

To replace the Valve Seats and Valve Body Seals in the solenoid supply valves on the ANKOM^{TDF} Dietary Fiber Analyzer, follow the steps below.

Note: The following items will be required to complete this procedure: Valve Seat (Z132), Valve Body Seal O-ring (Z133- Viton O-ring), two cable ties (Z10)

1. Prepare the instrument for service.

- a. Power off the instrument and unplug the power cord.
- b. Turn the valve for the air line to its off position.
- c. Open the back of the TDF by removing the six acorn nuts from the clear back panel, shown in the image above.

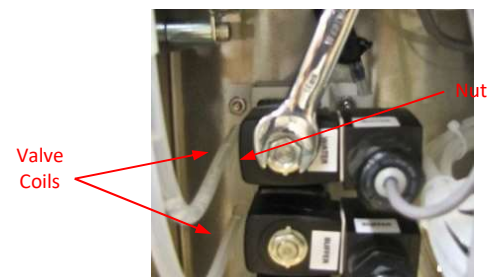
2. Cut the cable tie.

Carefully cut off the cable tie that holds the four gray cables together coming from the right side of the solenoid supply valves. Do not damage the insulation.



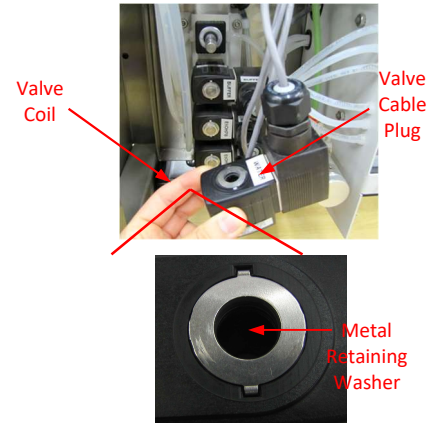
3. Remove the nut from the valve coil that needs replacement. (In this demonstration, the Water Supply Valve Seat and Valve Body Seal will be replaced.)

Using a 9/16" or 14mm wrench, remove the nut from the valve coil and set it aside for later use.

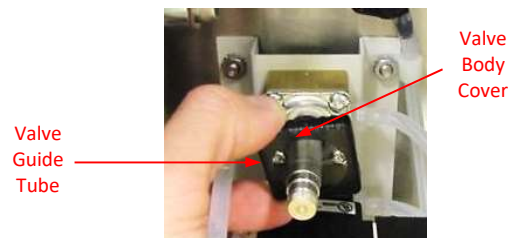


4. Remove the solenoid supply valve.

Pull the valve coil out, allowing it to hang from its valve cable plug attachment. Make sure the metal retaining washer remains on the valve coil end.

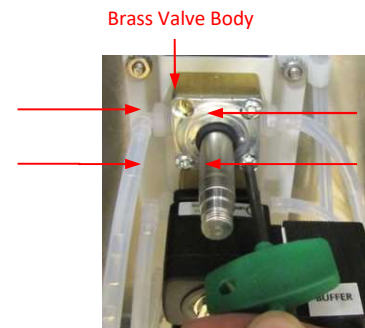


5. Remove the valve body cover from the valve guide tube and set the cover aside.



6. Remove the four screws.

Using the T20 torx head screw driver, ANKOM part #Z276, sent with the instrument, unscrew the four screws that hold the valve guide tube in place and set them aside for later. Hold the valve guide tube so that it does not fall once the screws have been removed.



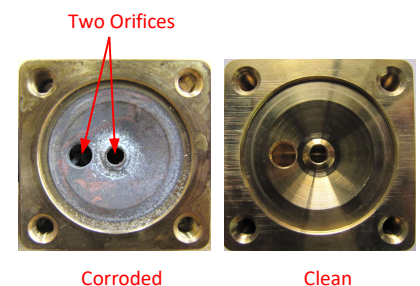
7. Carefully remove the valve guide tube by tilting the tube downward to prevent the valve plunger assembly from falling out of the inside of the valve guide tube.



8. Inspect the brass valve body.

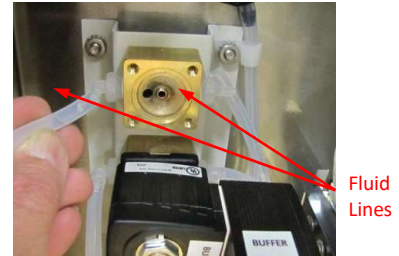
- Check the brass valve body for debris, corrosion, mineral deposits, etc. Make sure that nothing is blocking the two orifices. If the valve appears clean, move on to step #10.
- If there is debris or corrosion, use a Scotch-Brite™ (or equivalent) fine abrasive pad to scrub the corrosion off of the brass valve body.

Note: The Buffer supply valve tends to accumulate more corrosion.



