# DIAGNOSTIC AND FAULT CODES

## GENERAL

<table>
<thead>
<tr>
<th>PCODE</th>
<th>MODULE</th>
<th>DESCRIPTION</th>
<th>CAUSE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2210</td>
<td>CLUSTER</td>
<td>Left keypad fault (Switch kept activated more than 60 seconds)</td>
<td>Problem with left keypad.</td>
<td>The switch may be defective, verify the functionality of the switch or the wires. Refer to the shop manual for switch diagnosis/testing procedure.</td>
</tr>
<tr>
<td>B2210</td>
<td>CLUSTER</td>
<td>Left keypad fault (Switch kept activated more than 60 seconds)</td>
<td>Problem with left keypad.</td>
<td>The switch may be defective, verify the functionality of the switch or the wires. Refer to the shop manual for switch diagnosis/testing procedure.</td>
</tr>
<tr>
<td>B2211</td>
<td>CLUSTER</td>
<td>Suspension UP/DOWN or SPORT / ECO switches shorted to ground fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin B if shorted to ground or pin C.</td>
</tr>
<tr>
<td>B2212</td>
<td>CLUSTER</td>
<td>Suspension UP/DOWN or SPORT / ECO switches disconnected fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin B if disconnected to pin 14 on the cluster. Look for pin C if disconnected to pin 15 on the cluster.</td>
</tr>
<tr>
<td>B2213</td>
<td>CLUSTER</td>
<td>VTS UP/DOWN switches shorted to ground fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin A if shorted to ground or pin C.</td>
</tr>
<tr>
<td>B2213</td>
<td>CLUSTER</td>
<td>VTS UP/DOWN switches shorted to ground fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin A if shorted to ground or pin C.</td>
</tr>
<tr>
<td>B2214</td>
<td>CLUSTER</td>
<td>VTS UP/DOWN switches disconnected fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin A if disconnected to pin 13 on the cluster. Look for pin C if disconnected to pin 15 on the cluster.</td>
</tr>
<tr>
<td>B2214</td>
<td>CLUSTER</td>
<td>VTS UP/DOWN switches disconnected fault</td>
<td>Problem with left keypad.</td>
<td>Look for pin A if disconnected to pin 13 on the cluster. Look for pin C if disconnected to pin 15 on the cluster.</td>
</tr>
<tr>
<td>B2220</td>
<td>CLUSTER</td>
<td>Right keypad fault (Switch kept activated more than 60 seconds)</td>
<td>Problem with right keypad.</td>
<td>The switch may be defective, verify the functionality of the switch or the wires. Refer to the shop manual for switch diagnosis/testing procedure.</td>
</tr>
<tr>
<td>B2221</td>
<td>CLUSTER</td>
<td>MODE/SET switches shorted to ground fault</td>
<td>Problem with right keypad.</td>
<td>Look for pin B if shorted to ground or pin C.</td>
</tr>
<tr>
<td>B2222</td>
<td>CLUSTER</td>
<td>MODE/SET switches disconnected fault</td>
<td>Problem with right keypad.</td>
<td>Look for pin B if disconnected to pin 17 on the cluster. Look for pin C if disconnected to pin 18 on the cluster.</td>
</tr>
<tr>
<td>B2223</td>
<td>CLUSTER</td>
<td>UP/DOWN switches shorted to ground fault</td>
<td>Problem with right keypad.</td>
<td>Look for pin A if shorted to ground or pin C.</td>
</tr>
</tbody>
</table>
## Subsection XX (Diagnostic and Fault Codes)

<table>
<thead>
<tr>
<th>PCODE</th>
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<tr>
<td>B2224</td>
<td>CLUSTER</td>
<td>UP/DOWN switches disconnected fault</td>
<td>Problem with right keypad.</td>
<td>Look for pin A if disconnected to pin 16 on the cluster. Look for pin C if disconnected to pin 18 on the cluster.</td>
</tr>
<tr>
<td>B2230</td>
<td>CLUSTER_CAFE</td>
<td>Main Cluster Switch kept activated more than 60 seconds</td>
<td>Problem with cluster button</td>
<td>The switch may be defective, verify the functionality of the switch (Button shape, defect, obstruction). Refer to the shop manual for switch diagnosis/testing procedure.</td>
</tr>
<tr>
<td>C0042</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS) signals A open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0.5 to 3V on pin F and 0.25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C0042</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS) signals A open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0.5 to 3V on pin F and 0.25 to 1.5 on pin C.</td>
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<tr>
<td>C0042</td>
<td>IBR_I</td>
<td>Brake Lever Sensor (BRLS) signals A open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0.5 to 3V on pin F and 0.25 to 1.5 on pin C.</td>
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<tr>
<td>C0043</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS) signals B open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0.5 to 3V on pin F and 0.25 to 1.5 on pin C.</td>
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<tr>
<td>C0043</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS) signals B open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
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<td>C0043</td>
<td>IBR_II</td>
<td>Brake Lever Sensor (BRLS) signals B open/shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0.5 to 3V on pin F and 0.25 to 1.5 on pin C.</td>
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<tr>
<td>C0073</td>
<td>IBR</td>
<td>Torque request failure</td>
<td>CPS wires shorted. Bad connection on the engine coolant temp sensor.</td>
<td>Perform ECM software update if available. Verify CPS connection. Verify engine temperature if it is plausible. A bad connection with the CTS can generate this fault when the iBR is used.</td>
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<tr>
<td>C0073</td>
<td>IBR 2013</td>
<td>Torque request failure</td>
<td>CPS wires shorted. Bad connection on the engine coolant temp sensor.</td>
<td>Perform ECM software update if available. Verify CPS connection. Verify engine temperature if it is plausible. A bad connection with the CTS can generate this fault when the iBR is used.</td>
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<td>C0073</td>
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<td>Perform ECM software update if available. Verify CPS connection. Verify engine temperature if it is plausible. A bad connection with the CTS can generate this fault when the iBR is used.</td>
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<tr>
<td>C2100</td>
<td>IBR</td>
<td>Sensors calibration is corrupted</td>
<td>Incompatible firmware or memory failure.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2100</td>
<td>IBR</td>
<td>Actuator movement</td>
<td>The reverse gate cannot move to the desired position. (stuck or motor open)</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
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<tr>
<td>C2100</td>
<td>IBR 2013</td>
<td>Sensors calibration is corrupted</td>
<td>Incompatible firmware or memory failure.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<tr>
<td>C2100</td>
<td>IBR_II</td>
<td>Sensors calibration is corrupted</td>
<td>Incompatible firmware or memory failure.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<td>C2101</td>
<td>IBR</td>
<td>Actuator movement warning</td>
<td>The reverse gate cannot move to the desired position within expected time.</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2101</td>
<td>IBR 2013</td>
<td>Actuator movement warning</td>
<td>The reverse gate cannot move to the desired position within expected time.</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
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<tr>
<td>C2101</td>
<td>IBR_II</td>
<td>Actuator movement warning</td>
<td>The reverse gate cannot move to the desired position within expected time.</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2102</td>
<td>IBR 2013</td>
<td>Actuator movement</td>
<td>The reverse gate cannot move to the desired position. (stuck or motor open)</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2102</td>
<td>IBR_II</td>
<td>Actuator movement</td>
<td>The reverse gate cannot move to the desired position. (stuck or motor open)</td>
<td>Clean and check for damage/wear parts in the reverse system and nozzle area. Check iBR electrical motor wiring. Isolate the iBR output shaft from the reverse system and activate the iBR, if the fault comes active, replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2110</td>
<td>IBR</td>
<td>Reverse gate position sensor error</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<tr>
<td>C2110</td>
<td>IBR</td>
<td>Angle position sensor warning</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2110</td>
<td>IBR</td>
