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Title: 07 and Newer Brake Light Operation on HPV, Prostar and Lonestar with Air Brakes

Applies To: 07 and newer HPV Prostar Lonestar with Air Brakes

DESCRIPTION

On vehicles with air brakes, the zero volt reference signal is supplied to brake switch 1 HPV(1823) Prostar/Lonestar (1806) terminal D from body controller connector (1602) terminal E5. (Only one switch is used in tractor applications).

When the key is in the ignition position, 12 volts will be applied to stop light switch 1 HPV(1823) Prostar/Lonestar (1806) terminal C. When the key is in the off position 5 volts is supplied to terminal C of the switch instead of 12 volts.

A 6.8 volt Zener diode, inside the switch body is wired in parallel with the switch contacts. The diode allows current to pass through it when the key is in the ignition position and 12 volts is applied to the switch. The diode prevents current from passing through it when the key is off and 5 volts is applied to the switch. When the key is on and the brake is not applied, the BC monitors the voltage drop across the diode and resistor in the switch. If there is an open in the brake switch circuits there will be no voltage drop and the BC will set a fault. The diode is required to block current flow when the key is off, preventing the circuits from putting a drain on the battery.

A 150 ohm resistor, inside the switch body, is wired in series with the switch. The BC senses the voltage drop across this resistor to check for a short to ground in the brake switch circuits between the brake switch and the BC. If there is a short, 12 volts from the BC will be pulled to ground and the BC will set a fault.

When the brake switch is closed the voltage drop will change and the BC will sense that the brake is applied.

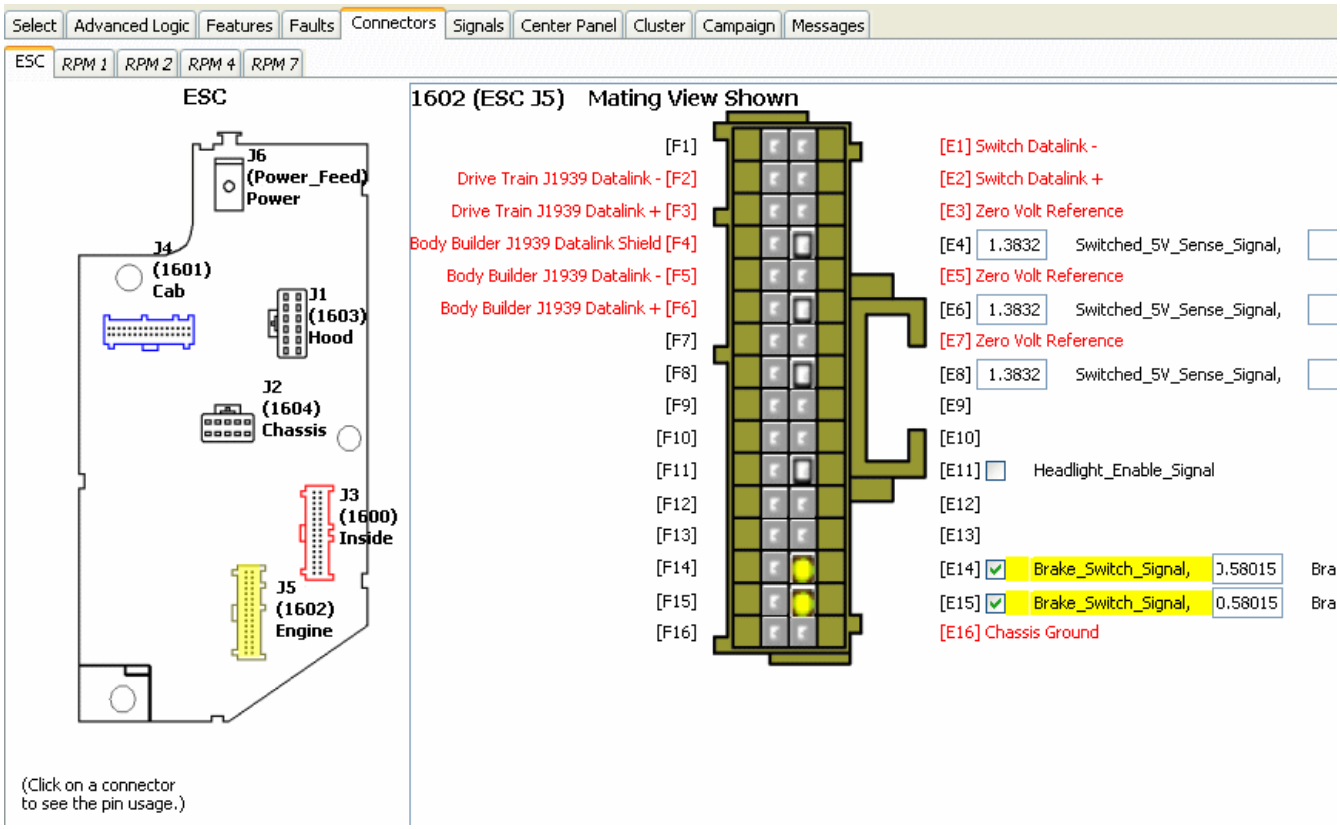
SYMPTOMS

- Brake Lights Stay On
- Brake Lights Not Working

POSSIBLE DIAGNOSTIC TROUBLE CODES

DTC	MODULE	DESCRIPTION
597 0	Body Controller	Brake Switch reading above normal range
597 1	Body Controller	Brake Switch reading below normal range
597 2	Body Controller	Brake Switch inputs do not match
597 7	Body Controller	Brake Switch stuck open or closed

SIGNALS TO WATCH



TROUBLESHOOTING

Medium Duty Vehicles

Air brake switch harness connector 1823 voltage checks - Check with ignition switch on and brake switch disconnected.

1. Harness connector 1823 cavity C to ground - 12 volts +/- 1.5 volts - If voltage is missing check for open or shorts in circuits A70A and B70A.

2. Harness connector 1823 cavity D to ground - 0 volts - Zero volt reference signal to switch, if voltage found on circuit check circuits A9AA, A9V, B9V and B9VG for shorts to voltage.

3. Harness connector 1823 Cavity C to D - 12 volts +/- 1.5 volts - If voltage is missing check for shorts or opens on circuits A70A, B70A, A9AA, A9V, B9V and B9VG.

4. For Tractor appilcations same tests as steps 1, 2 and 3 are done for connector 1824 refer to circuit diagram for those circuit numbers.

Prostar and Lonestar

Air brake switch harness connector 1806 voltage checks - check with ignition switch on and brake switch disconnnected.

1. Harness connector 1806 Cavity C to ground - 12 volts +/- 1.5 volts - If voltage is missing check for opens or shorts in circuits A70 and BA70.

2. Harness conenctor 1806 Cavity D to ground - 0 volts - Zero volt reference signal to switch, if voltage found on circuit check circuits A9A, B9 and BA9K, check for shorts to voltage.

3. Harness connector 1806 Cavity C to D - 12 volts +/- 1.5 volts - If voltage is missing check for shorts or opens on circuits A70, BA70, A9A, B9 and BA9K.

CIRCUIT DIAGRAMS

- Medium Duty Diagram
- LoneStar and ProStar Diagram

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