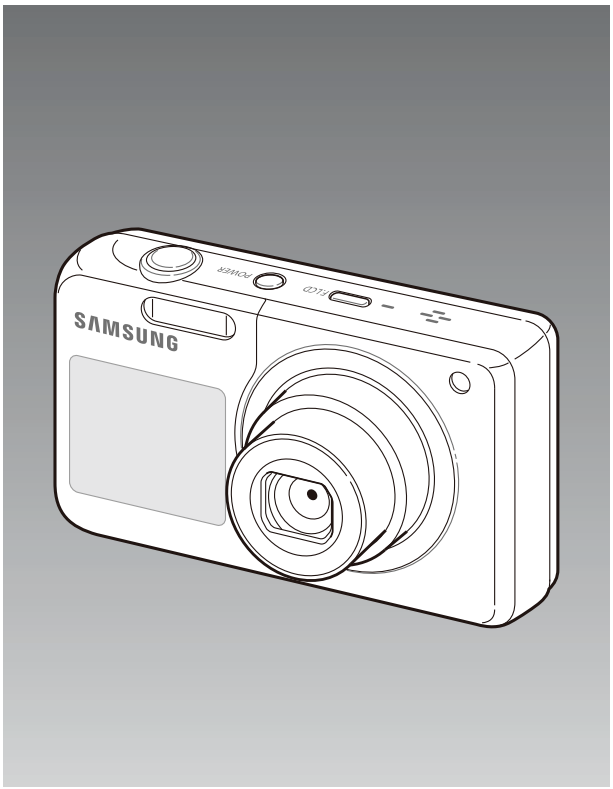
SAMSUNG

DIGITAL CAMERA

SAMSUNG PL120/PL121

SERVICE MANUAL

DIGITAL CAMERA



Contents

Refer to the service manual in the GSPN (see the rear cover) for more information.

Contents

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1. Product Specification

1.1. Specifications

Image sensor	
Type	1/2.3" (Approximately 7.76 mm) CCD
Effective pixels	Approximately 14.2 mega-pixels
Total pixels	Approximately 14.4 mega-pixels
Lens	
Focal length	Samsung Lens f = 4.7 mm-23.5 mm (35 mm film equivalent: 26 mm-130 mm)
F-stop range	F3.3 (W)-F5.9 (T)
Digital zoom	• Still image mode: 1.0X-5.0X • Playback mode: 1.0X-13.5X
Intelli-zoom	Maximum 2.0X
Display	
Type	TFT LCD
Feature	• Main display: 2.7" (6.9 cm) QVGA (230K) • Front display: 1.5" (3.8 cm) 61 K/ TFT LCD
Focusing	
Type	TTL auto focus (Multi AF, Center AF, Face Detection AF, Tracking AF, Smart Face Recognition AF)

• Range

Range	Normal	Macro	Auto Macro
Wide	80 cm-infinity	5cm ~ 80cm	5cm ~ Infinity
Tele	100cm ~ Infinity	100cm ~ 150cm	100cm ~ Infinity

Shutter speed	
• Smart Auto: 1/8-1/2,000 sec. • Program: 1-1/2,000 sec. • Night: 8-1/2,000 sec. • Fireworks: 2 s.	
Exposure	
Control	Program AE
Metering	Multi, Spot, Center-weighted, Face Detection
Compensation	±2EV (1/3 EV Step)
ISO equivalent	Auto, ISO 80, ISO 100, ISO 200, ISO 400, ISO 800, ISO 1600, ISO 3200
Flash	
Mode	Auto, Red-eye, Fill in, Slow Sync, Off, Red-eye Fix
Range	• Wide: 0.2 m-3.5 m (ISO Auto) • Tele: 1.0 m-2.5 m (ISO Auto)

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Recharging time	Approximately 4 sec.
Shake reduction	
Digital Image Stabilization (DIS)	
White Balance	
Auto WB, Daylight, Cloudy, Fluorescent_H, Fluorescent_L, Tungsten, Custom Set	
Voice Recording	
Voice Recording (max. 10 hours) Voice Memo in Still Image (max. 10 sec.)	
Date Imprinting	
Date & Time, Date, Off	
Picture Taking	
Photos	• Modes: Smart Auto (Portrait, Night Portrait, Backlight Portrait, Night, Backlight, Landscape, White, Natural Green, Blue Sky, Sunset, Macro, Macro text, Macro Color, Tripod, Action, Fireworks), Program, Scene (Magic Frame, Beauty Shot, Object Highlight, Night, Landscape, Text, Sunset, Dawn, Backlight, Beach & Snow) • Drive: Single, Continuous, Motion Capture, AEB • Timer: 10 Sec, 2 Sec, Double (10 Sec, 2 Sec)
Videos	• Modes: Smart Scene Detection (Landscape, Blue Sky, Natural Green, Sunset), Movie • Format: MJPEG (Max recording time: 20 min) • Size: 1280 X 720 HQ Fine (30 FPS, 15 FPS), 640 X 480 Normal (30 FPS, 15 FPS), 320 X 240 Normal (30 FPS, 15 FPS) • Frame Rate: 30 FPS, 15 FPS • Sound Alive: Sound Alive On, Sound Alive Off, Mute • Video editing (embedded): Pause during recording, Still image capture, Time trimming
Playback	
Type	Single image, Thumbnails, Multi Slide Show with Music and Effect, Movie clip, Smart Album* *Smart Album category: Type, Date, Color, Week, Face
Edit	Resize, Rotate, Image Adjust, Smart Filter, Trim
Effect	• Image Adjust: Red-eye Fix, ACB, Face Retouch, Brightness, Contrast, Saturation, Add Noise • Smart Filter: Normal, Miniature, Vignetting, Half Tone Dot, Sketch, Fish-eye, Defog, Classic, Retro, Negative, Custom RGB
Storage	
Media	• Internal memory: Approximately 29 MB • External memory (Optional): microSD card (up to 2 GB guaranteed), microSDHC card (up to 8 GB guaranteed), microSDXC card (up to 64 GB guaranteed)
File Format	• DCF, EXIF 2.21, DPOF 1.1, PictBridge 1.0 • Still Image: JPEG (DCF) • Movie Clip: MJPEG (Video: MPEG-4.AVC, Audio: AAC) • Audio file: WAV

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<table>
<tr><td>Resolution</td><td>• Image Size
<table>
<tr><th colspan="2">Image Size</th><th>Super Fine</th><th>Fine</th><th>Normal</th></tr>
<tr><td>14M</td><td>4320 x 3240</td><td>130</td><td>234</td><td>345</td></tr>
<tr><td>12M</td><td>4320 x 2880</td><td>140</td><td>254</td><td>374</td></tr>
<tr><td>10M</td><td>4320 x 2432</td><td>183</td><td>321</td><td>464</td></tr>
<tr><td>10M</td><td>3648 x 2736</td><td>166</td><td>304</td><td>438</td></tr>
<tr><td>5M</td><td>2592 x 1944</td><td>391</td><td>588</td><td>772</td></tr>
<tr><td>3M</td><td>1984 x 1488</td><td>637</td><td>846</td><td>1,065</td></tr>
<tr><td>2M</td><td>1920 x 1080</td><td>882</td><td>1,144</td><td>1,404</td></tr>
<tr><td>1M</td><td>1024 x 768</td><td>1,626</td><td>1,716</td><td>1,931</td></tr>
</table></td></tr>
<tr><td colspan="2">Effect</td></tr>
<tr><td>Photo Shooting mode</td><td>• Smart Filter: Normal, Miniature, Vignetting, Half Tone Dot, Sketch, Fish-eye, Defog, Classic, Retro, Negative, Custom RGB
• Image Adjust: Sharpness, Contrast, Saturation</td></tr>
<tr><td>Shooting mode</td><td>Smart Filter: Normal, Palette Effect 1, Palette Effect 2, Palette Effect 3, Palette Effect 4, Miniature, Vignetting, Fish-eye, Defog, Classic, Retro, Negative, Custom RGB</td></tr>
<tr><td colspan="2">Wireless network</td></tr>
<tr><td colspan="2">Wi-Fi (IEEE 802.11 b/g), AllShare</td></tr>
<tr><td colspan="2">Interface</td></tr>
<tr><td>Digital output connector</td><td>USB 2.0</td></tr>
<tr><td>Audio</td><td>Internal speaker (Mono), Microphone (Mono)</td></tr>
<tr><td>Video output</td><td>A/V: NTSC, PAL (selectable), SCC-AV20</td></tr>
<tr><td>DC power input connector</td><td>20 pin, 4.2 V</td></tr>
<tr><td colspan="2">Power Source</td></tr>
<tr><td>Rechargeable battery</td><td>Lithium-ion battery (BP-70A, 740 mAh: Min 700 mAh)</td></tr>
<tr><td colspan="2">Dimensions (WxHxD)</td></tr>
<tr><td colspan="2">3.70 x 2.15 x 0.74in (without protrusions)</td></tr>
<tr><td colspan="2">Weight</td></tr>
<tr><td colspan="2">5.41oz (without battery and memory card)</td></tr>
<tr><td colspan="2">Operating Temperature</td></tr>
<tr><td colspan="2">0 ~ 40°C (32~104°F)</td></tr>
<tr><td colspan="2">Operating Humidity</td></tr>
<tr><td colspan="2">5 ~ 85%</td></tr>
</table>

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Software
Intelli-studio

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1.2. Instructions on how to use the memory card

- Your camera supports microSD (Secure Digital), microSDHC (Secure Digital High Capacity), or microSDXC (Secure Digital eXtended Capacity) memory cards.

NOTE

To read data with a PC or memory card reader, insert the memory card into a memory card adapter.

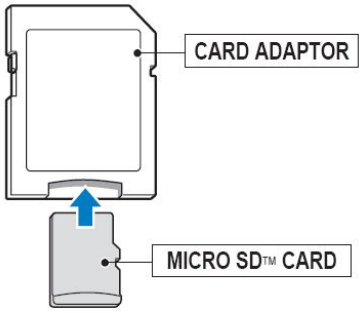

Figure 1.1 microSD memory card

- The memory capacity may differ depending on shooting scenes or shooting conditions.
- These capacities are based on a 1 GB microSD card.

Table 1.1

Recorded image size		Super Fine	Fine	Normal	30 FPS	15 FPS
*Still image	14M	130	234	345	-	-
	12M	140	254	374	-	-
	10M	183	321	464	-	-
	10M	166	304	438	-	-
	5M	391	588	772	-	-
	3M	637	846	1,065	-	-
	2M	882	1,144	1,404	-	-
	1M	1,626	1,716	1,931	-	-
*Movie clip	1280 HQ	-	-	-	Approx. 03:44	Approx. 06:21
	640	-	-	-	Approx. 09:27	Approx. 18:16
	320	-	-	-	Approx. 33:44	Approx. 1:01:24

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NOTE

- Available recording time may vary if you use the zoom.
- Several videos were recorded in succession to determine the total recording time.

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1.3. LCD monitor indicator

- The LCD monitor displays information about the shooting functions and selections.

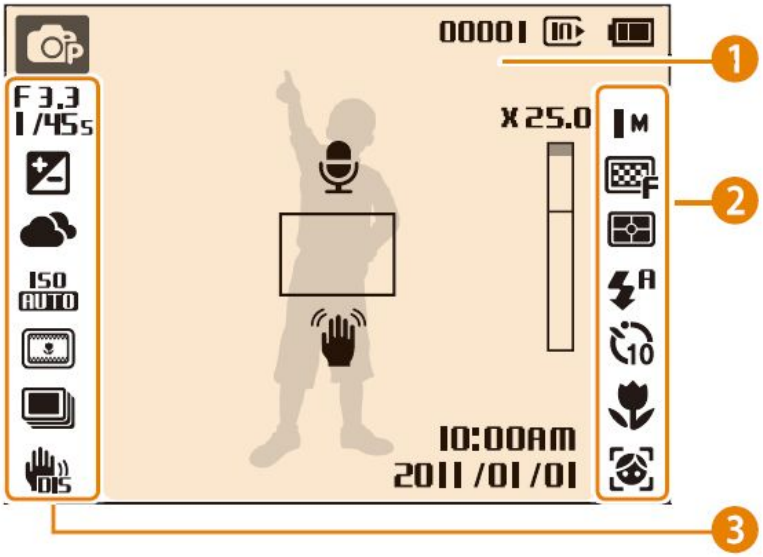

Figure 1.2

Table 1.2 1 Status icons

1 Status icons	
	Picture taking mode
00001	Available number of photos
00:00:20	Available recording time
	Memory card not inserted (Internal memory)
	Memory card inserted
	• : Fully charged
	• : Partially charged
	• : Empty (Recharge)
	Voice memo
	Auto focus frame
	Camera shake
	Zoom indicator

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1 Status icons	
X25.0	Zoom ratio
10:00 AM 2011/01/01	Current date and time
3M	Phto resolution when Intelli zoom is on

Table 1.3 2 Option Icons

2 Option Icons (on the right)	
1M	Photo resolution
1280 HQ	Video resolution
F	Photo quality
30F	Frame rate
	Metering option
A	Flash option
10	Timer option
	Auto focus option
	Face detection
OFF	Microphone muted

Table 1.4 3 Option Icons

3 Option Icons (on the left)	
F3.3 1/45s	Aperture and shutter speed
LT	Long time shutter
	Exposure value adjusted
	White balance
2	Face tone
3	Face retouch
ISO AUTO	ISO sensitivity

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3 Option Icons (on the left)	
	Smart filter
	Image adjustment (contrast, sharpness, and saturation)
	Burst type
	Digital Image Stabilization (DIS)

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1.4. Camera Connection Diagram

Table 1.5

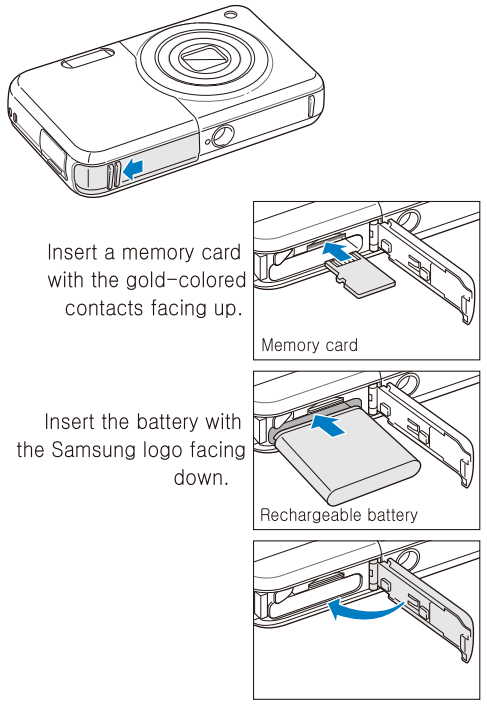
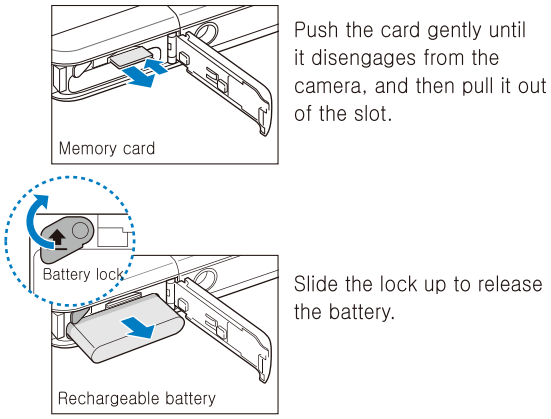
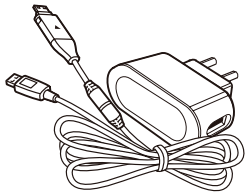
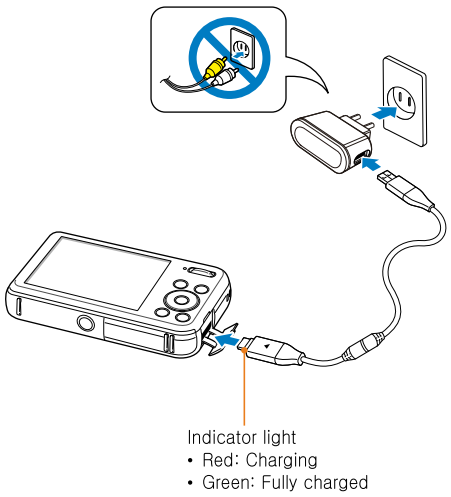
Insert a memory card with the gold-colored contacts facing up	Removing the battery and memory card
	

Table 1.6

Charging the battery	
 AC adapter/USB cable	

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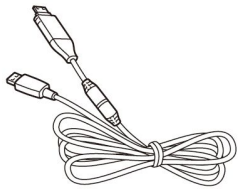
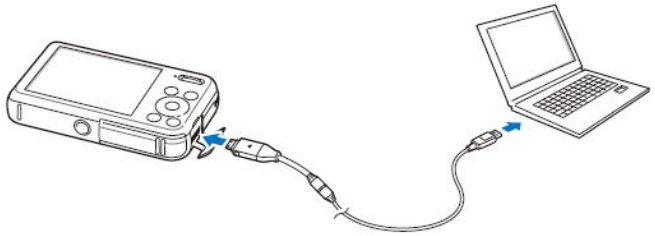
Charging the battery	
 USB cable	

Table 1.7

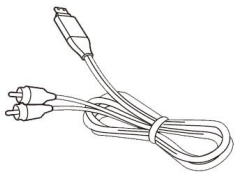
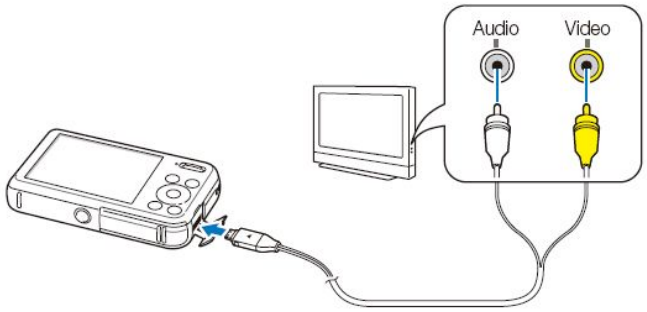
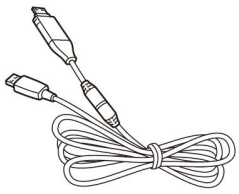
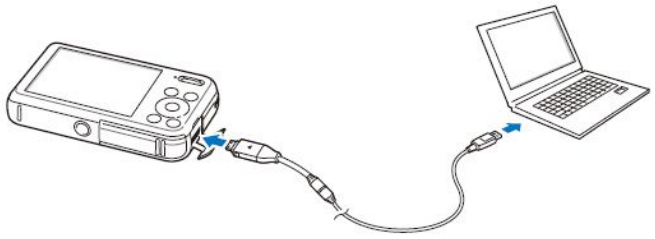
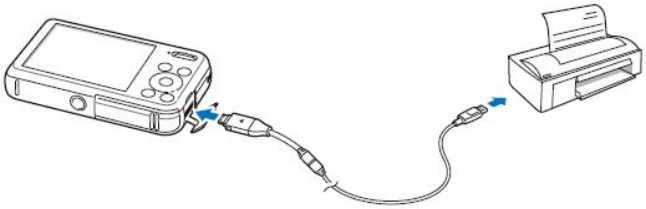
Connect your camera to your TV with the A/V cable	
 A/V cable	

Table 1.8

Connect the camera to your computer(or printer) with the USB cable	
 USB cable	
	

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1.5. Identification of features

Front & Top

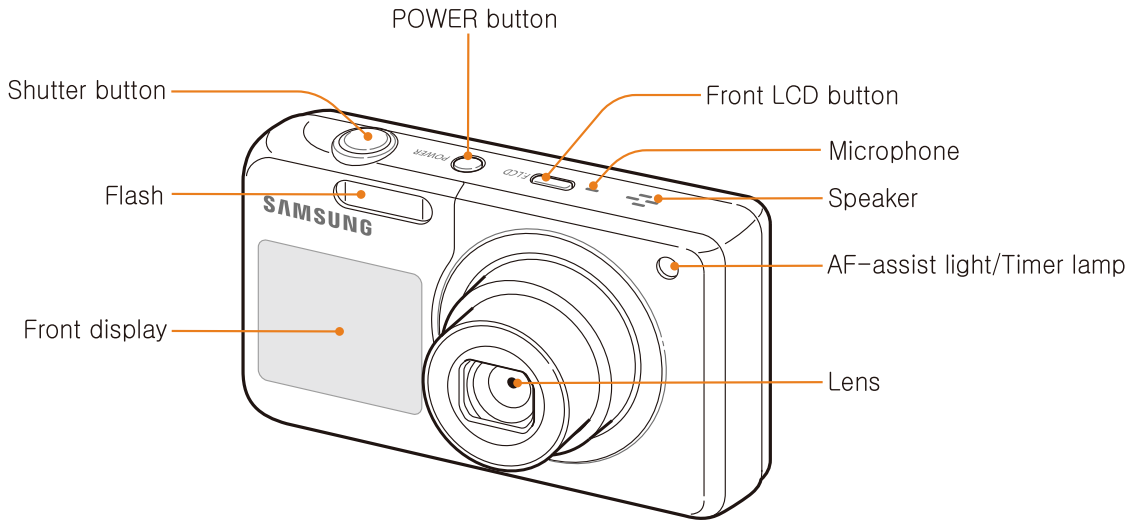

Figure 1.3 Front & Top

Bottom

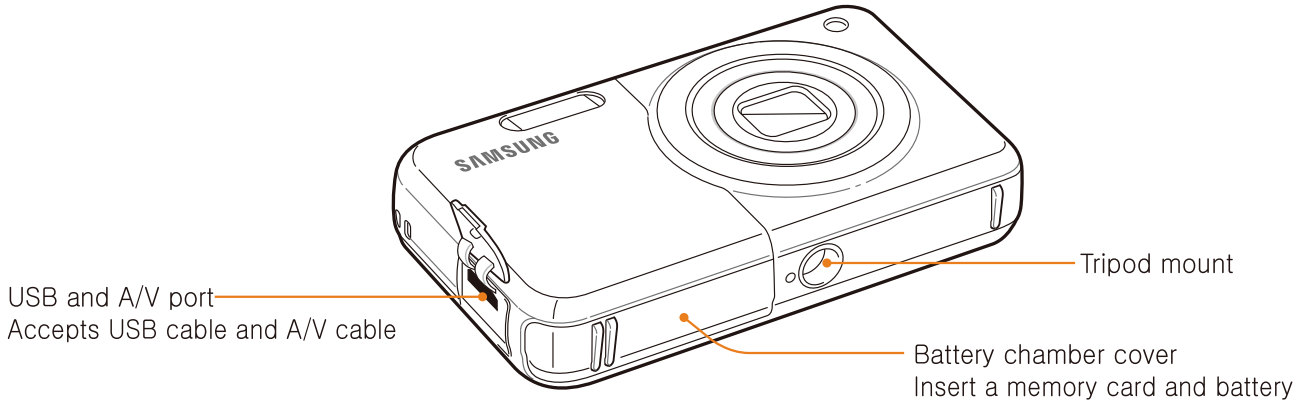

Figure 1.4 Bottom

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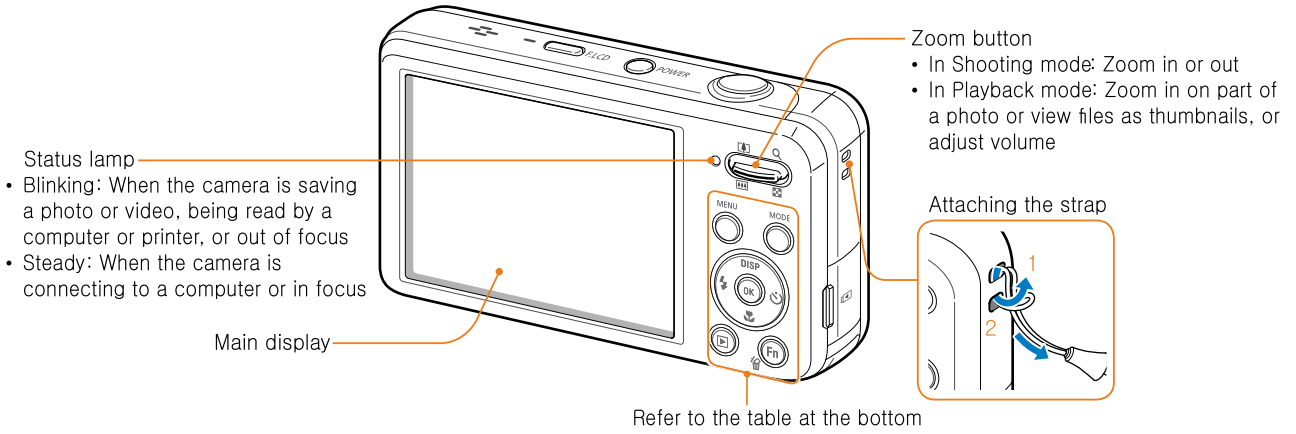
Back & Button



Button	Description
MENU	Access options or menus.
MODE	Select a shooting mode.

M	Description
S	Smart Auto: Capture a photo by letting the camera automatically detect and select a scene mode.
p	Program: Capture a photo by setting options.
s	Scene: Capture a photo with options preset for a specific scene.
v	Movie: Record a video.

Button	Description
DISP OK	

	Basic functions	Other functions
D	Change the display option.	Move up
c	Change the macro option.	Move down
F	Change the flash option.	Move left
t	Change the timer option.	Move right

OK	Confirm the highlighted option or menu.
▶	Enter Playback mode.
Fn	• Access options in Shooting mode. • Delete files in Playback mode.

