DIGITAL CAMERA LENS

NX Lens-XL1102
SAMSUNG 16mm F2.4

SERVICE Manual

DIGITAL CAMERA LENS

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1. Repair information

1-1 Customer satisfaction statement

We hold ourselves to the highest standards of customer satisfaction and service.

- Combining perfect technical solutions with a customer-oriented approach is our top priority.
- We treat our customers we serve with kindness, loyalty, respect and dignity.
- We are committed to earn customers' trust continuously through excellence in repair solutions.
- We keep our promises and commitments to our customers.
- Committed to quick and easy resolution of all support issues, we deliver industry-leading response times.

[Guide]

We listen carefully to our customers' requirements and always find an optimum solution for their needs.
We are committed to your satisfaction and have procedures in place to provide you with a fair, timely and effective means to resolve problems. It combines industry leading preventive assistance with responsive support that helps us address problems quickly and effectively.
We will continuously maintain and improve our services to satisfy the needs of our customers.

1-2 Warranty and repair service information

(1) General terms and conditions

It is guaranteed to be free of charge from defects in material and workmanship under normal use for a period of one year from date of purchase.
Digital Camera and lens come with a one year limited warranty from the date of purchase.

*** The duration of the warranty depends on the laws in the country in which it was purchased.**

The following information will be required to process warranty requests:

a. We imply warranties to one year from the original date of purchase. In the event that the purchaser is unable to provide a warranty card or proof of purchase, the warranty period will be determined by the date of manufacture. The warranty period shall be decreased to three months from the original product manufactured date.

b. The coverage under this warranty begins on the date of your purchase of this warranty. In the event that a warranty card or proof of purchase is not available, a purchase receipt, preferably the purchase invoice, to confirm the date of purchase is required for warranty service.

c. In the event that a valid date of purchase is not available, the warranty period will be determined by the date of manufacture. The warranty period shall be decreased to three months from the original product manufactured date.

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(2) Limited warranty

It reserves the right to retain any parts or components replaced at its discretion in the event of a defect noticed in the product. The period with respect to retaining components may vary respectively depending on its components. We are not liable to repair or replace its faulty product after the Warranty Period has expired.

*** We warrant its retaining camera and lenses for five years and three years for the accessories.**

a. If a warranty claim is filed after the product has been discontinued, we reserves the right to honour the components warranty. Warranty period may vary depending on the type of components.

b. In the event that no identical warranty information is available for service repair, company has the right to provide warranty. The warranty does not affect the consumers' rights against the company related to its information.

For the length of the period indicated on the chart below, it starts with the date of original purchase

(3) Warranty period for components

Our liability under this warranty shall be limited to the following:

a. In the event of a same malfunction problem within two months after repair service by Samsung authorized technician, we will repair or replace free of charge the component of the product which is found to be defective.

b. In the event of the component that you have paid the replacement cost is returned under normal use within one year at our premises, such components will be replaced free of charge component of the product which is found to be defective.

<Table 1-1 Warranty Periods for Parts>

Part Name	Warranty Period
Battery recharger	Six months
AC Adaptor	
Battery	
Remote Control	
CD Software	Three months
Earphone	
Pouch for camera	Not applicable
Cable	

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(4) Repair claims

1) Repair free of charge

Essentially, the following causes of damage are covered:

a. Failing to function properly under normal use during the limited warranty period

b. Repair Services free of charge is granted for the performance of a specific contract.

2) Repair charges

This warranty does not cover damage caused by:

a. Defect occurring after the expiration of the Warranty Period

b. Damage due to negligence, immersion in water, impact, loss and tampering

c. Repair or alteration performed by any party other than Samsung authorized technicians

d. Misuse or other improper use of the power button

e. Exhausted parts such as batteries, lamps and filters, etc.

f. Defect that occurs due to sand, dirt liquid, etc. entering the inside of the product casing

g. Consumable parts which have ceased working through normal use such as as earphone, battery discharger and various accessories

h. Products purchased second hand or any damage that occurs due to a second hand or repair performed by anyone other than Samsung or a Samsung authorized service station.

i. Fire, earthquake, flood or other natural disasters

The warranty cover period for components is listed below as per table 1-2.

<Table 1-2 Warranty Period for components>

<table>
<tr><th colspan="3">Types of consumer damages</th><th colspan="2">Compensation</th></tr>
<tr><td rowspan="6">Failing to perform or failing to function properly under normal use</td><td colspan="2">Required for essential repair within 10 days after the purchase</td><td>Replace the product or refund</td><td>-</td></tr>
<tr><td colspan="2">Required for essential repair within one month after the purchase</td><td>Replace the product or repair at free of charge</td><td>Repair charges</td></tr>
<tr><td rowspan="3">Applicable to repair</td><td>Problem occurred twice due to same malfunction</td><td colspan="2">Free of charge</td></tr>
<tr><td>Problem occurred three times due to same malfunction</td><td rowspan="3">Replace the product or refund</td><td rowspan="2">Repair charges</td></tr>
<tr><td>Problem occurred four times due to some other malfunction</td></tr>
<tr><td>Not applicable to repair</td><td>Within the period with respect to retaining components</td><td>Replace the product at the cost of the depreciated value or refund its price added 10% of depreciation</td></tr>
<tr><td rowspan="2">Failing to perform or failing to function properly as a result of willful intent and negligence of customer</td><td colspan="2">Applicable repair</td><td colspan="2">Repair charges</td></tr>
<tr><td colspan="2">Not applicable to repair
(Except for defects or malfunction as a result of fire or flood or other natural disasters</td><td>Replacement charge</td><td>Repair charge and replace the product at the cost of the depreciated value</td></tr>
</table>

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1-3 Precaution for disassembly and reassembly

Caution

1. Use the anti-static handing procedures included with the anti-static mat to ensure that there is no electrostatic discharge and component damage.

2. Static electricity is the biggest danger to the PCB parts you are about to disassemble or assemble. It's important to use your anti-static wrist strap to prevent damage to these components.

3. Dismantling a discrete electronic component such as main condenser is dangerous.
   It contains high voltage capacitors, which can cause a severe electric shock if you touch them. This holds a charge even when the unit is not plugged in and is capable of delivering a fatal shock.

4. Using excessive force during disassembly and assembly can damage locking parts. Use care when handling "Locking parts" to avoid damage to FPCB or wire. Apply pressure only at the points designated in the maintenance instructions.

5. Due to increasing environmental concerns, a number of restrictions have been placed on the material content of electronic components and electronic assemblies. It requires utilizing Lead-Free (Pb-free) Soldering.

6. The following precautions must be observed when handling such components below.

<Table 1-3>

Component	Precautions
FPCB	FPCB is brittle material. It can be easily damaged thus it should be handled with care. It is recommended to use wooden or plastic tweezers for manual placement.
CCD (CMOS) IR CUT Filter LCD, LENS	Be careful not to stained your fingerprint. It is recommended to use wooden or plastic tweezers for manual placement. Stain is often caused by the Alcohol used in these components. Find a clean, well-ventilated place to do your work.
PCB	Use an anti-static mat as well as an anti-static wrist strap to avoid ESD damage to PCB.
CONNECTOR	To use wooden or plastic tweezers is recommended for manual placement. Metal tip tweezer might make marks or damage.
BARREL	Always follow proper direction while assembling the components of the barrel.

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2. Product specifications

2-1 Specifications

Specifications

Lens Name	SAMSUNG 16 mm F2.4
Image	
Focal Length	16 mm (equivalent to 24.6 mm in 35 mm format)
Elements in Group	7 elements in 6 groups (2 aspheric lens included)
Angle of View	82.6°
Aperture	F2.4 (minimum: F22), (Number of Blades: 7, Circular Aperture Diaphragm)
Mount Type	Samsung NX mount
Optical Image Stabilizer	Not included
Minimum Focus Distance	0.18 m
i-Scene	Supported (Backlight, Landscape, Sunset, Dawn, Beach & Snow, Night)
i-Function Button	Yes
Maximum Magnification	Approx. 0.12X
Lens Hood	Not included
Filer Size	43 mm
Max. Diameter X Length	61 X 24 mm
Weight	Approx. 90 g
Operating Temperature	0~40 °C
Operating Humidity	5~85 %

2-2 Layouts

Layouts

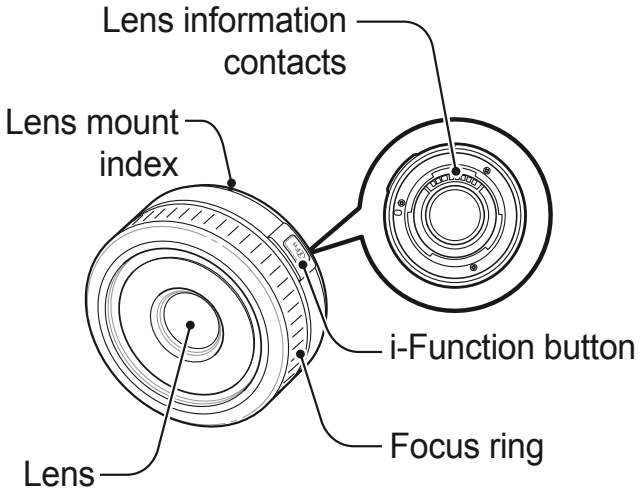

Fig. 2-1

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2-3 Attaching and removing the lens

■ Before mounting the lens remove the lens cap, lens mount cover, and body cap.

Fig. 2-2

Attaching the lens

Align the red mark on the lens with the red mark on the camera body.
Then, rotate the lens clockwise until it locks into space.

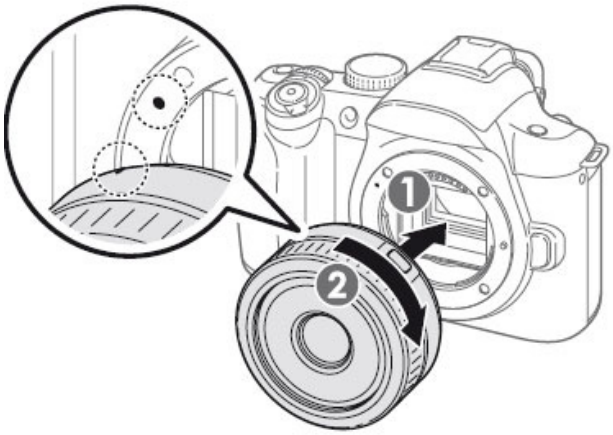

Fig. 2-3

Removing the lens

While pressing the lens release button, rotate the lens counter-clockwise to detach it from the camera body.

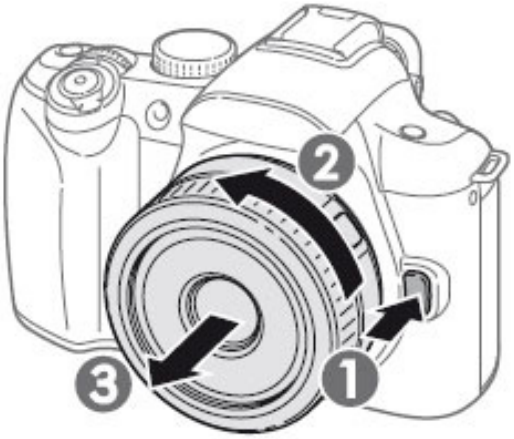

Fig. 2-4

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3. Disassembly and reassembly

3-1 Disassembly

LENS MOUNT

1. The numbers ① and ② in the assembly as illustrated in image below indicate the order to remove the screws.

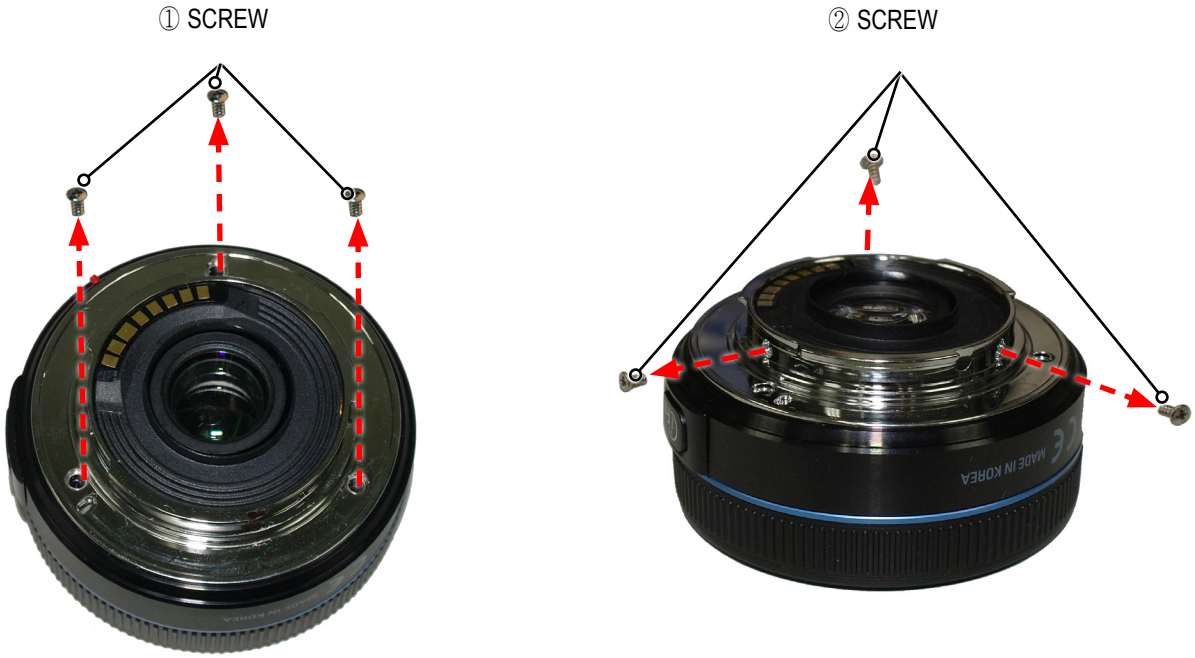

Fig.3-1

2. After removing the COVER MOUNT_XL1102, remove the M.SCREW.

Fig. 3-2

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3. Remove the LENS MOUNT.

