

Panasonic[®]

Order No.DSC1109054CE

B26

Service Manual

Interchangeable Lens for Digital Camera

Model No. **H-PS45175PP**

H-PS45175E

H-PS45175GK

Colour

Vol.1

(K).....Black Type

(S).....Silver Type



Specifications

INTERCHANGEABLE LENS FOR DIGITAL CAMERA


"LUMIX G X VARIO PZ 45–175 mm/F4.0–5.6 ASPH./POWER O.I.S."

Focal length	f=45 mm to 175 mm (35 mm film camera equivalent: 90 mm to 350 mm)
Aperture type	7 diaphragm blades/circular aperture diaphragm
Aperture range	F4.0 (Wide) to F5.6 (Tele)
Minimum aperture value	F22
Lens construction	14 elements in 10 groups (2 aspherical lenses, 2 ED Lens)
Nano surface coating	Yes
In focus distance	0.9 m to ∞ (from the focus distance reference line)
Maximum image magnification	0.2 \times (35 mm film camera equivalent: 0.4 \times)
Optical image stabilizer	Available
[O.I.S.] switch	None (Setting of the [STABILIZER] is done in [REC] mode menu by LUMIX digital cameras.)
Mount	"Micro Four Thirds Mount"
Angle of view	27° (Wide) to 7.1° (Tele)
Filter diameter	46 mm
Max. diameter	Approx. 61.6 mm
Overall length	Approx. 90.0 mm (from the tip of the lens to the base side of the lens mount)
Mass	Approx. 210 g

WARNING

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

IMPORTANT SAFETY NOTICE

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

1 Service Navigation

1.1 Introduction

This service manual contains technical information, which allow service personnel's to understand and service this model.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, the information will be followed by supplement service manual.

1.2 Important Notice

1.2.1 About LENS MAIN BLOCK UNIT (Ref. 212)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.212), because it requires special facilities and equipment.
2. The "LENS MAIN BLOCK UNIT"(Ref.212) performance must be confirmed.
3. In case of the "LENS MAIN BLOCK UNIT"(Ref.212) defects, contact to the service department of sales company.

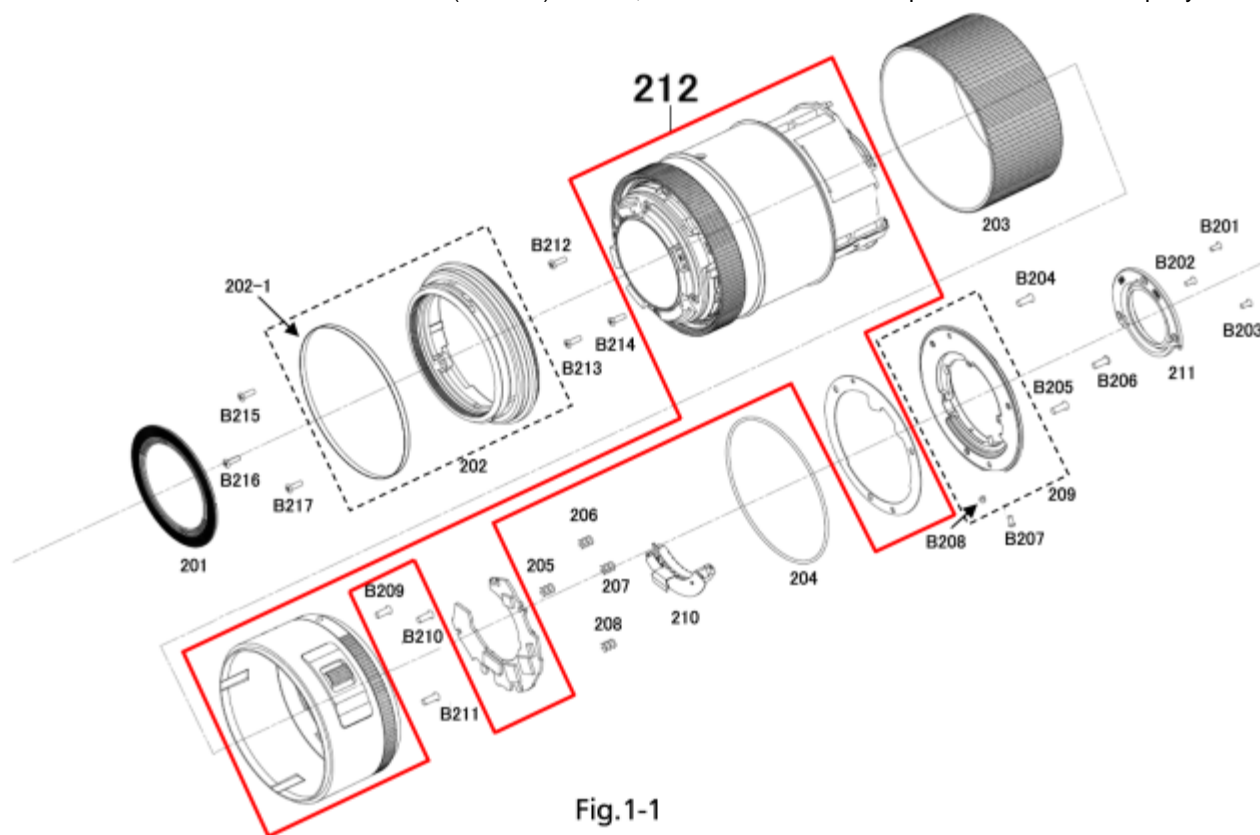


Fig.1-1

4. No adjustment is required when replacing the part mentioned on Fig.1-1. But, when tighten the concerned screws, apply proper torque mentioned on "4. Disassembly and Assembly Instruction" section.

2 Operating Guide

2.1 Before Use

(Information for Your Safety)

Keep the unit as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games, radio transmitters, high-voltage lines etc.).

- Do not use the camera near cell phones because doing so may result in noise adversely affecting the pictures and sound.
- If the camera is adversely affected by electromagnetic equipment and stops functioning properly, turn the camera off and remove the battery and/or the connected AC adaptor. Then reinsert the battery and/or reconnect the AC adaptor and turn the camera on.

The lens can be used with a digital camera compatible with the lens mount standard for the "Micro Four Thirds™ System".

