

SAL1118

(4.5-5.6/11-18) (DT 11-18mm F4.5-5.5)

SERVICE MANUAL

[Ver 1.3 2007.04](#)

[Revision History](#)

[How to use
Acrobat Reader](#)



*US Model
Canadian Model
AEP Model
Chinese Model*

Link

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LENS FOR DSLR CAMERA

SONY®



SPECIFICATIONS

- This lens is equipped with a distance encoder. The distance encoder allows more accurate measurement (ADI) by using a flash for ADI.
- Depending on the lens mechanism, the focal length may change with any change of the shooting distance. The focal length assumes the lens is focused at infinity.

Equivalent 35mm-format focal length *¹ (mm)

16.5-27

Lens groups elements

12-15

Angle of view *¹

104°-76°

*¹ The values for equivalent 35mm-format focal length and angle of view are based on Digital Single Lens Reflex Cameras equipped with an APS-C sized image sensor.

Minimum focus *² (m (feet))

0.25 (0.8)

*² Minimum focus is the shortest distance from the image sensor to the subject.

Maximum magnification (X)

0.125

Minimum f-stop

f/22-29

Filter diameter (mm)

77

Dimensions (maximum diameter × height) (mm (in.))

Approx. 83 × 80.5 (3 3/8 × 3 1/4)

Mass (g (oz.))

Approx. 360 (12 11/16)

Included items

Lens (1), Front lens cap (1), Rear lens cap (1), Lens hood (1), Set of printed documentation

Designs and specifications are subject to change without notice.

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1. SERVICE NOTE

1-1. Chemicals

Some chemicals used for servicing are highly volatile.

Their evaporation caused by improper management affects your health and environment, and wastes resources.

Manage the chemicals carefully as follows.

- Store chemicals sealed in a specific place to prevent from exposure to high temperature or direct sunlight.
- Avoid dividing chemicals into excessive numbers of small containers to reduce natural evaporation.
- Keep containers sealed to avoid natural evaporation when chemicals are not in use.
- Avoid using chemicals as much as possible. When using chemicals, divide only required amount to a small plate from the container and use up it.

1-2. Exterior Parts

Be careful to the following points for exterior parts used in this unit.

- Use a piece of cleaning paper or cleaning cloth for cleaning exterior parts. Avoid using chemicals.
Even if you have to use chemicals to clean heavy dirt, don't use paint thinner, ketone, nor alcohol.
- Insert the specific screws vertically to the part when installing a exterior part.
Be careful not to tighten screws too much.

1-3. Unleaded Solder

This unit uses unleaded solder.

Boards requiring use of unleaded solder are printed with the lead free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



: LEAD FREE MARK

Be careful to the following points to solder or unsolder.

- Set the soldering iron tip temperature to 350 °C approximately.
If cannot control temperature, solder/unsolder at high temperature for a short time.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Be sure to control soldering iron tips used for unleaded solder and those for leaded solder so they are managed separately. Mixing unleaded solder and leaded solder will cause detachment phenomenon.

1-4. SAFETY CHECK-OUT



After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270 °C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.


CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

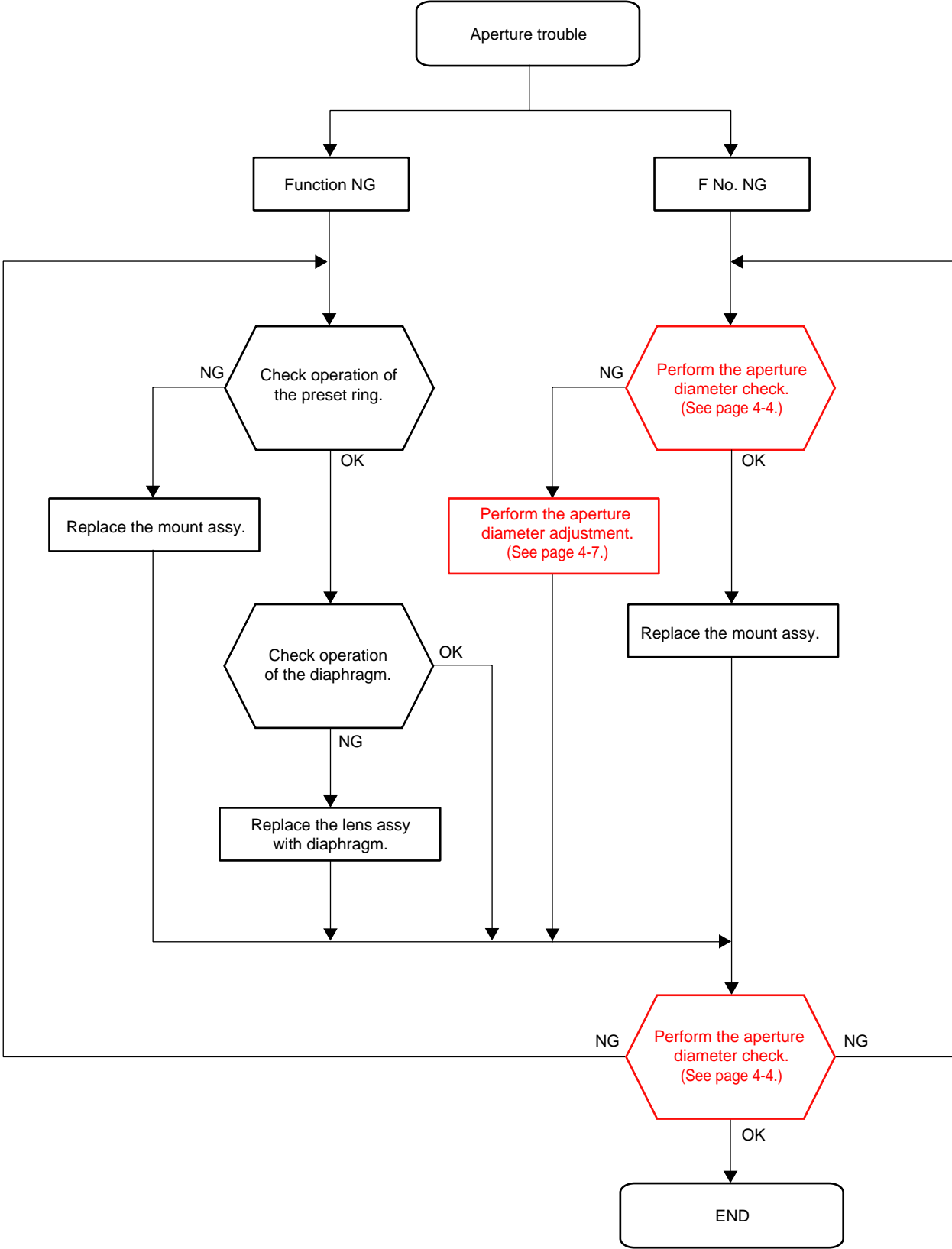
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

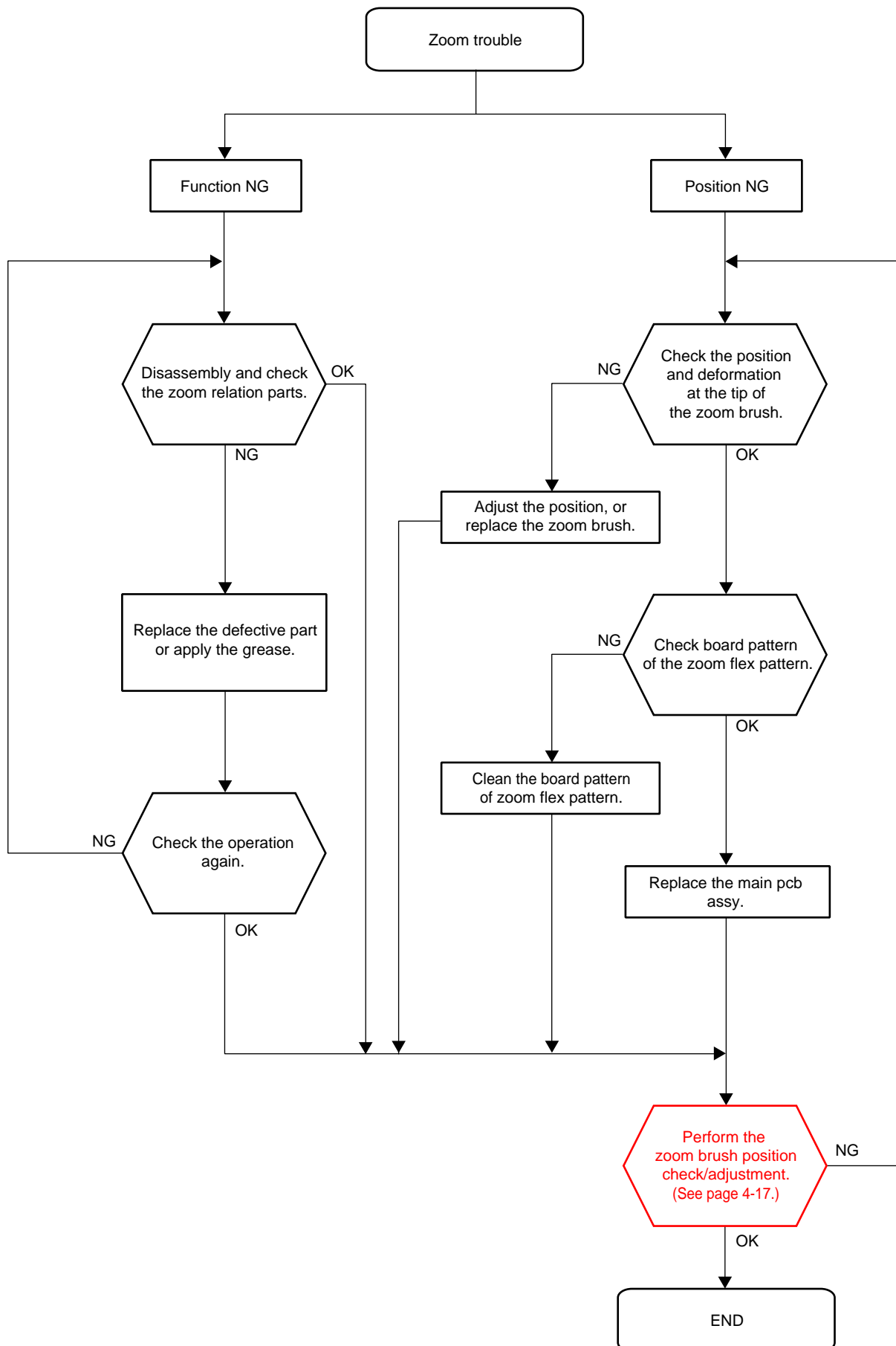
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

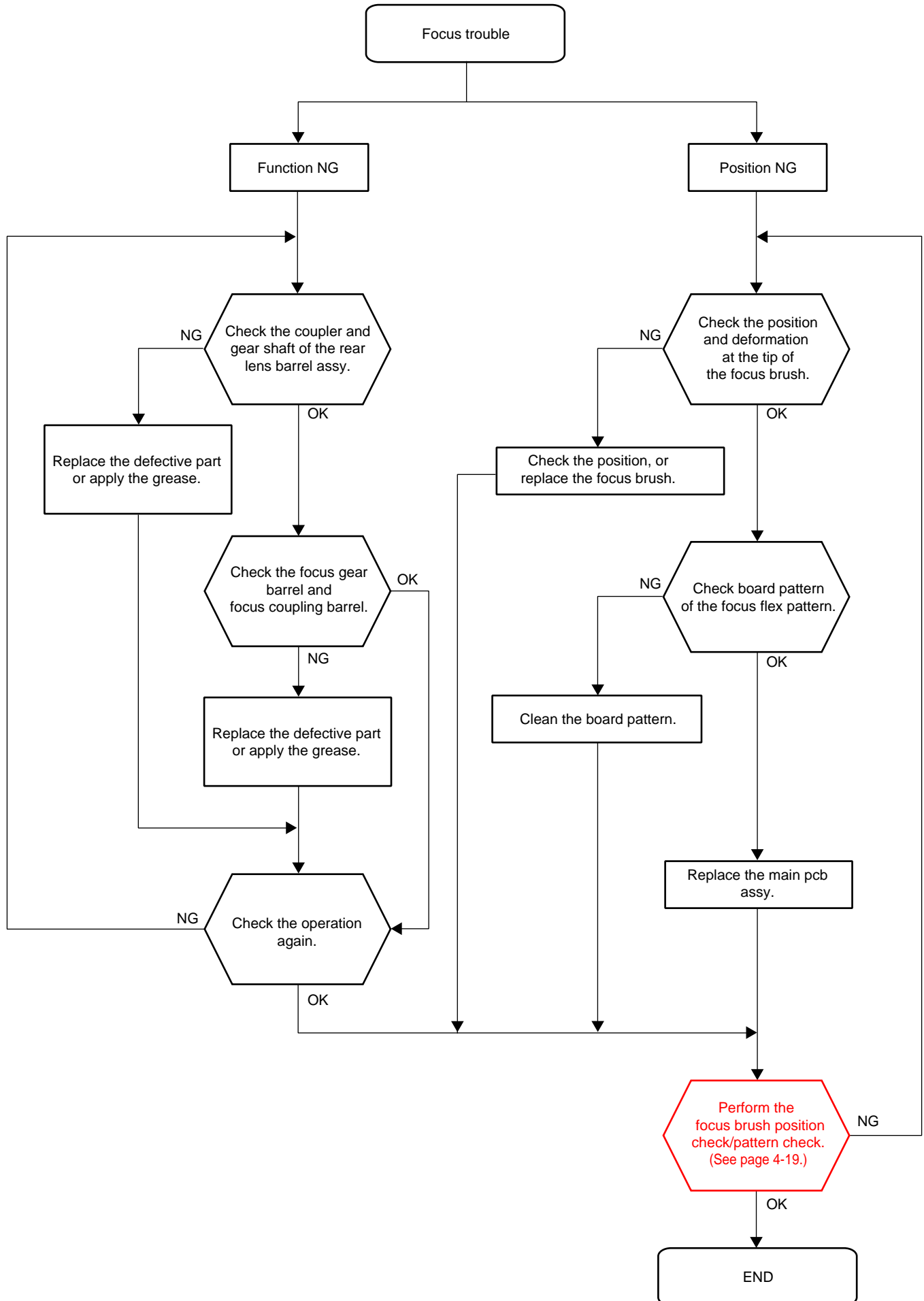
1-5. TROUBLESHOOTING
1-5-1. Aperture Trouble



1-5-2. Zoom Trouble



1-5-3. Focus Trouble

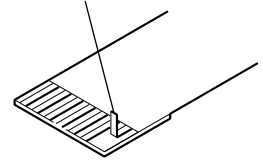


2. DISASSEMBLY

NOTE FOR REPAIR

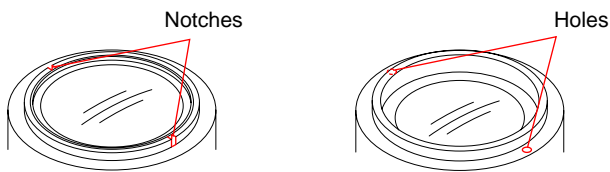
- Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.
- When remove a connector, don't pull at wire of connector. It is possible that a wire is snapped.
- When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.
- Do not apply excessive load to the gilded flexible board.

Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)

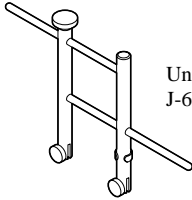
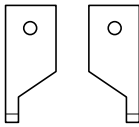
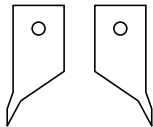


UNIVERSAL WRENCH

In case of the following notches or holes are located in the lens block, etc during disassembling/ assembling the lens, Use the universal wrench.



