

## Section 08 ENGINE MANAGEMENT (4-TEC)

### Subsection 03 (DIAGNOSTIC PROCEDURES)

#### TPS "OUT OF RANGE" Fault

It is caused by the sensor reading going out of its allowable range. This fault can occur during the whole range of movement of the throttle.

To diagnose this fully, it is recommended to operate the throttle through its full range. It is also recommended to release the throttle quickly as this may also show up a fault that is intermittent.

| POSSIBLE CAUSES                              | RESULT | ACTION   |
|--|--------|--|
| Check if connector is disconnected from TPS. | Yes    | • Fix  |
| Check if sensor is loose.                    | Yes    | • Fix and reset Closed Throttle and Idle Actuator  |
| Inspect sensor for damage or corrosion.      | Yes    | • Replace and reset Closed Throttle and Idle Actuator.   |
| Inspect wiring (voltage test).               | Failed | • Repair.  |
| Inspect wiring and sensor (resistance test). | Failed | • If bad wiring, repair.<br>• If bad TPS, replace and reset Closed Throttle and Idle Actuator. |
| Test sensor operation (wear test).           | Failed | • Replace and reset Closed Throttle and Idle Actuator.   |

#### TPS "ADAPTATION FAILURE" Fault

It is caused by the idle position moving out of an acceptable range.

Following failures can be effected by a TPS "Adaption Failure":

- Idle speed is out of range.
- Engine stops, when throttle is released quickly.
- Engine runs inconsistent in low partload or low RPM.

| POSSIBLE CAUSES  | RESULT | ACTION   |
|--|--------|--|
| Sensor has been replaced and TPS closed position not reset.        | Yes    | • Reset Closed Throttle and Idle Actuator.         |
| Throttle body has been replaced and TPS closed position not reset. | Yes    | • Reset Closed Throttle and Idle Actuator.         |
| ECM has been replaced and TPS closed position not reset.           | Yes    | • Reset Closed Throttle and Idle Actuator.         |
| Throttle cable too tight.  | Yes    | • Fix and reset Closed Throttle and Idle Actuator. |
| Sensor is loose.   | Yes    | • Fix and reset Closed Throttle and Idle Actuator. |
| Throttle bracket is loose.   | Yes    | • Fix and reset Closed Throttle and Idle Actuator. |
| Adjustment screw worn or loose.                                    | Yes    | • Change throttle body.                            |

# 4-TEC SYSTEM FAULT CODES CHART

| FAULT CODE | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|------------|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|            | INFORMATION CENTER | MPEM | ECM   |             |               |                              |   |                                     |                |                                 |
| P0106      | —                  | —    | Manifold atmospheric pressure sensor out of range | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |

**Possible cause:**  
 Sensing port dirty or blocked.  
 Sensor failure or unexpected reading at idle.  
 Sensor fallen out of housing or leaking inlet.

**Service action:**  
 Check system circuits A-12, A-28 and A-40.  
 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.

|       |   |   |  |    |       |         |   |   |   |                    |
|-------|---|---|--|----|-------|---------|---|---|---|--------------------|
| P0107 | — | — | Manifold atmospheric pressure sensor shorted to ground | 15 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|       | — | — | Manifold barometric pressure sensor shorted to ground  | 15 | Flash | CHK ENG | Y | N | N | Fault is recovered |

**Possible cause:**  
 Sensing port dirty or blocked.  
 Sensor failure or unexpected reading at idle.  
 Sensor fallen out of housing or leaking inlet.

**Service action:**  
 Check system circuits A-12, A-28 and A-40.  
 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.

| FAULT CODE | RESPONSIBLE MODULE |      |  | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|------------|--------------------|------|--|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|            | INFORMATION CENTER | MPEM | ECM  |             |               |                              |   |                                     |                |                                 |
| P0108      | —                  | —    | Manifold atmospheric pressure sensor shorted to 12 V or open circuit | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
|            | —                  | —    | Manifold barometric pressure sensor open circuit or shorted to 12 V  | 15          | Flash         | CHK ENG                      | Y                                       | N                                   | N              | Fault is recovered              |

**Possible cause:**

Sensing port dirty or blocked.

Sensor failure or unexpected reading at idle.

