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SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE and RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MALFUNCTION PARAMETERS and CONDITIONS	MONITORING TIME and DTC TYPE A (MIL), B (MIL NIC), C (No MIL)	DEFAULT ACTIONS	PRIMARY MALFUNCTION PASS CONDITION	SECONDARY MALFUNCTION PASS CONDITIONS	BREAKOUT BOX SETUP
Engine Coolant Temp Sensor Ckt	**P0115**	Engine Coolant Temperature invalid	Engine Coolant Temperature validity = FALSE **1 count @ 4.0 sec**	3.0 sec after Ignition On **OR** Controller reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No:** U0100	**4.0 sec continuous** FATKO Type C	Fault Pending Engine Coolant Temperature = previous value Fault Active Engine Coolant Temperature = 80° C.	TCM receives Engine Coolant Temperature validity = TRUE **300 sec continuous**	Same as Failure	BENCH TEST
Throttle Position Sensor 1 Circuit	**P0120**	Accelerator Pedal Position circuit malfunction	Accelerator Effective Position **OR** Accelerator Actual Position validity = FALSE **20 counts @ 0.2 sec**	3.0 sec. after Ignition On **OR** Controller reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No** U0100	**0.2 sec continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1 Accelerator Position data = 0%	Accelerator Effective Position **OR** Accelerator Actual Position Validity = TRUE **300 sec continuous**	Same as Failure	BENCH TEST
System Voltage Low	**P0562**		Ignition voltage < 8.68 V **20 counts @ 1.0 sec**	Engine RPM > 400 RPM Not in Emergency Mode **No** P0727, U2104, U0100	**1.0 sec** FATKO Type A	Fault Pending **No**: Adaptive control (inhibit to start adaptive shift) Self-learning control Fault Active Emergency Mode 1	9.0 V < Ignition voltage < 18.0 V for 20 sec **continuous**	Same as Failure	Open IG(nition)
System Voltage High	**P0563**		Ignition voltage > 18.0 V **20 counts @ 1.0 sec**	Engine RPM > 400 RPM Not in Emergency Mode **No** P0727, U2104, U0100	**1.0 sec** FATKO Type A	Fault Pending **No**: Adaptive control (inhibit to start adaptive shift) Self-learning control Fault Active Emergency Mode 1	9.0 V ≤ Ignition voltage ≤ 18.0 V for 20 sec **continuous**	Same as Failure	BENCH TEST
Checksum Error	**P0601**	Calculated checksum differs from correct checksum in ROM	**2 counts**		**2 counts** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1	No failure		BENCH TEST
TCM Not Programm-ed	**P0602**	TCM Not Programmed		DVT and Service TCM requirements	FATKO Type C	None			BENCH TEST
TCM Long-Term Memory Reset	**P0603**	Incorrect copy of Non-Volatile Memory to Random Access Memory	Errors in both Main and Sub regions of EEPROM		FATKO Type C	Fault Pending None Fault Active Use default EEPROM values	Detect no failure after Ignition OFF => ON		BENCH TEST
TCM RAM	**P0604**	Random Access Memory Read/Write failure	Write FF to RAM, then Read RAM Write 00 to RAM, then Read RAM		FATKO Type A	None	Detect no failure after Ignition ON		BENCH TEST
Brake Switch Circuit	**P0703**	Brake Pedal signal failure on CAN bus	TCM receives Brake Pedal validity = FALSE **1 count @ 4.0 sec**	3.0 sec. after Ignition On **OR** Controller reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No** U2105	**4.0 sec continuous** FATKO Type C	Fault Pending None Fault Active Brake Signal = OFF	TCM receives valid Brake Pedal signal for 300 sec **continuous**	Same as Failure	BENCH TEST
Gear Selector Fault	**P0705**	Failure combination of A, B, C, and PA signals (see below)	**5 counts @ 1.0 sec**		**Illegal state ≥ 1.0 sec** FATKO Type A	Fault Pending 1st gear inhibit **No** Adaptive control (inhibit to start adaptive shift) Self-learning Fault Active Emergency Mode 4	Detect Park range for 1.0 sec **continuous AND** Detect D range for 5.0 sec	DS_Active = TRUE	Open “PA” circuit in Park

