

# Service Manual

Interchangeable Lens for Digital Camera

MEGA  
O.I.S.



Model No. **H-FS100300PP**  
**H-FS100300E**  
**H-FS100300GK**

Vol.1



## Specifications

INTERCHANGEABLE LENS FOR DIGITAL CAMERA  
“LUMIX G VARIO 100–300 mm/F4.0–5.6/MEGA O.I.S.”

Focal length	f=100 mm to 300 mm (35 mm film camera equivalent: 200 mm to 600 mm)
Aperture type	7 diaphragm blades/circular aperture diaphragm
Aperture range	F4.0 (Wide) to F5.6 (Tele)
Minimum aperture value	F22
Lens construction	17 elements in 12 groups (1 ED lens)
In focus distance	1.5 m to $\infty$ (from the focus distance reference line)
Maximum image magnification	0.21 $\times$ (35 mm film camera equivalent: 0.42 $\times$ )
Optical image stabilizer	Available
Mount	“Micro Four Thirds Mount”
Angle of view	12° (Wide) to 4.1° (Tele)
Filter diameter	67 mm
Max. diameter	Approx. 73.6 mm
Overall length	Approx. 126 mm (from the tip of the lens to the base side of the lens mount)
Mass	Approx. 520 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.

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# 1 INTRODUCTION

## 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.

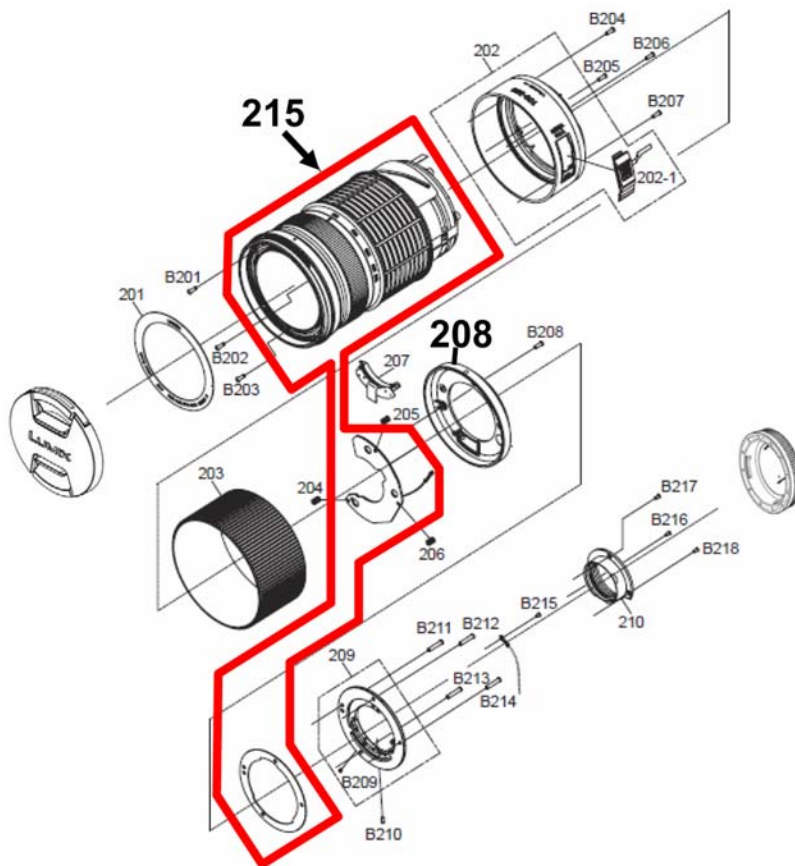
If the circuit is changed or modified, the information will be followed by supplement service manual.

## 1.2. IMPORTANT NOTICE

### 1.2.1. About Lens MAIN Block unit (Ref. 215)

1. This Service Manual does not contain the repair service information for "LENS MAIN BLOCK UNIT"(Ref.215), because it requires special facilities and equipment.
2. The "LENS MAIN BLOCK UNIT"(Ref.215) performance must be confirmed.
3. In case of the "LENS MAIN BLOCK UNIT"(Ref.215) defects, contact to the service department of sales company.

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



### **Ref.215 LENS MAIN BLOCK UNIT (Not supplied)**

**If this part is necessary, consult with the service department of sales company.**

Fig. S1

4. No adjustment is required when replacing the part mentioned on Fig.S1. But, when tighten the concerned screws, apply proper torque mentioned on "4 Disassembly / Assembly procedures".