How to Use

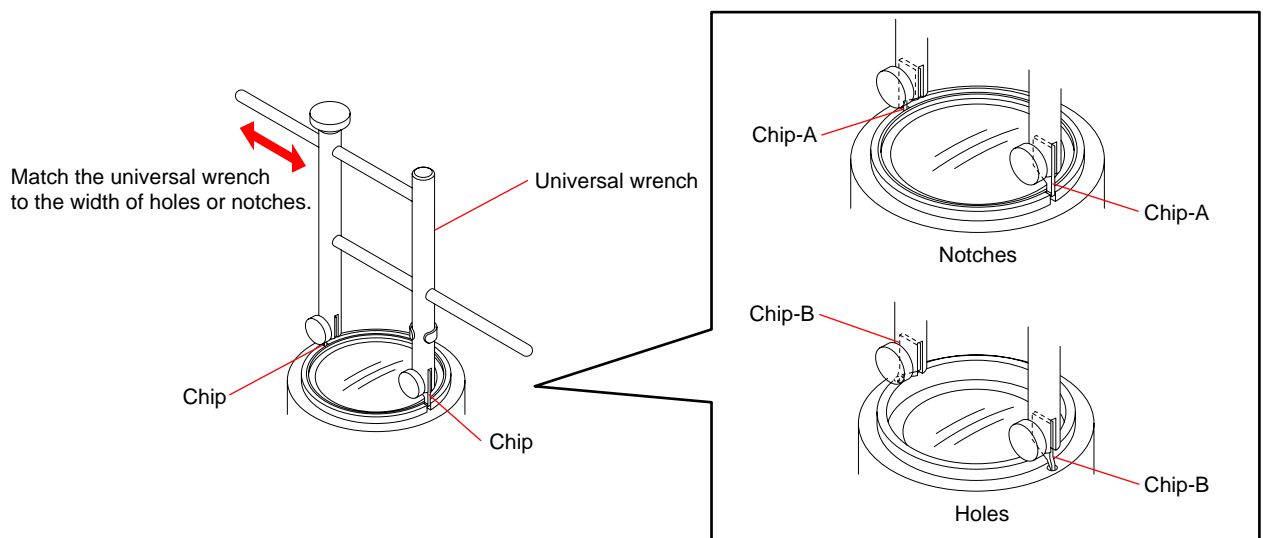
| | | |
|---|--|--|
|  <p>Universal wrench J-6082-609-A</p> |  <p>Chip-A for universal wrench: J-6082-609-1</p> |  <p>Chip-B for universal wrench: J-6082-609-2</p> |
|---|--|--|

Attach the chip-A or chip-B to the universal wrench.

For the notches: chip-A

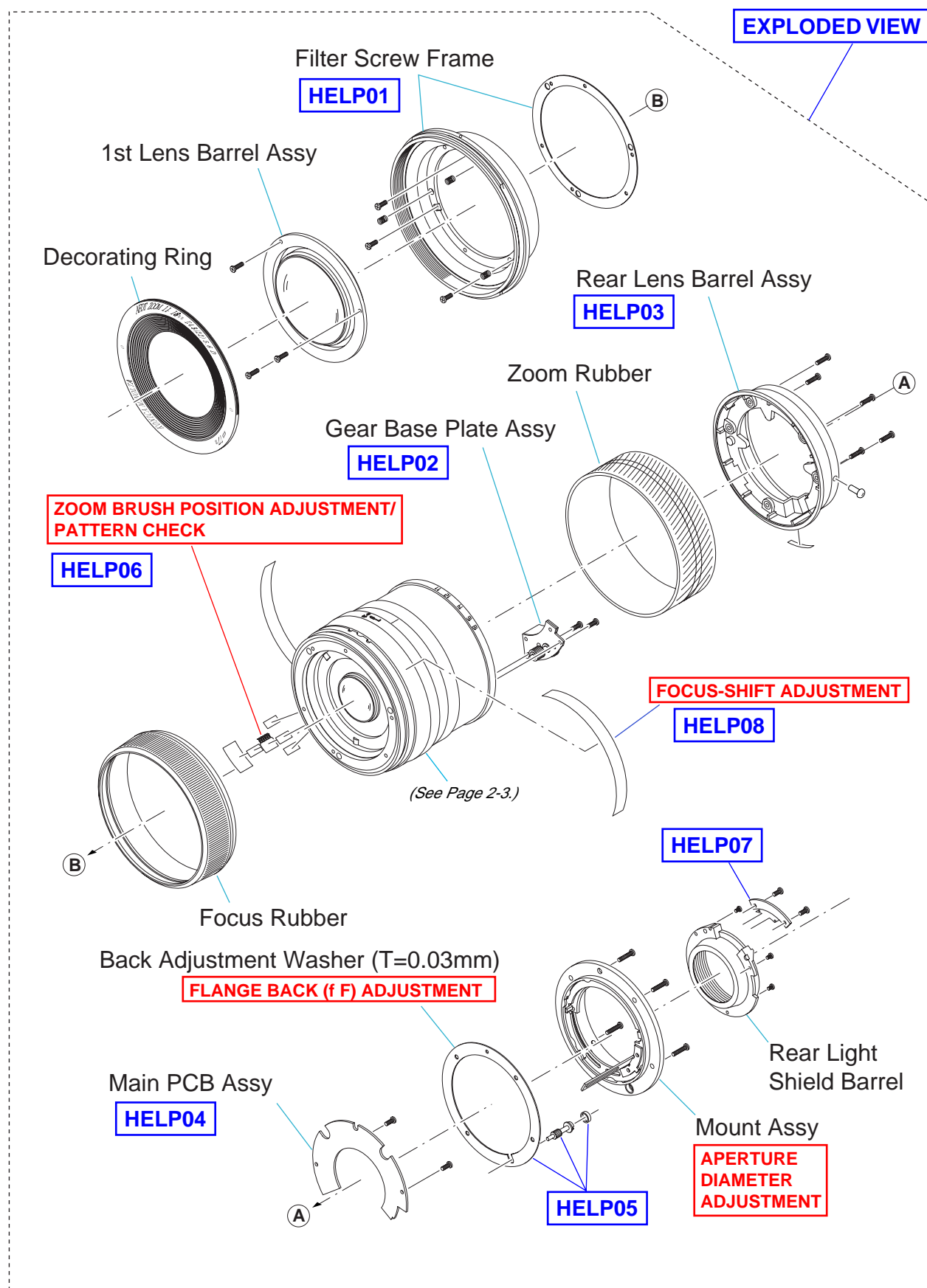
For the holes: chip-B

Match the universal wrench to the holes or notches of the lens block, etc.



2-1. DISASSEMBLY

2-1-1. REAR LIGHT SHIELD BARREL, MOUNT SET AND REAR LENS BARREL ASSY



EXPLODED VIEW

FOCUS BRUSH POSITION/PATTERN CHECK

Focus Brush **HELP15**

Zoom Ring **HELP16**

Outer Barrel Assy **HELP14**

Focus Gear Barrel **HELP14**

HELP10

HELP11

Support Barrel Assy

2nd Lens Barre Assy

HELP09

5th Lens Barre Assy

Focus Couplig Barrel **HELP13**

Focus and Zoom Ring Assy **HELP12**

The diagram is an exploded view of a camera lens assembly. It shows the following components and their assembly points:

- Focus Brush** (HELP15): A small brush component that fits into the **Outer Barrel Assy**.
- Zoom Ring** (HELP16): A ring that fits onto the **Outer Barrel Assy**.
- Outer Barrel Assy** (HELP14): The main body of the lens assembly.
- Focus Gear Barrel** (HELP14): A barrel that fits into the **Outer Barrel Assy**.
- Support Barrel Assy**: A barrel that fits into the **Outer Barrel Assy**.
- 2nd Lens Barre Assy**: A lens barrel that fits into the **Support Barrel Assy**.
- 5th Lens Barre Assy**: A lens barrel that fits into the **Support Barrel Assy**.
- Focus Couplig Barrel** (HELP13): A barrel that fits into the **Support Barrel Assy**.
- Focus and Zoom Ring Assy** (HELP12): A ring assembly that fits onto the **Support Barrel Assy**.

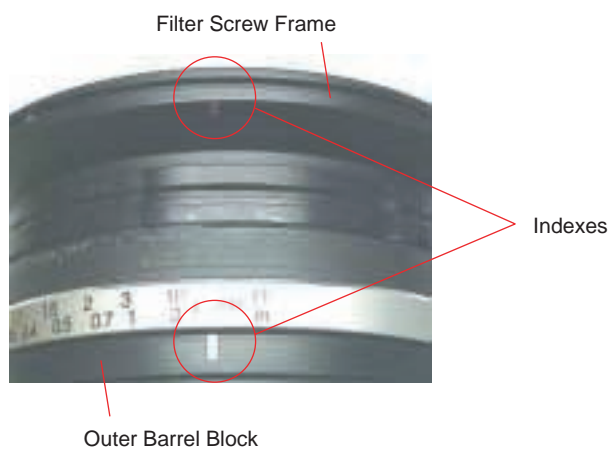
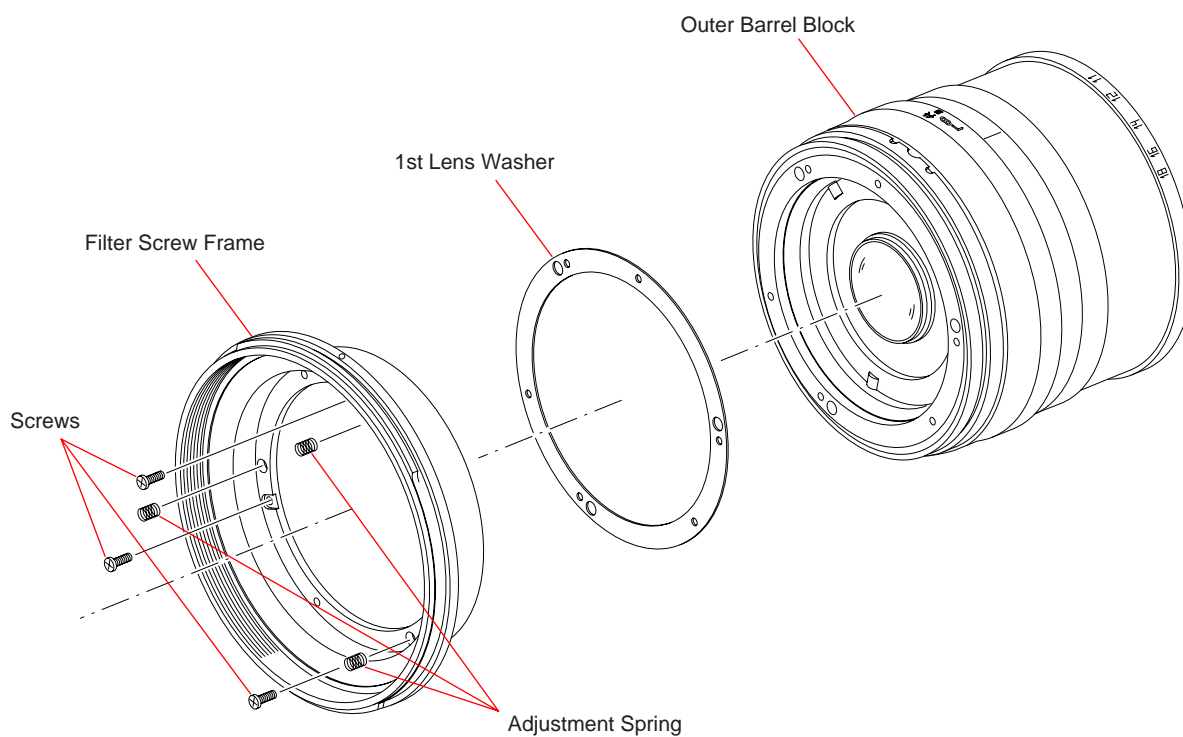
The diagram uses dashed lines to indicate the assembly path and alignment of the components. Various callouts (HELP09, HELP10, HELP11, HELP12, HELP13, HELP14, HELP15, HELP16) are present, likely referring to specific assembly instructions or parts lists.

HELP

Note for assembling and grease applying positions are shown.

HELP01

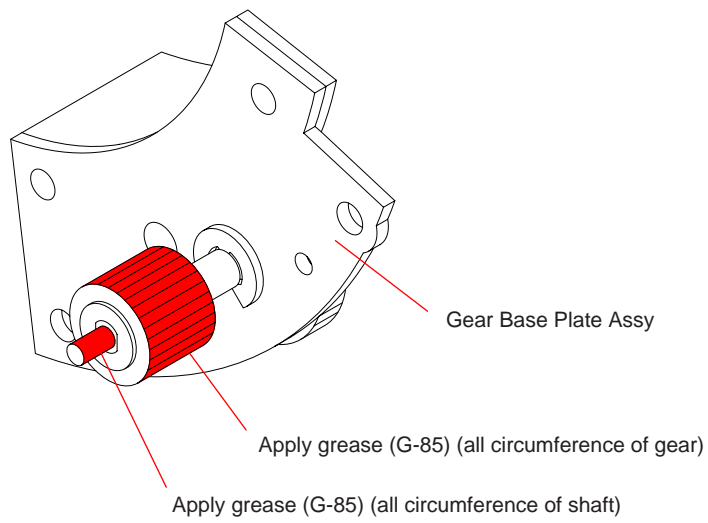
Attach the filter screw frame and 1st lens washer, and then align the indexes of the filter screw frame and outer barrel block. Tighten them with three screws and three adjustment springs.



HELP02

Apply grease (G-85) to the gear and shaft of the gear base plate assy.

Grease (G-85): J-6082-626-A



HELP03

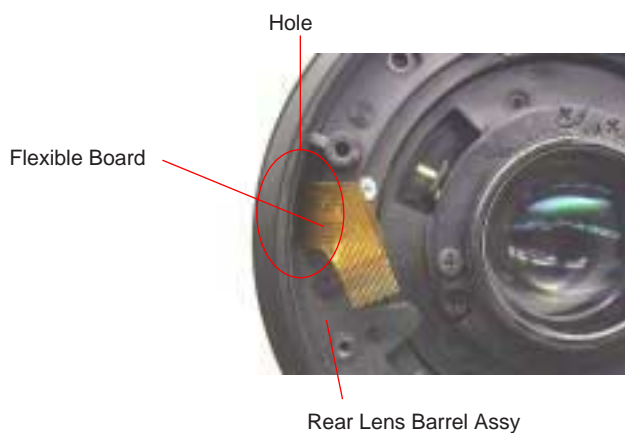
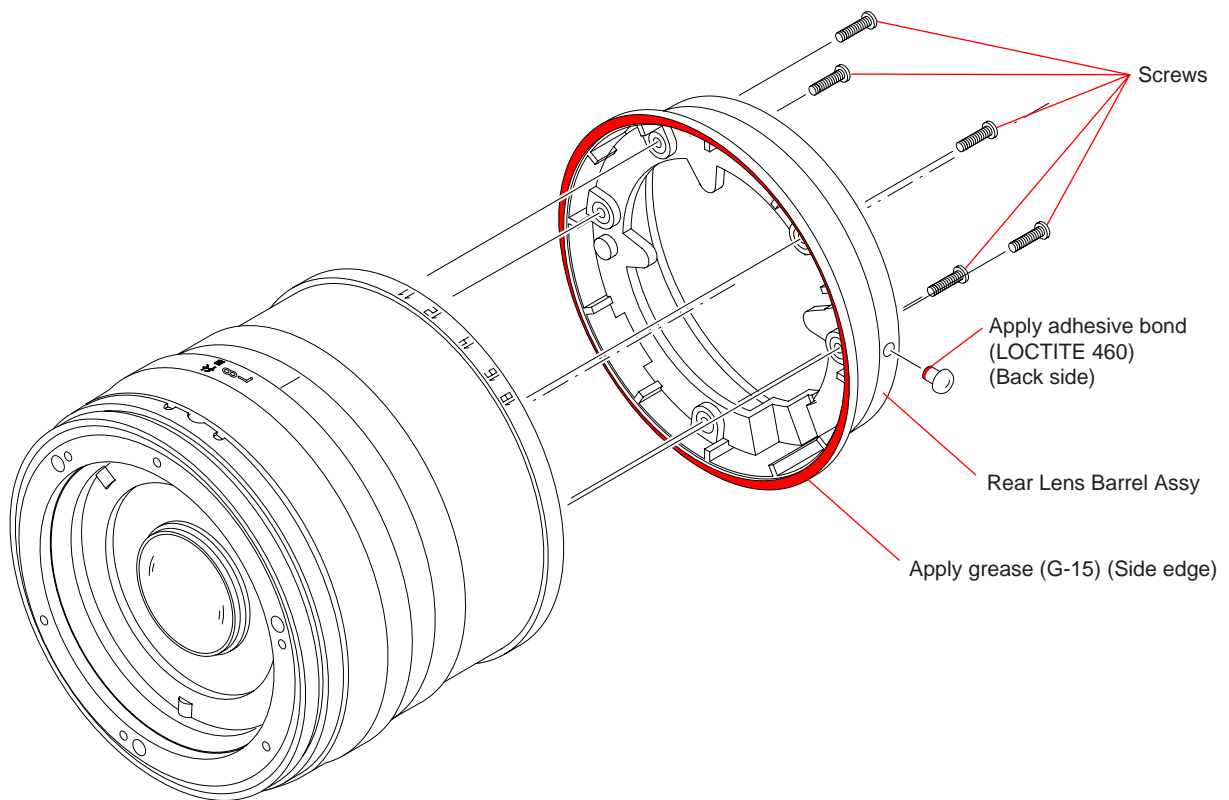
Adhesive bond (LOCTITE 460) (Note)

Note: Use adhesive bond (LOCTITE 460) or an equivalent article.