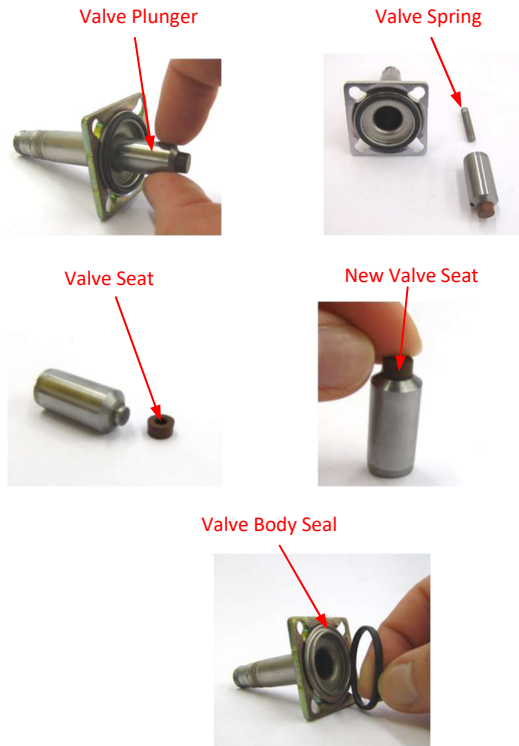
9. Clean the orifices with air.

- Disconnect the two fluid lines from each of the brass valve bodies that you are cleaning.
- Use compressed air to clean out the two orifices.
- Reconnect the fluid lines.



10. Replace the necessary parts of the valve guide tube and valve plunger assembly. (Exposure to certain solvents can cause valve seats and valve body seals to be damaged.)

- Carefully take the valve plunger, ANKOM part #Z315, out of the valve guide tube and remove the valve spring from inside the plunger. If the valve spring is corroded or becomes lost replace it with ANKOM part #Z135.
- Peel off the valve seat which is attached to the plunger end.
- Replace the new valve seat, ANKOM part #Z132, on the end of the valve plunger assembly.
- Check the valve body seal, ANKOM part #Z133 - Viton O-ring, around the inside of the valve guide tube for swelling and tears.
- If needed, replace the valve body seal.



11. Reinsert the valve plunger assembly into the valve guide tube.

- Place the valve spring back inside the valve plunger.
- Insert the valve plunger, valve spring side first, into the valve guide tube.



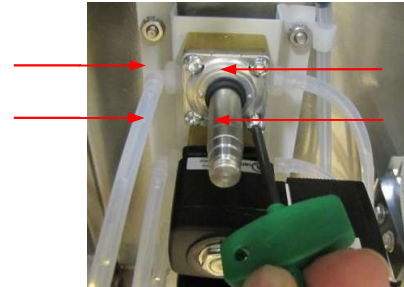
12. Reinstall the valve guide tube.

Carefully reinstall the valve guide tube in place against the brass valve body, so as not to drop any pieces from the valve plunger assembly inside, lining up the four holes for the screws.



13. Tighten the four screws in place on the brass valve body.

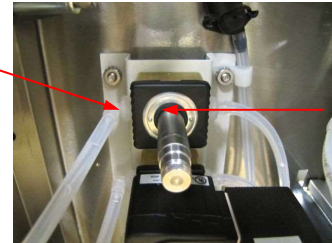
Use the T20 torx head screw driver, ANKOM part #Z276, to screw the four screws back on. Insert the screws diagonally across from each other to even and center the valve guide tube on the brass valve body.



14. Reinstall the valve body cover.

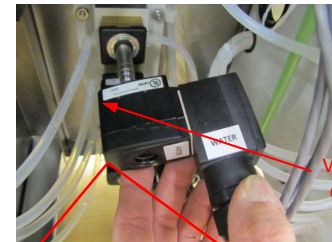
- Ensure that the outer black o-ring is pushed back against the valve guide tube.
- Insert the valve body cover over the valve guide tube.

Outer
O-ring

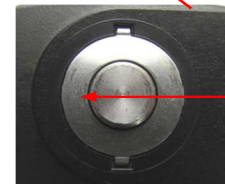


Valve
Body
Cover

15. Reinstall the valve coil by inserting it onto the valve guide tube. (The valve guide tube end should look like the bottom image when coming through the valve coil).



Valve
Coil



Valve
Guide
Tube

16. Make sure the metal retaining washer is secure.

- Ensure that the black valve coil o-ring beneath the metal retaining washer is securely in place on the valve coil (around the valve guide tube end).
- Line up and push the two tabs on the metal retaining washer back into the two holes on the valve coil.



Valve
Coil
O-ring

Metal
Retaining
Washer
Tab

Valve
Coil
Holes



17. Secure the nut.

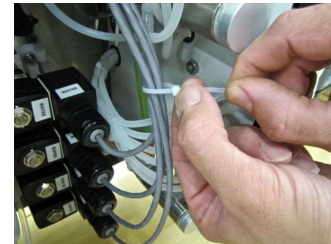
- Screw in the nut finger tight while keeping the valve horizontal.
- Finish tightening the nut with a 9/16" or 14mm wrench.

