Operator Manual

HIS-5000 3X (Huvitz Imaging System)



Huvitz
Pacing Progress toward People

IMPORTANT NOTICE

This product may malfunction due to electromagnetic waves caused by portable personal telephones, transceivers, radio-controlled toys, etc. Be sure to avoid having objects such as, which affect this product, brought near the product.

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1. Introduction

1.1. Outline of the instrument

HIS-5000 3X (Huvitz Imaging System) is digital imaging system for slit lamp to measure and examine patient's eye by digital imaging from high resolution digital camera. HIS-5000 3X has PC based imaging software, C-mount typed camera module and some accessories like auxiliary light cable for HS-5000 slit lamp developed by Huvitz company.

1.2. Classification

Class I

2. Safety Information

2.1. Introduction

Safety is everyone's responsibility. The safe use of this equipment is largely dependent upon the installer, user, operator, and maintainer. It is imperative that personnel study and become familiar with this entire manual before attempting to install, use, clean, service or adjust this equipment and any associated accessories. It is paramount that the instructions contained in this manual are fully understood and followed to enhance safety to the patient and the user/operator. It is for this reason that the following safety notices have been placed appropriately within the text of this manual to highlight safety related information or information requiring special emphasis. All users, operators, and maintainers must be familiar with and pay particular attention to all Warnings and Cautions incorporated herein.

⚠ WARNING

"Warning " indicates the presence of a hazard that could result in severe personal injury, death or substantial property damage if ignored.

⚠ INFORMATION

"Information" describes information for the installation, operation, or maintenance of which is important but hazard related if ignored.

⚠ CAUTION

"Caution" indicates the presence of a hazard that could result in minor injury, or property damaged if ignored.

3. Features

- HIS-5000 3Xsoftware manages patient's eye images and examination information using database, and supports powerful search function by multiple conditions like diagnosis, disease, patient history, etc.

- Implemented user interface are well unified and intuitive, user can easily switch interesting patient information and choose eye images.

- High quality CCD camera using progressive scan method lively shows slit lamp imaging on PC screen, it captures frame image or movie as variable format.

- Lead Tool graphic library engine applied supports advanced image processing functions (Bright/Contrast, Color Channel, Sature, Invert, Sharpen, Red-Free, etc.) with good performance, and saves / loads as variable formatted image file (JPG, TIFF, RAW, etc.).

- Image manipulation functions of HIS-5000 3Xsoftware support comparing between selected eye images, overlaying them according to time flow, making references, etc, it helps user to fully utilize digital imaging system for effective examination.

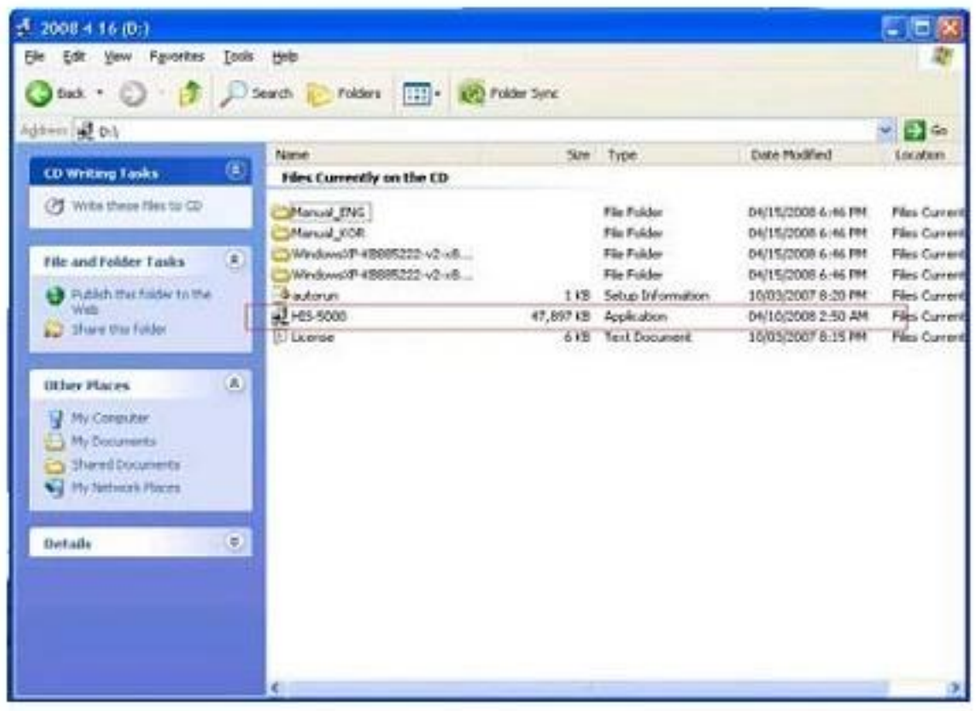
- Special functions of HIS-5000 3Xsupports automatic report generation (Microsoft Word format document), full screen presentation, printing just by one click, etc.

4. System Installation

4.1. Software Installation

Step 1. Running Setup Program

When HIS-5000 3X installation CD is inserted into CD-ROM, setup program starts automatically by auto-run. If it doesn't work or is installing from local or network drive, manually run HIS-5000 3X.exe in folder by double click.



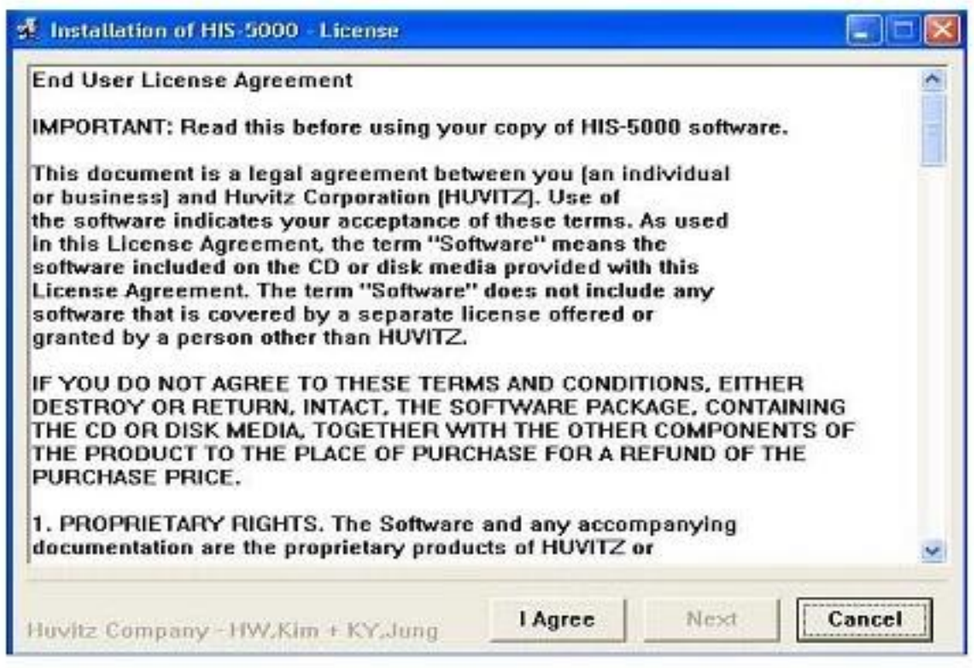
Step 2. Setup Program Window

Click 'Next' button.



Step 3. End User License Agreement

After reading End User License Agreement, click 'I Agree' button, then click Next.



Step 4. Install Folder

Select a folder to install HIS-5000 3X software. The default path is 'C:\Program Files\Huvitz\HIS_5000', click 'Browse' button to change it.



Click 'Install' button, it starts installation.



After installation completed, confirm a okay message to register Camera driver

DLL.



Step 5. Running HIS-5000 3X Software

Check 'Run application' to start HIS-5000 3X Software immediately after this installation, then click 'OK' button.



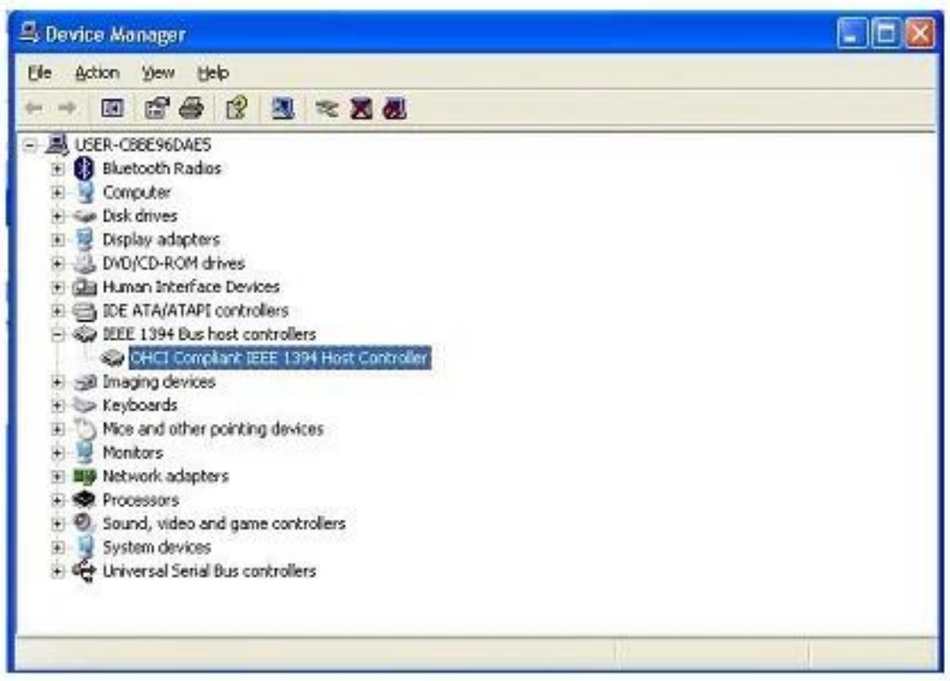
4.2. Camera Installation

Step 1. Exiting HIS-5000 3X Software

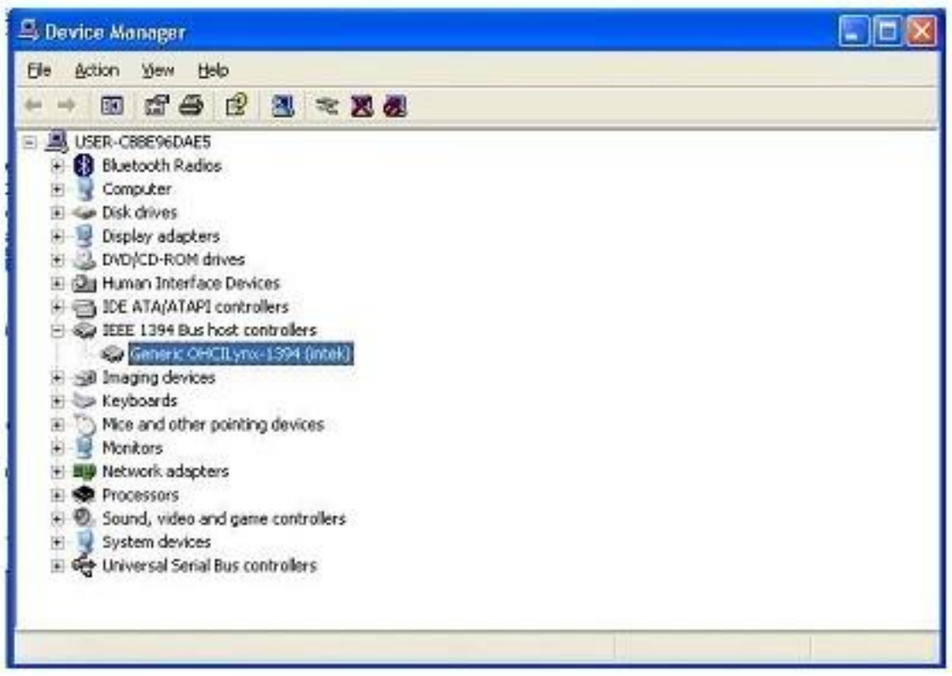
If HIS-5000 3X software is running, it must to be stopped before starting camera installation.

Step 2. Preparing IEEE-1394 Interface

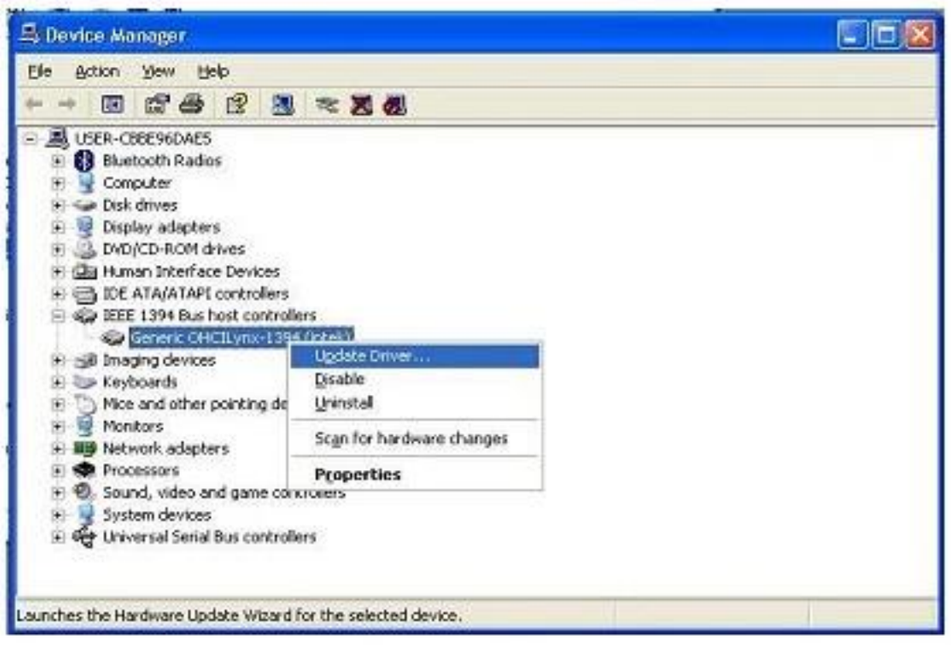
Confirm that PC has available Fire-wire interface (IEEE-1394) port, if not, prepare extension card and install it into your PC. Then go to Windows Device Manager, and confirm that its driver name is "OHCI Compliant IEEE 1394 Host Controller" under IEEE 1394 Bus host controllers.



If installed driver is different, try updating it as following process. (Contact with your PC or Fire-wire interface card maker about details.)



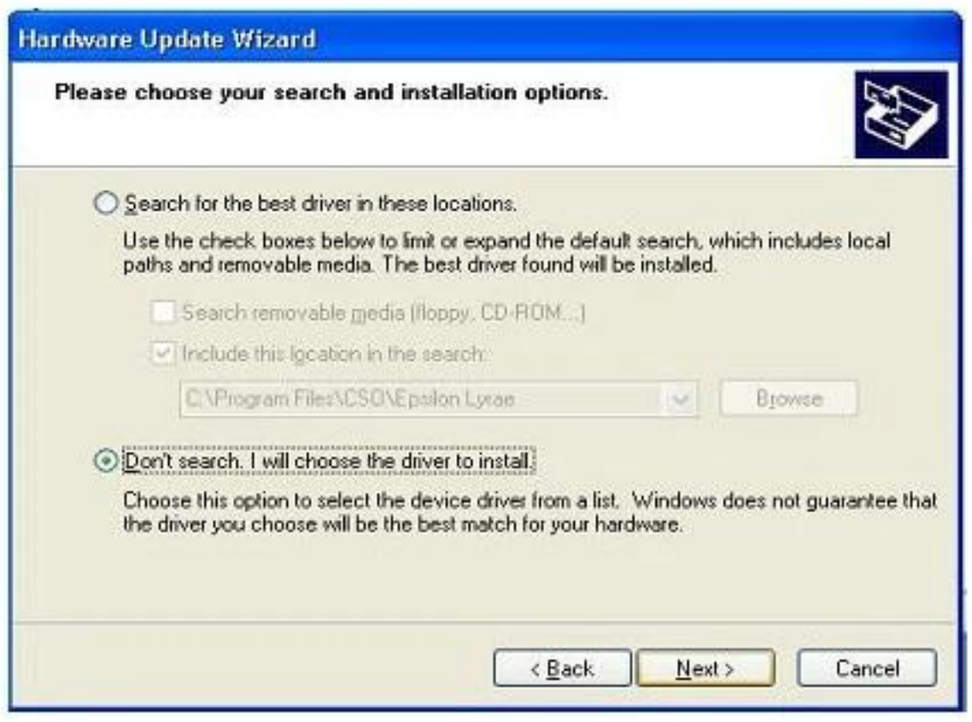
Select Generic 1394 host controller under IEEE 1394 Bus host controllers. Click right button of mouse, then select 'Update Driver…' in popup menu.



Select 'Install from a list or specific location (Advanced) in Hardware Update Wizard window.



Select 'Don't search, I will choose the driver to install', and click 'Next' button.



Select 'OHCI Compliant IEEE 1394 Host Controller' in Show compatible hardware list, and click 'Next' button.



Click 'Finish' button to complete.



⚠ INFORMATION

Generally, Fire-wire interface has two types of connections, 6 pin port (with power pins) or 4 pin port (without power pins). Camera module needs power supply via Fire-wire connection, so if your PC has just any 4 pin port, you should add Fire-wire expansion card having 6 pin port.

Unfortunately, if your PC is a laptop computer which PCMCIA card installed for Fire-wire interface with 6 pin ports, that kind of extension can't supply sufficient power into camera, so it doesn't work. To solve this problem, prepare PCMCIA card having external power input port, and connect it with power jack (Contact with your PCMCIA extension card maker about it), or prepare Fire-wire cable itself having external power input connector, in this case, 4 pin port is also available.

Step 3. Installing Camera Driver

Connect camera module with PC via Fire-wire cable. If this connection is the first try after software installation, then pop-up New Hardware Wizard window.
Select 'Install from a list or specific location (Advanced)', then click Next.



Select 'Don't search, I will choose the driver to install', then click ' Next' button.



Select 'FireWire Digital Camera' in Show compatible hardware list, then click Next button.



Click 'Continue Anyway' in Hardware Installation window.



Click Finish button to complete.



Go to Windows Device Manager, then confirm that camera driver name is 'FireWire Digital Camera' under Imaging devices.



Step 4. Starting Camera Display

Run HIS-5000 3X software, then click 'Start Camera' button in menu bar.



Click 'Start Camera' button in camera window.



Step 5. Updating Camera Driver

After software and camera driver installation, if camera module is changed to another one and connected, its camera driver may be recognized as wrong device, or the new version of camera driver is released, it needs to update.

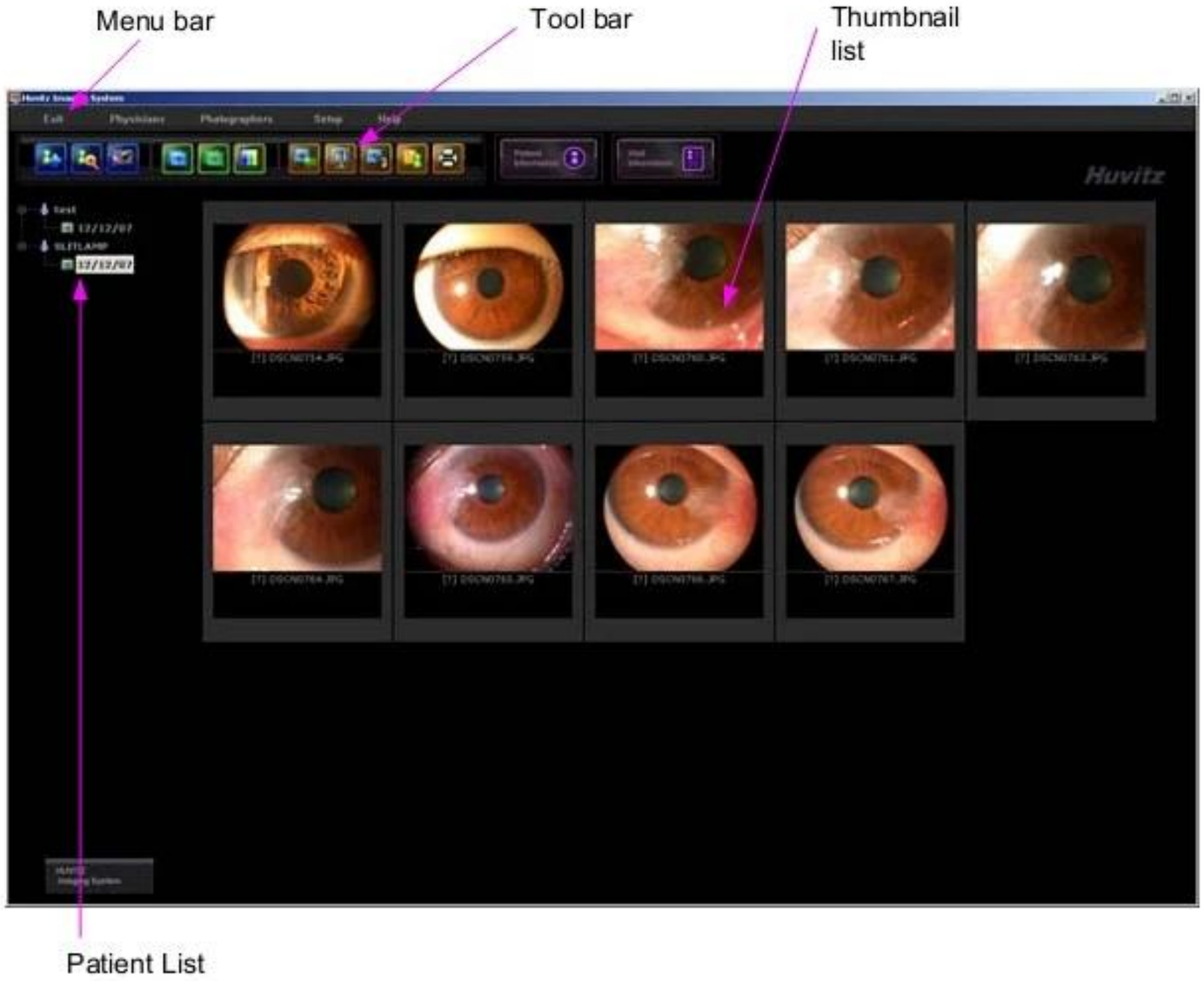
Connect camera module with PC, then go to Windows Device Manager and select camera driver ('Generic 1394 Desktop Camera' in case of change of camera module, 'FireWire Digital Camera' in case of upgrade driver).



Click right button of mouse, and select 'Update Driver…' in popup menu, then update driver in Hardware Update Wizard, next steps are same with the process of camera driver installation.

5. Main Window

When you run HIS-5000 3X software, it shows Main Window like [Figure 1], which is the starting point of all other windows. Main Window is composed of menu bar, tool bar, thumbnail list, patient list.



[Figure 1. Main Window]

5.1. Main Menu

Main Menu is composed of the following menu items.

[Exit]

Ends HIS-5000 3X software.
Note that all changes of patient information and eye images are saved automatically before closing it.

[Physicians]

Opens Physician Management window to register physician information which can be assigned for Visit Information of patient.

[Photographers]

Opens Photographer Management window to register photographer information which can be assigned for Visit information of patient.

[Setup]

Opens Setup window to configure this software.

[About]

Opens About Window which shows the software version information of this running program.

5.2. Main Toolbar

Main Toolbar is composed of the following menu buttons.



[New Patient]

Opens New Patient window to insert patient information.

Newly added patient's name and patient ID (optional) will show up at top of patient list of main window with an exam named today's date. At first, the exam is empty, doesn't have any images, so start camera to capture new images or import existing image files from directory.

Note that the patient and its empty exam in patient list will be deleted when you move to another exam without adding any images. If you want to do that, select 'No' in message box.



[Search Patient]

Opens Search Patient window to find someone with variable conditions.

Found, then opened patient is selected in patient list of main window, and images of the last exam will show up in thumbnail list. If patient list hasn't the found before searching, it will appear at top of patient list.



[Start Camera]

Opens Camera Window to display and capture image from camera.

Note that camera module must be connected before starting camera, if not, error message will shows up.

Captured images are added into currently selected exam in patient list, and shows up in thumbnail list. If selected exam is not today's, new exam named today are automatically added under the current patient into patient list.

After capturing images, if there is no any selected exam or patient in patient list, new patient named 'Unknown' and its exam named today's date with the captured images will be added into patient list. Unknown patient's name can be modified in Patient Information Window.



[Overlay Images]

Opens Overlay Window to examine images using overlay effect.

Note that it must be selected over two images in thumbnail list of main window before starting Overlay Window.

INFORMATION

It is allowed to select several images around all exams of one patient, so it can be possible to overlay or compare with images selected in each exam according to dates. However all selections are cleared when the current patient is changed in patient list.



[Compare Images]

Opens Compare Window to examine images in parallel.

Note that it must be selected over two images in thumbnail list of main window before starting Compare Window.



[Adjust Color]

Starts Adjust Color mode instead of thumbnail list in main window.

Note that it must be selected over one image in thumbnail list of main window to start Adjust Color mode, or double click on any thumbnail image.

In Adjust Color mode, this button is switched to Thumbnail button.



[Thumbnail]

Starts Thumbnail list instead of Adjust Color mode in main window.

In Thumbnail mode, this button is switched to Adjust Color button.



[Import Image]

Opens Open File Dialog box to import images from directory.

It is allowed to import several image files at a time in Open File Dialog box. Imported images are added into the current exam, and shows up with previous images in thumbnail list.



[Slide Show]

Opens Slideshow Window to display full screen sized image.

Note that it must be selected over one image in thumbnail list to start.



[Reference Image]

Opens Reference Image Window to register image as reference.

Note that it must be selected over one image in thumbnail list to start.



[Make Report]

Generates a Report document including patient, visit information and selected eye images in thumbnail list as Microsoft Word format.

Note that it doesn't work if Microsoft Word application not installed.



[Print Image]

Prints the selected images.

Note that it must be selected over one image in thumbnail list and this printing uses the default settings for printer.



[Show Patient Info]

Opens Patient Information Window to edit the selected patient.

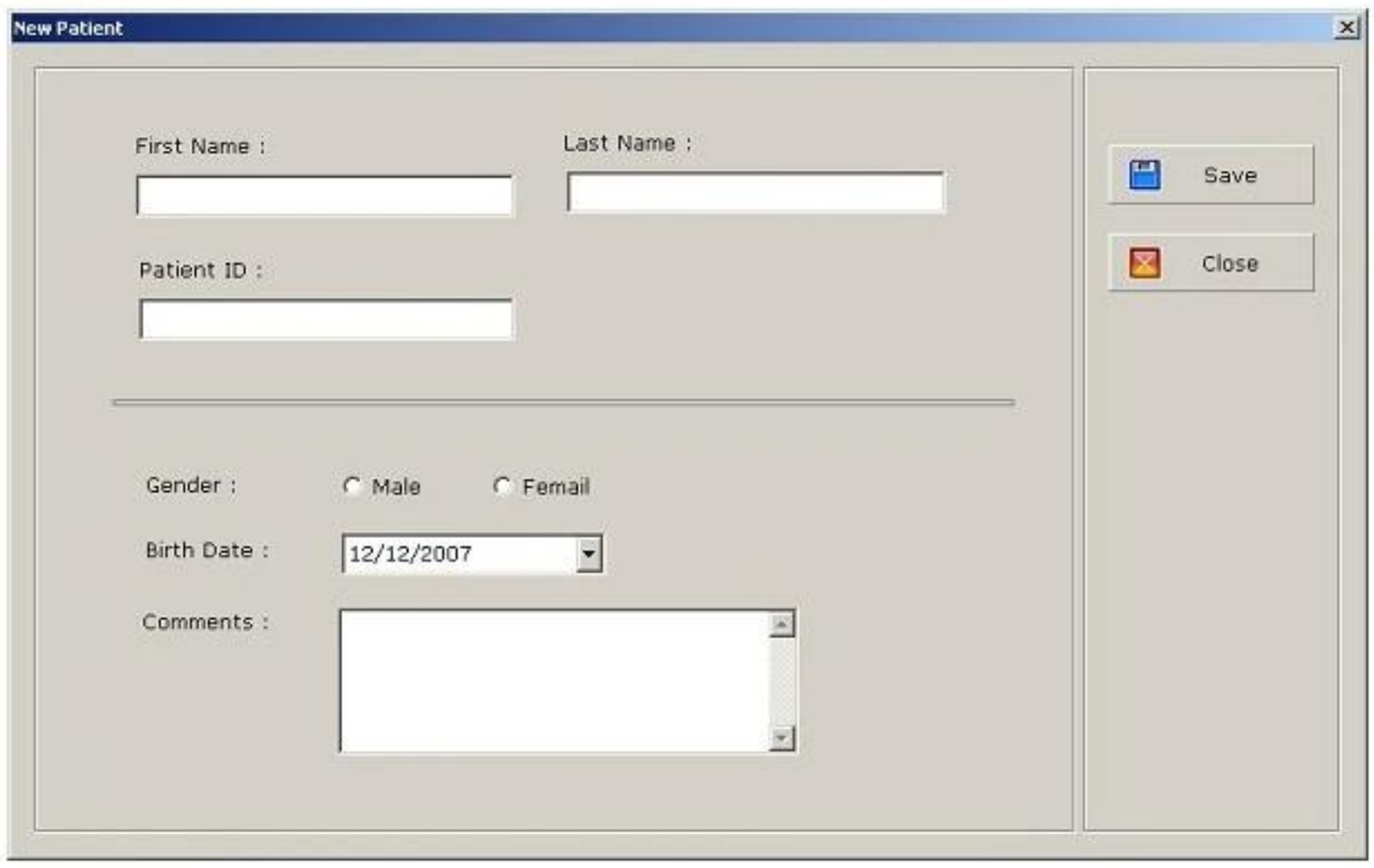


[Show Visit Info]

Opens Visit Information Window to edit the selected exam.

6. Patient Management

6.1. Patient Register



[Figure 2. Patient Register Dialog box]

When  [New Patient] button of the toolbar presses, with Figure 3 the patient registration dialog box appears.

① First Name

It inputs the Surname of the patient.

② Last Name

It inputs the name of the patient.

③ Patient ID

It inputs the ID of the patient.

④ Gender

It probably is a male, it probably is a female, it selects.

⑤ Birth Date

It inputs a birth date of the patient. It will show today's date as default.

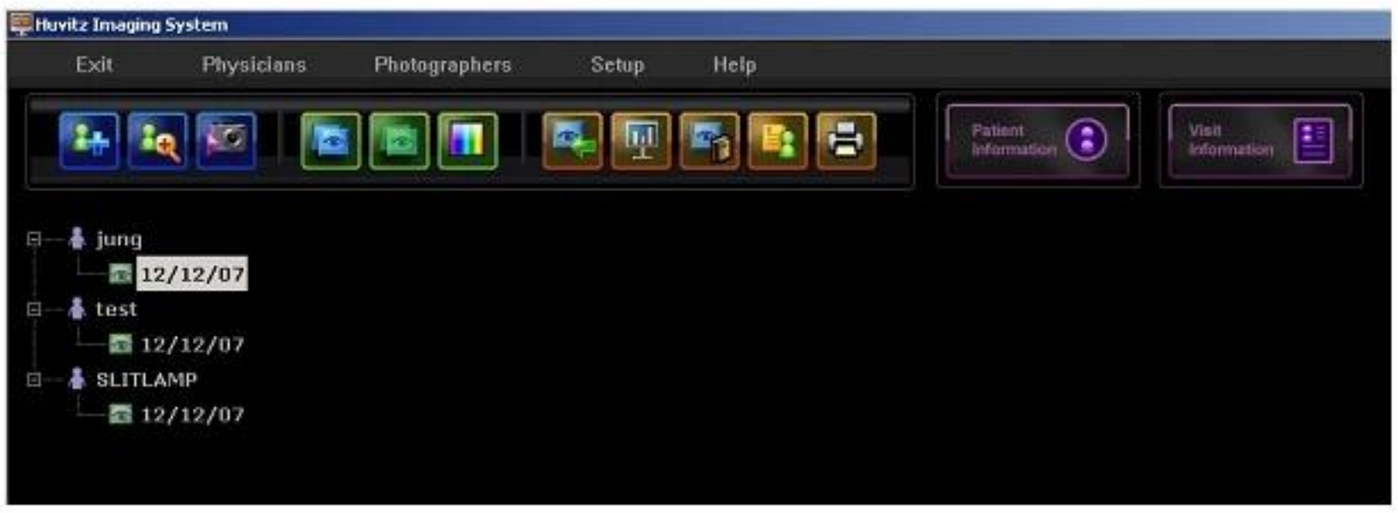
⑥ Comments

It records the unique fact against the patient when is interview with the patient.

