

## 07 GRP12\_All Transmissions.doc

| SENSED PARAMETER   | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY                              | PRIMARY MALF DETECTION PARAMETERS                               | SECONDARY PARAMETERS AND CONDITIONS                      | MONITORING TIME | DTC TYPE |
|--|------------|---|---|--|-----------------|----------|
| Transmission Control Module Read Only Memory             | P0601      | EPROM/Flash memory corruption (Incorrect program/calibrations checksum) | ROM fail count $\geq 5$   | None   | Immediate       | Type A   |
| Transmission Control Module Not Programmed               | P0602      | Non-programmed TCM (calibrations)                                       | KbCOND_NoStartCal = TRUE  | None   | Immediate       | Type A   |
| Transmission Control Module Long-Term Memory Reset       | P0603      | Wrong copy of Non-volatile Memory to RAM                                | Non-volatile memory (static or dynamic) checksum failure        | None   | Immediate       | Type A   |
| Transmission Control Module Random Access Memory         | P0604      | RAM failure   | RAM read/write failure (single word)<br>RAM fail count $\geq 5$ | None   | Immediate       | Type A   |
| Transmission Control Module Long Term Memory Performance | P062F      | NVM write error at key-down   | TCM Non-Volatile Memory Incorrect flag = 1                      | $8.0 \leq$ Ignition Voltage $\leq 18.0$ V<br>Ignition ON | Immediate       | Type A   |

MAF DTCs P0101-P0102-P0103  
MAP DTCs P0105-P0106-P0107-P0108  
MAP Intermittent P1106-P1107  
ECT DTCs P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

Type A and Type B codes illuminate the "Service Engine Soon" lamp.  
Type C codes illuminate the "Service Vehicle Soon" or "Wrench" lamp.

FA = Fault Active  
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|---|------------|--|---|--|--|----------|
| Transmission Fluid Temperature Sensor Performance | P0711      | <p>The DTC detects the following failure modes of the TFT:</p> <p>1) A sensor that remains at a value. (Stuck Sensor)</p> <p>2) A sensor that remains at a value. (Stuck Sensor)</p> <p>4) Transmission Temperature remains below 20° C for a calibrated time dependant on startup transmission temperature.</p> | <p><u>Fail Case 1</u><br/> <math>\Delta TFT &lt; 2^{\circ} C</math>.<br/>                     TCC Slip <math>\geq 120</math> RPM for 300 sec cumul.<br/> <math>-39^{\circ} C \leq TFT \text{ at startup} \leq 20^{\circ} C</math>.</p> <p><u>Fail Case 2</u><br/> <math>\Delta TFT &lt; 2^{\circ} C</math>.<br/> <math>129^{\circ} C \leq TFT \text{ at startup} \leq 149^{\circ} C</math>.</p> <p><u>Fail Case 4</u><br/> <math>TFT \leq 20^{\circ} C</math> after a calibrated amount of time based on a 2D lookup table.</p> | <p><u>For fail case 1, 2, and 4:</u><br/>                     Common ignition voltage enable,<br/>                     Common engine speed enable,<br/>                     No Engine Coolant DTC's,<br/>                     No OSS P0722, P0723 DTCs,<br/>                     No ISS P0716, P0717 DTCs,<br/>                     P0711 has not passed this ignition cycle,<br/> <math>-39 \text{ deg C} \leq \text{trans fluid temp} \leq 149 \text{ deg C}</math></p> <p><u>Fail case 1:</u><br/> <math>-39 \text{ deg C} \leq \text{trans fluid temp} \leq 20 \text{ C}</math> at startup,<br/>                     Engine coolant <math>\Rightarrow 70 \text{ deg C}</math>,<br/>                     Engine Coolant has changed <math>\Rightarrow 55 \text{ deg C}</math> since startup,<br/>                     Vehicle speed <math>\Rightarrow 8 \text{ KPH}</math> for <math>&gt; 300</math> seconds (cumulative timer)</p> <p><u>Fail case 2:</u><br/> <math>129 \text{ deg C} \leq \text{trans fluid temp} \leq 149 \text{ C}</math> at startup,<br/>                     Engine coolant <math>\Rightarrow 70 \text{ deg C}</math>,<br/>                     Engine Coolant has changed <math>\Rightarrow 55 \text{ deg C}</math> since startup,<br/>                     Vehicle speed <math>\Rightarrow 8 \text{ KPH}</math> for <math>\Rightarrow 300</math> seconds (cumulative timer)</p> <p><u>Fail case 4:</u><br/>                     Valid TPS, Torque signal, and Crank Signals.<br/> <math>50 \leq \text{Engine Torque} \leq 1492</math><br/> <math>8 \leq \text{Throttle Position} \leq 90</math><br/> <math>8 \leq \text{Vehicle Speed} \leq 511</math><br/> <math>500 \leq \text{Engine Speed} \leq 6500</math><br/> <math>-39 \leq \text{Coolant Temperature} \leq 149</math></p> | <p><u>Fail case 1:</u><br/>                     80.0 seconds</p> <p><u>Fail case 2:</u><br/>                     80.0 seconds</p> <p><u>Fail case 4:</u><br/>                     Between 200 &amp; 1900 seconds dependant on startup trans temperature.</p> | Type C   |