- It cannot be mounted on the Four Thirds™ mount specification camera.
- The digital camera illustrations in these operating instructions show DMC-G3 as an example.
- The appearance and specifications of products described in this manual may differ from the actual products you have purchased due to later enhancements.

- Micro Four Thirds™ and Micro Four Thirds Logo marks are trademarks or registered trademarks of Olympus Imaging Corporation, in Japan, the United States, the European Union and other countries.
- Four Thirds™ and Four Thirds Logo marks are trademarks or registered trademarks of Olympus Imaging Corporation, in Japan, the United States, the European Union and other countries.
- G MICRO SYSTEM is a lens exchange type digital camera system of LUMIX based on a Micro Four Thirds System standard.
- LEICA is a registered trademark of Leica Microsystems IR GmbH. SUMMILUX is a registered trademark of Leica Camera AG. The LEICA DG lenses are manufactured using measurement instruments and quality assurance systems that have been certified by Leica Camera AG based on the company's quality standards.
- Other names of systems and products mentioned in these instructions are usually the registered trademarks or trademarks of the manufacturers who developed the system or product concerned.

Precautions

■ Lens Care

- Sand and dust can damage the lens. Make sure that no sand or dust gets inside the lens or the terminals when using the lens on a beach, etc.
- This lens is not waterproof. If drops of water get onto the lens, wipe the lens with a dry cloth.
- Do not press the lens with excessive force.
- When there is dirt (water, oil, and fingerprints, etc.) on the surface of the lens, the picture may be affected. Lightly wipe the surface of the lens with a soft, dry cloth before and after taking pictures.
- Do not place the lens mount facing downwards. Do not allow the lens contact points ① to become dirty.



■ About Condensation (Fogging of the Lens)

- Condensation occurs when there are differences in temperature and humidity as described below. Condensation can cause the lens to become dirty and lead to mold and malfunctioning, so exercise caution in the following situations:
 - When the camera is brought indoors from outside during cold weather
 - When the camera is brought into an air-conditioned car
 - When cold air from an air conditioner is directly blown onto the lens
 - In humid places
- Put the camera into a plastic bag to allow it to acclimatize to the surrounding temperature in order to prevent condensation. If condensation occurs, turn the power off and leave it for about two hours. Once the camera acclimatizes to the surrounding temperature the condensation will go away naturally.

2.2 Cautions For Use

Take care not to drop or knock the lens. Also take care not to put a lot of pressure on the lens.

- Take care not to drop the bag that you inserted the lens in as it may strongly shock the lens. The camera may stop operating normally and pictures may no longer be recorded. Also, the lens may be damaged.

When using pesticides and other volatile substances around the camera make sure that they do not get onto the lens.

- If such substances get onto the lens they can damage the exterior case or cause the paint to peel.

Do not carry the unit when it is still attached to the camera body.

- Under no circumstances should the unit be stored in any of the following locations since doing so may cause problems in operation or malfunctioning.
 - In direct sunlight or on a beach in summer
 - In locations with high temperatures and humidity levels or where the changes in temperature and humidity are acute
 - In locations with high concentrations of sand, dust or dirt
 - Where there is fire
 - Near heaters, air conditioners or humidifiers
 - Where water may make the unit wet
 - Where there is vibration
 - Inside a vehicle

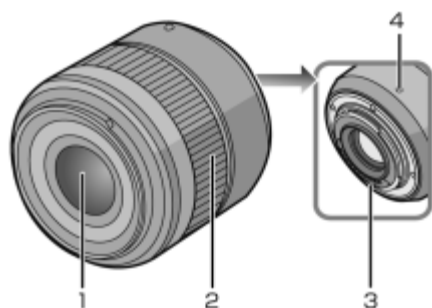
- Refer also to the operating instructions of the digital camera.
- When the unit is not going to be used for a prolonged period, we recommend storing with a desiccant (silica gel). Failure to do so may result in performance failure caused by mold, etc. It is recommended that you check the unit's operation prior to use.
- Do not leave the lens in contact with rubber or plastic products for extended periods of time.
- Do not touch the lens contact point. Doing so can cause failure of the unit.
- Do not disassemble or alter the unit.

Do not use benzine, thinner, alcohol or other similar cleaning agents to clean the lens glass or exterior cabinet.

- Using solvents can damage the lens or cause the paint to peel.
- Wipe off any dust or fingerprints with a soft, dry cloth.
- Use a dry dust cloth to remove dirt and dust on the focus ring.
- Do not use a household detergent or a chemically treated cloth.

2.3 Components

Names and Functions of Components

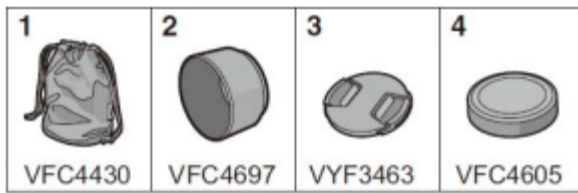


- 1 Lens surface
- 2 Focus ring
Rotate to focus when taking pictures with manual focus.
- 3 Contact points
- 4 Lens fitting mark

Note;

Change in the image by the focus operation may be more visible depending on the recording condition when the AF operates during the motion picture recording. It is recommended to fix the focus by setting the camera to manual focus (MF), etc., when the change of image is disturbing you.

2.3.1 Accessories



- 1 Lens Storage Bag
- 2 Lens Hood
- 3 Lens Cap
- 4 Lens Rear Cap
(The lens rear cap and lens cap are attached to the interchangeable lens at the time of purchase.)

2.3.2 Attaching/Detaching the Lens

Attaching/Detaching the Lens

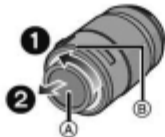
- Refer also to the camera's operating instructions for attaching and detaching the lens.

■ Attaching the Lens

- Check that the camera is turned off.

- 1 Turn the lens rear cap to detach it.

(A): Lens Rear Cap



- 2 Align the lens fitting marks (B) (red marks) on the camera body and the lens and then rotate the lens in the direction of the arrow until it clicks.

- Do not press the lens release button (C) when you attach a lens.
- Do not try to attach the lens when holding it at an angle to the camera body as the lens mount may get scratched.
- Check that the lens is attached correctly.



■ Detaching the Lens

- Check that the camera is turned off.

While pressing on the lens release button (C), rotate the lens toward the arrow until it stops and then remove.