Emergency Mode 1 = 5th gear in D: 2nd in L range EM2 = 3rd gear in D EM3 = 4th gear in D, no Engine Braking EM4 = 5th gear only in D page 1

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EM5 = 4th gear in D, no E/B EM6 = 3rd gear in D, no E/B EM7 = 5th gear in D: 2nd in L range EM8 = 5th gear in D: 4th in L range
EM9 = 5th gear in D: 2nd in L range

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Failure Modes for Selector Position Switch

A	B	C	PA
OFF	OFF	OFF	OFF
OFF	OFF	OFF	ON
ON	OFF	OFF	OFF
OFF	OFF	ON	OFF
ON	ON	ON	OFF
OFF	ON	OFF	OFF

Trans Temp Stuck	**P0711**	Transmission Fluid Temperature remains constant when a measurable change is expected	ABS(Transmission Oil Temperature A/D count at initialization - current temperature A/D) < ± 10 counts **10 min.**	Oil temperature at initialization < 20° C. 10 < A/D of Oil Temperature sensor < 1000 Range = D, L, or M DS_Active = TRUE RANGE = Q_NORMAL Vehicle Speed ≥ 40 km/hr at least once Not in Emergency Mode	**600 sec Continuous** FATKO Type A	Fault Pending None Fault Active **No**: Lock-up slip Neutral Control Uphill/Downhill control until Oil Temp > 40° C. for 5 sec Disable P1719 Oil Temp = 30° C., no Self Learning for 15 min, **THEN** Oil Temp = 111° C., enable Self Learning	0° C. ≤ Oil Temp. < 150° C. for 10.0 sec continuously 30 times **AND** Detect 5.0° C. change from Oil Temperature at initialization	DS_Active = TRUE Not in Emergency Mode	Open OT, OTG Potentiometer: OT (Red) to OTG (Red); set to 18° C.
Trans Temp Sensor Circuit: Low Input	**P0712**	Very low digital count	A/D < 10 **30 counts @ 10.0 sec**	Not in Emergency Mode DS_Active = TRUE	**10.0 sec Continuous** FATKO Type A	Fault Pending No Self Learning control Oil Temp = previous Oil Temp Fault Active **No**: Lock-up slip Neutral Control Uphill/Downhill control until Oil Temp > 40° C. for 5 sec Disable P1719 Oil Temp = 30° C., no Self Learning for 15 min, **THEN** Oil Temp = 111° C., enable Self Learning	0° C. ≤ Oil temp. < 150° C. for 10 sec continuously 30 times **AND** Detect 5.0° C. change from oil temp. at initialization	Same as Failure	Fused Jumper: OT to G(round) Idle in P

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Trans Temp-erature Sensor Circuit: High Input	**P0713**	Very high digital count	A/D > 1000 **12 counts** @ 1.0 sec	No Engine Coolant codes DS_Active = TRUE Drive time > 900 sec Engine coolant temperature > 50° C. Not in Emergency Mode	**1.0 sec Continuous** FATKO Type A	Fault Pending No Self Learning control Oil Temp = previous Oil Temp Fault Active **No**: Lock-up slip Neutral Control Uphill/Downhill control until Oil Temp > 40° C. for 5 sec Disable P1719 Oil Temp = 30° C., no Self Learning for 15 min, **THEN** Oil Temp = 111° C., enable Self Learning	0° C. ≤ Oil temp. <150° C. for 10.0 sec **continuous** 30 times **AND** Detect 5.0° C. change from oil temp. at initialization	Not in Emergency Mode DS_Active = TRUE	Open OT DO NOT SHORT TO 12V!!
Input Speed Sensor: No Pulse	**P0717**	No Input Speed sensor pulses when there are pulses from Output Speed sensor	**FAIL CASE 1** No pulse from Input Speed sensor when there are 6 pulses from Output Speed sensor 500 **counts** **FAIL CASE 2** Digital signal < 45 or > 545 counts from Input Speed Sensor **300 counts @ 0.10 sec**	**FAIL CASE 1** Range = D, M, or L Output spd * expected gear ratio > 600 RPM **IF** (Vehicle speed > 66 km/hr **OR** Trans Oil Temp > 20° C.) **AND** Range from P, R, N to Drive > 2.5 sec **ELSE IF** 0° C. < Trans Oil Temp < 20° C. **AND** Range from P, R, N to Drive > 10.0 sec **ELSE IF** Trans Oil Temp < 0° C. **AND** Range from P, R, N to Drive > 180.0 sec **END IF** Not shifting, not in ND control DS_Active = TRUE Not in Emergency Mode Gear ≥ 2nd Not in B1 release control **No faults:** P0705, P0711, P0712, P0713, P0722 **FAIL CASE 2** DS_Active = TRUE Not in Emergency Mode	**FAIL CASE 1** N/A **FAIL CASE 2** **0.1 sec continuous** FATKO Type A	Fault Pending Calculate Input Speed from Output Speed No: Adaptive shift Self Learning control Fault Active Emergency Mode 1	Input speed > 300 RPM for 70 sec **continuous**	DS_Active = TRUE Not in Emergency Mode	Open NC1+

