| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALF DETECTION PARAMETERS | SECONDARY PARAMETERS AND CONDITIONS | TIME LENGTH AND FREQUENCY | DTC TYPE |
|---|---|---|---|---|---|---|
| Transmission Control Module Read Only Memory | P0601 | EPROM/Flash memory corruption (Incorrect program/calibrations checksum) | ROM fail count ≥ 5 | None | Immediate<br><br>Continuous | Type A |
| Transmission Control Module Not Programmed | P0602 | Non-programmed TCM (calibrations) | KbCOND_NoStartCal = TRUE | None | Immediate<br><br>Continuous | 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<br><br>Continuous | Type A |
| Transmission Control Module Random Access Memory | P0604 | RAM failure | RAM read/write failure (single word)<br><br>RAM fail count ≥ 5 | None | Immediate<br><br>Continuous | 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 ≤ Ignition Voltage ≤ 18.0 V<br>Ignition ON | Immediate<br><br>Continuous | Type A |
| Transmission Range Switch Circuit | P0705 | NSBU reports illegal value (A, B, C, and P) | NSBU = 14 or 15 (0001 or 0000) | 500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>8.0V ≤ Ignition Voltage ≤ 18.0V | 60.0 sec<br><br>Continuous | Type B |
| Transmission Fluid Temperature Sensor Performance | P0711 | The DTC detects the following failure modes of the TFT:<br><br>1) A sensor that remains at a value. (Stuck Sensor)<br><br>2) A sensor that remains at a value. (Stuck Sensor)<br><br>4) Transmission Temperature remains below 20° C for a calibrated time dependant on startup transmission temperature. | Fail Case 1<br>ΔTFT < 2° C.<br>TCC Slip ≥ 120 RPM for 300 sec cumul.<br>-39° C. ≤ TFT at startup ≤ 20° C.<br><br>Fail Case 2<br>ΔTFT < 2° C.<br>129° C ≤ TFT at startup ≤ 149° C.<br><br>Fail Case 4<br>TFT ≤ 20° C after a calibrated amount of time based on a 2D lookup table. | For fail case 1, 2, and 4:<br>Common ignition voltage 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>-39 deg C <= trans fluid temp <= 149 deg C<br><br>Fail case 1:<br>-39 deg C <= trans fluid temp <= 20 C at startup,<br>Engine coolant => 70 deg C,<br>Engine Coolant has changed => 55 deg C since startup,<br>Vehicle speed => 8 KPH for > 300 seconds (cumulative timer)<br><br>Fail case 2:<br>129 deg C <= trans fluid temp <= 149 C at startup,<br>Engine coolant => 70 deg C,<br>Engine Coolant has changed => 55 deg C since startup,<br>Vehicle speed => 8 KPH for => 300 seconds (cumulative timer)<br><br>Fail case 4:<br>Valid TPS, Torque signal, and Crank Signals.<br>50 ≤ Engine Torque ≤ 1492<br>8 ≤ Throttle Position ≤ 90<br>8 ≤ Vehicle Speed ≤ 511<br>500 ≤ Engine Speed ≤ 6500<br>-39 ≤ Coolant Temperature ≤ 149 | Fail case 1:<br>80.0 seconds<br><br>Fail case 2:<br>80.0 seconds<br><br>Fail case 4:<br>See table at end of document | Special Type C |
| Transmission Fluid Temperature Sensor Circuit Low Voltage | P0712 | Continuous Short-to-Ground in Trans Fluid Temperature sensor or TFT signal circuit | Trans Temp Sensor ≤ 43.19 ohm<br><br>Trans Temp > 150C | 8V ≤ Ignition Voltage ≤ 18V for 5 sec<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec | 12.0 sec<br><br>Continuous | Special 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 ≥ 171862 ohm<br>Trans Temp < -40C (-40F) | No P0716, P0717, P0722, P0723 DTCs<br>500 ≤ Engine RPM ≥ 6500 for 5.0 sec<br>8.0 ≤ Ignition Voltage ≤ 18.0 V<br>OSS ≥ 65.6* RPM for 200 sec cumul.<br>TCC Slip ≥ 120 RPM for 200 sec cumul. | 80.0 sec<br><br>Continuous | Special Type C |
