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Current Language: English

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Other Languages: [Français](#), [Español](#).

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Viewed: 22100

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Coding Information

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Title: Air Pressure Gauges and A/C Pressure Transducer Troubleshooting on Post-2007 HPV and ProStar

Applies To: 2007 and later ProStar and NGV

Change Log

Please refer to the change log text box below for recent changes to this article:

11/14/2018 - Formatting corrected, updated screenshots and hyperlinks. Added 1079-0 and 1079-1 to the DTC list.
 04/17/2018 - Author updated for feedback purposes

Description

The air pressure transducers and the A/C pressure transducer run off of the same 5 volt reference supply from the Body Controller (BC). There is only one 5 volt source inside the Body Controller and that 5 volt source supplies voltage to three pins: E4, E6 & E8. These pins are all on the 1602(J5) connector of the Body Controller. A short to ground on any of these three outputs will cause all three pins to lose their voltage. Usually the first thing that people notice when there is a problem with the 5 volt reference circuits is that the air pressure gauges or the A/C quit working. That does not mean however, that the problem is in those circuits. It could be in any of the three circuits. You need to keep this in mind when troubleshooting these issues.

Symptoms

Diagnostic Trouble Codes & Dashboard Indicator Lights:

SPN-FMI	Description	BCM Terminal	Signal	Action
116-0	Brake Application Pressure Sensor Reading Above Normal Range	1600-B14	Service_Brake_App_Air_Sensor_Signal	Open Circuit Between B/C 1600-B14 and Air Application Transducer 1822-C
116-1	Brake Application Pressure Sensor Reading Below Normal Range	1600-B14	Service_Brake_App_Air_Sensor_Signal	Shorted Circuit Between B/C 1600-B14 and Air Application Transducer 1822-C
1087-0	Primary Air Tank Sensor Reading Above Normal Range	1600-B2	Primary_Air_Sensor_Raw_Signal	Open Circuit Between B/C 1600-B2 and Primary Air Pressure Transducer 1811-C
1087-1	Primary Air Tank Sensor Reading Below Normal Range	1600-B2	Primary_Air_Sensor_Raw_Signal	Shorted Circuit Between B/C 1600-B2 and Primary Air Pressure Transducer 1811-C
1088-0		1600-B3	Secondary_Air_Sensor_Raw_Signal	

	Secondary Air Tank Sensor Reading Above Normal Range			Open Circuit Between B/C 1600-B3 and Secondary Air Pressure Transducer 1812-C
1088-1	Secondary Air Tank Sensor Reading Below Normal Range	1600-B3	Secondary_Air_Sensor_Raw_Signal	Shorted Circuit Between B/C 1600-B3 and Secondary Air Pressure Transducer 1812-C
1079-0	5V Sensor Supply Above Normal Range	1602-E4;E6;E8	Switched_5V_Sense_Raw_Signal	
1079-1	5V Sensor Supply Below Normal Range	1602-E4;E6;E8	Switched_5V_Sense_Raw_Signal	

Customer Observations or Concerns:

