# 17 OBDG05 TCM Summary Tables (L96 MYD)

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| Transmission Control Module (TCM) | P0601 | Transmission Electro-Hydraulic Control Module Read Only Memory | Incorrect program/calibrations checksum | = TRUE Boolean | | | >= 5 Fail Counts | One Trip |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0601<br>ECM: None | | |
| Transmission Control Module (TCM) | P0603 | Transmission Electro-Hydraulic Control Module Long-Term Memory Reset | Non-volatile memory (static or dynamic) checksum failure at Powerup | = TRUE Boolean | | | Runs Continously | One Trip |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0603<br>ECM: None | | |
| Transmission Control Module (TCM) | P0604 | Transmission Electro-Hydraulic Control Module Random Access Memory | RAM Read/Write Failure (Single Word) | = TRUE Boolean | | | >= 5 Fail Counts<br>= 16 Sample Counts | One Trip |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0604<br>ECM: None | | |
| Transmission Control Module (TCM) | P062F | Transmission Electro-Hydraulic Control Module Long Term Memory Performance | TCM Non-Volatile Memory bit Incorrect flag at Powerdown | = TRUE Boolean | | | Runs Continously | One Trip |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P062F<br>ECM: None | | |
| Transmission Control Module (TCM) | P0634 | Transmission Electro-Hydraulic Control Module Internal Temperature Too High | Fail Case 1 Substrate Temperature | >= 142.1015625 ºC | | | >= 5 Fail Time (Sec) | One Trip |
| | | | Fail Case 2 Substrate Temperature | >= 50 ºC | | | >= 2 Fail Time (Sec) | |
| | | | Ignition Voltage | >= 18 Volts | | | | |
| | | | Note: either fail case can set the DTC | | | | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Substrate Temp Lo | >= 0 ºC | | |
| | | | | | Substrate Temp Hi | <= 170 ºC | | |
| | | | | | Substrate Temp Between Temp Range for Time | >= 0.25 Sec | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | P0634 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | | Disable Conditions: MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| High Side Driver 1 | P0658 | Actuator Supply Voltage Circuit Low | The HWIO reports a low voltage (open or ground short) error flag | = TRUE Boolean | | | >= 4 Fail Counts<br>out of 6 Sample Counts | One Trip |
| | | | | | P0658 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | | High Side Driver 1 On | = True Boolean | | |
| | | | | | Disable Conditions: MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Transmission Control Module (TCM) | P0667 | TCM Internal Temp (substrate) Sensor Circuit Range/Performance | If transmission oil temp to substrate temp Δ | > Refer to Table 19 in supporting documents °C | | | | Two Trips |
| | | | If TCM substrate temp to power up temp Δ | > Refer to Table 20 in supporting documents °C | | | | |
| | | | Both conditions above required to increment fail counter<br>Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. | | | | >= 3000 Fail Counts (100ms loop)<br>Out of 3750 Sample Counts (100ms loop) | |
| | | | Non-continuous (intermittent) fail conditions will delay resetting fail counter until | | | | >= 700 Pass Counts (100ms loop)<br>Out of 875 Sample Counts (100ms loop) | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Accelerator Position Signal Valid | = TRUE Boolean | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | | | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Engine Speed is within the allowable limits for | >= | 5 | Sec | | |
| | | | | | Brake torque active | = | FALSE | | | |
| | | | | | Below describes the brake torque entry criteria | | | | | |
| | | | | | Engine Torque | >= | 90 | N*m | | |
| | | | | | Throttle | >= | 30.000305 | Pct | | |
| | | | | | Transmission Input Speed | <= | 200 | RPM | | |
| | | | | | Vehicle Speed | <= | 8 | Kph | | |
| | | | | | Transmission Range | ≠ | Park | | | |
| | | | | | Transmission Range | ≠ | Neutral | | | |
| | | | | | PTO | = | Not Active | | | |
| | | | | | Set Brake Torque Active TRUE if above conditions are met for: | >= | 7 | sec | | |
| | | | | | Below describes the brake torque exit criteria | | | | | |
| | | | | | Brake torque entry criteria | = | Not Met | | | |
| | | | | | Clutch hydraulic pressure | ≠ | Clutch Hydraulic Air Purge Event | | | |
| | | | | | Clutch used to exit brake torque active | = | CeTFTD_e_C3_RatlEnbl | | | |
| | | | | | The above clutch pressure is greater than this value for one loop | >= | 600 | kpa | | |
| | | | | | Set Brake Torque Active FALSE if above conditions are met for: | >= | 20 | Sec | | |
| | | | | | P0667 Status is | ≠ | Test Failed This Key On or Fault Active | | | |
| | | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | | |
| Transmission Control Module (TCM) | P0668 | TCM internal temperature (substrate) thermistor failed at a low voltge | Type of Sensor Used | = CeTFTI_e_VoltageDirectPrp | | | | | | Two Trips |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If TCM Substrate Temperature Sensor = Direct Proportional and Temp | <= -249 ºC | | | | |
| | | | If TCM Substrate Temperature Sensor = Indirect Proportional and Temp | >= -249 ºC | | | | |
| | | | Either condition above will satisfy the fail conditions | | | | >= 60 Fail Timer (Sec) | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P0668 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Transmission Control Module (TCM) | P0669 | TCM internal temperature (substrate) thermistor failed at a high voltage | Type of Sensor Used | = CeTFTI_e_VoltageDirectProp | | | | Two Trips |
| | | | If TCM Substrate Temperature Sensor = Direct Proportional and Temp | >= 249 ºC | | | | |
| | | | If TCM Substrate Temperature Sensor = Indirect Proportional and Temp | <= 249 ºC | | | | |
| | | | Either condition above will satisfy the fail conditions | | | | >= 60 Fail Timer (Sec) | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P0669 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | | For Hybrids, below conditions must also be met | | | |
| | | | | | Estimated Motor Power Loss | >= 0 kW | | |
| | | | | | Estimated Motor Power Loss greater than limit for time | >= 0 Sec | | |
| | | | | | Lost Communication with Hybrid Processor Control Module | = FALSE | | |
| | | | | | Estimated Motor Power Loss Fault | = FALSE | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723<br>ECM: None | | |
| Transmission Control Module (TCM) | P06AC | TCM Power-up Temp Sensor Circuit Range/Performance | If TCM power-up temp to substrate temp Δ | > Refer to Table 20 in supporting documents °C | | | | Two Trips |
| | | | If transmission oil temp to power up temp Δ | > Refer to Table 18 in supporting documents °C | | | | |
| | | | Both conditions above required to increment fail counter<br>Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. | | | | >= 3000 Fail Counts (100ms loop)<br>Out of 3750 Sample Counts (100ms loop) | |
| | | | Non-continuous (intermittent) fail conditions will delay resetting fail counter until | | | | >= 700 Pass Counts (100ms loop)<br>Out of 875 Sample Counts (100ms loop) | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Accelerator Position Signal Valid | = TRUE Boolean | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Brake torque active | = FALSE | | |
| | | | | | Below describes the brake torque entry criteria | | | |
| | | | | | Engine Torque | >= 90 N*m | | |
| | | | | | Throttle | >= 30.000305 Pct | | |
| | | | | | Transmission Input Speed | <= 200 RPM | | |
| | | | | | Vehicle Speed | <= 8 Kph | | |
| | | | | | Transmission Range | ≠ Park | | |
| | | | | | Transmission Range | ≠ Neutral | | |
| | | | | | PTO | = Not Active | | |
| | | | | | Set Brake Torque Active TRUE if above conditions are met for: | >= 7 sec | | |
| | | | | | Below describes the brake torque exit criteria | | | |
| | | | | | Brake torque entry criteria | = Not Met | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Clutch hydraulic pressure | ≠ Clutch Hydraulic Air Purge Event | | |
| | | | | | Clutch used to exit brake torque active | = CeTFTD_e_C3_RatlEnbl | | |
| | | | | | The above clutch pressure is greater than this value for one loop | >= 600 kpa | | |
| | | | | | Set Brake Torque Active FALSE if above conditions are met for: | >= 20 Sec | | |
| | | | | | P06AC Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Transmission Control Module (TCM) | P06AD | TCM power-up thermistor circuit voltage low | Power Up Temp | <= -59 ºC | | | >= 60 Fail Time (Sec) | Two Trips |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P06AD Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | | For Hybrids, below conditions must also be met | | | |
| | | | | | Estimated Motor Power Loss | >= 0 kW | | |
| | | | | | Estimated Motor Power Loss greater than limit for time | >= 0 Sec | | |
| | | | | | Lost Communication with Hybrid Processor Control Module | = FALSE | | |
| | | | | | Estimated Motor Power Loss Fault | = FALSE | | |

