



# DST-4000 Acid Purification System - Heater Replacement

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## Instructions



## Savillex DST-4000 Heater Replacement

**CAUTION:** Observe all safety procedures and best laboratory practices during this procedure. Wear recommended safety apparel when handling or working with acids. Avoid inhalation of acid vapors and wear eye protection. Perform this operation in a properly functioning controlled environment (e.g., fume hood).

### General Safety Information

Purification of acids by sub-boiling distillation requires safety precautions beyond those of general laboratory practices. The following safety information should be read carefully prior to using the DST-4000 and should be observed at all times during the use and operation of the still.

Savillex assumes no liability for injury or damages resulting from improper handling or a failure to comply with this information.



#### **Explosive; Fire, Blast or Projection Hazard**

Electrics may ignite flammable or explosive mixtures. The apparatus is not designed for organic chemicals. Improper use of the DST-4000 with organic material may cause personal injury or property damage.



#### **Causes Severe Skin Burns and Eye Damage**

Take appropriate precautions during filling with and dispensing of acid. In case of contact, flush with copious quantities of water. See reagent manufacturer's material safety data sheet (MSDS) for safe handling instructions.



#### **Personal Protective Equipment**

Wear recommended safety apparel when handling or working with acids.

#### **Harmful If Inhaled**

Avoid inhalation of acid vapors.



#### **Causes Serious Eye Irritation**

Wear eye protection.

Ensure the system is in a properly functioning controlled environment (e.g., fume hood). Acid vapor is emitted from the DST-4000 during use.

#### **The Unit Employs High Voltage!**

The DST-4000 must be connected to a grounded conductor. Connect the power cord of the control box to a grounded power source.