| Input Speed Sensor Performance | P0716 | Unrealistically large drop in Input Speed Sensor circuit | Input Speed drop ≥ 1000 RPM | No P0717, P0722, P0723, P0752, P0973, P0974 DTCs<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5 sec<br>No TP malfunction<br>No Engine Torque malfunction<br>50 ≤ Engine Torque ≤ 1492 N-m<br>TPS ≥ 8.0%<br>Vehicle Speed ≥ 16.0 kph<br>ISS ≥ 1050 RPM for 2.0 sec<br>ΔISS ≤ 500 RPM for 2.0 sec | 3.25 sec<br><br>Continuous | Type B |
| Input Speed Sensor Circuit Low Voltage | P0717 | Low Input Speed with large vehicle speed | Input Speed < 100.0 RPM | No P0717, P0722, P0723 DTCs<br>No Engine Torque malfunction<br>500 ≤ Engine RPM ≤ 6500 for 5 sec<br>8V ≤ Ignition Voltage ≤ 18V<br>Vehicle Speed ≥ 16.0 kph<br>50 ≤ Engine Torque ≤ 1492 N-m | 4.5 sec<br><br>Continuous | Type B |

| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALF DETECTION PARAMETERS | SECONDARY PARAMETERS AND CONDITIONS | TIME LENGTH AND FREQUENCY | DTC TYPE |
|---|---|---|---|---|---|---|
| Output Speed Sensor Circuit Low Voltage | P0722 | Low output speed when the vehicle has a large Input speed in a driving gear range with a high Engine Torque value. | Drive<br>50 ≤ Engine Torque ≤ 1492 N-m<br>Output Speed ≤ 65.6* RPM<br><br>Park/Neutral<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<br><br>Continuous | Type B |
| Output Speed Sensor Circuit Intermittent | P0723 | Unrealistically large DROP in Output Shaft speed. | Drop in Output Speed > 393.5* 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, ≤ 164* RPM for 2.0 sec<br>ΔISS ≤ 500 RPM for 2.0 sec<br>Output Speed ≥ 327.9* RPM for 2.0 sec | 3.25 sec<br><br>Continuous | Type B |
| Torque Converter Clutch System - Stuck Off | P0741 | High TCC slip with TCC commanded on | TCC slip ≥ 150 RPM | No P0716, P0717, P0722, P0723, P0742, P0842, P0843<br>No TPS malfunction<br>No Engine Torque and Speed malfunctions<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>50 ≤ Engine Torque ≤ 1492 N-m<br>8.0% ≤ TPS ≤ 90%<br>20° C. ≤ Trans Temp ≤ 130° C.<br>TCC Capacity ≥ 65% for 5.0 sec<br>Commanded Gear > 1<br>TCC Mode = On or Locked On | 8 sec<br>Count = 2<br><br>Continuous | Type B |
| Torque Converter Clutch System - Stuck On | P0742 | Low TCC slip with TCC commanded off | -20 rpm ≤ TCC Slip Speed ≤ 40 rpm | No P0716, P0717, P0722, P0723, P0741<br>No TPS malfunction<br>No Engine Torque and Speed malfunctions<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>TCC commanded OFF<br>50 ≤ Engine Torque ≤ 1492 N-m<br>20° C. ≤ Trans Temp ≤ 130° C.<br>8% ≤ TPS ≤ 90%<br>16 kph ≤ VSS ≤ 511 kph<br>1.739 ≤ Ratio ≤ .6333 | 6 sec<br>Count = 3<br><br>Continuous | Type B |
| 1-2 Shift Solenoid Valve Performance - No First or Fourth Gear | P0751 | 2-2-3-3 shift pattern | Fail Case 1<br>Commanded 1st<br>1.5446 < Ratio < 1.7072<br>1.0 sec. after gear change<br>&<br>Fail Case 2<br>Commanded 4th<br>0.95 < Ratio < 1.05<br>1.0 sec. after gear change | 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>20° C. < Trans Temp < 130° C.<br>150 ≤ Input Speed ≤ 6000 RPM<br>50 ≤ Engine Torque ≤ 1492 N-m<br>Output Speed ≥ 65.6* RPM | Fail Case 1<br>2.0 sec<br><br>Fail Case 2<br>4.0 sec<br><br>Count = 2<br><br>Continuous | Type B |
