SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Vehicle Speed Sensor (VSS) Low Voltage	P0502	0 RPM to 6000 RPM This DTC detects a very low vehicle speed signal when the vehicle has a large engine speed in a drive gear range.	No MAP Sensor DTCs No Transmission ISS DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off TFT $\ge 0^{\circ}$ C TP $\ge 12\%$ 0 kPa \le MAP ≤ 105 kPa 50 lb ft < Engine Torque < 300 lb ft Transmission ISS ≥ 1500 RPM TCC Slip Speed ≥ 0 RPM	Transmission OSS ≤ 150 RPM for 5 seconds	Fault Active This Key On (FATKO) Max Line Pressure Inhibit Driver Shift Control Freeze Adapts Use Calculated Transmission OSS to continue shifting	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message
Vehicle Speed Sensor (VSS) Intermittent	P0503	0 RPM to 6000 RPM This DTC detects a large drop in the vehicle speed signal in a very short period of time (unrealistic change).	Time Since Last Gear Selector Range Change ≥ 6 seconds Rise in Transmission OSS < 250 RPM for 2 seconds	Drop in Transmission OSS ≥ 1500 RPM for 2 seconds	Fault Active This Key On (FATKO) Max Line Pressure Inhibit Driver Shift Control Freeze Adapts Use Calculated Transmission OSS to continue shifting	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Transmission Fluid Temperature (TFT) Sensor Performance	P0711	-40° C to 151° C This DTC detects a TFT that remains constant for a period of time in which a measurable amount of change is expected or a TFT in which large rapid changes occur in a very short period of time (unrealistic change).	No ECT Sensor DTCs No VSS DTCs No Transmission ISS DTCs $8V \le System Voltage \le 18V$ Engine Running ≥ 300 seconds $10 \le Trans Temp AD Counts \le 251$ $(0.2 \text{ volts} \le TFT \text{ Sensor} \le 4.92 \text{ volts})$ $-40^{\circ} C \le TFT \text{ at startup} \le 21^{\circ} C$ ECT $\ge 84^{\circ} C$ and has changed $\ge 55^{\circ} C$ since startup Vehicle Speed $\ge 5 \text{ mph for} \ge 409$ seconds cumulatively this ignition TCC Slip Speed $\ge 80 \text{ RPM for} \ge 409 \text{ seconds cumulatively this ignition}$	Fail Case 1 TFT has not changed ≥ 1.5° C since startup for 409 seconds <u>Fail Case 2</u> TFT changes ≥ 20° C, 14 times within 7 seconds DTC will set if either Fail Case is True	Fault Active (FA) Freeze Adapts Calculate Default Transmission Temperature	Type C No MIL Illumination No DIC Message
Transmission Fluid Temperature (TFT) Sensor Circuit Low Voltage	P0712	0.20V to 4.92V The DTC detects a continuous short to ground in the TFT Sensor signal circuit or the TFT Sensor.	$8V \le System Voltage \le 18V$ The Ignition Switch is in the ON position	Trans Temp AD Counts ≤ 10 (TFT Sensor ≤ 0.20 volts) for 10 seconds	Fault Active (FA) Freeze Adapts Calculate Default Transmission Temperature	Type C No MIL Illumination No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Transmission Fluid Temperature (TFT) Sensor Circuit High Voltage	P0713	0.20V to 4.92V The DTC detects a continuous open or short to voltage in the TFT Sensor circuit or the TFT Sensor.	$8V \le System Voltage \le 18V$ The Ignition Switch is in the ON position	Trans Temp AD Counts ≥ 251 (TFT Sensor ≥ 4.92 volts) for 400 seconds	Fault Active (FA) Freeze Adapts Calculate Default Transmission Temperature	Type C No MIL Illumination No DIC Message
Input Speed Sensor (ISS) Performance	P0716	0 RPM to 6000 RPM This DTC detects a large change in the input speed signal in a very short period of time (unrealistic change).	No VSS DTCs No Transmission ISS DTCs No 1-2 SS Electrical/Performance DTCs DTC P0717 Passed This Ignition Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off TP \ge 14% Vehicle Speed \ge 5 mph	Change in Input Speed ≥ 1300 RPM for 0.8 second	Fault Active This Key On (FATKO) Inhibit TCC Inhibit Driver Shift Control Inhibit 4 th Gear in Hot Mode Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message
