



Replacing SP7002A in Cetac Autosamplers

NOTE:

MAKE SURE THE UNIT IS UNPLUGGED AND IN THE "OFF" POSITION BEFORE BEGINNING THIS PROCEDURE.

The SP7002A Pump Replacement Kit is used on many platforms. Replacement of pumps in these various systems is basically the same. Power and communication cables are removed from the sampler. The pump power and ground wiring is accessed then disconnected. The pump is removed from the chassis or mounting plate. The new pump is installed in the reverse order. There are several groups of samplers that are similar and grouped together below. ASX-520, ASX-520HS, EXR-8, and EXR-8HS are all done the same. ASX-260 and ASX-130 are the same. ASX-110FR and ASX-112FR are similar. ASX-1400 and ASX-1650 are the same. The basic method is represented below with the ASX-520 series. Differences for the ASX-260 or ASX-130 are noted afterward, then ASX-110FR & ASX112FR. The ASX-1000 series instructions are last.

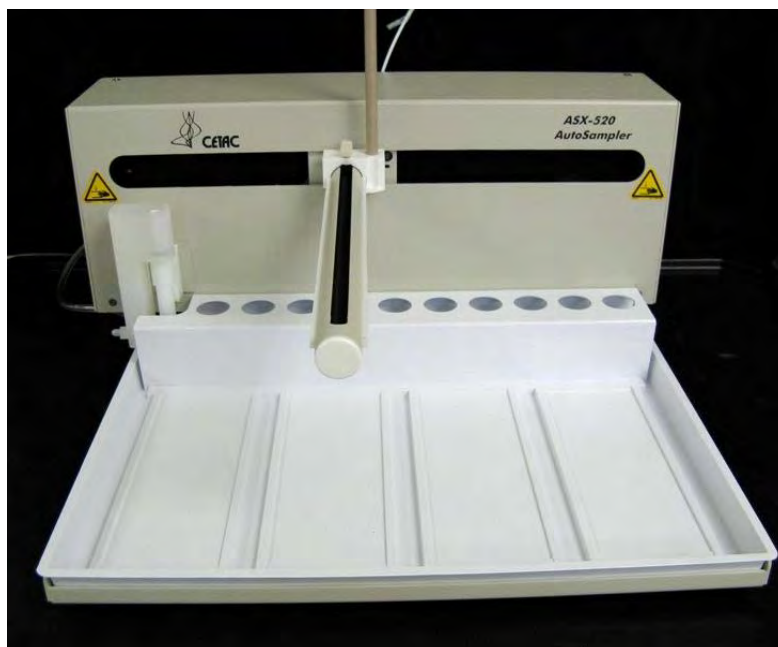
ASX-520 Series Samplers:

Figure 1-1. Front view of ASX-520.

1. First, remove the two Kynar thumbscrews from the Y-axis home block. See Figure 1-2.



Figure 1-2. View of Y- axis home block with Kynar thumbscrews.

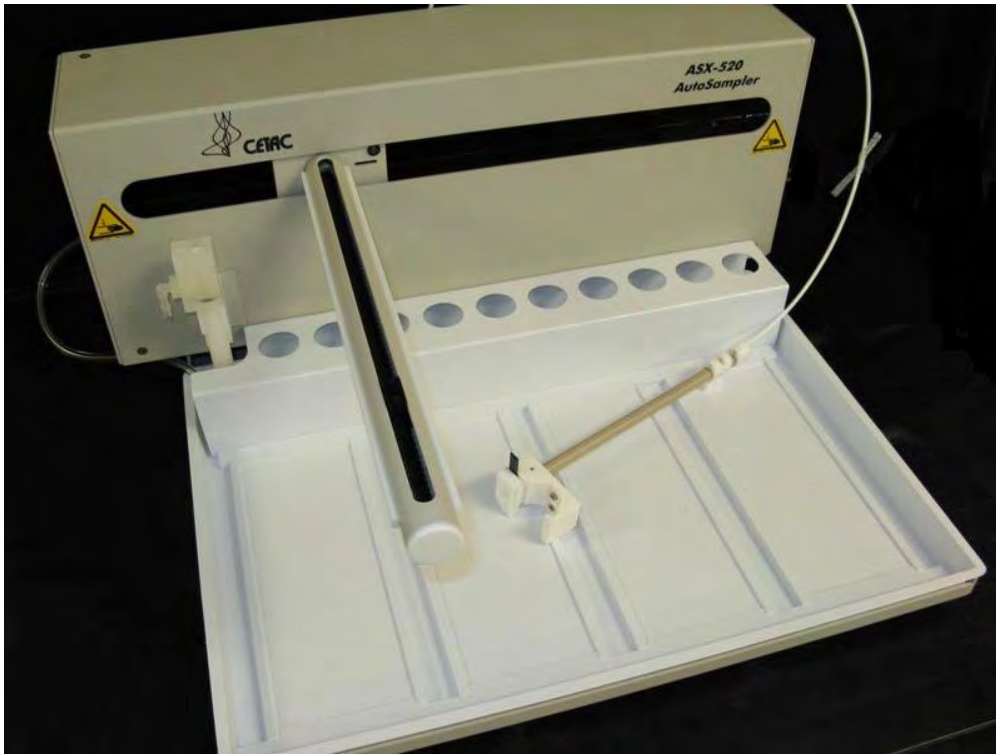


Figure 1-3. Z-drive removed from arm assembly.

2. Next, remove the whole Z-drive assembly from the arm by pulling the whole Z-drive assembly forward and off the Auto Sampler arm. See Figure 1-3.
3. After the Z-drive assembly is removed, then remove the rinse station. See Figure 1-4. Turn the rinse station $\frac{1}{4}$ turn counter-clockwise while pulling up. Also, the tubing located at the bottom of rinse station will have to be removed or moved aside. See Figure 1-5.

