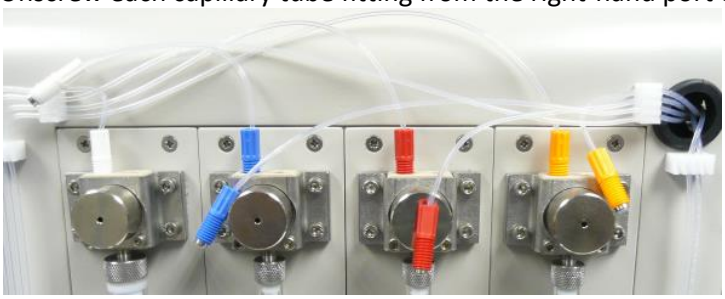
SEP.T3.016 – Replacing the SiriusT3 Capillary Assembly

Note - The capillary assembly must be replaced if it is broken or one of the capillary tubes becomes blocked. Carefully note the arrangement of the probes in the electrode block prior to removing them. The argon tube may either feed between the capillaries and the dip probe or it may feed vertically up the middle of the probes.



Procedure

1. From the Sample Stage screen in the software, right-click on the drain position and select Move Over.
2. Wait for the titrator to move the probes to the drain.
3. Unscrew each capillary tube fitting from the right-hand port of each valve. Allow the tubes to drain.

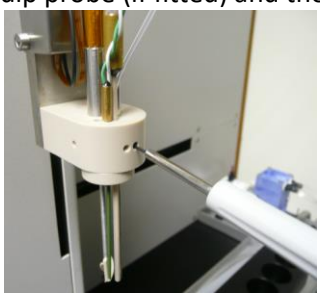


4. Disconnect the electrode from the amplifier using one hand to support the cable and one to disengage the outer sleeve of the connector by sliding it upwards.

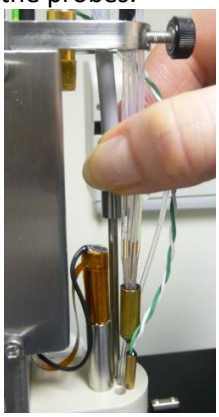

5. Slacken the electrode retaining thumb screw.

6. Carefully lift out the electrode using one hand to hold the other cables and the cable loop support out of the way. Make sure the electrode is lifted vertically and slowly. If any tightness is felt stop immediately. Gently rotating the electrode may help to release any tightness.

7. Place the electrode back in its box or on a flat surface with the filling hole pointing upward so as not to drain the filling solution.
8. Using the 0.9mm hex key that came with the instrument slacken the grub screws that support both the UV dip probe (if fitted) and the capillaries.

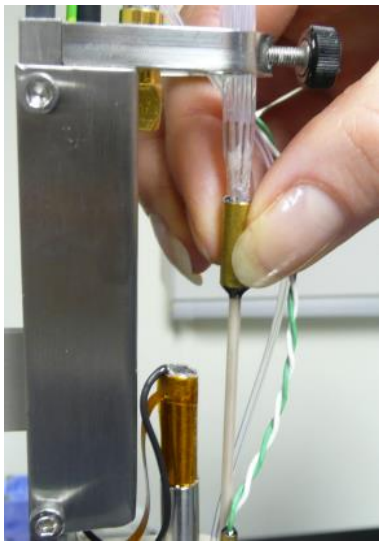


9. Lift out the UV dip probe by holding the top of the stainless steel shaft between thumb and forefinger, gently rotating to release tightness. Note the orientation of the dip probe window which should be to the centre of the probes.

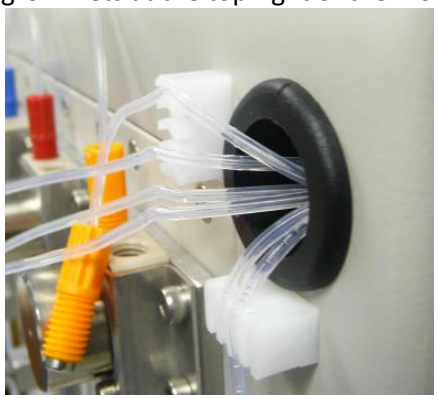


10. Secure the dip probe to the top of the dispenser module using a small amount of tape. Be very careful not to bend the fibres of the dip probe as they have a minimum bend radius of 100mm.