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Output Speed Sensor: No Pulse	**P0722**	No vehicle speed when Input Speed signal is present	**FAIL CASE 1** Detect no pulse from Output Speed Sensor while reading 12 pulses from Input Speed Sensor **500 counts** **FAIL CASE 2** Digital signal < 45 or > 545 counts from Output Speed Sensor **300 counts @ 0.10 sec**	**FAIL CASE 1** Range = D, M, or L **IF** (Vehicle speed > 66 km/hr **OR** Trans Oil Temp > 20° C.) **AND** Shift from P, R, N to Drive > 2.5 sec **ELSE IF** 0° C. < Trans Oil Temp < 20° C. **AND** Shift from P, R, N to Drive > 10.0 sec **ELSE IF** Trans Oil Temp < 0° C. Shift from P, R, N to Drive > 180.0 sec **END IF** **IF** Calculated Output Speed > 1000 RPM Shifting Throttle opening < 1.5% **ELSE IF** Calculated Output Speed > 300 RPM **END IF** Not in Neutral control, not shifting Not in ND control DS_Active = TRUE Not in Emergency Mode **No faults:** P0705, P0711, P0712, P0713, P0717 **FAIL CASE 2** DS_Active = TRUE Not in Emergency Mode	**FAIL CASE 1** 15 sec. at 2000 RPM Input Speed 5 sec. at 6000 RPM Input Speed **FAIL CASE 2** **0.1 sec continuously** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Calculate Output Speed from Input Speed Fault Active Emergency Mode 1	Output Speed > 300 RPM for 70 sec **continuous**	DS_Active = TRUE Not in Emergency Mode	Open SP+ and SP-
Engine Speed Circuit Malfunction	**P0727**	Engine Speed information failure on CAN bus	Engine Speed Validity = FALSE **1 count @ 4.0 sec**	3.0 sec after Ignition ON **OR** Controller Reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No faults:** U0100	**4.0 sec continuous** FATKO Type A	Fault Pending None Fault Active Limit engine torque to 270 N-m Emergency Mode 1after shift control if occurs during shift Engine speed = 6000 RPM	TCM receives Engine Speed Validity = TRUE for 300 sec **continuous**	Same as Failure	BENCH TEST
Gear 1 Manual Low fault (S5 Off, SLU Off)	**P0730**	Compares (Input speed/Output speed) to Commanded ratio for Gear 1 engine braking (manual)	Current Gear = 1st engine braking Absolute value(1-Current Ratio/Expected Ratio) > 20% **12 counts @ 1.0 sec**	500 ≤ Output RPM ≤ 1260 Throttle = 0% 8.0 sec after changing to Range L 0.5 sec after shifting control Oil temperature ≥ 20.0° C. (Shift position = L [defined] **OR** Speed > 5 kmh for > 75 sec in Range = L [undefined]) Engine speed > 400 RPM Ignition voltage ≥ 10.5 V Not shifting, not in ND control DS_Active = TRUE **No faults:** P0120, P0705, P0711, P0712, P0713, P0717, P0722, P0727, P0741, P0962, P0963, P0966, P0967, P0970, P0971, P0973, P0974, P0976, P0977, P0979, P0980, P0982, P0983, P0985, P0986, P2637	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = 1st engine braking Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec**. **continuous**	Same as Failure	Open SLU, SLUG Linear solenoid: SLU (Red) to SLUG (Red) MUST BE IN “L” RANGE!!!

