SEC2020 SPECTROMETER SYSTEM
Maintenance Guide
- Bulb Replacement -

Electrochemistry & Spectroelectrochemistry

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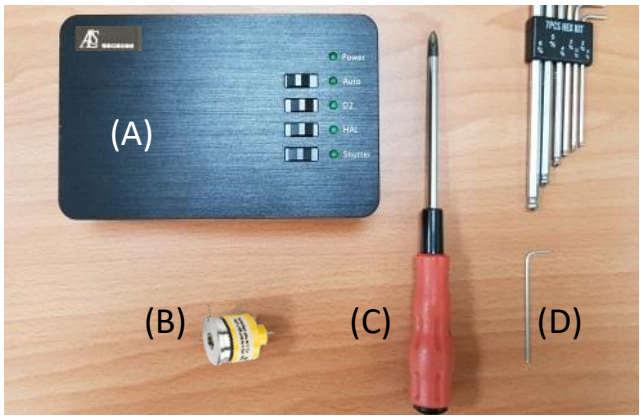
Contents

1. Bulb Replacement Procedure

1.



Tools Preparation:

(A) SEC2022 Deuterium halogen light source

(B) UV Bulb for SEC2022(Catalog No.013625)

(C) Phillips screwdriver

(D) 1.5mm hex wrench

2.

*Before starting work, remove the static electricity from your body before touching the device. Disconnect the power cord of (A) before proceeding.

There are 4 screws located at the bottom of the light source, as shown in the left picture.

3.

Unscrew these 4 screws on the light source. (Place SMA905 to the right direction is recommended)

4.

Because the I/O port is in the hole on the side of the chassis, open the cover by slightly shifting the bottom cover in the direction opposite to the I/O port (to the right in the picture).

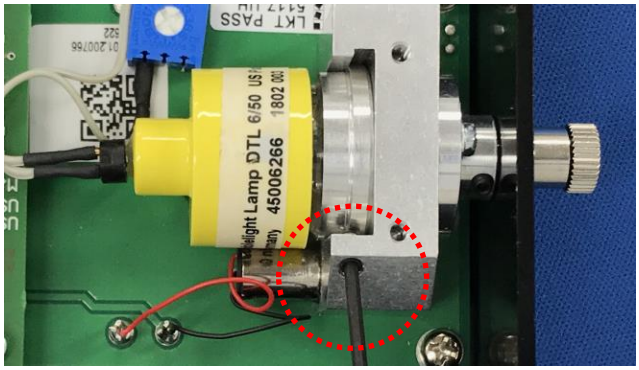
5.

Disassemble the bottom cover.
(It is no need to disassemble the cable)

6.

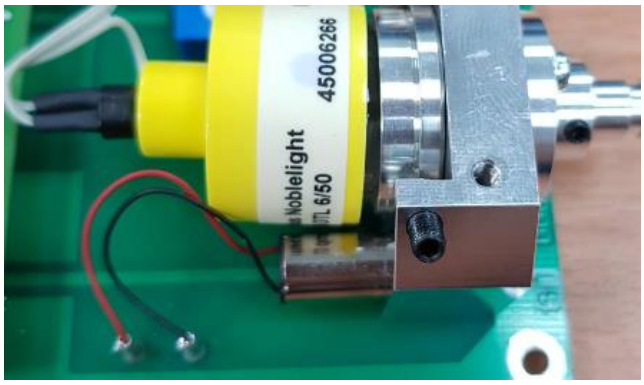
The left picture shows the position of the bulb (marked by ○).

7.

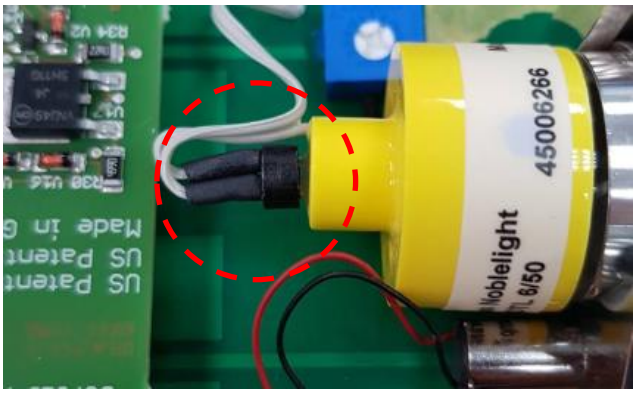


Unscrew the hexagon socket set screw (marked by ○) by using hex wrench.