Figure 1.5 Back & Button

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2. Operation Instruction

2.1. Install

2.1.1. System Requirements

Table 2.1 For Windows

CPU	Intel Pentium 4, 3.2 GHz or higher/ AMD Athlon™ 64 FX 2.6 GHz or higher
RAM	Minimum 512 MB RAM (1 GB or more recommended)
OS	Windows XP SP2, Windows Vista, or Windows 7 (32-bit editions)
Hard disk capacity	250 MB or more (1 GB and above recommended)
Others	• USB 2.0 port • CD-ROM drive • nVIDIA Geforce 7600GT or higher/ATI X1600 series or higher • 1024 X 768 pixels, 16-bit color display compatible monitor (1280 X 1024 pixels, 32-bit color display recommended) • Microsoft DirectX 9.0c or higher

CAUTION

- **It is not compatible with Windows XP and Vista 64-bit Edition.**
- **Samsung is not responsible for any defects or damages caused by the use of unauthorized computer including an assembled PC.**

Table 2.2 For Macintosh

CPU	Power Mac G3 or later
RAM	Minimum 256MB RAM (Over 512MB recommended)
OS	Mac OS 10.4 or later
Available hard disk space	Minimum 256MB RAM (Over 512MB recommended)
The other	• USB port • CD-ROM Drive • 1024x768 Pixels, 16bit color display compatible monitor (24bit color display recommended)

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2.1.2. Transferring files with Intelli-studio

NOTE

- Intelli-studio will start automatically when you connect the camera to your computer with the USB cable.
- The battery will charge while the camera is connected to a computer with the USB cable.

1) In Shooting or Playback mode, press **[MENU]**.
2) Select Settings **PC Software→ On.**
3) Turn off the camera.
4) Connect the camera to your computer with the USB cable.

CAUTION

You must plug the end of the cable with the indicator light (▲) into your camera. If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.

5) Turn on the camera.
   - The computer recognizes the camera automatically and Intellistudio launches automatically.

NOTE

If you set the USB option to Select Mode, select Computer in the pop-up window.

6) Select a destination folder on your computer, and then select Yes.
   - New files stored on the camera will automatically transfer to the selected folder.
   - If your camera has no new files, the pop-up window for saving new files will not appear.

NOTE

For Windows Vista and Windows 7, select Run iStudio.exe from the Auto Play window to start Intelli-studio.

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2.1.3. Transferring files by connecting the camera as a removable disk

NOTE

- Connect the camera to your computer as a removable disk.

1) In Shooting or Playback mode, press **[MENU]**.
2) Select Settings **PC Software→ Off.**
3) Turn off the camera.
4) Connect the camera to your computer with the USB cable.

CAUTION

You must plug the end of the cable with the indicator light (▲) into your camera. If the cable is reversed, it may damage your files. The manufacturer is not responsible for any loss of data.

5) Turn on the camera.
   - The computer recognizes the camera automatically.

NOTE

If you set the USB option to Select Mode, select Computer in the pop-up window.

6) On your computer, select **My Computer→Removable →Disk→DCIM→100PHOTO** .
7) Drag or save files to your computer.

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2.1.4. Disconnecting the camera

NOTE

- The way to disconnect the USB cable for Windows Vista/7 is similar.
- The camera may not be removed safely when Intelli-studio is running. End the program before disconnecting the camera.

1) If the status lamp on your camera is blinking, wait until it stops.
2) Click on the tool bar at the bottom right of your PC screen.

3) Click the pop-up message.
4) Click the message box indicating safely removed.
5) Remove the USB cable.

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2.2. About the software

2.2.1. Using Intelli-studio

Intelli-studio is a built-in program that allows you to play back and edit files. You can also upload files to websites, such as Picasa or YouTube. For details, select **Menu→Help** in the program.

NOTE

- If you install Intelli-studio on your computer, the program will launch more quickly. To install the program, select **Menu→Install** Intelli-studio on PC.
- You cannot edit files directly on the camera. Transfer files to a folder on your computer before editing.
- You cannot copy files in your computer to the camera.
- Intelli-studio supports the following formats: s
  - Videos: MP4 (Video: H.264, Audio: AAC), WMV (WMV 7/8/9)
  - Photos: JPG, GIF, BMP, PNG, TIFF

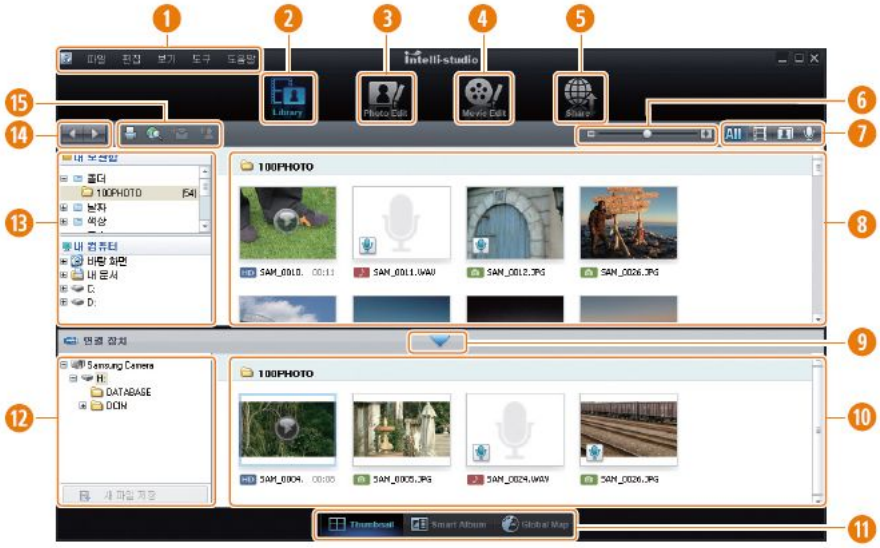

Figure 2.1

Icon	Description
1	Open menus
2	Display files in the selected folder
3	Change to the Photo edit mode
4	Change to the Video edit mode
5	Change to the Sharing mode (You can send files by email or upload files to websites, such as Flickr or YouTube.)
6	Enlarge or reduce the thumbnails in the list
7	Select a file type
8	View files of the selected folder on your computer

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Icon	Description
9	Show or hide files of the connected camera
10	View files of the selected folder on the camera
11	View files as thumbnails, in Smart Album, or on a map
12	Browse folders in the connected device
13	Browse folders in your computer
14	Move to the previous or next folder
15	Print files, view files on a map, store files in My Folder, or register faces

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2.3. FAQ

NOTE

- Please check the following if the USB connection malfunctions.

Q. USB cable is not connected or it is not the supplied USB cable.

A. Connect the supplied USB cable.

Q. The camera is not recognized by your PC. Sometimes, the camera may appear under [Unknown Devices] in Device Manager.

A. Turn off the camera, remove the USB cable, plug in the USB cable again, and then turn on the camera.

Q. There is an unexpected error during file transfer.

A. Turn the camera power off and on again. Transfer the file again.

Q. What happens if I have a file transfer error using a USB Hub?

A. There may be a problem in connecting the camera to the PC through the USB hub if the PC and the hub are not compatible. Wherever possible, connect the camera to the PC directly.

Q. Are other USB cables connected to the PC?

A. The camera may malfunction when it is connected to the PC at the same time as another USB cable. In this case, disconnect the other USB cable, and connect only one USB cable to the camera.

Q. When I open the Device Manager (by clicking Start→(Settings)→Control Panel→(Performance and Maintenance)→System→ (Hardware)→Device Manager), there are Unknown Devices or Other Devices entries with a yellow question mark(?) beside them or devices with an exclamation mark(!) beside them.

A. Right-click on the entry with the question (?) or exclamation (!) mark and select “Remove”. Restart the PC and connect the camera again.

Q. In some security programs (Norton Anti Virus, V3, etc.), the computer may not recognize the camera as a removable disk.

A. Stop the security programs and connect the camera to the computer. Refer to the security program instructions about how to temporarily disable the program.

Q. The camera is connected to the USB port located on the front of the computer.

A. When the camera is connected to the USB port located on the front of the computer, the computer may not recognise the camera. Connect the camera to the USB port located on the back of the computer.

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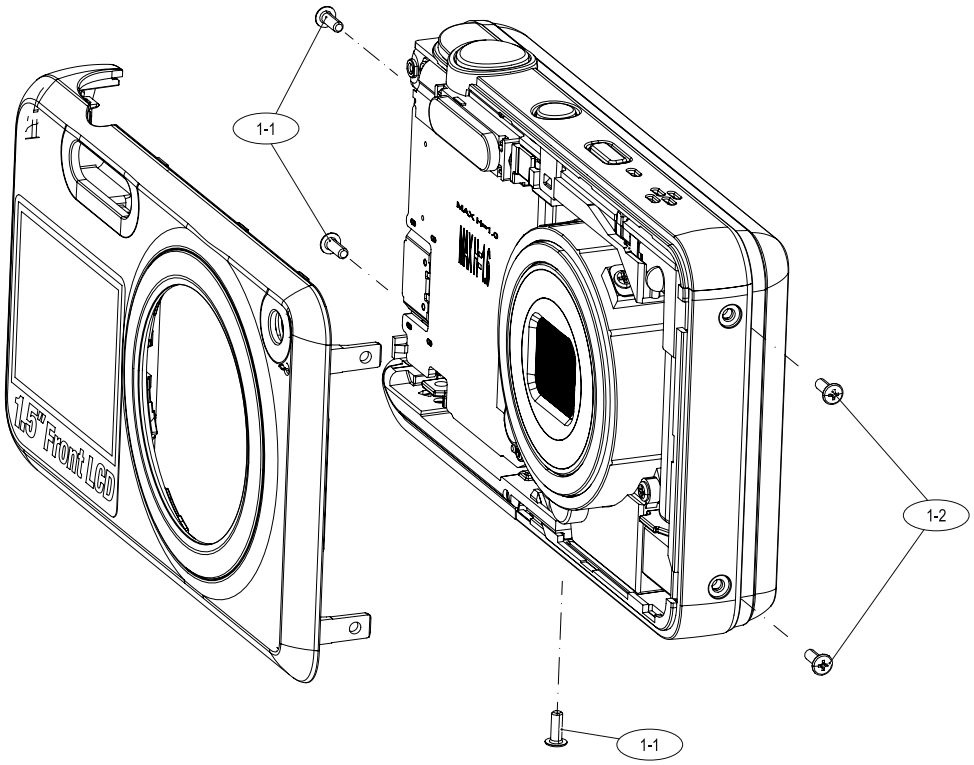
3. PL120/PL121 Exploded view and parts list

NOTE

Here are two types for PL120/PL121.

PL120/PL121: Original version.

3.1. Body assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
1-1	6001-002641	M1.4 x 3.5 MACHINE D2.8	3	X	SILVER
1-2	6001-002640	M1.4 x 3.5 MACHINE D2.8	2	X	BLACK

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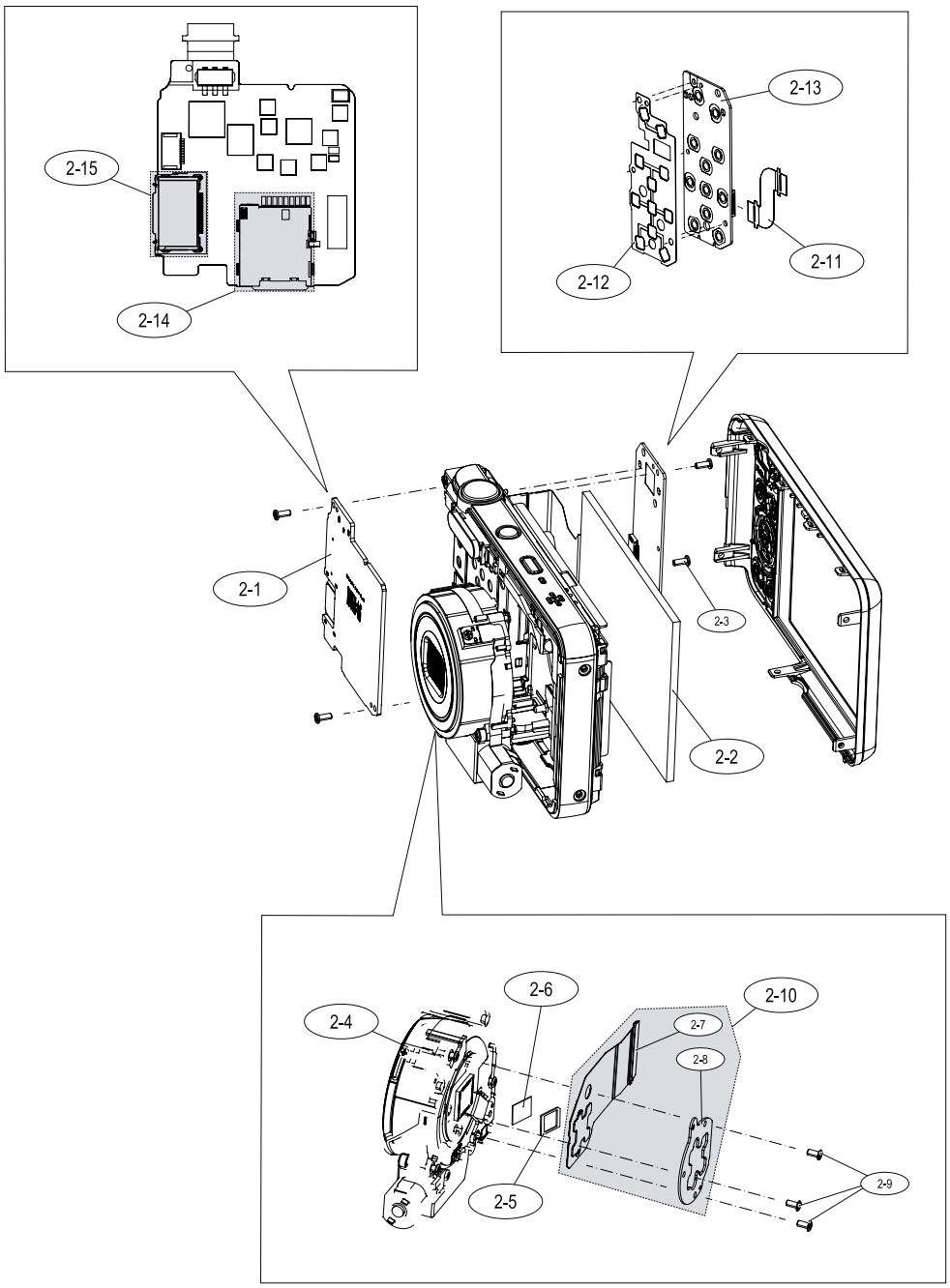
3.2. Main assembly



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Loc. No.	Parts No.	Description	Qty	Available	Remark
2-1	AD92-01507A	MAIN PCB ASS'Y	1	O	
2-2	AD07-00141A	LCD ASS'Y	1	O	
2-3	6003-001710	M1.4 X 3.5 TAPTITE D2.5 ZPC(BLK)	4	X	
2-4	AD97-20320B	BARREL ASSY(BLACK)	1	O	
2-5	AD63-05607A	CUSHION IR	1	O	
2-6	AD63-03625A	IR CUT FILTER	1	O	
2-7	AD92-01402A	SMD FPCB ASSY-ST90 CCD;ST90	1	X	
2-8	AD61-04986A	PLATE CCD HOLDER	1	X	
2-9	6003-001660	M1.4 ×3.0 TAPTITE D2.5	3	X	
2-10	AD92-01403A	ASSY PCB FPC-CCD (4+5)		O	
2-11	AD41-01588A	KEY FPCB	1	O	
2-12	AD63-05859A	SHEET-BUTTON DOME	1	O	
2-13	AD92-01506A	SMD PCB ASSY-KEY	1	O	
2-14	3709-001583	SD CARD SOCKET on MAIN BOARD	1	O	
2-15	3710-002801	USB CABLE SOCKET on MAIN BOARD	1	O	

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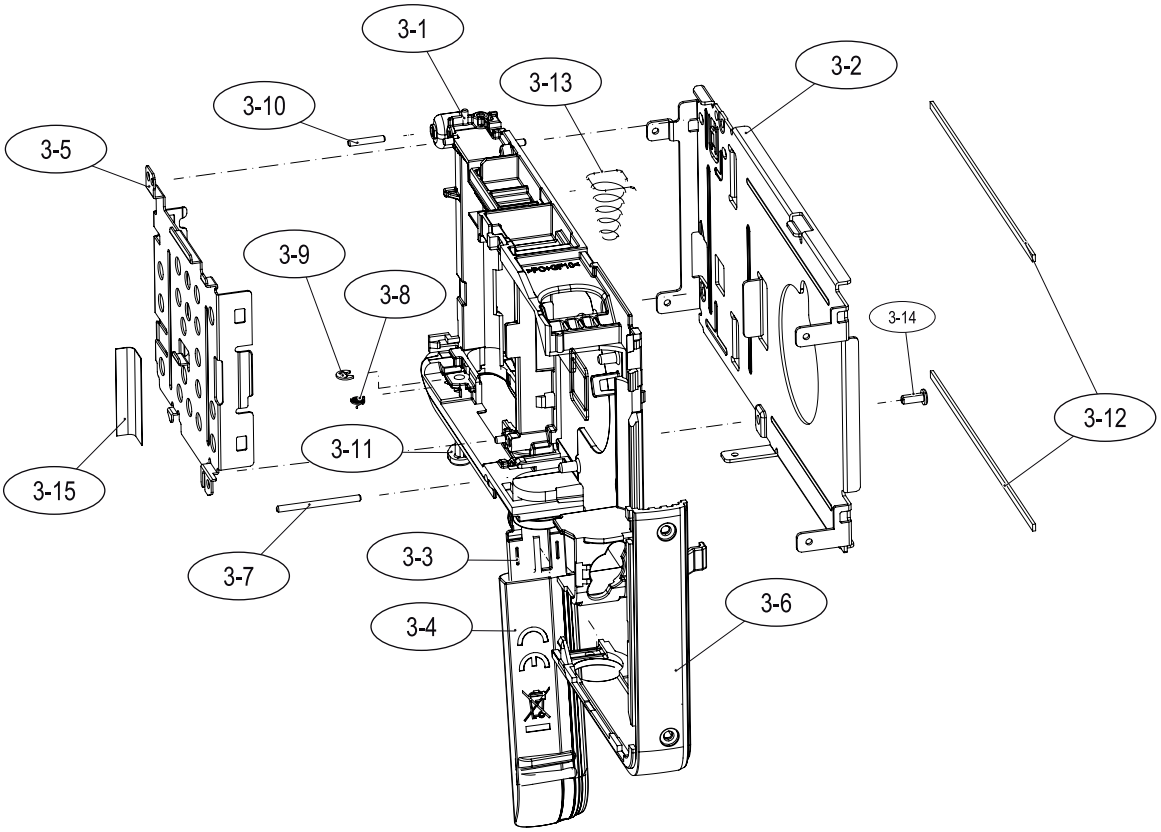
3.3. Chamber assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
3-1	AD62-00151A	CHAMBER BODY	1	O	
3-2	AD61-04917A	FRAME MAIN	1	O	
3-3	AD63-05560A	COVER BATTERY INNER	1	O	
3-4	AD63-05558A	COVER BATTERY	1	O	
3-5	AD61-04912A	PLATE BATTERY HOLDER	1	O	
3-6	AD63-05557A	COVER MIDDLE SIDE	1	O	
3-7	AD61-04043A	HINGE BUTTON ZOOM(HINGE BATTERY)	1	O	
3-8	6107-001538	SPRING-TS(BATTERY-LOCK)	1	O	
3-9	6044-001137	E-RING	1	O	
3-10	AD61-05136A	HINGE STRAP	1	O	
3-11	AD66-00853A	LEVER-BATTERY LOCK	1	O	
3-12	AD63-03547A	CUSHION LCD A	2	O	
3-13	AD61-05213A	SPRING ETC-BATTERY PUSH	1	O	
3-14	6003-001710	M1.4 X 3.5 TAPTITE D2.5 ZPC(BLK)	1	X	
3-15	AD63-04837A	SHEET FPCB A	1	O	

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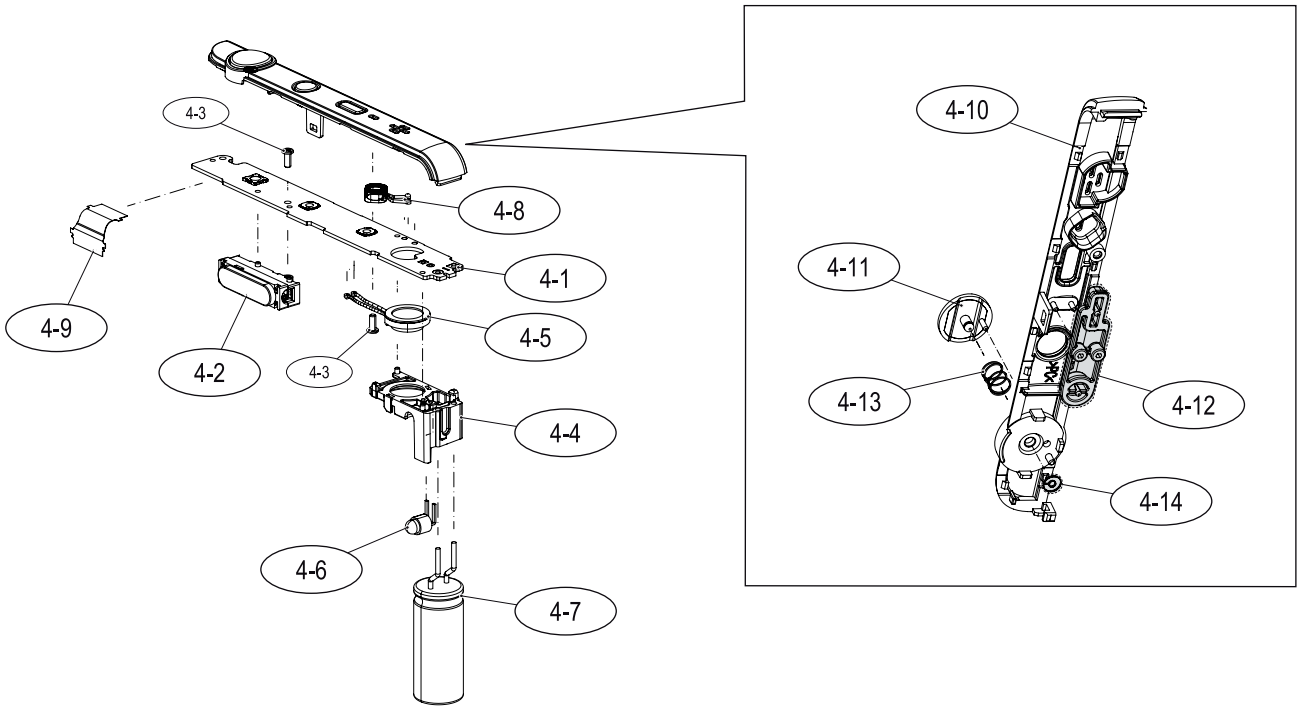
3.4. Top PCB assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
4-1	AD92-01505A	TO PCB SMD ASS'Y	1	O	
4-2	AD97-20214A	ASS'Y FLASH MODULE	1	O	
4-3	6003-001660	M1.4 ×3.0 TAPTITE D2.5	2	X	
4-4	AD61-04910A	HOLDER SPEAKER	1	O	
4-5	3001-002568	SPEAKER	1	O	
4-6	0601-002516	AF LED	1	O	
4-7	2401-004697	CONDENSOR	1	O	
4-8	3003-001170	MIC ASSY	1	O	
4-9	AD41-01587A	TOP FPCB	1	O	
4-10	AD63-05958A	COVER MIDDLE TOP_SAMSUNG PL120	1	O	
	AD63-05996A	COVER MIDDLE TOP_VLUU PL120		O	
	AD63-06015A	COVER MIDDLE TOP_SANSUNG PL121		O	
	AD63-06016A	COVER MIDDLE TOP_PL121_VLUU		O	
4-11	AD64-03084A	BUTTON RELEASE	1	O	
4-12	AD64-03085A	BUTTON POWER	1	O	
4-13	6107-002640	SPRING CS	1	O	
4-14	6031-001628	WASHER PLAN	1	O	