- Attach the lens rear cap so that the lens contact point does not get scratched.
- Attach the body cap to the camera so no dirt or dust will get inside the main unit.



■ Attaching and Detaching the Lens Cap

Pinch the lens cap as shown in the figure to attach or detach.

- Be careful not to lose the lens cap.



■ Attaching the Lens Hood (Supplied Accessory)

Insert the lens hood into the lens, and turn in the direction of the arrow until it stops.

(E): Fit to the mark



■ Temporarily Storing the Lens Hood

- 1 Turn the lens hood in the direction of the arrow to detach it.

- 2 Reverse the lens hood and then attach it in the same way as shown previously.



- When taking pictures with the flash with the lens hood attached, the lower portion of the screen may turn dark (vignetting effect) and the control of the flash may be disabled because the photo flash may be obscured by the lens hood. We recommend detaching the lens hood.
- When using the AF assist lamp in the dark, detach the lens hood.




■ Attaching Filters

- Vignetting may occur if using 2 or more MC protectors (optional: DMW-LMC46), PL filters (optional: DMW-LPL46) or ND filters (optional: DMW-LND46), or if using thick protectors and/or filters.
- The filter may become impossible to remove if excessively tightened, so please refrain from tightening it too strongly.
- It is possible to attach the lens cap with the filter already attached.
- You cannot attach a conversion lens or adaptor to this lens. A filter may be used, but attaching any other element may cause damage to the lens.

3 Service Fixture and Tools

3.1 Service Fixture and Tools

The following Service Fixture and Tools are used for Checking & Servicing for this unit.

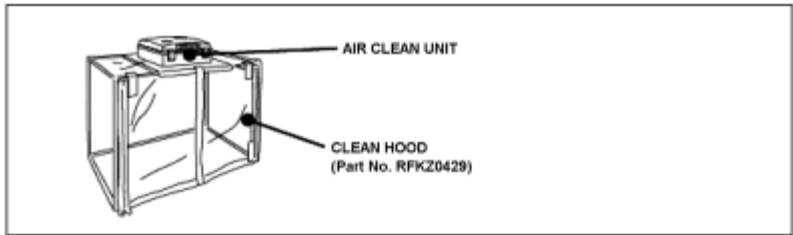
Lens Cleaning Kit (BK) VFK1900BK	TORQUE DRIVER RFKZ0456	Driver VFK1390
 * Only supplied as 10 set/box.	 Spec.:2-30N・cm (Equiv.0.2-3kgf/cm)	

3.2 Clean Box

- The repair quality is considered, and it is recommended working in the environment of satisfied clean level less than class 10,000 (Federal Standard 209D).
(When remove the 1st lens frame, it is indispensable.)

[NOTE]

- Work in the environment of satisfied clean level less than class 10,000 (Federal Standard 209D) when remove the 1st lens frame for cleaning.



4 Disassembly and Assembly Instructions

4.1 Outline

Proceed disassemble and assemble, by referring the following table and Fig.4-1.

IMPORTANT:

1. It is recommended dealing with Clean box, to keep maintaining the dustproof environment.
(Refer to "3.2. Clean Box" section of this service manual for details.)
2. To minimize the possibilities/risk of getting the dust/dirt on the lens surface, keep covering the lens unit with Lens caps (front & rear), other than necessary cases.
3. Do not touch the surface of the lens glasses with your fingers.
4. Blow off the dust on the surface of the lens with a blower brush.
5. Use lens cleaning KIT (BK)(VFK1900BK).

NOTE:

1. When tightening screws, use a Torque driver (RFKZ0456) with specified torque mentioned in each step.
2. Use VFK1390 (small driver) when screwing/unscrewing the B208.

CAUTION:

Keep covering the lens unit with Lens caps (front & rear), other than necessary cases.

Concerned Part		Screw					Remarks
Part Name	Ref. No.	Ref. No.	Color	Length	Screwing Order	Torque Spec.	
SHADING FRAME	211	B201	Black	3.0mm	1	10±1.2N·cm	
		B202	Black	3.0mm	2	10±1.2N·cm	
		B203	Black	3.0mm	3	10±1.2N·cm	
L MOUNT UNIT	209	B204	Silver	6.0mm	1	20±1.2N·cm	
		B205	Silver	6.0mm	2	20±1.2N·cm	
		B206	Silver	6.0mm	3	20±1.2N·cm	
		B207	Silver	3.0mm	—	8±1N·cm	
REAR FRAME UNIT	-	B209	Black	4.0mm	1	7±1N·cm	
		B210	Black	4.0mm	2	7±1N·cm	
		B211	Black	4.0mm	3	7±1N·cm	
1ST LENS FRAME UNIT	-	B212	Black	4.0mm	—	7±1.2N·cm	
		B213	Black	4.0mm		7±1.2N·cm	
		B214	Black	4.0mm		7±1.2N·cm	
FILTER RING UNIT	202	B215	Silver	5.0mm	1	10±1.2N·cm	
		B216	Silver	5.0mm	2	10±1.2N·cm	
		B217	Silver	5.0mm	3	10±1.2N·cm	

