1. **Remove panels.**
   
   a. Unscrew the six acorn nuts on the back of the instrument and remove the clear back panel.
   
   b. Unscrew the eight screws on the back of the electrical enclosure and remove the stainless steel (SS) panel.

   **Note:** Using an Allen wrench, you may also remove the top panel of the instrument to improve visibility if necessary.

2. **Remove the vacuum sensor cable tube.**
   
   a. Cut off the cable ties that secure the vacuum sensor cable found on the left side inside the instrument.
   
   b. Loosen the nut that holds the plastic 1/4” cable holder to the front panel of the instrument.
   
   c. Detach the vacuum sensor cable from the barbed fitting.
      
      - Remove the two service access screws on the front of the instrument (right and left side).
      
      - Gently tilt the instrument forward by pulling the top of the electrical enclosure forward and down. The instrument will pivot at its center. This is done to allow for easier access to the barbed fitting.
      
      - Detach the vacuum sensor 1/4” tube from the barbed T-fitting that comes off of the EtOH78 supply valve. This is the barbed fitting that points upward when the instrument is in its upright position.
Remove the vacuum sensor cable tube (continued).

d. Gently pull the vacuum sensor out of the plastic 1/4” cable holder.

e. Disconnect the three pin white connector J9 that is second from the bottom on the MUX-P circuit board in the electrical enclosure. The MUX-P circuit board is found on the left side panel of the electrical enclosure, closest to the front of the instrument. Set the white connector aside for later use.

f. Use a small flathead screw driver to push the tabs down to remove each wire terminal.

g. Loosen the explosion proof fitting by hand.

h. Gently pull each wire terminal through the fitting one at a time to ensure they do not get stuck in the fitting.

3. Install the new TDF69 Vacuum Sensor Assembly.

a. Feed the wire terminals at the end of the vacuum sensor cable through the explosion proof fitting so that the heat shrink at the end of the gray cable jacket is showing.

b. Hand tighten the explosion proof fitting.

c. Give a light tug on the cable to ensure that the cable is unable to pull back through.
Install the new TDF69 (continued).

d. Attach the wire terminals to the white connector.

- As shown in the picture to the right, hold the white connector so the slotted side is on the left and facing you. Insert the wire terminals with the spring facing away from you and the barb facing towards you. Insert the black wire in the top, the white wire in the middle and the red wire at the bottom.

- Lightly tug on each wire to ensure that the barb is working and the wires do not pull out.


e. Plug the white connector back into the spot that is second from the bottom.

f. Feed the vacuum sensor tube through the 1/4” cable holder.

Note: This may be difficult and require you to first remove the cable holder.

g. Tighten the nut on the cable holder. If you removed the cable holder then reattach it using a nut driver. Be sure to hold the cable holder when tightening to ensure that it does not rotate.

h. Connect the vacuum sensor 1/4” silicone tube to the barbed T-fitting that is connected to the EtOH78 supply valve.
4. **Secure the cable.**
   
a. Secure the cable by sliding a cable tie behind the cable tie holder and tightening the tie to the cable.

b. Cable tie the vacuum sensor cable to the thick control panel cable.

c. Cut off the excess cable ties.

5. **Test the instrument.**
   
a. Turn on the instrument.

b. Press the Diagnostics button on the touch screen display.

c. Press the Pressures button on the touch screen display.

d. Ensure the vacuum sensor reads 14-15 psi (at sea level).

6. **Re-Install the panels.**
   
a. Reattach the stainless steel (SS) back panel of the electrical enclosure.

b. Reattach the clear back panel of the instrument using the six acorn nuts.