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Gear 1 Ratio Fault	**P0731**	Compares (Input speed/Output speed) to Commanded ratio for Gear 1	**Fail Case** **IF** {(Input Speed – 4.769 x Output Speed) > 300 RPM **AND** (Input Speed – 2.301 x Output Speed) < 100 RPM **OR** Start of 1-2 Upshift **THEN** **Counter is incremented** **Pass Case** **IF** {(Input Speed – 4.769 x Output Speed) < 200 RPM **AND** (Input Speed – 2.301 x Output Speed) > 150 RPM} OR Start of 1-2 Upshift **THEN** **Reset Counter to 0** **10 counts @ 1.0 sec**	Current Gear = 1st or 1st engine braking Output RPM > Table value Input RPM > Table value Engine Speed ≥ (Input Speed + 150 RPM) for 500 msec continuously Engine Speed ≥ 400 30 ≤ Engine Torque ≤ 200 N-m Input torque fluctuation ≤ 25 N-m 8.0 sec after changing to D, M, or L range **IF** Shift position = D, M, L [defined] ELSE IF **Speed > 5** kmh for > 75 sec in Range = D, L [undefined] **END IF** 0.5 sec after shifting Oil temperature ≥ 20.0° C. Shift position = D, M, L Ignition voltage ≥ 10.5 V Not garage shifting or in Neutral Control DS_Active = TRUE **No faults:** [See P0730] + U2104 + U0100 – P0741	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Fault Active Inhibit 1st gear No control during N-D garage shift	(Input Speed – 4.769 x Output Speed) < 200 RPM **AND** (Input Speed – 2. 301 x Output Speed) > 150 RPM **OR** Start of 1-2 Shift **10 counts @ 1.0 sec**	Same as Failure	Open S1 Shift solenoid: S1 (Red) to G(round)

P0731 Table of Input and Output Speeds

Torque	-50	0	35	90	140	190	230	270	300	330	450
Input RPM	400	400	400	400	400	400	600	800	800	800	800
Output RPM	200	200	200	200	200	200	300	400	400	400	400

Gear 2 ratio fault	**P0732**	Compares (Input speed/Output speed) to Commanded ratio for Gear 2	Current gear = 2nd Absolute value(1-Current Ratio/Expected Ratio) > 20% **5 counts @ 1.0 sec**	Output RPM ≥ 500 Throttle ≥ 10% 0.5 sec after B1 clutch apply control finished 2.0 sec after shifting to D, M, or L 0.5 sec after shifting control Oil temperature ≥ 20.0° C. (Shift position = D, M, L [defined] **OR** Speed > 5 kmh for > 75 sec in Range = D, L [undefined]) Engine speed ≥ 400 RPM Ignition voltage ≥ 10.5 V Not shifting, not garage shifting Spinning = False DS_Active = TRUE **No faults:** See P0731	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Normal SLT pressure condition + 2.0 kg/cm2 (TPS < 10% or TPS > 20%) Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = 2nd Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec continuous**	Same as Failure Normal SLT pressure condition	Open S3 Shift solenoid: S3 (Red) to G(round) ONLY IN 2nd GEAR