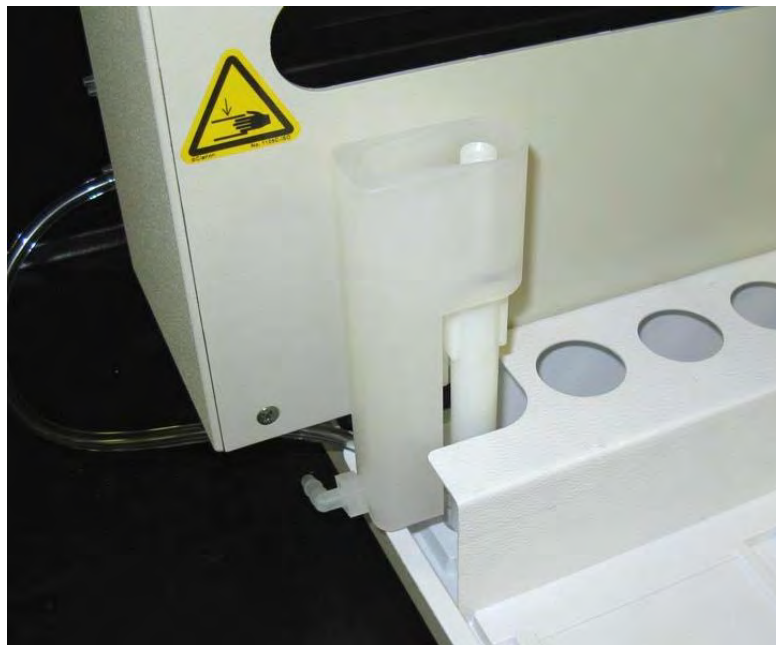


Figure 1-4. View of rinse station.

4. Some Auto Samplers may have a different rinse station, although they both connect the same. See figure 1-5.

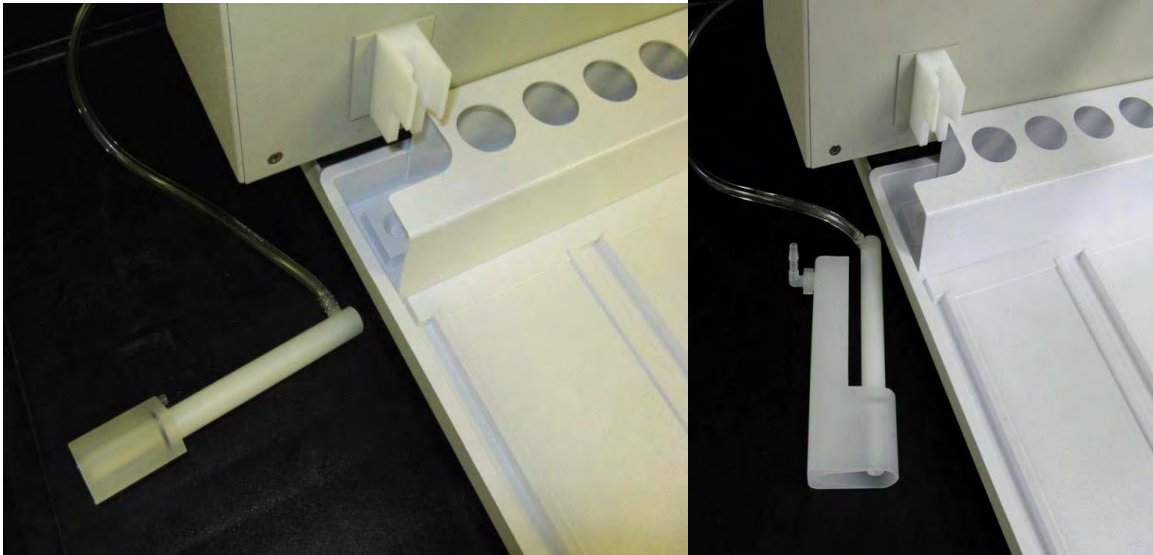


Figure 1-5. View of rinse stations removed from the front cover.

5. The Auto Sampler tray is next to be removed. Lift up the tray and pull forward. See Figure 1-7.

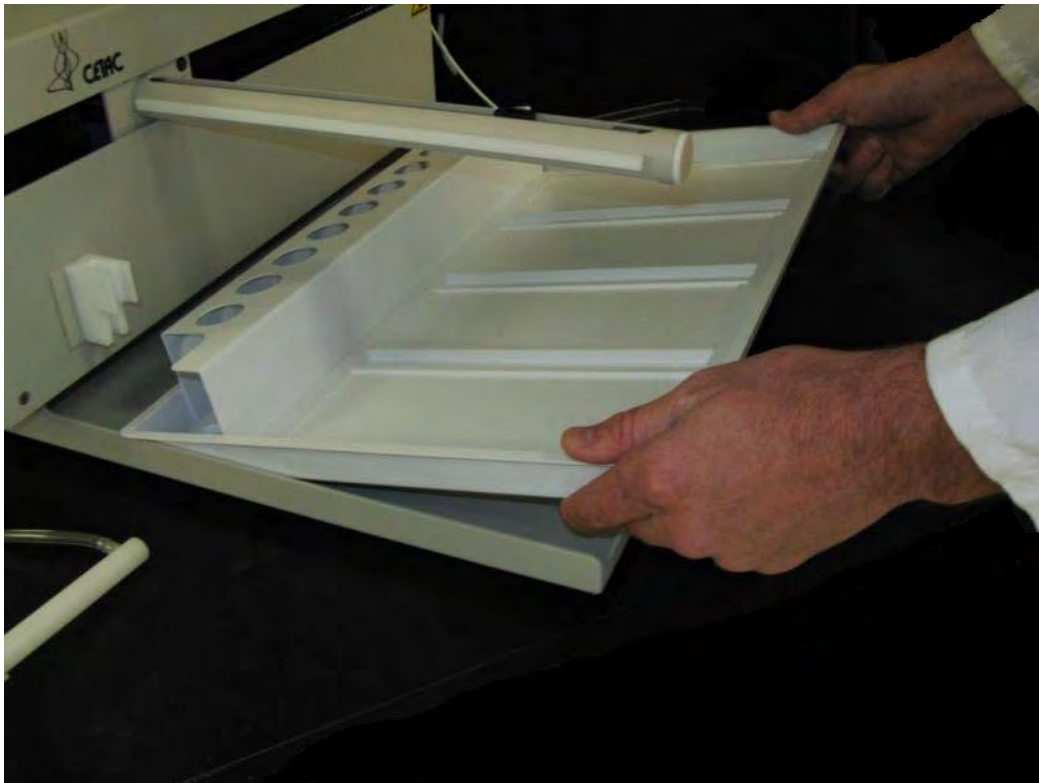


Figure 1-7. Removing the tray.