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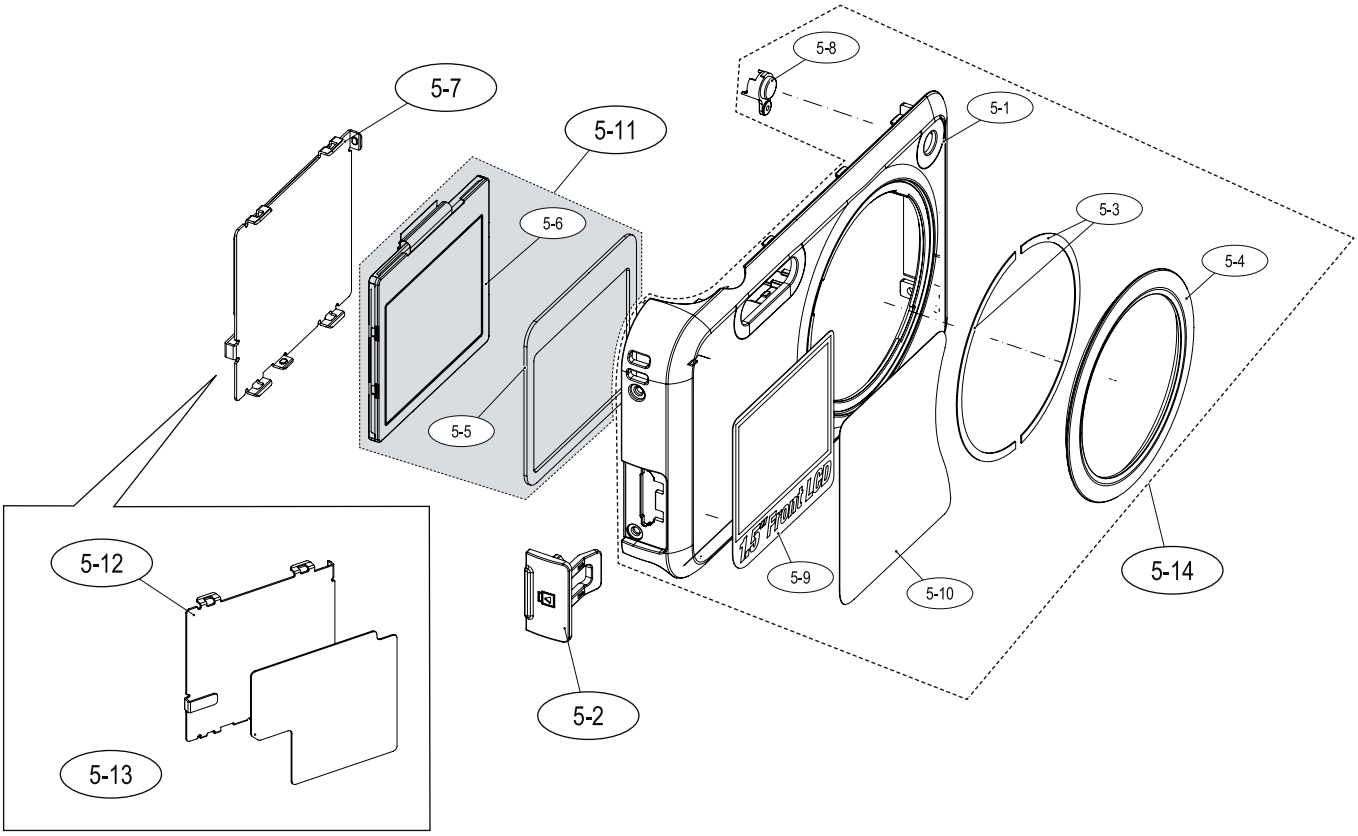
3.5. Front cover assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
5-1	AD63-05954A	COVER FRONT_BLACK	1	X	BLACK
	AD63-05955A	COVER FRONT_SILVER	1	X	SILVER
	AD63-05956A	COVER FRONT_PINK	1	X	PINK
	AD63-05957A	COVER FRONT_PURPLE	1	X	PURPLE
5-2	AD63-05554A	COVER 20PIN+G41	1	O	
5-3	AD63-05598A	T/SHEET DECO FRONT	2	X	
5-4	AD64-03090A	DECORATION FRONT RING	1	X	
5-5	AD63-05877A	CUSHION SUB LCD	1	X	
5-6	AD07-00116A	SUB LCD	1	X	
5-7	AD97-20672A	ASS'Y PLATE SUB LCD	1	O	
5-8	AD64-03307A	WINDOW LED-AF_ONE_PCS	1	X	
5-9	AD68-06086A	LABEL PRODUCT	1	X	
5-10	AD63-06010A	SHEET PROTECTION FRONT	1	X	
5-11	AD97-20716A	SUB LCD ASSY	1	O	
5-12	AD61-04913A	PLATE SUB LCD	1	O	
5-13	AD63-05917A	TSHEET PLATE SUB LCD	1	O	

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Loc. No.	Parts No.	Description	Qty	Available	Remark
5-14	AD97-20709A	COVER ASSY SUB FRONT_BK	O	O	BLACK
	AD97-20712A	COVER ASSY SUB FRONT_SL	O	O	SILVER
	AD97-20710A	COVER ASSY SUB FRONT_PK	O	O	PINK
	AD97-20711A	COVER ASSY SUB FRONT_PP	O	O	PURPLE

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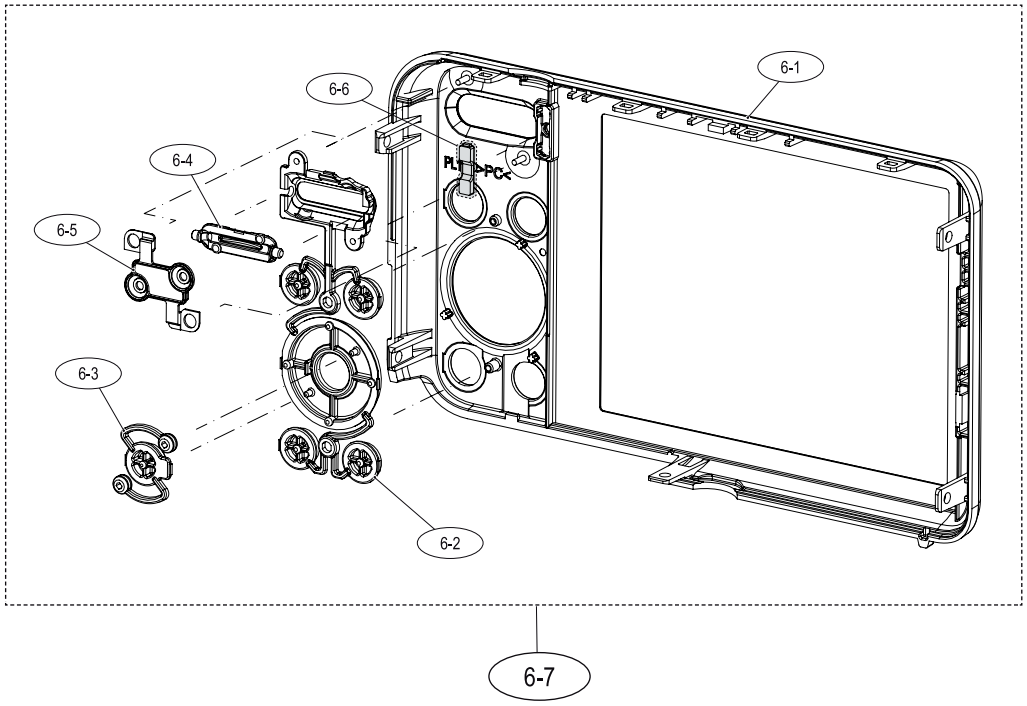
3.6. Back cover assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
6-1	AD63-05555A	COVER BACK	1	X	
6-2	AD64-03087A	BUTTON-FUNCTION	1	X	
6-3	AD64-03088A	BUTTON OK	1	X	
6-4	AD66-00852A	LEVER ZOOM	1	X	
6-5	AD73-00401A	RUBBER ZOOM BUTTON	1	X	
6-6	AD64-03089A	WINDOW REAR ACCESS	1	X	
6-7	AD97-20213A	COVER ASSY-BACK	1	O	

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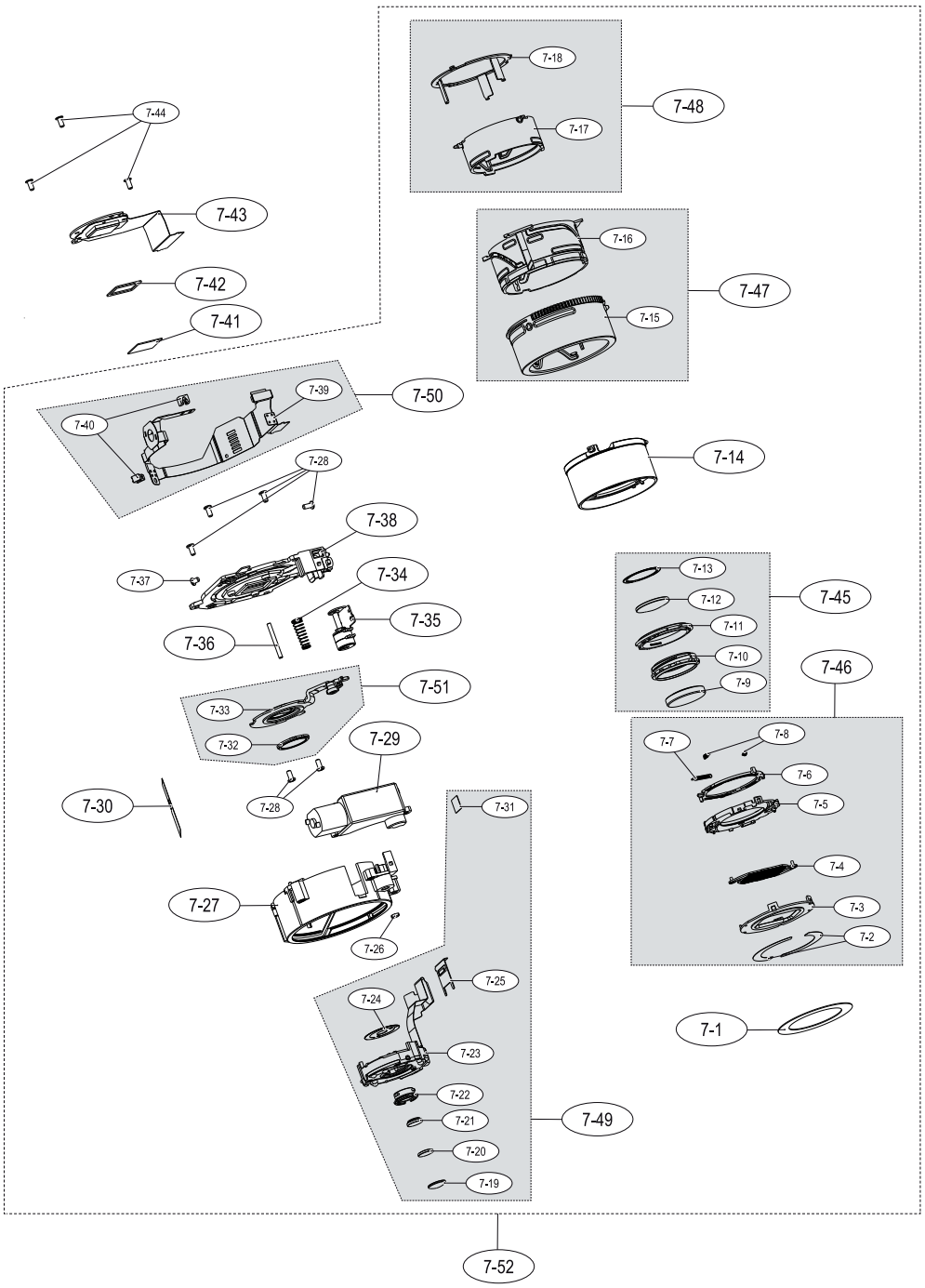
3.7. Barrel assembly



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Loc. No.	Parts No.	Description	Qty	Available	Remark
7-1	AD61-04906A	PLATE-DECO	1	O	BLACK
7-2	AD63-04522A	T/SHEET-FRONT	2	X	
7-3	AD63-05533A	BARRIER-FRONT_PANEL	1	X	BLACK
7-4	AD63-05534A	BARRIER-BLADE	2	X	BLACK
7-5	AD63-05535A	BARRIER-BASE	1	X	
7-6	AD63-05536A	BARRIER-LEVER	1	X	
7-7	6107-002811	SPRING-ES (BARRIER OPEN)	1	X	
7-8	6107-002810	SPRING-ES (BARRIER CLOSE)	2	X	
7-9	AD67-01884A	LENS-G1	1	X	
7-10	AD67-01895A	BARREL-1ST	1	X	
7-11	AD67-01898A	BARREL-SLIP_RING	1	X	
7-12	AD67-01887A	LENS-G2 (GMO)	1	X	
7-13	AD63-05479A	SHEET-G2	1	X	
7-14	AD67-01911A	BARREL-ZOOM_RING_A	1	O	BLACK
7-15	AD67-01912A	BARREL-CAM_A_BK	1	x	BLACK
7-16	AD67-01973A	BARREL-GUIDE_PLATE A	1	X	
7-17	AD67-01900A	BARREL-INNER_CAM	1	X	
7-18	AD61-04901A	PLATE-INNER-GUIDE	1	X	
7-19	AD67-01888A	LENS-G3 (GMO)	1	X	
7-20	AD67-01885A	LENS-G4	1	X	
7-21	AD67-01886A	LENS-G5	1	X	
7-22	AD67-01896A	BARREL-2ND	1	X	
7-23	AD97-19998A	SHUTTER ASSY-NON_OIS	1	X	
7-24	AD63-05892A	SHEET SHUTTER	1	X	
7-25	AD61-04900A	HOLDER-FPC	1	X	
7-26	AD67-01744A	BARREL_DECENT_RING	1	X	
7-27	AD67-01902A	BARREL-OUTER_GUIDE	1	O	
7-28	6003-001633	SCREW-TAPTITE(143025)	6	X	
7-29	AD97-19967A	ZOOM MODULE ASSY	1	O	
7-30	AD63-05885A	T/SHEET FPC FIX 1018	1	O	
7-31	AD63-04521A	T/SHEET-SHUTTER	1	X	
7-32	AD67-01889A	LENS-G6 (PLASTIC)	1	X	
7-33	AD67-01897A	BARREL-3RD	1	X	
7-34	6107-002809	SPRING-CS (SPRING AF)	1	O	
7-35	AD97-19965A	MOTOR ASSY-AF MOTOR	1	O	
7-36	AD66-00886A	SHAFT AF	1	O	
7-37	6003-001288	SCREW-TAPTITE(142025)	1	X	
7-38	AD61-04899A	BASE-LENS	1	O	
7-39	AD41-01551A	FPC-BARREL NOIS A	1	X	
7-40	0604-001376	PHOTO INTERRUPTER	3	X	

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Loc. No.	Parts No.	Description	Qty	Available	Remark
7-41	AD63-03625A	IR CUT FILTER	1	O	
7-42	AD63-05607A	CUSHION-IR FILTER	1	O	
7-43	AD92-01403A	ASSY PCB FPC-CCD_ST90	1	O	
7-44	6003-001660	SCREW-TAPTYPE	3	X	
7-45	AD97-19925A	LENS ASSY-1ST	1	O	
7-46	AD97-20288B	BARRIER ASSY_BK	1	O	BLACK
7-47	AD97-20327A	SUB BARREL ASSY-BARREL-CAM_A_BK	1	O	BLACK
7-48	AD97-20416A	SUB BARREL ASSY-INNER CAM	1	O	
7-49	AD97-20292B	SUB BARREL ASSY-2ND NOIS	1	O	
7-50	AD92-01368A	SMD FPCB ASSY-BARREL NOIS A	1	O	
7-51	AD97-19927A	LENS ASSY-3RD	1	O	
7-52	AD97-20320B	BARREL ASSY_BK	1	O	BLACK

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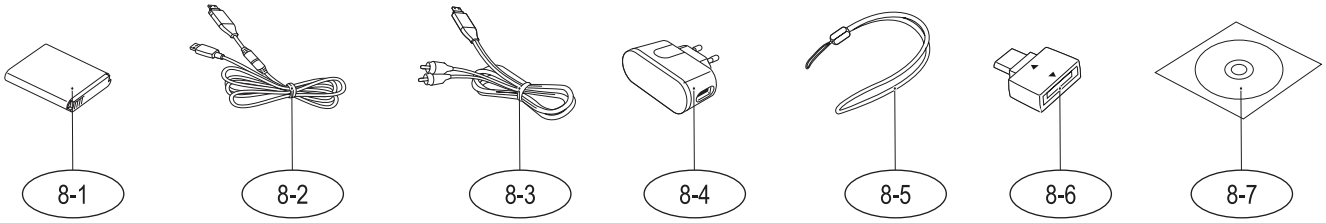
3.8. Packing items



Loc. No.	Parts No.	Description	Qty	Available	Remark
8-1	AD43-00194A	BP-70A	1	O	
8-2	AD39-00183A	20PIN_USB_Cable_CB20U05B	1	O	
8-3	AD39-00146A	CBF IF(20PIN_AV_CABLE_SCC-AV20)	1	O	
8-4	AD44-00146A	AC_ADAPTOR_SAC-48_EXP	1	O	
	AD44-00147A	AC_ADAPTOR_SAC-48_CHI	1	O	
	AD44-00143A	AC_ADAPTOR_SAC-48_USA	1	O	
	AD44-00145A	AC_ADAPTOR_SAC-48_UK	1	O	
	AD44-00148A	AC_ADAPTOR_SAC-48_AUS	1	O	
	AD44-00144A	AC_ADAPTOR_SAC-48_ARG	1	O	
8-5	AD63-02604A	STRAP_KENOX_S860_BLACK	1	O	
	AD63-02596A	STRAP_KENOX_S730_SILVER	1	O	
8-6	AD59-00175A	GENDER-T24 TO T20 STRAP ADAPTER	1	O	
8-7	AD46-00379A	Samsung_PL110/PL120	1	O	
	AD46-00379A	Samsung_PL110/PL120	1	O	

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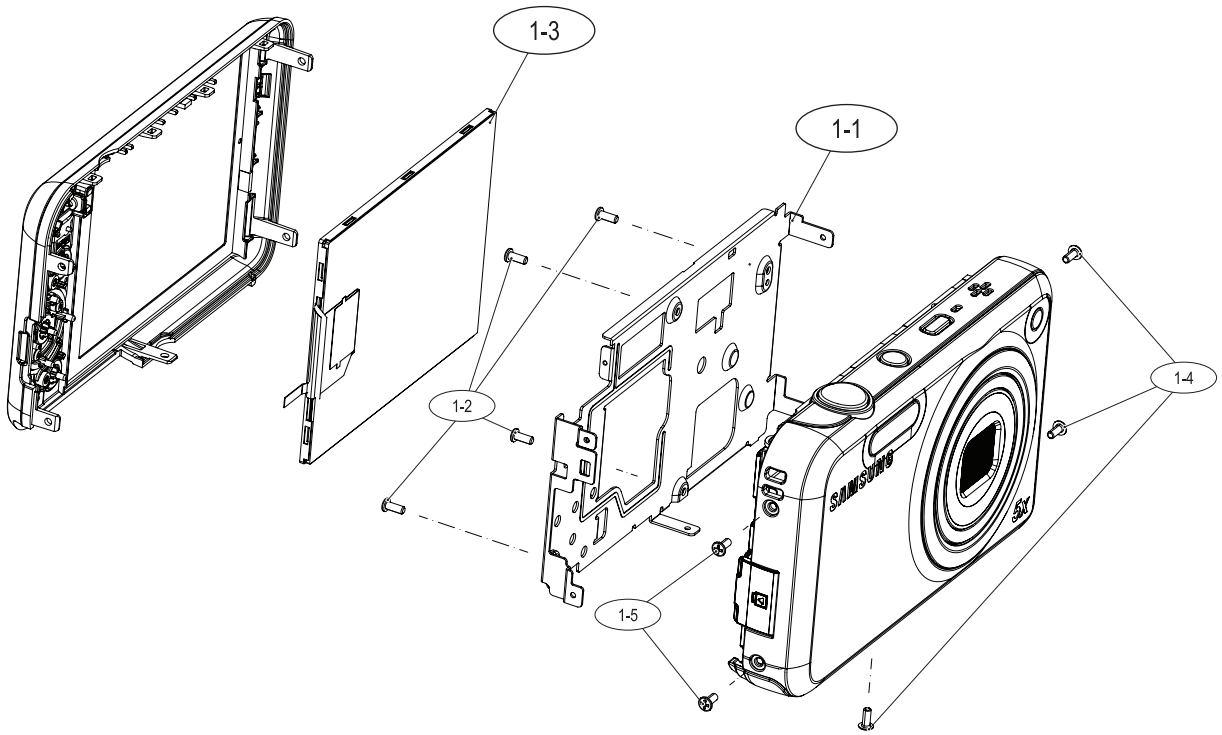
4. PL120/PL121VE Exploded view and parts list

NOTE

Here are two types for PL120/PL121.

PL120/PL121VE: The changes of some parts from PL120/PL121.

4.1. Body assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
1-1	AD61-05249A	ASSY-FRAME_MAIN	1	O	
1-2	6003-001710	M1.4 X 3.5 TAPTITE	4	X	
1-3	AD07-00150A	LCD 2.7"	1	O	
1-4	6001-002641	M1.4 x 3.5 MACHINE	3	X	
1-5	6001-002640	M1.4 x 3.5 MACHINE	2	X	

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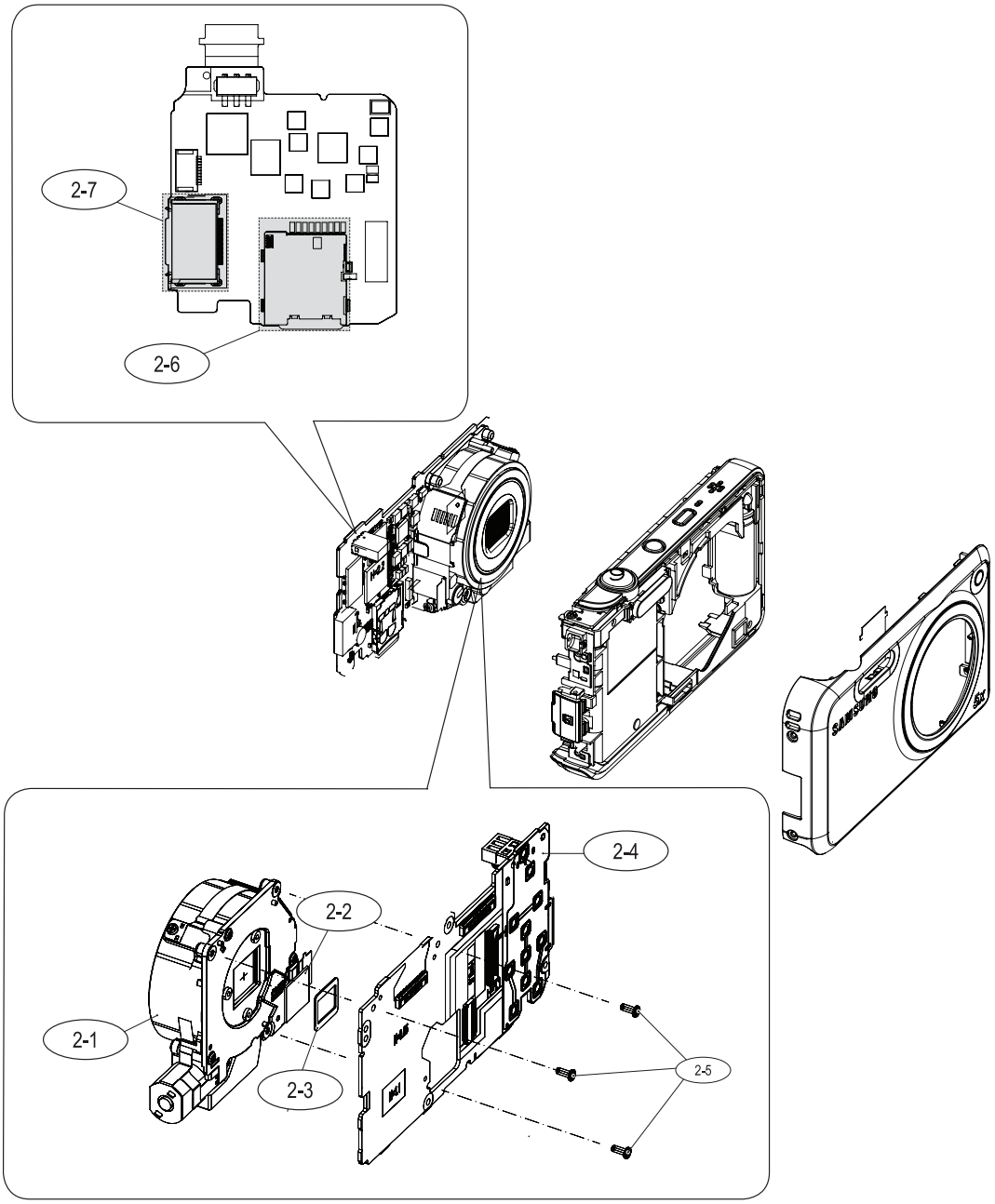
4.2. Main assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
2-1	AD97-21123A	BARREL ASSY_PL120VE	1	O	
2-2	AD63-03625A	IR CUT FILTER	1	O	
2-3	AD63-05607A	CUSHION IR_FILTER	3	O	
2-4	AD92-01686A	ASSY PCB MAIN	1	O	
2-5	6003-001710	M1.4 X 3.5 TAPTITE	3	X	
2-6	3709-001651	SD CARD SOCKET on MAIN BOARD	1	O	
2-7	3710-002647	USB CABLE SOCKET on MAIN BOARD	1	O	

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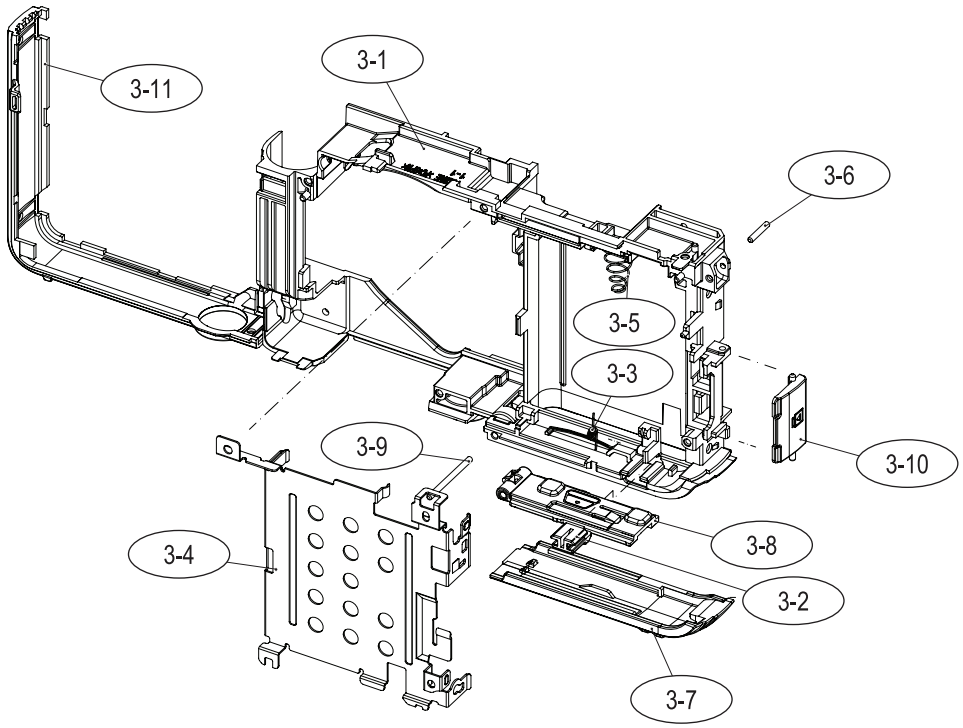
4.3. Chamber assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
3-1	AD62-00174A	CHAMBER BODY	1	O	
3-2	AD66-00893A	LEVER-BATTERY LOCK	1	O	
3-3	6107-001833	SPRING-TS(BATTERY-LOCK)	1	O	
3-4	AD61-05247A	PLATE BATTERY HOLDER	1	O	
3-5	AD61-05388A	SPRING ETC-BATTERY PUSH	1	O	
3-6	AD61-05136A	HINGE STRAP	1	O	
3-7	AD63-05558A	COVER BATTERY	1	O	
3-8	AD63-06154A	COVER BATTERY INNER	1	O	
3-9	AD61-04043A	HINGE BUTTON ZOOM	1	O	
3-10	AD63-06149A	COVER-20PIN	1	O	
3-11	AD63-06153A	COVER MIDDLE SIDE	1	O	