Sensor fallen out of housing or leaking inlet.

**Service action:**

Check system circuits A-12, A-28 and A-40.

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.

|       |   |   |   |    |       |         |   |   |   |                    |
|-------|---|---|---|----|-------|---------|---|---|---|--------------------|
| P0111 | — | — | Intake manifold temperature sensor functional problem | 15 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|-------|---|---|---|----|-------|---------|---|---|---|--------------------|

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

**Service action:**

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 7 and 21.

|       |   |   |  |    |       |         |   |   |   |                    |
|-------|---|---|--|----|-------|---------|---|---|---|--------------------|
| P0112 | — | — | Intake manifold temperature sensor shorted to ground | 15 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|-------|---|---|--|----|-------|---------|---|---|---|--------------------|

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

**Service action:**

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 7 and 21.

|       |   |   |  |    |       |         |   |   |   |                    |
|-------|---|---|--|----|-------|---------|---|---|---|--------------------|
| P0113 | — | — | Intake manifold temperature sensor shorted to 12 V or open circuit | 15 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|-------|---|---|--|----|-------|---------|---|---|---|--------------------|

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

**Service action:**

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 7 and 21.

| FAULT CODE | RESPONSIBLE MODULE |      |  | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|------------|--------------------|------|--|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|            | INFORMATION CENTER | MPEM | ECM  |             |               |                              |   |                                     |                |                                 |
| P0116      | —                  | —    | Engine temperature sensor functional problem | 5           | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

**Service action:**

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 11 and 27.

|       |   |   |   |   |       |         |   |   |   |                    |
|-------|---|---|---|---|-------|---------|---|---|---|--------------------|
| P0117 | — | — | Engine temperature sensor short circuit to ground | 5 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|-------|---|---|---|---|-------|---------|---|---|---|--------------------|

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

**Service action:**

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 11 and 27.

|       |   |   |   |   |       |         |   |   |   |                    |
|-------|---|---|---|---|-------|---------|---|---|---|--------------------|
| P0118 | — | — | Engine temperature sensor short circuit to 12 V | 5 | Flash | CHK ENG | N | Y | N | Fault is recovered |
|       |   |   | Engine temperature sensor open circuit          | 5 | Flash | CHK ENG | N | Y | N | Fault is recovered |

**Possible cause:**

Engine overheated or damaged sensor.

**Service action:**

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 11 and 27.

| FAULT CODE | RESPONSIBLE MODULE |      |  | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|------------|--------------------|------|--|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|            | INFORMATION CENTER | MPEM | ECM  |             |               |                              |   |                                     |                |                                 |
| P0122      | —                  | —    | Throttle position sensor out of range            | 15          | Flash         | CHK ENG                      | Y                                       | Y                                   | N              | Key is removed                  |
|            | —                  | —    | Throttle position sensor short circuit to ground | 15          | Flash         | CHK ENG                      | Y                                       | Y                                   | N              | Key is removed                  |

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

Damaged or out of alignment throttle bodies or sensor.

**Service action:**

Check for 0 volt on sensor connector pin 1.

Check for 5 volts on sensor connector pin 2.

Check for 4.5 to 5 volts on sensor connector pin 3.

With throttle closed, check ECM connector for:

a) 1000 to 1100 ohms between pins 24 and 39.

b) 2600 to 2700 ohms between pins 24 and 25.

c) 1600 to 2400 ohms between pins 125 and 39.

Check for linear resistance rise when opening throttle.

Check physical stops for wear.

|       |   |   |   |    |       |         |   |   |   |                |
|-------|---|---|---|----|-------|---------|---|---|---|----------------|
| P0123 | — | — | Throttle position sensor out of range – short-circuit to 12 V or open circuit | 15 | Flash | CHK ENG | N | Y | N | Key is removed |
|-------|---|---|---|----|-------|---------|---|---|---|----------------|

**Possible cause:**

Damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.

Damaged or out of alignment throttle bodies or sensor.

**Service action:**

Check for 0 volt on sensor connector pin 1.

Check for 5 volts on sensor connector pin 2.

Check for 4.5 to 5 volts on sensor connector pin 3.

