

# Instruction Manual

## Neitz Binocular Indirect Ophthalmoscopes IO-α LED

Read the instruction manual before use the product.

Keep the instruction manual at the place where is accessible for referring it again anytime.

Contents:

1. Safety Notice
2. Name of parts
3. Operation
4. Maintenance

5. Trouble Shooting
6. Storage/Disposal
7. Specification
8. Contact

### 1. Safety Notice

 Warning	This display is "a death or the possibility to get seriously injured is assumed" contents when making a mistake in the handling.
 Caution	This display is "it is assumed that only the possibility and the physical damage to assume damage occur" contents when making a mistake in the handling.

The following picture is describing the contents, which is conformed in operation.

 Banned	It indicates action which is banned to do.
 Instruction	It indicates Compulsion (things to be executed without fail)
 Disassemble is banned	It is the symbol which shows that it must not disassemble.
 Handling with wet hand is banned	It is the symbol which shows that it must not handle with the wet hand.

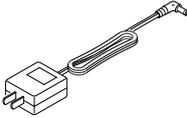
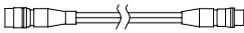
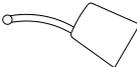
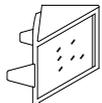
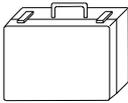
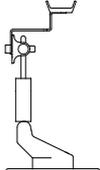
 <b>Warning</b>	
 Banned	It must be that the time of Illuminating to eyes should be minimal and do not exceed 1 minute for one eye. Otherwise, it is danger of damaging the visual function.
 Banned	Do not illuminate with unnecessary intensity of illumination. Otherwise, it is danger of damaging the visual function.
 Banned	Do not use the instrument near the flammable-vapors and the fine particles such as propane gas and gasoline. It can cause a fire and/or an explosion.
 Banned	Do not leave the instrument in the place which the small child can touch it. It becomes a cause for injury and/or a cause for having in one's trachea by mistake.
 Banned	Do not have the instrument covered with something like close. It causes the fire and the trouble.

 <b>Caution</b>	
 Banned	Do not use instrument with a AC adapter and/or a battery pack except the set of this set. Otherwise, it causes being shocked and/or the trouble.
 Banned	The battery pack should be placed in stable place. Otherwise, it causes the trouble and/or the injury.
 Banned	Do not use the instrument in the place where there is much moisture and the place where water splashes. It causes being shocked and the trouble.
 Banned	Do not have short-circuit the terminals, and do not touch the terminals with finger. It causes being shocked and the trouble.
 Banned	Do not sterilize the instrument. It causes the trouble, the injury.
 Banned	Do not give strong impact and/or throw the instrument. It causes the injury, the trouble or the fire.
 Handling with wet hand is banned	Do not touch the instrument with the wet hand. It causes being shocked.
 Disassemble is banned	Do not disassemble and/or modify the instrument. It causes a burn, the fire and/or the trouble.
 Instruction	Charge the battery beforehand of operation and watch that the amount of electric power is remaining sufficiently while operating. Otherwise, it causes the interference of use or causes becoming out of use.
 Instruction	Be sure to tighten up a screw in control and/or the fixation, when it becomes loose. It causes the trouble, the injury.
 Instruction	When the instrument is not in using long or when providing maintenance to the instrument, disconnect the wiring. It can cause being shocked, the fire, and/or the trouble.
 Instruction	At the time when the malfunction of the stench and the fume and so on occurred in the instrument, stop using it at once and disconnect all the connection. It causes the injury and the fire.

2-1 Component.