<td>iBR overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2110</td>
<td>IBR</td>
<td>Monitoring CPU message timeout or validity</td>
<td>iBR malfunction.</td>
<td>Perform an iBR software update if available and clear the fault. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2110</td>
<td>IBR</td>
<td>Monitoring CPU limp force</td>
<td>iBR malfunction.</td>
<td>Perform an iBR software update if available. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2110</td>
<td>IBR 2013</td>
<td>Reverse gate position sensor error</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<tr>
<td>C2110</td>
<td>IBR_II</td>
<td>Reverse gate position sensor error</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2111</td>
<td>IBR</td>
<td>ECM erratic RPM signal</td>
<td>RPM signal received from engine ECM not plausible.</td>
<td>Check CPS sensor connection</td>
</tr>
<tr>
<td>C2112</td>
<td>IBR 2013</td>
<td>Angle position sensor warning</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<tr>
<td>C2112</td>
<td>IBR_II</td>
<td>Angle position sensor warning</td>
<td>iBR malfunction.</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2113</td>
<td>IBR 2013</td>
<td>iBR overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2113</td>
<td>IBR_II</td>
<td>iBR overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Refer to the service manual for more details.</td>
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<tr>
<td>C2114</td>
<td>IBR 2013</td>
<td>Monitoring CPU message</td>
<td>iBR</td>
<td>Perform an iBR software update if available and clear the fault. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>timeout or validity</td>
<td>malfunction.</td>
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<tr>
<td>C2114</td>
<td>IBR_II</td>
<td>Monitoring CPU message</td>
<td>iBR</td>
<td>Perform an iBR software update if available and clear the fault. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
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<td>timeout or validity</td>
<td>malfunction.</td>
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<tr>
<td>C2115</td>
<td>IBR 2013</td>
<td>Monitoring CPU limp force</td>
<td>iBR</td>
<td>Perform an iBR software update if available and clear the fault. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
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<td>malfunction.</td>
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<tr>
<td>C2115</td>
<td>IBR_II</td>
<td>Monitoring CPU limp force</td>
<td>iBR</td>
<td>Perform an iBR software update if available and clear the fault. Replace the iBR unit if the fault remains active. Refer to the service manual for more details.</td>
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<td></td>
<td></td>
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<td>malfunction.</td>
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<tr>
<td>C2120</td>
<td>IBR</td>
<td>Application calibration is</td>
<td>Incompatible</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
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<td>corrupted</td>
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<tr>
<td>C2120</td>
<td>IBR 2013</td>
<td>Application calibration is</td>
<td>Incompatible</td>
<td>If the fault comes active when the iBR is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
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<td>C2120</td>
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<td>Application calibration is</td>
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<tr>
<td>C2121</td>
<td>IBR</td>
<td>Application parameters</td>
<td>Unexpected</td>
<td>Verify starting and charging system circuits. Clear fault Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>corrupted (backup #1 or #2)</td>
<td>battery power lost or memory failure. Ignore fault if &quot;occurred&quot;</td>
<td></td>
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<td>C2121</td>
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<tr>
<td>C2130</td>
<td>IBR 2013</td>
<td>Motor current software breaker</td>
<td>iBR motor current too high. Battery power failure. iBR unit failure.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2130</td>
<td>IBR_II</td>
<td>Motor current software breaker</td>
<td>iBR motor current too high. Battery power failure. iBR unit failure.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2130</td>
<td>IBR</td>
<td>Motor current software breaker</td>
<td>iBR motor current too high. Battery power failure. iBR unit failure.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
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<tr>
<td>C2130</td>
<td>IBR</td>
<td>Internal motor drive failure</td>
<td>Motor voltage feedback not fitting with the command.</td>
<td>-</td>
</tr>
<tr>
<td>C2131</td>
<td>IBR</td>
<td>iBR DC motor shorted to ground or 12V</td>
<td>iBR motor failure. iBR motor wires damaged. Battery power failure. iBR unit failure.</td>
<td>Perform an iBR update with BUDS Check iBR battery power Check iBR Motor Wiring Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2131</td>
<td>IBR 2013</td>
<td>iBR DC motor shorted to ground or 12V</td>
<td>iBR motor failure. iBR motor wires damaged. Battery power failure. iBR unit failure.</td>
<td>Perform an iBR update with BUDS Check iBR battery power Check iBR Motor Wiring Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2131</td>
<td>IBR_II</td>
<td>iBR DC motor shorted to ground or 12V</td>
<td>iBR motor failure. iBR motor wires damaged. Battery power failure. iBR unit failure.</td>
<td>Perform an iBR update with BUDS Check iBR battery power Check iBR Motor Wiring Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2132</td>
<td>IBR</td>
<td>Motor Open</td>
<td>No current while activated.</td>
<td>Verify if the motor is properly connected to the iBR housing</td>
</tr>
<tr>
<td>C2132</td>
<td>IBR 2013</td>
<td>Motor Open</td>
<td>No current while activated.</td>
<td>Verify if the motor is properly connected to the iBR housing</td>
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<td>C2132</td>
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<tr>
<td>C2142</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS) signals A shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2142</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS) signals A shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2142</td>
<td>IBR II</td>
<td>Brake Lever Sensor (BRLS) signals A shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2143</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS) signals B shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2143</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS) signals B shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2143</td>
<td>IBR II</td>
<td>Brake Lever Sensor (BRLS) signals B shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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</tr>
<tr>
<td>C2144</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
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<td></td>
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<td>power shorted to battery</td>
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<tr>
<td>C2144</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>power shorted to battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2144</td>
<td>IBR_II</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
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<td>power shorted to battery</td>
<td></td>
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</tr>
<tr>
<td>C2145</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>power shorted to ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2145</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>power shorted to ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2145</td>
<td>IBR_II</td>
<td>Brake Lever Sensor (BRLS)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 4.5 to 5 volts on sensor connector pin A &amp; D. Refer to the service manual for more details.</td>
</tr>
<tr>
<td></td>
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<td>power shorted to ground</td>
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### Subsection XX (DIAGNOSTIC AND FAULT CODES)

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<thead>
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<tbody>
<tr>
<td>C2146</td>
<td>IBR</td>
<td>Brake Lever Sensor (BRLS) signals A/B reading difference</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2146</td>
