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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

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

- Air Gauges inop.
- A/C inop.

POSSIBLE DIAGNOSTIC TROUBLE CODES

Signal	B/C Pin	SPN	FMI	Description	Action
Service_Brake_App_Air_Sensor_Signal	1600-B14	116	0	Brake Application Pressure Sensor Reading Above Normal Range	Open Circuit Between B/C 1600-B14 and Air Application Transducer 1822-C
Service_Brake_App_Air_Sensor_Signal	1600-B14	116	1	Brake Application Pressure Sensor Reading Below Normal Range	Shorted Circuit Between B/C 1600-B14 and Air Application Transducer 1822-C
Primary_Air_Sensor_Raw_Signal	1600-B2	1087	0	Primary Air Tank Sensor Reading Above Normal Range	Open Circuit Between B/C 1600-B2 and Primary Air Pressure Transducer 1811-C
Primary_Air_Sensor_Raw_Signal	1600-B2	1087	1	Primary Air Tank Sensor Reading Below Normal Range	Shorted Circuit Between B/C 1600-B2 and Primary Air Pressure Transducer 1811-C
Secondary_Air_Sensor_Raw_Signal	1600-B3	1088	0	Secondary Air Tank Sensor Reading Above Normal Range	Open Circuit Between B/C 1600-B3 and Secondary Air Pressure Transducer 1812-C
Secondary_Air_Sensor_Raw_Signal	1600-B3	1088	1	Secondary Air Tank Sensor Reading Below Normal Range	Shorted Circuit Between B/C 1600-B3 and Secondary Air Pressure Transducer 1812-C

SIGNALS TO WATCH

International Diamond Logic® Builder				
File Edit View Advanced Logic Tools Diagnostics Help				
Simulating - 3HSDJ5J8CN699758				
Select Advanced Logic Features Faults Connectors Signals Center Panel Cluster Campaign Messages				
ESC Signals Master List J1939 Detected J1939 Watched Graph				
Signal	Pins	Signal Type	Value	Unit
Primary_Air_Sensor_Raw_Signal	1600-B2	Analog Input	0 V	
Brake_Primary_Pressure_Cmd		J1939 Output	0 psi	
Secondary_Air_Sensor_Raw_Signal	1600-B3	Analog Input	0 V	
Brake_Secondary_Pressure_Cmd		J1939 Output	0 psi	
Brake_App_Air_Sensor_Raw_Signal	1600-B14	Analog Input	0 V	
Brake_Application_Air_Pressure		J1939 Output	0 psi	
Switched_5V_Sense_Raw_Signal	1602-E4...	Analog Input	5.0049 V	
With the key on, this should read .092V with the primary tank empty, and 1.285V with the primary tank full. This is the signal that the body controller is sending to the gauge cluster. This should match the cluster. With the key on, this should read .092V with the secondary tank empty, and 1.285V with the secondary tank full. This is the signal that the body controller is sending to the gauge cluster. This should match the cluster. With the key on, this should read .092V with the brake released, and 1.285V with the brake fully depressed. This is the signal that the body controller is sending to the gauge cluster. This should match the cluster. This should always be around 5V when connected to the body controller with DLB.				

TROUBLESHOOTING

1. Check and record the DTC's using DLB, not the cluster. For info on doing this properly, see [IK2600036](#).
2. Check ignition and accessory voltage to the Body Controller. For info on doing this, see [IK0800092](#).
3. The primary, secondary, air application & Air pressure transducers all use the same 5v reference. So a problem in one circuit can effect 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 guage 5v reference circuit is pictured in green in the diagram below.
4. 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.

Primary, Secondary, and Air Application Readings at the Body Controller.