With throttle closed, check ECM connector for:

a) 1000 to 1100 ohms between pins 24 and 39.

b) 2600 to 2700 ohms between pins 24 and 25.

c) 1600 to 2400 ohms between pins 125 and 39.

Check for linear resistance rise when opening throttle.

Check physical stops for wear.

|       |   |   |   |    |       |         |   |   |   |                    |
|-------|---|---|---|----|-------|---------|---|---|---|--------------------|
| P0231 | — | — | Fuel pump shorted to ground or open circuit | 15 | Flash | CHK ENG | Y | N | N | Fault is recovered |
|-------|---|---|---|----|-------|---------|---|---|---|--------------------|

**Possible cause:**

Damaged pump, damaged circuit wires, damaged connector or damaged ECM output pins.

**Service action:**

Check for approximately 1 ohm between pins A and D of the fuel pump connector.

Check for damaged circuit wires.

Check for approximately 1 ohm between pins 1-26 and B-29.

Check for damaged connector, damaged ECM output pins or ECM failure.

| FAULT CODE  | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM | ECM   |             |               |                              |   |                                     |                |                                 |
| P0232   | —                  | —    | Fuel pump shorted to 12 V                       | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged pump, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for approximately 1 ohm between pins A and D of the fuel pump connector.<br>Check for damaged circuit wires.<br>Check for approximately 1 ohm between pins 1-26 and B-29.<br>Check for damaged connector, damaged ECM output pins or ECM failure. |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0261   | —                  | —    | Inj. #1 short-circuit to ground or open circuit | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 1 and ECM connector pin 15.<br>Check for 12 volts on pin 2 of injector connector.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0262   | —                  | —    | Inj. # 1 short-circuit to 12 V                  | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 1 and ECM connector pin 15.<br>Check for 12 volts on pin 2 of injector connector.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0264   | —                  | —    | Inj. #2 short-circuit to ground or open circuit | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin 33.<br>Check for 12 volts on pin 2 of injector connector.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0265   | —                  | —    | Inj. #2 short-circuit to 12 V                   | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 2 and ECM connector pin 33.<br>Check for 12 volts on pin 2 of injector connector.  |                    |      |   |             |               |                              |   |                                     |                |                                 |

| FAULT CODE   | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|--|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|  | INFORMATION CENTER | MPEM | ECM   |             |               |                              |   |                                     |                |                                 |
| P0267  | —                  | —    | Inj. # 3 short-circuit to ground or open circuit  | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 3 and ECM connector pin 14.<br>Check for 12 volts on pin 2 of injector connector.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0268  | —                  | —    | Inj. # 3 short-circuit to 12 V                    | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged injector, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 11.4 to 12.6 ohms between engine connector pin 3 and ECM connector pin 14.<br>Check for 12 volts on pin 2 of injector connector.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0326  | —                  | —    | Knock sensor out of range                         | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Key is removed                  |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Bring engine to 5000 RPM. If fault code appears then check for approximately 5 Mohms between system circuits A-9 and A-23.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0336  | —                  | —    | Crank position sensor - wrong engine RPM detected | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>For the CPS, check for 190 to 290 ohms between terminals A-5 and A-19 of ECM connector. For the CAPS, refer to camshaft position sensor.<br>Check continuity for circuits A-20, A-34 and terminal 4 on engine connector. |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0337  | —                  | —    | No CPS signal, but CAPS signal detected           | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 190 to 290 ohms between terminals A-5 and A-19 of ECM connector.<br>Check for 2 volts AC while cranking the engine.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0337  | —                  | —    | No CPS signal, but CAPS signal detected           | 15          | Flash         | CHK ENG                      | N                                       | N                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 190 to 290 ohms between terminals A-5 and A-19 of ECM connector.   |                    |      |   |             |               |                              |   |                                     |                |                                 |