# 17 OBDG05 TCM Summary Tables (L96 MYD)

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723<br>ECM: None | | |
| Transmission Control Module (TCM) | P06AE | TCM power-up thermistor circuit voltage high | Power Up Temp | >= 164 ºC | | | >= 60 Fail Time (Sec) | Two Trips |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P06AE Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Transmission Fluid Temperature Sensor (TFT) | P0711 | Trans Fluid Temp Sensor Circuit Range/Performance | If transmission oil temp to substrate temp Δ | > Refer to Table 19 in supporting documents ºC | | | | Two Trips |
| | | | If transmission oil temp to power up temp Δ | > Refer to Table 18 in supporting documents ºC | | | | |
| | | | Both conditions above required to increment fail counter<br>Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. | | | | >= 3000 Fail Counts (100ms loop)<br>Out of 3750 Sample Counts (100ms loop) | |
| | | | Non-continuous (intermittent) fail conditions will delay resetting fail counter until | | | | >= 700 Pass Counts (100ms loop)<br>Out of 875 Sample Counts (100ms loop) | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Accelerator Position Signal Valid | = TRUE Boolean | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Brake torque active | = FALSE | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Below describes the brake torque entry criteria | | | |
| | | | | | Engine Torque | >= 90 N*m | | |
| | | | | | Throttle | >= 30.000305 Pct | | |
| | | | | | Transmission Input Speed | <= 200 RPM | | |
| | | | | | Vehicle Speed | <= 8 Kph | | |
| | | | | | Transmission Range | ≠ Park | | |
| | | | | | Transmission Range | ≠ Neutral | | |
| | | | | | PTO | = Not Active | | |
| | | | | | Set Brake Torque Active TRUE if above conditions are met for: | >= 7 sec | | |
| | | | | | Below describes the brake torque exit criteria | | | |
| | | | | | Brake torque entry criteria | = Not Met | | |
| | | | | | Clutch hydraulic pressure | ≠ Clutch Hydraulic Air Purge Event | | |
| | | | | | Clutch used to exit brake torque active | = CeTFTD_e_C3_RatlEnbl | | |
| | | | | | The above clutch pressure is greater than this value for one loop | >= 600 kpa | | |
| | | | | | Set Brake Torque Active FALSE if above conditions are met for: | >= 20 Sec | | |
| | | | | | P0711 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Transmission Fluid Temperature Sensor (TFT) | P0712 | Transmission fluid temperature thermistor failed at a low voltage | Type of Sensor Used | = CeTFTI_e_VoltageDirectProp | | | | Two Trips |
| | | | If Transmission Fluid Temperature Sensor = Direct Proportional and Temp | <= -74 ºC | | | | |
| | | | If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp | >= -74 ºC | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Either condition above will satisfy the fail conditions | | | | >= 60 Fail Time (Sec) | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P0712 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | | For Hybrids, below conditions must also be met | | | |
| | | | | | Estimated Motor Power Loss | >= 0 kW | | |
| | | | | | Estimated Motor Power Loss greater than limit for time | >= 0 Sec | | |
| | | | | | Lost Communication with Hybrid Processor Control Module | = FALSE | | |
| | | | | | Estimated Motor Power Loss Fault | = FALSE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723<br>ECM: None | | |
| Transmission Fluid Temperature Sensor (TFT) | P0713 | Transmission fluid temperature thermistor failed at a high voltage | Type of Sensor Used | = CeTFTI_e_VoltageDirectProp | | | | Two Trips |
| | | | If Transmission Fluid Temperature Sensor = Direct Proportional and Temp | >= 174 ºC | | | | |
| | | | If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp | <= 174 ºC | | | | |
| | | | Either condition above will satisfy the fail conditions | | | | >= 60 Fail Time (Sec) | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | P0713 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0713, P0716, P0717, P0722, P0723<br>ECM: None | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| Transmission Input Speed Sensor (TISS) | P0716 | Input Speed Sensor Performance | Transmission Input Speed Sensor Drops | >= 900 RPM | | | >= 0.8 Fail Time (Sec) | One Trip |
| | | | | | Engine Torque is | >= 0 N*m | | |
| | | | | | Engine Torque is | <= 8191.875 N*m | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Vehicle Speed is | >= 10 Kph | | |
| | | | | | Throttle Position is | >= 0 Pct | | |
| | | | | | --- | | | |
| | | | | | Transmission Input Speed is | >= 0 RPM | | |
| | | | | | The previous requirement has been satisfied for | >= 0 Sec | | |
| | | | | | --- | | | |
| | | | | | The change (loop to loop) in transmission input speed is | < 8191.875 RPM/Loop | | |
| | | | | | The previous requirement has been satisfied for | >= 0 Sec | | |
| | | | | | Throttle Position Signal Valid | = TRUE Boolean | | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage | <= 31.999023 Volts | | |
| | | | | | P0716 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0717, P0752, P0973, P0974<br>ECM: P0101, P0102, P0103, P0121, P0122, P0123 | | |
| Transmission Input Speed Sensor (TISS) | P0717 | Input Speed Sensor Circuit Low Voltage | Fail Case 1 Transmission Input Speed is | < 33 RPM | | | >= 4.5 Fail Time (Sec) | One Trip |
| | | | Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is | < 653.125 RPM | Controller uses a single power supply for the speed sensors | = 1 Boolean | | |
| | | | | | Engine Torque is | >= 120 N*m | | |
| | | | | | Engine Torque is | <= 8191.875 N*m | | |
| | | | | | Vehicle Speed | >= 12 Kph | | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage | <= 31.999023 Volts | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | P0717 Status is not = Test Failed This Key On or Fault Active | | | |
| | | | | | Disable Conditions: MIL not Illuminated for DTC's: | TCM: P0722, P0723<br>ECM: P0101, P0102, P0103 | | |
| Transmission Output Speed Sensor (TOSS) | P0722 | Output Speed Sensor Circuit Low Voltage | Transmission Output Speed Sensor Raw Speed | <= 35 RPM | | | >= 4.5 Fail Time (Sec) | One Trip |
| | | | | | P0722 Status is not = Test Failed This Key On or Fault Active | | | |
| | | | | | Transmission Input Speed Check = TRUE Boolean | | | |
| | | | | | Engine Torque Check = TRUE Boolean | | | |
| | | | | | Throttle Position >= 8.0001831 Pct | | | |
| | | | | | Transmission Fluid Temperature >= -40 ºC | | | |
| | | | | | Disable this DTC if the PTO is active = 1 Boolean | | | |
| | | | | | Engine Torque Signal Valid = TRUE Boolean | | | |
| | | | | | Throttle Position Signal Valid = TRUE Boolean | | | |
| | | | | | Ignition Voltage is >= 8.5996094 Volts | | | |
| | | | | | Ignition Voltage is <= 31.999023 Volts | | | |
| | | | | | Engine Speed is >= 400 RPM | | | |
| | | | | | Engine Speed is <= 7500 RPM | | | |
| | | | | | Engine Speed is within the allowable limits for >= 5 Sec | | | |
| | | | | | Enable_Flags Defined Below | | | |
| | | | | | The Engine Torque Check is TRUE, if either of the two following conditions are TRUE | | | |
| | | | | | Engine Torque Condition 1 | | | |
| | | | | | Range Shift Status ≠ Range shift completed ENUM | | | |
| | | | | | OR | | | |
| | | | | | Transmission Range is = Park or Neutral | | | |
| | | | | | Engine Torque is >= 8191.75 N*m | | | |
| | | | | | Engine Torque is <= 8191.75 N*m | | | |
| | | | | | Engine Torque Condition 2 | | | |
| | | | | | Engine Torque is >= 54 N*m | | | |
| | | | | | Engine Torque is <= 8191.75 N*m | | | |
| | | | | | ---------- | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE | | | |
| | | | | | TIS Check Condition 1<br>Transmission Input Speed is<br>Transmission Input Speed is | <br>>= 653.125 RPM<br><= 5350 RPM | | |
| | | | | | TIS Check Condition 2<br>Engine Speed without the brake applied is<br>Engine Speed with the brake applied is<br>Engine Speed is<br>Controller uses a single power supply for the speed sensors<br>Powertrain Brake Pedal is Valid | <br>>= 3200 RPM<br>>= 3200 RPM<br><= 8191.875 RPM<br>= 1 Boolean<br>= TRUE Boolean | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0723<br>ECM: P0101, P0102, P0103, P0121, P0122, P0123 | | |
| Transmission Output Speed Sensor (TOSS) | P0723 | Output Speed Sensor Circuit Intermittent | Transmission Output Speed Sensor Raw Speed<br>Output Speed Delta<br>Output Speed Drop<br>AND<br>Transmission Range is | >= 105 RPM<br><= 8192 RPM<br>> 650 RPM<br>= Driven range (R,D) | | | >= 0 Enable Time (Sec)<br>>= 0 Enable Time (Sec)<br>>= 1.5 Output Speed Drop Recovery Fail Time (Sec) | One Trip |
| | | | | | ----------<br>Range_Disable<br>OR<br>----------<br>Neutral_Range_Enable<br>And<br>Neutral_Speed_Enable<br>are TRUE concurrently<br>---------- | <br>= FALSE See Below<br><br>= TRUE See Below<br><br>= TRUE See Below | | |
| | | | | | Transmission_Range_Enable<br>Transmission_Input_Speed_Enable<br>No Change in Transfer Case Range (High <-> Low) for<br>P0723 Status is not | = TRUE See Below<br>= TRUE See Below<br>>= 5 Seconds<br>= Test Failed This Key On or Fault Active | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | | | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Disable this DTC if the PTO is active | = | 1 | Boolean | | |
| | | | | | Ignition Voltage is | >= | 8.5996094 | Volts | | |
| | | | | | Ignition Voltage is | <= | 31.999023 | Volts | | |
| | | | | | Engine Speed is | >= | 400 | RPM | | |
| | | | | | Engine Speed is | <= | 7500 | RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= | 5 | Sec | | |
| | | | | | Enable_Flags Defined Below | | | | | |
| | | | | | Transmission_Input_Speed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE: | | | | | |
| | | | | | TIS Condition 1 is TRUE when both of the following conditions are satsified for | >= | 0 | Enable Time (Sec) | | |
| | | | | | Input Speed Delta | <= | 4095.875 | RPM | | |
| | | | | | Raw Input Speed | >= | 500 | RPM | | |
| | | | | | TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied | | | | | |
| | | | | | Input Speed | = | 0 | RPM | | |
| | | | | | A Single Power Supply is used for all speed sensors | = | TRUE | Boolean | | |
| | | | | | ---------- | | | | | |
| | | | | | Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE | | | | | |
| | | | | | Transmission Range is | = | Neutral | ENUM | | |
| | | | | | Transmission Range is | = | Reverse/Neutral Transitonal | ENUM | | |
| | | | | | Transmission Range is | = | Neutral/Drive Transitional | ENUM | | |
| | | | | | And when a drop occurs | | | | | |
| | | | | | Loop to Loop Drop of Transmission Output Speed is | > | 650 | RPM | | |
| | | | | | ---------- | | | | | |
| | | | | | Range_Disable is TRUE when any of the next three conditions are TRUE | | | | | |
| | | | | | Transmission Range is | = | Park | ENUM | | |
| | | | | | Transmission Range is | = | Park/Reverse Transitonal | ENUM | | |
| | | | | | Input Clutch is not | = | ON (Fully Applied) | ENUM | | |
| | | | | | ---------- | | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for | > 1.5 Seconds | | |
| | | | | | Transmission Output Speed | > 130 RPM | | |
| | | | | | The loop to loop change of the Transmission Output Speed is | < 20 RPM | | |
| | | | | | The loop to loop change of the Transmission Output Speed is | > -10 RPM | | |
| | | | | | ---------- | | | |
| | | | | | Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE | | | |
| | | | | | Transmission Range is | = Neutral | ENUM | |
| | | | | | Transmission Range is | = Reverse/Neutral Transitional | ENUM | |
| | | | | | Transmission Range is | = Neutral/Drive Transitional | ENUM | |
| | | | | | Time since a driven range (R,D) has been selected | >= Table Based Time Please Refer to Table 21 in supporting documents | Sec | |
| | | | | | Transmission Output Speed Sensor Raw Speed | >= 500 | RPM | |