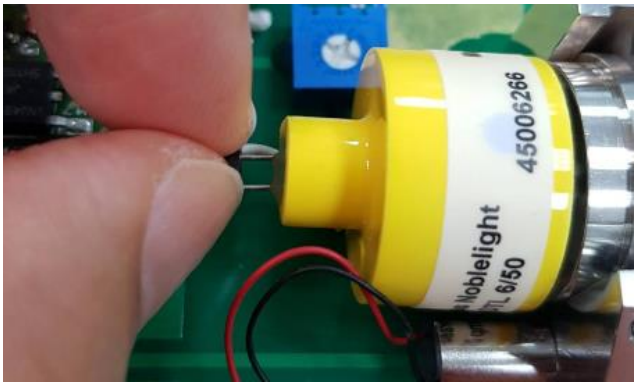
8.



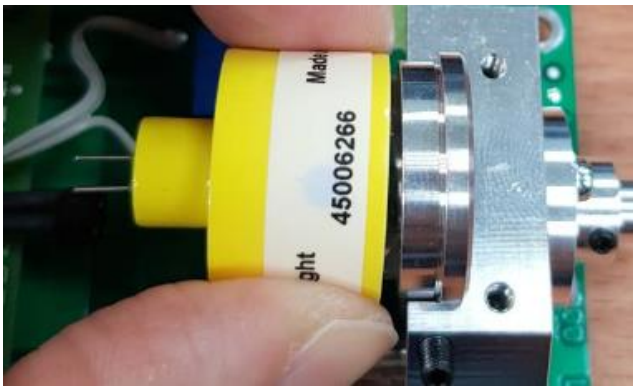
Pull the hexagon socket set screw out about half and keep it staying in place.

9. 

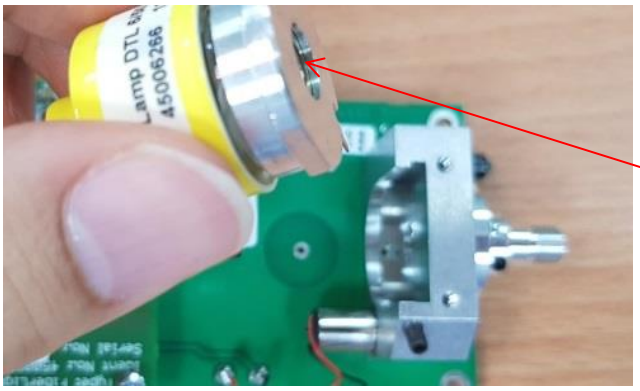
Remove the power terminal of halogen bulb.

10. 

Hold the power terminal and unplug it slowly.

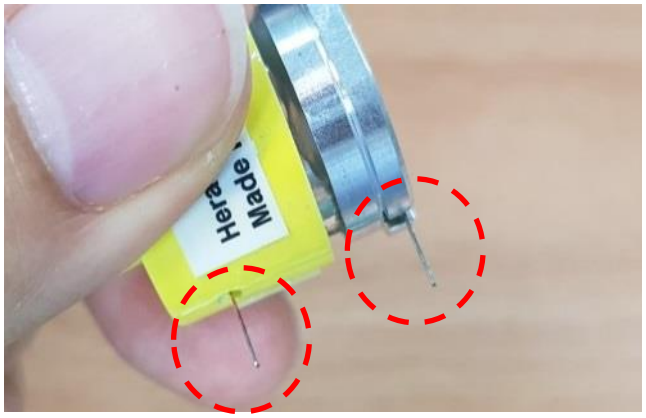
11. 

Unplug the bulb straight upward slowly. Please loose more on the hex socket set screw if the procedure is not smooth.