Do not use what becomes white after drying like quick-drying glue.

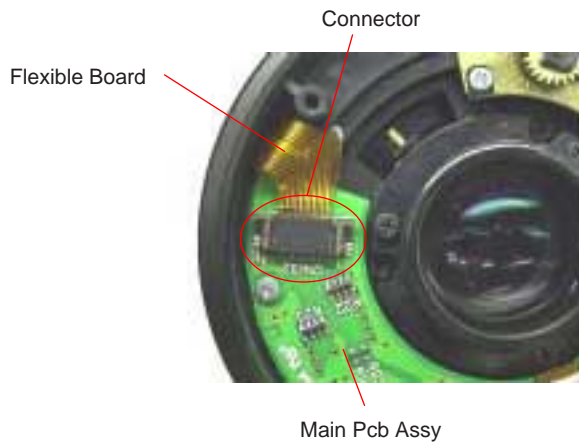
Grease (G-15): J-6082-619-A

1. Apply adhesive bond ((LOCTITE 460) to the back side of the mount index mark, and attach it to the rear lens barrel assy.
2. Apply grease (G-15) to the instruction portion of the rear lens barrel assy.
3. Pass the flexible board through the hole on the rear lens barrel assy, and fix the rear lens barrel assy with five screws as shown in the figure.



HELP04

1. Attach the main pcb Assy, and fix it with two screws.
2. Connect the flexible board to the connector on the main pcb Assy.

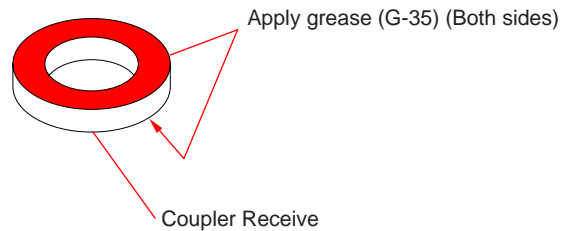
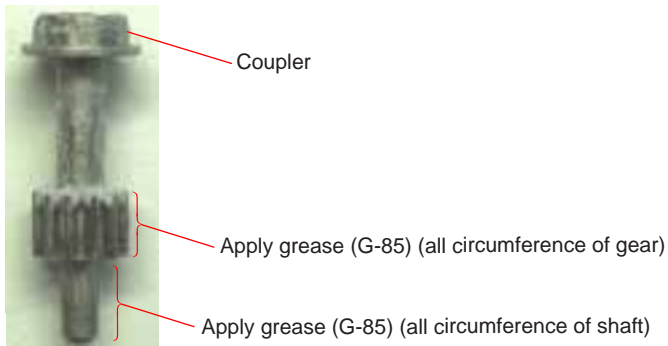


HELP05

Grease (G-35): J-6082-621-A

Grease (G-85): J-6082-626-A

1. Apply grease (G-85) to the two instruction portions of the coupler.
2. Apply grease (G-35) to both sides of the coupler receive.



3. Pass the coupler to the coupler receive, and fit the shaft of the coupler to the notch of the back adjustment washer(s).

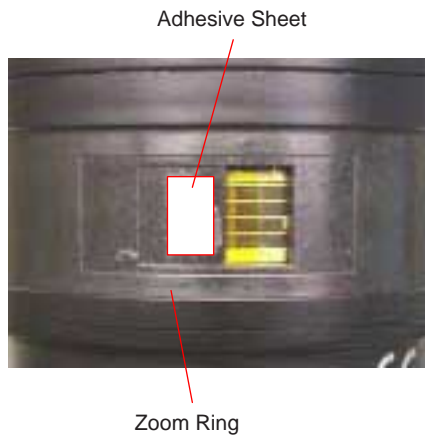
Note: Be sure to use the gold color one for the back adjustment washer that comes in contact with the coupler.



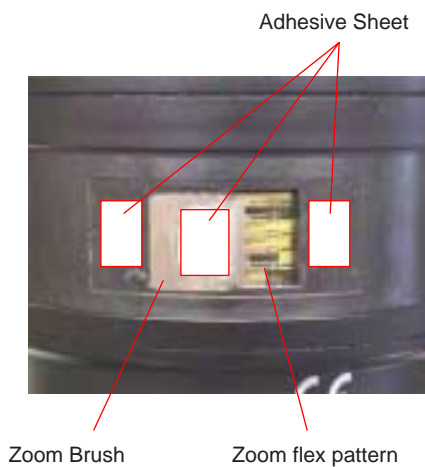
HELP06

Note: About the adhesive sheet in the sentence. When shipping it, Double faced tape (2-886-793-01) is used.

1. Affix a sheet of the adhesive sheet to the instruction portion of the zoom ring as shown in the figure.



2. Affix the zoom brush to the adhesive sheet so that tips of the zoom brush contact to the zoom flex patterns.
3. Perform “4-6. Zoom Brush Position Check/Adjustment and Patter Check”.
4. Affix the three adhesive sheets to the instruction portions as shown in the figure.



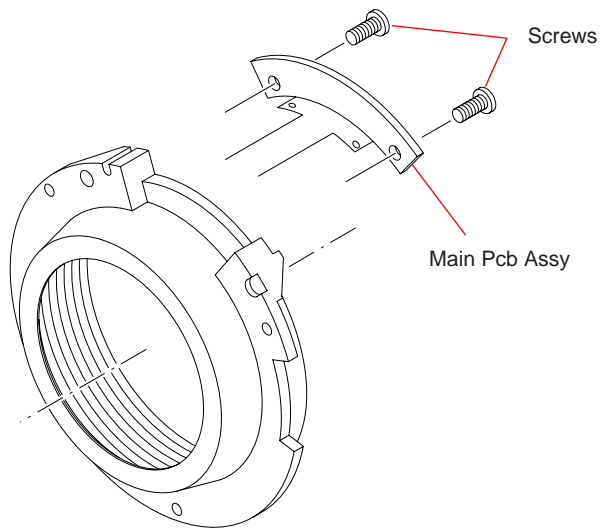
5. Attach the brush cover as shown in the figure.



HELP07

Attach the main pcb Assy, and fix it with two screws as shown in the figure.

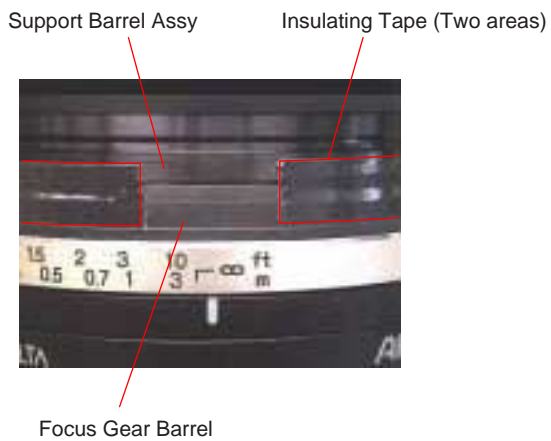
Note: Be careful not to tighten the two screws too much.



HELP08

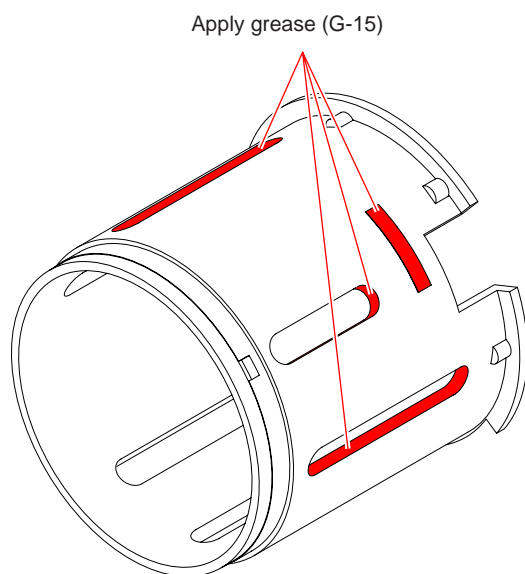
Note: About the insulating tape in the sentence. When shipping it, Mending tape (2-886-794-01) is used.

1. Set the focus gear barrel to the over infinity position (infinity end) while maintaining the support barrel Assy so as not to rotate it.
2. Affix the two insulating tapes.
3. Perform “4-4-3. Focus-shift Adjustment”.



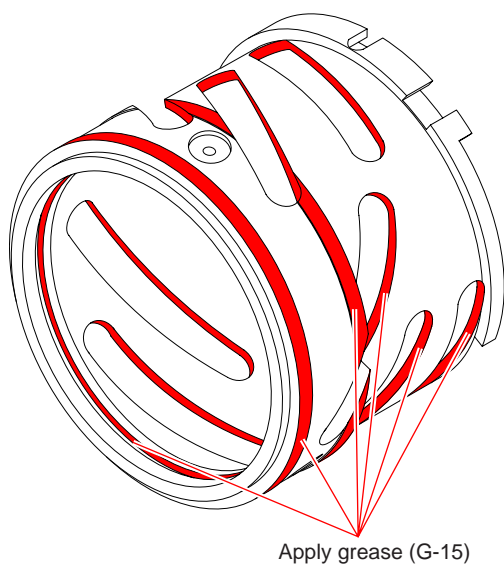
HELP09

Apply grease (G-15) to the instruction portions of the length groove barrel as shown in the figure.
Grease (G-15): J-6082-619-A



HELP10

Apply grease (G-15) to the instruction portions of the cam barrel as shown in the figure.
Grease (G-15): J-6082-619-A



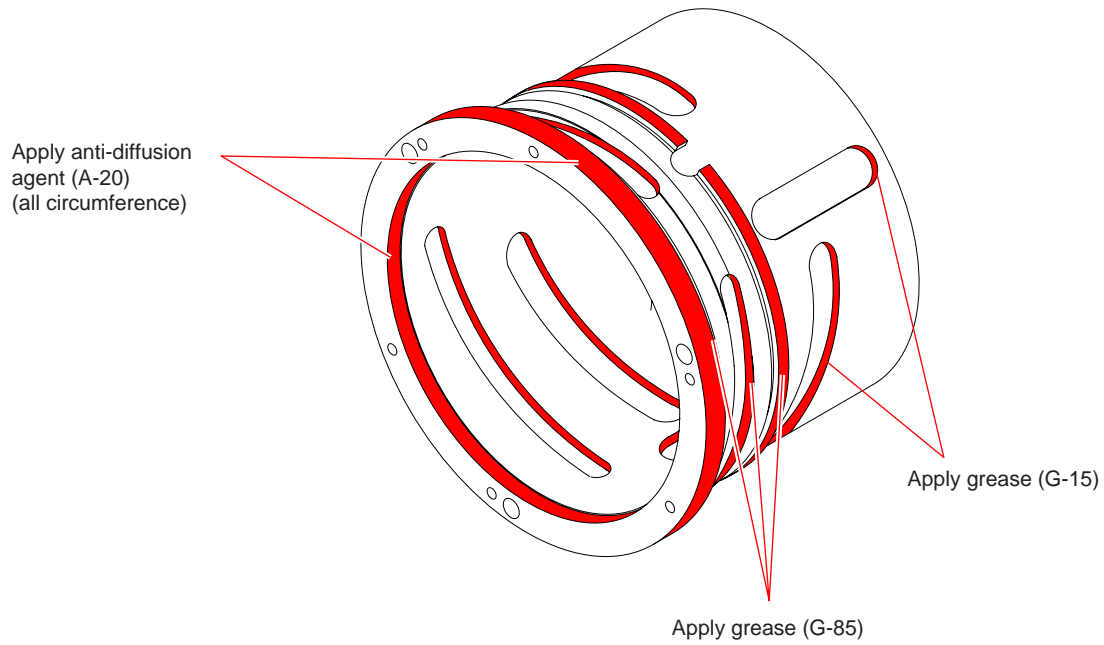
HELP11

Anti-diffusion agent (A-20): J-6082-611-A

Grease (G-15): J-6082-619-A

Grease (G-85): J-6082-626-A

Apply anti-diffusion agent (A-20) and grease (G-15 and G-85) to the instruction portions of the 1st lens slip barrel.



HELP12

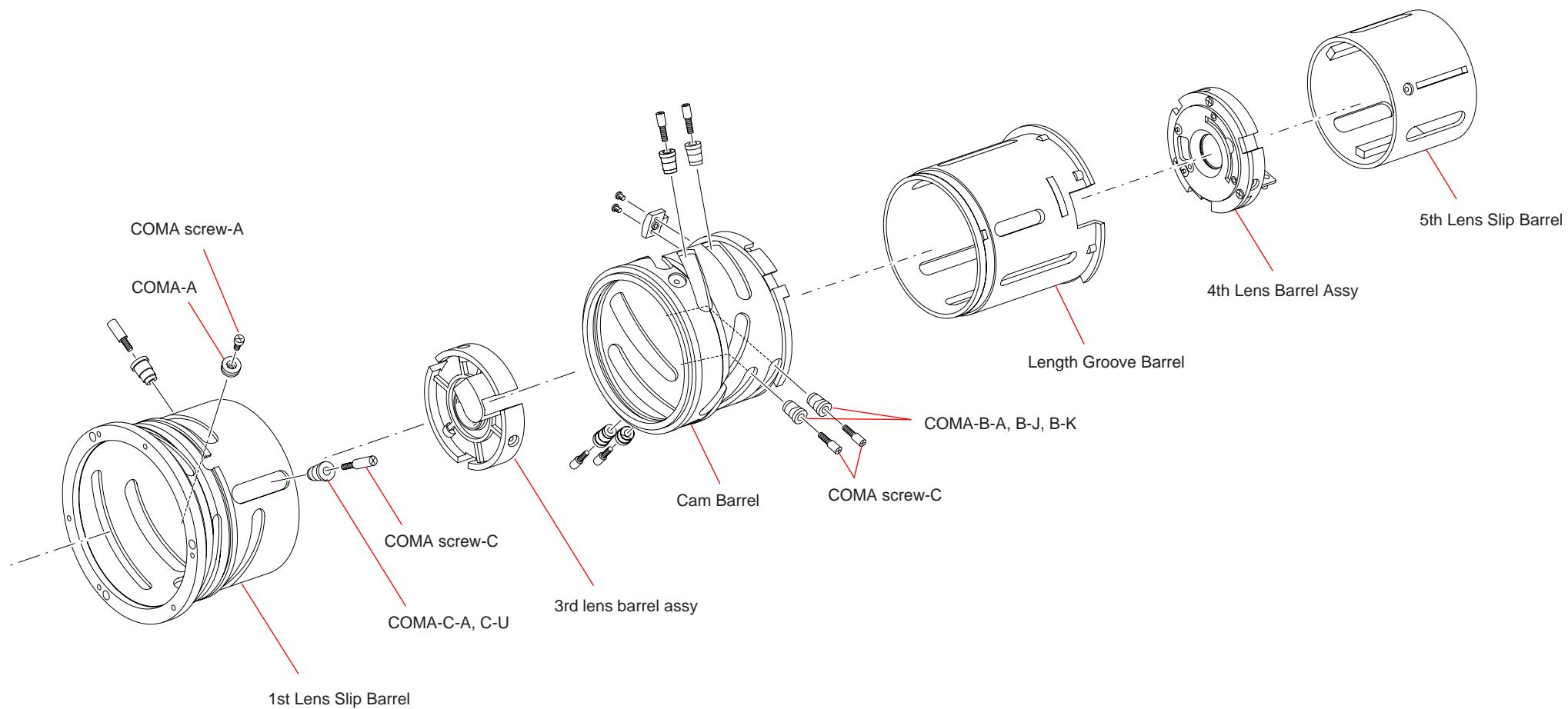
Assemble the 5th lens slip barrel, length groove barrel, cam barrel, 1st lens slip barrel, 3rd lens barrel assy and 4th lens barrel assy as shown in the figure, and fix them with each three COMA-A (A-C) and COMA screw-As, COMA-B (A-K) and COMA screw-Cs, and COMA-C (A-U) and COMA screw-Cs.