MAF DTCs P0101-P0102-P0103  
 MAP DTCs P0105-P0106-P0107-P0108  
 MAP Intermittent P1106-P1107  
 ECT DTCs P0115-P0116-P0117-P0118-P0125-P0126-P0128  
 TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
 P0562-P0563

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|--|------------|--|---|--|-----------------|----------|
| Transmission Fluid Temperature Sensor Circuit Low Voltage  | P0712      | Continuous Short-to-Ground in Trans Fluid Temperature sensor or TFT signal circuit                 | Trans Temp Sensor $\leq$ 43.19 ohm<br>Trans Temp $>$ 150C         | $8V \leq$ Ignition Voltage $\leq$ 18V for 5 sec<br>$500 \leq$ Engine RPM $\leq$ 6500 for 5.0 sec   | 12.0 sec        | Type C   |
| Transmission Fluid Temperature Sensor Circuit High Voltage | P0713      | Continuous Open of Short to Voltage in Transmission Fluid Temperature sensor or TFT signal circuit | Trans Temp Sensor $\geq$ 171862 ohm<br>Trans Temp $<$ -40C (-40F) | No P0716, P0717, P0722, P0723 DTCs<br>$500 \leq$ Engine RPM $\geq$ 6500 for 5.0 sec<br>$8.0 \leq$ Ignition Voltage $\leq$ 18.0 V<br>OSS $\geq$ 70 RPM for 200 sec cumul.<br>TCC Slip $\geq$ 120 RPM for 200 sec cumul.   | 80.0 sec        | Type C   |
| Input Speed Sensor Performance                             | P0716      | 0 – 6500 RPM<br>Unrealistically large drop in Input Speed in a very period of time that remains    | Input Speed drop $\geq$ 1000 RPM                                  | No P0717, P0722, P0723, P0752, P0973, P0974 DTCs<br>$8V \leq$ Ignition Voltage $\leq$ 18V<br>$500 \leq$ Engine RPM $\leq$ 6500 for 5 sec<br>No TP malfunction<br>No Engine Torque malfunction<br>$50 \leq$ Engine Torque $\leq$ 1492 N-m<br>TPS $\geq$ 8.0%<br>Vehicle Speed $\geq$ 16.0 kph<br>ISS $\geq$ 1050 RPM for 2.0 sec<br>$\Delta$ ISS $\leq$ 500 RPM for 2.0 sec | 3.25 sec        | Type B   |
| Input Speed Sensor Circuit Low Voltage                     | P0717      | 0 – 6500 RPM<br>Low Input Speed with large vehicle speed   | Input Speed $<$ 100.0 RPM   | No P0717, P0722, P0723 DTCs<br>No Engine Torque malfunction<br>$500 \leq$ Engine RPM $\leq$ 6500 for 5 sec<br>$8V \leq$ Ignition Voltage $\leq$ 18V<br>Vehicle Speed $\geq$ 16.0 kph<br>$50 <$ Engine Torque $\leq$ 1492 N-m   | 4.5 sec         | Type B   |