## 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-GH2 as an example.

#### 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.



- 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.
- Other names, company names, and product names printed in these instructions are trademarks or registered trademarks of the companies concerned.

##### ■ 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

### **Troubleshooting**

**A sound is heard when the camera is turned on or off.**

- This is the sound of lens or aperture movement and is not a malfunction.

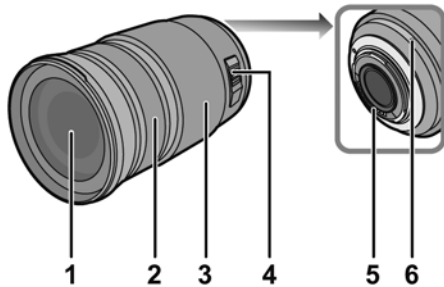
- Refer also to the operating instructions of the digital camera.
- When the unit is not going to be used for a prolonged period, we recommend storing with a desiccant (silica gel). Failure to do so may result in performance failure caused by mold, etc. It is recommended that you check the unit's operation 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 zoom ring and 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 Zoom ring

Rotate the zoom ring when you wish to take large (tele) or wide (wide angle) pictures. (35 mm film camera equivalent: 200 mm to 600 mm)

4 [O.I.S.] switch

When the lens is attached to the camera the stabilizer function is set to activate if the [O.I.S.] switch is set to [ON].

- We recommend setting the [O.I.S.] switch to [OFF] when using a tripod.
- The stabilizer function may not be effective in the following cases.
  - When there is a lot of jitter.
  - When the zoom magnification is high.
  - When using the digital zoom.
  - When taking pictures while following a moving subject.
  - When the shutter speed becomes slower to take pictures indoors or in dark places.

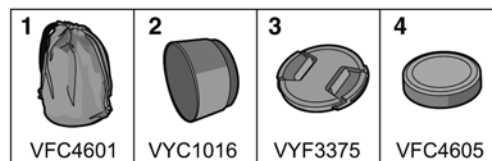
5 Contact points

6 Lens fitting mark

#### Note

- When flash recording with a close subject, the light of the flash will be blocked by the lens and part of the picture may be dark. Check the distance from the subject when recording.

### 2.3.1. Accessories



1 Objektivasche

2 Gegenlichtblende

3 Objektivdeckel

4 Hinterer Objektivdeckel

(Beim Kauf sind der hintere Objektivdeckel und der Objektivdeckel auf das Wechselobjektiv aufgesetzt.)

## 2.3.2. Attaching / Detaching the Lens

### Attaching/Detaching the Lens

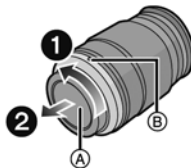
- Refer also to the camera's operating instructions for attaching and detaching the lens.

#### ■ Attaching the Lens

- Check that the camera is turned off.

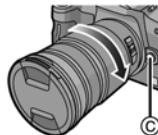
##### 1 Turn the lens rear cap to detach it.

Ⓐ: Lens Rear Cap



##### 2 Align the lens fitting marks Ⓑ (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 Ⓒ 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.

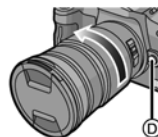


#### ■ Detaching the Lens

- Check that the camera is turned off.

**Press the lens release button Ⓓ while turning the lens as far as possible in the direction of the arrow to detach it.**

- 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.



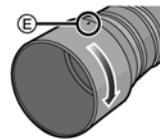
#### ■ Attaching and Detaching the Lens Cap

- 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.**



Ⓔ: 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-LMCH67) or PL filters (optional: DMW-LPL67), 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 & 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	Driver (for lens installation screw) VFK1390	Torque Driver RFKZ0456
  * Only supplied as 10 set/box.		  Spec.:2-30cN・m (Equiv.0.2-3kgf/cm)

### 3.2. CLEAN BOX

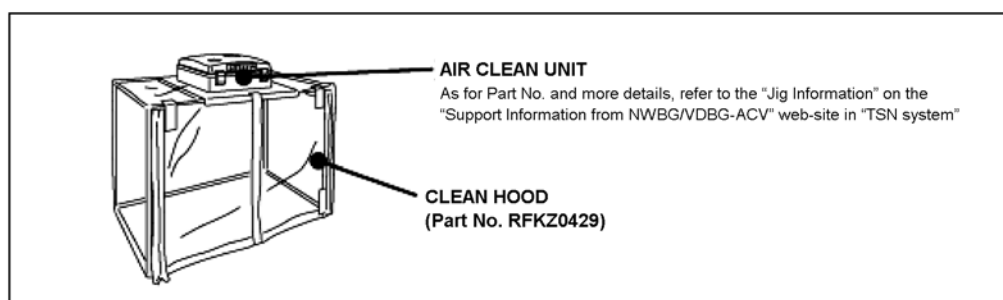
When proceeding the inside lens cleaning, it must be performed at the specified clean environment.  
(Less than class 10,000 Federal Standard 209D).