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

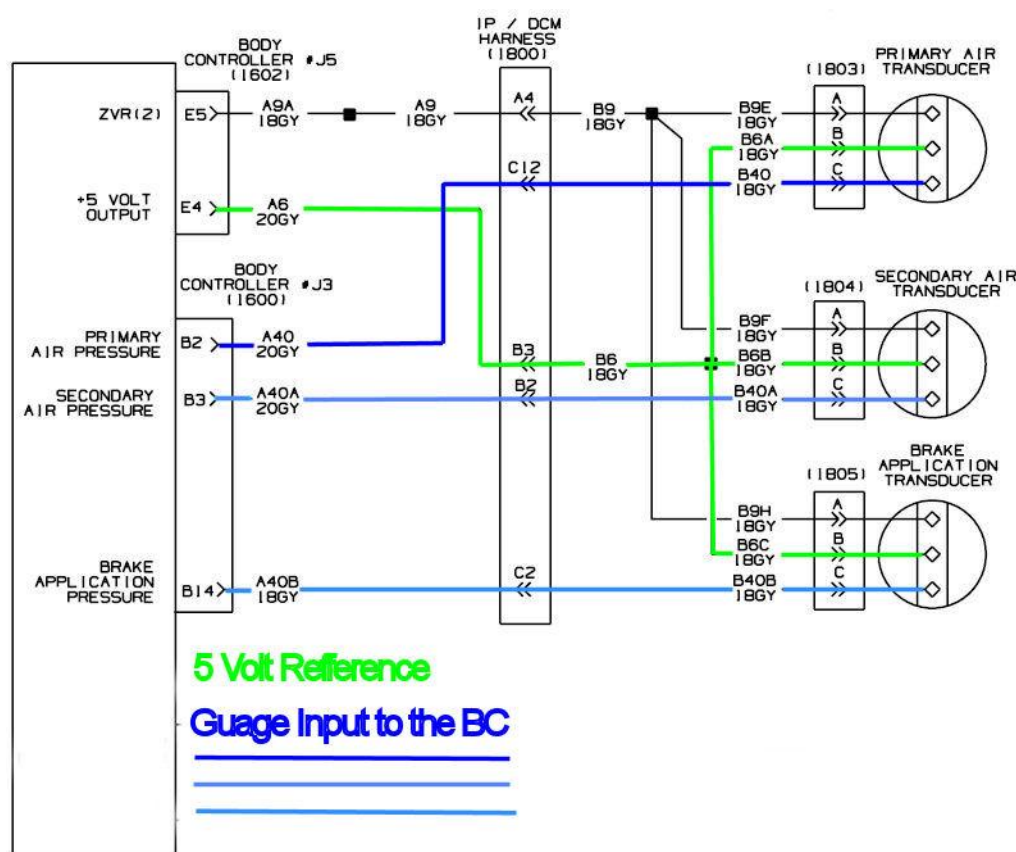
5. Air Pressure Transducer Checks:

- 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.

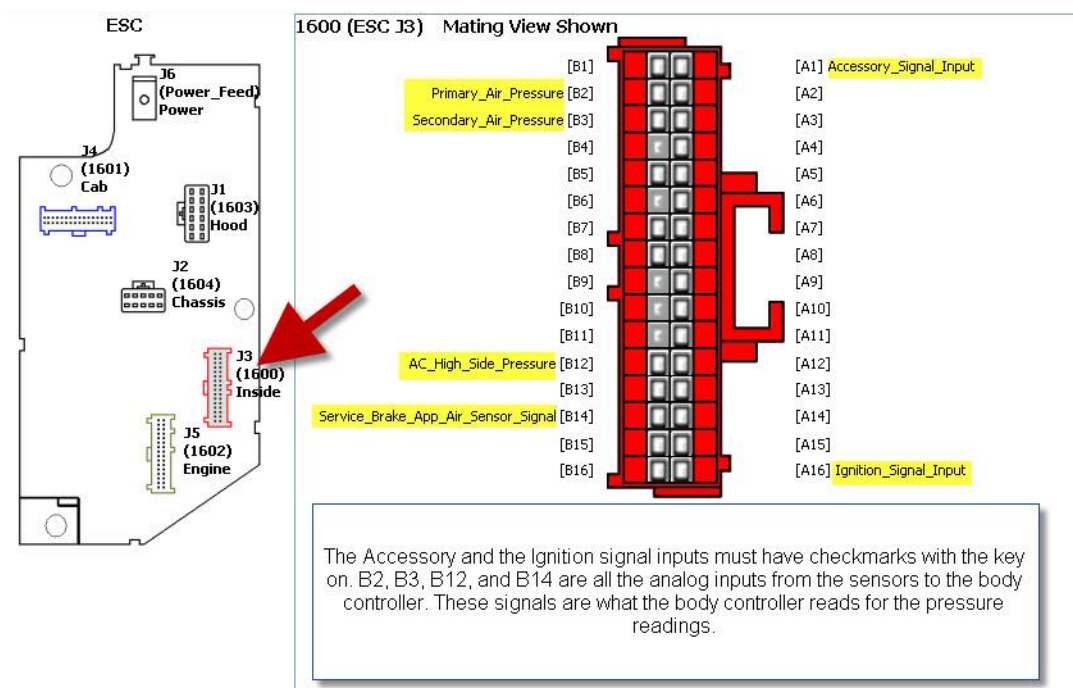
6. A/C Pressure Transducer Checks:

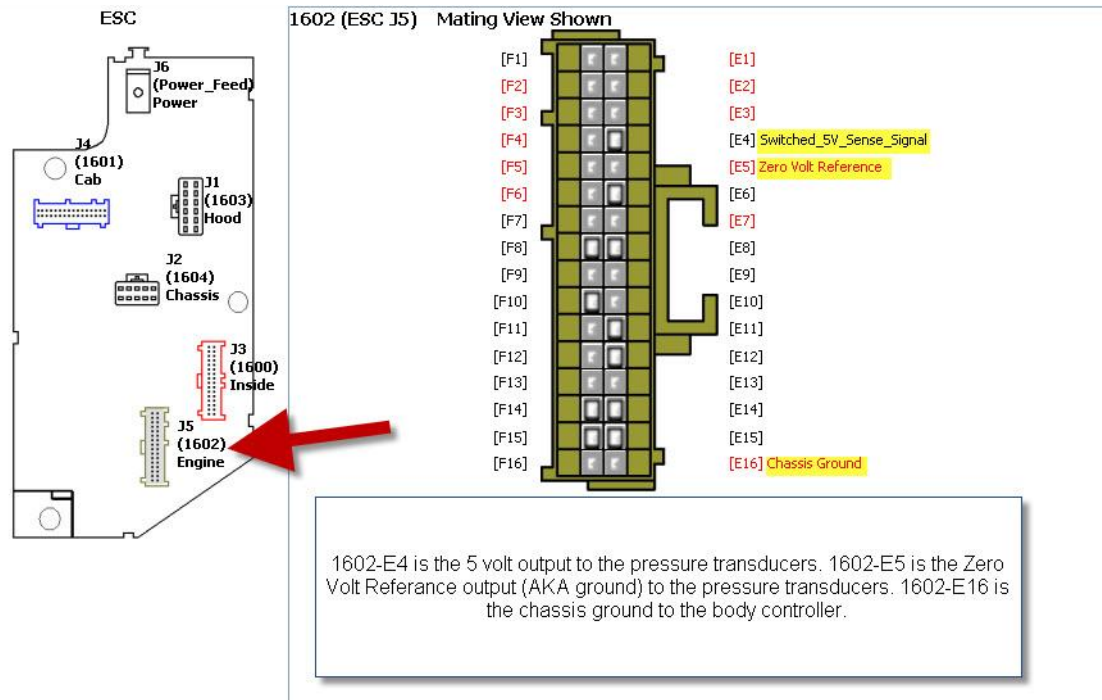
- a. If you do not have 5v at pin B in step 4 above, check the resistance between pin E6 of the 1602(J5) connector and pin B at the A/C pressure transducer with the key off. This is checking the 5 volt ref wire between the BC and the transducer. You should have 0 ohms or very close to it. If you are 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



- [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





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