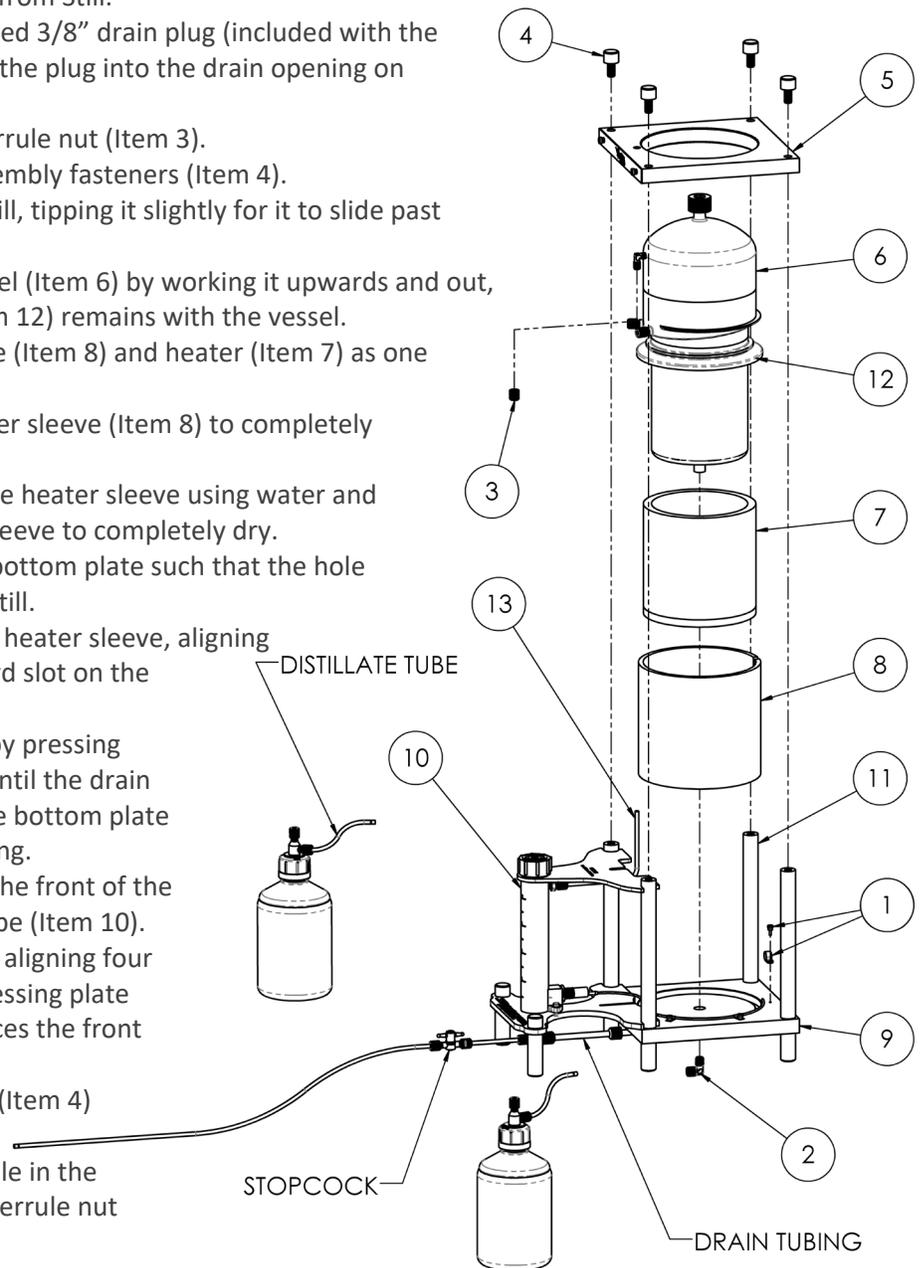


#### **Chemical Hazard!**

Chemical hazards associated with the connections, tubing and containers are identical to those noted above.

## Savillex DST-4000 Heater Replacement

1. Ensure DST-4000 (still) and its chemical contents have cooled and are at room temperature.
2. Disconnect heater and sensor cords from the Digital Temperature Control Unit.
3. Remove distillate collection bottles and tubes from the PFA still vessel.
4. Drain the entire chemical contents from the PFA still vessel by opening the stopcock valve and directing the chemical into an appropriate acid container. Close the stopcock valve when finished.
5. Drain any residual chemical by slightly tilting the Still in the direction of the outlet fittings and allowing chemical to flow into the collection bottles.
6. Using the ¼" PFA cap nuts (included with the replacement heater), seal off the two distillate output ports.
7. Remove the large cable holder and thumb screw (Item 1) and remove corrugated cable wrap (not pictured).
8. Loosen 3/8" ferrule nut directly underneath PFA still vessel and remove drain tubing from drain elbow (Item 2). Unscrew and remove drain elbow from Still.
9. Replace the drain elbow with the red 3/8" drain plug (included with the replacement heater) by threading the plug into the drain opening on the bottom of the still vessel.
10. Unscrew and remove vent tube ferrule nut (Item 3).
11. Unscrew and remove the four assembly fasteners (Item 4).
12. Remove top plate (Item 5) from Still, tipping it slightly for it to slide past the drain elbow.
13. Carefully remove the PFA still vessel (Item 6) by working it upwards and out, ensuring the poly sealing ring (Item 12) remains with the vessel.
14. Carefully remove the heater sleeve (Item 8) and heater (Item 7) as one piece from bottom plate (Item 9).
15. Push heater (Item 7) through heater sleeve (Item 8) to completely separate the two.
16. Thoroughly clean the interior of the heater sleeve using water and mild detergent and allow heater sleeve to completely dry.
17. Place heater sleeve back into the bottom plate such that the hole for the cord faces the rear of the Still.
18. Slide new heater into the installed heater sleeve, aligning the cord with the center of the cord slot on the heater sleeve.
19. Re-install PFA still vessel (Item 6) by pressing down firmly into the new heater until the drain port comes through the hole in the bottom plate and the PFA still vessel stops moving.
20. Orient the vent port so it's facing the front of the Still and it's aligned with the fill tube (Item 10).
21. Re-install the top plate (Item 5) by aligning four support columns (Item 11) and pressing plate down. Orient so the nameplate faces the front of the Still.
22. Re-install four assembly fasteners (Item 4) by tightening finger tight.
23. With the vent tube through the hole in the top plate, re-install the vent tube ferrule nut (Item 3) onto vent tubing and screw into vent elbow fitting.

