

## Changing TSI Neph Bulb

These instructions are meant to augment the description of changing the neph lamp in chapter 8 of the neph manual. The neph manual can be downloaded from the TSI website at: <http://www.tsi.com/documents/1933563f-3563.pdf>  
See section 8-11.

- (1) Put a message in the message log saying you are changing neph lamp.
- (2) Turn off power to nephelometer – there's a switch on the nephelometer power supply.
- (3) Remove inlet and outlet tubing from neph – you should be able to do this using a wrench on the Swagelok nut – there should be no need to twist the tubing in the process. (see picture 1 for where to use wrench)
- (4) Remove top cover from neph (this is the grey cover that runs the length of the nephelometer on the side where the inlet and outlet tubing are) – there are 4 screws that hold it in place. These screws are along the side with the serial cable etc. Picture 2 shows a neph with its top cover removed.
- (5) Rotate neph so the side with the bulb is facing you and easy to get at.
- (6) Unscrew the 2 screws holding the lamp shield. Move the lamp shield but don't let it hang by the thin wires – support it on something or have someone hold it while you do the lamp change. (Picture 3 shows the location of the lamp shield screws).
- (7) Allow the lamp to cool (about 5 min) from when the power was turned off)
- (8) Use the lamp lever to push the lamp out of the socket. If the neph is standing vertical this means you will push the lever away from the body of the neph (i.e., parallel with the ground). As you push the lever the lamp will slide down toward the ground out of its socket. (Picture 3 shows the location of the lamp lever)
- (9) Plug in a new lamp (make sure it is aligned straight in the socket) and push down the lamp lever to secure the lamp.
- (10) Replace the lamp shield and reattach using the screws to hold it in place
- (11) Replace neph top cover and reattach using the screws to hold it in place
- (12) Apply power to neph (turn on the switch on the neph power supply) and observe whether the lamp has come on or not.
- (13) On the CPD screen open the neph menu <enter><N> (or <enter><O> for a humidified neph) and check that the lamp voltage is about 12 V and the lamp current is about 6 amp.
- (14) Put a message in the message log saying you are done changing the lamp.

		<p>Picture 1 Shows nut on inlet of a nephelometer. You should be able to twist the nut counterclockwise using a wrench to remove the tubing from the nephelometer. The tubing should not spin with the nut.</p>
		<p>Picture 2 Picture of a nephelometer with the inlet and outlet tubing removed and the top cover removed. The 4 yellow lines indicate the approximate location of the screws holding the top cover on. (note: neph is horizontal in this picture)</p>
		<p>Picture 3 Picture of the lamp installed in the nephelometer. The 2 yellow lines indicate the location of the lamp shield screws. The pink arrow indicates the direction to move the lamp lever. The left side of the arrow is on the lamp lever. The lamp will slide downward. (note: neph is vertical in this picture)</p>

The lamp power setting needs to be returned to 75 watts, as the software automatically reduces the wattage when the current exceeds 7 amps, as a precaution to prevent damage to the circuit board.

Here's how to do it:

1. Make the neph status window active:  
Press <Enter>, then press <N>
2. Activate the neph window, and then select "Change parameters"  
Press <M>, then press <4>
3. Edit the Lamp power setting  
Press the down arrow 5 times to highlight the lamp power line  
Press <Enter> to enter edit mode  
Press the backspace key twice to delete the current value  
Enter the new value (75) and press <Enter>
4. Press the down arrow 7 times to highlight the "Close and apply" line, then press <Enter>