Figure 1-8. Front view of ASX-510 Auto Sampler showing front cover screws.

6. Next, the front cover needs to be removed. Remove the four corner screws shown in Figure 1-8.
7. The front cover can be removed by lifting it slightly and pulling forward. See Figure 1-9.

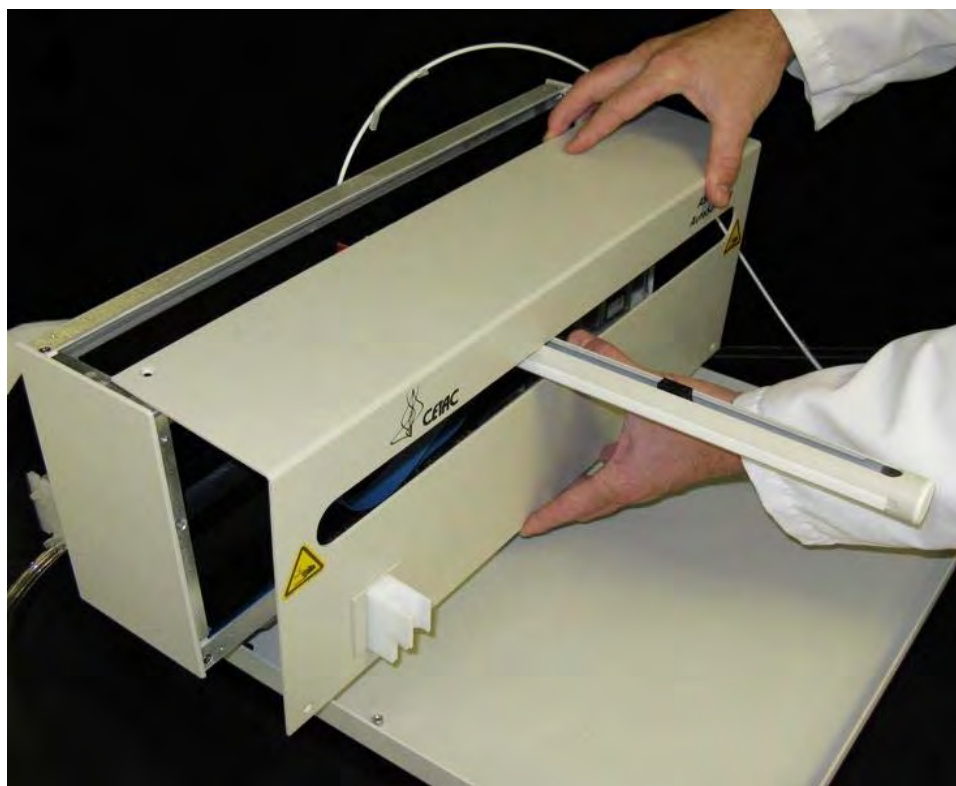


Figure 1-9. View of ASX-520 Auto Sampler with the front cover being removed.

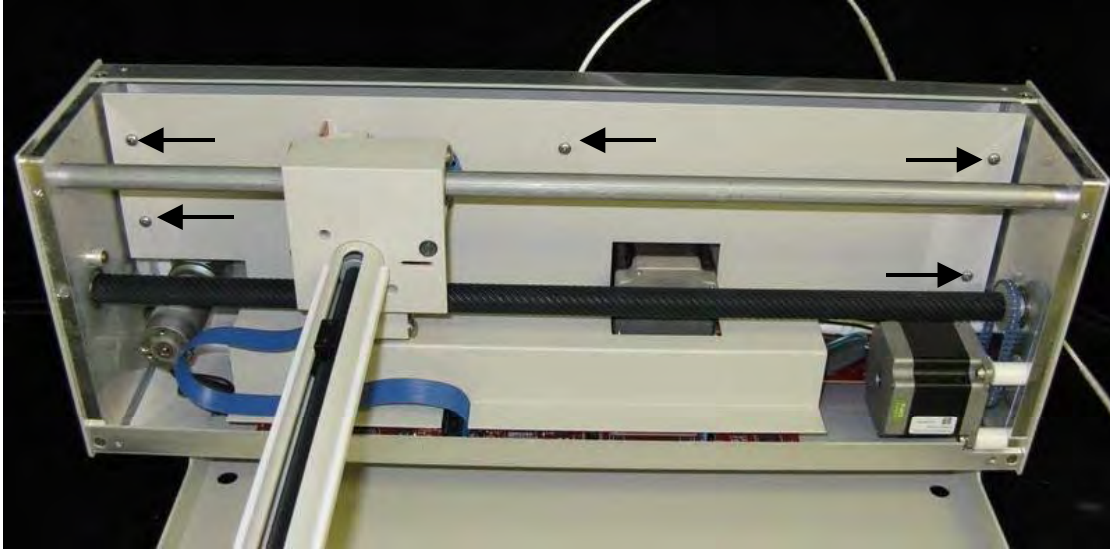


Figure 1-10. View of inner shield inside the ASX-520 (old shield).

8. The five screws that hold the inner shield will have to be removed. Move the Y-axis assembly all the way to the left. See Figure 1-10. If you have a newer two piece shield and splashguard proceed to step 10.
9. The inner shield can be removed by lifting it up while pulling forward. See Figure 1-11.