Input Speed Sensor (ISS) Low Voltage	P0717	Input Speed Sensor (ISS) Low Voltage	No VSS DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 50 lb ft < Engine Torque < 500 lb ft Vehicle Speed ≥ 5 mph	Transmission ISS < 100 RPM for 5 seconds	Fault Active This Key On (FATKO) Inhibit TCC Inhibit Driver Shift Control Inhibit 4 th Gear in Hot Mode Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Torque Converter Clutch (TCC) System – Stuck Off	P0741	This DTC detects a high TCC Slip Speed when the TCC is Commanded On.	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No TCC Solenoid Electrical DTC No TCC Release Switch DTC Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ Transmission Gear Selector in D2, D3 or D4 Range 4% < TP < 99% 21 lb ft < Engine Torque < 500 lb ft TCC Locked Capacity > 50% or Max Allowed Pressure If Commanded Gear is 2nd, then 1.5 < Gear Ratio < 1.05 If Commanded Gear is 4 th , then 0.7 < Gear Ratio < 0.8	If TCC Slip Speed ≥ 180 RPM for 7 seconds, then increment Fail Counter. DTC will set when Fail Counter = 2	Fault Active This Key On (FATKO) Inhibit TCC Inhibit Driver Shift Control Inhibit 4 th Gear in Hot Mode Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Torque Converter Clutch (TCC) System – Stuck On	P0742	Torque Converter Clutch (TCC) System – Stuck On	No TCC Solenoid Electrical DTC No TCC Release Switch DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ $5\% \le TP \le 45\%$ 70 lb ft < Engine Torque < 200 lb ft TCC is Commanded Off	If the TCC Release Switch is Closed (indicating TCC applied) for 4 seconds, then increment Fail Counter. DTC will set when Fail Counter = 6	Fault Active This Key On (FATKO) Max Line Pressure TCC Commanded On Inhibit Driver Shift Control Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
-2 Shift Solenoid (SS) Valve Performance – No First or Fourth Gear	P0751	1-2 Shift Solenoid (SS) Valve Performance – No First or Fourth Gear	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs $8V \le System Voltage \le 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ $150 RPM \le Transmission ISS \le 8000 RPM$ Transmission OSS $\ge 300 RPM$	 SS Fail Case 1 Time Since Last Gear Selector Range Change ≥ 1 second TP ≥ 5% 20 lb ft ≤ Engine Torque ≤ 200 lb ft 1st Gear is Commanded 1.52 ≤ Gear Ratio ≤ 1.6 (2nd Gear Ratio) The above conditions are true for 1 second SS Fail Case 2 Time Since Last Gear Selector Range Change ≥ 1 second TP ≥ 10% 30 lb ft ≤ Engine Torque ≤ 200 lb ft 4th Gear is Commanded 0.95 ≤ Gear Ratio ≤ 1.05 (3rd Gear Ratio) The above conditions are true for 1 second If both SS Fail Case 1 and SS Fail Case 2 are true, then increment Fail Counter. DTC will set when Fail Counter = 2 	Fault Active This Key On (FATKO) Max Line Pressure Inhibit Driver Shift Control Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
rally	P0752	1-2 Shift Solenoid (SS) Valve Performance – No Second or Third Gear	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs $8V \le System Voltage \le 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ 150 RPM $\le Transmission ISS \le 8000$ RPM Transmission OSS ≥ 300 RPM	SS Fail Case 3• Time Since Last Gear Selector Range Change ≥ 1 second• TP $\ge 10\%$ • 20 lb ft \le Engine Torque ≤ 200 lb ft• 2nd Gear is Commanded• 2.87 \le Gear Ratio ≤ 2.97 • (1 st Gear Ratio)• The above conditions are true for 1 secondSS Fail Case 4• Time Since Last Gear Selector Range Change ≥ 1 second• TP $\ge 10\%$ • 20 lb ft \le Engine Torque ≤ 200 lb ft• 3rd Gear is Commanded• 0.65 \le Gear Ratio ≤ 0.75 • (4 th Gear Ratio)• The above conditions are true for 1 second• 1065 \le Gear Ratio ≤ 0.75 • (4 th Gear Ratio)• The above conditions are true for 1 second• DTC will set when Fail Counter = 2	Fault Active This Key On (FATKO) Max Line Pressure Inhibit 3-2 Downshift if Vehicle Speed > 30 mph Inhibit Driver Shift Control Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
1-2 Shift Solenoid (SS) Control Circuit	P0753	1-2 Shift Solenoid (SS) Control Circuit	8V ≤ System Voltage ≤ 18V Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off The Ignition Switch is in the ON position	Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented. If the Fail Counter \ge 43 Counts out of 50 Counts, then the DTC will set.	Fault Active This Key On (FATKO) Max Line Pressure Inhibit 3-2 Downshift if Vehicle Speed > 30 mph Inhibit Driver Shift Control Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