INFORMATION

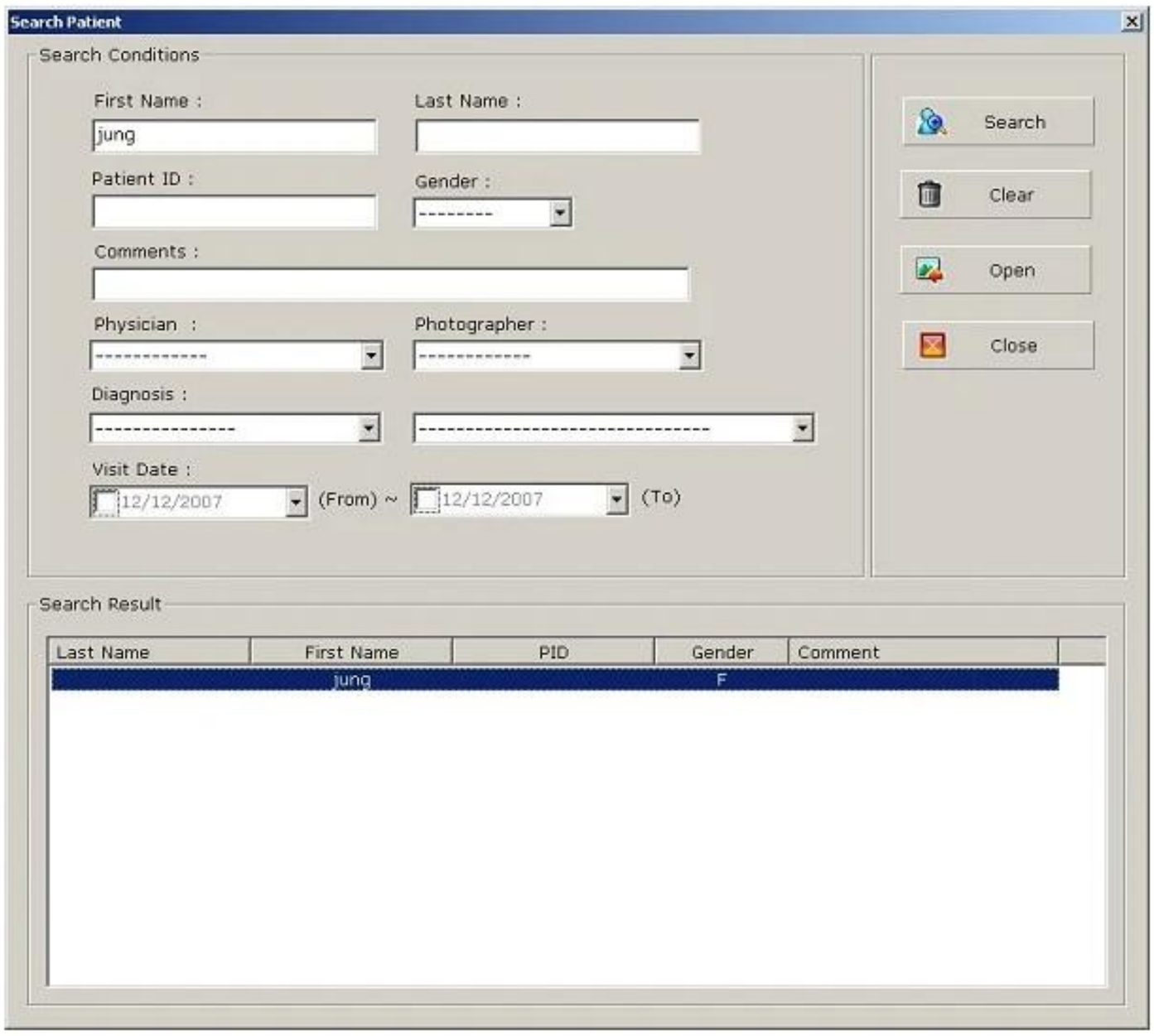
The First Name or the Last Name must be input cettainly and the the patient registration is possible. The remaining item inputs selection.

After completing an input in each item, when [Save] button presses, It appear the patient name and measurement date in the main patient list area.



[Figure 3. Patient Registration Result]

6.2. Patient Search & Open



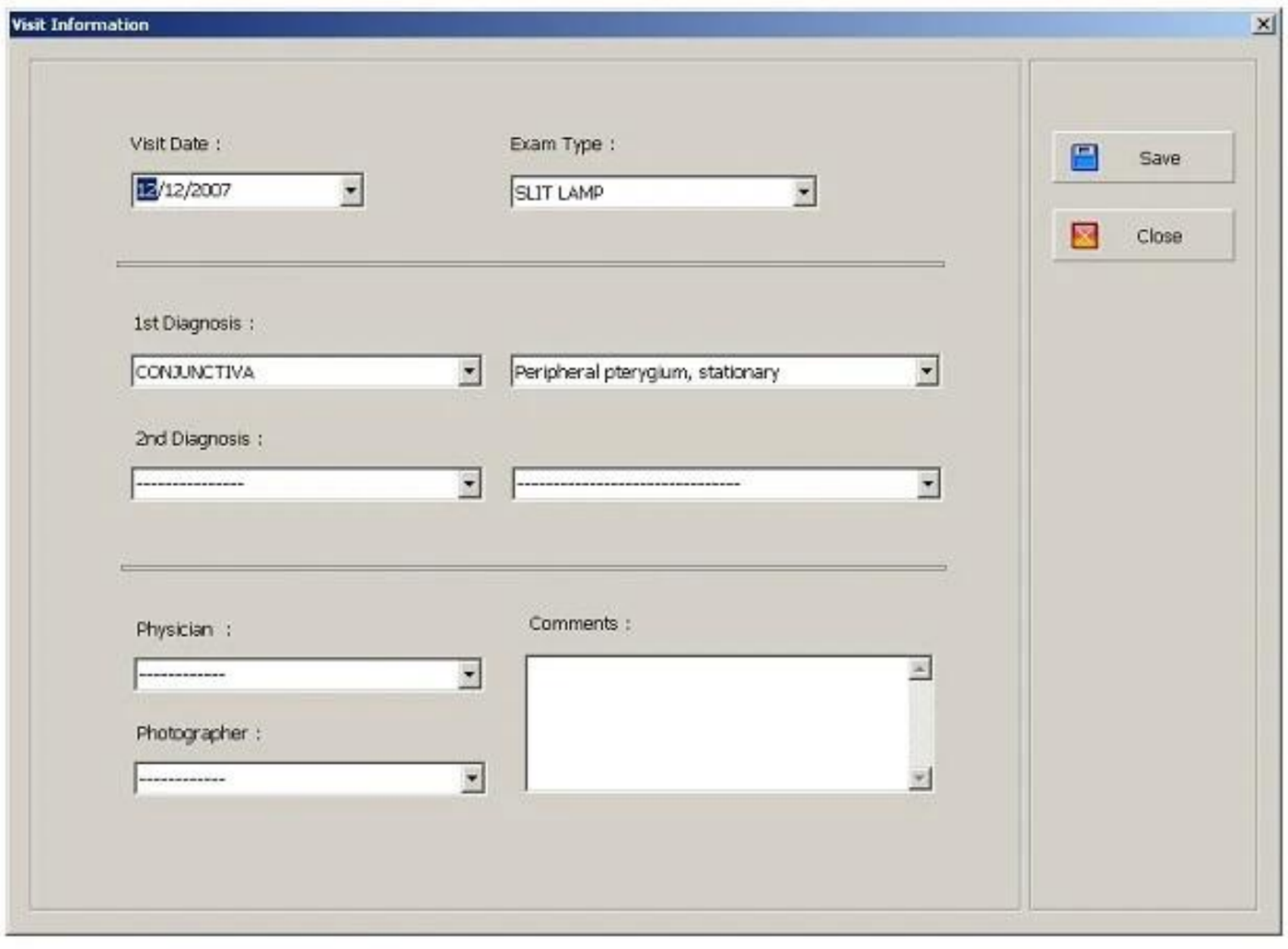
[Figure 4. Patient Search Dialog box]

When  [Search Patient]->[Open] button of the toolbar presses, with Figure 5 the Patient search dialog box appears. The First Name or Last Name it inputs the item and [Search] button it presses it inspects the list of the patient who is register comes out. One of the list to select [Open] button presses, will can show the image of the patient whom it selects. [Clear] the button removes the contents which it input in item.

6.3. Patient Information

When  [Show Patient Info] button of the menu bar presses, currently information dialog box of the patient who is selected appears. This dialog box is same with patient registration dialog box. It confirms information about the patient and charge surgeon and unique fact. When it modifies, it is showing.

6.4. Patient Visit Information



[Figure 5. Patient Visit Dialog box]

When  [Show Visit Info] button of the menu bar presses, currently the Visit dialog box of the patient who is selected appears. It will be able to confirm all Exam information about one patient and from charge surgeon's opinion, unique fact, patient image and so on..

① Visit Date

It shows a Exam measurement date.

② Exam Type

It shows the type of measurement image. The Slit-lamp is selected generally, there is in the type which is different.

③ 1st Diagnosis

It shows from a physician's opinion. Physician will be able to record the First condition of the patient in this item.

④ 2nd Diagnosis

It shows from a physician's opinion. Physician will be able to record the Second condition of the patient in this item.

⑤ Physician

It will be able to select the physician in this item. It will be able to register the physician in the physician management dialog box.

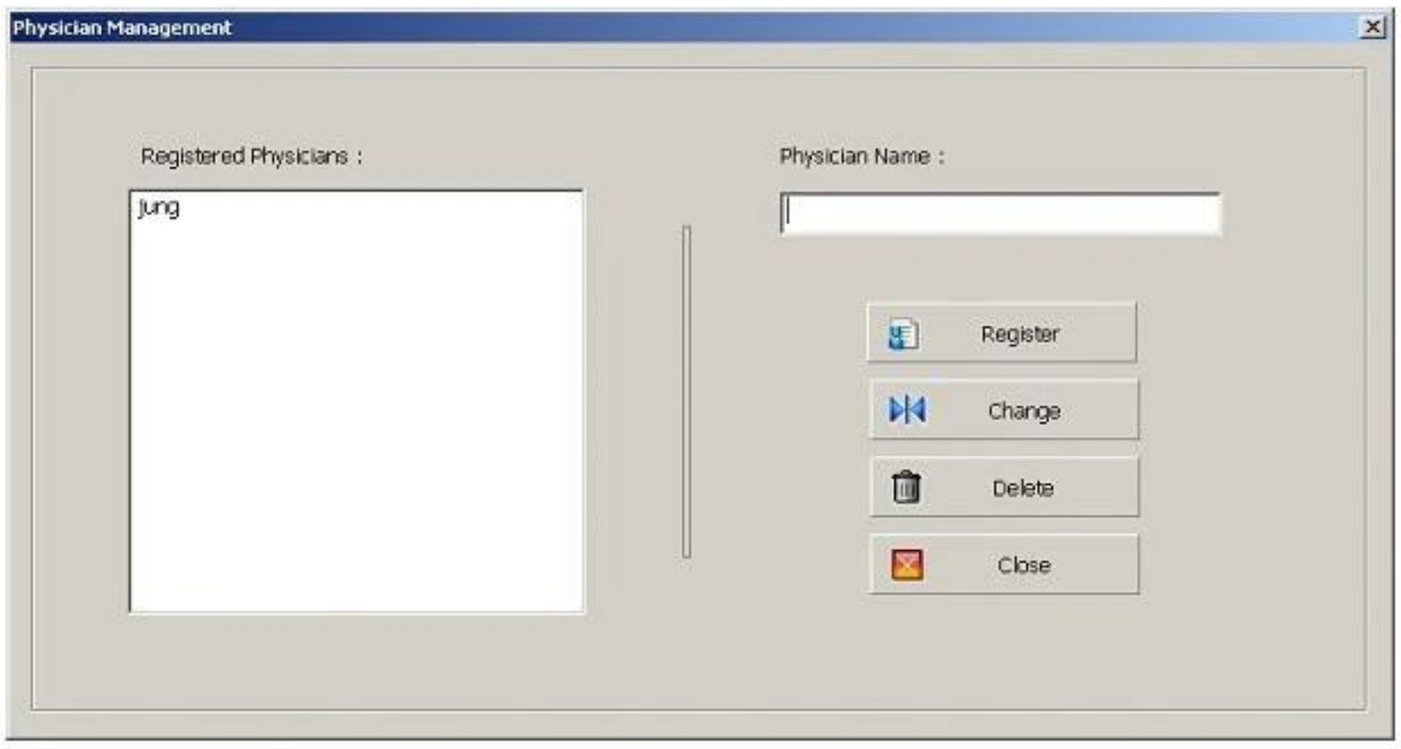
⑥ Photographer

It will be able to select the photographer in this item. It will be able to register the photographer in the photographer management dialog box.

⑦ Comments

It shows other unique fact.

6.5. Physician, Photographer Register



[Figure 7. Physician Management Dialog box]

When [Physician] button of the menu bar presses, appears physician management dialog box.

① Registered Physicians

It shows the physician which is register.

② Physician Name

It register it inputs the physician name.

After inputting the Physician Name, [Register] it presses the button and it is register and it appears. When it selects the list which is register it will be able to change a name.

INFORMATION

It seems to the photographer register dialog box with the physician register dialog box, and it will be able to register and delete.

6.6. Patient Image Function

it select an image from the Thumbnail bar and when it will press the mouse's right button and with Figure 8 the same menu window will appear and it will be able to accomplish a some function about an image.



[Figure 8. Image Popup menu]

① Eye Side

It shows the direction which probably is a right eye(OD), probably is a left eye(OS) where the eye image which is measured. (OD/OS/Unknown)

CAUTION

The Joystick it use the button and Becomes the indication which it probably is a right eye(OD), it probably is a left eye(OS), but [Camera Capture] button, it uses the button at the PC and it is indicated 'unknown' when is measured.

② Write Note

It inputs the contents which is simple about an image and it indicates.

③ Copy to Clipboard

It will copy an image in the clip board and it will be able to paste.

④ Save as File

It stores an image in PC.

⑤ Delete

It deletes an image.

6.7. Patient Exam Delete

When it selects a visit date from patient list area, it will be able to confirm the image which is measured. All it selects the image which is measured and the mouse's right button presses and when [Delete] it selects, the image is deleted. It is selected the different patient from the visit date which is selected and with Figure 9 the same dialog box appears and it deletes the Exam.

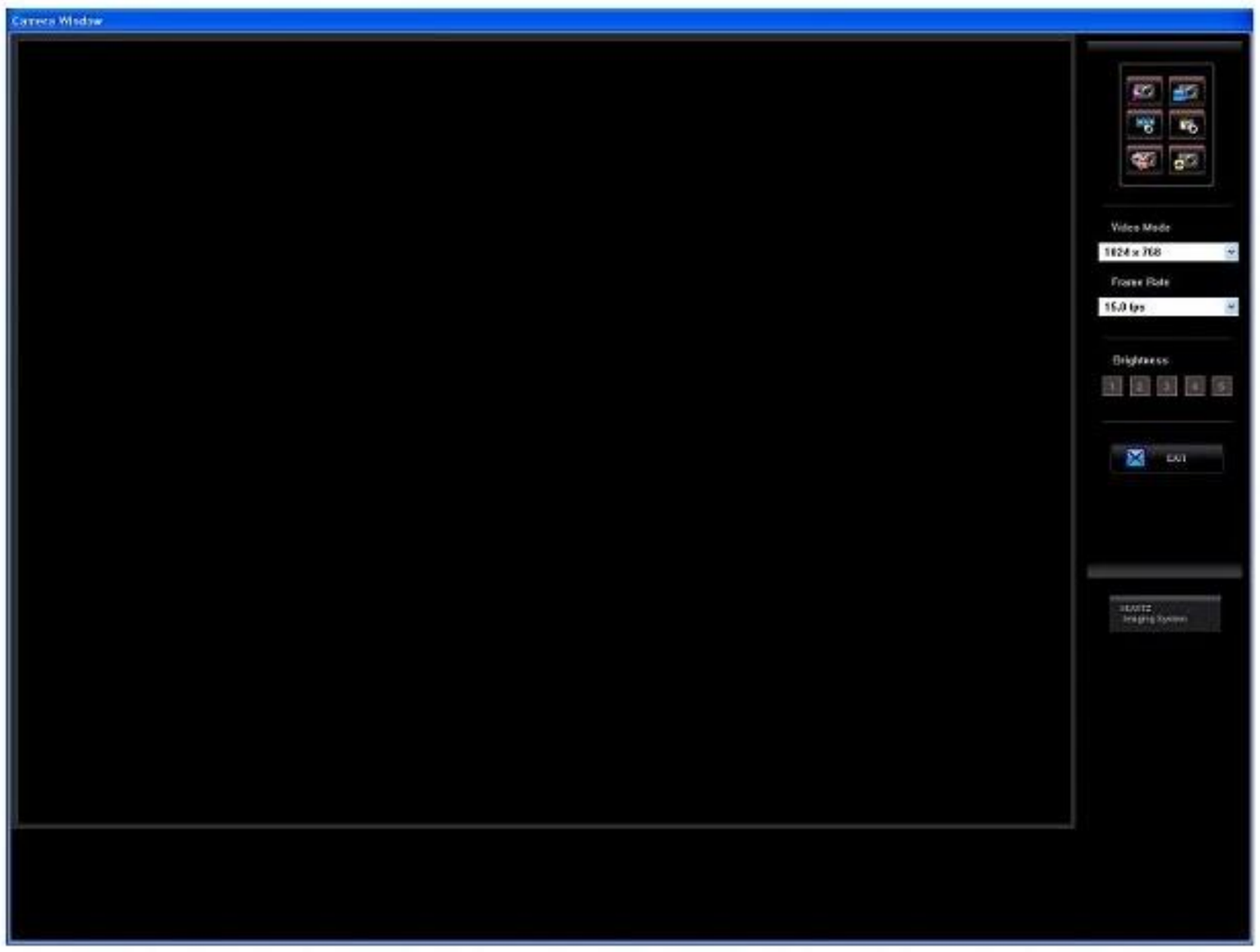


[Figure 9. Patient Exam Delete Dialog box]

7. Measurement

7.1. Camera Start

When  [Start Camera] button of the toolbar presses, with Figure 10 the Camera measurement dialog box appears. When it is like that, measurement it is to be a condition which is possible.



[Figure 10. Camera Window]



[Camera Start]

It starts the camera which measures an image.

CAUTION



or



With above the same error window will float and there is not a possibility which it will measure and, This it means that the camera driver is not well established. Like this case, refers to 9. Appendix 9.2 and must update the camera driver. When only once it is set initially accurately, not to appear again.

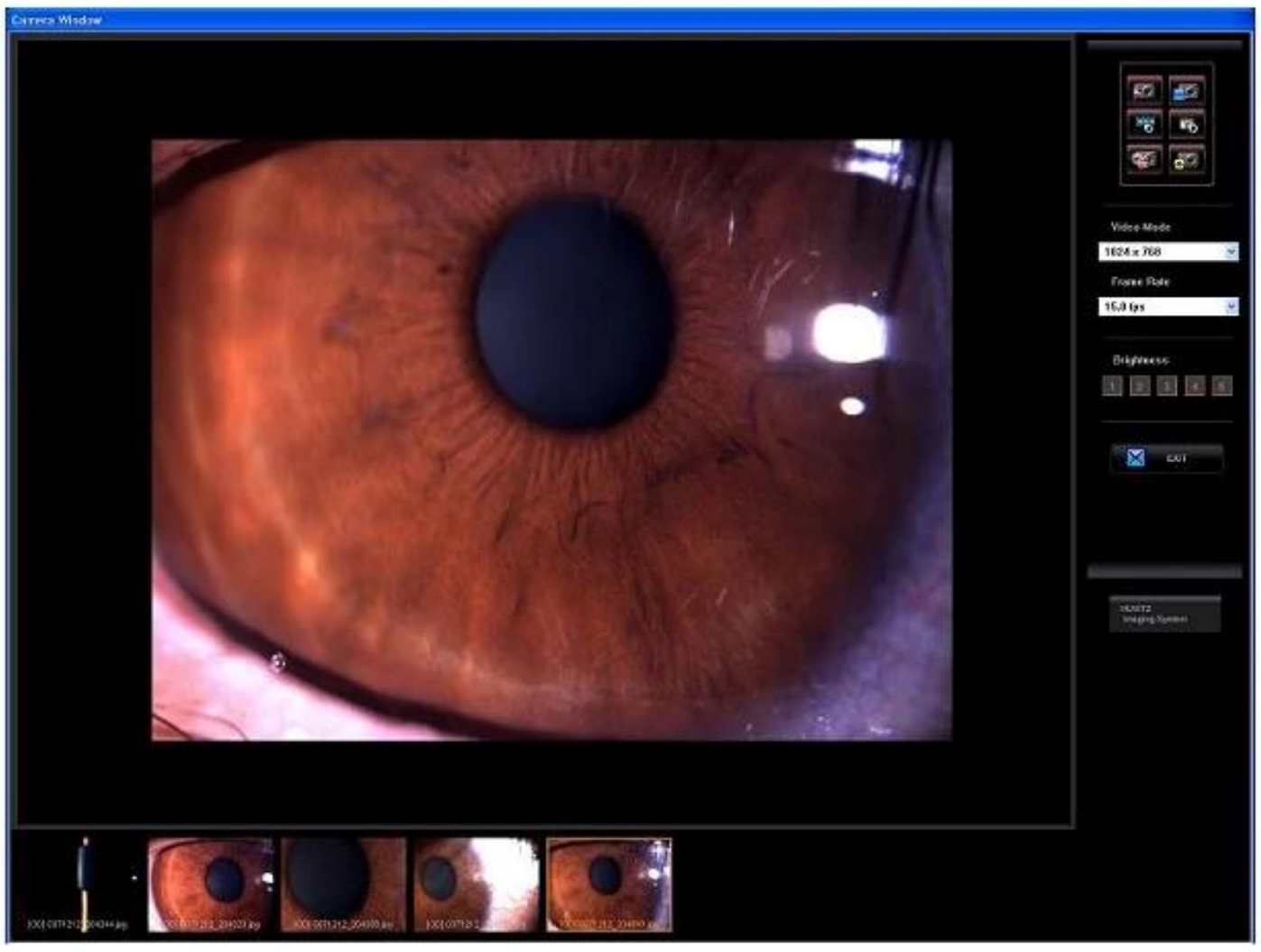
7.2. Camera Capture



[Camera Capture]

When the camera is started, the eye image of the patient appears and it stores this button the still screen consecutively from the screen which it wants measuring.

[Camera Capture] button in the camera window, this button will be able to measure the image which wants measuring. This button the case which will press the camera start button, it is activated. The case where the camera will not be started it will not be able to measure.



[Figure 11. Camera Capture]

When with Figure 11 it presses the measurement button, the image which is measured Thumbnail bar appears. To above the image which is measured it probably is a right eye(OD), left eye(OS), it is indicated, the file name of image appear. The image which is measured does not appear in the screen view and the camera image continuously appears at real-time. [Exit] button will be able to confirm which is measured.



[Camera Record]

The Avi video file as decide time it stores the eye image of the patient.

7.3. Camera Stop



[Camera Stop]

It stops the camera.

The measurement is completed or it sees the image which is measured, if [Camera Stop] button presses, it will disappear the camera image. And it will be able to see the image which is measured. When it presses this button, it appears the last image which is measured in the screen view. When it wants see the different image, have to selected the different image in the thumbnail bar. The image which is selected is indicated to yellow color rectangle in the thumbnail bar. And if the [Exit] button presses, it will be able to adjust the image which is measured.

7.4. Camera Reset



[Camera Reset]

It initializes the camera property.

Initializes the settings of the camera at the setting value where the camera is initially set of goods from a company.

7.5.

CAUTION

The possibility of trying to adjust the setting of the camera it is, but don't adjust the setting of the camera, in order to become accurately initial setting. If it wants adjust, it contacts in the near commercial agent, it wishes.

Camera Property



[Camera Setting]

It regulates the settings of the camera.

[Camera Setting] button in the camera window, this button will be able to adjust the setting of the camera.

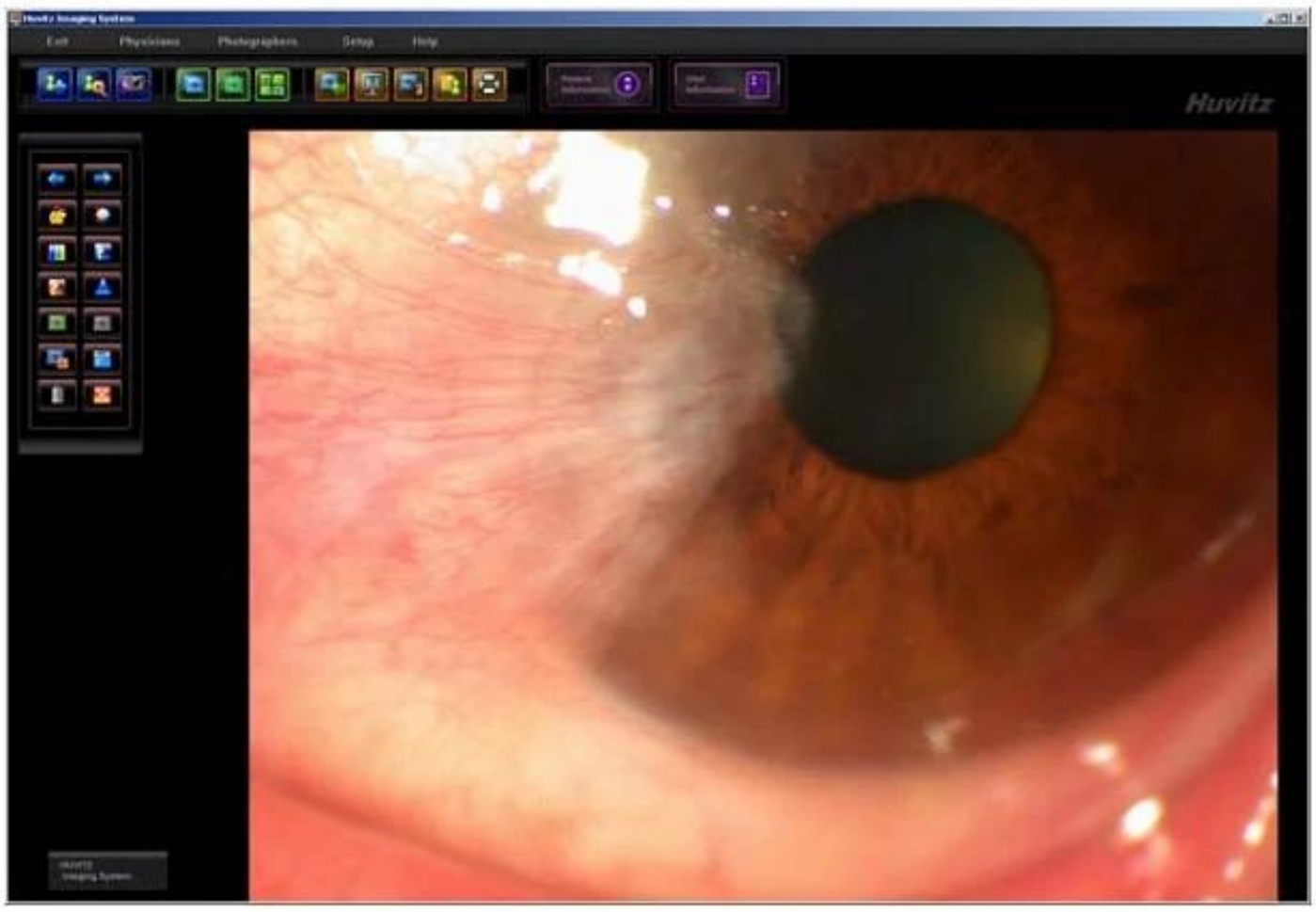


[Figure 12. Camera Property]

8. Image Manipulation

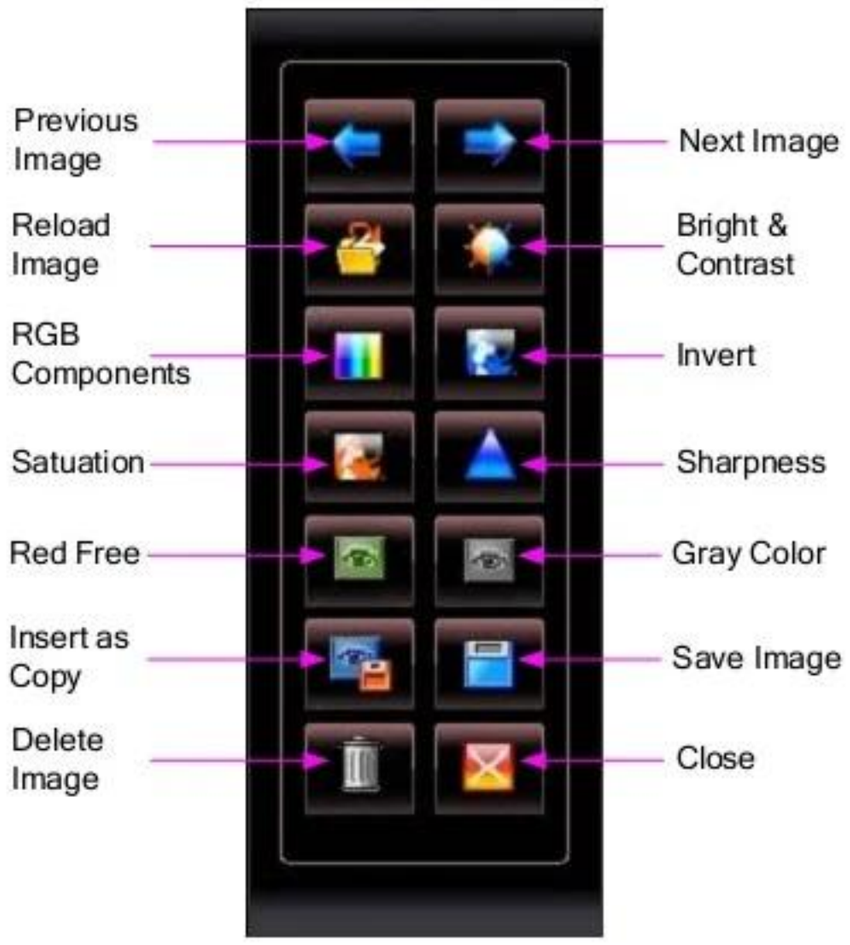
The HIS-5000 3X software prepares the image manipulation tool which is various digital conversion of the image which is measured it leads accurate and there is a possibility of showing the image. It will select the image and is possible various manipulation.

8.1. Adjust Color



[Figure 13. Adjust Color Screen]

When to select an Image from the Maine screen it double click or when to select an image  [Adjust Color] it presses the button, with Figure 13 the same screen appears.



[Figure 14. Adjust Color Toolbar]

Zoom In / Out

It will be able to Zoom In/out the image. When it presses the mouse's left button, the image will be Zoom In, When it presses the mouse's right button, the image will be Zoom Out..

Previous Image

It shows a previously image from image of present.

Next Image

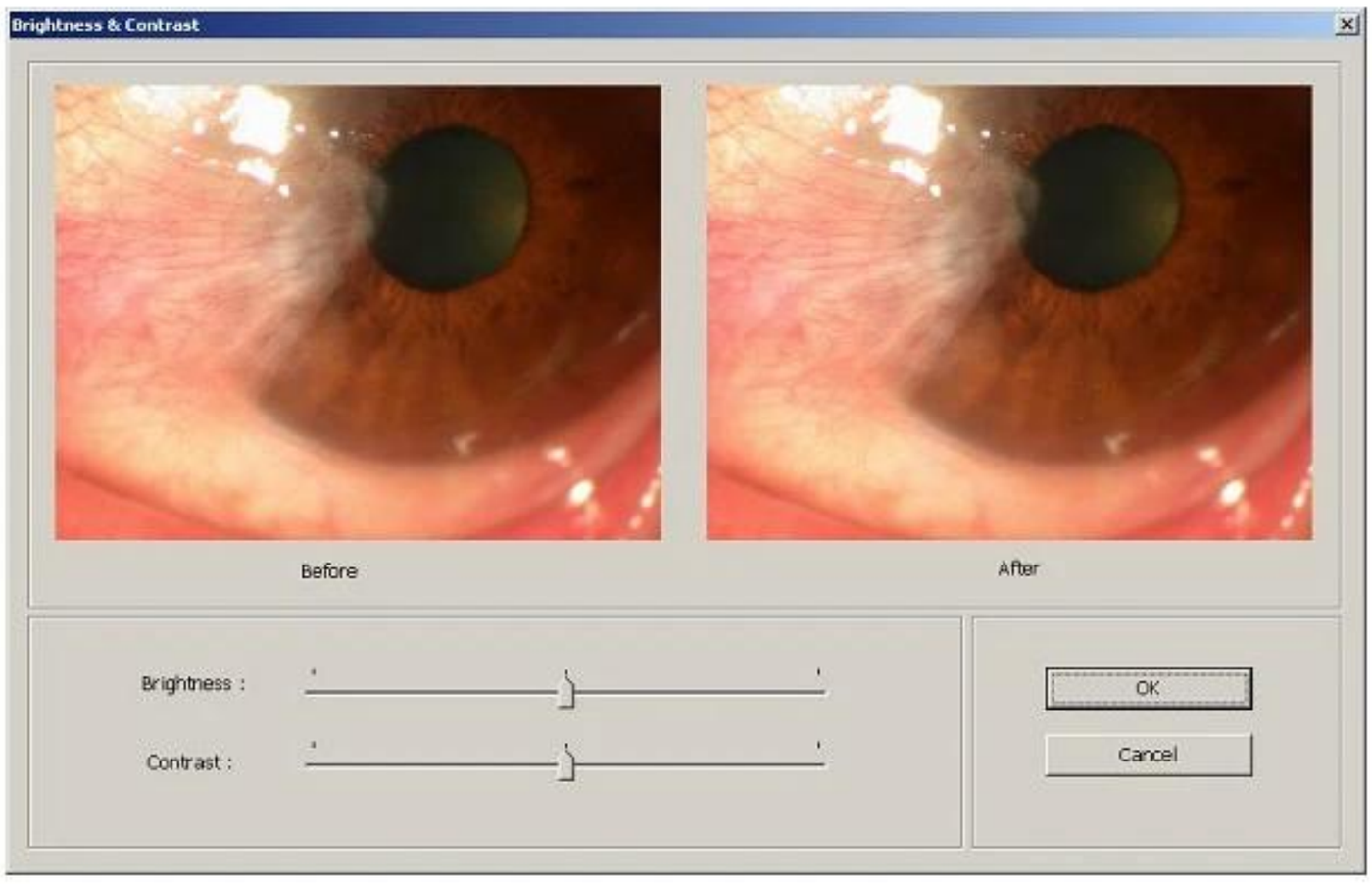
It shows the next image from image of present.

Reload Image

It demobilizes with image of original. It will turn back around the image which is converted with image of original.

Bright & Contrast

It adjust in percent to brightness & contrast of image.



