



Service Bulletin

SB0053 Rev. A

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February 2008

Description: AIR HEATER ERROR CODES

CODE	CAUSE	CHECK / REPAIR
00	Power failure, connection to power supply (battery) interrupted.	<ul style="list-style-type: none">• Clear code and start heater if this is initial installation.• Open fuse – there are two heater fuses to check, one located at the heater and one in the battery compartment.
01	Indicates low voltage (below 10.5V on 12V heater and 21V on 24V heater) for more than 30 seconds.	<ul style="list-style-type: none">• Check heater voltage using Menu 08.<ul style="list-style-type: none">- For 12 volt systems, the voltage must be greater than 10.5 volts.- For 24 volt systems, the voltage must be greater than 21 volts.• Alternator output, battery condition, corroded connectors.• Weak or low battery (recharge battery).• Overloaded battery due to other appliances.
02	Indicates over voltage (higher than 15V on 12V heater or 30V on 24V heater) for more than 30 seconds.	<ul style="list-style-type: none">• Check heater voltage using Menu 08.<ul style="list-style-type: none">- For 12 volt systems, the voltage must be lower than 16 volts.- For 24 volt systems lower than 30 volts.• Check alternator output.
03	Short in fuel pump circuit.	<ul style="list-style-type: none">• Disconnect wire harness at the fuel pump and restart heater:• Different code – shorted fuel pump – replace.• Same code – disconnect fuel pump wire harness at heater and restart heater.• Different code – short in wire harness – replace.• Same code – PCM faulty- replace. <p>NOTE: If fuel pump resistance is less than 9 ohms for 12VDC or 35 ohms for 24VDC – replace fuel pump.</p>
04	Overheat breaker activated or fuel pump open circuit.	<ul style="list-style-type: none">• Overheat – more likely if heater has been running for some time.<ul style="list-style-type: none">- Check for obstruction/restrictions or excess bending of air ducts.- Check for obstructed air vents.- Check for air short circuit.• Fuel pump open circuit – more likely if heater is just starting.<ul style="list-style-type: none">- Disconnect wire harness from fuel pump and measure the DC resistance of the fuel pump. If DC resistance is above 10.5 ohms for 12V pumps or 37 ohms for 24V pumps, replace fuel pump.• If within tolerance check continuity of fuel pump wiring harness and check connectors for broken or frayed wires.• If intact, check continuity of internal wiring harness from connector at PCM to external fuel pump connector.• If within tolerance, check connector of fuel pump circuit at PCM.• If intact replace PCM.
05	Open glow plug circuit.	<ul style="list-style-type: none">• Check for loose or disconnected glow plug connector.• Disconnect glow plug connector and measure glow plug DC resistance.• If measured resistance is more than 0.5 ohms +/- 0.1 ohms, replace glow plug.• If glow plug resistance is within tolerance, check continuity of wiring harness from PCM board to glow plug connector.• If intact replace PCM.