| FAULT CODE   | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|--|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|  | INFORMATION CENTER | MPEM | ECM   |             |               |                              |   |                                     |                |                                 |
| P0339  | —                  | —    | Crank signal fault not plausible with cam signal              | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>For the CPS, check for 190 to 290 ohms between terminals A-5 and A-19 of ECM connector.<br>For the CAPS, check for 12 volts on sensor connector pin 3.<br>Check continuity for circuits A-20, A-34 and terminal 4 on engine connector. |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0344  | —                  | —    | Cam phase sensor signal missing                               | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Engine is stopped               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector, damaged ECM pins or damaged tooth wheel.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>For the CPS, check for 190 to 290 ohms between terminals A-5 and A-19 of ECM connector.<br>For the CAPS, check for 12 volts on sensor connector pin 3.<br>Check continuity for circuits A-20, A-34 and terminal 4 on engine connector. |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0351  | —                  | —    | Ignition coil #1 open circuit or shorted to ground or to 12 V | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | 5000           | Engine is stopped               |
| <b>Possible cause:</b><br>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 0.85 to 1.15 ohms between engine connector pin 1 and ECM connector pin A-41.<br>Check for 12 volts on pin 2 of coil connector.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0352  | —                  | —    | Ignition coil #2 open circuit or shorted to ground or to 12 V | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | 5000           | Engine is stopped               |
| <b>Possible cause:</b><br>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 0.85 to 1.15 ohms between engine connector pin 2 and ECM connector pin A-1.<br>Check for 12 volts on pin 2 of coil connector.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0353  | —                  | —    | Ignition coil #3 open circuit or shorted to ground or to 12 V | 15          | Flash         | CHK ENG                      | N                                       | Y                                   | 5000           | Engine is stopped               |
| <b>Possible cause:</b><br>Damaged coil, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 0.85 to 1.15 ohms between engine connector pin 3 and ECM connector pin A-29.<br>Check for 12 volts on pin 2 of coil connector.   |                    |      |   |             |               |                              |   |                                     |                |                                 |



| FAULT CODE  | RESPONSIBLE MODULE |   |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|---|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM  | ECM                                       |             |               |                              |   |                                     |                |                                 |
| P0461   | —                  | Fuel level sensor circuit out of range                    | —   | 4           | Flash         | SENSOR                       | Y                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 2.6 (full tank) to 93.6 ohms (empty tank) between system circuits 1-1 and 1-21.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| P0462   | —                  | Fuel level sensor shorted to ground                       | —   | 4           | Flash         | SENSOR                       | Y                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for no continuity between system circuit 1-21 and battery ground.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| P0463   | —                  | Fuel level sensor circuit shorted to 12 V or open circuit | —   | 4           | Flash         | SENSOR                       | Y                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check voltage between system circuit 1-21 and battery ground.   |                    |   |   |             |               |                              |   |                                     |                |                                 |
| P0505   | —                  | —   | DLA output stage cutoff memory difference | 15          | Off           | CHK ENG                      | —                                       | —                                   | —              | —                               |
|   | —                  | —   | DLA output stage fault                    | 15          | Off           | N/A                          | Y                                       | N                                   | N              | Fault is recovered              |
|   | —                  | —   | DLA open circuit                          | 15          | Off           | N/A                          | Y                                       | N                                   | N              | Fault is recovered              |
|   | —                  | —   | DLA short circuit to 12 V                 | 15          | Off           | N/A                          | Y                                       | N                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged actuator, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |   |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for approximately 50 ohms between pins A and D and also between pins B and C of the idle bypass valve.<br>Check for damaged circuit wires.<br>Check for approximately 50 ohms between pins A-36 and A-35 and also between pins A-37 and A-38.<br>Check for damaged connector, damaged ECM output pins or ECM failure. |                    |   |   |             |               |                              |   |                                     |                |                                 |
| P0513   | —                  | —   | DESS® incorrect key                       | 15          | Off           | N/A                          | Y                                       | N/A                                 | N/A            | N/A                             |
| <b>Possible cause:</b><br>DESS key not programmed.. Wrong DESS key used. DESS key failure.  |                    |   |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Program the DESS key. Clean DESS key and DESS post contacts.  |                    |   |   |             |               |                              |   |                                     |                |                                 |