Fig. 3-3

MAIN BARREL ASSY_XL1102

1. Remove the FPCB (refer to image A.) in the direction of the arrow as illustrated.

Caution: Use extra care when removing the FPCB from the connector.

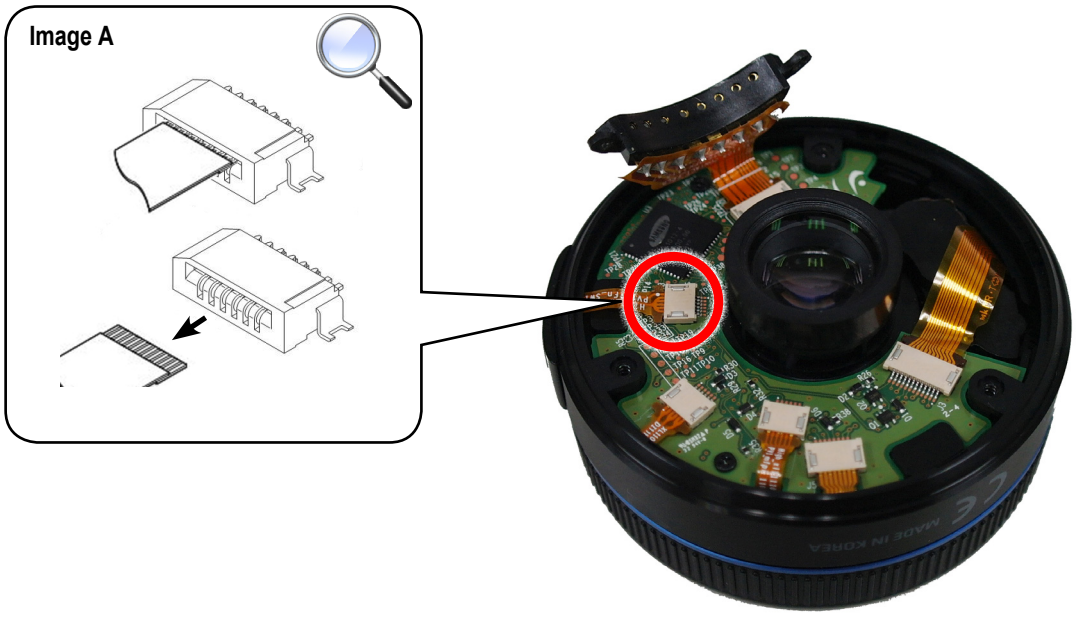

Fig. 3-4

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2. Remove the MAIN BARREL ASSY_XL1102.

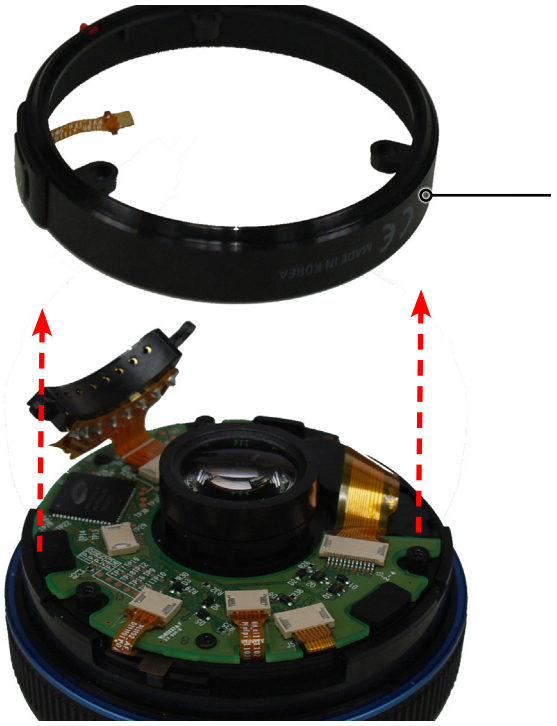
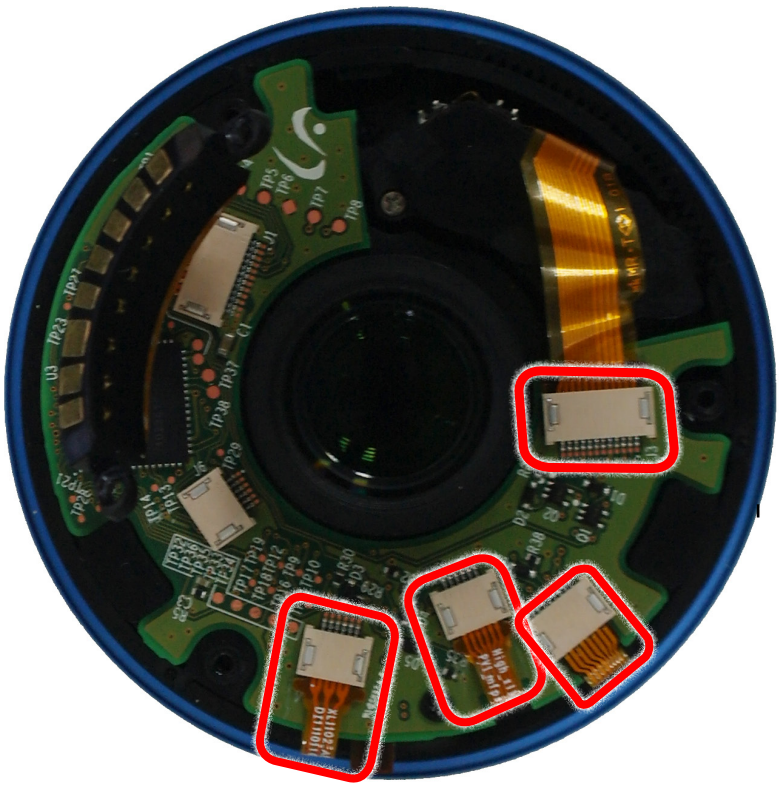


Fig. 3-5

PCB MAIN ASSY

1. Remove the 4 FPCBs (refer to image A).

Caution: Use extra care when removing the FPCB from the connector.



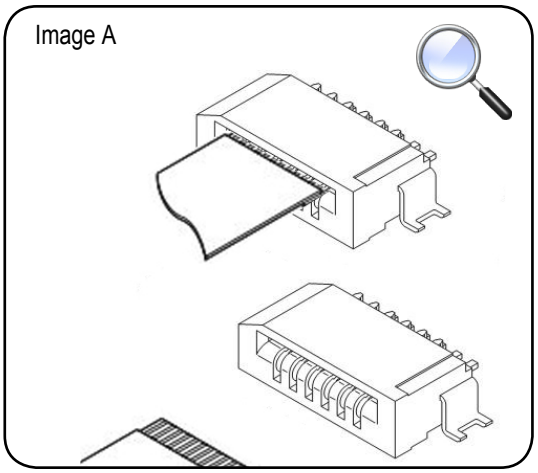


Fig. 3-6

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2. Remove the 2 screws.

Fig. 3-7

3. Remove the PCB MAIN ASSY.

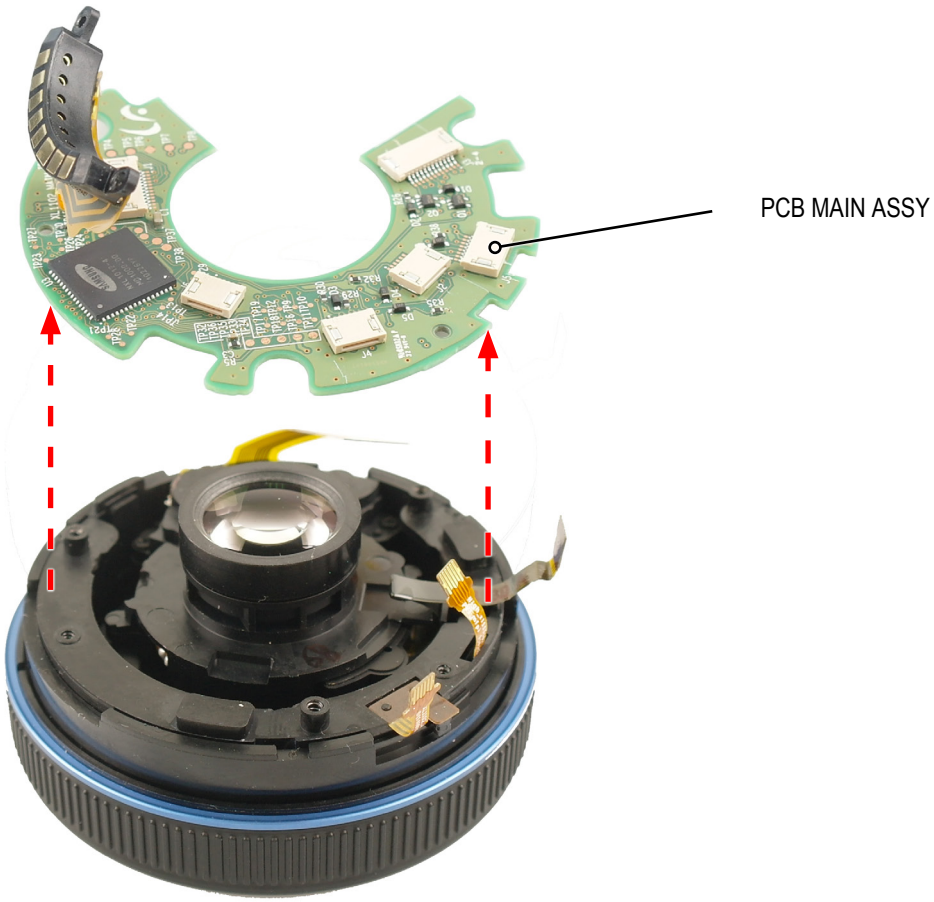

Fig. 3-8

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SMD FPCB ASSY-FPC_XL1102

1. Remove the SMD FPCB ASSY-FPC_XL1102.

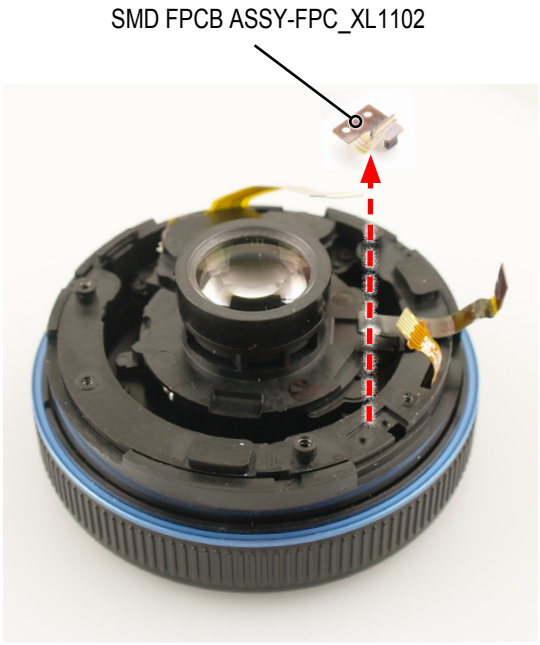

Fig. 3-9

MOTER ASSY-AF_XL1016

1. Remove the 2 screws.

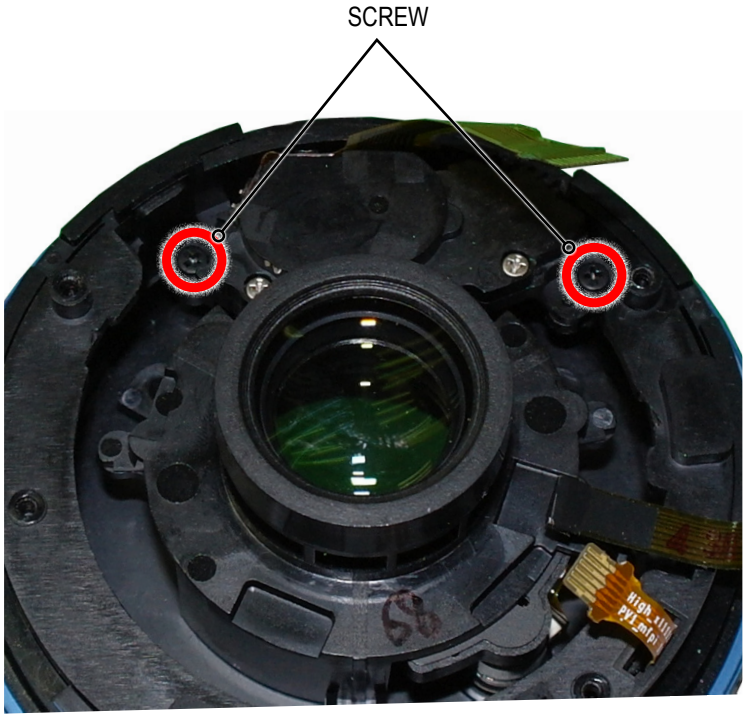

Fig. 3-10

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2. Remove the MOTER ASSY-AF_XL1016.