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4.4. Top cover assembly

Top cover assembly

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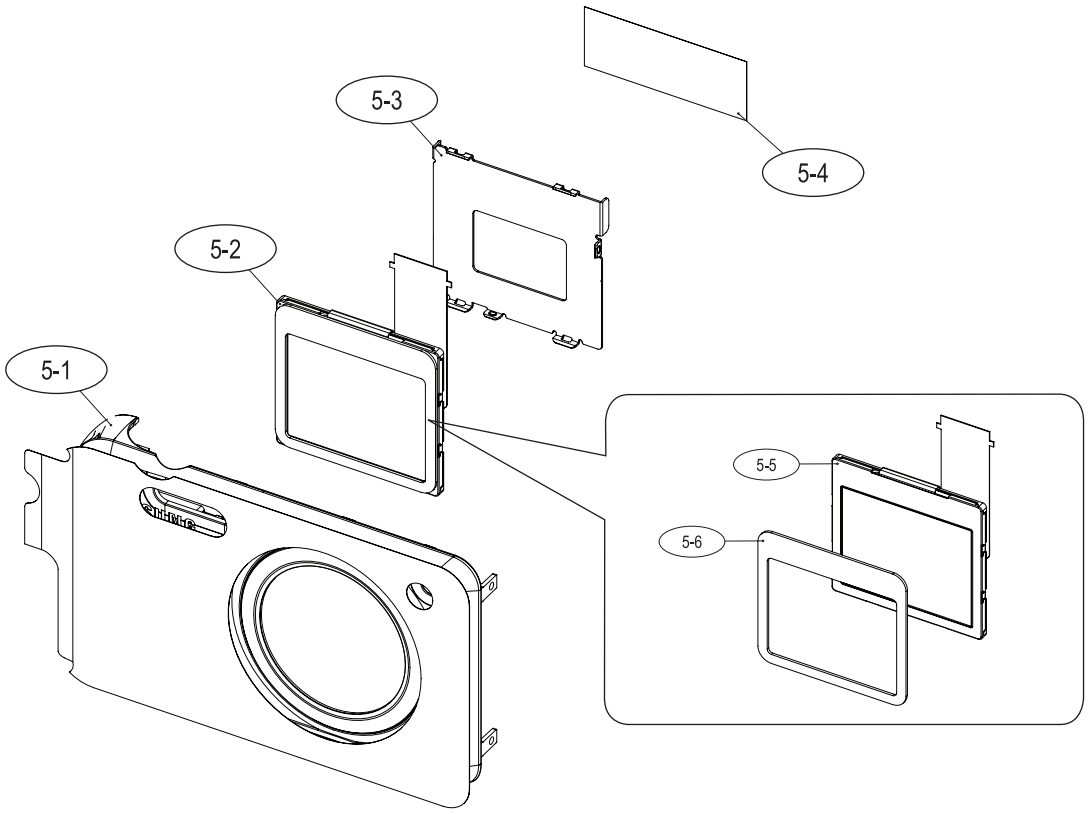
4.5. Front cover assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
5-1	AD97-21326A	ASSY COVER SUB FRONT_BK	1	O	BLACK
	AD97-21327A	ASSY COVER SUB FRONT_SL	1	O	SILVER
	AD97-21328A	ASSY COVER SUB FRONT_PK	1	O	PINK
	AD97-21329A	ASSY COVER SUB FRONT_PP	1	O	PURPLE
5-2	AD97-21322A	ASSY SUB LCD	1	O	
5-3	AD61-05248A	PLATE SUB LCD	1	O	
5-4	AD63-06216A	SHEET PLATE SUB LCD	1	O	
5-5	AD07-00150A	SUB LCD	1	X	
5-6	AD63-05877A	CUSHION SUB LCD	1	X	

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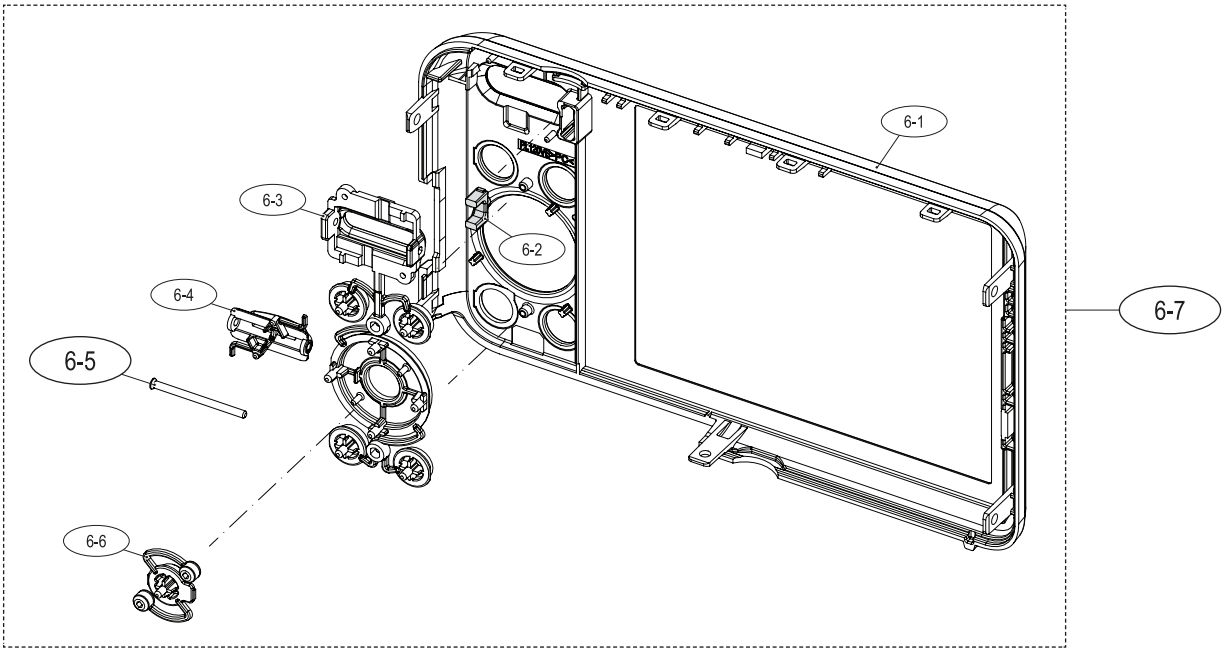
4.6. Back cover assembly



Loc. No.	Parts No.	Description	Qty	Available	Remark
6-1	AD63-06150A	COVER BACK	1	X	
6-2	AD64-03354A	WINDOW REAR ACCESS	1	X	
6-3	AD64-03352A	BUTTON FUNCTION	1	X	
6-4	AD66-00892A	LEVER ZOOM	1	X	
6-5	AD61-04043A	HINGE BUTTON ZOOM	1	O	
6-6	AD64-03353A	BUTTON OK	1	X	
6-7	AD97-21085A	ASSY COVER BACK	1	O	

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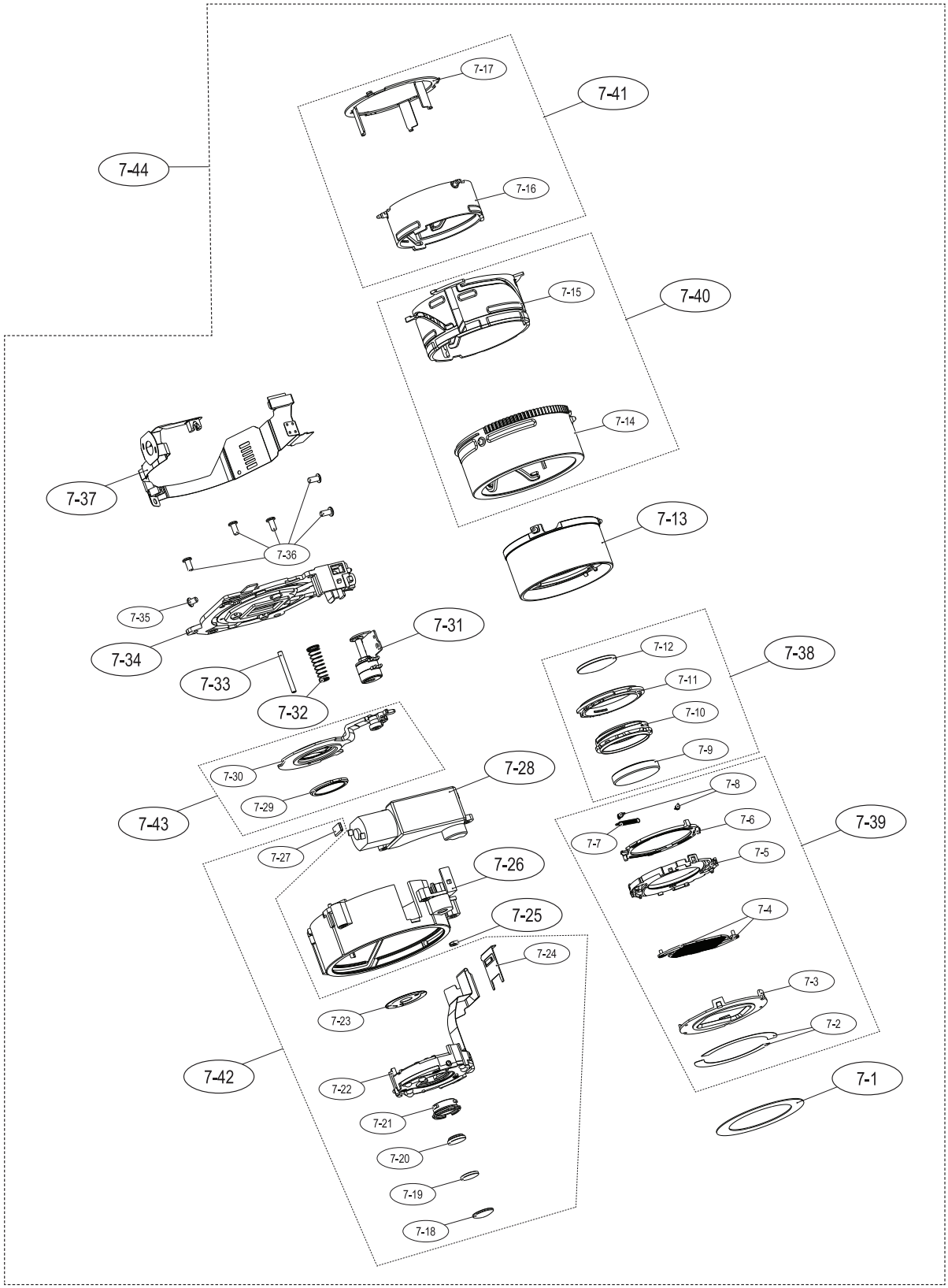
4.7. Barrel assembly



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Loc. No.	Parts No.	Description	Qty	Available	Remark
7-1	AD61-04906A	PLATE-DECO	1	O	
7-2	AD63-04522A	T/SHEET-FRONT	2	X	
7-3	AD63-05533A	BARRIER-FRONT_PANEL	1	X	
7-4	AD63-05534A	BARRIER-BLADE	2	X	
7-5	AD63-05535A	BARRIER-BASE	1	X	
7-6	AD63-05536A	BARRIER-LEVER	1	X	
7-7	6107-002811	SPRING-ES (BARRIER OPEN)	1	X	
7-8	6107-002810	SPRING-ES (BARRIER CLOSE)	2	X	
7-9	AD67-01884A	LENS-G1	1	X	
7-10	AD67-01895A	BARREL-1ST	1	X	
7-11	AD67-01898A	BARREL-SLIP_RING	1	X	
7-12	AD67-01887A	LENS-G2 (GMO)	1	X	
7-13	AD67-01911A	BARREL-ZOOM_RING_A	1	O	
7-14	AD67-01912A	BARREL-CAM_A	1	X	
7-15	AD67-01973A	BARREL-GUIDE_PLATE A	1	X	
7-16	AD67-01900A	BARREL-INNER_CAM	1	X	
7-17	AD61-04901A	PLATE-INNER-GUIDE	1	X	
7-18	AD67-01888A	LENS-G3 (GMO)	1	X	
7-19	AD67-01885A	LENS-G4	1	X	
7-20	AD67-01886A	LENS-G5	1	X	
7-21	AD67-01896A	BARREL-2ND	1	X	
7-22	AD97-19998A	SHUTTER ASSY-NON_OIS	1	X	
7-23	AD63-05892A	SHEET SHUTTER	1	X	
7-24	AD61-04900A	HOLDER-FPC	1	X	
7-25	AD67-01744A	BARREL_DECENT_RING	1	O	
7-26	AD67-01902A	BARREL-OUTER_GUIDE	1	O	
7-27	AD63-04521A	T/SHEET-SHUTTER	1	X	
7-28	AD97-19967A	ZOOM MODULE ASSY	1	O	
7-29	AD67-01889A	LENS-G6 (PLASTIC)	1	X	
7-30	AD67-01897A	BARREL-3RD	1	X	
7-31	AD97-19965A	MOTOR ASSY-AF MOTOR	1	O	
7-32	6107-002809	SPRING-CS (SPRING AF)	1	O	
7-33	AD66-00886A	SHAFT AF	1	O	
7-34	AD61-05242A	BASE LENS-ST93	1	O	
7-35	6003-001288	SCREW-TAPTITE(142025)	1	X	
7-36	6003-001633	SCREW-TAPTITE(143025)	6	X	
7-37	AD92-01368A	ASSY SMD FPC-BARREL NOIS A	1	O	
7-38	AD97-19925A	ASSY LENS-1ST (9~12)	1	O	
7-39	AD97-20288B	ASSY BARRIER_BK(2~8)	1	O	
7-40	AD97-20327A	ASSY SUB BARREL-BARREL_BK (14~15)	1	O	

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Loc. No.	Parts No.	Description	Qty	Available	Remark
7-41	AD97-20416A	ASSY SUB BARREL-INNER CAM (16~17)	1	O	
7-42	AD97-20292B	ASSY SUB BARREL-2ND NOIS (18~24, 27)	1	O	
7-43	AD97-19927A	ASSY LENS-3RD(29+30)	1	O	
7-44	AD97-21123A	ASSY BARREL-PL120VE (7-1 ~ 43)	1	O	

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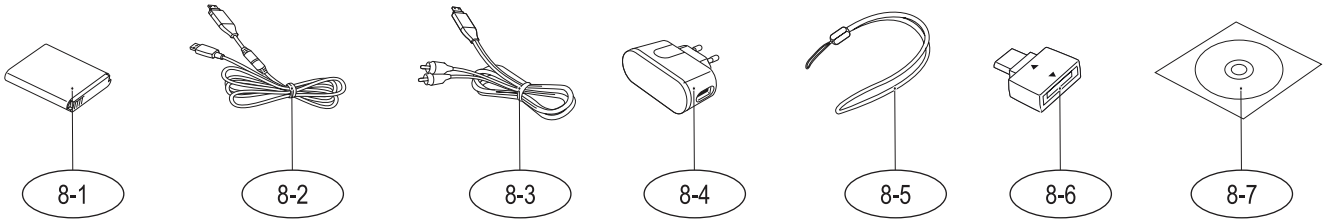
4.8. Packing items



Loc. No.	Parts No.	Description	Qty	Available	Remark
8-1	AD43-00194A	BP-70A	1	O	
8-2	AD39-00183A	20PIN_USB_Cable_CB20U05B	1	O	
8-3	AD39-00146A	CBF IF(20PIN_AV_CABLE_SCC-AV20)	1	O	
8-4	AD44-00146A	AC_ADAPTOR_SAC-48_EXP	1	O	
	AD44-00147A	AC_ADAPTOR_SAC-48_CHI	1	O	
	AD44-00143A	AC_ADAPTOR_SAC-48_USA	1	O	
	AD44-00145A	AC_ADAPTOR_SAC-48_UK	1	O	
	AD44-00148A	AC_ADAPTOR_SAC-48_AUS	1	O	
	AD44-00144A	AC_ADAPTOR_SAC-48_ARG	1	O	
8-5	AD63-02604A	STRAP_KENOX_S860_BLACK	1	O	
	AD63-02596A	STRAP_KENOX_S730_SILVER	1	O	
8-6	AD59-00175A	GENDER-T24 TO T20 STRAP ADAPTER	1	O	
8-7	AD46-00379A	Samsung_PL110/PL120	1	O	
	AD46-00379A	Samsung_PL110/PL120	1	O	

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5. Firmware update

5.1. Product reset

NOTE

- This describes how to reset the camera to factory default setting.

1) First turn on the power of the camera.

Figure 5.1

2) Press the (1) WIDE button + DOWN button and then turn the (2) POWER off.

Figure 5.2

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3) Turn the power of the camera on again to check whether it has been reset.

Figure 5.3

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5.2. Version check

NOTE

- This describes how to check the version of the current firmware of the camera.

1) Use fully charged battery for power.

2) First turn off the power of the camera.

3) Press the (1) SHUTTER button + DOWN button, and then turn the (2) POWER on.

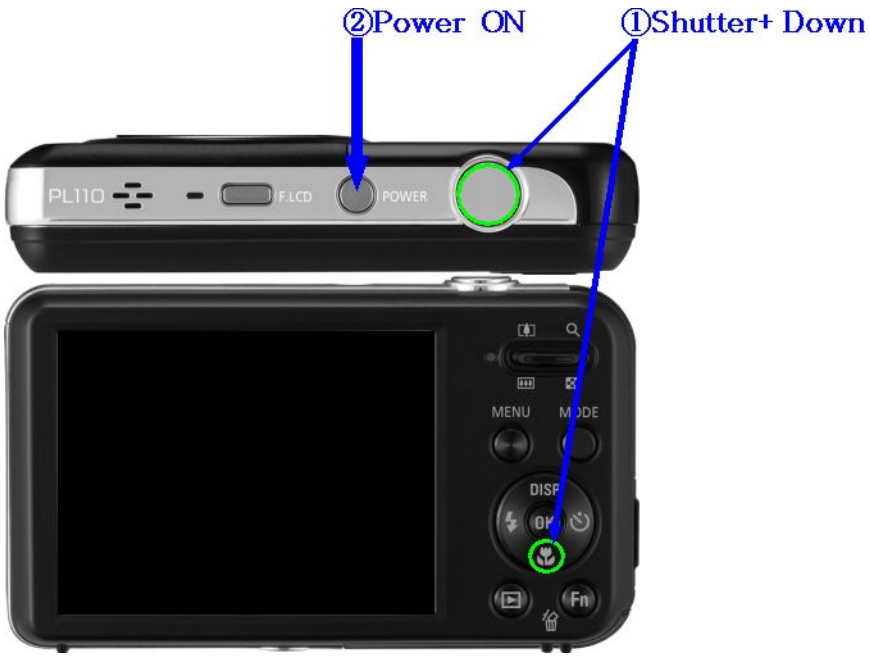

Figure 5.4

4) Check the version of the firmware and then turn the power off.

Figure 5.5

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5.3. Full Upgrade

- **How to execute the FULL firmware**

  The firmware is configured in the following structure.

  Code area is where the execution codes to operate the camera are located, and the Partition [1:3] area is where the various resources neces sary to operate the camera are saved. Among these areas, Partition 3 area is where the Defective Pixel adjustment data and Lens Shading adjustment data are saved.

  User Area is where the setting values are saved through the menu when the user uses the camera, and the adjusted data through integrated process is saved.

Table 5.1

code	partition1	partition2	partition3	User Area

- **Reference of FULL version**
  - As the version to update the Code + Partition [1:3] area, this protects the adjusted data saved in the User Area but resets the Defective Pixel adjustment data and Lens Shading adjustment data. Therefore, you must recover the to previously adjusted data by readjusting or by backing up the adjusted data.
  - When executing a FULL version upgrade, the adjusted data will automatically be saved to the microSD card and you can upload the adjusted data back to the camera by referring to the following detail method.
  - Adjusted data automatically saved to the microSD card is composed of 3 files; LSCLUTO.BIN, Defective Pixel0.bin and Defective Pixel1.bin.

1) Insert the microSD card containing the FULL FW data file and Upgrade Script file into the camera.
   - You need two files for FULL FW upgrade and the required files are FULL FW data file and Upgrade Script file.
   - Because all data saved on the FLASH memory will be reset when you upgrade the firmware, back up your data before proceeding with the upgrade.
2) Use the AC adaptor or fully charged battery for the power.
   - You can proceed with the upgrade only when the battery level is full (Icon showing full up to 3rd level).
3) Turn on the power of the camera.

Figure 5.6

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4) The version of the FW to upgrade will be displayed on the LCD screen. When you press the SHUTTER button, the FW upgrade will start.

Figure 5.7

5) The progress of the FIRMWARE upgrade will be displayed on the LCD and the upgrade will proceed.

Figure 5.8

6) When the upgrade is completed, the camera will automatically be turned off.

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6. Adjustment

6.1. Basic guide for adjustment

NOTE

- After you replace remove this word electronic parts, you must make changes for each adjustment item in the **PL120**.
- The following table shows the necessary adjustment item for replacing each part.

1) After replacing an electronic part, you must make adjustments for each item by referring to the following table.

Table 6.1

Adjustment	MAIN PCB	POWER PCB	BARREL ASSY	CCD ASSY
FIRMWARE UPGRADE	●		●	
PUNT ADJ	●		●	●
BACKLASH	●		●	
SHUTTER CLOSE TIME, IRIS ADJ, CCD GAIN, LENS SHADING	●		●	●
FLASH ADJ	●	●	●	●
BATTERY LEVEL ADJ	●	●		
BURNING TEST & CCD DEFECT CELL	●	●	●	●
SERIAL NUMBER WRITING	●			

2) Adjustment equipment

- AE TESTER: AE TESTER that enables **LV 12**
- Infinity Callimator for PUNT adjustment
- Gray chart (18%) for FLASH & AWB, DARK BOX
- POWER SUPPLY: 4.2V/2A

3) Adjustment program file

Save and use the program for each adjustment item on the microSD card to adjust each item.

The file name for each adjustment item is the same as **“PL120_ADJ.TXT”**, **“PL121_ADJ.TXT”**.

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4) Operating procedure of adjustment program

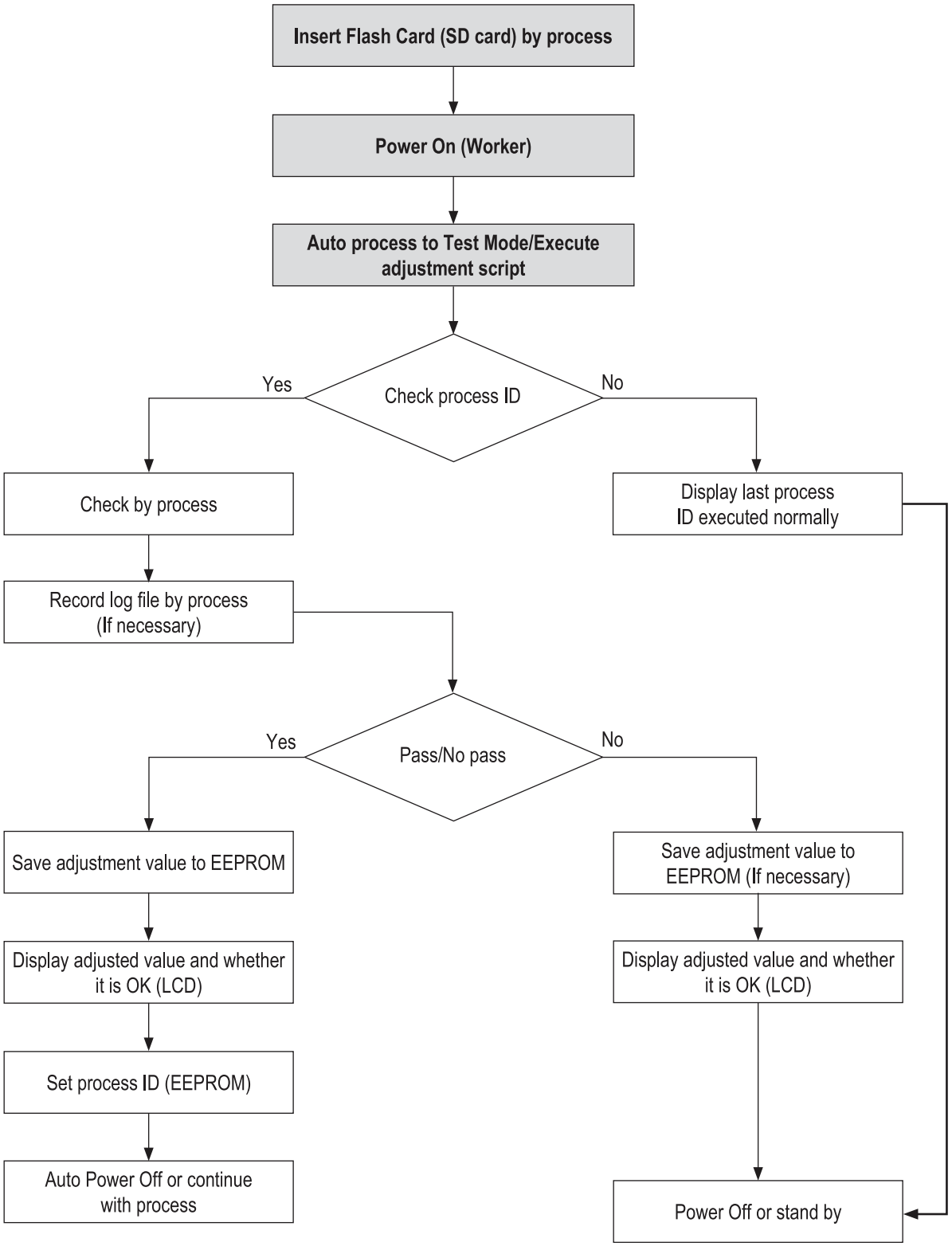

Figure 6.1

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6.2. Lens Shading

NOTE

- Make adjustments to the Lens Shading to the surrounding brightness of each camera.
- Because the surrounding brightness is lower compared to the center for each set, separately adjust each set so that the surrounding brightness is higher.