| FAULT CODE   | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|--|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|  | INFORMATION CENTER | MPER | ECM   |             |               |                              |   |                                     |                |                                 |
| P0520  | —                  | —    | Oil pressure switch functional problem            | 5           | Off           | CHK ENG                      | Y                                       | Y                                   | 2500           | Fault is recovered              |
| <b>Possible cause:</b><br>Engine leak, oil pump failure, damaged sensor, damaged circuit wires, damaged connector or damaged ECM pins.                                 |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check resistance at 0 RPM and above 3500 RPM.<br>When blow-by pressure exceeds 40 kPa (6 PSI), the resistance is infinitely high.            |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0544  | —                  | —    | Exhaust gas temperature sensor functional problem | 5           | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-10 and A-26.                   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0545  | —                  | —    | Exhaust gas temperature sensor shorted to ground  | 5           | Flash         | CHK ENG                      | Y/N                                     | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-10 and A-26.                   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0546  | —                  | —    | Exhaust gas temperature sensor shorted to 12 V    | 5           | Flash         | CHK ENG                      | N                                       | Y                                   | N              | Fault is recovered              |
|  | —                  | —    | Exhaust gas temperature open circuit              | 5           | Flash         | CHK ENG                      | Y/N                                     | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged ECM output pins.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for approximately 2280 to 2736 ohms at temperature of 19 to 21°C (66 to 70°F) between system circuits A-10 and A-26.                   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0562  | —                  | —    | Battery voltage too low                           | 15          | Flash         | N/A                          | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Battery failure, rectifier failure, damaged circuit wires, battery terminal connection, damaged AC generator or damaged connectors.          |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check fuses.<br>Check system circuits 1-25 to positive (+) battery terminal.<br>Check system circuits 1-24 to negative (-) battery terminal. |                    |      |   |             |               |                              |   |                                     |                |                                 |

| FAULT CODE  | RESPONSIBLE MODULE |      |  | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|------|--|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM | ECM  |             |               |                              |   |                                     |                |                                 |
| P0563   | —                  | —    | Battery voltage too high                       | 15          | Flash         | N/A                          | N                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Battery failure, rectifier failure or battery terminal connection.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for regulator-rectifier failure.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P0600   | —                  | —    | CAN communication problem detected by EMS      | 15          | Flash         | N/A                          | Y                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged circuit wires, damaged connector, damaged ECM output pins.<br>Diagnostic connector cap not connected. |                    |      |  |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check system circuits 1-16 & 1-17, 1-10 & 1-11, 2-10 & 2-11.<br>Connect diagnostic connector cap.             |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P0600   | —                  | —    | CAN communication problem MPEM message missing | 15          | Flash         | N/A                          | Y                                       | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check system circuits 2-10 & 2-11.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P0601   | —                  | —    | TPS learns unlikely or checksum fault          | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>ECM not coded, damaged ECM or TPS not initialized.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check cable adjustment.<br>Check idle stop for wear.<br>Check throttle angle at idle.<br>Reset closed TPS.    |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P0601   | —                  | —    | Module call monitoring                         | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Key on and off.<br>Reset closed TPS.<br>Check battery voltage.<br>Replace TPS.                                |                    |      |  |             |               |                              |   |                                     |                |                                 |

| FAULT CODE  | RESPONSIBLE MODULE |      |                            | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|------|----------------------------|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM | ECM                        |             |               |                              |   |                                     |                |                                 |
| P0602   | —                  | —    | ECU not coded              | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>ECM not coded or damaged ECM.                             |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0602, symptom 142. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0604   | —                  | —    | RAM faulty                 | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0604, symptom 136. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0605   | —                  | —    | EEPROM faulty              | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0605, symptom 137. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0605   | —                  | —    | Checksum fault EEPROM      | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0605, symptom 143. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0605   | —                  | —    | Coding ID checksum fault   | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0605, symptom 144. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0605   | —                  | —    | Coding checksum fault      | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0605, symptom 145. |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| P0605   | —                  | —    | Programming checksum fault | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.  |                    |      |                            |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P0605, symptom 146. |                    |      |                            |             |               |                              |   |                                     |                |                                 |