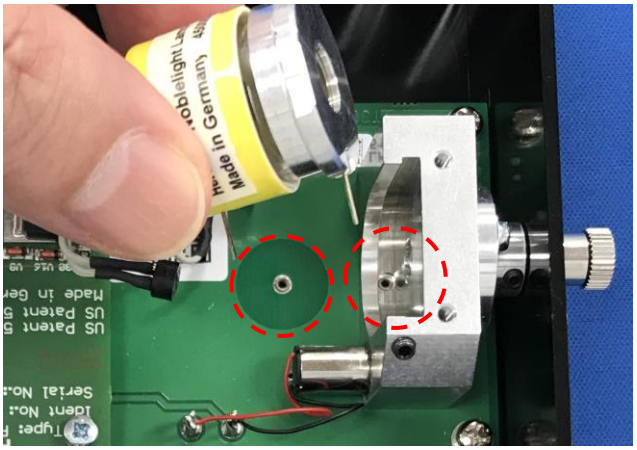
12. 

Remove the bulb and install a new replacement bulb.

*Be careful not to touch the window of the replacement bulb with your fingers.

13. 

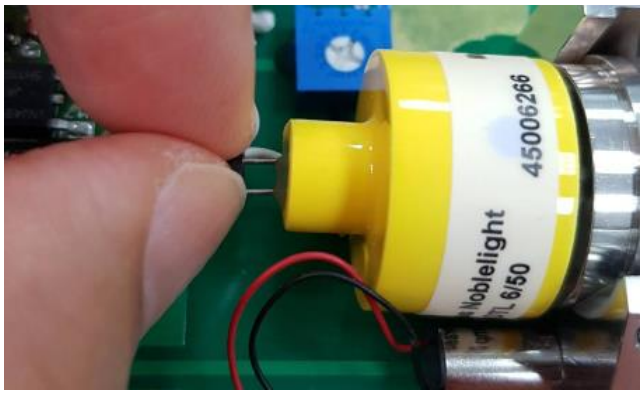
There are two power supply pins of deuterium bulb located at the bottom of the bulb.

14. 

Align the power pins of the deuterium bulb with the pin holes (marked by ○) on the board and insert it.

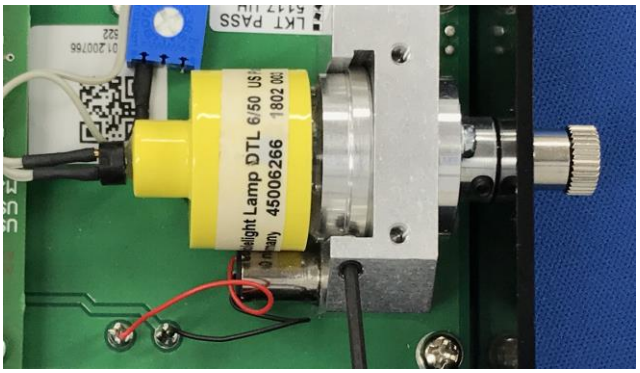
15. 

Insert the new replacement bulb slowly.

16. 

Plug the power terminals of halogen bulb.
There is no positive/negative difference on the power terminals.

17.

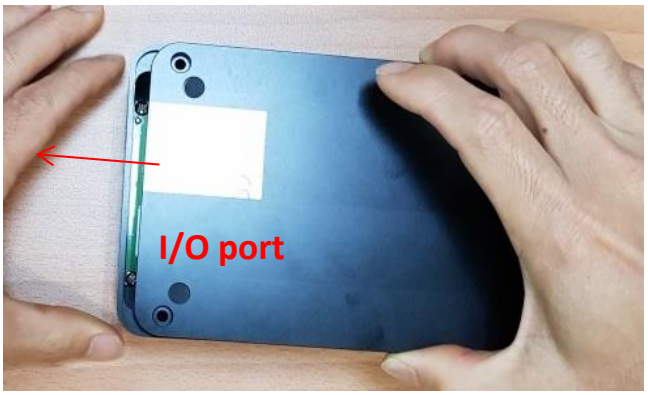


Screw up the hexagon socket set screw.

18.

Bulb replacement is complete.

19.



Assemble the bottom cover back.