#### 3.2.1. Introduction of Clean box

One of our recommended clean box is as shown below.

It consists of "Air clean unit" and "Clean hood".

As for the "Air clean unit", refer to the "Jig Information" on the "Support Information from NWBG/VDBG-AVC" web-site in "TSN system".





## 4 Disassembly / Assembly procedures

### 4.1. Disassembly / Assembly procedures

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.)

**IMPORTANT:**

1. When servicing the surrounding part with red line (refer to Fig.D1), it must be performed inside of satisfied clean level.  
(Satisfied clean level: Less than class 10,000 Federal Standard 209D).  
As for procedure, refer to the "Maintenance" 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).

Proceed disassemble / and assemble, by referring the following table and Fig.D1

**NOTE:**

1. When tightening the screw, use a Torque driver (RFKZ0456) by ordering  
the screwing order with specified torque mentioned in each step.
2. The screw Ref.B209 is unnecessary to remove for disassembly.
3. Use VFK1390 (small driver) when screwing/unscrewing the B209 and B210.

**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	210	B216	Black	2.5mm	[2]	9.8±1.0N-cm	
		B217	Black	2.5mm	[1]	9.8±1.0N-cm	
		B218	Black	2.5mm	[3]	9.8±1.0N-cm	
L MOUNT UNIT	209	B215	Silver	2.0mm	[1]	9.8±1.0N-cm	(Fixing the GND cable.)
		B211	Silver	10.0mm	[4]	23.5±1.0N-cm	
		B212	Silver	10.0mm	[2]	23.5±1.0N-cm	
		B213	Silver	10.0mm	[3]	23.5±1.0N-cm	
		B214	Silver	10.0mm	[5]	23.5±1.0N-cm	
		B210	Silver	3.5mm	[1]	-----	Use VFK1390 (Small Driver)
REAR FRAME U	208	B208	Silver	5.0mm	[1]	23.5±1.0N-cm	
COVER RING U	202	B204	Silver	5.0mm	[3]	14.7±1.0N-cm	
		B205	Silver	5.0mm	[2]	14.7±1.0N-cm	
		B206	Silver	5.0mm	[1]	14.7±1.0N-cm	
		B207	Silver	5.0mm	[4]	14.7±1.0N-cm	
LENS BODY U							
1ST LENS FRAME U	--	B201	Silver	5.0mm	[1]	11.8±1.0N-cm	
		B202	Silver	5.0mm	[3]	11.8±1.0N-cm	
		B203	Silver	5.0mm	[2]	11.8±1.0N-cm	