| FAULT CODE  | RESPONSIBLE MODULE |      |   | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING             | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|------|---|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM | ECM                                       |             |               |                              |   |                                     |                |                                 |
| P0608   | —                  | —    | Sensor 5 V power supply short to ground   | 15          | Flash         | CHK ENG                      | Y   | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Intake pressure sensor or TPS failure.<br>Sensors power line shorted to ground.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for MAPS or TPS failure.<br>Check for MAPS or TPS circuit failure.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0608   | —                  | —    | Sensor 5 V power supply short to 12 V     | 15          | Flash         | CHK ENG                      | Y   | Y                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Intake pressure sensor or TPS failure.<br>Sensors power line shorted to battery.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for MAPS or TPS failure.<br>Check for MAPS or TPS circuit failure.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0616   | —                  | —    | Starter relay shorted to ground           | 5           | Flash         | CHK ENG                      | N (fault detected while cranking)                   | Y                                   | N              | Fault is recovered              |
|   | —                  | —    | Starter relay open circuit                | 5           | Flash         | CHK ENG                      | Y   | Y                                   | N              | Key is removed                  |
| <b>Possible cause:</b><br>Damaged solenoid, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Verify 10 A fuse.<br>Check for 12 volts on pin 2 of the starter relay.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P0617   | —                  | —    | Starter relay shorted to 12 V             | 5           | Flash         | CHK ENG                      | Y/N (sometimes when pressing the Start/Stop switch) | N                                   | N              | Fault is recovered              |
| <b>Possible cause:</b><br>Damaged solenoid, damaged circuit wires, damaged connector or damaged ECM output pins.  |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Verify if system circuit B-31 is shorted to 12 V.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| P1102   | —                  | —    | Throttle position sensor adaption failure | 15          | Flash         | CHK ENG                      | —   | —                                   | —              | —                               |
| <b>Possible cause:</b><br>No initialisation after throttle body or ECM replacement or throttle idle stop drifted.   |                    |      |   |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check cable adjustment.<br>Check idle stop for wear.<br>Make sure that the throttle plate is against the throttle stop.<br>Check throttle angle at idle.<br>Reset closed TPS. |                    |      |   |             |               |                              |   |                                     |                |                                 |

| FAULT CODE  | RESPONSIBLE MODULE |      |  | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|------|--|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM | ECM  |             |               |                              |   |                                     |                |                                 |
| P1104   | —                  | —    | Throttle position sensor adaptation canceled                       | 15          | Flash         | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <p><b>Possible cause:</b><br/>No initialisation after throttle body or ECM replacement or throttle idle stop drifted.</p> <p><b>Service action:</b><br/>Check cable adjustment.<br/>Check idle stop for wear.<br/>Make sure that the throttle plate is against the throttle stop.<br/>Check throttle angle at idle.<br/>Reset closed TPS.</p>   |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P1148   | —                  | —    | Fuel injector 1, 2 or 3 - safety fuel cut off detected             | 15          | Off           | CHK ENG                      | —                                       | —                                   | —              | —                               |
| <p><b>Possible cause:</b><br/>Idle bypass valve wrong reference, TPS adaptation failure, TPS failure or battery voltage out of range.</p> <p><b>Service action:</b><br/>Key on and off.<br/>Reset closed TPS.<br/>Check battery voltage. Replace TPS.<br/>Replace idle bypass valve.</p>  |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P1200   | —                  | —    | Blow by valve shorted to ground or open circuit                    | 5           | Flash         | CHK ENG                      | Y/N                                     | Y                                   | 5000           | Fault is recovered              |
| <p><b>Possible cause:</b><br/>Blow-by valve failure, damaged circuit wires, damaged connector, damaged ECM pins or ECM failure.</p> <p><b>Service action:</b><br/>Check for 1.27 to 2.47 ohms on component.</p>   |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P1201   | —                  | —    | Blow by valve shorted to 12 V                                      | 5           | Flash         | CHK ENG                      | N                                       | N                                   | N              | N/A                             |
| <p><b>Possible cause:</b><br/>Blow-by valve failure, damaged circuit wires, damaged connector, damaged ECM pins or ECM failure.</p> <p><b>Service action:</b><br/>Check for 1.27 to 2.47 ohms on component.</p>   |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P1202   | —                  | —    | Oil tank pressure switch implausible or blow-by valve still closed | 5           | Flash         | CHK ENG                      | N                                       | N                                   | N              | N/A                             |
| <p><b>Possible cause:</b><br/>Damaged oil pressure switch, blow-by valve failure, damaged circuit wires, damaged connector or damaged ECM pins.</p> <p><b>Service action:</b><br/>Check for 1.27 to 2.47 ohms between terminals.<br/>Check if TOPS is connected to wiring harness.<br/>Check resistance at 0 RPM and above 3500 RPM. At high RPM the resistance should be close to 0 ohm.<br/>Check for 12 volts on pin 1 of the blow-by valve.</p> |                    |      |  |             |               |                              |   |                                     |                |                                 |
| P1203   | —                  | —    | Unused   | —           | —             | —                            | —                                       | —                                   | —              | —                               |