MAF DTCs  
MAP DTCs  
MAP Intermittent  
ECT DTCs  
TP DTCs

P0101-P0102-P0103  
P0105-P0106-P0107-P0108  
P1106-P1107  
P0115-P0116-P0117-P0118-P0125-P0126-P0128  
P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs

P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

Type A and Type B codes illuminate the "Service Engine Soon" lamp.  
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|--|------------|--|--|--|-----------------|----------|
| Output Speed Sensor Circuit Low Voltage  | P0722      | 0 - 6500 RPM<br><br>Low vehicle speed with large engine speed in Drive range | <u>Drive</u><br>50 ≤ Engine Torque ≤ 1492 N-m<br>Output Speed ≤ 70 RPM<br><br><u>Park/Neutral</u><br>1492 ≤ Engine Torque ≤ 1492 N-m | No, P0716, P0717, P0723<br>No TPS malfunction<br>No Engine Torque malfunction<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>Range ≠ P/N<br>TCC Slip ≥ -20 RPM<br>Trans Temp ≥ -40° C.<br>1500 RPM ≤ Input Speed ≤ 5000 RPM<br>TPS ≥ 8.0%  | 4.5 sec         | Type B   |
| Output Speed Sensor Circuit Intermittent | P0723      | 0 - 6500 RPM<br><br>Loss of vehicle speed when vehicle is moving             | Drop in Output Speed > 420 RPM in any Drive range  | No P0716, P0717, P0974 DTC<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≥ 6500 for 5 sec<br>Range ≠ P/N<br>50 Nm ≤ Engine Torque ≤ 1492 Nm<br>Time since last range change ≥ 6.0 sec<br>+ΔVSS, loop-to-loop, ≤ 175 RPM for 2.0 sec<br>ΔISS ≤ 500 RPM for 2.0 sec<br>Output Speed ≥ 350 RPM for 2.0 sec | 3.25 sec        | Type B   |

|                     |   |
|---------------------|---|
| MAF DTCs            | P0101-P0102-P0103   |
| MAP DTCs            | P0105-P0106-P0107-P0108   |
| MAP Intermittent    | P1106-P1107   |
| ECT DTCs            | P0115-P0116-P0117-P0118-P0125-P0126-P0128   |
| TP DTCs             | P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125 |
| System Voltage DTCs | P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288<br>P0562-P0563                                  |

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|--|---------------|---|--|--|--------------------|----------|
| Torque Converter Clutch System - Stuck Off | P0741         | High TCC slip with TCC commanded on                 | TCC slip $\geq$ 175 RPM<br><br>Count = 6                           | No P0716, P0717, P0722, P0723, P0742, P0842, P0843<br>No TPS malfunction<br>No Engine Torque and Speed malfunctions<br>8V $\leq$ Ignition Voltage $\leq$ 18V<br>500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec<br>50 $\leq$ Engine Torque $\leq$ 1492 N-m<br>8.0% $\leq$ TPS $\leq$ 90%<br>20° C. $\leq$ Trans Temp $\leq$ 130° C.<br>TCC Capacity $\geq$ 65% for 5.0 sec<br>Commanded Gear > 1<br>TCC Mode = On or Locked On | 5 sec              | Type B   |
| Torque Converter Clutch System - Stuck On  | P0742         | Low TCC slip with TCC commanded off                 | -20 rpm $\leq$<br>TCC Slip Speed<br>$\leq$ 40 rpm<br><br>Count = 3 | No P0716, P0717, P0722, P0723, P0741<br>No TPS malfunction<br>No Engine Torque and Speed malfunctions<br>8V $\leq$ Ignition Voltage $\leq$ 18V<br>500 $\leq$ Engine RPM $\leq$ 6500 for 5.0 sec<br>TCC commanded OFF<br>50 $\leq$ Engine Torque $\leq$ 1492 N-m<br>20° C. $\leq$ Trans Temp $\leq$ 130° C.<br>8% $\leq$ TPS $\leq$ 90%<br>16 kph $\leq$ VSS $\leq$ 511 kph<br>1.6780 $\leq$ Ratio $\leq$ .6650               | 6 sec              | Type B   |

