

HOW TO RE-CALIBRATE A NEW PRESSURE SENSOR ON A DIGITAL MANIFOLD IN THE FIELD (99103-A & 99903)

GENERAL:

Whenever a manifold experiences a pressure sensor replacement, the manifold requires re-calibration. **Two (2)** known pressures will be required to re-establish the accuracy of the manifold.

Determining which steps in the calibration are required to be modified will depend on whether the low side or high side sensor was replaced.

If the pressure sensor on the **low side** was replaced: step #5 and step #6 need to be changed.

If the pressure sensor on the **high side** was replaced: step #3 and step #4 need to be changed.

The calibration parameters in all other steps **must remain un-changed**.

PRE-REQUISITE:

It is presumed that the following events have taken place.

- The directions describing “**How to Replace a Pressure Sensor in the Digital Manifold**” have been read and the defective pressure sensor has been replaced.
- The **Preamble**, which describes, “**How to Re-Calibrate the Manifold**” has been read and understood. This preamble describes the meaning and the purpose of every step.
- The pre-requisite of recording the existing parameters for all 16 steps has been met before proceeding with the re-calibration process.

REQUIREMENTS:

- Any stable source of air pressure in the 0 PSI to 300 PSI range.
- One side (low side) or the other side (high side) is still calibrated and will be used as a reference to re-calibrate the side with the new pressure sensor.
- **Zero PSI** will be one of the pressures used for calibration. The second pressure should be in the **200 to 250 PSI** range. The exact value of the high pressure is not important.

STARTING THE RE-CALIBRATION PROCESS – HIGH SIDE:

This procedure is for re-calibrating the HIGH SIDE with the new pressure sensor

1. Press the **POWER** button to turn the unit **ON**.
2. **To enter the calibration process:** Press the **B/LT** button (and hold) then press **VACUUM** (hold both until the LCD screen goes blank). Next, press the following sequence (momentarily one button at a time), **SELECT-VACUUM-SELECT**. When the number 1 appears in the lower right quadrant, you are in **Step #1** of the calibration process.
3. Calibrating the zero PSI point for the high side is done in Step #3. Press **ENTER** two more times until the lower right hand quadrant display shows the number 3. At this point use the UP arrow (select button) or the DOWN arrow (vacuum button) until the upper right hand quadrant displays 0 PSI.
4. Record the calibration parameter that appears in the top center of the LCD. This information should be entered with the calibration data for Step #3 that was initially recorded for future use.
5. A second pressure calibration point is required for the high side to complete the re-calibration.
 - Turn the high side, low side and vacuum knobs fully counter-clockwise (open position).
 - Install the black plastic caps on the low side and high side ports and tighten them by hand, **making certain that they are tight**. The refrigerant (yellow) knob should be in the horizontal (fully clockwise) position.
 - Wear safety glasses and connect a pressure source of 150 PSI (minimum) but not greater than 300 PSI to the vacuum port.
 - Turn the compressor on until a maximum PSI is attained. Turn the vacuum knob fully clockwise to the closed position. This keeps the pressure constant inside the manifold.
6. Now press the **ENTER** button to advance the calibration to Step #4. You should see a 4 in the lower right quadrant of the LCD.
7. You will observe a PSI reading on the **high side**. You need to exit the calibration mode to see what the PSI reading is on the **low side** of the LCD display. The presumption is that the low side is calibrated.
8. Press **ENTER** 13 more times until the manifold exits the CAL. MODE. **You will now record (on a piece of paper) the PSI reading on the low side.** This is an accurate PSI pressure valve that you will also want the LCD to display on the high side. You will accomplish this by following the instructions in the next step.

9. Follow the instructions in Step #1 above and re-enter the calibration mode. Press **ENTER** 3 times. You should now be in Step #4. Now use the **UP** arrow (select button) or **DOWN** arrow (vacuum button) until the pressure reading on the high side matches the number that you recorded on the piece of paper in Step #8 above.
10. To exit, continue pressing ENTER until you pass Step #16. Check that the high and low PSI readings on the LCD display are the same or within +/- 0.5% error. When this is accomplished, the re-calibration process is completed.

STARTING THE RE-CALIBRATION PROCESS – LOW SIDE:

This procedure is for re-calibrating the LOW SIDE with the new pressure sensor.

11. Press the **POWER** button to turn the unit **ON**.
12. **To enter the calibration process:** Press the **B/LT** button (and hold) then press **VACUUM** (hold both until the LCD screen goes blank). Next, press the following sequence (momentarily one button at a time), **SELECT-VACUUM-SELECT**. When the number 1 appears in the lower right quadrant, you are in **Step #1** of the calibration process.
13. Calibrating the zero PSI point for the low side is done in Step #5. Press **ENTER** four more times until the lower right hand quadrant display shows the number 5. At this point use the UP arrow (select button) or the DOWN arrow (vacuum button) until the upper left hand quadrant displays 0 PSI.
14. Record the calibration parameter that appears in the top center of the LCD. This information should be entered with the calibration data for Step #5 that was initially recorded for future use.
15. A second pressure calibration point is required for the low side to complete the re-calibration.
 - Turn the high side, low side and vacuum knobs fully counter-clockwise (open position).
 - Install the black plastic caps on the low side and high side ports and tighten them by hand, **making certain that they are tight**. The refrigerant (yellow) knob should be in the horizontal (fully clockwise) position.
 - Wear safety glasses and connect a pressure source of 150 PSI (minimum) but not greater than 300 PSI to the vacuum port.
 - Turn the compressor on until a maximum PSI is attained.
 - Turn the vacuum knob fully clockwise to the closed position. This keeps the pressure constant inside the manifold.

- 16.** Now press the **ENTER** button to advance the calibration to Step #6. You should see a 6 in the lower right quadrant of the LCD. You will observe some PSI reading on the **LOW SIDE**. You need to exit the calibration mode to see what the PSI reading is on the **HIGH SIDE** of the LCD display. The presumption is that the high side is calibrated.
- 17.** Press **ENTER** 13 more times until the manifold exits the CAL. MODE. **You will now record (on a piece of paper) the PSI reading on the high side.** This is the PSI number that you want the LCD to display on the low side. You will accomplish this by following the instructions in the next step.
- 18.** Follow the instructions in Step #1 above and re-enter the calibration mode. Press **ENTER** 5 times. You should now be in Step #6. Now use the **UP** arrow (select button) or **DOWN** arrow (vacuum button) until the pressure reading on the low side matches the PSI reading that you recorded on the piece of paper in Step #17 above.
- 19.** To exit, continue pressing **ENTER** until you pass Step #16. Check that the low and high side PSI readings on the LCD display are the same or within +/- 0.5% error. When this is accomplished, the re-calibration process is completed.