| | | | | | Output Speed when a fault was detected | >= 500 | RPM | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0973, P0974, P0976, P0977<br>ECM: P0101, P0102, P0103, P0121, P0122, P0123 | | |
| Torque Converter Clutch (TCC) | P0741 | TCC System Stuck OFF | TCC Pressure | >= 750 Kpa | | | >= 2 Enable Time (Sec) | Two Trips |
| | | | Either Condition (A) or (B) Must be Met | | | | | |
| | | | (A) TCC Slip Error @ TCC On Mode | >= Refer to Table 1 in Supporting Documents RPM | | | >= 5 Fail Time (Sec) | |
| | | | (B) TCC Slip @ Lock On Mode | >= 130 RPM | | | >= 5 Fail Time (Sec) | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter | | | | >= 2 TCC Stuck Off Fail Counter | |
| | | | | | TCC Mode | = On or Lock | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Engine Torque Lo | >= 50 N*m | | |
| | | | | | Engine Torque Hi | <= 8191.875 N*m | | |
| | | | | | Throttle Position Lo | >= 8.0001831 Pct | | |
| | | | | | Throttle Position Hi | <= 99.998474 Pct | | |
| | | | | | 2nd Gear Ratio Lo | >= 2.1948242 Ratio | | |
| | | | | | 2nd Gear Ratio High | <= 2.5251465 Ratio | | |
| | | | | | 3rd Gear Ratio Lo | >= 1.4228516 Ratio | | |
| | | | | | 3rd Gear Ratio High | <= 1.637085 Ratio | | |
| | | | | | 4th Gear Ratio Lo | >= 1.069458 Ratio | | |
| | | | | | 4th Gear Ratio High | <= 1.2304688 Ratio | | |
| | | | | | 5th Gear Ratio Lo | >= 0.7905273 Ratio | | |
| | | | | | 5th Gear Ratio Hi | <= 0.9095459 Ratio | | |
| | | | | | 6th Gear Ratio Lo | >= 0.6230469 Ratio | | |
| | | | | | 6th Gear Ratio High | <= 0.7169189 Ratio | | |
| | | | | | Transmission Fluid Temperature Lo | >= -6.65625 ºC | | |
| | | | | | Transmission Fluid Temperature Hi | <= 130 ºC | | |
| | | | | | PTO Not Active | = TRUE Boolean | | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | | Throttle Position Signal Valid | = TRUE Boolean | | |
| | | | | | Dynamic Mode | = FALSE Boolean | | |
| | | | | | P0741 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Torque Converter Clutch (TCC) | P0742 | TCC System Stuck ON | TCC Slip Speed | >= -50 RPM | | | | One Trip |
| | | | TCC Slip Speed | <= 13 RPM | | | >= 1.5 Fail Time (Sec) | |
| | | | If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter | | | | >= 6 Fail Counter | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | | | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | TCC Mode | = | Off | | | |
| | | | | | Enable test if Cmnd Gear = 1stFW and value true | = | 1 | Boolean | | |
| | | | | | Enable test if Cmnd Gear = 2nd and value true | = | 0 | Boolean | | |
| | | | | | Engine Speed Hi | <= | 6000 | RPM | | |
| | | | | | Engine Speed Lo | >= | 500 | RPM | | |
| | | | | | Vehicle Speed HI | <= | 511 | KPH | | |
| | | | | | Vehicle Speed Lo | >= | 1 | KPH | | |
| | | | | | Engine Torque Hi | <= | 8191.875 | Nm | | |
| | | | | | Engine Torque Lo | >= | 80 | Nm | | |
| | | | | | Current Range | ≠ | Neutral | Range | | |
| | | | | | Current Range | ≠ | Reverse | Range | | |
| | | | | | Transmission Sump Temperature | <= | 130 | ºC | | |
| | | | | | Transmission Sump Temperature | >= | 18 | ºC | | |
| | | | | | Throttle Position Hyst High AND | >= | 5.0003052 | Pct | | |
| | | | | | Max Vehicle Speed to Meet Throttle Enable | <= | 8 | KPH | | |
| | | | | | Once Hyst High has been met, the enable will remain while Throttle Position | >= | 2.0004272 | Pct | | |
| | | | | | Disable for Throttle Position | >= | 75 | Pct | | |
| | | | | | Disable if PTO active and value true | = | 1 | Boolean | | |
| | | | | | Disable if in D1 and value true | = | 1 | Boolean | | |
| | | | | | Disable if in D2 and value true | = | 1 | Boolean | | |
| | | | | | Disable if in D3 and value true | = | 1 | Boolean | | |
| | | | | | Disable if in D4 and value true | = | 1 | Boolean | | |
| | | | | | Disable if in D5 and value true | = | 1 | Boolean | | |
| | | | | | Disable if in MUMD and value true | = | 1 | Boolean | | |
| | | | | | Disable if in TUTD and value true | = | 1 | Boolean | | |
| | | | | | 4 Wheel Drive Low Active | = | FALSE | Boolean | | |
| | | | | | Disable if Air Purge active and value false | = | 0 | Boolean | | |
| | | | | | RVT Diagnostic Active | = | FALSE | Boolean | | |
| | | | | | Ignition Voltage | >= | 8.5996094 | V | | |
| | | | | | Ignition Voltage | <= | 31.999023 | V | | |
| | | | | | Vehicle Speed | <= | 511 | KPH | | |
| | | | | | Engine Speed | >= | 400 | RPM | | |
| | | | | | Engine Speed | <= | 7500 | RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= | 5 | Sec | | |
| | | | | | Engine Torque Signal Valid | = | TRUE | Boolean | | |
| | | | | | Throttle Position Signal Valid | = | TRUE | Boolean | | |
| | | | | | P0742 Status is | ≠ | Test Failed This Key On or Fault Active | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Mode 2 Multiplex Valve | P0751 | Shift Solenoid Valve A Stuck Off | Commaned Gear Slip<br>Commanded Gear<br>Gear Ratio<br>Gear Ratio<br>If the above parameters are true | >= 400 RPM<br>= 1st Lock rpm<br><= 1.209594727<br>>= 1.094360352 | | | >= 0.2 Fail Tmr<br>= 5 Fail Counts<br>≠ 0 Neutral Timer (Sec)<br>>= 0.3 Fail Timer (Sec)<br>>= 8 Counts | Two Trips |
| | | | | | Ignition Voltage Lo<br>Ignition Voltage Hi<br>Engine Speed Lo<br>Engine Speed Hi<br>Engine Speed is within the allowable limits for<br>Transmission Fluid Temperature<br>Range Shift State<br><br>TPS<br>OR<br>Output Speed<br>Throttle Position Signal Valid from ECM<br>Engine Torque Signal Valid from ECM, High side driver is enabled<br>High-Side Driver is Enabled<br>Input Speed Sensor fault<br>Output Speed Sensor fault<br>Default Gear Option is not present | >= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec<br>>= -6.65625 ºC<br>= Range Shift Completed ENUM<br><br>>= 0.5004883 %<br><br>>= 67 RPM<br>= TRUE Boolean<br>= TRUE Boolean<br>= TRUE Boolean<br>= FALSE Boolean<br>= FALSE Boolean<br>= TRUE | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Mode 2 Multiplex Valve | P0752 | Shift Solenoid Valve A Stuck On | Gear Box Slip | >= 400 RPM | | | | One Trip |
| | | | Commanded Gear | = 3rd Gear | | | | |
| | | | Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On<br>If the above parameters are true | = TRUE Boolean | | | | |
| | | | | | | | >= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec) | |
| | | | Command 4th Gear once Output Shaft Speed | <= 400 RPM | | | | |
| | | | If Gear Ratio | >= 3.825683594 | | | | |
| | | | And Gear Ratio | <= 4.228393555 | | | | |
| | | | | | | | >= 1.5 Fail Timer (Sec) | |
| | | | | | | | >= 5 Counts | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | High-Side Driver is Enabled | = TRUE Boolean | | |
| | | | | | Throttle Position Signal Valid from ECM | = TRUE Boolean | | |
| | | | | | Output Speed<br>OR | >= 67 RPM | | |
| | | | | | TPS | >= 0.5004883 % | | |
| | | | | | Range Shift State | = Range Shift Completed ENUM | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Mode 2 Multiplex Valve | P0756 | Shift Solenoid Valve B Stuck Off | Fail Case 1<br>Commanded Gear<br>Gear Box Slip<br>Intrusive Shift to 2nd Commanded Gear Previous<br>Gear Ratio<br>Gear Ratio<br>If the above parameters are true | =<br>1st Locked<br>>= 400 RPM<br>=<br>1st Locked Gear<br><= 2.482177734<br>>= 2.245849609 | | | >= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)<br>>= 1 sec<br>>= 3 counts | One Trip |
| | | | | | Ignition Voltage Lo<br>Ignition Voltage Hi<br>Engine Speed Lo<br>Engine Speed Hi<br>Engine Speed is within the allowable limits for<br>Output Speed<br>OR<br>TPS<br>Range Shift State<br>Transmission Fluid Temperature<br>High-Side Driver is Enabled<br>Throttle Position Signal Valid from ECM<br>Input Speed Sensor fault<br>Output Speed Sensor fault<br>Default Gear Option is not present | >= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec<br>>= 67 RPM<br>>= 0.5004883 %<br>= Range Shift Completed ENUM<br>>= -6.65625 ºC<br>= TRUE Boolean<br>= TRUE Boolean<br>= FALSE Boolean<br>= FALSE Boolean<br>= TRUE | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0776 | Pressure Control (PC) Solenoid B Stuck Off [C35R] | Fail Case 1<br>Case: Steady State 3rd Gear<br>Commanded Gear<br>Gearbox Slip<br><br>Command 4th Gear once Output Shaft Speed<br>If Gear Ratio<br>And Gear Ratio<br><br>It the above condiations are true, Increment 3rd gear fail counter<br><br>and C35R Fail counter | <br><br>= 3rd Gear<br>>= 400 RPM<br><br><= 400 RPM<br>>= 1.094360352<br><= 1.209594727 | | | >= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)<br><br>>= 3 Fail Timer (Sec)<br>>= 3 3rd Gear Fail Counts<br>or<br>>= 14 3-5R Clutch Fail Counts | One Trip |
| | | | Fail Case 2<br>Case: Steady State 5th Gear<br>Commanded Gear<br><br>Gearbox Slip<br><br>Intrusive Test: Command 6th Gear<br><br>If attained Gear=6th gear Time<br><br>It the above condiations are true, Increment 5th gear fail counter<br><br>and C35R Fail counter | <br><br>= 5th Gear<br><br>>= 400 Rpm<br><br><br><br>>= Please refer to Table 3 in supporting documents Shift Time (Sec)<br><br><br><br> | | | >= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)<br><br><br><br><br><br>>= 3 5th Gear Fail Counts<br>or<br>>= 14 3-5R Clutch Fail Counts | |
| | | | | | PRNDL State defaulted = FALSE Boolean<br>inhibit RVT = FALSE Boolean<br>IMS fault pending indication = FALSE Boolean<br>TPS validity flag = TRUE Boolean<br>Hydraulic System Pressurized = TRUE Boolean<br>Minimum output speed for RVT >= 67 RPM<br>A OR B<br>(A) Output speed enable >= 67 RPM | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | (B) Accelerator Pedal enable | >= 0.5004883 Pct | | |
| | | | | | Common Enable Criteria | | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Throttle Position Signal valid | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0777 | Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State) | Fail Case 1<br>Case: Steady State 1st | | | | | One Trip |
| | | | Attained Gear slip | >= 400 RPM | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) | | | | |
| | | | Intrusive test: (CBR1 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.608642578 | | | | |
| | | | Gear Ratio | >= 1.455444336 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 2 Fail Count in 1st Gear or<br>>= 3 Total Fail Counts | |
| | | | Fail Case 2<br>Case: Steady State 2nd gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (CB26 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.608642578 | | | | |
| | | | Gear Ratio | >= 1.455444336 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 3 Fail Count in 2nd Gear or >= 3 Total Fail Counts | |
| | | | Fail Case 3 Case: Steady State 4th gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C1234 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 0.89465332 | | | | |
| | | | Gear Ratio | >= 0.809448242 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 3 Fail Count in 4th Gear or >= 3 Total Fail Counts | |
| | | | Fail Case 4 Case: Steady State 6th gear | | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (CB26 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 0.89465332 | | | >= 1.1 Fail Timer (Sec) | |
| | | | Gear Ratio | >= 0.809448242 | | | >= 3 counts | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec) | |
| | | | | | | | >= 3 Fail Count in 6th Gear or | |
| | | | | | | | >= 3 Total Fail Counts | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |
| | | | | | inhibit RVT | = FALSE Boolean | | |
| | | | | | IMS fault pending indication | = FALSE Boolean | | |
| | | | | | output speed | >= 0 RPM | | |
| | | | | | TPS validity flag | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Hydraulic_System_Pressurized A OR B | = TRUE Boolean | | |
| | | | | | (A) Output speed enable | >= 67 Nm | | |
| | | | | | (B) Accelerator Pedal enable | >= 0.5004883 Nm | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | if Attained Gear=1st FW Accelerator Pedal enable | >= 5.0003052 Pct | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | >= 5 Nm | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | <= 8191.875 Nm | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0777 | Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic) | Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers) | = TRUE Boolean | | | | One Trip |