<td>IBR 2013</td>
<td>Brake Lever Sensor (BRLS) signals A/B reading difference</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2146</td>
<td>IBR_II</td>
<td>Brake Lever Sensor (BRLS) signals A/B reading difference</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged iBR pins. Fault detected when the engine is running or stopped.</td>
<td>Check for 0,5 to 3V on pin F and 0,25 to 1.5 on pin C.</td>
</tr>
<tr>
<td>C2150</td>
<td>IBR</td>
<td>System current software breaker</td>
<td>iBR input current too high.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2150</td>
<td>IBR 2013</td>
<td>System current software breaker</td>
<td>iBR input current too high.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2150</td>
<td>IBR_II</td>
<td>System current software breaker</td>
<td>iBR input current too high.</td>
<td>Clean and check for damage in the reverse gate and nozzle area. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2151</td>
<td>IBR</td>
<td>System disabled and need activation</td>
<td>System is locked. Need activation.</td>
<td>Use B.U.D.S. iBR unlock function. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2151</td>
<td>IBR 2013</td>
<td>System disabled and need activation</td>
<td>System is locked. Need activation.</td>
<td>Use B.U.D.S. iBR unlock function. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2151</td>
<td>IBR_II</td>
<td>System disabled and need activation</td>
<td>System is locked. Need activation.</td>
<td>Use B.U.D.S. iBR unlock function. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2152</td>
<td>IBR_II</td>
<td>System not fit in ECM</td>
<td>iBR System is not fit in the ECM</td>
<td>Use the correct ECM. If available use the &quot;upgrade&quot; to fit/unfit iBR</td>
</tr>
<tr>
<td>C2155</td>
<td>IBR</td>
<td>Water temperature sensor overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Replace iBR unit. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
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<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>C2155</td>
<td>IBR 2013</td>
<td>Water temperature sensor overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Replace iBR unit. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2155</td>
<td>IBR_II</td>
<td>Water temperature sensor overheat</td>
<td>iBR cooling system failure. iBR unit failure.</td>
<td>Check iBR cooling circuit. Replace iBR unit. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2161</td>
<td>IBR</td>
<td>Low voltage detected</td>
<td>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors. Ignore fault if “occurred”</td>
<td>Check fuses #6 (REFER TO WIRING DIAGRAM). Check ground continuity to the engine block. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2161</td>
<td>IBR 2013</td>
<td>Low voltage detected</td>
<td>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors. Ignore fault if “occurred”</td>
<td>Check fuses #6 (REFER TO WIRING DIAGRAM). Check ground continuity to the engine block. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2161</td>
<td>IBR_II</td>
<td>Low voltage detected</td>
<td>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors. Ignore fault if “occurred”</td>
<td>Check fuses #6 (REFER TO WIRING DIAGRAM). Check ground continuity to the engine block. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2200</td>
<td>IS</td>
<td>Sensors calibration is corrupted</td>
<td>Incompatible firmware or memory failure.</td>
<td>If the fault comes active when the iS is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2210</td>
<td>IS</td>
<td>Bridge/CPU temperature sensor overheat</td>
<td>Hardware failure or external heat source.</td>
<td>Check for over utilization / heat.</td>
</tr>
<tr>
<td>C2220</td>
<td>IS</td>
<td>Application calibration is corrupted</td>
<td>Incompatible firmware or memory failure.</td>
<td>If the fault comes active when the iS is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
</tbody>
</table>
### Subsection XX (DIAGNOSTIC AND FAULT CODES)

<table>
<thead>
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<tbody>
<tr>
<td>C2221</td>
<td>IS</td>
<td>Application parameters corrupted (backup #1 or #2)</td>
<td>Unexpected battery power lost or memory failure. Ignore fault if <em>occurred</em></td>
<td>Verify starting and charging system circuits. Clear fault. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2230</td>
<td>IS</td>
<td>Internal motor drive failure</td>
<td>Motor voltage feedback not fitting with the command.</td>
<td>If the fault comes active when the iS is activated and stays active, verify if a software update is available. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2231</td>
<td>IS</td>
<td>Motor shorted to ground/battery</td>
<td>Current leak detected when the bridge is off.</td>
<td>Check suspension actuator pump wiring.</td>
</tr>
<tr>
<td>C2232</td>
<td>IS</td>
<td>Motor open</td>
<td>No current while activated.</td>
<td>Check suspension actuator pump and/or wiring.</td>
</tr>
<tr>
<td>C2233</td>
<td>IS</td>
<td>Motor current software breaker</td>
<td>Motor current too high.</td>
<td>Check suspension actuator pump.</td>
</tr>
<tr>
<td>C2240</td>
<td>IS</td>
<td>Seat position sensor error Open, Shorted to Gnd</td>
<td>Sensor not connected.</td>
<td>Check system circuit at iS module. <em>(REFER TO WIRING DIAGRAM)</em></td>
</tr>
<tr>
<td>C2250</td>
<td>IS</td>
<td>System current software breaker</td>
<td>Battery input current too high.</td>
<td>Check suspension actuator pump.</td>
</tr>
<tr>
<td>C2251</td>
<td>IS</td>
<td>System disabled and need activation</td>
<td>System is locked for safety. Need activation.</td>
<td>Activate iS using B.U.D.S. activation function.</td>
</tr>
<tr>
<td>C2252</td>
<td>IS</td>
<td>TOPS active</td>
<td>Warning only: TOPS detected by the system, the suspension is disable while the TOPS is &quot;ON&quot;.</td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>C2260</td>
<td>IS</td>
<td>System under voltage</td>
<td>System under voltage warning.</td>
<td>Check battery and charging system.</td>
</tr>
<tr>
<td>C2310</td>
<td>WSM</td>
<td>Motor current software breaker</td>
<td>The Weedless system sense an output current over 15 amps.</td>
<td>Check Weedless actuator</td>
</tr>
<tr>
<td>C2320</td>
<td>WSM</td>
<td>Application calibration is corrupted</td>
<td>The system was shutdown improperly</td>
<td>If inactive, do nothing and clear the fault. If active, close BUDS and wait for complete shutdown. If the fault is still active, look for software update, if not available, replace module</td>
</tr>
<tr>
<td>C2325</td>
<td>WSM</td>
<td>Maximum activation timer fault</td>
<td>The system detected a Weedless cycle too long (over 22 seconds). The fault is set to INACTIVE at every retry.</td>
<td>Check Weedless actuator or position sensor</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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</tr>
<tr>
<td>C2326</td>
<td>WSM</td>
<td>Maximum deactivation timer fault</td>
<td>The system detected a too long delay to return at the stored position (over 22 seconds). The fault is set to INACTIVE at every retry.</td>
<td>Check Weedless actuator or position sensor</td>
</tr>
<tr>
<td>C2327</td>
<td>WSM</td>
<td>Position sensor not calibrated</td>
<td>Position sensor not calibrated properly</td>
<td>Follow the procedure to calibrate the sensor using BUDS</td>
</tr>
<tr>
<td>C2328</td>
<td>WSM</td>
<td>Actuator current sensor not calibrated</td>
<td>Incompatible firmware or memory failure.</td>
<td>If inactive, do nothing and clear the fault. If active, close BUDS and wait for complete shutdown. If the fault is still active, look for software update, if not available, replace module</td>
</tr>
<tr>
<td>C2329</td>
<td>WSM</td>
<td>System current sensor not calibrated</td>
<td>Incompatible firmware or memory failure.</td>
<td>If inactive, do nothing and clear the fault. If active, close BUDS and wait for complete shutdown. If the fault is still active, look for software update, if not available, replace module</td>
</tr>
<tr>
<td>C2330</td>
<td>WSM</td>
<td>Internal motor drive failure</td>
<td>Motor voltage feedback not fitting with the command.</td>
<td>If inactive, do nothing and clear the fault. If active, close BUDS and wait for complete shutdown. If the fault is still active, look for software update, if not available, replace module</td>
</tr>
<tr>
<td>C2331</td>
<td>WSM</td>
<td>Motor short circuit</td>