| FAULT CODE   | RESPONSIBLE MODULE   |  |     | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|--|----------------------|--|-----|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|  | INFORMATION CENTER   | MPEM                                       | ECM |             |               |                              |   |                                     |                |                                 |
| P1517  | Compass out of range | —  | —   | 15          | Off           | SENSOR                       | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.                      |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check compass connection.<br>Connect or disable compass in setting page.                                   |                      |  |     |             |               |                              |   |                                     |                |                                 |
| P1590  | —                    | VTS Position Sensor Circuit – Out of Range | —   | 15          | Off           | SENSOR                       | —                                       | —                                   | N              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.                      |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 24 to 167.5 ohms between system circuits 2-8 and 2-9.<br>Connect or disable VTS in setting page. |                      |  |     |             |               |                              |   |                                     |                |                                 |
| P1591  | —                    | VTS Position Sensor Circuit – Low Voltage  | —   | 15          | Off           | SENSOR                       | —                                       | —                                   | N              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.                      |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 24 to 167.5 ohms between system circuits 2-8 and 2-9.<br>Connect or disable VTS in setting page. |                      |  |     |             |               |                              |   |                                     |                |                                 |
| P1592  | —                    | VTS Position Sensor Circuit – High Voltage | —   | 15          | Off           | SENSOR                       | —                                       | —                                   | N              | —                               |
| <b>Possible cause:</b><br>Damaged sensor, damaged circuit wires, damaged connector or damaged MPEM output pins.                      |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 24 to 167.5 ohms between system circuits 2-8 and 2-9.<br>Connect or disable VTS in setting page. |                      |  |     |             |               |                              |   |                                     |                |                                 |
| P1593  | —                    | VTS Malfunction                            | —   | 15          | Off           | SENSOR                       | —                                       | —                                   | N              | —                               |
| <b>Possible cause:</b><br>Mechanical failure on VTS or VTS mechanically immobilized.   |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check VTS rod.   |                      |  |     |             |               |                              |   |                                     |                |                                 |
| P1607  | —                    | MPEM FAULT                                 | —   | 15          | N/A           | —                            | —                                       | —                                   | N              | —                               |
| <b>Possible cause:</b><br>Damaged MPEM.  |                      |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P1607.   |                      |  |     |             |               |                              |   |                                     |                |                                 |

| FAULT CODE  | RESPONSIBLE MODULE |  |     | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|---|--------------------|--|-----|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|   | INFORMATION CENTER | MPEM   | ECM |             |               |                              |   |                                     |                |                                 |
| P1675   | —                  | Spare output 1 shorted to ground or open circuit           | —   | 15          | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged component, damaged circuit wires, damaged connector or damaged MPEM output pins.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Connect component or disable spare output 1 in setting page.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| P1676   | —                  | Spare output 1 shorted to 12 V                             | —   | 15          | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged component, damaged circuit wires, damaged connector or damaged MPEM output pins.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Connect component or disable spare output 1 in setting page.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| P1678   | —                  | Spare output 2 shorted to ground or open circuit           | —   | 15          | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged component, damaged circuit wires, damaged connector or damaged MPEM output pins.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Connect component or disable spare output 2 in setting page.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| P1679   | —                  | Spare output 2 shorted to 12 V                             | —   | 15          | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged component, damaged circuit wires, damaged connector or damaged MPEM output pins.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Connect component or disable spare output 2 in setting page.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| P1680   | —                  | Communication problem detected by MPEM                     | —   | 5           | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged circuit wires, damaged connector, damaged MPEM output pins.<br>Diagnostic connector cap not connected.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Connect diagnostic connector cap.   |                    |  |     |             |               |                              |   |                                     |                |                                 |
| P1681   | —                  | Communication problem – instrument cluster message missing | —   | 5           | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged circuit wires, damaged connector, damaged MPEM output pins.<br>Instrument cluster not connected.  |                    |  |     |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check system circuits 1-10 and 1-11.<br>Check for 12 volts between pins 7 and 8 on the instrument cluster harness connector.<br>Check 1A fuse.<br>Connect instrument cluster. |                    |  |     |             |               |                              |   |                                     |                |                                 |