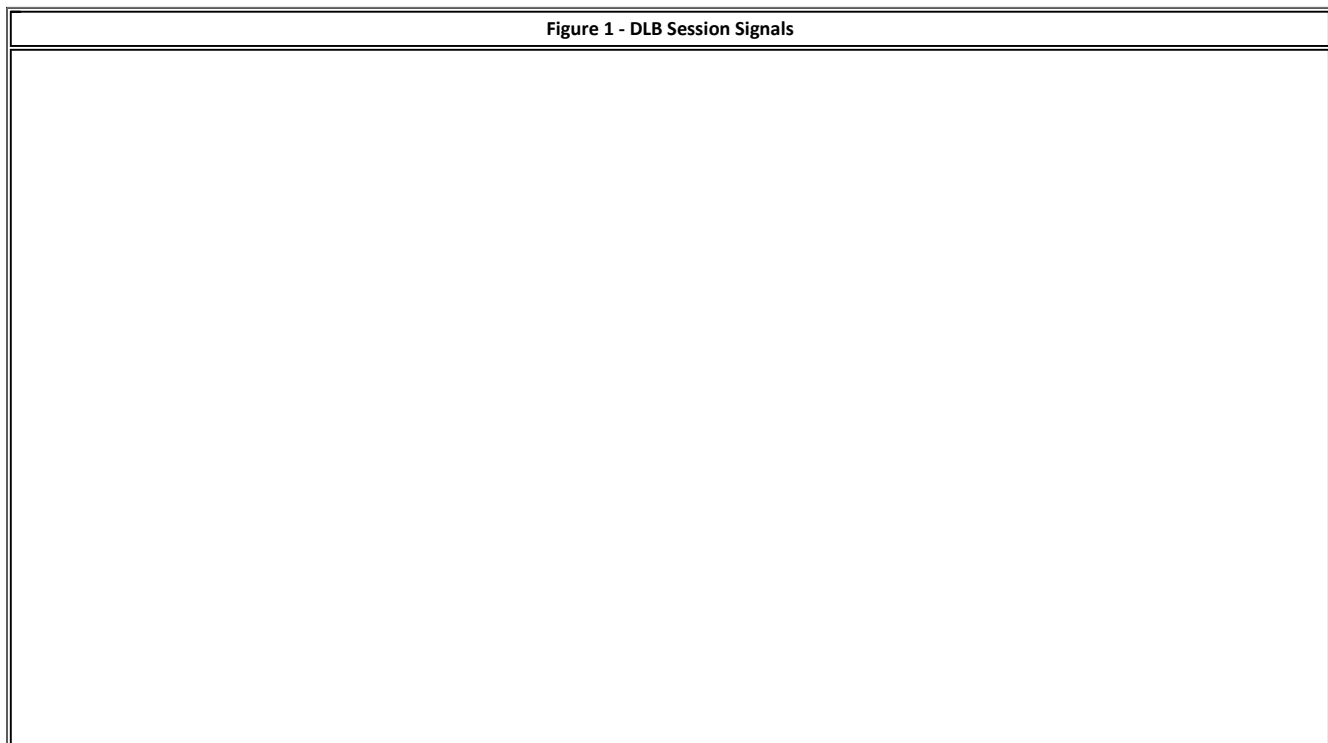
- Air pressure gauges inop
- A/C inop

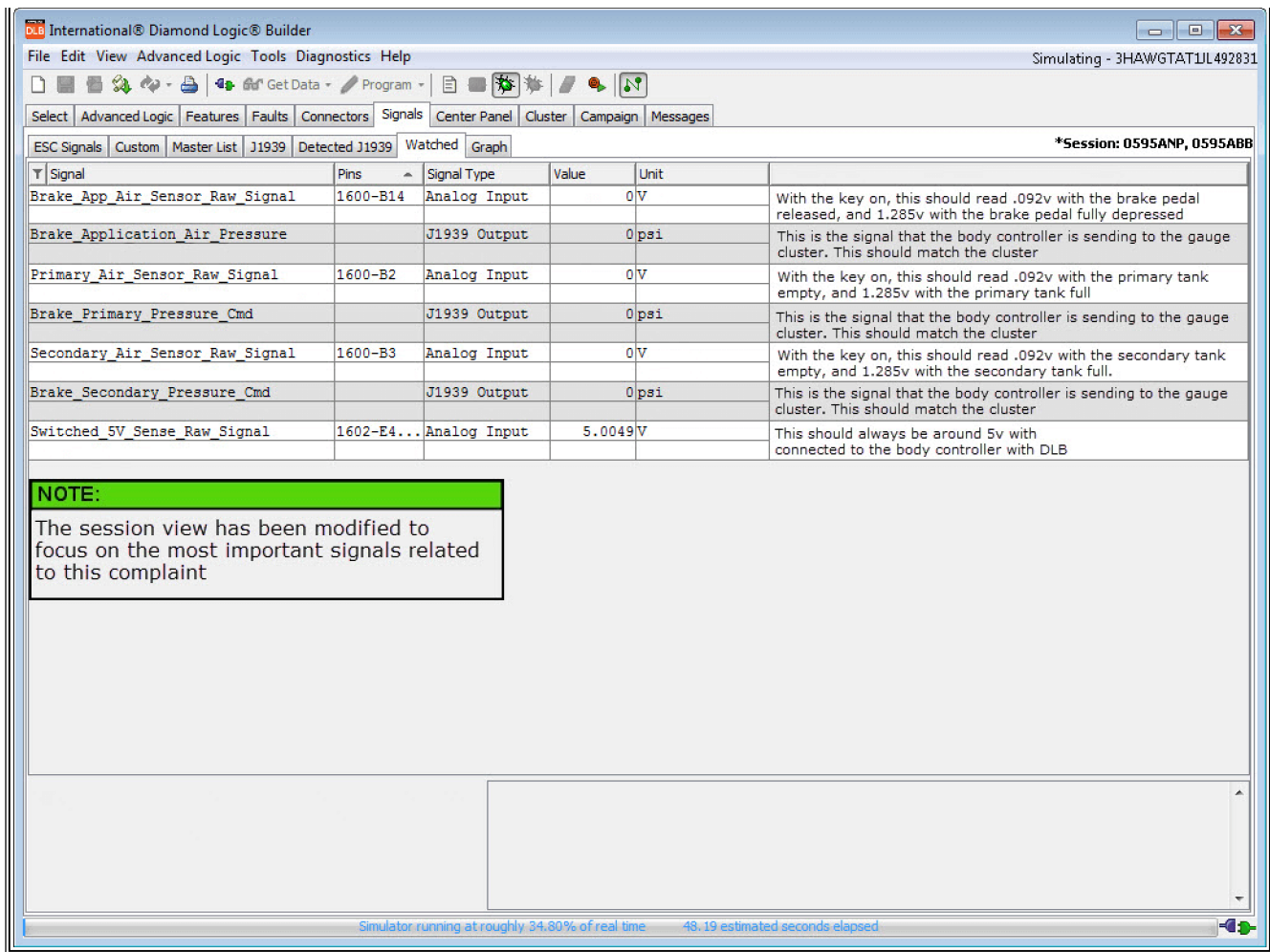
Special Tools / Software

Tool Description	Tool Number	Comments	Instructions
Diamond Logic Builder (DLB)		EZ-Tech Software	
Fluke DVOM	ZTSE4357	Digital Multimeter	
Electrical Tester	ZTSE4858		
180-Pin Breakout Box	00-00956-08	Breakout box allows for testing engine control module and body control module systems	
Breakout Harness Kit	Multiple	Use breakout harness that is applicable to the system you are testing	
Terminal Test Kit	77066-nav	Hickok Break-Out Tee Builder And Pin-Out Tool	

Diagnostic Steps

Signals to Watch





Troubleshooting

1. Check and record the DTC's using DLB, not the cluster. For info on doing this properly, please follow [IK2600036 - Retrieving Fault Codes with DLB](#).
2. Check ignition and accessory voltage to the Body Controller. For info on doing this, please follow [IK0800092 - The First Check to make when Troubleshooting any Body Controller or ESC Issue](#).
3. Make a session in DLB using the features for the Air Pressure Gauges and Brake Application Gauge (if equipped).
 - For assistance with creating a session in DLB please follow [IK2600008 - How to Diagnose Electrical Problems with Diamond Logic® Builder](#)
 - The Switched_5V_Sense_Raw_Signal was added manually from Signals → ESC Signals
4. The primary, secondary, air application & Air pressure transducers all use the same 5v reference. So, a problem in one circuit can affect them all. If more than one Gauge is affected, there may be a problem in the 5v ref. circuit. Connect breakout box, turn the key on and check the voltage on pin E4 of the 1602(J5) connector at the BC. If you have 0v or close to it, the most likely cause is a short to ground on the 5v ref. circuit. This could be in any of the three 5v ref circuits out of pins E4, E6 or E8. The air pressure gauge 5v reference circuit is pictured in green in the diagram below.
5. If you do have 5v in step 3 above then you need to check for 5v with the key on at pin B of the transducer that you are having problems with. This will tell you if the 5v are reaching the transducer.

Voltage Reading at B/C	B/C Status	PSI Reading
0	2	Out of Range Low
0.092	1	0
1.285	0	140
5.0	2	Out of Range High