<td>The Weedless system detect a short circuit on the output (actuator)</td>
<td>Check Weedless actuator</td>
</tr>
<tr>
<td>C2332</td>
<td>WSM</td>
<td>Motor open circuit</td>
<td>The Weedless system detect an open circuit on the output (actuator)</td>
<td>Check Weedless actuator</td>
</tr>
<tr>
<td>C2341</td>
<td>WSM</td>
<td>Position sensor shorted to Vcc</td>
<td>The Weedless system detect a position sensor shorten to Battery +12V</td>
<td>Check position sensor</td>
</tr>
<tr>
<td>C2360</td>
<td>WSM</td>
<td>System under-voltage</td>
<td>The Weedless system detect a voltage under 7 volts</td>
<td>Check battery and charging system.</td>
</tr>
<tr>
<td>C2370</td>
<td>WSM</td>
<td>Actuator stored position error</td>
<td>One second after power up or at the end of a weedless cycle, if the gate position is not at the stored position, the fault will come active</td>
<td>Check Weedless actuator or position sensor</td>
</tr>
</tbody>
</table>
## Subsection XX (DIAGNOSTIC AND FAULT CODES)

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<tbody>
<tr>
<td>P0001</td>
<td>CLUSTER</td>
<td>Port side ballast sensor disconnected fault</td>
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<tr>
<td>P0002</td>
<td>CLUSTER</td>
<td>Starboard side ballast sensor disconnected fault</td>
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<tr>
<td>P0008</td>
<td>ECM</td>
<td>Engine phase detection fault</td>
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<tr>
<td>P0030</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor upstreams of catalyst</td>
<td></td>
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</tr>
<tr>
<td>P0031</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor upstreams of catalyst - short circuit to GND</td>
<td></td>
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<tr>
<td>P0032</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor upstreams of catalyst - short circuit to V+</td>
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<tr>
<td>P0036</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor downstreams of catalyst</td>
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<tr>
<td>P0037</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor downstreams of catalyst - short circuit to GND</td>
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<tr>
<td>P0038</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor downstreams of catalyst - short circuit to V+</td>
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<tr>
<td>P0106</td>
<td>ECM</td>
<td>Manifold Intake pressure sensor out of range</td>
<td>Sensing port dirty or blocked. Sensor failure or unexpected reading at idle. Sensor fallen out of housing or leaking inlet. For a leak of the Intake Manifold, the ECM will diagnose it only if the RPM is greater than 5000 RPM.</td>
<td>Check system circuits A-B4, A-G4, A-H2. Make sure that the sensor housing is correctly inserted into the manifold. Check sensor connector for: a) 5 volts supply from ECM on pin 1. b) Ground supply from ECM on pin 2. c) Analog voltage from sensor to ECM on pin 3. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current.</td>
</tr>
<tr>
<td>P0107</td>
<td>ECM</td>
<td>Manifold absolute pressure sensor shorted to ground or not connected.</td>
<td>Sensing port dirty or blocked. Sensor failure or unexpected reading at idle. Sensor fallen out of housing or leaking inlet. Connector disconnected.</td>
<td>Check system circuits A-B4, A-G4, A-H2. Make sure that the sensor housing is correctly inserted into the manifold. Check sensor connector for: a) 5 volts on pin 1. b) 0 volt on pin 2. c) 0 volt on pin 3. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current.</td>
</tr>
<tr>
<td>PCODE</td>
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<tr>
<td>P0108</td>
<td>ECM</td>
<td>Manifold absolute pressure sensor open circuit or shorted to battery</td>
<td>Sensing port dirty or blocked. Sensor failure or unexpected reading at idle. Sensor fallen out of housing or leaking inlet.</td>
<td>Check system circuits A-B4, A-G4, A-H2. Make sure that the sensor housing is correctly inserted into the manifold. Check sensor connector for: a) 5 volts on pin 1. b) 0 volt on pin 2. c) 0 volt on pin 3. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current.</td>
</tr>
<tr>
<td>P0112</td>
<td>ECM</td>
<td>Intake manifold temperature sensor shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-H3 and A-J3. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0113</td>
<td>ECM</td>
<td>Intake manifold temperature sensor open circuit or shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-H3 and A-J3. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0116</td>
<td>ECM</td>
<td>Engine coolant temperature signal not plausible</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check for debris or blockage in cooling system. Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-A1 and A-J2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0117</td>
<td>ECM</td>
<td>Engine coolant temperature sensor fault - Short circuit to GND</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check for debris or blockage in cooling system. Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-A1 and A-J2. Refer to the service manual for more details.</td>
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<th>CAUSE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0118</td>
<td>ECM</td>
<td>Engine coolant temperature sensor fault - Short circuit to V+ or connector disconnected.</td>
<td>Engine overheated or damaged sensor. Connector disconnected.</td>
<td>Check for debris or blockage in cooling system. Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-A1 and A-J2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0122</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator sensor) 1 fault (short circuit to GND)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check system circuits B-E1, B-K1, B-K3. Check for 0 volt on sensor connector pin E. Check for 5 volts on sensor connector pin D. The 5 volt supply is shared between the TLS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Check for 0.5 to 3 volts on sensor connector pin F. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0123</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator sensor) 1 fault (short circuit to battery)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check system circuits B-E1, B-K1, B-K3. Check for 0 volt on sensor connector pin E. Check for 5 volts on sensor connector pin D. The 5 volt supply is shared between the TLS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Check for 0.5 to 3 volts on sensor connector pin F. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0127</td>
<td>ECM</td>
<td>Intercooler system fault</td>
<td>High air intake temperature detected. Fault detected when the engine is running and stopped. Blocked intercooler water circuit.</td>
<td>Clean intercooler water circuit system. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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</tr>
<tr>
<td>P0133</td>
<td>ECM</td>
<td>Oxygen sensor upstreams of catalyst reacts to slow → contaminated</td>
<td></td>
<td>An open signal on the Engine coolant temperature (CTS) can trigger that fault</td>
</tr>
<tr>
<td>P0134</td>
<td>ECM</td>
<td>Oxygen sensor upstreams of catalyst reacts to slow → defective</td>
<td></td>
<td>An open signal on the Engine coolant temperature (CTS) can trigger that fault</td>
</tr>
<tr>
<td>P0135</td>
<td>ECM</td>
<td>Lambda Sensor heating fault upstreams of catalyst</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0136</td>
<td>ECM</td>
<td>Lambda Sensor fault downstream of catalyst - signal not plausible</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0137</td>
<td>ECM</td>
<td>Lambda Sensor fault downstream of catalyst - short circuit to GND</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0138</td>
<td>ECM</td>
<td>Lambda Sensor fault downstreams of catalyst - short circuit to V+</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0141</td>
<td>ECM</td>
<td>Lambda Sensor heating fault downstreams of catalyst</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0171</td>
<td>ECM</td>
<td>Multiplicative mixture adaptation exceeds upper limit→ mixture too lean</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0172</td>
<td>ECM</td>
<td>Multiplicative mixture adaptation below lower limit→ mixture too rich</td>
<td></td>
<td>Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0201</td>