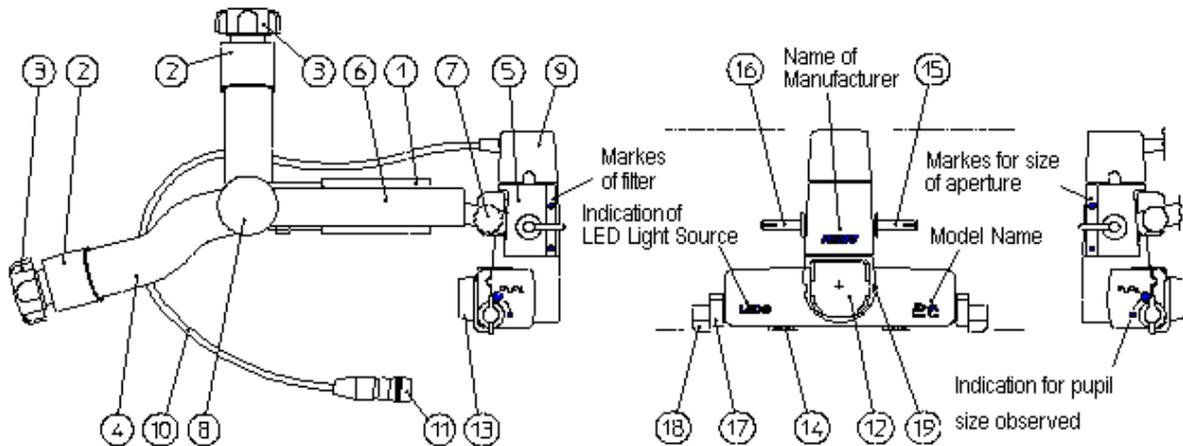
The component of Binocular Indirect Ophthalmoscope IO- $\alpha$  LED (Hereafter called as IO- $\alpha$  LED) is different depending on the sets.

Check the component before using.

Name	Set 4	Set 3	Set 2	The outward appearance
Main Unit (Head Set)	1	1	1	Refer 2-2
Battery Pack (IO-BP II)	1	1	1	Refer 2-2
AC Adapter	1	1	1	
Extension Cord (1M)	1	1	1	
Belt Hook	1	1	1	
Fastener Ring	1	1	1	
Scleral Depresser	1			
Teaching Mirror	1			
Detachment Chart	1			
Carrying Case	1	1		
Aspherical Lens 20D	Optional			
Desk Stand	Optional			

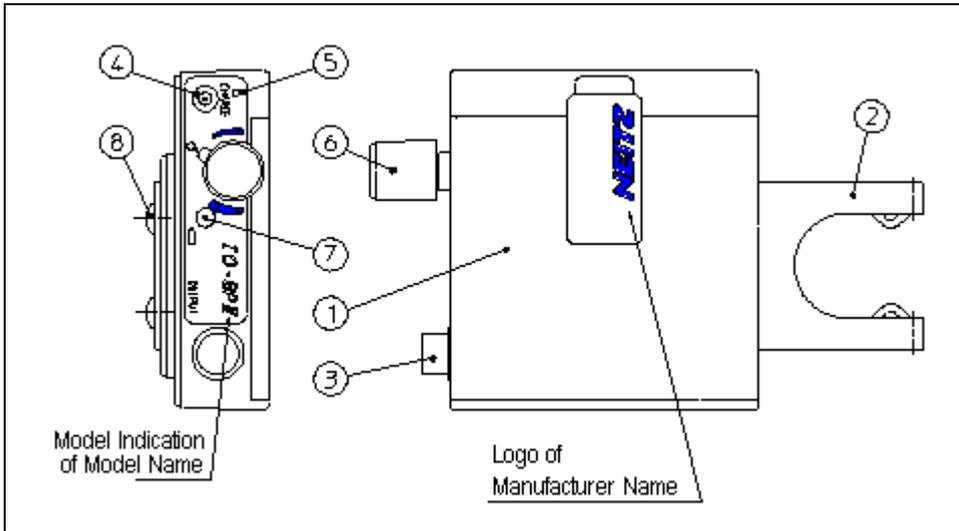
2-2 Name of part and the purpose

Main Unit (Head Set)



- ① Forehead Pad - It is removable with fastener.
- ② Cover (for Head Band Fixing Knob) – It covers the parts of gear. Do not remove it for safety.
- ③ Head Band Fixing Knob - The band shrinks, when turning it clockwise, stretches, when turning to the opposite.
- ④ Back Head Band - It moves up and down and change the angle.
- ⑤ Casing of Optic Part
- ⑥ Overband
- ⑦ Scope Fixing Knob - It is located right side from the operator's
- ⑧ Optic Part Fixing Knob -  
It located in the both side of the head set. It is to be fastened while using.
- ⑨ Lamp House - LED Illuminator is set inside.
- ⑩ Lamp House Cord -
- ⑪ Lamp House Plug -
- ⑫ Cover Glass -
- ⑬ Eyepiece - +2D lens is inserted.
- ⑭ PD Adjustment Lever - Scale for papillary distance is indicated by the Adjustment Lever.
- ⑮ Aperture Change Lever - it adjusts the aperture size, LARGE/MEDIUM/SMALL - indicated with marks.
- ⑯ Filter Change Lever – it shifts the filter - it adjusts the filter, UV, Red-Free, Cobalt Blue, indicated with the marks.
- ⑰ Illumination Angle Adjustment Knob - It is located in the both side, moves in connection each other.
- ⑱ Observation Angle Adjustment Knob - It is located in the both side, moves in connection each other.
- ⑲ Teaching Mirror Insert Guide

## Battery Pack



① Case of Battery

**⊘ Do NOT disassemble**

Don't remove a lid. Also, it is danger as it can result to have leakage, heating and/or explosion by charging battery which does not suit.