6. Air Pressure Transducer Checks:

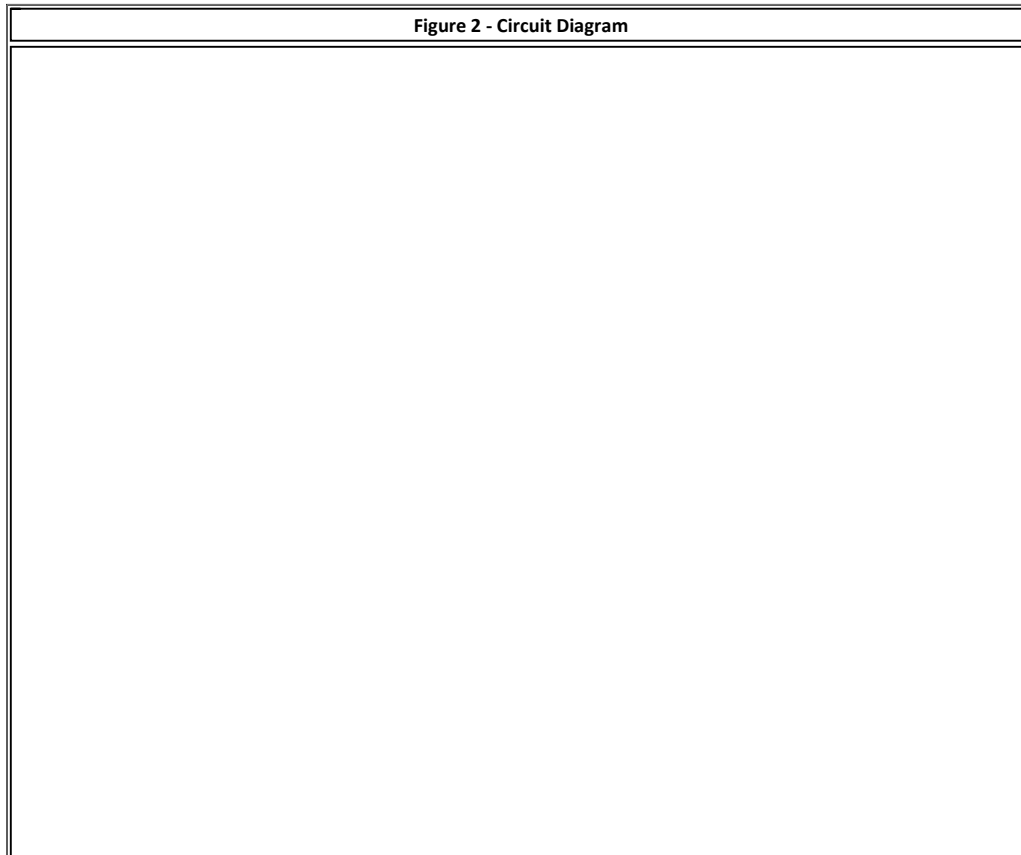
- a. If you do not have 5v at pin B in step 4 above, check the resistance between pin E4 of the 1602(J5) connector and pin B at the pressure transducer you are losing with the key off. This is checking the 5 volt ref wire between the BC and the transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit.
- b. If you have 5v at pin B in step 4 above, check resistance between pin E5 of the 1602(J5) connector and pin A at the air pressure transducer you are losing with the key off. This is checking the zero volt ref wire between the BC and the transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit.
- c. Check resistance between pin B2 of the 1600(J3) connector and pin C of the primary air pressure transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit. This is checking the return wire from the transducer to the BC.
- d. Check resistance between pin B3 of the 1600(J3) connector and pin C of the secondary air pressure transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit. This is checking the return wire from the transducer to the BC.

