

1997 3.4L (LA1) U-van
4T60-E TRANSMISSION DIAGNOSTIC PARAMETERS

97t34E_U__aT.doc

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME REQUIRED AND FREQUENCY	MIL ILLUMINATION TYPE
Vehicle Speed Sensor - Low input	P0502	This DTC detects a low vehicle speed when the vehicle has a large engine speed in a drive gear range.	Output Speed < 150 rpm	Gear Range is not Park/Neutral No TP high or low sensor DTC's set Throttle Position > 15% No Map Sensor High or Low DTC's set 0KPA > MAP sensor < 105KPA 40 ftlbs < Engine Torque < 150 ftlbs Engine Speed > 2900 RPM	2.5 seconds Continuous	DTC Type A
Vehicle Speed Sensor - Intermittent	P0503	This DTC detects an unrealistic large drop in vehicle speed.	Output Speed drop >1500 RPM	Time since last Gear Range Change > 6. Sec Engine Speed > 500 rpm for 5 sec and not in fuel cutoff No Output Speed rise > 1000 rpm within 2 sec. Transmission not in P/N	2 sec	DTC Type A
Trans Fluid Temp Sensor Circuit - Range / Performance	P0711	The DTC detects an unrealistically large change in transmission temperature or a value which remains constant for a period of time in which a measurable amount of change is expected.	1) Trans Temp has not changed \geq 1.5 deg C (absolute value) for \geq 409 sec since startup 2) Trans Temp changes \geq 20 deg. C (absolute value) in 200 msec. \geq 14 times in 7 sec.	System Voltage between 10 and 16 volts No VSS DTC's .2 volts < Raw TTS < 4.92 volts No DTC 1870 Engine Running \geq 300 sec. Vehicle Speed \geq 5 mph for \geq 409 sec. cumulative this ignition cycle. Torque Converter Slip \geq 120 rpm for \geq 409 sec. cumulative this ignition cycle. Trans Temp at startup between -40 and 21 deg. C Coolant Temp has changed by \geq 50 deg. C since startup. Coolant Temp \geq 70 deg. C	1) 409 seconds continuous. 2) 7 seconds continuous	DTC Type B
TCC Enable Solenoid Electrical	P0740	This DTC detects a continuous open or short to ground in the TCC circuit or the TCC solenoid	Fail Counter >43 Counts out of 50 Total Counts	System Voltage between 10 and 16 volts Ign On Engine Speed > 500 rpm for 5 sec & not in fuel cutoff	100 ms/count Continuous	DTC Type A

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TCC System Stuck ON	P0742	This DTC detects low torque converter slip when the TCC is commanded off.	3 occurrences of the TCC Slip between -20 rpm and 25 rpm for the duration of the fail timer	Engine Speed > 500 rpm for 5 sec and not in fuel cutoff 70 ftlbs < Eng Torque < 200 ftlbs Commanded Gear is not 1st Gear Range is D4, D3 or D2 Throttle Position between 14% and 50% TCC is commanded off Engine Speed between 800 rpm and 4000 rpm Vehicle Speed between 20 mph and 70 mph No Range change within 3 sec. No TP high or low sensor DTC's No VSS Low or Intermittent DTC's No TCC Enable Sol. DTC's No TCC Control Sol. DTC's	5 seconds Continuous	DTC Type B

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Shift Solenoid A Performance	P0751	This DTC detects 2-2-3-3 or a 1-1-4-4 shift pattern	Fail Counter >=2 . The fail counter is incremented if fail cases (1,2,3,& 4) or (1,2,3, & 5) are true	<u>General</u> Engine Speed > 500 rpm for 5 sec and & not in fuel cutoff Gear range is D4 Vehicle speed >5 mph -18 C < Trans. Temp. < 130 C No TP high or low DTC's No Vss low or intermittent DTC's No Sol electrical DTC's No DTC 742 Traction Control Not Active <u>Fail Case 1</u> Commanded 1-2 shift 10% < TPS < 70% TPS constant within +/- 10% 5 mph < VSS < 40mph In 2.5 seconds, engine speed in 2nd gear must be 100 rpm > last speed in 1st gear <u>Fail Case 2</u> Commanded 2-3 shift 10% < TPS < 55% TPS constant within +/- 10% 25 mph < VSS < 55 mph In 2.5 sec, engine speed in 3rd gear must be 130 rpm < last speed in 2nd gear <u>Fail Case 3</u> Commanded 3-4 shift 5% < TPS < 35% TPS constant within +/- 10% 35 mph < VSS < 75 mph In 0.15 seconds, engine speed in 4th gear must be 1 rpm > last speed in 3rd gear <u>Fail Case 4</u> Commanded 4th gear TCC on 5% < TPS < 30% 0.97 < Speed Ratio < 1.12 500 < TCC Slip < 1000 for > 3sec <u>Fail Case 5</u> Commanded 4th gear TCC on 5% < TPS < 30% 0.65 < Speed Ratio < 0.76 -20 < TCC Slip < 25 for > 3 sec	Continuous	DTC Type A