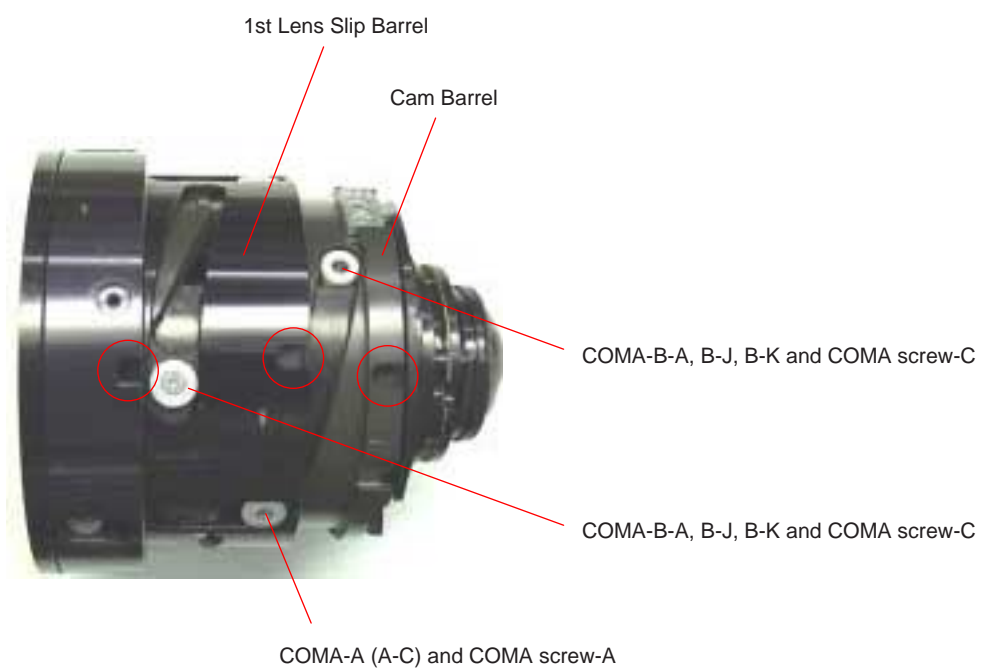
Note: Select the COMA-A, COMA-B, and COMA-C of a proper diameter from the following table.

| Part No. | Description | Diameter |
|--------------|-------------|----------|
| 2-886-797-01 | COMA-A-A | 6.01 |

| Part No. | Description | Diameter | |
|--------------|-------------|----------|------|
| | | D1 | D2 |
| 2-886-842-01 | COMA-B-A | 4.51 | 5.01 |
| 2-886-850-01 | COMA-B-J | 4.53 | 5.03 |
| 2-886-851-01 | COMA-B-K | 4.50 | 5.01 |

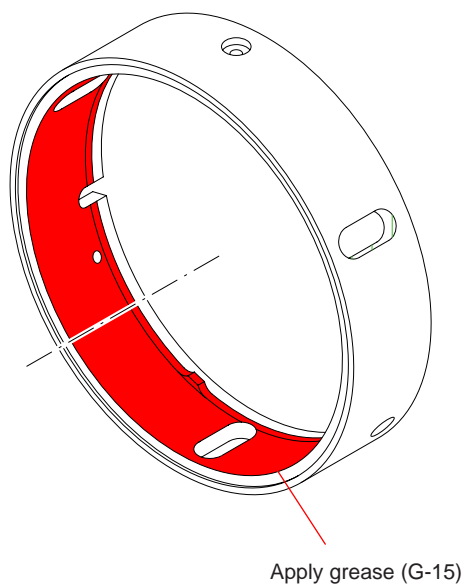
| Part No. | Description | Diameter | | |
|--------------|-------------|----------|------|-------|
| | | D1 | D2 | D3 |
| 2-886-800-01 | COMA-C-A | 4.51 | 5.01 | 6.015 |
| 2-886-818-01 | COMA-C-U | 4.50 | 5.01 | 6.015 |





HELP13

1. Apply grease (G-85) to the instruction portions of the focus coupling barrel.
Grease (G-85): J-6082-626-A



2. Assemble the 2nd lens barrel assy and focus coupling barrel, and then align the holes as shown in the figure.



3. Fix the focus coupling barrel with three COMA-E (A-L) and COMA screw-Es.
Note: Select the COMA-E of a proper diameter from the following table.

| Part No. | Description | Diameter | |
|--------------|-------------|----------|------|
| | | D1 | D2 |
| 2-886-821-01 | COMA-E-A | 4.01 | 4.51 |
| 2-886-830-01 | COMA-E-K | 4.00 | 4.50 |
| 2-886-831-01 | COMA-E-L | 3.99 | 4.49 |

4. Assemble the support barrel assy, and then align the holes as shown in the figure.
5. Fix the support barrel assy with three COMA-D (A-D) and COMA screw-As.
Note: Select the COMA-D of a proper diameter from the following table.

| Part No. | Description | Diameter |
|--------------|-------------|----------|
| 2-886-856-01 | COMA-D-A | 4.51 |
| 2-886-859-01 | COMA-D-D | 4.50 |



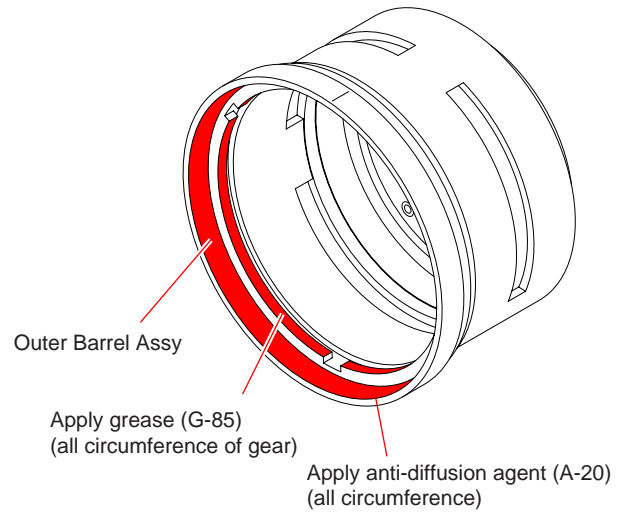
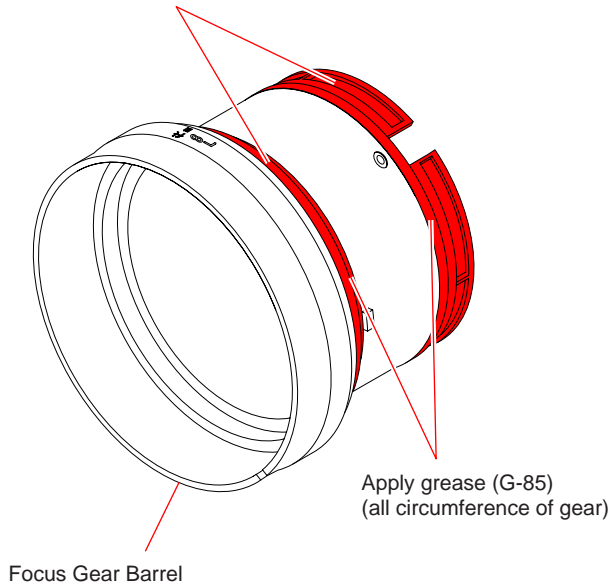
HELP14

Anti-diffusion agent (A-20): J-6082-611-A

Grease (G-85): J-6082-626-A

1. Apply anti-diffusion agent (A-20) and grease (G-85) to the instruction portions of the outer barrel assy and focus gear barrel.

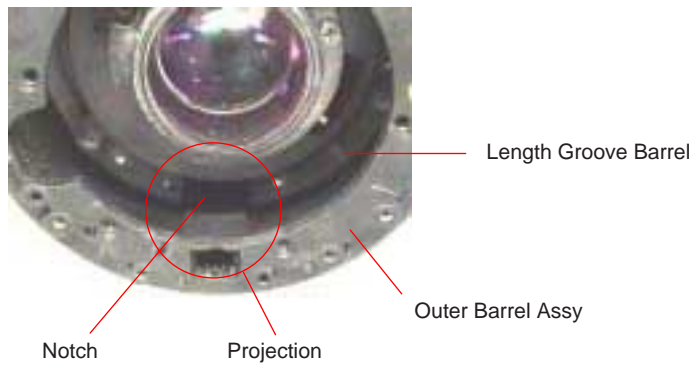
Apply anti-diffusion agent (A-20) (all circumference)



2. Assemble the outer barrel assy and focus gear barrel so that the projection of the focus gear barrel fit to the notch of the outer barrel assy.



3. Turn the cam barrel to arrow direction to set the “Wide” end.
4. Set the focus gear barrel to near end position.
5. Assemble the length groove barrel and outer barrel assy so that the projection of the outer barrel assy fit to the notch of the length groove barrel.

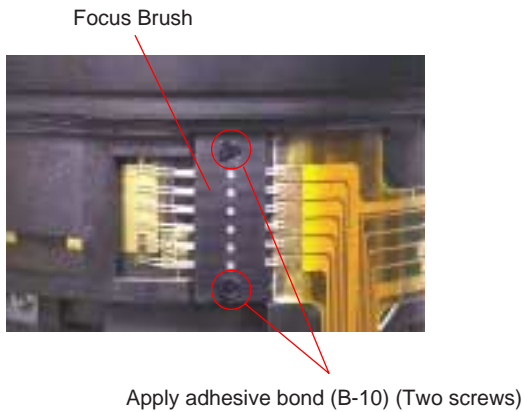


HELP15

1. Install the focus brush so that the tips of it contact to the focus flex patterns, and apply adhesive bond (B-10) to the two screws and then tighten them as shown in the figure.

Adhesive bond (B-10): J-6082-612-A

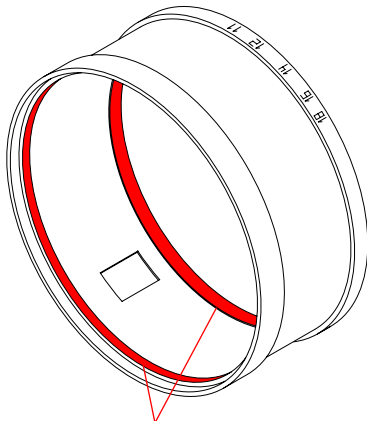
2. Perform the “4-7. Focus Brush Position/Pattern Check”.



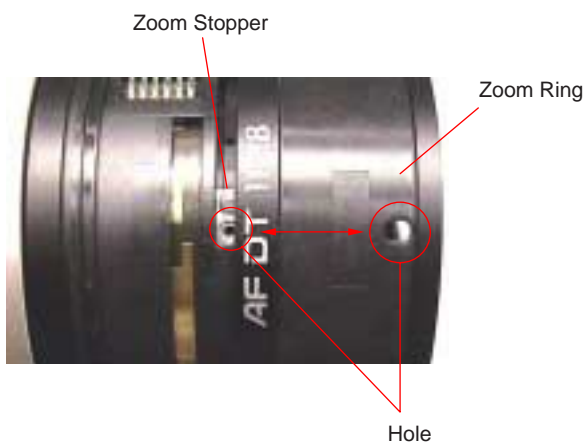
HELP16

1. Apply grease (G-15) to the instruction portions of the zoom ring.

Grease (G-15): J-6082-619-A



2. Turn the zoom ring to align the hole of the zoom ring with the screw hole of the zoom stopper as shown in the figure.



3. REPAIR PARTS LIST

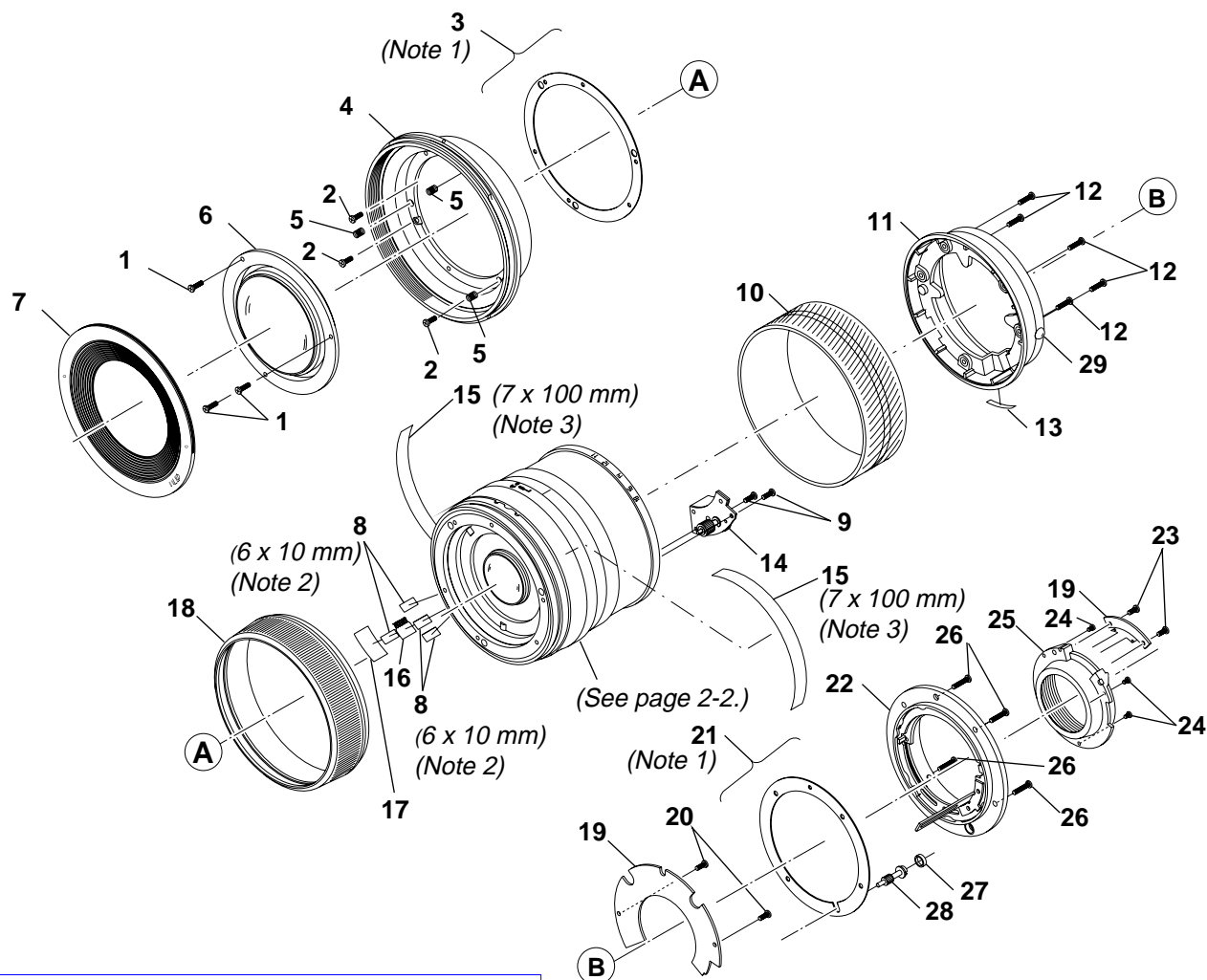
DISASSEMBLY

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

3-1. EXPLODED VIEWS

3-1-1. REAR LIGHT SHIELD BARREL, MOUNT SET AND REAR LENS BARREL ASSY



(Note 1) The number or type of these parts need to be selected according to adjustment etc..
Select the part referring to page 3-3.

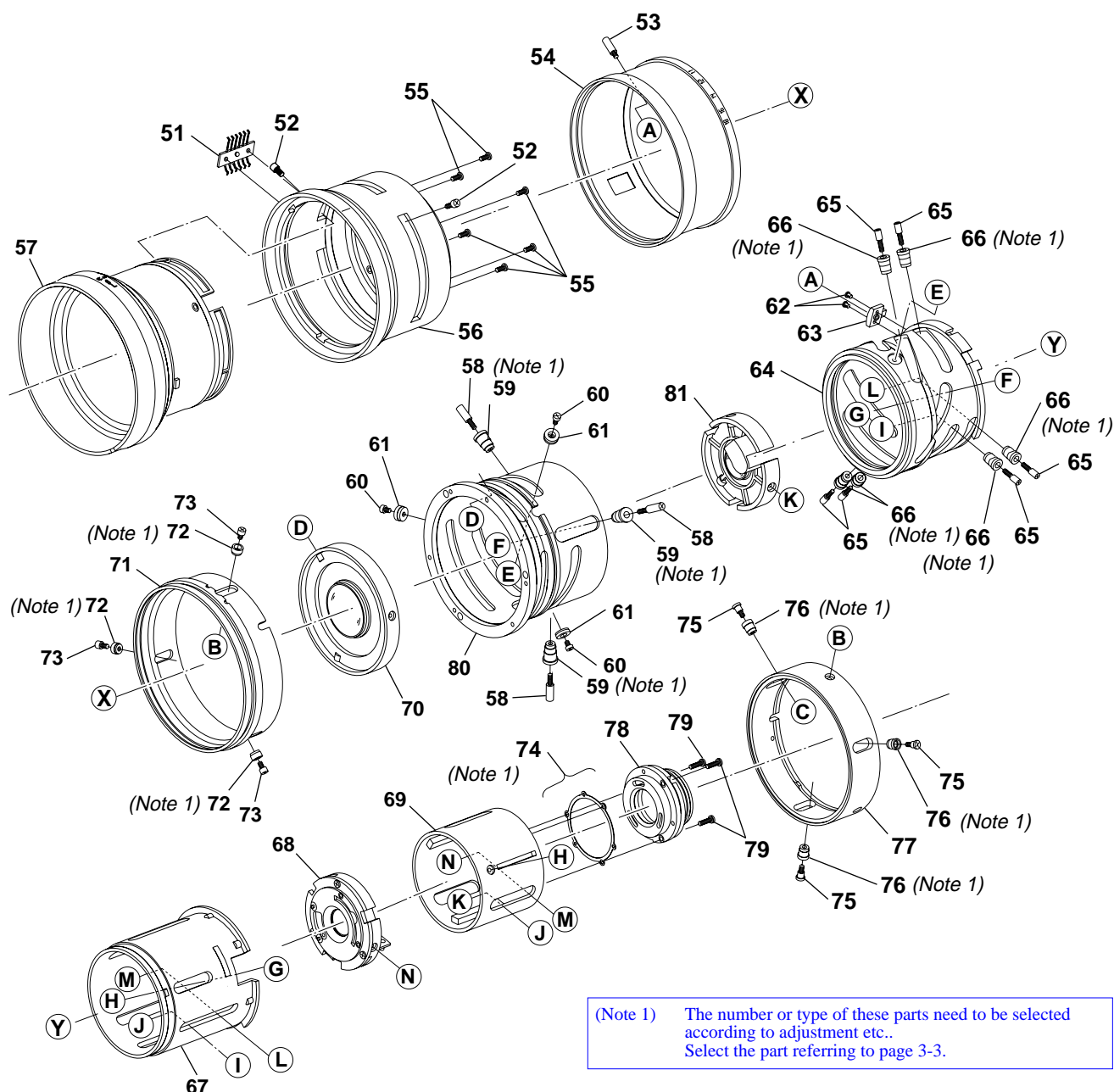
(Note 2) Cut the adhesive sheet (Ref. No. 8) for 6×10 mm.