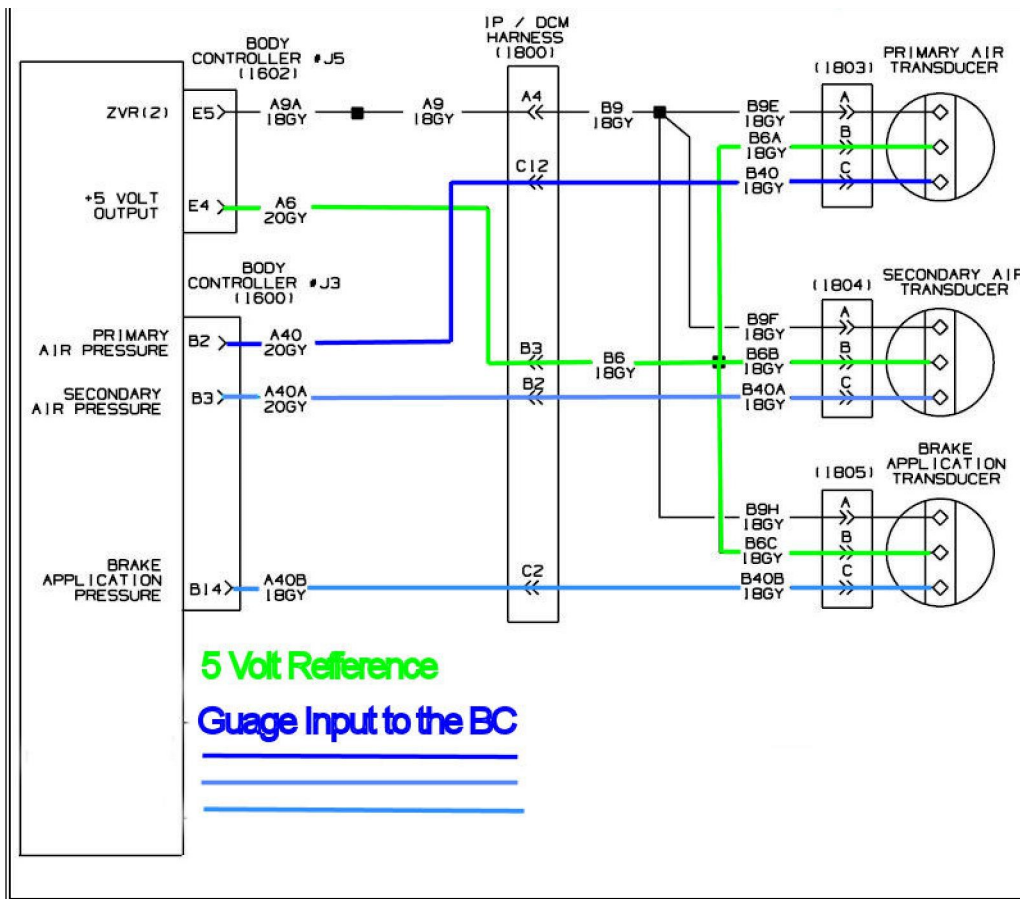
7. A/C Pressure Transducer Checks:

- a. If you do not have 5v at pin B in step 4 above, check the resistance between pin E6 of the 1602(J5) connector and pin B at the A/C pressure transducer with the key off. This is checking the 5 volt ref wire between the BC and the transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit.
- b. If you have 5v at pin B in step 4 above, check resistance between pin E5 of the 1602(J5) connector and pin A at the A/C pressure transducer with the key off. This is checking the zero volt ref wire between the BC and the transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit.
- c. Check resistance between pin B12 of the 1600(J3) connector and pin C of the A/C pressure transducer. You should have 0 ohms or very close to it. If you are reading OL, then you have an open in that circuit. This is checking the return wire from the transducer to the BC.

Circuit Diagrams

Figure 2 - Circuit Diagram





- [S08322 Chapter 8, Page 6](#) Medium Duty Air Pressure Gauge Circuits
- [S08302 Chapter 8, Page 1](#) ProStar Air Pressure Gauge Circuits
- [S08337 Chapter 12, Page 3](#) Medium Duty A/C Pressure Transducer Circuits
- [S08302 Chapter 12, Page 1](#) ProStar A/C Pressure Transducer Circuits