② Head Band Hook

③ Lamp House Cord Connector

④ Charger Connector

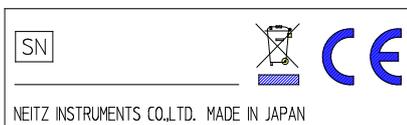
⑤ Pilot Lamp

⑥ Power Switch

⑦ Power Remain Indicator Lamp

⑧ Hook Screws

\*Description of in the base of Battery pack



.....Name of the manufacturer / Made in Japan

**SN** ...Serial Number



...Symbol for instruction that It should be separated from the general garbage, when it is disposed in the member country of European Union.



...Indication indicating that the instrument is in conformity to EU safety standard.

### 3. Operation

IO-α LED equips LED for light source and its power source is rechargeable Battery which is used repeatedly.

It features the stable illumination, long operation time, shortened recharging time.

It is necessary to use the product correctly with taking these feature and ability in account.

#### 3-1 Attach battery pack

The battery pack can be attached as follows.

Select way of attachment in accordance with the use.

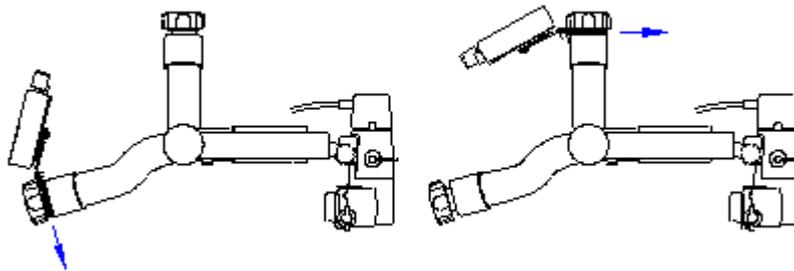
##### ① Attach battery pack to the Fixing Knobs in the main unit

It is the way to unite the battery pack and main unit without complication but it increase the total weight of it.

It can be attached to the either top and back head Band Fixing Knobs.

Chose the either way of attachment that is good in balance by trying on it actually.

The head band hook is installed to the battery pack originally in the set.



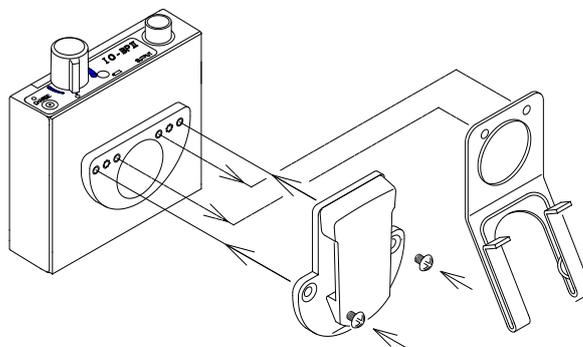
The head band hook firmly to the end firmly.

##### ② Attach to waist belt

With exchanging Head Band hook to Belt Hook, the battery pack can be attached to waist belt.

Remove 2 screws those which fix the Head Band Hook, attach Belt Hook and fix it with the same screws.

Fix the Belt Hook at the screw holes suitable to the screw holes of Belt Hook.



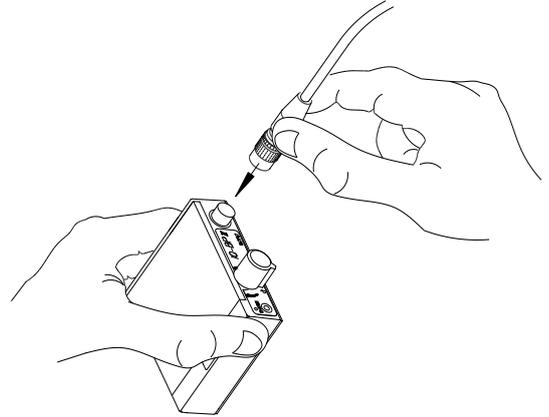
③ Use the Battery Pack placed in the pocket in the close or anywhere like table.