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Gear 3 ratio fault	**P0733**	Compares (Input speed/Output speed) to Commanded ratio for Gear 3	Current gear = 3rd Absolute value(1-Current Ratio/Expected Ratio) > 20% for 1.0 sec. continuously **12 counts @ 1.0 sec**	Same as P0732	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Normal SLT pressure condition + 2.0 kg/cm^2 (TPS < 10% or TPS > 20%) Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = 3rd Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec continuous**	Same as Failure Normal SLT pressure condition	Open S3 Shift Solenoid: S3 (Red) to G(round) ONLY IN 3rd GEAR
Gear 4 ratio fault	**P0734**	Compares (Input speed/Output speed) to Commanded ratio for Gear 4	Current gear = 4th Absolute value(1-Current Ratio/Expected Ratio) > 20% **IF** Current Gear ≠ 3rd gear ratio ± 4% **THEN** Increase SLT pressure **12 counts @ 1.0 sec**	Same as P0732	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Normal SLT pressure condition + 2.0 kg/cm^2 (TPS < 10% or TPS > 20%) Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = 4th Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec. continuous**	Same as Failure Normal SLT pressure condition	Open S2 Shift Solenoid: S2 (Red) to G(round) ONLY IN 4th GEAR
Gear 5 ratio fault	**P0735**	Compares (Input speed/Output speed) to Commanded ratio for Gear 5	Current gear = 5th Absolute value(1-Current Ratio/Expected Ratio) > 20% **12 counts @ 1.0 sec**	Same as P0732	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = 5th Absolute value(1-Current Ratio/Expected Ratio) < 4% 12 counts @ 1.0 sec. **continuous**	Same as Failure	Open S2 Shift Solenoid: S2 (Red) to G(round) Fused Jumper: S2 (Black) to IG(nition)
Reverse Gear ratio fault	**P0736**	Compares (Input speed/Output speed) to Commanded ratio for Reverse gear	Current gear = Reverse Absolute value(1-Current Ratio/Expected Ratio) > 20% **12 counts @ 0.5 sec**	Output RPM ≥ 500 8.0 sec after shifting to R Oil temperature ≥ 20.0° C. (Shift position = R [defined] **OR** Speed > 5 kmh for > 75 sec in Range = R)[undefined]) Engine speed ≥ 400 RPM Ignition voltage ≥ 10.5 V Not in NR control, not shifting DS_Active = TRUE Not in Emergency Mode **No faults:** [See P0730] + U2104 + U0100	**0.5 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Fault Active Emergency Mode 1 Limit torque to 150 N-m	Current Gear = R Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec**. **continuous**	Same as Failure	DO NOT TEST RISK of TRANSMISSION DAMAGE

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Torque Converter Clutch System Perform-ance: Slipping (SLU Off)	**P0741**	High Torque Converter slip when TCC commanded on (Lock-Up Slipping)	Engine RPM – Input speed > 100 RPM **6 counts @ 2.0 sec**	Throttle ≥ 20% 0.5 sec after shift control Engine speed ≤ 4000 RPM (Shift position = D, M, L [defined] **OR** Speed > 5 kmh for > 75 sec in Range = D, L [undefined]) Not shifting Ignition voltage > 10.5 V SLU (TCC PCS) target current ≥ 1000 mA Lock-up ON DS_Active = TRUE Not in Emergency Mode **No faults:** [See P0730] + U2104+ U0100 – P0741	**2.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up slip control Neutral control Self-learning control Fault Active Emergency Mode 1	No failure for **6 counts @ 2.0 sec**. **continuous**	Same as Failure	Open SLU, SLUG Linear Solenoid: SLU (Red) to SLUG (Red)
Torque Converter Clutch System Perform-ance: SLU Stuck On	**P0742**	Low Torque Converter slip when TCC commanded off	Engine RPM – Input speed < 50 RPM **AND** Gear = 3L-OFF **OR** 4L-OFF **OR** 5L-OFF **12 counts @ 1.0 sec** **NOTE**: Counter is incremented by FAIL condition, reset to 0 by PASS condition	8.0 sec after shift to position = D, M, L Input Speed ≤ 3000 RPM (Shift position = D, M, L [defined] **OR** Speed > 5 kmh for > 75 sec in Range = D, L [undefined]) 3.0 min after Ignition On or Controller reset 0.5 sec after shifting control Transmission Oil Temperature ≥ 20° C. T* ≤ Engine Torque ≤ 240 N-m Engine Speed ≥ 400 RPM Not shifting, not garage shifting Ignition voltage ≥ 10.5 V DS_Active = TRUE Not in Emergency Mode **No faults:** See P0741 *T = 46 N-m @ 1000 RPM Input Spd, 56 @ 1500, 66 @ 2000, 91 @ 2500, 121 N-m @ 3000	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up Control Lock-up Slip Control Neutral control Self-learning Fault Active Emergency Mode 1	Engine RPM – Input speed > 100 RPM **AND** Gear = 3L-OFF **OR** 4L-OFF **OR** 5L-OFF **12 counts @ 1.0 sec**	Same as Failure	Open SLU, SLUG Linear Solenoid: SLU (Red) to SLUG(Red) Fused Jumper: SLUG (Black) to IG(nition)
Gear Ratio: Shift Solenoid C Stuck On	**P0762**	Hydraulic system stuck ON	Current gear = 5th Current gear ratio = 1.504 ± 4% Absolute value(1-Current Ratio/Expected Ratio) > 20% **OR** Current gear = 4th For 1.0 sec continuously Increase SLT pressure **IF** Current Ratio = 3rd ratio ± 4% **12 counts @ 1.0 sec**	Same as P0732	**1.0 sec continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Lock-up control Lock-up slip control Neutral control Self-learning control Normal SLT pressure condition + 2.0 kg/cm2 (TPS < 10% or TPS > 20%) Fault Active Emergency Mode 2 Limit torque to 150 N-m	Current gear = 4th or 5th Absolute value(1-Current Ratio/Expected Ratio) < 4% **12 counts @ 1.0 sec**. **continuous**	Same as Failure Normal SLT pressure condition	Open S3 Linear Solenoid: S3 (Red) to G(round) Fused Jumper: S3 (Black) to IG(nition) ONLY IN 4th GEAR
ATF Degradation	**P0897**	Transmission Fluid life	**OT_FACTOR > 2,764, 800,000 counts**	OT_IN ≥ 10 counts	**1 count** Fault Active Type C	None	None	None	BENCH TEST
Line Press PCS (SLT) Short to Ground, Open	**P0962**	Very low current through solenoid	Input A/D < 68 (92 mA) **25 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 1	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) **12.5 sec continuous**	Same as failure	Open SLT, SLTG