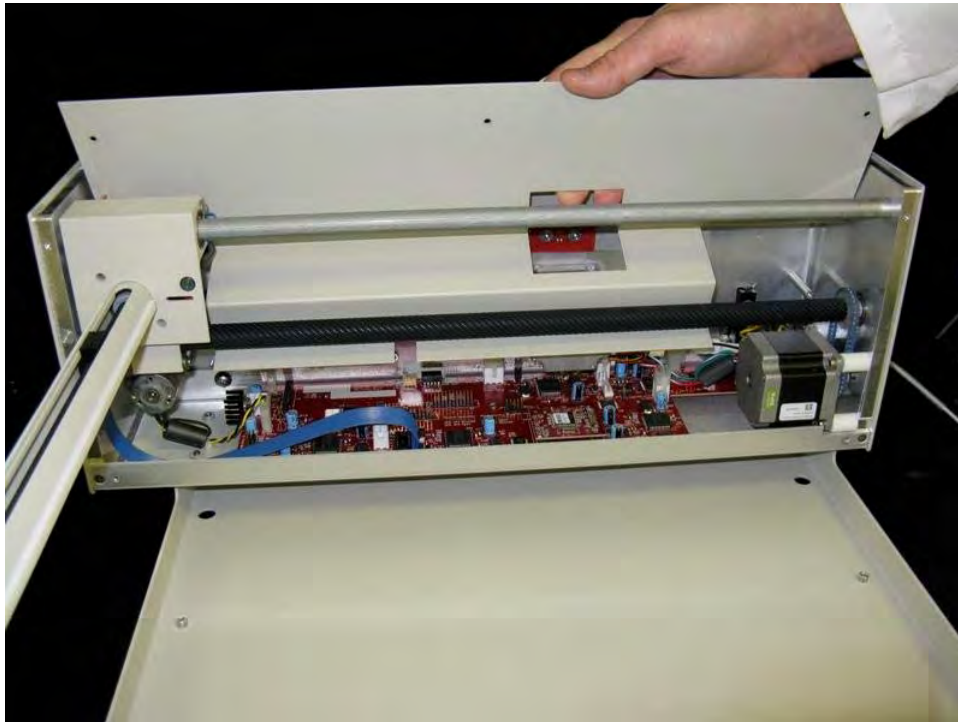


Figure 1-11. Removal of inner shield.



Figure 1-12. View of ASX-520 with inner shield removed.

10. If you have a newer shield/splash guard combination proceed as follows. Locate and remove the 5 screws holding the shield in place. See Figure 1-13.

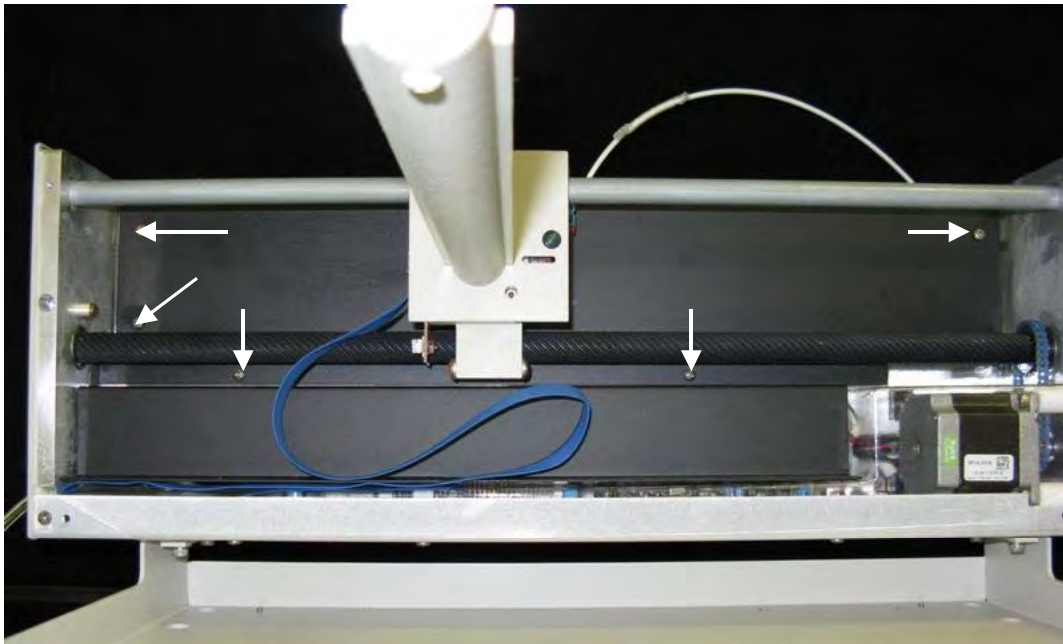


Figure 1-13. View of new shield and splashguard inside the ASX-520.

11. Remove the two shield pieces. Notice that the splashguard goes under the chassis on the top and over the chassis on the bottom. See Figure 1-14. When you replace the splashguard, ensure it is oriented in this manner.

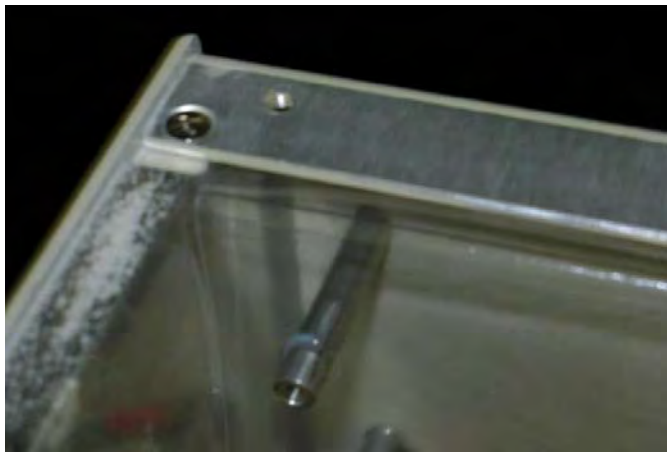


Figure 1-14. View of splashguard placement.

12. Remove the splashguard by pulling it out from one side. It may be necessary to reach under the guard and remove it from the support stand offs. See Figure 1-15.