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Shift Solenoid A Electrical	P0753	This DTC detects a continuous open or short to ground in the SSA circuit or the SSA solenoid	Fail Counter >43 Counts out of 50 Total Counts	System Voltage between 10 and 16 volts Ign On Engine Speed > 500 rpm for 5 sec & not in fuel cutoff	100 ms/count Continuous	DTC Type A
Shift Solenoid B Performance	P0756	This DTC detects a 1-2-2-1 or a 4-3-3-4 shift pattern	The Stuck On Fail counter has reached a value of 3 or the Stuck Off Fail counter has reached a value of 3. The Stuck On counter is incremented when both Fail Case 3 & Fail Case 4 are true. The Stuck Off counter is incremented when both Fail Case 1 & Fail Case 3 are true or when both Fail Case 2 & Fail Case 3 are true.	Engine Speed > 500 rpm for 5 sec and not in fuel cutoff Vehicle Speed > 16 MPH Gear Range is D4 -18 C < Trans Temp < 130 C No TPS sensor High or Low DTC's No VSS Low or Intermittent DTC's No Trans solenoid electrical DTC's No TCC Stuck On DTC. <u>Fail Case 1</u> First gear commanded for > 2 sec. -4064 rpm < TCC Slip < -100 rpm 800 rpm < Output Speed < 1500 rpm 0.7 < Speed Ratio < 2.8 Throttle Position > 35% Fail Timer > 1.5 sec <u>Fail Case 2</u> Second gear commanded for > 2 sec -1000 rpm < TCC Slip < 100 rpm 1000 rpm < Output Speed < 2100 rpm 1.09 < Speed Ratio < 1.6 Throttle Position > 18% Fail Timer > 2 sec <u>Fail Case 3</u> 2.5 sec < time with Third gear commanded < 7.5 sec 14% < Throttle Position < 45% TPS constant within +/- 7% Speed Ratio in Third gear does not drop more than .5 from the last Speed Ratio in Second gear TCC Slip in Third gear remains > 500 rpm higher than the last TCC Slip in Second gear Fail Timer > 2 sec <u>Fail Case 4</u> Fourth Gear commanded for > 1.5 sec 1600 rpm < TCC Slip < 6000 rpm 1500 < Output Speed < 2800 2 < Speed Ratio < 4 Throttle Position > 10% Fail Timer > 2 sec	Continuous	DTC Type A

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Shift Solenoid B Electrical	P0758	This DTC detects a continuous open or short to ground in the SSB circuit or the SSB solenoid	Fail Counter >43 Counts out of 50 Total Counts	System Voltage between 10 and 16 volts Ign On Engine Speed > 500 rpm for 5 sec & not in fuel cutoff	100 ms/count Continuous	DTC Type A
TCC PWM Solenoid Electrical	P1860	This DTC detects a continuous open or short to ground in the TCC PWM circuit or the TCC PWM sensor	Fail Counter >43 Counts out of 50 Total Counts	System Voltage between 10 and 16 volts Ign On Engine Speed > 500 rpm for 5 sec & not in fuel cutoff TCC Duty Cycle < 10% or > 90%	100 ms/count Continuous	DTC Type A
Transmission Component Slipping	P1870	This DTC detects excessive TCC slip when the torque converter clutch should be engaged.	If TCC slip is between 200 rpm and 1500 rpm for 8 sec, then increment the Trans Slip Counter by one. When the counter reaches 3, set the code.	Engine Speed > 500 rpm for 5 sec and not in fuel cutoff Gear is not 1st 8% < TPS < 35% -18 C < Trans. Temp. < 130C 50 ftlbs < Eng Torque < 170 ftlbs Gear Range is D4 TCC at Max Apply for > 5 sec TCC commanded on for > 5 sec 0.7 < Speed Ratio < 0.995 800 rpm < Engine Speed < 5000 rpm 35 mph < Vehicle Speed < 75 mph No TPS sensor High or Low DTC's No VSS Low or Intermittent DTC's No Trans solenoid electrical DTC's Shift Solenoid Performance Diagnostic counters are all zero	Continuous	DTC Type B