



DTC Summaries

5 HP 24 Transmission Control System – 2000 MY

OBD II MONITORING CONDITIONS:

When testing for OBD II DTC reoccurrence, it can be determined if the Service Drive Cycle was of sufficient length by performing a PDU "Systems Readiness Test".

The Systems Readiness Test is accessed via the PDU menu structure.

Further confirmation of the System Readiness Test status is available by retrieving the logged DTCs.

- If DTC P1000 is logged in memory, the on-board diagnostic tests have not been completed.
- If DTC P1111 is logged in memory, all on-board diagnostic tests have been completed.

NON OBD II MONITORING CONDITIONS:

When testing for reoccurrence of non OBD II DTCs, ensure that the vehicle is operated as described in MONITORING CONDITIONS for the particular DTC. Retrieve non OBD II DTCs from the TCM via PDU through the Data Link Connector (DLC).

Refer to page 2 for important information regarding the use of this Summary.

NOTES

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|------------------------------|---|---|
| MONITORING CONDITIONS | "SERVICE DRIVE CYCLE" for the particular DTC. Operate the vehicle as described to check for a reoccurrence of the DTC. | |
| OBD II | Y | YES – indicates that the DTC is an OBD II DTC. |
| | N | NO – indicates that the DTC is a non OBD II DTC. |
| CHECK ENGINE MIL (CK ENG) | 1 | 1 TRIP – indicates that the CHECK ENGINE MIL is activated by a fault occurring during ONE "TRIP". |
| | 2 | 2 TRIPS – indicates that the CHECK ENGINE MIL is activated by a fault occurring during TWO CONSECUTIVE "TRIPS". |
| | N | NO – indicates that the CHECK ENGINE MIL is not activated |
| OTHER | N | None |
| | @F | Indicator is activated when fault is detected. |
| | R | RED MIL |
| | A | AMBER MIL |
| | M | MESSAGE " GEARBOX FAULT" |
| DEFAULT ACTION | TCM default action | |
| LOGGED / FLAGGED | Logged – DTC stored in memory buffer (TCM or ECM); Flagged – DTC stored in ECM memory / CHECK ENGINE MIL activated. | |
| LIMP HOME DEFAULTS | Except for DTC P0715, all limp home defaults will cancel on the next ignition ON cycle, provided the fault is no longer present. After P0715 is logged, the transmission will remain in mechanical limp home mode until the fault is corrected and the DTC erased from memory. | |

REFERENCE: It is recommended that the applicable "Electrical Guide" be referenced when using the information contained in this document.