|                     |   |
|---------------------|---|
| MAF DTCs            | P0101-P0102-P0103   |
| MAP DTCs            | P0105-P0106-P0107-P0108   |
| MAP Intermittent    | P1106-P1107   |
| ECT DTCs            | P0115-P0116-P0117-P0118-P0125-P0126-P0128   |
| TP DTCs             | P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125 |
| System Voltage DTCs | P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288<br>P0562-P0563                                  |

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|--|------------|--|---|--|---|---------------|
| 1-2 Shift Solenoid Valve Performance - No First or Fourth Gear | P0751      | 2-2-3-3 shift pattern                      | <p><u>Fail Case 1</u><br/>Commanded 1st<br/>1.480 &lt; Ratio &lt; 1.650<br/>1.5sec. after gear change</p> <p><u>Fail Case 2</u><br/>Commanded 4th<br/>0.95 &lt; Ratio &lt; 1.05<br/>1.5 sec. after gear change</p> <p>Count = 2</p>                 | No P0716, P0717, P0722, P0723, P0742, P0973, P0974, P0976, P0977, or TPS DTCs (see below)<br>No Engine Torque malfunction<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>8V ≤ Ignition Voltage ≤ 18V<br>TPS ≥ 8.0%<br>150 RPM ≥ ISS ≥ 6000 RPM<br>20° C. < Trans Temp < 130° C.<br>150 ≤ Input Speed ≤ 6500 RPM<br>50 ≤ Engine Torque ≤ 1492 N-m<br>Output Speed ≥ 53 RPM | <p><u>Fail Case 1</u><br/>2.0 sec</p> <p><u>Fail Case 2</u><br/>3.0 sec</p> | <u>Type B</u> |
| 1-2 Shift Solenoid Valve Performance - No Second or Third Gear | P0752      | 1-1-4-4 shift pattern                      | <p><u>Fail Case 3</u><br/>Commanded 2nd<br/>2.7750 &lt; Ratio &lt; 3.0870<br/>1.5 sec. after gear change</p> <p><u>Fail Case 4</u><br/>Commanded 3<sup>rd</sup><br/>0.670 &lt; Ratio &lt; 0.740<br/>1.5 sec. after gear change</p> <p>Count = 2</p> | See P0751  | <p><u>Fail Case 3</u><br/>2.0 sec</p> <p><u>Fail Case 4</u><br/>2.0 sec</p> | <u>Type B</u> |

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MAP DTCs P0105-P0106-P0107-P0108  
MAP Intermittent P1106-P1107  
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TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

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|--|---------------|---|---|--|--|---------------|
| 2-3 Shift Solenoid Valve Performance - No First or Second Gear | P0756         | 4-3-3-4 shift pattern                               | <u>Fail Case 5</u><br>-20 ≤ TCC Slip ≤ 8191 RPM<br>VSS ≥ 53* RPM<br>Commanded 1st<br>0.65 ≤ Ratio ≤ 1.87<br>1.5 sec. after gear change<br><br><u>Fail Case 6</u><br>Commanded 2nd<br>0.95 ≤ Ratio ≤ 1.05<br>1.5 sec. after gear change<br><br>Count = 2 | See P0751                              | <u>Fail Case 5</u><br>3.0 sec<br><br><u>Fail Case 6</u><br>3.0 sec | <u>Type A</u> |

MAF DTCs P0101-P0102-P0103  
 MAP DTCs P0105-P0106-P0107-P0108  
 MAP Intermittent P1106-P1107  
 ECT DTCs P0115-P0116-P0117-P0118-P0125-P0126-P0128  
 TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