| | | | Primary Oncoming Clutch Pressure Command Status | = Maximum pressurized Clutch | | | | |
| | | | Primary Offgoing Clutch Pressure Command Status | = exhaust command | | | | |
| | | | Range Shift Status | ≠ Initial Clutch Control | | | | |
| | | | Attained Gear Slip | <= 40 RPM | | | | |
| | | | If the above conditions are true run appropriate Fail 1 Timers Below: | | | | | |
| | | | fail timer 1 (3-1 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-2 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-2 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-4 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-4shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-5 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (3-5 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-3 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-3 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-4 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-4 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-6 shifting with Throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-6 shifting with Closed Throttle) | >= 0.5 Fail Time (Sec) | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If Attained Gear Slip is Less than Above Cal Increment Fail Timers | | | | >= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec | |
| | | | If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter | | | | | |
| | | | 3rd gear fail counter | | | | >= 3 3rd gear fail counts OR | |
| | | | 5th gear fail counter | | | | >= 3 5th gear fail counts OR | |
| | | | Total fail counter | | | | >= 5 total fail counts | |
| | | | | | TUT Enable temperature | >= -6.65625 °C | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Command / Attained Gear | ≠ 1st Boolean | | |
| | | | | | High Side Driver ON | = TRUE Boolean | | |
| | | | | | output speed limit for TUT | >= 100 RPM | | |
| | | | | | input speed limit for TUT | >= 150 RPM | | |
| | | | | | PRNDL state defaulted | = FALSE Boolean | | |
| | | | | | IMS Fault Pending | = FALSE Boolean | | |
| | | | | | Service Fast Learn Mode | = FALSE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0796 | Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State) | Fail Case 1 Case: Steady State 4th Gear | | | | | One Trip |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 5th gear | | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If attained Gear ≠5th for time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | if the above conditions have been met | | | | | |
| | | | Increment 4th Gear Fail Counter | | | | >= 3 4th Gear Fail Count | |
| | | | and C456 Fail Counters | | | | OR >= 14 C456 Fail Counts | |
| | | | Fail Case 2 Case: Steady State 5th Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 6th gear | | | | | |
| | | | If attained Gear ≠ 6th for time | >= Please Refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | if the above conditions have been met | | | | | |
| | | | Increment 5th Gear Fail Counter | | | | >= 3 5th Gear Fail Count | |
| | | | and C456 Fail Counters | | | | OR >= 14 C456 Fail Counts | |
| | | | Fail Case 3 Case: Steady State 6th Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 5th gear | | | | | |
| | | | If attained Gear ≠ 5th for time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | if the above conditions have been met | | | | | |
| | | | Increment 6th Gear Fail Counter and C456 Fail Counter | | | | >= 3 6th Gear Fail Count | |
| | | | and C456 Fail Counter | | | | OR >= 14 C456 Fail Counts | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |
| | | | | | inhibit RVT | = FALSE Boolean | | |
| | | | | | IMS fault pending indication | = FALSE Boolean | | |
| | | | | | TPS validity flag | = TRUE Boolean | | |
| | | | | | Hydraulic System Pressurized | = TRUE Boolean | | |
| | | | | | Minimum output speed for RVT A OR B | >= 67 RPM | | |
| | | | | | (A) Output speed enable | >= 67 RPM | | |
| | | | | | (B) Accelerator Pedal enable | >= 0.5004883 Pct | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Common Enable Criteria | | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Throttle Position Signal valid | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | OutputSpeed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0797 | Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State) | Fail Case 1<br>Case: Steady State 1st | | | | | One Trip |
| | | | Attained Gear slip | >= 400 RPM | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) | | | | |
| | | | Intrusive test: (CBR1 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.209594727 | | | | |
| | | | Gear Ratio | >= 1.094360352 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 2 Fail Count in 1st Gear or<br>>= 3 Total Fail Counts | |
| | | | Fail Case 2<br>Case Steady State 2nd | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (CB26 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.209594727 | | | | |
| | | | Gear Ratio | >= 1.094360352 | | | | |
| | | | If the above parameters are true | | | | | |
| | | | | | | | >= 1.1 Fail Timer (Sec) | |
| | | | | | | | >= 3 Fail Count in 2nd Gear or | |
| | | | | | | | >= 3 Total fail counts | |
| | | | Fail Case 3 Case Steady State 3rd | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C35R clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.209594727 | | | | |
| | | | Gear Ratio | >= 1.094360352 | | | | |
| | | | If the above parameters are true | | | | | |
| | | | | | | | >= 1.1 Fail Timer (Sec) | |
| | | | | | | | >= 3 Fail Count in 3rd Gear OR | |
| | | | | | | | >= 3 Total Fail Counts | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | inhibit RVT = FALSE Boolean<br>IMS fault pending indication = FALSE Boolean<br>output speed >= 0 RPM<br>TPS validity flag = TRUE Boolean<br>HSD Enabled = TRUE Boolean<br>Hydraulic_System_Pressurized = TRUE Boolean<br>A OR B<br>(A) Output speed enable >= 67 Nm<br>(B) Accelerator Pedal enable >= 0.5004883 Nm<br>Ignition Voltage Lo >= 8.5996094 Volts<br>Ignition Voltage Hi <= 31.999023 Volts<br>Engine Speed Lo >= 400 RPM<br>Engine Speed Hi <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec<br>if Attained Gear=1st FW Accelerator Pedal enable >= 5.0003052 Pct<br>if Attained Gear=1st FW Engine Torque Enable >= 5 Nm<br>if Attained Gear=1st FW Engine Torque Enable <= 8191.875 Nm<br>Transmission Fluid Temperature >= -6.65625 ºC<br>Input Speed Sensor fault = FALSE Boolean<br>Output Speed Sensor fault = FALSE Boolean<br>Default Gear Option is not present = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0797 | Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic) | Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers) = TRUE Boolean<br>Primary Oncoming Clutch Pressure Command Status = Maximum pressurized<br>Primary Offgoing Clutch Pressure Command Status = Clutch exhaust command<br>Range Shift Status ≠ Initial Clutch Control<br>Attained Gear Slip <= 40 RPM<br><br>If the above conditions are true increment appropriate Fail 1 Timers Below: | | | | | One Trip |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | fail timer 1 (4-1 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (4-1 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (4-2 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (4-2 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (4-3 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (4-3 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-3 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (5-3 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (6-2 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (6-2 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | If Attained Gear Slip is Less than Above Cal Increment Fail Timers | | | | Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec | |
| | | | If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter | | | | | |
| | | | 4th gear fail counter | | | | >= 3 Fail Counter From 4th Gear OR | |
| | | | 5th gear fail counter | | | | >= 3 Fail Counter From 5th Gear OR | |
| | | | 6th gear fail counter | | | | >= 3 Fail Counter From 6th Gear OR | |
| | | | Total fail counter | | | | >= 5 Total Fail Counter | |
| | | | | | TUT Enable temperature | >= -6.65625 °C | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Command / Attained Gear | ≠ 1st Boolean | | |
| | | | | | High Side Driver ON | = TRUE Boolean | | |
| | | | | | output speed limit for TUT | >= 100 RPM | | |
| | | | | | input speed limit for TUT | >= 150 RPM | | |
| | | | | | PRNDL state defaulted | = FALSE Boolean | | |
| | | | | | IMS Fault Pending | = FALSE Boolean | | |
| | | | | | Service Fast Learn Mode | = FALSE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P0961 | Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS) | The HWIO reports an invalid voltage (out of range) error flag | = TRUE Boolean | | | >= 4.4 Fail Time (Sec)<br>out of 5 Sample Time (Sec) | Two Trips |
| | | | | | Ignition Voltage<br>Ignition Voltage<br>Engine Speed<br>Engine Speed<br>Engine Speed is within the allowable limits for | >= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P0962 | Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | >= 1.5 Fail Time (Sec)<br>out of 1.875 Sample Time (Sec) | One Trip |
| | | | | | Ignition Voltage<br>Ignition Voltage<br>Engine Speed<br>Engine Speed<br>Engine Speed is within the allowable limits for | >= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P0963 | Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 4.4 Fail Time (Sec)<br>out of 5 Sample Time (Sec) | Two Trips |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ignition Voltage <= 31.999023 Volts<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P0966 | Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | Ignition Voltage >= 8.5996094 Volts<br>Ignition Voltage <= 31.999023 Volts<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec<br>P0966 Status is not = Test Failed This Key On or Fault Active | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P0967 | Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | Ignition Voltage >= 8.5996094 Volts<br>Ignition Voltage <= 31.999023 Volts<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec<br>P0967 Status is not = Test Failed This Key On or Fault Active | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| Variable Bleed Solenoid (VBS) | P0970 | Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | P0970 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage | <= 31.999023 Volts | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | Disable Conditions: | | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P0971 | Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | P0971 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage | <= 31.999023 Volts | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | Disable Conditions: | | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Shift Solinoid | P0973 | Shift Solenoid A Control Circuit Low (Mode 2 Solenoid) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | >= 1.2 Fail Time (Sec)<br>out of 1.5 Sample Time (Sec) | One Trip |
| | | | | | P0973 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage | <= 31.999023 Volts | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Shift Solinoid | P0974 | Shift Solenoid A Control Circuit High (Mode 2 Solenoid) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 1.2 Fail Time (Sec)<br>out of 1.5 Sample Time (Sec) | Two Trips |
| | | | | | P0974 Status is not<br>Ignition Voltage<br>Ignition Voltage<br>Engine Speed<br>Engine Speed<br>Engine Speed is within the allowable limits for | = Test Failed This Key On or Fault Active<br>>= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Mode 3 Multiplex Valve | P0977 | Shift Solenoid B Control Circuit High (Mode 3 Solenoid) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 1.2 Sec<br>out of 1.5 Sec | One Trip |