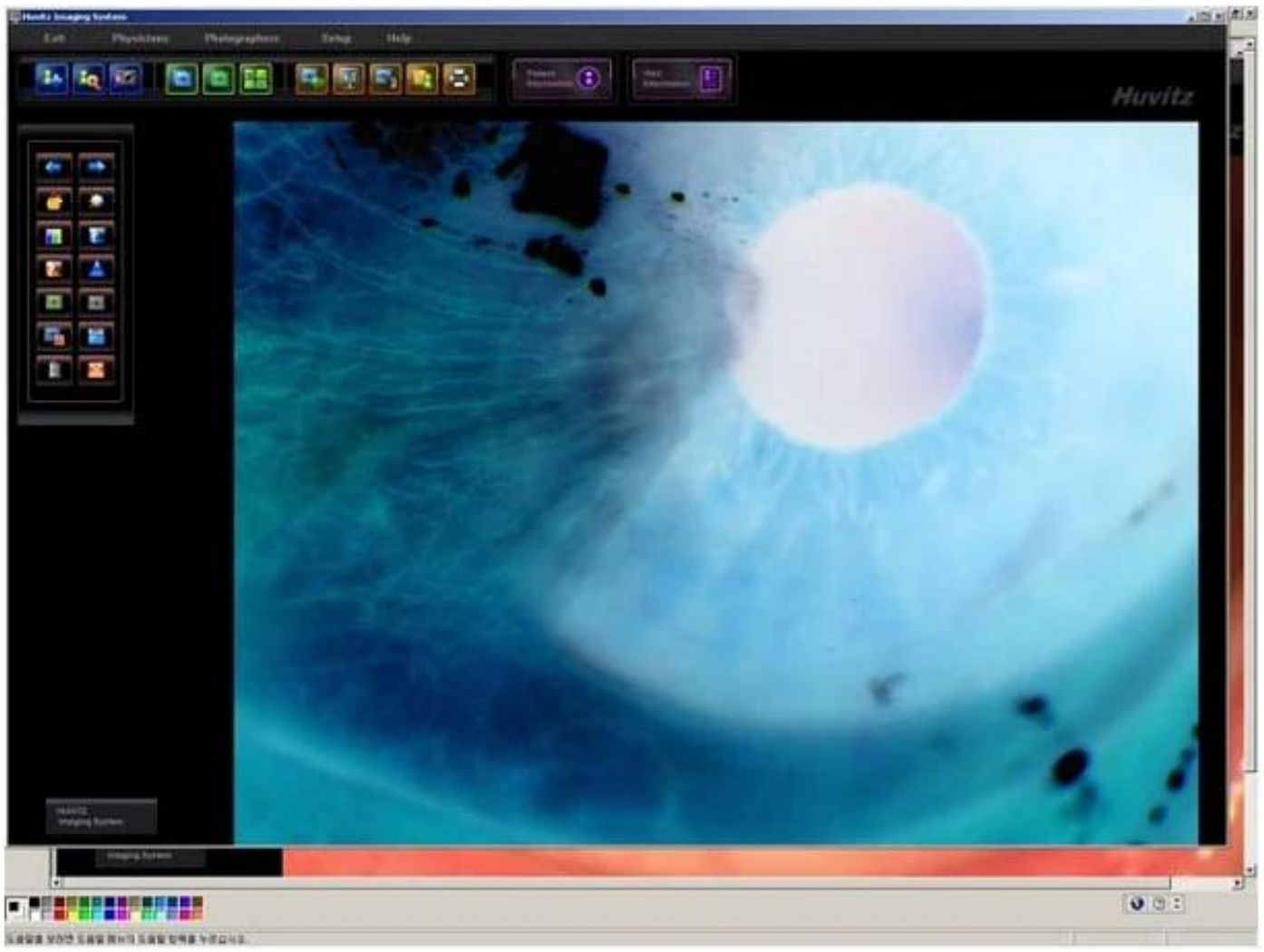
[Figure 15. Bright & Contrast]

RGB Components

It adjust automatically R.G.B color level of image.

Invert

It converts with the image of upset.



[Figure 16. Invert]

Saturation

It adjust in percent to saturation of image.

Sharpness

It leads and image it is clear and it regulates by the filter.

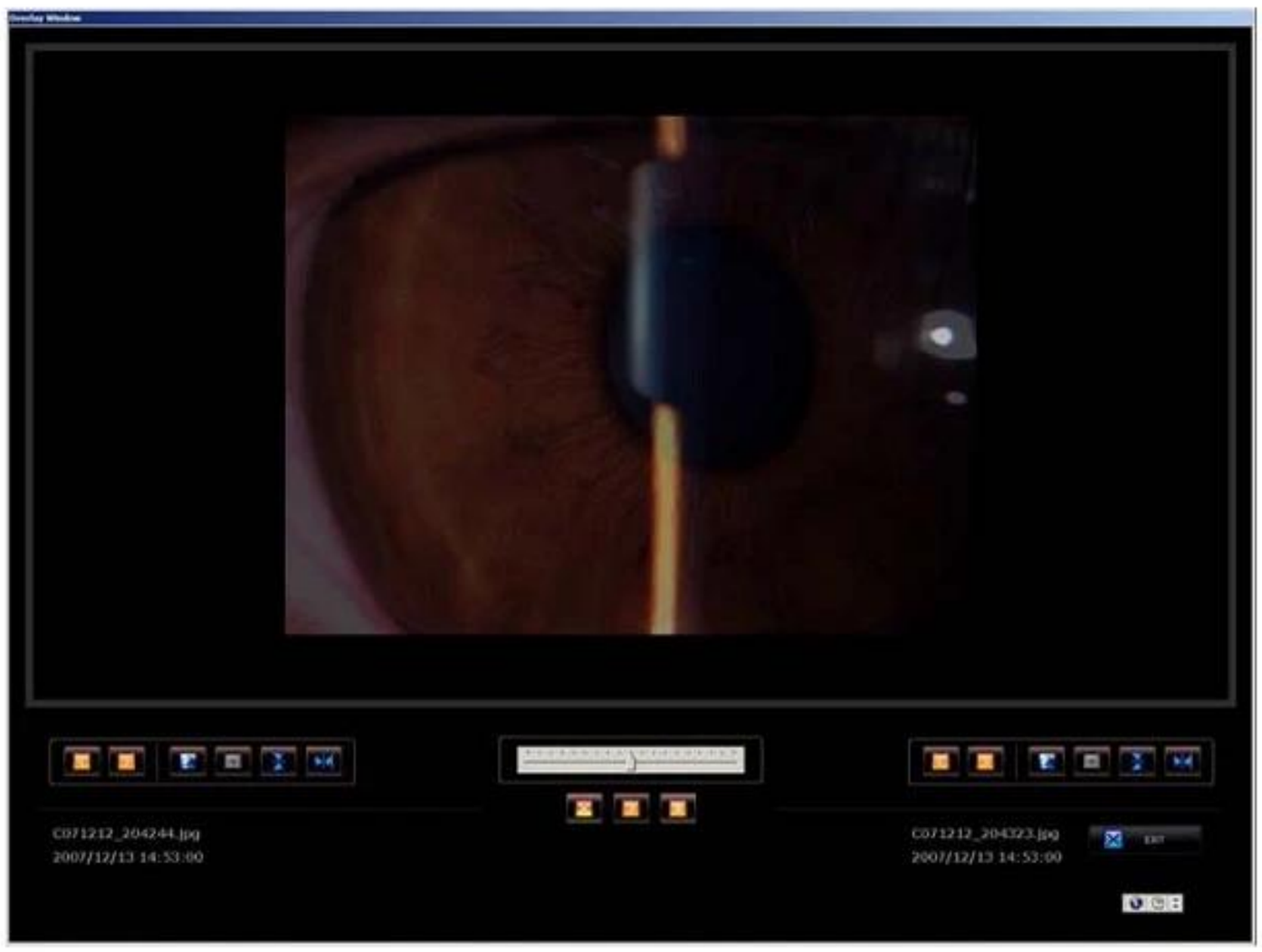
Red Free

It removes the Red component of image and it indicates.

Gray Color

It converts an image with 12bit B/W image.

8.2. Overlay Image



[Figure 17. Overlay Images window]

It selects multiple images and when  [Overlay Images] button of the toolbar presses, with Figure 17 the Overlay Images window appears. It piles up the image above the screen and the place where it compares and analyzes an image it is used.

Previous Image

It shows a previously image from image of present.

Next Image

It shows the next image from image of present.

Invert

It converts with the image of upset.

Gray Color

It converts an image with 12bit B/W image.

Flip Image

It turn over an image with top and bottom and it indicates.

Reverse Image

It turn over an image with right and left and it indicates.

Play

It indicates continuously the multiple overlay image.

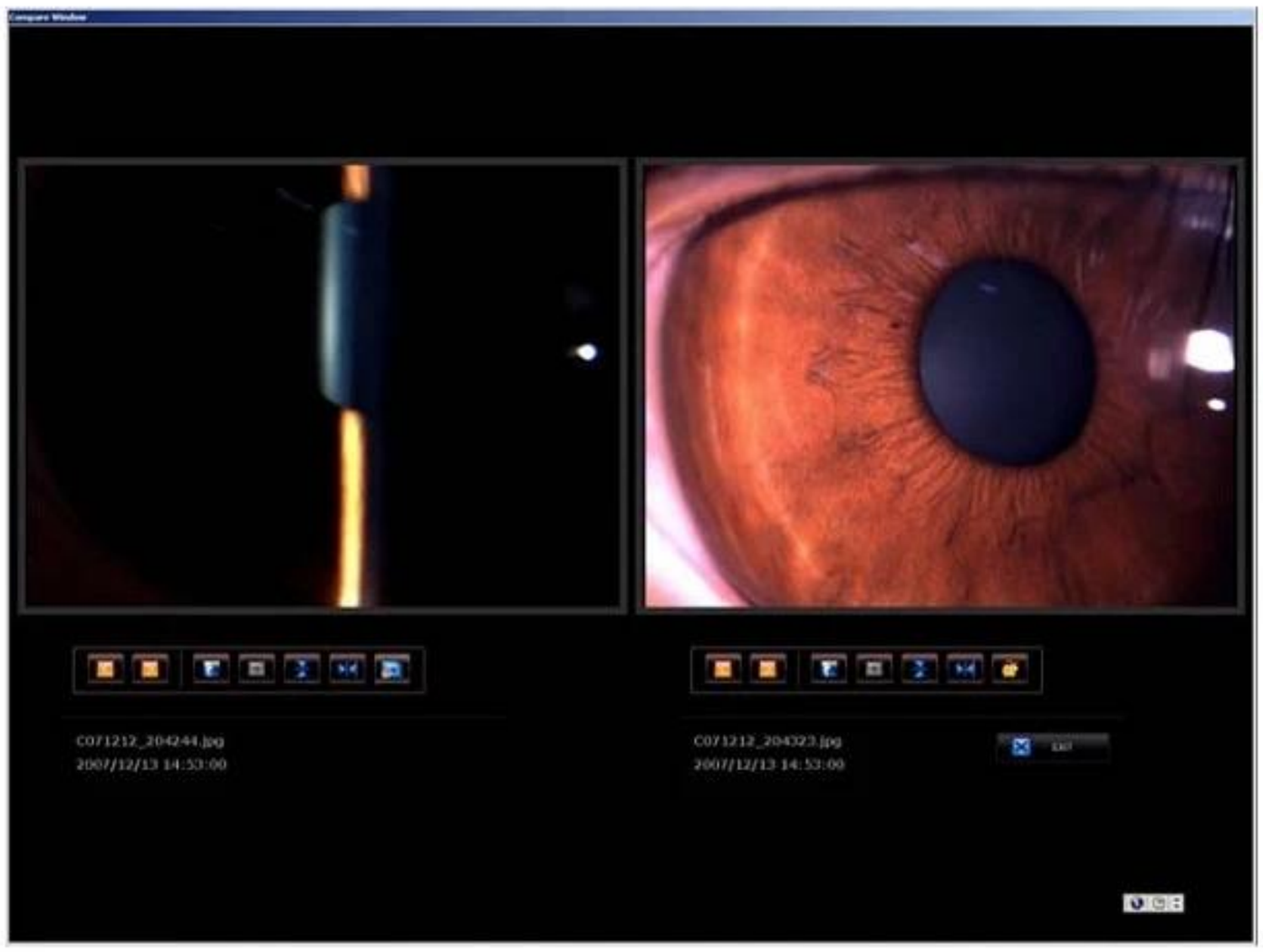
Stop

It stands still the multiple overlay image which is indicated continuously.

Repeat

It repeats infinitely and continuously it indicates.

8.3. Compare Image



[Figure 18. Compare Images window]

It selects multiple images and when  [Compare Images] button of the tool bar presses, with Figure 18 the Compare Images window appears. This window are composed the buttons of almost similar function with the Overlay Images window and it compares and analyzes they are used about the multiple images. About a each image when it presses the mouse's left button, the image is Zoom In, when the drag it does the left button, the image moves and when it presses the mouse's right button, the image is Zoom Out.

Previous Image

It shows a previously image from image of present.

Next Image

It shows the next image from image of present.

Invert

It converts with the image of upset.

Gray Color

It converts an image with 12bit B/W image.

Flip Image

It turn over an image with top and bottom and it indicates.

Reverse Image

It turn over an image with right and left and it indicates.

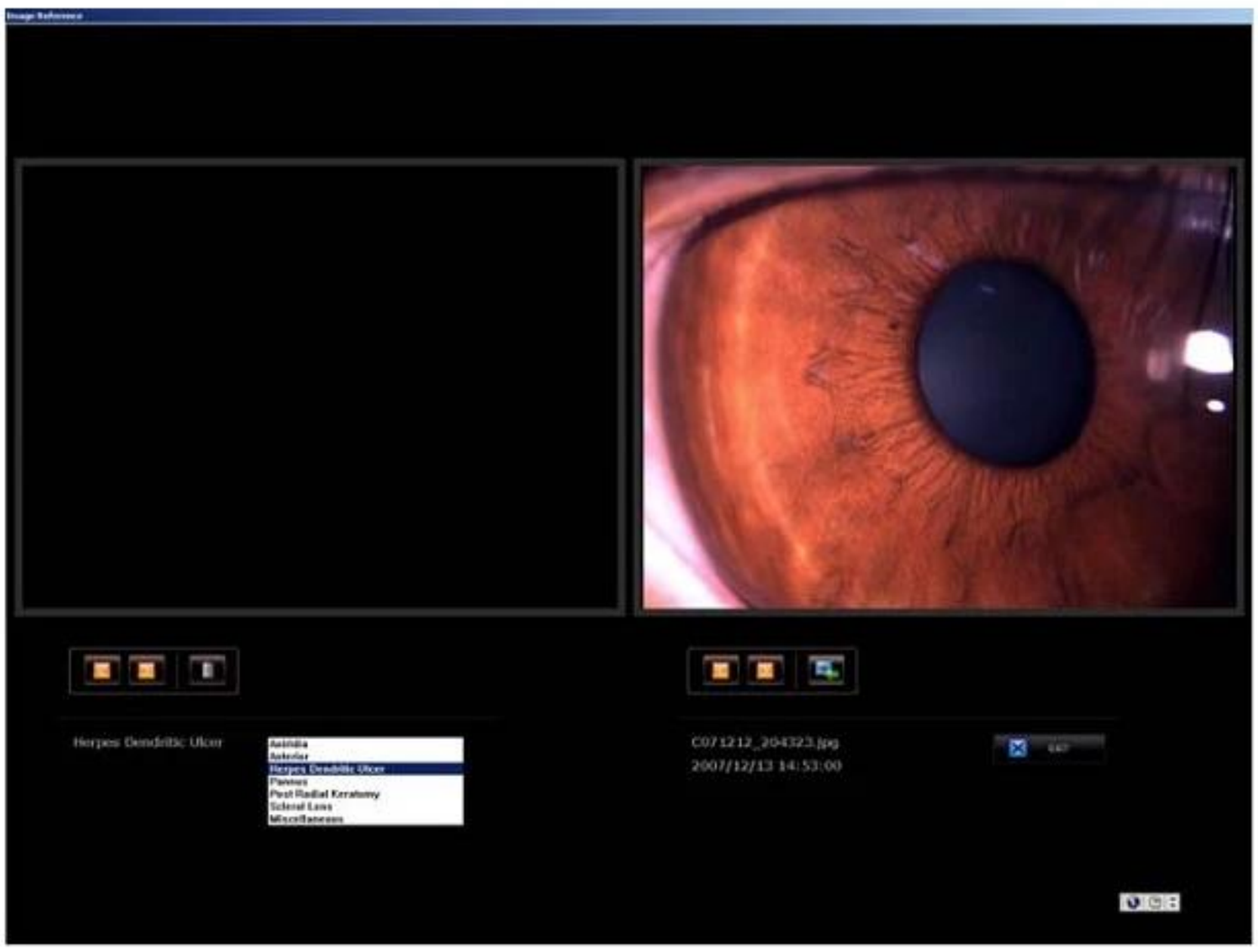
Synchronize Magnification

The function of Zoom In / Zoom Out is applied simultaneously about multiple images.

Reload Images

It demobilizes with image of original. It will turn back around the image which is converted with image of original.

8.4. Reference Image



[Figure 19. Reference Images window]

It selects an images and when  [Reference Images] button of the tool bar presses, with Figure 19 the Reference Images window appears. With the image which is selected it will be able to refer in following in order, it will be able to register an image in the location which is classified and the image which is register and it will compare and it will be able to analyze. About a each image when it presses the mouse's left button, the image is Zoom In, when the drag it does the left button, the image moves and when it presses the mouse's right button, the image is Zoom Out.

Previous Image

It shows a previously image from image of present.

Next Image

It shows the next image from image of present.

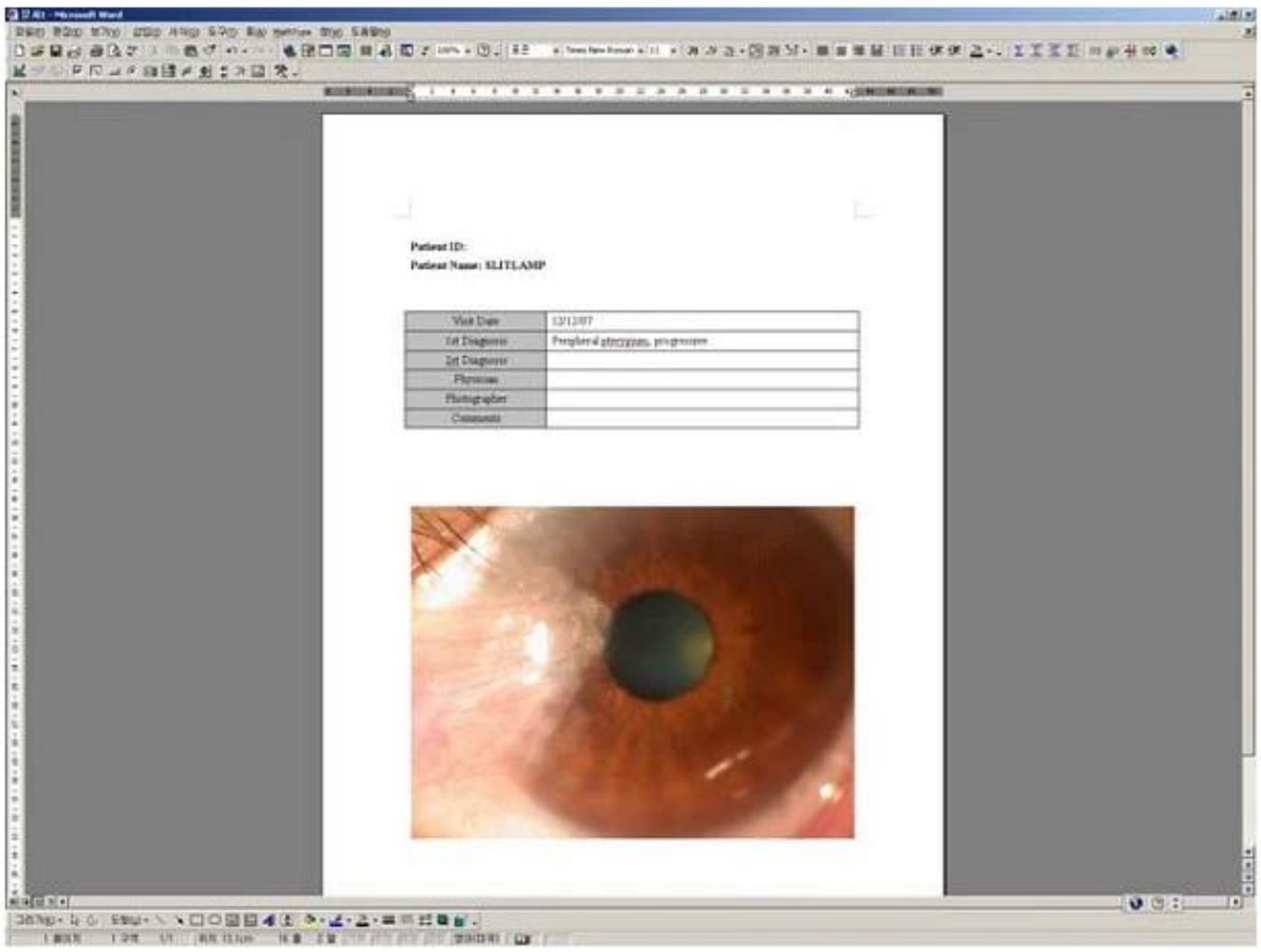
Delete Image

It deletes the image which is register.

Insert as Reference

It register with reference image.

8.5. Make Report



[Figure 20. Make Report window]

It selects an images and when  [Make Report] button of the tool bar presses, with Figure 20 it creates with word(.doc) file of report form.

9. Specification

Technical Characters	
Image sensor	1/2 “ Inch interline CCD
Picture size	Up to 1388 x 1036 pixels
Cell Size	4.65 µm x 4.65 µm
Resolution Depth	8 bit or 12 bit Raw RGB, YUV4:2:2
Digital Interface	IEEE 1394 (6 pin)
Transfer Rate	400Mbps
Frame Rates	15 fps, 7.5 fps, 3.75 fps
Shutter Speed	1 u sec ~ 65 sec
Gain	0 ~ 25 dB
Lens Mount	C-Mount
Trigger	External Trigger or Software Trigger
Control Functions	Brightness, Sharpen, Auto-Exposure, Auto-Shutter, Pan/Tilt, U/B V/R, Hue/G
Supply Voltage	8 VDC ~ 30 VDC
External Dimension	44 mm (W) x 29 mm (H) x 63 mm (D)
Power Requirements	DC 8V – 36V via IEEE 1394 cable
Power Consumption	Less than 3 W (12V DC, from IEEE 1394 cable)

Hardware and Software suggested requirements	
Processor	Pentium IV, 2GHz
RAM	512 MB (over 1 GB recommended)
Video Card	ATI Radeon 9200 (128 MB) or similar
Operating System	Microsoft Windows NT (with Service Pack 6), Windows 2000 (with Service Pack 4), Windows XP. Microsoft Internet Explorer 6 is need. (Explorer 7 recommended)
Interface	Standard IEEE1394a FireWire Port OHCI 1.1 compatible, (with auxiliary 12V power connector if connected to a laptop computer)
Color monitor	LCD or CRT (Minimum resolution 1280 x 1024 pixels, over 1600 x 1200 pixels recommended)

10. Service Information

How to contact service: If there are any problems with the equipment, please follow the steps below:

- First of all, refer to the 10. Appendix sections according to the problem that you are encountered. And then follow the suggested sequences.

- If the problem persists, please contact the local distributor in your province or country at first.

- Before calling to the local distributor, you'd better check these information such as Model and Serial Numbers. To do so, fill up the following table as soon as you purchase our product. You can look up these information at any time. The serial number is found on the back of this unit. The serial number is unique to this unit. You should retain this manual as a permanent record of your purchase. Please retain your purchase receipt as your proof of purchase.

Date of Purchase: _____

Dealer's Name: _____

Dealer Address: _____

Dealer Phone No. : _____

Model No.: _____

Serial No.: _____

- If you can't contact with your local distributor, you can directly get in touch with

the service department of the HUVITZ using the phone number and the address written in the below table.

How to Contact HUVITZ Co., Ltd

Write us at:

HUVITZ Co., Ltd.

Huvitz B/D,

689-3 Geumjeong-dong

Gunpo-si Gyeonggi-do,

South Korea

435-862

Tel: +82-31-442-8868

Fax: +82-31-442-8619

URL:**http://www.huvitz.com**

e-mail: info@huvitz.com

System Install Manual

HIS-5000 (Huvitz Imaging System)

Huvitz

Pacing Progress toward People

IMPORTANT NOTICE

This product may malfunction due to electromagnetic waves caused by portable personal telephones, transceivers, radio-controlled toys, etc. Be sure to avoid having objects such as, which affect this product, brought near the product.

The information in this publication has been carefully checked and is believed to be entirely accurate at the time of publication. HUVITZ assumes no responsibility, however, for possible errors or omissions, or for any consequences resulting from the use of the information contained herein.

HUVITZ reserves the right to make changes in its products or product specifications at any time and without prior notice, and is not required to update this documentation to reflect such changes.

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689-3, Geumjeong-dong, Gunpo-si, Gyeonggi-do,
435-862, Republic of Korea

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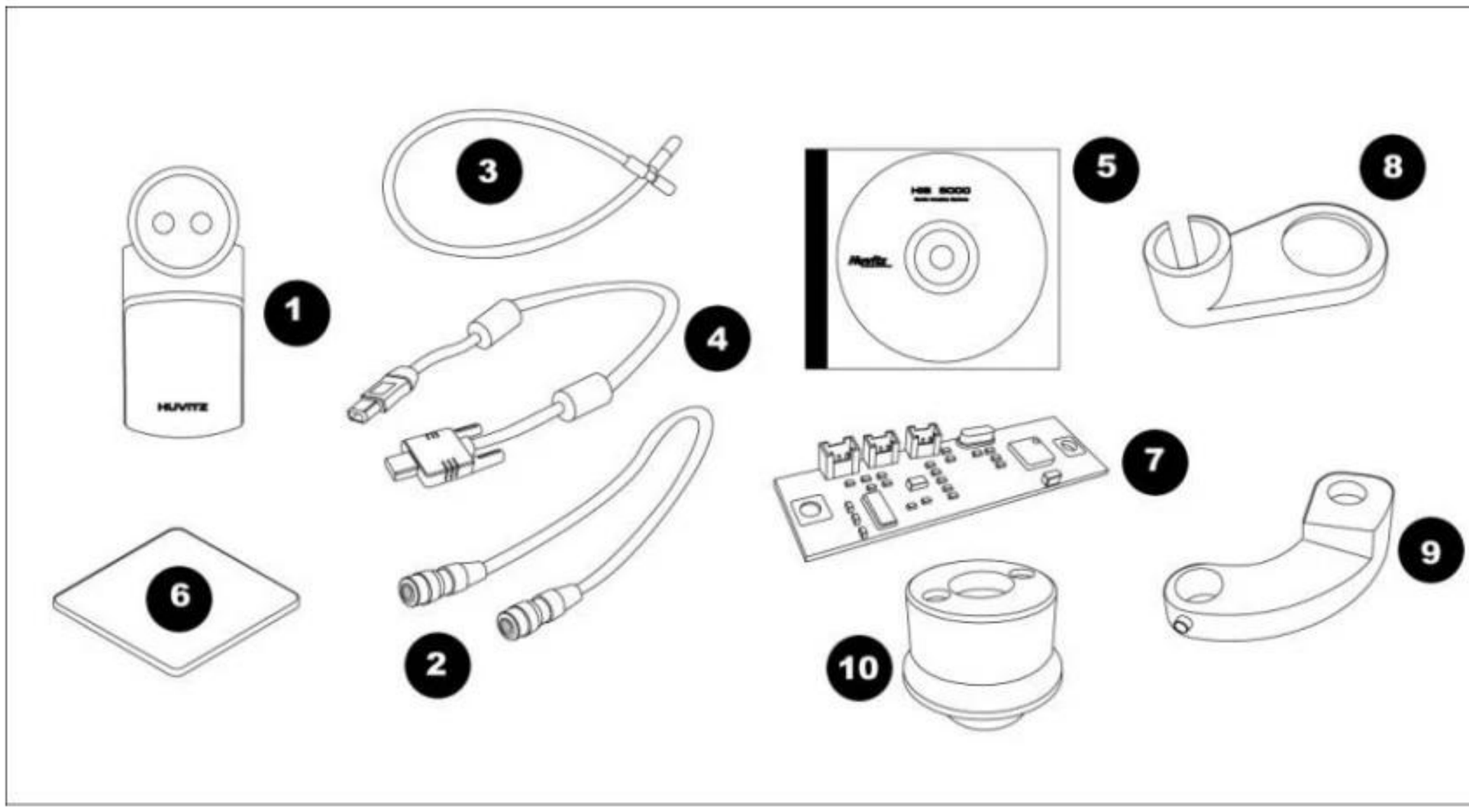
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3. SERVICE INFORMATION

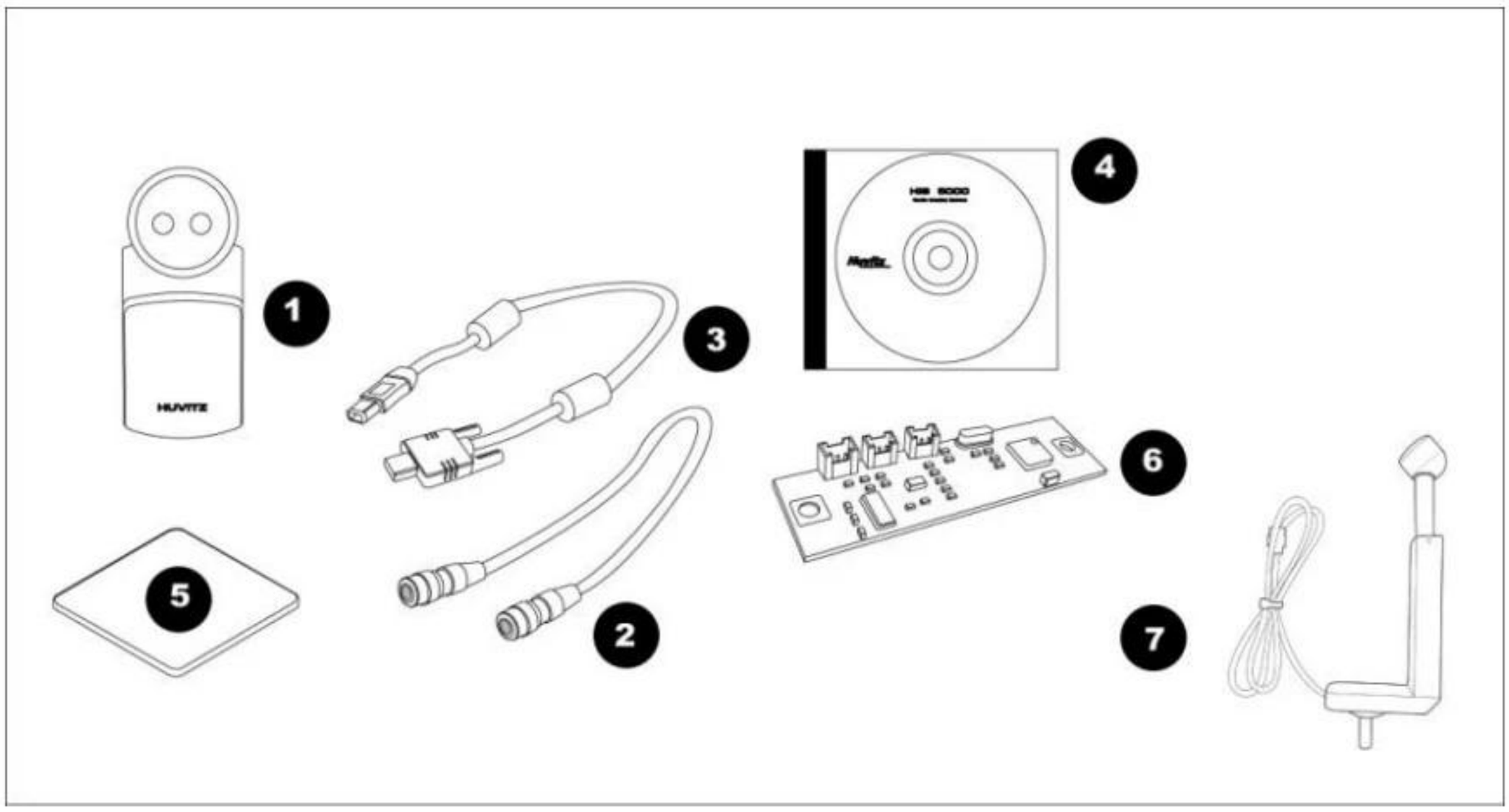
1. Component and Accessories

1.1 HIS-5000 3X for HS-5000(HS-7000) (HAAG TYPE)



(1) Camera Ass'y
(2) Camera communication cable
(3) Auxiliary light cable
(4) FireWire IEEE 1394 cable
(5) Software CD
(6) Light sensor plate
(7) Light sensor PCB
(8) Scatter
(9) Auxiliary light cable supporter
(10) Auxiliary light Ass'y

1.2, HIS-5000 3X for HS-5500(HS-7500) (ZEISS TYPE)



(1) Camera Ass'y
(2) Camera communication cable
(3) FireWire IEEE 1394 cable
(4) Software CD
(5) Light sensor plate
(6) Light sensor PCB
(7) Auxiliary light Ass'y