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 P0562-P0563

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|--|------------|--|--|---|---|----------|
| 2-3 Shift Solenoid Valve Performance - No Third or Fourth Gear | P0757      | 1-2-2-1 shift pattern  | <p><u>Fail Case 7</u><br/> <math>40 \leq \text{Engine Torque} \leq 1492 \text{ N-m}</math><br/>           Commanded 3rd<br/> <math>1.4800 &lt; \text{Ratio} &lt; 1.6500</math><br/>           1.5 sec. after gear change</p> <p><u>Fail Case 8</u><br/> <math>0 \leq \text{Engine Torque} \leq 1492 \text{ N-m}</math><br/>           Commanded 4<sup>th</sup><br/> <math>1.6500 &lt; \text{Ratio} &lt; 3.0870</math><br/>           1.5 sec. after gear change</p> <p>Count = 2</p> | See P0751   | <p><u>Fail Case 7</u><br/>           2.0 sec</p> <p><u>Fail Case 8</u><br/>           2.0 sec</p> | Type A   |
| Torque Converter Clutch Release Switch Circuit Low Voltage     | P0842      | Closed Release Switch, indicating TCC is applied when TCM is commanding TCC off and TCC slip shows TCC is OFF. | <p>Release switch closed (grounding) for 6.0 sec</p> <p>Count = 2</p>  | <p>No P0716, P0717, P0741, P0742<br/>           P2764, P2763 DTCs<br/>           No Engine Speed or Torque Malfunctions<br/> <math>500 \leq \text{Engine RPM} \leq 6500</math> for 5.0 sec<br/>           TCC commanded OFF<br/> <math>80 \text{ RPM} &lt; \text{Slip Speed}</math><br/> <math>50 &lt; \text{Engine Torque} &lt; 1492 \text{ N-m}</math><br/> <math>20^\circ \text{ C.} &lt; \text{Trans Temp} &lt; 130^\circ \text{ C.}</math><br/> <math>16 \text{ kph} &lt; \text{VSS} &lt; 511 \text{ kph}</math></p> | 10.0 sec  | Type B   |

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 MAP Intermittent P1106-P1107  
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P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
 P0562-P0563

System Voltage DTCs

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|---|------------|--|--|---|--|----------|
| Torque Converter Clutch Release Switch Circuit High Voltage | P0843      | Open Release Switch, indicating TCC not applied when TCM is commanding TCC ON and TCC slip shows TCC is locked | Release switch open for 6.0 sec<br><br>Count = 2     | No P0716, P0717, P0741, P0742 P2764, P2763 DTCs<br>No Engine Speed Malfunction<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>TCC commanded ON, or LockON<br>-20 < Slip < 60 RPM<br>50 < Engine Torque < 1492 N-m<br>20° C. < Trans Temp < 130° C.<br>150 < TCC Pressure < 830 kPa | 6.0 sec                                    | Type B   |
| 1-2 Shift Solenoid Control Circuit Low Voltage              | P0973      | 0 – 12 V<br><br>Continuous Short-to-Ground OR Open in Shift Solenoid A or SSA circuit (ODM)                    | SSA ODM feedback circuit state ≠ PCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V  | Fail count = 44 out of 50 (Time ≈ 4.4 sec) | Type B   |
| 1-2 Shift Solenoid Control Circuit High Voltage             | P0974      | 0 – 12 V<br><br>Continuous Short-to-Power in Shift Solenoid A or SSA circuit (ODM)                             | SSA ODM feedback circuit state ≠ PCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V  | Fail count = 44 out of 50 (Time ≈ 4.4 sec) | Type B   |
| 2-3 Shift Solenoid Control Circuit Low Voltage              | P0976      | 0 – 12 V<br><br>Continuous Short-to-Ground OR Open in Shift Solenoid B or SSB circuit (ODM)                    | SSB ODM feedback circuit state ≠ PCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V  | Fail count = 44 out of 50 (Time ≈ 4.4 sec) | Type A   |
| 2-3 Shift Solenoid Control Circuit High Voltage             | P0977      | 0 – 12 V<br><br>Continuous Short-to-Power in Shift Solenoid B or SSB circuit (ODM)                             | SSB ODM feedback circuit state ≠ PCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V  | Fail count = 44 out of 50 (Time ≈ 4.4 sec) | Type A   |