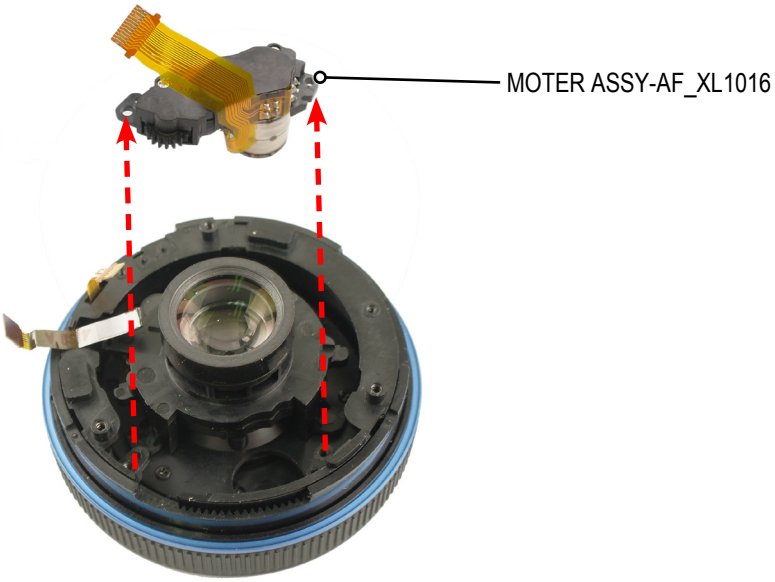

Fig. 3-11

OUTER COVER ASSY_XL1102

1. Gently slide the tweezer under the OUTER COVER ASSY_XL1102 unit and remove it.

Caution: Replace the scratched / damaged OUTER COVER ASSY_XL1102.

Image A

Fig. 3-12

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2. Remove the OUTER COVER ASSY_XL1102.

Fig. 3-13

FOCUS RING ASSY_XL1102

1. Turn the serrated wheel (rippled edge) of BARREL_AF-CAM_XL1102 indicated by image A clockwise to full right turn position as illustrated in image B.

Image A

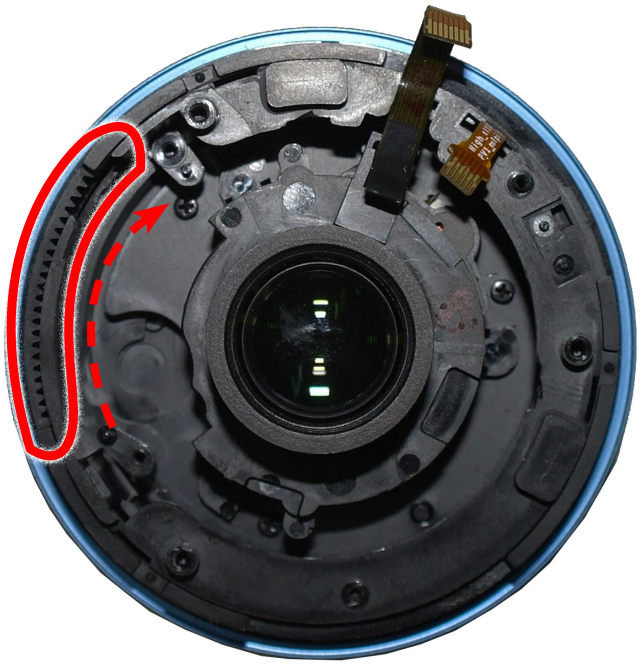

Image B

Fig. 3-14

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2. Remove the FOCUS RING ASSY_XL1102 from the FILTER BARREL ASSY_XL1102.

Fig. 3-15

SMDFPCB ASSY-MFPI_XL1102

1. Remove the part to the specified position (marked in red) as illustrated in image A. Remove the SMDFPCB ASSY-MFPI_XL1102.

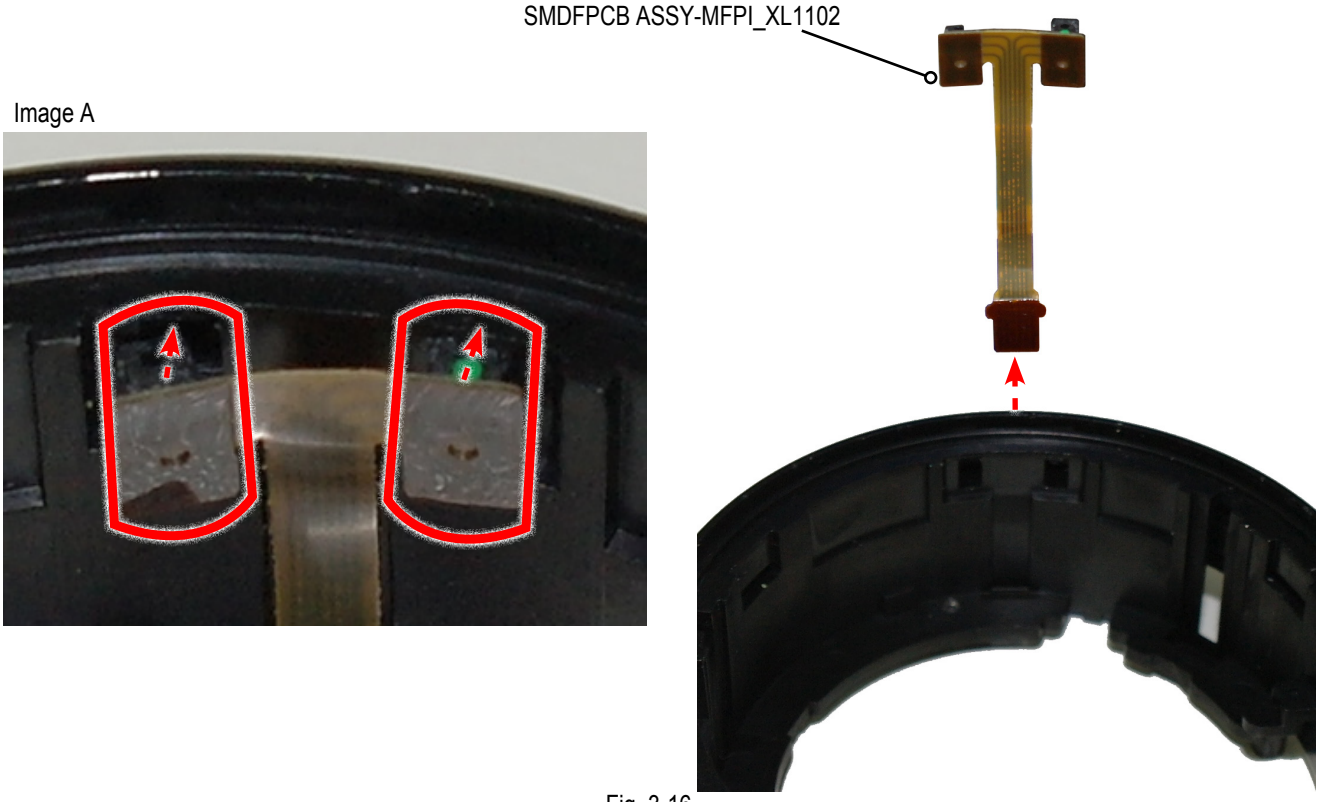

Fig. 3-16

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3-2 Reassembly

SMDFPCB ASSY-MFPI_XL1102

1. Insert the part to the specified position as illustrated in image A.
   Install the SMDFPCB ASSY-MFPI_XL1102 to the specified position as illustrated in image B.

