

**1999 5.0L (L30) C/K-truck, G-van**  
**4L60-E TRANSMISSION DIAGNOSTIC PARAMETERS**

99t50M\_CKGaT.DOC

SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME LENGTH AND FREQUENCY	MIL ILLUMINATION TYPE
Vehicle Speed Sensor - Low input	<b>P0502</b>	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 < 150 rpm	- Gear Range is not Park/Neutral - No TPS high or low DTC's set - No Map Sensor DTC's set - No PSA DTC set - Vacuum: 0 to 105 KPA - Engine Torque: 40 to 400 ft-lbs - Throttle Position > 20% - Engine Speed > 3000 RPM	2.5 seconds  Continuous	DTC Type B
Vehicle Speed Sensor - Intermittent	<b>P0503</b>	0 RPM to 6000 RPM This DTC detects an unrealistic large drop in vehicle speed.	In <b>P/N</b> : Output Speed drop > 8000 RPM  Not <b>P/N</b> : Output Speed drop >1300 RPM	- Time since last Gear Range Change > 6 Seconds - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - No Output Speed rise > 600 rpm within 6 seconds - No PSA DTC set	In park or neutral 409 seconds  Not in park or neutral 3 seconds	DTC Type B
TCC Enable Solenoid Electrical	<b>P0740</b>	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	- System Voltage: 10 to 16 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type B
TCC System Stuck ON	<b>P0742</b>	This DTC detects low torque converter slip when the TCC is commanded off.	TCC Slip: -20 to +20 RPM  Fail Counter >= 2	- Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - No Range change within 5 sec. - No MAP low and high DTC set - No TP high or low sensor DTC's - No VSS DTC's - No TCC Enable Sol. DTC's - No TCC Control Sol. DTC's -No PSA DTC set - Eng Torque: 50 to 400 ft-lbs - Vacuum: 0 to 105 kPa - Commanded Gear is not 1st - Gear Range is D4 - Throttle Position: 17% to <b>45%</b> - TCC is commanded off - Engine Speed: 1000 to 3000 rpm - Speed Ratio: 0.64 to 1.35 - Vehicle Speed: 15 to 50 mph	5 seconds  Continuous	DTC Type B

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Shift Solenoid A Performance	<b>P0751</b>	This DTC detects abnormal shift patterns:  <b>Stuck OFF:</b> 2-2-3-3 pattern  <b>Stuck ON:</b> 1-1-4-4 pattern	Fail Counter >=3 . The fail counter is incremented when the following fail cases are true:  <b>Stuck OFF:</b> 1,2,3,& 4  <b>Stuck ON:</b> 1,2,3, & 5	<b>General</b> -Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff -Gear range is D4 -No TP high or low DTC's -No VSS low or intermittent DTC's -No Solenoid electrical DTC's -No DTC 742 -No PSA DTC set -Time since last shift is >0 sec -Vehicle speed >5 mph -Trans Temp.: 20 C to 130 C  <b>Fail Case 1</b> - Commanded 1-2 shift - TPS: 10% to 45% - TPS constant within +/- 7% - Vehicle Speed: 5 to 35 mph - After 2 seconds, engine speed in 2nd gear must be 80 rpm > last speed in 1st gear <b>Fail Case 2</b> - Commanded 2-3 shift - TPS: 10% to 45% - TPS constant within +/- 7% - Vehicle Speed: 20 to 50 mph - After 2 sec, engine speed in 3rd gear must be 100 rpm < last speed in 2nd gear <b>Fail Case 3</b> - Commanded 3-4 shift - TPS: 10% to 45% - TPS constant within +/- 7% - Vehicle speed: 30 to 65 mph - After 2 seconds, engine speed in 4th gear must be 10 rpm > last speed in 3rd gear <b>Fail Case 4</b> - Commanded 4th gear - TCC commanded ON - TPS: 8% to 35% - Speed Ratio: 0.85 to 1.2 - TCC Slip: 200 to 1000 rpm for > 4 sec <b>Fail Case 5</b> - Commanded 4th gear - TCC commanded ON - TPS: 8% to 35% - Speed Ratio: 0.60 to 0.80 - TCC Slip: -20 to +50 rpm for > 4 sec	Continuous	DTC Type A
Shift Solenoid A Electrical	<b>P0753</b>	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  <i>To set the fault:</i>	- System Voltage: 10 to 16 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type B

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Shift Solenoid B Performance	<b>P0756</b>	This DTC detects abnormal shift patterns:  <b>Stuck OFF:</b> 4-3-3-4 pattern  <b>Stuck ON:</b> 1-2-2-1 pattern	Fail Counter >=3 . The fail counter is incremented when the following fail cases are true:  <b>Stuck OFF:</b> 1 and 3, or 2 and 3  <b>Stuck ON:</b> 3 and 4	- Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - Gear Range is D4 - No TPS DTC's - No VSS DTC's - No solenoid electrical DTC's - No TCC Stuck On DTC. - No PSA DTC set - No Trans Temp DTC's set. - Vacuum: 0 to 105 kpa - Engine Torque: 5 to 450 ft lbs - Trans Temp: 20 C to 130 C - Vehicle Speed > 5 MPH  <b>Fail Case 1</b> - 1st gear commanded > 2.0 sec. - Output Speed: 400 to 1500 rpm - Speed Ratio: 0.5 to 3.0 - Throttle Position > 15% - TCC Slip: -3000 to -100 rpm for > 1.0 seconds <b>Fail Case 2</b> - 2nd gear command > 409.5 sec - Engine Torque: 40 to 400 ft lbs - Vacuum: 0 to 105 kpa - TCC Slip: 8191 to 8191 rpm - Output speed: 8191 to 8191 rpm - Speed Ratio: 8 to 8 - Throttle Position > 99.9% - Fail Timer > 409.5 sec <b>Fail Case 3</b> - Time with 3rd gear commanded: 2.0 to 5 seconds - TPS: 13% to 50% - TPS constant within +/- 7% - Speed Ratio in Third gear does not drop more than <b>0.3</b> from the last Speed Ratio in Second gear - TCC Slip in Third gear remains > 300 rpm higher than the last TCC Slip in Second gear - Fail Timer > 1.5 sec <b>Fail Case 4</b> - 4th Gear commanded for > 1 sec - Output Speed: 1400 to 2500 rpm - Speed Ratio: 2.05 to 8.0 - Throttle Position > 13% - TCC Slip: 1000 to 4000 rpm for > 1 seconds.	Continuous	DTC Type A
Shift Solenoid B Electrical	<b>P0758</b>	0V to 12V 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: 10 to 16 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type A
3-2 Downshift Solenoid Electrical	<b>P0785</b>	0V to 12V 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: 10 to 16 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff	Continuous	DTC Type A