In reverse procedure of removing the cover, slide the cover to the left so that the I/O port fits into the hole on the side of the chassis.

20.

Screw up the 4 screws. All the replacement procedures are done.

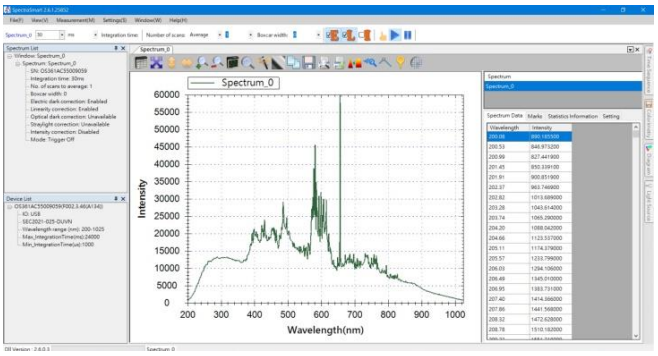
2. Halogen Bulb Adjustment

Please note that some light sources do not allow adjustment of halogen bulb.
The type with variable resistor shown in procedure 9 can be adjusted.

1.

Setup the SEC2020 system to absorbance mode. Turn on the deuterium (D2) and halogen (HAL) bulbs. Open the shutter.

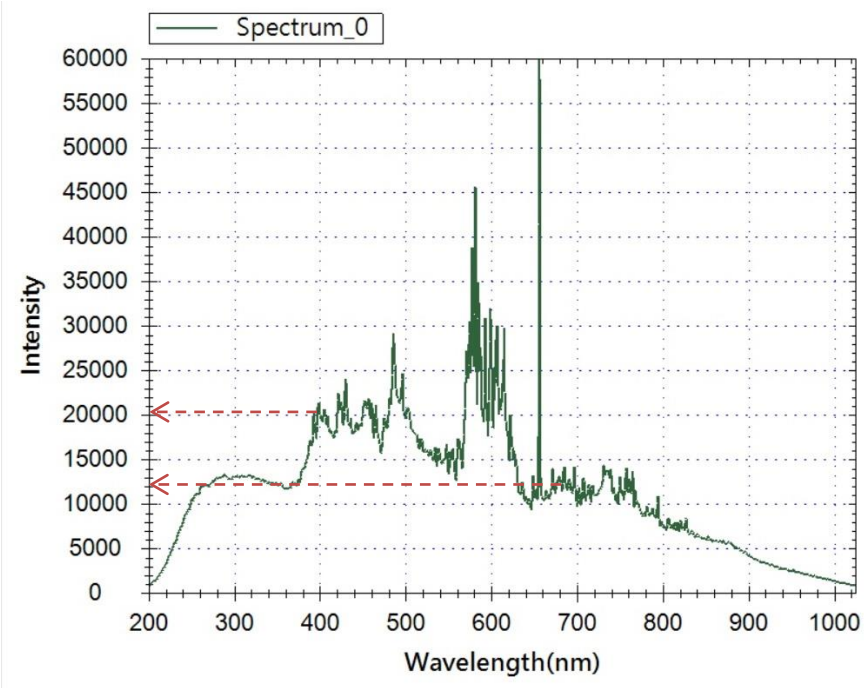
2.



Open the software **SEC Spectra** or **SpectraSmart** and confirm the spectral form.

Adjust **Integration time** to view the entire spectrum on screen.

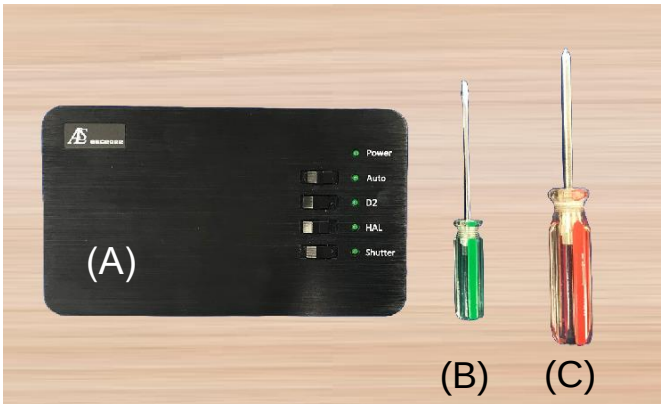
3.



