

Subject
Pressure Sensor Voltage Test

System or Parts affected

- 150 psi Pressure Sensor P/N 3500288
- 200 psi Pressure Sensor P/N 3501037

Consult the [Illustrated Parts List](#) to confirm the correct pressure sensor for your VMAC product.

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Overview

VMAC's pressure sensor is an electromechanical device that translates air pressure into voltage. Constant voltage is supplied to the pressure sensor and the return voltage output varies depending on how much pressure is applied to the diaphragm. Voltage returned from the pressure sensor increases as pressure increases.

Pressure Sensor Identification

Old Generation pressure sensors could be identified by looking for the number 150 or 200 stamped in the brass body of the sensor (**Figure 1**).

Current generation pressure sensors have similar numbers that are more difficult to see, etched in the black plastic connector end of the sensor (**Figure 1**).

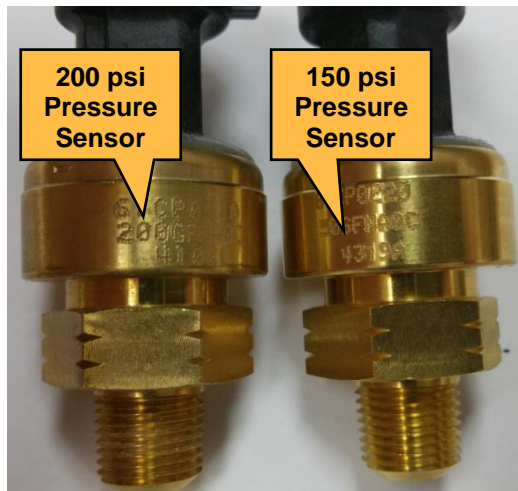


Figure 1

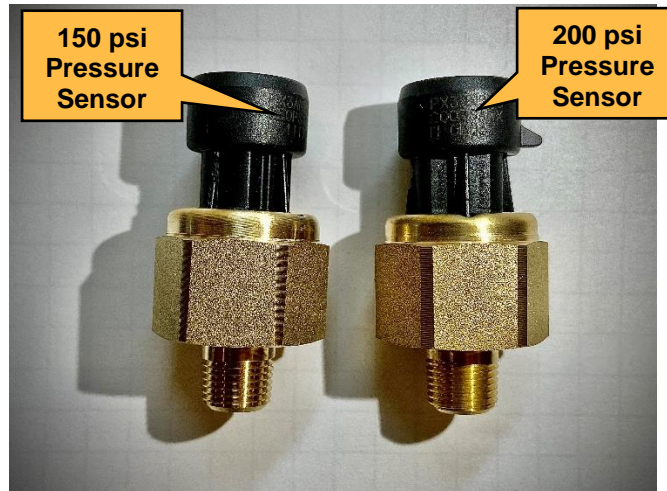


Figure 2

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Check Pressure sensor connector pins

- 1) Unplug the pressure sensor to inspect the connector. (Figure 3)
- 2) Confirm the pins are fully seated in the connector, in the proper location and that they are free from corrosion or damage.
- 3) The black wire is a ground. Using an Ohmmeter confirm less than 1Ω resistance to battery negative.
- 4) The red wire supplies power from a control box or throttle control to the pressure sensor.
- 5) The white wire (green in older systems) is the signal wire, which returns the signal to the control box or throttle control.