Image A

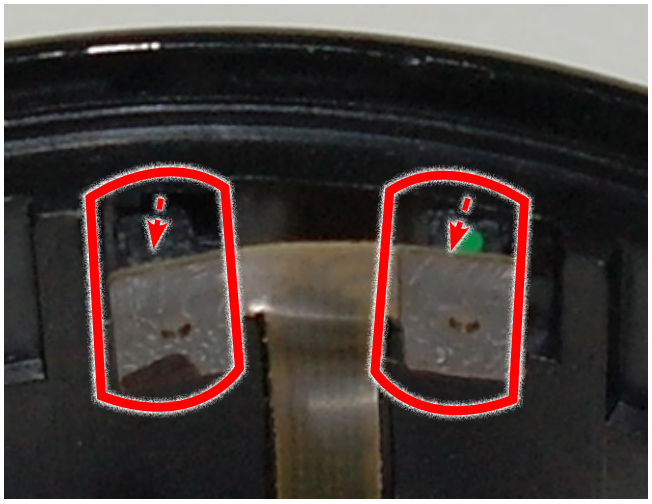

Image B

Fig. 3-17

FOCUS RING ASSY_XL1102

1. Install the serrated wheel (rippled edge) part of BARREL_AF-CAM_XL1102 as illustrated in image A.

Image A

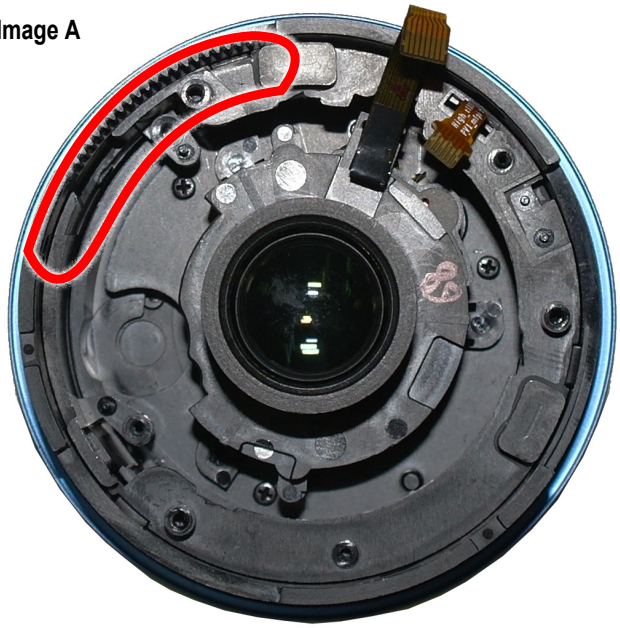

Fig. 3-18

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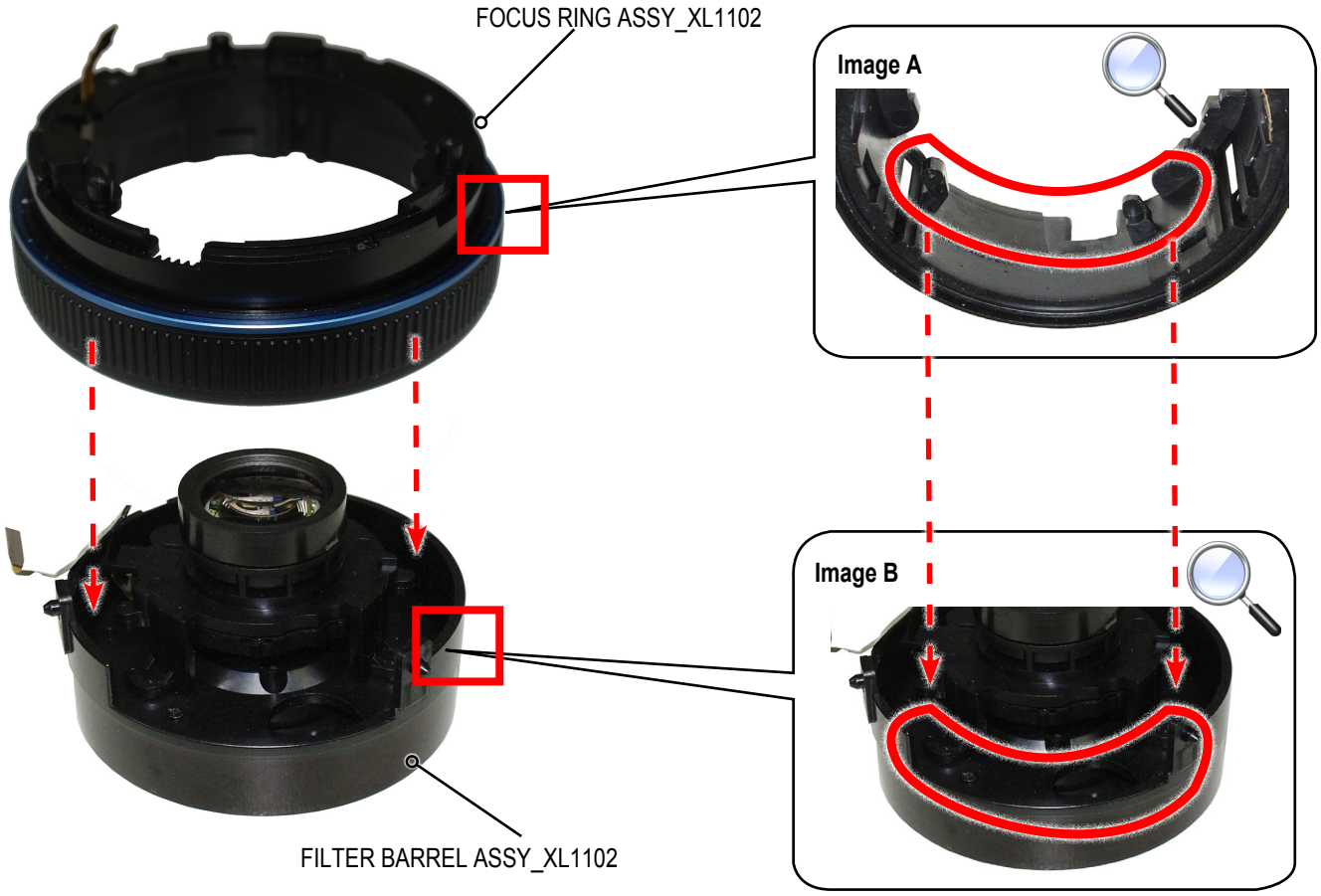
2. Align the marker line to the FOCUS RING ASSY_XL1102 position specified as illustrated in image A with the marker line marker to the FILTER BARREL ASSY_XL1102 position specified as illustrated in image B. (Circled here in red.)
   After install the FOCUS RING ASSY_XL1102, turn the serrated wheel (rippled edge) indicated by image C counter clockwise to full left turn position.



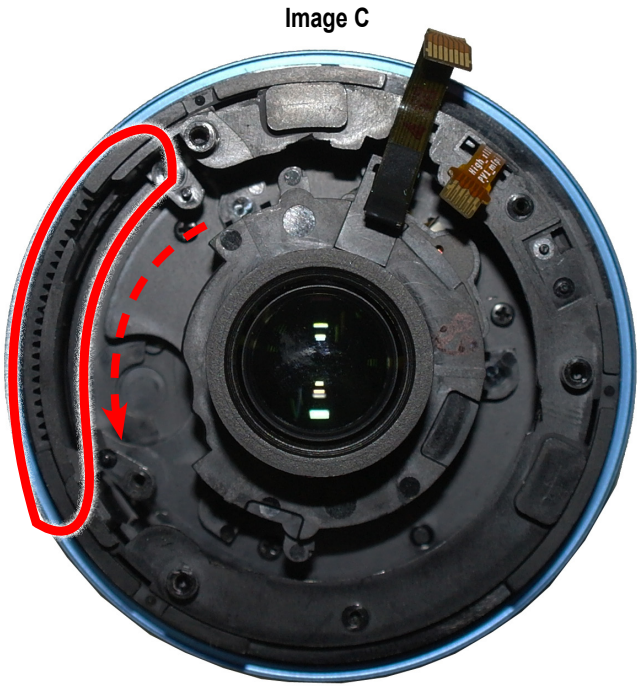


Fig. 3-19

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OUTER COVER ASSY

1. Align the marker line marker to the specified position of the GRIP FOCUS RUBBER as illustrated in image A with the marker line marker to the specified position in image B. Push down the hook into the specified position in image C.

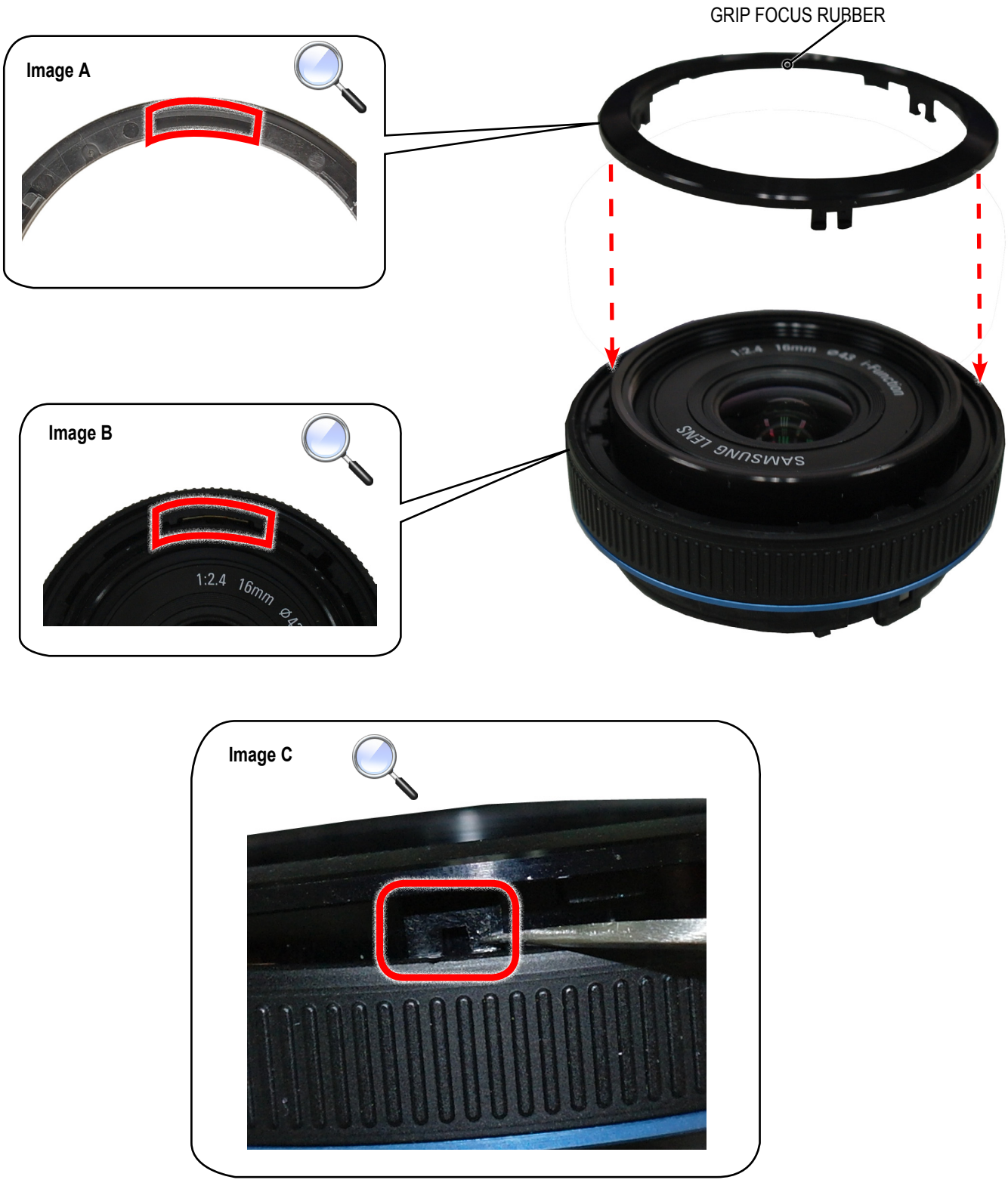

Fig. 3-20

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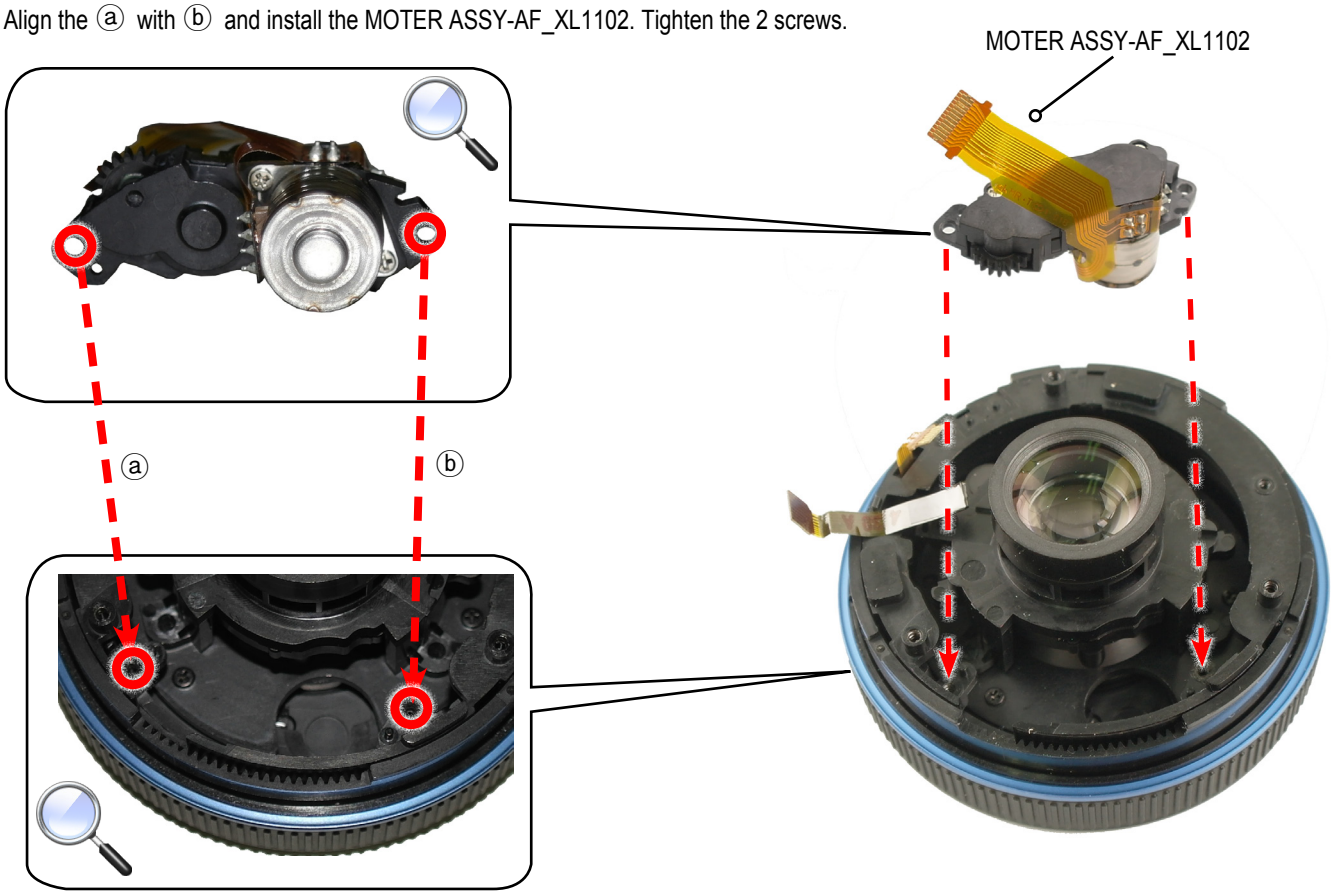
MOTER ASSY-AF_XL1102