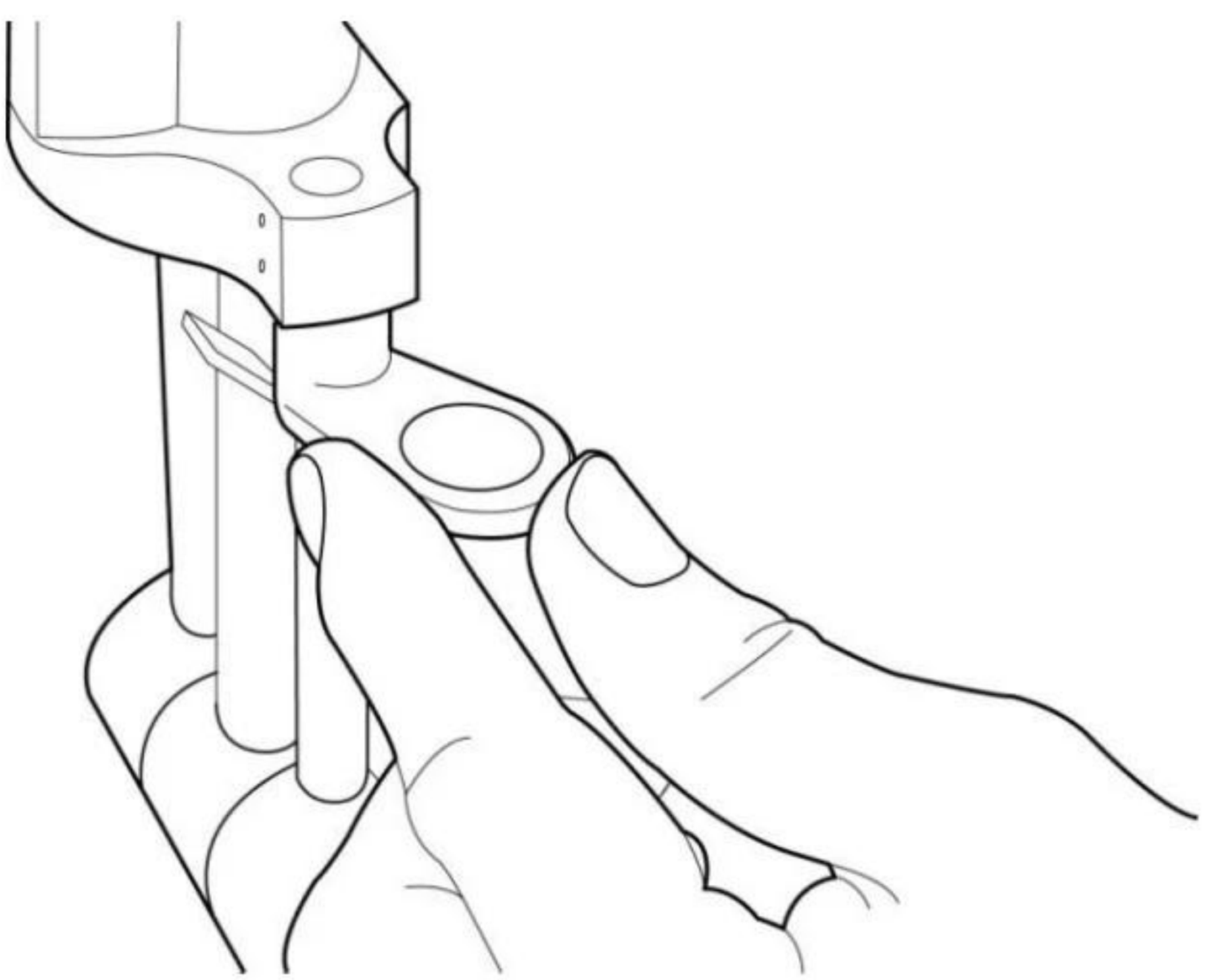
2. System Installation

2.1 For HS-5000(HS-7000) (HAAG TYPE)

2.1.1 The Case which will be combined the Slit-lamp, HS-5000(HS-7000)

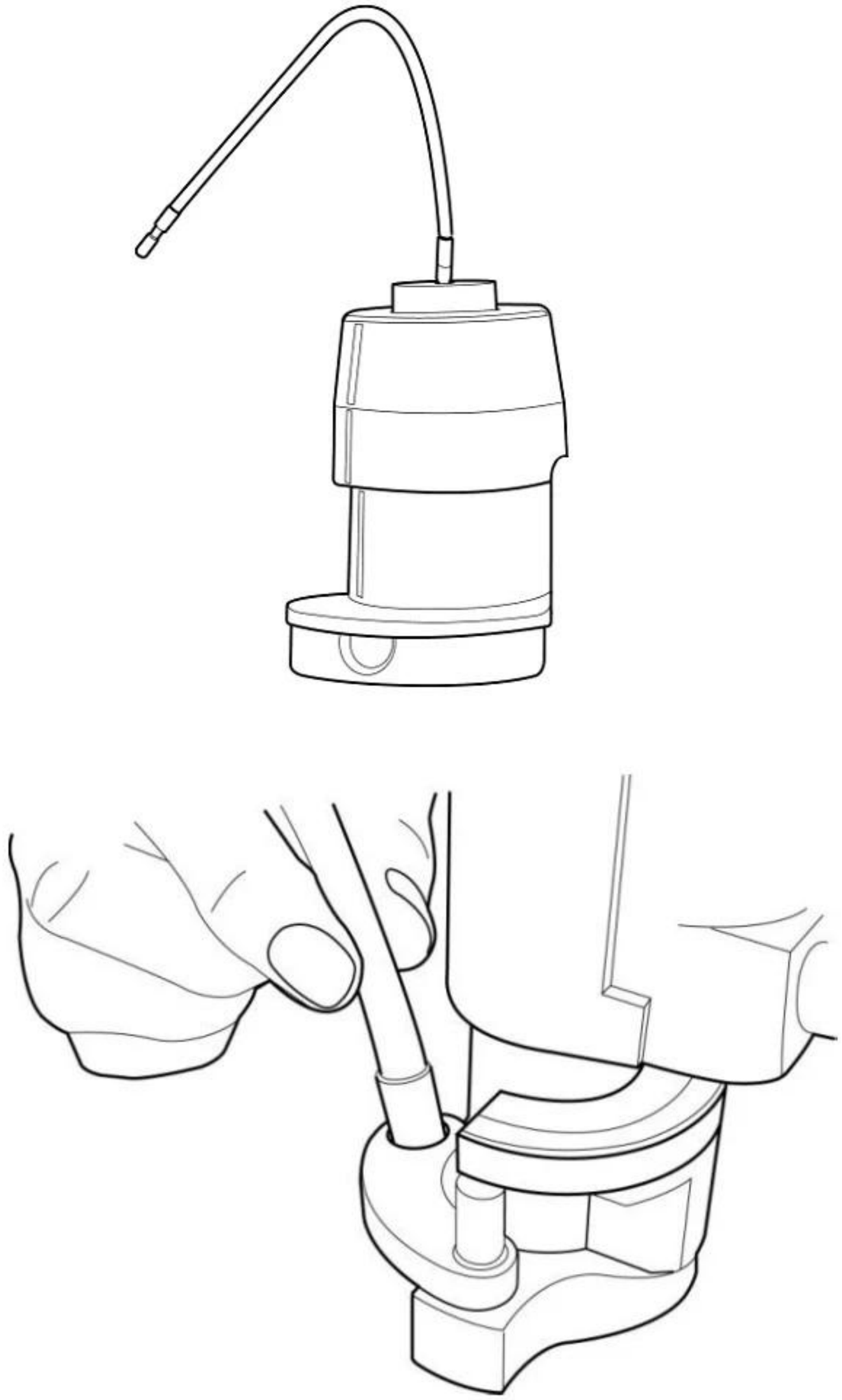
The case where the HIS-5000 3X is combined in the Slit-lamp, HS-5000(HS-7000) the R/L sensor PCB or auxiliary light ass'y will become establishment. It will affix the camera module which is included consequently in the accessories and it will be able to establish the HIS-5000 3X.

Step 1. Combine Scatter.



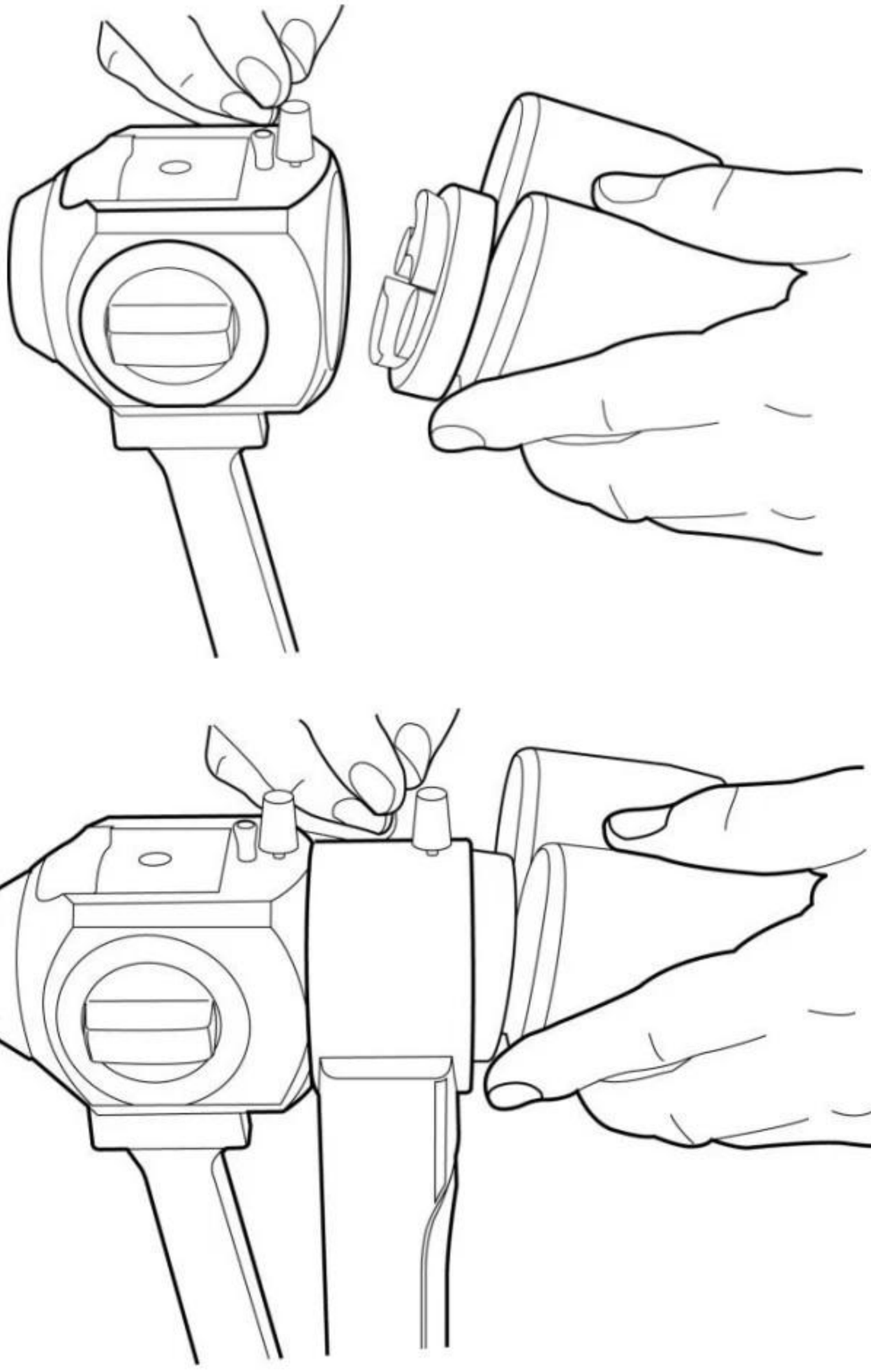
Step 2. Combine Auxiliary light cable.

It combines the cable in auxiliary light Ass'y and supporter.



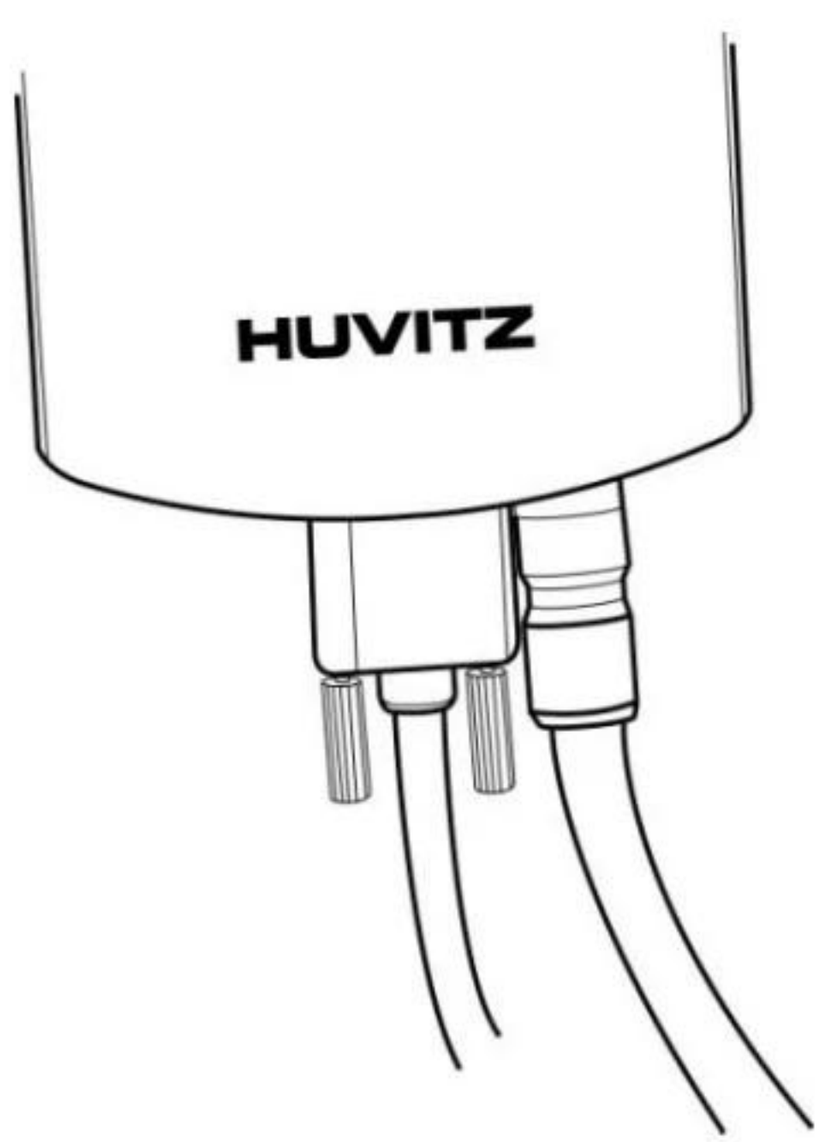
Step 3. Combine Camera Ass'y.

The Microscope separates and after affixing a camera ass'y, it combines again



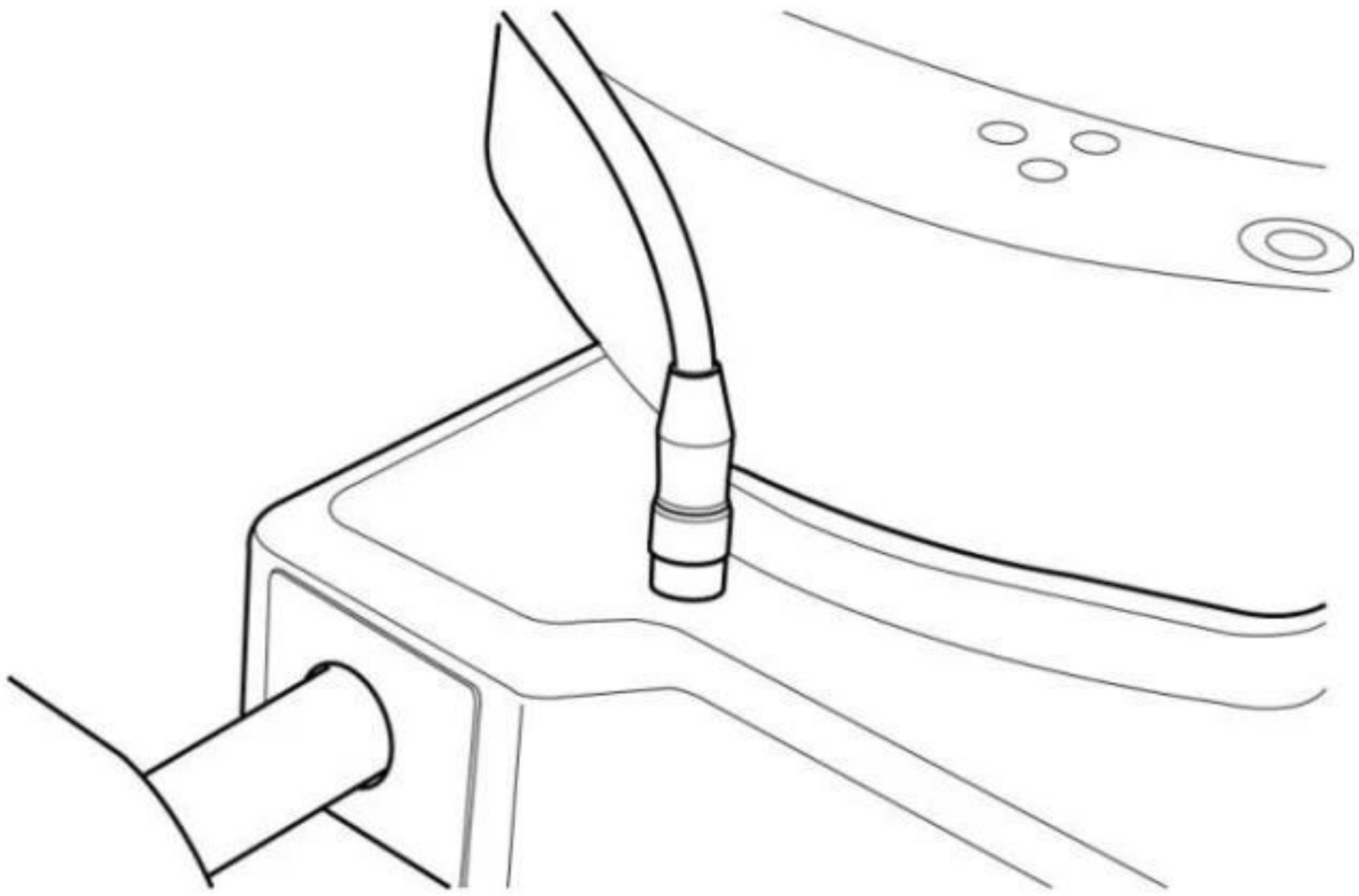
Step 4. Connect cable on the Camera Ass'y.

It connects the camera communication cable and the IEEE 1394 cable in camera ass'y.



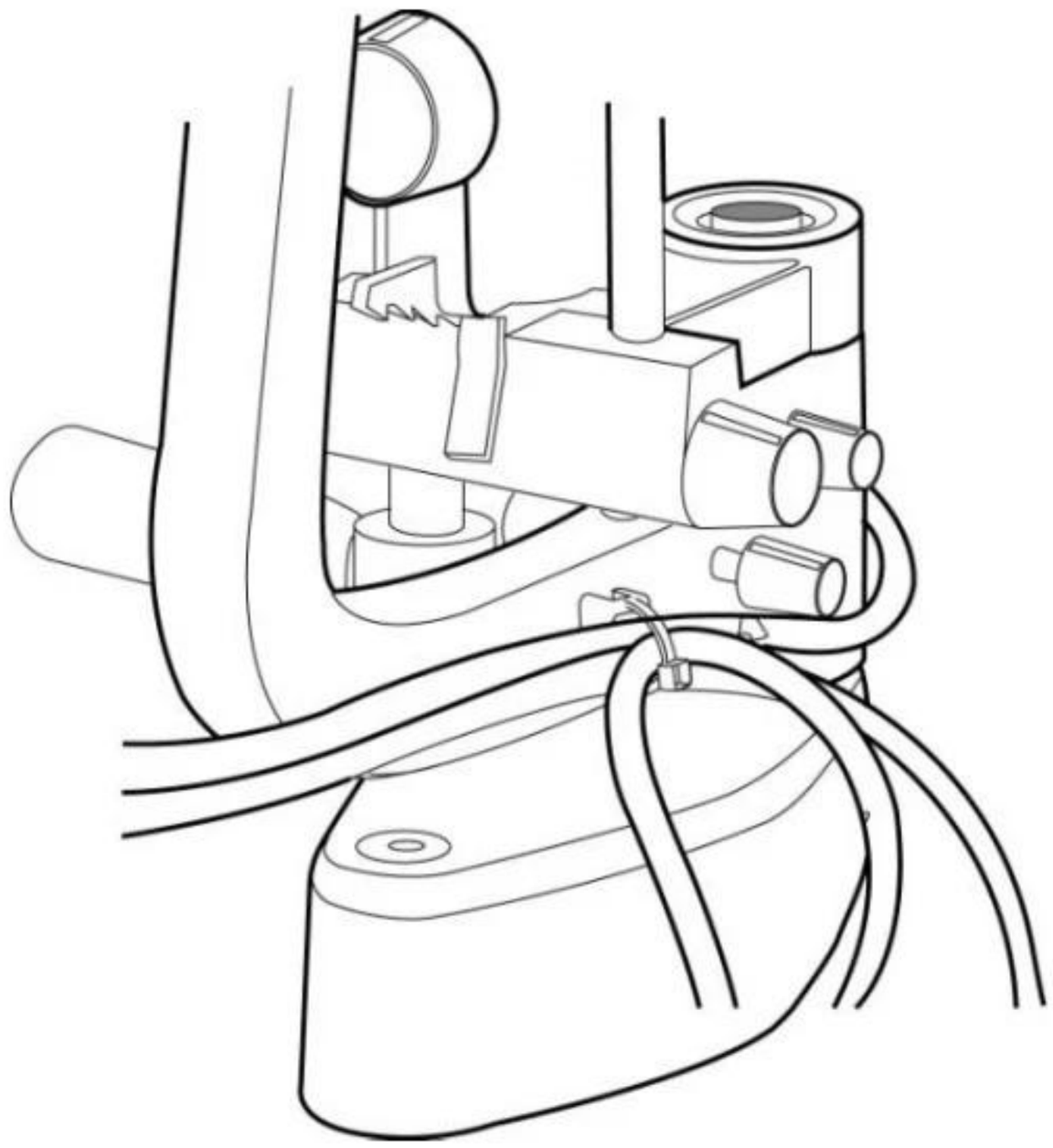
Step 5. Connect Camera communication cable.

It connects the camera communication cable in the base.



Step 6. Fix the cable.

It fixes in the cable fixation holder and it does there not to be an effect in operation.



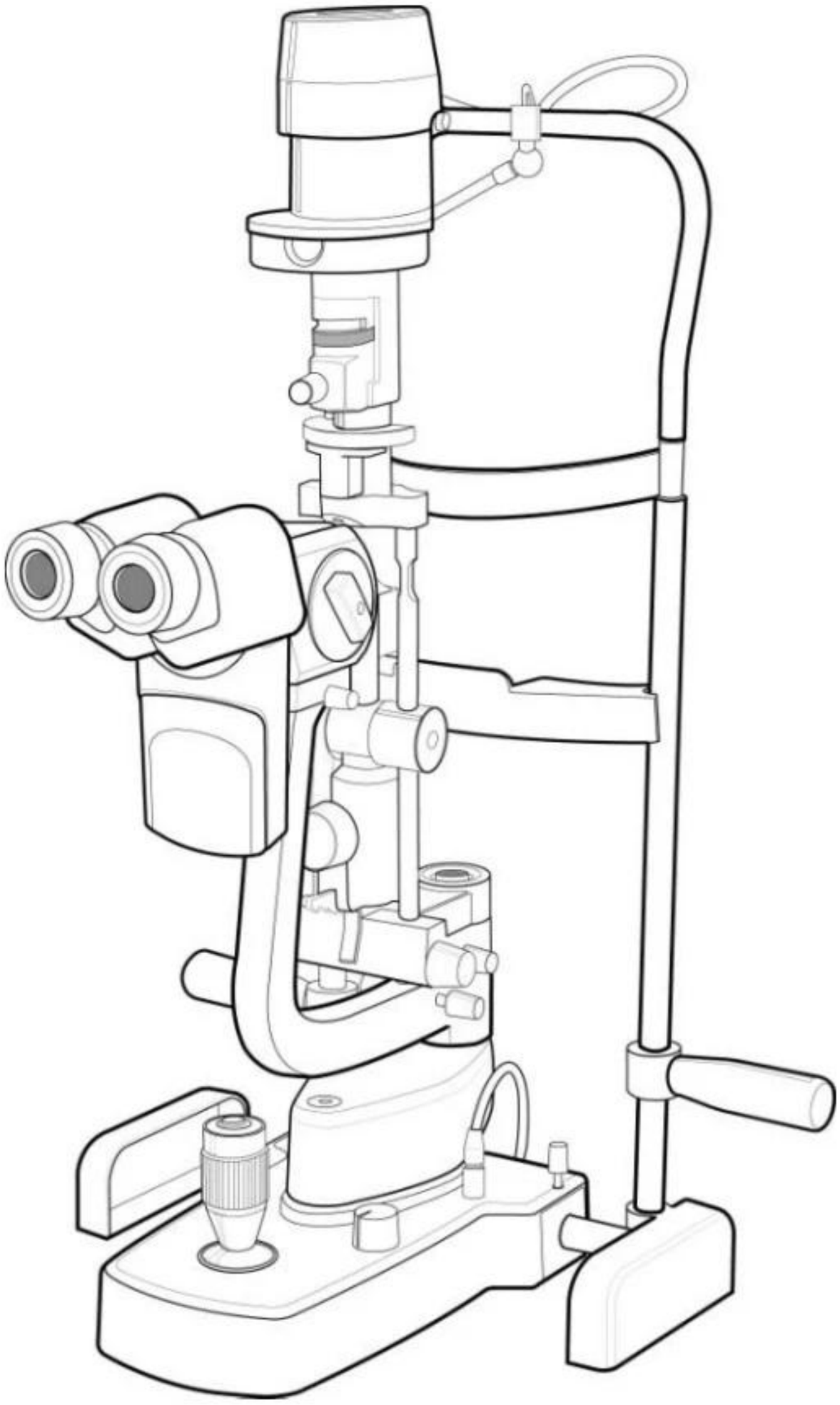
Step 7. Combine FireWire IEEE 1394 PCI Card

It establishes the FireWire IEEE 1394 PCI card in the PCI slot of the PC. The notebook establishes the FireWire IEEE 1394 PCMCIA card in the ramyon PCMCIA slot. If there is a IEEE 1394 port to the PC, this step omits.

Step 8. Connect the IEEE 1394 cable and PC.

Connect the FireWire connector on the Camera to the FireWire port on the rear panel of the PC, by using the long FireWire cable.

Step 9. Be sure the PC is turned off. Turn on the PC and turn on the Slit-lamp, HS-5000(HS-7000).

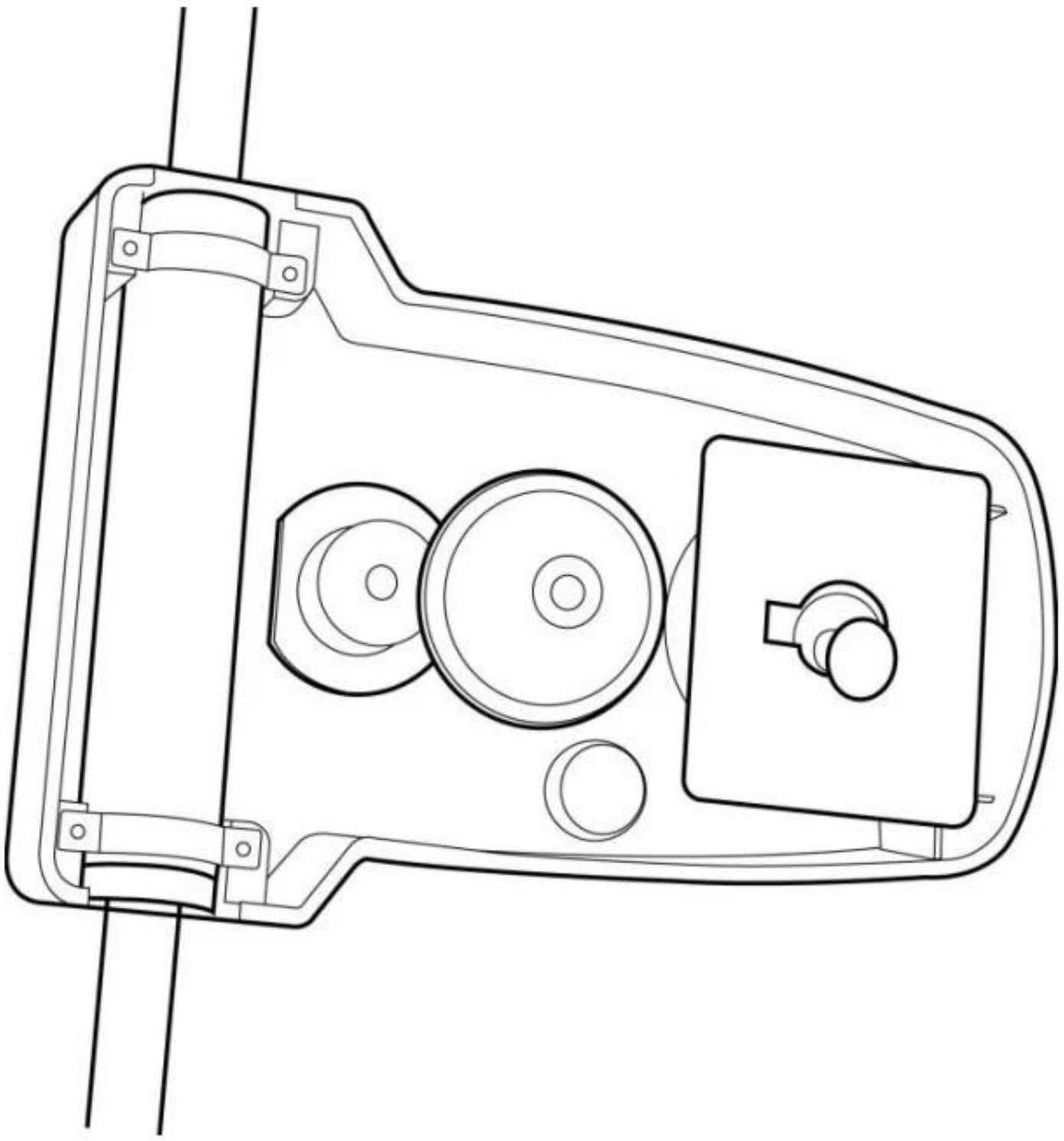


2.1.2 The Case which will not be combined the Slit-lamp, HS-5000(HS-7000)

To install *HIS-5000 3X system,* perform the following steps:

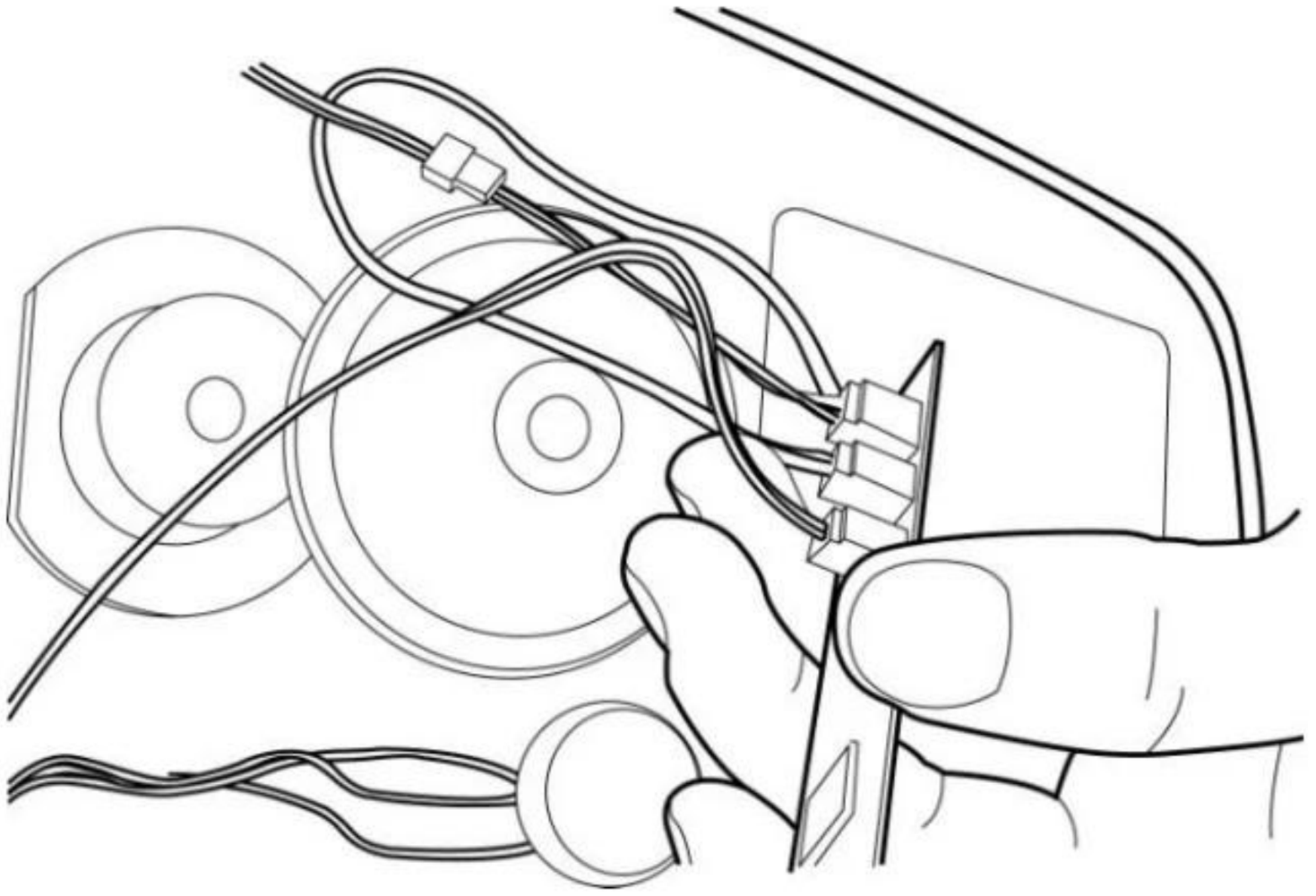
Step 1. Disassemble the HS-5000(HS-7000).

It refers to Manual of the HS-5000(HS-7000) and after separating, the base together with the picture it turns over.

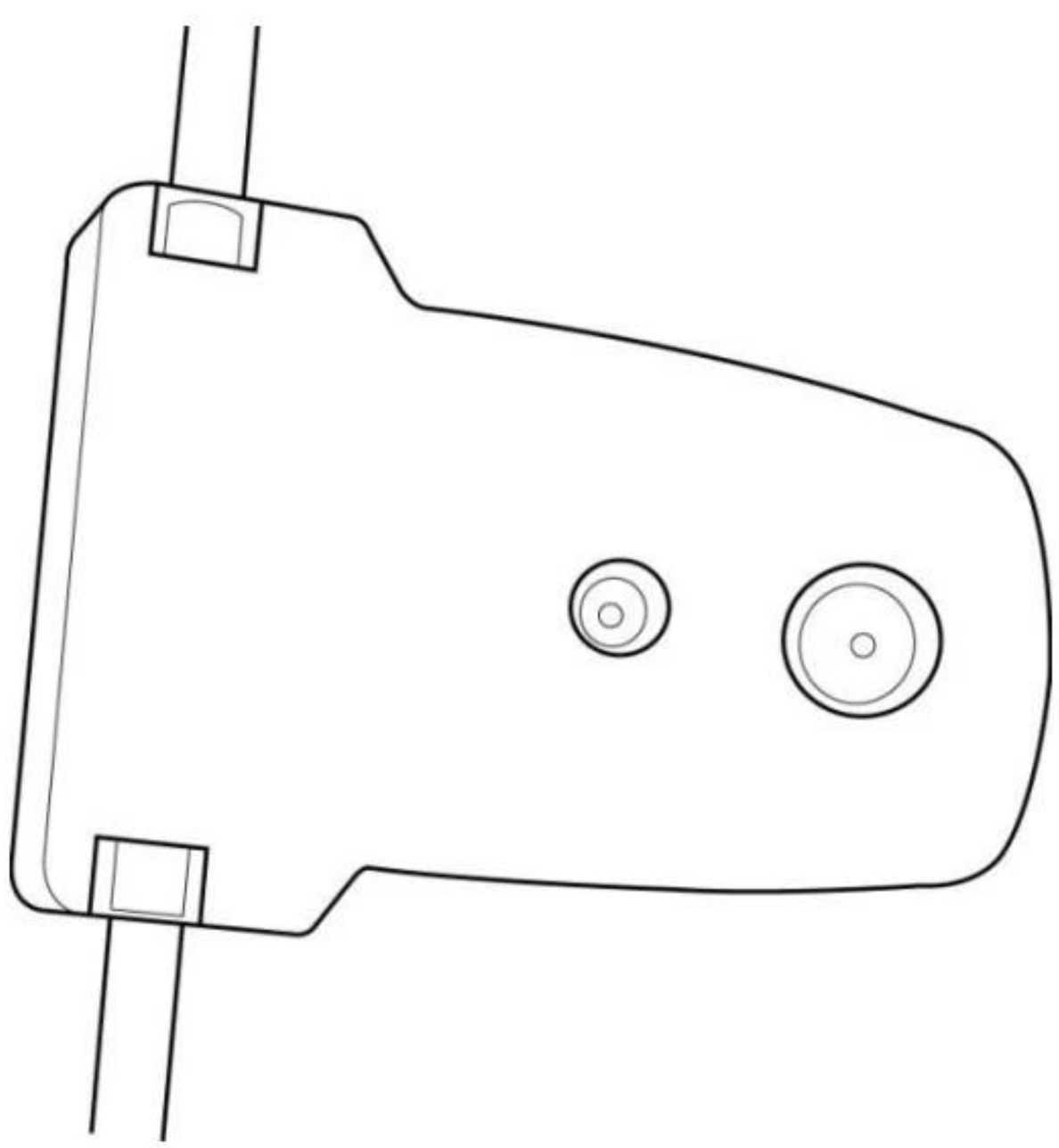


Step 2. Combine Light sensor PCB.

