

	<ul style="list-style-type: none"> <li>● Engine control module - internal fault</li> </ul>	
Charge warning lamp stays on/battery discharges	<ul style="list-style-type: none"> <li>● Accessory drive belt - fault</li> <li>● Generator pulley slipping on shaft</li> <li>● Generator - internal fault</li> <li>● Battery cable - fault</li> <li>● CAN Bus - circuit fault</li> <li>● Engine control module internal fault</li> <li>● Central junction box</li> </ul>	<ul style="list-style-type: none"> <li>● Check the battery and generator cables</li> <li>● Refer to the electrical guides</li> <li>● Check for DTCs indicating a generator fault</li> <li>● Check the accessory drive belt condition and tension</li> <li>● Check that the pulley does not rotate independently of the generator</li> <li>● Check for DTCs indicating a CAN, central junction box or engine control module fault</li> </ul>
Charge warning lamp intermittent	<ul style="list-style-type: none"> <li>● Accessory drive belt slipping</li> <li>● Battery cable - fault</li> <li>● Generator - circuit fault</li> <li>● Generator - internal fault</li> <li>● CAN Bus - circuit fault</li> </ul>	<p><b>NOTE: Use of a power pack or boost charger may bring the warning lamp on until disconnected</b></p> <ul style="list-style-type: none"> <li>● Check the accessory drive belt condition and tension</li> <li>● Check the battery and generator cables refer to the electrical guides</li> <li>● Check for DTCs indicating a generator or CAN circuit fault</li> </ul>
Battery discharges without the charge warning lamp staying on	<ul style="list-style-type: none"> <li>● Battery - fault</li> <li>● Battery quiescent drain</li> <li>● Intermittent generator - fault</li> </ul>	<ul style="list-style-type: none"> <li>● Check the battery condition</li> <li>● Check for battery quiescent drain</li> <li>● Check for DTCs indicating a generator fault</li> <li>● If no other reason for discharge can be found, check the circuit. Refer to the electrical guides</li> </ul>
Noise (mechanical)	<ul style="list-style-type: none"> <li>● Accessory drive belt slipping</li> </ul>	<ul style="list-style-type: none"> <li>● Check the accessory drive belt condition and tension</li> <li>● Disconnect the accessory drive belt and check that the generator rotates freely</li> </ul>

## Test Procedure

PINPOINT TEST A : BOSCH NON-BMS GENERATOR DIAGNOSTIC FLOW CHART	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
<b>A1: MIDTRONICS BATTERY TEST</b>	
NOTE: The battery must be fully charged and any battery defects rectified before continuing with generator diagnosis	
NOTE: The voltmeter must display readings to three decimal places (i.e. 0.001V)	
NOTE: <b>Ignition on</b> is position 2 on a keyed ignition system	
NOTE: <b>Ignition on</b> is two short presses of the start button (power mode 6) with keyless ignition system	
	<b>1</b> Using a Midtronics hand held tester or the Midtronics GR-1 diagnostic charger, carry out the "Midtronics battery test" as detailed in the battery care manual. REFER to: <a href="#">Battery Care</a> (414-00 Battery and Charging System - General Information, Description and Operation).
	<b>2</b> Record battery diagnostic result on the provided form
	Does the battery pass the "Midtronics battery test"? <b>Yes</b> <a href="#">GO to B1.</a> <b>No</b> Rectify any battery defects before continuing with generator diagnosis GO to Pinpoint Test <a href="#">B.</a>

PINPOINT TEST B : BOSCH NON-BMS GENERATOR DIAGNOSTIC FLOW CHART	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
<b>B1: GENERATOR OUTPUT</b>	
NOTE: Freelander 2 = The heated rear screen is timed to operate for 12 minutes	
NOTE: Defender = The heated rear screen is timed to operate for 8 minutes	
	<b>1</b> Connect a voltmeter to the vehicle battery
	<b>2</b> Switch ignition state to on (engine off)