PDU DATALOGGER ACRONYMS

| | | | |
|---------|--|------|--------------------------------|
| SSM1 | Solenoid 1 output | PR1C | Pressure regulator 1 |
| SSM2 | Solenoid 2 output | PR2C | Pressure regulator 2 |
| SSM3 | Solenoid 3 output | PR3C | Pressure regulator 3 |
| TRSA | Transmission range switch A (CAN message) | PR4C | Pressure regulator 4 |
| TRSB | Transmission range switch B (CAN message) | PR5C | Pressure regulator 5 |
| TRSC | Transmission range switch C (CAN message) | SWL1 | Rotary gear position switch L1 |
| CHKTRAN | Transmission fault indicator (AMBER / MESSAGE) | SWL2 | Rotary gear position switch L2 |
| CLV | Calculated load value | SWL3 | Rotary gear position switch L3 |
| CRUISE1 | Cruise control status 1 | SWL4 | Rotary gear position switch L4 |
| CRUISE2 | Cruise control status 2 | TA1 | Traction status 1 |
| CRUISE3 | Cruise control status 3 | TA2 | Traction status 2 |
| D4SW | D – 4 Switch | TA3 | Traction status 3 |
| DTCS | Diagnostic trouble codes | TACK | Torque reduction acknowledge |
| ECT | Engine coolant temperature | TCC | Torque converter clutch |
| HOT | Hot running mode | TIS | Transmission input speed |
| KDSW | Kickdown switch | TOS | Transmission output speed |
| MPROBE | Measurement probe | TOT | Transmission fluid temperature |
| PMODEA | Performance mode switch A | TPS | Throttle position sensor |
| PPS | Pedal position sensor | TREQ | Torque reduction request |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|---|--------|--------|--------------|--|---|
| P0702 | TCM internal power supply switching malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Transmission to TCM harness (TCM pins 52, 53) open circuit, short circuit or high resistance TCM failure |
| P0706 | Rotary switch and/or D - 4 switch malfunction | Engine running; operate gear selector through all positions | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Selector cable adjustment / installation incorrect D - 4 switch dislocated D - 4 switch to TCM circuit open circuit or short circuit to ground D - 4 switch failure Rotary switch to TCM circuit open circuit or short circuit to ground Rotary switch failure |
| P0711 | Transmission fluid temperature sensor range / performance | Run transmission from cold to normal operating temperature | Y | 2 | @F [A, M] | When fault is detected: - TCM substitutes ECT (engine coolant temperature) | Transmission to TCM temperature sensor circuit open circuit, short circuit or high resistance Transmission internal temperature sensor circuit (internal harness) open circuit, short circuit or high resistance Fluid temperature sensor failure |
| P0712 | Transmission fluid temperature sensor circuit low voltage (high fluid temperature) | Run transmission from cold to normal operating temperature | Y | 2 | @F [A, M] | When fault is detected: - TCM substitutes ECT (engine coolant temperature) | Transmission to TCM temperature sensor circuit short circuit to ground Transmission internal temperature sensor circuit (internal harness) short circuit to ground Fluid temperature sensor failure |
| P0713 | Transmission fluid temperature sensor circuit high voltage (low fluid temperature) | Run transmission from cold to normal operating temperature | Y | 2 | @F [A, M] | When fault is detected: - TCM substitutes ECT (engine coolant temperature) | Transmission to TCM temperature sensor circuit open circuit, short circuit to high voltage, or high resistance Transmission internal temperature sensor circuit (internal harness) open circuit, short circuit to high voltage, or high resistance Fluid temperature sensor failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|---|---|--------|--------|--------------|--|--|
| P0715 | Input speed sensor circuit malfunction | Drive vehicle in forward gear (engine speed > 608 rpm) | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Transmission to TCM input speed sensor circuit open circuit, short circuit or high resistance Transmission to TCM input speed sensor circuit shielding defective Transmission internal input speed sensor circuit open circuit, short circuit or high resistance Input speed sensor failure |
| P0721 | Output speed sensor circuit malfunction | Drive vehicle in forward gear >15 mph (25 km/h) | N | N | N | When fault is detected: - TCM substitutes rear wheel speed for transmission output speed (via CAN) (This fault is not detectable by driver.) | Transmission to TCM output speed sensor circuit open circuit, short circuit or high resistance Transmission to TCM output speed sensor circuit shielding defective Transmission internal output speed sensor circuit open circuit, short circuit or high resistance Output speed sensor failure |
| P0731 | Gear control malfunction – 1st | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | @F [A, M] | When fault is detected: - TCM adopts transmission electronic limp home mode (5th gear) - ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P0732 | Gear control malfunction – 2nd | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | @F [A, M] | When fault is detected: - TCM adopts transmission electronic limp home mode (5th gear) - ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|-----------------------------------|--|--------|--------|--------------|--|---|