<Adjustment method>

1) Prepare the AE TESTER.
   - Luminance specification of the Light box is **12LV**.
   - The Light box is located at 10mm±1mm with the body tube open.
   - The color temperature specification of the Light box is **3300K.**
2) Save the applicable adjustment file to the microSD card.
3) After inserting the microSD card containing the program file to the camera, set the camera to the AE TESTER.

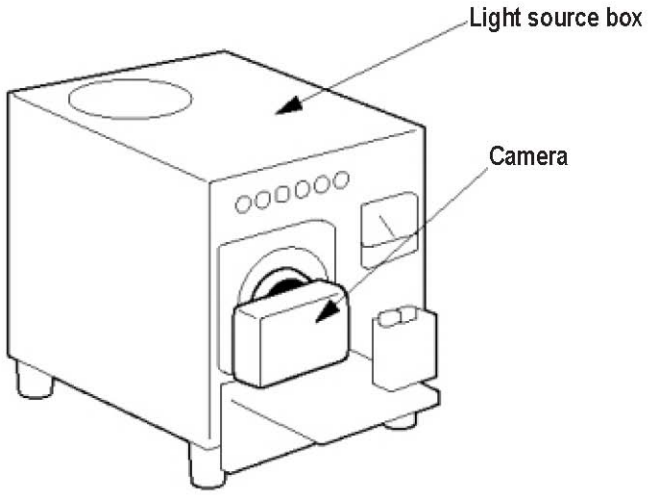

Figure 6.2

4) Adjust the LV value of the AE METER to **12**.
5) When you turn on the power of the camera, the adjustment will start automatically.
   a) Adjust the Lens Shading with large lense, Zoom 0 condition.
   b) Refer to the EEPROM WRITE information and write the adjustment result to EEPROM.
   c) Refer to the CARD WRITE INFORMATION to write the adjustment result to the data file.
   d) Set the lower and upper specification.
6) When the adjustment is completed, the camera will automatically be turned off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

<Restriction>

If the capacity of CSV file is more than 30KB, clear all of the previous data and then, record.

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6.3. B/T Level ADJ

NOTE

- Adjust the level of reference voltage to display the battery condition by each camera.

<Adjustment method>

1) Prepare the POWER SUPPLY.
2) Use the battery jig to connect the POWER SUPPLY to the camera.
3) Set to voltage of 4V.
4) Save the applicable adjustment file to the microSD card.
5) After inserting the microSD card containing the program file, turn on the power of the camera.
6) The adjustment will automatically start. This is not displayed on the screen.
   a) Execute A/D Conversion of the current power supply condition.
   b) After the A/D conversion value of the current power supply voltage is measured, check whether it falls within the error range. (Idle mode)
      [Min A/D conversion value] <= [A/D conversion value of power supply voltage] <= [Max A/D conversion value]
   c) Refer to the warning and prohibition label to execute the check.
   d) Refer to the EEPROM WRITE information and write the adjustment result to EEPROM.
   e) Refer to the CARD WRITE INFORMATION to write the adjustment result to the data file.
7) When the adjustment is completed, the camera will automatically be turned off.

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6.4. IRIS ADJ

NOTE

- Adjust the close time of the equipment shutter of each camera.
- When using the multi-layer iris, there might be deviation in the aperture of each layer.
  Therefore, try to reduce the deviation of the aperture of each layer by adjusting each aperture set.

<Adjustment method>

1) Prepare AE TESTER which is adjusted by **LV 12**.
2) Install AE TESTER on camera.
   - Brightness of the light box is **12 LV.**
   - The color temperature of the light box is **3300K.**

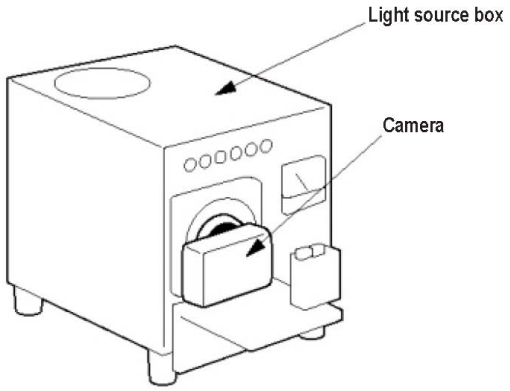

Figure 6.3

3) Install microSD card with program files and then, turn the camera on.
4) Adjustment is made automatically.
   a) Set an ideal AV value for each iris layer.
   b) Set the exposure time and the gain value and change the iris layer and measure the preview G value for each iris layer.
   c) 2 conditions is satisfied, if the preview G value for the big iris layer is bigger than that for the small one. If not, NG.
   d) Determine if A V value calculated for each iris is within the iris adjustment range. If it is, Preview G value is satisfied. If not, NG.
      - If the 2 conditions are satisfied, set the iris value to be actually used using the difference between the AV values of the iris layers calculated.
   e) Refer to EEPROM WRITE information to write the adjusted value on EEPROM.
   f) Refer to CARD WRITE information to write the adjusted value on a data file.
5) Once the adjustment is completed, the camera is automatically off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

<Restriction>

If the capacity of CSV file is more than 30KB, clear all of the previous data and then, record

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6.5. Shutter Close Time ADJ

NOTE

- Adjust the Close timing of the device shutter by camera.
- Because there is a deviation of shutter closing time by each set, make adjustments by each set to reduce this deviation.
- AWB LOW item and AWB LOW are adjusted simultaneously.

<Adjustment method>

1) Prepare AE TESTER which is adjusted by **LV 12**.
2) Install AE TESTER on camera.
   - Brightness of the light box is **12 LV.**
   - The color temperature of the light box is **3300K.**

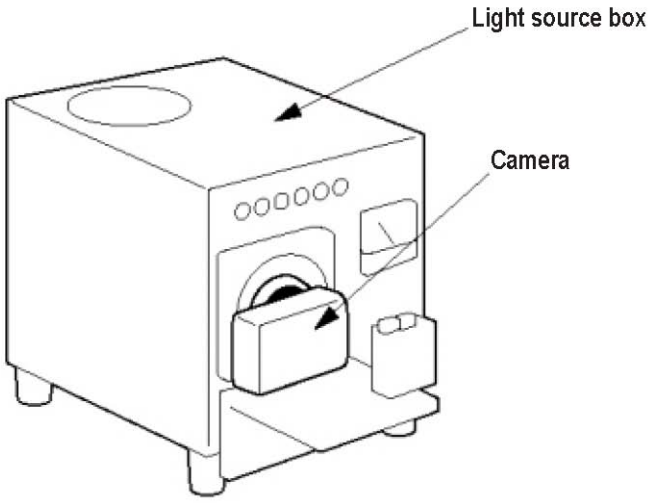

Figure 6.4

3) After inserting the microSD card containing the program file to the camera, turn on the power of the camera.
4) Refer to the specification (Illiminance) for testing.
   a) Refer to the specification (Illiminance) for testing.
      - Line delay and Sub delay are adjusted so that the appropriate value can be identified to the specification illuminance.
   b) If the result line delay wis within the min and max range, it is OK. If it is outside of the range, process as NG.
   c) Refer to the EEPROM WRITE information and write the adjustment result to EEPROM.
   d) Refer to the CARD WRITE INFORMATION to write the adjustment result to the data file.
5) When the adjustment is completed, the camera will automatically be turned off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

<Restriction>

If the capacity of CSV file is more than 30KB, clear all of the previous data and then, record

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6.6. CCD Gain ADJ

NOTE

- Because there is a deviation of CCD saturation level by each CCD, make adjustments to the basic analog gain to reduce this deviation.

<Adjustment method>

1) Prepare the AE TESTER.
   - Luminance specification of the Light box is **12LV.**
   - The Light box is located at 10mm+-1mm with the body tube open.
   - The color temperature specification of the Light box is **3300K.**
2) Save the applicable adjustment file to the microSD card.
3) After inserting the microSD card containing the program file to the camera, set the camera to the AE TESTER.

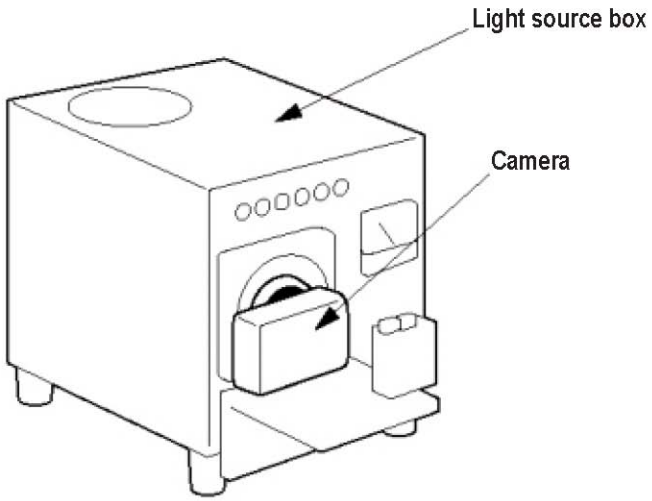

Figure 6.5

4) Adjust the LV value of the AE METER to **12.**
5) When you turn on the power of the camera, the adjustment will start automatically.
   a) Adjust the Gain.
   b) Refer to the EEPROM WRITE information and write the adjustment result to EEPROM.
   c) Refer to the CARD WRITE INFORMATION to write the adjustment result to the data file.
   d) Set the lower and upper specification.
6) When the adjustment is completed, the camera will automatically be turned off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

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6.7. Flash ADJ

NOTE

- Set a limit to the illuminance by the Strobe light to classify the hardware defect.
- Classify the set that deviates from the spcification by illuminating 2 times and then calculate the flash R, B gain.

<Adjustment method>

1) Attach an 18% reflective paper in the dark room where the light is blocked.
2) Set up the camera in the dark room.
3) Set the distance between the reflective paper and camera to 50cm.

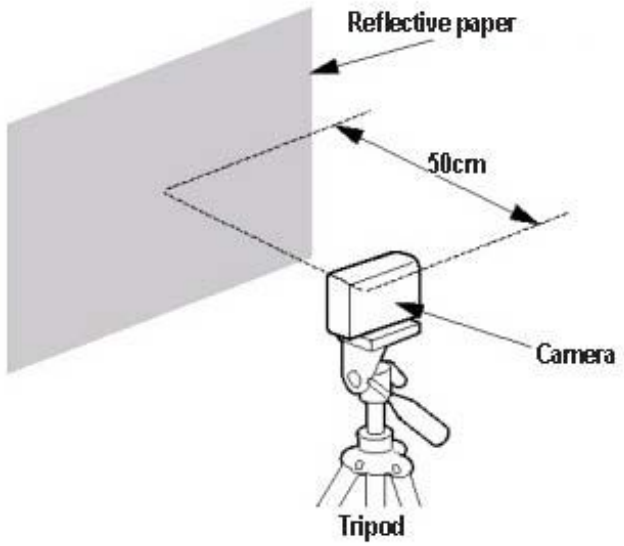

Figure 6.6

4) Save the applicable adjustment file to the microSD card.
5) After installing the microSD card containing the program file, turn on the power of the camera.
6) The adjustment will automatically start.
   a) Compare the reference illumination for 2 illuminations using the flash algorithm, and make a judgment.
   b) By using the average value of the illuminance of 2 times, check the R and B gain to make Pass/No Pass judgment.
   c) Record the R and B gain to EEPROM during flash process and R, B gain success.

<Adjustment method>

On the memory card, open and check if a CSV file was generated from the adjustment.

<Restriction>

If the capacity of CSV file is more than 30KB, clear all of the previous data and then, record.

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6.8. PUNT ADJ

NOTE

- Adjustment objective: After replacing the MAIN PCB and BARREL, you must decide the AF search range so that the optimal focus can be identified by the body tube.
- Necessary equipment: Infinity Callimator

<Adjustment method>

1) Save the adjustment file to the microSD card and install it on the camera.

2) Refer to the following adjustment environment specification to adjust the focus.
   a) Used specification of Infinity Callimator
      - Set the illuminance specification of the Callimator to 6 LV.
      - Maintain distance of less than 1cm between the end of the camera body tube to the lens surface of the Infinity Callimator.
      - The camera must be fixed while the adjustment is made.

Figure 6.7

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b) Used specification for infinite object

- The camera must be fixed with a tripod and leveled condition must be maintained.
- Set up the camera toward a building or object in infinite distance (more than 500m). (Do not use the chart)
- Set a cathedral, partment or object with high contrast in day environment/AF area display.

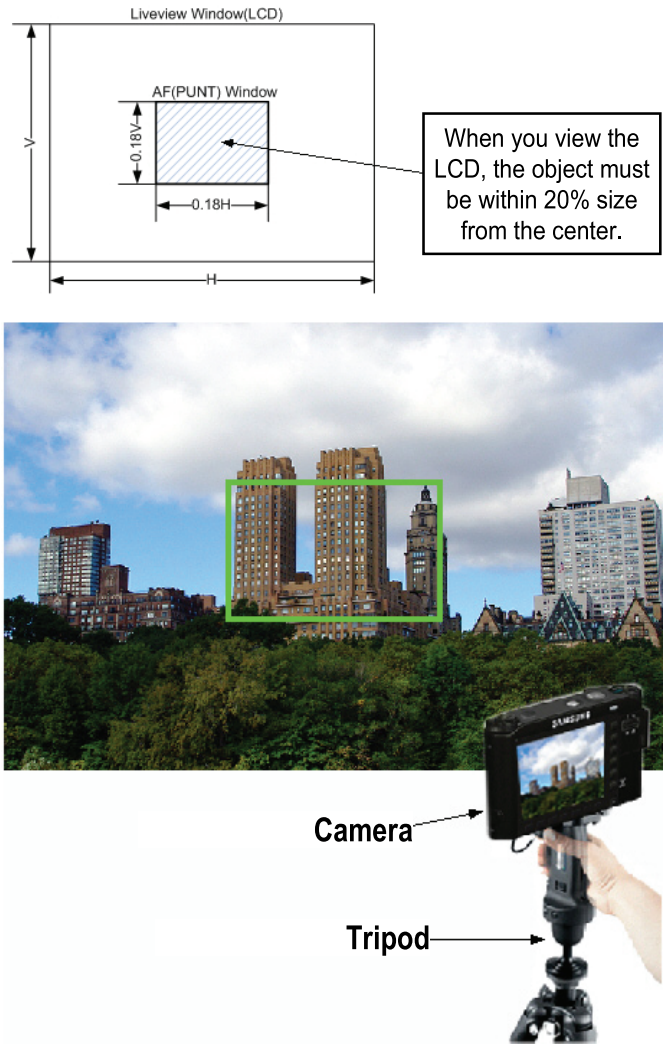

Figure 6.8

CAUTION

- **For the object, exclude full glass buildings or objects with low contrast, and this cannot be adjusted for night time. For the adjustment in these environments, AF may not be accurate when shooting Tele or Macro.**

3) Turn on the power of the camera.

4) The adjustment will automatically start.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

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6.9. Burning ADJ

NOTE

- Repeatly operate various functions of the camera to detect sets with H/W or S/W defects.

<Adjustment method>

1) Save the Burning program to the microSD card.

2) After inserting the microSD card containing the program file, turn on the power of the camera.

3) The camera will automatically operate in the order of the set function.
   a) Execute the Booting operation.
   b) Check the set operation cycle repetition, number of functional tests, function
      1, function 2, ..., and execute the operation for each function.
      - When the cycle of one function starts, the number of remaining cycles and completed function code are saved in EEPROM. (This is to classify the defective operation)
      - **EEPROM address - Davinci_125UW : 744 burn count) , 746(Cycle in progress)**
   c) When the Burning process is completed, the power will automatically be turned off.

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6.10. CCD Defect ADJ

NOTE

- Calibrate the Defective pixel of CCD for each camera.

<Adjustment method>

1) Save the applicable adjustment file to the microSD card.
2) After inserting the microSD card containing the program file, turn on the power of the camera.
3) The adjustment will automatically start.
   a) Check the set reference level, exposure time and loop, and execute the Defective Pixel calibration.
   b) Refer to the specification (Maximum number of defective cells) and execute the check.
   c) Refer to the CARD WRITE information to write the number of defective cells to the data file.
4) When the adjustment is completed, the camera will automatically be turned off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

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6.11. BackLash ADJ

NOTE

- Calibrate the error that occurs when the direction of the lens change by each camera.

<Adjustment method>

1) Save the applicable adjustment file to the microSD card.
2) After inserting the microSD card containing the program file, turn on the power of the camera.
3) The adjustment will automatically start.
   a) Close the body tube.
   b) After moving the body tube to Tele, calculate the error of PI count after it comes to Close.
   c) Repeat as many times as the count as above and obtain PI Count error sample to calculate the average.
   d) Judge whether the obtained average falls within the range of Max_backLash Range.
   e) Prepare the log file and move to Wide.
4) When the adjustment is completed, the camera will automatically be turned off.

<Adjustment result>

On the memory card, open and check if a CSV file was generated from the adjustment.

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6.12. Serial number writing process

NOTE

- Save S/N on the label of the camera in non-volatile memory due to the illegal distribution of DSC.
- When checking the version, check S/N to see if the camera is original or illegally distributed one.

<Process method>

1) Create the PL120_ADJ.txt, PL121_ADJ.txt file with below contents at PC and save into the Micro SD/SDHC card.
   - For Serial Number, put the Serial Number(Red text) at the previous main board.

```
sys_serial set 123456789012
sys_serial get
poweroff zoom_close
```

2) Insert the memory card that has modified file into the Main board.

3) Turn on the power of the camera

Figure 6.9

4) The change of Serial Number will be done automatically.

5) 5. When the adjustment is completed, the camera will automatically be turned off.

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<Process result>

When checking the version (Press SHUTTER button + DOWN button to turn on), S/N appears on the screen.

Figure 6.10

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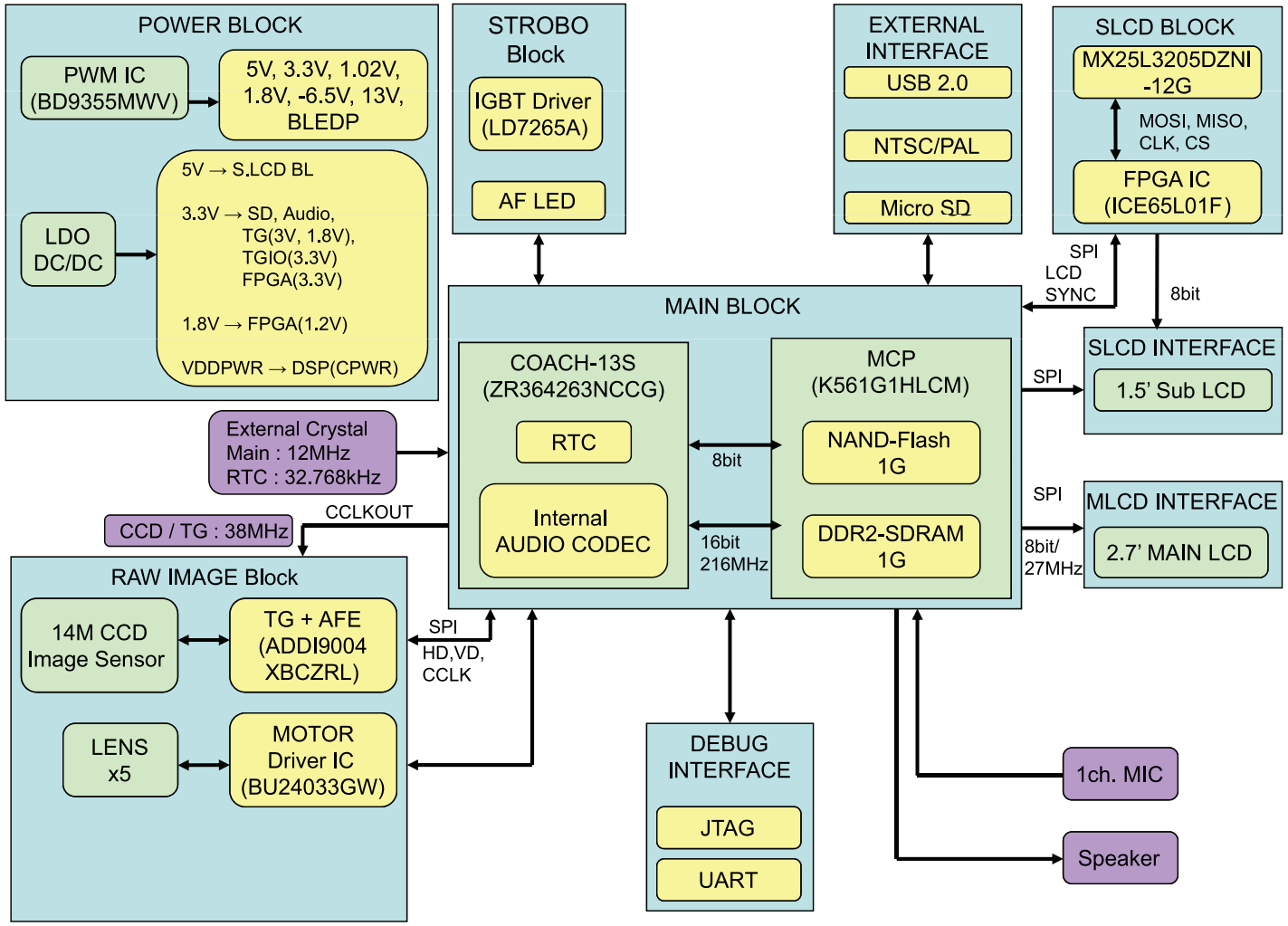
7. Block Diagram



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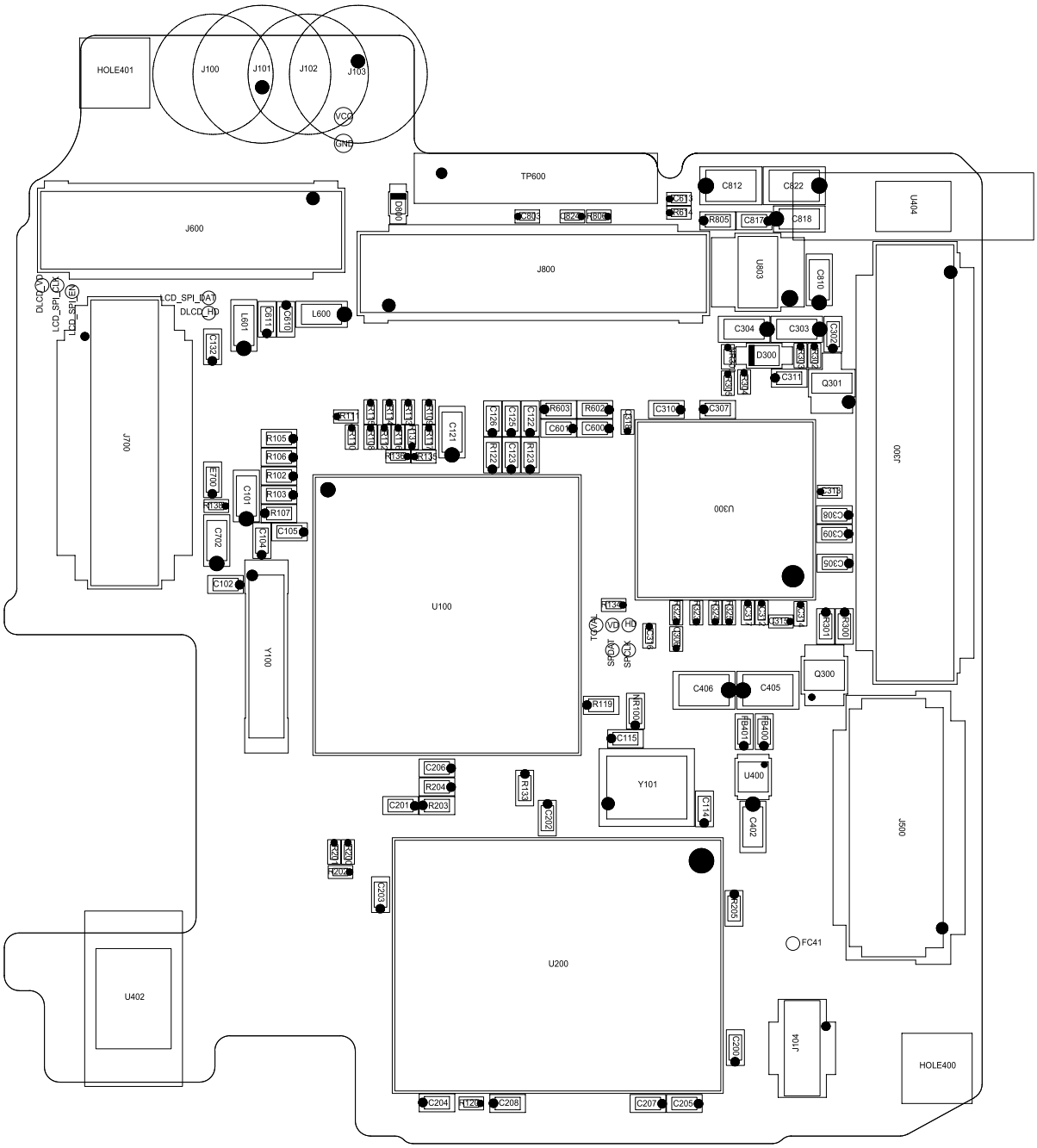
8. PCB Diagrams