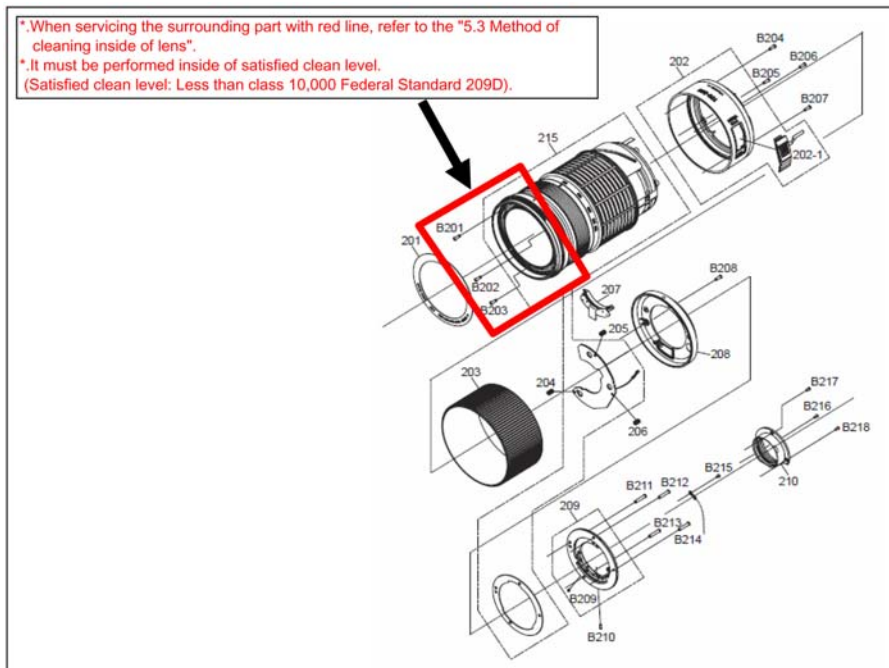


Fig. D1

## 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:

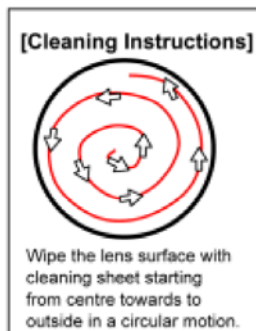
When the dust and / or dirt gets on the outer side surface of the Lens glasses, order the following procedures.

- a. Blow off the dust on the Lens glass surface with the Blower, gently. (Do not Blow too strongly.)
- b. 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.)

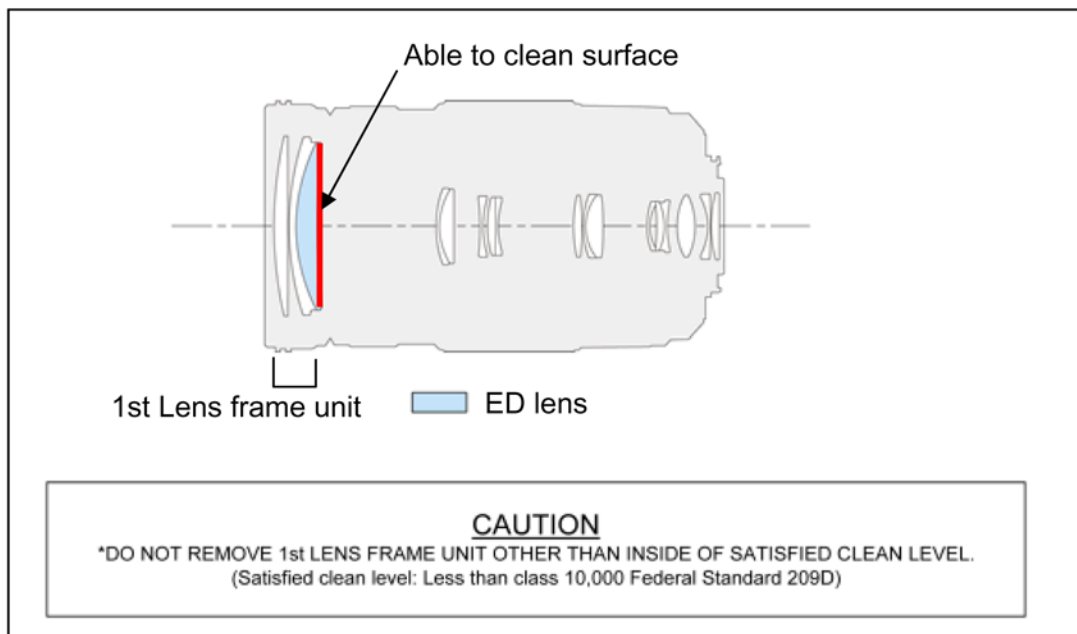
2. When it is inside of the lens:

Refer to the "5.3 Method of cleaning inside of lens" 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, remove it by referring the following procedures.



#### 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 (A), 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.

## 5.3. Method of cleaning inside of lens

### 5.3.1. Disassembly Procedure

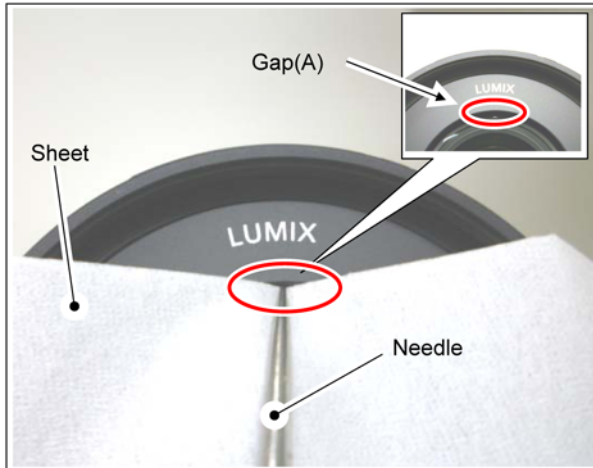
**Important:**

It must be performed inside of satisfied clean level.