MAF DTCs  
MAP DTCs  
MAP Intermittent  
ECT DTCs  
TP DTCs

P0101-P0102-P0103  
P0105-P0106-P0107-P0108  
P1106-P1107  
P0115-P0116-P0117-P0118-P0125-P0126-P0128  
P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

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| SENSED PARAMETER                                  | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY            | PRIMARY MALF DETECTION PARAMETERS                | SECONDARY PARAMETERS AND CONDITIONS  | MONITORING TIME | DTC TYPE |
|---|------------|---|--|--|-----------------|----------|
| Internal Mode Switch (IMS) A Circuit Low Voltage  | P1820      | Detects IMS circuit A voltage being continuously low  | IMS RANGE = Transitional 1 for $\geq 8$ seconds  | No Engine Torque Malfunction<br>Ignition ON<br>$8V \leq \text{Ignition Voltage} \leq 18V$<br>$500 \leq \text{Engine RPM} \leq 6500$ for 5.0 sec<br>IMS = Park/Neutral $\geq 1.0$ seconds<br>$50 < \text{Engine Torque} < 1492$ N-m | 1 count         | Type B   |
| Internal Mode Switch (IMS) B Circuit High Voltage | P1822      | Detects IMS circuit B voltage being continuously high | IMS RANGE = Transitional 13 for $\geq 8$ seconds | No Engine Torque Malfunction<br>Ignition ON<br>$8V \leq \text{Ignition Voltage} \leq 18V$<br>$500 \leq \text{Engine RPM} \leq 6500$ for 5.0 sec<br>IMS = Park/Neutral $\geq 1.0$ seconds<br>$50 < \text{Engine Torque} < 1492$ N-m | 1 count         | Type B   |
| Internal Mode Switch (IMS) P Circuit Low Voltage  | P1823      | Detects IMS circuit P voltage being continuously LOW  | IMS RANGE = Transitional 8 for $\geq 8$ seconds  | No Engine Torque Malfunction<br>Ignition ON<br>$8V \leq \text{Ignition Voltage} \leq 18V$<br>$500 \leq \text{Engine RPM} \leq 6500$ for 5.0 sec<br>IMS = Park/Neutral $\geq 1.0$ seconds<br>$50 < \text{Engine Torque} < 1492$ N-m | 1 count         | Type     |
| Internal Mode Switch (IMS) Invalid Range          | P1825      | Detects IMS range = Invalid                           | IMS RANGE = INVALID for $\geq 8$ seconds         | No Engine Torque Malfunction<br>Ignition ON<br>$8V \leq \text{Ignition Voltage} \leq 18V$<br>$500 \leq \text{Engine RPM} \leq 6500$ for 5.0 sec<br>IMS = Park/Neutral $\geq 1.0$ seconds<br>$50 < \text{Engine Torque} < 1492$ N-m | 1 count         | Type B   |

MAF DTCs  
MAP DTCs  
MAP Intermittent  
ECT DTCs  
TP DTCs

P0101-P0102-P0103  
P0105-P0106-P0107-P0108  
P1106-P1107  
P0115-P0116-P0117-P0118-P0125-P0126-P0128  
P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs

P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

Type A and Type B codes illuminate the "Service Engine Soon" lamp.  
Type C codes illuminate the "Service Vehicle Soon" or "Wrench" lamp.