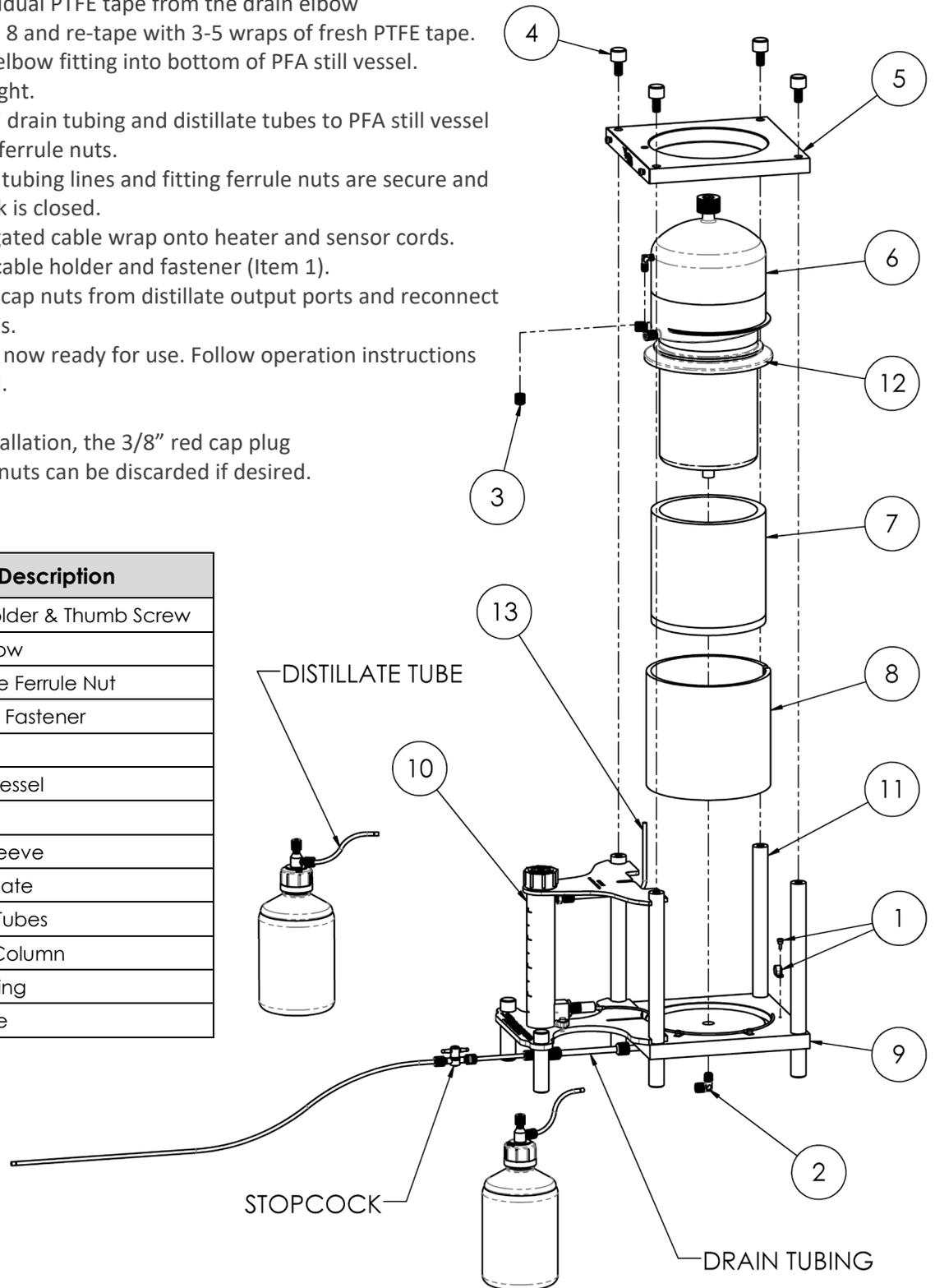


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24. Remove the red drain plug from the bottom drain of the still vessel.
25. Remove any residual PTFE tape from the drain elbow fitting from step 8 and re-tape with 3-5 wraps of fresh PTFE tape.
26. Re-install drain elbow fitting into bottom of PFA still vessel. Tighten finger tight.
27. Re-connect 3/8" drain tubing and distillate tubes to PFA still vessel and tighten the ferrule nuts.
28. Ensure all liquid tubing lines and fitting ferrule nuts are secure and bottom stopcock is closed.
29. Re-install corrugated cable wrap onto heater and sensor cords.
30. Re-install large cable holder and fastener (Item 1).
31. Remove 1/4" PFA cap nuts from distillate output ports and reconnect collection bottles.
32. The DST-4000 is now ready for use. Follow operation instructions in user's manual.

NOTE: After installation, the 3/8" red cap plug and 1/4" PFA cap nuts can be discarded if desired.

Item	Description
1	Cable Holder & Thumb Screw
2	Drain Elbow
3	Vent-Tube Ferrule Nut
4	Assembly Fastener
5	Top Plate
6	PFA Still Vessel
7	Heater
8	Heater Sleeve
9	Bottom Plate
10	Distillate Tubes
11	Support Column
12	Sealing Ring
13	Vent Tube





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