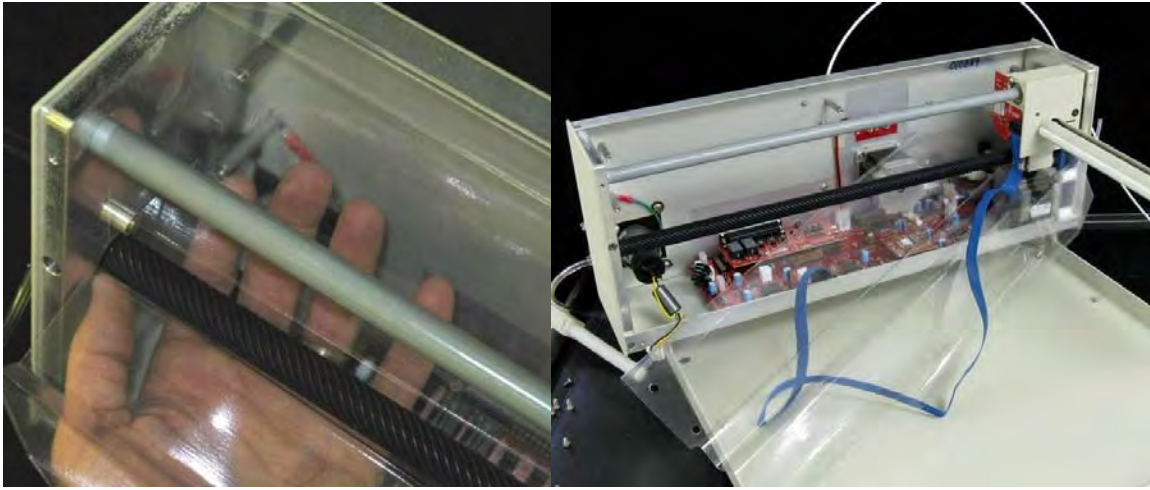


Figure 1-15. View of splashguard removal.

13. The pump is now accessible. Remove the old pump by unplugging the power connection; unbolt the grounding wire, and removing the four mounting screws. See figure 1-16. The screws are installed with locktite so if they are difficult to remove, apply heat to the front to loosen the locktite.

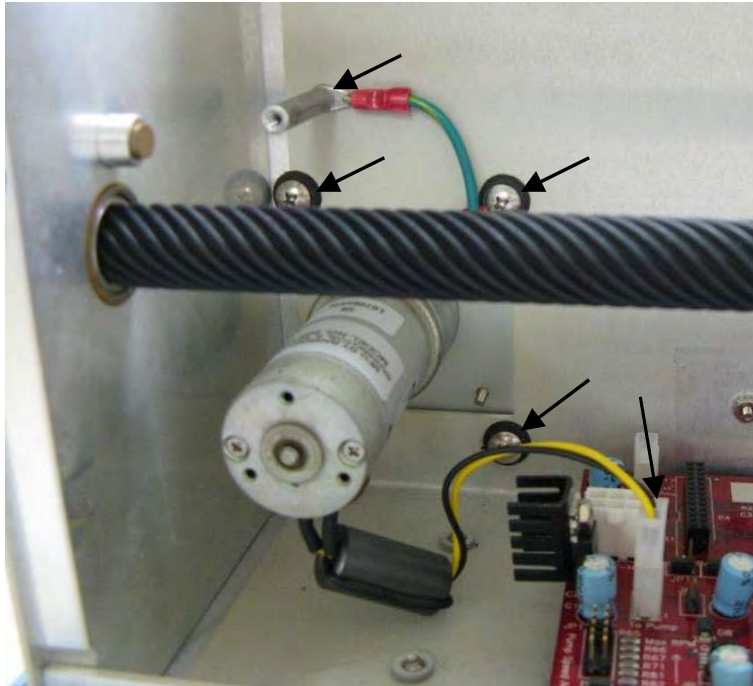


Figure 1-16. View of the old pump assembly.

14. Remove the bottom end plate screws (on the back side) and replace with two provided. Install the new pump assembly oriented as shown in Figure 1-17. Reconnect the power, ground wire, and mounting screws. It may be necessary to replace grommets with new ones provided.

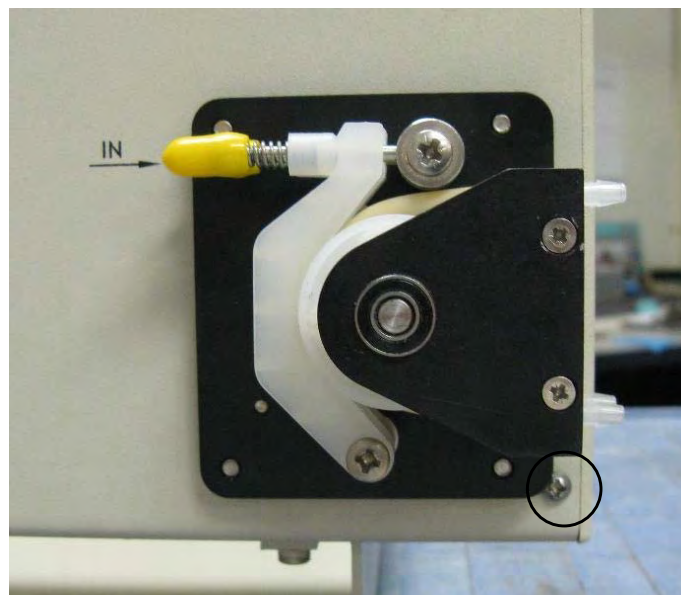


Figure 1-17. New Pump with end plate screw circled.

15. Tighten the mounting screws just past the point where the grommets begin to compress. The mounting screws are generally close to flush with the pump faceplate. The end plate screw that is replaced allows removal of the screw without scratching the pump.
16. Pump rotation is counter clockwise, which is the opposite as before. If your Autosampler has older silk-screening, the arrow indicator may be pointing the wrong way, however the in channel is still on top.
17. Occasionally the pump rollers and pressure shoes may begin to wear. There is some self-adjustment inherent to the design, however further adjustment may be necessary. Adjustment of the pressure shoe can be done by removing the yellow covers, and adjusting the 7/32-inch lock nut with a nut driver or wrench. See Figure 1-18.

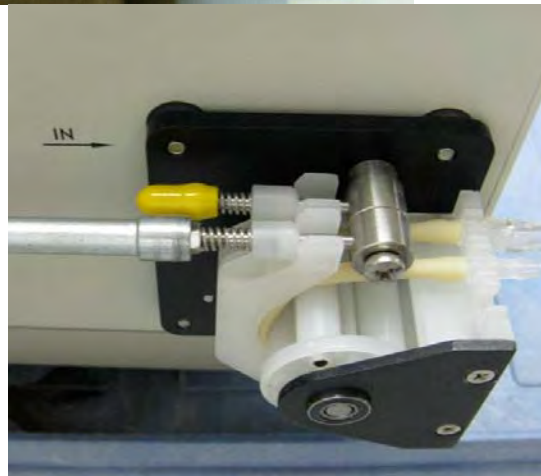


Figure 1-18. Adjustment of the pressure shoe.