<td>ECM</td>
<td>Injection Power Stage fault - open line / Cylinder 1</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin A-B3. Check for 12 volts on pin 2 of injector connector. Check FUSE #13 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0202</td>
<td>ECM</td>
<td>Injection Power Stage fault - open line / Cylinder 2</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin A-K1. Check for 12 volts on pin 2 of injector connector. Check FUSE #14 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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</tr>
<tr>
<td>P0203</td>
<td>ECM</td>
<td>Injection Power Stage fault - open line / Cylinder 3</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 3 and ECM connector pin A-J1. Check for 12 volts on pin 2 of injector connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0217</td>
<td>ECM</td>
<td>High engine coolant temperature detected</td>
<td>High engine coolant temperature detected</td>
<td>Check for debris or blockage in cooling system. Check the sensor for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F). Check for approximately 2280 to 2736 ohms at 19 to 21°C (66 to 70°F) between ECM connector pins A-A1 and A-J2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0222</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator sensor) 2 fault (short circuit to GND)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check system circuits B-A3, B-B3, B-J3. Check for 0 volt on sensor connector pin B. Check for 5 volts on sensor connector pin A. Check for 0.25 to 1.5 volts on sensor connector pin C. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0223</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator Sensor) 2 fault (short circuit to battery)</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check system circuits B-A3, B-B3, B-J3. Check for 0 volt on sensor connector pin B. Check for 5 volts on sensor connector pin A. Check for 0.25 to 1.5 volts on sensor connector pin C. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0231</td>
<td>ECM</td>
<td>Fuel pump open circuit or short to ground</td>
<td>Damaged pump, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 1 ohm between pins A and B of the fuel pump connector. Check FUSE #18 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Check for damaged connector, damaged ECM output pins or ECM failure. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
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<td>ACTION</td>
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</tr>
<tr>
<td>P0232</td>
<td>ECM</td>
<td>Fuel pump short circuit to battery</td>
<td>Damaged pump, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 1 ohm between pins A and B of the fuel pump connector. Check FUSE #18 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Check for damaged connector, damaged ECM output pins or ECM failure. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0261</td>
<td>ECM</td>
<td>Injector 1 open circuit or shorted to ground</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 1 and ECM connector pin A-B3. Check for 12 volts on pin 2 of injector connector. Check FUSE #13 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0262</td>
<td>ECM</td>
<td>Injector 1 shorted to battery</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 1 and ECM connector pin A-B3. Check for 12 volts on pin 2 of injector connector. Check FUSE #13 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0264</td>
<td>ECM</td>
<td>Injector 2 open circuit or shorted to ground</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin A-K1. Check for 12 volts on pin 2 of injector connector. Check FUSE #14 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0265</td>
<td>ECM</td>
<td>Injector 2 shorted to battery</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin A-K1. Check for 12 volts on pin 2 of injector connector. Check FUSE #14 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
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<tr>
<td>P0267</td>
<td>ECM</td>
<td>Injector 3 open circuit or shorted to ground</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 3 and ECM connector pin A-J1. Check for 12 volts on pin 2 of injector connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0268</td>
<td>ECM</td>
<td>Injector 3 shorted to battery</td>
<td>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 11.4 to 12.6 ohms between engine connector pin 3 and ECM connector pin A-J1. Check for 12 volts on pin 2 of injector connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Check for damaged circuit wires. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0300</td>
<td>ECM</td>
<td>Multiple misfire detected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0301</td>
<td>ECM</td>
<td>Misfire cylinder 2 (physical cylinder 1)</td>
<td></td>
<td></td>
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<tr>
<td>P0302</td>
<td>ECM</td>
<td>Misfire cylinder 0 (physical cylinder 2)</td>
<td></td>
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</tr>
<tr>
<td>P0303</td>
<td>ECM</td>
<td>Misfire cylinder 1 (physical cylinder 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0325</td>
<td>ECM</td>
<td>Knock sensor 1 fault</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins. Open circuit.</td>
<td>Bring engine to 5000 RPM. If fault code appears then check for approximately 5 Mohms between system circuits A-C3 and A-G2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0335</td>
<td>ECM</td>
<td>Crankshaft signal error</td>
<td>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel. Connector disconnected.</td>
<td>For the CPS, check for 700 to 900 ohms between terminals A-H1 and A-K2 of ECM connector. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>P0340</td>
<td>ECM</td>
<td>Camshaft 1 signal error</td>
<td>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel. Connector disconnected.</td>
<td>For the CAPS, check for 12 volts on sensor connector pin 3. Check continuity for circuits A-D4, A-E2 and terminal 4 on engine connector. Check FUSE #12 (REFER TO WIRING DIAGRAM). Engine must run to erase the corrected fault. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0351</td>
<td>ECM</td>
<td>Ignition coil 1 open circuit or shorted to ground or to battery</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M4. Check for 12 volts on pin 2 of coil connector. Check FUSE #13 (REFER TO WIRING DIAGRAM). Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0352</td>
<td>ECM</td>
<td>Ignition coil 2 open circuit or shorted to ground or to battery</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M2. Check for 12 volts on pin 2 of coil connector. Check FUSE #14 (REFER TO WIRING DIAGRAM). Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0353</td>
<td>ECM</td>
<td>Ignition coil 3 open circuit or shorted to ground or to battery</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 3 and ECM connector pin A-M1. Check for 12 volts on pin 2 of coil connector. Check FUSE #15 (REFER TO WIRING DIAGRAM). Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0354</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to GND / Cylinder 1</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M4. Check for 12 volts on pin 2 of coil connector. Check FUSE #13 (REFER TO WIRING DIAGRAM). Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0355</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to GND / Cylinder 2</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M2. Check for 12 volts on pin 2 of coil connector. Check FUSE #14 (REFER TO WIRING DIAGRAM). Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
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<tr>
<td>P0356</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to GND / Cylinder 3</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 3 and ECM connector pin A-M1. Check for 12 volts on pin 2 of coil connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0357</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to V+ / Cylinder 1</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M4. Check for 12 volts on pin 2 of coil connector. Check FUSE #13 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0358</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to V+ / Cylinder 2</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M2. Check for 12 volts on pin 2 of coil connector. Check FUSE #14 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0359</td>
