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Title: **CAB HVAC Blower Motor and LPM (Linear Power Module)**

Applies To: **0016WCT and 0016WCS**

DESCRIPTION

CAB Blower Motor does not operate or runs at constant speed.

Overview
There are a number reasons the CAB Blower Motor may not operate or run at constant speed. Common concerns are that the motor may be physically stuck, the LPM may be damaged or the electrical signals from the control head to the LPM & Motor may not be present or be intermittent due to loose wiring or fuses. Please follow the steps below before replacing the Blower Motor or LPM. Please reference the Master Diagnostics Service manual for greater detail.

REPAIR PROCEDURE

1. With Ignition on and HVAC Control Head on, technicians should verify proper Signal and Battery voltage to LPM per Master Diagnostics Service Manual (portions of manual are referenced at the end of this article: Table 12 and Table 13)
2. Check for loose/ intermittent harness connection at LPM (Connector 1220) by measuring Signal and Battery voltages while wiggling connector and wiring. Repair as required.
3. Check for loose/ intermittent fuse connections to HVAC Control head and LPM while measuring Signal and Battery voltages (F1-B Battery to Control head; F4-L Ignition to Control Head; F6-A battery to LPM). Note: if fuse to Control head is intermittent, motor will run continuously at last control speed prior to open circuit condition. Repair as required
4. Check voltage to Motor: If LPM has signal voltage from Control Head and Battery voltage, but there is no voltage at the Motor, replace LPM.
5. If voltage to motor is present, but Motor is not turning, replace Motor.
6. If diagnoses reveals the wiring and fuses are correct and either the Motor or LPM need to be replaced, confirm that the latest Motor and LPM are installed on the truck and if not update the

truck
with the latest parts.
a. As of January of 2013 improvements were made to the Blower Motor and LPM to prevent issues with starting up.
b. The new Blower motor part number is: P/N 2602570C92 and can be identified by the presence of silver tape near the gasket (see picture below)
c. The new LPM part number is: 2510671C1 and can be identified by the orientation of the electrical connections. This new LPM has the electrical connections pointing downward (see picture below).
d. Note: A Green (or Yellow & Green) identification mark at the HVAC drain means the module has the latest LPM and Motor installed (see picture).

Linear Power Module/Blower Motor Checks

Table 12 LPM / Blower Motor Circuit Test

NOTE – Ignition must be in ON position. NOTE – HVAC control head must be ON.				
STEP	**POSSIBLE CAUSE**	**TEST/CHECK**	**NO:**	**YES:**
1.	Does the linear power module have battery voltage?	Disconnect LPM (1220) connector. Check voltage between LPM connector, cavity 6, and ground.	NO: Voltage is not within specifications. Inspect for blown or loose fuse F6 - A (1015) or loose wires at connector. Inspect A75 circuit for open or shorts. Repair and retest circuit.	YES: 12 Vdc ± 1.5 Voltage is within specifications. Continue to step 2.
2.	Does the linear power module have voltage supplied by the HVAC control?	Check voltage between LPM connector, cavity 4, and ground.	NO: Voltage is not within specifications. Inspect A75A circuit for open or shorts. Repair and retest circuit.	YES: (See Table 13, page 157)
3.	Does the linear power module have continuity to ground?	Check resistance between LPM connector, cavity 5, and ground plate.	NO: Resistance is too high or no continuity is present. Inspect A75 - G ground circuit for open, loose, or damaged connections. Repair and retest circuit.	YES: ≤1 ohm. Resistance is within specifications. Connect LPM harness connector. Continue to step 4.
4.	Is full power being supplied to the blower motor?	Operate blower motor at **HIGHEST** speed setting. Check voltage between LPM connector, cavity 4, and ground.	NO: Voltage is not within specifications. Inspect A75A circuit for open or short from HVAC control to LPM. If no problems are evident, perform HVAC Control Circuit Test.	YES: (See Table 13, page 157)
5.	Is power being supplied to the blower motor on the lowest setting?	Operate blower motor at **LOWEST** speed setting (20% duty cycle). Check voltage between LPM connector, cavity 4, and ground.	NO: Voltage is not within specifications. Inspect A75A circuit for open or short from HVAC control to LPM. If no problems are evident, perform HVAC Control Circuit Test.	YES: (See Table 13, page 157) HVAC control head is operating properly. Continue to Step 6.