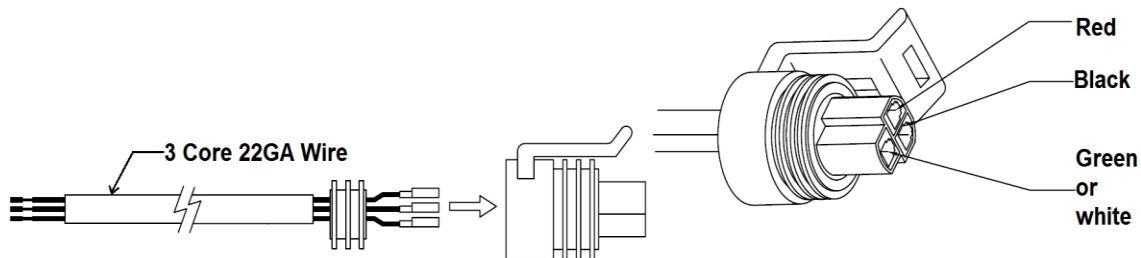


Figure 3

Sensor Test Method

- 1) Ensure that the system is depressurized (0 psi).
- 2) Install a 200 psi mechanical air pressure gauge, ideally in a T-fitting upstream of the pressure sensor (Figure 8).



A downstream pressure gauge can be used provided it is displaying full system pressure, not regulated pressure.

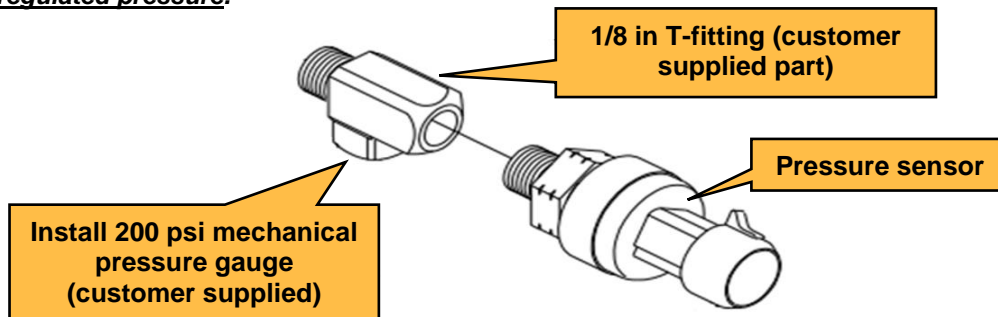


Figure 8

- 3) Back-probe the pressure sensor connector using the method shown on pages 4-5.
- 4) With the compressor drive not running (i.e. engine or hydraulics off), but with electrical power supplied, turn on the VMAC Compressor. At 0 psi, voltage measured on the white signal wire should be 0.5 V dc.
- 5) With the compressor drive running and compressor turned on, observe the voltage reading on the signal wire and the system pressure on the gauge. Reference the Pressure Sensor Pressure/Voltage chart on page 3.

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Technical Support

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Pressure Sensor Pressure/Voltage Chart

If the measured voltage and pressure does not match the figures in the appropriate table below, the pressure sensor must be replaced.

150 psi Pressure Sensor P/N# 3500288

Pressure (psi)	Voltage
0	0.5
10	0.74
20	1.01
30	1.28
40	1.55
50	1.82
60	2.09
70	2.36
80	2.63
90	2.90
100	3.17
105	3.30
110	3.43
115	3.57
120	3.70
125	3.83
130	3.97
135	4.10
140	4.23
145	4.37
150	4.50

Formula: Voltage = Pressure X .027 + 0.5

200 psi Pressure Sensor P/N# 3501037

Pressure (psi)	Voltage
0	0.5
10	0.70
20	0.90
30	1.10
40	1.30
50	1.50
60	1.70
70	1.90
80	2.10
90	2.30
100	2.50
105	2.60
110	2.70
115	2.80
120	2.90
125	3.00
130	3.10
135	3.20
140	3.30
145	3.40
150	3.50
155	3.60
160	3.70
165	3.80
170	3.90
175	4.00
180	4.10
185	4.20
190	4.30
195	4.40
200	4.50

Formula: Voltage = Pressure X .02 + 0.5

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How to back-probe the pressure sensor:

NOTE *The pressure sensor must be connected for testing.*

- 1) Locate the rear of the 3 wire pressure sensor connector (Figure 4).