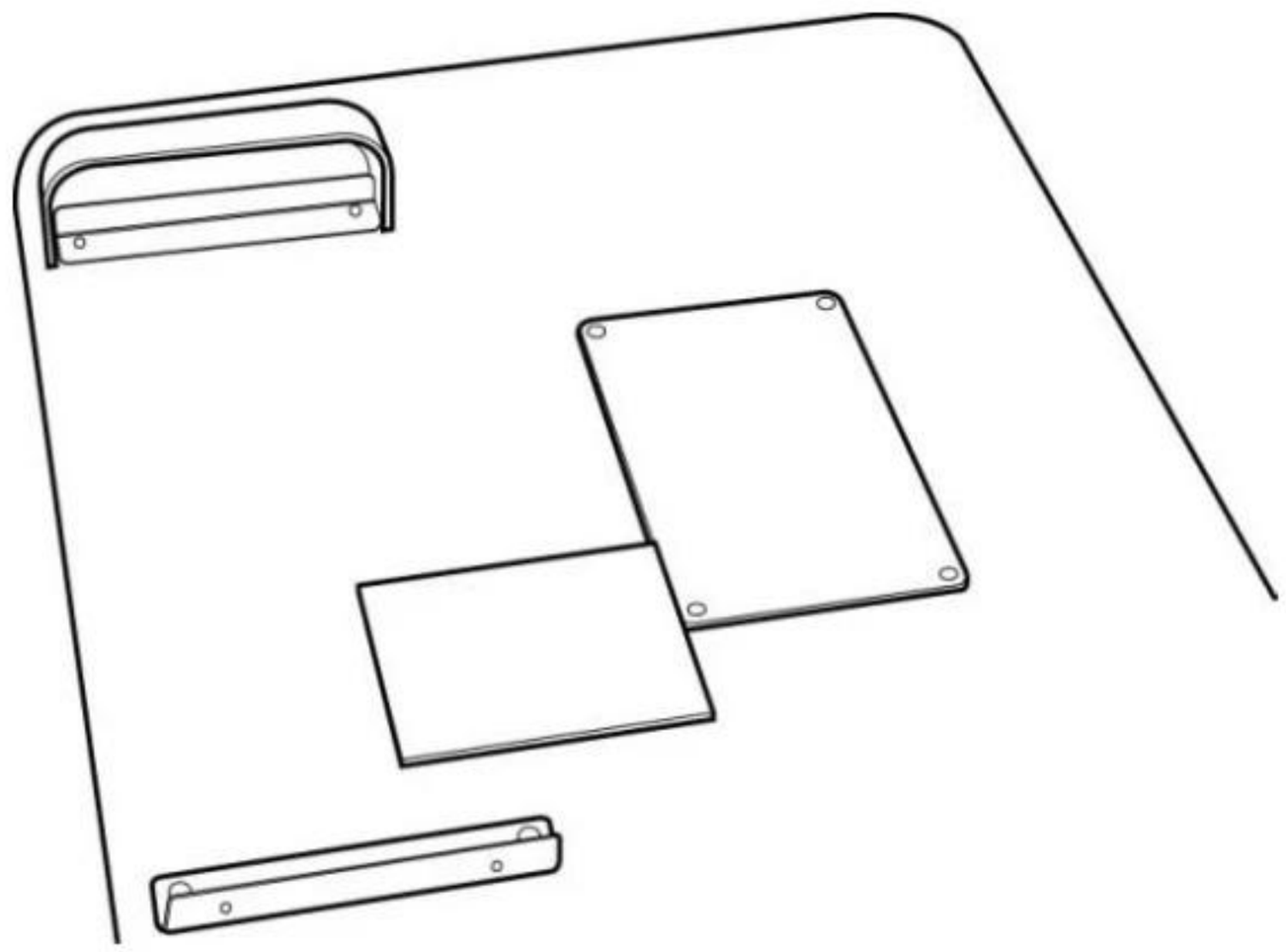
It connects in the light sensor PCB socket and it affixes the PCB.



Step 3. Combine Base cover.

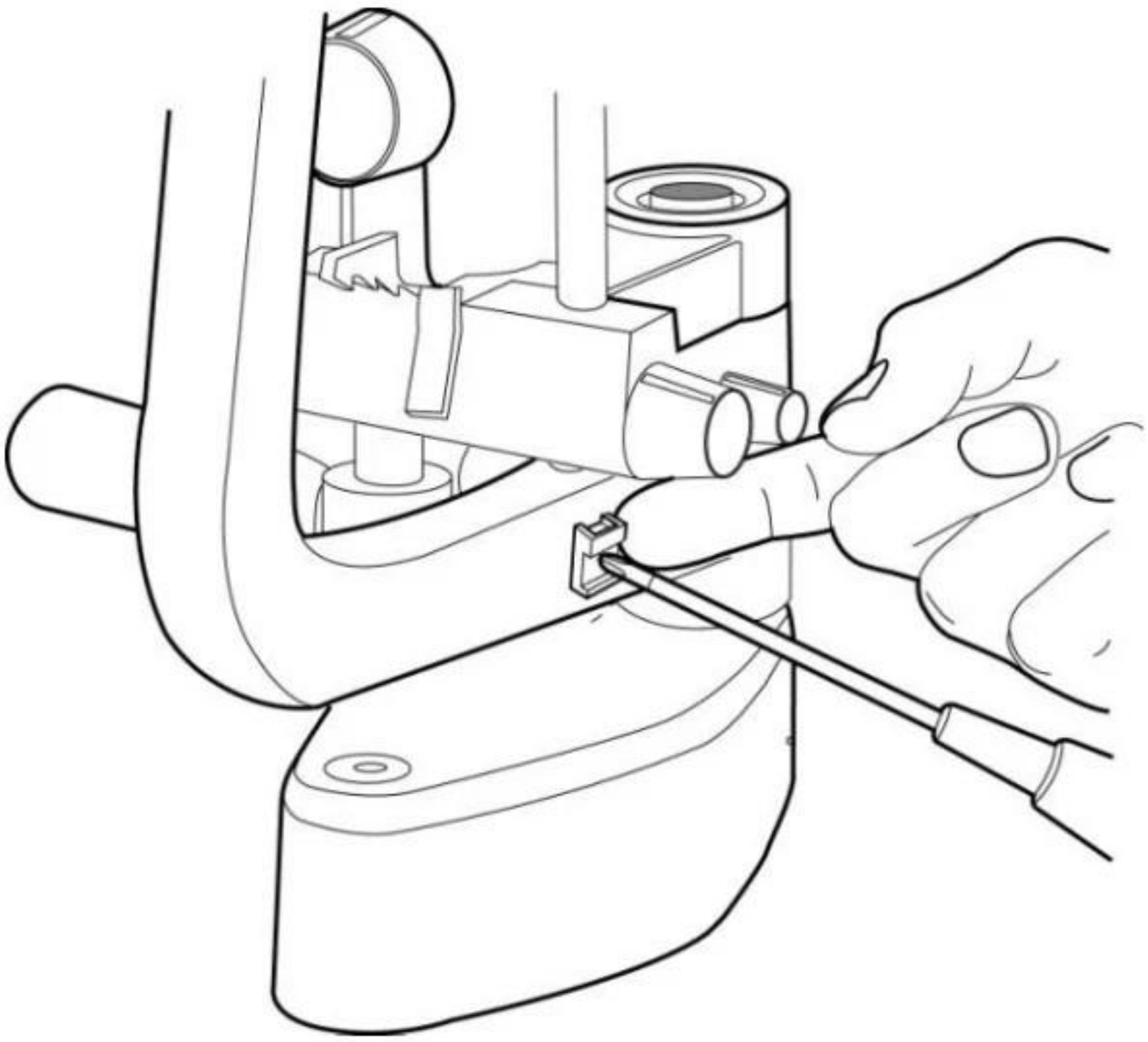


Step 4. Affix Light sensor plate.

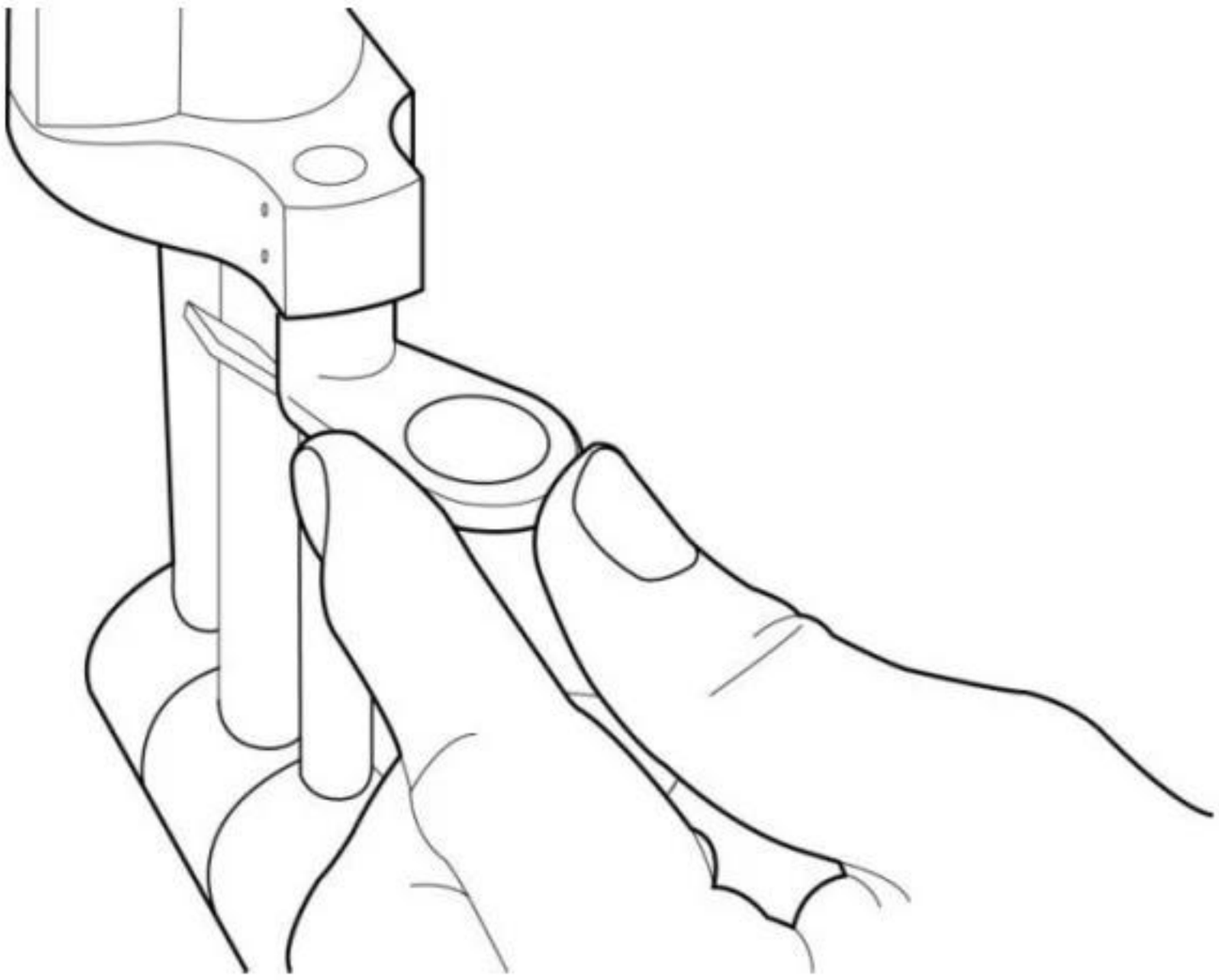


Step 5. Affix Cable fixation holder.

It combines the HS-5000(HS-7000) and it attaches the cable fixation holder in microscope arm.

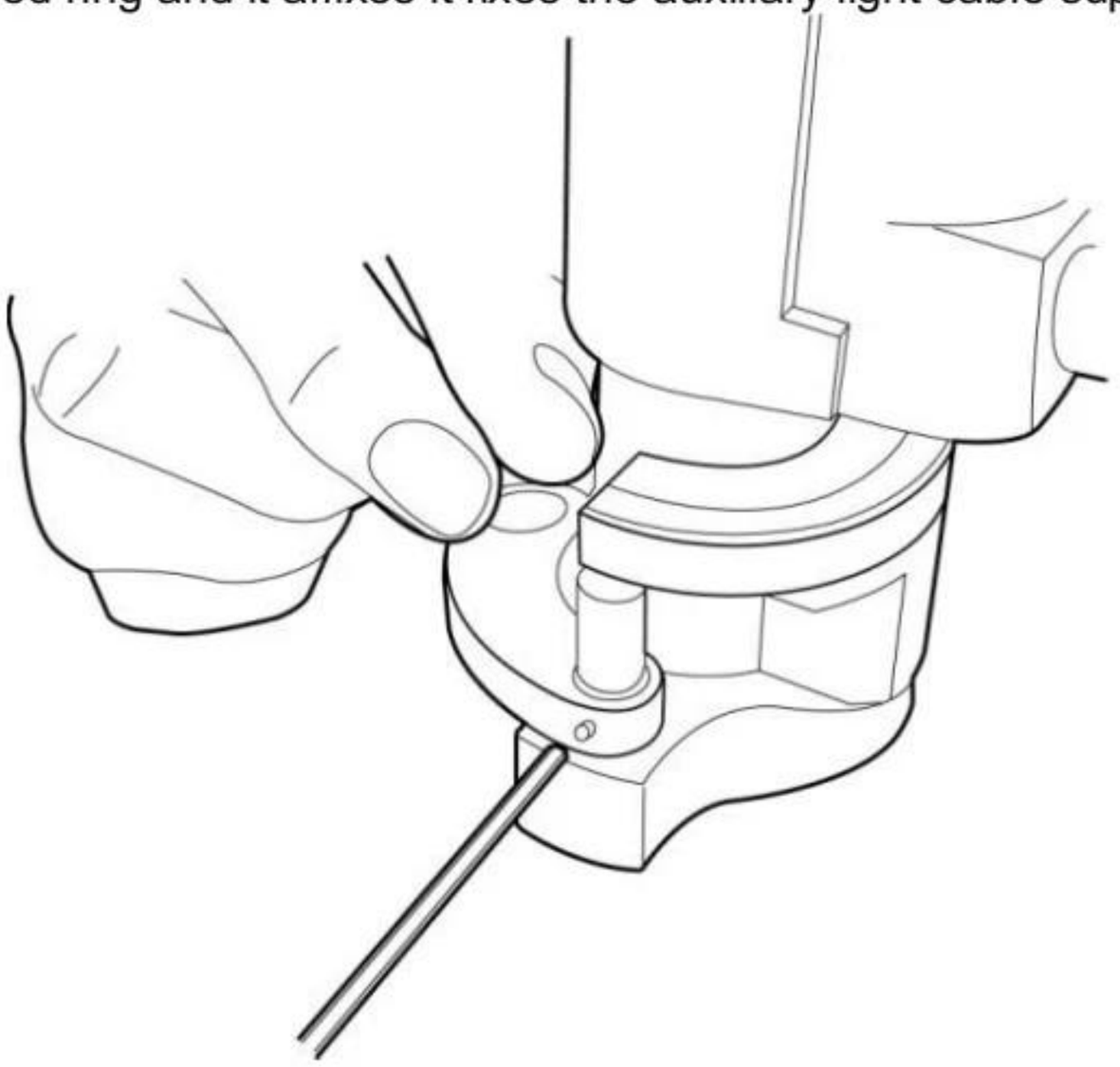


Step 6. Combine Scatter.



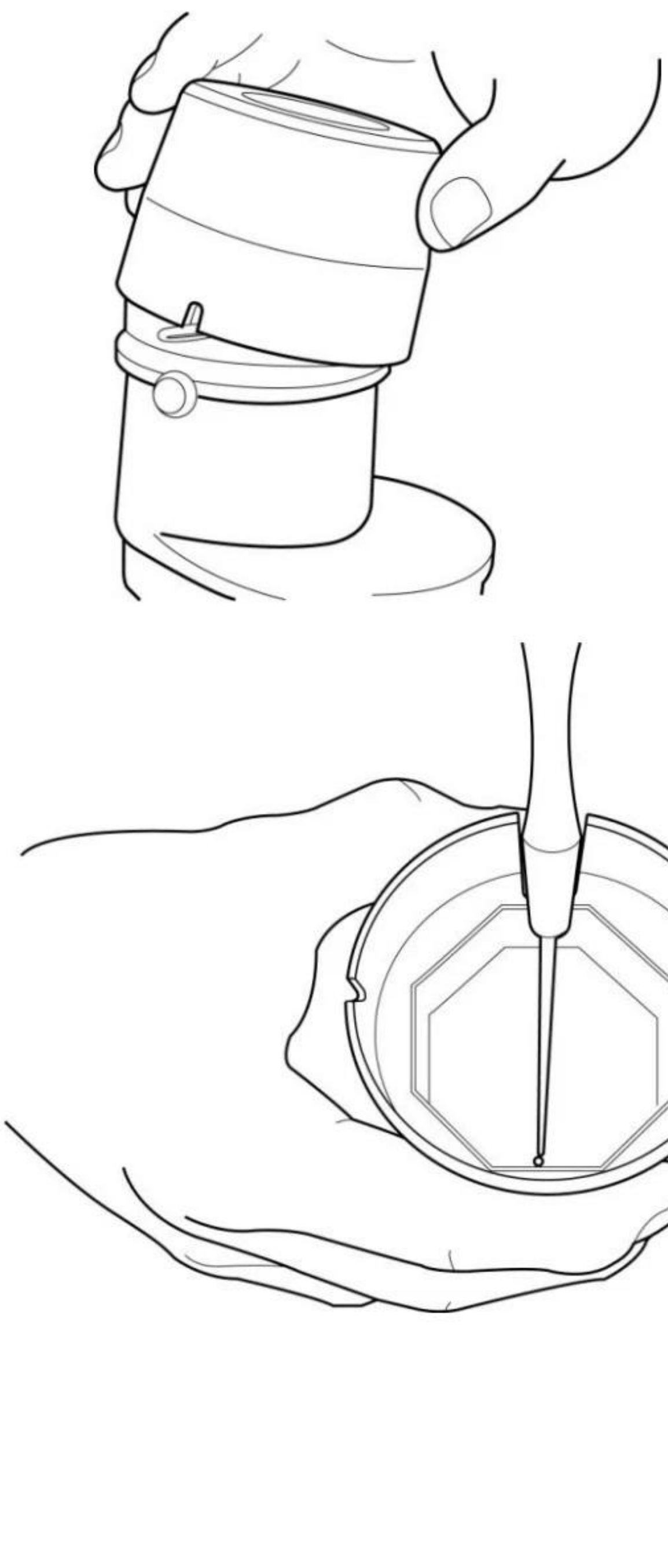
Step 7. Combine Auxiliary light cable supporter.

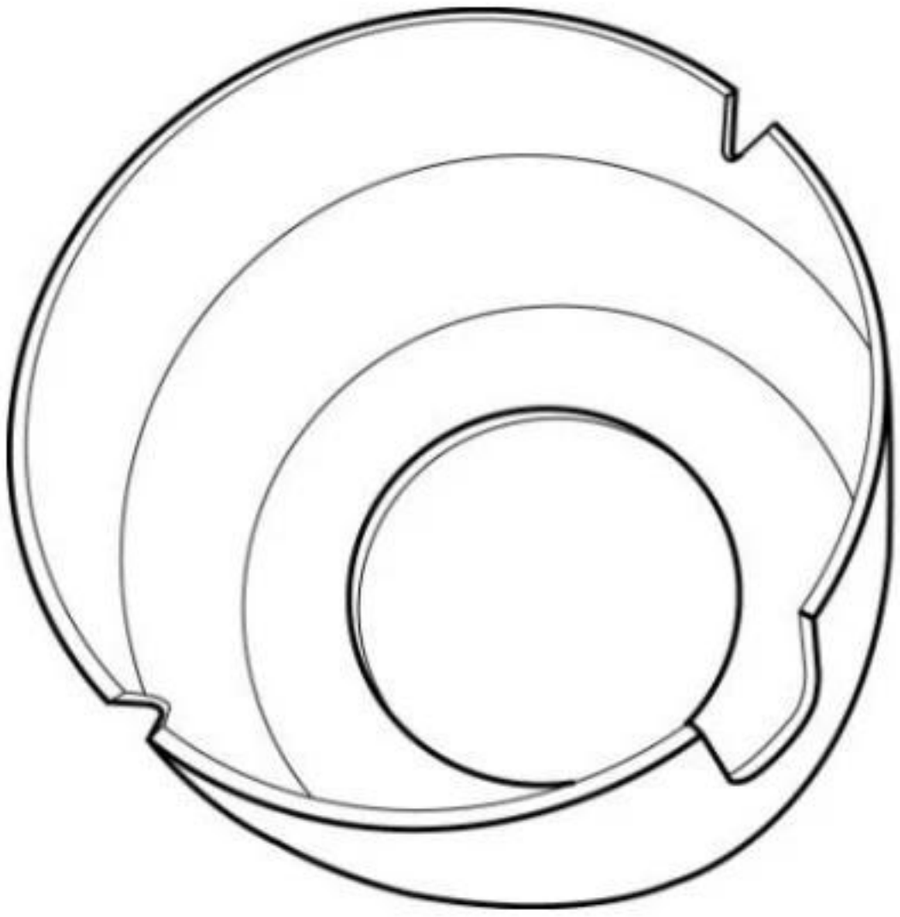
It lifts the scaled ring and it affixes it fixes the auxiliary light cable supporter.

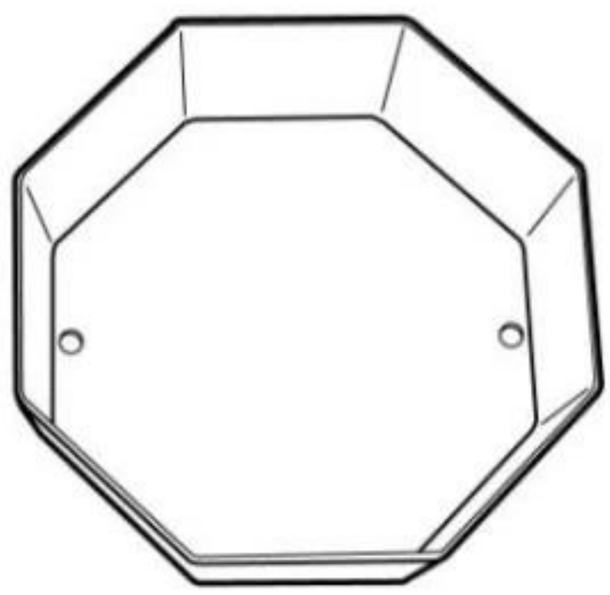


Step 8. Disassemble lamp cover.

It separates the lamp cover and it separates the inner cover.

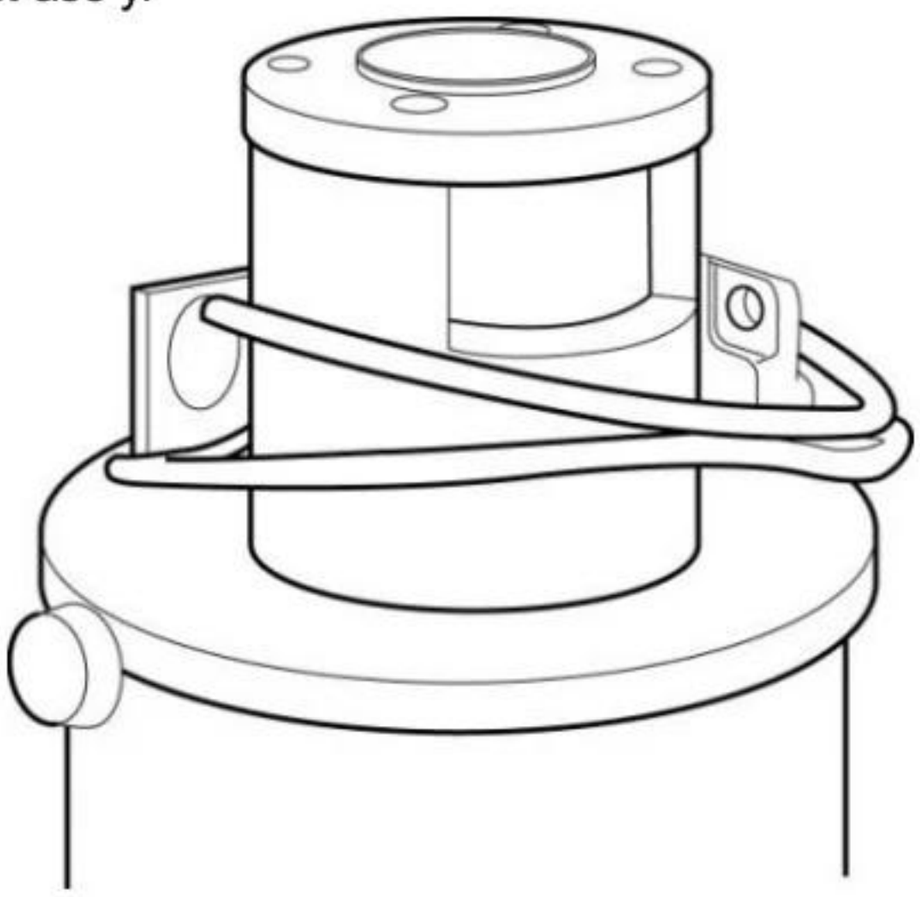






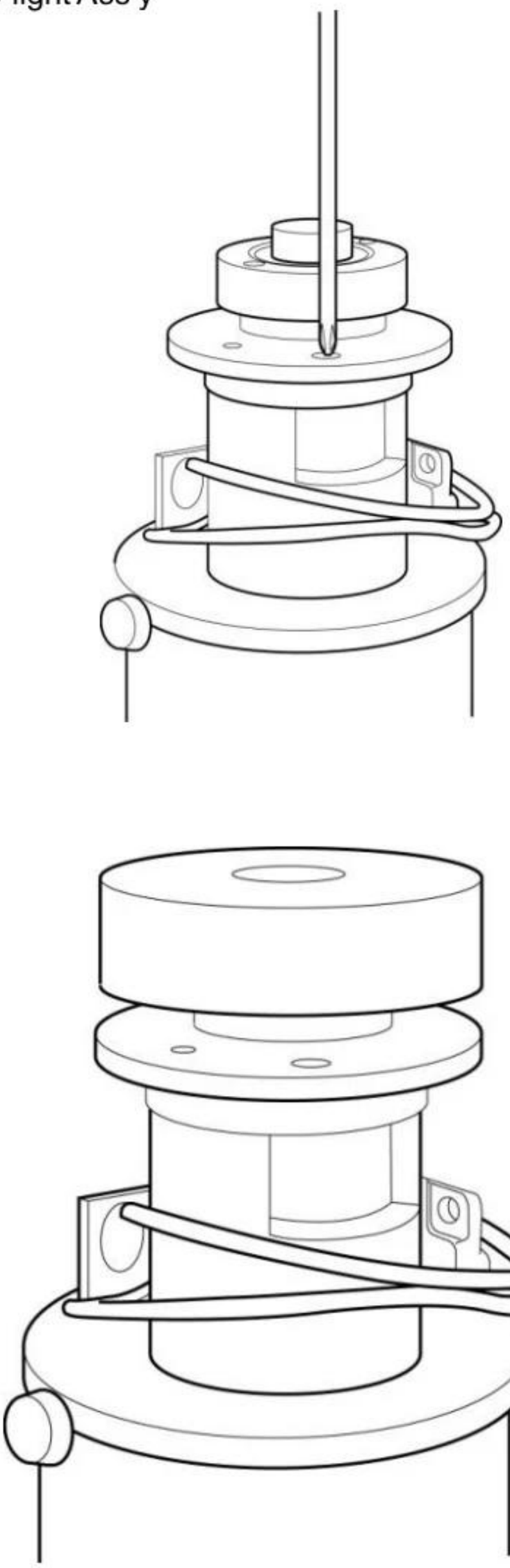
Step 9. Disassemble light Ass'y.

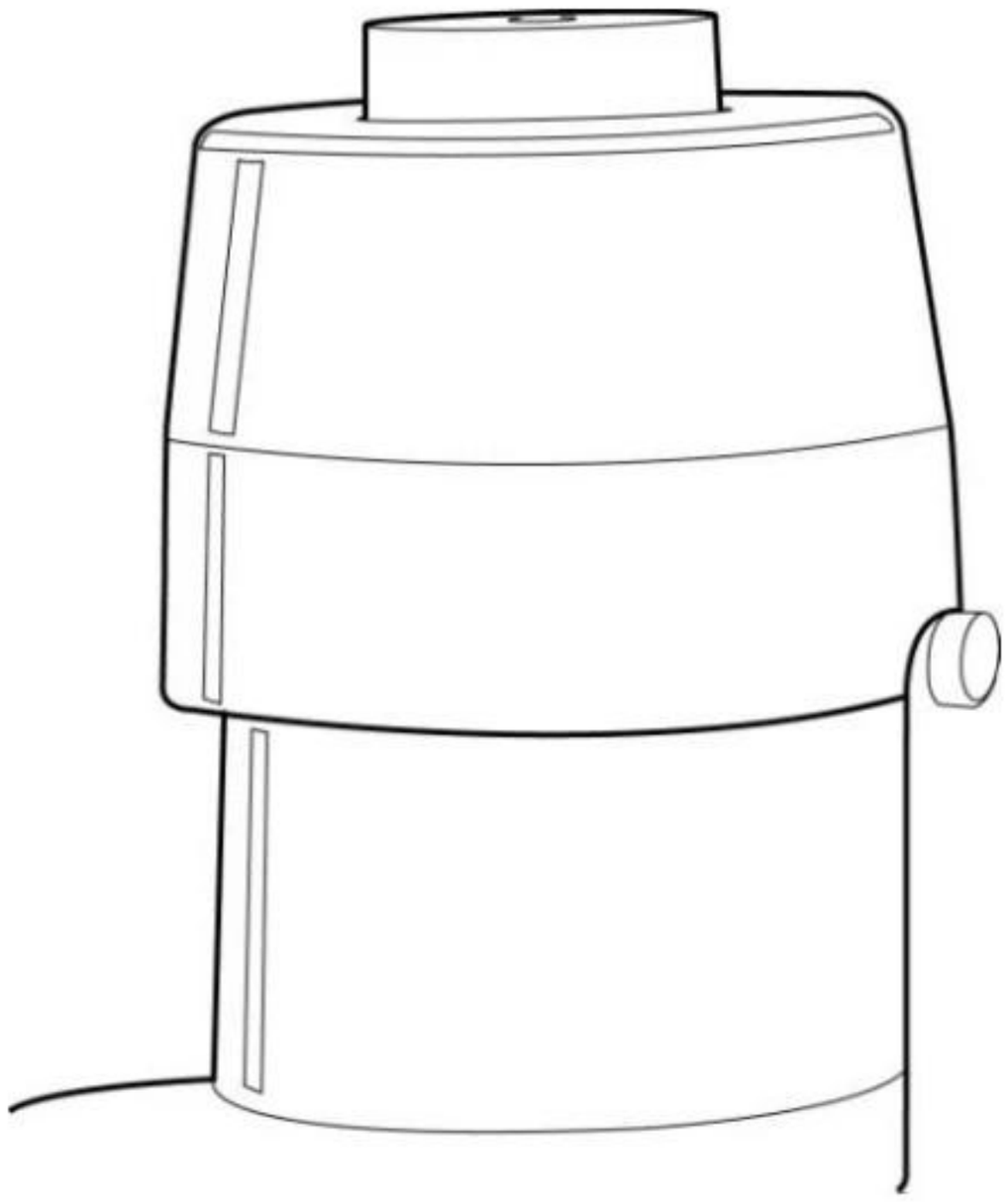
It separates the light ass'y.



Step 10. Combine Auxiliary light Ass'y.