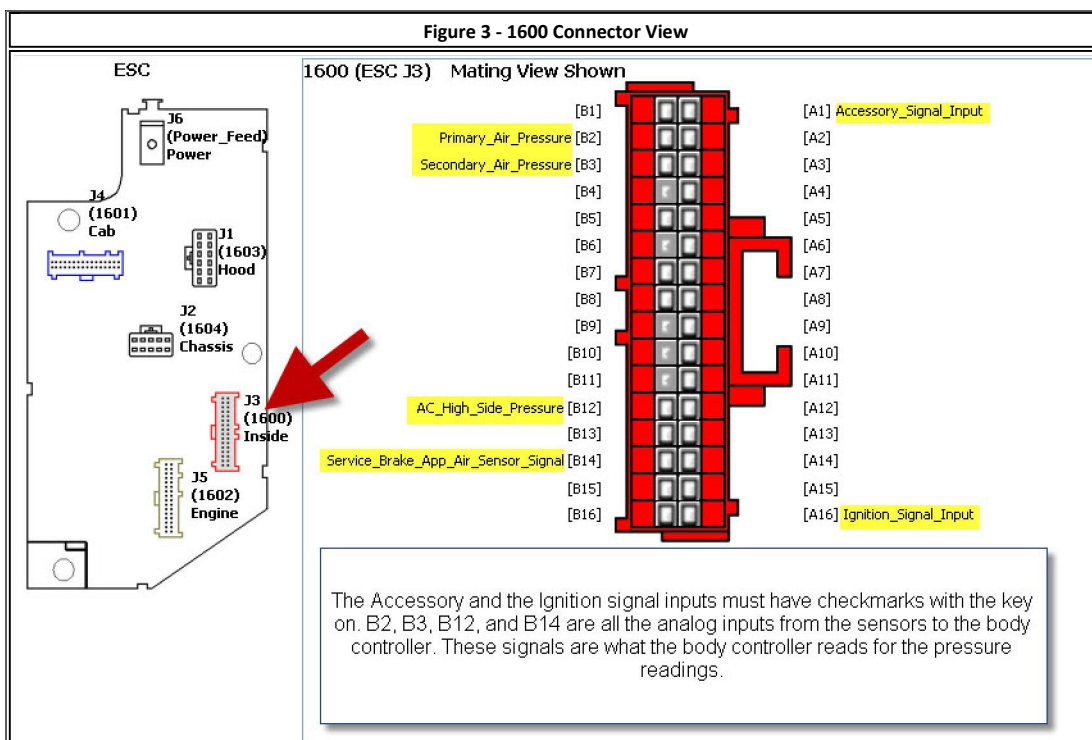
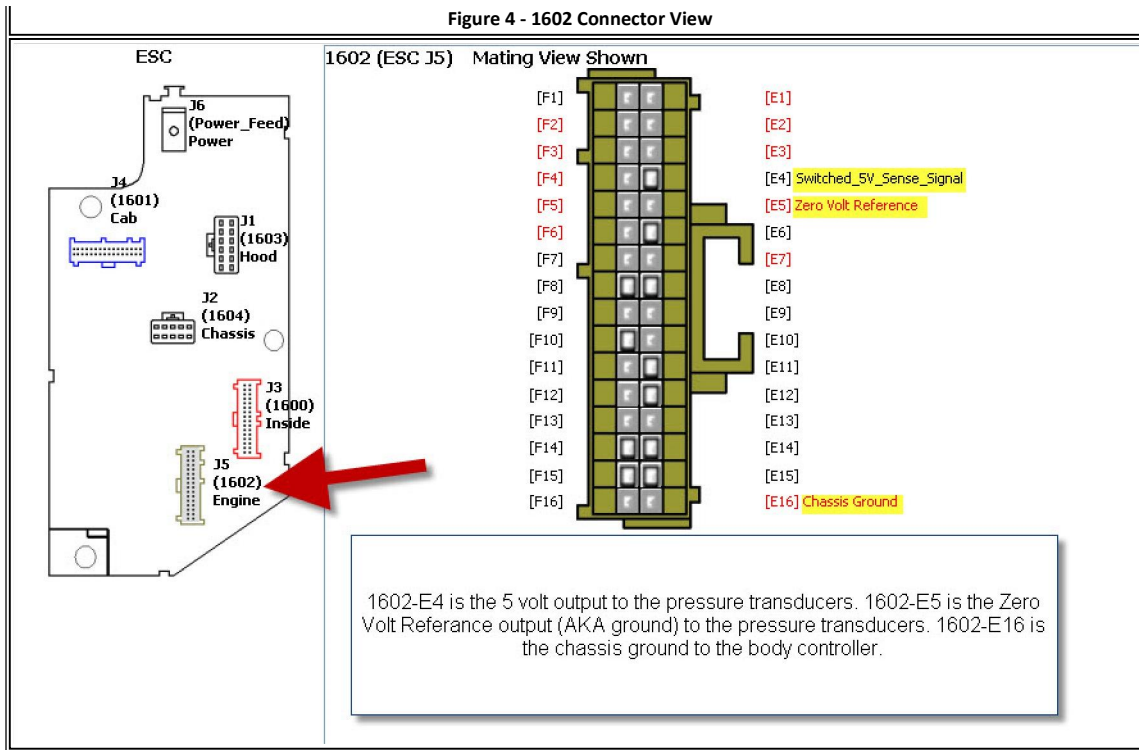


Figure 4 - 1602 Connector View



Warranty Information

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

Other Resources

[Master Service Information Site](#)

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