(Note 3) Cut the insulating tape (Ref. No. 15) for 7×100 mm.

| Ref. No. | Part No. | Description |
|----------|-----------------|------------------------------|
| 1 | 2-886-755-01 | SCREW (2P1.7X5.5C3C IB LOCK) |
| 2 | 2-886-756-01 | SCREW (2P1.7X3.5C3C IB LOCK) |
| 3 | Selection parts | 1ST LENS WASHER (Note 1) |
| 4 | 2-886-758-01 | FILTER SCREW FRAME |
| 5 | 2-886-757-01 | ADJUSTMENT SPRING |
| 6 | A-1206-680-A | 1ST LENS BARREL ASSY |
| 7 | 2-886-754-01 | DECORATING RING |
| 8 | 2-649-300-01 | SHEET, ADHESIVE (Note 2) |
| 9 | 2-886-790-01 | SCREW (BT 2P1.7X3C3C) |
| 10 | 2-886-764-01 | ZOOM RUBBER |
| 11 | A-1206-682-A | REAR LENS BARREL ASSY |
| 12 | 2-886-766-01 | SCREW (BT2P1.7X4.5C3C) |
| 13 | 2-886-765-01 | NUMBER SEAL |
| 14 | A-1206-681-A | GEAR BASE PLATE ASSY |
| 15 | 9-913-210-01 | INSULATING TAPE (Note 3) |

| Ref. No. | Part No. | Description |
|----------|-----------------|---------------------------------|
| 16 | 2-886-763-01 | ZOOM BRUSH |
| 17 | 2-886-762-01 | BRUSH COVER |
| 18 | 2-886-761-01 | FOCUS RUBBER |
| 19 | A-1206-683-A | MAIN PCB ASSY |
| 20 | 2-886-767-01 | SCREW (BT2P1.7X3C3C) |
| 21 | Selection parts | BACK ADJUSTMENT WASHER (Note 1) |
| 22 | A-1206-684-A | MOUNT ASSY |
| 23 | 2-886-792-01 | SCREW (BT101.7X4GR301) |
| 24 | 2-886-789-01 | SCREW (2P1.4X2.2GR301) |
| 25 | 2-886-788-01 | REAR LIGHT SHIELD BARREL |
| 26 | 2-886-791-01 | SCREW (BT1P2X6C3C) |
| 27 | 2-886-787-01 | COUPLER RECEIVE |
| 28 | 2-886-786-01 | COUPLER |
| 29 | 2-683-692-01 | CHIP (MOUNT INDEX) |

3-1-2. FOCUS/ZOOM RING SET, 2ND LENS BARREL ASSY AND 5TH LENS BARREL ASSY



| Ref. No. | Part No. | Description |
|----------|--------------|----------------------|
| 51 | 2-886-872-01 | FOCUS BRUSH |
| 52 | 2-886-868-01 | STOPPER SCREW |
| 53 | 2-886-871-01 | ZOOM COUPLING PIN |
| 54 | 2-886-870-01 | ZOOM RING |
| 55 | 2-886-869-01 | SCREW (BT2P1.7X4C3C) |

| | | |
|----|-----------------|------------------------------|
| 56 | A-1206-693-A | OUTER BARREL ASSY |
| 57 | A-1206-692-A | FOCUS GEAR BARREL |
| 58 | 2-886-819-01 | COMA SCREW-C |
| 59 | Selection parts | COMA-C-A, C-U (Note 1) |
| 60 | 2-886-796-01 | COMA SCREW-A |
| 61 | 2-886-797-01 | COMA-A-A |
| 62 | 2-886-841-01 | SCREW (2P1.7X2.5C3C IB LOCK) |
| 63 | 2-886-840-01 | ZOOM STOPPER |
| 64 | 2-886-833-01 | CAM BARREL |
| 65 | 2-886-852-01 | COMA SCREW-C |

| | | |
|----|-----------------|----------------------------------|
| 66 | Selection parts | COMA-B-A, B-J, B-K to K (Note 1) |
|----|-----------------|----------------------------------|

| Ref. No. | Part No. | Description |
|----------|-----------------|--|
| 67 | 2-886-853-01 | LENGTH GROOVE BARREL |
| 68 | A-1206-689-A | 4TH LENS BARREL ASSY |
| 69 | 2-886-854-01 | 5TH LENS SLIP BARREL |
| 70 | A-1206-687-A | 2ND LENS BARREL ASSY |
| 71 | A-1206-691-A | SUPPORT BARREL ASSY |
| 72 | Selection parts | COMA-D-A, D-D (Note 1) |
| 73 | 2-886-867-01 | COMA SCREW-A |
| 74 | Selection parts | G11 SPACER ADJUSTMENT WASHER-A to E (Note 1) |
| 75 | 2-886-832-01 | COMA SCREW-E |
| 76 | Selection parts | COMA-E-A, E-K, E-L (Note 1) |
| 77 | 2-886-820-01 | FOCUS COUPLING BARREL |
| 78 | A-1206-690-A | 5TH LENS BARREL ASSY |
| 79 | 2-886-855-01 | SCREW |
| 80 | 2-886-795-01 | 1ST LENS SLIP BARREL |
| 81 | A-1206-688-A | 3RD LENS BARREL ASSY |

3-1-3. SELECTION PARTS

Ref. No.3

These washers are provided for focus-shift adjustment.

Change the thickness (t) according to result of adjustment.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------------|
| 2-886-760-01 | 1ST LENS WASHER (t=0.3mm) |
| 2-886-759-01 | 1ST LENS WASHER (t=0.2mm) |

Ref. No.21

These washers are provided for flange back adjustment.

Change the thickness (t) to adjust.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|-----------------------------------|
| 2-886-768-01 | BACK ADJUSTMENT WASHER (t=0.5mm) |
| 2-886-781-01 | BACK ADJUSTMENT WASHER (t=0.3mm) |
| 2-886-782-01 | BACK ADJUSTMENT WASHER (t=0.2mm) |
| 2-886-783-01 | BACK ADJUSTMENT WASHER (t=0.1mm) |
| 2-886-784-01 | BACK ADJUSTMENT WASHER (t=0.05mm) |
| 2-886-785-01 | BACK ADJUSTMENT WASHER (t=0.03mm) |

Ref. No.59

Select the type of part according to the operation load of the associated parts.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---|
| 2-886-800-01 | COMA-C-A (D1=4.51mm, D2=5.01mm, D3=6.015mm) |
| 2-886-818-01 | COMA-C-U (D1=4.50mm, D2=5.01mm, D3=6.015mm) |

Ref. No.66

Select the type of part according to the operation load of the associated parts.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------------------|
| 2-886-842-01 | COMA-B-A (D1=4.51mm, D2=5.01mm) |
| 2-886-850-01 | COMA-B-J (D1=4.53mm, D2=5.03mm) |
| 2-886-851-01 | COMA-B-K (D1=4.50mm, D2=5.01mm) |

Ref. No.72

Select the type of part according to the operation load of the associated parts.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------|
| 2-886-856-01 | COMA-D-A (D=4.51mm) |
| 2-886-859-01 | COMA-D-D (D=4.50mm) |

Ref. No.74

These washers are provided for focus-shift adjustment.

Change the thickness (t) according to result of adjustment.

| <u>Part No.</u> | <u>Description</u> |
|-----------------|---|
| 2-886-862-01 | G11 SPACER ADJUSTMENT WASHER (t=0.2mm) |
| 2-886-863-01 | G11 SPACER ADJUSTMENT WASHER (t=0.1mm) |
| 2-886-864-01 | G11 SPACER ADJUSTMENT WASHER (t=0.05mm) |
| 2-886-865-01 | G11 SPACER ADJUSTMENT WASHER (t=0.03mm) |
| 2-886-866-01 | G11 SPACER ADJUSTMENT WASHER (t=0.02mm) |

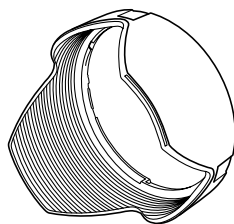
Ref. No.76

Select the type of part according to the operation load of the associated parts.

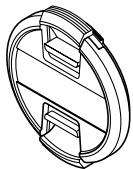
| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------------------|
| 2-886-821-01 | COMA-E-A (D1=4.01mm, D2=4.51mm) |
| 2-886-830-01 | COMA-E-K (D1=4.00mm, D2=4.50mm) |
| 2-886-831-01 | COMA-E-L (D1=3.99mm, D2=4.49mm) |

3-2. SUPPLIED ACCESSORIES

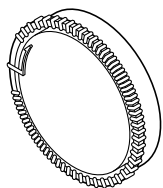
Checking supplied accessories.



Lens Hood
2-687-330-01



Front Lens Cap
2-687-235-01



Rear Lens Cap
2-683-615-01

Other accessories

- 2-686-121-01 MANUAL, INSTRUCTION
(JAPANESE, ENGLISH, FRENCH, SPANISH, SIMPLIFIED CHINESE)
- 2-686-121-11 MANUAL, INSTRUCTION
(GERMAN, DUTCH, SWEDISH, ITALIAN) (AEP)
- 2-686-121-21 MANUAL, INSTRUCTION (PORTUGUESE, RUSSIAN,
TRADITIONAL CHINESE, KOREAN, ARABIC) (AEP)

4. ADJUSTMENTS

Note: After the service repair, perform the adjustments referring to this section.

4-1. PREPARATIONS

4-1-1. List of Service Tools and Equipments

- Variable Transformer (Output voltage: AC 100 V) (Note 3)
- Camera DSLR-A100
- Compact Flash (CF) Card (For image saving)
- Screen (Art paper)
- Tape Measure
- Plane Mirror (For SLRs)
- Adhesive bond (B-10): J-6082-612-A
- Color Calculator 2

Note: Color Calculator 2 is downloadable from the ESI homepage.

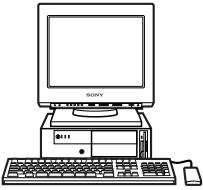
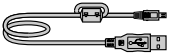
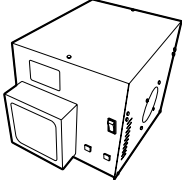

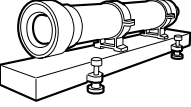
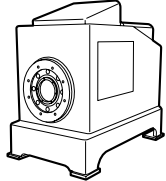
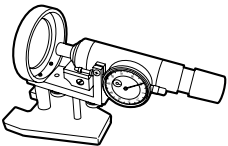
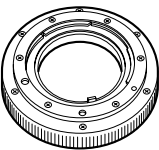
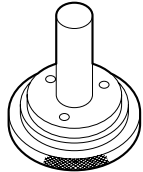
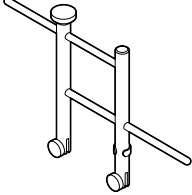
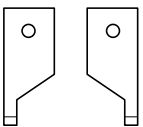
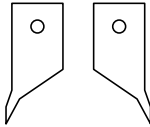
| | | |
|---|---|---|
| <p>J-1</p>  <p>Personal computer (Note 1)</p> | <p>J-2</p>  <p>USB cord with connector 1-833-062-11</p> | <p>J-3</p>  <p>Luminance box J-6082-581-A</p> |
| <p>J-4</p>  <p>AE master lens J-6082-597-A</p> | <p>J-5</p>  <p>1000 mm Collimator 110V: J-6082-604-A 240V: J-6082-604-B (Note 2)</p> | <p>J-6</p>  <p>Lens test projector J-6082-605-A (Note 3)</p> |
| <p>J-7</p>  <p>Flange back tester J-6082-606-A</p> | <p>J-8</p>  <p>A-mount attachment J-6082-607-A</p> | <p>J-9</p>  <p>Flange back gauge (43.50mm) J-6082-608-A</p> |
| <p>J-10</p>  <p>Universal wrench J-6082-609-A</p> | <p>J-11</p>  <p>Chip-A for universal wrench J-6082-609-1</p> | <p>J-12</p>  <p>Chip-B for universal wrench J-6082-609-2</p> |

Fig. 4-1-1

Note 1: Personal Computer (PC)
(Color Calculator 2 installed)
OS: Windows XP
MEMORY: 40 M Byte or more recommended
Hard disk free area: 15 M Byte or more recommended
USB terminal: Standard equipment
Graphics: 32,000 colors or more recommended VGA monitor

Note 2: Attach the chart to the 1000 mm collimator as shown in Fig. 4-1-2.

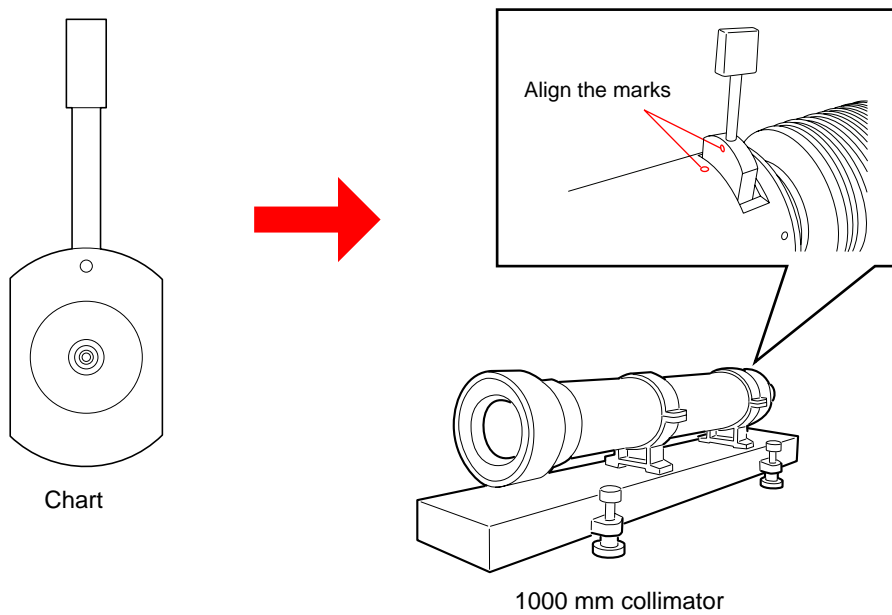


Fig. 4-1-2

Note 3: Connect the variable transformer (Output voltage: **AC 100 V**) to the lens test projector.

4-1-2. Lens Adjustment Program

The lens adjustment program is required for the following check/adjustment.

4-5. LENS ROM CHECK

4-6. ZOOM BRUSH POSITION CHECK/ADJUSTMENT AND PATTERN CHECK

4-7. FOCUS BRUSH POSITION AND PATTERN CHECK

Prepare/start the Lens adjustment program with the following steps.

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Installation of the Lens Adjustment Program

For installation of the lens adjustment program, refer to the link “• Preparing the DSLR-A100 adjustment program” described on the top cover of the camera DSLR-A100 service manual “9-852-130-51”.

Note: Store the lens adjustment program “LensAdjustment.exe” and related file “AlphaLensAdjust.txt” in the folder that contains the DSLR-A100 adjustment program “DSLRAAdj_cs.exe”.