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Line Press PCS (SLT) B+ Short	**P0963**	Very high current through solenoid	Input A/D > 1000 (1356 mA) **4 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 1 Limit torque to 150 N-m	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) **12.5 sec continuous**	Same as failure	Jumper: SLT to IG(nition)
Torque Conv Clutch (TCC) PCS (SLU) Short to Ground, Open	**P0966**	Very low current through solenoid	Input A/D < 68 (92 mA) **25 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 1	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) **12.5 sec continuous**	Same as failure	Open SLU, SLUG
Torque Conv Clutch (TCC) PCS (SLU) B+ Short	**P0967**	Very high current through solenoid	Input A/D > 1000 (1356 mA) **4 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 1	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) for 12.5 sec **continuous**	Same as failure	Jumper: SLU to IG(nition)
Shift Press PCS (SLS) Short to Ground, Open	**P0970**	Very low current through solenoid	Input A/D < 68 (92 mA) **25 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 3	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) **12.5 sec continuous**	Same as failure	Open SLS, SLSG
Shift Press PCS (SLS) B+ Short	**P0971**	Very high current through solenoid	Input A/D > 1000 (1356 mA) **4 counts @ 0.5 sec**	Not in Emergency Mode DS_Active = TRUE	**0.5 sec Continuous** FATKO Type A	Fault Pending **No**: Adaptive shift Self Learning control Fault Active Emergency Mode 3	73 ≤ Input A/D ≤ 737 (100 – 1100 mA) **12.5 sec continuous**	Same as failure	Jumper: SLS to IG(nition)
Shift Sol A Short to Gnd	**P0973**	Short to Ground	S1 monitor = OFF when S1 driver outputs ON signal 1 count	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S1 output changes	**0.5 sec Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1	S1 monitor = ON when S1 driver outputs ON signal for **1.0 sec cont.** **AND** S1 monitor = OFF when S1 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Jumper: S1 to G(round) Shift: Park to Drive
Shift Sol A B+ Short, Open	**P0974**	Short to Power or Open	S1 monitor = ON when S1 driver outputs OFF signal 1 count	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S1 output changes	**0.5 sec Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1 Limit torque to 185 N-m	S1 monitor = ON when S1 driver outputs ON signal for **1.0 sec cont.** **AND** S1 monitor = OFF when S1 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Open S1 Test in Park