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PSA Circuit Malfunction	<b>P1810</b>	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	<b>Fail Case 1</b> Illegal Trans Pressure Switch State (111) or (101)  <b>Fail Case 2</b> Gear range is D2, D4, or Reverse during engine startup.  <b>Fail Case 3</b> Gear range is Park or Neutral when operating in D4.	<b>Fail Case 1</b> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 10 to 16 volts  <b>Fail Case 2</b> - System Voltage: 10 to 16 volts - No VSS DTC's - Vehicle Speed <2 mph  1. Engine Speed < 80 rpm for > 0.1 seconds, then, 2. Engine Speed: 80 to 550 rpm for > 0.1 seconds, then, 3. Engine Speed > 550 rpm  <b>Fail Case 3</b> - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - System Voltage: 10 to 16 volts - 4th gear commanded - Engine Torque: 40 to 400 ft-lbs - Vacuum: 0 to 105 kPa - TCC Locked On - No VSS DTC's - Speed Ratio: 0.60 to 0.75 - TPS: 10% to 50%	<b>Fail Case 1</b> 60 seconds  <b>Fail Case 2</b> 5 Seconds  <b>Fail Case 3</b> 10 seconds  Continuous	DTC Type B
TCC PWM Solenoid Electrical	<b>P1860</b>	0V to 12V 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: 10 to 16 volts - Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - Commanded Gear is 1st - TCC Duty Cycle < 10% or > 90%	Continuous	DTC Type B
Transmission Component Slipping	<b>P1870</b>	This DTC detects excessive TCC slip when the torque converter clutch should be engaged.	If TCC slip is:  <b>130 to 800 rpm</b>  for 7 seconds,  then increment the Trans Slip Counter by one.  When the counter reaches 3, set the code.	- Engine Speed > 450 rpm for 5 seconds and not in fuel cutoff - Gear is not 1st - Gear Range is D4 - No PSA DTC's set - No Trans Temp DTC's set - No TPS High or Low DTC's - No VSS DTC's - No solenoid electrical DTC's - Shift Solenoid Performance Diagnostic counters are all zero - TPS: 9.0% to 35% - Trans temp.: 20 C to 130C - Engine Torque: 50 to 400 ft-lbs - Vac: 0 to 105 kpa - Speed ratio: 0.69 to 0.88 - Engine Speed: 1500 to 3000 rpm - Vehicle Speed: 30 to 70 mph  <b>Fail Case 1</b> - TCC commanded on for > 5 sec and at max duty cycle (95%).	Continuous	DTC Type B

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Four Wheel Drive Low Circuit Performance	<b>P1875</b>	0V to 12V This DTC detects a continuous open or short to ground in the Four Wheel Drive low Circuit	<b>Stuck On</b> Engine Spd Divided by Transfer Case Output Spd Ratio: .8 to 1.2  <b>Stuck Off</b> Engine Spd Divided by Transfer Case Output Spd Ratio: 2.5 to 2.9	<ul style="list-style-type: none"> <li>- Engine Speed &gt; 450 rpm for 5 seconds and not at fuel cut off</li> <li>- No TPS DTC's set</li> <li>- No PSA DTC's set</li> <li>- Gear Range is D4</li> <li>- Shift Solenoid Performance Counters are zero</li> <li>- No VSS Low DTC's set</li> <li>- No TCC Enable Sol. DTC's set</li> <li>- No TCC Control Sol. DTC's set</li> <li>- No SSA Sol. DTC's set</li> <li>- No SSB Sol. DTC's set</li> <li>- No TCC DTC's set</li> <li>- Eng Torque: 50 to 400 ftlbs</li> <li>- VAC: 0 to 105 kpa</li> <li>- Trans Temp: 20C to 130C</li> <li>- Vehicle Speed &gt; 7 MPH</li> <li>- TPS: 17% to 50%</li> </ul> <b>Stuck ON</b> <ul style="list-style-type: none"> <li>- 4wd Low switch in 4wd Low</li> <li>- Transfer case not in 4wd Low</li> <li>- TCC Slip: -3000 to -50 rpm</li> </ul> <b>Stuck OFF</b> <ul style="list-style-type: none"> <li>- 4wd Low switch not in 4wd Low</li> <li>- Transfer case is in 4wd Low</li> <li>- TCC ON</li> <li>- TCC Slip: 100 to 3000 rpm</li> </ul>	<b>Stuck ON:</b> 5 Seconds  <b>Stuck OFF:</b> 10 Seconds 1 Occurance  Continuous	DTC Type B