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

#### 1. Removal of the Decoration Ring

1. Decoration ring is stuck on the 1st lens frame unit.
2. Insert the needle to Gap "A" (between the Decoration ring and Lens glass), and peel off the Decoration ring gently.



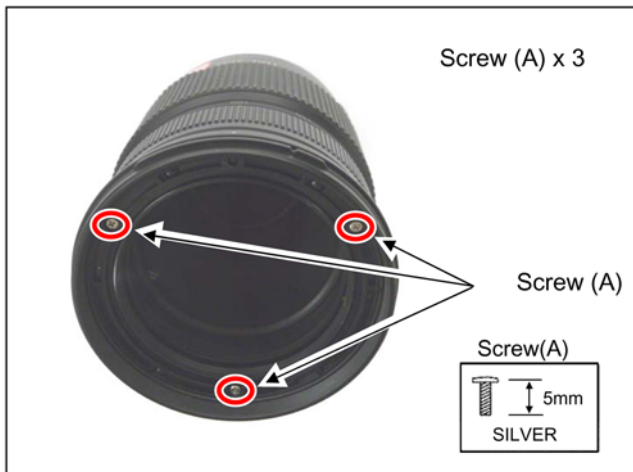
#### 2 Removal of the 1st Lens Frame Unit

**Important:**

When removing the 1st lens frame unit, it has to be proceed inside of specified clean level.

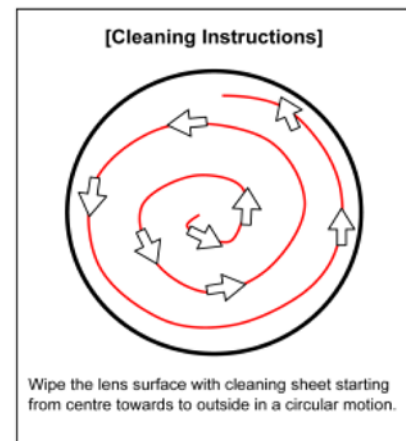
(Less than class 10,000 Federal Standard 209D)

1. Remove the 3 screws (A) and then remove the 1st lens frame unit.



#### 3 Removal of a dust /dirt

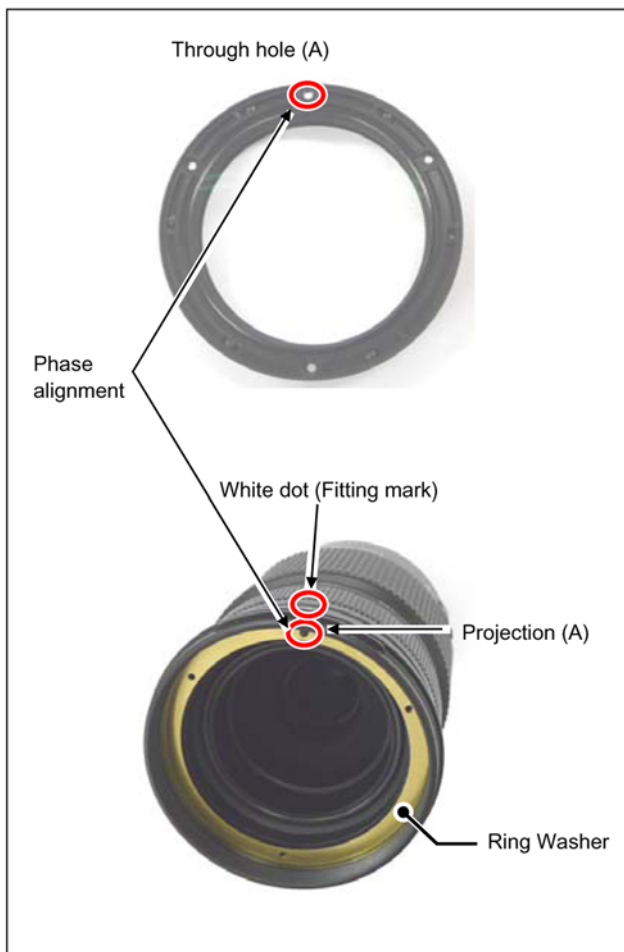
1. Blow off the dust on the Lens glass surface with the Blower, gently. (Do not Blow too strongly.)
2. Although after blowing, the dust/dirt does not blow off, wipe out the dirt on the lens glass surface with Lens cleaning KIT. (VFK1900BK)  
(Consult the Instruction sheet which is included in the Lens cleaning KIT in details.)