| | | | | | P0977 Status is not<br>Ignition Voltage<br>Ignition Voltage<br>Engine Speed<br>Engine Speed<br>Engine Speed is within the allowable limits for | = Test Failed This Key On or Fault Active<br>>= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Internal Mode Switch (IMS) | P182E | Internal Mode Switch - Invalid Range | Fail Case 1<br>Current range | = Transition 1 (bit state 1110) Range | | | | One Trip |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Previous range | ≠ CeTRGR_e_PRNDL_Drive 6 Range | | | | |
| | | | Previous range | ≠ CeTRGR_e_PRNDL_Drive 4 Range | | | | |
| | | | Range Shift State | = Range Shift Completed ENUM | | | | |
| | | | Absolute Attained Gear Slip | <= 50 rpm | | | | |
| | | | Attained Gear | <= Sixth | | | | |
| | | | Attained Gear | >= First | | | | |
| | | | Throttle Position Available | = TRUE | | | | |
| | | | Throttle Position | >= 8.000183105 pct | | | | |
| | | | Output Speed | >= 200 rpm | | | | |
| | | | Engine Torque | >= 50 Nm | | | | |
| | | | Engine Torque | <= 8191.75 Nm | | | | |
| | | | If the above conditions are met then Increment Fail Timer | | | | >= 1 Fail Seconds | |
| | | | If Fail Timer has Expired then Increment Fail Counter | | | | >= 5 Fail Counts | |
| | | | Fail Case 2 Output Speed | <= 70 rpm | | | | |
| | | | The following PRNDL sequence events occur in this exact order: | | | | | |
| | | | PRNDL state | = Drive 6 (bit state 0110) Range | | | | |
| | | | PRNDL state = Drive 6 for | >= 1 Sec | | | | |
| | | | PRNDL state | = Transition 8 (bit state 0111) Range | | | | |
| | | | PRNDL state | = Drive 6 (bit state 0110) Range | | | | |
| | | | PRNDL state | = Transition 1 (bit state 1110) Range | | | | |
| | | | Above sequencing occurs in | <= 1 Sec | | | | |
| | | | Neutral Idle Mode | = Inactive | | | | |
| | | | If all conditions above are met Increment delay Timer | | | | | |
| | | | If the below two conditions are met Increment Fail Timer | | | | >= 3 Fail Seconds | |
| | | | delay timer | >= 1 Sec | | | | |
| | | | Input Speed | >= 400 Sec | | | | |
| | | | If Fail Timer has Expired then Increment Fail Counter | | | | >= 2 Fail Counts | |
| | | | Fail Case 3 Current range | = Transition 13 (bit state 0010) Range | Previous range | ≠ CeTRGR_e_PRNDL_Drive2 | | |
| | | | Engine Torque | >= -8192 Nm | Previous range | ≠ CeTRGR_e_PRNDL_Drive1 | | |
| | | | Engine Torque | <= 8191.75 Nm | IMS is 7 position configuration | = 1 Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If the above conditions are met then, Increment Fail Timer | | If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13" | | >= 0.225 Seconds | |
| | | | If Fail Timer has Expired then Increment Fail Counter | | | | >= 15 Fail Counts | |
| | | | Fail Case 4 | | | | | |
| | | | Current range | = Transition 8 (bit state 0111) Range | Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8 | | | |
| | | | Inhibit bit (see definition) | = FALSE | Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park) | | | |
| | | | Steady State Engine Torque | >= 100 Nm | | | | |
| | | | Steady State Engine Torque | <= 8191.75 Nm | | | | |
| | | | If the above conditions are met then Increment Fail Timer | | | | >= 0.225 Seconds | |
| | | | If the above Condtions have been met, Increment Fail Counter | | | | >= 15 Fail Counts | |
| | | | Fail Case 5 | | | | | |
| | | | Throttle Position Available | = TRUE Boolean | | | | |
| | | | The following PRNDL sequence events occur in this exact order: | | | | | |
| | | | PRNDL State | = Reverse (bit state 1100) Range | | | | |
| | | | PRNDL State | = Transition 11 (bit state 0100) Range | | | | |
| | | | PRNDL State | = Neutral (bit state 0101) Range | | | | |
| | | | PRNDL State | = Transition 11 (bit state 0100) Range | | | | |
| | | | Above sequencing occurs in | <= 1 Sec | | | | |
| | | | Then delay timer increments | | | | | |
| | | | Delay timer | >= 5 sec | | | | |
| | | | Range Shift State | = Range Shift Complete | | | | |
| | | | Absolute Attained Gear Slip | <= 50 rpm | | | | |
| | | | Attained Gear | <= Sixth | | | | |
| | | | Attained Gear | >= First | | | | |
| | | | Throttle Position | >= 8.000183105 pct | | | | |
| | | | Output Speed | >= 200 rpm | | | | |
| | | | If the above conditions are met Increment Fail Timer | | | | >= 20 Seconds | |
| | | | Fail Case 6 | | | | | |
| | | | Current range | = Illegal (bit state 0000 or 1000 or 0001) | A Open Circuit Definition (flag set false if the following conditions are met): | | | |
| | | | and | | Current Range | ≠ Transition 11 (bit state 0100) | | |
| | | | A Open Circuit (See Definition) | = FALSE Boolean | or | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Last positive state | ≠ Neutral (bit state 0101) | | |
| | | | | | or | | | |
| | | | | | Previous transition state | ≠ Transition 8 (bit state 0111) | | |
| | | | | | Fail case 5 delay timer | = 0 sec | | |
| | | | If the above Condtions are met then, Increment Fail timer | | | | >= 6.25 Seconds | |
| | | | Fail Case 7<br>Current PRNDL State | = PRNDL circuit ABCP = 1101 Range | | | | |
| | | | and<br>Previous PRNDL state | = PRNDL circuit ABCP =1111 Range | | | | |
| | | | Input Speed | >= 150 RPM | | | | |
| | | | Reverse Trans Ratio | <= 2.845825195 ratio | | | | |
| | | | Reverse Trans Ratio | >= 3.274169922 ratio | | | | |
| | | | If the above Condtions are met then, Increment Fail timer | | | | >= 6.25 Seconds | |
| | | | | | | | | |
| | | | P182E will report test fail when any of the above 7 fail cases are met | | | | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Engine Torque Signal Valid | = TRUE Boolean | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Internal Mode Switch (IMS) | P1915 | Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start | PRNDL State is | ≠ Park or Neutral Enumeration | | | | One Trip |
| | | | The following events must occur Sequentially<br>Initial Engine speed | <= 50 RPM | | | >= 0.25 Enable Time (Sec) | |
| | | | Then Engine Speed Between Following Cals<br>Engine Speed Lo Hist | >= 50 RPM | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Engine Speed Hi Hist | <= 480 RPM | | | >= 0.06875 Enable Time (Sec) | |
| | | | Then<br>Final Engine Speed<br>Final Transmission Input Speed | >= 525 RPM<br>>= 100 RPM | | | >= 1.25 Fail Time (Sec) | |
| | | | | | DTC has Ran this Key Cycle? | = FALSE Boolean | | |
| | | | | | Ignition Voltage Lo<br>Ignition Voltage Hi | >= 6 V<br><= 31.999023 V | | |
| | | | | | Ignition Voltage Hyst High (enables above this value) | >= 5 V | | |
| | | | | | Ignition Voltage Hyst Low (disabled below this value) | <= 2 V | | |
| | | | | | Transmission Output Speed | <= 90 rpm | | |
| | | | | | P1915 Status is | ≠ Test Failed This Key On or Fault Active | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0722, P0723<br>ECM: None | | |
| Transmission Control Module (TCM) | P2534 | Ignition Switch Run/Start Position Circuit Low | TCM Run crank active (based on voltage thresholds below) | = FALSE Boolean | | | | One Trip |
| | | | Ignition Voltage High Hyst (run crank goes true when above this value) | 5 Volts | | | >= 280 Fail Counts (25ms loop) | |
| | | | Ignition Voltage Low Hyst (run crank goes false when below this value) | 2 Volts | | | Out of 280 Sample Counts (25ms loop) | |
| | | | | | ECM run/crank active status available | = TRUE Boolean | | |
| | | | | | ECM run/crank active status | = TRUE Boolean | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Transmission Control Module (TCM) | P2535 | Ignition Switch Run/Start Position Circuit High | TCM Run crank active (based on voltage thresholds below) | = TRUE Boolean | | | | One Trip |
| | | | Ignition Voltage High Hyst (run crank goes true when above this value) | 5 Volts | | | >= 280 Fail Counts (25ms loop) | |
| | | | Ignition Voltage Low Hyst (run crank goes false when below this value) | 2 Volts | | | Out of 280 Sample Counts (25ms loop) | |
| | | | | | ECM run/crank active status available | = TRUE Boolean | | |
| | | | | | ECM run/crank active status | = FALSE Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P2714 | Pressure Control (PC) Solenoid D Stuck Off [CB26] | Fail Case 1 Case: Steady State 2nd Gear | | | | | One Trip |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 3rd gear | | | | | |
| | | | If attained Gear = 3rd for Time | >= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec) | | | | |
| | | | If Above Conditions have been met | | | | | |
| | | | Increment 2nd gear fail count | | | | >= 3 2nd Gear Fail Count | |
| | | | and CB26 Fail Count | | | | or >= 14 CB26 Fail Count | |
| | | | Fail Case 2 Case: Steady State 6th Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 5th gear | | | | | |
| | | | If attained Gear = 5th For Time | >= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec) | | | | |
| | | | If Above Conditions have been met, Increment 5th gear fail counter | | | | >= 3 5th Gear Fail Count | |
| | | | and CB26 Fail Count | | | | or >= 14 CB26 Fail Count | |
| | | | | | PRNDL State defaulted = FALSE Boolean | | | |
| | | | | | inhibit RVT = FALSE Boolean | | | |
| | | | | | IMS fault pending indication = FALSE Boolean | | | |
| | | | | | TPS validity flag = TRUE Boolean | | | |
| | | | | | Hydraulic System Pressurized = TRUE Boolean | | | |
| | | | | | Minimum output speed for RVT >= 0 RPM | | | |
| | | | | | A OR B | | | |
| | | | | | (A) Output speed enable >= 67 RPM | | | |
| | | | | | (B) Accelerator Pedal enable >= 0.5004883 Pct | | | |
| | | | | | Common Enable Criteria | | | |
| | | | | | Ignition Voltage Lo >= 8.5996094 Volts | | | |
| | | | | | Ignition Voltage Hi <= 31.999023 Volts | | | |
| | | | | | Engine Speed Lo >= 400 RPM | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | Throttle Position Signal valid | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P2715 | Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic) | Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) | = TRUE Boolean | | | | One Trip |
| | | | Primary Oncoming Clutch Pressure Command Status | = Maximum pressurized Clutch | | | | |
| | | | Primary Offgoing Clutch Pressure Command Status | = exhaust command | | | | |
| | | | Range Shift Status | ≠ Initial Clutch Control | | | | |
| | | | Attained Gear Slip | <= 40 RPM | | | | |
| | | | If above coditons are true, increment appropriate Fail 1 Timers Below: | | | | | |
| | | | fail timer 1 (2-1 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (2-1 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (2-3 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (2-3 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (2-4 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (2-4 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | fail timer 1 (6-4 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (6-4 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | fail timer 1 (6-5 shifting with throttle) | >= 0.299804688 Fail Time (Sec) | | | | |
| | | | fail timer 1 (6-5 shifting without throttle) | >= 0.5 Fail Time (Sec) | | | | |
| | | | If Attained Gear Slip is Less than Above Cal Increment Fail Timers | | | | >= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec | |
| | | | If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter | | | | | |
| | | | 2nd gear fail counter | | | | >= 3 Fail Counter From 2nd Gear OR | |
| | | | 6th gear fail counter | | | | >= 3 Fail Counter From 6th Gear OR | |
| | | | total fail counter | | | | >= 5 Total Fail Counter | |
| | | | | | TUT Enable temperature | >= -6.65625 °C | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Command / Attained Gear | ≠ 1st Boolean | | |
| | | | | | High Side Driver ON | = TRUE Boolean | | |
| | | | | | output speed limit for TUT | >= 100 RPM | | |