FA = Fault Active  
FATKO = Fault Active This Key On

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| SENSED PARAMETER   | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY                          | PRIMARY MALF DETECTION PARAMETERS   | SECONDARY PARAMETERS AND CONDITIONS   | MONITORING TIME  | DTC TYPE |
|--|------------|---|---|---|--|----------|
| Internal Mode Switch (IMS) C Circuit High Voltage                              | P1826      | Detects IMS circuit C voltage being continuously high               | IMS Circuit C High for $\geq$ 8 seconds   | No Engine Torque Malfunction<br>No VSS DTC<br>DTC P1826 has not passed<br>Ignition ON<br>$8V \leq$ Ignition Voltage $\leq$ 18V<br>$500 \leq$ Engine RPM $\leq$ 6500 for 5.0 sec<br>Vehicle Speed $\geq$ 16 kph<br>Gear Ratio = 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> , or 4 <sup>th</sup><br>IMS = Park/Neutral $\geq$ 1.0 seconds<br>$50 <$ Engine Torque $<$ 1492 N-m | 1 count  | Type B   |
| Start In Wrong Range   | P1915      | Detects an IMS Range other than Park/Neutral during engine start up | IMS Range $\neq$ Park/Neutral $\geq$ 2 seconds                                    | $8V \leq$ Ignition Voltage $\leq$ 18V<br>Engine Speed $>$ 500 rpm<br>Crank Request has been requested $\geq$ 409 second   | 1 count  | Type B   |
| IgnSwitch Run Crank Circuit  | P2534      | Detects a continuous open in TCM Ignition 1 Switch                  | Every 25 msec, the FAIL counter is incremented if an open is detected             | Engine Running  | Fail Counts $\geq$ 200 out of 220 counts                             | Type A   |
| Torque Converter Clutch Pressure Control Solenoid Control Circuit High Voltage | P2763      | Continuous Short-to-Voltage in TCC PWM circuit                      | Every 100 msec, the FAIL counter is incremented if a short to voltage is detected | Ignition ON<br>$8V \leq$ Ignition Voltage $\leq$ 18V<br>$500 \leq$ Engine RPM $\leq$ 6500 for 5.0 sec<br>TCC Commanded ON   | Fail Count = 44 out of 50 (Time $\approx$ 4.4 sec)<br><br>Continuous | Type B   |

MAF DTCs  
MAP DTCs  
MAP Intermittent  
ECT DTCs  
TP DTCs

P0101-P0102-P0103  
P0105-P0106-P0107-P0108  
P1106-P1107  
P0115-P0116-P0117-P0118-P0125-P0126-P0128  
P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs

P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

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| SENSED PARAMETER  | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY                             | PRIMARY MALF DETECTION PARAMETERS   | SECONDARY PARAMETERS AND CONDITIONS   | MONITORING TIME  | DTC TYPE |
|---|------------|--|---|---|--|----------|
| Torque Converter Clutch Pressure Control Solenoid Control Circuit Low Voltage | P2764      | Continuous Open/Short-to-Ground in TCC PWM circuit or TCC PWM solenoid | Every 100 msec, the FAIL counter is incremented if an open or a short to ground is detected | Ignition ON<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec | Fail Count = 44 out of 50 (Time ≈ 4.4 sec)<br><br>Continuous | Type B   |
| Controller Area Network Bus Communication Error                               | U0073      | TCM cannot communicate on the CAN Bus                                  | GetCNDD_b_BusOffSt() = TRUE   | Ignition ON<br><br>8V ≤ Ignition Voltage ≤ 18V for 5 seconds                      | 1.0 sec  | Type B   |
| Lost Communications with Engine Control System                                | U0100      | Communication between TCM & Engine Control System Lost                 | CAN Bus ECM Error flag = 1<br><br>1.0 Sec.  | Ignition ON<br><br>8V ≤ Ignition Voltage ≤ 18V for 5 seconds                      | 1.0 sec  | Type B   |

MAF DTCs P0101-P0102-P0103  
MAP DTCs P0105-P0106-P0107-P0108  
MAP Intermittent P1106-P1107  
ECT DTCs P0115-P0116-P0117-P0118-P0125-P0126-P0128  
TP DTCs P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223-P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125

System Voltage DTCs P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288  
P0562-P0563

Type A and Type B codes illuminate the "Service Engine Soon" lamp.  
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