Enlarge the spectrum.

Compare the output of D2 bulb (200-400 nm) with halogen bulb (400-1000 nm). If the intensity around 400 nm and 700 nm is similar, the balance of the two bulbs is OK. If the difference is large as shown in the left figure, the output of the halogen bulb should be adjusted.

4.



Tools Preparation:

(A) SEC2022 Deuterium halogen light source

(B) Flathead screwdriver

(C) Phillips screwdriver

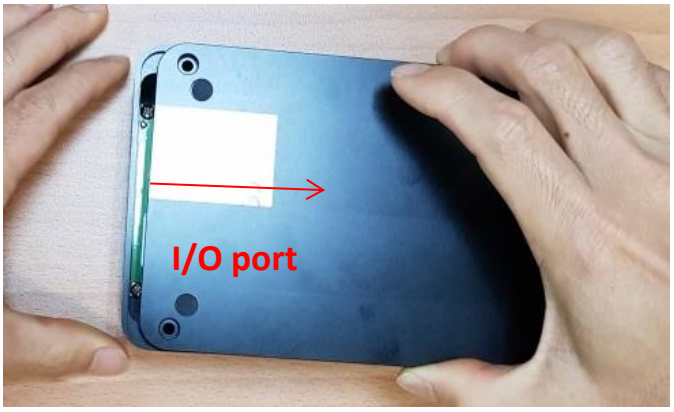
5.

Work after disconnecting the power cord.

There are 4 screws located at the bottom of the light source, as shown in the left picture.

6.

Unscrew these 4 screws.

7. 

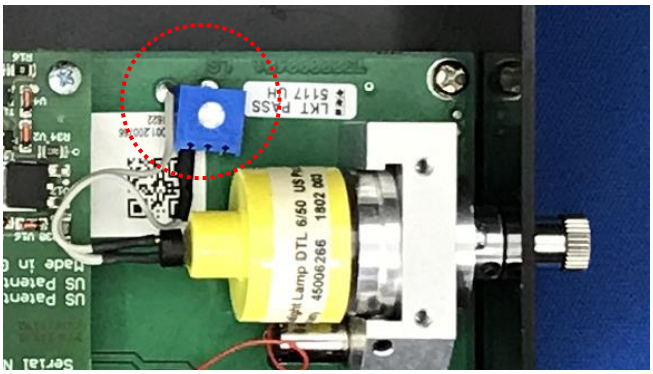
Because the I/O port is in the hole on the side of the chassis, open the cover by slightly shifting the bottom cover in the direction opposite to the I/O port (right direction in the picture).

8. 

Disassemble the bottom cover.
(It is no need to disassemble the cable)

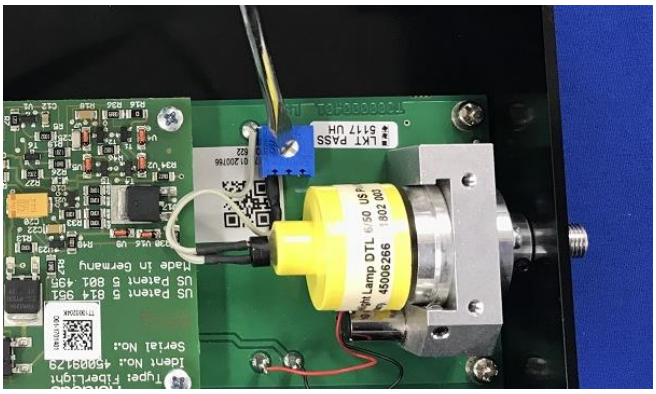
9. 

Adjust the variable resistor (marked by ○) shown in the left picture.

10. 