In this way of use, Battery Pack can be used without hook. In this case, pay attention that the Battery Pack is placed stable and/or it does not catch anything.

### 3-2 Lamp House Plug to Connect Battery Pack

Connect Lamp House Plug to Lamp House Cord Connector(it indicated as OUTPUT).

Hold Lamp House Plug at the black rubber sleeve, insert it to Lamp House Cord Connector of Battery Pack.



The Plug and the connector must meet at one position so find the position by rotating the Plug.

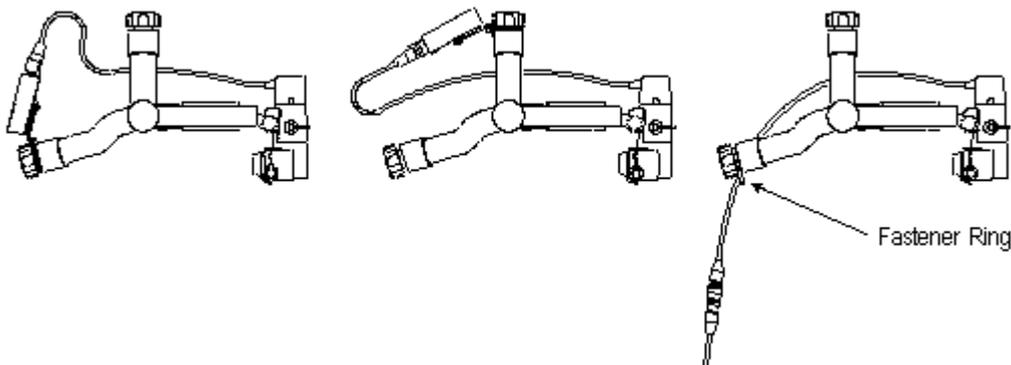
Insert the Plug firmly so that the Plug and Connector are locked by ring in the Plug with a sound.

\* For disconnecting Lamp House Plug, hold the Plug at the metal ring by the connector, pull it out from the Lamp House Cord Connector. To rotating the metal ring do not disconnect the Plug.

\* Use Extension Cord, connected between the Lamp House Plug and Lamp House Cord Connector to extend the length, when use Battery Pack placed in the pocket in the close or anywhere like on table. In such case, to put Fastener Ring over Head Band Fixing Knob in the Back Head Band and let the Cord through the Ring so as to have the Cord come down from the right back of Back Head Band can reduce the complication.

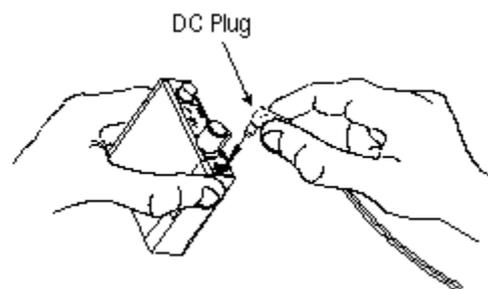
(Refer drawing – Appearance of connection below.)

### Appearance of connection



### 3-3 Recharge the Battery Pack

It is necessary to recharge the Battery Pack before operation.



Plug the AC Adapter(Pin sticking out from the AC Adapter) to electric outlet and connect DC Plug in the tip of cable to Charger Connector in the Battery Pack(with indication of "CHARGE") to the end.

Pilot Lamp lights ORANGE, while charging, lights GREEN, when the charging completes.

Battery is charged fully in about 2.5hours, when it is empty; it depends on the rechargeable battery used.

When charging is completed, disconnect AC Adapter from electric outlet and disconnect DC plug from Charger Connector.

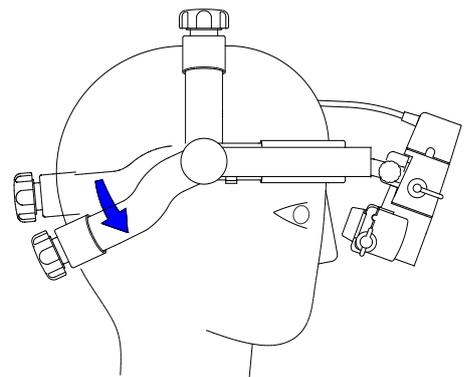
\* Connection and disconnection of DC plug should be made politely with using fingers as indicated in the drawing above.