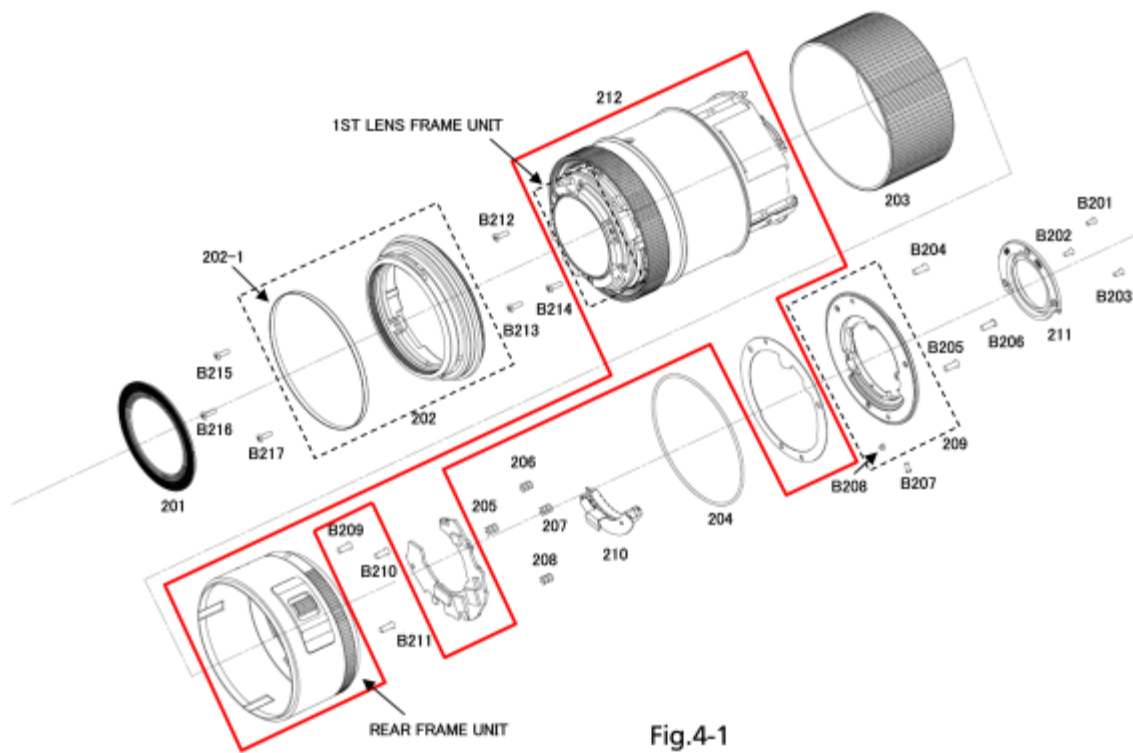


Fig.4-1

4.2 Disassembly Procedure

1. Remove the 3 screws showed in the following picture, then remove SHADING FLAME UNIT.

(B201, B202, B203)



2. Remove the 4 screws showed in the following picture, then remove L MOUNT UNIT.

(B204, B205, B206 and B207)



Screw on the side surface

3. Remove MOUNT SPACER.



4. Remove the 3 screws and 1 flex showed in the following picture, then remove REAR FRAME UNIT and DUST PROOF RING.
(B209, B210, B211)



REAR FRAME UNIT



DUST PROOF RING

5. Remove the 5 flexes showed in the following picture, then remove LENS PCB UNIT and MOUNT CONTACT UNIT.
(4 FLOATING RUBBER is attached on LENS PCB UNIT.)



LENS PCB UNIT & MOUNT CONTACT UNIT

6. Remove the 1 flex showed in the following picture, then remove MOUNT CONTACT UNIT from LENS PCB UNIT.



4.3 Assembly Procedure

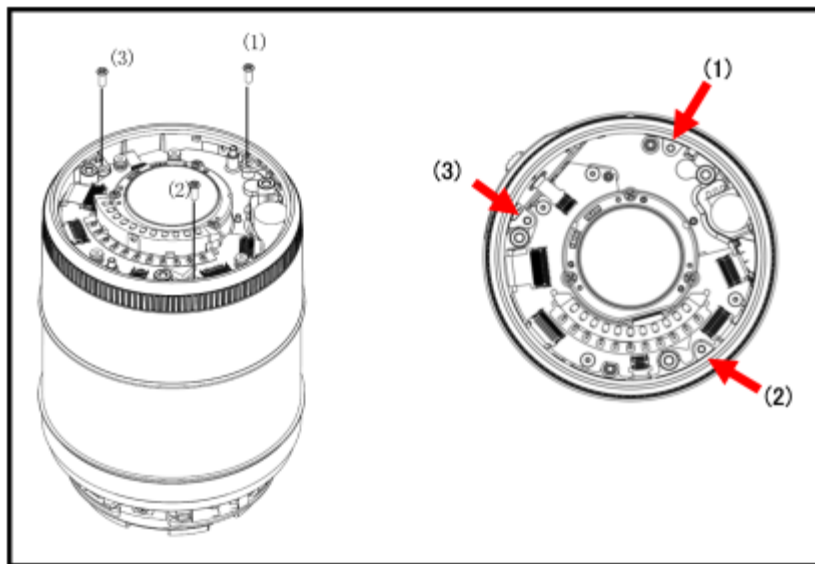
1. Insert the flex of MOUNT CONTACT UNIT into the connector of LENS PCB UNIT.
2. Set LENS PCB UNIT on the LENS Body, then Insert the 5 flexes into the connector of LENS PCB UNIT.
3. Attach REAR FRAME UNIT on the LENS Body to set the mark of the two in the same direction.



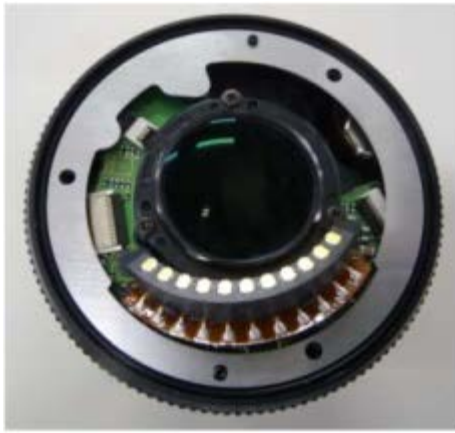
4. Insert the flex of ZOOM SW UNIT into the connector of LENS PCB UNIT,
then set DUST PROOF RING in the REAR FRAME UNIT.



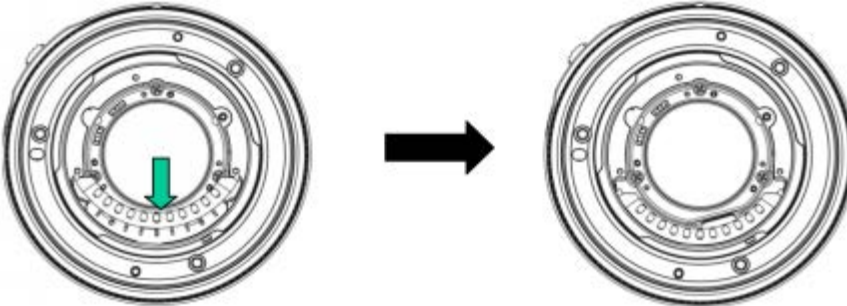
5. Tighten the 3 screws in the order as shown in the figure by using the torque driver with specified torque.
(Torque: 7 +/- 1N-cm)