2. Start the Lens Adjustment Program

- 1) Connect the camera and PC with the USB cord with connector.
- 2) Set the mode dial of camera to “M”.
- 3) Turn the POWER switch of the camera to OFF, then turn the POWER switch to ON while pressing the shutter button halfway down with pressed the ▲ button of controller keys and MENU buttons.
- 4) Check that the remaining number of recordable images on the LCD monitor is “BBBB”.

Note: When “BBBB” is displayed, the camera activates in the adjustment mode.

- 5) Start the lens adjustment program “LensAdjustment.exe”.

4-2. APERTURE DIAMETER CHECK/ADJUSTMENT

4-2-1. Aperture Diameter Check

Equipment

- Luminance Box
- Camera DSLR-A100
- AE Master Lens
- Compact Flash (CF) Card (For image saving)
- Personal Computer (PC)
(Color Calculator 2 installed)

1. Preparations

- 1) Install the CF card to the camera.
- 2) Set the equipments, camera and master lens as shown in Fig.4-2-1.

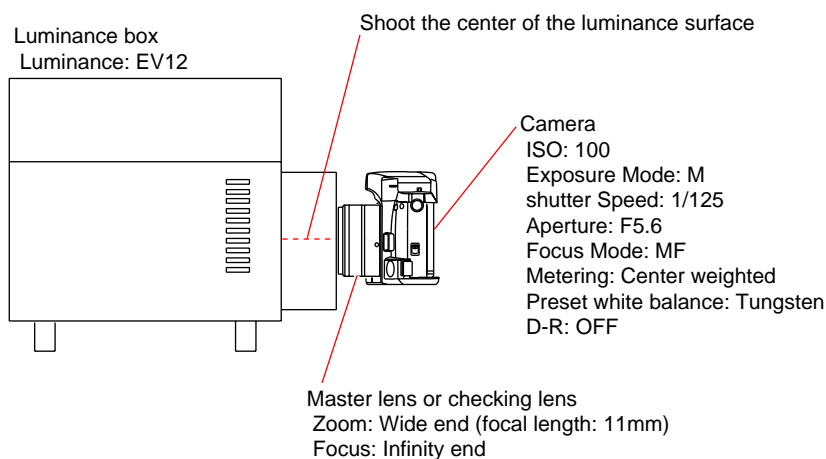


Fig.4-2-1

- 3) Shoot the images under the following conditions and save them.

Note: Shoot the center of the luminance surface three times with the master lens and checking lens.

Setting of Luminance box:

Luminance: EV12

Setting of Lens:

Zoom: Wide end (focal length: 11mm)

Focus: Infinity end

Setting of Camera:

ISO: 100

Exposure Mode: M

shutter Speed: 1/125

Aperture: F5.6

Focus Mode: MF

Metering: Center weighted

Preset white balance: Tungsten

D-R: OFF

2. Checking of Image

Note: Check the image of both master lens and checking lens.

- 1) Start the Color Calculator 2.

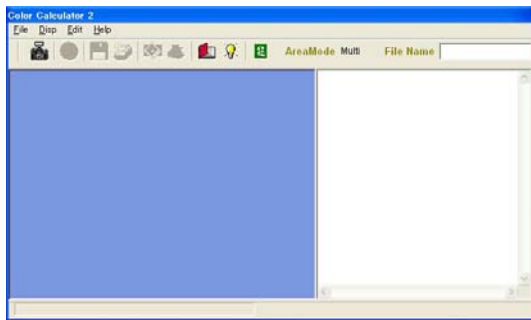


Fig.4-2-2

- 2) Read the image from the file menu.

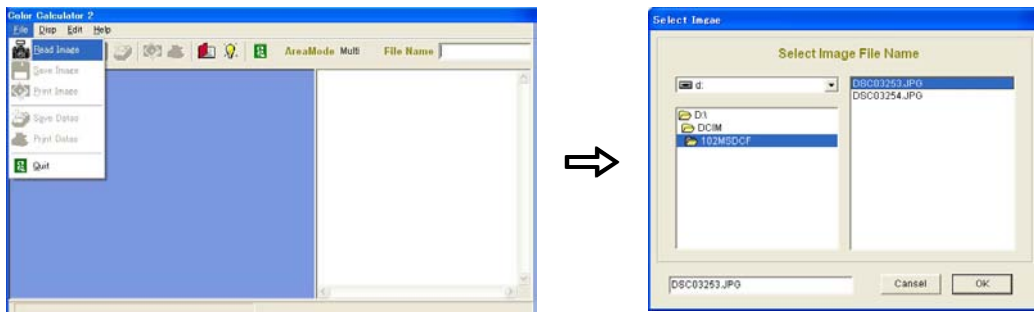


Fig.4-2-3

- 3) Set the Color Calculator 2 as follows.

Measured value display (Display menu): RGB+L*a*b*

Measuring method (Display menu): Center Single Area



Fig.4-2-4

Color space (Edit menu): sRGB



Fig.4-2-5

Area size for calculate (Edit menu → Option): 256×256 Pixels



Fig.4-2-6

- 4) Click the calculate button to measure the image.
- 5) After measuring, check the “G” values.
 Average “G” value of the three images shoot with master lens: (a)
 Average “G” value of the three images shoot with checking lens: (b)

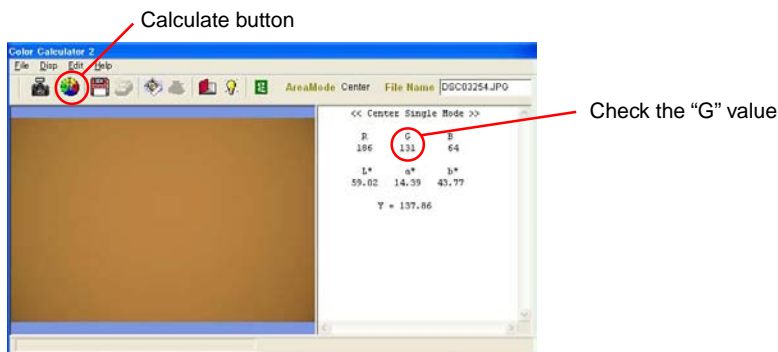


Fig.4-2-7

3. Checking Method

- 1) Calculate aperture error using the following formula, and check that the aperture error is within the specification.

| |
|---|
| $\text{Aperture error} = \text{Average "G" value of master lens (a)} - \text{Average "G" value of checking lens (b)}$ |
|---|

Specification

Aperture error = -50 to ±10

- 2) When the aperture error is out of specification, perform “4-2-2. Aperture Diameter Adjustment”.

4-2-2. Aperture Diameter Adjustment

Equipment

- Luminance Box
- Camera DSLR-A100
- AE Master Lens
- Compact Flash (CF) Card (For image saving)
- Personal Computer (PC)
(Color Calculator 2 installed)
- Adhesive bond (B-10)

1. Preparations

- 1) Remove the rear light interception tube.
- 2) Set the zoom ring at the Tele end position.
- 3) Move the preset lever to set the preset ring at the open aperture position.

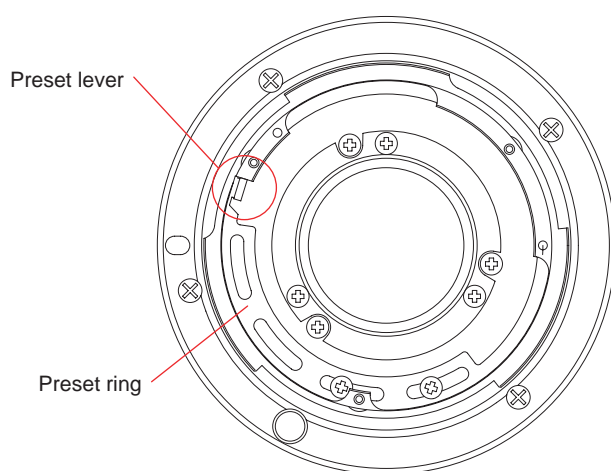


Fig.4-2-8

2. Adjusting Method

- 1) Let the operation lever of the preset ring move to left and right sides by loosening two screws slightly to move to left and right sides.
- 2) Move the two screws while seeing the lights from the rear lens element side, and tighten two screws at the point where the diaphragm blades are hidden into the edge completely.

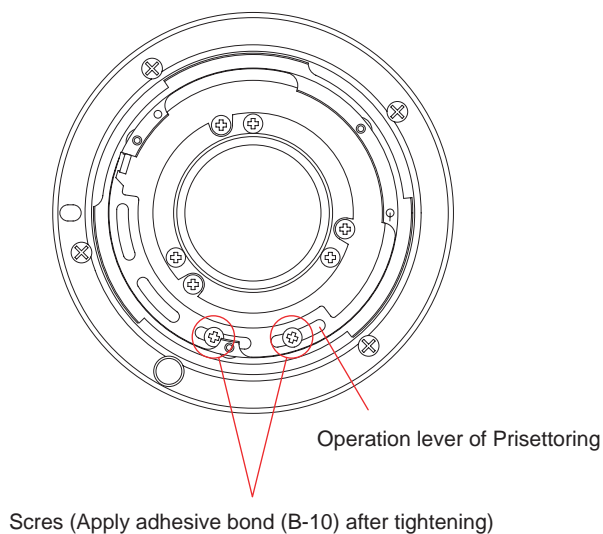


Fig.4-2-9

- 3) Perform “4-2-1. Aperture Diameter Check”, and repeat steps 1) to 3) until the aperture error is within the specification.
- 4) After the adjustment is completed, apply the adhesive bond (B-10) to the two screws tightened in step 2).

4-3. PROJECTIVE RESOLVING POWER CHECK

Equipment

- Lens Test Projector and Variable Transformer (Output voltage: AC 100 V)

Note: Connect the variable transformer (Output voltage: AC 100 V) to the lens test projector.

- A-mount Attachment
- Screen (Art paper)
- Tape Measure
- Plane Mirror (For SLRs)

1. Preparations

Note: Check the projective resolving power of the checking lens at the following focal-length and distance.

| Focal-length f (mm) | distance (m) |
|-----------------------|--------------|
| 11 | 0.66 |
| 12 | 0.72 |
| 14 | 0.84 |
| 16 | 0.96 |
| 18 | 1.08 |

Table 4-3-1

- 1) Perform the following steps (1) to (3), and incorporate the internal lenses of the lens test projector according to the checking focal-length.
 - (1) Open the lid of the lens test projector.
 - (2) Pull up and turn the fixed levers on the right and left sides of the lens test projector.
 - (3) Remove or insert the lens.

Note: Be sure to have the right position and direction of the lens.

Incorporate of the lenses according to the checking focal-length (f).

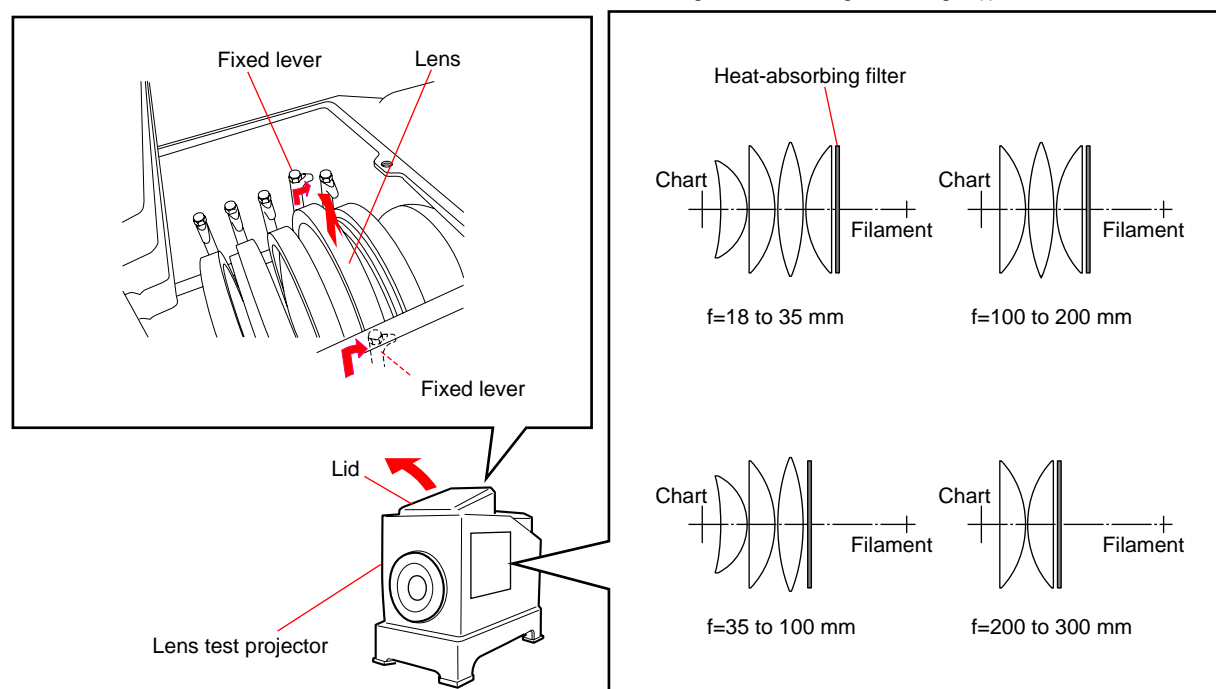


Fig.4-3-1

- 2) Attach the checking lens to the lens test projector, and set the equipments as shown in Fig.4-3-2.
- 3) Turn the fan switch of the lens test projector to ON, then turn the lamp switch to ON.

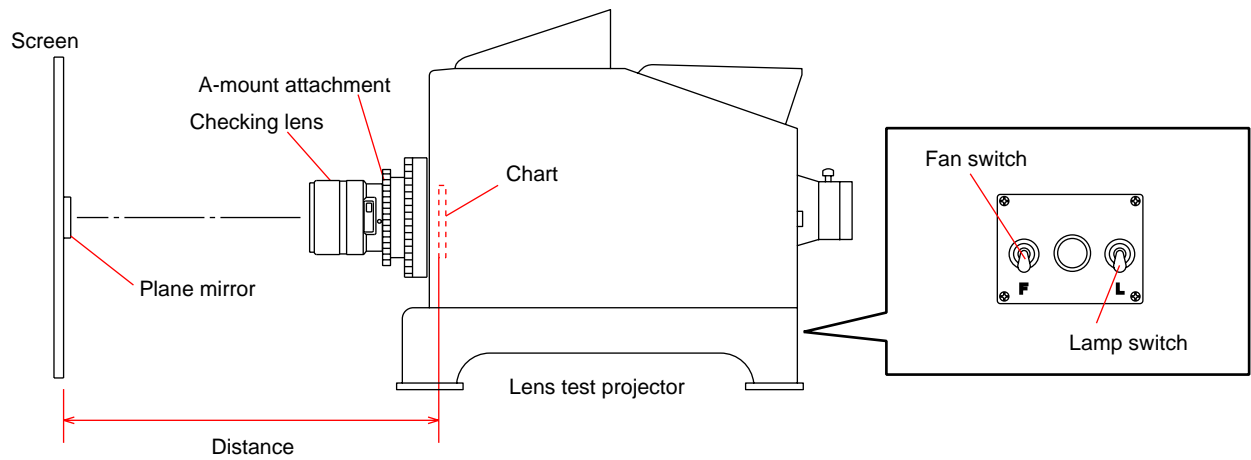


Fig.4-3-2

- 4) Turn the focus ring of the checking lens until the chart image projected on the screen is the sharpest at the center ($y'=0$).
- 5) Set the plane mirror to the center of the projected image ($y'=0$), and adjust the projector position so that the mirror reflects the light to the center of the lens.

2. Checking Method

- 1) Turn the focus ring of the checking lens until the chart image projected on the screen is the sharpest at the center ($y'=0$).
- 2) Read the number of the smallest pitched lines at the center ($y'=0$).

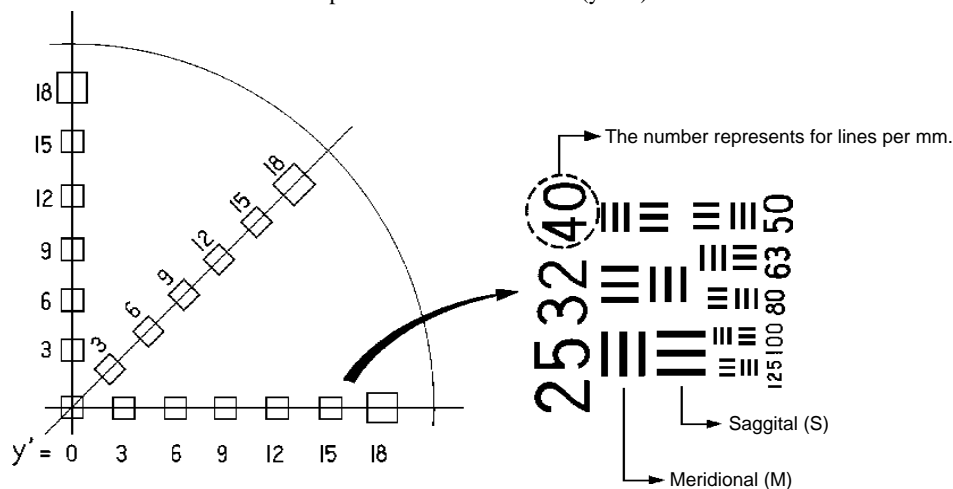


Fig.4-3-3

- 3) Turn the mount rotation ring of lens test projector until the projected image at a certain peripheral point ($y'=9$) on the screen appears the most unsharp.