\* It is possible to recharge the Battery Pack as the Lamp House Plug is connected to Battery Pack. But it does not turn on the LED.

\* Even if the Battery is fully charged once, the operation time can be shortened as it can discharge, if it was left for long time.

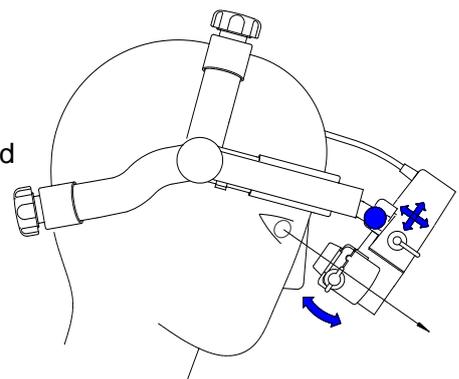
### 3-4. Positioning of the Head band

- ① Loosens the rear fixation knob, wear the Headband, to position your forehead to forehead pad.
- ② In the position which was the most stable to the head, fasten the rear fixation knob. It is more stable to position the rear Headband deeply in the figure.
- ③ Adjust the depth to become good position with turning the top fixation knob.



### 3-5. Adjustment of eyepiece position

- ① Holding the eyepiece section in one hand, loosen the eyepiece fixation knob.
- ② Adjust the position of the eyepiece section with moving up and down to get best viewing.
- ③ Tighten the eyepiece fixation knob and fix the position.



### 3-6. PD adjustment

- ① Rotate the observation angle adjustment knob toward large. (pictorial indication ● → ● )
- ② When placing your thumb at about 400 mm of the front of the main unit and viewing it with one-eye alternately, slide the PD adjustment lever as it becomes the center of eyesight.

### 3-7. Illumination's lighting-up

- ① Turn on power switch (  display ) and rotate and adjust the bright control in appropriate

brightness. (  shows brightness pattern) . There is a click sense in intermediate position of the power switch.

#### About Power remain indication lamp

The indication lamp changes the color depending on remaining amount of the rechargeable battery shows with  ) . Use in the remaining amount which has leeway to the time to use.

Before use, fill beforehand and make charging.

Illumination in green ..... Still remaining amount

Illumination in orange.....Charge at once because lighting-up are few.

Illumination in red.....The lighting-up doesn't do the stable operation(because of getting dark, blink). Stop use and charge immediately.

#### ② Change of Aperture size

Choose a necessary Aperture size with rotating the aperture change lever

#### ③ Selecting of Filter

Select a necessary filter with rotating the filter change lever.

UV filter..... It is a use position in general. There is not a change of the tone of color in observation.

Red-free filter ..... It displays the vein black and good contrast.

Cobalt blue filter.... It uses in observation using the fluorescent dye.

### 3-8. The observation

#### ① Holding aspheric-lens (the option article) in one hand and put illumination light in the papillary-area of patients eye

When attaching a finger with the empty hand which has an aspheric-lens at this time to the face of the patient, the position become stable for the examination.

#### ② When placing an aspheric-lens in the position which approached the patient's eye, gradually moving the lens away from the eye, best suitable position for fundus examination can be found. If the reflection from the surface of the aspheric-lens interferes in the fundus examination, tilt the lens slightly.

※ The distance between the patient's eye and aspheric-lens differ according to the frequency of the aspheric-lens(diopter).

+14-16 Diopter. It is bright and the magnification is high, but shortsighted.

+20 Diopter It is often used in general.

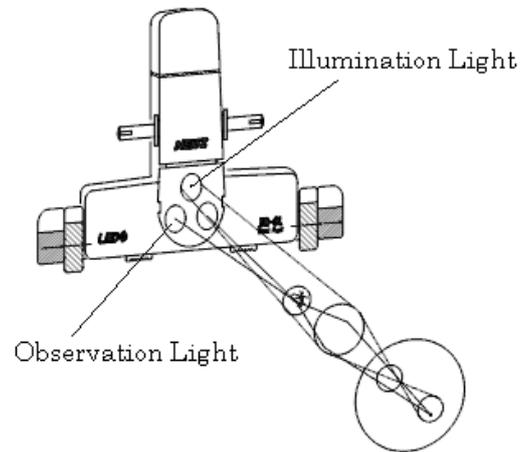
+28-30 Diopter It is dark and the magnification is low, but wide visual for observation.