18. Replace the splashguard, if equipped, taking note to orient the edges as seen before. Also route the blue ribbon cable under and to the left end, then up.
19. Replace the shield. Route the blue ribbon cable through the notch in the shield.
20. Replace the cover, tray; rinse station, z-drive assembly, and racks.
21. Finish plumbing the new pump and test for leaks before returning to service.

ASX-260 & ASX-130 Samplers:

1. Remove power, communication cable, trays, and rinse station as done with a ASX-520 series sampler.
2. Remove the z-axis drive assembly as done with the ASX-520 series sampler.
3. Remove the front cover by removing 4 screws as done with the ASX-520 series sampler.

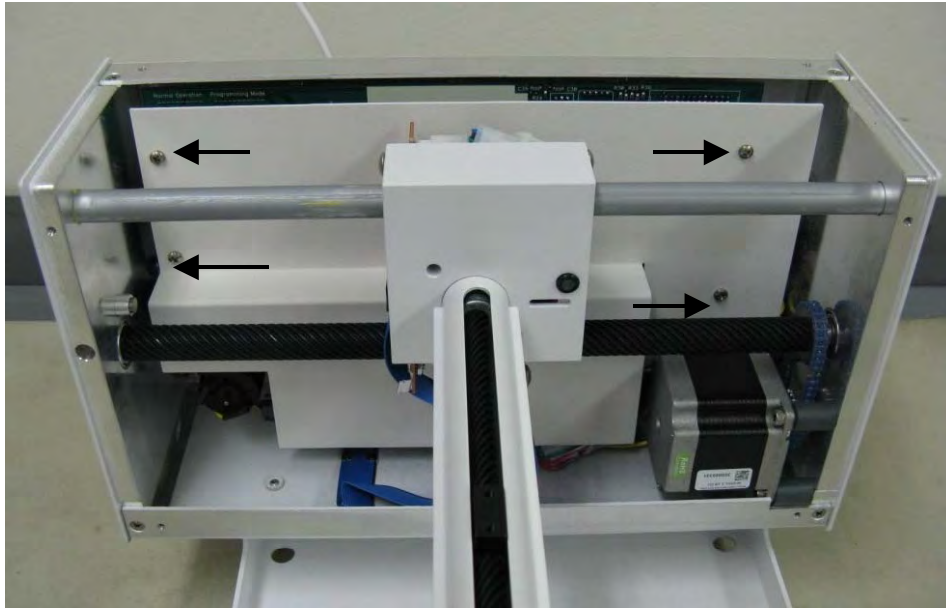


Figure 2-1. ASX-260 Inner shield mounting screws.

4. Remove the four shield mounting screws as shown in figure 2-1.



Figure 2-2. ASX-260 Inner shield removed.

5. Move y-arm to the right and remove inner shield through the top of the sampler. Note pump placement in the lower left corner. See Figure 2-2.
6. Remove the ground wire from the pump module. See Figure 2-3.

7. Remove the power cord from the main board. See Figure 2-3.

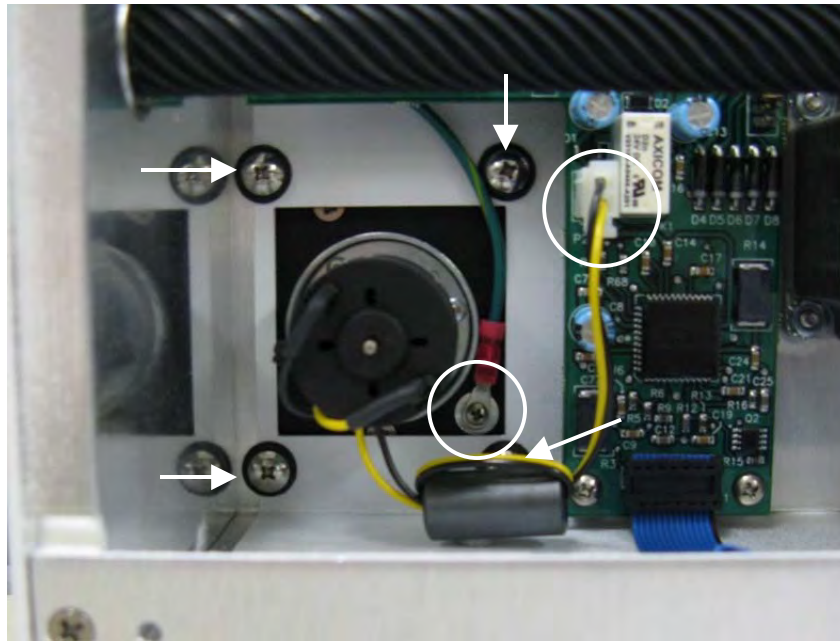


Figure 2-3. Pump wiring and mounting screws.

8. Remove the four pump module mounting screws from the interior of the sampler. If the mounting screws are very hard to remove heat may be applied to loosen any lock-tite used in manufacturing. Cutting the screws off is a last resort if the heads become stripped.
9. Remove the rear end plate mounting screws and replace with two provided.
10. Remove and replace mounting grommets if needed.
11. The ground wire may have been installed with a nut onto a stud mounted on the pump face plate. It may be required to replace the existing ground wire with a new one provided. Removal of the main board may be required. Please contact CETAC Technologies or visit our website for instruction on main board removal if necessary.
12. Reconnect the ground wire to the new pump face plate. See Figure 2-3.
13. Insert the pump into the chassis and secure with four mounting screws provided. Tighten screws until grommets begin to compress or the bottom of the mounting screws is flush with the pump face plate, whichever is later.
14. Connect the pump power wiring to the main board.
15. Secure excess wiring with a wire tie and trim excess.
16. Reinstall shield, cover, z-drive, rinse station, racks and tubing.
17. Test for leaking before returning to service.
18. Note steps 16 and 17 in ASX-520 section for adjustment of pump and future reference.

ASX-110FR & ASX-112FR Micro-Samplers:

1. Remove the plumbing, power, and communication cables from the sampler.
2. Remove the six pump mounting plate attachment screws. See Figure 3-1. A ASX-110FR is pictured. The ASX-112FR is similar with communication and power ports located elsewhere.