### 5.3.2. Assembly procedure

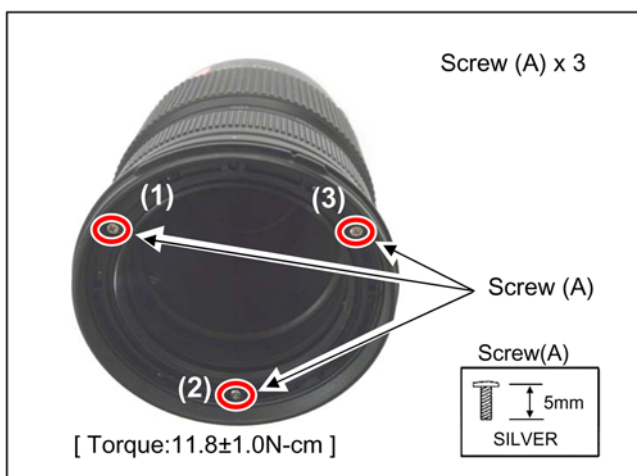
#### 1 Installation of the 1st lens frame unit

1. Install the 1st lens frame unit onto the lens unit to meet the through hole (A) with projection (A).



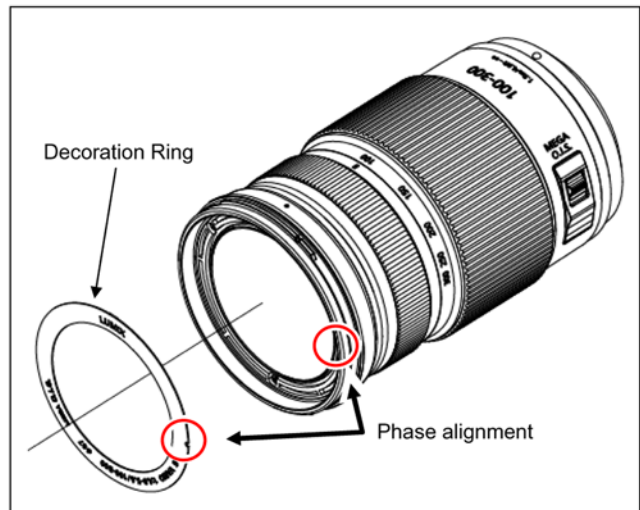
2. Tighten the screw (A) in number order ((1),(2),(3)) by using the torque driver (RFKZ0456) with specified torque.

(Torque :11.8 +/- 1.0N-cm)



#### 2 Installation of the Decoration Ring

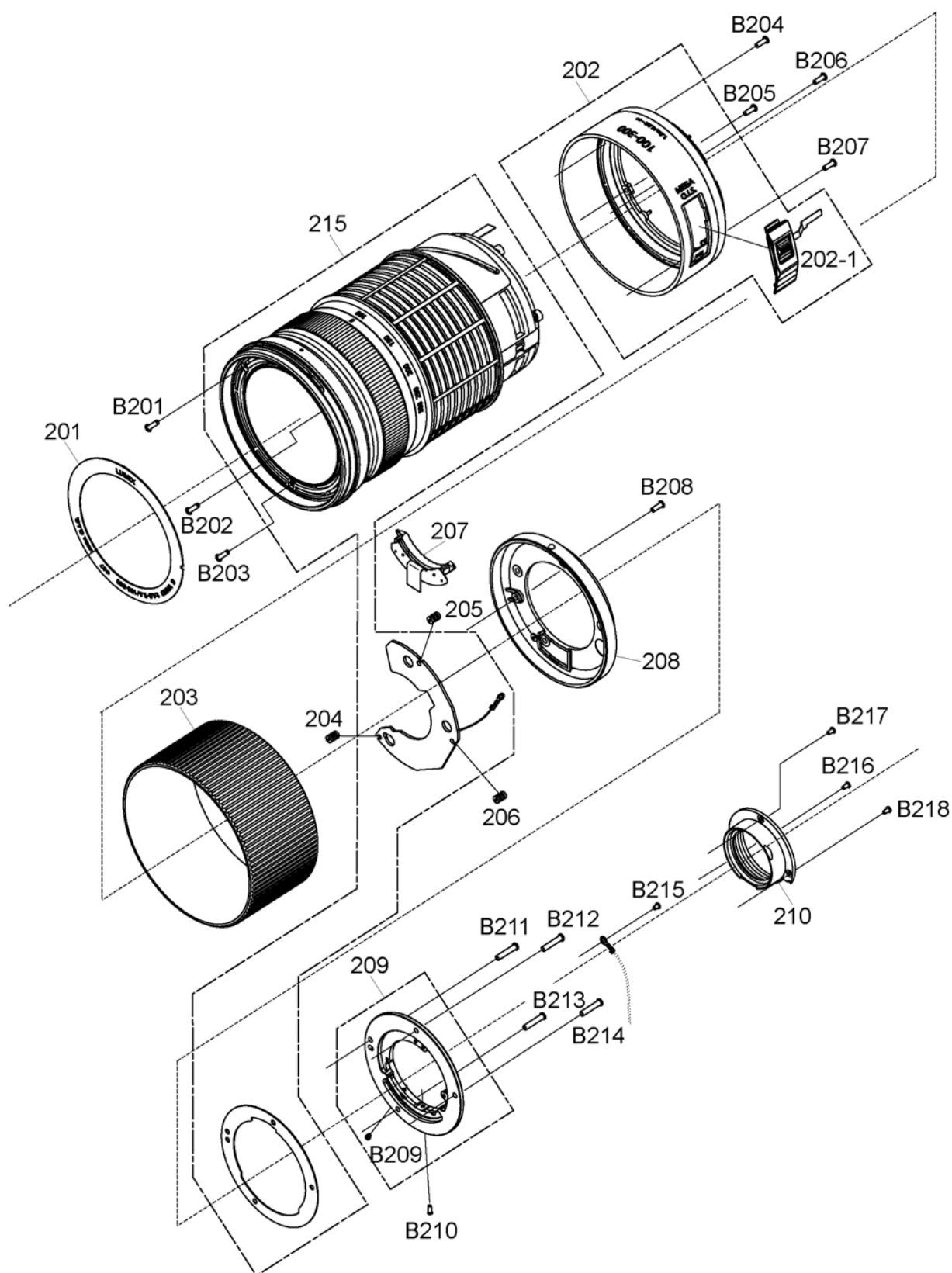
1. Install the decoration ring by referring the phase mark.  
(Use new one, do not use the one which is removed.)