| FAULT CODE   | RESPONSIBLE MODULE |  |               | BEEPER CODE | WARNING LIGHT | MESSAGE DISPLAYED (info ctr) | FAULT DETECTED WHILE ENGINE NOT RUNNING | FAULT DETECTED WHILE ENGINE RUNNING | LIMP HOME MODE | NORMAL OPERATION RESUME WHEN... |
|--|--------------------|--|---------------|-------------|---------------|------------------------------|---|-------------------------------------|----------------|---------------------------------|
|  | INFORMATION CENTER | MPEM   | ECM           |             |               |                              |   |                                     |                |                                 |
| P1682  | —                  | Communication problem - EMS message missing                | —             | 5           | N/A           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged circuit wires, damaged connector, damaged MPEM output pins. ECM not connected.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check system circuits 2-10 and 2-11.<br>Check for 12 volts between system circuit A-11 and ground.<br>Check 5A fuses.<br>Check connection. |                    |  |               |             |               |                              |   |                                     |                |                                 |
| P1683  | —                  | —  | COM RAM Fault | 15          | Flash         | N/A                          | —                                       | —                                   | —              | —                               |
| <b>Possible cause:</b><br>Damaged ECM.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>No service action available for fault P1683, symptom 88.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| P1690  | —                  | VTS control up circuit open circuit or shorted to ground   | —             | 15          | Off           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged VTS, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 12 volts between system circuits 2-7 and 2-1 when VTS UP is activated.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| P1691  | —                  | VTS control up circuit shorted to battery                  | —             | 15          | Off           | N/A                          | Y                                       | Y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged VTS, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 12 volts between system circuits 2-7 and 2-1 when VTS UP is activated.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| P1692  | —                  | VTS control down circuit open circuit or shorted to ground | —             | 15          | Off           | N/A                          | y                                       | y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged VTS, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 12 volts between system circuits 2-6 and 2-1 when VTS DOWN is activated.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| P1693  | —                  | VTS control down circuit shorted to battery                | —             | 15          | Off           | N/A                          | y                                       | y                                   | N              | N/A                             |
| <b>Possible cause:</b><br>Damaged VTS, damaged circuit wires, damaged connector or damaged MPEM output pins.   |                    |  |               |             |               |                              |   |                                     |                |                                 |
| <b>Service action:</b><br>Check for 12 volts between system circuits 2-6 and 2-1 when VTS DOWN is activated.   |                    |  |               |             |               |                              |   |                                     |                |                                 |

# BURNT FUSE AND RELATED FAULT CODE

| FUSE  | RATING (A) | FAULT CODE   | FAULT DETECTED WHILE ENGINE NOT RUNNING |
|---|------------|--------------|---|
| TOPS  | 10         | P0344, P1200 | N                                       |
| Depth gauge (if so equipped) or spare fuse          | 2          | P1675        | Y                                       |
| Cylinder #3 ignition coil and injection             | 10         | P0353, P0267 | N                                       |
| Information center                                  | 1          | P1680, P1681 | N                                       |
| Cylinder #2 ignition coil and injection             | 10         | P0352, P0264 | N                                       |
| Cylinder #1 ignition coil and injection             | 10         | P0351, P0261 | N                                       |
| Bilge pump (optional), beeper, diagnostic connector | 3          | P0616        | Y                                       |
| Spare fuse  | 5          | P1678        | Y                                       |
| Electric starter, fuel pump                         | 10         | P0231        | Y                                       |
| MPEM  | 2          | P0600        | N                                       |
| VTS (if so equipped)                                | 7.5        | P1690, P1692 | N                                       |
| EMS, start/stop circuit                             | 5          | None         | N                                       |

