



# DTC Summaries

## W5A-580 Transmission Control System

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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 Two types of limp home defaults may occur – electronic limp home and mechanical limp home.

**Electronic limp home** occurs when an electrical fault is detected. If the vehicle is being driven, electronic limp home maintains the selected gear until the ignition is switched OFF. When the vehicle is restarted (after a minimum 10 second wait), the transmission will operate in 2nd and REVERSE only. The default will remain in effect until the fault is corrected and the DTC erased from memory.

**Mechanical limp home** occurs when a mechanical / hydraulic fault is detected. When the fault is detected, the transmission shifts into 3rd gear and remains in this gear. The default will cancel on the next ignition cycle, provided the fault is no longer present.

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

## PDU DATALOGGER ACRONYMS

CHKTRAN	Transmission fault indicator (Amber / Message)	TA3	Traction status 3
DTCS	Diagnostic trouble codes	TACK	Torque reduction acknowledge
ECT	Engine coolant temperature	TCC	Torque converter clutch
IGN1+	Ignition positive supply	TIS	Transmission input speed
KDSW	Kickdown switch	TOS	Transmission output speed
MPROBE	Measurement probe	TOT	Transmission oil temperature
PMODEA	Performance mode switch A	TPS	Throttle position sensor
PPS	Pedal position sensor	TREQ	Torque reduction request
PRMD	Modulation pressure regulator	TRSA	Transmission range switch A (CAN message)
PRSD	Shift pressure regulator	TRSB	Transmission range switch B (CAN message)
RPM	Revolutions per/minute	TRSC	Transmission range switch C (CAN message)
SOL1	Shift solenoid 1 (A)		
SOL2	Shift solenoid 2 (B)		
SOL3	Shift solenoid 3 (C)		
SWL0	Gear position switch input L0		
SWL1	Gear position switch input L1		
SWL2	Gear position switch input L2		
SWL3	Gear position switch input L3		