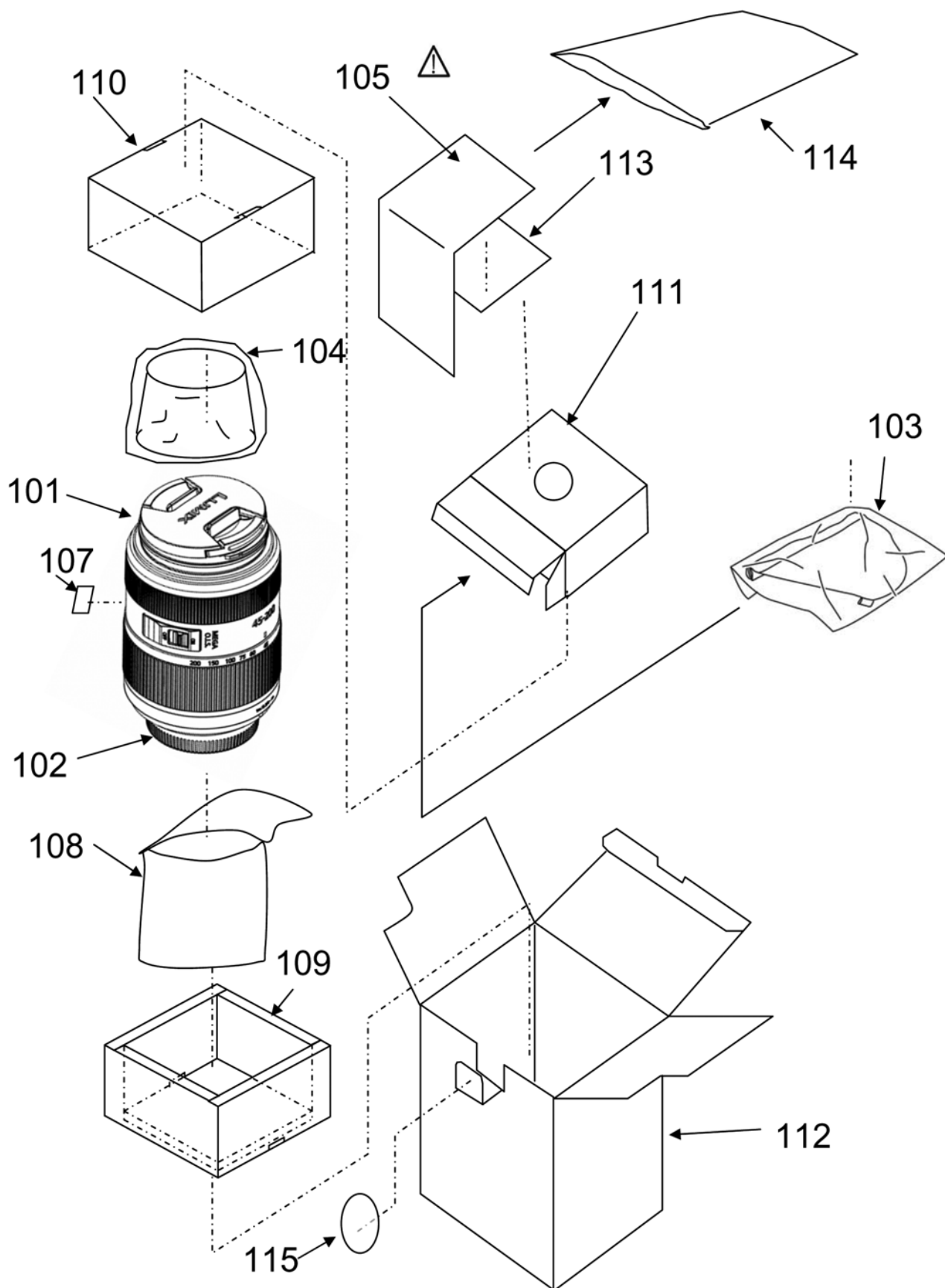
2. After installing the decoration ring, press the decoration ring with finger.