#### ③ Use by the condition of the pupil diameter.

Use a way of observing by the condition of the pupil diameter.

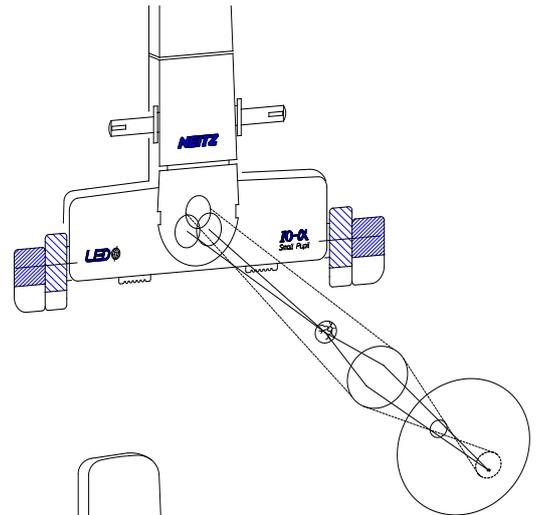
### Observation in Large Pupil

Rotate illumination angle adjustment knob and the observation angle adjustment knob toward upper side. The illumination light moves away from observation light and the observation angle becomes large. The observation is easy, and the binocular vision is in the good condition, too.



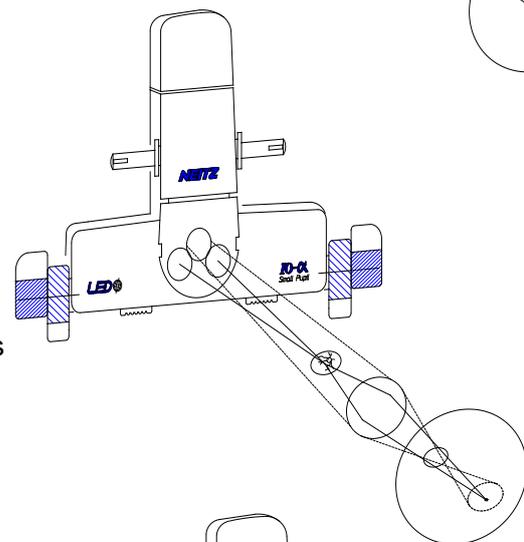
### Observation in Small Pupil

Rotate illumination angle adjustment knob and the observation angle adjustment knob toward under side. The illumination light moves close to the observation light and then the observation angle becomes small.



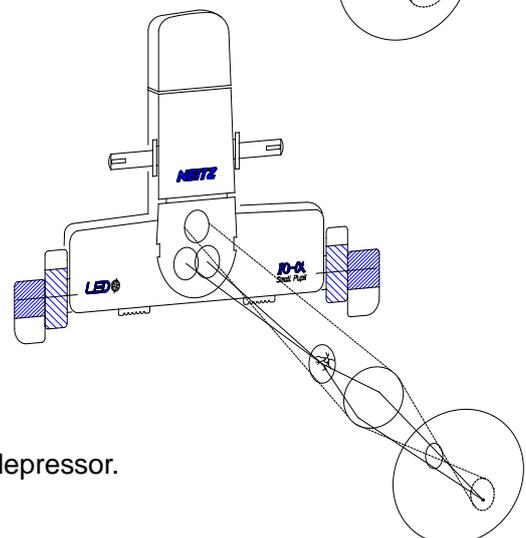
### Observation in Horizontal flat Pupil

Rotate illumination angle adjustment knob toward under side and the observation angle adjustment knob toward upper side. The illumination light moves close to the observation light and then the observation angle becomes large.



### Observation in Vertical flat Pupil

Rotate illumination angle adjustment knob toward upper side and the observation angle adjustment knob toward under side. The illumination light moves away from the observation light and then the observation angle becomes small.



④ Observe peripheral of the fundus

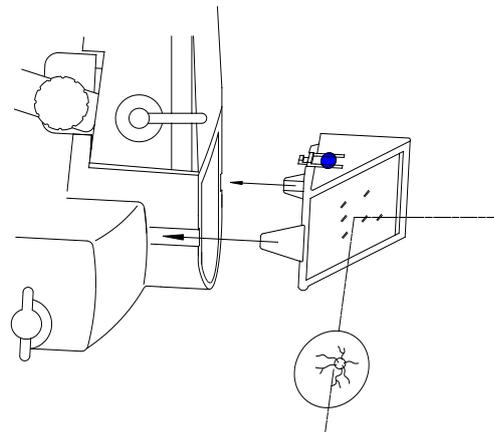
Observe target sclera while pressing it with using scleral depressor.