6. Insert the Mount Spacer into the Lens Body.

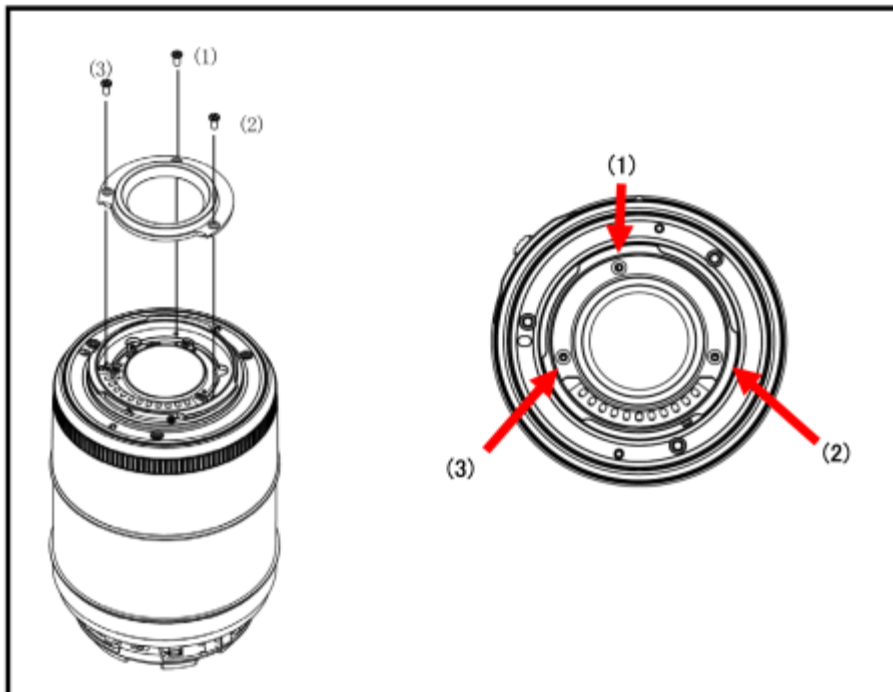


7. Insert the L MOUNT UNIT into the Lens Body, then fit the MOUNT CONTACT UNIT into place.



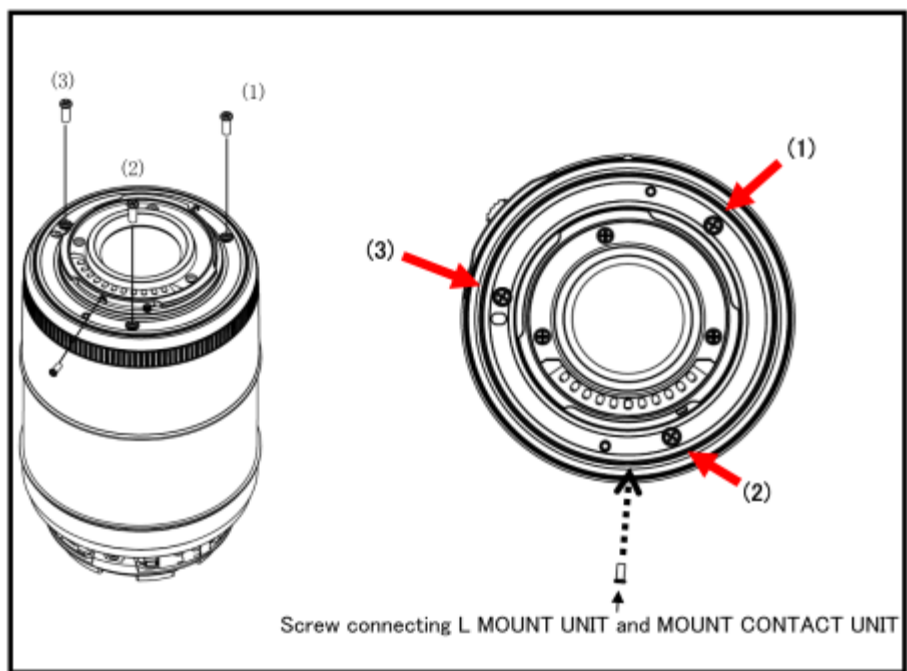
8. Set SHADING FLAME UNIT on L MOUNT UNIT, then tighten the 3 screws in the order as shown in the figure by using the torque driver with specified torque.

(Torque: 10 +/- 1.2N-cm)



9. Tighten 3 screws in the order as shown in the figure by using the torque driver with specified torque, then tighten a screw connecting L MOUNT UNIT and MOUNT CONTACT UNIT in the same way.

(Torque: B204 to B206: 20 +/- 1.2N-cm, B207: 8 +/- 1N-cm)



5 Maintenance

5.1 About the Lens

5.1.1 Dust / Dirt on the outer casing part(s)

1. Blow off the dust first, then sweep out the dust from narrower spaces with soft cleaning brush.
2. Wipe up the Outer casing part with the dry fuzz-free cloth.

5.1.2 Dust / Dirt on the Lens Glasses.

Define the location of the dust / dirt first, whether it is outside lens surface or not.

1. When it is outside surface of the lens:

When the dust and / or dirt gets on the outer side surface of the Lens glasses, order the following procedures.

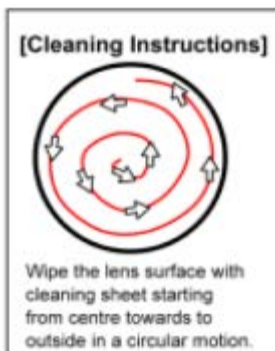
1. Blow off the dust on the Lens glass surface with the Blower, gently. (Do not Blow too strongly.)
2. Wipe out the dirt on the lens glass surface with Lens cleaning KIT (VFK1900BK) if necessary.

(Consult the Instruction sheet which is included in the Lens cleaning KIT in details.)

NOTE: (About rear side of lens unit.)