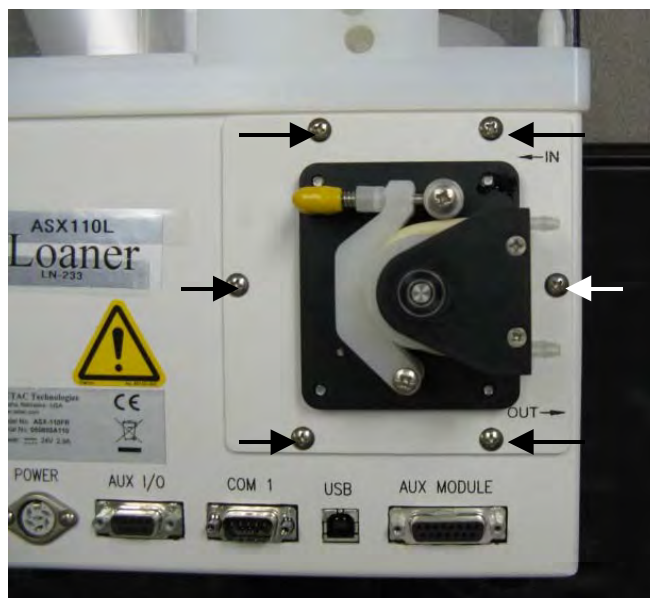


Figure 3-1. Pump mounting plate attachment screws.

3. Pull the pump mounting plate away from the sampler. See figure 3-2.



Figure 3-2. Pump mounting plate pulled away from chassis.

4. Remove the grounding wire from the old pump. See Figure 3-3.

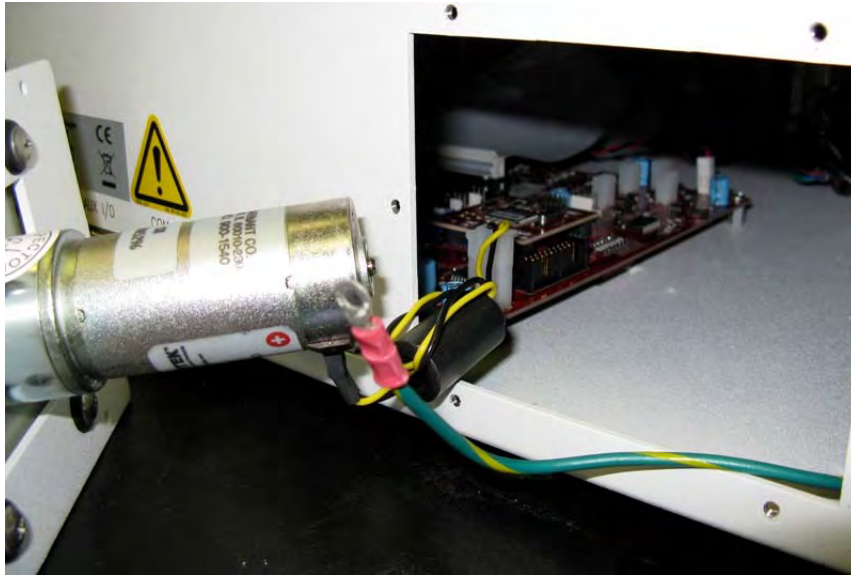


Figure 3-3. Ground wire removed from older style pump in ASX-112FR.

5. There may be an old style pump. This will have a 3/8" nut holding the ground wire. Remove and discard.
6. Unplug the yellow and black pump power wires from the main board.
7. Remove the four pump attaching screws to remove the pump from the mounting plate. See Figure 3-4. The old screws may have loctite on the threads which will make removal difficult. Apply heat to ease their removal.



Figure 3-4. Older style pump in mounting plate. Note the grounding post for 3/8" nut.

8. If the old grommets have been damaged or look worn, replace them with new grommets.
9. Insert the new pump into the mounting plate and attach with new screws provided. See Figure 3-5. Tighten the mounting screws until snug against the grommets or flush with the pump face, whichever is tighter.

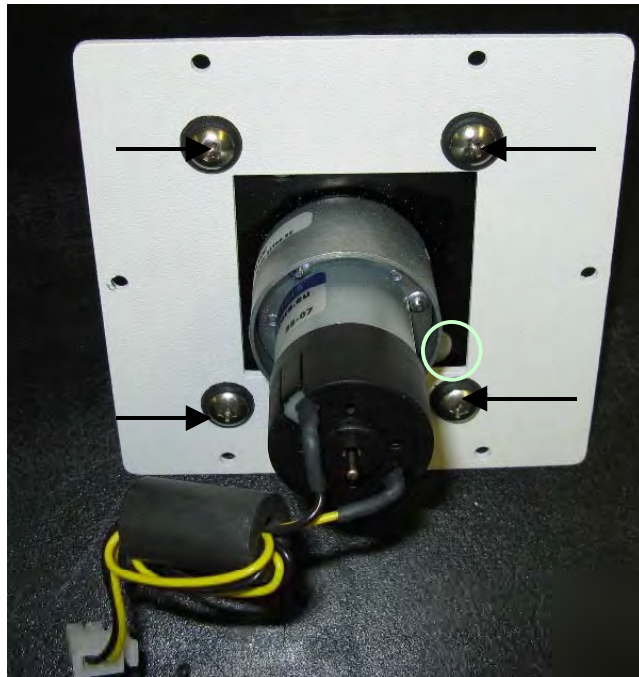


Figure 3-5. New pump in mounting plate. Note the hole for the ground wire mounting screw.

10. Attach the ground wire to the back of the pump face.
11. Reconnect the pump power wire to the main board.
12. Insert the pump into the chassis and attach the six pump plate mounting screws.
13. Reconnect all plumbing, communication cables and power cords.
14. Test for operation and leaks then return to service.

ASX 1000 Series samplers:

1. Remove the plumbing, power, and communication cables from the sampler.
2. Remove Auxiliary Pump if equipped by lifting vertically off pegs and unplugging from sampler. See Figure 4-1.
3. Remove sample probe, stirrer probe, and Z-axis control cable. See Figure 4-1.