⑤ Sharing of fundus image

Insert the teaching mirror to the outlet of the teaching mirror, and then the same image which the examiner observes can be seen from the side of the mirror.

The insert can be provided at Both side of the mirror.

When detaching, pull out the mirror by pressing upper and down part. (figure ●)



### 3-9. Lighting off of Illumination

After completion of the examination, make sure the lighting off of the illumination by rotating the power switch until the position of (  display).

## 4. Maintenance

### 4-1. Cleaning

#### Cover glass and glass part of eyepiece part

Remove dust and alien substance with the blower and so on.

Wipe the surface with soft cloth impregnated with mild solution of neutral detergent and glass cleaner.

Be careful so as not to touch directly with the finger regardless of the time of the maintenance in use.

#### Terminal part

Remove dust and alien substance with the cotton swab and the blower and so on.

#### Front-pad

Detach it and after the massage wash with the laundry detergent, make dry up.

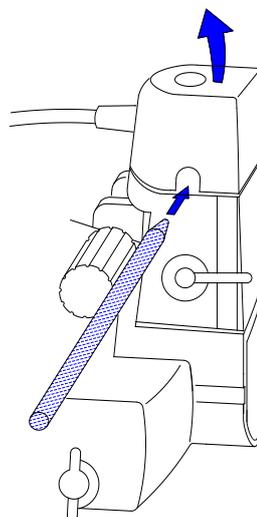
#### Other exterior part

Wipe with soft dry cloth or soft cloth impregnated with mild solution of neutral detergent.

### 4-2. Exchange of the LED sphere

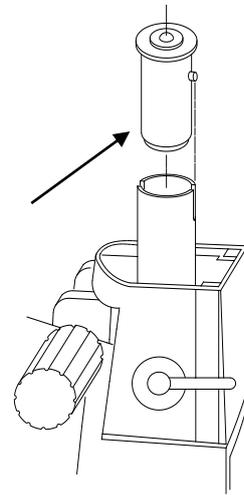
Because the LED of the light source is a living long life, there is need of the exchange hardly. In case of the exchange is necessary, the procedure is as follows.

- ① Make sure that the power switch is turning off.
- ② Pull out the Lamp house cover toward above by pressing indent part ( either side which is in the lamp-house) with like the stick.



- ③ After pulling out the old LED sphere, Insert the new LED sphere along with the ditch of the socket. There are two ditches but they can be inserted in both side.

The LED sphere



- ④ Push the Lamp house cover into the original condition until it clicks.  
 ⑤ Make sure the lighting by turning on the power switch.

## 5. Troubleshooting

When not working normally, confirm the following contents.

However, when the problem doesn't solve, stop use and inform the address of the back of the book of it.

Symptom	Confirmation matters	Procedure
Illumination does not light.	Is the connection of the code right?	→ Connect right.
	Isn't DC plug inserted?	→ Pull out.
	Has the battery pack charged?	→ Charge the battery.
Illumination is dark and It blinks.	Isn't it choosing the dark filter?	→ Attempt to change the filter.
	Doesn't the remaining amount light become red lighting-up?	→ Charge the battery.
It isn't possible to use long even if it makes full charging.	How's operating time of the battery pack? ※ The charging battery is consumables. If the charging time becomes long and working time becomes short, operating time is over.	→ Ask the distributor at your site to exchange it.
Unevenness or shadow of illumination	Are there not dirt and alien substance on the cover glass?	→ Clean them.
	Are the filter and the aperture becoming a halfway position?	→ Change the position until it clicks.
The image fades in observation	Are there not dirt and alien substance in the eyepiece part and the observation mouth?	→ Clean them.
	Isn't the aspheric-lens dirty?	→ Clean them.



(15) Safety, the standard

Main unit, the battery pack (IO-BP II)

: JIS T0601-1:1999 conformity

Degree of the protection of the approaching by water, particle : IPX0

AC adapter : PSE, UL, CUL, FCC, CE conformity

Form of the protection of the shock : Inner power ME equipment

Classification of the degree to the shock : B-shaped equipment

EMC : IEC60601-1-2: 2004 conformity

8. Contact

About this product, please ask the distributor at your site or following address.

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