Nut



18. Secure the cable.

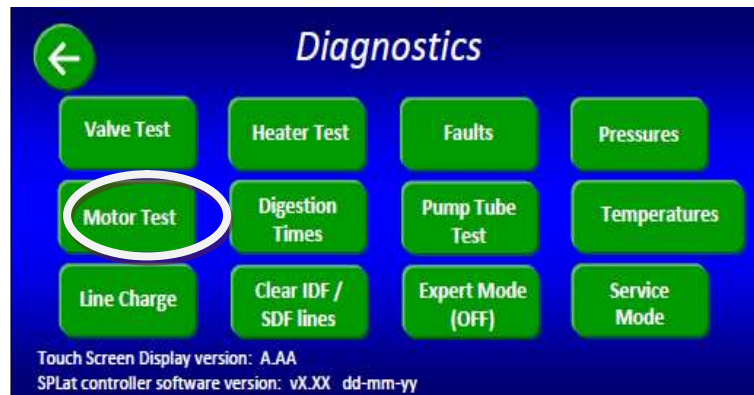
Place a cable tie around the four gray cables coming from the solenoid supply valves. Carefully cut off the excess from the cable tie without damaging the insulation.



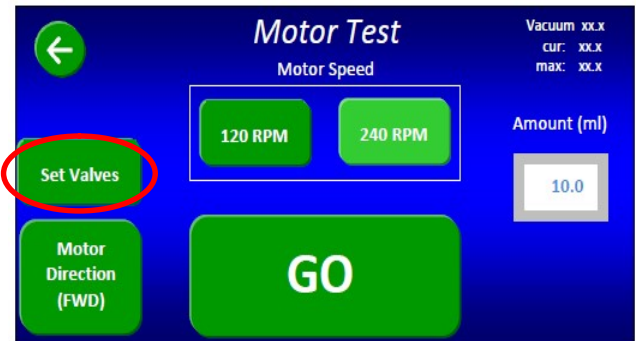
19. Reinstall the back panel.

Replace the clear back panel of the TDF instrument securing it with the six acorn nuts that were removed in step #1.

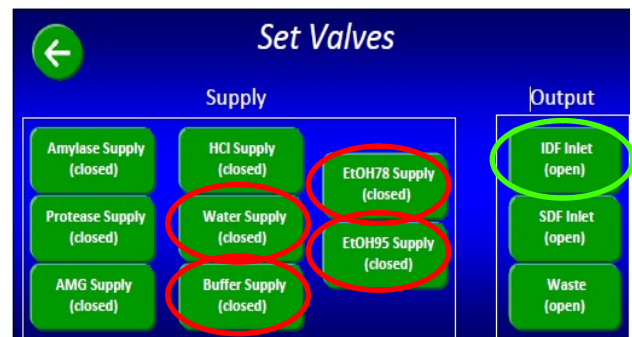
20. Go to the Diagnostics screen and press Motor Test.



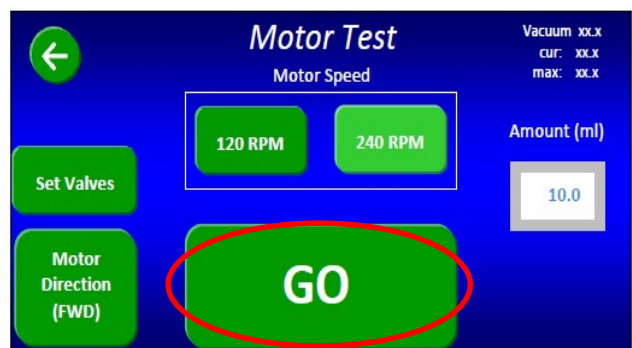
21. From the Motor Test screen, press “Set Valves”.



22. Select the Supply valve or valves that have been replaced to be the OPEN valve being tested. (**RED ovals**) Close all other Supply Valves. This has to be done one at a time. Select the IDF Inlet (**GREEN oval**) as the open Output valve; close the others. Place beakers or cups under IDF fill nozzles to catch the fluid delivery. Press the left arrow ←



23. Press GO and confirm that approximately 10 mls of the specified solution has been delivered through the IDF fill nozzles and into the beakers. Confirm that the valve(s) being tested are opening also by observing that the vacuum reading (max) is in the -0.8 to -3.0 psi range. A vacuum greater than -3.0 psi indicates a partial blockage. A vacuum greater than -5.0 psi will present as a plugged line, which could indicate a valve that is not opening.



- 24.** While in Diagnostics and in Motor test, select Set Valves again. Close all Supply Valves. Open Waste Valve as the only Output valve. Start the Motor test. The display in the upper right corner after a few moments should display “Plugged” and then under Curr and Max the reading should be 10 or greater.

- 25.** If each test is passed the instrument can be returned to service.