## 6 EXPLODED VIEWS

### 6.1. Frame & Casing Section




## 6.2. PACKING PARTS & 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	P10F280	DECO. RING U	1	
	202	P107HE0	COVER RING UNIT	1	
	202-1	P10F320	OIS SELECT SW UNIT	1	
	203	P10F310	ZOOM RUBBER RING	1	
	204	P04F370	FLOATING RUBBER	1	
	205	P04F370	FLOATING RUBBER	1	
	206	P04F370	FLOATING RUBBER	1	
	207	P1079H0	MOUNT CONTACT UNIT	1	
	208	-----	REAR FRAME UNIT	1	(Not supplied)
	209	P108H50	L MOUNT UNIT	1	
	210	9630130	SHADING FRAME	1	
	215	-----	LENS MAIN BLOCK UNIT	1	
	B201	0257050	SCREW	1	
	B202	0257050	SCREW	1	
	B203	0257050	SCREW	1	
	B204	0257050	SCREW	1	
	B205	0257050	SCREW	1	
	B206	0257050	SCREW	1	
	B207	0257050	SCREW	1	
	B208	0257050	SCREW	1	
	B209	9580270	SCREW	1	
	B210	0B44035	SCREW	1	
	B211	0242100	SCREW	1	
	B212	0242100	SCREW	1	
	B213	0242100	SCREW	1	
	B214	0242100	SCREW	1	
	B215	0554020	SCREW	1	
	B216	0HF4025	SCREW	1	
	B217	0HF4025	SCREW	1	
	B218	0HF4025	SCREW	1	

### 7.1.2. PACKING PARTS & ACCESSORIES SECTION PARTS LIST

	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	101	VYF3375	FRONT LENS CAP	1	
	102	VFC4605	LENS REAR CAP	1	
	103	VFC4601	LENS STORAGE BAG	1	
	104	VYC1016	LENS HOOD UNIT	1	
	105	VQT2Z58	OPERATING INSTRUCTIONS (ENGLISH/SPANISH/CANADIAN-FRENCH)	1	PP
	105	VQT2Z59	OPERATING INSTRUCTIONS (ENGLISH/GERMAN/FRENCH/SPANISH/ITALIAN/CHINESE (TRADITIONAL)/RUSSIAN)	1	E
	105	VQT2Z60	OPERATING INSTRUCTIONS (CHINESE(SIMPLIFIED))	1	GK
	107	VQL1V24	WEEE LABEL	1	E
	108	VPF1410	LENS BAG (POLYETHYLENE)	1	
	109	VPN6762	CUSHION	1	
	110	VPN6763	CUSHION	1	
	111	VPN7098	PAD	1	
	112	VPK4590BKIT	PACKING CASE U	1	PP
	112	VPK4590	INNER CARTON	1	E
	112	VPK4591	PACKING CASE U	1	GK
	113	VQL1M13	OPERATING LABEL	1	PP/E
	114	VPF1230	POLYETHYLENE COVER	1	PP/E
	115	VQL1S66	LABEL	1	GK