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06	Glow plug short circuit – glow plug draws more than 14 amps for 20 seconds or more.	<ul style="list-style-type: none"> • Disconnect glow plug connector and restart heater. • If code changes, replace glow plug. • If code does not change disconnect glow plug cable from PCM and restart heater. • If code changes, replace internal wire harness. • If code does not change replace PCM.
07	Open motor circuit.	<ul style="list-style-type: none"> • Check motor connector at PCM. • Disconnect motor from PCM and check DC resistance of motor between the two pins of the connector. Rotate the motor one full turn • If DC resistance is greater than 50 ohms, replace motor.
08	Short in motor circuit.	<ul style="list-style-type: none"> • Disconnect motor and restart heater – if code changes replace motor. • If code does not change replace PCM.
09	Motor rotation not detected.	<ul style="list-style-type: none"> • Check motor rotates freely - if nothing is found to be jamming motor but it still does not turn freely, replace motor. • Check for missing magnet on back of fan – there should only be 1 – replace magnet or fan assembly. • If motor and fan test OK – Replace PCM.
12	After 2 start attempts heater did not achieve proper combustion.	<ul style="list-style-type: none"> • Fuel problem (empty tank, fuel line leak, blocked fuel line). • Combustion air inlet or exhaust restricted / plugged. • Clear code and restart heater. • If heater starts it is likely that there was air in the fuel line. • If heater fails to start and code 12 is again displayed. • Check for fuel at heater. • Check fuel is not frozen, gelled or a large air bubble is present in fuel line. • Check for air or fuel leaks along fuel line. • Check fuel pump for proper orientation – vertical +/- 45 degrees. • Check for loops or drooping of fuel line. • Prime heater – refer to section 3.1.6 install manual. • Make sure the flame sensor connector is correctly installed at PCM.
13	Flame out (temperature in combustion chamber dropped during full output.)	<ul style="list-style-type: none"> • Fuel problem – empty tank, fuel line leak, blocked fuel line.
14	Air flow (unsuccessful cool down of combustion chamber).	<ul style="list-style-type: none"> • After 6 minute cool down, the temperature in the combustion chamber is still too high for the fan to shut off. • Check for restrictions in the air ducting.
15	Lost communication between DCP and PCM.	<ul style="list-style-type: none"> • Check for loose connection between DCP and wiring harness. • Check for loose connection between wiring harness and internal wiring harness.
16	Detected ambient air temperature greater than 104°F during heating or greater than 140°F during ventilation mode.	<ul style="list-style-type: none"> • Lower ambient temperature, check for clogged air ducting, check for heater air short circuit.
22	Voltage spike above 37VDC.	<ul style="list-style-type: none"> • Check charging system.
30	Wrong fuel pump 12V / 24V.	<ul style="list-style-type: none"> • Replace fuel pump with correct voltage.

CODE	CAUSE	CHECK / REPAIR
50	Control reset.	<ul style="list-style-type: none"> • Reset PCM and DCP by removing Main Power Fuse.
51	DCP internal temperature sensor T2 error.	<ul style="list-style-type: none"> • Reset power to DCP. • If E51 error remains. Replace DCP or select T1 (PCM sensor) or T3 (external sensor – if connected).
52	External temperature sensor T3 error.	<ul style="list-style-type: none"> • Temperature sensor disconnected or shorted, replace or use sensor T2 (DCP) or T1 PCM.
53	Manual Control Panel error (not for DCP).	<ul style="list-style-type: none"> • Replace manual control panel (if used).
55	External temperature sensor T3 connected.	<ul style="list-style-type: none"> • This is an information code.
60	Motor overload, current draw too high.	<ul style="list-style-type: none"> • Check for object jamming the motor or fan blades. • Check for objects on or around the heater causing pressure on the fan or heater enclosure. • Check incoming air ducts. • Replace Motor
61	Motor frozen on start up.	<ul style="list-style-type: none"> • Motor attempts to break free, check for any obstructions on blower intake.
64	Motor lost magnet for rpm pickup.	<ul style="list-style-type: none"> • Check for lost magnet on back side of fan – there should only be one. • If missing, replace fan assembly.
72	Flame sensor disconnected.	<ul style="list-style-type: none"> • Check connector at PCM board. • Measure DC resistance of flame sensor – replace if it measures open. • If flame sensor measures any resistance, replace PCM.
74	Combustion chamber overheated.	<ul style="list-style-type: none"> • Temperature in combustion chamber too high, check for restrictions air in and exhaust.
75	Temperature in combustion chamber exceeded 338°F when heater was in standby or power was lost for more than 10 seconds during heater output.	<ul style="list-style-type: none"> • Power supply interrupted during full heat output – check battery connections.
79	Wrong temperature reading in combustion chamber.	<ul style="list-style-type: none"> • Temperature below 131°F during heater operation. • Replace flame sensor.
81	Motor PCM error.	<ul style="list-style-type: none"> • Motor will not stop, reset power to PCM, if problem persists replace PCM.
82	Glow plug PCM error (continues to power glow plug).	<ul style="list-style-type: none"> • Constant power to glow plug, reset power to PCM. • If code remains, replace PCM.