2-3 Shift Solenoid (SS) Valve Performance – No First or Second Gear	P0756	2-3 Shift Solenoid (SS) Valve Performance – No First or Second Gear	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs $8V \le System Voltage \le 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ $150 RPM \le Transmission ISS \le 8000 RPM$ Transmission OSS $\ge 300 RPM$	SS Fail Case 5Time Since Last Gear Selector Range Change \geq 1 secondTP \geq 10%60 lb ft \leq Engine Torque \leq 200 lb ftTransmission OSS \geq 100 RPM-8191 RPM \leq TCC Slip Speed \leq 8191 RPM (cal'd out)1st Gear is Commanded0.65 \leq Gear Ratio \leq 0.75(4th Gear Ratio)The above conditions are true for 1 secondSS Fail Case 6Time Since Last Gear Selector Range Change \geq 1 secondTP \geq 10%60 lb ft \leq Engine Torque \leq 200 lb ft2nd Gear is Commanded0.95 \leq Gear Ratio \leq 1.05(3rd Gear Ratio)The above conditions are true for 1 secondsecondTDTc will set when Fail Counter = 2	Fault Active This Key On (FATKO) Max Line Pressure Default Gear (3 rd) Commanded Inhibit Driver Shift Control Freeze Adapts	Type A MIL Illuminated – 1st trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
2-3 Shift Solenoid (SS) Valve Performance – No Third or Fourth Gear	P0757	2-3 Shift Solenoid (SS) Valve Performance – No Third or Fourth Gear	No VSS DTCs No Transmission ISS DTCs No TCC System Stuck On DTC No Shift Solenoid Electrical DTCs No TCC Solenoid Electrical DTCs $8V \le System Voltage \le 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off $20^{\circ} C \le TFT \le 130^{\circ} C$ $150 RPM \le Transmission ISS \le 8000 RPM$ Transmission OSS $\ge 300 RPM$	SS Fail Case 7•Time Since Last Gear Selector Range Change ≥ 1 second•TP $\ge 10\%$ •20 lb ft \le Engine Torque ≤ 200 lb ft•3rd Gear is Commanded•1.52 \le Gear Ratio ≤ 1.62 •(2nd Gear Ratio)•The above conditions are true for 1 secondSS Fail Case 8•Time Since Last Gear Selector Range Change ≥ 1 second•TP $\ge 5\%$ •0 lb ft \le Engine Torque ≤ 1300 lb ft•4th Gear is Commanded•1.80 \le Gear Ratio ≤ 2.97 •(1st Gear Ratio with extended lower limit)•The above conditions are true for 1 second•If both SS Fail Case 7 and SS Fail Case 8 are true, then increment Fail Counter. DTC will set when Fail Counter = 1	Fault Active This Key On (FATKO) Max Line Pressure Inhibit TCC Inhibit Driver Shift Control Limit Gear Freeze Adapts	Type A MIL Illuminated – 1st trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
2-3 Shift Solenoid (SS) Control Circuit	P0758	2-3 Shift Solenoid (SS) Control Circuit	8V ≤ System Voltage ≤ 18V Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off The Ignition Switch is in the ON position	Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented. If the Fail Counter ≥ 43 Counts out of 50 Counts, then the DTC will set.	Fault Active This Key On (FATKO) Max Line Pressure Default Gear (3 rd) Commanded Open/Short to volts condition 3 rd gear ratio Short to ground conditions 2 nd gear ratio Inhibit TCC Inhibit Driver Shift Control Freeze Adapts	Type A MIL Illuminated – 1st trip with fail reported No DIC Message
Torque Converter Clutch (TCC) Pulse Width Modulation (PWM) Solenoid Control Circuit	P2761 (p1860	Torque Converter Clutch (TCC) Pulse Width Modulation (PWM) Solenoid Control Circuit	$8V \le System Voltage \le 18V$ Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 70% \le TCC Duty Cycle $\le 10\%$	Every 100 milliseconds the circuit is tested and if an open or short condition is detected a Fail Counter is incremented. If the Fail Counter \ge 43 Counts out of 50 Counts, then the DTC will set.	Fault Active This Key On (FATKO) Inhibit TCC Inhibit Driver Shift Control Inhibit 4 th Gear in Hot Mode Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS
Torque Converter Clutch (TCC) Release Switch Circuit	P1887	Torque Converter Clutch (TCC) Release Switch Circuit	No Transmission ISS DTCs No TCC Solenoid Electrical DTCs Engine Speed > 500 RPM for 5 seconds and Not in Fuel Cut Off 30 lb ft \leq Engine Torque \leq 300 lb ft TCC is commanded On -20 RPM \leq TCC Slip Speed \leq 60 RPM 15 psi \leq TCC Pressure \leq 120 psi	If the TCC Release Switch is Open (indicating TCC is not applied) for 6 seconds, then increment Fail Counter. DTC will set when Fail Counter = 2	Fault Active This Key On (FATKO) Inhibit TCC Inhibit 4 th Gear in Hot Mode Freeze Adapts	Type B MIL Illuminated – 2 nd consecutive trip with fail reported No DIC Message