1. Align the ⓐ with ⓑ and install the MOTER ASSY-AF_XL1102. Tighten the 2 screws.



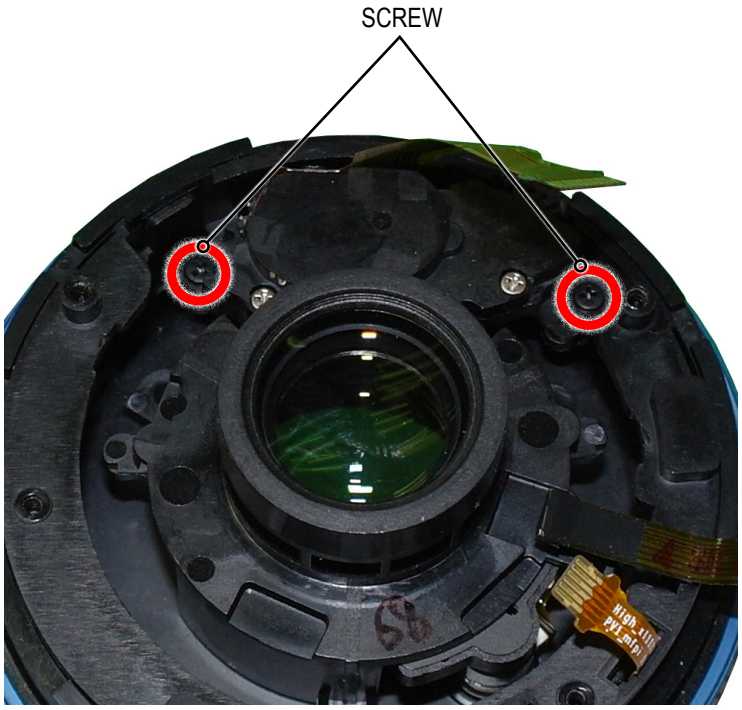


Fig. 3-21

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SMD FPCB ASSY-AFPI_FPC_XL1102

1. Alight the marker line in image A with the marker line in image B, then install the SMD FPCB ASSY-AFPI_FPC_XL1102.

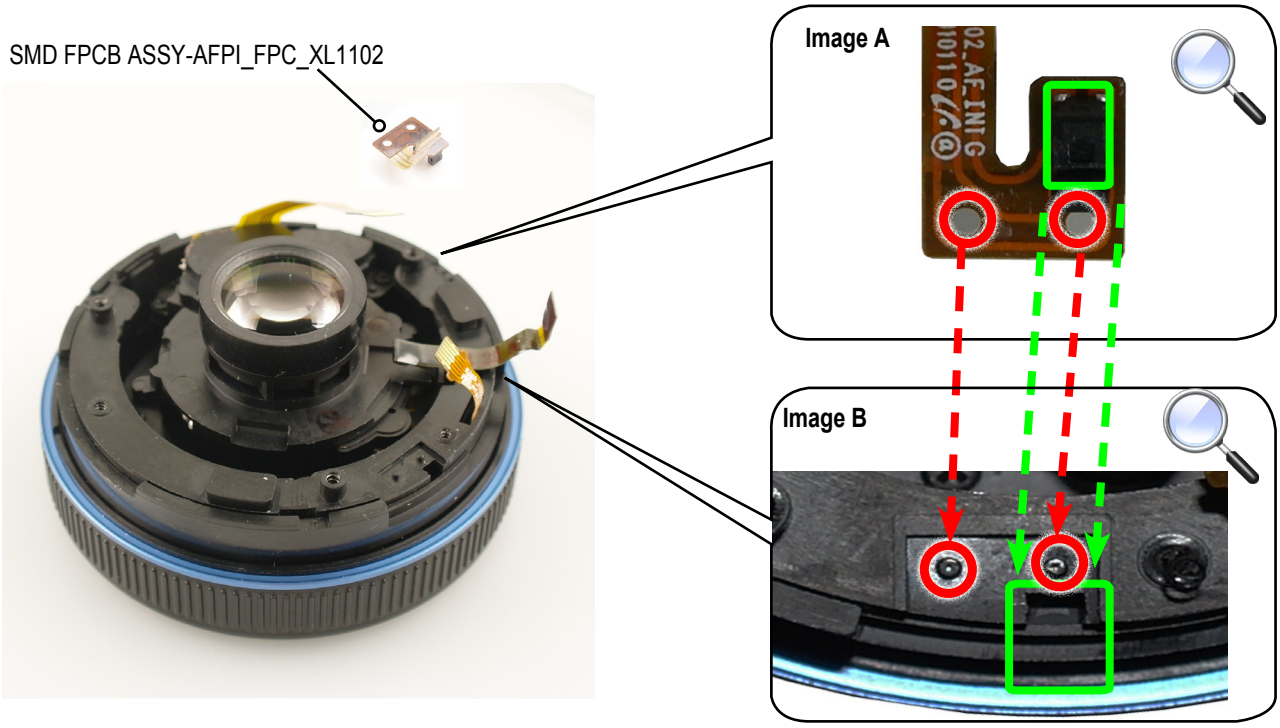

Fig. 3-22

PCB MAIN ASSY

1. Install the PCB MAINASSY.

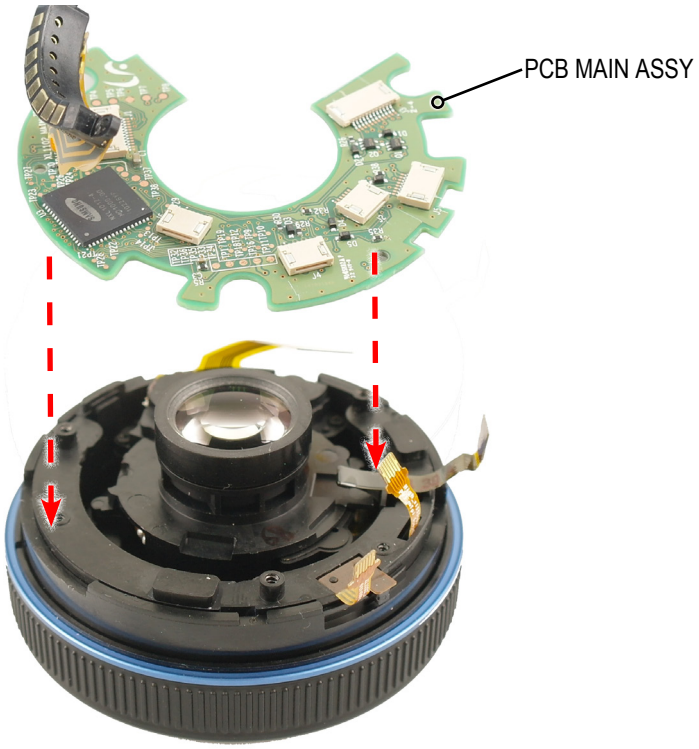

Fig. 3-23

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2. Connect the 4 FPCBs to the connector.

Caution: Use extra care when connecting the FPCB to the connector.

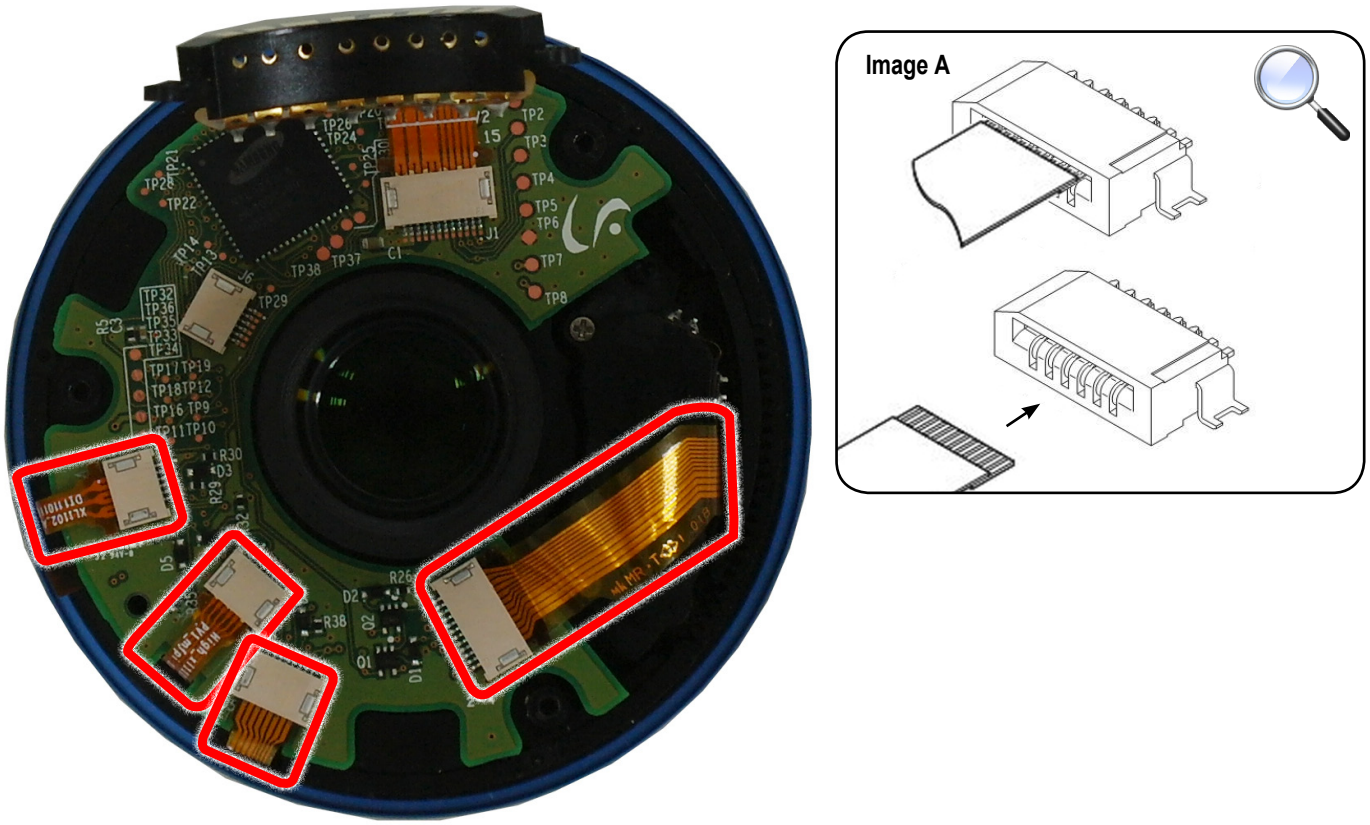

Fig. 3-24

3.Tighten the 2 screws.

Fig. 3-25

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MAIN BARREL ASSY_XL1102

1. Install the MAIN BARREL ASSY_XL1102, then connect the FPCB.

Caution: Use extra care when connecting the FPCB to the connector.

