TRANSMISSION FLUID PRESSURE (TFP) SWITCH FAULT 28/P1810/P1815/P1816/P1818

CODE	FAULT	MIL ON
28	Transmission Fluid Pressure Switch Malfunction	NO
P1810	Transmission Fluid Pressure Switch Malfunction	YES*
P1815	Transmission Fluid Pressure Switch Start In Wrong Range	YES
P1816	Transmission Fluid Pressure Switch Indicates P/N With Drive Ratio	YES
P1818	Transmission Fluid Pressure Switch Indicates Drive Without Drive Ratio	YES

California Emissions Only

CODE DEFINITIONS: Transmission Fluid Pressure Switch Malfunction:

- ***Code 28:*** ***TFP Switch, Range "A" and "C" are both zero volts for longer than 2 seconds, OR, Range "A", "B" and "C" are at zero volts.***
- ***Code P1810: Condition 1: The PCM has detected an illegal switch position for longer than one minute.***
  Condition 2: The PCM detects the gear range D2, D4 or Reverse before and after startup for longer than 7 seconds.
  Condition 3: The TFP Switch indicates P/N when the transmission gear ratio indicates that the transmission is in 3rd or 4th gear for longer than 15 seconds, OR, Reverse when the transmission gear ratio indicates that the transmission is in D4, D3, D2 or D1 for longer than 15 seconds, OR, D4, D3, D2 or D1 when the transmission gear ratio indicates that the transmission is in Reverse for longer than 7 seconds.
- ***Code P1815: The PCM detected D2 only after engine startup for longer than 7 seconds.***
- ***Code P1816: The PCM detects one of the following conditions for longer than 13 seconds:***
  Condition 1: P/N indicated with a 1st gear ratio.
  Condition 2: P/N indicated with a 2nd gear ratio.
  Condition 3: P/N indicated with a 3rd gear ratio.
  Condition 4: P/N indicated with a 4th gear ratio.
- ***Code P1818: The PCM detects a P/N or forward range with a reverse gear ratio for longer than 13 seconds.***

DIAGNOSTIC NOTES:

- The TFP Switch assembly in a 4L60E transmission (See Figure 77) ranges differently than the TFP Switch assembly in a 4L80E, (Refer to Figure 78). The 4L80E TFP Switch assembly contains 5 normally open pressure switches. The 4L60E TFP Switch assembly contains 3 normally open and 2 normally closed pressure switches and also contains the Transmission Fluid Temperature Sensor.
- The TFP Switch values for a 4L60E are, "ON"= 0 volts, "OFF" = 12 Volts. When in a 4L80E, "ON" = 12 Volts, "OFF" = 0 volts, Refer to the charts in Figure 82 for correct TFPS range values.
- Shift solenoid firing order is confused when the TFP Switch does not range correctly. An erratic shift pattern would be the result.
- An TFP Switch malfunction may not necessarily store a code 28 or P1810 unless an illegal combination is present, but can cause a symptom.
- When a vehicle acts like it has a restricted fuel filter in all gear shift positions EXCEPT manual low, the TFPSA can be the cause.

TRANSMISSION FLUID PRESSURE (TFP) SWITCH FAULT 28/P1810/P1815/P1816/P1818...*continued*

DIAGNOSTIC NOTES *continued*:

· When viewing the parameters for the TFP Switch on the scan tool, it will be displayed as "Transmission Switch 1, 2 and 3, or Range "A", "B" and "C". A scan tool display of 12 volts means the switch is OPEN (OFF). A scan tool display of "0" means the switch is CLOSED (ON)" it is grounded for a 4L60E series transmission. The opposite would be true for 4L80E.
· When the ignition is ON and the engine is OFF, the "at rest" state of the switch will indicate the D2 position.

POSSIBLE CAUSES: Codes 28/P1810/P1815/P1816/P1818: TFP Switch Fault:

· TFP Switch Circuit 1224 is open or shorted, (See Figure 80 for 4L60E or Figure 81 for 4L80E)
· TFP Switch Circuit 1225 is open or shorted, (See Figure 80 for 4L60E or Figure 81 for 4L80E)
· TFP Switch Circuit 1226 is shorted or open, (See Figure 80 for 4L60E or Figure 81 for 4L80E)
· The TFP Switch assembly is faulty or is full of debris, preventing the pressure switches from operating correctly.
· The PCM is faulty.
· Problems in the valve body in areas such as manual valve wear or out of adjustment, a problem with the screen behind the manual valve (4L80E) or restricted passages that feed the pressure switch assembly.