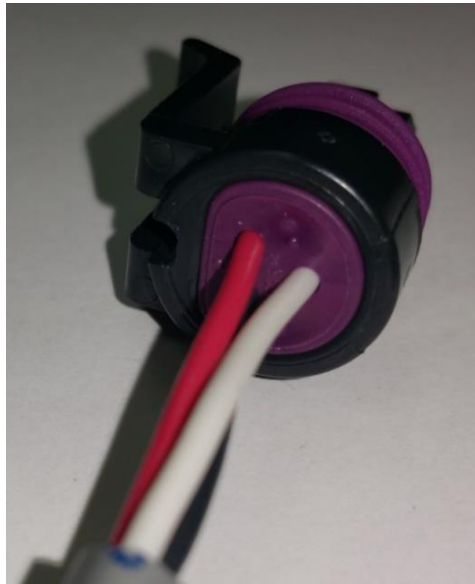


Figure 4

- 2) Gently pry the seal out of place, taking care not to damage the seal or terminals (Figure 5).



Figure 5

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- 3) Slide the seal out of the rear of the connector (Figure 6).

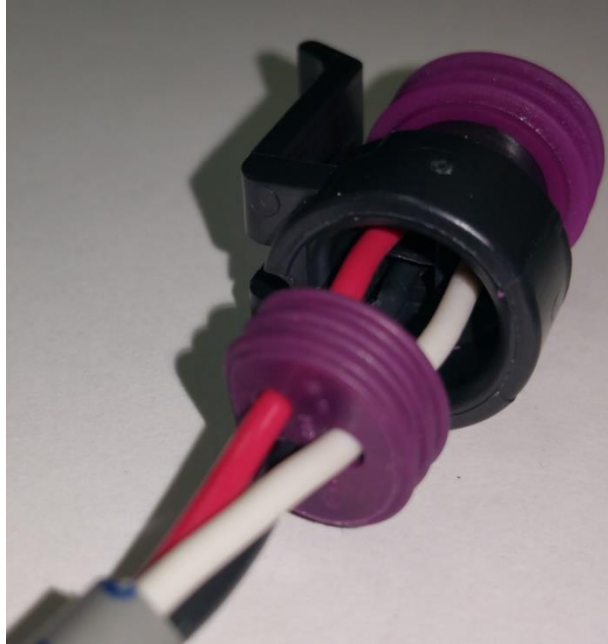


Figure 6

- 4) The wire terminals will now be exposed. Using a voltmeter touch the positive lead to the pin on the red wire (Figure 8) and the negative lead from the voltmeter to the black ground wire to confirm correct voltage 4.5-5.5V dc is being supplied. If there is no voltage at the red wire in the connector, inspect the red wire to the control box or throttle control and probe it at its source. If there is no voltage here, the control box or throttle control is faulty and must be replaced.

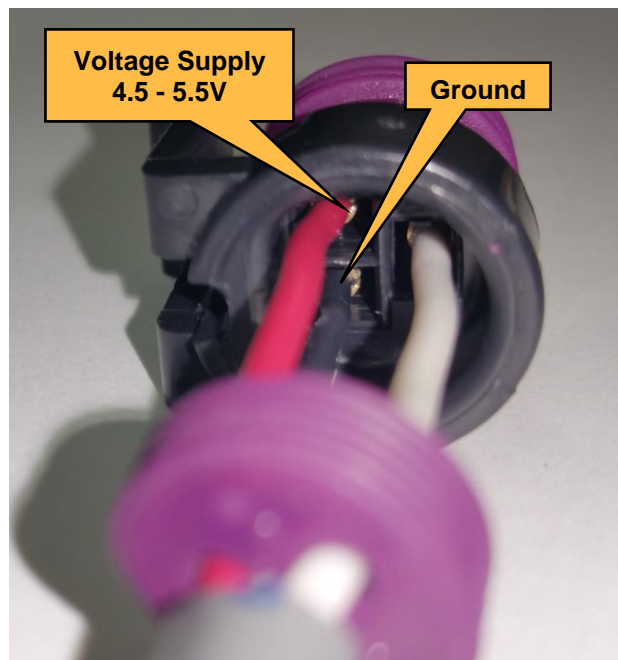


Figure 8

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