



# DTC Summaries

## 5 HP 24 Transmission Control System – 1999 MY

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### **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

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
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/TCCM – CAN wheel speed data corrupted Wheel speed sensor(s) failure ABS/TC fault
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



DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
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
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

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
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
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

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
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
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

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
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