Fig. 3-26

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MOUNT_XL1014

1. Install the MOUNT_XL1014.

Fig. 3-27

2. The numbers ① and ② in the assembly as illustrated in image below indicate the order to tighten the screws.

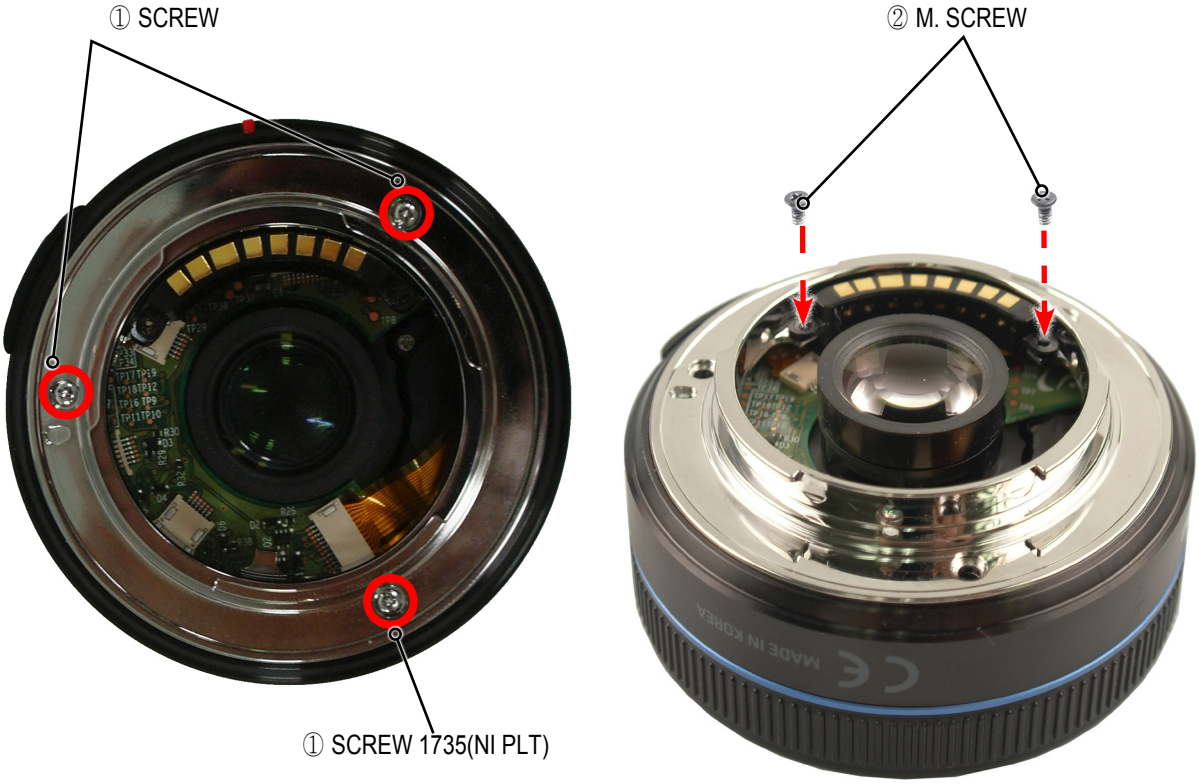

Fig. 3-28

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COVER_MOUNT_XL1102

1. Install the COVER MOUNT_XL1102, then tighten the 3 screws.

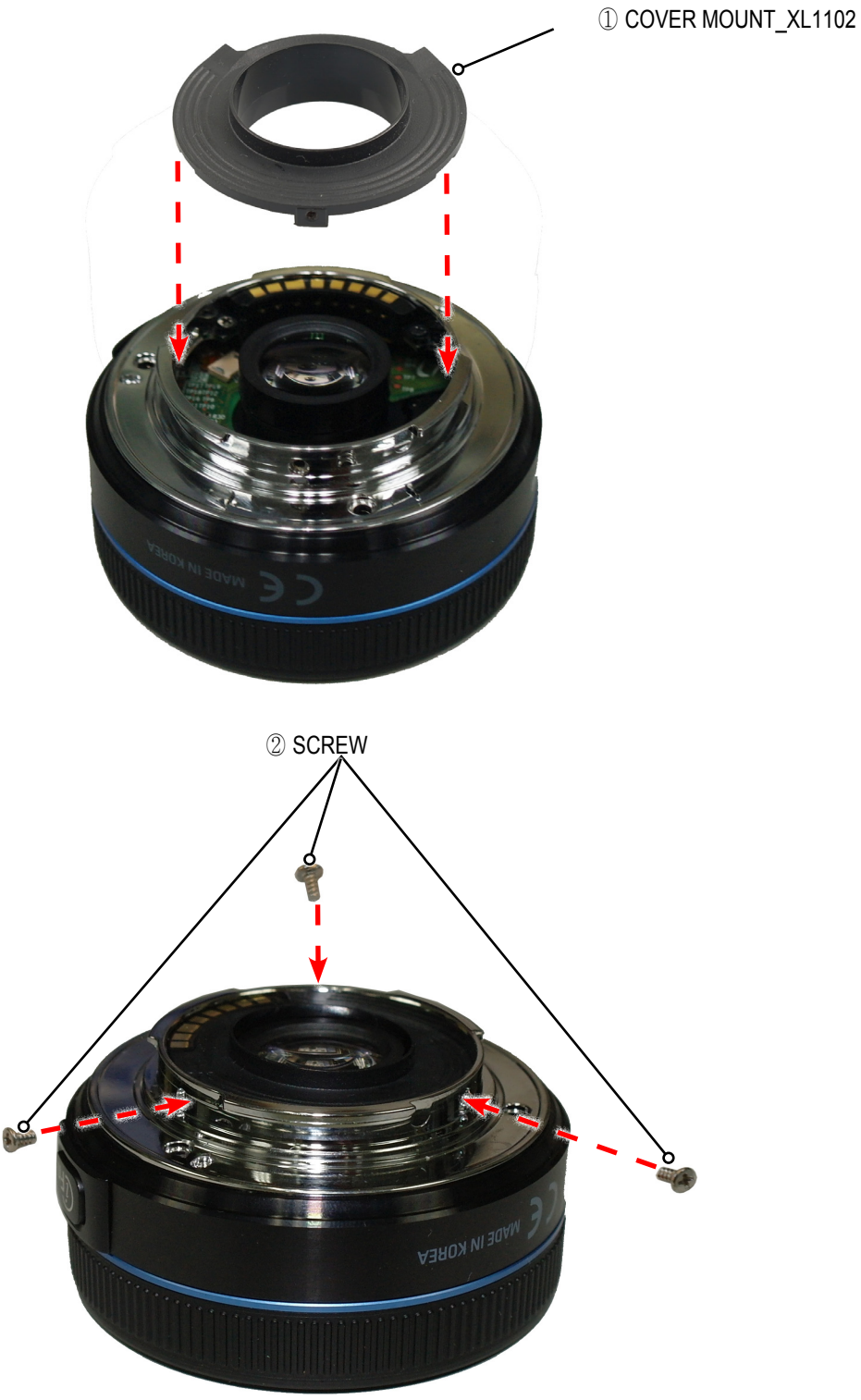

Fig. 3-29

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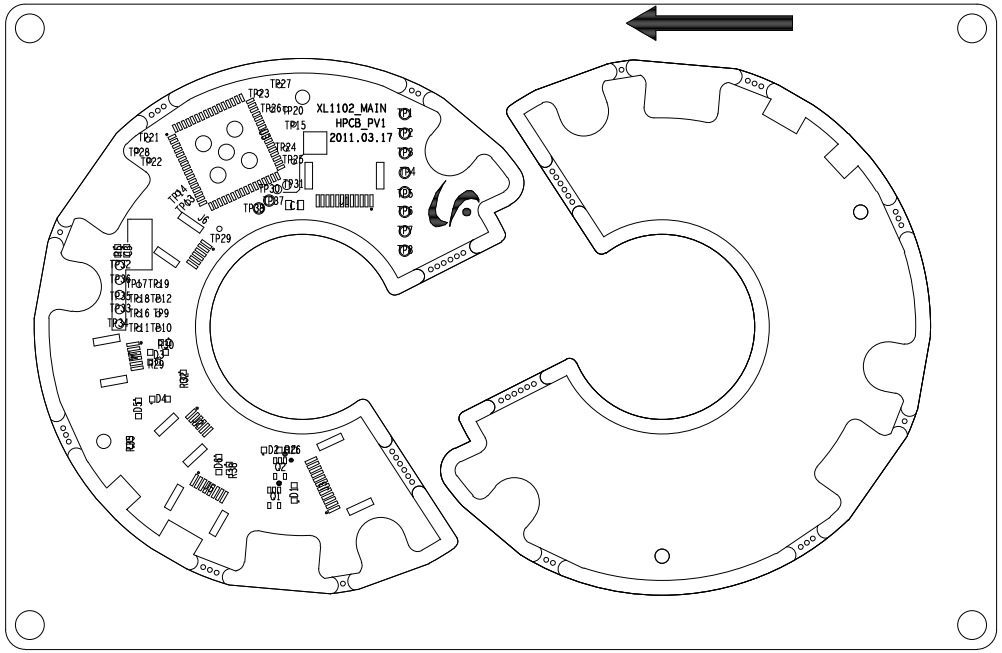
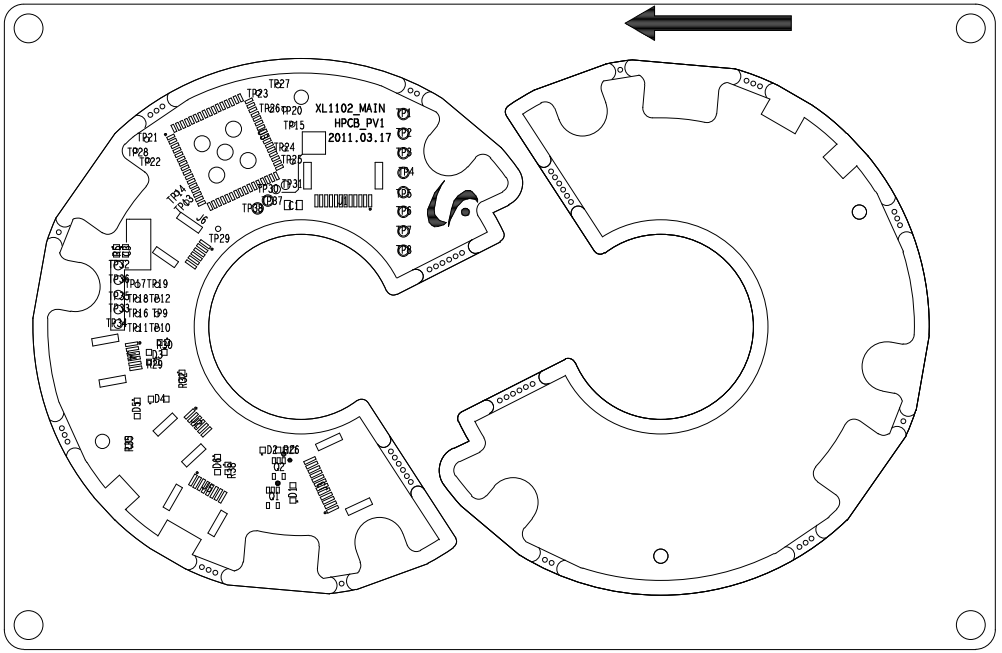
4. PCB diagram

4-1 Main PCB (Top) / [Bottom]

Main PCB [Top]



Main PCB [Bottom]



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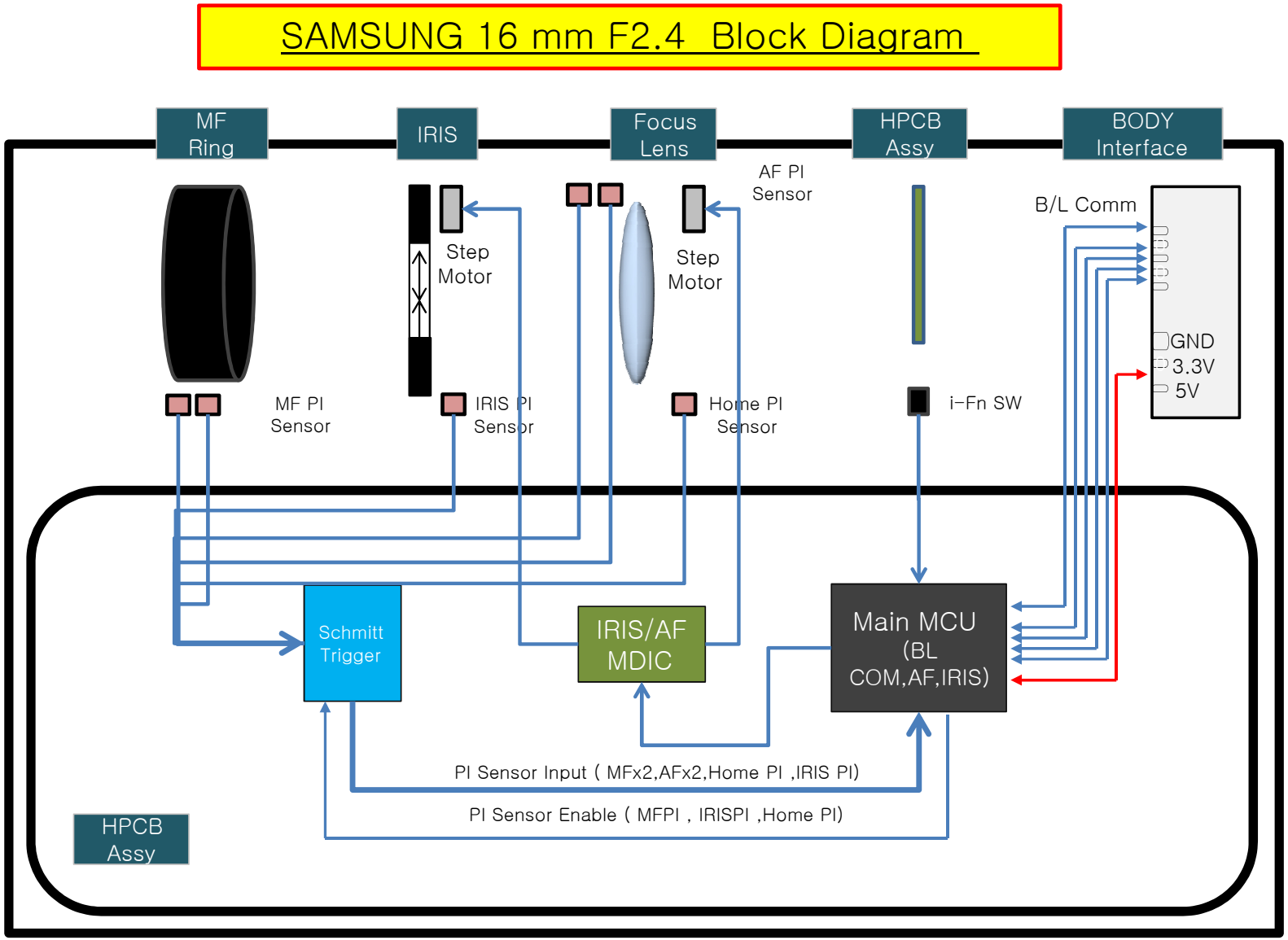
5. Block diagram



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6. Firmware update

6-1 Before upgrading the firmware

1. Before upgrading the lens firmware, make sure the battery is fully charged.
   If the power cuts off during the firmware upgrade, this can cause damage to camera's lens.
   It is recommended that you use an AC adaptor for camera as poser source.