| | | | | | input speed limit for TUT | >= 150 RPM | | |
| | | | | | PRNDL state defaulted | = FALSE Boolean | | |
| | | | | | IMS Fault Pending | = FALSE Boolean | | |
| | | | | | Service Fast Learn Mode | = FALSE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P2715 | Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State) | Fail Case 1 Case: Steady State 1st | | | | | One Trip |
| | | | Attained Gear slip | >= 400 RPM | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) | | | | |
| | | | Intrusive test: (CBR1 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 2.482177734 | | | | |
| | | | Gear Ratio | >= 2.245849609 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 5 Fail Count in 1st Gear or<br>>= 5 Total Fail Counts | |
| | | | Fail Case 2 Case: Steady State 3rd Gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C35R clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 2.482177734 | | | | |
| | | | Gear Ratio | >= 2.245849609 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 3 Fail Count in 3rd Gear or<br>>= 5 Total Fail Counts | |
| | | | Fail Case 3 Case: Steady State 4rd Gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C1234 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 0.700317383 | | | | |
| | | | Gear Ratio | >= 0.633666992 | | | | |
| | | | If the above parameters are true | | | | | |
| | | | | | | | >= 1.1 Fail Timer (Sec) | |
| | | | | | | | >= 3 Fail Count in 4th Gear or >= 5 Total Fail Counts | |
| | | | Fail Case 4 Case: Steady State 5th Gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C35R clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 0.700317383 | | | | |
| | | | Gear Ratio | >= 0.633666992 | | | | |
| | | | If the above parameters are true | | | | | |
| | | | | | | | >= 1.1 Fail Timer (Sec) | |
| | | | | | | | >= 3 Fail Count in 5th Gear or >= 5 Total Fail Counts | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |
| | | | | | inhibit RVT | = FALSE Boolean | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | | | Time Required | | | Mil Illum. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | IMS fault pending indication | = | FALSE | Boolean | | | | |
| | | | | | output speed | >= | 0 | RPM | | | | |
| | | | | | TPS validity flag | = | TRUE | Boolean | | | | |
| | | | | | HSD Enabled | = | TRUE | Boolean | | | | |
| | | | | | Hydraulic_System_Pressurized A OR B | = | TRUE | Boolean | | | | |
| | | | | | (A) Output speed enable | >= | 67 | Nm | | | | |
| | | | | | (B) Accelerator Pedal enable | >= | 0.5004883 | Nm | | | | |
| | | | | | Ignition Voltage Lo | >= | 8.5996094 | Volts | | | | |
| | | | | | Ignition Voltage Hi | <= | 31.999023 | Volts | | | | |
| | | | | | Engine Speed Lo | >= | 400 | RPM | | | | |
| | | | | | Engine Speed Hi | <= | 7500 | RPM | | | | |
| | | | | | Engine Speed is within the allowable limits for | >= | 5 | Sec | | | | |
| | | | | | if Attained Gear=1st FW Accelerator Pedal enable | >= | 5.0003052 | Pct | | | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | >= | 5 | Nm | | | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | <= | 8191.875 | Nm | | | | |
| | | | | | Transmission Fluid Temperature | >= | -6.65625 | ºC | | | | |
| | | | | | Input Speed Sensor fault | = | FALSE | Boolean | | | | |
| | | | | | Output Speed Sensor fault | = | FALSE | Boolean | | | | |
| | | | | | Default Gear Option is not present | = | TRUE | | | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | | | | | | |
| Variable Bleed Solenoid (VBS) | P2720 | Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | | | >= | 0.3 | Fail Time (Sec) | One Trip |
| | | | | | | | | | out of | 0.375 | Sample Time (Sec) | |
| | | | | | P2770 Status is not | = | Test Failed This Key On or Fault Active | | | | | |
| | | | | | Ignition Voltage | >= | 8.5996094 | Volts | | | | |
| | | | | | Ignition Voltage | <= | 31.999023 | Volts | | | | |
| | | | | | Engine Speed | >= | 400 | RPM | | | | |
| | | | | | Engine Speed | <= | 7500 | RPM | | | | |
| | | | | | Engine Speed is within the allowable limits for | >= | 5 | Sec | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P2721 | Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | P2721 Status is not<br>Ignition Voltage<br>Ignition Voltage<br>Engine Speed<br>Engine Speed<br>Engine Speed is within the allowable limits for | = Test Failed This Key On or Fault Active<br>>= 8.5996094 Volts<br><= 31.999023 Volts<br>>= 400 RPM<br><= 7500 RPM<br>>= 5 Sec | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P2723 | Pressure Control (PC) Solenoid E Stuck Off | Fail Case 1 Case: Steady State 1st Gear | | | | | One Trip |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 2nd gear | | | | | |
| | | | If attained Gear ≠ 2nd for Time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | If Above Conditions have been met, Increment 1st gear fail counter | | | | >= 3 1st Gear Fail Count | |
| | | | and C1234 fail counter | | | | >= 14 or C1234 Clutch Fail Count | |
| | | | Fail Case 2 Case: Steady State 2nd Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 3rd gear | | | | | |
| | | | If attained Gear ≠ 3rd for Time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If Above Conditions have been met, Increment 2nd gear fail counter | | | | >= 3 2nd Gear Fail Count | |
| | | | and C1234 fail counter | | | | or >= 14 C1234 Clutch Fail Count | |
| | | | Fail Case 3 Case: Steady State 3rd Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 4th gear | | | | | |
| | | | If attained Gear ≠ 4th for time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | If Above Conditions have been met, Increment 3rd gear fail counter | | | | >= 3 3rd Gear Fail Count | |
| | | | and C1234 fail counter | | | | or >= 14 C1234 Clutch Fail Count | |
| | | | Fail Case 4 Case: Steady State 4th Gear | | | | | |
| | | | Gear slip | >= 400 RPM | | | >= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec) | |
| | | | Intrusive test: commanded 5th gear | | | | | |
| | | | If attained Gear = 5th For Time | >= Please refer to Table 3 in Supporting Documents Shift Time (Sec) | | | | |
| | | | If Above Conditions have been met, Increment 4th gear fail counter | | | | >= 3 4th Gear Fail Count | |
| | | | and C1234 fail counter | | | | or >= 14 C1234 Clutch Fail Count | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |
| | | | | | inhibit RVT | = FALSE Boolean | | |
| | | | | | IMS fault pending indication | = FALSE Boolean | | |
| | | | | | TPS validity flag | = TRUE Boolean | | |
| | | | | | Hydraulic System Pressurized | = TRUE Boolean | | |
| | | | | | Minimum output speed for RVT | >= 0 RPM | | |
| | | | | | A OR B | | | |
| | | | | | (A) Output speed enable | >= 67 RPM | | |
| | | | | | (B) Accelerator Pedal enable | >= 0.5004883 Pct | | |
| | | | | | Common Enable Criteria | | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Throttle Position Signal valid | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 °C | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P2724 | Pressure Control (PC) Solenoid E Stuck On (Dynamic) | Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) | = TRUE Boolean | | | | One Trip |
| | | | Primary Oncoming Clutch Pressure Command Status | = Maximum pressurized Clutch | | | | |
| | | | Primary Offgoing Clutch Pressure Command Status | = exhaust command | | | | |
| | | | Range Shift Status | ≠ Initial Clutch Control | | | | |
| | | | Attained Gear Slip | <= 40 RPM | | | | |
| | | | If the above conditions are true increment appropriate Fail 1 Timers Below: | | | | | |
| | | | fail timer 1 (2-6 shifting with throttle) | >= 0.299804688 sec | | | | |
| | | | fail timer 1 (2-6 shifting without throttle) | >= 0.5 sec | | | | |
| | | | fail timer 1 (3-5 shifting with throttle) | >= 0.299804688 sec | | | | |
| | | | fail timer 1 (3-5 shifting without throttle) | >= 0.5 sec | | | | |
| | | | fail timer 1 (4-5 shifting with throttle) | >= 0.299804688 sec | | | | |
| | | | fail timer 1 (4-5 shifting without throttle) | >= 0.5 sec | | | | |
| | | | fail timer 1 (4-6 shifting with throttle) | >= 0.299804688 sec | | | | |
| | | | fail timer 1 (4-6 shifting without throttle) | >= 0.5 sec | | | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | If Attained Gear Slip is Less than Above Cal Increment Fail Timers | | | | >= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec | |
| | | | If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter | | | | | |
| | | | 2nd gear fail counter | | | | >= 3 Fail Counter From 2nd Gear | |
| | | | 3rd gear fail counter | | | | >= 3 Fail Counter From 3rd Gear | |
| | | | 4th gear fail counter | | | | >= 3 Fail Counter From 4th Gear | |
| | | | total fail counter | | | | >= 5 Total Fail Counter | |
| | | | | | TUT Enable temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Command / Attained Gear | ≠ 1st Boolean | | |
| | | | | | High Side Driver ON | = TRUE Boolean | | |
| | | | | | output speed limit for TUT | >= 100 RPM | | |
| | | | | | input speed limit for TUT | >= 150 RPM | | |
| | | | | | PRNDL state defaulted | = FALSE Boolean | | |
| | | | | | IMS Fault Pending | = FALSE Boolean | | |
| | | | | | Service Fast Learn Mode | = FALSE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P2724 | Pressure Control (PC) Solenoid E Stuck On (Steady State) | Fail Case 1 Case: 5th Gear | | | | | One Trip |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (C35R clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.209594727 | | | | |
| | | | Gear Ratio | >= 1.094360352 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec)<br>>= 3 Fail Count in 5th Gear OR<br>>= 3 Total Fail Counts | |
| | | | Fail Case 2 Case: 6th Gear | | | | | |
| | | | Max Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec | | | | |
| | | | Min Delta Output Speed Hysteresis | >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec | | | | |
| | | | If the Above is True for Time | >= Table Based Time Please Refer to Table 17 in supporting documents Sec | | | | |
| | | | Intrusive test: (CB26 clutch exhausted) | | | | | |
| | | | Gear Ratio | <= 1.209594727 | | | | |
| | | | Gear Ratio | >= 1.094360352 | | | | |
| | | | If the above parameters are true | | | | >= 1.1 Fail Timer (Sec) | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | >= 3 Fail Count in 6th Gear OR >= 3 Total Fail Counts | |
| | | | | | PRNDL State defaulted | = FALSE Boolean | | |
| | | | | | inhibit RVT | = FALSE Boolean | | |
| | | | | | IMS fault pending indication | = FALSE Boolean | | |
| | | | | | output speed | >= 0 RPM | | |
| | | | | | TPS validity flag | = TRUE Boolean | | |
| | | | | | HSD Enabled | = TRUE Boolean | | |
| | | | | | Hydraulic_System_Pressurized A OR B | = TRUE Boolean | | |
| | | | | | (A) Output speed enable | >= 67 Nm | | |
| | | | | | (B) Accelerator Pedal enable | >= 0.5004883 Nm | | |
| | | | | | Ignition Voltage Lo | >= 8.5996094 Volts | | |
| | | | | | Ignition Voltage Hi | <= 31.999023 Volts | | |
| | | | | | Engine Speed Lo | >= 400 RPM | | |
| | | | | | Engine Speed Hi | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | if Attained Gear=1st FW Accelerator Pedal enable | >= 5.0003052 Pct | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | >= 5 Nm | | |
| | | | | | if Attained Gear=1st FW Engine Torque Enable | <= 8191.875 Nm | | |
| | | | | | Transmission Fluid Temperature | >= -6.65625 ºC | | |
| | | | | | Input Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Output Speed Sensor fault | = FALSE Boolean | | |
| | | | | | Default Gear Option is not present | = TRUE | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0716, P0717, P0722, P0723, P182E<br><br>ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E | | |
| Variable Bleed Solenoid (VBS) | P2729 | Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS) | The HWIO reports a low voltage (ground short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | P2729 Status is not | = Test Failed This Key On or Fault Active | | |