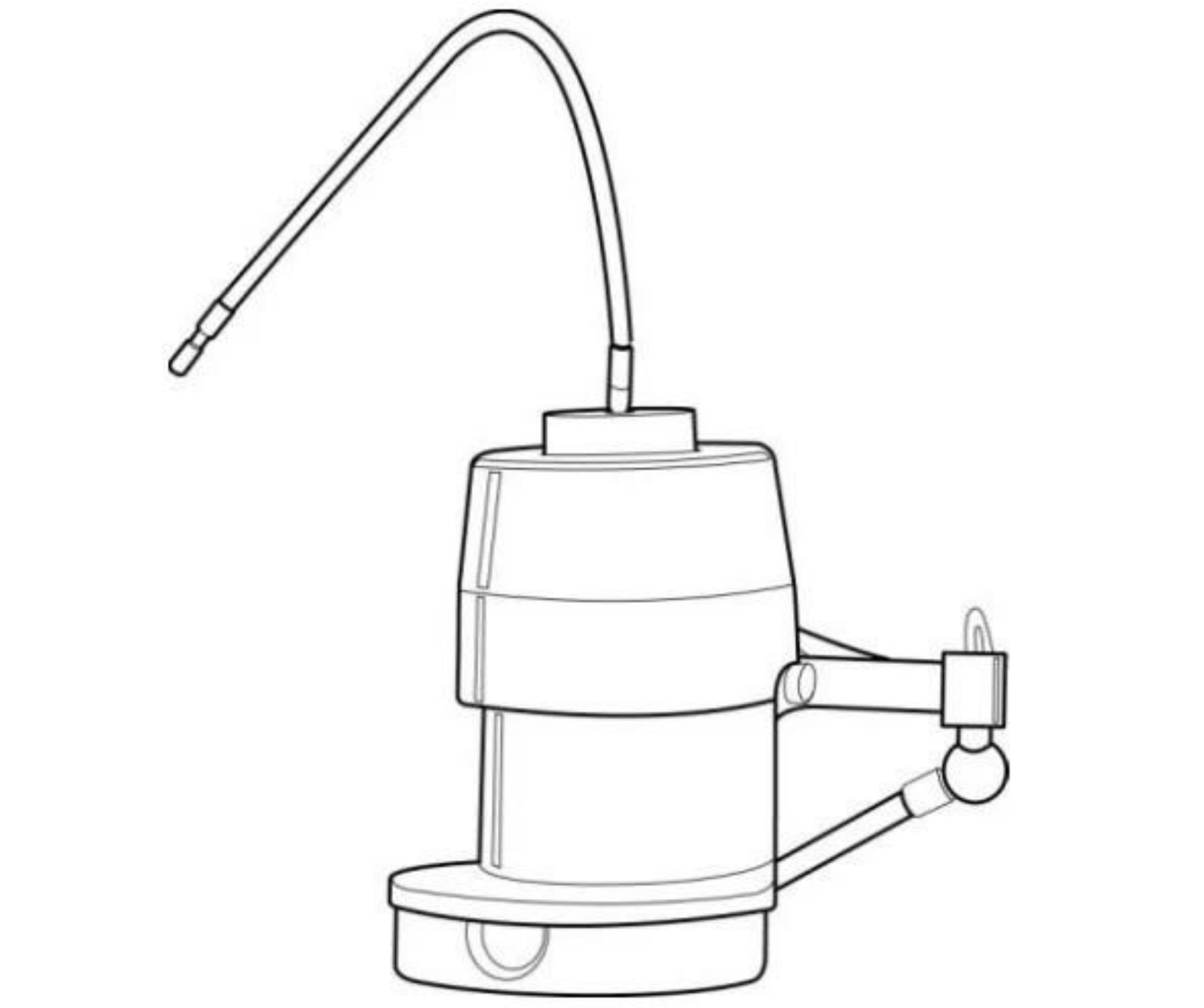
It affixes the auxiliary light Ass'y





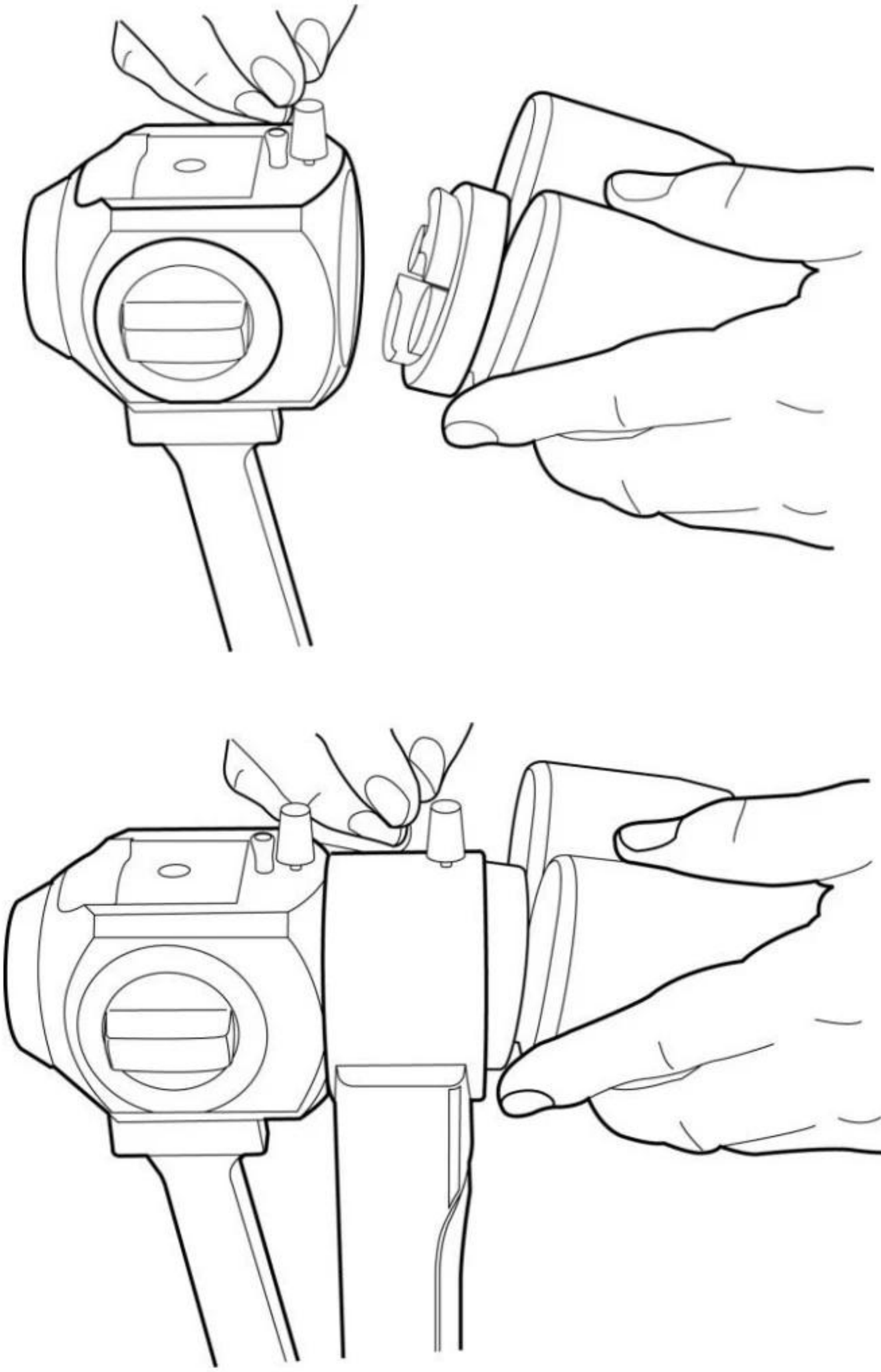
Step 11. Combine Auxiliary light cable.

It combines the cable in auxiliary light Ass'y and supporter.



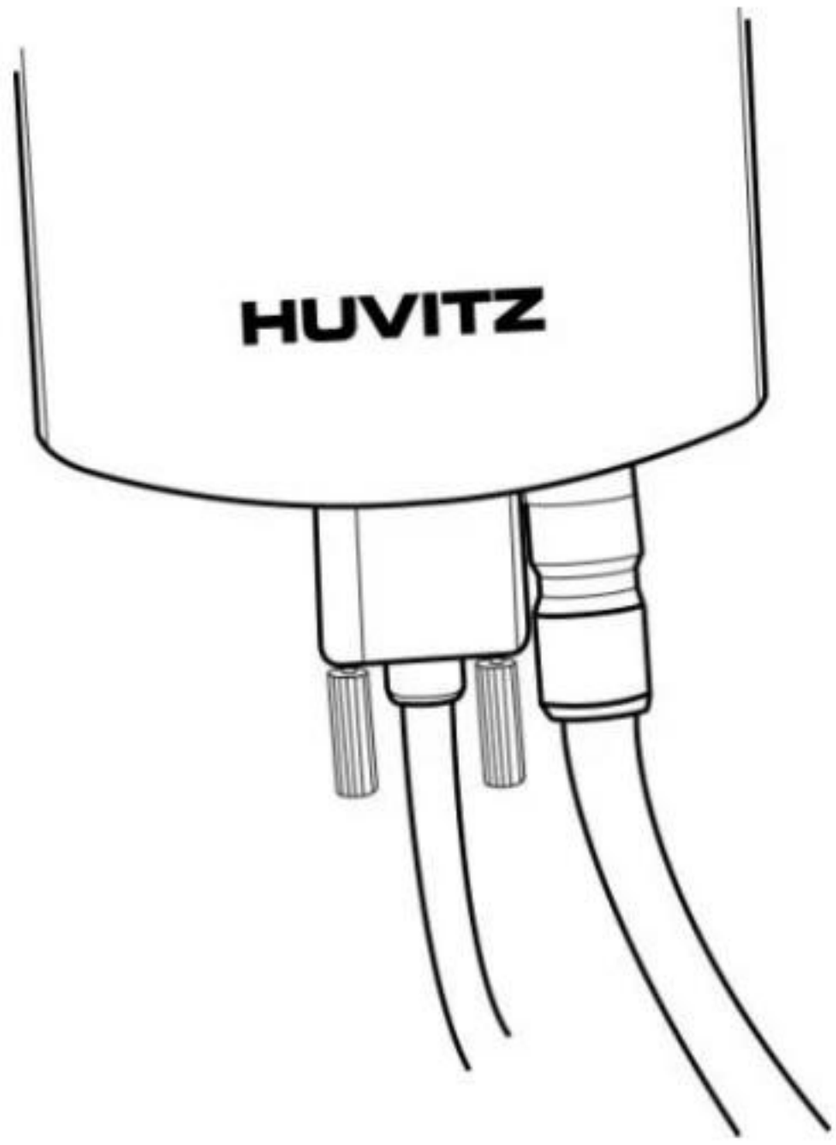
Step 12. Combine Camera Ass'y.

The Microscope separates and after affixing a camera ass'y, it combines again.



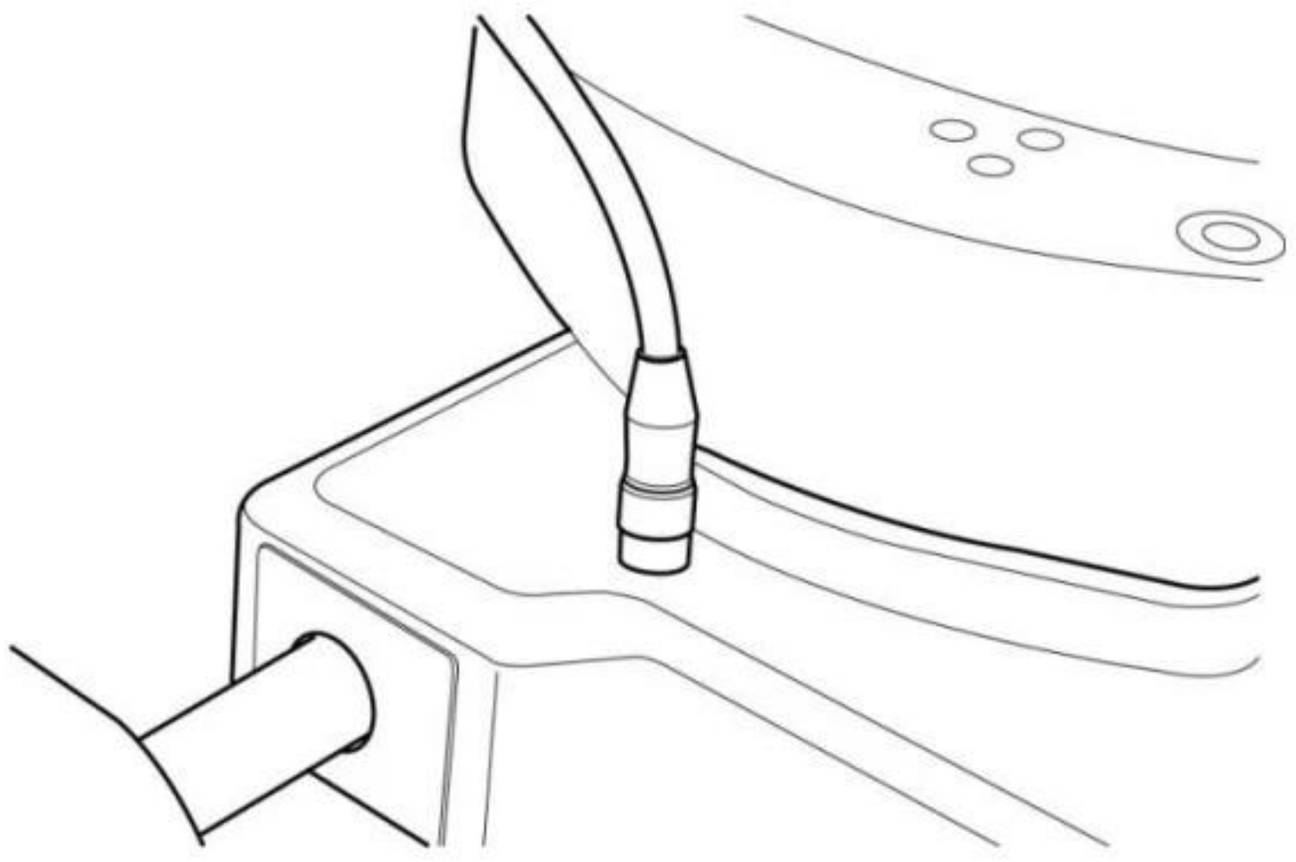
Step 13. Connect cable on the Camera Ass'y.

It connects the camera communication cable and the IEEE 1394 cable in camera ass'y.



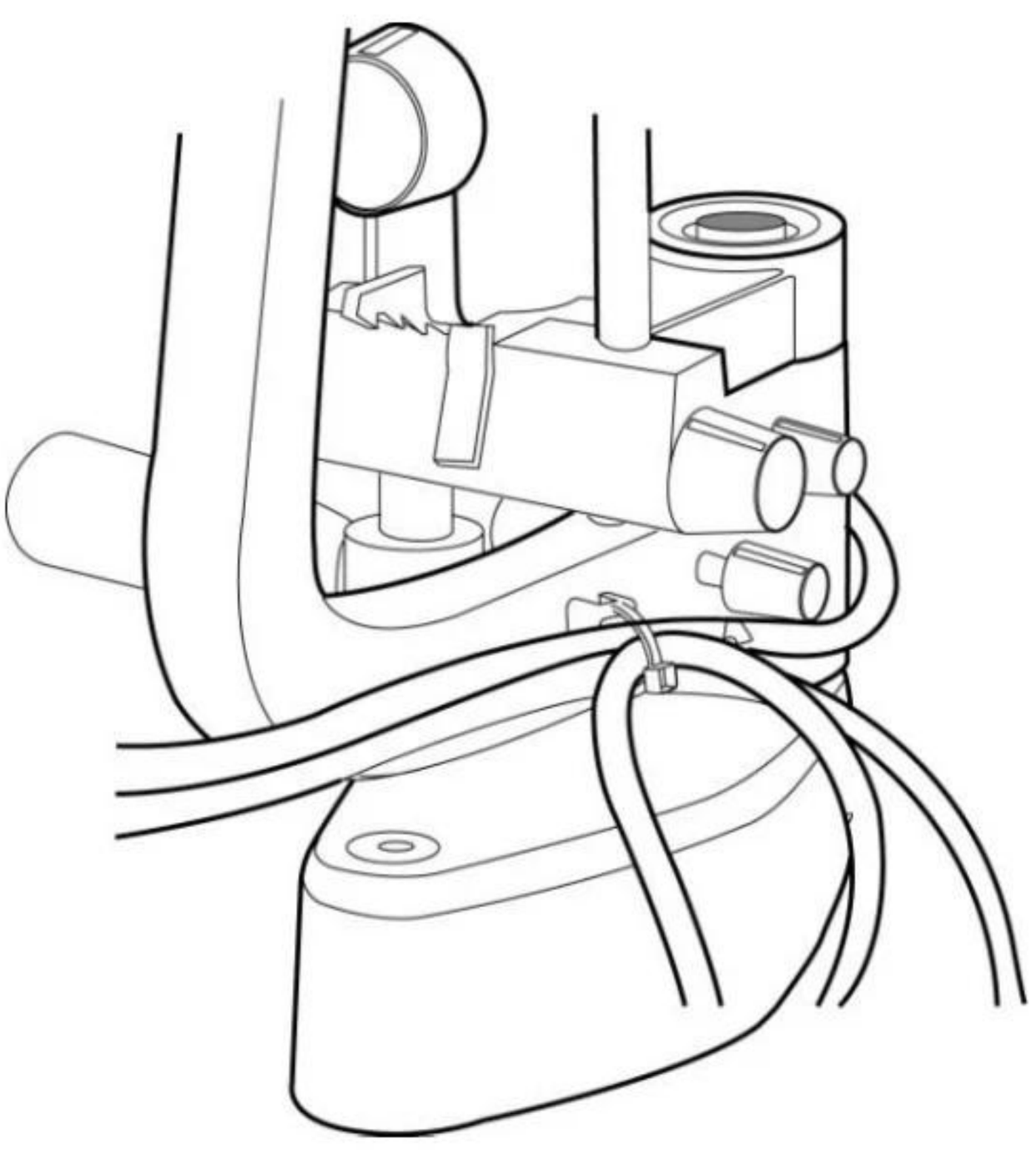
Step 14. Connect Camera communication cable.

It connects the camera communication cable in the base.



Step 15. Fix the cable.

It fixes in the cable fixation holder and it does there not to be an effect in operation.



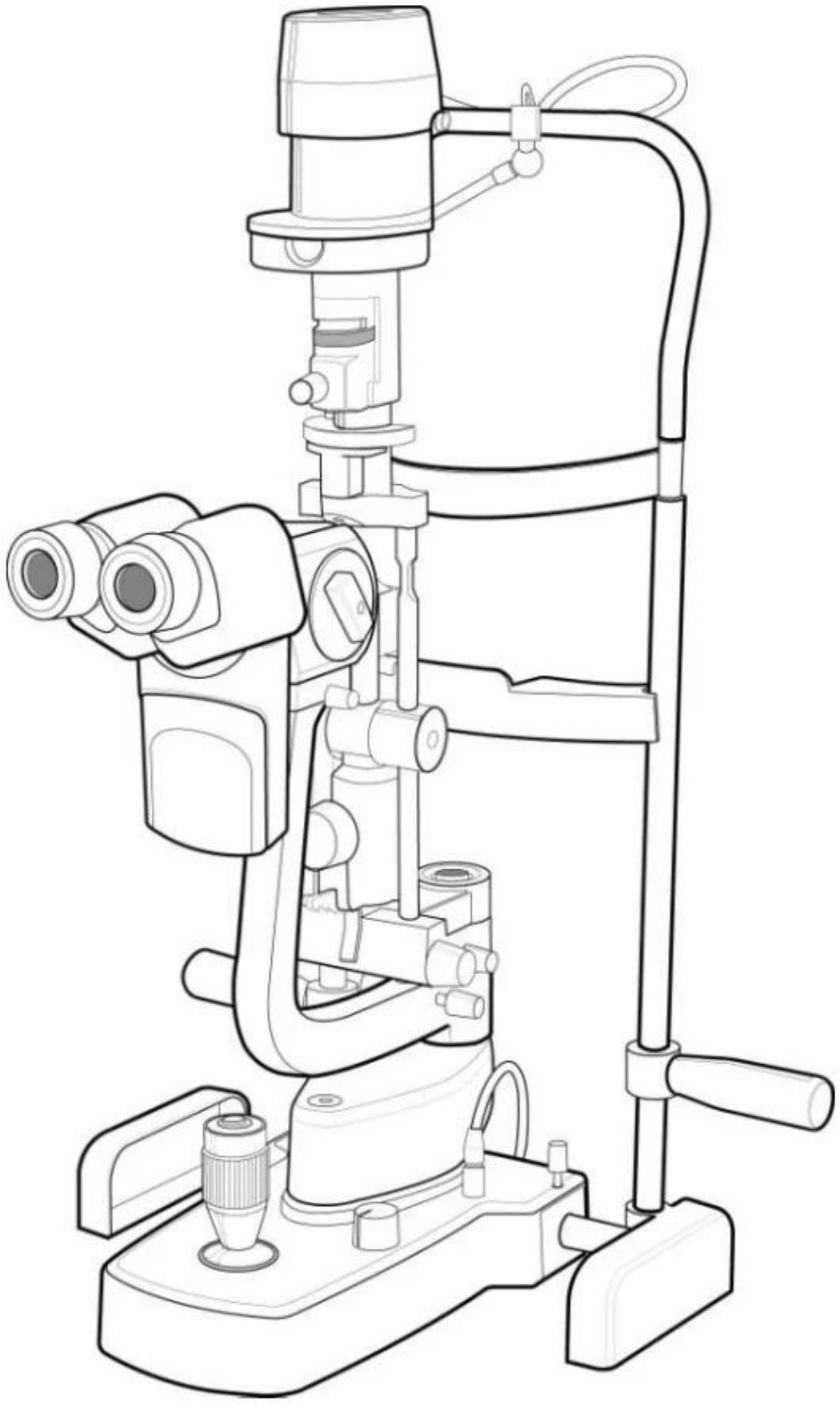
Step 16. Combine FireWire IEEE 1394 PCI Card

It establishes the FireWire IEEE 1394 PCI card in the PCI slot of the PC. The notebook establishes the FireWire IEEE 1394 PCMCIA card in the ramyon PCMCIA slot. If there is a IEEE 1394 port to the PC, this step omits.

Step 17. Connect the IEEE 1394 cable and PC.

Connect the FireWire connector on the Camera to the FireWire port on the rear panel of the PC, by using the long FireWire cable.

Step 18. Be sure the PC is turned off. Turn on the PC and turn on the Slit-lamp, HS-5000.(HS-7000)



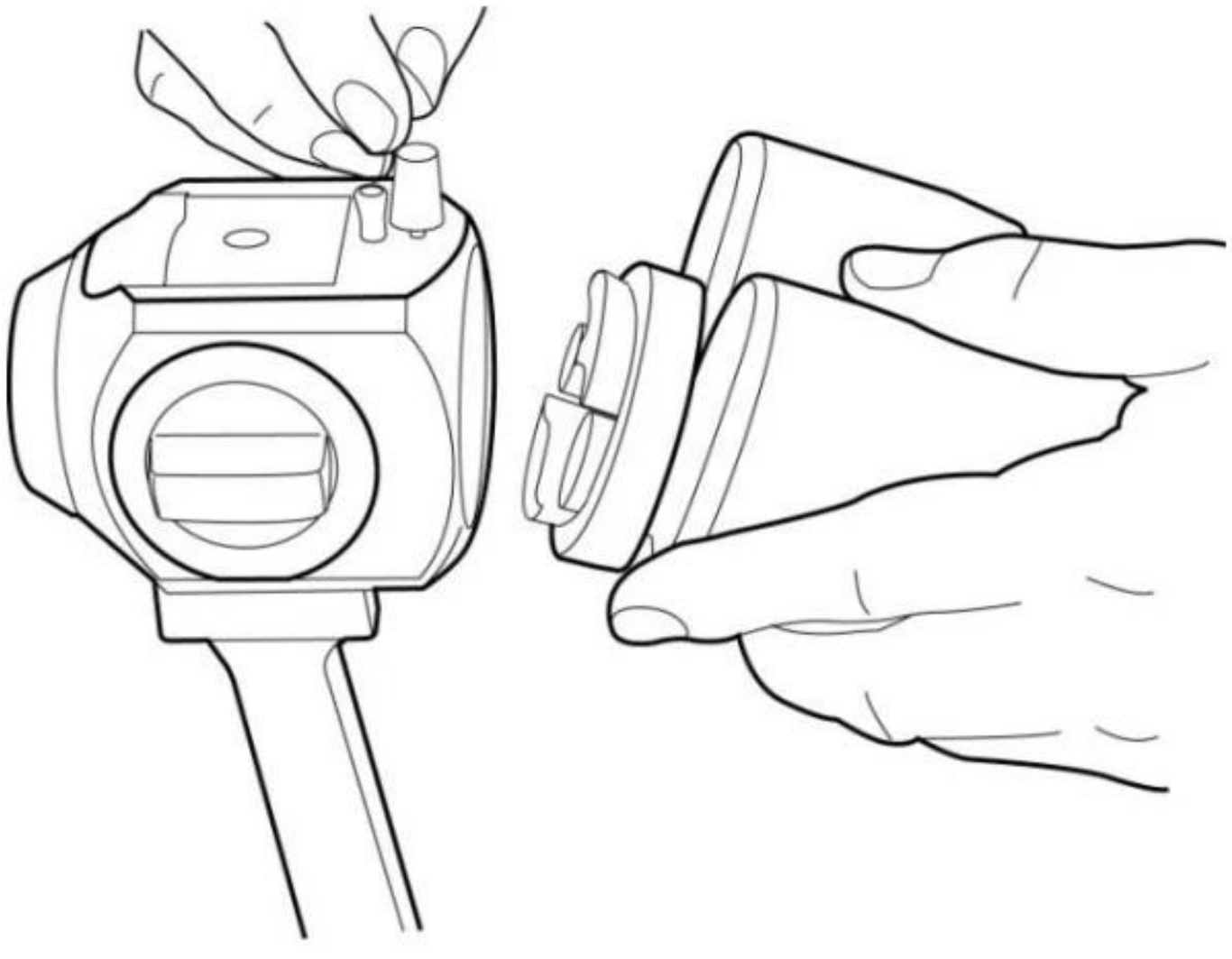
2.2 For HS-5500(HS-7500) (ZEISS TYPE)

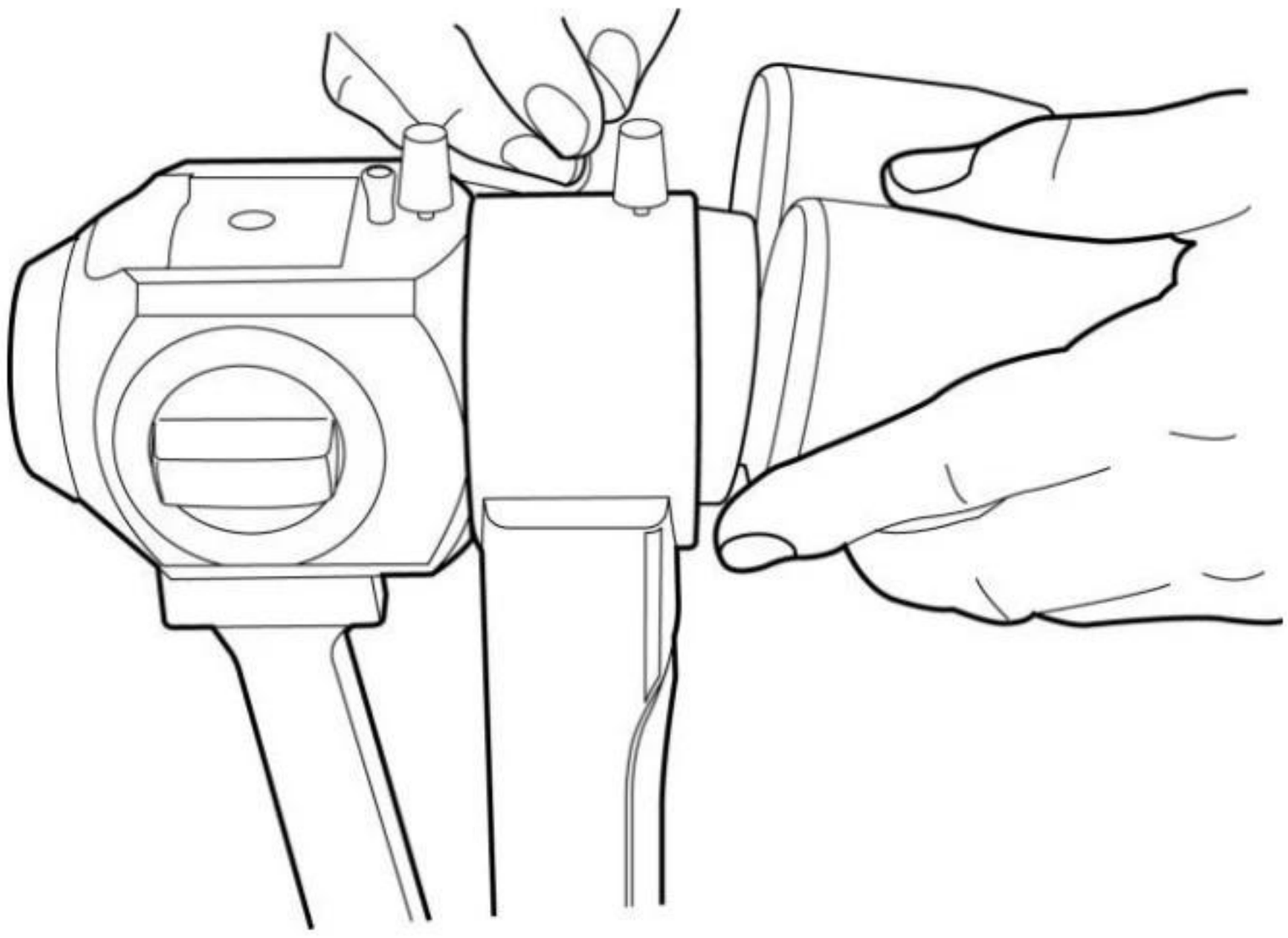
2.1.1 The Case which will be combined the Slit-lamp, HS-5500(HS-7500)

The case where the HIS-5000 3X is combined in the Slit-lamp, HS-5500(HS-7500) the R/L sensor PCB or auxiliary light ass'y will become establishment. It will affix the camera module which is included consequently in the accessories and it will be able to establish the HIS-5000 3X.

Step 1. Combine Camera Ass'y.

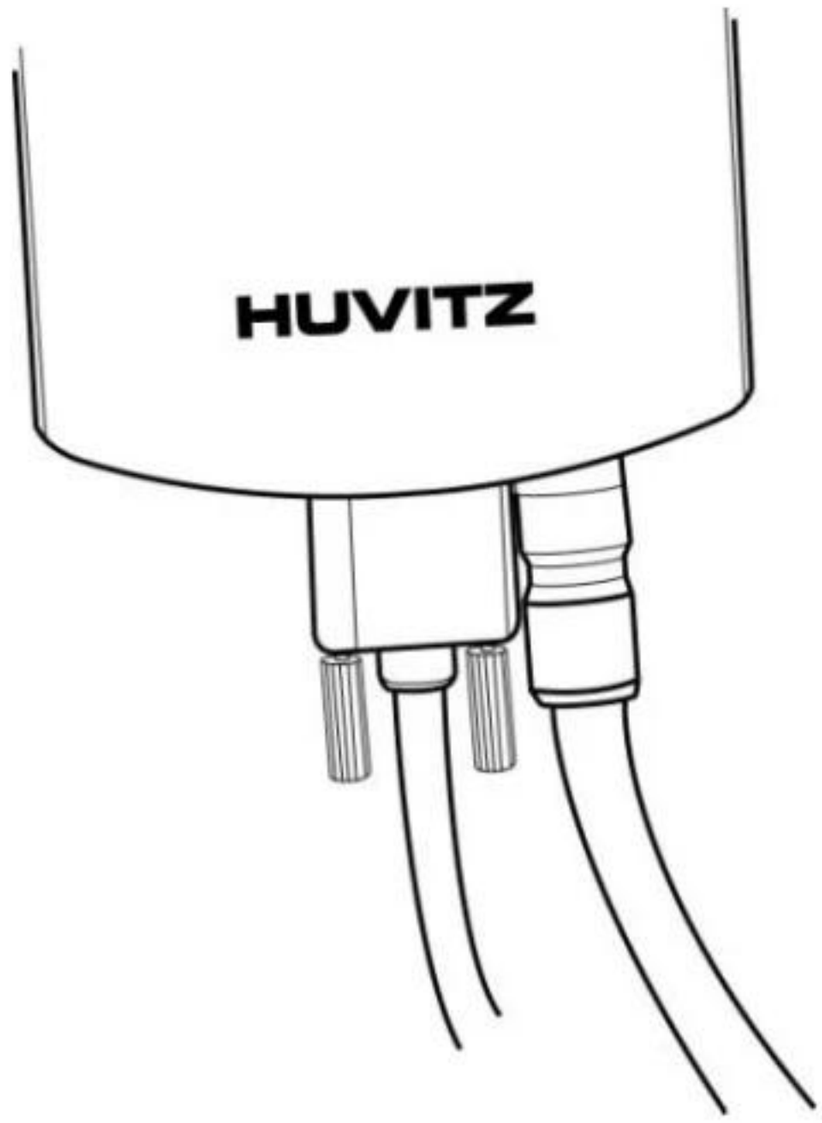
The Microscope separates and after affixing a camera ass'y, it combines again





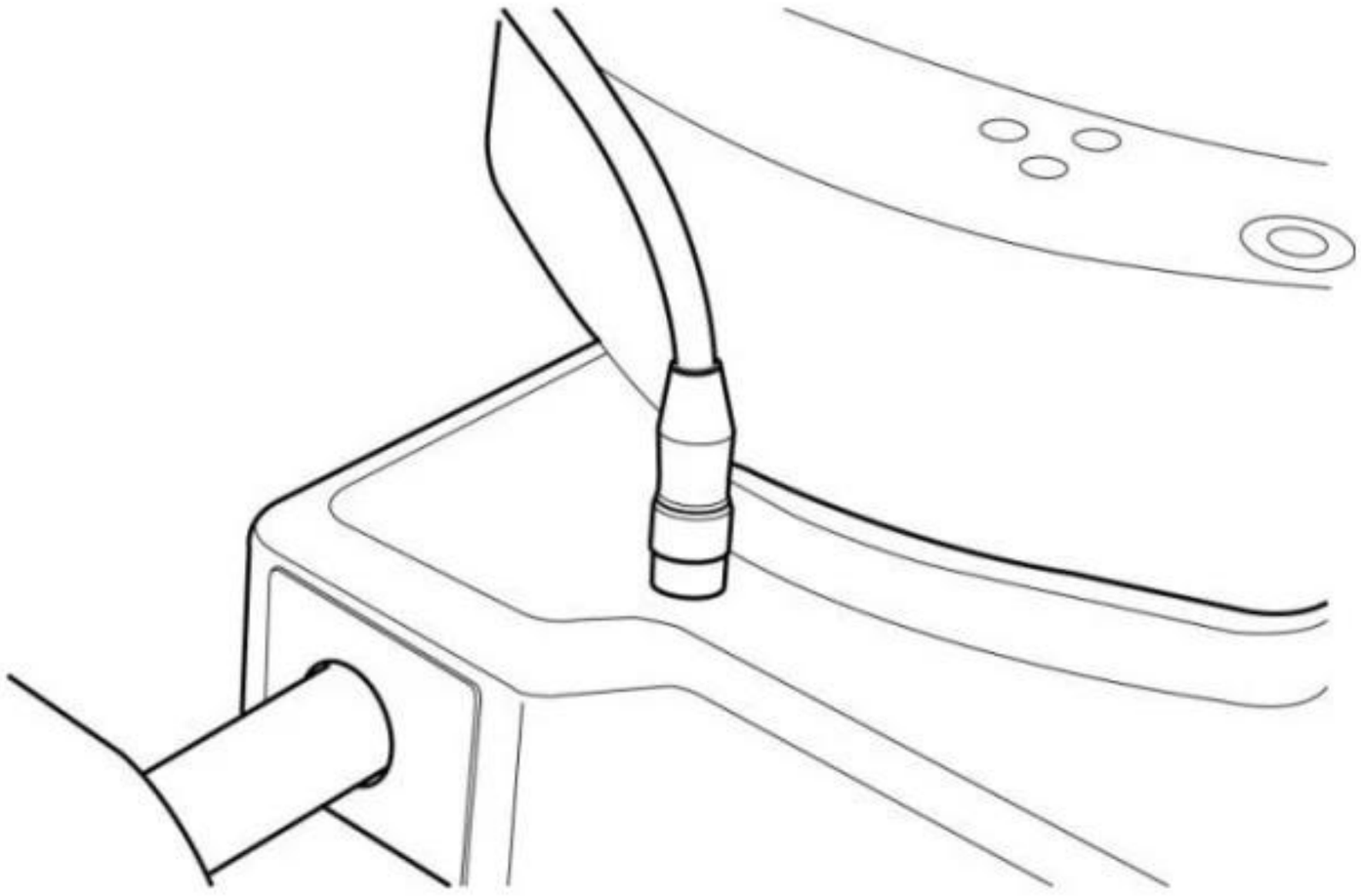
Step 2. Connect cable on the Camera Ass'y.

