

1996 2.4L (LD9) N-Car 4T60-E Transmission Diagnostic Parameters

96c24T_N_aT.doc

SENSED PARAMETER	FAULT CODE	SENSOR SIGNAL TYPE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETER	SECONDARY MONITORING PARAMETERS AND CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	MONITORING METHOD	FAULT CODE STORAGE AND MIL ILLUMINATION
Vehicle Speed Sensor - Low input	P0502	Analog	0 RPM to 6000 RPM This DTC detects a low vehicle speed when the vehicle has a large engine speed in a drive gear range.	Output Speed < 2 MPH	Gear Range is not Park/Neutral No TP high or low sensor DTC's set 18% < Throttle Position < 50% No Map Sensor High or Low DTC's set 0KPA > MAP sensor < 55KPA 0ftlbs < Engine Torque < MAXftlbs Engine Speed > 3200 RPM	3 seconds Continuous	AC Voltage generating Vehicle Speed Sensor	DTC Type A
TCC System Stuck ON	P0742	Software	This DTC detects low torque converter slip when the TCC is commanded off.	3 occurrences of the TCC Slip between -20 rpm and 20 rpm for the duration of the fail timer	Engine Speed > 500 rpm for 5 sec and not in fuel cutoff 20kpa < VAC < 50kpa 0ftlbs < Eng Torque < MAXftlbs Commanded Gear is not 1st Gear Range is D4, D3 or D2 No TP high or low sensor DTC's set 18% < Throttle Position < 50% TCC is commanded off No VSS Low or Intermittent DTC's set No TCC Enable Sol. DTC's set No TCC Control Sol. DTC's set 1000 rpm < Eng. Speed < 5000 rpm .78 < Speed Ratio < 2.36 20 mph < Vehicle Speed < 65 mph	7 seconds Continuous	1X Engine Speed Signal and the Vehicle Speed Sensor	DTC Type B

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Shift Solenoid A Performance	P0751	Analog	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	<p><u>General</u> Engine Speed > 500 rpm for 5 sec and & not in fuel cutoff No TP high or low DTC's set No Vss low or intermittent DTC's set Gear range is D4 Vehicle speed >5 mph 40C < Eng. Coolant < 120C No Sol electrical DTC's No DTC 742 Traction Control Not Active Time since previous shift > 1 sec</p> <p><u>Fail Case 1</u> Commanded 1-2 shift 18% < TPS < 45% TPS constant within +/- 5% 5 mph < VSS < 45mph In 2.5 seconds, engine speed in 2nd gear must be 100 rpm > last speed in 1st gear</p> <p><u>Fail Case 2</u> Commanded 2-3 shift 18% < TPS < 45% TPS constant within +/- 5% 27 mph < VSS < 55 mph In 2.5 sec, engine speed in 3rd gear must be 150 rpm < last speed in 2nd gear</p> <p><u>Fail Case 3</u> Commanded 3-4 shift 18 % < TPS < 45% TPS constant within +/- 3% 30mph < VSS < 65mph In 2.5 seconds, engine speed in 4th gear must be 5 rpm > last speed in 3rd gear</p> <p><u>Fail Case 4</u> Commanded 4th gear TCC on 7% < TPS < 30% 1.1 < Speed Ratio < 1.15 500 < TCC Slip < 1000 for > 5sec</p> <p><u>Fail Case 5</u> Commanded 4th gear TCC on 7% < TPS < 30% .76 < Speed Ratio < .81 -20 < TCC Slip < 20 for > 5sec</p>	Continuous	Shift Solenoid	DTC Type B

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Shift Solenoid A Electrical	P0753	Analog	0V to 12V 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	No System Voltage DTC's Ign On System voltage > 9 V	Continuous	Shift Solenoid	DTC Type A

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Shift Solenoid B Performance	P0756	Software	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.	Vehicle Speed > 7 MPH Gear Range is D4 40C < Eng. Coolant Temp. < 120C No TPS sensor High or Low DTC's set No VSS Low or Intermittent DTC's set Engine Speed > 500 rpm for 5 sec and not in fuel cutoff No transmission solenoid electrical DTC's set. No TCC Stuck On DTC. 20kPa < VAC < 100 kPa 0ftlbs < Eng. Torque < MAX ftlbs. <u>Fail Case 1</u> First gear commanded for > 2 sec. -4064 rpm < TCC Slip < 200 rpm 700 rpm < Output Speed < 1300 rpm .76 < Speed Ratio < 3 Throttle Position > 18% Fail Timer > 1.5 sec <u>Fail Case 2</u> Second gear commanded for > 2 sec -1000 rpm < TCC Slip < 200 rpm 1000 rpm < Output Speed < 2100 rpm 1.1 < Speed Ratio < 2 Throttle Position > 18% Fail Timer > 2 sec <u>Fail Case 3</u> 2.5 sec < time with Third gear commanded < 7.5 sec 18% < Throttle Position < 45% TPS constant within +/- 5% 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 > 2.5 sec <u>Fail Case 4</u> Fourth Gear commanded for > 1.5 sec 1600 rpm < TCC Slip < 4096 rpm 1650 < Output Speed < 8192 2 < Speed Ratio < 4 Throttle Position > 14% Fail Timer > 2 sec	Continuous	Shift Solenoid	DTC Type B

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TCC Enable Solenoid Electrical	P1864	Analog	0V to 12V 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	No System Voltage DTC's Ign On System voltage > 9 V	Continuous	TCC Solenoid	DTC Type A
Transmission Component Slipping	P1870	Software	This DTC detects excessive TCC slip when the torque converter clutch should be engaged.	If TCC slip is above 200 rpm for 10 sec, then increment the Trans Slip Counter by one. When the counter is greater than 3, set the code.	Engine Speed > 500 rpm for 5 sec and not in fuel cutoff Gear is not 1st No TPS sensor High or Low DTC's set 14% < TPS < 40% 40C < Eng. Coolant Temp. < 120C No VSS Low or Intermittent DTC's set No TCC Enable Sol. DTC's set No TCC Control Sol. DTC's set No SSA Sol. DTC's set No SSB Sol. DTC's set Shift Solenoid Performance Diagnostic counters are all zero 20 kpa < VAC < 64 kpa 0 filbs < Eng Torque < MAX filbs Gear Range is D4 TCC at Max Apply for > 5 sec 1000 rpm < Eng. Speed < 6000 rpm .78 < Speed Ratio < 2.0 25 mph < Vehicle Speed < 65 mph	Continuous	1X Engine Speed Signal and the Vehicle Speed Sensor	DTC Type A