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ignition Voltage >= 8.5996094 Volt<br>Ignition Voltage <= 31.999023 Volt<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P2730 | Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS) | The HWIO reports a high voltage (open or power short) error flag | = TRUE Boolean | | | >= 0.3 Fail Time (Sec)<br>out of 0.375 Sample Time (Sec) | One Trip |
| | | | | | P2730 Status is not = Test Failed This Key On or Fault Active<br>Ignition Voltage >= 8.5996094 Volt<br>Ignition Voltage <= 31.999023 Volt<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Variable Bleed Solenoid (VBS) | P2763 | Torque Converter Clutch Pressure High | The HWIO reports a low pressure/high voltage (open or power short) error flag | = TRUE Boolean | | | >= 4.4 Fail Time (Sec)<br>out of 5 Sample Time (Sec) | Two Trips |
| | | | | | P2763 Status is not = Test Failed This Key On or Fault Active<br>Ignition Voltage >= 8.5996094 Volt<br>Ignition Voltage <= 31.999023 Volt<br>Engine Speed >= 400 RPM<br>Engine Speed <= 7500 RPM<br>Engine Speed is within the allowable limits for >= 5 Sec<br>High Side Driver Enabled = TRUE Boolean | | | |
| | | | | Disable Conditions: | MIL not Illuminated for DTC's: | TCM: P0658, P0659<br>ECM: None | | |