Read the number of the smallest pitched lines (both saggital and meridional: 3 lines) at the peripheral point.

When the partial blur appears, loosen the three fixing screws of the 5th lens barrel assembly shown in the Fig.4-4-5 and adjust the position to from side to side and up and down.

Note: When reading the number of the smallest pitched lines, be careful of the spurious resolution.

Spurious resolution is the reversed image of 2 or 4 lines which appears on screen when focus is beyond maximum revolving power.

Do not confuse spurious resolution for the smallest pitched lines.

Correct resolution



Spurious resolution



Fig.4-3-4

- 4) Change the focal-length (zoom) and distance of the checking lens, and check that the all readings ($y'=0$, saggital (S) and meridional (M) at $y'=9$) at each focal-length (zoom) and distance is within the specification of the Table 4-3-2.

Specification

| Focal-length f (mm) | distance (m) | Number of the smallest pitched lines | | |
|---------------------|--------------|--------------------------------------|---|---------------|
| | | Center ($y'=0$) (Lines per mm) | Peripheral ($y'=9$) (Lines per mm) | |
| | | | S | M |
| 11 | 0.66 | 100 or greater | 40 or greater | 40 or greater |
| 12 | 0.72 | 100 or greater | 40 or greater | 40 or greater |
| 14 | 0.84 | 100 or greater | 40 or greater | 40 or greater |
| 16 | 0/96 | 100 or greater | 40 or greater | 40 or greater |
| 18 | 1.08 | 100 or greater | 40 or greater | 40 or greater |

Table 4-3-2

5) G11 gap adjusting washer (Reference value $t=0.1$ mm)

In the resolution adjustment, if an image is warped, the adjustment within the range of G11 washer is allowed.

- When the peripheral image is front-focused with respect to the center, extract the washer.
- When the peripheral image is rear-focused with respect to the center, add the washer.

| G11 adjustment washer | Parts No. | T (mm) |
|-----------------------|--------------|--------|
| A | 2-886-862-01 | 0.2 |
| B | 2-886-863-01 | 0.1 |
| C | 2-886-864-01 | 0.05 |
| D | 2-886-865-01 | 0.03 |
| E | 2-886-866-01 | 0.02 |

Table 4-3-3

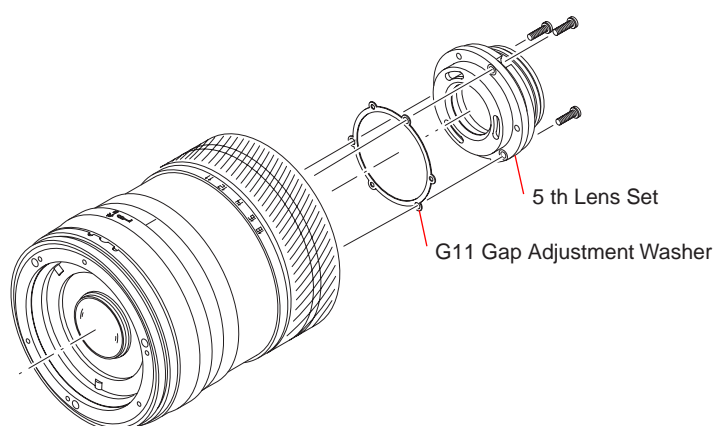


Fig.4-3-5

- 6) After the checking is completed, turn the lamp switch of the lens test projector to OFF and cool the inside of the lens test projector, then turn the fan switch to OFF.

4-4. FOCUS-SHIFT/FLANGE BACK (f'F) AND OPTICAL AXIS CHECK/ADJUSTMENT

4-4-1. Focus-Shift/Flange Back (f'F) Check and Optical Axis Adjustment

Equipment

- 1000 mm Collimator
- Flange Back Tester
- A-mount Attachment
- Flange Back Gauge (43.50mm)

1. Preparations

- 1) Set the equipments as shown in the Fig.4-4-1.

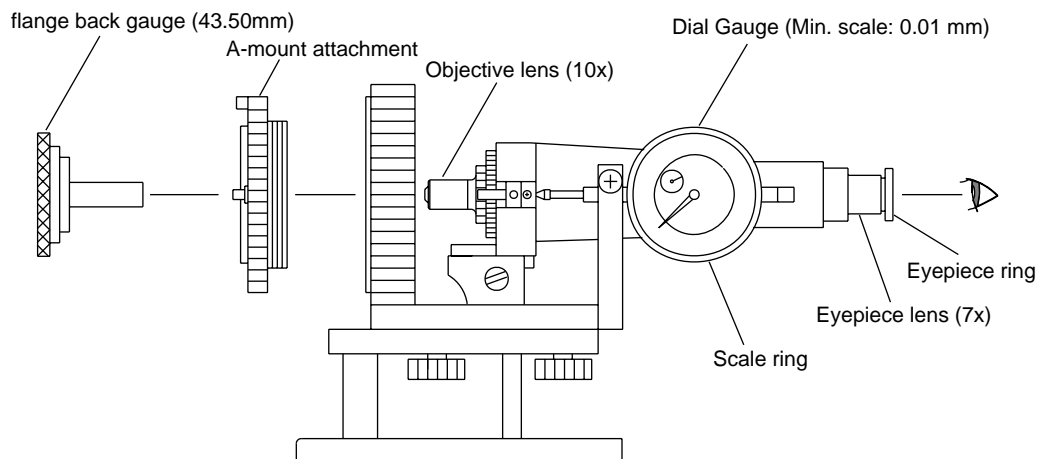


Fig.4-4-1

- 2) Looking through the eyepiece lens, turn the eyepiece ring of the flange back tester so that cross line or scale in the view is the sharpest.
- 3) Attach the flange back gauge (43.50mm) securely to the A-mount attachment and hold them together.
- 4) Turn the focusing knob of the flange back tester so that fine scratches on the flange back gauge (43.50mm) is the sharpest.

Note: Turn the knob in the direction of the arrow of Fig.4-4-2 for correct reading.

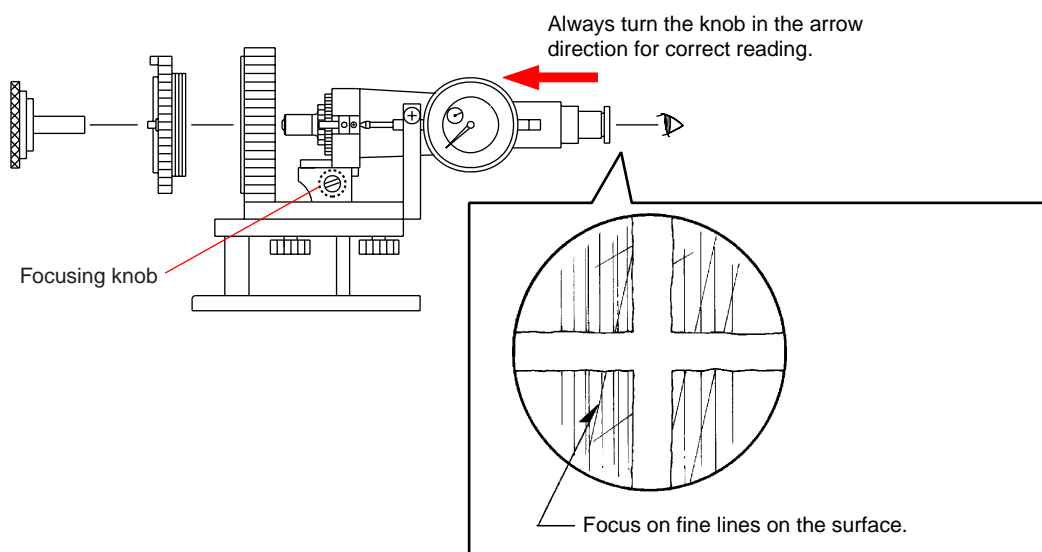


Fig.4-4-2

- 5) Turn the scale ring of the dial gauge until the long pointer indicates "0".

Note: This position is the flange back (f'F) = 43.5 mm.

Memorize the position of short-pointer.

2. Focus-shift/Frange Back (f'F) Check and Optical Axis Adjustment

- 1) Attach the checking lens to the flange back tester, and set the 1000 mm collimator.

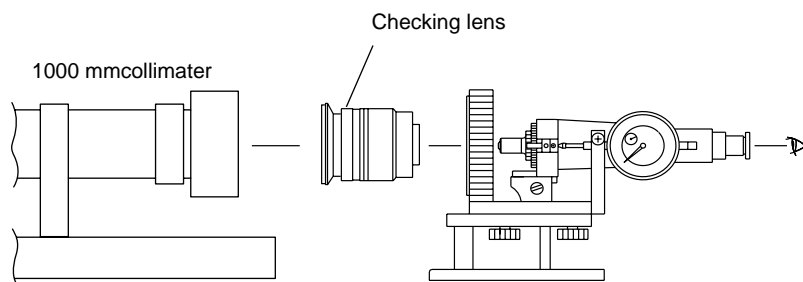


Fig.4-4-3

- 2) Set the focus ring of the checking lens to infinity end position while looking through the microscope, and align the optical axis to the center of the chart image accurately.
- 3) Turn the focusing knob of the tester until the chart image is the sharpest (red and green color areas are equal on the chart *).

*: Position in which the color of collimator chart changes from green into red and come into focus.

Also check the optical axis aligns with the chart center. (Refer to Fig.4-4-4.)

Note: Figure shows example. The cause depends on individual lens.

Optical Alignment
Best alignment

Incorrect aligned
e.g. As the focusing knob is turned, the chart may appear blurry as illustrated.
The cause depends on individual lens.

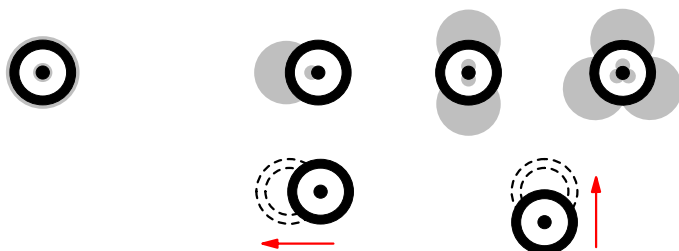


Fig.4-4-4

- 4) If the optical axis aligns the most unsharp, loosen the three screws shown in the Fig.4-4-5 and shift the 5th lens barrel assembly to let the vertical and horizontal.

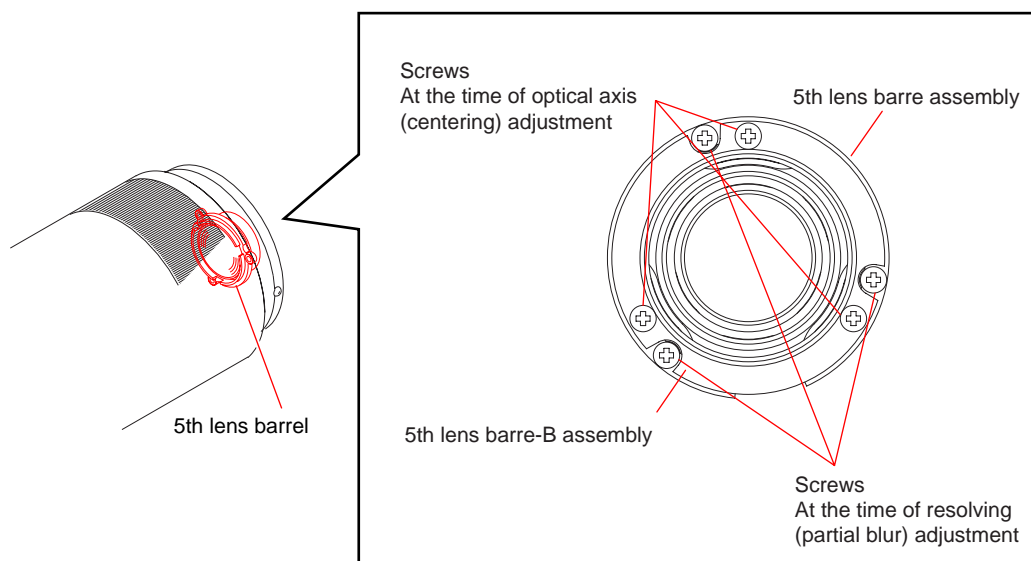


Fig.4-4-5

3. Checking Method

- 1) Calculate the flange back (f'F) of the checking lens using the following formula, and check that the specification of the Table 4-4-1 is satisfied.

| |
|---|
| Flange back (f'F) of the checking lens = (Flange back gauge) + (Number of short-pointer revolution) + (Reading of long-pointer) |
|---|

Specification

| Focal-length f (mm) | f'F (mm) (Infinity position) |
|------------------------|---------------------------------|
| 18 | 44.65 to 44.75 |

| Focal-length f (mm) | f'F (mm) (Infinity) |
|------------------------|------------------------|
| 18 | 44.53 to 44.59 |
| 15 | 44.48 to 44.64 |
| 13 | 44.50 to 44.62 |
| 11 | 44.56 to 44.61 |

Table 4-4-1

- 2) When the flange back (f'F) of the checking lens is out of specification of the Table 4-4-1, perform “4-4-2. Flange Back (f'F) Adjustment”.

4-4-2. Flange Back (f'F) Adjustment

Equipment

- 1000 mm Collimator
- Flange Back Tester
- A-mount Attachment
- Flange Back Gauge (43.50mm)

Note: “4-4-3. Focus-shift Adjustment” must be completed before performing the Flange Back (f'F) Adjustment.

1. Preparations

- 1) Remove the focus rubber.

2. Adjusting Method

- 1) Perform “4-4-1. Flange Back (f'F) Check”, and check that the flange back (f'F) of the checking lens is out of specification of Table 4-4-1.
- 2) Set the zoom ring of the checking lens to Tele end position (focal length: 18 mm)
- 3) Set the support barrel assembly of the checking lens to over infinity position.
- 4) Turn the knob of the flange back tester until the chart image is the sharpest while looking through the microscope.
- 5) Calculate the shift amount (x) using the following formula.

$$\text{Shift amount (x)} = \text{Measured value} - 44.70 \text{ mm}$$

Measured value: Flange back f'F at over infinity position (focal length: 18 mm)

x = Shift-amount that should be adjusted by the back adjustment washer.

- 6) Adjust the back adjustment washer thickness according to the result of step 5). (Refer to Table 4-4-2.)

Note: Be sure to measure the thickness of the back adjustment washer by micrometer or vernier caliper.

- When the shift-amount is a negative value: Decrease the back adjustment washer thickness by the amount of shift amount (x).
- When the shift-amount is a positive value: Increase the back adjustment washer thickness by the amount of shift amount (x).

| Back adjustment washer | Parts No. | t (mm) |
|------------------------|--------------|--------|
| A | 2-886-768-01 | 0.5 |
| B | 2-886-781-01 | 0.3 |
| C | 2-886-782-01 | 0.2 |
| D | 2-886-783-01 | 0.1 |
| E | 2-886-784-01 | 0.05 |
| F | 2-886-785-01 | 0.03 |

Table 4-4-2

- 7) Assemble the back adjustment washer, and perform the “4-4-1. Flange Back (f'F) Check” again.

4-4-3. Focus-shift Adjustment

This section describes the check/adjustment of focus-shift amount resulting change of the focal-length by zooming.

Equipment

- 1000 mm Collimator
- Flange Back Tester
- A-mount Attachment
- Flange Back Gauge (43.50mm)

Adjusting Method

Note: About the insulating tape in the sentence. When shipping it, Mending tape (2-886-794-01) is used.