8.1. MAIN PCB(TOP)



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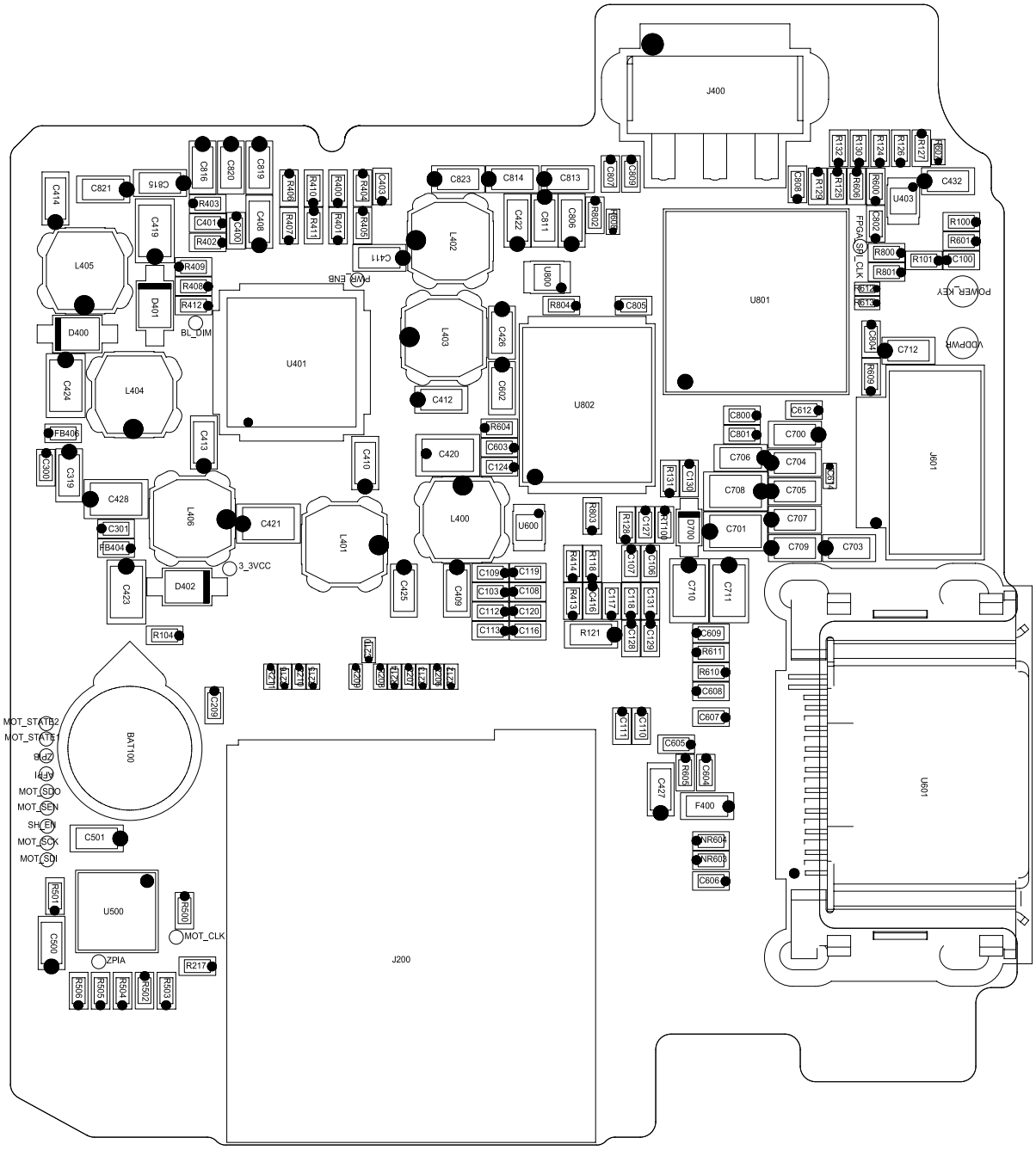
8.2. MAIN PCB(BOTTOM)



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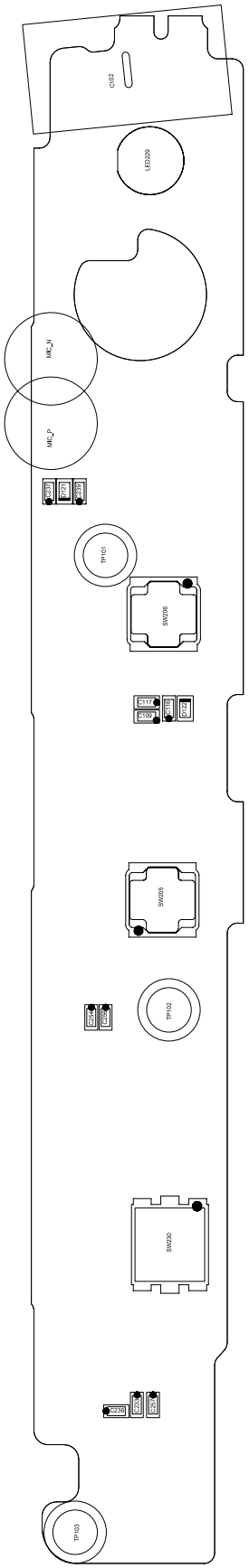
8.3. TOP PCB(TOP)



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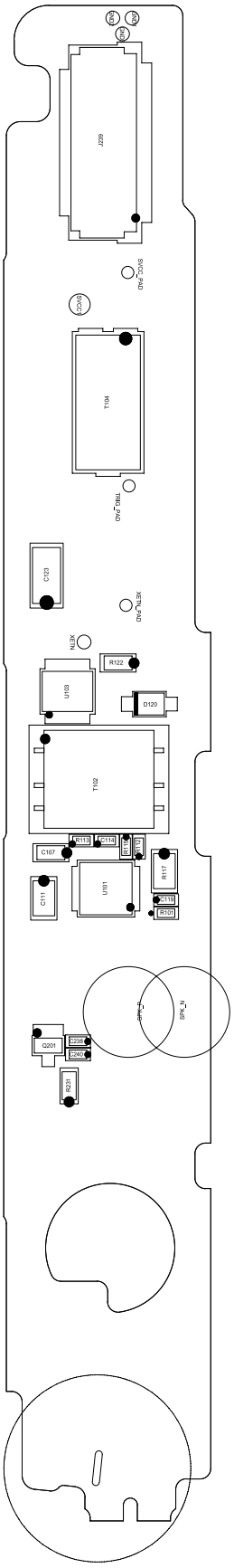
8.4. TOP PCB(BOTTOM)



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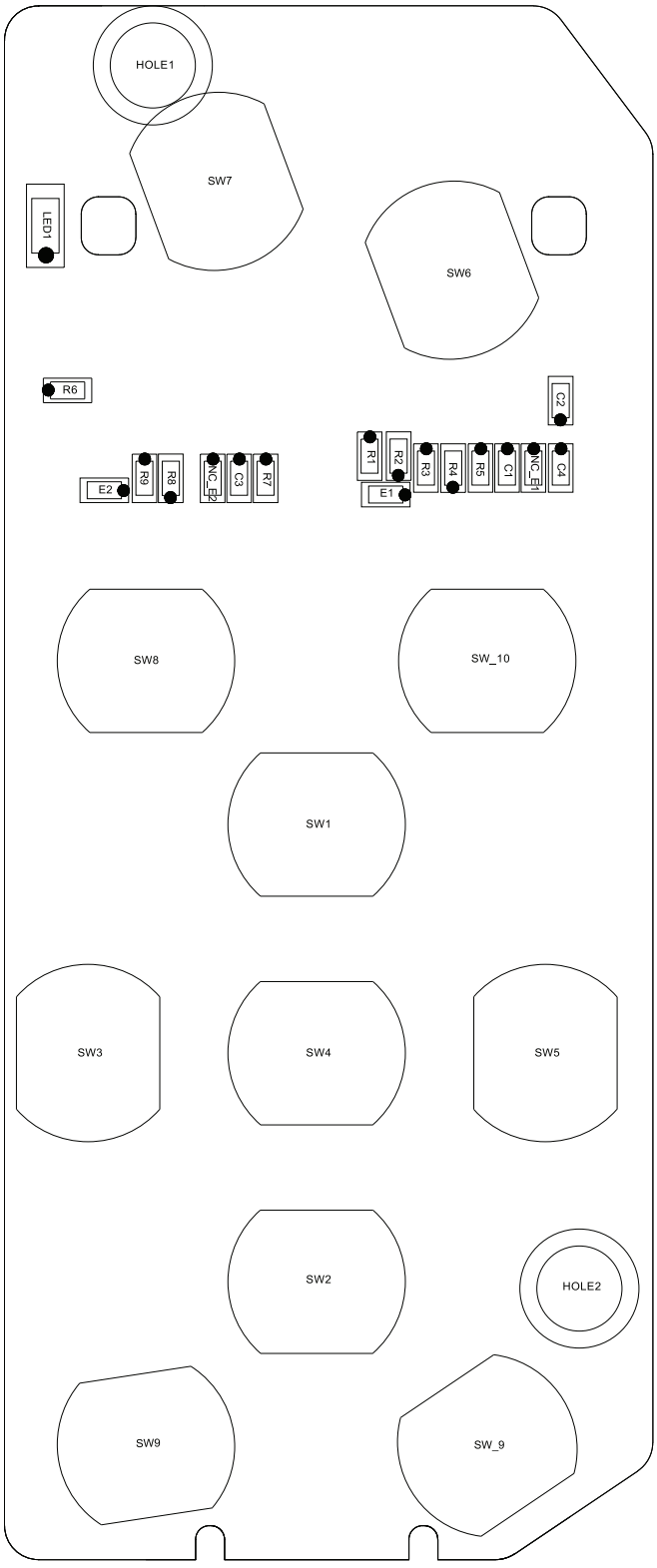
8.5. KEY PCB(TOP)



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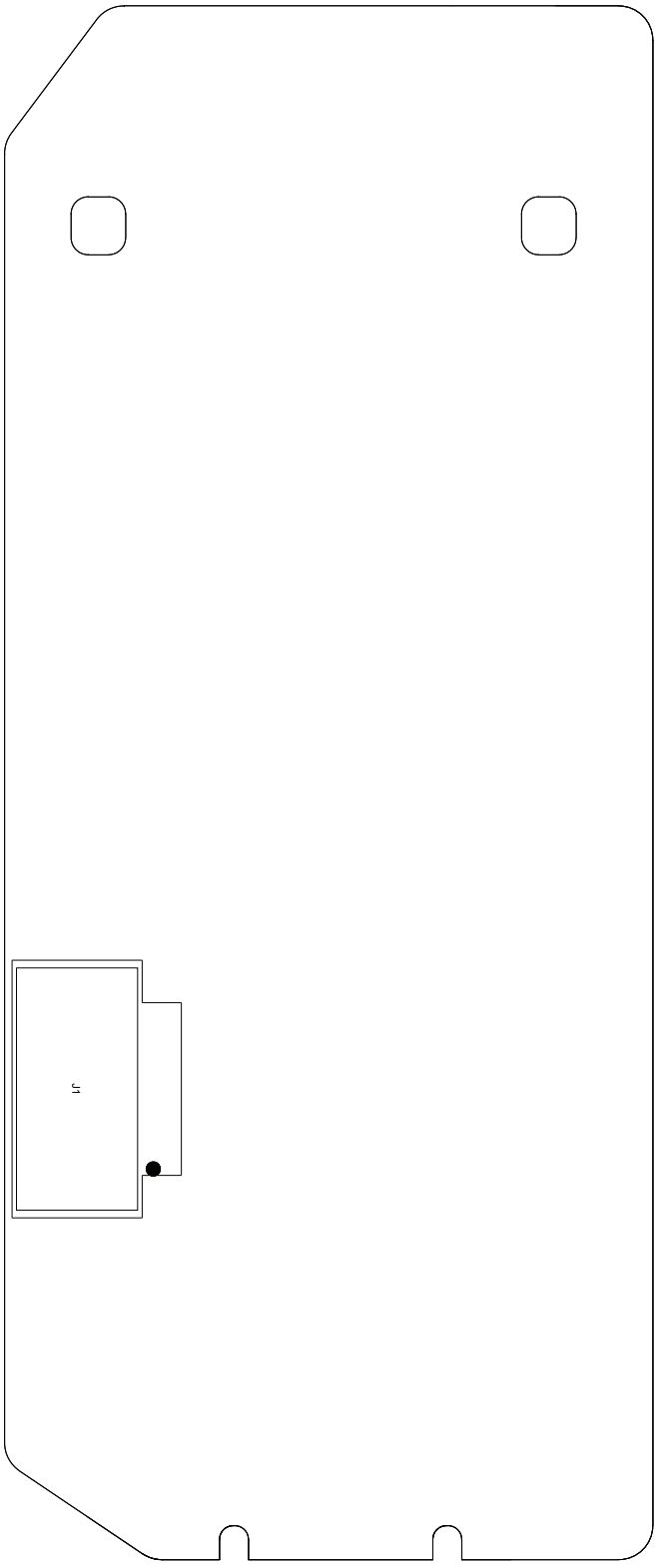
8.6. KEY PCB(BOTTOM)



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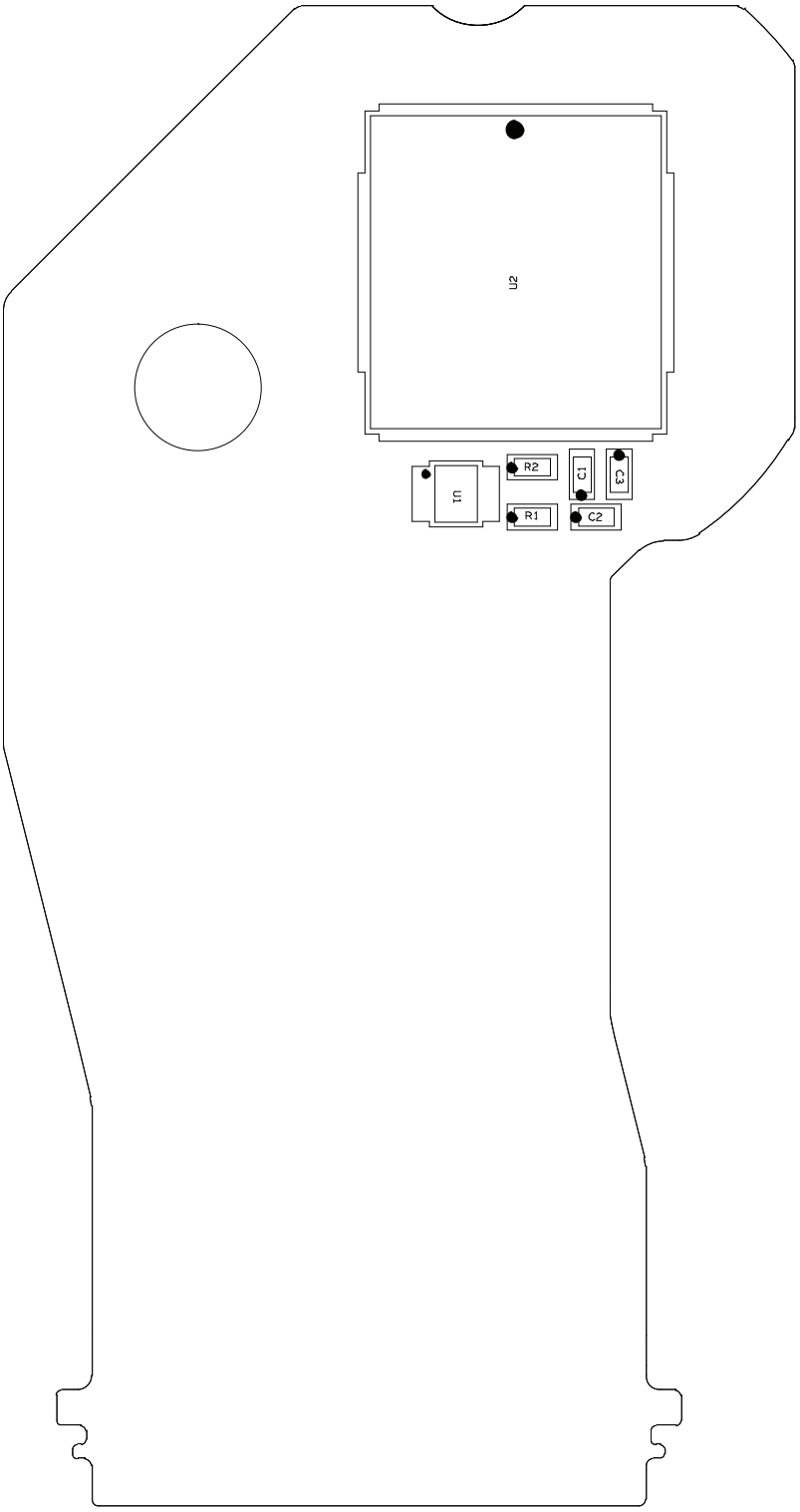
8.7. CCD FPCB



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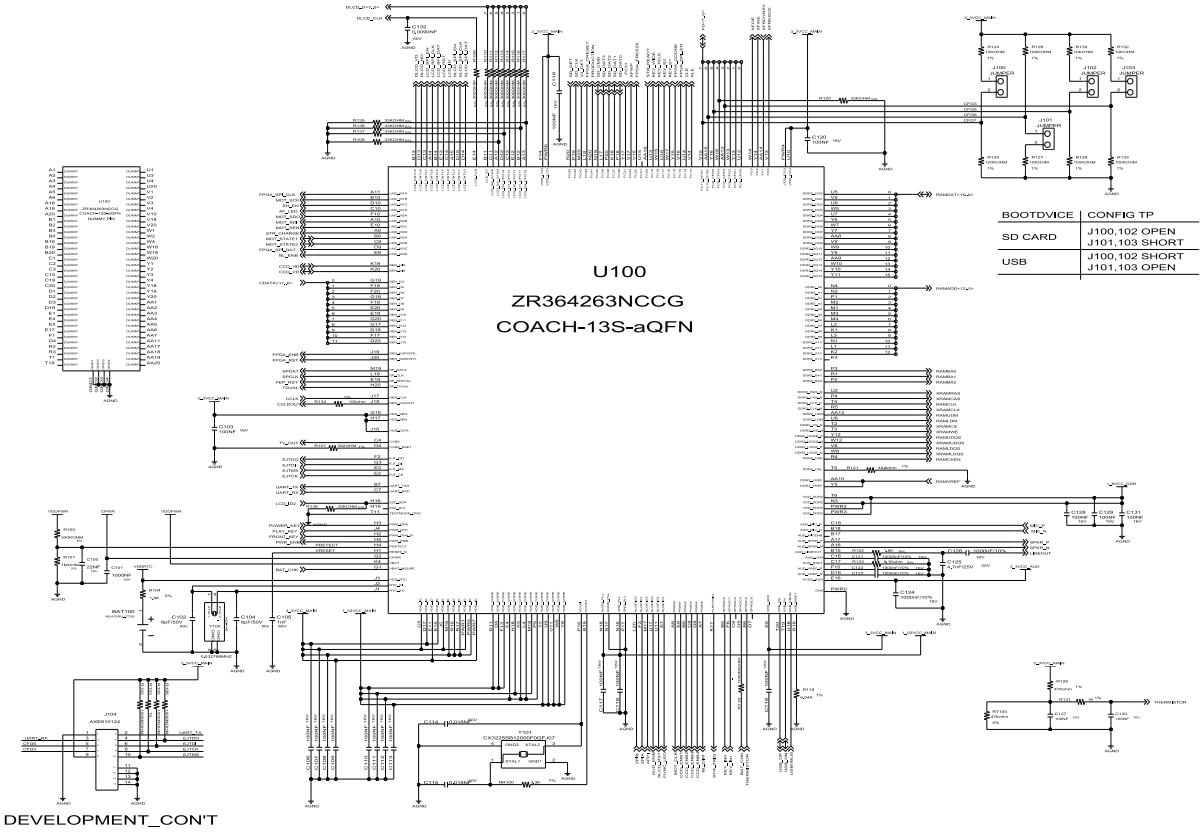
9. Schematic Diagrams

9.1. MAIN PCB-1



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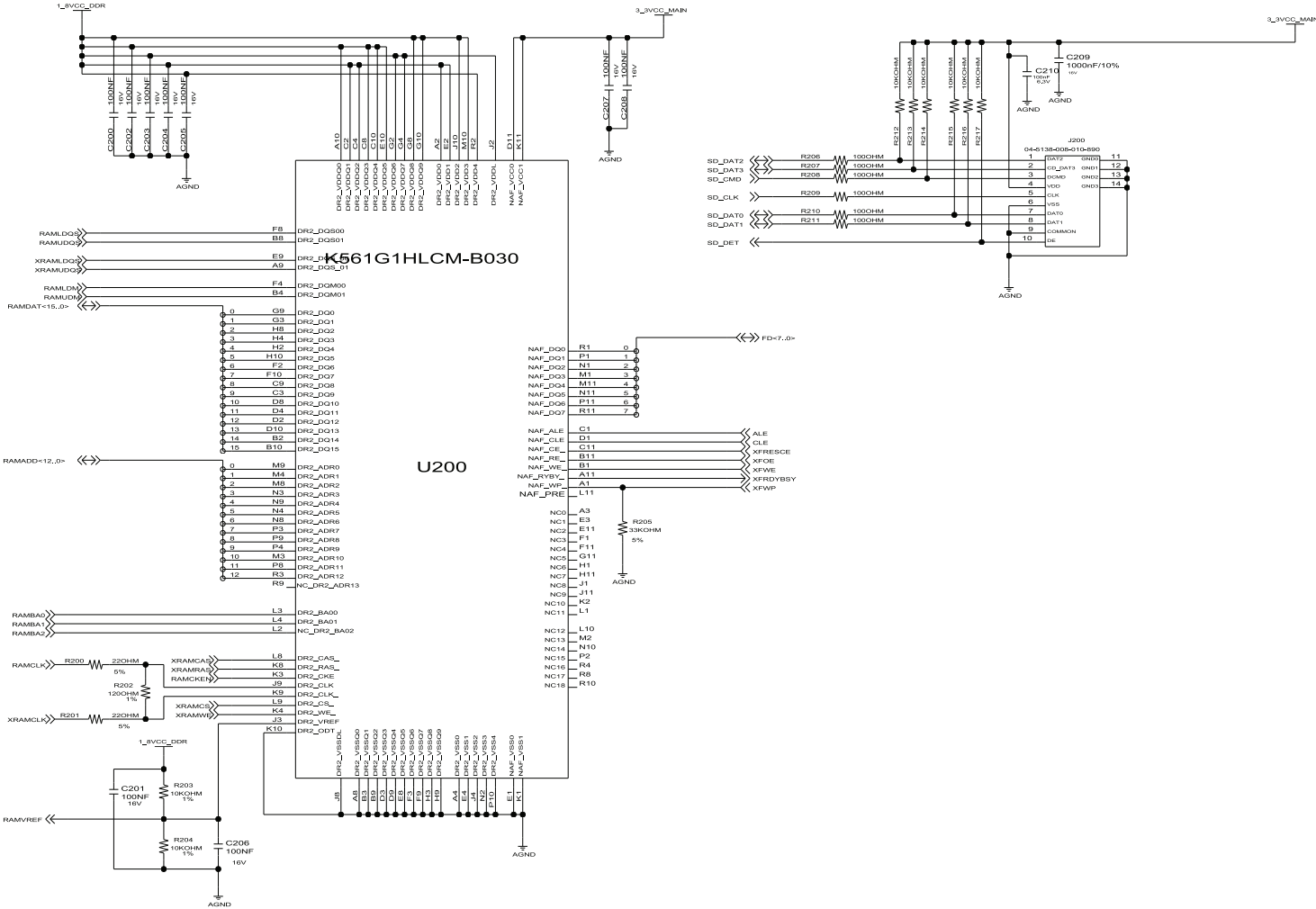
9.2. MAIN PCB-2