2. Before upgrading the lens firmware, make sure that you format the memory card on your PC or camera and then download the firmware file.

3. Download the lens firmware file into the root directory of the memory card.
   Please note that there are different versions of the firmware for each model of drives.

4. To upgrade firmware there should be sufficient free space on the memory card for the size of the firmware file. If the firmware upgrade is not completed because of insufficient memory space, delete some of the files saved on the memory to secure more free space and try again.

5. Do not operate the camcorder, remove the batteries, or cut the power while upgrading firmware.
   Operate the camcorder only after the firmware upgrade is complete

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6-2 How to upgrade the firmware

Before upgrading the lens firmware, make sure the battery is fully charged. If the power cuts off during the firmware upgrade, the mainboard may be seriously damaged, resulting in camera malfunction. Format the memory card. When formatting the memory card, all data will be erased and can not be recovered. Please make sure to back up your important data so you don't loose it. Once the process is completed, copy the only one firmware update bin file into the memory card.

1. Download the lens firmware file into the root directory of the memory card.
   * When updating the firmware for the lens, please make sure that the lens is mounted to the camera body.
   - Lens firmware could only be updated when the lens was mounted on a camera.

* Lens firmware file name is "lens.bin"
  - The "File Error" message is displayed when choosing the wrong firmware file.

2. Insert the memory card into the memory card slot, and turn on the camera.

3. Press the "MENU" button.

4. Press the "LEFT" button on the 4-way navigation button to display "Set up Menu 3" tap.

5. After pressing the "UP" button, press the "OK" button on the 4-way navigation button to highlight the "Firmware Update".

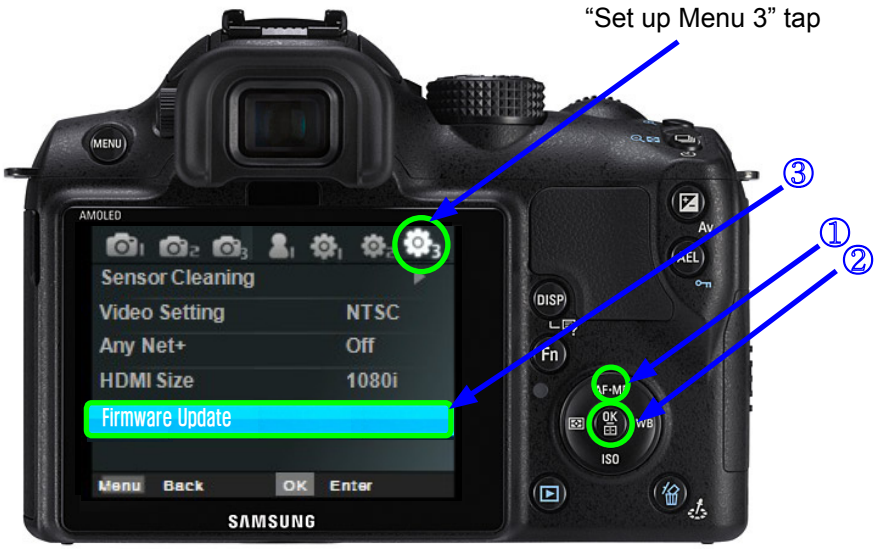

Fig. 6-1

6. Press the "OK" button on the 4-way navigation button to select the "Lens Firmware".

Fig. 6-2

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7. After pressing the “DOWN” button, press the “OK” button on the 4-way navigation button to select the “YES”.

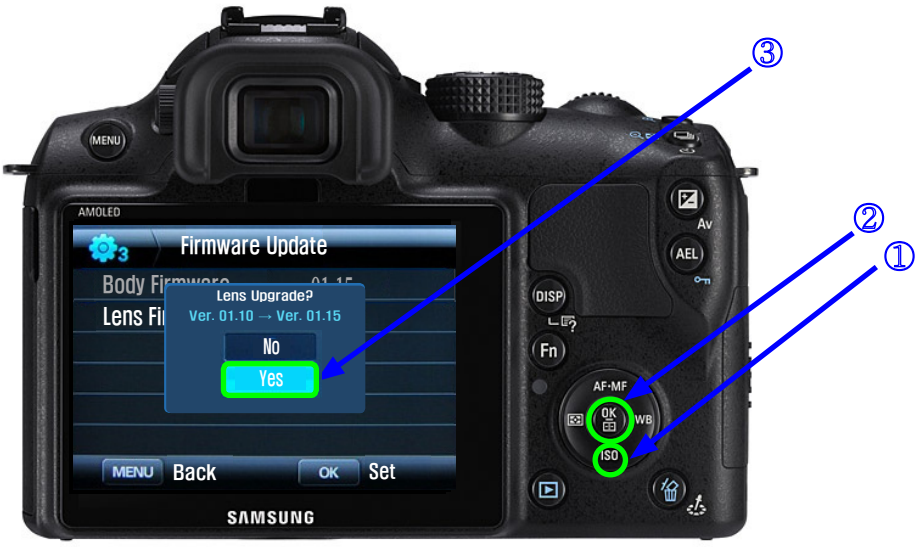

Fig. 6-3

8. During the firmware upload, the LCD will indicate the progress with a progress bar.

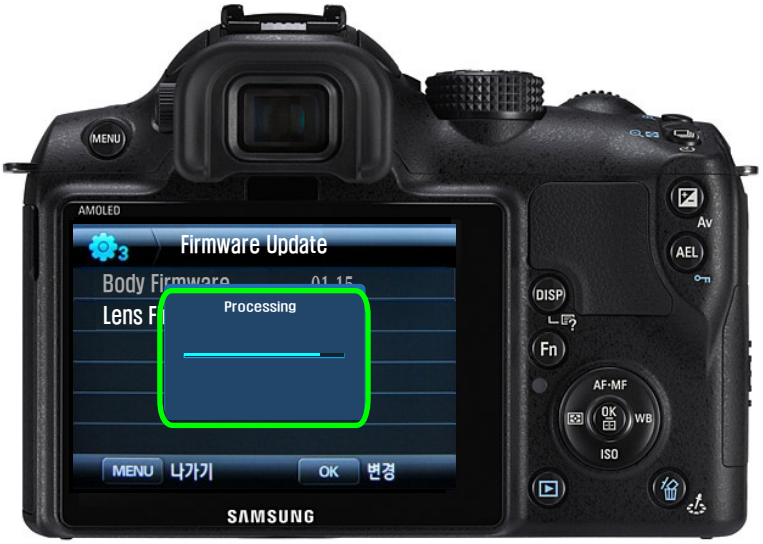

Fig. 6-4

9. After completing the update process, the LCD will display “Update Completed”.

Fig. 6-5

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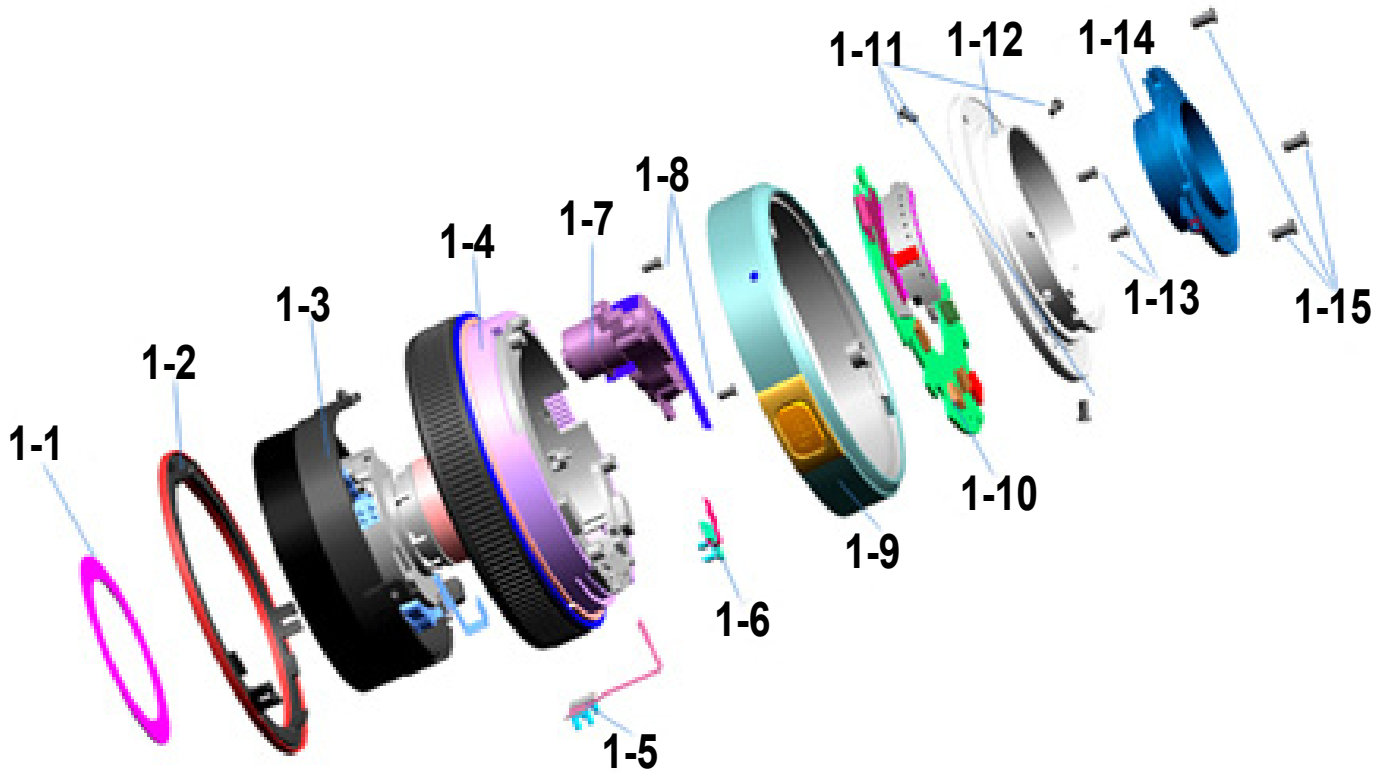
7. Exploded view and parts list

7-1 TOTAL BARREL ASSEMBLY



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
1-1	AD61-05237A	Plate_Name_XL1102	1	O	
1-2	AD97-21652A	Outer Cover Assy_XL1102	1	O	
1-3	AD97-21651A	Filter Barrel Assy_XL1102	1	O	
1-4	AD97-21649A	Focus Ring Assy_XL1102_BK	1	O	BLACK
	AD97-21649D	Focus Ring Assy_XL1102_WH	1	O	WHITE
	AD97-21649C	Focus Ring Assy_XL1102_PK	1	O	PINK
1-5	AD92-01631A	SMD FPCB ASSY-MFPI_FPC_XL1102	1	O	
1-6	AD92-01630A	SMD FPCB ASSY-AFPI_FPC_XL1102	1	O	
1-7	AD97-19841A	MOTOR ASSY-AF_XL1016	1	O	
1-8	6003-001630	SCREW_1435	2	O	
1-9	AD97-21650B	Main Barrel Assy_XL1102_BK	1	O	BLACK
	AD97-21650E	Main Barrel Assy_XL1102_WH	1	O	WHITE
	AD97-21650D	Main Barrel Assy_XL1102_PK	1	O	PINK
1-10	AD92-01727A	ASSY PCB MAIN	1	O	
1-11	6003-001674	SCREW_1425	3	O	
1-12	AD61-04237B	MOUNT_XL1014	1	O	
1-13	6001-002181	SCREW_1425 (MACHINE)	2	O	
1-14	AD63-06059A	Cover_Mount_XL1102	1	O	
1-15	6003-001716	SCREW_1735(NI PLT)	3	O	