| P0733 | Gear control malfunction – 3rd | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | @F [A, M] | When fault is detected: – TCM adopts transmission electronic limp home mode (5th gear) – ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P0734 | Gear control malfunction – 4th | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | @F [A, M] | When fault is detected: – TCM adopts transmission electronic limp home mode (5th gear) – ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P0735 | Gear control malfunction – 5th | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P0741 | Torque converter clutch stuck OFF | Drive vehicle on level road at highway cruising speed; accelerate slowly; decelerate to highway cruising speed | Y | 2 | N | When fault is detected: – TCM inhibits TCC control | Transmission to TCM pressure regulator 4 circuit open circuit, short circuit or high resistance Transmission internal pressure regulator 4 circuit open circuit, short circuit or high resistance Pressure regulator 4 failure Control valve (valve block) failure Torque converter failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|-----------------------------------|--------|--------|--------------|--|---|
| P0742 | Torque converter clutch stuck ON | Drive vehicle; accelerate rapidly | Y | 2 | @F [A, M] | When fault is detected: – TCM inhibits TCC control NOTE: P to D, R shifts may be harsh. | Transmission to TCM pressure regulator 4 circuit open circuit, short circuit or high resistance Transmission internal pressure regulator 4 circuit open circuit, short circuit or high resistance Pressure regulator 4 failure Control valve (valve block) failure Torque converter failure |
| P0743 | Torque converter clutch pressure regulator (4) circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM pressure regulator 4 circuit open circuit or short circuit Transmission internal pressure regulator 4 circuit open circuit or short circuit Pressure regulator 4 failure |
| P0753 | Shift solenoid valve 1 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM shift solenoid valve 1 circuit open circuit or short circuit Transmission internal shift solenoid valve 1 circuit open circuit or short circuit Shift solenoid valve 1 failure |
| P0758 | Shift solenoid valve 2 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM shift solenoid valve 2 circuit open circuit or short circuit Transmission internal shift solenoid valve 2 circuit open circuit or short circuit Shift solenoid valve 2 failure |
| P0763 | Shift solenoid valve 3 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM shift solenoid valve 3 circuit open circuit or short circuit Transmission internal shift solenoid valve 3 circuit open circuit or short circuit Shift solenoid valve 3 failure |
| P0790 | Mode switch circuit malfunction | Ignition ON | N | N | N | When fault is detected: – TCM adopts Normal Mode | Mode switch to TCM circuits open circuit, short circuit or high resistance Mode switch failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|--------------------------------|--------|--------|--------------|--|---|
| P1603 | TCM memory error | Switch ignition ON | Y | 1 | @F [A, M] | None | TCM failure |
| P1605 | TCM data corrupted | Ignition ON for 2 minutes | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | TCM failure |
| P1608 | TCM hardware failure | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | TCM failure |
| P1632 | CAN loss of throttle data | Engine running | N | N | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Other CAN control module CAN related fault(s) CAN open circuit fault – ECM to TCM CAN short circuit fault Throttle failure ECM failure TCM failure |
| P1700 | Multiple transmission failures requiring conflicting TCM default actions | Drive vehicle | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) ECM limits engine power | Other DTCs flagged |
| P1720 | TCM loss of output speed signal and loss of CAN wheel speed messages NOTE: DTC P0721 will be logged first | Drive vehicle; ABS/TC inactive | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Output speed sensor problem – DTC P0721 logged; in addition: ABS/TCM – CAN wheel speed data corrupted Wheel speed sensor(s) failure ABS/TC fault |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|---|--------|--------|--------------|--|--|
| P1722 | Transmission stall speed failure | Drive vehicle from stand still; accelerate hard | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission electronic limp home mode (5th gear) - ECM limits engine power | Transmission oil level low Selector cable adjustment / installation incorrect Output speed sensor problem (Refer to P0721 Possible Causes) Transmission mechanical failure |
| P1726 | Engine overspeed malfunction | Drive vehicle; accelerate at full throttle | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Output speed sensor problem (Refer to P0721 Possible Causes) ECM – CAN engine speed data corrupted Transmission mechanical failure |
| P1732 | Gearshift load control malfunction – 2nd to 3rd shift NOTE: DTC P1732 can only be retrieved using PDU. DTC P1779 is substituted for retrieval by a generic scan tool. | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | N | When fault is detected: - TCM defaults transmission to 1st and 2nd gear only | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P1733 | Gearshift load control malfunction – 3rd to 4th shift NOTE: DTC P1733 can only be retrieved using PDU. DTC P1779 is substituted for retrieval by a generic scan tool. | Drive vehicle so that transmission shifts through all gears; repeat several times | N | N | N | When fault is detected: - TCM defaults transmission to 1st and 2nd gear only | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P1734 | Gear ratio malfunction – 5th | Drive vehicle so that transmission shifts through all gears; repeat several times | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|--|--------|--------|--------------|--|--|