DIAGNOSTIC STEPS:

· Using the scan tool data list, (Refer to Figure 79), see if the TFP Switch is ranging correctly for the individual gear shift positions.
· Disconnect the transmission case connector and verify that circuits 1224, 1225 and 1226, located at case connector terminals "N", "P" and "R", (1991 - 93 4L80E are terminals "D", "E" and "F"), have approximately 12 volts on them, if they do not, either the wiring is the problem or the PCM is faulty, (Refer to Figure 83).
· If 12 volts are present, position the scan tool so the TFP Switch parameters can be seen. At this time ground circuits 1224, 1225 and 1226, one at a time, and watch if the TFP Switch parameters change from 12 volts to less than one volt. If they do not, the computer is faulty. If they do change state, the problem is in the transmission, (Refer to Figure 83).
· The TFP Switch assembly can be checked with an ohm meter to see if the individual pressure switches are working. This is done by connecting the negative lead of the ohm meter to the metal frame of the switch assembly and the positive lead to TFP Switch terminals "A", "B" and "C" while pushing down on each pressure switch and then releasing them. The ohm meter should display open and closed states.

4L60E TRANSMISSION FLUID PRESSURE SWITCH ASSEMBLY

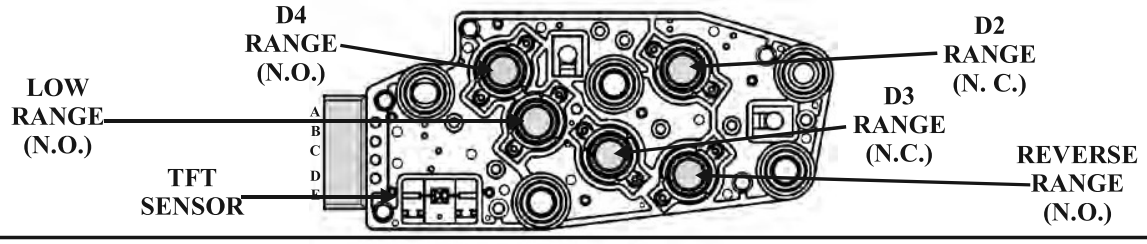


Figure 77

TRANSMISSION FLUID PRESSURE (TFP) SWITCH FAULT 28/P1810/P1815/P1816/P1818...*continued*

DIAGNOSTIC STEPS *continued*:

4L80E TRANSMISSION FLUID PRESSURE SWITCH ASSEMBLY

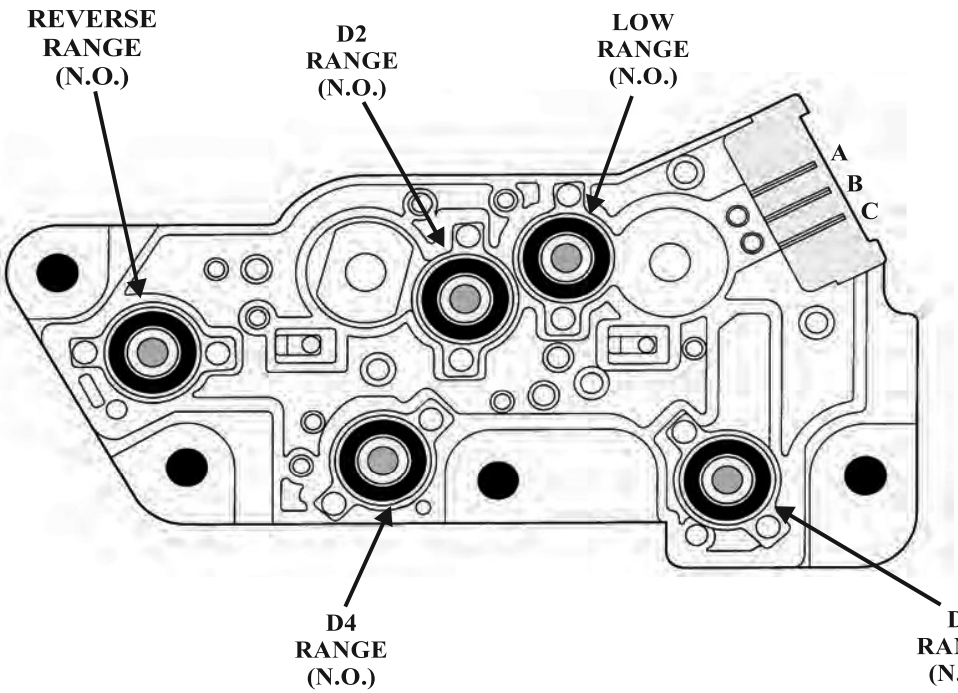
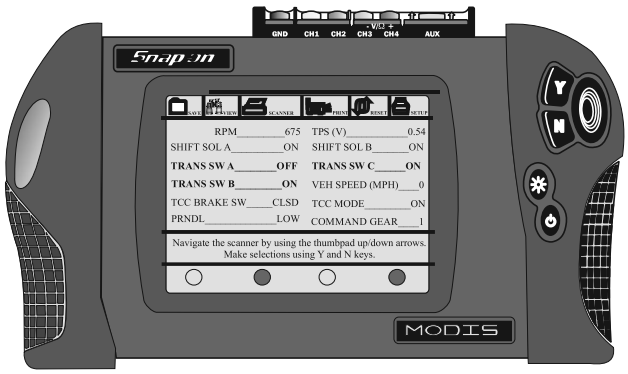