# 17 OBDG05 TCM Summary Tables (L96 MYD)

| Component/ System | Fault Code | Monitor Strategy Description | Malfunction Criteria | Threshold Value | Secondary Malfunction | Enable Conditions | Time Required | Mil Illum. |
|---|---|---|---|---|---|---|---|---|
| Variable Bleed Solenoid (VBS) | P2764 | Torque Converter Clutch Pressure Control Solenoid Control Circuit Low | The HWIO reports a high pressure/low voltage (ground short) error flag | = TRUE Boolean | | | >= 4.4 MPH<br>out of 5 MPH | One Trip |
| | | | | | P2764 Status is not | = Test Failed This Key On or Fault Active | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volt | | |
| | | | | | Ignition Voltage | <= 31.999023 Volt | | |
| | | | | | Engine Speed | >= 400 RPM | | |
| | | | | | Engine Speed | <= 7500 RPM | | |
| | | | | | Engine Speed is within the allowable limits for | >= 5 Sec | | |
| | | | | | High Side Driver Enabled | = TRUE Boolean | | |
| | | | Disable Conditions: | | MIL not Illuminated for DTC's: | TCM: P0658, P0659<br>ECM: None | | |
| Communication | U0073 | Controller Area Network Bus Communication Error | CAN Hardware Circuitry Detects a Low Voltage Error | = TRUE Boolean | | | >= 62 Fail counts (≈ 10 seconds)<br>Out of 70 Sample Counts (≈ 11 seconds) | One Trip |
| | | | Delay timer | >= 0.1125 sec | | | | |
| | | | | | Stabilization delay | >= 3 sec | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volt | | |
| | | | | | Ignition Voltage | <= 31.999023 Volt | | |
| | | | | | Power Mode | = Run | | |
| | | | Disable Conditions: | | MIL not Illuminated for DTC's: | TCM: None<br>ECM: None | | |
| Communication | U0100 | Lost Communications with ECM (Engine Control Module) | CAN messages from ECM are not received by the TCM | = TRUE Boolean | | | >= 12 sec | One Trip |
| | | | | | Stabilization delay | >= 3 sec | | |
| | | | | | Ignition Voltage | >= 8.5996094 Volt | | |
| | | | | | Ignition Voltage | <= 31.999023 Volt | | |
| | | | | | Power Mode | = Run | | |
| | | | Disable Conditions: | | MIL not Illuminated for DTC's: | TCM: U0073<br>ECM: None | | |

**Table 1**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Axis** | 0.00 | 64.00 | 128.00 | 192.00 | 256.00 | 320.00 | 384.00 | 448.00 | 512.00 | N*m |
| **Curve** | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | RPM |

**Table 2**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 409.59 | 2.00 | 2.00 | Sec |

**Table 3**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 409.59 | 4.00 | 4.00 | Sec |

**Table 4**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 409.59 | 2.00 | 2.00 | Sec |

**Table 5**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 409.59 | 3.00 | 3.00 | Sec |

**Table 6**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | 80.00 | 120.00 | ºC |
| **Curve** | 409.00 | 3.60 | 1.60 | 1.40 | 1.40 | Sec |

**Table 7**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | 80.00 | 120.00 | ºC |
| **Curve** | 409.00 | 3.40 | 1.40 | 1.30 | 1.20 | Sec |

**Table 8**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | 80.00 | 120.00 | ºC |
| **Curve** | 409.00 | 3.60 | 1.60 | 1.50 | 1.40 | Sec |

**Table 9**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | 80.00 | 120.00 | ºC |
| **Curve** | 409.00 | 3.30 | 1.30 | 1.20 | 1.10 | Sec |

**Table 10**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 0.00 | 30.00 | 110.00 | ºC |
| **Curve** | 3.03 | 1.86 | 1.00 | 0.75 | 0.58 | Sec |

**Table 11**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 0.00 | 30.00 | 110.00 | ºC |
| **Curve** | 1.72 | 1.11 | 0.60 | 0.36 | 0.22 | Sec |

**Table 12**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 0.00 | 30.00 | 110.00 | ºC |
| **Curve** | 2.12 | 1.39 | 0.84 | 0.64 | 0.33 | Sec |

**Table 13**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 0.00 | 30.00 | 110.00 | ºC |
| **Curve** | 2.51 | 0.95 | 0.50 | 0.29 | 0.13 | Sec |

**Table 14**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 0.00 | 30.00 | 110.00 | ºC |
| **Curve** | 2.97 | 0.82 | 0.47 | 0.20 | 0.13 | Sec |

**Table 15**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Axis** | -40.00 | -30.00 | -20.00 | -10.00 | 0.00 | 10.00 | 20.00 | 30.00 | 40.00 | ºC |
| **Curve** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Sec |

**Table 16**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 409.59 | 2.50 | 2.50 | Sec |

**Table 17**

| | | | | |
|---|---|---|---|---|
| **Axis** | -6.67 | -6.66 | 40.00 | ºC |
| **Curve** | 0.40 | 0.35 | 0.30 | Sec |

**Table 18**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Axis** | -40.10 | -40.00 | -20.00 | 0.00 | 30.00 | 60.00 | 100.00 | 149.00 | 149.10 | ºC |
| **Curve** | 256.00 | 50.00 | 45.00 | 40.00 | 34.00 | 25.00 | 20.00 | 20.00 | 256.00 | ºC |

**Table 19**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Axis** | -40.10 | -40.00 | -20.00 | 0.00 | 30.00 | 60.00 | 100.00 | 149.00 | 149.10 | ºC |
| **Curve** | 256.00 | 50.00 | 45.00 | 40.00 | 34.00 | 25.00 | 20.00 | 20.00 | 256.00 | ºC |

**Table 20**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Axis** | -40.10 | -40.00 | -20.00 | 0.00 | 30.00 | 60.00 | 100.00 | 149.00 | 149.10 | ºC |
| **Curve** | 256.00 | 10.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 256.00 | ºC |

**Table 21**

| | | | | |
|---|---|---|---|---|
| **Axis** | -40.00 | -20.00 | 40.00 | ºC |
| **Curve** | 5.00 | 3.00 | 1.00 | Sec |

## 17 OBDG05 Diagnostic Supporting Tables

3D_Table 1

| | |
|---|---|
| X-Axis Calibration | % |
| Y-Axis Calibration | ºC |
| Table Calibration | RPM/Sec |

| | 0.00 | 2.00 | 5.00 | 25.00 | 100.00 |
|---|---|---|---|---|---|
| -6.67 | 8191.75 | 8191.75 | 8191.75 | 8191.75 | 8191.75 |
| -6.66 | 8191.75 | 8191.75 | 8191.75 | 8191.75 | 8191.75 |
| 40.00 | 8191.75 | 8191.75 | 8191.75 | 8191.75 | 8191.75 |

3D_Table 2

| | |
|---|---|
| X-Axis Calibration | % |
| Y-Axis Calibration | ºC |
| Table Calibration | RPM/Sec |

| | 0.00 | 2.00 | 5.00 | 25.00 | 100.00 |
|---|---|---|---|---|---|
| -6.67 | 8191.75 | 8191.75 | 8191.75 | 8191.75 | 8191.75 |
| -6.66 | 500.00 | 500.00 | 300.00 | 300.00 | 300.00 |
| 40.00 | 500.00 | 500.00 | 300.00 | 300.00 | 300.00 |