It connects the camera communication cable and the IEEE 1394 cable in camera ass'y.



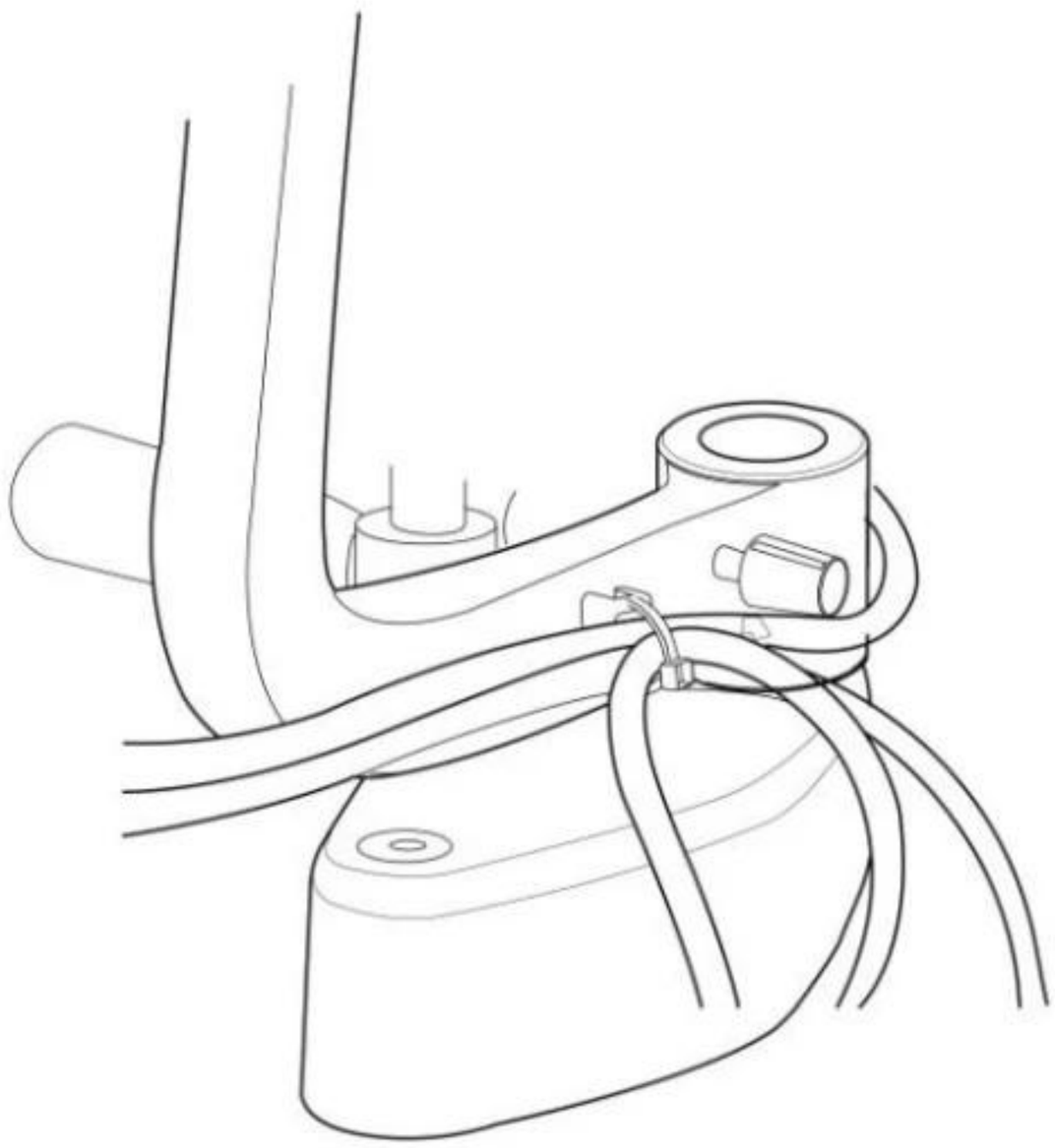
Step 3. Connect Camera communication cable.

It connects the camera communication cable in the base.



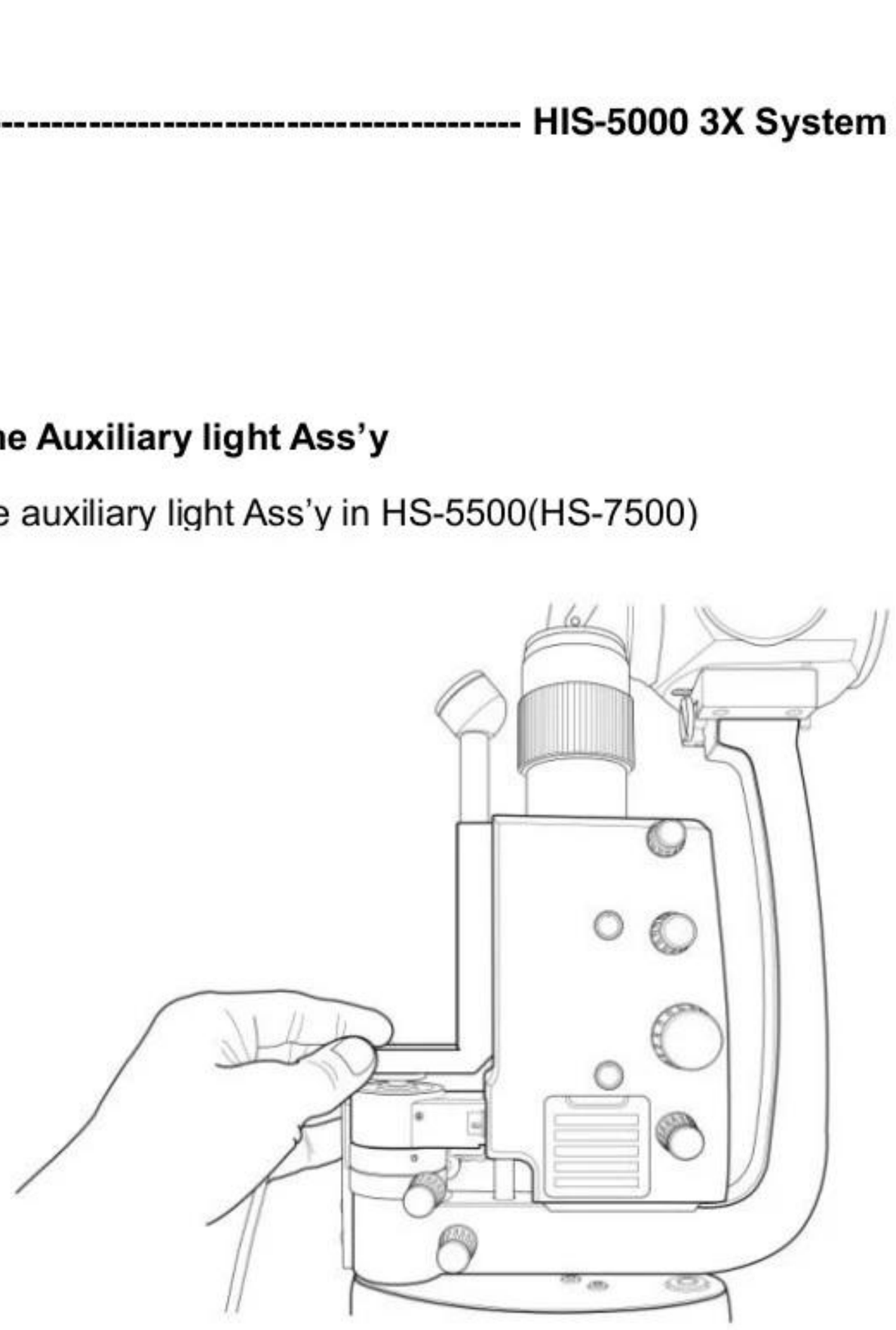
Step 4 Fix the cable.

It fixes in the cable fixation holder and it does there not to be an effect in operation.



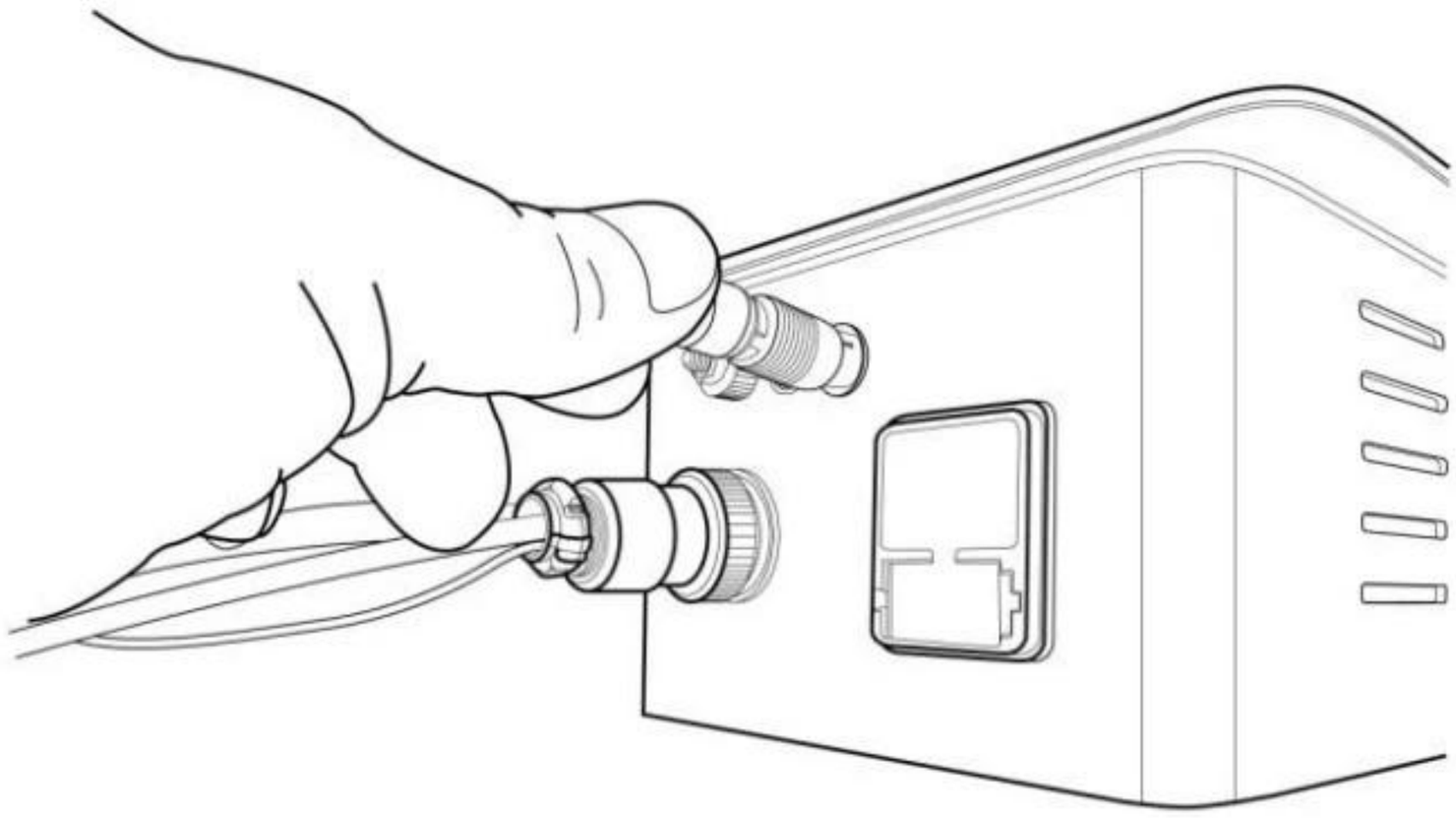
Step 5 Combine Auxiliary light Ass'y

It combines the auxiliary light Ass'y in HS-5500(HS-7500)



Step 6. Connect Auxiliary light Ass'y cable.

It connects the Auxiliary light Ass'y cable in the SMPS



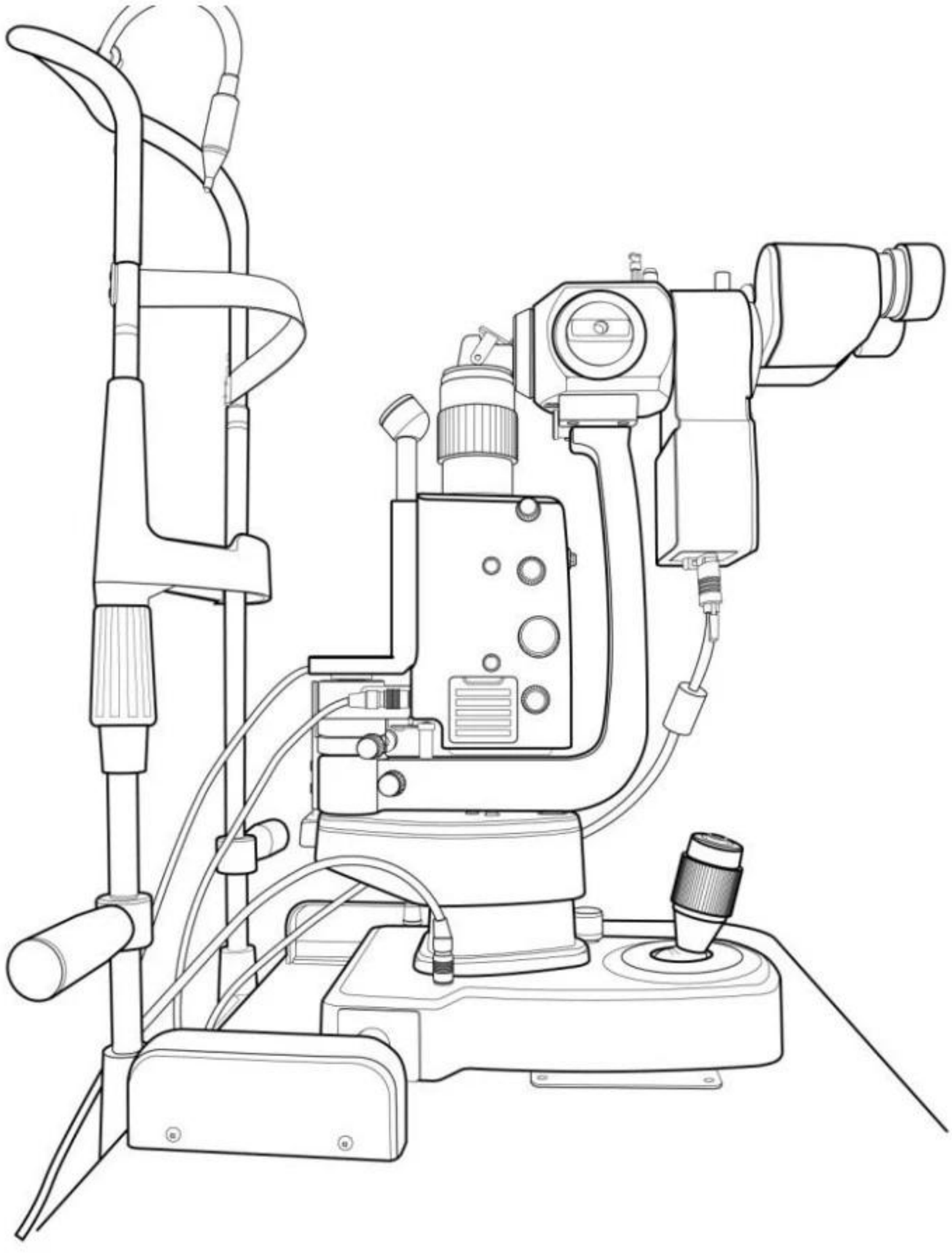
Step 7. Combine FireWire IEEE 1394 PCI Card

It establishes the FireWire IEEE 1394 PCI card in the PCI slot of the PC. The notebook establishes the FireWire IEEE 1394 PCMCIA card in the ramyon PCMCIA slot. If there is a IEEE 1394 port to the PC, this step omits.

Step 8. Connect the IEEE 1394 cable and PC.

Connect the FireWire connector on the Camera to the FireWire port on the rear panel of the PC, by using the long FireWire cable.

Step 9. Be sure the PC is turned off. Turn on the PC and turn on the Slit-lamp, HS-5500(HS-7500).

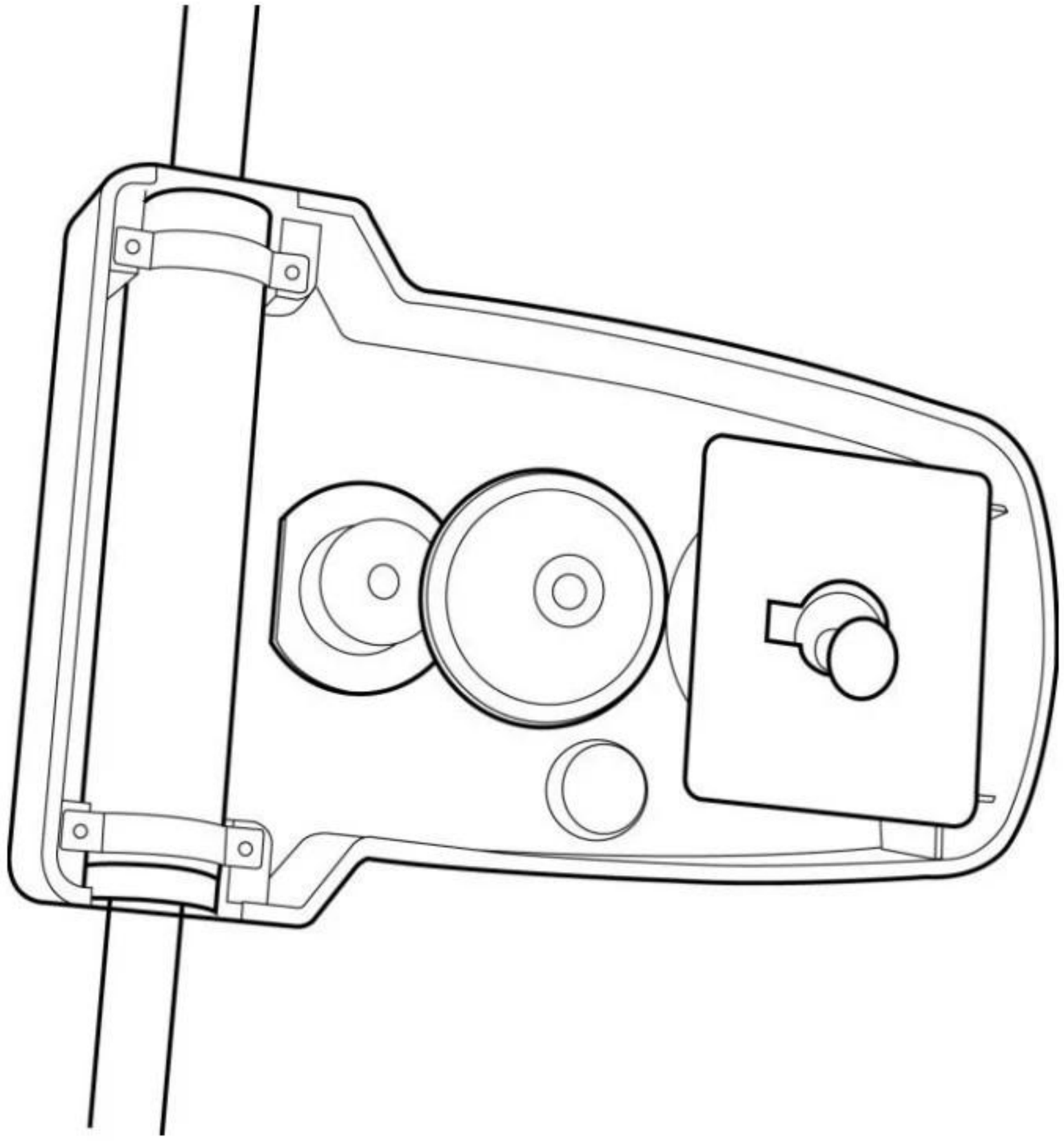


2.2.2 The Case which will not be combined the Slit-lamp, HS-5500(HS-7500)

To install *HIS-5000 3X system,* perform the following steps:

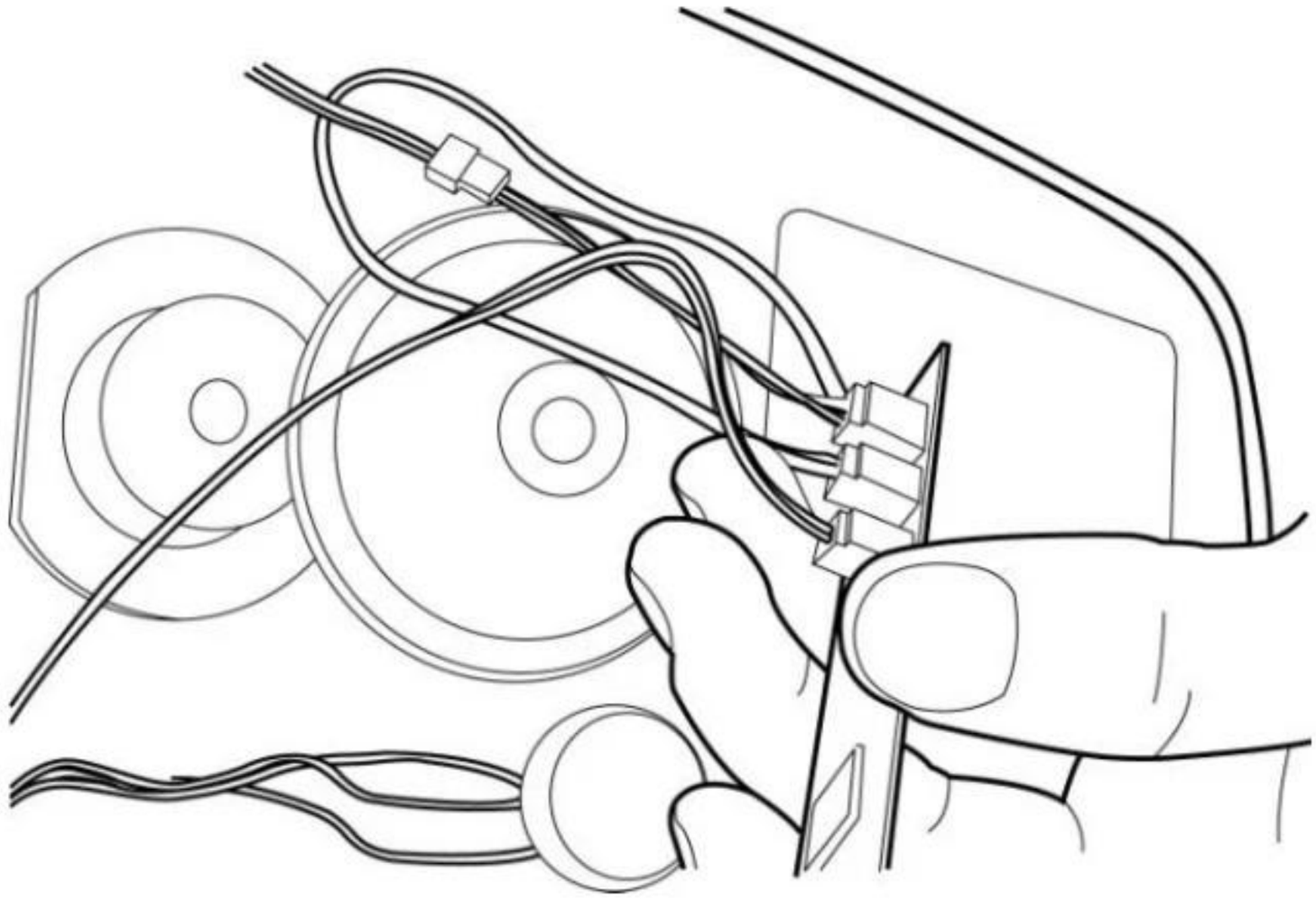
Step 1. Disassemble the HS-5500(HS-7500).

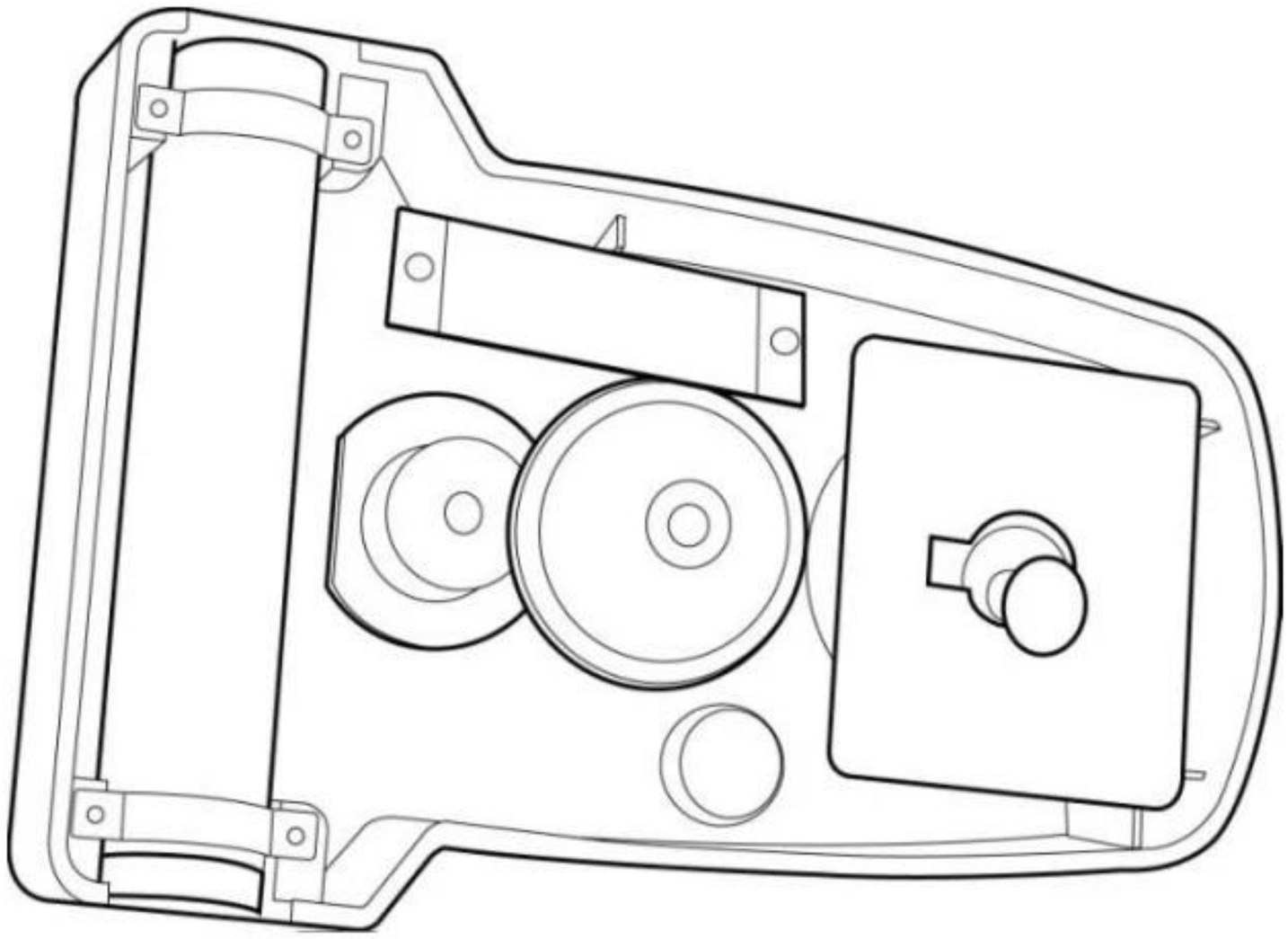
It refers to Manual of the HS-5500(HS-7500) and after separating, the base together with the picture it turns over.



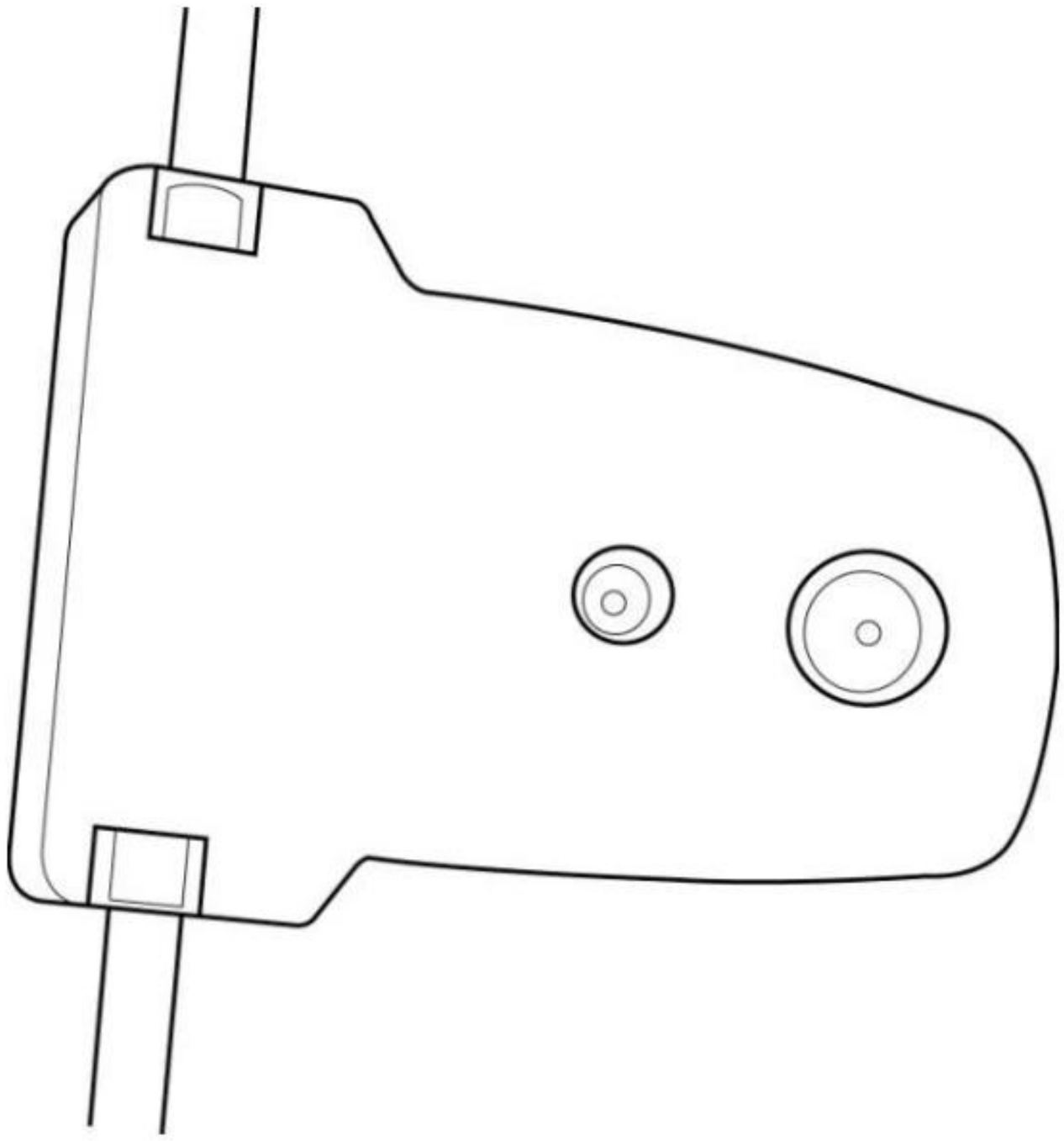
Step 2. Combine Light sensor PCB.

It connects in the light sensor PCB socket and it affixes the PCB.