<td>ECM</td>
<td>Ignition Power Stage fault - short circuit to V+ / Cylinder 3</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 3 and ECM connector pin A-M1. Check for 12 volts on pin 2 of coil connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0360</td>
<td>ECM</td>
<td>Ignition Power stage max error &amp; false detection of low battery voltage / Cylinder 1</td>
<td>Signal not plausible, verify battery voltage too low during ignition.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M4. Check for 12 volts on pin 2 of coil connector. Check FUSE #13 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0361</td>
<td>ECM</td>
<td>Ignition Power stage max error &amp; false detection of low battery voltage / Cylinder 2</td>
<td>Signal not plausible, verify battery voltage too low during ignition.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-M2. Check for 12 volts on pin 2 of coil connector. Check FUSE #14 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>P0362</td>
<td>ECM</td>
<td>Ignition Power stage max error &amp; false detection of low battery voltage / Cylinder 3</td>
<td>Signal not plausible, verify battery voltage too low during ignition.</td>
<td>Check for 0.85 to 1.15 ohms between engine connector pin 3 and ECM connector pin A-M1. Check for 12 volts on pin 2 of coil connector. Check FUSE #15 (REFER TO WIRING DIAGRAM) Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0420</td>
<td>ECM</td>
<td>Catalyst conversion insufficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P0512</td>
<td>ECM</td>
<td>Starter power stage detects high current</td>
<td>Damaged solenoid, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Verify FUSE #16 (5 AMP). Check for 12 volts on pin 2 of the starter relay. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0513</td>
<td>ECM</td>
<td>Invalid D.E.S.S. Key detected</td>
<td>Key not programmed in ECU.</td>
<td>Program a good key</td>
</tr>
<tr>
<td>P0520</td>
<td>ECM</td>
<td>Oil pressure switch functional problem</td>
<td>Engine leak, oil pump failure, damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check resistance at 0 RPM and above 3500 RPM. Switch is normally closed, ECM connector pin A-E3 Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0523</td>
<td>ECM</td>
<td>Oil pressure sensor fault</td>
<td>Engine leak, oil pump failure, damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins. Fault detected when the engine is running or stopped.</td>
<td>Check resistance at 0 RPM and above 3500 RPM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0524</td>
<td>ECM</td>
<td>Low oil pressure condition</td>
<td>Low oil level, engine leak, oil pump fault.</td>
<td>Check oil level. Check impedance of sensor. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0544</td>
<td>ECM</td>
<td>Exhaust gas temperature sensor functional problem</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-H4 and A-J4. Refer to the service manual for more details.</td>
</tr>
</tbody>
</table>
## Subsection XX (DIAGNOSTIC AND FAULT CODES)

<table>
<thead>
<tr>
<th>PCODE</th>
<th>MODULE</th>
<th>DESCRIPTION</th>
<th>CAUSE</th>
<th>ACTION</th>
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<tbody>
<tr>
<td>P0545</td>
<td>ECM</td>
<td>Exhaust gas temperature sensor shorted to ground</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-H4 and A-J4. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0546</td>
<td>ECM</td>
<td>Exhaust gas temperature sensor open circuit or shorted to battery</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-H4 and A-J4. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0560</td>
<td>ECM</td>
<td>Battery voltage not plausible</td>
<td>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors.</td>
<td>Check fuses #6 (REFER TO WIRING DIAGRAM). Check ground continuity to the engine block. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0562</td>
<td>ECM</td>
<td>Battery voltage too low</td>
<td>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors.</td>
<td>Check fuses #6 (REFER TO WIRING DIAGRAM). Check ground continuity to the engine block. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0563</td>
<td>ECM</td>
<td>Battery voltage too high</td>
<td>Battery failure, rectifier failure or battery terminal connection.</td>
<td>Check for regulator-rectifier failure. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P0564</td>
<td>CLUSTER</td>
<td>Cruise switch fault</td>
<td>The cruise switch is shorted or activated more than 60 seconds.</td>
<td>Verify the cruise switch if it is normally open and close when activated.</td>
</tr>
<tr>
<td>P0606</td>
<td>ECM</td>
<td>ECM ADC fault</td>
<td>Damaged ECM.</td>
<td>Replace ECM</td>
</tr>
</tbody>
</table>
### Subsection XX (Diagnostic and Fault Codes)

<table>
<thead>
<tr>
<th>PCODE</th>
<th>MODULE</th>
<th>DESCRIPTION</th>
<th>CAUSE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P060D</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator sensor) synchronization error</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.</td>
<td>Check system circuits B-E1, B-K1, B-K3, B-A3, B-B3, B-J3. Check for 0 volt on sensor connector pin B &amp; E. Check for 5 volts on sensor connector pin A &amp; D. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Check for 0.5 to 3 volts on sensor connector pin F and 0.25 to 1.5 on C. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P060E</td>
<td>ECM</td>
<td>Throttle Actuator - Controller Fault- digital position control exceeds limit</td>
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<tr>
<td>P0610</td>
<td>ECM</td>
<td>Variant coding fault</td>
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<tr>
<td>P0629</td>
<td>CLUSTER</td>
<td>Fuel sensor disconnected fault</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 2.6 ohms (full tank) to 93.6 ohms (empty tank) between pin C and pin D at the fuel pump connector. Check system circuit at the gauge Pin 19 and 20. (REFER TO WIRING DIAGRAM)</td>
</tr>
<tr>
<td>P0629</td>
<td>CLUSTER CAFE</td>
<td>Fuel sensor disconnected fault</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for 2.6 ohms (full tank) to 93.6 ohms (empty tank) between pin C and pin D at the fuel pump connector. Check system circuit at the gauge Pin 19 and 20. (REFER TO WIRING DIAGRAM)</td>
</tr>
<tr>
<td>P062F</td>
<td>ECM</td>
<td>ECM EEPROM fault - exchange ECM</td>
<td>Damaged ECM.</td>
<td>Replace ECM.</td>
</tr>
<tr>
<td>P06B6</td>
<td>ECM</td>
<td>ECM Fast ADC fault (knock detection line)</td>
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<tr>
<td>P1030</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor upstreams of catalyst - open line</td>
<td></td>
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<tr>
<td>P1036</td>
<td>ECM</td>
<td>Heater Power Stage fault for lambda sensor downstreams of catalyst - open line</td>
<td></td>
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</tr>
<tr>
<td>P1106</td>
<td>ECM</td>
<td>Altitude correction factor (fho) not plausible - out of range</td>
<td></td>
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<tr>
<td>P1120</td>
<td>ECM</td>
<td>Throttle positions calculated from TPS 1 and TPS 2 not corresponding</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
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<td>CAUSE</td>
<td>ACTION</td>
</tr>
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<td>-------</td>
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<tr>
<td>P1130</td>
<td>ECM</td>
<td>Lambda Sensor fault upstreams of catalyst - open line</td>
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<tr>
<td>P1136</td>
<td>ECM</td>
<td>Lambda Sensor fault downstream of catalyst - open line</td>
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<tr>
<td>P1171</td>
<td>ECM</td>
<td>Additive mixture adaptation exceeds upper limit → mixture too lean</td>
<td>An open signal on the Engine coolant temperature (CTS) can trigger that fault</td>
<td></td>
</tr>
<tr>
<td>P1172</td>
<td>ECM</td>
<td>Additive mixture adaptation below lower limit → mixture too rich</td>
<td>An open signal on the Engine coolant temperature (CTS) can trigger that fault</td>
<td></td>
</tr>
<tr>
<td>P1264</td>
<td>ECM</td>
<td>Ignition Power stage overload</td>
<td>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins. Fault detected when the engine is running.</td>
<td></td>
</tr>
<tr>
<td>P1502</td>
<td>ECM</td>
<td>T.O.P.S. functional problem</td>