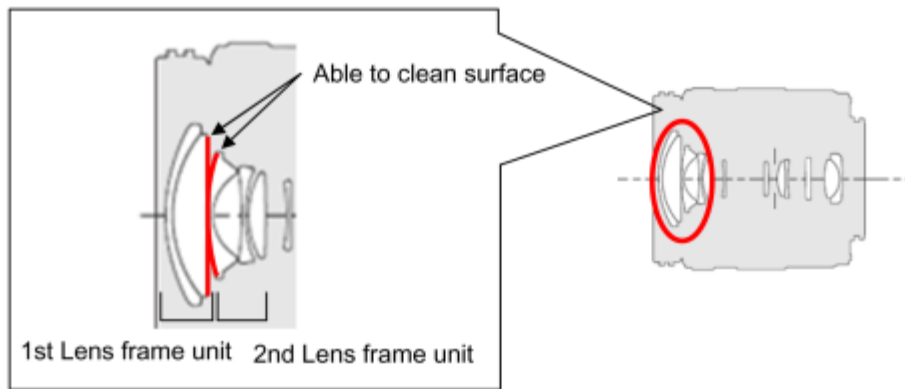
2. When it is inside of the lens:

Refer to the "5.2. General description (Lens cleaning)" section of this service manual.



5.2 General description (Lens cleaning)

When there is a dust / dirt inside surface of the 1st lens frame unit and/or subject side surface of the 2nd lens frame unit, remove it by referring the following procedures.



CAUTION

*DO NOT REMOVE 1st LENS FRAME UNIT OTHER THAN INSIDE OF SATISFIED CLEAN LEVEL.
(Satisfied clean level: Less than class 10,000 Federal Standard 209D)

Important:

1. When removing the 1st lens frame unit, it has to be proceed inside of satisfied clean level.
(Less than class 10,000 (Federal Standard 209D))
As for clean box, refer to the "3.2. Clean Box", in details.
2. When tighten the screws, use torque driver (RFKZ0456) with specified torque.
3. To keep the Lens performance, use only the 1st lens frame unit which was fitted as it was.
Therefore, the 1st lens frame unit is not supplied as spare parts.
Also do not exchange the 1st lens unit taking from others.

5.2.1 Disassembly procedure

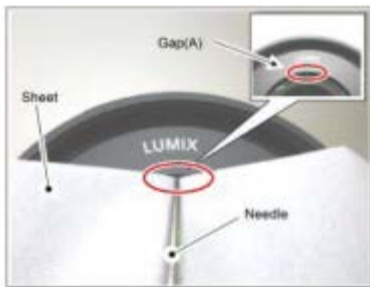
Important:

It must be performed inside of satisfied clean level.

(Satisfied clean level: Less than class 10,000 (Federal Standard 209D))

(1) DECO.RING

1. Decoration ring is stucked on the 1st lens frame unit.
2. Put the sheet so that the lens glass is fully covered.
3. Insert the needle to Gap (A) (between the decoration ring and lens glass), and peel off the decoration ring gently.



(2) FILTER RING UNIT

Remove the following 3 screws, then remove FILTER RING UNIT.

(B215 - B217: Silver 5mm)



(3) 1ST LENS FRAME UNIT

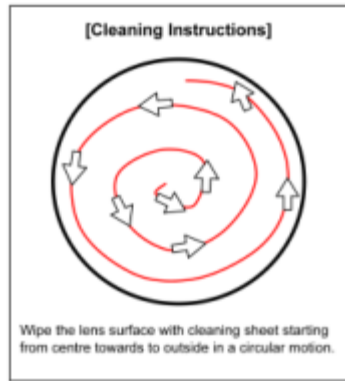
Remove the following 3 screws, then remove 1ST LENS FRAME UNIT.

(B212 - B214: Black 4mm)



(4) Removal of dusts / dirt.

1. Blow off the dust on the surface of the lens with a blower brush.
2. Use lens cleaning KIT(BK) (VFK1900BK), if necessary.

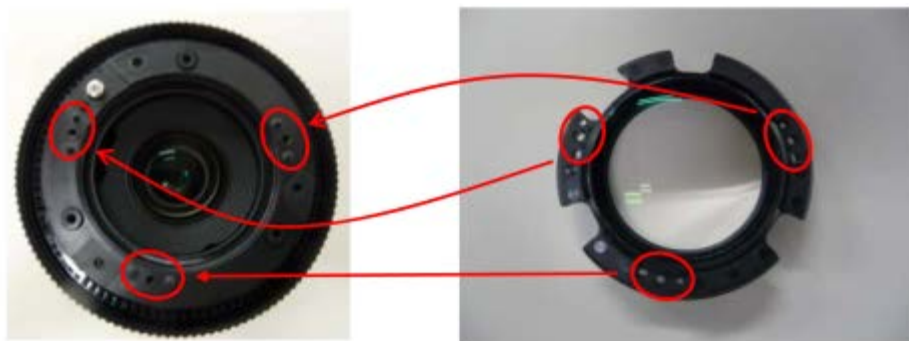


5.2.2 Assembly procedure

Important:

When tightening the screw, use a torque driver (RFKZ0456) by ordering the screwing order with specified torque described in each step.

1. Set 1ST LENS FRAME UNIT on 2ND LENS FRAME UNIT with positioning the 3 holes of screw.



2. Tighten the 3 screws by using the torque driver with specified torque.

(Torque: 7 +/- 1.2N-cm)