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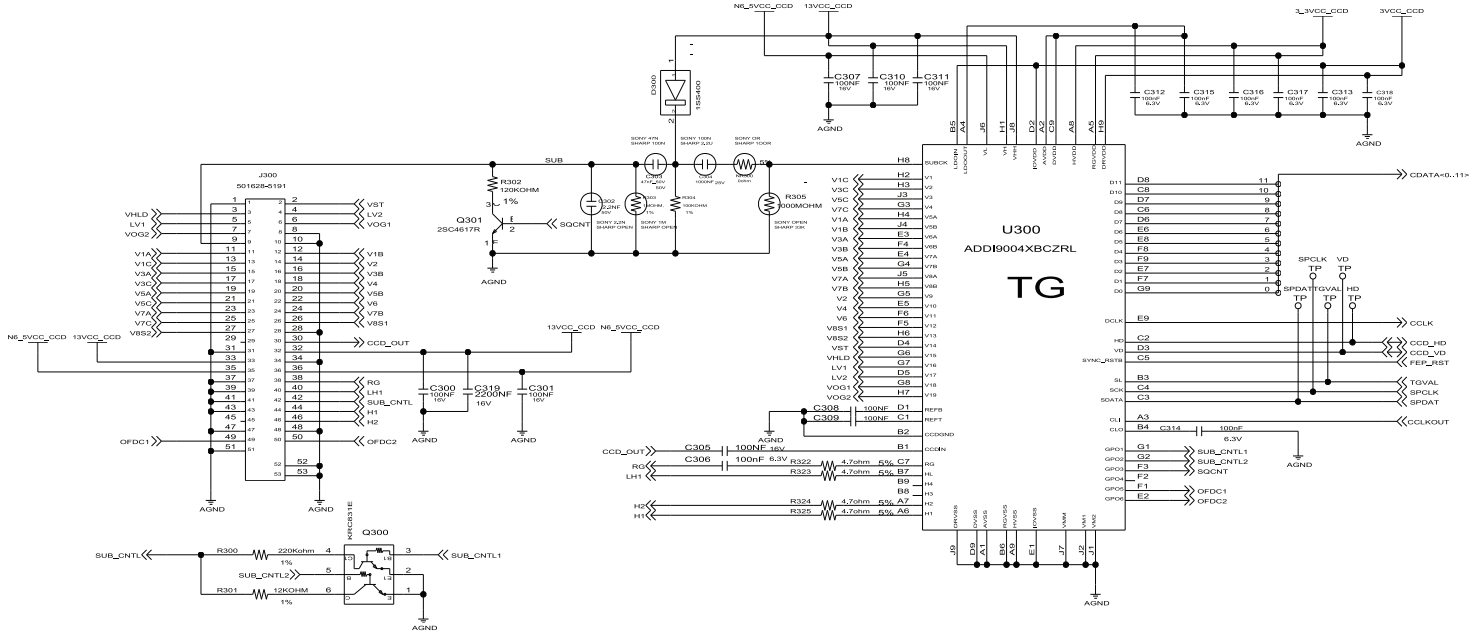
9.3. MAIN PCB-3



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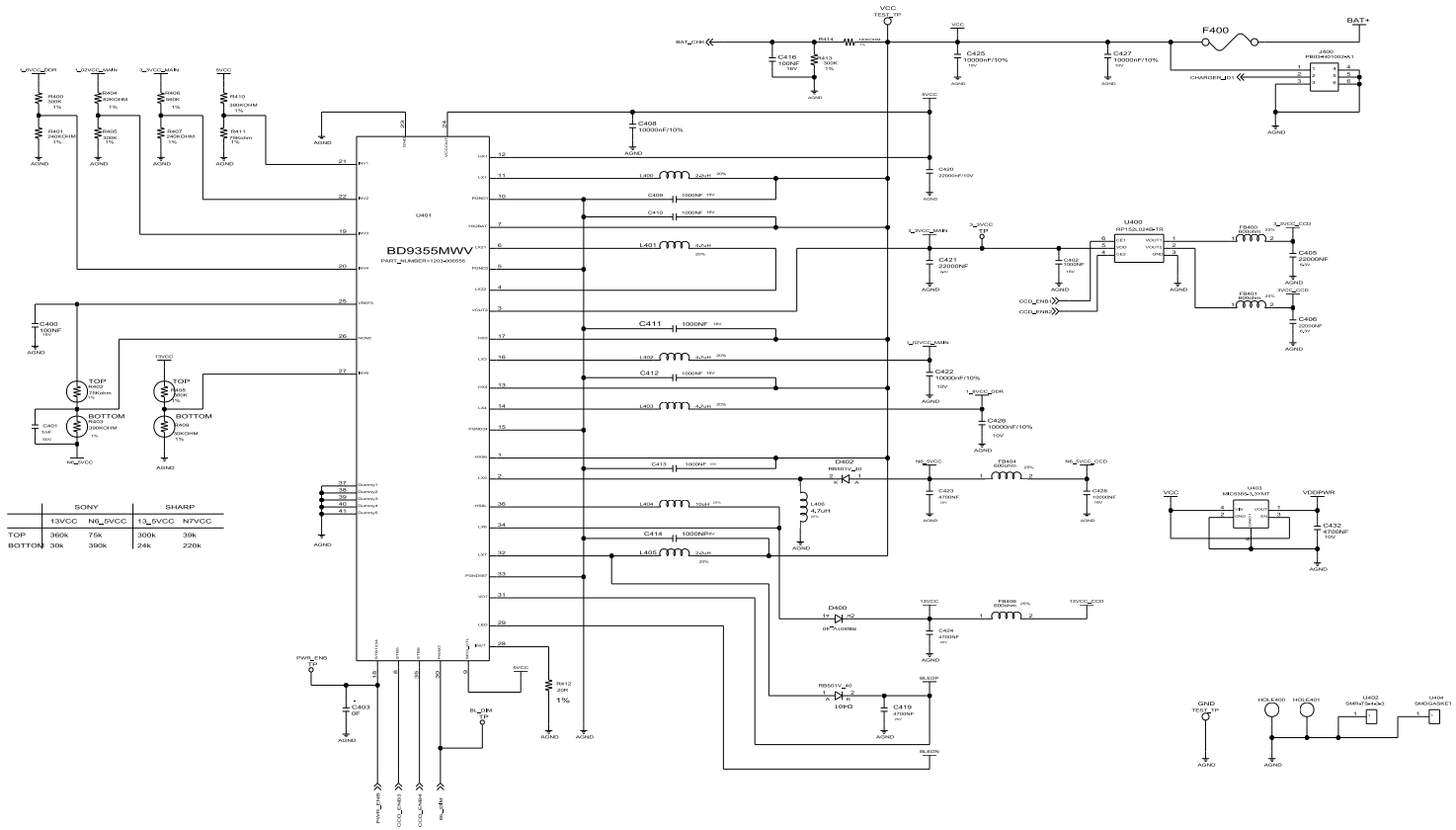
9.4. MAIN PCB-4



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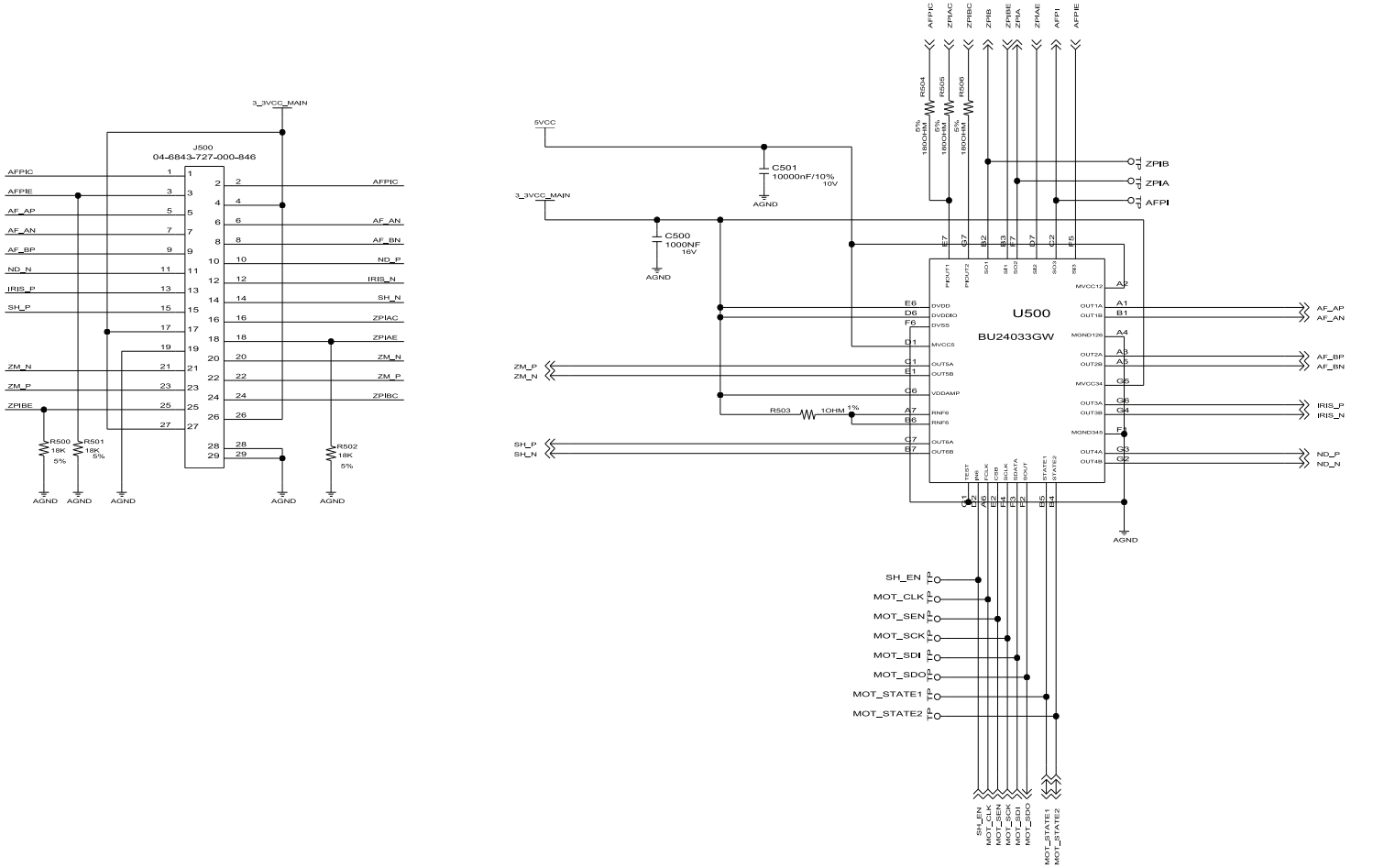
9.5. MAIN PCB-5



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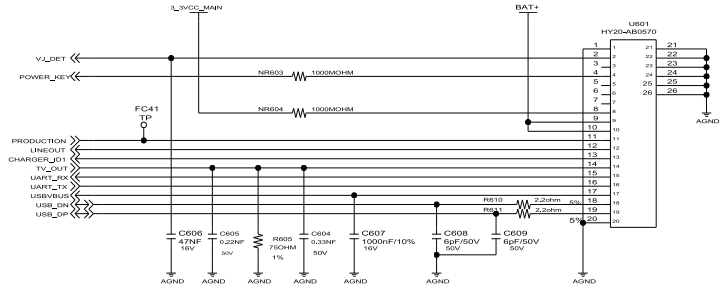
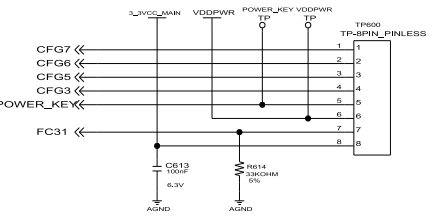
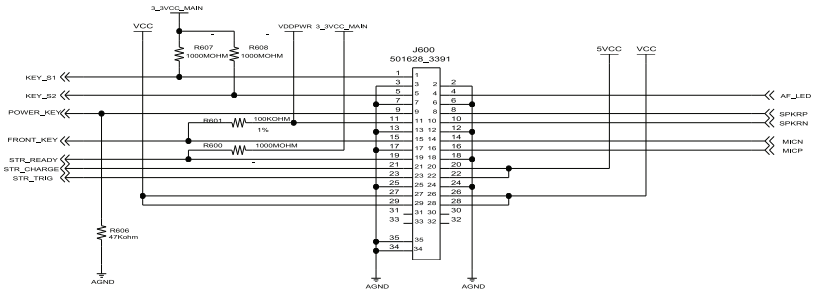
9.6. MAIN PCB-6

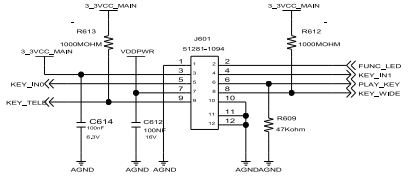


USB_AV CON'T

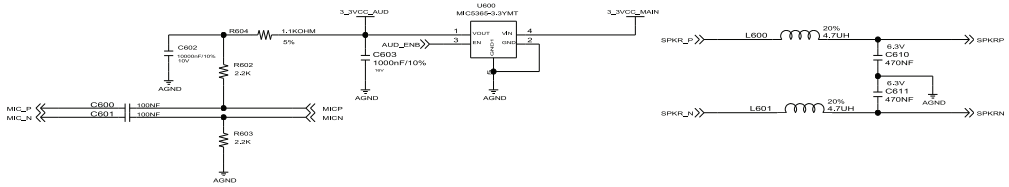




MAIN_TOP CON.



KEY CON.



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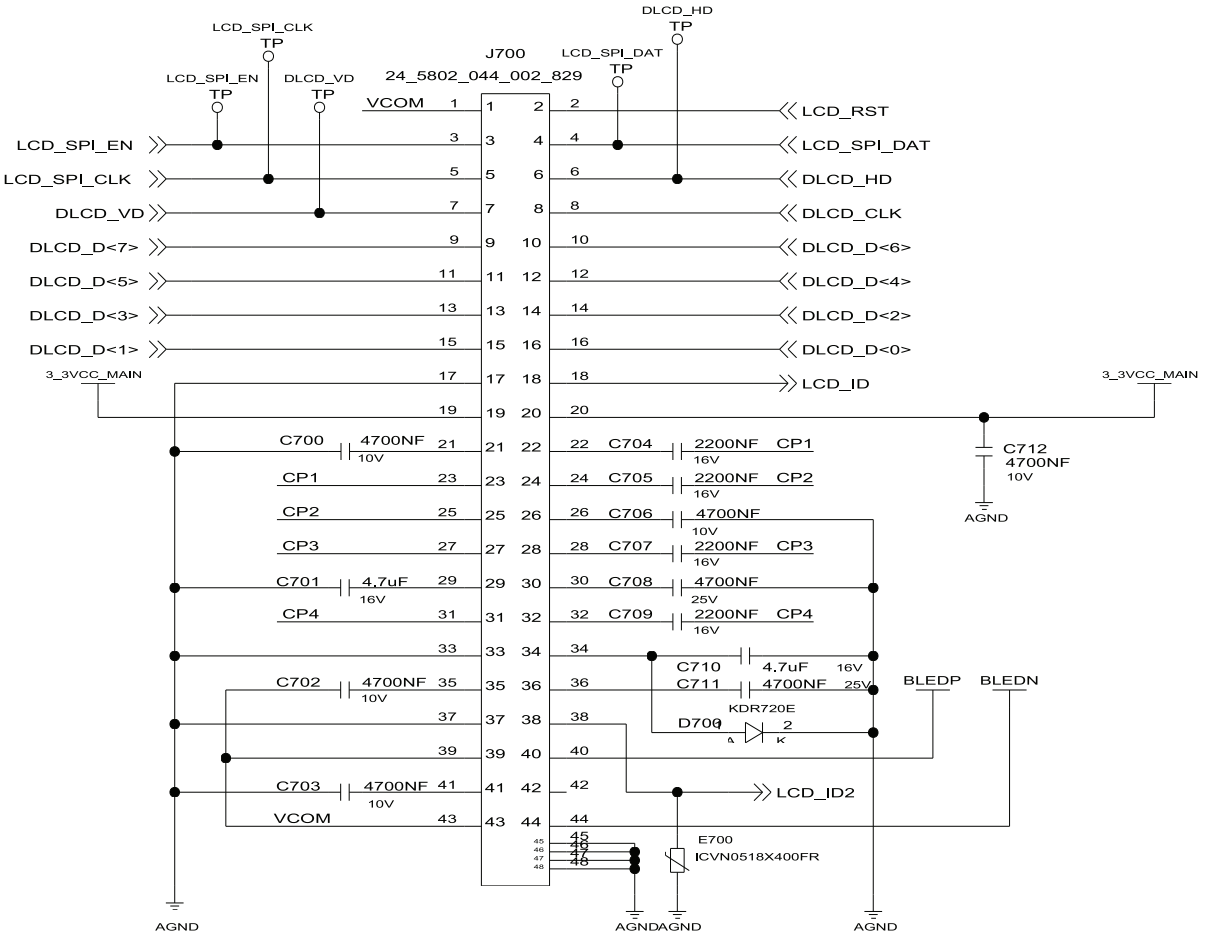
9.7. MAIN PCB-7



MAIN_LCD CON.

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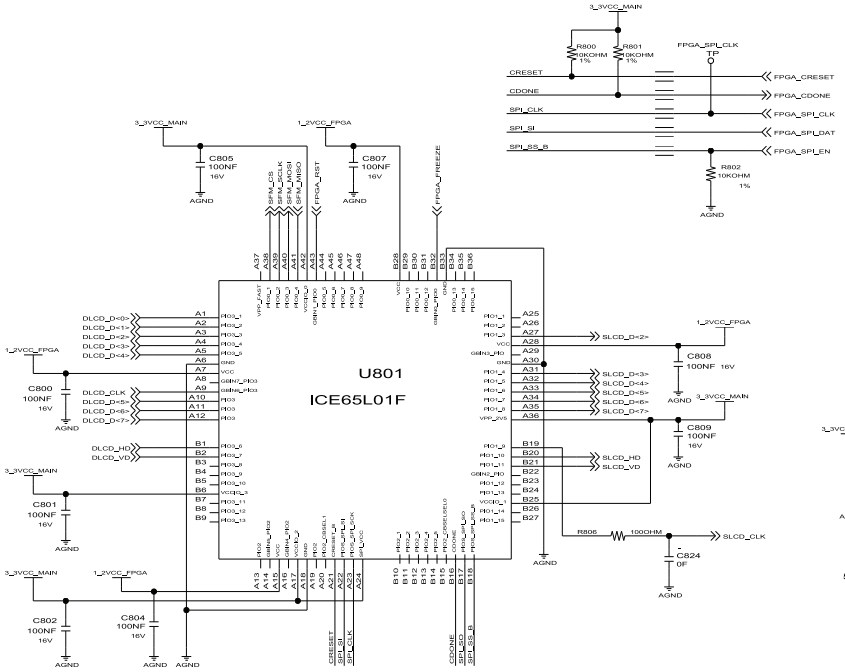
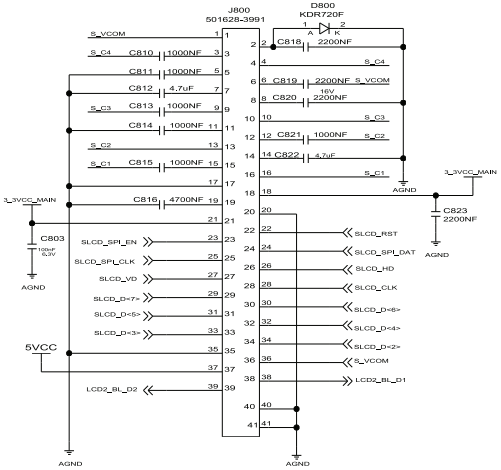
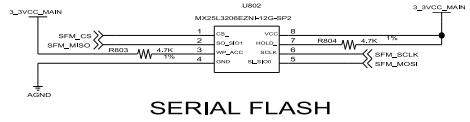
9.8. MAIN PCB-8



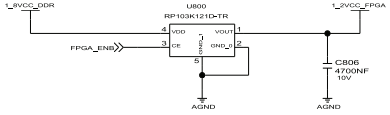
FPGA

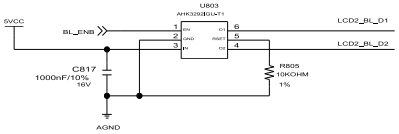


SUB_LCD CON.



SERIAL FLASH





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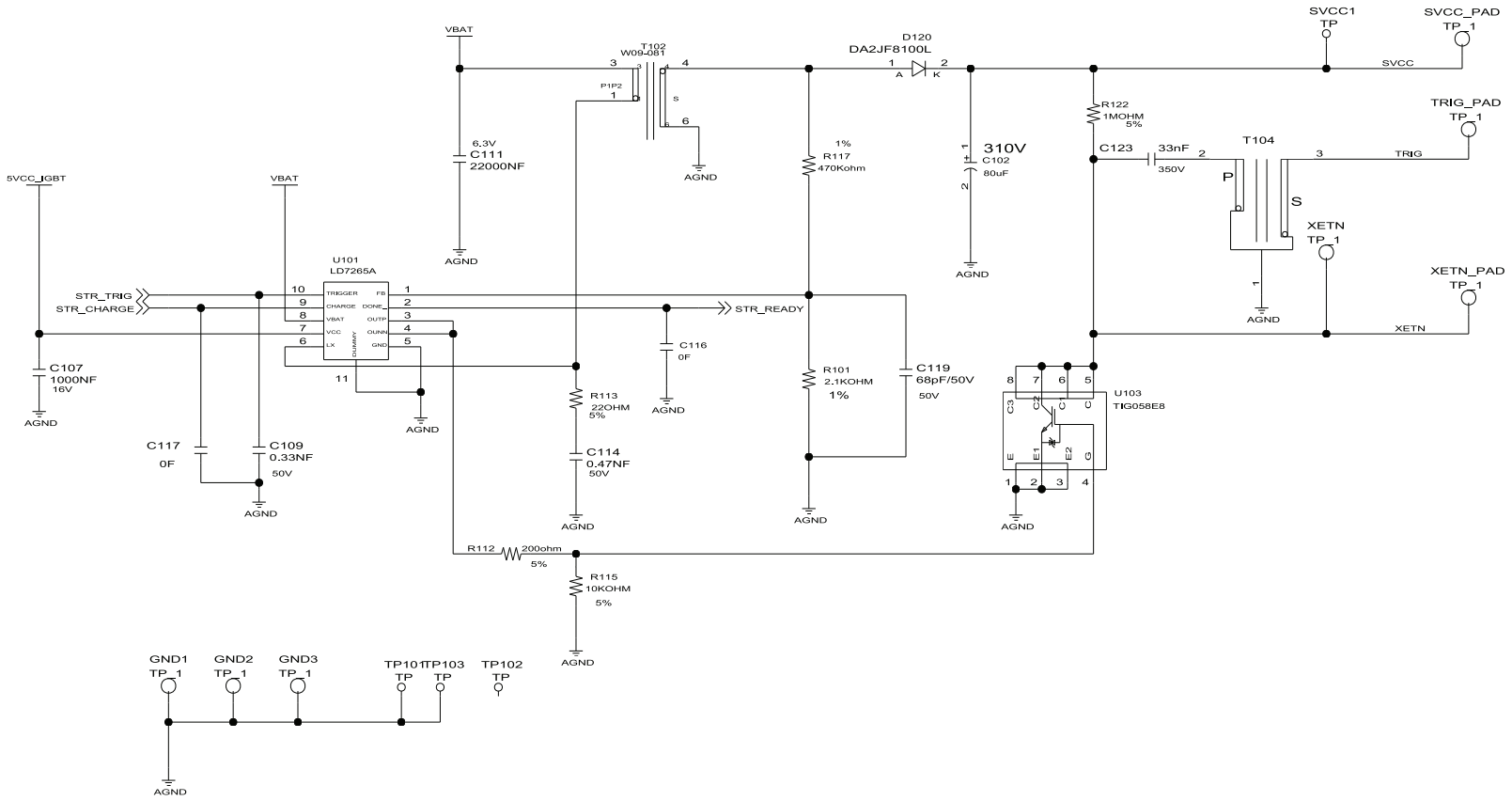
9.9. TOP PCB-1



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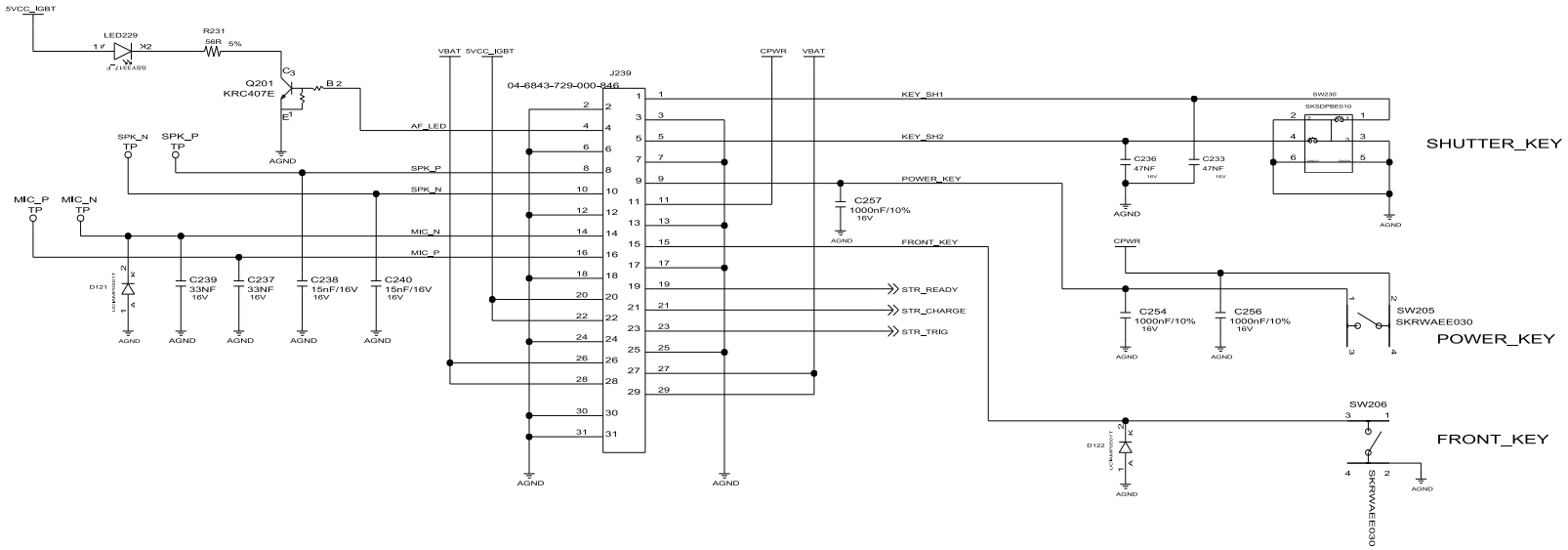
9.10. TOP PCB-2