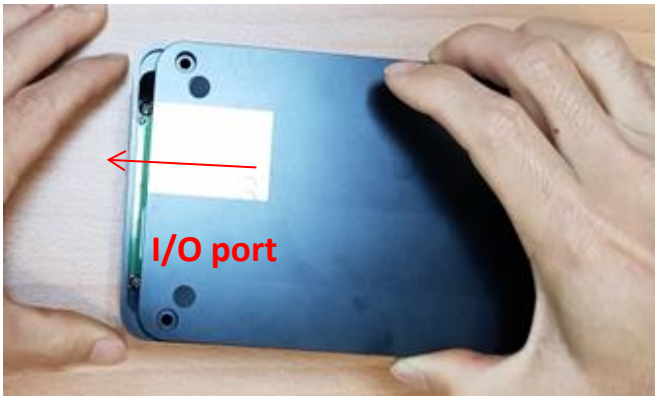
Enlarge the position of the variable resistor.

11.



Use the flathead screwdriver to adjust the intensity of halogen bulb. Turn clockwise to decrease and counterclockwise to increase the intensity.

12.



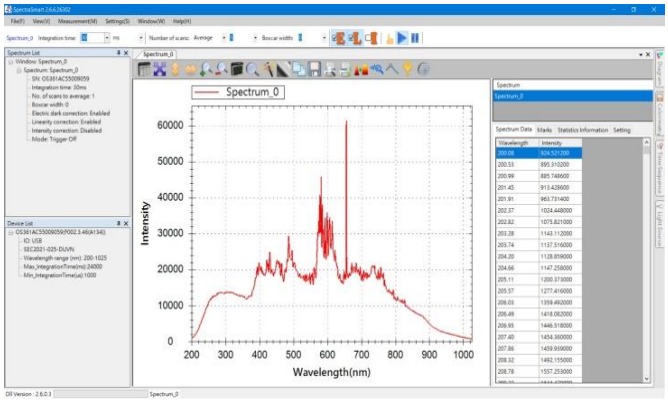
Assemble the bottom cover back.

In reverse procedure of removing the cover, slide the cover to the left so that the I/O port fits into the hole on the side of the chassis.

13.

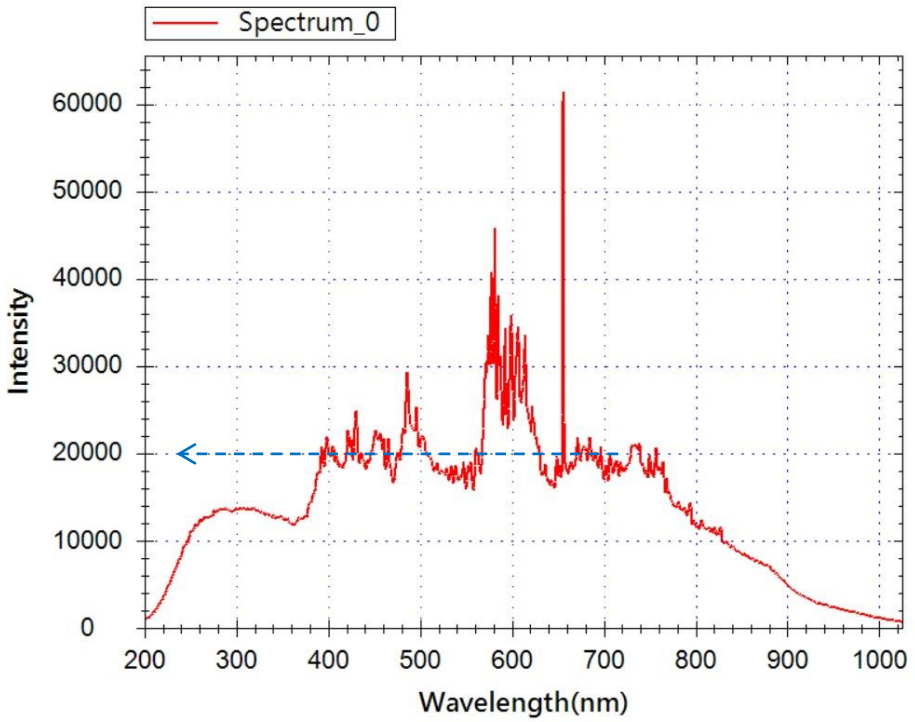
Set the light source with SEC2020 system. Turn on the deuterium (D2) and halogen (HAL) bulbs. Open the shutter.