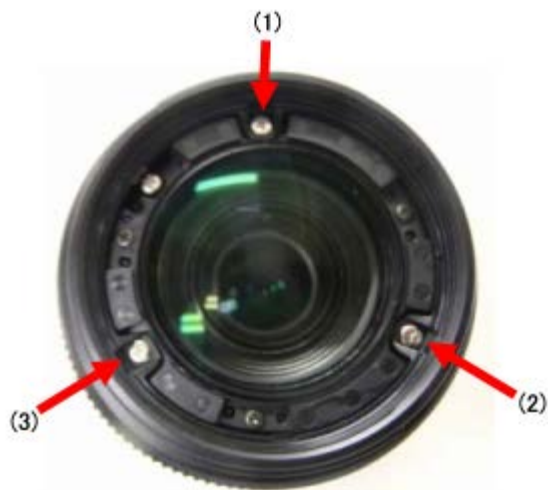


3. Attach FILTER RING UNIT on the Lens Body to set the mark of the two in the same direction.



4. Tighten the 3 screws in the order as shown in the figure by using the torque driver with specified torque.

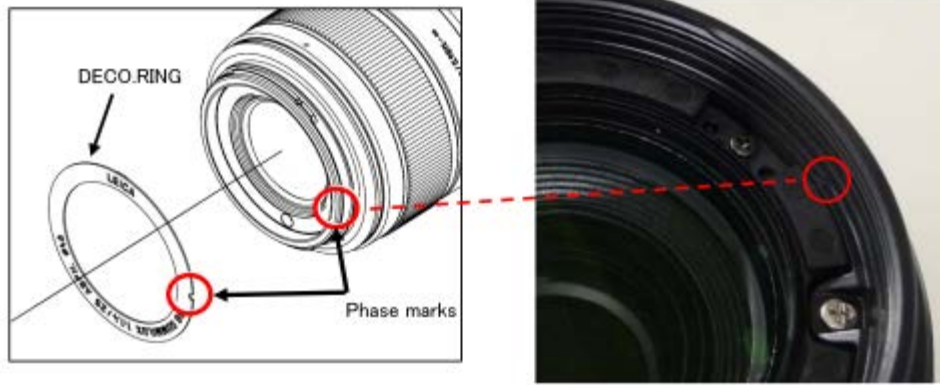
(Torque: 10 +/- 1.2N-cm)



5. Install DECO.RING by referring the Phase marks.

(Use new one, Do not use the one which is removed.)

After installing the DECO.RING, press it with your finger.

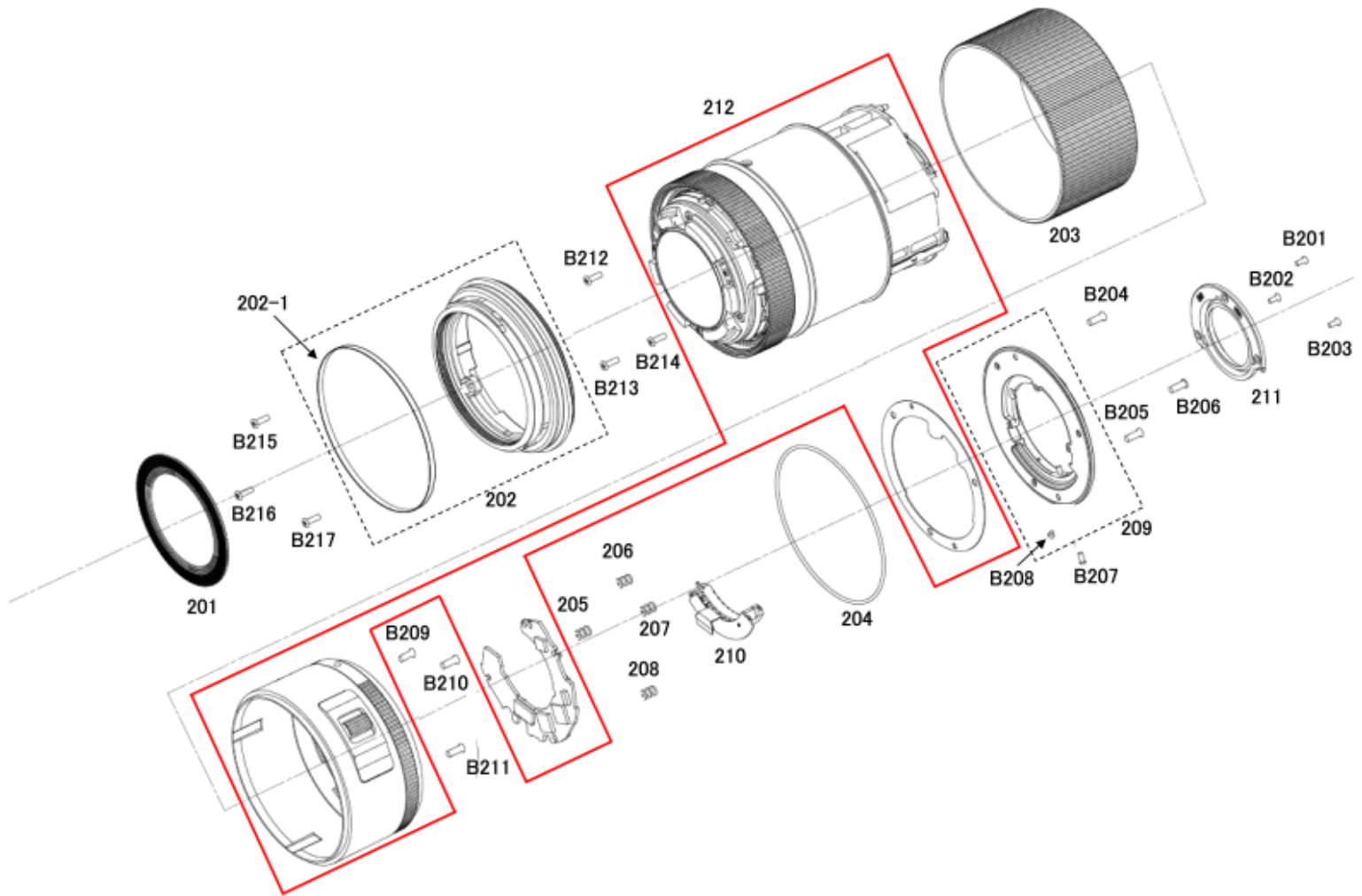


(Ref) The character "LUMIX G" of the DECO.RING is near the mark at the side surface of FILTER RING UNIT.

