

GM 4L80E technical information

The 4L80E transmission is a four speed automatic with torque converter clutch. This is a computer controlled transmission first introduced in G.M. light duty trucks for 1991.

The only way to retrieve trouble codes is with a scanner such as Tech 2 , snap-on, otc or equivalent. Codes can be cleared by scanner or disconnecting power at battery or fuse panel.

The proper oil for this transmission is Dexron 3 until 2006 when G.M. introduced Dexron 6. Capacity is approximately 12-16 qts depending on model of truck, and cooler capacity.

Gear ratios and solenoid states

Shift Solenoid Valve State and Gear Ratio

Gear	1-2 SS Valve	2-3 SS Valve	Gear Ratio
1	ON	OFF	2.48:1
2	OFF	OFF	1.48:1
3	OFF	ON	1.00:1
4	ON	ON	0.75:1
R	ON	OFF	2.08:1

Shift chart

Range	Park	Reverse	Neutral	OD				D			2		1	
Gear	N	R	N	1st	2nd	3rd	4th	1st	2nd	3rd	1st	2nd	1st	2nd
@1-2 Shift Solenoid	ON	ON	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	ON	OFF
@2-3 Shift Solenoid	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
Fourth Clutch	—	—	—	—	—	—	A	—	—	—	—	—	—	—
Overrun Clutch	—	—	—	—	—	—	—	A	A	A	A	A	A	A
Overdrive Roller Clutch	H	H	H	H	H	H	OR	A	A	A	A	A	A	A
Forward Clutch	—	—	—	A	A	A	A	A	A	A	A	A	A	A
Direct Clutch	—	A	—	—	—	A	A	—	—	A	—	—	—	—

A = applied element. H = holding. OR = overrunning.

(The 2nd clutch is on in second gear and up but is not shown on this chart.)