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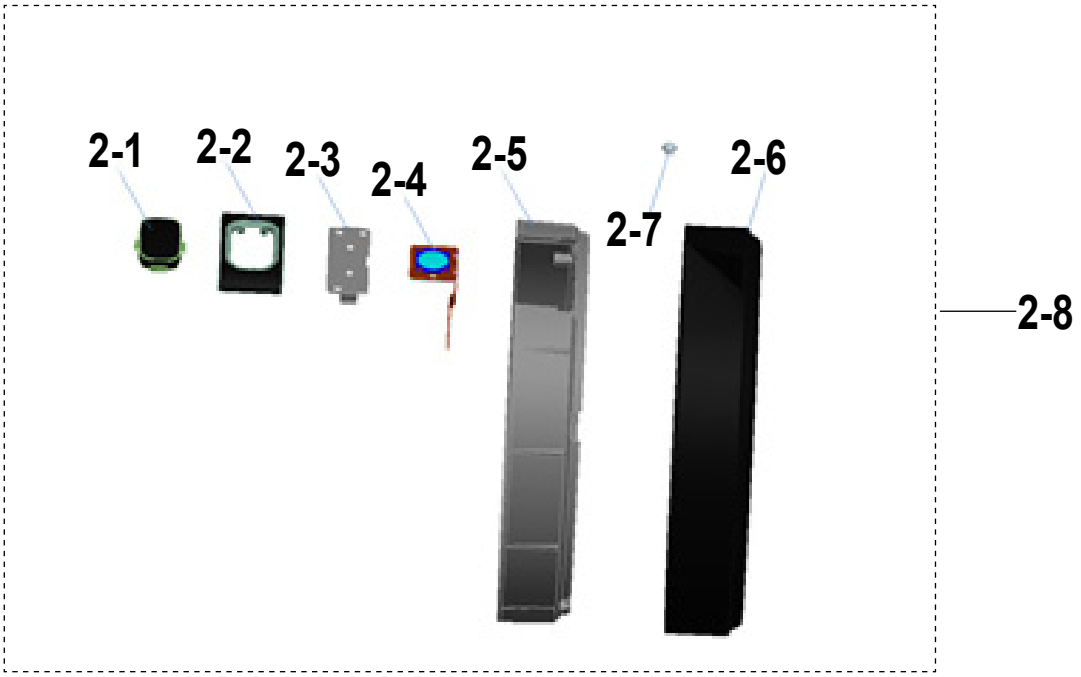
7-2 MAIN BARREL ASSEMBLY



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
2-1	AD64-03336A	Button_i Function_XL1102_BK	1	X	BLACK
	AD64-03336C	Button_i Function_XL1102_WH	1	X	WHITE
	AD64-03336D	Button_i Function_XL1102_PK	1	X	PINK
2-2	AD63-06058A	Cover_i Function_XL1102_BK	1	X	BLACK
	AD63-06058B	Cover_i Function_XL1102_WH	1	X	WHITE
	AD63-06058C	Cover_i Function_XL1102_PK	1	X	PINK
2-3	AD61-05238A	Plate_Button_XL1102	1	X	
2-4	AD92-01632A	SMD FPCB ASSY-IFN_SWITCH_XL1102	1	X	
2-5	AD67-02130A	Barrel_Main_XL1102	1	X	
2-6	AD67-02428A	Deco Ring_Main_XL1102_BK	1	X	BLACK
	AD67-02428B	Deco Ring_Main_XL1102_WH	1	X	WHITE
	AD67-02428C	Deco Ring_Main_XL1102_PK	1	X	PINK
2-7	AD66-00680A	SET_POINT_XL1012	1	X	
2-8	AD97-21650B	Main Barrel Assy_XL1102_BK	1	O	BLACK
	AD97-21650E	Main Barrel Assy_XL1102_WH	1	O	WHITE
	AD97-21650D	Main Barrel Assy_XL1102_PK	1	O	PINK

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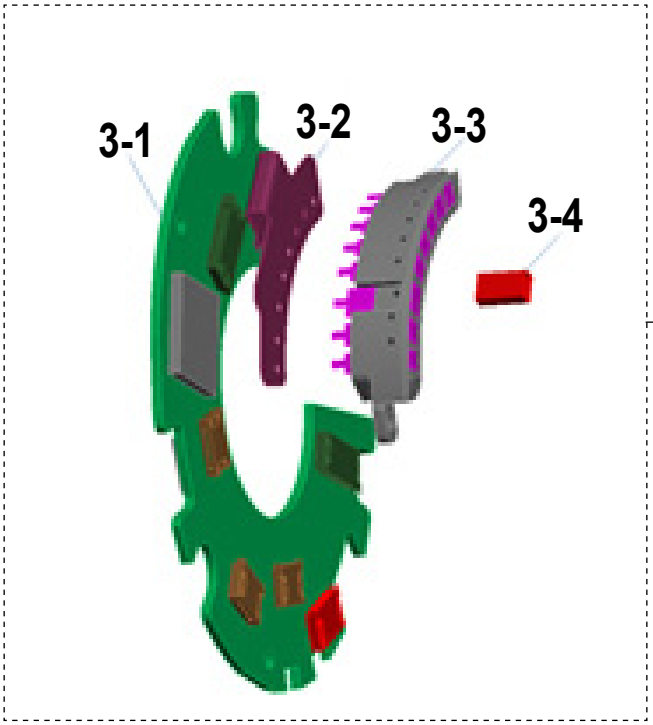
7-3 MAIN PCB ASSEMBLY



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
3-1	AD92-01624A	SMD PCB ASSY-XL1102	1	X	
3-2	AD41-01702A	FPC-CONTACT_XL1102	1	X	
3-3	AD61-04213A	CONTACT ASS'Y_XL1014	1	X	
3-4	AD63-04940A	EMI_GASKET_XL1014	1	X	
3-5	AD92-01727A	ASSY PCB MAIN	1	O	

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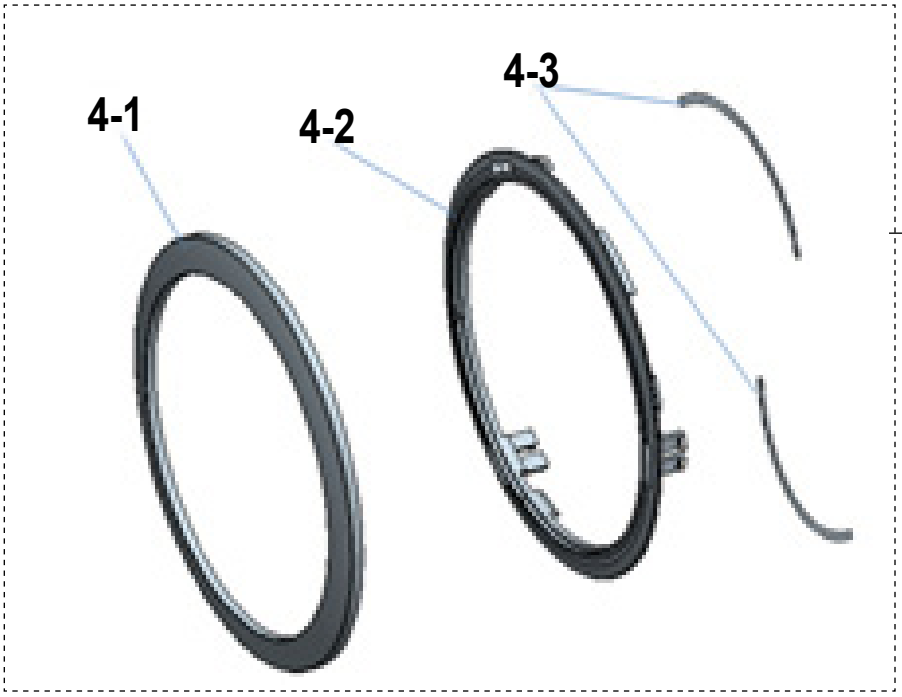
7-4 OUTER COVER ASSEMBLY



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
4-1	AD64-03342A	Deco Ring_Outer_XL1102	1	X	
4-2	AD67-02131A	Barrel_Outer Ring_XL1102	1	X	
4-3	AD63-06082A	T/Sheet_Outer Deco_XL1102	2	X	
4-4	AD97-21652A	Outer Cover Assy_XL1102	1	O	

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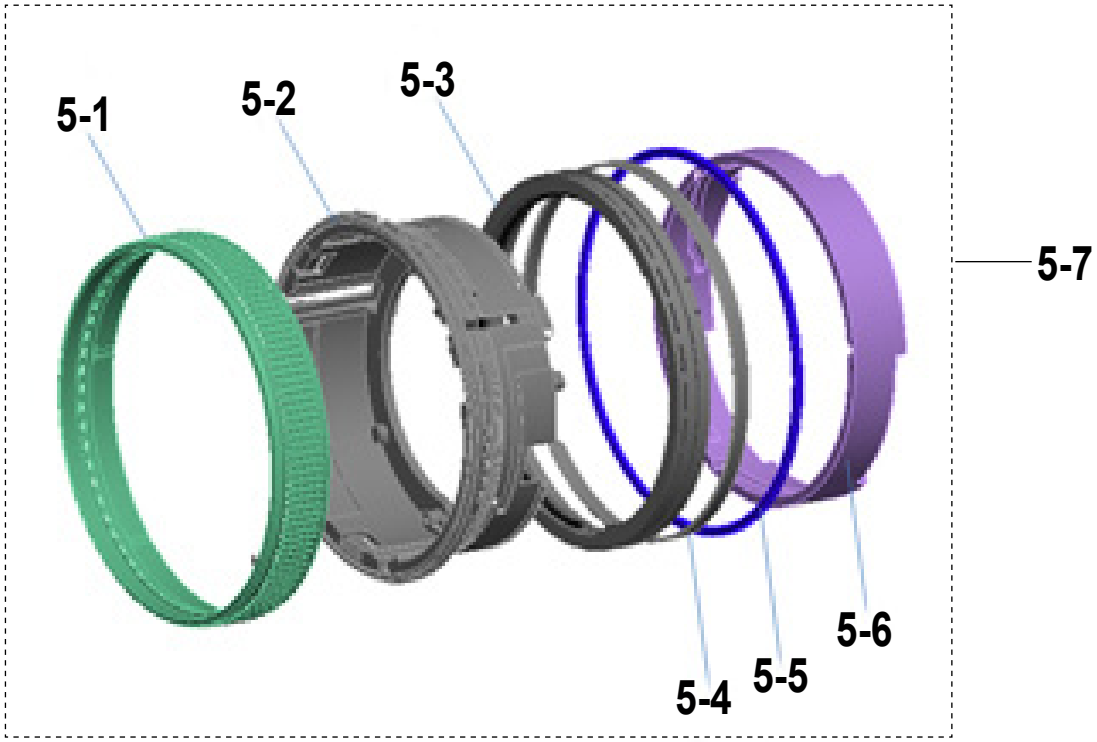
7-5 FOCUS RING ASSEMBLY



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
5-1	AD67-02128A	Barrel_Focus Grip_XL1102_BK	1	X	BLACK
	AD67-02128B	Barrel_Focus Grip_XL1102_WH	1	X	WHITE
	AD67-02128C	Barrel_Focus Grip_XL1102_PK	1	X	PINK
5-2	AD67-02127A	Barrel_Fix_XL1102	1	X	
5-3	AD67-02129A	Barrel_Focus Holder_XL1102	1	X	
5-4	AD63-06081A	Shield_Focus_B_XL1102	1	X	
5-5	AD64-03344A	Deco Ring_Blue_XL1102_BKWH	1	X	BLACK, WHITE
	AD64-03344C	Deco Ring_Blue_XL1102_PK	1	X	PINK
5-6	AD67-02125A	Barrel_AF-Cam_XL1102	1	X	
5-7	AD97-21649A	Focus Ring Assy_XL1102_BK	1	O	BLACK
	AD97-21649D	Focus Ring Assy_XL1102_WH	1	O	WHITE
	AD97-21649C	Focus Ring Assy_XL1102_PK	1	O	PINK

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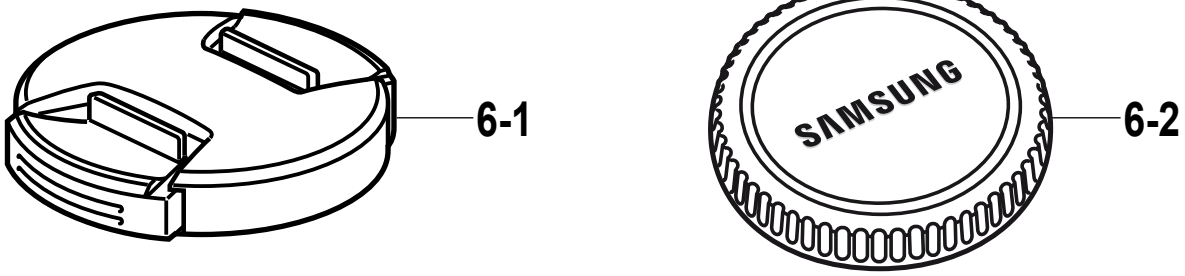
7-6 PACKING ITEMS



ITEM	PART NO.	PART NAME	Q'TY	AVAILABLE	REMARK
6-1	AD97-18381A	ASSY LENS-CAP;XL1012	1	O	
6-2	AD63-03989A	COVER-MOUNT CAP;XL1012	1	O	

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EC-NX 1102