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE and RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MALFUNCTION PARAMETERS and CONDITIONS	MONITORING TIME and DTC TYPE A (MIL), B (MIL NIC), C (No MIL)	DEFAULT ACTIONS	PRIMARY MALFUNCTION PASS CONDITION	SECONDARY MALFUNCTION PASS CONDITIONS	BREAKOUT BOX SETUP
Shift Sol B Short to Ground	**P0976**	Short to Ground	S2 monitor = OFF when S2 driver outputs ON signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S2 output changes	**0.5** sec **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 7	S2 monitor = ON when S2 driver outputs ON signal for **1.0 sec cont.** **AND** S2 monitor = OFF when S2 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Fused Jumper: S2 to G(round) Shift: Park to Drive
Shift Sol B B+ Short, Open	**P0977**	Short to Power or Open	S2 monitor = ON when S2 driver outputs OFF signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S2 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 5 **IF** Vehicle Speed < 10 km/hr **THEN** Emergency Mode 1	S2 monitor = ON when S2 driver outputs ON signal for **1.0 sec cont.** **AND** S2 monitor = OFF when S2 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Open S2 In Park
Shift Sold C Short to Ground	**P0979**	Short to Ground	S3 monitor = OFF when S3 driver outputs ON signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S3 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 8	S3 monitor = ON when S3 driver outputs ON signal for **1.0 sec cont.** **AND** S3 monitor = OFF when S3 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Jumper: S3 to G(round) Shift: Park to Drive
Shift Sol C B+ Short, Open	**P0980**	Short to Power or Open	S3 monitor = ON when S3 driver outputs OFF signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S3 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 6 **IF** Vehicle Speed < 10 km/hr **THEN** Emergency Mode 2	S3 monitor = ON when S3 driver outputs ON signal for **1.0 sec cont.** **AND** S3 monitor = OFF when S3 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Open S3 In Park
Shift Sol D Short to Ground	**P0982**	Short to ground	S4 monitor = OFF when S4 driver outputs ON signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1	S4 monitor = ON when S4 driver outputs ON signal for **1.0 sec cont.** **AND** S4 monitor = OFF when S4 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Fused Jumper: S4 to G(round) Drive to achieve 3rd gear
Shift Sol D B+ Short, Open	**P0983**	Short to Power or Open	S4 monitor = ON when S4 driver outputs OFF signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S4 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1	S4 monitor = ON when S4 driver outputs ON signal for **1.0 sec cont.** **AND** S4 monitor = OFF when S4 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Open S4 Shift: Park to Drive
Shift Sol E Short to Ground	**P0985**	Short to Ground	S5 monitor = OFF when S5 driver outputs ON signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S5 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 9 Limit torque to 150 N-m	S5 monitor = ON when S5 driver outputs ON signal for **1.0 sec cont.** **AND** S5 monitor = OFF when S5 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Fused Jumper: S5 to G(round)
Shift Sol E B+ Short, Open	**P0986**	Short to Power or Open	S5 monitor = ON when S5 driver outputs OFF signal **1 count**	Not in Emergency Mode DS_Active = TRUE 0.025 sec after solenoid S5 output changes	**0.5 sec** **Continuous** FATKO Type A	Fault Pending None Fault Active Emergency Mode 1 Limit torque to 150 N-m	S5 monitor = ON when S5 driver outputs ON signal for **1.0 sec cont.** **AND** S5 monitor = OFF when S5 driver outputs OFF signal for **1.0 sec cont.**	Same as Failure	Open S5 In Park