2005 4T65E when used with 3.8L (L26) <u>with Air Injection Reaction (AIR)</u> in these vehicles: Grand Prix, LaCrosse, Allure

TRANSMISSION DIAGNOSTIC PARAMETERS

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SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	TEST ENABLE CONDITION(S)	TEST FAIL CONDITION(S)	DEFAULT ACTIONS	DTC type and MIL / DTC ACTIONS	
Class 2 Device Control Overrides: • Abort 2-1 Class 2 controlled downshift if Vehicle Speed > 32 mph • Abort 3-2 Class 2 controlled downshift if Vehicle Speed > 65 mph • Abort all Class 2 commanded shifts if Vehicle Speed > 65 mph • Abort all Class 2 commanded shifts if Engine Speed > 4200 rpm • Abort Class 2 control if the TCC has been commanded off for > 5 minutes. • Abort Class 2 Force Motor control if Engine Speed > 1500 rpm if the transmission is in P/N • Disallow Class 2 Force Motor control of > 1.2 amps • Disallow Class 2 Force Motor control of < 0.1 amps				N P0105-P0106-P0107-P0108 - P1 Engine Coolant Temperature (EC P0115-P0116-P0117-P0118-P01 Throttle Position (TP) P0120-P0121-P0122-P0123-P02 P0225-P0226-P0227-P0228-P11 Accelerator Pedal Position (APP) P1280-P1281-P1282-P1283-P12 System Voltage P0560-P0562-P0563	DTC NumberMass Air Flow (MAF) P0101-P0102-P0103Manifold Absolute Pressure (MAP) P0105-P0106-P0107-P0108 - P1106-P1107Engine Coolant Temperature (ECT) P0115-P0116-P0117-P0118-P0125-P0126-P0128Throttle Position (TP) P0120-P0121-P0122-P0123-P0220-P0221-P0222-P0223 P0225-P0226-P0227-P0228-P1120-P1121-P1122-P1125Accelerator Pedal Position (APP) P1280-P1281-P1282-P1283-P1285-P1286-P1287-P1288System Voltage P0560-P0562-P0563The above is an all-inclusive list of engine side P-codes that disable transmission		

* Transmission Temperature Default - the following is used to determine a Default Trans. Temp. for transmission operation and running the diagnostics.

- 1) If a Coolant Temp. DTC is set, Default Trans. Temp. is set to 131 C.
- 2) If Coolant Temp. is \geq 115 C, Default Trans. Temp. is set to 131C.
- If Engine Run Time is ≤ 180 seconds, Default Trans. Temp. is set to the value of Intake Air Temp. saved at startup. (If a IAT DTC is set, Default Trans. Temp. is set to 0 C.)
- 4) If Engine Run Time ≥ 180 seconds and Coolant Temp. is between 45 C and 115 C, Default Trans. Temp. to one of the following:
 - Coolant Temp. minus 10 C, if startup IAT is \leq 0 C
 - Coolant Temp. plus 10 C, if startup IAT is \geq 28 C
 - Coolant Temp., if startup IAT is between 0 C and 28 C or a IAT DTC is set.
- 5) If Engine Run Time is \geq 180 seconds and Coolant Temp. \leq 45 C, Default Trans. Temp. is set to 12 C.

** Force Motor Diagnostic Retest Mode - an attempt to prevent transients from keeping the Force Motor off for the entire ignition cycle.

1) When a Force Motor Circuit fault is detected, the Force Motor is shut off and the P0748 Diagnostic code is set

2) After being shut off for 2 seconds, the Force Motor is turned on at 0.1 amps to retest the circuit

3) If during the retest period (5 seconds) a fault is detected, the circuit is turned off for another 2 seconds before reentering the retest mode. If a circuit fault is detected 5 times in the retest mode without returning to normal operation, the circuit is turned off for the remainder of that ignition cycle.

4) During the retest period (0.1 amp commanded), if no circuit faults are detected for the entire 5 seconds period, the Force Motor is returned to normal operation and the P0748 diagnostic is passed.

5) If 3 circuit faults are detected in normal operation, the Force Motor is turned off for the remainder of that ignition cycle and the P0748 diagnostic remains active.