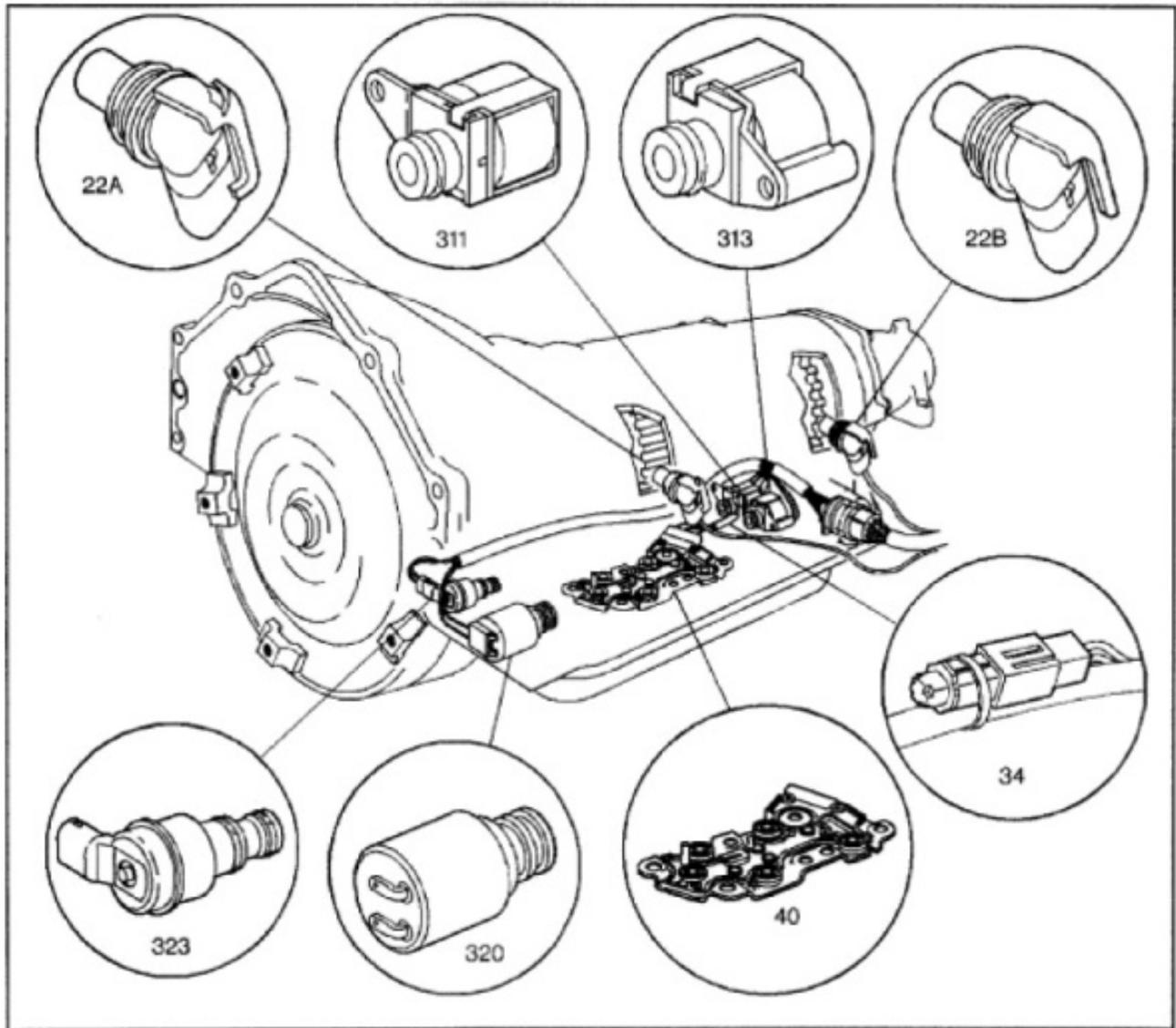
Pressure switch state

**Transmission Fluid Pressure (TFP) Manual
Valve Position Switch Logic**

Range Signal	A	B	C
Park	HI	LOW	HI
Reverse	LOW	LOW	HI
Neutral	HI	LOW	HI
D4	HI	LOW	LOW
D3	HI	HI	LOW
D2	HI	HI	HI
D1	LOW	HI	HI
Invalid	LOW	HI	LOW
Invalid	LOW	LOW	LOW

LOW = 0 volts
HI = Ignition voltage

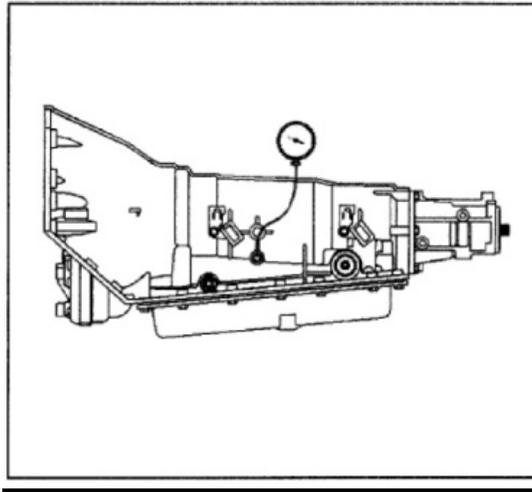
Internal electronic component locations



Legend

- | | |
|---|--|
| (22a) Automatic Transmission (AT) Input (Shaft) Speed Sensor (ISS) Assembly | (311) 2-3 Shift Solenoid (SS) Valve Assembly |
| (22b) Automatic Transmission (AT) Output (Shaft) Speed Sensor (OSS) Assembly | (313) 1-2 Shift Solenoid (SS) Valve Assembly |
| (34) Automatic Transmission Fluid Temperature (TFT) Sensor | (320) Pressure Control (PC) Solenoid Valve Assembly |
| (40) Automatic Transmission Fluid Pressure (TFP) Manual Valve Position Switch | (323) Torque Converter Clutch Pulse Width Modulation (TCC PWM) Solenoid Valve Assembly |

Line pressure testing



Install 400 p.s.i gauge to pressure tap drivers side of unit. Check that oil is full and warm transmission up to operating temperatures. **Warning: apply parking brake and foot brake during entire test!!**

With engine running shift transmission into drive with foot on the brake, at idle in drive, park and neutral the main pressure should be approximately 40-70 psi and with throttle depressed to floor should be approximately 160-180 p.s.i. only hold at full throttle 2 seconds or transmission damage may result!