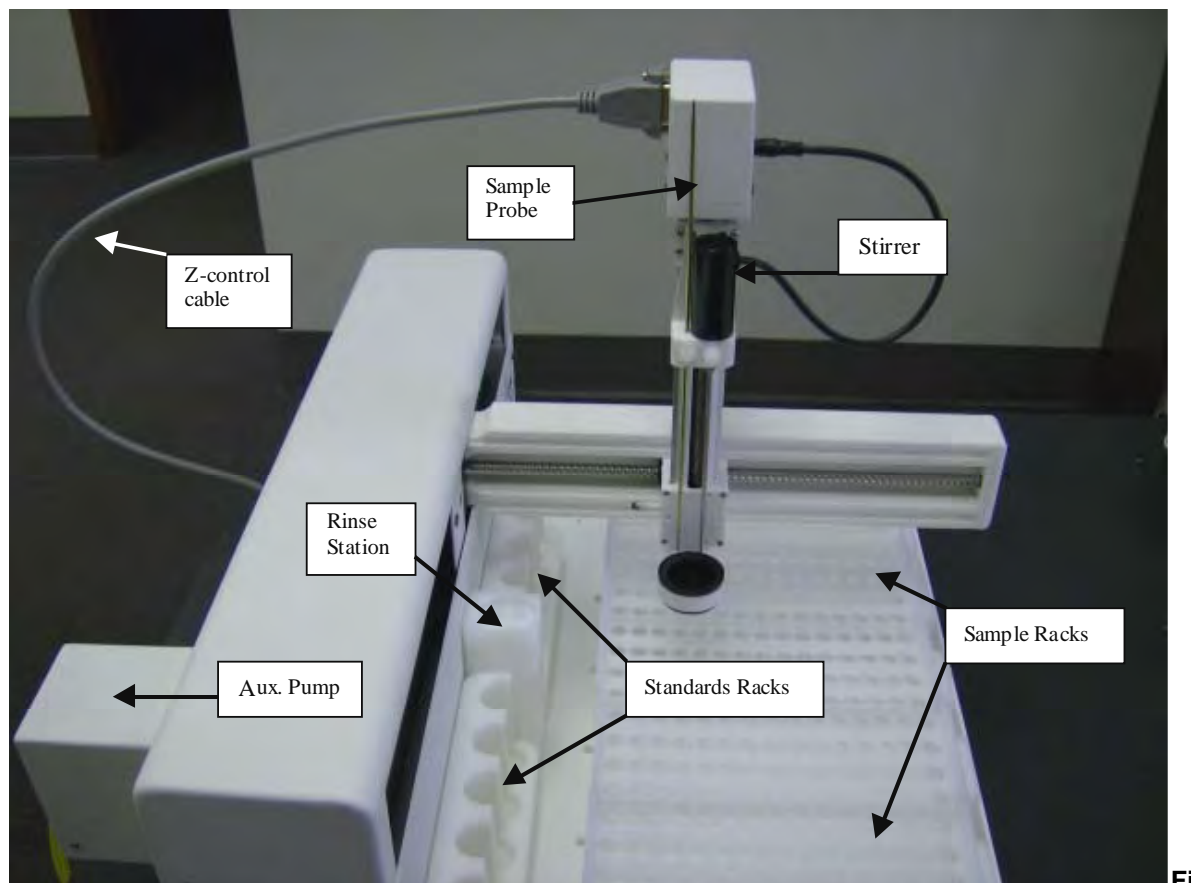


Figure 4-1. ASX-1400

4. Remove sample racks, standards racks, and rinse station (Figure 1).
5. Move the arm to the middle of the X-axis and the Z-assembly to the middle of the Y-axis.

- 6. Remove two Phillips head screws from the left and right side and remove top cover See Figure 4-2.



Figure 4-2. Cover mounting screws.

- 7. Remove three screws from back of autosampler to release the electronics panel. See Figure 4-3.

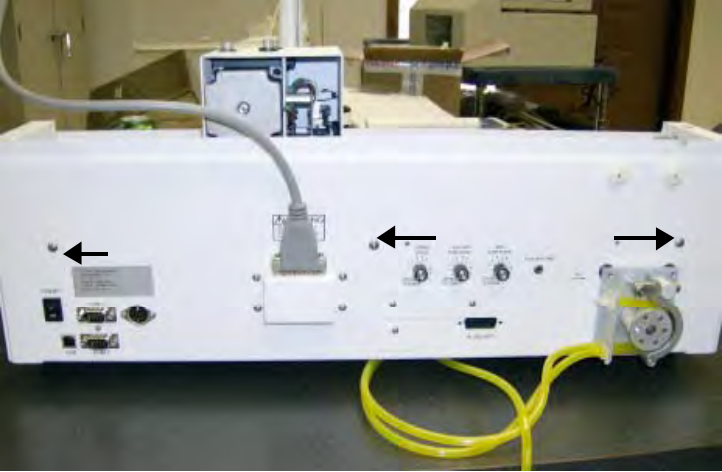


Figure 4-3. Three screws in the electronics panel

8. Grab backing plate and lift up and pull away from chassis. See Figure 4-4.



Figure 4-4. Removal of electronics panel.

9. Disconnect wiring to allow better access to pump area. See Figure 4-5. It may be a good idea to mark the connections for re-assembly.



Figure 4-5. Cables disconnected and support brackets exposed.

10. Remove the four pump mounting screws from the inside of the electronics panel. The screws may have loctite on them and be difficult to remove. Apply heat to the pump face to loosen the loctite.
11. Remove the old grommets if they show signs of wear or heat damage and replace with new grommets provided.
12. Insert new pump assembly and secure with four screws provided. Tighten screws until grommets begin to compress or screws are flush with the pump face, whichever is tighter. Note the direction of rotation is reversed between SP7002A and the pump pictured in Figure 4-4.
13. Secure ground wire to electronics panel and pump.
14. Reconnect yellow and black power wires.
15. Replace electronics panel ensuring bottom of plate is resting on support bracket. See Figure 4-5. Ensure all wiring is not caught between chassis assembly.
16. Reattach backing plate with three screws.
17. Reattach top with two screws each end.

18. Reattach rinse station, standards racks, and sample racks.
19. Replace sample probe, stirrer, z-control cable, and Aux. Pump.
20. Reconnect plumbing, communications cables, and power.
21. Test for leaks and functionality
22. Return to service.