Protel Digital Pressure Regulator
Troubleshooting Guide
(AVW400 version)

8/19/2013

Caution! - Lethal voltage is present in all compressed air vending machines. Repair should only be attempted by trained technicians.

Note - Tests should be performed in order for proper diagnosis.

1.00 Check for loose connections

Loose or broken wires can cause misleading symptoms. Check all connections before proceeding.

2.00 Check AC power

The pressure regulator circuit board and solenoids operate from a 24VAC power transformer. The LCD display should have white LED back-lighting and the unit should indicate a 32 psi set point and 0 psi during idle mode. If the display fails this check, the board is most likely not receiving 24VAC power. If power is present at the 0.250" tab terminals, replace the digital pressure board and/or display.

3.00 Adjust set point

Adjust the set point with the up and down buttons. The buzzer should beep with every adjustment.

3.01 Potential faults if set point does not increment or decrement:

- Loose or broken push button wires
- Push button
- Digital pressure board

3.02 Potential faults if the buzzer does not beep:

- Loose or broken buzzer wiring
- Buzzer
- Digital pressure board

4.00 Read tire pressure

With the compressor off, attach the air chuck to a tire. The display should indicate the tire pressure. The buzzer should beep when stable pressure is detected. Note the pressure and remove the chuck. Measure the tire with an accurate hand-held tire gauge. Compare the two readings.
Note - Stick gauges are notoriously inaccurate, use a quality instrument for this procedure.
Make sure a good seal is achieved for each measurement. Any air escaping during this procedure will greatly affect accuracy. The test tire should be at 32 to 50 psi for best results.

4.01 Potential faults if pressure is not within a few psi of measured tire pressure:

- Tire chuck
- Leaks in fittings or hose
- Loose or broken pressure sensor cable
- Solenoid stuck open
- Pressure sensor
- Digital pressure board

4.02 Potential faults if pressure is within a few psi of measure tire pressure:

- Digital pressure board requires calibration
- Faults listed under 4.01

5.00 Calibration

Skip this step if tire accuracy is within acceptable limits.
Tools:

Michelin MN-12279 Tire Gauge recommended (displays pressure to 0.1 PSI resolution).

Notes:

Make sure the compressor is off before entering the calibration mode and remains off during the entire calibration process.

5.01 Press and hold the “PROGRAM” button on the digital pressure circuit board. After approximately 2 seconds, the buzzer will beep and "CAL" will be displayed. Release the button. The exhaust solenoid will be enabled for 2 seconds after which all of the display segments will be turned on to allow for visual inspection of the display. After an additional 3 seconds, the exhaust solenoid will be disabled and the display will show the pressure in 0.1 psi increments (example "P 0.3").
Note - during the time that all display segments are enabled, the pressure board is adjusting the pressure sensor input for 0 psi measurements. The pressure displayed initially will include any previously calculated offset.

5.02 Attach the air chuck to the tire until the unit starts beeping, indicating that the pressure reading is stable. Remove the air chuck from the tire (the captured pressure reading will continue to be displayed until the chuck is attached to the tire again). Measure the tire pressure with the Michelin tire gauge and press the up or down button so that the pressure displayed matches the pressure measured with the Michelin tire gauge. Note - Make sure a good seal is achieved for each measurement. Any air escaping during this procedure will greatly affect accuracy. The test tire should be at 32 to 50 psi for best results.

5.03 The calibration mode can be exited in one of three ways:

1) Pressing the PROGRAM button for less than 2 seconds will exit the calibration mode without saving the new calibration values.
2) Holding the PROGRAM button for 2 seconds until the beeper starts beeping rapidly will save the new calibration values.
3) The pressure board will automatically exit calibration mode if no button is pressed or no change in pressure reading is detected for 60 seconds and the new calibration values will not be saved.

6.00 Tire inflation/deflation

6.01 Press and hold the button on the AVW400 until three of the four LEDs to the left of the button are illuminated. This will place the AVW400 in "service mode". While in service mode, the AVW400 will not include monies deposited in the monthly total. The three LEDs will continue to flash while the AVW400 is in service mode. The unit will stay in this mode until timeout or the button is depressed to exit this mode.

6.02 Deposit the required number of quarters to activate the compressor. Adjust the set point to the desired tire pressure. Attach the tire chuck to the tire and verify a good seal is achieved. The digital pressure board should detect the tire and begin the process unless it is flat. Depressing the flat tire button will dispense air until the tire is detected. The buzzer should beep several times when the tire pressure matches the set point.

6.03 Potential faults during inflation/deflation test:

- Loose or broken solenoid wires
- Leaks between compressor and manifold
- Foreign debris in solenoid seal area
- Solenoid
- Weak compressor
- Faulty over-pressure relief valve
- Digital pressure board