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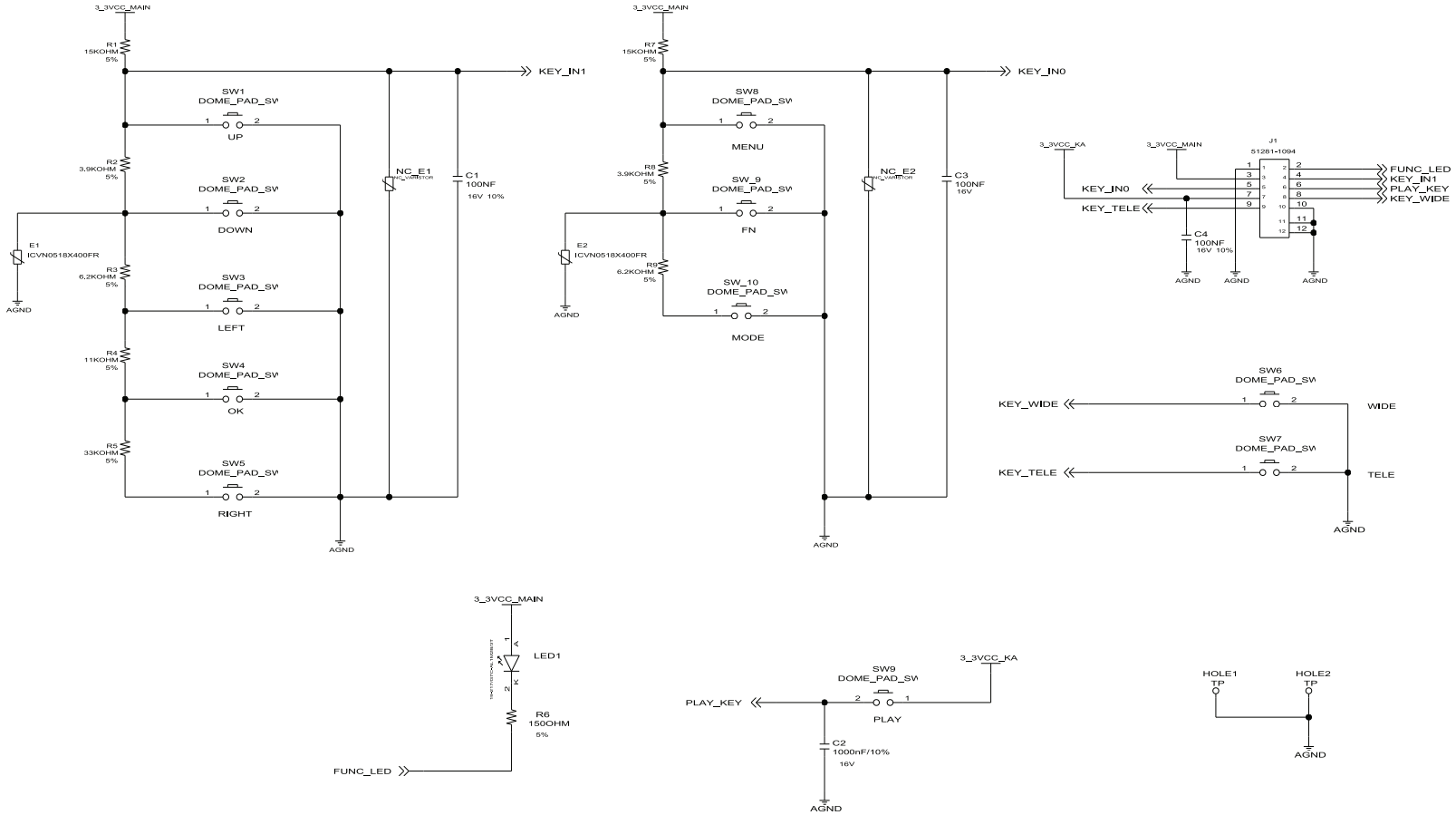
9.11. KEY PCB



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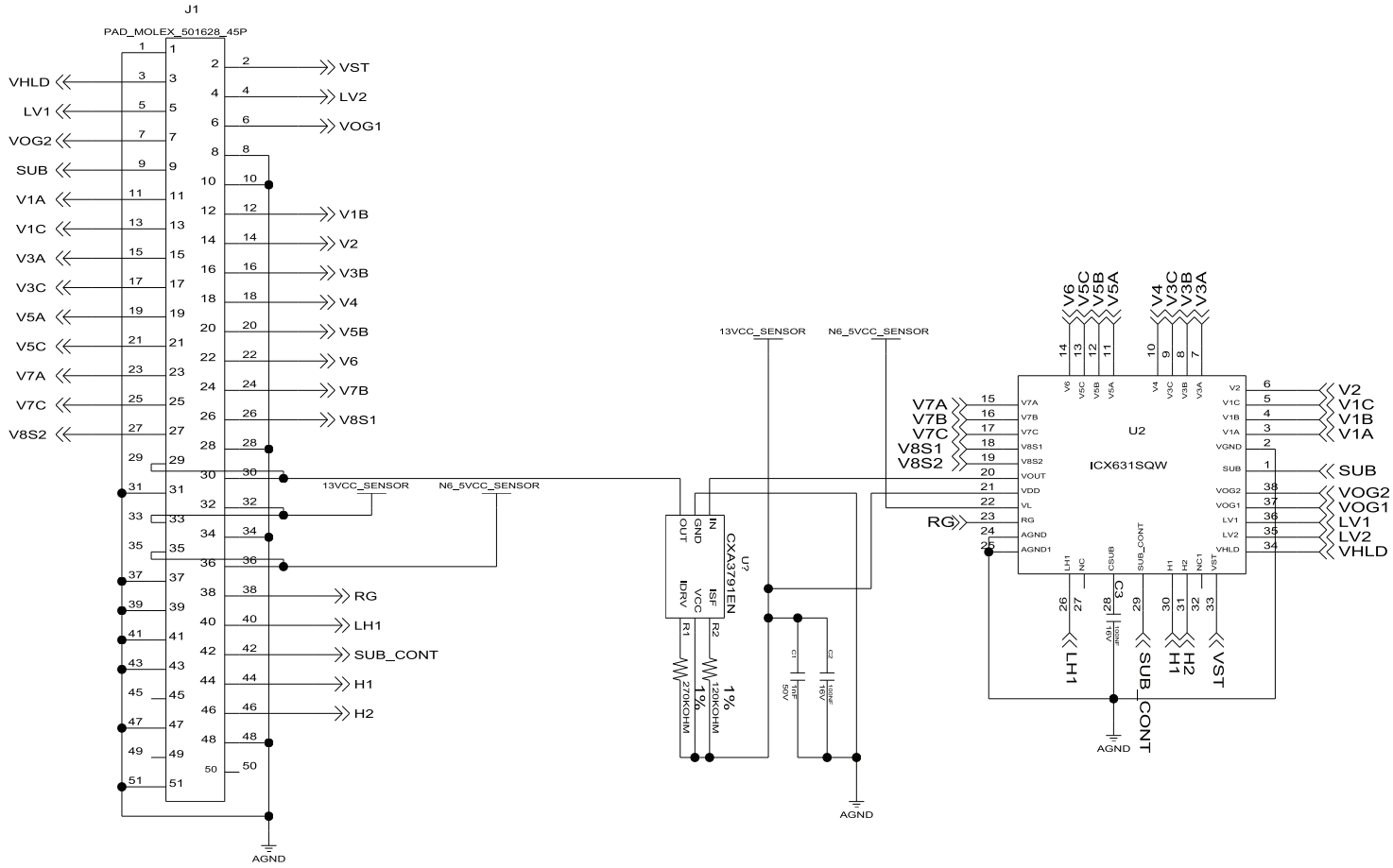
9.12. CCD FPCB



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10. Disassembly and Reassembly

10.1. Disassembly of main unit

CAUTION

Precaution for disassembly/reassembly

1) Set up the repair table where the anti-static mat is installed to disassemble and reassemble the camera.

2) When handling the key PCB of the camera, wear the anti-static band on the wrist to prevent any error from static electricity.

3) When handling key parts, be careful of the following.

Table 10.1 9-1

Part	Precaution
F PCB Type	When assembling the F PCB to the CONNECTOR with a pin set, be careful not to cause dents or tears on the PCB.
CCD and IR CUT	When handling the parts, be careful not to leave any fingerprints. Use the pin set with soft tips. When cleaning the parts with alcohol, be careful not to cause any stains. Do the repair work in a dust free environment.
PCB Type	Always use the anti-static mat and wrist band, as the parts can be damaged from static electricity from the hand.
CONTACT Type	Be careful of damage of deformation of parts from the pin set.

No	Disassembly image	Disassembly description
1		Remove 2 Screws.
2		Remove 1 Screw.

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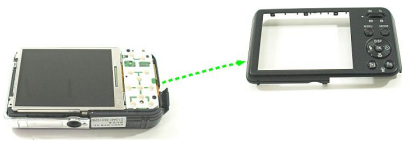
No	Disassembly image	Disassembly description
3		Remove 2 Screws.
4		Remove the Back Cover Assy.
5		Remove the Side Cover.
6		Remove the 1 Connector.
7		Remove the Front Cover Assy.

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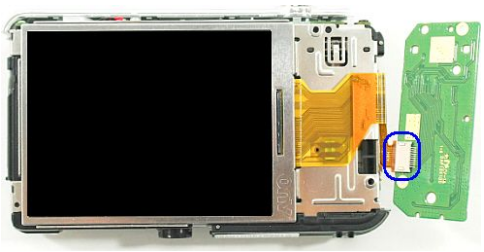
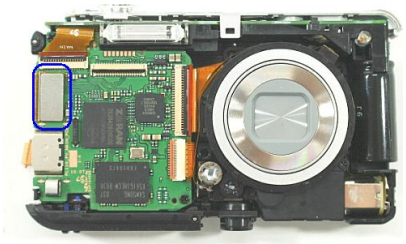
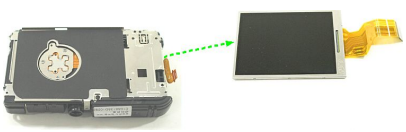
No	Disassembly image	Disassembly description
8		Remove 2 Screws.
9		Remove the 1 Connector.
10		Remove the Key PCB Assy.
11		Remove the 1 Connector.
12		Remove the LCD.

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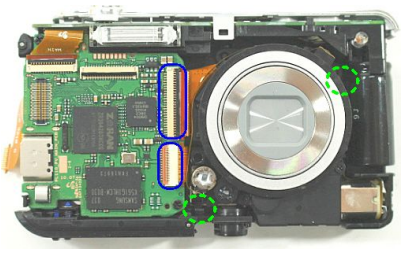
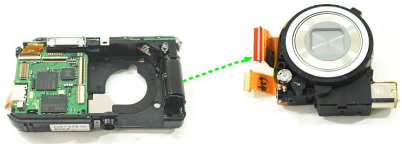
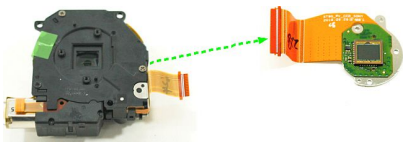
No	Disassembly image	Disassembly description
13		Remove the 2 Locks and 2 Connectors.
14		Remove the Barrel Assy.
15		Remove 3 Screws.
16		Remove the CCD PCB Assy.
17		Remove 2 Screws.

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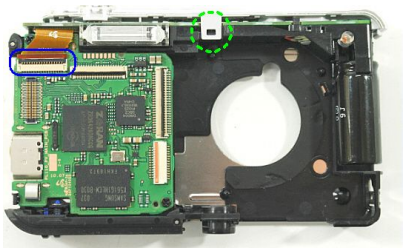
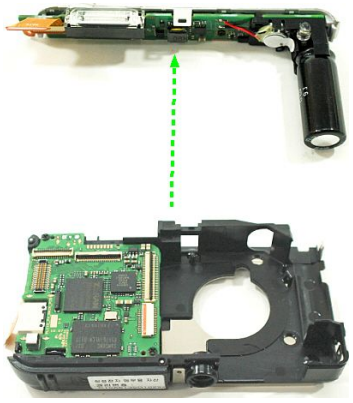
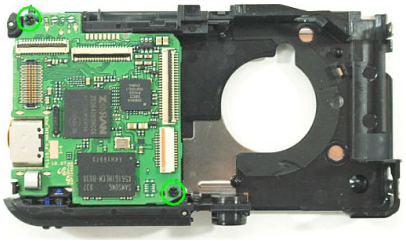
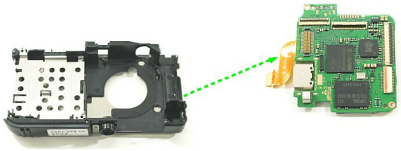
No	Disassembly image	Disassembly description
18		Remove the 1 Lock and 1 Connector.
19		Remove the Top PCB Assy.
20		Remove 2 Screws.
21		Remove the Main PCB Assy.

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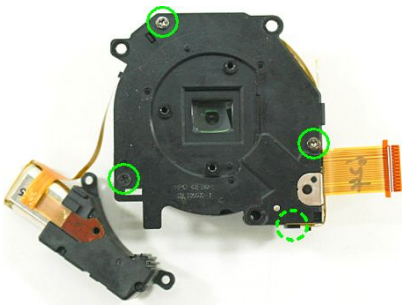
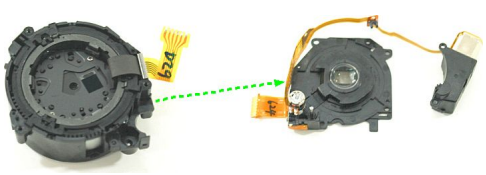
10.2. Barrel disassembly

No	Disassembly image	Disassembly description
1		Remove the soldering from Shutter FPCB.
2		Remove the 1 Screw.
3		Remove the 2 Screws.
4		Remove the 3 Screws and 1 Lock.
5		Remove the Lens Base Assy.

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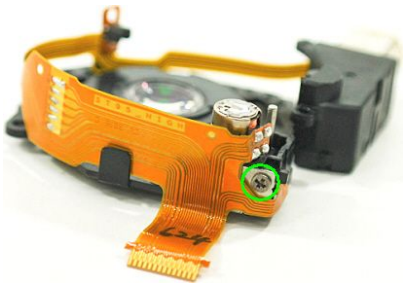
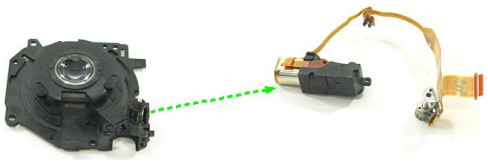
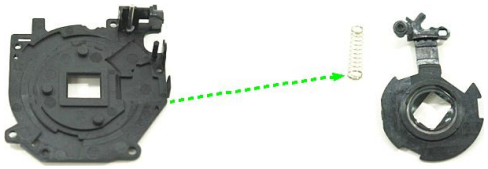
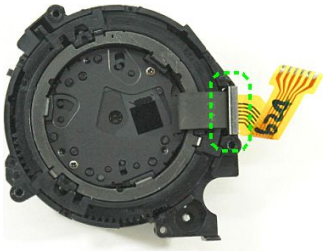
No	Disassembly image	Disassembly description
6		Remove the 1 Screw from Lens Base Assy.
7		Remove the Main FPCB Assy and Zoom Motor Assy.
8		Separate the 3rd sub barrel assembly while slightly moving to the arrow direction as shown in the figure. **CAUTION** **Be careful about the spring.**
9		This is the Separate state of the spring and 3rd sub barrel assy.
10		Remove the Shutter FPCB Holder.

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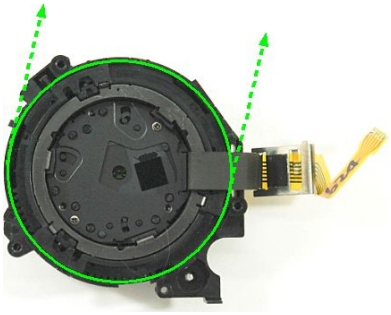
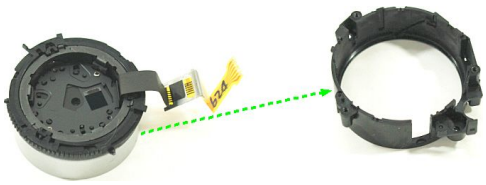
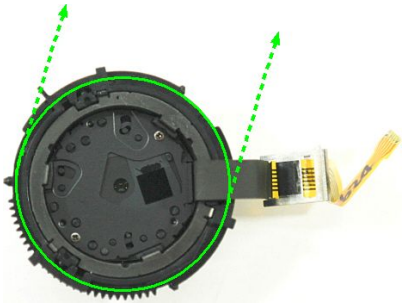
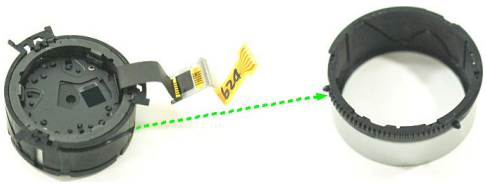
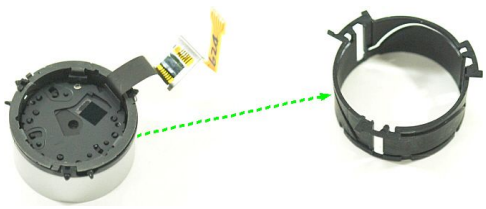
No	Disassembly image	Disassembly description
11		Remove the Outer Guide Barrel.
12		Remove the Outer Guide Barrel.
13		Remove the Outer Cam Barrel.
14		Remove the Outer Cam Barrel.
15		Remove the Outer Guide Plate Barrel.

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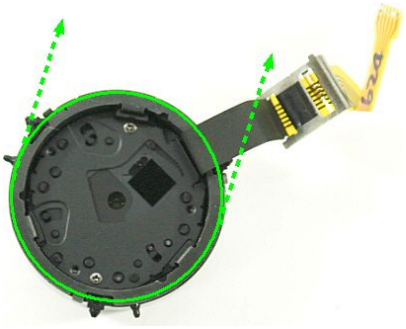
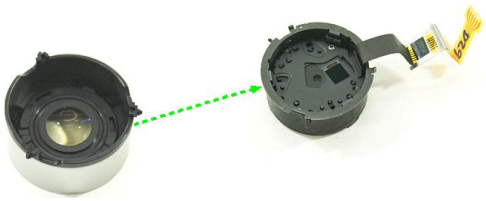
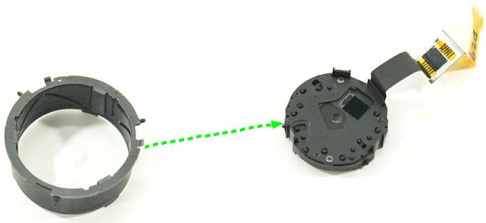
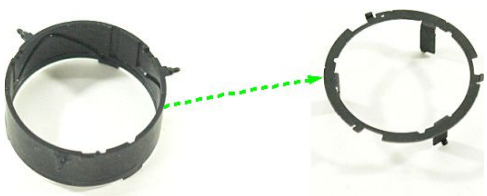
No	Disassembly image	Disassembly description
16		Remove the Cam SUB Barrel Assy.
17		Remove the Cam SUB Barrel Assy.
18		Remove the 2nd SUB Barrel Assy.
19		Remove the 2nd SUB Barrel Assy.
20		Remove the Guide Plate.

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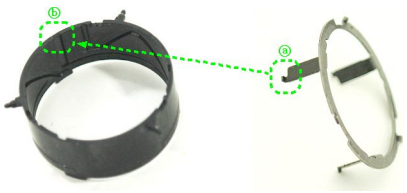
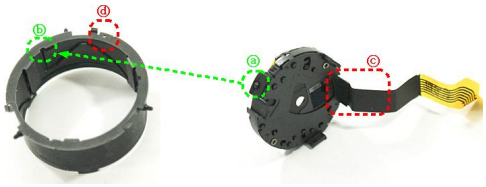
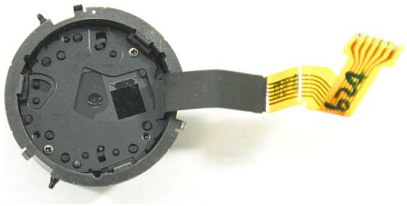
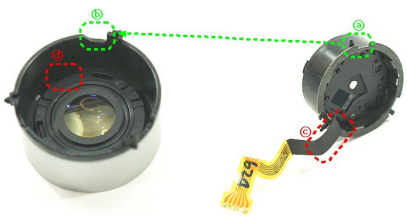
10.3. Barrel assembly

No	Assembly image	Assembly description
1		To assemble match the Point (a)&(b).
2		This is the assembled state of the cam sub barrel.
3		To assemble match the Point (a)&(b). **CAUTION** **Be careful about the location of (c), (d).**
4		This is the assembled state of the 2nd sub barrel assembly.
5		To assemble match the Point (a)&(b). **CAUTION** **Be careful about the location of (c), (d).**

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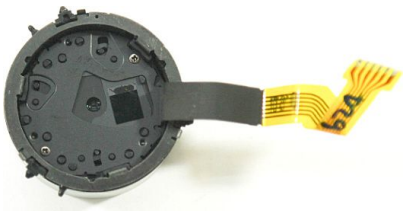
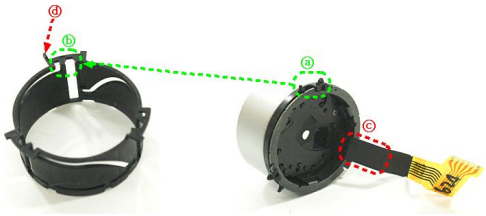
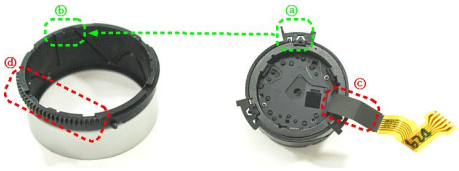
No	Assembly image	Assembly description
6		This is the assembled state of the cam sub barrel assembly.
7		To assemble match the Point (a)&(b). **CAUTION** **Be careful about the location of (c),(d).**
8		This is the assembled state of the outer guide plate barrel.
9		To assemble match the Point (a)&(b). **CAUTION** **Be careful about the location of (c),(d).**
10		This is the assembled state of the Outer cam barrel.

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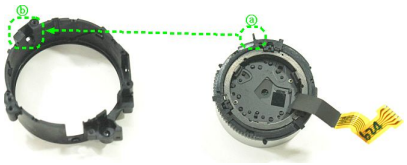
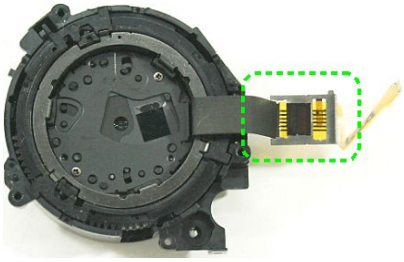
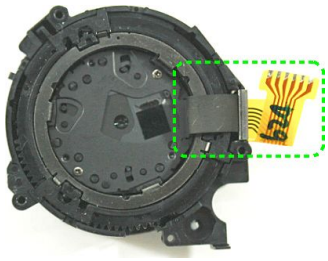
No	Assembly image	Assembly description
11		To assemble match the Point (a)&(b).
12		This is the assembled state of the Outer guide barrel.
13		Assemble the FPCB Holder from Shutter FPCB.
14		This is the assembled state of the FPCB Holder.
15		Assemble the Spring and 3rd Barrel assembly from Lens Base assembly.

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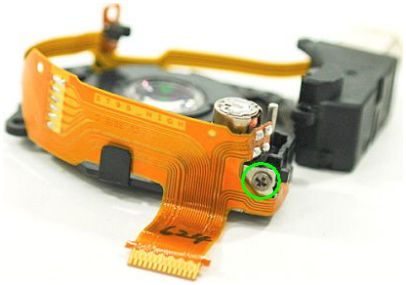
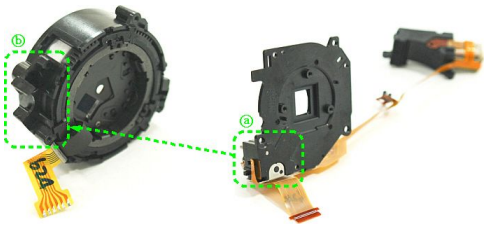
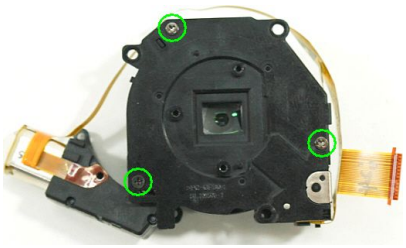
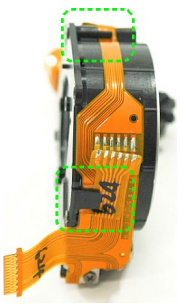
No	Assembly image	Assembly description
16		Assemble the AF motor assembly from Lens Base assembly.
17		Assemble the 1 Screw from AF motor assembly.
18		To assemble match the Point (a)&(b) as shown in the figure.
19		Assemble the 1 Screw from Lens Base assembly.
20		Assemble the FPCB.

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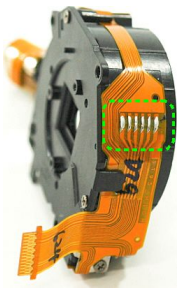
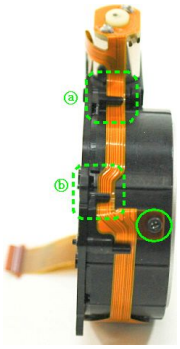
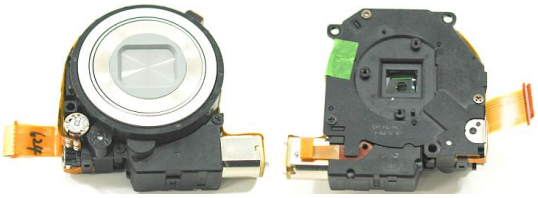
No	Assembly image	Assembly description
21		soldering the Shutter FPCB.
22		Assemble the Screw and as shown in the Point (a) and (b) from FPCB
23		Assemble the 2 Screws from zoom motor assy.
24		This is the assembled state of the barrel assembly.

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GSPN (GLOBAL SERVICE PARTNER NETWORK)

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Europe, MENA, CIS, Africa	https://gspn1.samsungcsportal.com
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