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE and RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MALFUNCTION PARAMETERS and CONDITIONS	MONITORING TIME and DTC TYPE A (MIL), B (MIL NIC), C (No MIL)	DEFAULT ACTIONS	PRIMARY MALFUNCTION PASS CONDITION	SECONDARY MALFUNCTION PASS CONDITIONS	BREAKOUT BOX SETUP
Unusual Shifting	**P1719**	Linear Solenoid mechanical malfunctions	Shift position = D, M, L Oil temperature ≥ 60° C. No multiplex shifting Condition A (tie-up) **OR** Condition B (engine flare) **OR** Condition C (long shift time) **OR** Condition D (rapid shifting)	No multiplex shifting DS_Active = TRUE Not in Emergency Mode **No** P0711, P0712, P0713, P0722, P0727, P2637	**5 counts** FATKO Type A	Fault Pending **No**: Adaptive shift Self-learning control Fault Active Emergency Mode 1 Limit torque to 150 N-m	No failure	1-2, 2-3, and 3-4 shifting detected with Engine Torque > 40 N-m	Open SLS, SLSG Linear Solenoid: SLS (Red) to SLSG (Red)
Driver-Requested Torque	**P1779**	Driver-requested torque circuit malfunction	Driver-Requested Torque validity = FALSE **1 count @ 4.0 sec**	3.0 sec after Ignition On **OR** Controller reset DS_ACTIVE = TRUE Not in Emergency Mode **No** U0100	**4.0 sec continuous** FATKO Type C	Fault Pending None Fault Active Driver-requested torque = 300 N-m	TCM receives Driver-Requested Torque validity = TRUE **300 sec continuous**	Same as Failure	BENCH TEST
Ignition Switch Accessory Position Circuit	**P2536**	ACC Circuit is Open	ACC voltage < 8.68 V **20 counts @ 1.0 sec**	Not in Emergency Mode DS_Active = TRUE Engine Speed ≥ 400 RPM Ignition ON Power Mode Accessory Terminal Status = ACTIVE **No**: P0727, U2104, U0100	**1.0 sec** Fault Active Type A	None	9.0 V < Ignition voltage < 18.0 V **20 sec continuous**	Same as Failure	Open ACC
Torque Mgt Request Input Signal A	**P2544**	ECM fails to deliver torque control	Condition 1 "Engine Torque Reduction Failed" **OR** "Engine Torque Transmission Request Failed" unreliable for **80 msec** **AND** Requested Torque Reduction > 30 N-m **1 count** Condition 2 "Engine Torque Reduction Failed" **OR** "Engine Torque Transmission Request Failed" unreliable for **80 msec** **AND** Requested Torque Reduction > 30 N-m 2 **counts**	3.0 sec after Ignition On **OR** Controller reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No faults:** U0100	**0.080 sec continuous** FATKO Type D	Fault Pending No self-learning control Increase oil pressure to avoid clutch slip Fault Active No self-learning control Increase oil pressure to avoid clutch slip Limit shift lines to 4000 RPM	"Engine Torque Reduction Failed" **OR** "Engine Torque Transmission Request Failed" is reliable **AND** Requested Torque Reduction > 30 N-m **10 counts**	Same as Failure	BENCH TEST
Torque Mgt Feedback Signal A	**P2637**	Engine Torque circuit malfunction	Engine Torque validity = FALSE **20 counts @ 0.2 sec**	3.0 sec after Ignition On **OR** Controller reset DS_ACTIVE_CAN = TRUE Not in Emergency Mode **No:** U0100	**0.2 sec continuous** FATKO Type A	Fault Pending None Fault Active Engine torque limit = 270 N-m Engine torque data = 300 N-m Emergency Mode 1 after shift control if failure during shift	TCM receives Engine Torque Validity = TRUE **300 sec continuous**	Same as Failure	BENCH TEST
Lost Communic-ation with ECM	**U0100**	Lost Communication with Engine Control Module	TCM cannot detect frame of GENERAL STATUS ECM **20 counts @ 0.2 sec**	3.0 sec after Ignition On **OR** Controller reset DS_Active_CAN = TRUE Not in Emergency Mode	**0.2 sec continuous** FATKO Type A	Fault Pending Maintain Current Gear Full Line Pressure Lock-up OFF **No**: Adaptive shift Lock-up Slip Control Neutral control Self-learning Fault Active Emergency Mode 1	No failure **60 sec continuous**	Same as Failure	BENCH TEST

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE and RATIONALITY	PRIMARY MALFUNCTION DETECTION PARAMETERS	SECONDARY MALFUNCTION PARAMETERS and CONDITIONS	MONITORING TIME and DTC TYPE A (MIL), B (MIL NIC), C (No MIL)	DEFAULT ACTIONS	PRIMARY MALFUNCTION PASS CONDITION	SECONDARY MALFUNCTION PASS CONDITIONS	BREAKOUT BOX SETUP
Lost Communic-ation with BCM	**U0140**	Lost Communication with Body Control Module	TCM cannot detect frame of GENERAL STATUS BCM **20 counts @ 0.2 sec**	3.0 sec after Ignition On **OR** Controller reset DS_Active_CAN = TRUE Not in Emergency Mode	**0.2 sec continuous** FATKO Type C	None	No failure **60 sec continuous**	Same as Failure	BENCH TEST
CAN Bus Error	**U2104**	CAN Bus Off Counter Overrun	"BUS OFF" state from CAN **7 counts**	3.0 sec after Ignition On **OR** Controller reset DS_Active_CAN = TRUE	**Count = 7** FATKO Type A	Fault Pending Maintain Current Gear Full Line Pressure Lock-up OFF **No**: Adaptive shift Lock-up Slip Control Neutral control Self-learning Fault Active Emergency Mode 1 Limit engine torque to 270 N-m	No failure **300 sec continuous**	Same as Failure	BENCH TEST