Table 12 LPM / Blower Motor Circuit Test (cont.)

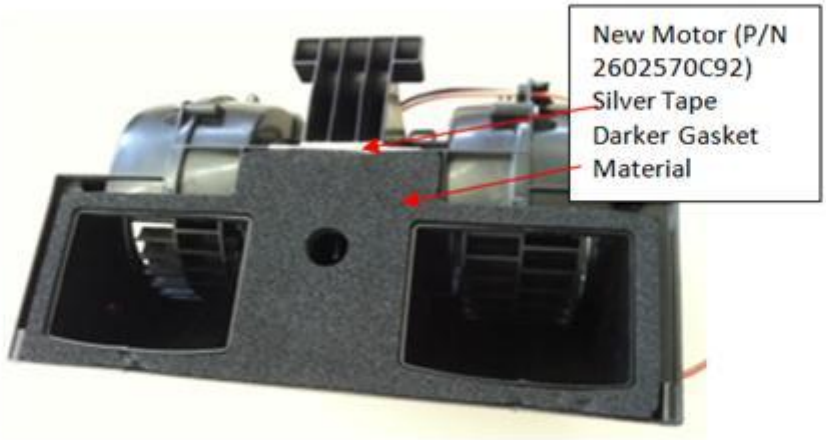
NOTE – Ignition must be in ON position.

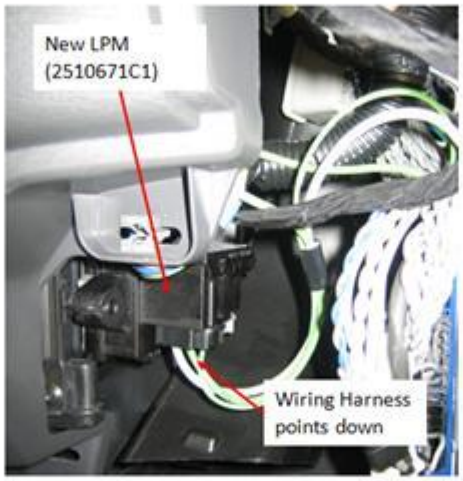
NOTE – HVAC control head must be ON.

STEP	POSSIBLE CAUSE	TEST/CHECK	NO:	YES:
6.	Is the blower motor operating on all switch positions?	Disconnect blower motor harness connector from LPM. Check for voltage at the blower motor harness connector pin A to pin B. Operate blower motor control switch in each speed setting. View voltages in each speed setting, and compare to Blower Speed Voltage Table 11.	NO: Voltages are not within specifications. Suspect faulty LPM.	YES: Voltages are within specifications. If blower motor is still inoperative, replace and retest blower motor.

Table 13 Cab LPM and Blower Speed Voltage Table

CONTROL SPEED SETTING	CONTROL VOLTAGE TO LPM	BLOWER SPEED VOLTAGE
OFF	0 – 0.4 Vdc	0 Vdc.
1 (Lowest)	1.4 ± 0.2 Vdc	3.85 ± 0.5 Vdc.
2	1.8 ± 0.2 Vdc	4.95 ± 0.5 Vdc.
3	2.4 ± 0.2 Vdc	6.60 ± 0.5 Vdc.
4	2.75 ± 0.3 Vdc	7.7 ± 0.5 Vdc
5	3.35 ± 0.3 Vdc	9.35 ± 0.5 Vdc
6	3.9 ± 0.3 Vdc	10.73 ± 0.5 Vdc
7 (Highest)	3.35 ± 0.3 Vdc	12.10 ± 0.5 Vdc


New Motor (P/N 2602570C92)
Silver Tape
Darker Gasket Material


New LPM
(2510671C1)
Wiring Harness
points down



Hide Details

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