Make sure the following is done before replacing the tube:

1. Turn off the power of the whole laser machine
2. Turn off the water pump and the water chiller
3. Get out the water inside the laser tube and inside the water pipe (to avoid water leakage to the electronic parts while replacing the laser tube)

Procedure:
1. Take the old laser tube out and follow these steps:
cut the plastic ribbon and get the water pipe out

cut the ribbon and get the water pipe out
Then take out the old tube and install the new tube.

2. Installing the new tube

1) Put the tube on the tube holder carefully and then fasten the tube by using the plastic trips, then screw it. And make sure the side with a mirror is direct at the first reflective mirror.
2) Connecting the water in and water out pipe

Connect the water in pipe and use a plastic ribbon to fasten it to avoid water leakage. (water in should be on the bottom of the tube)

Fasten the screws, make sure the tube is stable enough.
3）Connecting anode and cathode

Connect water out pipe and use a plastic ribbon to fasten it to avoid water leakage (water out should be from the top like the photo).
connect the wire, no need to weld them. only twist them together.

wrap the wire by using black tape (insulating tape) to avoid electric leakage.
then move the silicon pipe to wrap the wiring point to avoid high pressure leakage

connect the cathode wire (twist them like the photo)
The wirings is done, now please put the water pipe and the wires on the suitable place.
3. Check if the laser path is working well.

1) Turn on the water pump or water chiller and wait till the water full of the laser tube. (water must fill the whole internal tube, there should not be any bubble inside the tube)

2) Turn on the laser main switch and laser power switch and press the “Laser” button on the panel to check if the laser beam works ok.

3) Check if the laser beam is in the center of the third mirror. And check if the engraving and cutting quality is ok. If so, then the job is done. If not, you will need to do some adjustment like below:

   ![Image of laser path adjustments]

   If the laser path is not perfect, you can adjust the tube holders.

   ![Image of adjusting tube holders]

   Rotate this ring to adjust the height of the tube holder. When it’s adjusted to the suitable place, please fasten the four screws.

   Unscrew these four screws a bit, then you can adjust the height of the holder.
Adjusting the laser beam to the perfect position will need time, please be patient and adjust carefully. If still having problem, please adjust the whole laser path according the this video: http://www.youtube.com/watch?v=Fy6XdhYvP9M&list=PL7D79E4B3C58BB303
Thanks for choosing THUNDER LASER products!

If you have any more questions, please send mail to

tech@thunderlaser.com