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0702	TCM solenoid valves and speed sensors supply voltage(s) malfunction	Ignition ON 5 seconds	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	TCM to transmission speed sensors supply circuit: open circuit, high resistance, short circuit to ground or short circuit to B+ voltage TCM to transmission solenoid valves supply circuit: open circuit, high resistance or short circuit to ground TCM internal failure
P0705	Dual linear switch signal(s) malfunction	Ignition ON 5 seconds	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode – ECM limits engine power	TCM to dual linear switch circuits (4): high resistance, short circuit to ground or short circuit to B+ voltage Dual linear switch failure
P0706	Dual linear switch signals missing  Note: The DTC will be cleared by the TCM if the fault condition is corrected while the vehicle is operating. The DTC can only be read if the fault is present during diagnostic testing.	Ignition ON 5 seconds  Note: If the fault is present at start-up, the engine will not crank and the J-gate will not be illuminated.	N	N	N	If the fault is detected while driving: – TCM adopts transmission electronic limp home mode	Selector lever in intermediate position between P,R,N,D,4,3,2 TCM to dual linear switch circuits (4): open circuit (connector disconnected) Dual linear switch failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0710	Transmission fluid temperature sensor circuit malfunction	Ignition ON 5 seconds	N	N	@F [A,M*]	When the fault is detected: – TCM substitutes the engine coolant temperature for the transmission fluid temperature (via CAN)  *MESSAGE: HIGH TEMP GEARBOX	Selector cable adjustment / installation incorrect Dual linear switch adjustment incorrect Transmission to TCM fluid temperature sensor sense circuit: open circuit, high resistance, short circuit to high voltage or short circuit to ground Transmission to TCM speed / temperature sensors ground circuit: open circuit or short circuit to high voltage (DTC P0715 will also be flagged) Transmission internal fluid temperature sensor sense circuit: open circuit, high resistance or short circuit to ground Transmission internal reed switch (not used) failure Transmission internal speed / temperature sensors ground circuit: open circuit voltage (DTC P0715 will also be flagged) Transmission fluid temperature sensor failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0715	n2 and / or n3 Speed sensor circuits malfunction  Note: This DTC will apply to the n3 speed sensor circuit only after the n2 speed sensor circuit is verified OK	Drive vehicle > 25 mph (41 km/h); 3rd or 4th gear; no shift in progress  Note: If DTCs P1632 and P1720 are logged, the "service drive cycle" cannot be completed.	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM n2 speed sensor sense circuit: open circuit, high resistance, short circuit to high voltage or short circuit to ground Transmission to TCM speed / temperature sensors ground circuit: open circuit or short circuit to high voltage (DTC P0710 will also be flagged) Transmission internal n2 speed sensor sense circuit: open circuit, high resistance or short circuit to ground Transmission internal speed / temperature sensors ground circuit: open circuit voltage (DTC P0710 will also be flagged) n2 Speed sensor failure Transmission to TCM speed sensors supply circuit, high resistance, short circuit to ground or short circuit to B+ voltage Transmission to TCM n3 speed sensor sense circuit: open circuit, high resistance, short circuit to high voltage or short circuit to ground Transmission internal n3 speed sensor sense circuit: open circuit, high resistance or short circuit to ground n3 Speed sensor failure Transmission mechanical failure
P0730	Incorrect gear ratio	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>  Note: If any of the following DTCs are logged, the "service drive cycle" cannot be completed: P0705, P0706, P0715 (n2 sensor), P1720, P1796.	Y	2	@F [A, M]	When fault is detected: – TCM adopts transmission mechanical limp home mode – ECM limits engine power	Transmission oil level low Transmission mechanical / hydraulic failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0740	Torque converter clutch (TCC) solenoid valve circuit malfunction; TCC stuck on	Ignition ON; selector in P or N for 5 SEC. seconds; then, drive vehicle so that transmission shifts through all gears; repeat several times  Note: If any of the following DTCs are logged, the "TCC stuck on service drive cycle" cannot be completed: P0715, P1632, P1796.	Y	2	@F [A, M]	When a TCC solenoid valve circuit fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM TCC solenoid valve drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal TCC solenoid valve drive circuit: open circuit, high resistance or short circuit to ground TCC solenoid valve failure Torque converter mechanical / hydraulic failure Transmission mechanical / hydraulic failure
P0748	Modulation pressure (MD) control solenoid valve circuit malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM MD solenoid valve drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal MD solenoid valve drive circuit: open circuit, high resistance or short circuit to ground MD solenoid valve failure
P0753	Shift solenoid valve A (1st – 2nd; 4th – 5th) circuit malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM shift solenoid valve A (1st – 2nd; 4th – 5th) drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal shift solenoid valve A (1st – 2nd; 4th – 5th) drive circuit: open circuit, high resistance or short circuit to ground Shift solenoid valve A (1st – 2nd; 4th – 5th) failure Control valve (valve body) hydraulic failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0758	Shift solenoid valve B (2nd – 3rd) circuit malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM shift solenoid valve B (2nd – 3rd) drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal shift solenoid valve B (2nd – 3rd) drive circuit: open circuit, high resistance or short circuit to ground Shift solenoid valve B (2nd – 3rd) failure Control valve (valve body) hydraulic failure
P0763	Shift solenoid valve C (3rd – 4th) circuit malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM shift solenoid valve C (3rd – 4th) drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal shift solenoid valve C (3rd – 4th) drive circuit: open circuit, high resistance or short circuit to ground Shift solenoid valve C (3rd – 4th) failure Control valve (valve body) hydraulic failure
P0780	Gear shift malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>  Note: If any of the following DTCs are logged, the “service drive cycle” cannot be completed: P0705, P0706, P0715 (n2 sensor), P1720, P1796.	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode – ECM limits engine power	Transmission oil level low Transmission oil condition Transmission mechanical / hydraulic failure
P1601	TCM memory / computer fault	Ignition ON 5 seconds	Y	1	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	TCM – Dual linear switch – transmission wiring harness and/or connector(s) fault. (Short circuit; open circuit; high resistance) TCM failure
P1608	TCM software fault	Ignition ON 5 seconds	N	N	N	None	TCM failure



DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1632	ABS front wheel speed CAN messages corrupted or EMS CAN individual message corrupted – pedal position; engine speed; engine torque; engine coolant temperature	Engine at normal operating temperature; drive vehicle	N	N	N	When fault is detected: – Front wheel speed – TCM stops calculating vehicle lateral acceleration – Pedal position – TCM substitutes value of 25.6% – Engine speed – TCM substitutes value of 750 rpm; TCC remains released – Engine torque – TCM substitutes value of 600 Nm (443 lb ft) – Engine coolant temperature – TCM substitutes value of 80 °C (176 °F)	CAN circuit malfunction (other CAN nodes affected) ABS/TCCM – CAN front wheel speed data corrupted ABS/TC fault ECM – CAN data corrupted EMS fault
P1720	ABS rear wheel speed CAN messages corrupted or ABS token message corrupted	Drive vehicle; ABS/TC inactive; ABS/TC active	Y	2	N	When the fault is detected: – TCM adopts transmission electronic limp home mode	CAN circuit malfunction (other CAN nodes affected) ABS/TCCM – CAN rear wheel speed data corrupted ABS/TC fault
P1727	n3 Speed – overspeed detected	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	N	N	N	None	Transmission mechanical failure
P1744	Torque converter clutch (TCC) failure (stuck off)	Drive vehicle on level road at highway cruising speed; accelerate slowly; decelerate to highway cruising speed  Note: If any of the following DTCs are logged, the “service drive cycle” cannot be completed: P0715, P1632, P1796.	Y	1	@F [A, M]	When the fault is detected: – TCM inhibits TCC control	Transmission to TCM TCC solenoid valve drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal TCC solenoid valve drive circuit: open circuit, high resistance or short circuit to ground TCC solenoid valve failure Torque converter mechanical / hydraulic failure Transmission mechanical / hydraulic failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1748	Shift pressure (SD) control solenoid valve circuit malfunction	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>	Y	2	@F [A, M]	When the fault is detected: – TCM adopts transmission electronic limp home mode	Transmission to TCM SD solenoid valve drive circuit: open circuit, high resistance, short circuit to B+ voltage or short circuit to ground Transmission internal SD solenoid valve drive circuit: open circuit, high resistance or short circuit to ground SD solenoid valve failure
P1780	Torque reduction acknowledge (CAN message) incorrect	Drive vehicle so that transmission shifts through all gears; <b>repeat several times</b>  Note: If any of the following DTCs are logged, the "service drive cycle" cannot be completed: P1632, P1796.	N	N	N	None	CAN circuit malfunction (other CAN nodes affected) ECM failure TCM failure
P1794	Battery power supply malfunction	Ignition ON 5 seconds	N	N	N	When the fault is detected: – TCM adopts transmission electronic limp home mode	Battery power supply circuit fuse blown Battery power supply circuit high resistance, open circuit or short circuit
P1796	CAN circuit malfunction	Ignition ON 5 seconds	Y	2	N	When the fault is detected: – TCM adopts transmission electronic limp home mode	Other CAN node(s) related faults CAN wiring circuit: high resistance or short circuit CAN control module(s) failure(s) – check for additional DTC(s) to locate control module source
P1797	CAN ECM messages (all) corrupted or CAN ECM token message missing	Ignition ON 5 seconds	Y	2	N	When fault is detected: – CAN ECM messages (all) corrupted – TCM substitutes high engine torque and speed values (to prevent transmission damage) – CAN ECM token message missing – TCM adopts transmission electronic limp home mode	Other CAN node(s) related faults CAN wiring circuit – TCM to ECM: open circuit CAN wiring circuit: high resistance or short circuit ECM failure

<b>DTC</b>	<b>FAULT DESCRIPTION</b>	<b>MONITORING CONDITIONS</b>	<b>OBD II</b>	<b>CK ENG</b>	<b>OTHER</b>	<b>DEFAULT ACTION</b>	<b>POSSIBLE CAUSES</b>
P1798	CAN INST token message missing	Ignition ON 5 seconds	N	N	N	None	Other CAN node(s) related faults CAN wiring circuit – TCM to INST: open circuit CAN wiring circuit: high resistance or short circuit INST failure