14.



Open the software **SEC Spectra** or **SpectraSmart** and confirm the spectral form.

15.

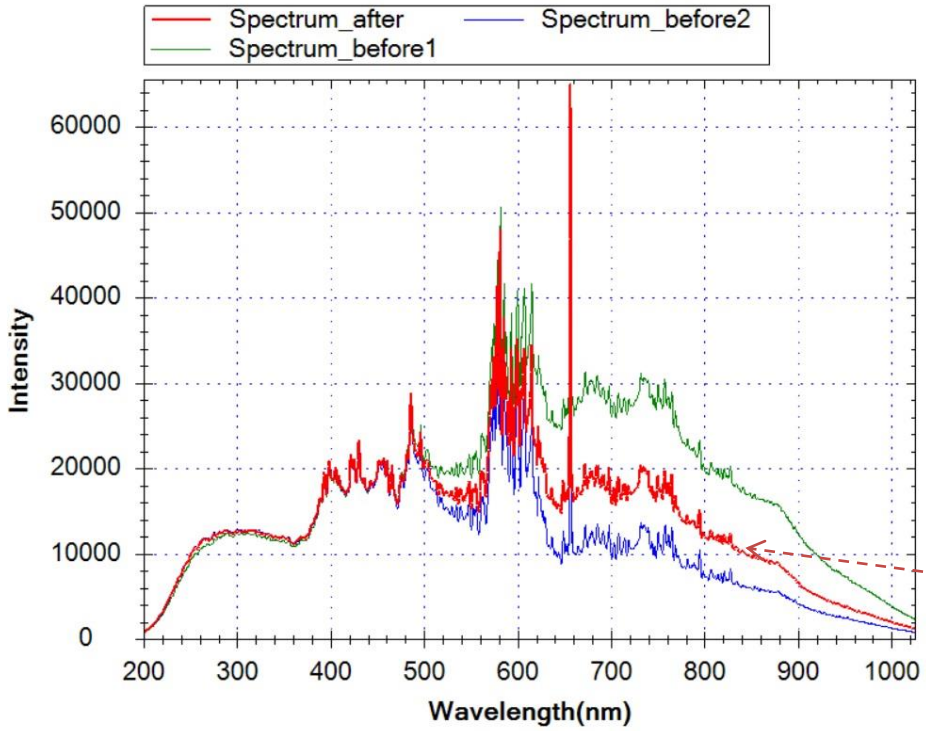


Enlarge the spectrum.

Confirm whether the intensity of 400 nm and 700 nm to same level as shown in the left figure after adjusting the variable resistor.

Otherwise, repeat steps 7 to 14.

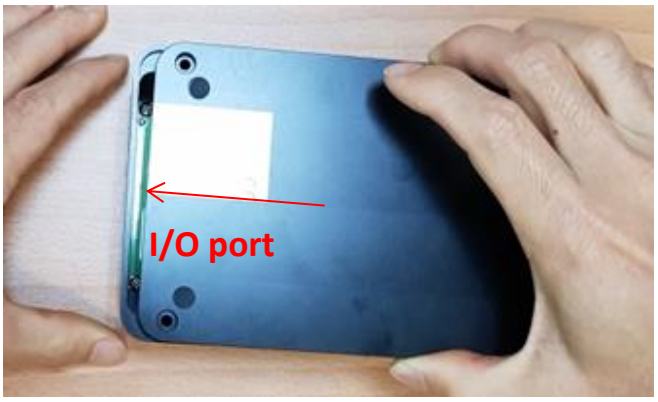
16.



If the intensity of halogen bulb a little strong is also OK.

Left figure shows the examples of spectrum before and after adjustment. Middle one is the spectrum after adjustment.

17.



Assemble the bottom cover back.

In reverse procedure of removing the cover, slide the cover to the left so that the I/O port fits into the hole on the side of the chassis.

18.

Screw up the 4 screws. All the replacement procedure is complete.

3. Contact us

The above is the bulb replacement manual, part of maintenance guide for SEC2020 spectrometer system. If you have any technical problems or questions, please feel free to contact us.

BAS Inc.

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