| 1-2 Shift Solenoid Valve Performance - No Second or Third Gear | P0752 | 1-1-4-4 shift pattern | Fail Case 3<br>Commanded 2nd<br>2.8120 < Ratio < 3.1080<br>1.0 sec. after gear change<br>&<br>Fail Case 4<br>Commanded 3rd<br>0.6469 < Ratio < 0.7150<br>1.0 sec. after gear change | See P0751 | Fail Case 3<br>2.0 sec<br><br>Fail Case 4<br>3.0 sec<br><br>Count = 2<br><br>Continuous | Type B |

| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALF DETECTION PARAMETERS | SECONDARY PARAMETERS AND CONDITIONS | TIME LENGTH AND FREQUENCY | DTC TYPE |
|---|---|---|---|---|---|---|
| 2-3 Shift Solenoid Valve Performance - No First or Second Gear | P0756 | 4-3-3-4 shift pattern | Fail Case 5<br>-20 ≤ TCC Slip ≤ 8191 RPM<br>VSS ≥ 65.6* RPM<br>Commanded 1st<br>0.65 ≤ Ratio ≤ 1.87<br>1.0 sec. after gear change<br>&<br>Fail Case 6<br>Commanded 2nd<br>0.95 ≤ Ratio ≤ 1.05<br>1.0 sec. after gear change | See P0751 | Fail Case 5<br>2.0 sec<br><br>Fail Case 6<br>3.0 sec<br><br>Count = 2<br><br>Continuous | Type A |
| 2-3 Shift Solenoid Valve Performance - No Third or Fourth Gear | P0757 | 1-2-2-1 shift pattern | Fail Case 7<br>40 ≤ Engine Torque ≤ 1492 N-m<br>Commanded 3rd<br>1.5446 < Ratio < 1.7073<br>1.0 sec. after gear change<br>&<br>Fail Case 8<br>0 ≤ Engine Torque ≤ 1492 N-m<br>Commanded 4th<br>1.5446 < Ratio < 3.1080<br>1.0 sec. after gear change<br>1.2 sec after range change<br>Range ≠ Neutral | See P0751 | Fail Case 7<br>2.0 sec<br><br>Fail Case 8<br>2.0 sec<br><br>Count = 2<br><br>Continuous | 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. | Release switch closed (grounded). | No P0716, P0717, P0741, P0742 P2764, P2763 DTCs<br>No Engine Speed or Torque Malfunctions<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>TCC commanded OFF<br>100 RPM < Slip Speed<br>50 < Engine Torque < 1492 N-m<br>20° C. < Trans Temp < 130° C.<br>16 kph < VSS < 512 kph | 8 sec<br><br>Count = 2<br><br>Continuous | Type B |
| 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 | 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>90 < TCC Pressure < 830 kPa | 6.0 sec<br><br>Count = 2<br><br>Continuous | Type B |
| 1-2 Shift Solenoid Control Circuit Low Voltage | P0973 | Continuous Short-to-Ground OR Open in Shift Solenoid A or SSA circuit (ODM) | SSA ODM feedback circuit state ≠ TCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>SSA commanded off | Fail count = 44 out of 50 samples (Time ≈ 4.4 sec)<br><br>Continuous | Type B |
| 1-2 Shift Solenoid Control Circuit High Voltage | P0974 | Continuous Short-to-Power in Shift Solenoid A or SSA circuit (ODM) | SSA ODM feedback circuit state ≠ TCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>SSA commanded on | Fail count = 44 out of 50 samples (Time ≈ 4.4 sec)<br><br>Continuous | Type B |
| 2-3 Shift Solenoid Control Circuit Low Voltage | P0976 | Continuous Short-to-Ground OR Open in Shift Solenoid B or SSB circuit (ODM) | SSB ODM feedback circuit state ≠ TCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>SSB commanded off | Fail count = 44 out of 50 samples (Time ≈ 4.4 sec)<br><br>Continuous | Type A |
