

## **HOW TO REPLACE A PRESSURE SENSOR IN A 4-WAY DIGITAL MANIFOLD IN THE FIELD**

### **STEP #1**

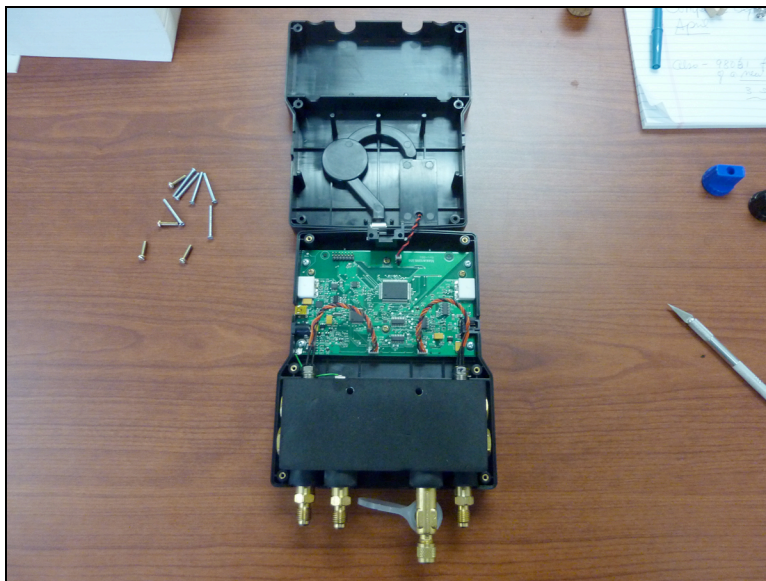
Remove all knobs. Each knob is secured with a screw that will be found beneath each label. Remove each label with a thin knife blade (or equivalent) and store labels for re-assembly. Remember the order in which the labels were removed. Disconnect each knob and place nearby in a sequence.

### **STEP #2**

Un-screw and remove all caps from all manifold ports to facilitate removal of the blue rubber cover. Note that there are tiny holes on the rear of the cover. Start the cover removal by prying OFF the area where the holes are. Continue removing the cover from all sides until the cover is completely separated from the housing.

### **STEP #3**

Remove all Phillips head screws from the rear of the housing. While the rear of the unit is facing up and the input ports are nearest to you, use a flat screwdriver and gently separate the two halves of the housing. Be careful in lifting the back cover (top) away from the bottom cover since a wire will still be secured between the two halves. If you lift the back cover from a 6:00 to 12:00 position, you can lay both cover sections down without disconnecting the battery connection from the main PCB.

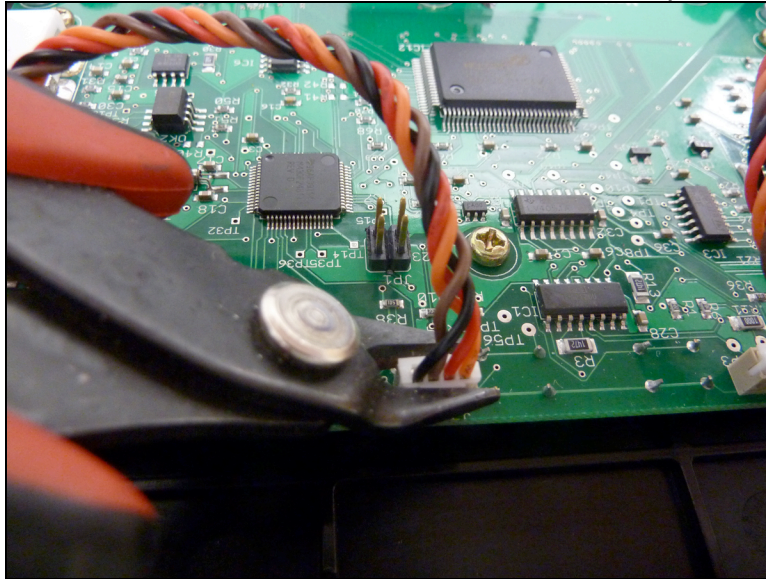


### **STEP #4**

Since the unit is lying on its face, the LOW-pressure sensor will be on the right side of the manifold block and the HIGH-pressure sensor will be on the left side.

### **STEP #5**

Remove both pressure sensor connectors WITH EXTREME CARE. The recommended tool is a miniature side cutter. If used improperly or with excessive force, this tool can sever the cable, therefore, be very careful. Carefully place the jaws of the side-cutter between the plug and the socket interface, gently apply a minimal amount of force and carefully rock the side cutters in a lateral motion until the plug lifts out of the PCB socket. Repeat this process and remove the other pressure sensor. TAG THE SENSOR THAT IS TO BE REMOVED at this time. The photo below will detail the recommended removal process.



### **STEP #6**

Having marked the pressure sensor that is to be removed and replaced, NOW proceed to remove the manifold block out of the housing cavity. Secure the block in a vice; proceed to remove the marked sensor using a 7/16-inch wrench.

Apply blue Lock-Tite around the threads of the new sensor and re-install in the manifold block, applying sufficient force until tight (approximately 10 inch-lbs). Be careful not to cross-thread the new sensor in the process. Clean off excess Lock-Tite.

### **STEP #7**

Return the manifold block back to its position in the case, making certain that the grounding clip is sitting in its notched position in the case and making contact with the block. It may be advantageous to raise the cover slightly to make the re-insertion process of the manifold block back into the case less difficult (due to the interference of the knob shafts).

### **STEP #8**

Reconnect each pressure sensor to its respective connector on the PCB. The black wire should be on the left side in each connector, when the manifold block

is facing you. It is recommended that additional (slight) pressure be exerted on each side of the connector to ascertain that the connectors are inserted all the way.

### STEP #9

Carefully join both front and back covers together, making certain that the hinge lock cover (between front & back covers) is properly positioned before securing the covers with the screws. Check to make certain that the unit turns ON before tightening the screws. Tighten all screws that were removed in step # 3, until all surfaces around the perimeter of the case are touching firmly. If the unit does NOT turn ON, open the case and verify that the battery connector is not damaged and the connection with the battery is verified.

### STEP #10

IT MAY BE ADVANTAGEOUS TO BEGIN THE INSTALLATION OF THE COVER FROM THE REAR OF THE UNIT, STARTING WITH THE SIDE WHERE THE PORTS ARE LOCATED. Work the cover around the ports, followed by the bottom corners and finally pull the other sides over their corners. Insert the rubber material that was designed to protrude into the rectangular holes in the case by pushing the rubber material (using a blunt round object) through the round holes.

### STEP #11

After the cover has been installed, turn the four shafts in a fully counter-clockwise position. Observe that there is a black rolled pin adjacent to each shaft. Also observe the white area beneath the knob as depicted in the picture below.



The orientation of each knob must be such that the black rolled pin fits inside the white region of each knob. The white region is only shown in the picture for clarification. After the knobs are positioned as instructed, tighten them with the screws previously removed in Step #1. Check to verify that each now rotates only

90 degrees. If more than 90 degrees, turn the knob fully counter-clockwise remove and flip the knob 180 degree.  
Place the respective labels into their knob centers and apply a gentle force to secure them in place.

## **STEP #12**

You are now ready to re-calibrate the manifold with the newly installed pressure sensor. Follow the instructions entitled "PRESSURE SENSOR RECALIBRATION INSTRUCTIONS".