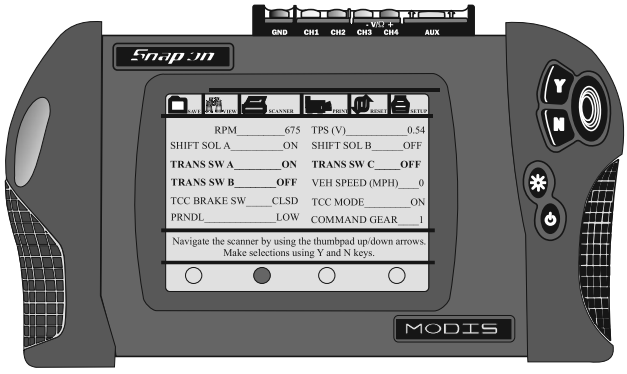
Figure 78

4L60E



CORRECT TFP SWITCH RANGE FOR D4 POSITION

4L80E



CORRECT TFP SWITCH RANGE FOR D4 POSITION

Figure 79

TRANSMISSION FLUID PRESSURE (TFP) SWITCH FAULT 28/P1810/P1815/P1816/P1818...*continued*

DIAGNOSTIC STEPS *continued*:

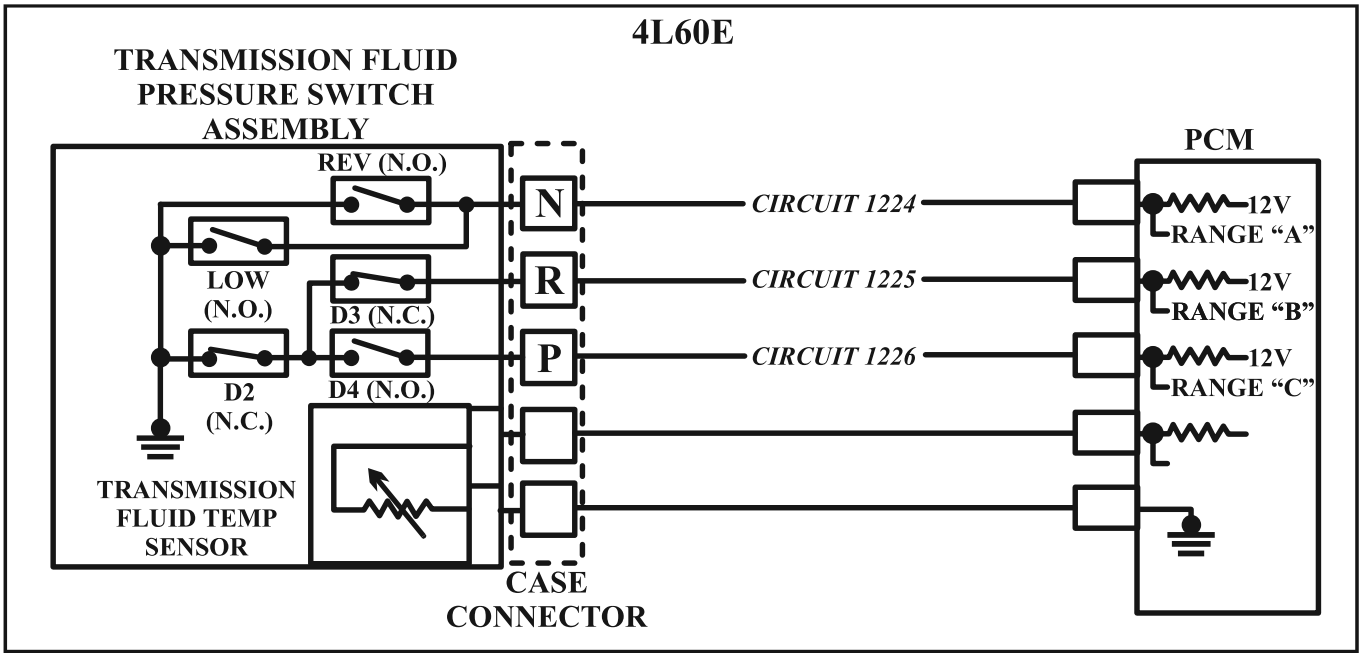


Figure 80

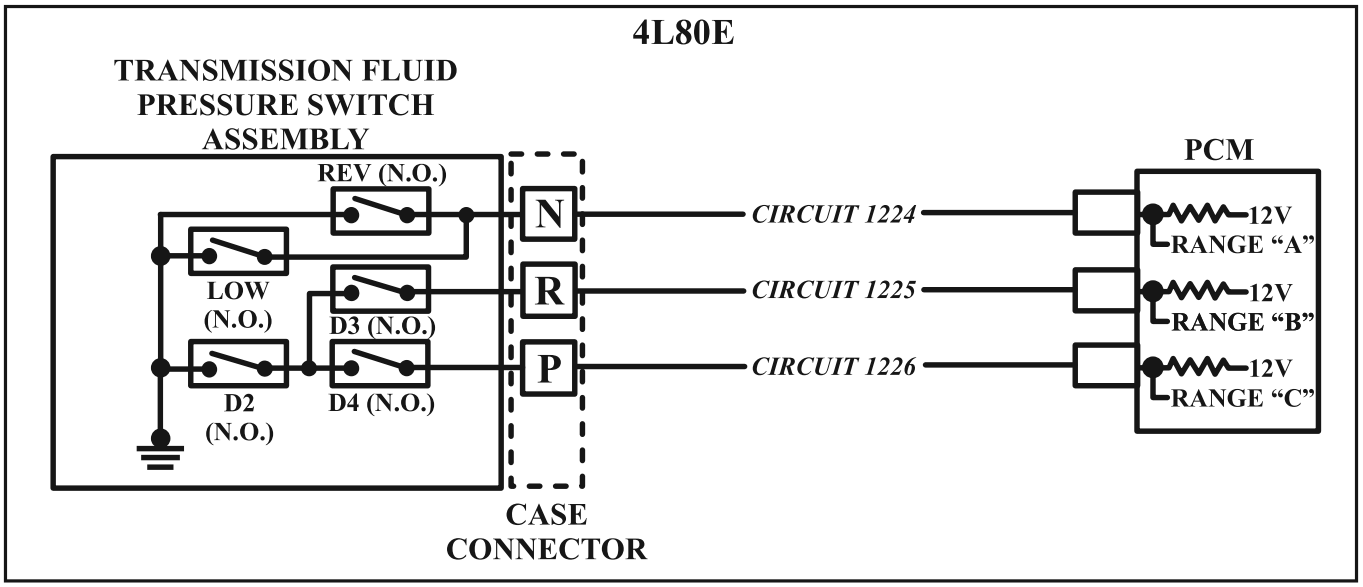


Figure 81

IMPORTANT NOTE:

· A Code 28/1810 can be stored during the fill process of the transmission after overhaul. The TFP switches may not react quickly enough, causing the computer to think the switch assembly is faulty.

TRANSMISSION FLUID PRESSURE (TFP) SWITCH FAULT 28/P1810/P1815/P1816/P1818...*continued*

DIAGNOSTIC STEPS *continued*:

4L60E TFP SWITCH RANGE CHART			
SELECTED RANGE	**RANGE "A"**	**RANGE "B"**	**RANGE "C"**
PARK	OFF (12V)	ON (0 V)	OFF (12V)
REVERSE	ON (0 V)	ON (0 V)	OFF (12V)
NEUTRAL	OFF (12V)	ON (0 V)	OFF (12V)
D4	OFF (12V)	ON (0 V)	ON (0 V)
D3	OFF (12V)	OFF (12V)	ON (0 V)
D2	OFF (12V)	OFF (12V)	OFF (12V)
D1	ON (0 V)	OFF (12V)	OFF (12V)
ILLEGAL	ON (0 V)	OFF (12V)	ON (0 V)
ILLEGAL	ON (0 V)	ON (0 V)	ON (0 V)