- 1) Perform “4-4-1. Focus-shift/Flange Back (f’F) Check and Optical Axis Adjustment”, and check that the flange back (f’F) of the checking lens is out of specification of Table 4-4-1.
- 2) Set the zoom ring of the checking lens to Wide end position (focal length: 11 mm).
- 3) Set the support barrel assembly of the checking lens to infinity position (center of the “L” mark index). (Fig. 4-4-6)
- 4) Turn the knob of the flange back tester until the chart image is the sharpest while looking through the microscope, and check the flange back (f’F).
- 5) Set the zoom ring of the checking lens to Tele end position (focal length: 18 mm).
- 6) Peel off the two insulating tapes. (Fig 4-4-6)
- 7) Turn the support barrel assembly until the chart image is the sharpest.
- 8) Set the focus gear barrel to the infinity position (infinity end) while maintaining the support barrel assembly so as not to rotate it. Affix the two insulating tapes. (Fig 4-4-6)
- 9) Perform steps 2) to 8) until the specification of focus-shift amount (difference between the maximum flange back (f’F) and minimum flange back (f’F)) of the checking lens is met.

$$\text{Focus-shift} = \text{Maximum flange back (f'F) reading} - \text{Minimum flange back (f'F) reading}$$

Specification

Focus-shift: Less or equal 0.03 mm

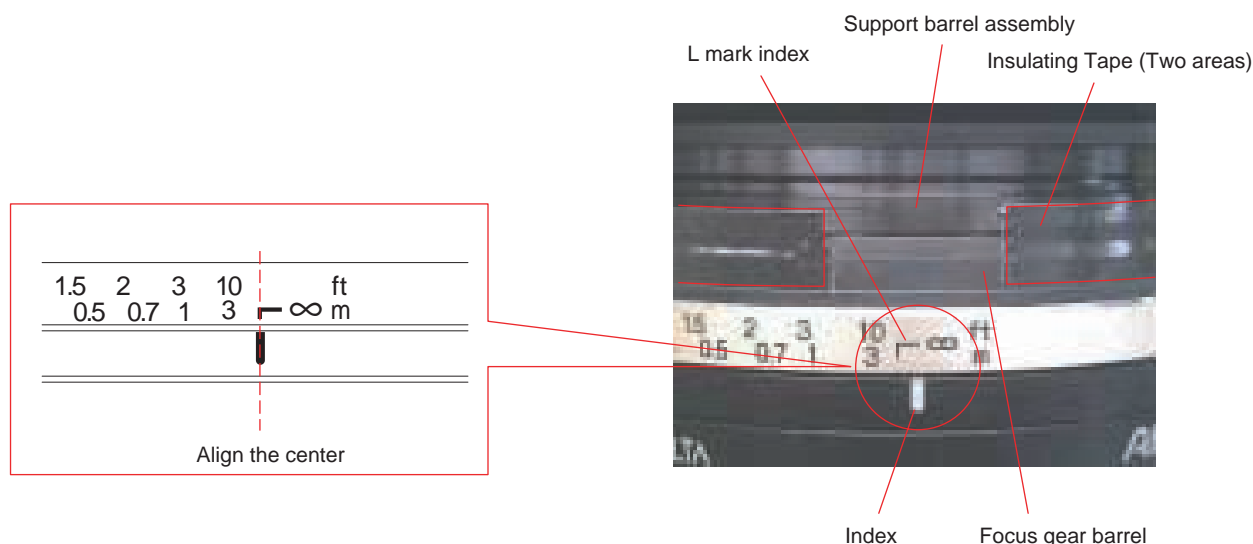


Fig4-4-6

4-5. LENS ROM CHECK

Note: If dialog box of error code appears during the checking, check the reason of error referring to page 4-22.

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Preparations

- 1) Connect the checking lens to the camera.
- 2) Start the lens adjustment program “LensAdjustment.exe” referring to “4-1-2. Lens Adjustment Program”.

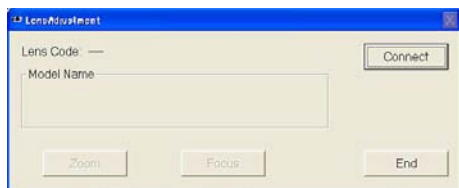


Fig. 4-5-1

2. Checking Method

- 1) Click the **Connect** button on the lens adjustment program.

Note: Click the **End** button to disconnect the USB connection, then lens adjustment program will terminate.

- 2) Check that the display of “Lens Code” and “Model Name” is correct.

Note: Zoom and focus position setting is not required.

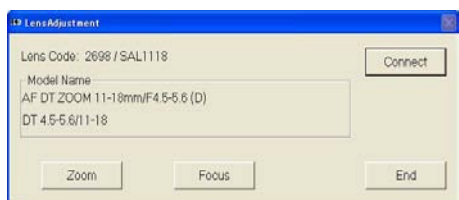


Fig. 4-5-2

- 3) Click the **End** button to terminate the lens adjustment program.
- 4) Turn the POWER switch of the camera to OFF.

4-6. ZOOM BRUSH POSITION CHECK/ADJUSTMENT AND PATTERN CHECK

Note: If dialog box of error code appears during the checking or adjustment, check the reason of error referring to page 4-22.

4-6-1. Zoom Brush Position Check

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Preparations

- 1) Connect the checking lens to the camera.
- 2) Start the lens adjustment program “LensAdjustment.exe” referring to “4-1-2. Lens Adjustment Program”.

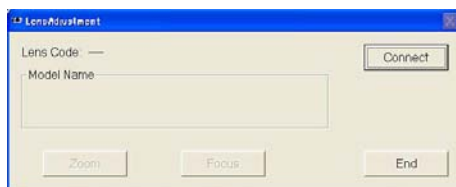


Fig. 4-6-1

2. Checking Method

- 1) Click the **Connect** button on the lens adjustment program.

Note: Click the **End** button to disconnect the USB connection, then lens adjustment program will terminate.

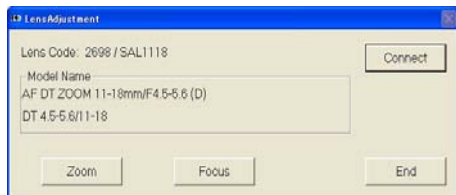


Fig. 4-6-2

- 2) Click the **Zoom** button on the lens adjustment program.
- 3) Set the zoom position to Tele end, and check that the OK (Green) indicator of “Position” lights as shown in Fig. 4-6-3.

Note: Lens focus position setting is not required.

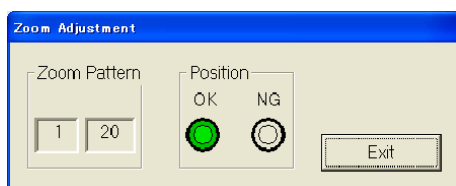


Fig. 4-6-3

If the NG (Red) indicator of “Position” lights, check zoom brush and frekipattern is confirmed.

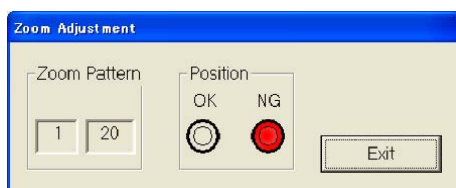


Fig. 4-6-4

- 4) Click the **Exit** button.
- 5) Click the **End** button to terminate the lens adjustment program.
- 6) Turn the POWER switch of the camera to OFF.

SAL1118 (4.5-5.6/11-18) (DT 11-18mm F4.5-5.6)

4-6-2. Zoom Brush Position Adjustment and Pattern Check

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Adhesive Bond (B-10)
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Preparations

- 1) Remove the zoom lens and brush cover.

2. Zoom Brush Position Adjustment

- 1) Set the zoom position to Tele end.
- 2) Perform the “4-6-1. Zoom Brush Position Check”, and adjustment to Brush Position until the OK (Green) indicator of “Position” lights, and fixed with the double-faced tape after adjusting.

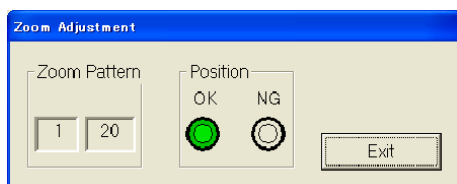


Fig. 4-6-5

3. Pattern Check

Note: When the NG (Red) indicator of “Position” lights during checking, does not care about it (It is normal performance).

- 1) Turn the zoom ring slowly from the Wide end “Zoom Pattern : 1” to Tele end “Zoom Pattern : 20” and check that the value of “Zoom Pattern” change from 1 to 20 continuously.
- 2) Turn the zoom ring slowly from Tele end (Zoom Pattern : 20) to the Wide end (Zoom Pattern : 1) and check that the value of “Zoom Pattern” change from 20 to 1 continuously.

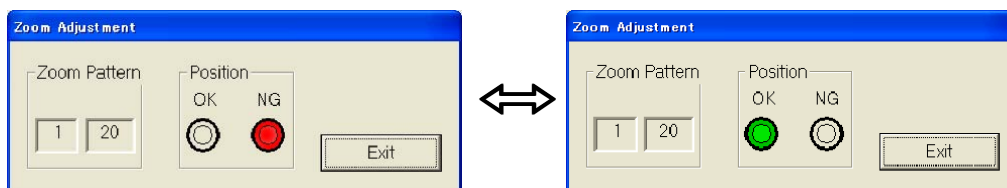


Fig. 4-6-6

- 3) Click the **Exit** button.
- 4) Click the **End** button to terminate the lens adjustment program.
- 5) Turn the POWER switch of the camera to OFF.

4-7. FOCUS BRUSH POSITION AND PATTERN CHECK

Note: If dialog box of error code appears during the checking or adjustment, check the reason of error referring to page 4-22.

4-7-1. Focus Brush Position Check

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Preparations

- 1) Connect the checking lens to the camera.
- 2) Start the lens adjustment program “LensAdjustment.exe” referring to “4-1-2. Lens Adjustment Program”.

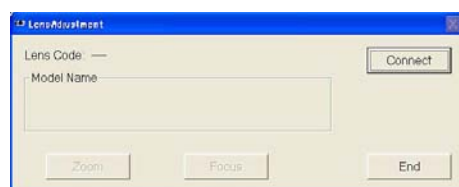


Fig. 4-7-1

2. Checking Method

- 1) Click the **Connect** button on the lens adjustment program.

Note: Click the **End** button to disconnect the USB connection, then lens adjustment program will terminate.

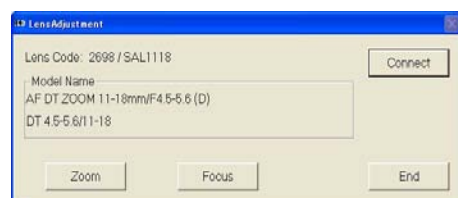


Fig. 4-7-2

- 2) Click the **Focus** button on the lens adjustment program.
- 3) Set the zoom position to Wide end and the focus position to infinity end, then check that the OK (Green) indicator of “Position” lights as shown in Fig. 4-7-3.

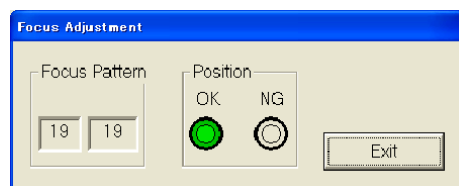


Fig. 4-7-3

If the NG (Red) indicator of “Position” lights, then check that Focus Brush Position.

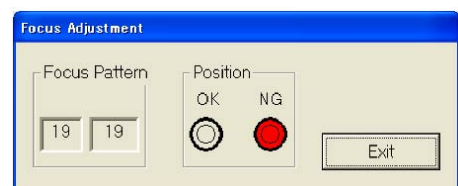


Fig. 4-7-4

- 4) Click the **Exit** button.
- 5) Click the **End** button to terminate the lens adjustment program.
- 6) Turn the POWER switch of the camera to OFF.

SAL1118 (4.5-5.6/11-18) (DT 11-18mm F4.5-5.6)

4-7-2. Focus Brush Position Adjustment and Pattern Check

Equipment

- Personal Computer (PC)
- Camera DSLR-A100
- USB Cord With Connector
- Adhesive bond (B-10)
- Lens Adjustment Program

Note: Lens Adjustment Program is downloadable from the ESI homepage.

1. Pattern Check

Note: When the NG (Red) indicator of “Position” lights during checking, does not care about it (It is normal performance).

- 1) Turn the focus ring slowly from the near end “Focus Pattern : 1” to the infinity end “Focus Pattern : 19” and check that the value of “Focus Pattern” change from 1 to 19 continuously.
- 2) Turn the focus ring slowly from the infinity end “Focus Pattern : 19” to the near end “Focus Pattern : 1” and check that the value of “Focus Pattern” change from 19 to 1 continuously.

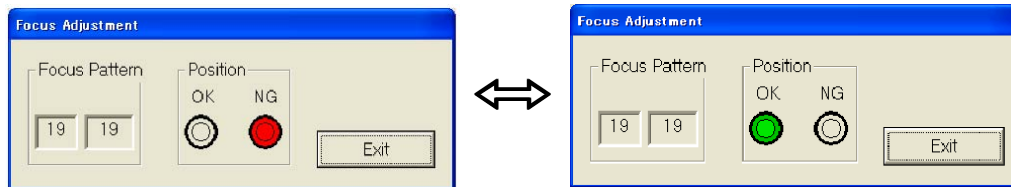


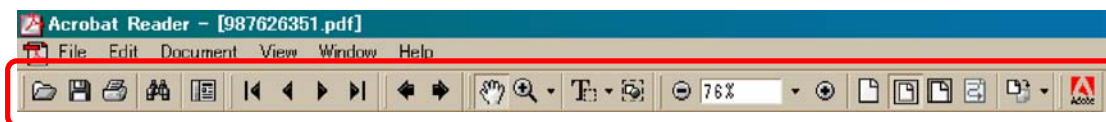
Fig. 4-7-5

- 3) Click the **Exit** button.
- 4) Click the **End** button to terminate the lens adjustment program.
- 5) Turn the POWER switch of the camera to OFF.


4-8. ERROR CODE LIST

| Error code | | Description |
|----------------------|------------|---|
| Corrupt Data | | Zoom/focus data of check pattern is out of sync with the number of check pattern. |
| Error, No Lens | | Lens is not connected correctly. |
| Error, Unknown Lens | | Unidentified lens is connected. |
| Communication Error, | Code#:E600 | Communication error with the camera |
| | Code#:F000 | Input data error to DLL file |
| | Code#:F100 | Setting error of USB port |
| | Code#:2531 | Communication error of main signal on the camera |


[Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]





Printing a text

1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

Application of printing:

To set a range to be printed within a page, select the graphic selection tool  and drag on the page to enclose a range to be printed, and then click the Print button.


Reversing the screens displayed once

- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

Application to the Service Manual:

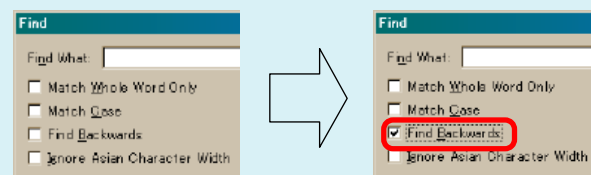
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

Finding a text

1. Click the Find button .
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

Application to the Service Manual:

To execute "find" from current page toward the previous pages, select the check box "Find Backwards" and then click the "Find".








3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

Application to the Service Manual:


The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.


Note: The find function may not be applied to the Service Manual depending on the date of issue.

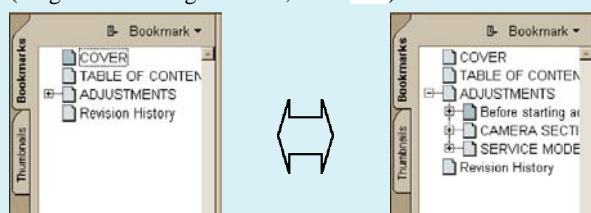
Moving with link

1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form .
3. Then, click the link. (You will go to the link destination.)

Moving with bookmark:



Click an item (text) on the bookmark pallet. and you can move to the link destination. Also, clicking  can display the hidden items.

(To go back to original state, click )




Zooming or rotating the screen display

"Zoom in/out"

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click  or  for zooming in or out.







"Rotate"

- Click rotate tool , and the page then rotates 90 degrees each.

Application to the Service Manual:

The printed circuit board diagram you see now can be changed to the same direction as the set.

Switching a page

- To move to the first page, click the .
- To move to the last page, click the .
- To move to the previous page, click the .
- To move to the next page, click the .

Revision History

| Ver. | Date | History | Contents | S.M. Rev. issued |
|------|---------|-------------------|--|------------------|
| 1.0 | 2006.08 | Official Release | — | — |
| 1.1 | 2006.12 | Revised-1 | <ul style="list-style-type: none"> • Change of repair parts of HELP12, HELP13 • Change of Repair Parts (Section 3) • Change of List of Service Tools and Equipments (Section 4) | Yes |
| 1.2 | 2007.03 | Correction-1 (C1) | <ul style="list-style-type: none"> • Correction of Repair Parts S.M Correction: HELP01, Page 3-1, 3-2 | Yes |
| 1.3 | 2007.04 | Correction-2 (C2) | <ul style="list-style-type: none"> • Correction of Repair Parts S.M Correction: Page 3-4 • Correction of Reference Page S.M Correction: Page 4-17, 4-18, 4-20 | Yes |
| | | | | |