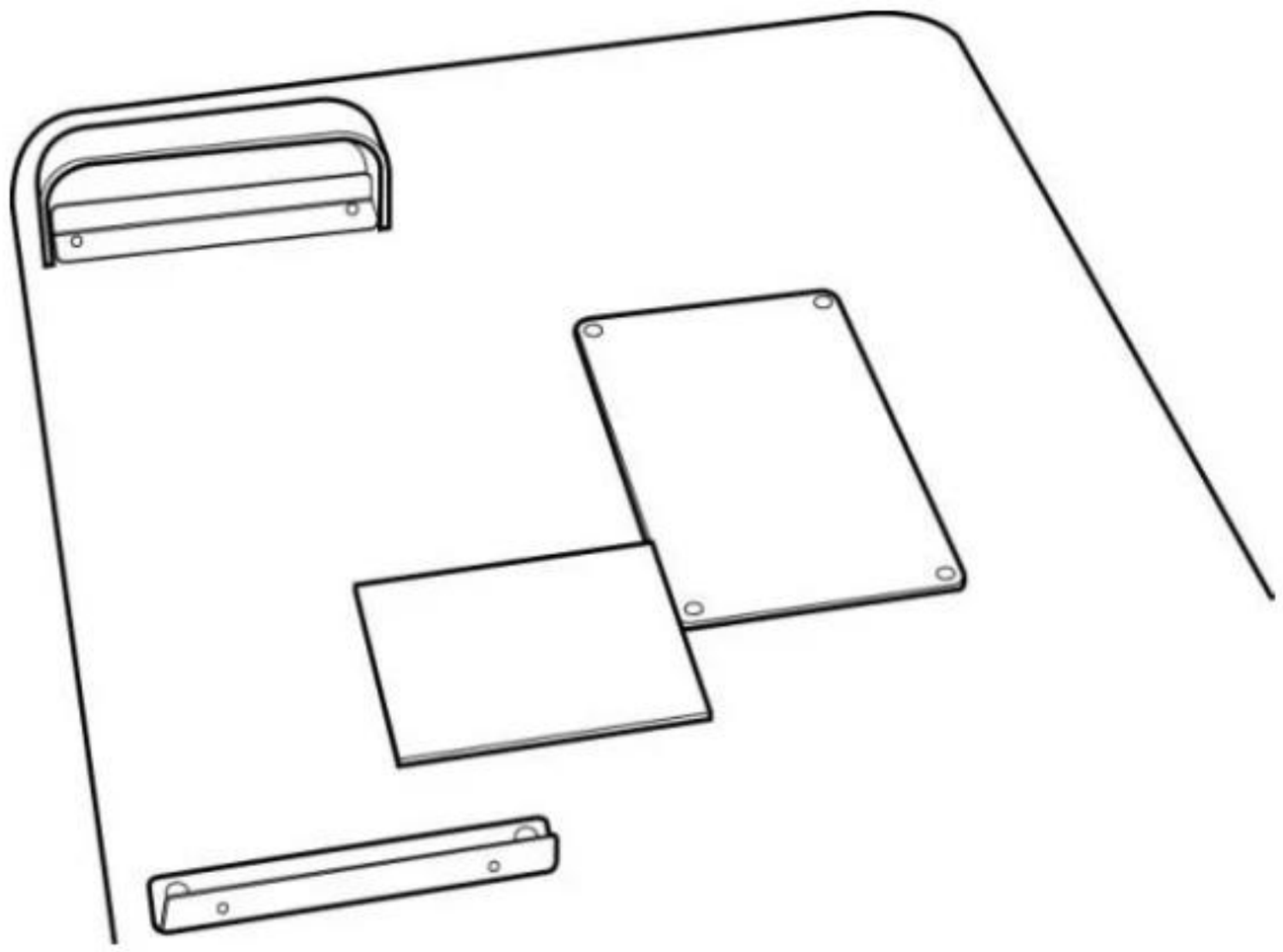




Step 3. Combine Base cover.

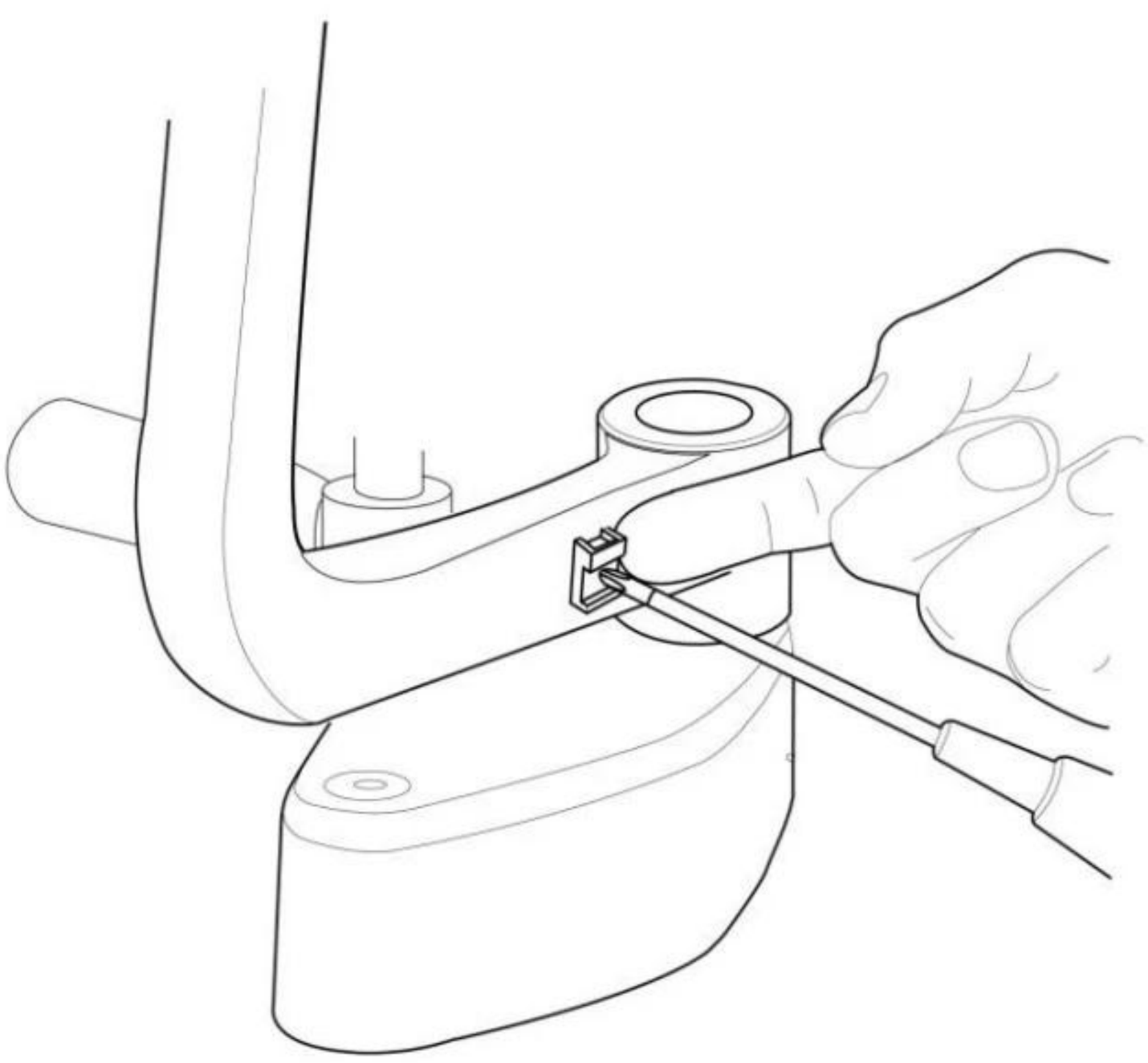


Step 4. Affix Light sensor plate.



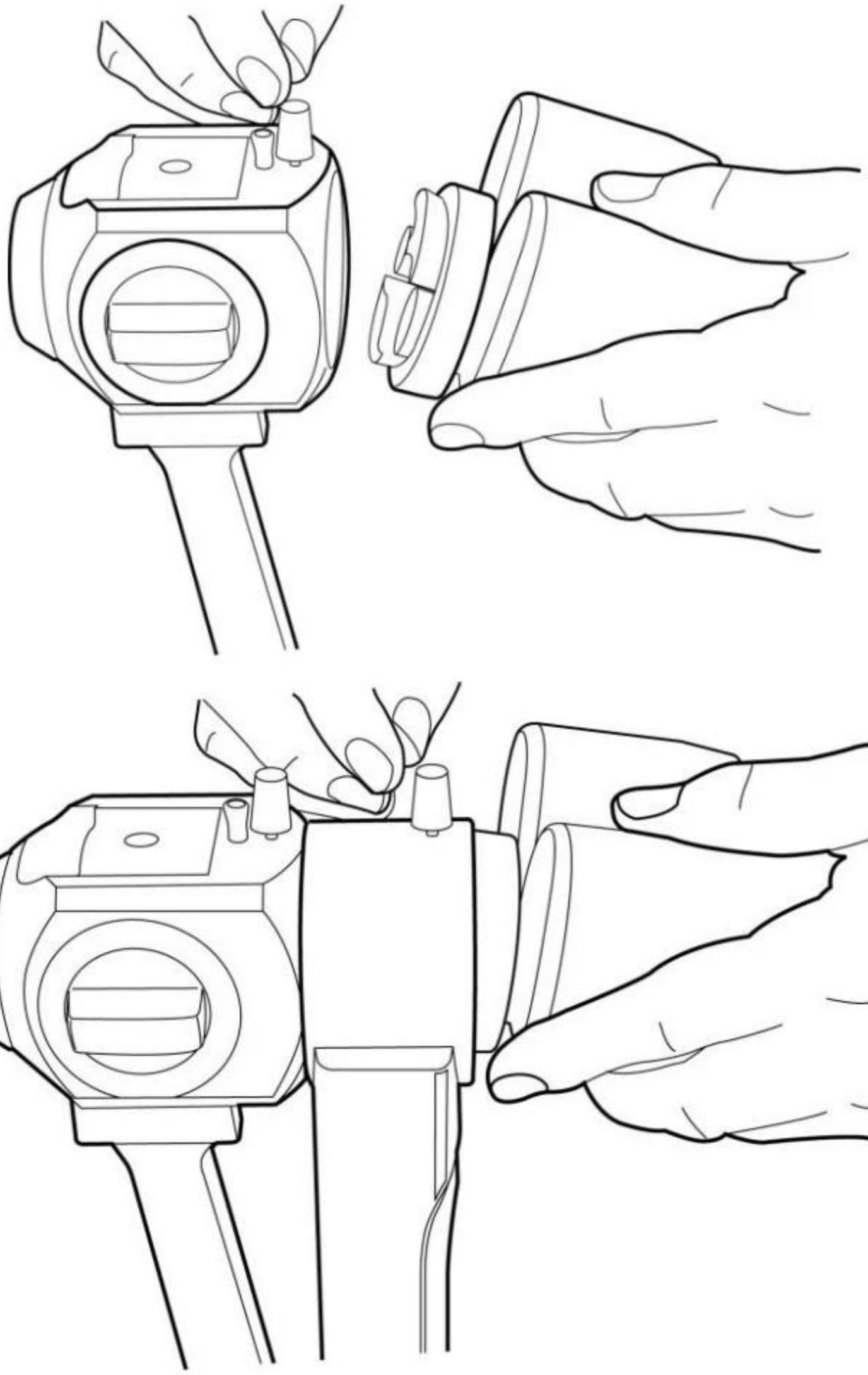
Step 5. Affix Cable fixation holder.

It combines the HS-5500(HS-7500) and it attaches the cable fixation holder in microscope arm.



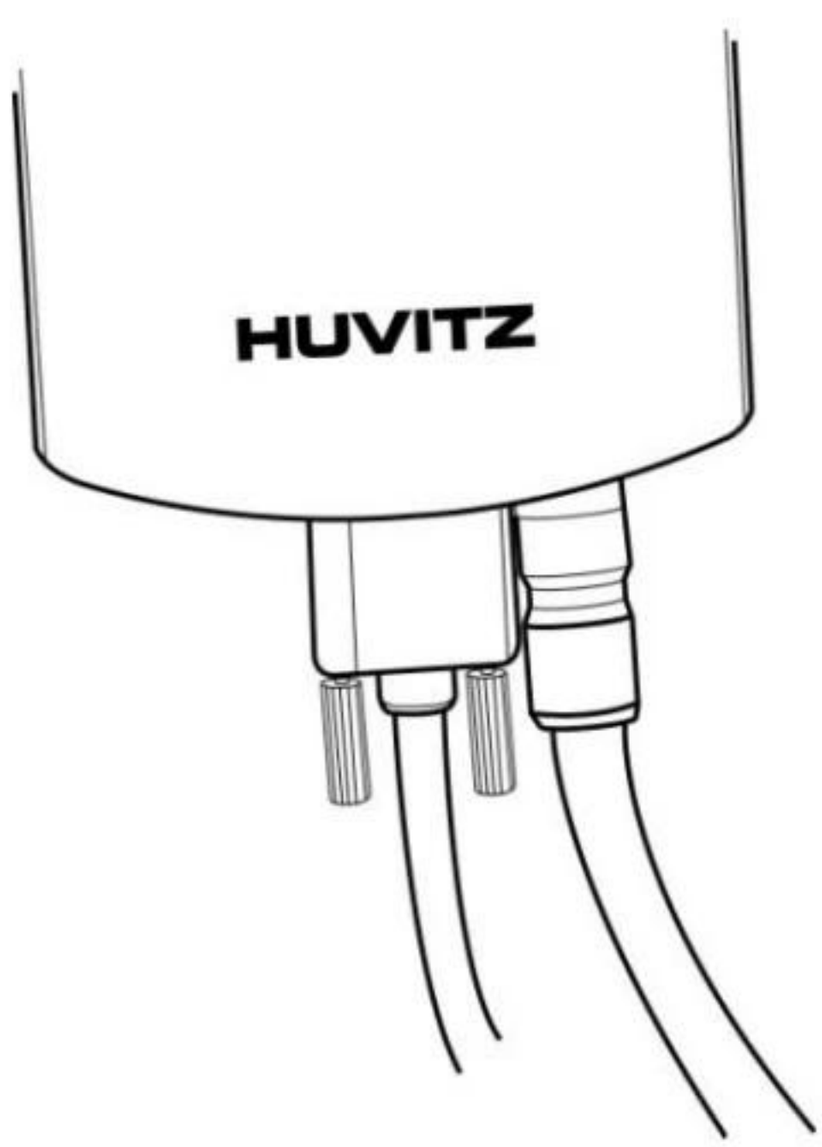
Step 6. Combine Camera Ass'y.

The Microscope separates and after affixing a camera ass'y, it combines again



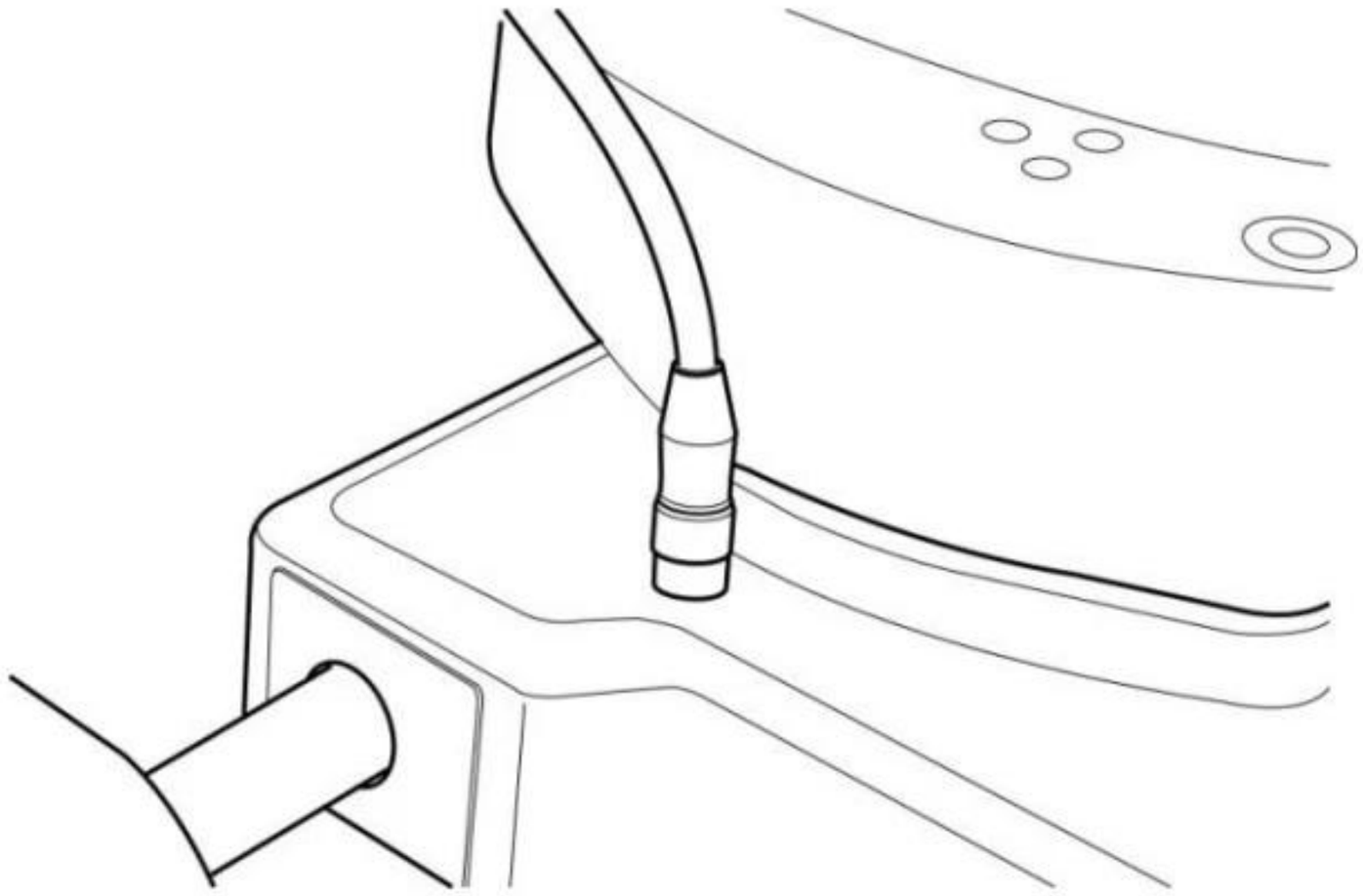
Step 7. Connect cable on the Camera Ass'y.

It connects the camera communication cable and the IEEE 1394 cable in camera ass'y.



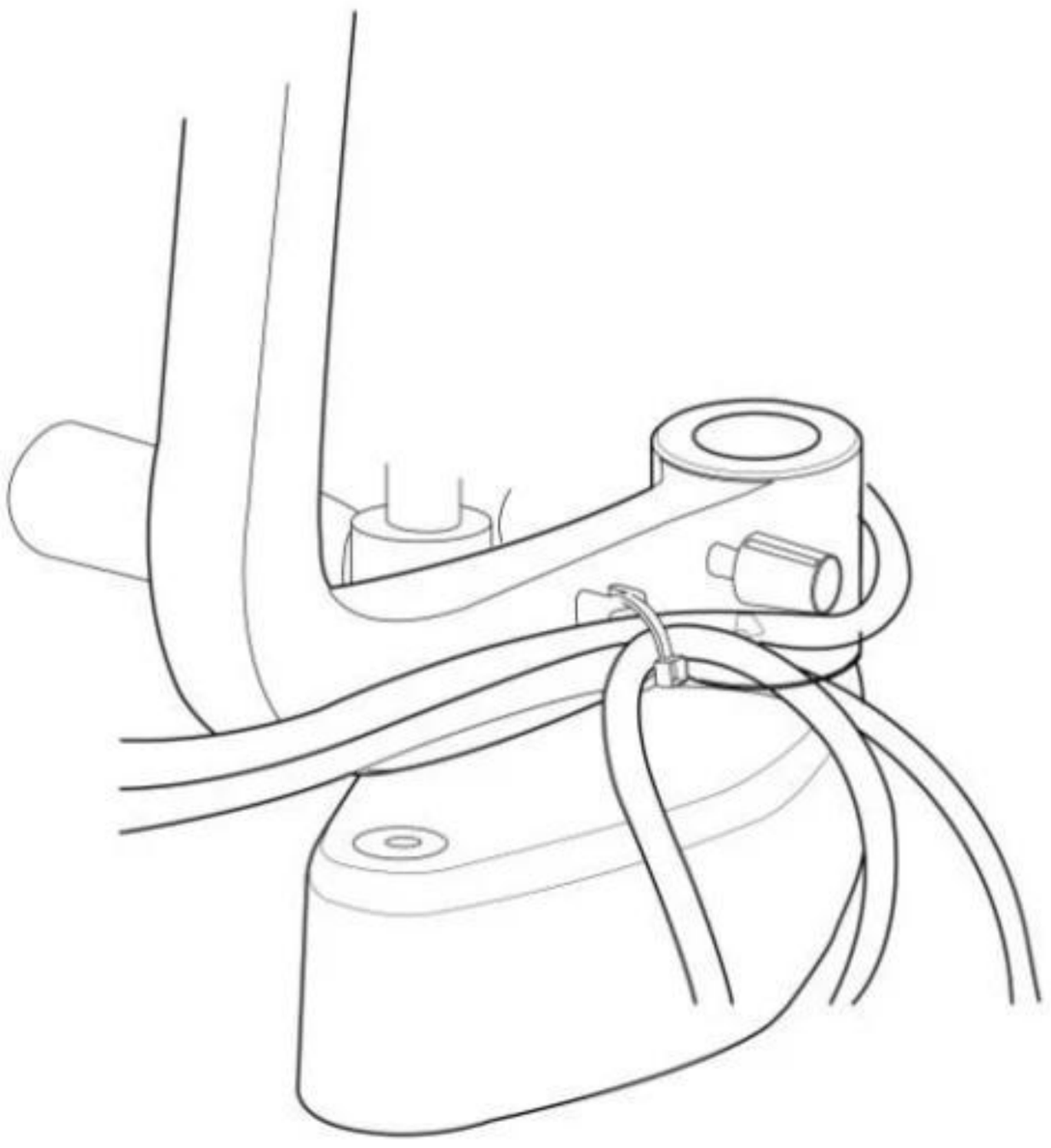
Step 8. Connect Camera communication cable.

It connects the camera communication cable in the base.



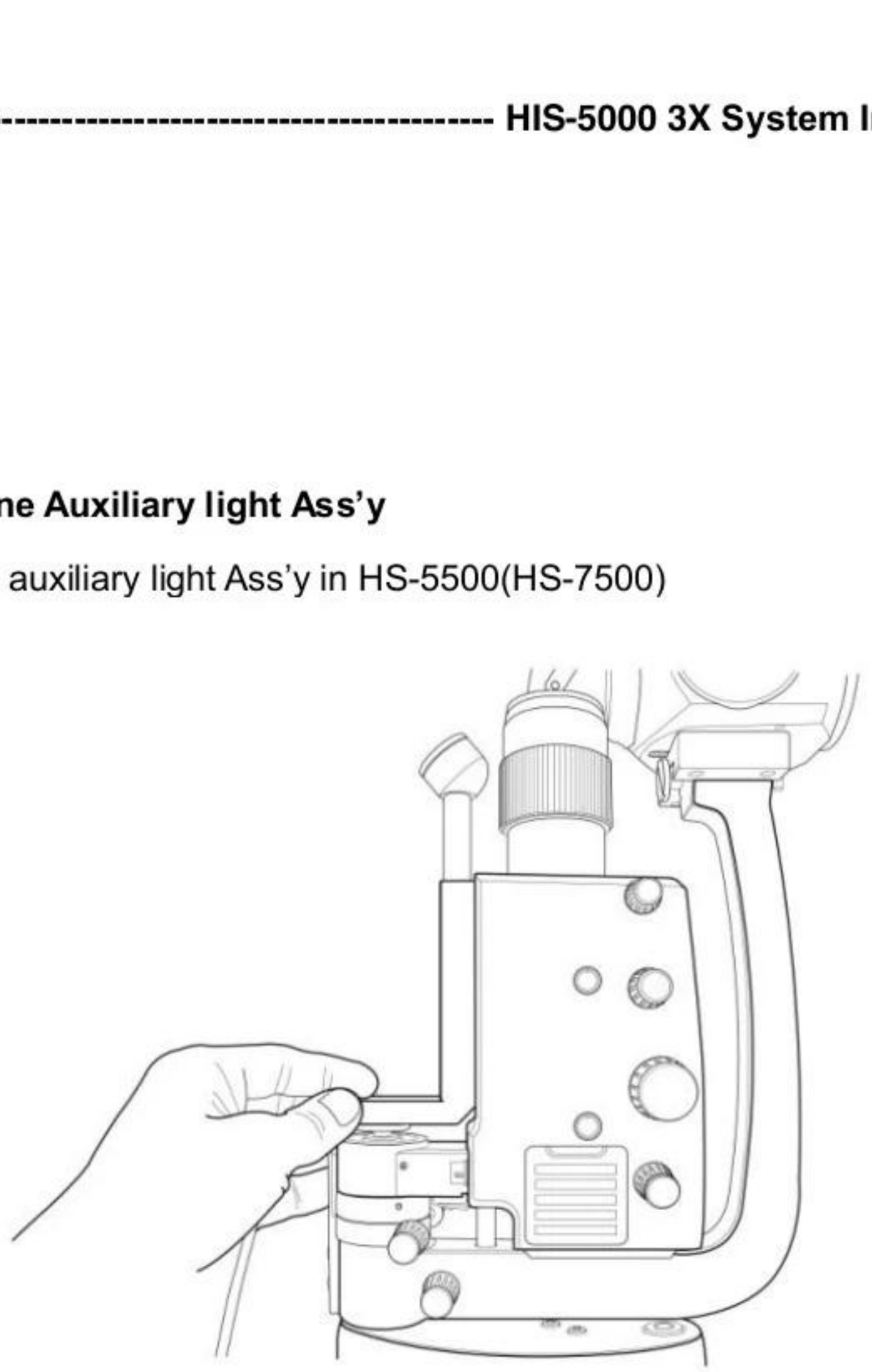
Step 9 Fix the cable.

It fixes in the cable fixation holder and it does there not to be an effect in operation.



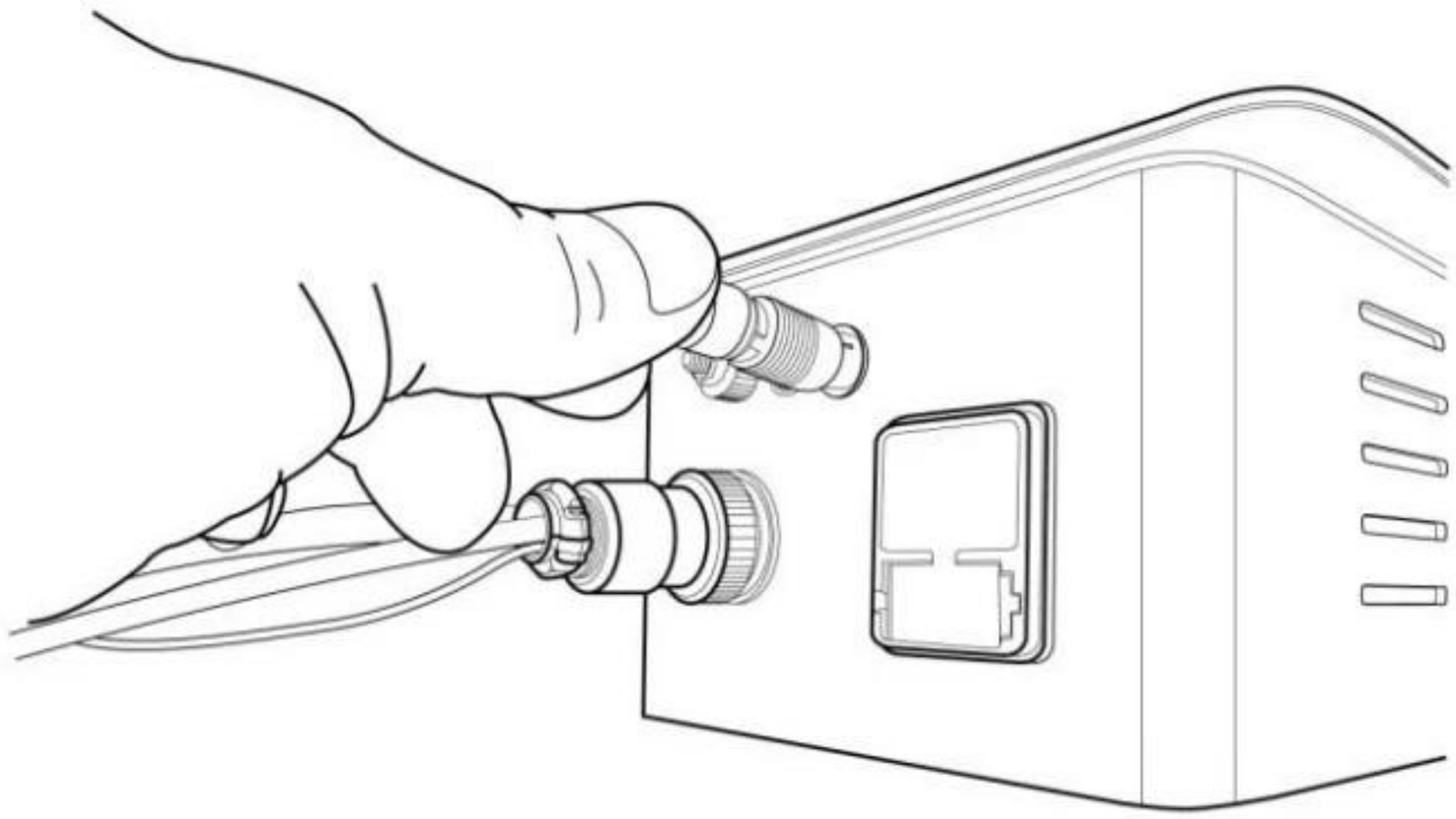
Step 10 Combine Auxiliary light Ass'y

It combines the auxiliary light Ass'y in HS-5500(HS-7500)



Step 11. Connect Auxiliary light Ass'y cable.

It connects the Auxiliary light Ass'y cable in the SMPS



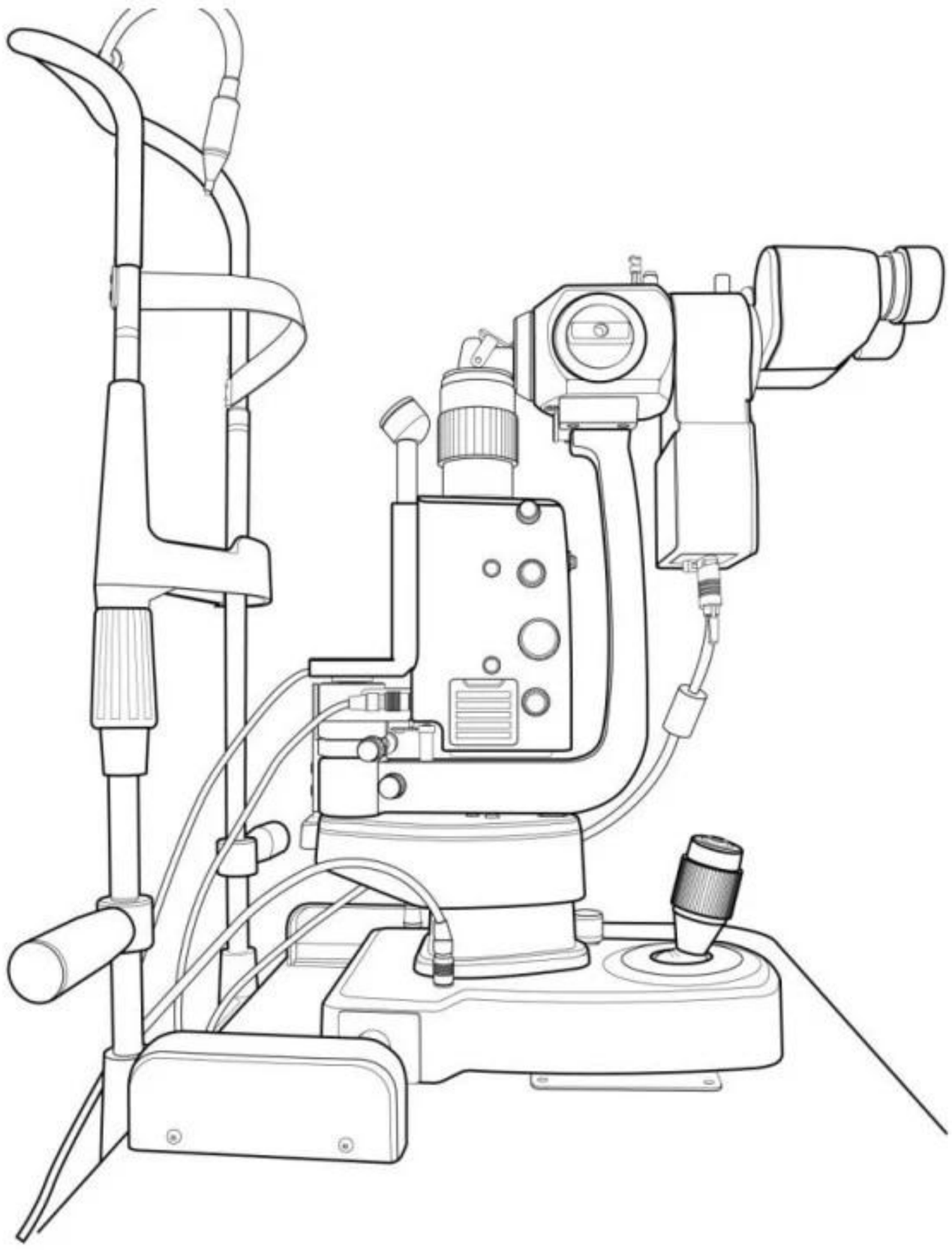
Step 12. Combine FireWire IEEE 1394 PCI Card

It establishes the FireWire IEEE 1394 PCI card in the PCI slot of the PC. The notebook establishes the FireWire IEEE 1394 PCMCIA card in the ramyon PCMCIA slot. If there is a IEEE 1394 port to the PC, this step omits.

Step 13. Connect the IEEE 1394 cable and PC.

Connect the FireWire connector on the Camera to the FireWire port on the rear panel of the PC, by using the long FireWire cable.

Step 14. Be sure the PC is turned off. Turn on the PC and turn on the Slit-lamp, HS-5500(HS-7500).



2. Service Information

How to contact service: If there are any problems with the equipment, please follow the steps below:

- If the problem generates, please contact the local distributor in your province or country at first.

- Before calling to the local distributor, you'd better check these information such as Model and Serial Numbers. To do so, fill up the following table as soon as you purchase our product. You can look up these information at any time. The serial number is found on the back of this unit. The serial number is unique to this unit. You should retain this manual as a permanent record of your purchase. Please retain your purchase receipt as your proof of purchase.

Date of Purchase: _____

Dealer's Name: _____

Dealer Address: _____

Dealer Phone No. : _____

Model No.: _____

Serial No.: _____

- If you can't contact with your local distributor, you can directly get in touch with the service department of the HUVITZ using the phone number and the address written in the below table.

How to Contact HUVITZ Co., Ltd

Write us at:

HUVITZ Co., Ltd.

Huvitz B/D, 689-3 Geumjeong-dong

Gunpo-si Gyeonggi-do, South Korea

435-862

Tel: +82-31-442-8868

Fax: +82-31-442-8619

URL:http://www.huvitz.com

e-mail: info@huvitz.com