SCREW	1	
	B10	VUAVG0S00005	SCREW	1	
	B11	VUAVG0S00006	SCREW	1	
	B12	VUAVG0S00007	SCREW	1	
	B13	VUAVG0S00007	SCREW	1	
	B14	VUAVG0S00007	SCREW	1	
	B15	VUAVG0S00007	SCREW	1	
	B16	VUAVG0S00007	SCREW	1	
	B17	VUAVG0S00007	SCREW	1	
	B18	VUAVG0S00007	SCREW	1	
	B19	VUAVG0S00007	SCREW	1	
	B20	VUAVG0S00007	SCREW	1	
	B21	VUAVG0S00007	SCREW	1	
	B22	VUAVG0S00007	SCREW	1	
	B23	VUAVG0S00007	SCREW	1	
	B24	VUAVG0S00008	SCREW	1	
	B25	VUAVG0S00008	SCREW	1	
	B26	VUAVG0S00008	SCREW	1	

Model No. : DMC-LZ20 Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	B27	VUAVG0S00008	SCREW	1	
	B28	VUAVG0S00008	SCREW	1	
	B29	VUAVG0S00008	SCREW	1	
	B30	VUAVG0S00008	SCREW	1	
	B31	VUAVG0S00008	SCREW	1	
	B32	VUAVG0S00009	SCREW	1	
	B33	VUAVG0S00009	SCREW	1	
	B34	VUAVG0S00010	SCREW	1	
	B35	VUAVG0S00010	SCREW	1	
	B36	VUAVG0S00010	SCREW	1	
	B37	VUAVG0S00010	SCREW	1	
	B38	VUAVG0S00011	SCREW	1	
	B39	VUAVG0S00013	SCREW	1	
	B40	VUAVG0S00013	SCREW	1	
	101	VYQ8058	LENS CAP UNIT	1	
	102	VFC4903	SHOULDER STRAP	1	
	103	K1HY08YY0030	USB CONNECTION CABLE	1	
	104	K1HY08YY0029	AV CABLE	1	
	105	VUAVG0A00001	CAMERA BAG	1	
	106	VFF1055	CD-ROM	1	P/PU
	106	VFF1056	CD-ROM	1	E
	106	VFF1057	CD-ROM	1	EE/GC/GF/GW/GN
	106	VFF1058	CD-ROM	1	GK
⚠	107	VQT4K45	BASIC O/I (ENGLISH/SPANSH)	1	P
⚠	107	VQT4K46	BASIC O/I (SPANISH/PORTUGUESE)	1	PU
⚠	107	VQT4K47	BASIC O/I (GERMAN/FRENCH)	1	E
⚠	107	VQT4K48	BASIC O/I (ITALIAN/DUTCH)	1	E
⚠	107	VQT4K49	BASIC O/I (SPANISH/PORTUGUESE)	1	E
⚠	107	VQT4K50	BASIC O/I (ENGLISH/POLISH)	1	E
⚠	107	VQT4K51	BASIC O/I (CZECH/HINDI)	1	E
⚠	107	VQT4K52	BASIC O/I (TURKISH)	1	E
⚠	107	VQT4K53	BASIC O/I (RUSSIAN/UKRAINIAN)	1	EE
⚠	107	VQT4K54	BASIC O/I (ENGLISH/CHINESE(TRADITIONAL))	1	GC/GF/GW
⚠	107	VQT4K55	BASIC O/I (ARABIC/PERSIAN)	1	GC/GF/GW
⚠	107	VQT4K56	BASIC O/I (VIETNAMESE)	1	GC
⚠	107	VQT4K57	BASIC O/I (CHINESE(SIMPLIFIED))	1	GK
⚠	107	VQT4K58	BASIC O/I (ENGLISH)	1	GN
	108	VPK5432	PACKING CASE	1	P
	108	VPK5433	PACKING CASE	1	(-K) PU/E/EE/GC/GN
	108	VPK5434	PACKING CASE	1	GF/GW
	108	VPK5435	PACKING CASE	1	GK
	109	VPN7480	CUSHION	1	
	110	VQL2U92	COLOR LABEL(RED)	1	(-R) E/EE
	111	VQL2U92	COLOR LABEL(RED)	1	(-R) E/EE