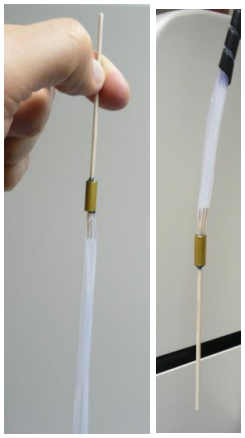
11. Lift out the capillary set by holding the brass tube between thumb and forefinger, gently rotating to release tightness. It may become tight as the brass tube approaches the electrode holder but continue to gently rotate.



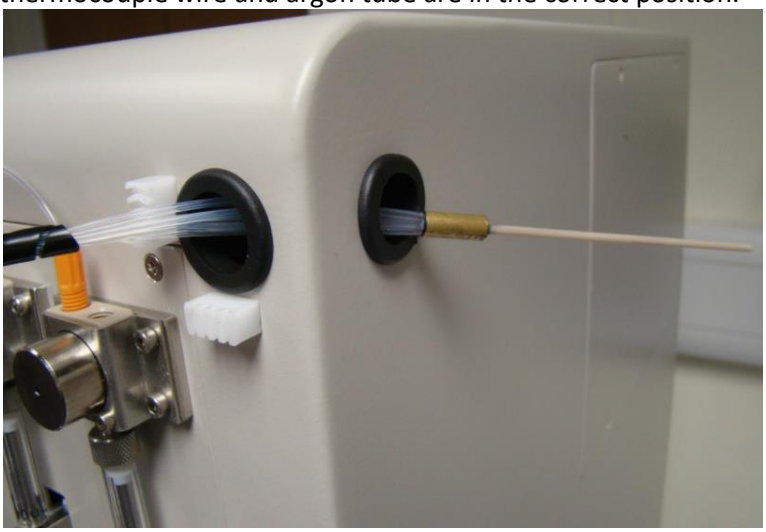
12. Clean up any drips at the end of the capillary with a tissue.
13. Pull the capillary tubes out of the tubing grippers on the dispenser module and feed each tube through the grommets at the top right of the module.



14. Unwrap the black tubing wrap from the old set of capillaries.
15. Before wrapping the new set of capillaries hold them upside down and fully untangle the tubing. Wrap the capillaries with the black tubing wrap, leaving a gap of 80mm between the wrap and the brass tube.



16. Gently feed the capillary assembly through the grommets in the top right of the dispenser module, through the loop support and then through the electrode holder and locate the tip in the electrode block. Ensure the thermocouple wire and argon tube are in the correct position.




17. Hold the brass tube between thumb and forefinger and gently rotate it back and forth as you lower it in to position. The tip of the capillaries should be approximately half way up the stirrer paddle.
18. Tighten the 0.9mm grub screw to hold the capillaries in place but be very careful not to over tighten. The grub screw should just feel firm.
19. Untangle each capillary tube and screw each coloured nut in to its appropriate dispenser. You should not need to use tools; the fittings should be finger tight.
20. Feed each tube in to the appropriate tubing gripper groove using your thumb.
21. Remove the tape from the dip probe and feed it back through the loop support, then the electrode holder and locate its tip in the electrode block. Again be very careful to avoid bending the fibres beyond their minimum bend radius. Note the positioning of the thermocouple wire and argon tube.
22. Hold the top of the stainless steel shaft between thumb and forefinger and gently rotate back and forth as you lower it in to position. The tip should be approximately level with the end of the stirrer, but not lower than it. Rotate the probe so that the window is facing in to the centre of the probes.

23. Tighten the 0.9mm grub screw to hold it in place. The dip probe is not as fragile as the capillaries but again be careful not to over tighten.
24. Pick up the electrode and rinse the tip with DI water and dab dry with a tissue. Inspect for any air bubbles or damage. If filling solution has leaked out, top with up fresh solution and clean up any excess at the filling arm.
25. With one hand holding the cables and loop support out of the way carefully lower the electrode vertically through the electrode support and in to the electrode block. The electrode should move freely so if it feels tight, stop and remove. Check the other probes are correctly arranged and try again.

26. The tip of the electrode should be approximately 1mm above the tip of the stirrer. Gently tighten the retaining thumb screw until it engages with the black plastic collar. Do not over tighten as you may crack the electrode.
27. Inspect all probes to ensure they are in their correct locations and at the correct heights.

28. On the Maintenance screen in the software, double-click the red flag in the progress list and the titrator will clean the probes and move them back to the home position.
29. Instruct the software to flush all reagents to waste. Check all tubing fittings to ensure there are no leaks and tighten the fittings further if necessary.