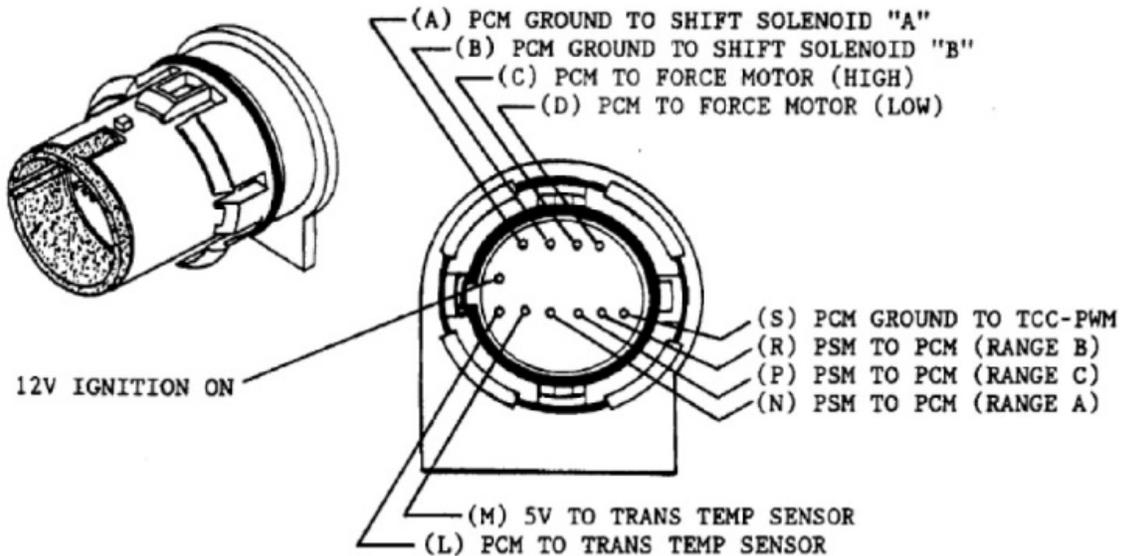
Reverse pressure should be approx. 60-70 p.s.i. at idle and approximately 300-330 psi full throttle. Again only 2 seconds!

DO not repeatedly “brake stand the transmission” it will overheat quickly and do damage. You can have observer watch gauge in passengers seat while driving and should vary pressure with throttle smoothly. **Do not drive and watch gauge at same time!!**

Solenoid resistance chart

Component	Pass Thru Pins	Resistance at 20°C	Resistance at 100°C	Resistance to Ground (Case)
1-2 Shift Solenoid Valve	A, E	19–24 Ω	24–31 Ω	Greater than 250 K Ω
2-3 Shift Solenoid Valve	B, E	19–24 Ω	24–31 Ω	Greater than 250 K Ω
TCC PWM Solenoid Valve	S, E	10–11 Ω	13–15 Ω	Greater than 250 K Ω
Pressure Control Solenoid Valve	C, D	3–5 Ω	4–7 Ω	Greater than 250 K Ω
*Transmission Fluid Temperature (TFT) Sensor	M, L	3088–3942 Ω	159.3–198.0 Ω	Greater than 10 M Ω
Vehicle Speed Sensor (AT ISS/AT OSS)	A, B	1420 Ω @ 25°C	2140 Ω @ 150°C	Greater than 10 M Ω

Pass thru connector pin ID



Temperature sensor resistance chart

Transmission Fluid Temperature (TFT) Sensor Specifications

Temperature	Temperature	Minimum Resistance	Nominal Resistance	Maximum Resistance	Signal
°F	°C	Ω	Ω	Ω	Volts
-40	-40	90636	100707	110778	5.00
-22	-30	47416	52684	57952	4.78
-4	-20	25809	28677	31545	4.34
14	-10	14558	16176	17794	3.89
32	0	8481	9423	10365	3.45
50	10	5104	5671	6238	3.01
68	20	3164	3515	3867	2.56
86	30	2013	2237	2461	1.80
104	40	1313	1459	1605	1.10
122	50	876	973	1070	3.25
140	60	600	667	734	2.88
158	70	420	467	514	2.56
176	80	299	332	365	2.24
194	90	217	241	265	1.70
212	100	159	177	195	1.42
230	110	119	132	145	1.15
248	120	89.9	99.9	109.9	0.87
266	130	69.1	76.8	84.5	0.60
284	140	53.8	59.8	65.8	0.32
302	150	42.5	47.2	51.9	0.00