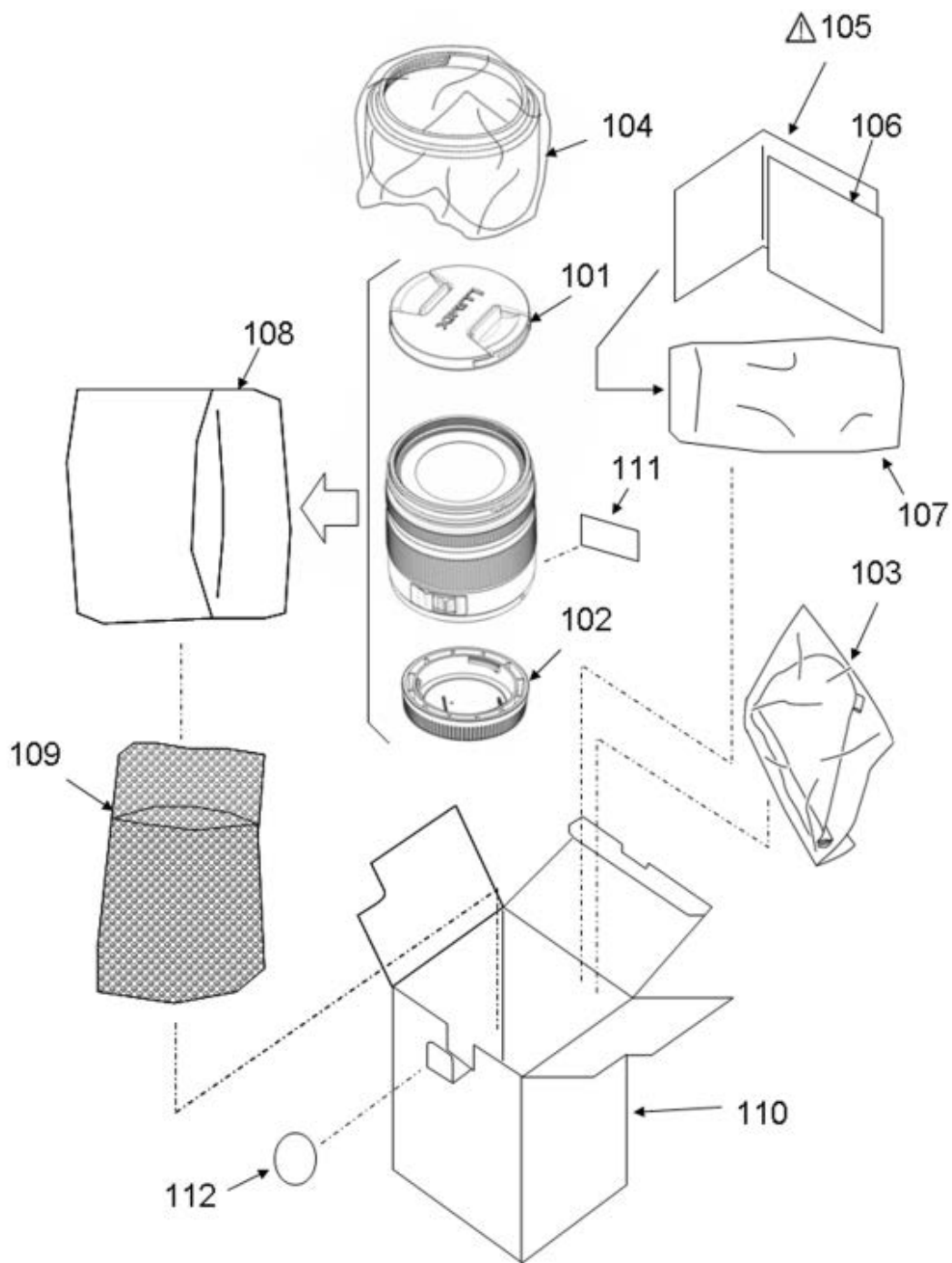


6 Exploded View

6.1 Frame & Casing Section




6.2 Packing Parts and Accessories Section



7 Replacement Parts List

7.1 Mechanical Replacement Parts List

Notes: 1.* Be sure to make your orders of replacement parts according to this list.

2. IMPORTANT SAFETY NOTICE
 Components identified with the mark  have the special characteristics for safety.
 When replacing any of these components, use only the same type.

3. The marking(RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

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

7.1.1 Frame & Casing Section Parts List

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
201	VGH5235	DECO.RING	1	
202	VXP3655	FILTER RING UNIT	1	
202-1	VGQ0X18	SILVER RING	1	
203	VMG2001	ZOOM RUBBER RING	1	
204	VMG1847	DUST PROOF RING	1	
205	VMG1855	FLOATING RUBBER	1	
206	VMG1855	FLOATING RUBBER	1	
207	VMG1855	FLOATING RUBBER	1	
208	VMG1855	FLOATING RUBBER	1	
209	VXQ2108	L MOUNT UNIT	1	
210	VEJ2306	MOUNT CONTACT UNIT	1	
211	VDW2276	SHADING FRAME	1	
212	---	LENS MAIN BLOCK UNIT	1	(Not Supplied)
B201	VHD2246	SCREW	1	
B202	VHD2246	SCREW	1	
B203	VHD2246	SCREW	1	
B204	VHD2299	SCREW	1	
B205	VHD2299	SCREW	1	
B206	VHD2299	SCREW	1	
B207	VHD2298	SCREW	1	
B208	VHD1868	SCREW	1	
B209	VHD2296	SCREW	1	
B210	VHD2296	SCREW	1	

B211	VHD2296	SCREW	1	
B212	VHD2296	SCREW	1	
B213	VHD2296	SCREW	1	
B214	VHD2296	SCREW	1	
B215	VHD2096	SCREW	1	
B216	VHD2096	SCREW	1	
B217	VHD2096	SCREW	1	

7.1.2 Packing Parts & Accessories Section Parts List

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
101	VYF3463	LENS FRONT CAP	1	
102	VFC4605	LENS REAR CAP	1	
103	VFC4430	LENS STORAGE BAG	1	
104	VYC1066	LENS HOOD UNIT	1	
105	VQT3R89	OPERATING INSTRUCTIONS (ENGLISH/CANADIAN FRENCH/SPANISH)	1	PP
105	VQT3R90	OPERATINGINSTRUCTIONS (ENGLISH/GERMAN/FRENCH/SPANISH/ITALIAN/ CHINESE(TRADITIONAL)/RUSSIAN)	1	E
105	VQT3R91	OPERATING INSTRUCTIONS (CHINESE(SIMPLIFIED))	1	GK
106	VQL2N81	OPERATING LABEL	1	PP,E
107	VPF1230	POLYETHYLENE COVER	1	PP,E
108	VPF1439	LENS BAG	1	
109	VPF1328	BAG, POLYETHYLENE	1	
110	VYQ6913	PACKING CASE	1	PPK
110	VPK5064	PACKING CASE	1	E-K
110	VYQ6916	PACKING CASE	1	PPS
110	VYQ6917	PACKING CASE	1	E-S
110	VYQ6914	PACKING CASE	1	GKK
110	VYQ6918	PACKING CASE	1	GKS
111	VQL1V24	WEEE LABEL	1	E
112	VQL1S66	LABEL	1	GK