<td>Boat or sensor upside down, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check continuity for circuits A-C4, A-G1, A-F4. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1503</td>
<td>ECM</td>
<td>T.O.P.S. switch short circuit to 12V</td>
<td>Boat or sensor upside down, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check continuity for circuits A-C4, A-G1, A-F4. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1504</td>
<td>ECM</td>
<td>T.O.P.S. switch short circuit ground</td>
<td>Boat or sensor upside down, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check continuity for circuits A-C4, A-G1, A-F4. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1505</td>
<td>ECM</td>
<td>T.O.P.S. switch fault non plausible state</td>
<td>Boat or sensor upside down, damaged circuit wires, damaged connector or damaged ECM output pins. Open circuit.</td>
<td>Check continuity for circuits A-C4, A-G1, A-F4. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>P1506</td>
<td>ECM</td>
<td>T.O.P.S. switch open circuit</td>
<td>Boat or sensor upside down, damaged circuit wires, damaged connector or damaged ECM output pins. Open circuit.</td>
<td>Check continuity for circuits A-C4, A-G1, A-F4. The 5 volt supply is shared between the TAS signal 1, TOPS and MAPS. Verify all three sensor if one is pulling too much current. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1550</td>
<td>ECM</td>
<td>Otas sensor voltage not plausible</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM. Open circuit.</td>
<td>Check continuity for circuits B-H3, B-H1 and FUSE #12. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1606</td>
<td>ECM</td>
<td>ECM ADC fault - exchange ECM</td>
<td>Damaged ECM.</td>
<td>No service action available for fault P1606.</td>
</tr>
<tr>
<td>P160E</td>
<td>ECM</td>
<td>Throttle Actuator - Controller Fault - digital position control below limit</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1610</td>
<td>ECM</td>
<td>Throttle Actuator - Power Stage fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1611</td>
<td>ECM</td>
<td>Throttle Actuator - Power Stage fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1612</td>
<td>ECM</td>
<td>Throttle Actuator - Power Stage fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1613</td>
<td>ECM</td>
<td>Throttle Actuator - Power Stage fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1614</td>
<td>ECM</td>
<td>Throttle Actuator - Return-Spring check not passed / Spring does not close</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>P1615</td>
<td>ECM</td>
<td>Throttle Actuator - Position monitoring fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1616</td>
<td>ECM</td>
<td>Throttle Actuator - Default position check or learning fault</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1619</td>
<td>ECM</td>
<td>Throttle Actuator - Adaptation of upper mechanical limit failed</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1620</td>
<td>ECM</td>
<td>Throttle Actuator - Adaptation of lower mechanical limit failed</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1621</td>
<td>ECM</td>
<td>Throttle Actuator - Abortion of adaptation</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1622</td>
<td>ECM</td>
<td>Throttle Actuator - Repeated abortion of adaptation</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P1654</td>
<td>ECM</td>
<td>Voltage of D.E.S.S. key switch out of range</td>
<td>Damaged D.E.S.S. key switch, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Remove D.E.S.S. key and check system circuit B-B2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1657</td>
<td>ECM</td>
<td>Electrical fault of D.E.S.S. key communication line</td>
<td>Damaged D.E.S.S. key switch, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Remove D.E.S.S. key and check system circuit B-B2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<td>-------</td>
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</tr>
<tr>
<td>P1658</td>
<td>ECM</td>
<td>Faulty D.E.S.S. key communication</td>
<td>Damaged D.E.S.S. key switch, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Remove D.E.S.S. key and check system circuit B-B2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P1661</td>
<td>ECM</td>
<td>iBR malfunction</td>
<td>iBR fault detected by ECM.</td>
<td>Remove D.E.S.S. key. Performed an electrical system shut down. Clear fault.</td>
</tr>
<tr>
<td>P1662</td>
<td>ECM</td>
<td>iBR torque request is not plausible</td>
<td>iBR fault detected by ECM.</td>
<td>Perform iBR software update if available or replace iBR.</td>
</tr>
<tr>
<td>P1679</td>
<td>ECM</td>
<td>Main Relay Sticking</td>
<td>Permanent 12V is present on ECM Pin B-M4.</td>
<td>ECU pin B-M4 is permanently supplied thru 15 amp fuse and it should be accessory 12 Vdc.</td>
</tr>
<tr>
<td>P16B6</td>
<td>ECM</td>
<td>ECU Fast ADC fault (knock detection line)</td>
<td></td>
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</tr>
<tr>
<td>P16B7</td>
<td>ECM</td>
<td>ECU Fast ADC fault (knock detection line)</td>
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<tr>
<td>P16B8</td>
<td>ECM</td>
<td>ECU Fast ADC fault (knock detection line)</td>
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<tr>
<td>P16C0</td>
<td>ECM</td>
<td>Fault of ECM ADC</td>
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<tr>
<td>P16C1</td>
<td>ECM</td>
<td>Fault of ECM ADC</td>
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<tr>
<td>P16C2</td>
<td>ECM</td>
<td>Fault of ECM monitoring module</td>
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<tr>
<td>P16C3</td>
<td>ECM</td>
<td>Monitoring fault due to Accelerator Sensor check</td>
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<tr>
<td>P16C4</td>
<td>ECM</td>
<td>Monitoring fault due to engine speed check</td>
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<tr>
<td>P16C5</td>
<td>ECM</td>
<td>Safety fuel cut off activ - Monitoring level 1</td>
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<tr>
<td>P16C6</td>
<td>ECM</td>
<td>Safety fuel cut off activ - Monitoring level 2</td>
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<tr>
<td>P16C7</td>
<td>ECM</td>
<td>Monitoring fault due to throttle valve plausibility check</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>P16C8</td>
<td>ECM</td>
<td>Monitoring fault due to exceeding permitted throttle valve position</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM.</td>
</tr>
<tr>
<td>PCODE</td>
<td>MODULE</td>
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<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>P16C9</td>
<td>ECM</td>
<td>Monitoring detected non plausible D.E.S.S. key state</td>
<td>Damaged D.E.S.S. key switch, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Remove D.E.S.S. key and check system circuit B-B2. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P16CA</td>
<td>ECM</td>
<td>ECU detected faulty watch dog line - ECU defect</td>
<td>Damaged ECM.</td>
<td>Replace ECM.</td>
</tr>
<tr>
<td>P16CB</td>
<td>ECM</td>
<td>ECU switch off through watch dog line (hardware fault) - ECU defect</td>
<td>Damaged ECM.</td>
<td>Replace ECM.</td>
</tr>
<tr>
<td>P2080</td>
<td>ECM</td>
<td>Exhaust temperature not plausible</td>
<td>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-H4 and A-J4. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P2081</td>
<td>ECM</td>
<td>Exhaust temperature sensor fault</td>
<td>Intermittent connection. Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.</td>
<td>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-H4 and A-J4. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P212C</td>
<td>ECM</td>
<td>Electrical lower-range violation TPS 2</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM</td>
</tr>
<tr>
<td>P212D</td>
<td>ECM</td>
<td>Electrical upper-range violation TPS 2</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM</td>
</tr>
<tr>
<td>P2159</td>
<td>ECM</td>
<td>TAS (Throttle Accelerator sensor) signal not plausible</td>
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<tr>
<td>P2245</td>
<td>ECM</td>
<td>Lambda Sensor aging fault downstreams of catalyst - Sensor Voltage too low</td>
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<tr>
<td>P2246</td>
<td>ECM</td>
<td>Lambda Sensor aging fault downstreams of catalyst - Sensor Voltage too high</td>
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</tr>
<tr>
<td>P2279</td>
<td>ECM</td>
<td>Air intake manifold leak downstream of throttle</td>