| P1739 | Gear ratio malfunction – 2nd, 3rd and/or 4th | Drive vehicle so that transmission shifts through all gears; repeat at least twice | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission electronic limp home mode (5th gear) – ECM limits engine power | Transmission oil level low Output speed sensor problem (Refer to P0721 Possible Causes) Input speed sensor problem (Refer to P0715 Possible Causes) Transmission mechanical failure |
| P1745 | Pressure regulator 1 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM pressure regulator 1 circuit open circuit or short circuit Transmission internal pressure regulator 1 circuit open circuit or short circuit Pressure regulator 1 failure |
| P1746 | Pressure regulator 2 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM pressure regulator 2 circuit open circuit or short circuit Transmission internal pressure regulator 2 circuit open circuit or short circuit Pressure regulator 2 failure |
| P1747 | Pressure regulator 3 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM pressure regulator 3 circuit open circuit or short circuit Transmission internal pressure regulator 3 circuit open circuit or short circuit Pressure regulator 3 failure |
| P1748 | Pressure regulator 5 circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission to TCM pressure regulator 5 circuit open circuit or short circuit Transmission internal pressure regulator 5 circuit open circuit or short circuit Pressure regulator 5 failure |
| P1758 | Pressure regulator circuit (2,3 and 5 combined) – incorrect total current detected | Drive vehicle so that transmission shifts through all gears; repeat at least twice | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | TCM failure |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|--|--|--------|--------|--------------|---|--|
| P1779 | Gearshift malfunction 2-3; 3-4 | Transmission fluid temperature >20 °C (68 °F). Drive vehicle so that transmission shifts through all gears; repeat several times | Y | 2 | @F [A, M] | When CHECK ENGINE MIL is activated (DTC flagged; second trip): – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Transmission oil level low Transmission mechanical failure |
| P1789 | Ignition switched power supply low voltage (>7 V, <9 V) NOTE: Voltage must be at least 7 V for the DTC to be flagged. | Run engine >1600 rpm | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Ignition switched power supply circuit high resistance, intermittent short or open circuit Battery intermittent failure Generator intermittent failure |
| P1793 | Ignition switched power supply very low or very high voltage (< 7 V, >16V) NOTE: Voltage must be at least 7 V for the DTC to be flagged | Run engine >1600 rpm | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Ignition switched power supply circuit high resistance, intermittent short or open circuit Battery intermittent failure Generator intermittent failure |
| P1794 | Battery power supply malfunction | Switch ignition ON | N | N | N | None NOTE: Transmission adaptations will be lost resulting in reduced shift quality. | Battery power supply circuit fuse blown Battery power supply circuit high resistance, short or open circuit |
| P1795 | CAN token messages – inconsistent level | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | CAN control module(s) software error(s): ABS/TCCM, ECM, INST – check for additional DTC(s) to locate control module source Incorrect control module(s) installed – ABS/TCCM, TCM, ECM, INST |
| P1796 | CAN circuit malfunction | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: – TCM adopts transmission mechanical limp home mode (4th gear) – ECM limits engine power | Other CAN control module CAN related fault(s) CAN short circuit fault Control module failure – check for additional DTC(s) to locate control module source |

| DTC | FAULT DESCRIPTION | MONITORING CONDITIONS | OBD II | CK ENG | OTHER | DEFAULT ACTION | POSSIBLE CAUSES |
|-------|------------------------------------|-----------------------|--------|--------|--------------|---|---|
| P1797 | CAN ECM token message missing | Ignition ON | Y | 2 | @F [A, M] | When fault is detected: - TCM adopts transmission mechanical limp home mode (4th gear) - ECM limits engine power | Other CAN control module CAN related fault(s) CAN open circuit fault – ECM to TCM CAN short circuit fault ECM failure TCM failure |
| P1798 | CAN INST token message missing | Ignition ON | N | N | N | None | Other CAN control module CAN related fault(s) CAN open circuit fault – INST to TCM CAN short circuit fault INST failure TCM failure |
| P1799 | CAN ABS/TCCM token message missing | Ignition ON | N | N | N | When fault is detected: - TCM substitutes output speed for rear wheel speed NOTE: This fault is not detectable by driver. | Other CAN control module CAN related fault(s) CAN open circuit fault – ABS/TCCM to TCM CAN short circuit fault ABS/TCCM failure TCM failure |