4L80E TFP SWITCH RANGE CHART			
SELECTED RANGE	**RANGE "A"**	**RANGE "B"**	**RANGE "C"**
PARK	ON (0 V)	OFF (12V)	ON (0 V)
REVERSE	OFF (12V)	OFF (12V)	ON (0 V)
NEUTRAL	ON (0 V)	OFF (12V)	ON (0 V)
D4	ON (0 V)	OFF (12V)	OFF (12V)
D3	ON (0 V)	ON (0 V)	OFF (12V)
D2	ON (0 V)	ON (0 V)	ON (0 V)
D1	OFF (12V)	ON (0 V)	ON (0 V)
ILLEGAL	OFF (12V)	ON (0 V)	OFF (12V)
ILLEGAL	OFF (12V)	OFF (12V)	OFF (12V)

Figure 82

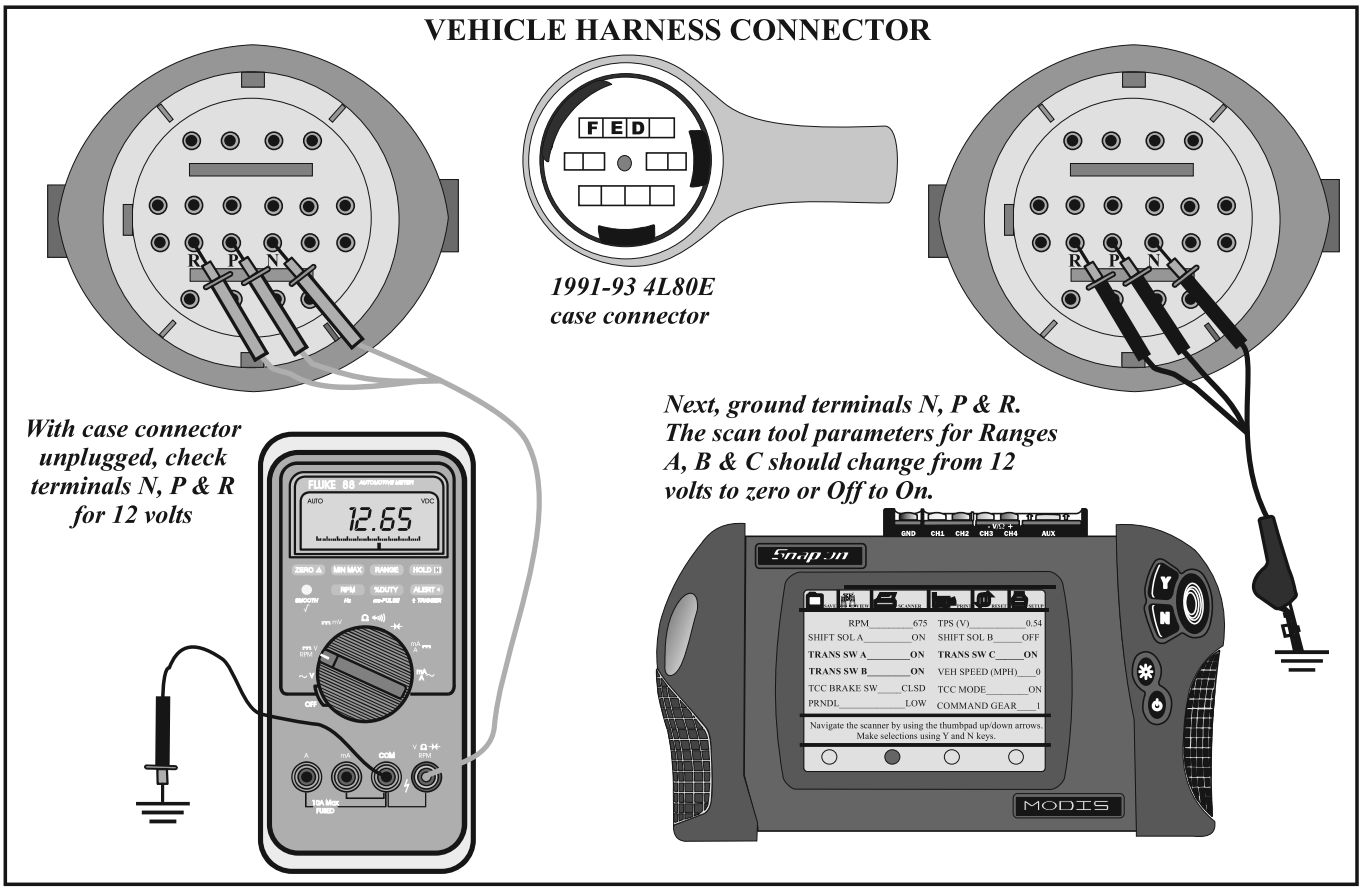


Figure 83