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</tr>
</tbody>
</table>
### Subsection XX (DIAGNOSTIC AND FAULT CODES)

<table>
<thead>
<tr>
<th>PCODE</th>
<th>MODULE</th>
<th>DESCRIPTION</th>
<th>CAUSE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>P2428</td>
<td>ECM</td>
<td>High exhaust temperature detected</td>
<td>Exhaust overheat, damaged sensor or damaged circuit wires.</td>
<td>Check cooling system for blockage. Check if the exhaust injection valve is properly calibrated. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>P2620</td>
<td>ECM</td>
<td>TPS value not plausible</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM</td>
</tr>
<tr>
<td>P2621</td>
<td>ECM</td>
<td>Electrical lower-range violation TPS 1</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM</td>
</tr>
<tr>
<td>P2622</td>
<td>ECM</td>
<td>Electrical upper-range violation TPS 1</td>
<td>Damaged throttle actuator, damaged circuit wires, damaged connector or damaged ECM.</td>
<td>Check system circuit, perform closed throttle with B.U.D.S. Replace throttle actuator, replace ECM</td>
</tr>
<tr>
<td>U0100</td>
<td>ECM</td>
<td>ECU could not establish CAN communication with partner ECU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U0129</td>
<td>ECM</td>
<td>CAN communication error between ECM and iBR module</td>
<td>iBR fault detected by ECM. C.A.N. circuit failure, iBR or ECM failure. Disconnected connector.</td>
<td>Check C.A.N. circuits wires. Replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0129</td>
<td>IS</td>
<td>IBR CAN messages timeout or validity</td>
<td>Warning only: the iS module lost communication with the iBR.</td>
<td>If fault ACTIVE, verify CAN connection between iBR and iS</td>
</tr>
<tr>
<td>U0300</td>
<td>ECM</td>
<td>Exchange security - Wrong ECM</td>
<td>Incorrect ECM or cluster for engine.</td>
<td>Install proper recommended ECM or cluster for vehicle.</td>
</tr>
<tr>
<td>U0401</td>
<td>IBR</td>
<td>ECM CAN messages timeout or validity</td>
<td>C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace ECM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0401</td>
<td>IS</td>
<td>ECM CAN messages timeout or validity</td>
<td>Warning only: the iS module lost communication with the engine ECU.</td>
<td>If fault ACTIVE, verify CAN connection between ECM and iS</td>
</tr>
<tr>
<td>U0401</td>
<td>IBR 2013</td>
<td>ECM CAN messages timeout or validity</td>
<td>C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace ECM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>CODE</td>
<td>MODULE</td>
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<td>ACTION</td>
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</tr>
<tr>
<td>U0401</td>
<td>IBR_II</td>
<td>ECM CAN messages timeout or validity</td>
<td>C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace ECM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0402</td>
<td>IBR_II</td>
<td>ECM CAN messages timeout or validity (320)</td>
<td>C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace ECM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0403</td>
<td>IBR_II</td>
<td>ECM CAN messages timeout or validity (516)</td>
<td>C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace ECM. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0457</td>
<td>IBR</td>
<td>Cluster CAN messages timeout or validity</td>
<td>C.A.N. circuit failure, Cluster software failure.</td>
<td>Check C.A.N. circuits wires. Replace instrument Cluster. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U0457</td>
<td>IS</td>
<td>Cluster CAN messages timeout or validity</td>
<td>Warning only: the iS module lost communication with the Cluster.</td>
<td>If fault ACTIVE, verify CAN connection between Cluster and iS</td>
</tr>
<tr>
<td>U0457</td>
<td>IBR_II</td>
<td>Cluster CAN messages timeout or validity</td>
<td>C.A.N. circuit failure, Cluster software failure.</td>
<td>Check C.A.N. circuits wires. Replace instrument Cluster. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U1301</td>
<td>ECM</td>
<td>Software / Data compatibility error between starboard and port ECUs</td>
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<tr>
<td>PCODE</td>
<td>MODULE</td>
<td>DESCRIPTION</td>
<td>CAUSE</td>
<td>ACTION</td>
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<tr>
<td>U16A4</td>
<td>ECM</td>
<td>iBR CAN Timeout error-Missing CAN ID 010h</td>
<td>iBR fault detected by ECM. C.A.N. circuit failure, iBR or ECM failure. Disconnected connector.</td>
<td>Check C.A.N. circuits wires. Replace iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U16A5</td>
<td>ECM</td>
<td>iBR CAN Timeout error-Missing CAN ID 012h</td>
<td>iBR fault detected by ECM. C.A.N. circuit failure, iBR or ECM failure. Disconnected connector.</td>
<td>Check C.A.N. circuits wires. Replace instrument iBR. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U16A7</td>
<td>ECM</td>
<td>Cluster check sum error - CAN ID408h</td>
<td>Cluster fault detected by ECM. C.A.N. circuit failure, Instrument cluster or ECM failure.</td>
<td>Check C.A.N. circuits wires. Replace instrument Cluster. Refer to the service manual for more details.</td>
</tr>
<tr>
<td>U16A8</td>
<td>ECM</td>
<td>iBR check sum error - CAN ID010h</td>
<td>iBR fault detected by ECM. C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace iBR. Refer to the service manual for more details.</td>
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<tr>
<td>U16A9</td>
<td>ECM</td>
<td>iBR check sum error - CAN ID012h</td>
<td>iBR fault detected by ECM. C.A.N. circuit failure, ECM software failure.</td>
<td>Check C.A.N. circuits wires. Replace iBR. Refer to the service manual for more details.</td>
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<tr>
<td>U16AA</td>
<td>ECM</td>
<td>Cluster CAN Timeout error-Missing CAN ID 410h</td>
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<td>U16AB</td>
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<td>Cluster check sum error - CAN ID410h</td>
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<tr>
<td>U16AC</td>
<td>ECM</td>
<td>Starboard ECU - Check sum error - CAN ID 014h</td>
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<tr>
<td>U16AD</td>
<td>ECM</td>
<td>Port ECU - Check sum error - CAN ID 015h</td>
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<tr>
<td>U16AE</td>
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<tr>
<td>U16B0</td>
<td>ECM</td>
<td>Starboard ECU - Check sum error - CAN ID 01Ah</td>
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### Subsection XX (Diagnostic and Fault Codes)

<table>
<thead>
<tr>
<th>PCODE</th>
<th>Module</th>
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<th>Cause</th>
<th>Action</th>
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<td>U16B1</td>
<td>ECM</td>
<td>Port ECU - Check sum error - CAN ID 01Bh</td>
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<td>U16B2</td>
<td>ECM</td>
<td>Starboard ECU - Check sum error - CAN ID 102h</td>
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<td>U16B3</td>
<td>ECM</td>
<td>Port ECU - Check sum error - CAN ID 1A2h</td>
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<td>ECM</td>
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<td>U16B6</td>
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<td>ECM</td>
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<td>U16B9</td>
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<td>Port ECU - CAN Timeout error - Missing CAN ID 01Bh</td>
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<td>ECM</td>
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<td>U16BB</td>
<td>ECM</td>
<td>Port ECU - CAN Timeout error - Missing CAN ID 1A2h</td>
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<td>U16BC</td>
<td>ECM</td>
<td>Cluster CAN Timeout error - Missing CAN ID 5B4h</td>
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<tr>
<td>U16BD</td>
<td>ECM</td>
<td>CAN Timeout or Check sum error of synchronization messages (Twin engine vehicles)</td>
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<tr>
<td>U1700</td>
<td>ECM</td>
<td>ECU could not detect its position (starboard/port)</td>
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<td>U1701</td>
<td>ECM</td>
<td>Partner ECU could not detect its position (starboard/port)</td>
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<td>U1702</td>
<td>ECM</td>
<td>Both ECUs detected same installation position (starboard/port)</td>
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