| 2-3 Shift Solenoid Control Circuit High Voltage | P0977 | Continuous Short-to-Power in Shift Solenoid B or SSB circuit (ODM) | SSB ODM feedback circuit state ≠ TCM commanded state | Ignition ON<br>8.0 ≤ Ignition Voltage ≤ 18.0 V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>SSB commanded on | Fail count = 44 out of 50 samples (Time ≈ 4.4 sec)<br><br>Continuous | Type A |

| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALF DETECTION PARAMETERS | SECONDARY PARAMETERS AND CONDITIONS | TIME LENGTH AND FREQUENCY | DTC TYPE |
|---|---|---|---|---|---|---|
| Transmission Fluid Pressure Position Switch Circuit | P1810 | Invalid state of Pressure Switch Assembly circuit | Illegal PSA range (Pressure switch B & C low voltage) | 500 ≤ Engine RPM ≤ 6500 for 5.0 sec | 60.0 sec<br>Continuous | Type B |
| Transmission Fluid Pressure Valve Position Switch Indicates Park/Neutral with Drive Ratio | P1816 | 0 – 12 V<br>Drive Ratio with P/N Range | PSA = P/N<br>2.7528 ≤ Ratio ≤ 3.1672<br>1.5122 ≤ Ratio ≤ 1.7397<br>0.93 ≤ Ratio ≤ 1.07<br>0.6333 ≤ Ratio ≤ 0.7296 | No P0716, P0717, P0722, P0723, P0751, P0752, P0756, P0757 P0973, P0974, P0976, P0977, or TPS DTCs (see below)<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>Output Speed ≥ 82* RPM<br>8% ≤ TPS ≤ 90.0%<br>50 ≤ Engine Torque ≤ 1492 N-m | 6.0 sec<br>Continuous | Type B |
| Transmission Fluid Pressure Valve Position Switch Indicates Drive without Drive Ratio | P1818 | 0 – 12 V<br>Reverse Ratio with Park/Neutral OR Drive Range | PSA = P/N, or Drive<br>And<br>1.9930 ≤ Ratio ≤ 2.2928 | No P0716, P0717, P0722, P0723, P0751, P0752, P0756, P0757, P0973, P0974, P0976, P0977<br>No TPS Malfunction<br>No Engine Torque Malfunction<br>8V ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>Output Speed ≥ 50* RPM<br>TPS ≥ 5%<br>20 ≤ Engine Torque ≤ 1492 N-m<br>Trans Temp > 0° C | 3.0 sec<br>Continuous | Type B |
| Ignition 1 Switch Circuit Low Voltage | P2534 | Continuous Open/Short-to-Ground in TCM Ignition 1 Switch circuit | Every 25 msec, the FAIL counter is incremented if an open or a short to ground is detected | Engine running | Fail Count ≥ 200 out of 220 samples (Time ≈ 5 sec)<br>Continuous | 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 ≤ Ignition Voltage ≤ 18V<br>500 ≤ Engine RPM ≤ 6500 for 5.0 sec<br>TCC Commanded ON | Fail Count = 44 out of 50 samples (Time ≈ 4.4 sec)<br>Continuous | Type B |
| 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 samples (Time ≈ 4.4 sec)<br>Continuous | Type B |
| Controller Area Network Bus Communication Error | U0073 | TCM cannot communicate on the CAN Bus | CAN Bus Off State = TRUE | Ignition ON<br>8V ≤ Ignition Voltage ≤ 18V for 5 seconds | Fail Count = 5 out of 5 samples (Time ≈ 5 sec)<br>Continuous | Type B |
| Lost Communications with Engine Control System | U0100 | Communication between TCM & Engine Control System Lost | CAN Bus ECM Error flag = 1 | Ignition ON<br>8V ≤ Ignition Voltage ≤ 18V for 5 seconds | Fail Count = 12 out of 12 samples (Time ≈ 12 sec)<br>Continuous | Type B |

| P0711 Fail Case 4 Table | |
|---|---|
| **Start-Up Transmission Temperature (DegC)** | **Time for Transmission Temp to reach 20 DegC (sec)** |
| -40 | 1900 |
| -25 | 1000 |
| -10 | 800 |
| -5 | 520 |
| 20 | 200 |

| SENSED PARAMETER | FAULT CODE | ACCEPTABLE OPERATING RANGE AND RATIONALITY | PRIMARY MALF DETECTION PARAMETERS | SECONDARY PARAMETERS AND CONDITIONS | TIME LENGTH AND FREQUENCY | DTC TYPE |
|---|---|---|---|---|---|---|